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CHAPTER 1

FOOD SERVICE UTENSILS AND EQUIPMENT

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CHAPTER 1. FOOD SERVICE UTENSILS AND EQUIPMENT

Care and Operation of Food Service Equipment.

General Care and Sanitation of Equipment

a. Food service utensils and equipment located in Coast Guard dining facilities (CGDF) are specifically designed for preparing and serving large quantities of food. To ensure the safe, sanitary and efficient operation of this equipment, keep it in proper working condition and use it properly.

b. Repair and maintenance of equipment will be minimal if regular schedules of cleaning after use and daily cleaning are maintained. Apply these rules to your cleaning, sanitation and safety programs:

(1) File equipment owner's manuals in a handy place for ready reference. These recommend the operational use and servicing of equipment. Refer precision apparatus adjustments such as scales to a qualified servicemember. The manufacturer will specify what parts and equipment should be serviced by professionals.

(2) Clean equipment internally as well as externally. Removable parts must be disassembled, washed and sanitized routinely.

(3) When food is spilled, clean it up immediately.

(4) Cleaning equipment immediately after use will take less time and the job will be easier. If cleaning will be delayed, fill equipment such as steam kettles and mixing-machine bowls with water immediately to soak hard-to-remove food.

(3) Use specific cleaning, sanitizing and polishing materials as indicated in the preceding discussion.

c. Sanitize galley and baking equipment normally too large to sanitize by immersion in hot water (180 F) water using one of these methods:

(1) Live steam from a hose.

(2) Rinsing with boiling water.

(3) Spraying or swabbing with a chemical sanitizing solution at least twice the minimum strength used for sanitizing.

d. As a general rule, all removable washable equipment parts must be put in the dishwashing machine; however, for small parts, use hand dishwashing operations.

2. Electric Range Surface Units

a. Operating Procedures.

(1) Use the switch or thermostat setting at maximum heat only to heat food to cooking temperature or to bring water to boil, then reduce the setting to the heat required. Using more heat than necessary not only wastes

power but produces inferior food. Do not leave the surface unit on when not in use.

(2) When steaming food, keep pans covered. The food will stick and burn - left uncovered, and power will be wasted.

b. Care and Cleaning. Complete instructions for range cleaning are given in enclosure I-I. The following are basic cleaning requirements:

(1) Keep the range surface units clean and avoid spilling grease under the edges of the hotplates. The spaces around the surface units must be scraped dean.

(2) Remove and dean drip pans daily.

(3) Clean the range thoroughly once a week or more often if possible4 The griddle hotplate-type surface units can be satisfactorily cleaned by using pumice stone blocks. Use only soap and water on enameled surfaces Although a detergent solution is preferable, powdered cleansers may be used on polished steel areas.

3. Electric Ovens.

a. Operating Procedures.

(1) Preheat the oven before it is used by turning upper and lower units to "high" until the desired temperature is reached. Then, the thermostat control will automatically cut of f the current and supply only enough heat to keep the temperature constant.

(2) After the oven has been heated, set the two three-heat oven switches at the "top" and the "bottom" heat necessary to bake the product.

(3) In roasting meat, avoid spilling grease on the heating elements or thermostats, as this may cause damage.

b. Care and Cleaning.

(1) To prevent the accumulation of foreign material, the oven must be cleaned thoroughly at least once a week in addition to the normal daily cleaning.

(2) Keep door edges clean. Crusty deposits prevent proper closing of doors causing not only the loss of heat but also corrosion by the escape of steam and fumes. Use the damper level (located above the thermostat) to prevent smoke and steam from escaping around the oven door.

(3) Do not throw water in the oven to cool it or to wash it. When cleaning the oven with a wet rag, wring the rag out thoroughly.

(4) Complete cleaning instructions are in enclosure 1-2.

l-A-4. Electric Griddles.

a. Description.

(1) The griddle is surrounded by a grease trough which drains into a receptacle. The body is mounted on a four leg stand with an undershelf. A griddle guard, consisting of a rectangular bottomless frame and cover, is furnished for certain types of frying such as the preparation of home fried potatoes.

(2) The heating element of the griddle is divided into two sections. On the older models, the heating element is controlled by a three-heat switch. The new griddles (Figure 1-1) consist of cooking surfaces of various sizes up to 34 inches deep by 72 inches wide. Each has a readily removable grease receptacle in the front and a splash guard tapered at the side and at least 3 inches high at the rear. All switches and thermostats on the front panel. Each thermostat switch has a signal light and a temperature range of 200F to 550F.

b. Operating Instructions.

(1) To operate an electric riddle, turn the control switch to high heat for 15 minutes, then to the temperature desired (medium or low heat).

(2) Use the riddle guard, when necessary, to keep food from sliding off the cooking surface.

(3) There are certain cuts of meat that can be grilled in the frozen or hall frozen state such as beef boneless, grill steaks, tempered. Exception: The Armed Forces Recipe Service (AFRS) recommends grilling certain cuts of meat either in the frozen or partially frozen state (liver, grill steak, pork slices). For the satisfactory operation of the griddles, however, it is recommended all items to be grilled be completely thawed.

c. Care and Cleaning.

(1) Keep the cooking surface scraped and wiped clean at all times.

(2) The grease gutters must always be kept clean to facilitate draining excess grease and thereby reducing smoke. The grease receptacle must be emptied frequently and thoroughly cleaned at the end of the working day.

(3) The cooking surface can be satisfactorily cleaned with a pumice stone. Never use water. If pumice stone is not available, periodically place a cloth dampened with ordinary household ammonia on the surface when the plate is cold and allow it to remain from four to five hours. The ammonia will soften the carbon so it can be easily removed with a cloth. During this operation, keep the ammonia from entering sections containing electric wiring or other electric parts, because it will destroy insulating materials. All traces of ammonia odor will disappear as the grids are heated.

(4) Detailed cleaning instructions are in enclosure 1-3.

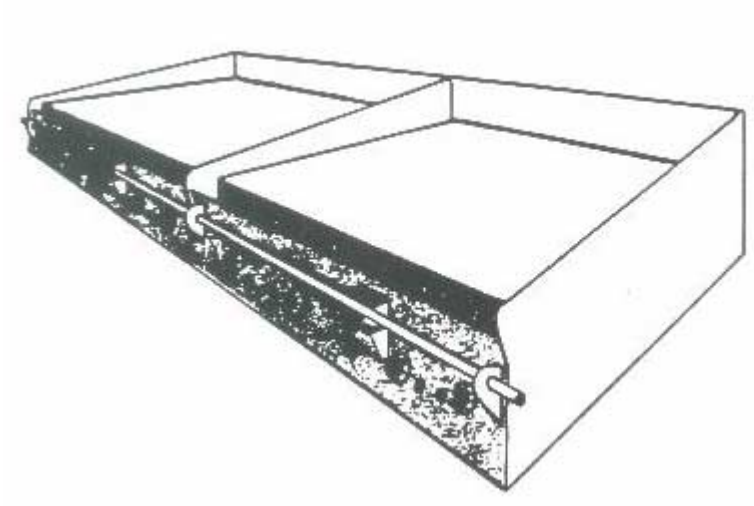


Figure 1-1 - Electric Griddle

1-A-5. Deep Fat Fryers.

a. Description. Deep-fat fryers are heated by the immersion of electric heaters is such a level that the portion of the fat below the heater remains comparatively cool. This allows all the sediment from the frying food to settle to the bottom of the fat container without being burned. Heating elements are controlled by a magnetic controller and a thermostat to maintain the fat at the desired temperature.

b. Operating Procedures.

(1) Before filling the deep-fat fryer, always check:

(a) Master switch is in the "OFF" position.

(b) Thermostatic switch is in the "OFF position.

(c) Drain valve is closed tightly.

(2) Fill the fryer with fat using the amount specified in the technical manual furnished with the fryer. Fats must be kept at least 2 inches below the fryer top. If possible, the fat should be heated and melted before placing it in the try kettle. Cold solid fat may have moisture pockets which will explode, casting hot melted fat over a wide area. Temperature should be no more than 200F while the fat is melting. Also, if the cold fat is not uniformly distributed around the heating element, the bare portions may heat to a point where a sudden splash of fat on the over-heated element will cause the fat to ignite. The fat must cover the uppermost coil at all times when the deep-fat fryer is in operation so as not to overheat the element and cause a fire.

l-A-5.b.(3) After the fat has been added, operate the deep-fat fryer as follows:

(a) Turn on the master switch located outside the galley.

(b) Set the thermostat at the cooking temperature stated in the AFRS for the recipe used.

(c) Check the temperature of the fat with a hand thermometer frequently during the cooking process. Compare this hand reading with the thermostat reading to determine if the thermostat is accurate. The temperature must never, under any circumstances, go above 4000F. A safety requirement on all Coast Guard fryers includes a second or "over'1 temperature thermostat. This is a non-adjustable, manual, resetting-type, installed to limit maximum temperature to 460F. In case the adjustable automatic thermostat fails, the "over" temperature thermostat disconnects the electric power to the heater elements.

(d) Have foods as free from moisture as possible before frying. Excess moisture causes the fat to foam, sputter and boil over. it also causes fats to breakdown and their useful life is shortened.

(e) Do not fry bacon in the deep-fat fryer, since the fat from the bacon causes the fat level to rise above the safe level. Bacon also contains salt which will shorten the life of the fat.

(f) Follow instructions furnished with the fryer. Do not exceed the capacity of the fryer indicated on the instruction plate.

(g) Guard against fire. If a fire starts in the deep-fryer, secure the power on the master switchboard. Use the Purple K fire extinguisher designed to extinguish grease fires, or smother it with the metal cover for the deep-fat fryer. Notify the Officer of the Deck immediately. Keep the cover on until the fryer hat cooled below the ignition temperature. Do not remove the cover until the damage control officer has given permission.

(h) When the fryer is not in use, keep the switch on the fryer and the master switch in the "OFF" position.

(i) When personnel are available, there should be two people in the galley during operation of the deep-fat fryer.

(j) Never leave the deep-fryer unattended while it is in operation.

(k) Never operate near unguarded electric sockets, sparks or flames.

(l) Never let the fat level fall below the point marked in the fryer fat container.

c. Care and Cleaning.

(1) Clean deep-fat fryers after each use. Detailed cleaning instructions are given in enclosure 1-4.

l-A-5.c.(2) Do not leave heating elements on when the deepfat fryer is empty. This will burn out the heating element.

6. Electric Toasters.

a. Description. Electric toasters used in the Coast Guard are the intermittent and continuous types.

(1) The intermittent type is composed of chrome-plated steel and has a vertical oven with from two to four top openings for inserting the bread slices.

(2) The continuous type has a chrome-plated heavy-duty conveyor with motor-driven revolving trays for the toast.

b. Care and Cleaning. The accumulation of crumbs will emit an offensive odor, will be unsanitary and will cause heating elements to burn out prematurely.

(1) Before cleaning a toaster, be certain the power is off.

(2) Then brush crumbs out of the heating element. If the toaster is a continuous type, also clean the conveyor.

(3) Clean the metal surfaces of the toaster with a silver-dip solution at beast once a week to keep them clean and bright.

(4) Detailed cleaning directions are in enclosure I-S.

7. Can Openers.

a. Care and Cleaning. Directions for cleaning manual (bench-type) can openers are in enclosure 1-6.

b. Vacant.

8. Coffee Urns.

a. Description. Coffee urns used in the CGDF's may be heated by electricity or by steam.

(1) The combination-type electric urn (Figure 1-2) consists of an inner compartment or tank for coffee and an outer pressure-tight tank for water. The two tanks are separated by an air space to avoid rapid temperature changes of coffee when cold water is added to the water tank. A siphon pipe between the water and the spray head in the urn cover or lid forces the hot water up and sprays it over the ground coffee in the leacher. An agitating valve is provided for thoroughly mixing the coffee in the coffee tank instead of drawing it off by hand and pouring the coffee back into the urn.

(2) Steam heated coffee urns are similar to electric urns in construction. The basic difference is that a steam coil, installed in the bottom of the water tank, provides the heat for these urns. Electricity is required to operate the pressure-type controls used on all but the one-gallon urn to maintain the required temperatures. Operating and cleaning instructions are the same as for the electrically heated urns.

l-A-8.a.(3) The urns furnished for making coffee are one-gallon (nonautomatic urn which requires hand pouring) two-gallon and four-gallon urns. Electric immersion heaters are installed for heating the urns and pressure-type controls are provided for automatic temperature control.

(4) Urn bags (teacher cloths) are made of unbleached muslin. When manufactured, they are treated with sizing (mainly starch). Before a new urn bag is used, soak in hot water and wring out to remove as much sizing as possible. If this is not done, the hot water poured over' the grounds will release the sizing into the coffee brew and give it an unpleasant taste.

b. Operating Procedure.

(1) Inspect coffee urns inside and out before each use.

(2) Examine gauge glasses, valves and faucets for leaks, and have faults corrected before using the urns.

(3) Check the urn bags. They must be in good repair and free of coffee grounds and other agents that might make the coffee unhealthy to drink or spoil its flavor.

(4) When the inspection is completed you are ready to operate the urn as follows:

(a) Open the cold water filling valve and fill the urn with water to the "full" mark on the water gauge.

(b) Turn the electric power switch to the "ON" position.

(c) Check the pressure gauge. When the indicator or the pressure gauge reaches 2fl pounds (or the premarks operating position). the urn is ready.

(d) Clamp the teacher cloth firmly on the leacher. Spread the ground coffee uniformly inside the teacher in the quantity indicated b4 The AFRS for the gallons of coffee to be made (quantity of ground coffee may be varied to suit the taste). Place the leacher in The top of the urn.

(e) Close the urn cover or lid.

(f) Open the siphon valve and allow the required volume of water to siphon over the ground coffee in the leacher. If a full batch of coffee is being made, the water will cease to siphon when the correct water volume is sprayed over the coffee grounds, and heavy steam will show around the urn cover.

(g) Close the siphon valve.

(h) Open the agitating valve slowly to the end of the stem and, without pausing, slowly close the agitating valve.

l-A-8.b.(4)(i) Open the cold water filling valve and again fill the water tank.

(j) Remove the leacher and leacher cloth containing the used coffee grounds; rinse the leacher and teacher cloth in clean cold water; and store in clean cold water until required for use again. Replace the leacher cloth at least once a week. Discoloration of the cloth does not affect its usefulness provided it has been properly cared for.

(k) Draw the coffee as it is needed.

(l) Time the preparation of coffee so that it does not stand longer than one hour before it is served.

(5) In the larger urns where automatic agitators are provided, the question of repouring coffee is never considered. However, it is necessary to mix coffee prepared in an urn because the coffee at the bottom is strong, the coffee in the center is average strength and the coffee at the top is weak and bitter. The coffee must be mixed thoroughly before it is served.

(a) Mix coffee properly when the older type of urn is being used; remove the used grounds after the coffee is brewed and then draw off one gallon of the brewed coffee for each pound of coffee used. Pour it back as rapidly as possible into the urn to ensure thorough mixing. Never pour coffee over spent grounds.

b. Vacant.

c. Care and Cleaning.

(1) To clean electrically heated coffee urns, use the instructions an enclosure 1-7.

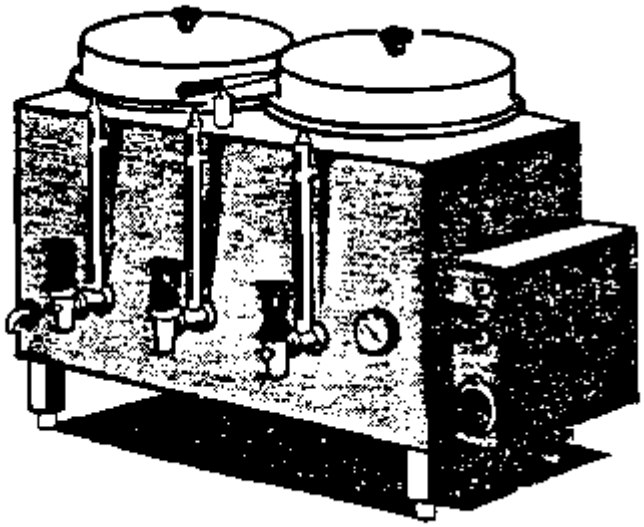


Figure 1-2 - Electric Coffee Urns

1-A-9. Coffee Makers.

a. Operating procedures. Many CGDF's use coffee makers such as the one shown in Figure 1-3. They may be made of glass or stainless steel and are simple to operate.

(1) Since a smaller quantity of coffee is brewed each time, it is made more often and is used before it becomes stale.

(2) Excellent coffee is prepared using these instructions:

(a) Place paper filter in cartridge and add the recommended coffee for the number of cups desired. More or less coffee may be used than recommended to suit the personal taste.

(b) Place cartridge in position in coffeemaker.

(c) Pour water into coffee maker as indicated in the manufacturer's operating instructions.

(d) Remove used grounds immediately after brewing is complete. Coffee is now ready to serve. Remove empty cartridge in hot water.

(e) Hold brewed coffee at 185'F for no longer than one hour.

(3) Never reheat or boil brewed coffee.

(4) Never mix a fresh batch of coffee with old coffee.

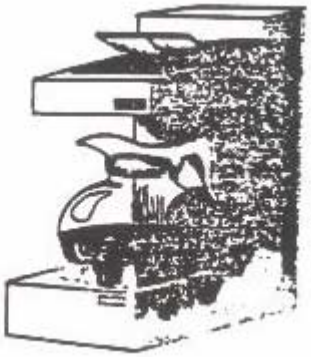


Figure 1-3 Coffeemaker

10. Iced Tea Dispenser.

a. Operating Procedures.

(1) The iced tea dispenser is used with instant powdered tea and provides a convenient method for good tea at meals.

(2) The instant tea comes in a sealed jar ready for use in the dispenser. To insert jar:

(a) Remove jar lid and get from product jar.

l-A-l0.a.(2) (b) Replace with dispensing funnel, screw it on firmly. Do not touch internal components of funnel assembly.

(c) Insert jar and funnel in tea dispenser. It is now ready for operation.

(d) To operate, fill a glass with ice and place it directly under the spout. Press the glass lightly against the actuator and hold until glass is filled.

(3) The tea dispenser is preset to produce a beverage suitable for the average consumer but it can be adjusted to produce stronger or weaker tea.

(a) Remove bottle and funnel assembly by sliding straight out of coil shield hole.

(b) Remove funnel assembly from jar.

b. Care and Cleaning. Use the cleaning directions in enclosure 1-8 care of iced tea dispensers.

11. Vegetable Peelers.

a. Description.

(1) Vegetable peelers (Figure 1-4) have capacities of 10, 15, 30 or 50 pounds and have a cylindrical hopper with an abrasive covered wall and rotary disk in the bottom.

(2) The disk has a wavy surface. This surface agitates the vegetables so they continually present new surfaces for action by the abrasive material.

b. Operating Procedures.

(1) Before loading the machine, sort the vegetables so those in any one toad are of the same size and free of stones, sticks and other hard objects.

(2) Start the machine and turn the water into it before adding any vegetables.

(3) Do not overload the machine. The quantity of vegetables loaded must not exceed approximately 66% of total hopper capacity. A larger quantity will not be thoroughly agitated.

(4) If the machine's abrasive surfaces are kept reasonably clean, a load of vegetables should be satisfactorily peeled in about one minute. Remove deep eyes or depressions in potatoes and finish the peeling with a hand peeler or small knife.

(5) It is wasteful to allow vegetables to remain in the machine longer than necessary because valuable nutrients will be lost.

l-A-ll.c. Care and Cleaning. Enclosure 1-9 gives detailed cleaning directions for vegetable peelers.

12. Electric vegetable Cutters.

a. Description. Several types of electrically and manually operated equipment are used in the galley for cutting, slicing and grating vegetables.

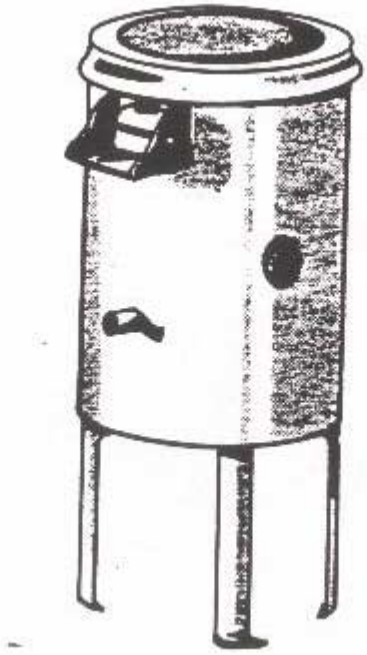


Figure 1-4 - Vegetable Peeler

(1) Vegetable cutters are machines which, without attachments or removable parts, make three classes of cuts of vegetables - shredded, sliced and grated.

(2) A dial control on the side of the machine allows instant changing of The cut thickness even while the machine is in operation.

b. Care and Cleaning.

(1) The entire front of the machine swings open to provide complete access to the interior for cleaning and changing the blade. Wash the machine with hot water immediately after use. The knurled knob holds the from of the machine securely when in operation.

(2) Clean and scrub the knives and bowl with hot, soapy water and a very stiff brush. Rinse them well with hot water and allow to air dry thoroughly before reassembling.

13. Vegetable Cutters and Slicers.

a. Description. The vegetable cutter and slicer (Figure 1-5) cuts vegetables used for cooking and salads.

l-A-l3.a.(l) The machine may be used to do as many as three different cutting jobs at once. It may be used for slicing either bias or horizontal French fries, julienne strips and for coarse and fine chopping.

(2) The machine has a slicer adjustment for thickness up to 5' inch. The adjustment can be made while the machine is in operation.

(3) To make French fries or diced potatoes, the potatoes must be sized so they will go into the machine.

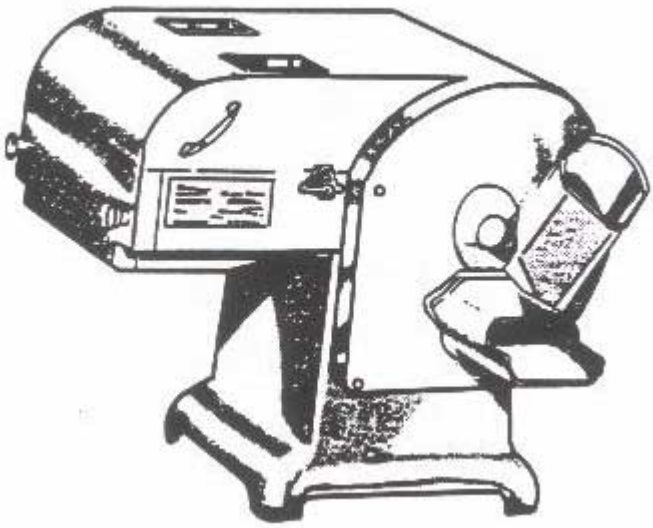


Figure 1-5 - The Vegetable Cutter and Slicer

b. Care and Cleaning.

(1) With the machine turned on, put a pan underneath the outlet to catch the water and vegetable particles and flush with water. Do this after each use.

(2) At the end of the day, disassemble the machine and thoroughly clean the cutting plates and disks.

(3) Carefully inspect each part for strings of vegetables which may not have washed off.

(4) This machine has points which must be oiled daily to prolong the machine's life and efficiency.

(5) More detailed cleaning instructions are in enclosure 1-10.

14. Steam-Jacketed Kettles.

a. Description. Use steam-jacketed kettles to prepare a variety of items such as soups, sauces, vegetables, meats, and beverages. This equipment is very important and must be handled with great care. See Figure 1-6.

l-A-14.a.(l) The kettles vary in size from 5 to 80 gallons.

(2) Approximately the lower two-thirds of each kettle is surrounded by a jacket offset from the main kettle bottle to provide space for steam to circulate and heat the kettle contents.

(3) The kettles are permanently mounted on a pedestal or three legs, and have a hinged lid or cover. Use the tube at the bottom of the kettle with a faucet at the outer end for drawing liquids in lieu of dipping them out.

(4) Kettles have a steam inlet connection, a steam outlet connection and a safety valve.

(5) Some steam-jacketed kettles (trunions) have a handle on the side making it possible to tilt the kettle and pour contents into service containers. This type of kettle is usually used to prepare gravies and sauces.

(6) Most kettles used in the Coast Guard are stainless steel.

b. Operating procedures.

(1) Never fill the kettle completely.

(2) If it is necessary to stir the contents, use a metal paddle; never leave the paddle in the kettle while cooking.

(3) The kettles are constructed to operate on a maximum steam pressure of 45 psi (pounds per square inch). When the pressure in the galley steam line is in excess of 45 psi, a pressure regulating valve (safety valve) installed in the steam line leading to the kettles, is set to blow off at 45 pounds of pressure. Do not tamper with the safety valve or tie it closed; it is there to prevent the kettle from exploding.

(4) When heating a cold kettle, turn the steam on gradually, allowing the shells t& become warm. Before applying full pressure open the safety valve by pulling the lever. Opening the safety valve while the pressure is within the shell removes air from within the jacket and prevents the kettle from becoming air bound.

c. Care and Cleaning.

(1) Clean the kettles thoroughly after each use. Before they are used, rinse them with clean water.

(2) Clean the draw-off tube and fittings in hot water using a round brush with a flexible wire handle.

(a) When cleaning the draw-off tube, remove the plug from the faucet. Caution: Do not change plugs from one kettle to another. Each plug is machined to match its own faucet; therefore, interchanged plugs may cause leakage.

l.A.1.4.c.(2)(b) Run the cleaning brush back and forth through the tube while a small stream of hot water is running through the tube.

(3) Do not use caustic cleaners on the kettles.

(4) The draw-off tube of older kettles is made up of several pieces threaded so they can be screwed together. To clean this type, remove the plug or cap at the back end of the draw-off so the cleaning brush can be run back and forth through the tube.

(5) Remove all draw-off fittings and clean thoroughly after each use.

(6) Complete cleaning directions are in enclosure 1-1l.

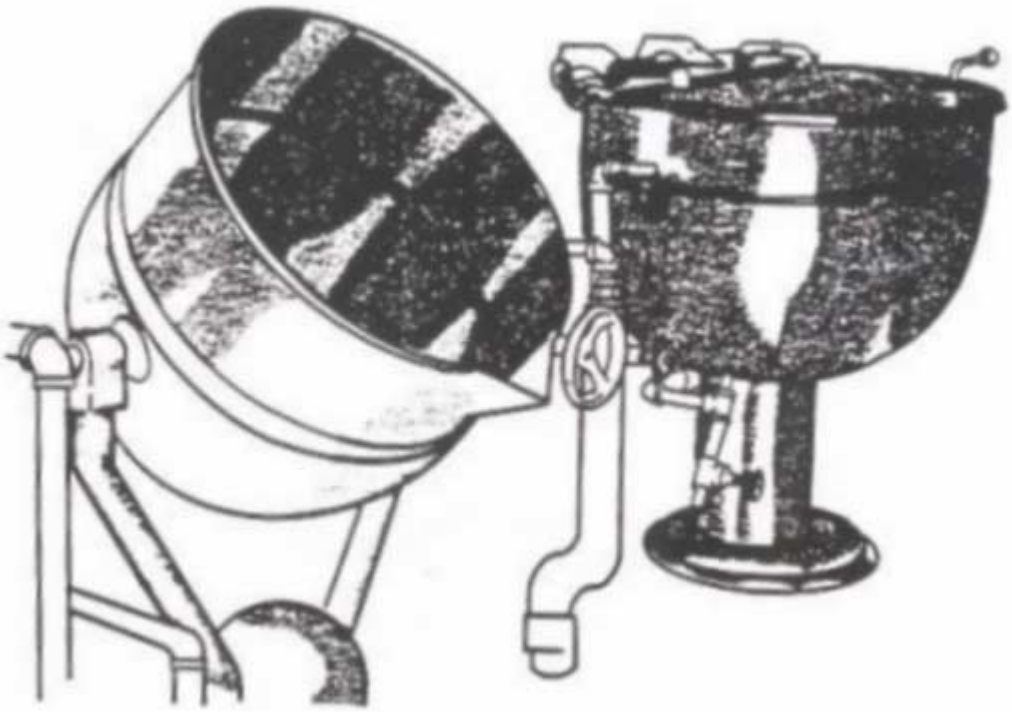


Figure 1-6 - Steam-Jacketed Kettles

15. Steamers.

a. Description. Steamers (Figure 1-7) are used for steaming fish, fruit, meat, poultry and vegetables. Most steamers used in the Coast Guard consist of a Three-door, three-compartment unit. Each unit has one or two perforated pans or baskets.

b. Operating procedures.

(1) When operating steamers, the user is not limited to the use of pans and baskets furnished with them.

(a) if juices are to be saved, cook in leakproof solid pans of a suitable size.

(b) Vacant.

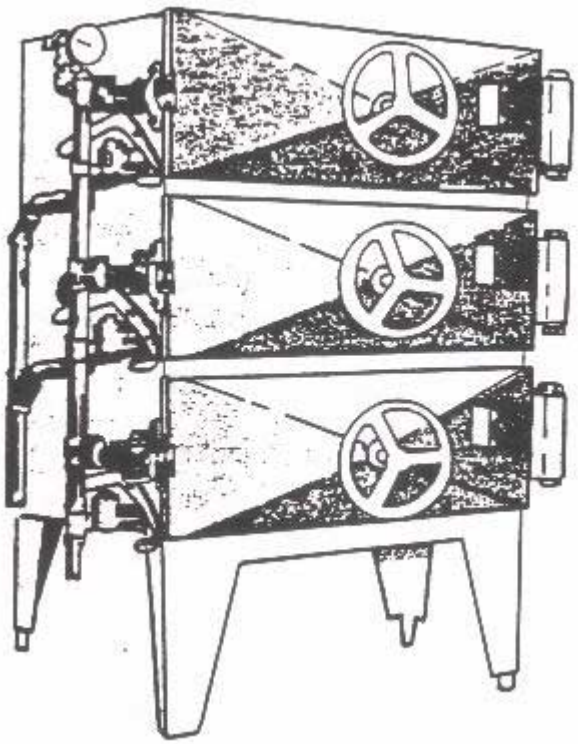


Figure 1-7 - Steamer

1-A-15.b.(2) Do not overload pans; steam circulates best when pans are about three-fourths full.

(3) Different foods may be cooked in the same steam compartment without mixing flavors or affecting the taste. Onions and pudding placed in individual pans may be cooked in the same steam compartment without a transfer of flavor.

(4) After the food is placed in the steamer, close the compartment door securely. The door latch is linked with the steam supply on most steamers so the final movement of the lever locks the door and turns on steam at the same time. Unlocking the door turns off the steam before the door can be opened.

(5) If the steam supply is controlled separately, open the steam valve slowly by turning the valve wheel counterclockwise after the door is latched. Then check the middle indicator on the pressure gauge, it should be in the range of 5 to 7 psi. Turn the valve wheel clockwise to reduce steam pressure if it is above 7 psi.

(6) Watch cooking time closely and avoid spoiling food by overcooking. Less time is required for steam pressure cooking than for boiling food in water. The temperature of 7 psi steam is 233F and the boiling temperature for water is 212F.

(7) After cooking is completed, turn off the steam supply by turning the valve wheel clockwise on separately controlled units or by unlatching the compartment door of the latch-controlled steam supply.

l-A-15.b. (8) The steam pressure is relieved by operating the lever of the safety valve, if one is provided; otherwise, wait two minutes before you open the door to full open position. The gauge must read 0 psi before the door is opened.

c. Care and Cleaning.

(1) Occasionally, during examination for drainpipe steam-condensate drip, none will appear after a few minutes of steamer operation. When this happens, turn off the steam supply by unlatching the door or closing the valve, as necessary. The fault normally is stoppage in the trap, strainer or drainpipe. To correct this, close the steam valve; remove the steam-trap strainer basket; clean the valve by scraping out the solids; and wash the basket until the mesh or perforations are clear. Clean the pipe connection in the steamer compartment, reassemble the strainer and repeat the pressure cooking. if there is still no drip, the steam trap is at fault so report this to the engineering officer via the chain of command.

(2) Enclosure 1-12 gives cleaning instructions for stack steam cookers. Cleaning directions for high speed steam cookers are in enclosure 1-13.

16. Steam Table.

a. Description. Steam tables are used for serving hot foods. There are: those with water compartments heated by steam coils (Figure 1-8) at 40 psi pressure or less; those with steam-heated water compartments and dishwarmers; those with water compartments heated by immersion-electric heating elements; and dishwarmers.

b. Operating Procedures.

(1) When the steam table is in use, steam condensation must drip into the drain. If no condensation appears after two minutes of operation, turn off the steam valve and clean the trap strainer basket.

(2) Do not overload food pans. An excessive amount of food makes it difficult to maintain the correct water compartment temperature of between 180F and 200F.

(3) 11, on the other hand, water in the steam table gets hotter than 200F, the food will dry rapidly and continue cooking from the excess heat. Correct this by adding more water to reduce the heat.

(4) Because food tastes best if served within 30 minutes (preferably within 15 minutes) after being placed in the steam table, do not place food pans in the steam table too early.

c. Care and Cleaning.

(1) Wash the pans by hand in a deep sink using cleaning brushes, scouring pads and hot soapy water; rinse with hot clear water. Use only brushes to clean stainless steel pans because abrasive cleaners scratch the surface.

(2) Drain the steam table, wash the tanks with hot soapy water, and rinse with very hot fresh water after each meal.

j-A-16.c.(3) Wash the top and front of the steam table to make it bright, clean and sterile; then wipe it dry with a clean cloth.

(4) Maintain steam tables in a sanitary and safe operating condition at all times. Keep metal "parts corrosion-free b removing rust with solvents and applying vegetable oil to bare spots.

(5) Detailed cleaning procedures for steam table are in enclosure 1-14.

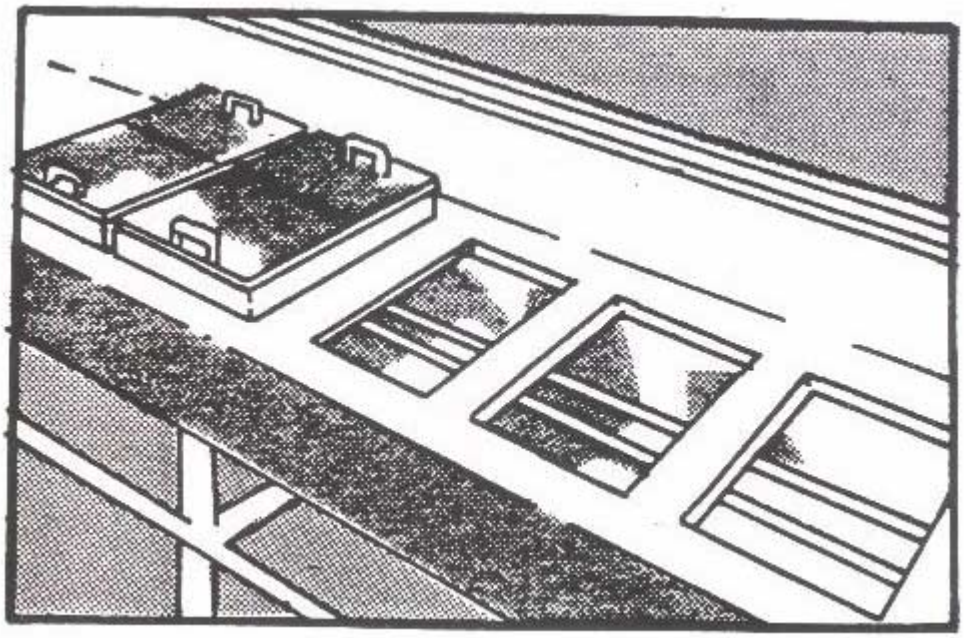


Figure 1-8 - Steam Table

17. Meat Tenderizers.

a. Description. Use the meat tenderizer (Figure 1-9) to tenderize various tough meats. The machine is about 20 inches long and about I loot wide.

b. Operating Procedures.

(1) To operate, turn the motor on, insert the meat to be tenderized into the opening at the top of the machine. The meat passes through two sets of revolving rollers with many small blades to tenderize.

(2) If further tenderizing is required, insert the meat again after first giving it a 90 degree turn.

(3) Meat tenderizing machines are equipped with a safety device that automatically stops the machine when the cover is raised. Never attempt to raise the top with the machine running or to operate the machine with the cover raised because of danger of catching your fingers in the machine.

(4) Take the machine apart and clean it after each use. Oil the parts often.

l-A-17.c. Care and Cleaning. Complete instructions for cleaning the meat tenderizer enclosure 1-15.

Figure 1-9 - Meat Tenderizer

18. Food Shaping or Molding Machines.

a. Care and Cleaning. Directions for cleaning automatic food-shaping or molding machines are in enclosure 1-16.

b. Vacant.

19. Electric Meat and Vegetable Choppers.

a. Description. The electric meat and vegetable chopper (Figure 1-10) is used to chop or grind all meats (cooked or raw) and to prepare bread crumbs from leftover bread and toast. The meat and vegetable chopper is portable; however, place it on a sturdy stand within easy reach of an electric outlet.

b. Operating Procedures.

(1) Usually a three-eighths inch plate is used for grinding meat. Using a three-sixteenths inch plate for such grinding puts too much pressure on the grinder. The coarser plates are for chopping vegetables.

(2) The cutting edge of the knife must go next to the plate.

(3) Never forcibly tighten the adjustment ring on the chopping end; however, tighten it snugly. Excess pressure will wear the chopper parts.

(4) Start the motor then feed the material into the chopper.

(5) Turn the motor off after the material is ground.

(6) Feed the material into the machine with proper tools; never use your hand for this.

j-A-19.c. Care and Cleaning.

(1) After meat has been chopped, take the grinder apart and wash each part thoroughly with soap and water , rinse with hot water, and allow to air dry. Do not allow food to dry on the chopper surfaces before you wash it A grinder can be a breeding place for bacteria which might cause food poisoning. Use great care to keep grinder parts contamination-free.

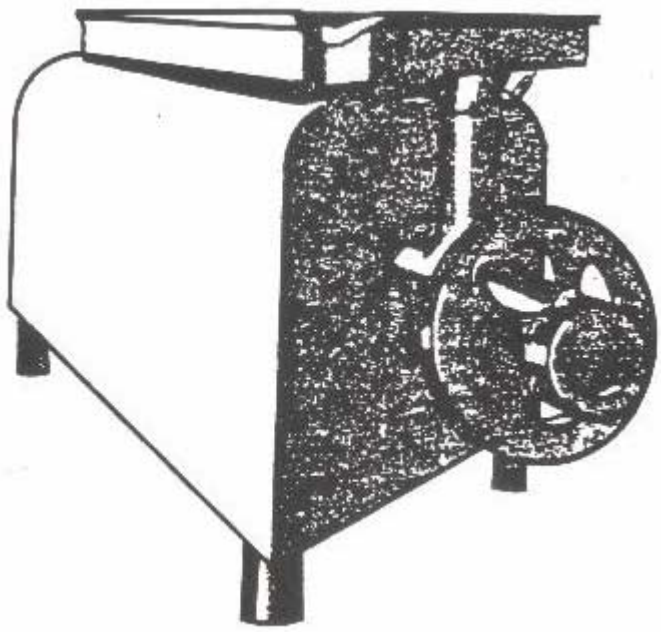


Figure 1-10 - Meat and Vegetable Chopper

(2) Have knives and plates sharpened before they get dulled, but do not attempt this yourself; consult the engineering department. It is a good idea to keep the same knife and plate together, since they wear to lit each other. Tie them together with a cord after they are used so they will not get mislaid.

(3) Keep the motor dry. Don't grind juicy foods, such as onions because the juice will be forced back into the gear housing, causing a loss of oil and consequent, gear wearing.

(4) If you are grinding foods, such as crackers, grind a small amount at a time or the machine will jam.

(5) When the chopper is hot, do not run raw meat through it. Remember bits of bones can break the worn gears and knives.

(6) Detailed cleaning directions are in enclosure 1-17.

20. Electric Food Mixers.

a. Description. Electric food mixers are used for an infinite number of jobs including beating batters for cakes, mixing bread dough's, beating eggs, mashing and whipping potatoes.

l-A-20.a.(l) Food mixing machines (Figure 1-l1) are furnished in 20,-60,-80,-110-and 140-quart sizes with the necessary attachments, paddies and beaters (Figure 1-12).

(a) The wire beater is used for eggs, cream and light-weight mixing.

(b) The flat beater is good for cake batters and medium weight mixing.

(c) The dough hook mixes bread doughs.

(2) One part of the machine revolves through the use of a set of transmission and differential gears. Various shaped paddles and mixers can be attached to this revolving unit.

(3) The lower part of the mixer contains two extended adjustable arms. A bowl containing the foods to be mixed is placed on these arms. The arms are then moved up so the paddles will revolve through the mixture.

(4) The machines have three or four speeds.

(5) Usually the mixers have an attachment hub used for a vegetable slicer, juicer and meat grinder.

b. Operating Procedures.

(1) Before operating the machine, make sure the bowl, paddles and beaters are thoroughly dean. If necessary, wash them in hot soapy water and rinse with hot water.

(2) Place the ingredients in the bowl as specified on the AFRS card. Do not fill the bowl more than half full. Place the bowl in a catered dolly and move to the mixer. Do not drag the bowl across the deck. Insert the bowl in the mixing machine, making sure that the bowl ears are on the supporting pins and both sides are locked in place.

(3) Select the proper attachment and place it in the machine. Insert the "L-shaped" notch in the beater over the pin in the shaft. On the smaller models, the shaft will be grooved. The attachment is inserted into the grooves and slipped into the lock.

(4) Raise the bowl to the proper height by turning the wheel or crank.

(5) Start the motor at "No load" and, with clutch released, shift to "low speed"; release the clutch each time the speed is changed. Use the speed indicated on the recipe card and on the manufacturer's instructions.

(6) Watch mixing time and mixing speeds carefully. Often, blended ingredients revert to separate ingredients if mixed too long or at an improper speed.

l-A-20.b.(7) If, during the process of mixing, some of the batter has piled up on the sides of the bowl, stop the machine. Using a long handled spoon or spatula, scrape the sides of the bowl. Never put spoons, spatulas or your hands into the bowl while the machine is on.

(8) When the mixing is completed, stop the mixer. Lower the bowl by the lever used to raise it; remove the beater by turning the sleeve to the left. Remove any food left on the beater with a spatula. Then place the bowl on the castered dolly and move it to the place of use.

(9) Some electric food mixing machines are provided with two sizes of bowls. The 20-quart machine may also have 12-quart bowl; the 60-quart machine may also have a 30-quart bowl; and the 80-quart machine may also have a 60-quart bowl. When using a smaller bowl on a large machine, use an adapter as well as the correct beater or paddle for the different sized bowl. At no time should the beater or paddle scrape the bottom of the bowl.

c. Care and Cleaning.

(1) The electric mixer, beaters, whips and bowls all require care. Wash beaters, paddles and bowls immediately after each use. Use hot soapy water and rinse with hot water. hang beaters and paddles upside down to air dry.

(2) Clean the body of the machine after each meal. Use a damp cloth or wash with water as necessary for proper sanitation. Be sure the beater shaft is free of an dirt and food particles.

(3) The motor and mechanism parts of the mixer should be inspected and maintained by the engineering department once a week.

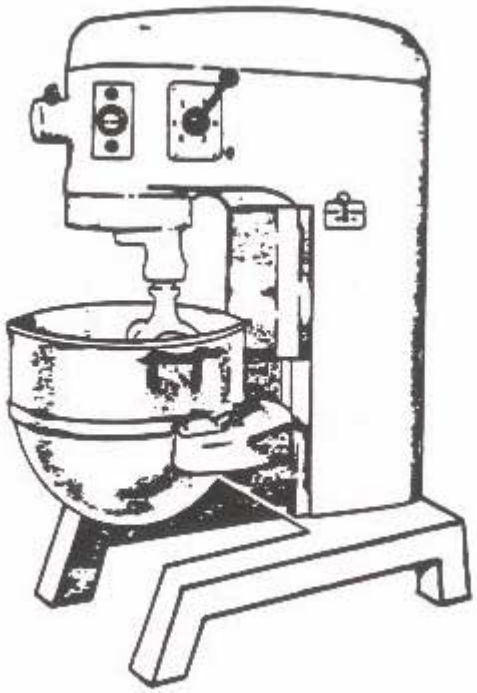
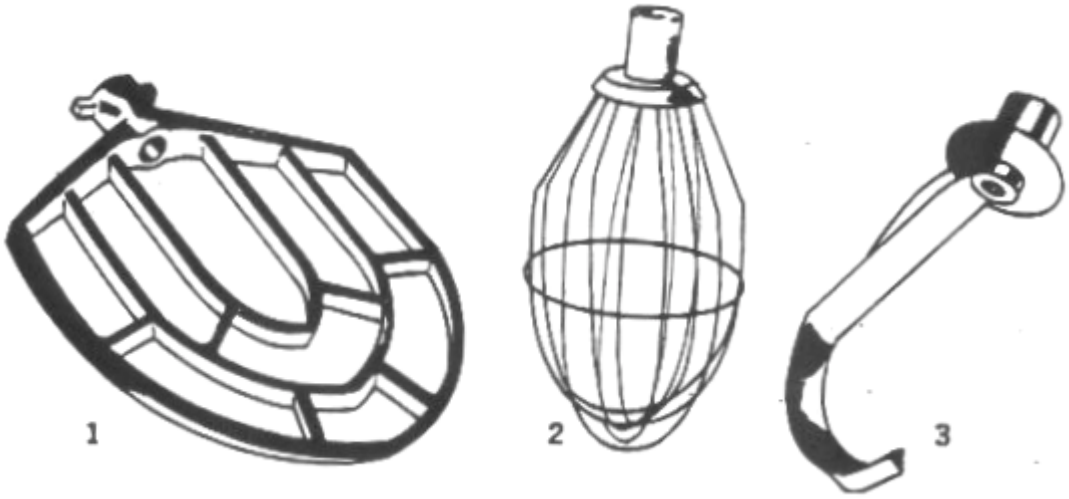


Figure 1-11 - Electric Mixer



Some attachments used with the electric mixer are:

1. Flat beater
2. Wire beater
3. Dough hook

Figure 1-12 - Electric Mixer Attachments

1-A-20.c.(4) Enclosure 1-18 outlines instructions for cleaning chopper parts of mixing machines. Directions for cleaning electric food mixers are in enclosure 1-19.

(5) Some units may be equipped with separate dough mixers for bread preparation.

(a) Dough mixers must be wet cleaned as often as is required to prevent dough hardening. Enclosure 1-20 gives directions for cleaning this equipment.

(b) Vacant.

21. Meat Slicer.

a. Description.

(1) Meat slicing machines (Figure 1-14) are motor operated and are used for slicing hard or soft foods such as roasts, cheese, bacon, luncheon meat, various kinds of sausages and ham.

(2) A revolving disk knife slices as the meat carriage is moved across the knife.

b. Operating Procedures.

(1) To use the slicer, place the meat on the carriage and adjust the clamp to hold the meat firmly. This clamp also furnishes protection for your hand.

l-A-21.b.(2) Set the dial for the desired thickness then turn on the switch. Move the carriage back and forth with the hand lever. Warning: Keep hands away from the revolving knife.

(3) The meat slicing machine can be a dangerous instrument. Never use it when the blade guard is off. Do not leave the plug in the electrical socket when the slicer is not in use. Never put your hands under the guard. Do not operate the machine with wet hands.

c. Care and Cleaning. Clean the meat slicing machine thoroughly after each use.

(1) Before dismantling an electric machine, turn off and unplug it.

(2) Remove all cutting and meat handling attachments.

(3) Clean the slicer knife with a damp cloth, wipe with a dry cloth, and cover the blade with a thin coating of salad oil to prevent rust. Never use a knife or other abrasive material to scrape food particles from the slicer knife.

(4) Wash the attachments with soap and hot water; rinse with hot water and allow them to air dry.

(5) Wash the machine with hot water and a stiff brush. Do not let any water get into the motor. Do not use extremely hot water or steam to clean; too much heat may destroy the lubricants. Dry the machine thoroughly with a cloth after it has been cleaned.

(6) Clean the counter top under the slicer.

(7) Reassemble the slicer immediately so the bare knife will not be exposed. Replace all guards securely.

(8) Never lubricate the machine with salad oil because it will gum up the machine.

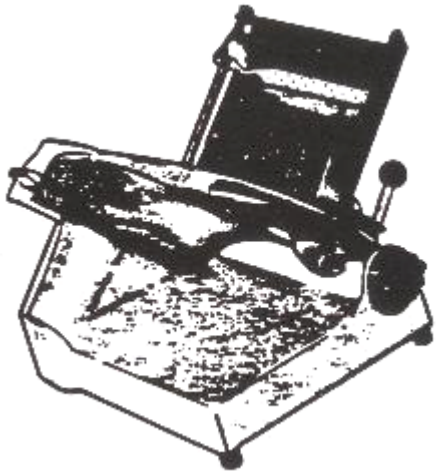


Figure 1-13 - Electric Meat Slicer Machine

l-A-22. Bakery Equipment.

a. Description. Pans for bread. rolls, cakes and pies are a major investment in every baking operation.

(1) Pans are made of tin plate aluminum and aluminized steel.

(a) Pie pans are round; the sizes are designated by the width (diameter) of the pan in inches.

(b) A unit in a muffin tin is approximately 11/2 inches in diameter but the units vary in depth. The average pan has 12 units.

(2) Vacant.

b. Care and Cleaning.

(1) Keep all baking pans clean. Dirty pans are unsanitary and will impart foul odors or taste to the finished product.

(2) Pans are washed by two methods: hand washing or tank washing. For each washing method it is important the proper pan-cleaning material be selected. The cleaner must be powerful enough to remove the carbon and dirt, yet not harm the pan's surface coating. Cleaning directions for baking pans are in enclosure 1-21.

(3) Observe the following rules to keep pie pans in good condition and to ensure a longer life.

(a) Clean pans after each use and dry thoroughly in the oven with temperature set at 3800F or less.

(b) Avoid cutting or scratching the pans when you cut the pies.

(c) Thoroughly clean pie racks. Directions are in enclosure 1-22.

(4) The importance of keeping muffin tins well greased and clean cannot be overemphasized. If these pans are dirty, it will affect the finished product.

(a) Avoid letting rancid grease accumulate in the crevaces and corners of muffin tins.

(b) A good procedure for pan care is:

1. Grease the pans before each use.

2. Flour the pans after they are greased to prevent the cakes or muffins from sticking to the pans. Paper liners are now available for muffin tins. These can be ordered through the supply officer.

3. Clean and dry pans after each use. Do not grease them.

l-A-22.b.(4)(b) 4. Do not bang and slam the pans. This distorts them and causes excessive strain on the strappings causing premature deterioration. Dented and bent pans will cause the baked products to be malformed.

23. Dough Dividers.

a. Care and Cleaning.

(1) Dough, when allowed to dry, becomes an abrasive. Therefore, equipment such as the divider must be thoroughly cleaned and oiled when shut down for more than 1/2 hour.

(2) Complete cleaning instructions for dough dividers are in enclosure 1-23.

24. Bread Slicers.

a. Care and Cleaning.

(1) Allowing crumbs to accumulate in the equipment will result in improper operation of the bread slicing unit, and a serious mold condition will develop.

(2) Enclosure 1-24 gives directions for proper cleaning of the bread slicer.

b. Vacant.

25. Dough or Loaf Rounders.

a. Care and Cleaning.

(1) Dough or loaf rounders are not standard bakery equipment aboard ship. For those activities with this equipment, care and maintenance must include cleaning catch pans and troughs and freezing cones of dough encrustation to prevent heat buildup, distortion and wear.

(2) Use the following procedures for proper cleaning of dough or loaf rounder 5:

(a) Clean the rounder during the run, and, after equipment is shut down, thoroughly clean with hot detergent water and brushes followed by adequate rinsing.

(b) The water meter cover must be removed and the meter assembly blown off with an airhose and cleaned free of any flour, dust and dirt accumulations.

(c) Check the packing glands and linkages.

(d) Remove and clean the strainer as often as necessary, depending upon the condition of the water used; probably about every three months.

l-A-25.a.(2)(e) Check the accuracy of the meter at least once each month by setting it for a specific quantity. Run the water into a can or drum and weigh it on an accurate scale. Make at least three scaling tests.

b. Vacant.

26. Proof Box.

a. Care and Cleaning. Detailed directions for cleaning the proof box are in enclosure 1-25.

b. Vacant.

27. Dough Molders.

a. Care and Cleaning. Some units may be equipped with molders for use in bread preparation. Directions for cleaning this equipment are in enclosure 1-26.

b. Vacant.

28. Cutting Board.

a. Description. The cutting board is made of very hard rubber and may be used or cutting any type of food. Using the cutting board will protect your knife edge.

b. Care and Cleaning.

(1) Clean the cutting board after each use.

(2) Complete directions for cleaning are in enclosure 1-27.

29. Work Benches.

a. Description.

(1) The newer work benches are made of stainless steel. Some of the older ones, made of wood, may still be in use but are being replaced by the stainless steel type.

(2) The work bench is used primarily for preparing the makeup of handmade baked products.

(3) Permanently secure the bench to avoid shifting to a position where it may cause an accident when the ship is underway.

b. Care and Cleaning. Thoroughly scrub the work bench after each use.

30. Refrigerated Cabinet and Salad Bar.

a. Description. The salad bar and cabinet are usually one piece of equipment. The salad bar area is a well about 4 to 6 inches deep made especially for

various sized salad pans. The cabinet space located just below the salad bar consists of several shelves for stowing salads after preparation and before serving.

b. Care and Cleaning.

(1) After each meal, clean the salad bar with warm detergent and a clear water rinse. Clean the cabinet out at least once a week using a soda solution to climate bad odors.

(2) Complete cleaning directions are in enclosure 1-28.

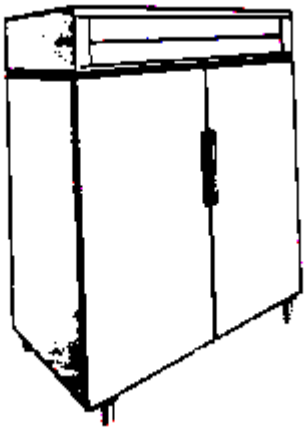


Figure 1-14 - Refrigerator

31. Refrigerators.

a. Description.

(1) The galley refrigerator is similar to the one shown in Figure 1-14. it consists of an insulated stainless steel compartment, and rust-proof, acid-resistant shelves.

(2) The refrigerator may be from 5 to 100 cubic feet in size; it is designed for storing foods for short periods.

(3) Most refrigerators installed aboard ship have movable bars which fit in front of each shelf to keep the contents of the refrigerator from moving or falling out when the door is opened. At sea, food must be stowed so it will not move around when the ship rolls.

(4) Refrigerators must have an accurate dial thermometer.

(5) To keep a refrigerator operating at top efficiency:

(a) Defrost it regularly and properly.

(b) Keep it clean.

(c) Do no overload it. See Figure 1-15.

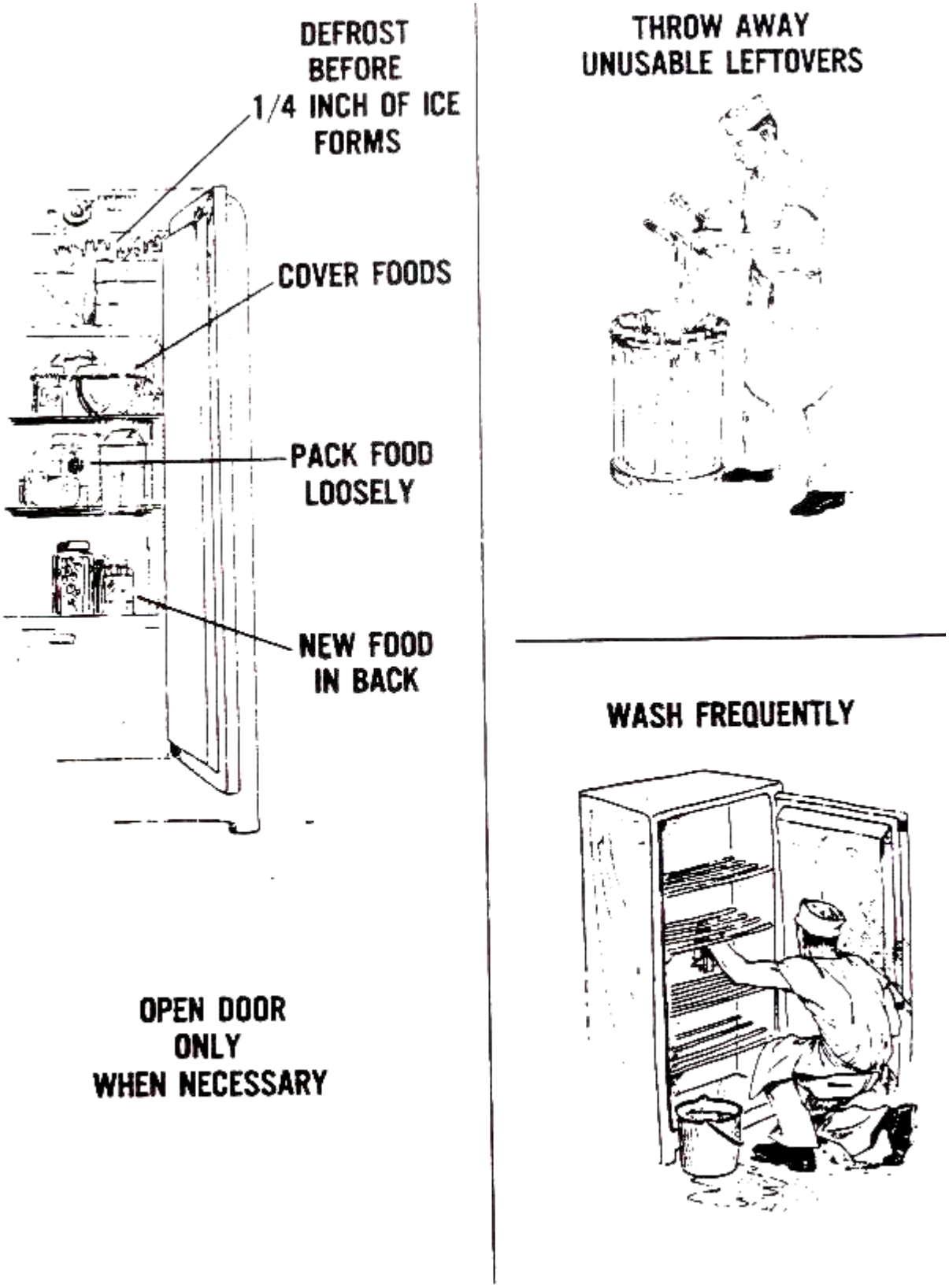


Figure 1-15 - Checkpoints in Proper Refrigerator Care

l-A-31.b. Defrosting procedures. The refrigerator may be defrosted on a schedule or when the frost accumulation requires it. The number of times a refrigerator requires defrosting depends, on the rate at which frost builds up on the cooling unit.

(1) Ice formations must never be more than 1/4 of an inch thick because ice and frost act as insulators and reduce efficiency.

(2) Defrosting 15 accomplished by turning off the refrigerator, removing all food and blocking the doors open. Defrosting may be speeded up, however, by placing pans of hot water in the freezer compartment.

(3) Do not scrape or chip the ice from the cooling coils since they are easily damaged. Do not pour hot water over the ice accumulation to melt it.

c. Care and Cleaning. A refrigerator that is not thoroughly clean will quickly develop a bad odor and the foods in it will spoil. Cleanliness retards the growth of mold and bacteria which often cause food poisoning.

(1) A refrigerator must be cleaned at least once a week and after each defrosting. Never use a water hose when cleaning a refrigerator. The fluid may seep into the insulation and cause permanent damage.

(2) Basic cleaning procedures are:

(a) Wipe the gaskets around the refrigerator door to remove any oil or grease.

(b) Wash the inside surfaces and food shelves with soap and warm water.

(c) Rinse them with a warm solution of baking soda, using 1 tablespoon of soda to 4 quarts of water.

(d) Dry all surfaces thoroughly after flushing out the drain with hot water.

(e) Clean the outside with warm water, rinse and dry it.

(3) Complete cleaning procedures for reach-in refrigerators are in enclosure 1-29. Enclosure 1-30 contains directions for cleaning walk-in or walk-through refrigerators (reefers).

(4) Never overload a refrigerator. An overloaded refrigerator cuts down air circulation and is hard to clean. To prevent overloading, limit the amount of food drawn from bulk storage at any one time. When drawing food that must be kept in the refrigerator, do not ask for more than can be stored in the ready-service refrigerator.

32. Icemaking Machines and Automatic Ice Flakers.

a. Care and Cleaning. Directions for cleaning icemaking machines are in enclosure 1-31. Enclosure 1-32 contains directions for cleaning automatic ice flakers.

b. Vacant.

l-A-33. Water Reservoir.

a. Care and Cleaning. Directions for cleaning the water reservior are in enclosure 1-33.

b. Vacant.

34. Ice Cream Freezers and Soft Ice Cream Machines.

a. Care and cleaning. Directions for cleaning ice cream freezers are in enclosure 1-34. Enclosure 1-35 contains directions for cleaning soft ice cream machines.

b. Vacant.

35. Milk Dispensers.

a. Description. The milk dispenser is a refrigerator cabinet especially designed to dispense liquids packaged in special cartons or to dispense juices in reusable stainless steel cans with dispenser spouts.

(1) Disposable rubber tubes are used on the spouts. When the container is placed in the dispenser, cut the rubber tube 1/4 inch beyond the visible lower end of the dispenser mechanism and at a angle. Use a clean knife or pair of scissors to cut the tube.

(2) All authorized milk dispensers have a thermometer with a green range for safe use. The safe use range is 38F to 44F.

b. Care and Cleaning.

(1) Clean the milk dispenser after each meal. Wipe all outer areas with a disinfectant solution after each meal.

(2) Defrost the dispenser when ice deposits accumulate to 3/16 inch on the cabinet interior.

(3) Enclosure 1-36 gives complete direction for cleaning the milk dispenser.

36. Self-Leveling Dispensers.

a. Description. The self-leveling dispensers are used for dispensing dishes. The cabinet is made of stainless steel with a coil spring platform which pushes the plates to the top as they are used. Adjust the spring tension according to the weight of the dispensed item.

b. Care and Cleaning. Clean the self-leveling dispenser daily if used for food and used or dishes. Wash the dispenser in hot detergent water; rinse it in clean hot water and let it air dry.

37. Balance Scales.

a. Description.

(1) The balance scale eliminates guesswork when weighing the ingredients

required for a given recipe. The balance scale is a must in food production9 especially in preparing bakery products. See Figure 1-16.

(2) The major parts of a balance scale are:

(a) Weight Disc. The weights are placed on the weight disc to counterbalance an ingredient placed on the scale pan.

(b) Arms. The arms hold the scale pan.

(c) Ounce Locator. The ounce locator is manually moved to the required position on the scale of ounces.

(d) Ounce Scale. This scale is graduated from 1/4 to 15 ounces. It is slotted to provide proper placement of the ounce locator for exact weighing.

(e) Scale Pan. The scale pan holds the ingredients to be weighed. It must be cleaned after each use.

(f) Weights. The weights come in varying sizes, from I to 4 pounds. They are for weighing ingredients 1 pound and over.

b. Operating Procedures.

(1) Before weighing anything, check to see if the scale is balanced. To check balancer place the scale pan on the arms and the ounce locator on "0" of the scale of ounces. The scale is balanced if neither pole is touching the base of the frame.

(2) Clean the scale pan before placing any ingredient on it. Weigh the ingredients as follows:

(a) To weigh 6 ounces of flour, move the ounce locator to the 6 ounce slot. This will unbalance the scale, causing it to tilt to the right and touch the base of the frame.

(b) Spoon enough flour onto the scale pan to bring the scale to a balanced position.

(c) Remove the flour. Clean the pan and weigh the next ingredient.

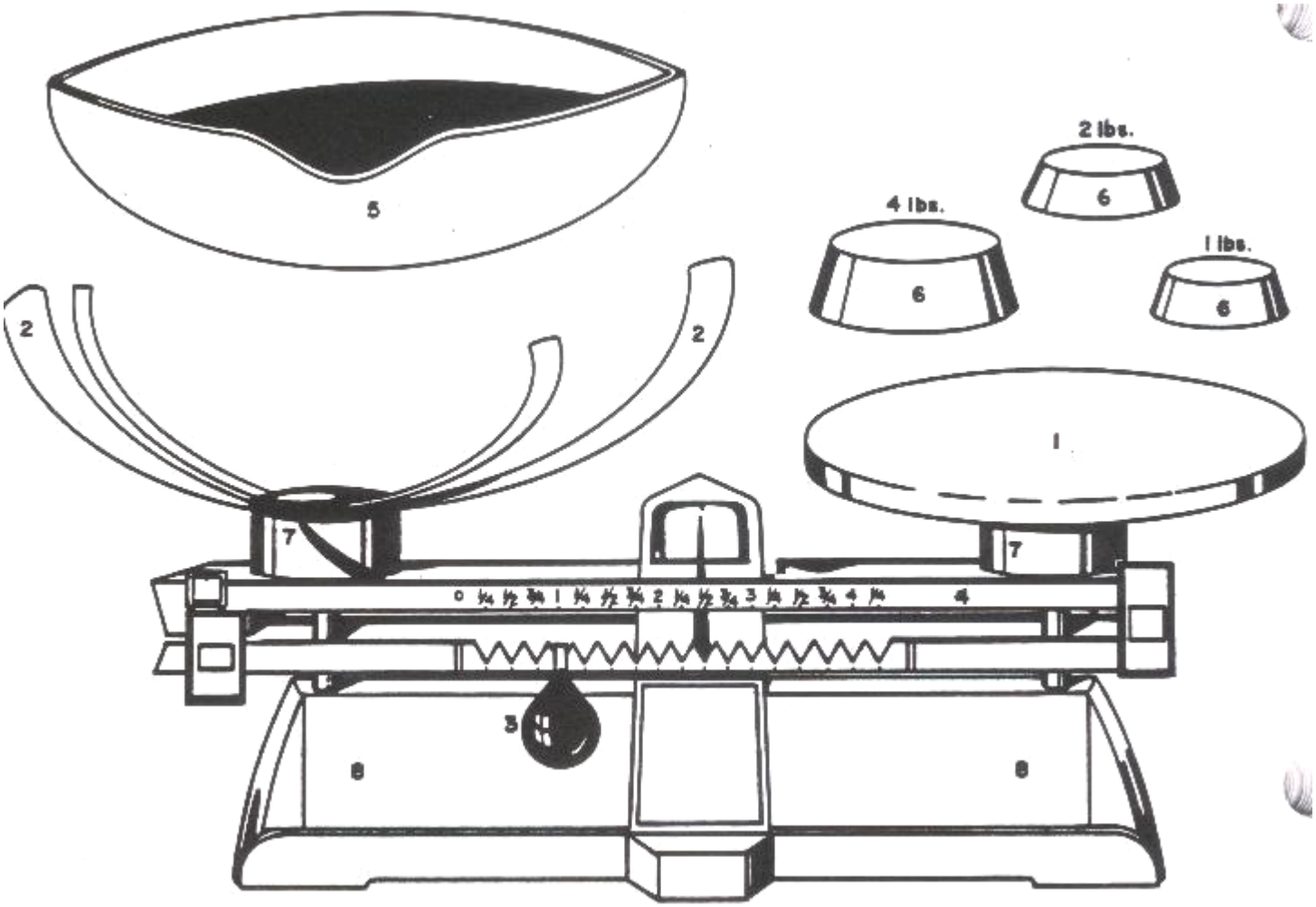
C. Care and Cleaning.

(1) Keep the scale clean at all times; not only for sanitation purposes but also because a small amount of food particles on the scale may cause the weight measures to be inaccurate.

(2) Follow the cleaning procedures:

(a) Wipe the scales with hot soapy water and rinse with hot clear water. Do not immerse in water.

(b) The pan and balance weights may be washed in hot soapy water. rinsed in hot water, and then allowed to air dry.



1. WEIGHT DISC
2. ARMS
3. OUNCE LOCATOR
4. SCALE OF OUNCES
5. SALE PAN
6. WEIGHT
7. POLES
8. BASE OF FRAMES

Figure 1-16 - Balance Scale

1-A-38. Food Storage Bins.

a. Care and Cleaning.

(1) Enclosure 1-38 covers cleaning of dry food storage spaces such as vegetable bins, condiment lockers, etc.

(2) Directions for cleaning sugar and flour storage bins are in enclosure 1-39.

b. Vacant.

B. Functions, Care and Dishwashing Procedures for Food Service Utensils. CGDF's use a variety of utensils in food preparation. Each utensil has a specific junction in the food service operation. Proper dishwashing procedures are essential to the maintenance and condition of these utensils.

1. Common Galley Utensils.

a. Pots and Pans. The following types of pots and pans are commonly used in Coast Guard food service operations. Figure 1-17 illustrates these utensils.

(1) Stock Pots. Large, round, high-walled pots with loop handles for lifting. May be equipped with a draw-off faucet and strainer. Well fining covers and inside racks to hold certain foods off the bottom should be available. Used for boiling and simmering, where a large amount of water in relation to solids is used, as in making stocks, soups and boiling certain vegetables. Sizes graduated from about 2 1/4 gal to 40 gal capacity.

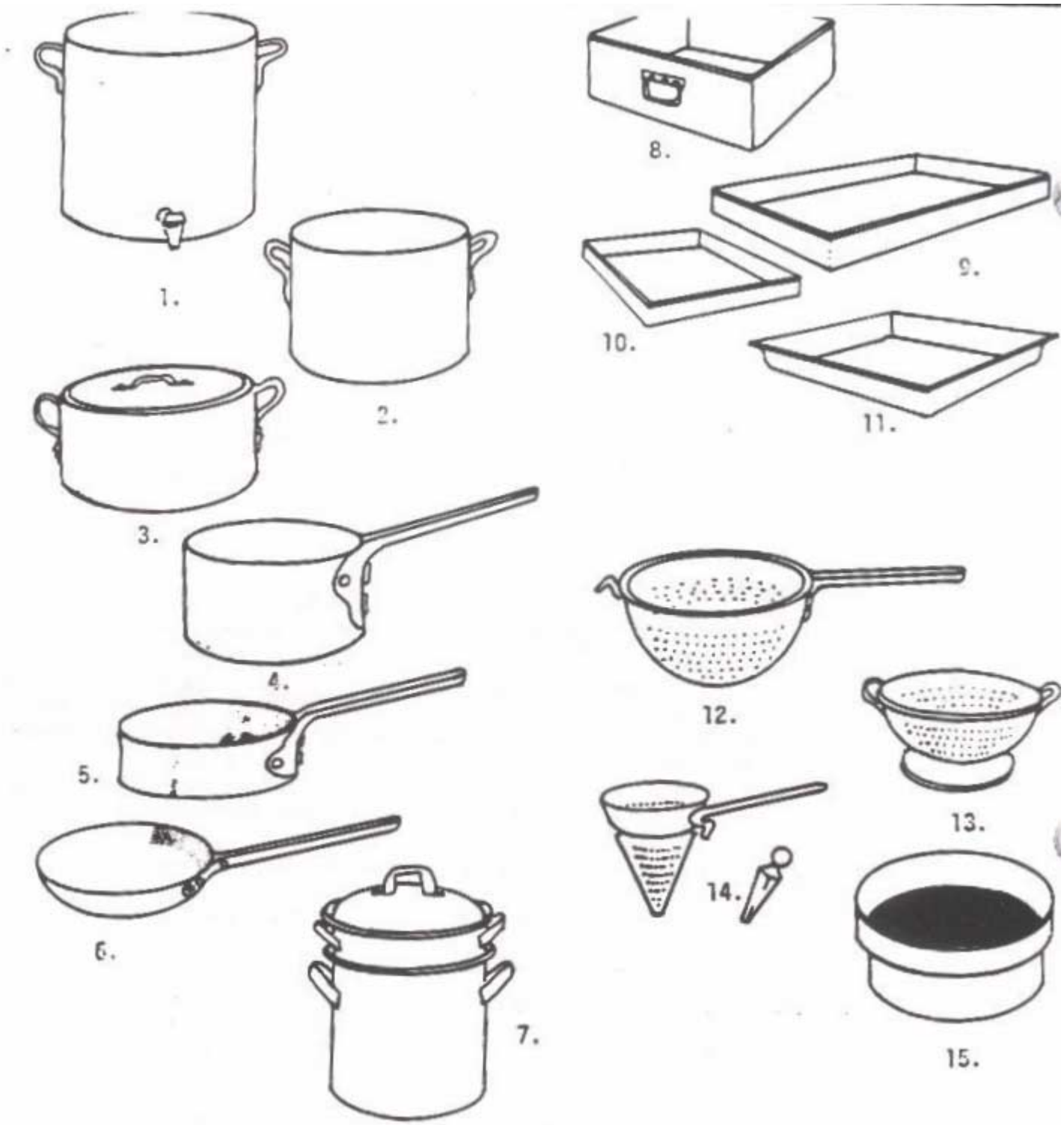
(2) Sauce Pots. Large, round, medium deep pots with loop handles for heating. Used for stove top cooking where the ratio of solid to liquid lifting higher and stirring or whipping is necessary. Sizes graduated from about 8 1/2 qts to 60 qts.

(3) Braziers. Large, round, shallow-walled pots with loop handles for lifting. Very heavy to resist warping under high heat when used dry as for searing meat. Used for searing, braising and stewing. Sized graduated from 15 qts to 28 qts.

(4) Sauce Pans. Smaller, shallower4 lighter versions of the sauce pot. Have a single, long handle for lifting. Same uses as sauce pot but for smaller quantities of food. Sizes range from 3 to 6 inches deep and from 1 1/2 qts to 111/2 qts capacity. Should have well fitting covers available.

(5) Sauté Pans. Large, round, shallow, straight walled pans with long handle for lifting. Largest sizes also have one loop handle. Use for sautéing or cooking food in shallow fat. Heavy construction to withstand warping at high temperatures. Sizes ranges from about 2 1/2 to 4 1/2 inches deep and about 10 to 20 inches inside.

(6) Frying Pans. Smaller, round, shallow pans with sloping sides to quick fry in a minimum amount of fat. One long handle for lifting. Sizes range from inside bottom diameter of about 5 inches to 11 inches.



The following pots and pans are commonly found in the Coast Guard galley:

(1)	Stock Pots	(9)	Bake Pans
(2)	Sauce Pots	(10)	Sheet Pans
(3)	Braziers	(11)	Counter or Service pans
(4)	Sauce Pans	(12)	Strainers
(5)	Sauté Pans	(13)	Colanders
(6)	Frying Pans	(14)	"China Cap" Strainers and Rollers
(7)	Roasting Pans	(15)	Sieves

Figure 1-17 - Pots and Pans

l-B-l.a.(7) Double Boilers. Consist of a lower section, similar to a stock pot, where water is boiled, and an upper section for food to be cooked at low-boiling temperatures. The upper section is suspended in the boiling water by shoulders which rest on the rim of the lower section, preventing contact between the bottoms of the upper and lower containers. Sizes range from upper section capacities of 4 qts to 40 qts. Covers are provided for upper sections.

(8) Roasting Pans. Large, rectangular, medium high walled pans, with or without covers. Several sizes to fit standard large quantity ranges and separate roasting ovens. Check oven size before ordering.

(9) Bake Pans. Large, rectangular, shallow pans without covers. Used for baking. Sizes similar to roasting pans.

(10) Sheet Pans. Rectangular, 1 inch pans in various sizes. Used for baking sweet goods, oven frying and baking such products as cookies and melba toast.

(11) Counter or Service Pans. Shallow pans with wide rims designed to fit standard steam table openings usually about 12 by 20 inches. Used: 1) for baking or steaming some foods in the same pan in which served, or 2) as a transfer pan from cooking utensil to hot storage. May be obtained perforated for steaming some foods. Also available in half, third, quarter and eighth sizes for use in one opening by use of adaptors. Several depths are available, though standard is about 2 1/2 inches.

(12) Strainers. Perforated metal bowls with long handle and hook for hanging across pot. Used for draining such foods as spaghetti, rice, spinach and other leafy vegetables. Several sizes available depending on size of pots used.

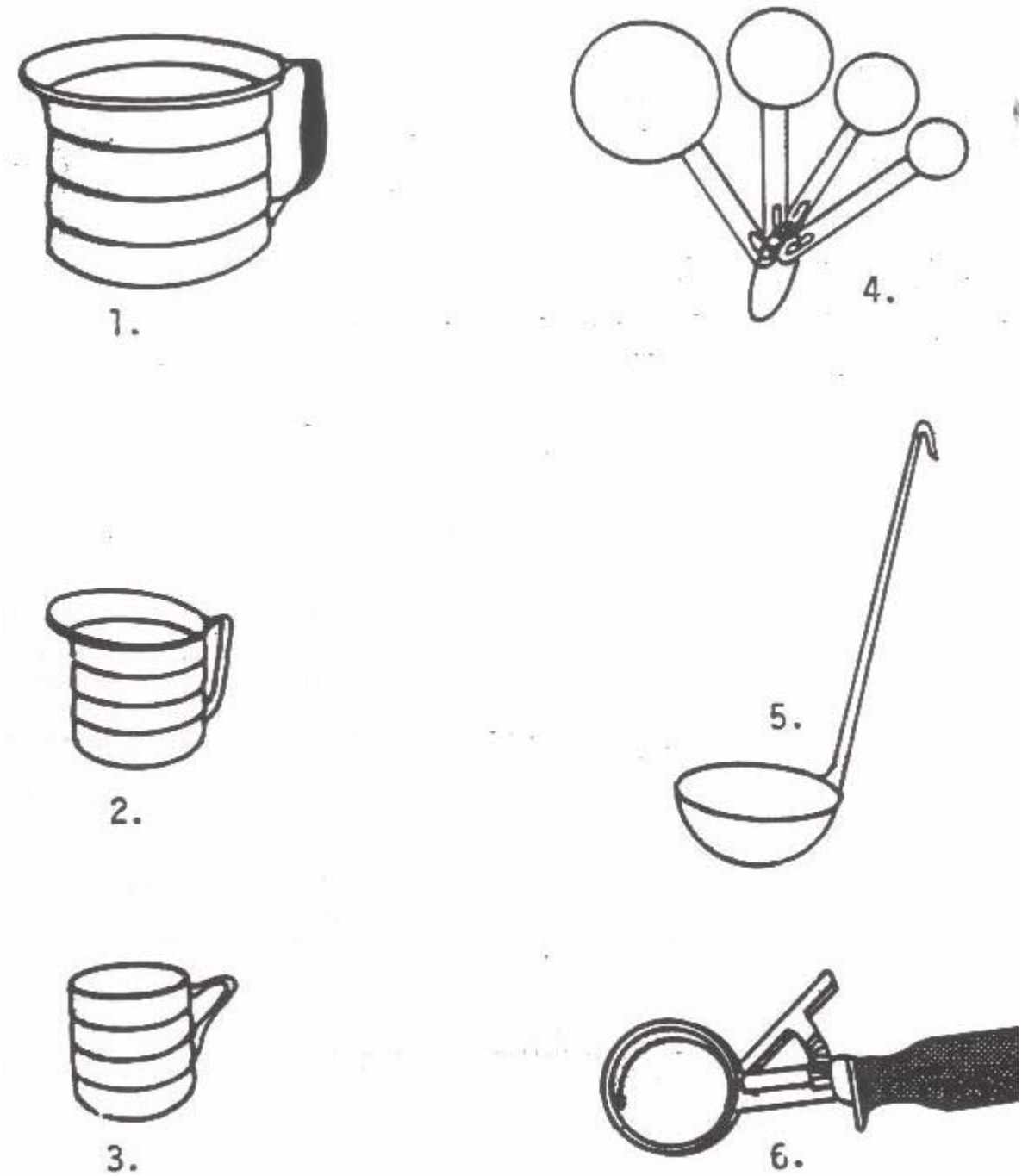
(13) Colanders. Perforated metal bowls with foot and loop handles. Used for draining salad greens, fruits and raw garnish or salad vegetables after washing. Several sizes.

(14) "China Cap" Strainer and Roller. A pointed, extra strong, perforated metal strainer. has long handle and hook for hanging on side of pot. Used to strain sauces and semi-solids which can be forced through perforations with roller. Also used to rice cooked vegetables. One of the most used kitchen utensils.

(15) Sieves. Round metal frames with mesh bottoms. Several diameters and mesh sizes. Used to sift flour and other dry ingredients.

b. Measuring devices. The following measuring devices are commonly used in food preparation. See Figure 1-18.

(1) Urn cups. Round, lipped, cool handled measuring containers for the accurate measurement of boiling water; important in making good coffee. Usually 1 gallon capacity with graduations showing quarts.



The measuring devices illustrated above are commonly found in Coast Guard galleys. They are:

(1) Urn Cup
(2) Measures
(3) Measuring Cups
(4) Measuring Spoons
(5) Ladles
(6) Scoops (ice Cream Dipper)

Figure 1-18 - Measuring Devices

l-B-l.b.(2) Measures. Round-lipped, side handled measuring containers accurately graduated; usually in quarters. For the accurate measurement of liquids and some dry ingredients. Available in gallon, half gallon, quart and pint sizes.

(3) Measuring Cups. Round, handled, accurately calibrated cups. Hold one standard cup (112 pint) when level full. Graduated in quarters.

(4) Measuring Spoons. Accurately calibrated spoons, usually S to a set, to ether; tablespoon, teaspoon, 1/2 tsp, 1/4 tsp and 1/8 tsp. Parallel edges for accurate leveling.

(5) Ladles. Metal bowls or cups of known capacity attached to long handles with hooks at opposite end to prevent dippers from slipping into container. Used to measure liquids for service and portion control. Ladles are sized in ounces from 1 to 32; usually in multiples of 2 oz.

(6) Scoops (Ice Cream Dippers). Bowl of known capacity attached to rigid handle. Has thumb operated rotating vane to release semi-solid contents. Used both to measure and form contents in serving and portion control. Scoops are sized according to the number of scoops needed from a quart. Usual scoop numbers are: 6, 10, 12, 16, 20, 24 and 30.

c. Knives and Handtools. To the experienced cook, knives are of the greatest importance. For speed and professional finished appearance, arts must be dean and accurate. For this reason most cooks purchase their own knives. They mark them plainly, take care of them and permit no one else to use them. There is an almost infinite variety of styles and types of knives, hand tools and cooking utensils. Those presented here are, however, the most generally encountered types. Figure 1-19 illustrates the types of knives discussed in this manual.

(1) French Knife. Most used. Wide, functionally curved pointed blade. Used for slicing, chopping and mincing food. Most popular size, 12-inch blade.

(2) Roast Beef Slicer. Fourteen-inch round nosed blade will slice completely across the largest cooked roast of beef.

(3) Chef's Slicer. Twelve-inch, pointed blade knife for slicing other cooked meats where point may be needed around bones.

(4) Butcher Knife. A slightly curved, pointed heavy blade knife used in sectioning raw, carcass meat. May be used either with a slicing motion or to chop through small bones or cartilage.

(5) Scimitar or Steak Knife. A distinctly curved, pointed blade knife used in making accurate cuts, as cutting steaks from a loin. Gives clean, professional cut.

1-B-l.c.(6) Boning Knife. six-inch very thin, pointed blade knife used in separating raw meat from bone with minimum waste; also used to fillet fish. May have stiff or flexible blade.

(7) Knife. A very short (2 1/2 to 3 1/2 inch), pointed blade knife. Used for paring fruit and vegetables. Point used for eyeing and removing blemishes.

(8) Fruit and salad Knife. Six-inch, pointed blade knife for pantry use in preparing salad greens, coring lettuce, paring and sectioning fruits. Various shapes for individual preference.

(9) Spatulas. Wide, flexible, blunt nosed blade knives for scraping utensils or spreading. Sizes range from 3 1/2 inch blade butter spreader to 12 inches. Rated as semi-flexible (frosting spreaders), regular, and highly flexible (bowl knives).

(a) Offset spatula. Wide, offset, chisel edged blade. Used to slip under and support hot cakes, fried eggs, hamburgers, etc., while turning on griddle, broiler or oven sheet.

(b) Pie and Cake Knives. Wide blade offset knives with blades shaped as pie or cake wedges. Used to slip under individual pieces after cutting to remove from pan or stand without breaking.

(10) Cleavers. An extra wide and heavy bladed, square nosed knife. Used to chop through medium bone and heavy cartilage, such as the back bone structure in cutting chops from ribs.

(11) Meat Saws. Bow mounted, thin, fine toothed blade saws for sawing through heavy bone structure, such as shank, thigh and shoulder bones in carcass meats.

(12) DoughCutters. Wide rectangular blade with top mounted handle. Used for cutting or dividing rolled out or batch doughs, lifting doughs from board and scraping dough board.

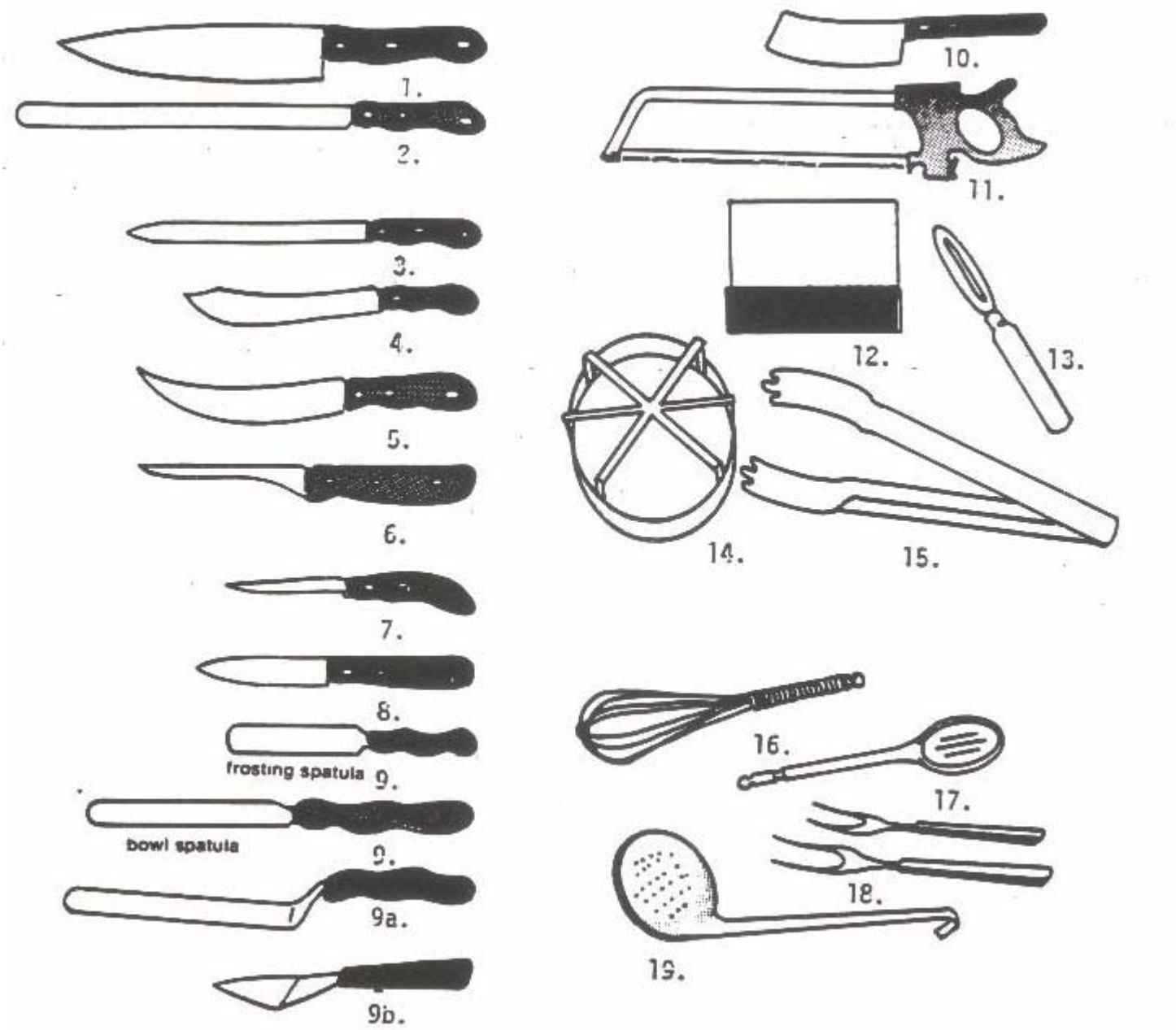
(13) Peeler. A hand tool used to peel fruits and vegetables

(14) Pie and Cake Markers. Circular metal frames to place over pie or cake mounting wire guide bars for accurate marking. Available in various diameters and portion sizes. A must for uniformity and portion control.

(15) Food Tongs. For handling food without touching with hands. Spring type metal, formed in elongated "U" shape, with sawtooth like gripping fingers on each end.

(16) Whips. Loops of wire with ends formed into a handle. Much more efficient in stirring or whipping quantities of food than spoons.

(17) Spoons. All sizes. Slotted or perforated spoons used to drain liquid when serving.



The knives and handtools illustrated above are commonly used in the galley. These are as follows:

(1)	French Knife	(10)	Cleavers
(2)	Roast Beef Slicer	(11)	Meat Saws
(3)	Chef's Slicer	(12)	Dough Cutters
(4)	Butcher Knife	(13)	Peeler
(3)	Scimitar or Steak Knife	(14)	Pie and Cake Markers
(6)	Boning Knife	(13)	Food Tongs
(7)	Fruit and Salad Knife	(16)	Whips
(8)	Paring Knife	(17)	Spoons
(9)	Spatulas	(18)	Forks
(9a)	Offset Spatula	(19)	Skimmer
(9b)	Pie and Cake Knives		

Figure 1 - 19 - Knives and handtools

l-B-l.c. (18) Forks. Insulated handled cook's forks used for holding meats while slicing, turning and handling roasts and serving. Many sizes and types.

(19) Skimmer. A slightly curved metal disk, solid or perforated used to skim off items or fat rising to the surface.

d. Brushes and Scrapers. The following are the types of brushes and scrapers found in most galleys. Figure 1-20 illustrates these utensils.

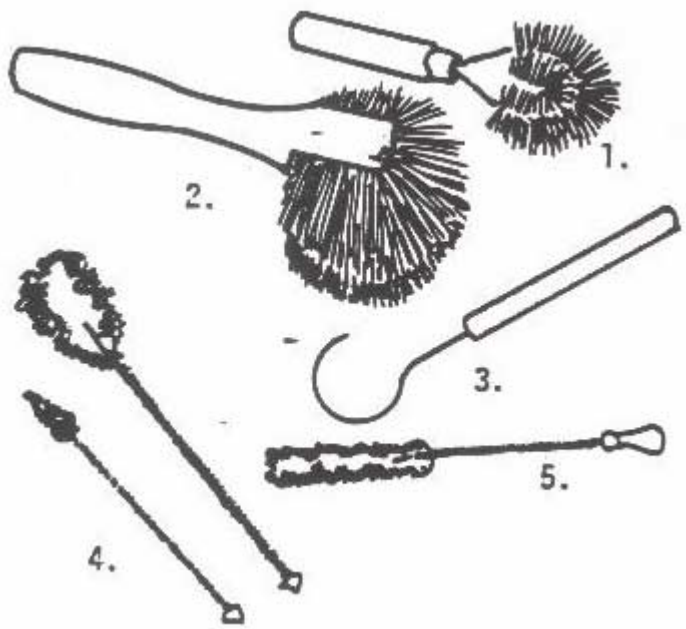
(1) Vegetable Brushes. Used to scrub root vegetables for cooking or salad preparation.

(2) Pot and Pan Brushes. Handled brushes for removing food residues and scraping pots and pans. 5tiff bristles, usually of palmetto fiber.

(3) Pot Hook. Metal hook for lifting pots and pans from boiling sterilizing rinse water.

(4) Coffee Urn and Gauge Glass Brushes. Keep coffee urns clean and sanitary.

(5) Tube Brushes. For cleaning wash and rinse tubes of dishwashing machine. Original brush usually furnished with machine.



The brushes and scrapers shown above are common galley utensils. They are:

(1) Vegetable Brushes
(2) Pot and Pan Brushes
(3) Pot Hook
(4) Coffee Urn and Gauge Glass Brushes
(5) Tube Brush

Figure 1-20 - Brushes and Scrapers

1-B-1.e. Eating-Utensils. For ashore units, use plate service to create a pleasant, homelike atmosphere in the dining facility. This food service method increases morale and aids in retention of qualified personnel.

(1) Avoid the use of metal mess trays at ashore units. This is in accordance with other military services' policy. Convert from metal trays to plate service when operating funds are available.

(2) Maintain an adequate dinnerware supply to provide personnel with dinnerware that is dried and cooked. Determine initial requirements for each item based on the number of personnel served at the most attended meal. Use the information given in the example below as a guide.

Example:

ITEM	PERCENT
Bowl, soup	40
Cup, coffee	60
Tumbler, glass	100
Plate, 9-inch	100
Plate, 6-3/4 inch	200
Dish, 9/ 16 inch	80
Tray, carrying	100
Flatware	200

2. Care of Scullery Equipment (Dishwashing). Proper washing, sanitizing, drying and storing of mess gear are absolutely essential to high quality and safe food service at meals. The scullery operator has one of the most important jobs in food service.

a. General Dishwashing Operations. Dishwashing operations at Coast Guard activities consist of both manual and machine methods.

(1) Small dining facilities may perform at' dishwashing manually, using from one to three sinks to accomplish the job of cleaning and sanitizing food preparation and eating utensils.

(2) Larger dining facilities wash by machine, but these operators also must be completely knowledgeable about proper manual methods because pot and pan washing is often done by hand, and mechanical breakdown of machines means there are times when utensils must be hand washed and sanitized.

(3) A combination of organized effort on the part of personnel manning the scullery as well as the application of proper kind and quantity of detergents, temperatures and techniques are required for both manual and machine dishwashing.

b. Dishwashing Temperatures.

(1) Machine Wash. Maintain a temperature range of 140F to 160F. Higher temperatures cause some foods such as eggs to stick, solidify or cook onto the dishes and dining facility trays.

l-B-2.b.(2) Machine Rinse. A supply of hot water for rinses (temperatures of 18OF to 195F) will destroy pathogenic bacteria.

(3) Manual Wash. Temperatures of 110F to 125F are recommended.

(4) Manual Rinse. Temperatures of 120F - 140F are recommended.

(5) Sanitizing Rinse. Temperature maintained at 170F - 180F.

(6) A frequent temperature check of wash and rinse water should be made during the dishwashing operation to ensure meeting the recommended temperatures. Place thermometers on the dishwashing machine so that bulbs rest in the water as it enters machine wash tanks apparatus, or in wash and rinse sinks when hand dishwashing.

C. Dishwashing Deterrent Control and Wetting Agent Dispensers. Quantities of detergents used for both hand and machine dishwashing operations require adjustment according to the condition of local water supplies afloat and ashore.

(1) For machine dishwashing, the initial charge of dishwashing compound used, as well as amounts required to maintain the proper level of concentration, depends upon the:

(a) Type of dishwasher equipment (single, double tank).

(b) Quantity of water (number of gallons per tank).

(c) Quantity of water (degree of hardness).

(d) Type of dishwashing compound (for hard or soft water).

(2) Recommended quantities of compounds for tire in dishwashing are in Figures 1-21 and 1-22 for double-tank and single-tank machines, respectively) Personnel responsible for scullery operations should post these tables on or near machines for - reference and acquaint all dishwashing operators with their tan.

(3) Remember the detergent is responsible for only 10% of the cleaning action. Water applied at the correct pressure and volume from a properly maintained machine does 90% of the work.

(4) Use automatic or semi-automatic dispensers to control the quantity of detergent in dishwashing machines.

(a) The dispenser is a container attached to the top of the dishwasher. Hot water runs from a small copper tube. Water flow is controlled by a valve.

(b) As the water dissolves the detergent powder, the liquid goes through another valve and discharges into the spray assembly unit.

(c) Both types of dispensers operate similarly. The major difference is a gauge on the automatic type shows the degree of detergent concentration in the wash tank.

l-B-2.c.(4)(c)1 A red light goes on when the percentage of detergent in the water is below or above what it should be.

2 The operator controlling the detergent then corrects the flow by adjusting the supply valve.

3 When the water has the right amount of detergent, a green light comes on, replacing the red one.

d. Preparation for Dishwashing. Preparation techniques preceding the washing operation ensures cleaner and more effectively sanitized cooking and eating utensils.

(1) Scraping and prewashing eliminates food in the dishwasher or wash sink.

(a) Food scraps hamper the washing operation and cause a breakdown of detergent concentration, which results in dirty film on dishes.

(b) Grease and food debris left after washing will soil the rinse water.

(c) The installation of prerinsing equipment does not entail great expense if an ordinary shower head, equipped with either a fast or a hand-squeeze valve, can be used.

(d) Figure 1-23 step-by-step directions for preparing soiled utensils for washing. The procedures apply to manual and machine dishwashers.

Water 1 hardness (grains per gal)	Water in wash tank (gal)	Type of Compound	Amount2 Oz	Cup
Soft:				
o to 7	10	II	3 1/2	1/2
o to 7	15	II	5 1/2	1/3
o to 7	20	II	7	
Medium hard:				
7 to 14	10	I	5	2/3
7 to 14	15	1	7 1/2	
7 to 14	20	1	10	11/3
Hard:				
14 to 20	10	1	7	1
14 to 20	15	I	10	11/3
14 to 20	20	I	14	1 3/4

1-The water used on shipboard may be considered soft. Ashore CGDF's must adjust quantities of detergent according to local water.
2-Add one-half the quantity shown after 6 racks have gone through the machine. The quantities in the table are initial charges.
If a detergent dispenser is used, detergent is automatically dispensed into the machine.

Figure 1-21 - Recommended Quantities of Dishwashing Compound for Double-Tank (Based on Water Hardness)

Water1 hardness (grains per gal)	Water in wash tank (gal)	Type of Compound	Amount2 Oz	Cup
Soft: 0 to 7	10	II	3 1/2	1/2
0 to 7	13	II	5 1/2	2/3
0 to 7	20	II	7	1
0 to 7	25	II	9	1 1/4
Medium Hard:				
7 to 14	10	1	5	2/3
7 to 14	15	I	7 1/2	1
7 to 14	20	I	10	1/3
7 to 14	25	1	12	1 1/2
Hard:				
14 to 20	10	1	7	1
14 to 20	15	I	10	1 1/3
14 to 20	20	1	14	1 3/4
14 to 20	25	I	16 1/2	2 1/4

1-The water used on shipboard may be considered soft. Ashore CGDF's must adjust quantities of detergent according to local water.
2-The quantities given are initial charges. Add 1/4 of the amounts given every 10 minutes.

NOTE: Another means of expressing water hardness (calcium carbonate) is as follows:
0 to 7 grains hardness per gallon: 0 to 120 ppm
7 to 14 grains hardness per gallon 120 to 240 ppm
14 to 20 grains hardness per gallon = 240 to 342 ppm

Figure 1-22 - Recommended Quantities of Dishwashing Compound for Single-Tank Machines

1-B-2.d.C(2) Presorting and racking are essential to establishing a systematic method of storing dishes after washing.

(a) Racking must be done properly so every surface can be reached by action of detergent and rinse sprays.

(b) Vacant.

(3) The semiautomatic dispenser does not have such a device so the operator must rely on test methods to determine the detergent concentrations.

(a) Use Litmus paper to judge concentration.

(b) Deep-blue color change on litmus paper indicates too much deter gent and a deep pink indicates too little.

(c) Test color charts are available to guide the operator.

Step	Procedure
1. Sort and scrape soiled eating utensils and dishes	Sort at collection points in scullery. Scrape food with plastic brushes as gear is loaded. Sort dining facility trays, glasses, flatware, dinnerware, pots and pans, as prewash rinse proceeds. Discard cracked or chipped pieces.
2. Prewash rinse	Use fine forceful spray of warm water. Maintain temperature at 110F. Rinse each piece separately.
3. presoak utensils	Place knives, forks and spoons in sinks with detergent water 130F - 140F. Soak no longer than 15 minutes. Scrub stubborn grease and food with brush. Soak dishes or dining facility trays with Cu deposits in cold water.
4. Load racks with prerinsed gear (for machine operation)	Use separate racks for different sized and shaped articles. Place glasses, cups and bowls upside down. Place knives, forks and spoons in separate cylindrical containers with eating surfaces up. Do not crowd. Rack saucers or plates of similar size so wash spray can reach entire surface. Do not overlap. Rack pots and pans After thorough hand washing.
5 Wash sequence	Wash articles manually or by machine in this order: glassware, dishes, dining facility trays, pots and pans.

Figure 1-23 - Preparing Soiled Utensils for Washing (Manual and Machine Operation)

l-B-2.d.(4) Rinse injectors or wetting agents have several general uses in cleaning operations.

(a) In dishwashing, these agents are valuable for enhancing rinse water runoff from clean dishes, allowing them to dry quickly. This prevents water spotting on utensils.

(b) Dishwashing detergents may contain wetting agents for effective action in removing fats, oils and grease. If such compounds are used, dispensers are not required.

e. Manual Dishwashing Procedures.

(1) The first requirement for manual dishwashing is suitable sinks or vats. three-compartment sink of adequate width, length and depth, with drain board on each end, is recognized as the most efficient facility for pot and pan washing and for baking or other work areas. See Figure 24. Other facilities recommended are a preflushing apparatus and drain shelf for use following the final sanitizing in the third sink.

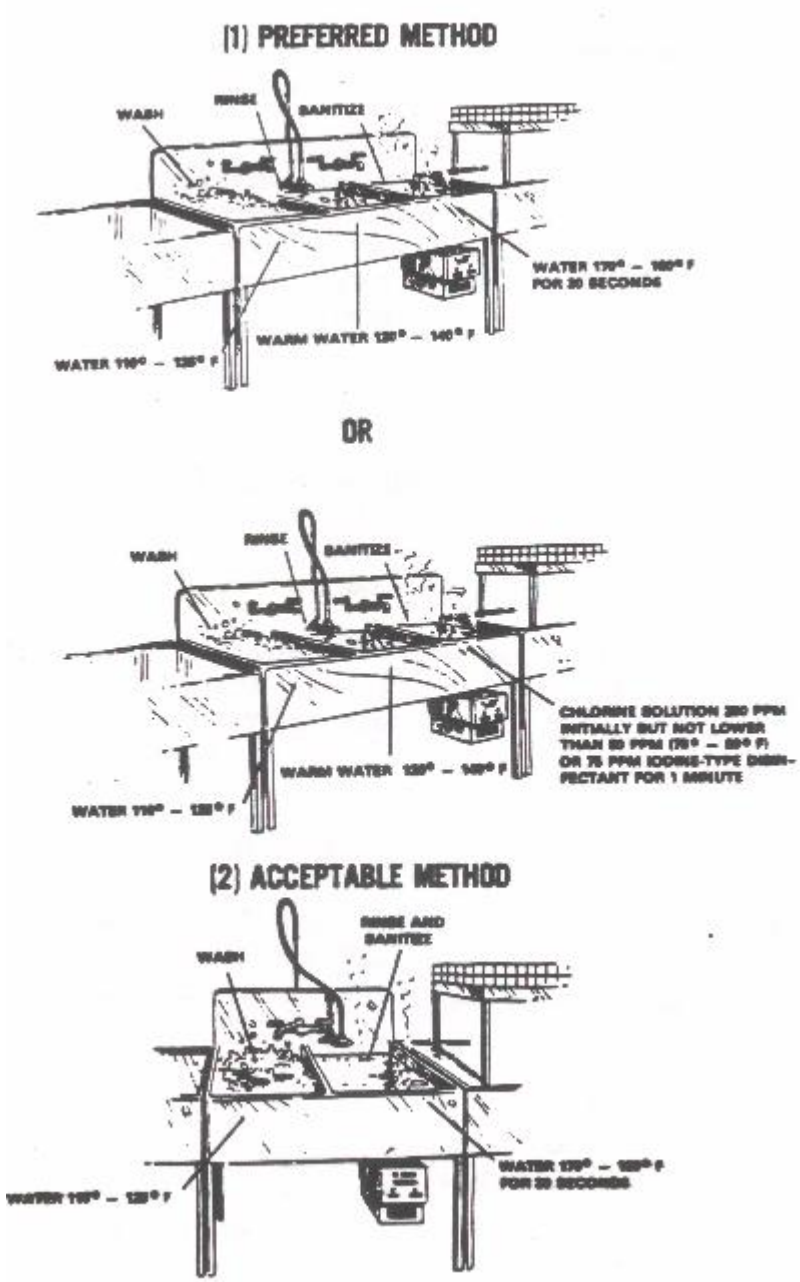


Figure 1-24 - Methods for Manual Washing of Dishes, Cooking and Serving Utensils

l-B-2.e.(2) Equipment accessories for manual dishwashing should include:

(a) Dip and drain baskets.

(b) Booster heater for maintaining water at 180F.

(c) Thermometers to make frequent checks on water temperature.

(d) Approved brushes for washing glasses and other gear.

(e) Clean dish storage facilities.

l-B-2.e.(3) The volume of water in the wash sink must be known to figure proper detergent concentration. A quick way to determine this is to use a 5-gallon can to fill the wash sink to the level required.

(a) Total the number of gallons added and mark the water level with a permanent material.

(b) The correct amount of water can be measured for 5ubuent washes by filling the sink to the line.

(c) The proportion of detergent to add to the wash water can then be determined.

(d) The detergent must be measured carefully and concentrations corrected during the washing operation.

(e)Follow manufacturer's directions for using detergent.

(4) A wash temperature of 110F-l25F is needed to ensure removal of grease on utensils and other gear. The temperature of the wash water can be easily determined If a thermometer is secured permanently to the sink so its bulb rests in the watt water.

(5) A sanitizing agent may be added to the wash water to keep down bacterial population as items to be washed are added. There is a constant buildup of bacteria in the wash sink and the bacteria are transferred to the rinse vat. Check this as thoroughly as possible.

(6) The second sink in the manual washing arrangement is used to remove the detergent. For this operation to be successful, keep the rinse water clean and maintain at 120F to l40F. Replace the rinse water as it becomes soiled.

(7) If preflushing, washing and rinsing are done properly, the job of adequate sanitizing is possible in the third sink.

(a) if final rinse water is used as the only means of sanitizing, maintain it at 170F - 18OF for adequate sanitizing action unless a chemical sanitizer is used.

(b) Prepare chemical sanitizers as directed in Figure 1-25.

(8) When hand washing, do not use dishcloths, dish mops or soft sponges because they become soiled, soggy and provide a medium for bacteria growth. Plastic brushes with firm bristles provide the friction necessary for cleaning.

(9) Clean thoroughly for effective sanitization. Keep the sinks and brushes clean. Drain wash water frequently, refill with clean, fresh hot water and add proper amount of detergent.

(10) Step-by-step procedures for manual dishwashing are in Figures 1-26 and 1-27; checkpoints are in Figure 1-28.

Calcium hypochlorite (tech., 70%)
(for initial dilution 200 ppm):

	Amount				
Water (70F-80F), gallons	5	10	15	20	25
Sanitizers:					
Teaspoonsful	11/2	3	4 1/2	6	7
Cubic centimeters	6	II	17	23	28

iodine-type disinfectant (for dilution 25 ppm,
use 1 ounce to 5 gallons of water):

	Amount				
Water (720F or room temperature), gallons	5	10	15	20	25
Sanitizers: fluid ounces1	1	2	3	4	5

Chlorine-iodine-type disinfectant (food service)

For sanitizing dining facility gear and utensils:
Water (500 F minimum), gallons 25(100 sets of mess gear)
Sanitizer, ounces 4.77 (1 pouch)
Instructions:

1. Rinse thoroughly in sanitizing solution.
2. Immerse in clean sanitizing solution for 10 seconds.
3. Air dry.

For sanitizing fruit and vegetables (locally grown):
Water (1000 F), gallons 20
Sanitizer, ounces 4.77 (1 pouch)
Instructions:

1. Remove bruised spots from fruits or vegetables. Do not cut or peel.
2. Wash thoroughly in sanitizing solution.
3. immerse in clean sanitizing solution for 10 minutes.

1-0r use 1 teaspoon per gallon.
Note: For sanitizing large equipment, spray or swab with solutions containing twice the quantity of chemical sanitizers recommended above.

Figure 1-25 - Recommended Quantity of Chemical Sanitizers

Step	Procedure
1. Prepare water for washing, rinsing and sanitizing.	Fill sink with hot water (11OF - 125F). Add proper type and quantity of dishwashing detergent. Fill second sink with fresh hot water of 120F - 140F temperature for rinsing. Improvise flush rinse if only two sinks are available. Fill third sink with water to level to cover dip and drain baskets. If hot water is sanitizer, maintain 170F - 180F. Add proper type and quantity of sanitizer used.
2. Wash	Prepare soiled dishes. Use glasswashing brushes on glassware, washing inside and outside. Wash all other gear with sanitized plastic brush.
3. Rack	Place gear in dip and drain baskets. Rack glasses, cups and bowls upside down. Do not crowd. Keep similiar articles together. Place washed knives, forks and spoons with eating surfaces up in basket to facilitate reversing when ready to store. Place plates and saucers of similar size in one basket so rinses may touch entire surface. When first basket is full, rinse and sanitize as suggested in steps 4 and 5 to allow time for articles to air dry and free basket to be reused.
4. Rinse in second sink	Use intermediate running water spray rinse if hot water second sink is sanitizer; or use second sink to rinse. Rinse off all detergent before sanitizing. Change water frequently. Maintain rinsewater at 120F - l40F.
5. Sanitize in the third sink	Use a thermometer to recheck temperatures: at least l70F for water sanitizer (75F – 80F if hypo-chlorite sanitizing solutions are used). Plunge baskets in l70F water for 30 seconds, or Plunge baskets in 75F - 80F solution of 200 ppm hypochlorite solution (70% available chlorine) for one minute, or Plunge filled baskets in solution of. 25 ppm iodine-type disinfectant solution for one minute, or Plunge filled baskets in the disinfectant solution given in manufacturer's instructions.
6. Dry	Lift baskets out on drain boards. Air dry only.

Figure 1-26 - Directions for Manual Washing of Eating Utensils

	Step	Procedure
1.	Rinse after use, scrape and sort	Flush out inside of pans with hot water spray after Sort heavy pots and pans, steam table insert, butt bowls, ladles, pitchers and other equipment into similar kinds.
2.	Soak	Fm deep sink 34 full of hot detergent water. Soak rinsed parts. Use cold-water soak for pans used to cook starch or egg dishes.
3.	Prepare wash rinse and Unitize	Sink 1: Wash water of 110F- l20F. Check temperatures. Change water often. Sink2: Rinse water of l20F-l40F. Check temperatures. Change water often. Sink 3: Rinsing and sanitizing water must be at least 17OF.
4.	Wash pots and parts	Scrub one pan at a time thoroughly inside and outside with a clean, sanitized brush. Use wire brush to remove carbon of burned food. Note: see description for descaling bread pan if heavy cleaning is required for these pans.
5.	Rinse pots and pans to remove detergent	Immerse pans.
6.	Sanitize	Heavy utensils must be sanitized by spraying or swabbing with double-strength sanitizing solution. Use hypochlorite solution or iodine-type disinfectant in proportions. See table.
7.	Dry	Allow all pans to drain and air dry on clean surfaces or racks.
8.	Store	Place upside down or covered, if necessary, to hang.

Figure 1-27- Directions for Handwashing Pot and Pans (Cooking/Serving Utensils)

GLASSWARE

WASH FIRST OR SEPARATELY

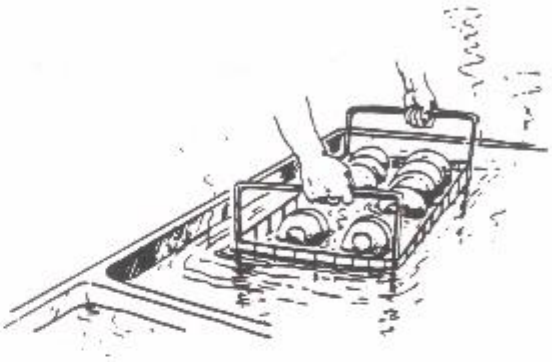
USE SPECIAL BRUSH

DISHES

WASH

AS USUAL

RINSE



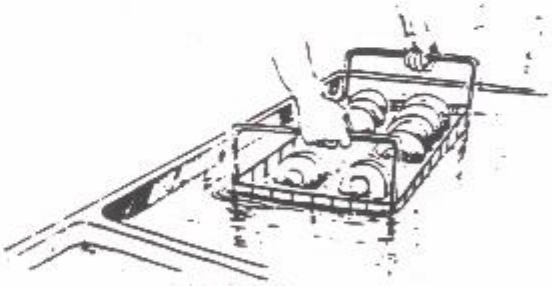
WASH, RINSE, AND SANITIZE

AS USUAL

RACK CORRECTLY

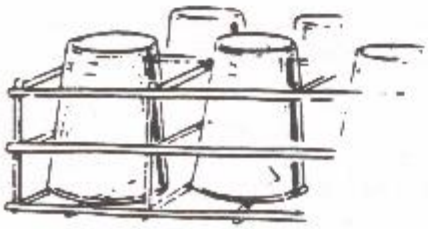
RIMS DOWN

SANITIZE



AIR-DRY

STORE, RIMS DOWN ON CLEAN SURFACE



AIR-DRY

1 MINUTE OR MORE

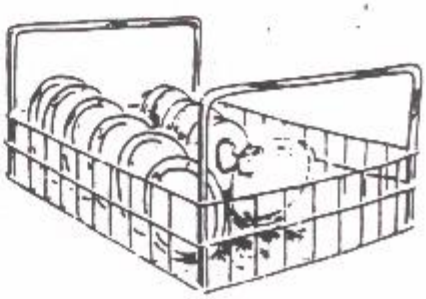


Figure 1-28 - Checkpoints in Manual Dishwashing

l-B-2.f. Sanitizing. All eating and drinking utensils, surfaces of utensils and equipment that contact food must be sanitized by one of the following methods:

(1) Immersion in clean, hot water at least (170F) for at least 30 seconds.

(2) Immersion for one minute in a sanitizing solution containing:

(a) At least 50 PPM of available chlorine at least 75F.

(b) At least 200 ppm of available chlorine at least 75F or, if equipment is too large for immersion, treat with live steam from a hose, provided steam is made from potable water.

(c) At least 2.5 ppm of available iodine in a solution having pH not higher than 6.0 and a temperature of not less than 75F.

(d) Any other approved chemical sanitizing agent.

(3) All utensils to be completely disinfected by these sanitizers must be immersed in a solution of the proper strength. See Figure 1-25 for strengths of chemicals recommended for sanitizing in CGDFs.

g. Machine Dishwashing. Procedures for dishwashing using double-tank machines in Figure 1-29. Procedures for dishwashing using single-tank machine are in Figure 1-30.

3. Care of Dishwashers.

a. Machine cleaning. High-standard dishwashing demands the machine be kept clean inside and out.

(1) Do not allow lime deposits from water to accumulate inside the tans.

(2) The machine must look and smell clean.

(3) Step-by-step directions for after-meal and daily cleaning of machines are in Figure 1-31.

b. Mechanical Maintenance.

(1) Machines properly maintained will operate with efficient service over a long period of time. If neglected, dishwashers, like any piece of mechanical equipment, will bring on costly repairs and decrease efficiency in cleaning and sanitizing.

(2) Keep a record showing replaced parts, when the machine was lubricated and serviced. This will be invaluable as a guide to pointing out mechanical deficiencies before a breakdown occurs.

c. Care of Machine During Operation. Certain preventive measures must be taken during machine operation to ensure proper maintenance of dishwashing equipment.

	Step	Procedure
1.	Fill wash and rinse tanks	Open fill (inlet valves. Water level must reach top of overflow tubes.
2.	Charge wash tank with dishwashing compound	Determine proper type and quantity. Place compound on scrap tray or Pour compound into dispenser feeder.
3.	Turn on water and steam	Open water supply and steam valves. Rinse tank (or booster heater if used to maintain temperatures). Check temperature rise: 18OF. Rinse tank.
4.	Start machine	Push start button. Operate pumps and conveyor one or two minutes to raise temperature in wash tank to 140F from rinse spray.
5.	Check temperature, sprays, detergent	Adjust temperature readings to: 140F - l60F in wash tank. If temperature rises, open fill valve for more water to prevent baking on of protean foods. 180F - l95F in rinse tank. Open or close steam valve to adjust temperature. Force of recirculating wash spray must be sufficient for adequate wash. Stir detergent and replenish as required.
6.	Feed racks into machine	Push each rack until forward end contacts conveyor lug only. Do not push further. Timing of wash is automatically determined by conveyor speed: Wash spray, 20 seconds; rinse spray, 20 seconds.
7.	Remove racks	Allow conveyor to push racks halfway out of machine before removing them.
8.	Air dry utensils and eating gear	Allow racks to set one minute to dry. Rap cutlery racks to free trapped water.

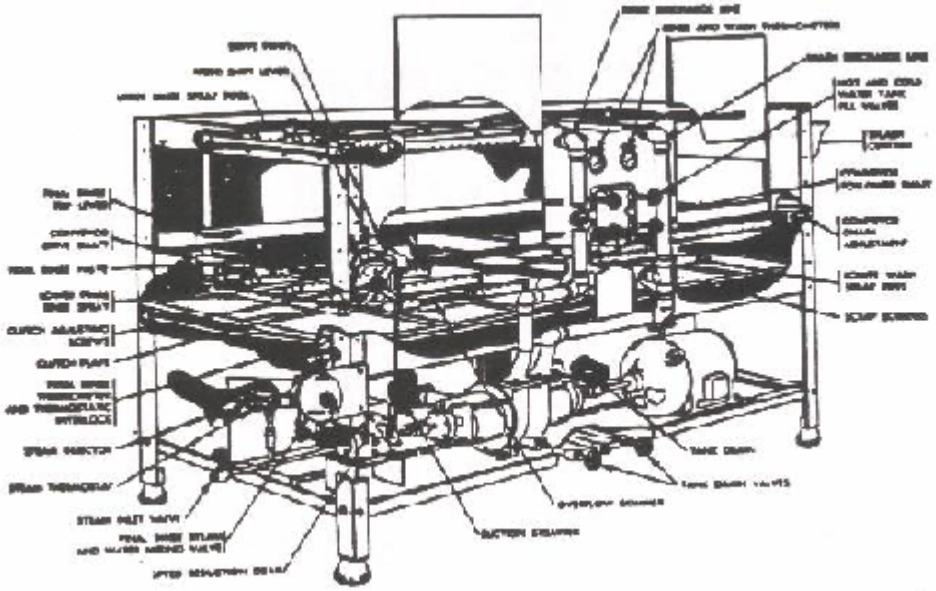


Figure 1-29 - Directions for Dishwashing Operation (Double-Tank Machine)

	Step	Procedure
1.	Fill tank	Close drain valve. Open hot water and steam valves to rinse water-mixing valve or booster. Partly fill tank with 140F water. Finish filling with 18OF to obtain a water mixture temperature of l60F to indicated level or top of overflow pipe. Turn off valves.
2.	Charge machine with dishwashing	Add proper type and amount of detergent to scrap tray or detergent feeder. Stir thoroughly.
3.	Start machine	Push start button and run two minutes to mix detergent and hot water.
4.	Check temperature, bypass valve	Wash tank thermometer reading should be 140F - 16OF. Rinse water reading should be 180F - 195F. Adjust rinse valve or booster.
5.	Feed racks into machine	Open door and push rack into machine. Close door. Move control handle to “wash” position and start operating cycle according to manual or automatic machine.
6.	Time wash and rinse cycles	Manual machines must operate wash cycle 40 seconds and control handle then moved to rinse for 10 seconds before moving to closed position. Automatic machines are timed to 40 seconds wash, 10 seconds rinse.
7.	Remove racks from machine	Open door and remove rack. Allow racks to remain on counter for one minute to air dry eating utensils. Rap silver racks to free water.

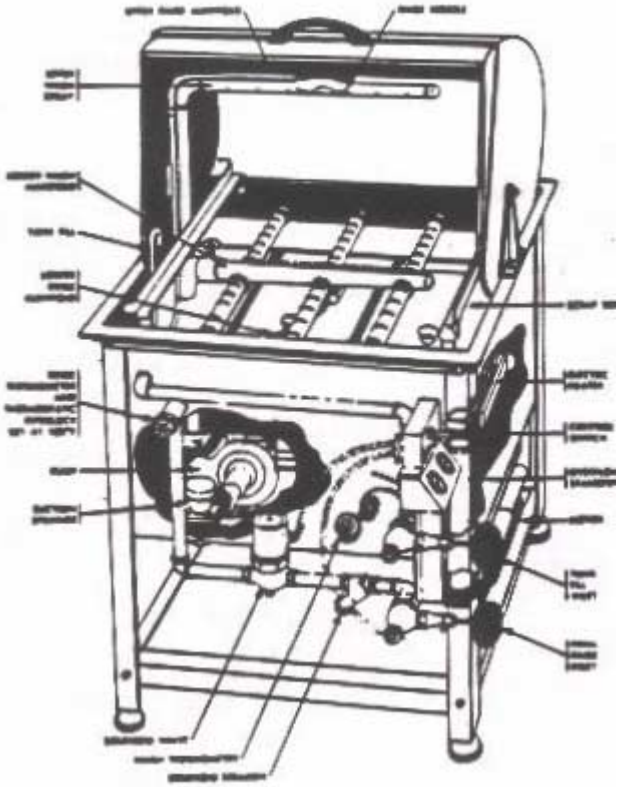


Figure 1-30 - Directions for Dishwashing Operation (Single-Tank, Door-Type Manual or Automatic Machines

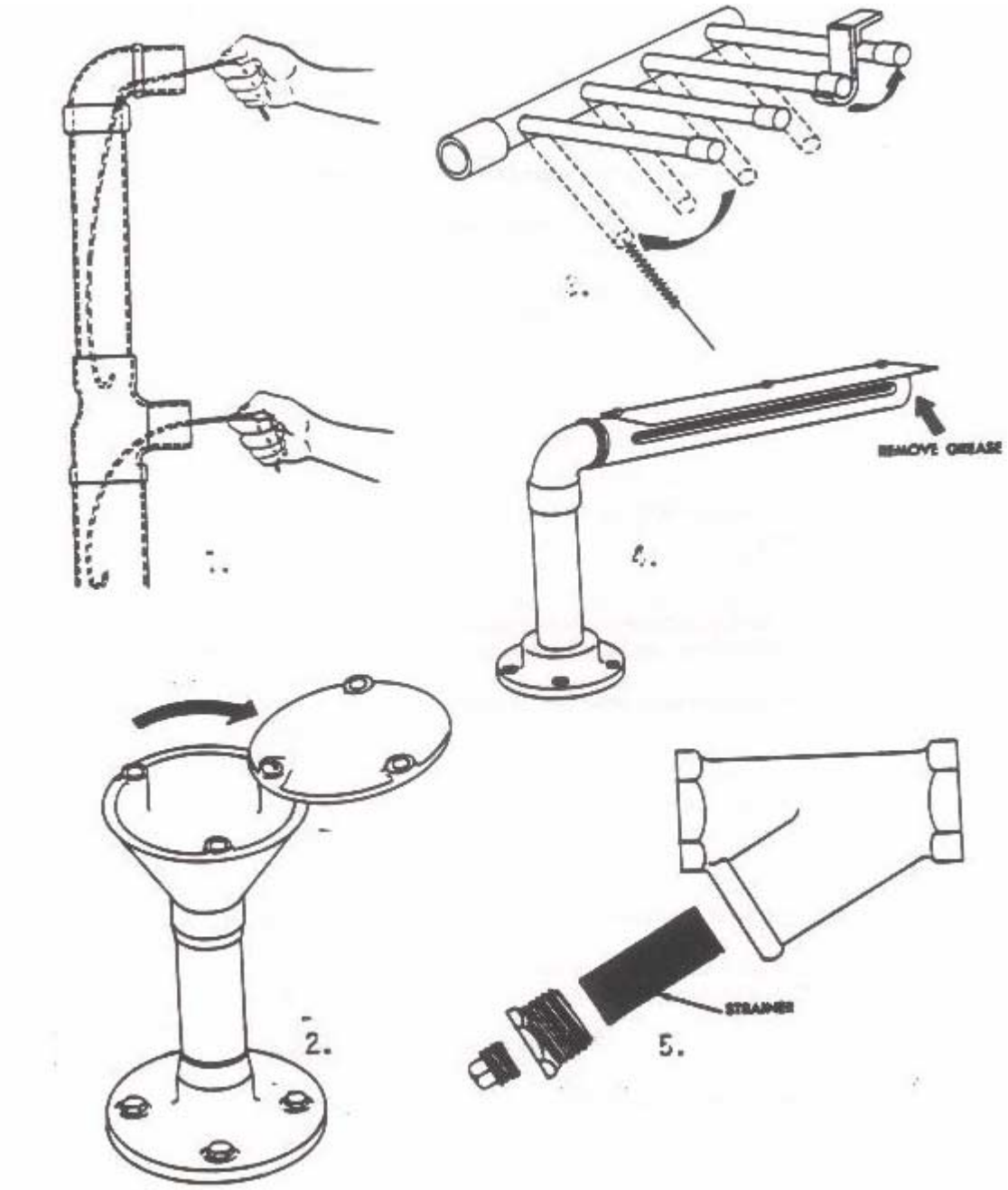
Step	Procedure
1. Shut off motor	Push stop button.
2. Close valves	Shut off the steam and hot water valves to rinse water circuits.
3. Drain tanks (wash and rinse) and pump	Open drain valves and allow tanks to empty. Clean out bottom of tanks.
4 Remove cleaning doors. Dissemble removable tank parts	Remove, soak and scrub with brush in hot detergent solution and rinse: Scrap trays Pump intake or suction strainer Wash and spray assembly Make sure both upper and lower rinse pipes are free of lime deposits. Remove caps and brush thoroughly. Note: Daily cleaning must include scrubbing interior and exterior of machine and hosing down with hot water when disassembled.
5. Replace removable parts and fill tank	Be certain all spray manifolds and the scrap tray are in place. Close drain valve or valves of wash and rinse tanks if double tank. Check tank cleanliness.
6. Single-tank machines: Run machine 5 complete cycle without rut:	Prepare cleaning solution as follows: Fill tank half full with water (both tanks, if double tank).
Double-tank machines: 5 minutes	Open hot water and steam valves to rinse water lane or booster. Wash water temperature should be l40F - 16OF. Final rinse water temperature should be 18OF. Add 1/2 cup dishwashing compound. Start machine.
7. Stop machine and drain	Open drain valves and empty tank. Close drain valves.
8. Remove and scrub splash curtains (Double-tank machine)	Unsnap two ends and center curtains. Using scrubbing brush, scrub thoroughly with hot detergent water and rinse. hang to dry. Replace.

Descaling dishwashers (weekly or as required).

1. Fill the wash and rinse tanks 1/2 full of hot water.
2. Add descaling compound (orthophosphoric) as per the instruction on the container. Do NOT add detergent.
3. Open the steam valve to the rinse tank, bringing the rinse water temperature to 18OF - l95F.
4. Start the machine and operate for 1 hour.
5. Stop the machine, drain; refill with hot water and add two cups of dishwashing machine compound to the wash and rinse tanks.
6. Open the steam valve to the rinse tank, bringing the rinse water temperature to 180F - 195F.
7. Start the machine and operate for 5 minutes.
8. Refill and flush the tank several times with clear water until all traces of detergent and descaler are removed.

Safety Note: Dishwashing compound contains strong alkalies. Use rubber gloves when handling. Rinse with cold water if detergent comes in contact with skin.

Figure 1-31 - Directions for After-Meal and Daily Cleaning of Dishwashing Machines



The illustrations above show how to clean:

1. discharge line
2. assembly overflow
3. wash spray
4. long slotted overflow
5. solenoid strainer

Figure 1-32 - Cleaning Sprays, Drains, and Strainers on Dishwashers

1-B-3.c.(1) Preflushing dishes will help avoid clogging of spray nozzles with food particles.

(a) Clean wash water will prevent a buildup of bacterial population and subsequent contamination. Do not let wash water enter rinse tanks.

(b) Dishwashers are not garbage disposals. An accumulation of food scraps and grease greatly hampers the washing operation.

(c) Figure 1-32 gives directions for cleaning sprays, drains and strainers on the dishwasher.

(2) Check water flow pressure using a proper gauge.

(a) On spray-type machines, flow must not be less than 25 pounds per square inch on line and not less than 10 pounds per square inch a rinse nozzles.

(b) Vacant.

(3) The procedure for racking gear for washing is equally as important as preflushing.

(a) Rack all items to permit washing solution and spray rinses to contact the surfaces of the articles.

(b) Overloading as well as improper placement of items on racks will impede the operation.

(4) Use the proper dishwashing compound. The compound procured for use in Coast Guard dishwashers prevents formation of scale on the interior of the machine rid hard-water film on articles being washed as it is high alkaline and will saponify and emulsify grey film residues.

(a) Detergent concentration must remain constant to ensure proper cleaning.

(b) Regular cleaning of the detergent dispensers, mechanical or electrical, is required in addition to frequent checks on condition and operational efficiency.

(c) Mechanical devices require as close a vigil as hand-operated devices so the same rule applies to wetting-agent dispensers that operate automatically or semiautomatically.

4. Storage of Sanitized Eating Cur and Utensils. Proper storage of cleaned and sanitized eating gear and utensils is extremely important. All is lost in sanitation if inadequate and improper storage allowed cooking and eating utensils to become recontaminated by dust, insects and bacteria.

l-B-4.a. Drying procedures.

(1) If sufficiently hot water was used in the final rinse and draining was adequate, utensils will dry completely.

(2) If water remains on gear alter leaving the machine or after final manua1 rinse, rap racks or baskets sharply on drain sinks or counters to free entrapped water. Do not towel dry.

(3) Scrub and sanitize drainboards after each use with a combination detergent-sanitizer solution.

b. Transporting Cleaned and Sanitized Equipment. The cleaned and sanitized equipment must then be safely transported to storage areas.

(1) Dishes must not be so carried they come in contact with the personal clothing of operators. Handling gear without sanitized gloves is strictly forbidden. Surfaces of eating utensils that come in contact with the mouth bowls of spoons, tines of forks and edges of cups and glasses must not be contaminated.

(2) Use portable carts or self-leveling dish carts to transport cleaned articles. Wash the carts daily with hot water, a detergent and a sanitizer.

(3) As shelves and flatware holders are emptied, they should be cleaned and sanitized. These special baskets or containers for silverware must be handled so the inner surfaces are not touched when transfer is made from the dishwasher.

c. Proper Storage of Cleaned and Sanitized Articles.

(1) Figure 1-33 shows proper storage of glasses and cups.

(2) Figure 1-34 gives step-by-step sequence for proper storage of cleaned gear.

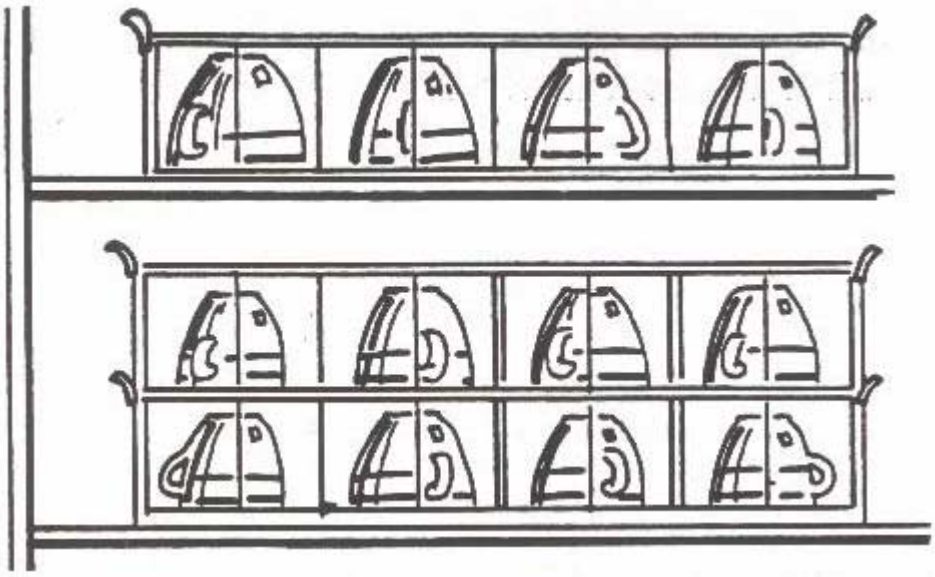


Figure 1-33 - Properly Stored Glasses and Cups are Stored "Bottoms Up," Preferably in the Wire Baskets or on Trays

Step	Procedure
1. Keep storage areas clean	Wash storage shelves frequently with hot detergent water and sanitize with solution.
2. Keep transport equipment clean	Wash, rinse and sanitize the following after use: Soiled dish carts, food wagons. Dishwashing racks, dip and drain baskets (stack to dry off deck). Silverware compartments. Clean dish table area.
3. Handle all cleaned gear in a sanitary manner	Personnel must wash hands and rinse in germicidal solution before working with cleaned gear. Place trays containing inverted glasses on shelf to eliminate contamination. Use similar storage for bowls and cups. Prevent contamination of plates when storing. Catch plates coming off flat-type conveyor with gloved hands that are clean and sterilized. Turn dishes face up; stack in easy piles to handle when air dry. Invert machine-cleaned silverware handles up for wash baskets into cylindrical-shaped containers or compartments for storage.
4. Store clean, air-dried pots and pans	Place upside down or cover. Never hang where overhead leakage can contaminate or splashing from cooking equipment or deck washing occurs. Improper storage means rewashing and sanitizing before use.

Figure 1-34 - Directions for Storing Cleaned, Sanitized Eating Gear and Utensils

l-C. Maintenance of Food Service Areas.

Galleys, bake shops, meat and vegetable preparation areas, dining halls and & other facilities where food is prepared, served or dispensed constitute the tot physical plant of the food service operation. Methods for maintaining consistent excellent sanitation throughout the entire food service area are given below.

l. Porcelain or Tile Surfaces.

a. Periodic special cleaning is required to keep porcelain and/or tile surfaces clean and gleaming.

(1) An all-purpose cleaner-detergent is suitable for this type of work Wash or scrub all surfaces with the cleaner; then rinse and wipe dry.

(2) If greasy or mineral films appear, use a destaining compound remove. Rinse and wipe dry. Daily use of this compound shot not be necessary.

1-C-l.a.(3) If water spots, fingermarks or streaks are wiped up daily, dulling deposits will not appear on porcelain surfaces.

2. Bulkheads and Overheads.

a. Care and Cleaning.

(1) Vacuum cleaning is the recommended method of dry cleaning bulkheads and overheads. Frequent cleaning by machine will prevent grit, lint and dust from becoming greasy and hard to remove.

(2) Complete cleaning includes washing down walls with recommended cleaning solutions, followed by adequate rinsing and sanitizing. Mild detergent solutions are recommended for cleaning painted surfaces.

(3) If food-preparation and service equipment is properly located, bulkheads and overhead areas are easily accessible for cleaning.

(a) Use a wall brush for dusting instead of using a machine cleaner.

(b) For wet cleaning and sanitizing, use a clean sanitized squeegee.

3. Decks.

a. Regular after-meal cleanup is necessary to prevent an accumulation of filth, and frequent in-between cleaning is required if deck cleanliness is to be maintained at a peak standard. When food is spilled, wipe it up immediately.

b. Do not sweep decks and dining halls during food preparation and service because dust rises and will fall on food and work tables.

(1) Pick up waste and throw it away.

(2) Sweep decks thoroughly with floor brushes or machine cleaners. Use suitable sweeping compounds. Do not use wood shavings on floors.

c. Use a neutral detergent for wet cleaning because this type does not affect the flooring materials as do strong alkaline materials, rough abrasives and very hot water.

(1) Shipboard galley and bakery decks usually have magnesite or terra cotta coverings that can withstand much heavy-duty wear if there is good maintenance.

(2) improper cleaning materials and methods (such as strong, caustic-base soaps, salt water, rough abrasives or too hot water) dull colors.

(3) Never hose or flood covered decks.

d. Promptly repairing deck coverings, recementing loose tiles and repairing faucet leaks prevent accidents and extend wear.

l-C-3.d.(1) If spills are wiped up quickly and excess water is kept off the decks, moisture is less likely to seep under the covering and cause buckling and loosening.

(2) Repair leaks to prevent accumulation of water on decks. Never use excess water on deck coverings. Follow recommended cleaning procedures to prevent replacement of expensive deck coverings.

(3) The procedure for routine cleaning of decks is given in Figure 1-35.

(4) The recommended method of cleaning concrete floors is:

(a) Cover oil or grease with oil and water-absorbent material.

(b) Wash floor with a fresh-water solution containing a wetting agent.

Recommended method of cleaning:
Linoleum tile
Vinyl and vinyl a8beutm tile
Rubber tuna-
Mete
Rubber switchboard matting
Ceramic tile
Painted decks

Step.	Procedure
1. Prepare cleaning solution…...	Use 2 tablespoons hand dishwashing detergent per gallon of warm (not hot) and fresh (not salt) water.
2. Swab.....	Use scrubbing machine with circular brush (or stiff bristle tampico hand brush). Apply a minimum of solution.
3. Rinse.....	Use clean water and mop. Swab up all water, cleaning solution, and dirt until surface is barely damp
4. Remove spots.....	Remove heavy dirt and grease using a cloth moistened in mineral spirits.

Figure 1-35 - Directions for Cleaning Decks and Deck Coverings

4. Ventilation Systems. Good air circulation is a basic requirement of proper sanitation because it: 1) reduces condensation of steam and 2) minimizes heat, vapors, smoke, fumes, odors, and soiling.

a. Benefits of Fresh Air Systems. The beneficial effects of fresh air or a controlled air-conditioning system in all spaces where there are food service operations cannot be overemphasized.

(1) Mold and bacterial growth are inhibited where there is ample, dry, clean air.

l-C-4.a.(2) Smudged bulkheads and overheads are not conducive to proper housekeeping or sanitation.

(3) Working conditions are greatly influenced by temperatures, and control of atmosphere is conducive to maximum health of personnel and environment sanitation.

b. Ventilation Hoods.

(1) Prevent hoods over equipment from accumulating grease, which drips back into food being prepared or onto surfaces of equipment where contamination of food is possible.

(2) Filters must be removed and soaked in a hot (180F), strong detergent solution. Scrub with a brush. Rinse under hot running water or by applying steam from hose. Removable filters may be run through the dishwasher.

(3) Tops of hoods, globes and wire jacket protectors must be brushed down weekly and washed free of grease.

(4) Spray sanitizing agent on the hood after cleaning. if there are no facilities to take care of excess waste from spray, rinse the hood off with a sponge dipped into a sanitizing solution.

(5) For detailed cleaning instructions of the new Gaylord ventilator hood, see Figures 1-36 and 1-37.

The following is the recommended daily maintenance for the Gaylord Ventilator System on ships:

1. Turn off the blower.

2. Turn on the steam or hot water for approximately 10 minutes each day. This time may vary depending upon the type of equipment and kind of cooking being done.

3. Visual check: A visual check must be made immediately following the steam of hot water cleaning.

   A. When visually checking the ventilator, manually trip the Gaylord damper control switch and open the inspection clean-out doors, to more adequately check the grease extraction area.

   B. See if all the grease, dust and lint have been removed from the interior of the ventilator. If there is an area remaining that has not been adequately cleaned, it indicates one of the spray nozzles has become clogged. if this is the case, remove the clogged nozzle cap, clean with a small wire and replace.

   C. Manually reset the Gaylord damper control switch.

4. Final cleaning: Wipe the exposed front surface of the movable grease-extracting fire damper baffle and adjacent exposed areas.

5. The ventilator is now clean and ready for operation.

Figure 1-36 - Gaylord Ventilator System Maintenance (Ships)

Daily Maintenance and Operation

Starting the ventilator:

1. Before the ventilator will start, all damper-control switches must have the plunger arms pushed in and locked in the "reset" position.

2. Push the "start" button on the C- 100 exhaust control cleaning station to place the ventilator in operation.

Stopping and cleaning the ventilator:

1. Push the "stop" button on the C- 100 exhaust control and cleaning station.

   a. Blowers will shut off. Note: When the blowers serving the ventilators are shut off, by pushing the "stop" button on the C- 100 exhaust control and cleaning station, the units are automatically cleaned.

   b. Hot water or hot detergent water installed on some shore stations is automatically released into the interior of the ventilator for the length of time previously set on the timer in the C-100 station.

      (1) The adjustable timer in the C-100 exhaust control and cleaning station can be set for a cleaning cycle from 0 to 10 minutes. An average cleaning cycle is approximately 5 minutes.

      (2) At the end of the cleaning cycle, the hot detergent water is automatically shut off.

2. After completion of the cleaning cycle, open the inspection doors above the shelf of the ventilator and see if all the use, dust and lint were removed from the interior of the ventilator. If there is an area that was not adequately cleaned, it indicate a clogged spray nozzle. Remove the clogged nozzle, clean it with a small wire and replace.

3. Check the main grease gutter and drain (located just below the air entrance of the ventilator) for foreign material.

4. Check the detergent level in the detergent tank (installed on some shore stations). If low , refill.

5. Wipe the exposed front surface of the movable grease-extracting fire damper baffle at the air entrance of the ventilator as well as other exposed exterior surfaces. When the ventilator is clean, push the "start" button on the C-100 exhaust control and cleaning station to restart the blowers.

The ventilators must be cleaned daily.
The fire-protection system must be periodically checked.
Testing can be accomplished by pushing the remote fire pushbutton switch, duplicating the action of the thermostats.

Note: The remote fire pushbutton switch may be interconnected with the general fire alarm system. Notify authorities when testing the system.

Figure 1-37 - Gaylord Ventilator System with Automatic Controls (Shore Units)

l-C-4.c. Window Units. There are many suitable solutions available for cleaning glass. The major factor in selection of a cleaner is ease of use. To clean all types of glass surf aces, spray the liquid cleaning solution on the glass and wipe off with a soft cloth or paper towel.

5. Lighting System. Sufficient lighting in all areas of food storage, preparation and service, and in scullery operations is a fundamental requirement of proper sanitation and safe working conditions.

a. Adequate Lighting Aids in the Area Cleaning and Sanitizing Process.

(1) Grease, dirt and vermin can be more easily detected and corrected where there is ample light.

(2) Lighting in storage areas must be sufficient to read labels and identify food and supplies.

(3) Inspection of the condition of stored items is greatly facilitated by proper lighting.

b. Routine Cleaning of Light Fixtures, Particularly Bulbs, For Adequate Lighting.

(1) Remove and clean globes with warm detergent solution to eliminate the accumulation of din and grease film.

(2) Be certain surfaces and globe ends am absolutely free of water before replacing in electrical sockets.

(3) Wipe bulbs with a damp cloth. Do not immerse bulbs in water.

6. Storage Areas. Fresh and frozen food items are perishable and must receive proper handling in transit and storage to reduce risk to the health and welfare of personnel who prepare and eat foods.

a. Transporting Fresh and Frozen Food Items.

(1) During loading and unloading on docks, piers or onboard, keep areas as clean as possible.

(2) Long exposure to weather will hasten spoilage.

(3) Daily checks on the sanitation of dry, freeze and chill spaces are essential.

(4) Mold and decay go hand-in-hand with poor housekeeping.

(5) Decks, grating, bulkheads and overheads must be cleaned, sanitized and aired as often as practical.

(6) Cleaning and defrosting of refrigerated spaces must be done when stocks are low.

l-C-6-b. Environmental Considerations. other fundamental requirements to consider before storage are: 1) air circulation, 2) temperature, and 3) humidity. These factors must be controlled to ensure a continuation of optimum storage conditions.

c. Cleaning Equipment. Brooms, mops, vacuum cleaners, etc., as well as supplies used for cleaning and sanitizing, must be stored away from all foods.

(1) These materials must be clearly labeled and identified for specific uses.

(2) Personnel must read labels on all materials prior to use.

(3) Supervisors instructing personnel must call attention to information on safety as well as on quantities of supplies to use for specific cleaning jobs.

7. Locker Facilities, Dressing Rooms and Toilet Facilities.

a. Locker Facilities.

(1) Street clothes and uniforms must never be worn in the galley. Adequate, clean and orderly facilities must be provided for personnel to keep and change clothing to be worn when performing routine duties in food service operations.

(2) Where justified, special uniforms, aprons and mess caps must be supplied for personnel. These clothing items must be laundered after use and returned to the lockers.

(3) Provide adequate space for hanging these clothes because they can contaminate food, equipment and preparation surfaces.

b. Dressing Rooms.

(1) Dressing rooms or designated areas for changing and storing clothing must be located outside the areas where food is stored, prepared and served.

(2) Dressing areas and lockers must be clean and orderly at all times.

c. Toilet Facilities.

(1) Conveniently located toilet facilities must be accessible to personnel at all times, but must not open directly into food preparation areas.

(2) Plumbing facilities must be completely enclosed and have tight-fitting, sell-closing doors.

(3) These areas must be adequately equipped with proper waste receptacles, toilet paper and an approved hand-drying device or sufficient disposable towels.

1-C-7.c.(4) Lavatories must be located in or immediately adjacent to toilet areas as well as in food preparation areas.

(a) These lavatories must be kept in clean and orderly appearance.

(b) Soap or detergent supplies with hot and cold running water are required for use by personnel.

(c) Because hands are the most common vehicle of contamination of food, the importance of effective hand washing cannot be over-emphasized.

(d) The proper number and location of lavatories will permit convenient and expeditious use by all food service personnel.

8. Care of Stainless Steel. In today's modern galleys and food service areas, stainless steel appliances of all types are commonly used. Representative types are: 1) salad and vegetable sinks, 2) drainboards, 3) shelving, 4) counters, 5) tables and arts, 6) food preparation equipment, and 7) scullery equipment.

a. One of the first things to remember about caring for stainless steel is that it depends upon contact with air to retain its finish. If dirt and grease are deposited and remain for a lengthy period on the surface, the finish may be harmed. Constant care is the key to stainless steel preventive maintenance.

(1) Spot clean for hand and fingerprint smears.

(2) Wash all exterior surfaces of stainless steel appliances at lust once a day. Wipe off with a damp cloth to which a detergent and a sanitizer are added.

(3) Stainless steel must be rubbed dry so that water spots or streaks do not form. Wipe with a clean, dry cloth in the direction of the "grain" or polishing line in a horizontal direction.

(4) Stainless steel's brightness and luster will be maintained by using a solution of mild cleanser, ammonia and warm water.

b. Because some manufacturers put a permanent-type finish on stainless steel, use special polishes to retain the finish. Then polishes are usually composed of a silicone-base material and do not contain abrasives.

c. Because vigorous scrubbing and abrasives may do permanent harm, use these precautions in cleaning operations:

(1) Do not Leave strong sanitizing solutions on stainless-steel surfaces very long. Do not Law steel wool or stainless steel brushes or scraping instruments when doing routine cleaning. Use a fiber brush if these are stubborn spots. A nonabrasive cleaner such as pumice or any other very fine scrubbing powder or paste will remove baked food deposits and other minor discolorations.

l-C-8.c.(2) Test materials first before using, particularly if there is a heavy tint or discoloration. A mild organic detergent or paste will remove it. Cleaning materials of this type must be thoroughly rinsed of 1; stainless steel must be rinsed with clear water, followed by a rinse such as a solution of bicarbonate of soda to neutralize the acid. If grease deposits and baked on food spots are not removed with this treatment, vigorous scrubbing may be needed and some scratching may result.

9. Bakery Areas.

a. One of the chief responsibilities of the baker is to see the bakery area and equipment are kept clean and sanitary. The baker must know the job, be familiar with equipment, and apply good cleaning and sanitation practices. This will enable the baker to cooperate with the engineer to perform recommended preventive equipment maintenance.

b. A clean, wholesome work area invites voluntary cooperation by personnel to maintain orderliness and sanitation. A scrap of dough on a clean floor stands out like a sore thumb. A similar piece of dough falling on dirty and littered floor becomes only a part of the whole lack of sanitation and will not be noticed or picked up. The psychology of cleaniness and orderliness is that simple.

c. All utensils, equipment and stored ingredients must be inspected at least once a week.

d. Humidifiers for fermentation rooms and proof boxes must be thoroughly checked each week and cleaned to rid these units of flour, dust and water impurities.

(1) The drains and spray nozzles become clogged and the blower and coil units become slimy and covered with hard scale when not cleaned regularly.

(2) Sometimes mold develops on products.

(3) All ductwork must be disassembled and cleaned once a month.

(4) Control instruments and float valves must be checked for proper operation and cleaned weekly.

10. Garbage and Waste Collection and Disposal. CGDF's are responsibile for maintaining cleanliness and sanitation of equipment used in collecting and disposing of garbage and waste.

a. Containers.

(1) These must be leakproof and of nonabsorbent material outfitted with tight-fitting covers.

(2) Ashore activities must have a sufficient number available to handle the waste materials between collection periods.

l-C-lO.b. Storage Equipment. Garbage refrigerators, storage facilities or rooms are included in this category.

(1) Outside garbage-storage facilities ashore must consist of a concrete slab or a rack 12 inches off the ground for a single bank of containers and 18 inches above ground for a multiple bank of containers. Garbage and refuse containers must be located at least 100 feet from any entrance of a food service establishment.

(2) If enclosed areas are used for storing garbage, these must be constructed of an easily cleanable material.

c. Garbage Grinders.

(1) Place food wastes from dining facility collection and refuse from preparation in grinders if possible.
(2) Install these grinders to comply with applicable plumbing regulations at each activity.

d. Cleaning Garbage and Waste Disposal Equipment.

(1) Adequate cleaning instructions for maintaining garbage and waste disposal equipment must be given to scullery personnel as part of their training program.

(2) Step-by-step directions for cleaning trash cans and garbage grinders, garbage cans and garbage refrigerators are in Figures 1-38, 1-39 and 1-40.

	Step	Procedure
1.	Scrub	Pour I gallon of strong, hot detergent solution into each trash can. With brush, scrub vigorously inside, outside and bottom of each can.
2.	Rinse	Attach hose to hot-water spigot. Hose can inside and out.
3.	Drain	Invert to drain.
4.	Clean cleaning area	Rough-clean by sweeping trash into pile. Brush into dust pan and empty into appropriate container.

Figure 1-38 - Cleaning Trash Cans

	Step	Procedure
1.	Shut off motor and empty Tank	Push stop button.
2.	Clean tank	Dump bucket of strong, hot detergent solution into tank and scrub interior.
3.	Rinse tank	Flush interior with hot water.
4.	Clean exterior	Scrub with hot detergent solution and clean brush; rinse.

Figure 1-39 - Cleaning a Garbage Grinder

	Step	Procedure
1.	Sanitize	Invert empty garbage can over steam jet and turn on steam for one minute or longer if not kept in garbage refrigerator.
2.	Clean	Pour one gallon of hot detergent solution into each garbage can and scrub vigorously with gong brush inside, outside and bottom of each can.
3.	Rinse	Attach hose to hot water spigot. Hose can inside and out.
4.	Drain	Invert to drain.
5.	Clean lids	Scrub lids with brush dipped in strong hot detergent solution.

Figure 1-40 - Cleaning 20-gallon Cans

	Step	Procedure
1.	Clean away gear not removed to scullery and wipe off	Using a hot detergent solution, wipe tabletops and chairs with a clean towel.
2.	Sanitize after each use	Dip towel in sanitizing solution. Wipe entire top surface, underside, sides and legs of tables. Keep wiping material and solution clean. Change them frequently.

Note: Vinegar cruets, sugar dispensers and salt and pepper shakers must be removed from tables, emptied, washed, sanitized and refilled at frequent intervals. Between meals or dining periods, wipe off these containers with a sanitizing agent.

Figure 1-41 - Directions for Cleaning Dining Tables, Chairs or Benches

1-C- 1l. Dining Tables, Chairs and Benches. Dining tables, chairs and benches within the dining facility area must be thoroughly cleaned and sanitized. Directions for cleaning these articles are in Figure 1-41.

12. General Cleaning procedures. For most cleaning procedures, a hand cleaning method may be employed. This procedure is called the "two pan" method.

a. The firs! pan is a solution containing two tablespoons of liquid detergent for each gallon of hot water.
b. The second pan contains hot clear water or a sanitizing solution. A germicide should be added to this pan. This solution is used to rinse all detergent residue from the cleaned surface.

c. A clean cloth should be used in each pan. A nylon-bristled brush may be used with first pan.

D. Cleaning and Sanitizing Supplies.

1. Purpose.

a. The object of cleaning food service facilities, equipment and utensils is to remove food and other soils that promote bacterial growth. Removable soils may be divided into several distinct types:

(1) Fresh soil or that which is seen after immediate use.

(2) Thin film or soil remaining as the result of ineffective cleaning. It may be seen also after a flushing with plain water. Thin films may r difficult to detect, yet sustain germ life.

(3) Built-up deposits or that caused by ineffective day-to-day cleaning methods may result in an accumulation of soil. Minerals become incorporated with various food materials, resulting in hard, difficult-to-remove soil.

(4) Dried deposits or an accumulation that results from drying of a heavy, crusty deposit baked onto equipment at high dishwashing or sanitizing temperatures. High heat burns deposit materials on equipment surfaces.

b. Sanitation. simply means the application of treatment designed to destroy remaining bacteria after cleaning. Unclean equipment will be inadequately sanitized because sanitizers do not act effectively in the presence of soil. Germs gain entrance to food when it is in contact with unclean equipment. The bacteria involved may not always be the type that creates illness. but many impart undesirable flavors and/or odors. Removing and destroying the unseen bacteria are just as important as removing the visible soil.

c. The preceding discussion on cleaning and sanitizing indicates why all equipment and the physical plant itself must be free of soil and sterilized.

l-D - Facilities and Supplies.

a. Selection and use of proper cleaning and sanitizing materials for specific types of jobs are essential to effective cleanliness, personnel safety and economy.

b. The cleaning and sanitizing products procured may be grouped according to their functions. The following list represents such a grouping:

(1) Cleaning Compounds.

(a) Dishwashing compounds.
(b) Soaps.
(c) Synthetic detergents.

(2) Polishing Compounds.

(a) Furniture polish.
(b) Metal polishes.
(c) scouring powder.
(d) Scouring pads and bricks.
(e) Waxes.

(3) Chemical Sanitizers.

(a) Calcium hypochlorite solution.
(b) Detergent sanitizer.
(c) Disinfectant germicidal and fungicidal.
(d) sodium hypochlorite solution.
(e) Disinfectant food service.

3. Water Hardness. Water is the most essential of ail materials used in cleaning. it is the medium that dissolves and energizes the cleaning power of detergents. It is also the carrier that transfers heat to dear' and sanitize equipment.

a. Causes and Effects.

(1) The mineral elements that make water soft or hard are of primary importance to effective cleaning operations. Water is judged hard or soft by a chemical analysis that determines the amount of calcium carbonate present.

(2) The use of hard water in the best types of cooking equipment can ruin the unit and require expensive repairs. The hard-water problem and methods of overcoming it must be understood in order to protect such equipment as coffee urns from the serious effects of lime deposits owing to hard water. When hard water is heated, the dissolved minerals precipitate; that is, they no longer remain in solution but deposit as solid matter on the interior walls of the container being heated. Equipment with heating elements having these deposits of lime or scale causes one or both of the following problems:

j-D-3.a.(2)(a) Poor Heat Conduction.

1 Heat transfer from the heating element to the water is slowed down considerably. it may increase heating time by five times.

2 Lime coating acts as an insulator.

3 Heat generated from the steam coil or electric heating element may cause either heating element burn out or the loss of operational efficiency.

4 High temperatures caused by the insulating layer of scale may change the structure of the metal in the bottom of the urn and result in cracking and leakage.

5 Droplets of water evaporate from the leaks, leaving yellow or white streak deposits on exterior surfaces.

(b) Corrosion and Wear of Fittings.

1 Soft solders or white leads, used in making fittings water-tight, corrode as soon as a leak develops.

2 Particles of scale seep into the drawoff system of coffee urns and clog and score faucet and valve seats, spray heads and safety valves.

3 Faucets may drip.

b. Removal of Lime and Mineral Deposits.

(1) If possible, remove lime deposits without completely dismantling the equipment by flushing out the system at the end of each service period. Do not use concentrated, strong acids to remove lime scale. These may affect the metal and fining inside the equipment.

(2) Mineral deposits from hard water in dishwashers deter proper cleaning and rinsing operations. If water is sufficiently softened by the addition of detergents or correct composition and quantity, this difficulty will not occur. Each ashore activity must be aware of the hardness of the water supply and take corrective action.

(3) One of the ingredients included in properly compounded detergents is intended to soften water. These materials act more effectively at certain temperatures. Handwashing compounds are formulated to act effectively at wash temperatures employed in hand washing. Machine dishwashing compounds contain materials that are more active and effective at higher temperatures.

4. Cleaning Compounds. There are two general classes of cleaning compounds: soaps and detergents. These are synonymous terms in the sense that both are cleaning agents. Soap is a good detergent, but not all detergents are soap. Soaps for many

l-D-4. (Continued)

years were the most universally used detergents; however, because soap has limitations, synthetic detergents have become more widely accepted.

a. Synthetic Detergents.

(1) Synthetic detergents have the following characteristics, which make them superior as cleaning compounds:

(a) Performance not affected in hard water.

(b) More soluble than soap.

(c) Lesser quantity required for sudsing.

(d) Will not form a precipitate in water.

(e) Can be used in water which has high salt and acid or alkaline content.

(2) See Figure 1-42 for information on standard soaps and detergents.

(3) Detergents on the market today may be grouped according to the work they do. There are three major categories:

(a) Neutral. This is a powder or flake material containing no abrasives or fatty acid soaps. Synthetic detergents (nonionic), also called wetting agents, are of thi5 type. These are used in manual cleaning to promote wetting when other detergents are not efficient. Another use includes the rinse injector operation in mechanical dish-washing.

(b) Alkaline.

1 Alkalies perform very useful functions as detergents. Used alone, alkalies have poor wetting and emulsifying properties. Wetting agents (nonionic detergents) will aid in this respect. All surfaces to be cleaned, regardless of type, must become wet to be cleaned properly. Water alone, as well as many detergent-water solutions, has poor wetting properties; there-fore, tiny crevices in and around soil deposits on a surface do not get wet. Displaced soil must be held in suspension to be floated off and removed from a soiled surface. Alkalies must contain some soap or detergent, or detergents must contain some alkali, to produce good cleaning action.

2 Alkaline detergents are widely used for routine and heavy-duty cleaning. These detergents are more effective in removing fats, proteins and heavy soil. The dishwashing compound used by the Coast Guard dining facility is highly alkaline. In solution, this will emulsify greasy food residues and, if used in proper proportions according to water hardness or softness, will never leave film on dishes or coat the inside of the dishwashers with hard calcium deposits.

FSC Group	Name	Description	Recommended Use
79	Detergent, general purpose	Liquid, water soluble concen-trated strength	For general maintenance cleaning, such as, removing dirt from floors, walls, ceilings and equipment.
79	Detergent, purpose, nonionic	Liquid, water soluble	For hand dishwashing. For preparing cleaning solutions that can be rinsed in fresh or salt water. Use to remove grease, oil and dirt from surfaces.
79	Detergent, general-purpose, nonionic	Liquid, oil soluble	Dissolves in kerosene, diesel fuel oil, high-flash coal tar naphtha, and similar hydrocarbon solvents. Can be rinsed in fresh or salt water. Use to remove grease and oil sludge from a variety ci surfaces. Some types of rust-preventive compounds and other similar soils respond to this compound.
79	Dishwashing compound, hand	Flake, may be used with hard or soft water	For manual dishwashing in sinks. A neutral synthetic detergent.
79	Dishwashing compound, machine	Granular or powdered, hard or soft water	For machine dishwashing. Use in deck cleaning solutions.
79	Soap, laundry	Bar, 25% max. rosin	Intended for soft to moderately hard water for general cleaning and washing.
79	Soap, laundry	Powder	Neutral soap intended for general purse cleaning in soft water.

Figure 1-42 - Cleaning Compounds

1-D-4.a.(3)(b)3 Dishwashing compounds are procured primarily for use in machines, but this compound may be used in cleaning solutions as a source of alkalies. it is imperative to avoid skin contact. The proper amount of dishwashing compound to use in any cleaning operation must be carefully plotted to avoid waste and to increase efficiency of the operation. Too much detergent is as bad if not worse, than too little.

4 Manual dishwashing detergents are a special type used for several cleaning problems. For most cleaning operations, 1/4 to 1/2 ounce of detergent in a gallon of fresh water or sea water, preferably hot, is sufficient. Heavier soils may require as much as 1 ounce of the product. For some applications, the addition of I to 2 ounces of an alkali, such as sodium metasilicate or machine dishwashing compound, will improve performance. If alkalies are used, the solution must be prepared with fresh water. Scrub, mop or wipe the solution into the oily soil, then rinse away the loosened soil with either fresh water or sea water. Cold-water rinsing is satisfactory but hot water may be used when it is desired to have steel surfaces dry quickly.

5 Pots and pans may be placed in a warm oven to eliminate moisture from the pan's folds and crevices.

(c) Acid. Acids are combined with detergent in compounds for special cleaning purposes, such as removing rust, scale and other deposits on metal surfaces. These are essentially mineral deposits. Ortho-phosphoric acid descaling solutions for dishwashing machines and bread pans are of this type.

c. Soaps.

(1) Soaps have valuable properties for certain cleaning operations; however, they have limitations for other uses. Never use soap used in dishwashers because the excessive sudsing will clog spray arms and coat eating utensils and inner walls of dishwashing machines.

(2) Use liquid soap in dispensers in locker rooms, toilets and areas adjacent to galleys for hand washing.

5. Polishing Compounds.

a. There are many suitable products for polishing and cleaning. Selection of proper products is important because unsuitable ones scratch or permanently etch surfaces of counters or equipment. When irreparable damage occurs, cleaning is more difficult. Do not use metal polishes on food-contact surfaces.

b. Polishing compounds do vary widely in function and use; yet, there is a characteristic common to this broad group of products. There are stable mixtures of insoluble materials such as oils or abrasives dispersed in water or organic solvents. Scouring bricks and pads are an exception, because the abrasive material they contain is not in solution until the actual mechanical cleaning operation begins.

c. The compounds listed in Figure 1-43 have specific uses as indicated.

FSC Group	Name	Description	Recommended Use
79	Pads, scouring	Nylon web with permanent abrasive	Pots and pans and other cooking utensil. Also suitable for general purpose cleaning.
79	Polish, metal	Liquid	Suitable for cleaning and polishing copper, brass, nickel chrome and similar metals (not for use on tableware).
79	Polish, metal	Liquid	For cleaning silver and silver-plated articles.
79	Scouring brick (pumice stone and holder)	Oblong blocks used with holder	For scouring and cleaning burned food and carbon from griddles and grills.
79	Scouring powder	Fine textured, mild abrasive with detergent without bleach.	Highly polished surfaces lass, tile, or other glass-like surfaces).
79	Scouring powder	Gray powder with detergent without bleach, abrasive	Contains abrasive suitable for porcelain surfaces; general galley equipment, floors. Not recommended for stainless steel surfaces.
79	Soap, scouring	Cake, ground feldspar	Glass or enamel surfaces or other fi cleaning.
79	Soap, scouring	Cake, Fit, ground quartz	Used on pots and pans for rough work.
79	Wax, floor	Water emulsion, flip-resistant	Free-flowing liquids for tile (rubber asphalt) or linoleum floors. Not to be used on wood..

Figure 1-43 - Polishing Compounds

l-D-6. Sanitizing Agents.

a. Two names applied to chemicals that kill pathogenic organisms are germicides and sanitizers. These will destroy harmful bacteria if properly used on thoroughly cleaned surfaces. Several types of sanitizers are available to activities; all are effective but some are easier to use than others.

b. Heat (hot water and steam) is preferred as a means of sanitizing most food preparation and service equipment. Coast Guard dining facilities having equipment that is stationary or too large to go through the dishwashers may sanitize with chemicals instead of steam or hot water.

c. Figure 1-44 lists chemical sanitizers.

7. Solvents.

a. A group of compounds called solvents, used to remove heavy deposits of minerals on the inside of equipment or burned carbon on the outside, must be used with caution; follow directions given by the manufacturers carefully.

Figure 1-45 gives descriptive and useful information about these products.

FSC Group	Name -	Description	Recommended Use
*66	Calcium hypo-solution*	70% available chlorine	For disinfecting and deodorizing galley and mess equipment.
79	Detergent-sanitizer	Liquid, all-purpose concentrate	Cleaning in buildings.
68	Disinfectant, germicidal and Fungicidal	Liquid, iodine-type	Sanitizing all types of cooking and serving equipment.
68	Sodium hypo-chlorite	5 to 10% liq-uid chlorine solution	General use in disinfecting and ocodor-izing galley and meat equipment.
68	Disinfectant, food service	Chlorine, iodine Easy to use. No safety or storage problems	Sanitizing all types of cooking and serving equipment and fresh fruits and vegetables (locally grown).

*Calcium hypochlorite solution, highly flammable, must be used only when other food service disinfectant is not available. Obtain the solution from the engineering department and the proper "use" instructions from the medical department.

Figure 1-44 - Chemical Sanitizers

FSC Group	Name	Description	Recommended Use
68	Cleaning compound bread baking pan		Removing burned carbon and grease from steel and tinned steel bread pans.
68	Orthophosphoric acid, 3596 minimum aqueous solution	Clear white, viscous liquid used in diluted form	Descaling dishwashing machines.
79	Stain remover (destaining compound)	Granular or powdered form, tank cleaning	Destains coffee urns, plastic tableware, deep-fat fryers (not suitable for aluminum).
79	Stain remover tableware (1 oz. envelopes)	powdered, oxygen-releasing	Destains coffee urns, plastic, glass or chinaware (not suitable for aluminum).
79	Remover, water-emulsion type floor wax.	Liquid,concentrate	Removes liquid wax.

Figure 1-45 - Solvents

1-D-8. Cleaning Tools. There are many kinds of standard tools for use in different cleaning operations.

a. it is essential to select a brush, for example, of the proper sire and construction, made with bristle materials that eliminate possible damage to the surfaces being cleaned.

(1) See Figure 1-46 for a list of brushes and other cleaning tools that have specific cleaning functions. Figure 1-47 lists various types of brushes for cleaning in operation of the Coast Guard dining facility.

(2) Vacant.

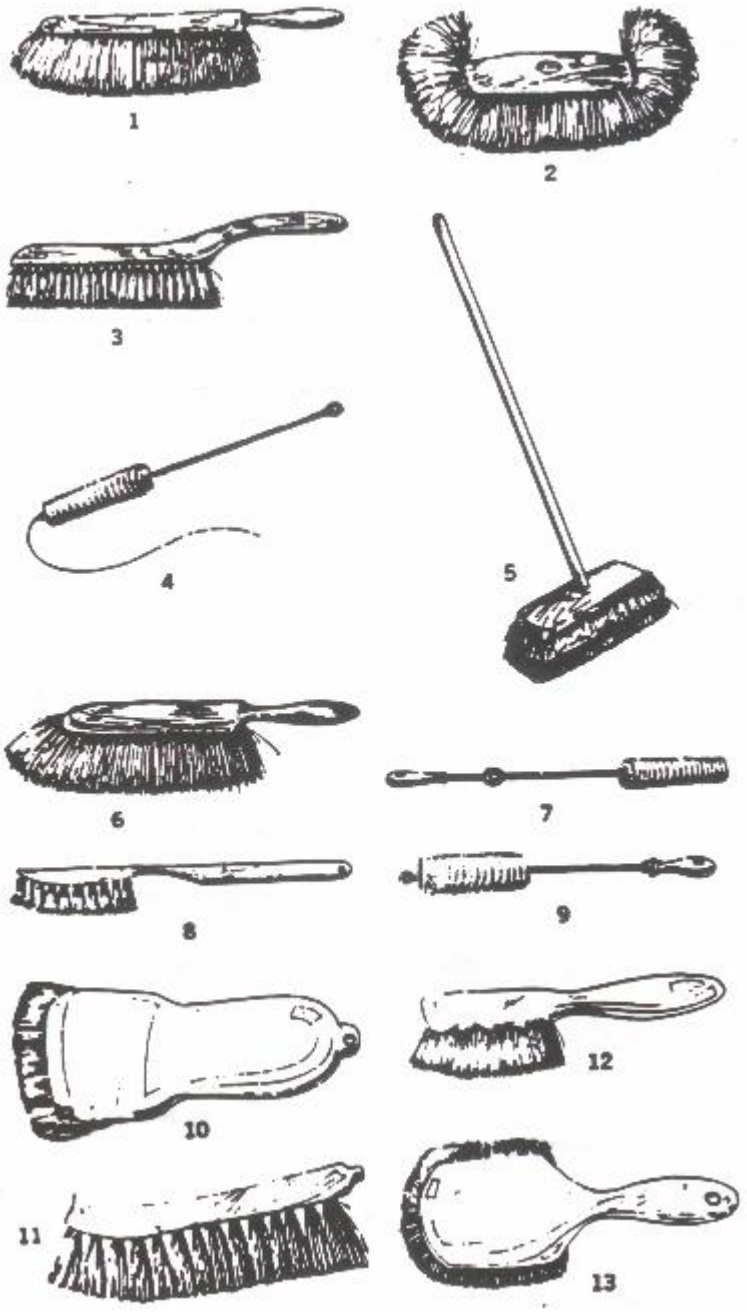
b. Brooms, brushes, mops and sponges require cleaning and sanitizing. Mops, buckets and wringers must be rinsed out immediately after use, allowed to drain and then sanitized.

(1) Store buckets upside-down.

(2) Mops must be washed thoroughly after each use with fresh, hot detergent water, and rinsed in clean hot water with a sanitizing agent added. Thoroughly wring out the water and hang the mop so that it can dry out at least once daily.

FSC Group	Description
79	Broom, push, rattan fiber, floor-sweeping.
79	Broom, upright, corn or corn and fiber mixture, use for light and heavy-duty sweeping.
79	Brush, dusting, for general cleaning, ceiling and wall.
79	Brush, dusting, bakery bench, for use in dusting excess flour in dough makeup.
79	Brush, dusting, radiator, horsetail hair.
79	Brush, floor-sweeping.
79	Brush, cleaning, all-plastic.
79	Brush, injector cleaning; tampico fiber of twisted spiral construction, 30 inches overall; for cleaning pipes and faucets of steam-jacketed kettles.
79	Brush, open-end tube.
79	Brush, scrub, pametto, with or without detachable handle.
79	Brush, scrub, white tampico; for scrubbing interior woodwork.
79	Brush, wire, scratch, curved handle, shoe handle, stainless-steel wire.
79	Cloth, cleaning, nonwoven fabric.
79	Mop, wet, cotton, fixed handle.
79	Handle, mop, wood.
79	Mophead, wet, cotton.
79	Wringer, mop, squeeze-type.
79	Wringer and bucket, mop, roller-type wringer and bucket.
79	Pad, metal polish impregnated, cotton wadding.
79	Sponge, synthetic.
79	Sponge, natural.
79	Squeegee, floor-type, rubber blade, wood blade holder.
79	Sponges, metal.

Figure 1-46 - Cleaning Tools



The following brushes are used in food service:

(1)	Counter Brush	(7)	26-inch Kettle Draw-off Brush
(2)	Wall Brush	(8)	Radiator Brush
(3)	Draftsman's Brush	(9)	Radiator Brush
(4)	Open-end Tube Brush	(10)	Pot and Pan Scrub Brush
(5)	36-inch Kettle Brush	(11)	Pot and Pan Scrub Brush
(6)	Baker Bench Brush	(12)	General Utility Scrub Brush
		(13)	General Utility Scrub Brush

Figure 1-47 - Types of Brushes

l-D-8.b. (3) Open the wringer to allow it to dry also.

(4) Do not store mops in food service spaces.

C. See Figure 1-48 for additional hints on caring for moos and brushes.

(1) Brushes that will not be damaged by dishwashing detergent and hot water (180F) may be run through the machine for cleaning and sanitizing. All-plastic brushes can be used for many general cleaning operations.

(2) Rust-proof wire-bristle brushes may be similarly cleaned and sanitized.

(3) Brushes will bend and mat if allowed to rest on bristles.

9. Cleaning Cloths. When scouring and scrubbing is required, use only cleaning cloths. The use of sponges or steel wool is prohibited.

a. Disposable cleaning cloths of nonwoven fabric are ideal for cleaning jobs in the galley, serving line and dining area. in addition, the durability of these cloths is such they withstand normal use.

b. Vacant.

10. Miscellaneous Cleaning Materials.

a. Cleaning-solution materials must be selected for various jobs, such as for window and ceramic-tile washing and deodorizing refrigerated areas. See Figure 1-49 for a list of such cleaning-solution materials.

b. Sweeping compounds used in floor maintenance comprise another group of miscellaneous compounds used routinely.

(1) These compounds are mixtures of sawdust, sand and mineral oil, and are suitable for use on wood, steel or nonvarnished floor surfaces.

(2) In maintenance of composition floors where sand and oil are undesirable use a sawdust-wax base.

(3) Concrete, wood and steel floors require a sweeping compound that contains silica minerals, not sawdust, to absorb oil or oil and water mixture from floors.

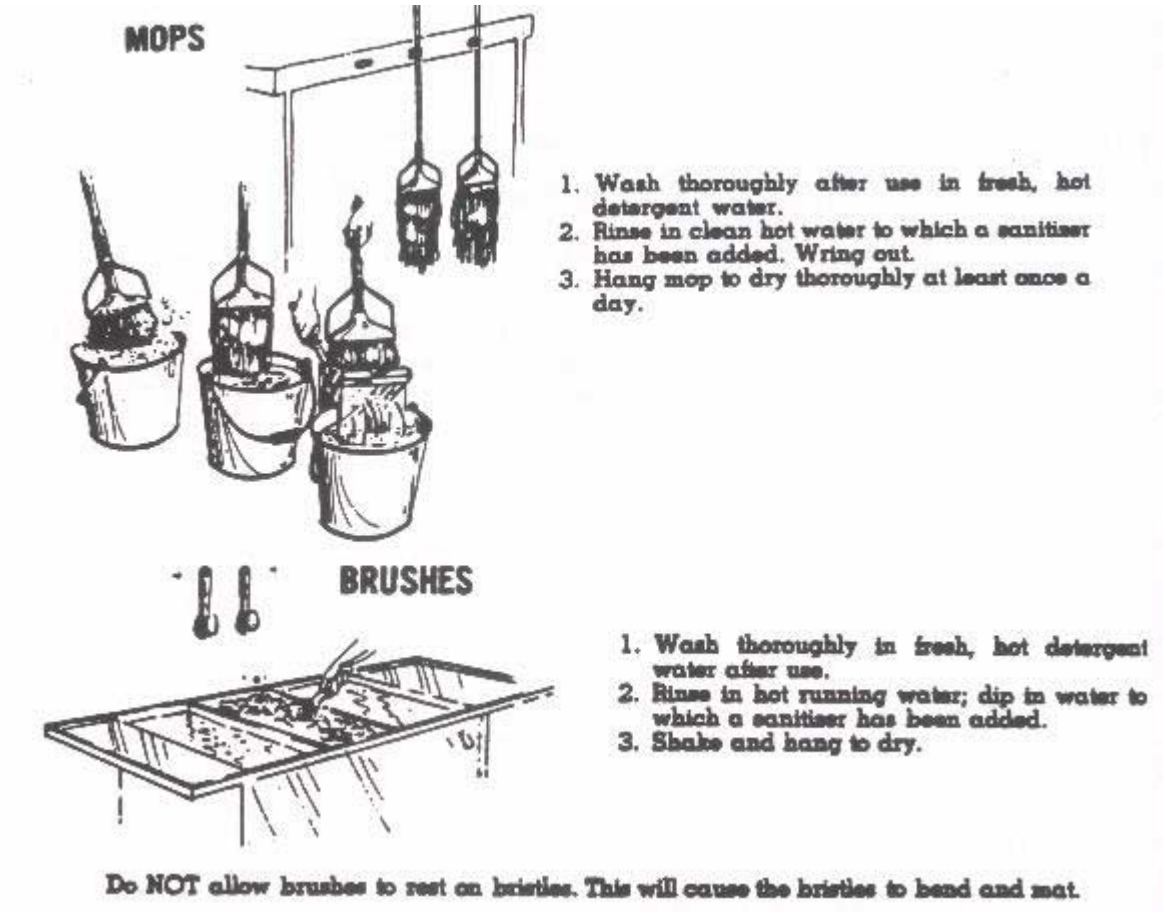


Figure 1-48- Care of Mops and Brushes

FSC group	Name	Description	Recommended use
68	Ammonia, household	Diluted solution of ammonium Hydroxide	Cleaning solution for tile and windows.
65	Isopropanel alcohol	Rubbing alcohol	Cleaning windows or glass surfaces
68	Alcohol, ethyl (denatured)	.....	Solvent for - removing grease.
89	Soda, baking	Powder.....	Washing, cleaning, and scouring solution
79	Sweeping compound	Sand, sawdust, and wax Sawdust and wax Absorbent, silica minerals	An emulsifying agent for floor when oil is undesirable For use on composition floors. For use on concrete, wood, or stee1 floor for maintenance to absorb on or ml and water mixtures.

Figure 1-49 - Miscellaneous Cleaning Materials

Enclosure 1 - 1. Directions for cleaning range surface units

Step	Procedure
1. Clean back apron and warming oven (or shell)	Let range cool before cleaning. Using hot, damp cloth, wrung almost dry. wipe back apron and warming oven. Remove hardened substances with putty knife; if greasy, scrub with hot machine-detergent solution; rinse; wipe dry.
2. Remove top sections. scrape edges and flat surfaces	Lift plates. Remove burned particles with putty knife. scrape edges of -frame, lid, ring, and plates. Scrape burned material from top flat surfaces with wire brush.
3. Wipe heating elements. Reassemble all parts of top	Wipe heating elements with a damp cloth.
4. Clean base and exterior.....	Wipe ban and exterior with cloth dampened with hot detergent water.

Note: Do not immerse heating elements in water.

Biweekly Cleaning

Soak grease receptacles and drip pans in detergent solution for 20-30 minutes; scrub, rinse, and dry.

SAFETY NOTES on ranges

Greasy ranges or ovens are serious fire hazards. Do not allow grease to collect on ranges. Follow these rules to avoid fire danger:

1. Use utensils of proper size to prevent boiling over
2. Regulate heat as required to prevent boiling over of liquids
3. Handle utensils safely to prevent spilling.
4. Do not attempt to clean ranges while hot.

In case of fire on a range:

1. Turn off heat controls. Use carbon dioxide “Purple K” fire extinguisher on the blaze. DO NOT USE WATER

2. NOTIFY THE OFFICER OF THE DECK IMMEDIATELY.

Enclosure 1-2. Directions for cleaning ovens

Step	Procedure
1. Turn off heat. Scrape interior.....	Sprinkle salt on hardened spillage on oven floor. Turn thermostat to 500 F. When spillage has carbonized completely, turn off oven. Cool thoroughly. Scrape floor with long handled metal scraper. Use metal sponge or hand scraper on inside of doors, including handles and edges.
2. Brush out loosened carbon and foods particles	Begin with top deck if stacked. Brush out oven with stiff bristle brush and use dust pan to collect loosened particles. Reel decks are easily lifted off for cleaning.
3. Wash doors.....	Use not detergent solution on enameled surfaces only, rinse, wipe dry.
4. Brush combustion chamber.....	Urn small broom or brush to clean every day.
5. Clean and polish exterior.....	Wash top, back hinges, and feet with warm hand-detergent solution; rinse; wipe dry. Polish stainless steel as directed earlier.

Note: Do not use water to clean the oven. Never pour water on or use a wet cloth or sponge to soak.

Enclosure 1-3. Directions for cleaning griddles

Step	Procedure
1. Turn off heat. Remove carbonized grease (after each use)	NEVER clean a surface plate while hot. Allow plate to cool. NEVER FOWL WATER ON HOT PLATE. Scrape surface with spatula or pancake tamer. Wipe clean with dry paper towels. Use pumice stone block to clean hard-to-remove burned areas on plate, after each use.
2. Clean grease and/or drain troughs	Pour hot detergent solution into small drain and brush. Fins. with hot water.
3. Empty grease receptacles----------	Remove gram from Scrapings and supporting pans with hot detergent solution; rinse and dry
4. Scrub guards, front and sides of griddle	Using hot detergent solution, wash off grease splatter, and film. Rinse and dry.

Periodic Heavy Cleaning

(This cleaning should not be required if above procedure is followed routinely.) Make sure plate is cold before proceeding. Cover entire surface for 4 or 5 hours with cloth dampened with household ammonia.

Enclosure 1-4. Directions for cleaning deep fat fryer-s
(Routine daily cleaning)

Step	Procedure
1. Turn off heating element.....	Allow fat to cool to 150.
2. Drain and filter fat (after each use)..	Open drain valve and catch drained tat in container. Drain entire kettle contents and filter into a container. Place a dean fat container into well or wash and replace original one.
3. Remove baskets----------	Scrape off oxidized fat with a knife. Remove loose food partial- from the heating units with a spatula or a wire brush. Flush down sides of kettle with a scoop of the hot fat. Soak basket and cover in deep sink in hot detergent water.
4. Remove strained sediment container or cup as often as necessary for cleaning	Clean oil sediment and place back in kettle. Stir hot fat and whirl sediment to center to permit settling in sediment container. Drain fat and wipe oil excess.
5. Close drain. Fill tank with water ...	Add water up to fat level. Add 2 ounces dishwashing compound.
6. Turn on heating element----------	Set heat control at 250.F and boil 10-20 minutes, depending on need.
7. Turn off heat.....	Open drain. Draw off cleaning solution.
S. Scrub interior----------	Using long-handled brush. scrub interior. Flush out with water. Clean basket with nylon brush and plan back in kettle.
9. Rinse and sanitize.....	Fill kettle with water. Add ½ cup vinegar to neutralize remaining detergent Turn on heating element Boil 5 minutes TURN On HEAT Drain. Rinse with clear water.
10. Air dry parts.....	Expose baskets and strainer to air and dry.
11. Clean exterior.....	While kettles cool wipe oil exterior with grease solvent, or a detergent solution. Rinse.

Weekly Cleaning

Destain deep-fat fryer:

1. Fill the kettle to fat level with water. Heat to at least 175, or allow it to boil for 5 to 10 minutes. Turn off heat.
2. Add 2 tablespoons of destaining compound (stain remover. tableware) per gallon of water- Let stand up to 1 hour. Agitate solution and loosen particles remaining on the sides of kettle.
3. Place screens and strainers in 175 water containing 2 tablespoons of destaining compound per gallon. Make sure water covers. Allow to stand overnight. Rinse thoroughly and air dry.
4. Drain kettle and rinse thoroughly before replacing cleaned screen and strainer.

Weekly Cleaning (or as needed)

“Self-cleaning” calrod units:

1. Lift calrod heating units and drain thoroughly.
2. Turn on fryer; set thermostat at 400F for 2 minutes to allow heating units to burn clean. (Note: Observe warning labels; this operation may require a reset of temperature limiting thermostat.)
3. Turn off fryer and brush carbon from heating units with a soft wire brush.

Enclosure 1-5 Directions for cleaning rotary toasters

Step	Procedure
1. Disconnect and disassemble.....	After toaster is cooled, remove pan. slide. and baskets. Move each basket midway up in front. Press left carrier chain to permit pins to slip out of holes in basket.
2. Own surf and bottom.....	Use soft brush to remove crumbs from front surface and behind breed racks.
3. Clean frame and interior as far as is accessible	Wipe clean with warm hand-detergent solution-Rinse. Dry. Polish if necessary with nonabrasive cleansing powder. Exterior casing should not be allowed to collect excessive grease or dirt. Use a nonabrasive cleaner to remove stubborn spots. Prevent water and cleaning compounds from touching conveyor chains. If frame is stainless steel, clean as directed earlier.
4. Clean and replace parts	Wash front, back. and sides of pan and slide. Rinse. Lay toaster aside to air dry. Clean baskets by boiling in hot detergent water. Rinse. Air-dry. Rehang basket, starting with right-hand chain first.

Enclosure 1-6. Directions for cleaning manual (bench-type) can openers

Step	Procedure
1. Clean shaft DAILY and after use	Lift vertical shaft out of base. Soak in hot detergent solution (1 ounce to 1 gallon water). Scrub with stiff-bristled brush. Rinse under hot running water. Air-dry.
2. Rinse and sanitize.....	(Give careful attention to edge of base and can-holding mechanism.) flip scrub brush in clean-ing solution frequently Rinse Sanitize

Periodically (as needed)

1. Disassemble and clean base.....	Loosen and remove screws. Detach base. Soak in hot detergent solution, rinse Air-dry.
2. Clean table----------	Using brush. scrub with hot detergent solution (use scraper if necessary) Rinse and air-dry.
3. Inspect cutting knife or wheel------	Replace if nicked or badly worn.
4. Clean base and screws----------	Scrub base thoroughly with hot machine-detergent solution. Air-dry.
S. Rustproof.....	Apply very thin film of rust preventive to shank and bottom of base before reassembling.

Enclosure 1-7. Care and cleaning coffee urns

A. Directions for cleaning coffee urns

Step	Procedure
1. Rinse urns----------	Flush with cold water after use.
2. Heat water and half fill coffee tank	Be sure outer jacket is ¾ full of water and turn on heat. Open water inlet valve and fill coffee tank with hot water to coffee line. Add recommended quantity of cleaning compound (1 to 2 ounces per gallon). Allow this solution to remain in liner approximately 30 minutes, during which time the heat should be on full.
3. Brush liners, faucet gauge glass, and draw-off pipe	Scrub inside of tank, top rim, and lid. Draw off 2 quarts of solution and pour It back to fill valve and sight gauge. Insert brush in gauge glass and coffee draw-off pipe and brush briskly. Replace.
4. Drain.....	Open coffee faucet and completely drain solution. Close faucet.
5. Bins.....	Open water inlet valve in to coffee tank. Use l gallon hot water. Open faucet for 1 minute to allow water to flow and sterilize dispensing route.
6. Disassemble faucet and spigot Clean	Scrub with brush- Rinse thoroughly.
7. Refill----------	DAILY draw over enough hot water to half fill urn. Leave water in urn overnight TWICE WEEKLY make a solution (1 cup of baking soda to 1 gallon of hot water) and let remain in urn approximately 15 minutes. Drain. Flush thoroughly with hot water before use.

Safety Warning: Hang warning tag on faucet while urn is soaking with cleaning Compound

Enclosure 1-7 Directions for destaining coffee urns and pots
(Biweekly cleaning)

Step	Procedure
1. Fill urn with destaining compound solution	Fill urn with water 175F. Add destaining compound (stain remover, tableware, in this ratio: 2 tablespoons per 5 gallons of water or as directed by manufacturer).
2. Draw off mixture and repour----------	Open spigot and draw off 1 gallon: thoroughly remix to allow mixture to come into faucet Allow solution to stand for 1 hour at 170F to 180F. Stir occasionally.
3. Scrub urn liner, gauge glass----------	Use long-handled brush to loosen scales.
4. Clean faucet----------	Take faucet valve apart and clean all components. Soak in hot water until reassembled.
5. Rinse and reassemble faucet valve	Rinse urn liner 3 or 4 times carefully with hot water. Repeat until all traces of compound are removed.
6. Refill urn.....	Place enough hot water in urn to fill and allow to remain until next use. Drain and replace with fresh water when ready to make coffee.

Note: To destain vacuum-type coffee makers: Use a solution of 1 teaspoon of compound per quart of warm water. Fm lower bowl up to within 2 inches of top. Assemble unit, apply heat and allow It to go through regular cycle. Let stand 5 minutes (longer if badly stained). drain. rinse, and dry.

Safety Warning: Hang warning tag on water faucet while urn is being destained.

C. Directions for cleaning of disassembled coffee urns

Step	Procedure
1. Cleaning nonglass liner	Scrub thoroughly, brushing entire surface.
2. Cleaning glass liner	Scrub thoroughly, dipping mop into solution, working up and down.
3. Clean drain tube	Place long-handled brush dipped in cleaning solution. Work up and down, keeping solution in tube opening.
4. Clean coffee glass gauge	Remove glass gauge and clean out cap at top. Place brush in gauge and work up and down.
5. Soak disassembled faucet	Scrub handle, bolt, cap (If there is one), tension spring, lock nut, and stem with brush to remove dried coffee deposits. Soak in hot water.

Enclosure 1-8. Directions for cleaning instant iced-tea dispencers

Daily

1. Wipe exterior parts with a soft damp cloth.

2. Empty the drip pan and wash drip pan and grill with mild detergent and warm water.

3. Open front jacket, remove mix trough and wash in mild detergent and warm water.

4. When inspecting parts, remember their order of removal, so they will be replaced properly.

5. Do not soak plastic parts in hot water, or wash in dishwashing machines.

Enclosure 1-9. Directions for cleaning vegetable peeler

Step	Procedure
1. Disassemble removable parts.....	Remove lid and disk.
2. Wash interior.....	Flush with hot water; scrub thoroughly, walls, shoulders, inside and outside of door. `save door open to air-dry.
3. Clean peel trap.....	Remove (or raise) lid. strainer, and stopper. Flush interior with hot water; scrub with stiff fiber brush while flushing. Leave open to air-dry.
4. Clean parts.....	Under hot running water, scrub lid. disk strainer. and stopper. Leave abrasive parts out to dry.
5. Clean exterior.....	Wipe or scrub with brush and hot detergent solution. Rinse.

Note: If exterior surfaces are stainlees steel, clean as directed earlier.

Safety Notes

1. Do not stop machine while in motion. Allow it to empty before opening.

2. Never operate the peeler unless water has been properly applied.

Enclosure 1-10. Directions for cleaning vegetable cutting and slicing machine

Step	Procedure
1 Disconnect machine. and remove slicer and disk for further cleaning	Raise top of unit. Remove knobs and Lift oft front plate. Remove hall nut and lock washer holding slicer disk. Remove knife. Remove adjusting arm and knurled knobs. Remove slicer disk.
2. Remove cutting head if machine is used daily (once monthly remove shear knives and sharpen, clean, and scrape surfaces from which knives have been removed)	Raise top cover of unit. Remove 2 knurled knobs and end plate. Remove wing nut on top of head and slide out cutting head. Place head in sink and turn on faucet full force. Pick out food pa-tides wedged in. Wash Rinse
3. Clean stationary parts.....	Wash parts in mild detergent solution. Rinse, spray, sanitize or wipe off with disposal cleaning cloth dipped in sanitizing solution. Steam or hot water should not be used.
4. Reassemble slicing disk and cutting head	Replace all nuts, screws, and washers carefully.

Enclosure 1 - 11. Directions for cleaning steam-jacketed kettles (copper)

Step	Procedure
1. Rinse kettle immediately after Cooking	Open draw-off faucet and flush with water.
2. Soak.....	Close drain valve. Fill kettle with water above cooking level. If greasy, apply heat. If eggs were cooked, leave water cold. Use a scrub brush to loosen food particles. Drain soak water.
3. Refill and clean----------	Add detergent using 1 ounce to 1 gallon of water. Clean interior, hinges, under surfaces of lids, and frame with brush. Drain. Flush out.
4. Remove drain-off faucet fittings and disassemble drain line	Scrub draw-oft faucet and fittings with a flexible-handled brush. Pull back and forth through tube under running hot water; thoroughly clean in detergent water, rinse with 170 F water to sanitize. Drain valves and tubing should also be cleaned and sanitized in a similar way.
5. Remove vapor exhaust piping (if fitted) stack and block stable hole	Clean lines and sanitize, air-dry, and replace.
6. Scrub exterior and frame.....	Flee hot detergent water and brush.
7. Resterilize interior	Before using kettle, rinse with 17O F water.

Note: The above procedure is recommended for stainless steel kettles. If metals are aluminum, brightening or whitening is required. Boil with vinegar water for a short period or use products recommended for cleaning aluminum following manufacturer's directions. Do not use caustic cleaners or steel pads.

Safety Note: Determine that the safety valve is in proper working order before using kettle.

Enclosure 1-12. Directions for cleaning stack steam cookers

Step	Procedure
1. Turn oft heat and let chamber cool. Clean interior of chambers and doors	Remove metal grates. Dip brush in hot machine--detergent solution. scrub interior, rinse, dram. Flush drain line and boiler with 170 F water. DO NOT USE STEEL WOOL OR ABRASWE CAN'T KEEP DRAIN UNE OPEN.
2. Remove and wash cooking pans	Hand-wash or machine-wash and sterilize.
3. Blow out steam line to each deck	Close door, catch. and turn on steam for 3 seconds to sterilize. Shut off and open door to air dry interior.
4. Clean exterior----------	Scrub with brush and hot detergent solution- legs, sides, top. back outside and inside of doors, space between door and wheel handle, between each door and strap. Rinse with hot water; dry. Polish stainless steel exterior with nonabrasive cleaner. DO NOT USE STEEL WOOL.
5. Clean and replace metal grates or shelves	Place m sink of hot detergent solution; iamb both sides with brush- rim. under hot running water, and air-dry. Slide grates in place, rehooking lever to hold.
6. Air----------	Leave doors open to air and dry out condensation after cleaning and/or use.

Biweekly Cleaning

Heavy scale deposits from minerals in water should be removed. Urn descaling cow-pound recommended by manufacturer. Compartments and drains must be kept clean and free from sediment. Keep gaskets and pressure screws clean.

Safety Notes

1. Do not obstruct or tamper with safety valves.

2. Do not let steam pressure exceed manufacturer's recommendations of 5 to 7 psi.

Enclosure 1-13. Directions for cleaning high-speed steam cookers
(Routine daily cleaning)

Step	Procedure
1. Turn off main power witch. Let chambers cool. Disassemble	Remove drain siphon and drain pan. Stop up drain.
2. Wash interior chamber walls, door, spray nozzle	Use a mild detergent solution. Scrub interior with plastic brush to remove stubborn food particles. Be sure food particles do not enter drain line.
3. Soak cooking chamber, drain siphon. and drain pan Rinse	Add about 2 quarts of detergent solution and let remain for short time. Drain. Rinse with clean hot water.
4. Clean exterior----------	Scrub legs, side, top, back, outside and inside of doors, space between door and wheel handle, between each door strap with brush and hot detergent solution. Rinse with hot water; dry. Polish stainless-steel exterior with non-abrasive cleaner. DO NOT USE STEEL WOOL.
5. Replace parts.....	Fill drain pan with 2 quarts of hot water; close chamber door. Operate for a 5-minute cooking circle.

Cleaning after use (or as needed)

Thoroughly clean cookers In which meat and starchy foods are cooked frequently. Remove pan racks, door, particle tray, and spray nozzle. Wash with a solution of hot detergent water. Rinse with clean hot water. Replace Parts.

Enclosure 1-14. Directions for dear- steam tables

Step	Procedure
1. Turn off heating unit.....	Turn steam valve counterclockwise (steam heated). Turn dial to OFF position (electrically heated).
2. Remove insert pans and transport to dishwashing area	Lift one end up until clear, then pull forward grasping other end with free hand and remove. Use care to keep from burning hands. Clean inserts thoroughly alter each use by proper machine dishwashing or by hand-cleaning and sanitizing processes. Air-dry. Store in clean area until needed.
3. Drain water from steam table.....	Remove overflow pipe, using cloth to prevent burning hand.
4. Prepare cleaning solution; assemble supplies	Dissolve 1 ounce of dishwashing detergent in suitable container.
5. Scrape out food particles from steam table	Urn a spatula or dough scraper. Take care not to damage exposed heating units and compart-ment.
6. Scrub interior and clean exterior .	Use scrub brush and cleaning solution.
7. Rinse and dry exterior.....	Use warm water to remove excess cleaning solution; wipe dry.
B. Rinse interior.....	Use enough clear water to remove all traces of Detergent.

Note: Hot-food tables. electric, mobile: Clean corrosion-resistant steel after each use Ordinary deposits of grease and dirt can be removed with mild detergent and water. Whenever possible, thoroughly rinse and dry alter washing.

Weekly

Hard-water film or haze will build up if equipment is not given regular attention. Remove all lime, rust and scale weekly to obtain maximum operating efficiency and to maintain sanitation and clean appearances. Weekly, fill jacket with hot water to a level that cover. deposit Add a descaling compound in proportions recommended by the manufacture. Bring solution to boil; turn off heat leave overnight and brush surfaces thoroughly before draining. Rinse.

Enclosure 1-15. Directions for cleaning meat tenderizer (masticator)

Step	Procedure
1 Disconnect machine and disassemble	Remove cover, meat guides, knives, and cutter rolls. Soak in hot detergent solution.
2. Scrub with thin, long-handled brush	Use thin1 long-handled brush to scrub blade assembly and all fixed accessible parts. Rinse. Sanitize. Air-dry.
3. Rinse and sanitize.....	Spray sanitizer on fixed parts and reassemble.

Enclosure 1-16. Directions for cleaning automatic food-shaping or molding machine

Step	Procedure
1. Shut off motor. Disassemble after each use and wash all food-contact surfaces	To disassemble patty pickup disk assembly: Remove nuts and lift oft cam plate and pick disk. Remove propeller and h9ppers and rotary knife: Unscrew, pull cut lockpin, push back stop-arm; remove pitch blade; lift oft hopper and hopper base. Remove turntable: Unscrew locknuts and lilt oft turntable or mold plate.
2. Clean and sanitize removable parts	If necessary. soak plate1 disk, pitch plate, hopper, base, and turntable in hot detergent water; scrub with brush; rinse; sanitize in .170 F water or apply steam. Air-dry. Reassemble.

Note: Spray motor with a light film of mineral oil after each washing.
DO NOT OVER LUBRICATE

Enclosure 1-17. Directions for cleaning meat and vegetable chopper

Daily: Preflush. Scrub bowl and parts with long-handled brush and 125F detergent water. Rinse. Air-dry. Sanitize. Re sure to reach all food-contact surfaces.

Step	Procedure
1. Shut off motor and disassemble for weekly cleaning	Lift out feeder pan; remove the following: Adjusting ring Perforated chopping plate Knife Feed screw Chopping cylinder
2. Clean----------	Run parts through dishwasher or wash in deter-gent water in pot and pan sink with brush. Scrub vigorously until food particles are loosened.
3. Rinse sanitize and air-dry.....	If not machine cleaned, adequately rinse to elim-inate solution and sanitize in 170 F water. Reassemble.

Safety Note: Clean blades with great care. Always leave hand guardrail inplace except long enough to clean the blade.

Enclosure 1-18. Directions for cleaning chopper parts of mixing machine

Step	Procedure
1. Disassemble parts after each use.	Turn off power. WAIT UNTIL KNIVES HAVE STOPPED REVOLVING.
2. Clean knives. bowl guard, and bowl	Remove blades from motor shaft and clean cautiously and carefully. Wash with hand-detergent solution. Rinse and au dry. Remove all food particles from bowl guard. If bowl is removable, wash with other parts; or if fixed, wipe out food particles from table or base. Clean with hand-detergent solution; rinse, sanitize, and air-dry.
3. Clean pans and under chopper surface	Immerse small parts in hot hand detergent solution: wash, rinse, air-dry.
4. Reassemble detachable parts.....	Replace comb in guard; attach bowl to base and knife blades to shaft. Drop guard into position.

Note: Choppers vary considerably in mechanical operational details. Alter some of the above steps if models and brands differ.

Enclosure 1-19. Directions for cleaning food mixers

Step	Procedure
1. Clean machine immediately after use	Wash the following with detergent solution (1 ounce to 1 gallon of water): saddle, shaft, beater shaft, shell, and base. Rinse; air-dry. Scrape and brush out groove on beater shaft if necessary.
2. Clean parts----------	Soak bowls and beaten immediately after using, wash with pots and pans in hot detergent water, a'"-:, and air-dry. Or, small bowls, beaters. and whips may be run through the dishwashing machine.
3. On shaft.....	Drop 5 or 6 drops of mineral oil in hole on shaft of auxiliary drive after every daily cleaning.

Enclosure 1 -20. Directions for cleaning dough mixers

Step	Procedure
1. Stop motor and fill bowl.....	Run to mix position. Add 5 gallons hot water to bowl ½ hour after use.
2. Stan motor, operate clutch.....	Run mixer several minutes `with clutch operating to loosen hardened dough.
3. Disengage clutch and clean.....	Run bowl down halfway to dump position to aid cleaning. Clean surfaces with stiff brush.
4. Empty bowl.....	Run bowl to dump procedure.
5. Disassemble and clean bowl seals	Wash all parts, including seal surface on inside of bowl. Air-dry.
6. Coat and replace seal ring.....	Use liquid petrolatum (WF) to cover seal-ring surfaces before replacing.
7. Dust oft flour accumulation.....	Blow Off canopy and base housing with compressed air. Lift mechanism.
6. Check lubrication.....	Apply transmission oil daily, if needed, to maintain level.

Enclosure 1-21. Cleaning bread baking pans (steel and tinned steel)

Step	Procedure
1. Immerse pans completely, placing back to back in hot solution, 4 - 6 hours	Prepare solution metal tank or equipment which can heat to boiling. Use 2 to 4 ounces baking pan cleaning compound per gallon of water.
2. Boil pans in solution	Keep solution above 185. F or boil 4-6 hours, or until all burned food and greasy deposits are completely softened.
3. Remove pans from solution	Use an iron hook to remove pans. Use care not to injure skin with solution.
4. Rinse Off solution	Use clear water; rinse each pan thoroughly to completely remove solution.
5. Scrub	Use a stiff bristle or fiber brush to remove stubborn areas of carbon.
6. Rinse.....	Use hot water again to remove loosened soil.
7. Dry.....	
B. Store.....	Stack cleaned pans upon pan truck or skids. Cover with duck or canvas or heavy paper between uses.

*Do not use for cleaning aluminum-type baking pans.
Safety Note: Personnel should wear rubber gloves and goggles when using cleaning compounds.

Enclosure 1-22. Directions for cleaning a pie rack

Step	Procedure
1. Remove shelves and clean.....	Scrape off sticky substances, scrub frame and shelves with hot machine-detergent solution or use steam hose. Rinse or use steam hose. Air-dry.
2. Clean wheels or casters.....	Scrape dirt off wheels, scrub with brush. Rinse and dry. Apply very thin coating of rust preventive around bearings.
	Weekly
	Oil or grease caster (or wheels).

Enclosure 1-23. Directions for cleaning a dough divider

Step	Procedure
1. Shut oft power.....	Disconnect switch when knife and ram are at extreme backward position. or turn divider by hand to move knives to the rear.
2. Prepare divider for cleaning	Daily Thoroughly clean these parts: Sifter Scaling plunger Measuring chamber Ram Knife Hopper Conveyor belt Remove parts in this order: Remove pan. Remove pins and pull lever forward. Depress trip to release knives. Remove dropped knives with care. Release raw and remove with care. Remove all plungers. Weekly Remove frame, trip, bedplate, knife frame and clean thoroughly.
3. Clean parts	Daily Base and frame: Clean with hot machine-dishwashing detergent solution; rinse and dry. Pistons: Soak in bucket containing a solution of soda and water. When dough has loosened, remove and rinse under hot running water. Dry. Dip each piston in divider oil and wipe oft excess before replacing in cylinders that have been wiped or scraped free of all dough. Dough box or hopper: Use wood or plastic scraper. Weekly Soak pressure stems, all screws, and removable parts in hot machine dishwashing detergent solution. Scrub. Rinse and air-dry.
4. Brush and clean frame	Daily Vacuum or blow out all flour from divider, conveyor belts, drives, and switchboxes. Clean face of yoke and floor of divider, scraping if necessary. Clean frame with mild detergent solution. Rinse, dry. Weekly Clean flour sifter hoppers. Wipe off all exposed parts of divider and oil unpainted surfaces with divider oil.
5. Replace parts.....	Reposition all pans and return pressure stems and screws. Replace washed pan under divider head to protect the conveyor belt.
6. Test for operation.....	

Enclosure 1-24. Directions for bread slicers

Step	Procedure
1. Open doom for access to slice-thickness mechanism. Obtain airhose extension Note: Models may require removal of a center panel for access.	Set spacing mechanism to widest thickness. Use compressed air with the aim of a long pipe or L-shaped tube extension which reaches across the mechanism.
2. Blow crumbs out, using 100 pound pressure or more to remove crumbs.	Aim home orifice upward toward infeed side first to blow crumbs from the top side down into machine.
3. Check parts for proper cleaning ...	Blades, frames, and guides must be crumb free Motor and drive unit must be free of crumb accumulations.

Caution: STEEL WOOL MUST NOT BE USED.

Enclosure 1-25. Directions for cleaning a proof box

Step	Procedure
1. Clean interior after removing racks----------	Clean floor, walls, top, and inside of door. Scrape sides, corners, and guide rails with putty knife. Scrub floor with long-handled gong brush and hot machine-detergent solution. Bin.., dry. Wipe guide rails and ledges thoroughly. Remove and clean water pan, rinse, wipe dry.
2. Scrub exterior----------	Scrub top, outside of door. and sides with hot machine detergent solution; rinse and dry. Apply very thin film of rust preventive to metal (other than stainless steel).
3. Clean around proof 6-.....	Scrub back of 6- and wall. Scrub floor behind and underneath if space permits; flush with hot water.
4. Air-dry.....	Leave open to air.

Enclosure 1-26. Directions for cleaning a dough molder

Step	Procedure
1. Shut off power.....	Once daily; cleanup should proceed with machine turned off for maximum safety.
2. Blow out dough particles and flour.	Use airhose to clean hard-to-reach areas.
3. Clean.....	Use wet sponge to soften hardened dough on rolls. scrapers, deflectors. DO NOT USE TOOLS OR COARSE ABRASWES.
4. Check conveyor belts.....	Clean daily after shutdown, and during operation If dough particles stick.
5. Paint rollers with divider oil.....	Apply oil to soften any remaining dough after shutdown. DO NOT USE RAGS to wipe on oil during operation. Use a brush to apply oil every hour during run.

Enclosure 1-27. Directions for cleaning cutting boards (styrene rubber types)

Step	Procedure
1. Clean cutting boards and sanitize after each use	Wash in dishwashing machine or use approved chemical sanitizer. Proceed as for machine or manual cleaning of tableware.

Enclosure 1-28- Directions for darn- refrigerated salad bars (With ice beds or e1ectriily refrigerated)

Step	Procedure
1. Transfer shallow pans or trays and other containers to prepara-tion areas following meal service	Refrigerate or destroy leftover items as directed. Run insert pans and/or trays through dish-washing machine.
2. Clean and sanitize table counters	Wash off and/or scrub table surfaces with deter-gent and plastic brush. Rinse. Sanitize by swab-bing with solution containing sanitizing agent.
3. Periodically descale to prevent rust lime, or hard-water scale formation (nonrefrigerated types only)	Fill table bed with boiling water. Add a descaling compound in proportions recommended by manufacturer. Allow to stand for several hours. Scrub with a plastic brush. Drain. Rinse thoroughly. Sanitize by spraying on solution.
4. Defrost electrically refrigerated units	Turn off current and defrost ice formation from coils as often as required. Follow up with cleaning procedure described above.

Enclosure 1-29. Cleaning reach in refrigerators

Daily

Wipe dry and polish all stainless steel extensions as described earlier in this chapter.

Biweekly Cleaning

1. Transfer all stored foods to protected temporary storage.

2. Remove shelving and loose equipment to wash sink filled with detergent solution. Scrub with plastic bristle brush. Rinse. 5aniflze with spray. Leave door open to dry.

3. Scrub interior of box with hot detergent solution, using plastic brush. Clean corners, doors, openings. hinges. and latches. Rinse. Sanitize.

Periodically

Clean vacuum compressor, condenser coils, motor and related areas.

Enclosure 1-30. Cleaning walk-in walk-through refrigerators (reefers)

Daily cleaning

Wipe up spilled liquids to prevent accidents and to lessen cleaning problems. Pick up scraps and particles as dropped on decks. Swab floor with a sanitizing solution daily.

Weekly

1. Remove food, place in another freeze space immediately.
2. Scrub all walls, boards, and shelving, using good plastic brush.
3. Scrub dunnage with hot detergent water. Rinse with clear water, if possible, or dry at room temperature.
4. Return dunnage to box.
S. Clean drain regularly.
6. Sanitize by spraying shelving area, walls, ceding, and floors with solution to prevent mold and/or odor development.

CAUTION: Cleaning should be done by wiping surface.

Enclosure 1-31. Directions for cleaning icemaking machines

Step	Procedure
1. Turn off motor	Empty, defrost and clean Make certain overflow pipes carry oft water used for defrosting.
2. Wash all parts. including ice buckets, scoops, ice storage bin.	Use a plastic bristle brush to scrub inside and outside of bins with mild detergent solution.
3. Rinse	Adequate rinsing with water containing 2.0 ppm chlorine should be insured to preclude bad odors and the accumulation of film deposits from detergents. Water drain should be clear and free to allow proper rinse.
4. Check water control	Clean control to prevent clogging of water flow holes.

Note: Occasional descaling operation may be required to prevent a deposit of mineral-like substance on freezer board. Additional cleaning may be needed on the inside evaporation shell assembly to remove formation of mineral deposits from water. Frequent inspections of the auger and evaporation shell are necessary to determine if and when to disassemble evaporation shell and apply scale-removing solution.

Enclosure 1-32. Directions for cleaning automatic ice flakers without unit disassembly

Step	Procedure
1. Shut oil water.....	Pour 1 quart cleaning solution slowly into water reservoir.
2. Place a container below ice chute in bin and start ice machine	Ice will be formed from cleaning solution. Discard ice. Shut oft machine.
3. Flush icemaking system.....	Add 1 quart clean water to reservoir Catch ice in container. Discard.
4. Wash down storage bin with mild detergent solution. Rinse.	Interior of bin should be scrubbed with plastic brush.

Areas in and around motor, insulation panels, and condenser coils should be vacuumed or blown free of lint and dust. Periodic weekly checks for cockroach infestation should be made.

Enclosure 1-33. Directions for cleaning water reservoir

At least once every 30 days, clean out the water reservoir

Step	Procedure
1. Shut oft power.....	Use manual witch.
2. Turn off water supply----------	Tighten valve on water inlet valve.
3. Remove entire water reservoir from machine.	Take out water inlet fittings. Pull out reservoir from top of water inlet.
4. Clean and descale----------	Wash out reservoir with warm detergent water Rinse. Use a scale-removing solution if necessary to clean inside of possible sediment.
5. Replace reservoir and reconnect power and water supply	Refill reservoir and adjust water level p to 3/4 inch below top level.

Enclosure 1-34. Directions for cleaning ice-cream freezer

Step	Procedure
1. Rinse	After each day's operation. run in cold water and operate dasher a few seconds. Drain. Refill and repeat if necessary. PUSH CLUTCH KNOB IN DURING RINSING.
2. Wash	Run in warm water and add dishwashing detergent and operate for 1 minute. Rinse; drain.
3. Disassemble freezer	Wash beater assembly, bearings, openings, and other removable parts with brush and warm detergent water. Rinse.
4. Sanitize chamber and parts	OPEN FREEZER SUCTION SHUT-OFF VALVE. Use sodium hypochlorite solution (5 percent): Measure 3 teaspoons (24 ounce by weight) per gallon of water; or use sodium hypochlorite solution (10 percent): Measure 1½ teaspoons (1/8 ounce) per gallon of water; or use calcium hrpochlorite, tech. (70 percent) in the ratio of 1½ teaspoons to 5 gallons water or use disinfectant foodservice, as directed on package. Follow with warm water rinse. HAVE CLUTCH KNOB IN DURING RINSING.
5. Dry	Drain the freezer and leave open to air dry.

Note: Spoons, spatulas, dippers, and scoops used for dispensing ice cream shall be rinsed with potable water between servings and cleaned and sanitized after each meal period.

Safety Notes

1. Never start the mixer motor with the freezer door open.
2. Never unlock the freezer door when mixer motor is running.
3. Never use boiling water (212 F or boiling temperature) or live steam to sterilize the machine unless other methods are not available. Open the freezer suction shutoff valve if necessary to sterilize with water or steam.

Enclosure 1-35. Directions for cleaning soft-ice-cream machines

Sanitize. before use, all utensils that come in contact with mix.
Thoroughly clean and sanitize ice-cream freezer and all component parts daily

To Clean

1. Empty freezer and flush with cold water until water runs clear.

2. Rinse again with warm water (12OF).

3. Pour a 14O solution of water and detergent into freezer and brush hopper as detergent runs through freezer.

4. Remove all parts that come in contact with the ice-cream mix: lid, hopper valve. dasher, freezer door, all gaskets. seals. and 0-rings. Place all parts in detergent solution and brush all surfaces. Brush inside of freezing cylinder; pay particular attention to the back wall and shaft connection. Rinse all parts thoroughly and allow to air-dry.

To Sanitize

Prepare sanitizing solution according to package directions on calcium hypochlorite or disinfectant-foodservice. Wear disposable gloves when assembling machine. Dip each part in solution as machine is assembled. Pour remaining solution into hopper and brush solution over entire inside and lid. Rotate dasher as solution runs through mixer. Drain completely, and the freezer is ready for the nest batch of soft serve ice cream.

Enclosure 1-36. Directions for cleaning milk dispensers daily

Step	Procedure
1. Remove empty cans from dispenser	Place container under valve. Open valve and tip can forward in dispenser to drain out milk remaining Extract tube and dispose. Lift out oar.
2. Wipe up spillage as it occurs....	Use sanitized cloth to prevent possible contamination.
3. Clean interior when units are empty	Wash entire Inner surface with mild cleaning solution. Rinse.
4. Clean exterior.....	Follow earlier instructions for cleaning stainless steel If steel shows discoloration or stubborn spots or stains, swab with a standard chemical cleaner and allow to stand 15 to 20 minutes before rinsing with clear water and polishing with a soft cloth.
5. Disassemble and clean valves daily or as frequently as empty cans are removed to keep valves clean and sanitary	To remove lift valves: Swing valve upward and slide pins free of recesses to disengage from plastic well valve. Push plastic well upward to remove. Wash in detergent water. Rinse and sanitize.
6. Place full cans in dispenser.....	Wipe off bottom of milk cans with sanitizing solution before placing in dispenser. Clam type dispensing valves must be thoroughly cleaned and sanitized before reuse.

Note: Discard used disposable milk containers. Do not reuse.

To Defrost

1. Disconnect power and remove empty cans	Refer to step 1 above for proper way to remove cans from dispenser.
2. Open cabinet door during defrosting	When frost has melted off coils, wash interior with warm detergent water. Rinse with clear water. Spray sanitize. Reconnect power.

Note: Dispencers must be defrosted at frequent intervals to prevent accumulation of more than three-sixteenth (3/16”) inch of ice on cabinet interior.

Enclosure 1-37. Directions for cleaning basket tray, and tube-type dispensers used for tableware

Step	Procedure
1. Empty unit. and open cleaning panels for interior cleaning	Remove all baskets. trays. tableware. and lift tubes.
2- Clean thoroughly.....	Ordinary daily cleaning: flush out unit. with hot detergent water. Drains in bottom of tube-type dispensers should permit adequate flow. Rinse. Heavy cleaning: Disassemble spring assembly unit by releasing locking pin and sliding up tube through top. Wash with hot detergent water. Rinse.
3. Sanitize.....	Flush with 170F water or urn chemical sanitizers as rinses.
4. Polish exterior.....	Stainless-steel outer surfaces of all dispensing apparatus should be cleaned according to directions given earlier.

Enclosure 1-38. Cleaning dry-food storage spaces (vegetable bins, condiment lockers, etc).

Weekly Cleaning

1. Remove all food from container.
2. Brush out or vacuum to remove dirt
3. Wash down surfaces that can be wet cleaned with warm detergent water. Rinse; air dry (Surfaces that can be dry cleaned only should be sprayed lightly with sanitizing solution. Air-dry.)
4. Allow all surfaces to dry before placing food back in bins.

Enclosure 1-39. Direction for cleaning sugar and flour storage bins

Step	Procedure
1. Daily. clean edges and wipe exterior	Open each bin (or roll bin out) and wipe with clean, damp cloth, wiping accumulation away from inside of bin.
2. Regularly, run bins dry.....	Remove empty bins and accessible parts from compartment and scrub in sink of hot hand-detergent solution. Rinse under very hot running water. Invert over steam jet and leave several hours to air dry. Replace.
3. Clean each bin compartment.....	Brush or blow out and vacuum flour (or sugar) from walls and floor to prevent weevil infesta-ton. Wipe walls and floor with sanitizing solu-tion. Spot fumigate.

CHAPTER 2

SAFETY

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CHAPTER 2. SAFETY

A. Safety Programs. A well-organized safety program will reduce accidents resulting in time lost from the job, additional administrative burdens and undue hardships on all concerned. A safety conscious operation with well-trained personnel will result in reduced dish breakage, a more pleasant atmosphere, more efficient work habits and better food service. In the final analysis, safety is good management.

B. Safe Working Conditions.

1. Safety Requirements. It is necessary to have safe conditions before operations can be safe. Conditions that underline safety include:

a. Ample Working Space.

(1) Clearance between equipment.

(2) Overhead clearance.

(3) Counters of adequate width and height.

(4) Adequate aisles.

b. Suitable Storage Facilities.

(1) Items stored to preclude falling.

(2) Adequate and protective storage for machine attachments with special emphasis on cutting devices.

c. Adequate Lighting.

(1) Correct light placement.

(2) Proper light intensity for jobs to be performed.

(3) Adequate guards on low hanging fixtures to prevent personnel contact and suitable removers for detachable bulbs and tubes.

d. Good Insulation.

(1) Steam and water lines located away from workstations where feasible. Properly insulate and protect lines.

(2) Vacant.

e. Good Housekeeping.

(1) Floor clutter eliminated.

(2) Vacant.

2-B-l.f. Proper Enclosures and Guards for Machines.

(1) Gears, chains and belts properly enclosed.

(2) Guards installed to prevent accidental operation.

(3) Interlock switches installed on protective covers which can expose the operation to moving parts or other hazards.

(4) Safety and operating instructions posted adjacent to all equipment and visible to all operators.

g. Proper Care of Floors.

(1) The floors in all areas require special attention.

(2) Keep floors clean and dry. Mop and then dry mop or wipe down a small area at a time.

(3) Terrazzo and tile floors may become especially slippery when weather is humid and will require additional attention to maintain in a dry, safe condition.

h. Chairs and Tables.

(1) Do not leave chairs in aisles or passageways.

(2) Remove chairs and tables with broken parts, splinters, rough edges, or loose joints; repair or replace damaged items.

(3) Never use chairs or tables as ladders.

i. Fire Safety.

(1) Allow smoking in designated smoking areas only.

(2) Immediately report any smoke or fire.

(3) Fire extinguisher locations must be known to all. Check seals and inspection tags on extinguishers; if broken or out of date, report at once.

(4) Clearly designate fire exits; keep fire doors, fire exists and fire stairs clear of materials and equipment; use fire exits only in emergency.

(5) Use of supplementary locks and chains on fire exits is prohibited.

j. Safe Clothing.

(1) Work shoes must be maintained in good condition.

(2) Laces neatly laced and tied to prevent tripping and slipping.

(3) Heels kept in good repair.

2-B-l.j. (4) Comfortable work shoes with strong support.

(5) Safety shoes or toe guards worn by personnel doing heavy work.

(6) Loose sleeves, ties or apron must not be worn by personnel working with grinders, mixers or saws.

(7) Do not wear jewelry during food preparation.

(8) Gloves must be worn by personnel handling wooden crates or performing duties where there is a danger of injury to hands.

k. Compliance With Ordinances9 Regulations and Codes.

(1) Electrical equipment installed in accordance with National Electric Code.

(2) Equipment inspections by qualified personnel scheduled.

(3) Wiring and fuses checked for overloading.

(4) Electric equipment properly grounded.

(5) Circuit breakers and fuseboxes legibly marked to indicate circuits served.

2. Vacant.

C. General Rules For Safety. Safety rules are reminders of ways to prevent accidents. These rules are discussed in this chapter as they apply to food service operations.

Receiving and Storage Operations. In general, storage compartments must be located away from sources of contamination, maintained in good repair and kept dean.

a. When opening boxes, cartons, crates, etc., remove nails, do not bend them down. Beware of broken glass.

b. Locate the heavier and bulkier materials on the lower shelves. Avoid storage on top of lockers or other high storage units.

c. Cover food containers except when in actual use.

d. Food containers will become contaminated by wire, splinters and dirt if not opened properly.

e. Know where your fire fighting equipment is located. Store items where they would not be in the way when equipment is needed. Place flammable cleaning materials or other materials in specified lockers or in approved safety cans. Store only on lower shelves.

f. Maintain good housekeeping to reduce the hazard of fire and other accident hazards. Place stores so they do not protrude into the aisles from bins or shelves.

2-C-l.g. Be sure light bulbs are guarded and materials are stored no closer than 18 inches to any bulb.

h. To avoid toppling and damage to cases and product, do not stack cases too high.

j. Use shelving of sturdy construction. In storerooms afloat, secure merchandise behind battens or lash down.

i. Stockrooms must be properly ventilated. Smoking is prohibited.

k. When lifting, keep back straight, bend knees and let leg muscles do the work. If load is too heavy for one man to manage, ask for assistance.

l. Use adequate and safe ladders; avoid overreaching to get objects.

m. Store pesticides, cleaning agents and chemicals in original containers away from food service areas.

n. Store and secure carbon dioxide (C02) bottles (tanks) where they cannot be knocked over. All gauges on tanks must be in good working condition.

2. Food Preparation Operations.

a. Wear hot pads properly. Slip hands through the elastic straps on the back of pads to protect the underside of wrist and enable firm gripping of the hot pans. Launder pads frequently.

b. Cook in minimum amounts of water to avoid boiling over and spilling when pouring hot liquids.

c. Remove steam-jacketed kettle covers carefully so steam may escape without scalding hands or face.

d. Keep the range tops and ventilation hoods tree of grease.

e. Handles of cooking utensils must be turned away from the edge of the range to prevent being pushed off.

f. Ask for help to lift heavy containers. Know where to place the container in a clear work area.

g. Avoid splashing when drawing hot water or coffee from an urn. Turn the spigot slowly. Check all valves and spigots for proper closed position before tilling urn.

h. Keep oven doors closed when not in use.

i. Do not clean the oven or range until it has cooled.

j. Clean up spills immediately. Store all kitchen utensils off the floor, on shelves or in proper spaces provided.

2-C-3. Equipment Used for Food Preparation.

a. General Points for Safe Operation of All Equipment.

(1) Only trained and qualified personnel are authorized to use food service equipment. Be sure all safety devices are in place and all parts are installed as directed by the manufacturer.

(2) Place electrical switch in the OFF position and unplug before cleaning or adjusting any machine. Keep fingers, hands, spoons, bowls, knives or such items away from moving parts. Wait until the machine stops before removing food. If machine is not equipped with a convenient plug, turn off power at the circuit breaker panel and tag "out of service."

(3) All electrical appliances must be in the OFF position before being plugged into the outlet.

b. Cutter and Choppers. Cutters and choppers must have guards as specified by the manufacturer, including blade guard and interlock switches that render The machine inoperable when the guard is not properly positioned. Other points to remember include:

(1) Exercise caution when removing and replacing cutting blades.

(2) For cutters with a free caute or tube, use only the pusher supplied with the machine. For rotating-bowl type choppers, never put fingers or any implement under the blade safety cover.

(3) Turn off the power and wait for the blades to come to a full stop before recovering anything dropped into the unit. Remember blades rotating at high speeds appear to be stopped.

(4) Turn off the power and pull the plug. If machine is not equipped with a convenient plug, turn off power at the circuit breaker panel and tag "out of service.11 Wait until the knives and the holding container have come to a complete stop before removing food. Never attempt to remove product lodged between blade and housing.

(5) Disassemble in accordance with the manufacturer's manual. Remove the blades, hand wash them and store them in the proper place. Never leave blades to be cleaned in the utensil washing areas.

c. Slicers. Locate slicers away from the traffic areas, secured, mounted, guarded and grounded electrically. The following apply to most slicing machines:

(1) Keep knife guards in place at all times unless the slicer is unplugged and disassembled for cleaning.

(2) Use the pusher not your hand to guide the product being sliced toward the blade.

2-C-3.c.(3) Always disconnect power cord prior to cleaning and reconnect only when ready to use.

(4) Never touch the blade with your hands. Clean the blade with a clean, detergent-soaked cloth wrapped around a cook's fork or other extension utensil.

(5) Always replace knife guards as quickly as possible after cleaning.

d. Grinders.

(1) A guard or feeding device must be installed on every grinder and kept in place while the machine is in use. Do not put fingers or hands against the feed screw or other grinding mechanisms. Restricting or lengthening the neck of the opening, or broadening the feeding pan constitutes the guard on some grinders. On other models, a multihole plate is secured over the opening.

(2) Wooden or plastic stompers especially designed to prevent contact with the feed screw should be provided. Always feed the grinder with a stomper, not entirely by hand.

e. Mixers. Vertical food mixers should have guards if feasible.

(1) Check clothing to be sure there are no tie strings, ties or loose ends that might be caught in the agitator or other moving parts of the mixer.

(2) Use the right agitator and large enough bowl for the job.

(3) Do not mix batches too heavy for one person to handle safely unless wheeled equipment is available for moving.

(4) Should an overload occur, stop the machine and correct the condition.

(5) To adjust or clean the mixer or to remove the mixing bowl, turn the witch to the OFF position and pull the plug to prevent accidental operation. Do not start mixing machines until the bowl is properly placed and beater is securely fastened. Do not start machine with the clutch engaged.

f. Steam-Jacketed Kettles and Steamers.

(1) Each day this equipment is used, test the safety relief valves. With equipment under operating pressure, operate the relief valve arm to release several spurts of steam. If steam does not "blow off," do not operate equipment until the valve is checked and serviced.

(2) The safety discharge exhaust must be piped down to a vented drain and directed so it cannot discharge on operators.

(3) Safety relief valve arms must be equipped with a chain to allow activation from a safe distance.

2-C-3.f.(4) Steamjacketed kettles must be hydrostatically tested on an annual basis.

g. Microwave Ovens.

(1) Inspect at least quarterly for radiation leakage.

(2) Make sure door is closed before starting. -

(3) Do not put aluminum or metal pans in microwave.

h. Knives.

(1) Be alert; grip firmly and keep fingers away from blade.

(2) Keep the sharp edge away, and cut away from the body and from fe1lo workers.

(3) Use a cutting board.

(4) Keep all knives in their permanent storage place with blades protected when not in use. Store near point of use.

(5) Do not leave knives in the sink or where they cannot be easily seen.

(6) A sharp knife is safer than a dull knife since it will cut objects more easily without danger of slipping. The proper method of sharpening knives is described in chapter 7 of this manual.

(7) Remove steel particles from the knives after they are sharpened to prevent contamination of food.

(8) If a knife falls, don’t grab it - get out of the way.

(9) Use special knives (for example, boning knives, carving knives or paring knives) only for the kinds of jobs they are intended to do.

(10) Knives are not can openers and should not be used as such.

(11) Do not hold a knife when carrying other objects.

i. China and Glassware.

(1) Use care in handling glasses and dishes. Do not stack them so there is danger of toppling.

(2) Use dust pan and brush or broom to sweep up pieces of broken glass or china. Use a dampened paper towel for cleaning up slivers of glass or china. Use a special container for broken pieces. Do not place them in waste baskets, garbage or refuse cars.

(3) Discard chipped or cracked drinking glasses or other glassware immediately.

2-C-3.i.(4) Glass and metal utensils do not mix so keep glass and china out of the utensil washing sink.

(5) When storing glasses and cups, place them upside down.

(6) If you know or suspect there is broken gins or dishware in soapy water, drain the water first. Then remove the broken pieces carefully.

4. Food Serving Operations.

a. General Points for Satisfaction During Food Serving Operations.

(1) Avoid overloading trays. Carefully place the dishes and food containers on the trays so they will not slip or spill when trays are carried.

(2) Check all glassware, dishes and other eating utensils for possible defects before using them. Remove defective items immediately.

(3) Do not hand cups, bowls or plates containing hot liquids or foods to members. Place on the counter to be picked up to avoid spills, burns and other accidents.

(4) Avoid overfilling containers with liquids or hot foods. Tilt containers away from you when inserting in welts. Be sure the edges of the plate, bowl or cup are free of food.

(5) Be careful when reaching for and handling knives, forks and other sharp objects.

(6) Protect food from foreign substances. If you break an article near open food containers, immediately report this to the supervisor so food can be removed from service.

b. Vacant.

3. Dish Bussing and Washing Operations.

a. Safety Requirements During Dish Bussing and Washing Operation.

(1) Do not overload soiled dish carts. Make sure you can see where you are going, especially through doorways or around corners. Push cart - do not pull.

(2) Remove carts requiring repair from service.

(3) Watch for sharp or jagged edges on dish or silver containers.

(4) Stack dirty dishes carefully. Avoid spilling. Separate dinnerware, glassware and flatware. Place them in the proper containers for washing, whether by machine or by hand.

(3) Load dishwashing racks to their design capacity only.

2-C-5.a. (6) Use dollies or mobile dispensers to transport loaded and unloaded dishwashing racks when practical.

b. Vacant.

D. Food Service Safety in Nuclear, Biological and Chemical Defense. This section addresses nuclear, biological and chemical contamination problems. Basic procedures outlined must be followed when decontaminating eating, drinking and galley utensils and galley and food preparation spaces.

1. Nuclear Defense. Nuclear (radiological) defense includes all measures taken to reduce personal injury and material damage from radioactivity.

a. Damage Control plans.

(1) The damage disaster control is responsible for guidance in radiological defense matters. Food service personnel must be assigned duties within the overall damage control plan. The specialized nature of the food service operation will require:

(a) Preliminary organization, distribution and training of personnel to deal with blast damage and resulting radioactive contamination.

(b) Emergency operation, decontamination and recovery measures to cope with the situation.

(2) Survival may depend on how well individuals and teams are trained in each area of responsibility. Advance preparation will contribute to rapid recovery of functions essential to the minion. All dining facilities subsistence specialists must be thoroughly familiar with plans and procedures. personnel training must be accomplished with the advice and assistance of disaster control and medical officers.

(3) During an emergency, a realistic evaluation of the disaster situation wall be made and initial steps toward recovery taken. There will be advance planning to meet This situation. Protective clothing, monitoring equipment and decontamination gear will be needed.

b. Nuclear Contamination.

(1) Radioactivity may be induced in exposed materials close to a nuclear burst or may result from bomb fission residues. Most common will be dusts, although such items as soap, table salt, copper4 or brass may become radioactive as a result of neutron action. A person carrying radioactive particles can easily contaminate an otherwise safe object or area. if this person handles food, the food will be contaminated.

(2) Radioactivity cannot be destroyed by cooking or sterilization, or neutralized by chemical treatment. Radioactive materials can only be removed by physical means. it must be reduced to a limit of radioactivity set by command authority by removing the contamination physically or allowing it to "decay." The extent of radioactivity existing in any food space will be determined by survey with radiac (radioactivity) monitoring equip-

ment. If the survey indicates, it may be necessary to reestablish the Coast Guard Dining Facility (CGDF) in an area designated safe by the commanding officer.

c. Decontamination. Natural decay of radioactive substances begins immediately following the nuclear blast. In the early stages, decay proceeds rapidly. Therefore, if the situation permits, hazards to decontamination personnel can be reduced by delaying decontamination operations until natural decay has reduced radioactivity to a safer level. Decontamination consists mostly of cleaning or removing the surface to the depth of the contaminated layer. This process neither neutralizes nor destroys the contamination but transfers it to another area where it presents less hazard. The severity of contamination and its nature must be considered. Because galley and dining spaces are usually protected, it is likely contamination will result from the deposit of finely divided solids or water droplets carried by the blast or otherwise airborne. Some radioactive particles may lodge in porous surface materials. Distribution and levels of radioactivity will not be uniform.

(1) Methods of Decontamination. There are various methods of removing contamination. They differ in effectiveness in removing the contaminant, in applicability to various surfaces, and in rate of operation. They fall into two general classes, gross or rough decontamination and detailed decontamination. Gross decontamination is a rapid washing down with large quantities of water from a firehose or nozzle system. personnel aboard ship and in the field will be concerned with gross decontamination. Detailed decontamination procedures are costly in time, manpower and material, and would be done only under the supervision of qualified personnel at shipyards.

(a) Water Decontamination. Efforts to decontaminate with heavily contaminated water will obviously be ineffective. However, water contaminated to a lesser degree than the surface contamination must be allowed to drain freely from contaminated areas. Aboard ship the evaporators are an effective means of obtaining potable water. if a ship is in port it may be required to furnish sate potable water to the nation. 5ea water in the neighborhood of an aerial burst to windward will be contaminated at the surface. A subsurface burst will heavily contaminate sea water in the vicinity.

(b) Decontamination by Cleaning Agents. When materials specifically designed for the removal of radioactive contaminants are available, use as instructed. When specifically designated materials are not available, the following formulas are suggested for general cleaning of galley surfaces:

1 Formula 1:
Detergent, general purpose, liquid, water soluble, type 1, 1/2 pound. Sodium phosphate, tribasic, technical (trisodium phosphate), type 2, 1/2 pound.
Water, hot (12 gallons), 100 pounds.
Directions: Completely dissolve the sodium phosphate by stirring into hot water. The syrupy liquid detergent will be added and stirred until thoroughly dispersed.

2-D-l.c.(l)(b)2 Formula 2:

Dishwashing compound, machine, granular, free-flowing. Directions: Dissolve the compound in hot water to make a 0.5% (approximate) solution (1 pound per 25 gallons of water). The solution must be used hot.

3 Formula 3:

Citric acid, monohydrate, granular form. Directions: Dissolve the citric add by stirring to make a 3% (approximate) solution (3 pounds in 12 gallons of water). Utensils must be immersed and metal surfaces sprayed.

(c) Except for citric acid, the above materials are commonly used and readily available. The suggested formulations are not intended to replace agents specified in existing decontamination instructions. They constitute the bare minimum as substitutes and will serve to meet immediate emergency requirements. All chemical cleaning agents function most efficiently when hot. The choice of method and cleaning agent to be used will depend on the nature of the surface to be decontaminated, kind and degree of contamination, time, manpower and materials to do the work.

(2) Decontamination procedures.

(a) Decontaminating Galley, Equipment and Dining Spaces. Thorough cleaning of all surfaces is imperative. Begin cleaning overhead and work downward in the direction of liquid flow. When feasible, the first step should consist of flushing the surfaces with large quantities of clean water. Avoid electrical equipment, especially controls that are not waterproofed. As much as 90% of loosely adhering radioactive deposits may be removed this way. The second step involves systematic scrubbing with chemical cleaning agents. Piping, ductwork, stachions, bulkheads, coamings and decks must be repeatedly scrubbed until monitoring indicates a safe condition. Give bare metal surfaces an initial scrubbing with alkaline detergents to remove grease films. Apply citric acid solution and allow to remain for a minimum of 10 minutes. Then rinse the surface with clean fresh water, allow to dry and inspect. in the absence of citric acid, vinegar may be used but it is less effective.

(b) Decontaminating Utensils and Dinnerware. Carry out the treatment for metal utensils the same way as other metal surfaces, namely, a detergent wash followed by acid treatment, except that, when feasible, the utensils should be immersed in the solution. Treat trays, cutlery and metal tableware the same as utensils. Dishes and glass items present no particular cleaning problem if the glazed surfaces are without scratches and foreign deposits such as stains or hard-water scale. Plasticware may present some difficulty because of the relatively porous character of the surface, scratches and presence of foreign deposits. Glass and

plasticware must be machine washed, rinsed, dried and each item inspected. Those that do not pass will be inspected for cracks and surface defects. Dispose of cracked and badly scratched items immediately. The other items still showing contamination must be given repeated washing until safe or segregated to await natural decay or disposal.

(c) Decontaminating Food. All foods must be carefully monitored. Foods in metal or glass packages will be safe. Contamination will be on the exterior surfaces and can be removed by washing. Food items in sealed dustproof packages will probably be safe if the wrapper is not broken. Contamination -is best removed from these packages by vacuum cleaning and carefully removing the outer wrap. Some vegetables can be decontaminated if carefully washed, dried, and peeled. When surface contamination cannot be physically removed, the food must be condemned. All food must be inspected and approved by the medical officer.

(3) Precautions in Decontamination.

(a) Personnel engaged in decontamination must wear protective clothing. If such clothing is not available, similar garments may be substituted; however, be certain the substitutes adequately prevent radioactive particles from coming in contact with skin or gaining entry to the body by eating, inhaling or through breaks in the skin. Wear masks. In the absence of regulation masks, use goggles or glasses to protect the eyes and a filter improvised from several layers of Turkish toweling to protect the lungs.

(b) Take precautions to -prevent any contaminated personnel or material from entering uncontaminated food storage or food service spaces. All personnel and material must be monitored and cleaned before entering spaces requiring decontamination. Cleaning gear, items of protective clothing, etc., used in decontamination procedures, must be segregated and disposed of according to their level of contamination. If contaminated items are accidentally brought into food space, remove and isolate these items pending decontamination of the affected area. Send personnel who may have walked through such areas or who may have otherwise come in contact with radioactive particles, to a decontamination station.

2. Biological Defense. The instructions of the military commander must enable the supply officer to operate CGDF under conditions of a biological attack. The following instructions give the protection to be provided for and the procedure to be followed in the decontamination of eating, drinking and galley utensils; food preparation equipment; dining spaces; and food and water in an area contaminated by biological agents. In case of nuclear and chemical contamination, it will be impossible to locate or identify in a reasonable time the specific items or areas contaminated with biological agents. Similarly, it will not be possible to measure the completeness or efficiency of the biological decontamination unless tedious laboratory procedures are used; therefore, all surfaces that would be health hazards if contaminated must be regarded as contaminated and treated accordingly.

2-D-2.a. Precautions in Biological Defense. Decontamination teams must wear protective clothing and equipment. Take precautions to prevent any contaminated personnel or material from entering uncontaminated dining spaces.

b. Contamination by Biological Agents.

(1) In treating the problem of biological contamination, assume there could be contamination of personnel, all exposed surfaces, and surrounding air. These instructions are intended for use in the event of suspected or known biological contamination. The problem is to decontaminate and prevent recontamination.

(2) Biological particles are such a size and density that in still air they settle rapidly. Because air is always moving much faster in occupied compartments, few biological particles are deposited on surfaces by settling; they are more often deposited by inertial collision or impaction. Impaction is rare on large flat surfaces or when the particles are moving slowly, but is more common on small or sharply curved objects and when the particles are carried by fast-moving air. Body hair, fabric nap, wires, pipes, etc., are particle collectors, particularly in a fast airstream. Screens, blowers, particulate filters and other obstacles in ventilation ducts are also particle collectors.

(3) Because of the current difficulty in rapidly detecting biological agents, knowledge of contamination may be based on an event that happened several days or weeks before.

c. Decontamination of Equipment and Spaces. Good sanitary and hygienic practices are the best defenses against many aspects of biological contamination. Close examination of food spaces and strict adherence to applicable instructions will greatly enhance biological defense. Biological contamination hygienic problems differ from ordinary military hygienic problems only in that hardier types of organisms may be present in other than their normal environment and in higher levels of contamination.

(1) Initial Procedures. After contamination has occurred or is suspected, or when directed by the commanding officer to place biological defense measures in effect, decontamination measures must be carried out in the order given to avoid recontamination.

(a) Formalin and Ethylene Oxide Gas. Formalin vaporized by an insecticide fog applicator is an effective decontaminant and should be used under most circumstances for decontamination of food spaces; it is somewhat corrosive and leaves a disagreeable formaldehyde odor difficult to remove. Ethylene oxide gas in 15-pound cylinders is also an effective decontaminant. it leaves no objectionable odors and is noncorrosive. it is, however, practical for use only in gas tight chambers or small spaces; requires considerable preparation; is extremely flammable; and must be kept away from heat and sparks.

(b) Detergent Solution. If neither formalin nor ethylene oxide is available or if their use as fumigants is not feasible, the interior

surfaces of the contamination spaces must be scrubbed down with an effective detergent solution to remove dust, grease, etc.; hosed with clean, fresh, safe water to remove residual soil and detergent solution; and then sprayed or scrubbed with water with 20pprn available chlorine. Use iodophor solutions (germicidal or detergent), phenolic solutions (germicidal) or formalin (germicidal) solutions if prepared as advised by the medical department.

(2) Decontamination of Various Types of Equipment.

(a) Large Equipment. Large equipment (those items too large to be immersed in sinks or run through dishwashers) must be washed, rinsed and decontaminated as stated for interior surfaces of food service spaces. The methods most suited to decontaminating large equipment are those involving the use of hypochlorite and detergent solutions.

1 Hypochlorites are corrosive to all metals that will rust and should not be allowed to come in contact with motors and other electrical equipment from which such hypochlorites could not be thoroughly wiped off. Cover as much of the equipment as possible with sterile cloths after decontamination to prevent recontamination.

2 Hypochlorite identified as calcium hypochiorite (high-test hypochiorite) containing 70% available chlorine can be used. This is the most concentrated form of hypochlorite or active chlorine available. This solution can be used, after suitable dilution for decontamination, or the calcium hypochlorite can be dissolved in water and used directly. One ounce of the granular calcium hypochlorite dissolved in 1 gallon of water gives a solution of 5,000-ppm (0.5%) available chlorine.

(b) Small Items of Equipment. Small items of equipment that will not be damaged by immersion must be washed, rinsed and sanitized as stated for eating and drinking utensils.

(c) Dining and Small Galley Utensils and Other Small Items. Dinnerware, small galley utensils and all other small items must be decontaminated. Items not absolutely essential to dining facility operation can be removed more easily than decontaminated.

(3) Additional Procedures. In addition to the initial procedures, continue decontamination as long as it is determined by competent authority that danger exists. Daily decontaminate interior surfaces, except overhead and bulkhead surfaces out of reach, as long as the danger exists. Decontaminate large equipment before and after each meal, and small equipment and utensils before and after each use. After decontamination, cover the small equipment and utensils with a sterile cloth.

(a) Note - Afloat Only: Direct exposure to bright sunlight for an hour or more is an effective decontaminate for clean, smooth, nonabsorbent surfaces. Most exterior surfaces of ships for which rapid

decontamination is not normally required will L decontaminated satisfactorily by sunlight. Dirty, dusty or porous surface; tend To protect biological organisms front direct sun rays. Under cond-tions where steam, hypochiorite solutions or decontaminating vap-ors cannot be used in ship compartments, the tyndallizing (interm-ittent sterilization) procedures may be effective. This system which is repeated several times, requires several cycles of high surface temperature (100F - 125F) plus high humidity (95-100%), followed by normal temperature and humidity.

(b) Vacant.

d. Machine Washing Galley Utensils. Follow the machine dishwashing instruc-tions in this manual and, if necessary, station qualified supervisory personnel in the scullery.

(1) Additional Washing Precautions. The interior walls of the scullery, all working surfaces, the interior and exterior of dishwashers and all other equipment used in the washing and sanitizing of eating and drinking utensils must be thoroughly washed, rinsed and decontaminated.

(a) After all surfaces and equipment are decontaminated, bring eating and drinking utensils to the scullery for decontamination.

(b) Decontaminated eating and drinking utensils must not be handled by any person who has previously handled contaminated utensils. Also, do not place these utensils on any surface exposed to contamination.

(c) Baskets or containers used must hold silverware in a vertical position, handle down, during the washing and sanitizing processes. Additional containers of similar construction must be available so the silverware may be inverted without being handled by workers. If containers we not available, lay silver flat in racks with handles extending in the same direction and to a depth not exceeding two utensils.

(d) Exercise particular care in removing utensils from racks after decontamination to prevent recontamination.

(2) Sanitizing. After machine washing and rinsing, sanitize the utensils. Use sanitation by hypochlorite solution as a supplementary safeguard only if the dishwasher does not operate correctly.

(a) The utensils will be soaked, while still in wash rack, for 1 full minute at 100F to 140F (37.C-6C) in a solution of 1 part hypochlorite and 50 parts of water in a single-tank machine or 1 part hypochiorite and 500 parts of water in a double-tank machine; one-fifth of 1% of a detergent must be added to either solution. This solution may be mixed from nonionic detergent (a detergent that dissolves in water without ionizing) or solid Nacconal (NR) detergent (a flaky, solid detergent that is soluble in hard or soft

fresh water) with any one of several chlorine-containing compounds such as calcium hypochlorite, sodium hypochlorite or chlorinated lime.

(b) Because these hypochlorite compounds contain varying amounts of available chlorine and may have deteriorated to an unknown degree in storage, it is necessary to arrange for a qualified person to analyze the soaking solution for chlorine content to ensure the proper concentration of available chlorine is attained and continued at sufficient strength.

(c) After sanitizing, soak the utensils to sterilize and then rinse the hypochlorite off with hot water.

(3) After Sterilizing. After sterilizing, soak and water rinse, and cover the wash racks containing utensils with a cloth that has been sterilized by boiling. Leave utensils in the wash rack. Ensure personnel in the dining line pick up utensils from the wash rack by touching only the handles.

e. Hand Washing Galley Utensils. Eating and drinking utensils must be washed and sanitized to effect decontamination by manual methods. Additional washing precautions for dishwashers are applicable to manual dishwashing.

(1) Prevention of Recontamination.

(a) Recontamination may be caused by secondary aerosols or clouds formed from particles which, having been deposited on a surface, are stirred up into the air again by scuff mg, shaking or other mechanical action. Although the degree of danger these secondary aerosols represent has not been definitely established, take protective measures to suppress them. Suppress secondary aerosols by wetting surfaces with oil or water. Use a suppressant and restrict traffic in the food preparation areas.

(b) it is important to ensure that before entering food service spaces, subsistence specialists and all personnel eating in the dining area are as free as possible from contamination. The medical and public works officers and the damage control assistant may be consulted on the decontaminating of personnel. Indoctrinate personnel in at least the objectives of biological defense. In cold weather, personnel in dining lines must remove outer garments and leave them outside food service spaces prior to entering. It was found that removing clothing will shake off organisms impinged on the surfaces, setting up secondary aerosols. Do not permit unauthorized personnel in the food service spaces.

f. Decontamination of Food Items. Get the medical officer's advice before making any attempt to decontaminate food suspected of biological contamination.

(1) Dry Items.

(a) Food Packed in Impermeable Containers. Food stored in containers resistant to biological agents (sealed containers made of metal,

plastic, glass, or porcelain) requires only proper exterior decontamination. Remove paper labels and paper covers from the container. Use one of the following decontamination methods:

1 Immerse the containers for 15 minutes in a solution of water with 200-ppm available chlorine; then rinse the containers with potable water.

2 Soak the containers for a minimum of 15 minutes in effective detergent solution as an expedient method to reduce contamination to a safe level (see Formula I in paragraph 2-D-1.c(l)(b)l) then rinse the containers with potable water.

3 The exterior surfaces of stacks of food packed in impermeable packages can be sterilized by vapor disinfectant, such as formalin or ethylene oxide.

(b) Food in Nonimmersible packages. Wipe off food packages that will not stand immersion in a solution of water with 200-ppm available chlorine. Cook the food thoroughly before serving.

(c) Food packaged in Sacks. Food packaged in sacks or other permcable containers can be decontaminated with ethylene oxide, but because of the limited availability of this product, it is recommended such foods be thoroughly cooked before eating.

(2) Fresh or Chilled Items.

(a) Foods That Can Be Peeled or Pared. Foods that can be peeled or pared may be decontaminated by soaking for 15 minutes in water with 200-ppm available chlorine. The food is then peeled or pared and rinsed well with potable water. This method has been used satisfactorily on apples, potatoes and eggs.

(b) All Other Fresh or Chilled Items. Heat is the most practical means of decontaminating contaminated foods. Thorough cooking will reduce contamination to a safe level so food can be eaten. Use specific methods for this form of decontamination in paragraph 2-D-2.f(5).

(3) Frozen Items.

(a) Impermeable Containers. Food items stowed in the freezer in impermeable containers (canned frozen strawberries, for example) may be decontaminated as outlined in paragraph 2-D-2.f(a).

(b) Permeable Containers. Food items stowed in the freezer in permeable containers (frozen fruits or vegetables, for example) may be decontaminated with ethylene oxide and thoroughly cooked.

(c) Not Contained in Outer Packaging. Food items stowed in the freezer but not in outer packaging (meat, for example) must be completely thawed and thoroughly cooked.

2-D-2.f.(4) Additional Precautions. Hands must be free of contamination during the opening operations to ensure the contents are not contaminated.

(a) Opened Cans of Food. Opened cans of fruit, jam, jelly or similar foods must be destroyed, but opened cans of vegetables may be decontaminated by boiling the vegetables for a minimum of 15 minutes in a 5team-jacketed kettle.

(b) Vacant.

(5) Decontamination by Heat. Heat is the most practicable means of decontaminating foods. In no case will decontaminated food be consumed until it is pronounced safe by a designated medical officer. It is recommended that, insofar as possible, only foods contained in impermeable packages (cans, bottles, jars) be decontaminated and used for meal preparation.

(a) Cooking. Food items that are not packaged or those packaged in permeable containers may be cooked by either method:

1 In a pressure-type cookers at 15 pounds pressure at 250F (121C) for 15 minutes.

2 Boiling for a minimum of 15 minutes.

(b) Baking. Certain contaminated items may be decontaminated by baking. To prepare baked items using contaminated ingredients, use only -hose recipes in the Armed Forces Recipe Service (AFRS) specifying an oven temperature of 400F (204C) and above, for a cooking period of 40 minutes or longer,

(c) Meats. All meats except those in decontaminated impermeable containers must be cooked to the well-done stage 325F (162.7C) for about two hours. Guidance cards in the AFRS also include information on internal temperature indicating the well-done stage.

g. Water Contamination. The detection of water contamination and the laboratory analyses are responsibilities of the medical department.

(a) Biological decontamination of water is not difficult when regular water-treatment facilities exist. However, more chlorine than normal will be needed to process the water.

(b) If no water-treatment facilities are available, decontaminate water using one of the following methods:

(1) Boiling for twenty minutes.

(2) Distilling, if equipment is available.

(3) Using iodine tablets coupled with boiling.

2-D-2.g.(c) A medical officer must approve the method and the completeness of the decontamination process before any water is used for drinking purposes. Decontaminated water must be protected against recontamination.

3. Chemical Defense. The degree of contamination of food service spaces and equipment will depend on the chemical agent used and the factors involved, such as the method of delivery, the weather and the various degrees of contamination (vapor contamination, light liquid contamination and heavy liquid contamination).

a. Vapor Contamination. After surrounding areas are decontaminated, air the ough9 and wash down the entire food service space inside and out with clean water. Wash all equipment and utensils used in the preparation and service of food carefully, using normal procedures. Test spaces, utensils and equipment with the chemical agent detector kit and, if necessary, repeat any of the procedures.

b. Light Liquid Contamination.

(1) Wash the food service spaces, inside and out, with hot water. Addition of alkaline detergent, such as standard dishwashing compound, and application at high pressure will increase the water's effectiveness. Then air dry spaces.

(2) If slight contamination remains, heat the food service spaces to as high a temperature as possible for one to two hours. Open the spaces and ventilate for 13 minutes. Porous objects, such as wooden benches, will absorb enough liquid contamination to warrant destroying them.

b. Heavy Liquid Contamination. Heavy liquid contamination is unlikely except from a direct hit. However, where the local situation requires the food service officer to attempt recovery, follow these procedures:

(1) Spaces. As no amount Of washing or scrubbing of a porous surface that is heavily contaminated by a liquid chemical agent, particularly mustard gas, is likely to do much good, heavily contaminated areas must be roped off or abandoned as unsalvagable. Residual contamination on nonporous surfaces or other light liquid contamination must be removed as stated in paragraph 2-D-3.

(2) Utensils. Immerse metal, glass or china utensils or any equipment not damaged by water for 30 minutes in actively boiling water. Add 1 cup of alkaline detergent to each 5 gallons of water. This process must be followed by normal dishwashing procedures.

(3) Large Equipment. Vigorously scrub large equipment unsuited for immersion in boiling water with DS2 (general-purpose decontaminant effective for all toxic chemical agents) solution or hot water and an alkaline detergent. Rinse, disassemble and scrub equipment again with particular attention to parts not reached by the first washing. The equipment must then be rinsed, dried, oiled, greased and reassembled. Remove wooden items and destroy.

2-D-3.b.(4) Electrical Equipment. Unless the electrical unit is enclosed in a watertight seat, do not use water in the decontamination process. Clean electrical equipment with trichloroethane, technical (methyl) chloroform or D52 solution. All greases must be removed, bearings cleaned and the equipment regreased.

(5) Safety Precautions. DS2 is flammable and irritating to the skin. Wear protective clothing.

(6) Food Items and Water. When large quantities of food or water are suspected of chemical agent contamination, carefully inspect the items. in some cases, contaminated food and water must be destroyed; however, in other cases, they may be salvaged by special decontamination procedures. It is the responsibility of the medical department to determine which action to take.

CHAPTER 3

PROCUREMENT

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CHAPTER 3. PROCUREMENT

A. The Purchasing Process.

1. Purchasing for a Coast Guard Dining Facility (CCDF).

a. Quantity food purchasing for a CGDF is highly complicated. Anyone can order food, but ordering is not purchasing.

b. A buyer must deal with many different individuals under highly competitive conditions. A code of ethics, a sense of fair play, open-mindedness, honesty and patience are necessary, as well as skills and technical knowledge, to effective purchasing. The buyer must continue to study and learn to keep sharp. The alert, knowing buyer searches the market and selects the best foods at the lowest prices to maintain high operating standards.

2. Vacant.

B. Responsibility of the Purchaser.

1. Buyers Code of Ethics.

a. Buying requires a high standard of ethics. Do not accept meals or gifts from sellers. The buyer must not limit purchasing action freedom. Every buyer must establish a personal code of ethics. This is a suggested model.

(1) Be courteous at all times.

(2) Establish regular hours for sales people to call.

(3) Be fair. There must be give and take in all buying and selling situations.

(4) Keep a sense of humor.

(5) Compare price, quality and service.

(6) Do not play one competitor against the other, disclose other competitor's prices, or pass on any information about competitors.

(7) Use delegated authority and dining facility's money carefully.

(8) Never compromise freedom of action as a buyer.

b. Vacant.

2. Buyers Must Be Knowledgeable.

a. Buyers need to know a great deal about preparing, cooking and serving food so they can make proper purchasing decisions.

b. Buyers must select food for its intended use. It is a waste to purchase a higher quality than is required. EXAMPLE: Buying whole nuts to chop is a waste.

3-B-2.c. Buyers must follow market conditions. Quantities and prices follow seasonal variations. Usually commodities are best in quality and lowest in price at the peak of their season.

C. Purchasing Procedures.

1. Considerations.

a. Purchasing procedures must vary to meet the needs of each CGDF:

(1) The type or class of CGDF.

(2) Closeness to supply.

(3) Amount of storage space: dry, refrigerated or frozen.

(4) General market and economic conditions: availability, seasonability, price trends and supply.

(5) Shelf life of the product.

(6) The production needs.

2. Competition.

a. Purchases of less than $19000 may be made without securing competitive quotations when it may be determined the price is reasonable (I.e., catalog prices, prior experience, etc.). The purchaser must state the basis for determining reasonableness of price on the purchase order. However, such purchases must be distributed equitably among qualified suppliers. Do not divide requirements totaling more than $1,000 into several purchases less than $1,000 to permit negotiation without securing competitive quotations.

b. Normally, for purchases exceeding $1,000 but not $5,000 total, at least three sources of supply must be solicited. While there may be instances where quotations must be solicited from additional sources, three suppliers are generally sufficient. Do not divide requirements totaling more than $5,000 into small purchases so the unit can buy and stay within their dollar limit. Instead, forward these to the next higher procurement authority within the chain of command.

C. Solicit oral quotations for purchases estimated below $5,000. Use written solicitations where:

(l) The suppliers are located outside the local area.

(2) Special requirements are included.

(3) A large number of items are included in a single proposed procurement.

(4) Obtaining oral quotations is not considered efficient.

3-C-2.d. Solicit written quotations on Request for Quotation (SF-18) or Order for Supplies or Services (OF 347).

D. Purchase Order Numbers.

1. Number Assignment. When commercial purchases are made, the food service officer must assign a purchase order number to each purchase document. The detailed instructions for assigning these numbers are in Comptroller Manual (COMDTINST M4400.3), volume III, Logistics Property and Transportation.

2. Construction of Purchase Order Numbers.

a. Basically, purchase order numbers are constructed as shown:

Example:

(1)	(2)	(3)	(4)
Z	30303	0206	9000

(1) "Z" is the code used to identify the Coast Guard; consequently, this is always the same.

(2) This five-digit number is your unit operating facility (OPFAC) number. These are listed in the Operating Facilities of the U. S. Coast Guard (COMDTINST M5440.2).

(3) This number is the Julian date the order is placed.

(4) This four-digit number is the serial number. The serial numbers used by the Subsistence Specialist (SS) personnel are in the 9000-9999 series. Purchase documents are numbered beginning with 9000 on 1 October and run consecutively through documents ending 30 September of the follow-mg year.

b. This same system is used for assigning document numbers to the Standard Military Requisitioning and Issue Procedures (MILSTRIP).

E. Government Purchase Procedures.

1. Documents Used for Purchases from Government Sources.

a. The three forms listed below are commonly used for subsistence (food) purchases from government supply sources.

(1) Requisition and Invoice/Shipping Document, (DD 1149).

(2) DOD Single Line Item Requisition System Document (Manual), (DD 1348).

(3) DOD Single Line Item Requisition System Document (Mechanical), (DD-1348m).

3-E-l.b. Preparation and Use of DD 1149. Use this form for purchasing subsistence items from government supply sources. See sample in Figure 3-1. DD 1149 is prepared in the following manner:

(1) Block 1: Official name of requisitioning unit.

(2) Block 2: Official name and mailing address of the source of supply.

(3) Block 3: Official name and mailing address of the requisitioning unit.

(4) Block 4: The appropriation number 69X4535. List the tine items, units of issue and quantity requested.

(5) Block 5: The requisition date and sheet number 1 of 1 or 1 of 2, etc., as appropriate.

(6) Block 6: The requisition number in accordance with MILSTRIP; for example, Z + the OPFAC number of the requisitioning unit, followed by the 3uiian date. if more than one line item as to be purchased, place the serial numbers next to the line items in Block 4 rather than in Block 6.

C. Preparation and use of DD 1348. Districts permit small units to use a local commissary. The procedure is almost the same as if a shopper was going to the commissary to buy food except cash is not used. Figure 3-2 illustrates DD 1348 prepared for this purpose.

(1) Authorized personnel obtain prepared and approved DD 1348 at the unit, travel to the commissary, select the required provisions, and go through the check-out line.

(2) Instead of paying cash, the shopper gives the DD 1348 to the cashier who writes the total cost in Block "T." Then, the shopper indicates receipt of the provisions by signing Block "U."

(3) The cashier keeps the original and the shopper retains the other copies (including pink copy).

(4) Later, the commissary will submit DD 1348 to the shopper's accounting office.

(5) When using this system, forward the pink copy of DD 1348, along with the monthly Dining Facility Operating Statement (CG-2576) to the district office.

d. DD 1348m (Mechanical). Use this form when purchasing subsistence items from government sources. The term "mechanical" indicates these DD 1348ms are processed by computer. if DD 1348m use is authorized, the unit will have a deck of requisition cards from the supplier. Each card is key punched with all pertinent information, except the quantity, and each card represents one specific item. See sample DD 134am in Figure 3-3. The following procedures apply to DD 1348m use:

REQUISITION AND INVOICE/SHIPPING DOCUMENT

USCGC SASSAFRAS (MLB 401)
DEFENCE PERSONNEL SUPPORT CENTER
2800 SOUTH 20th STREET
PHILADELPHIA, PA 19101

FOOD SERVICE OFFICER
USCGC SASSAFRAS (MLB 401)
USCG Base Gov. Island
New York, N.Y. 10004

69X4535

215339-0216

13

11-22-80

11-23-80

SHADED AREAS ARE COMPLETED BY UNIT MAKING SALE

1.	Lettuce, Head	9001	CS	04	31.14
2.	Celery, Pascal, Trimmed	9002	CS	01	16.00
3.	Peppers, Sweet Green	9003	CS	01	35.00
4.	Milk, Whole (6gal)	9004	GL	60	109.80

NO MORE than nine (9) line items should be listed on the DD Form 1149.

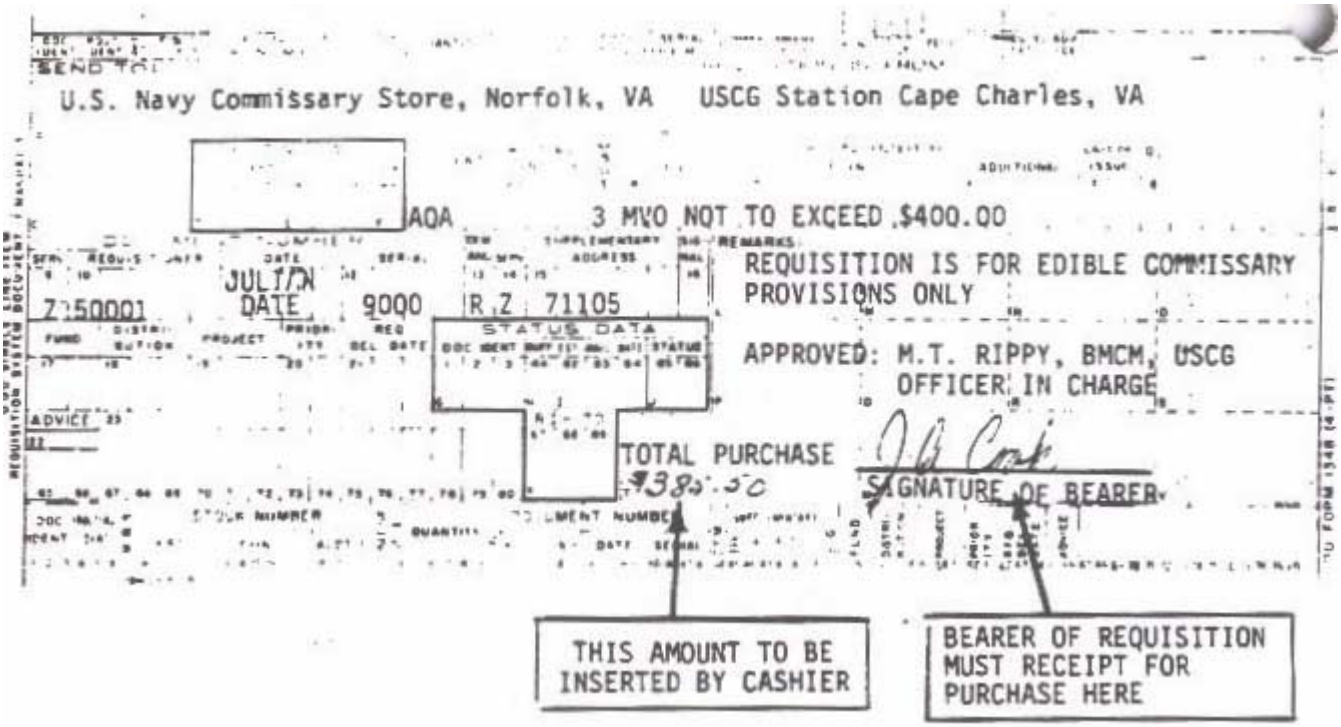
TOTAL 197.94

11-23-80

ORIGINAL

Figure 3-1 - Sample of DD 1149.

SAMPLE REQUISITION FOR PROCUREMENT OF PROVISIONS FROM GOVERNMENT OPERATED COMMISSARY RETAIL STORES



Requisitions of this nature are prepared generally the same as allocation or sub-allotment requisitions. Entries pertaining specifically to non-perisable commissary Supply requisitions are:

BLOCK	ITEM	ENTRY
A	SEND TO	WANE OF C0?94ISSARY STORE
2	ROUTING IDENT. (IF FORM DD-1348)	FOR SOURCES OF SUPPLY USE APPROPRIATE CODE
11	DATE	JULIAN DATE SUBMITED
12	SERIAL	USE NUMBER IN THE 9000 SERIES
13	DEMAND	“R” ALWAYS
17	FUND CODE	XN
14-15	SUPPLEMENTARY ADDRESS	Z71105"

Figure 3-2 - Sample Requisition for Procurement of Provisions from Government Operated Commissary Retail Stores

3-E-l.d.(l) Check the Federal Supply Catalog Consolidated Price List (FSC Group 89 Subsistence) to identify the National Stock Number (NSN) of each item To be purchased. This price list is published quarterly.

(2) Pull the cards whose NSNs correspond to the items to be purchased from the DD 1348m deck.

(3) Check the NSN and unit of issue in the Price List against that shown on the DD 134am. partial units of issue cannot be ordered. All orders are in full case. When ordering less than the full unit of issue, do not use this system.

(4) Enter the quantity desired in Blocks 25 through 29 (Quantity) of each DD 1348m. Place a figure in each block. For example, four cases would be:00004

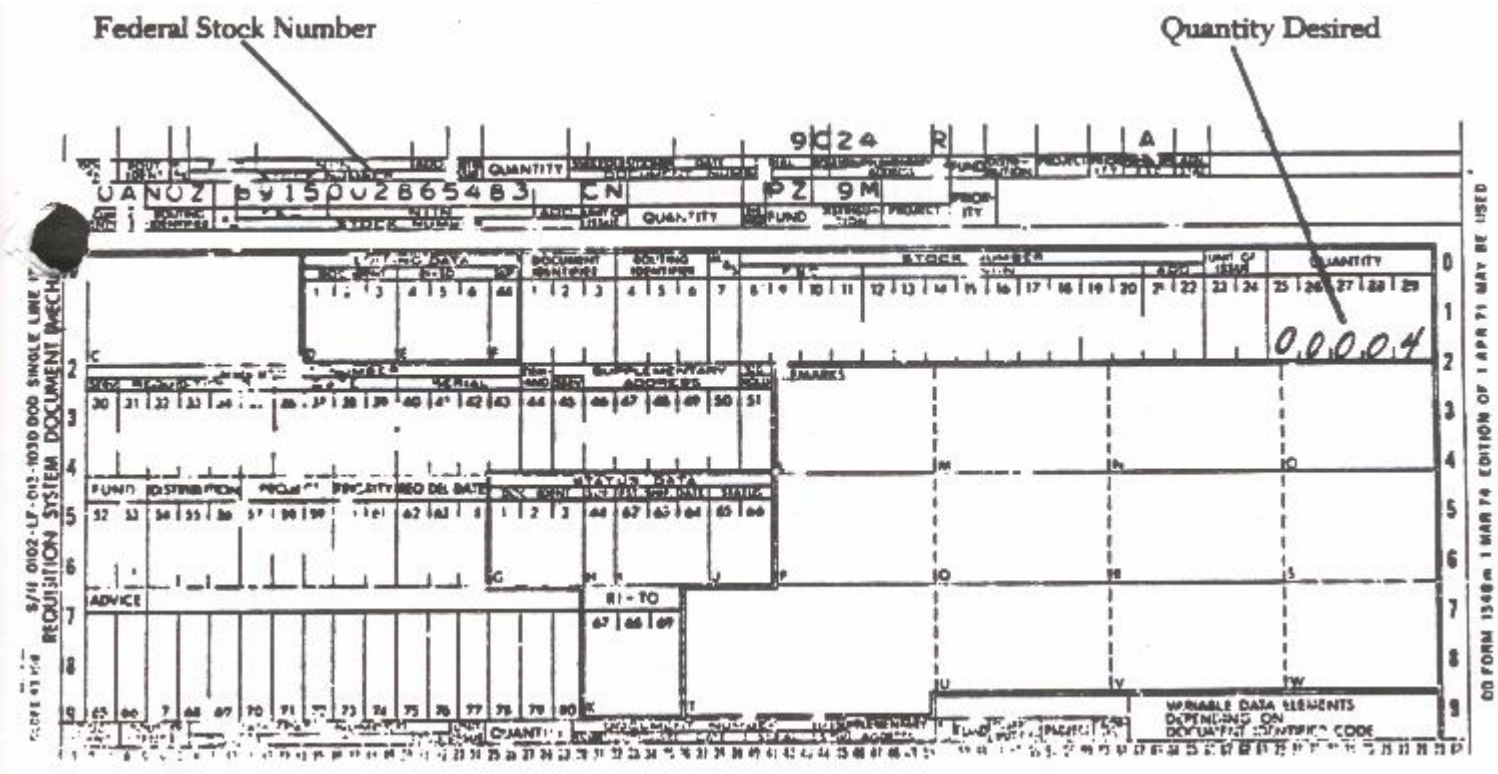


Figure 3-3 - DOD Single Line item Requisition System Document (Mechanical) DD 1348m

3-E-l.d.(5) Prepare the Requisition Control Records. Each deck of DD 1348ms comes with a Requisition Control Record Card. Simply add the following information to that card:

(a) To: (The name of the appropriate supply activity).

(b) From: (The name of the requisitioning unit).

(c) Title: (Subsistence Food Items).

(d) Number of Requisitions: (The total number of cards being submitted).

(e) Date of Requisitions: (The Julian date the requisitions are forwarded to the supply activity).

(f) Required Delivery Date: (The Julian date the requisitioned items are required to be onboard a unit).

(g) Signature: (The unit's FSO, supply officer or other designated official).

(6) The Requisition Control Record is placed on top of the requisition cards and mailed or delivered to the appropriate supply activity.

2. Government Purchases (Food Service Equipment).

a. Simplified Unit Requisition/Follow-UP System (SURF). Coast Guard purchases of food service equipment (minor) are made through SURF. This system standardizes and simplifies requisitioning at the unit level.

(1) If a unit uses SURF, it must have a copy of the COMDTINST M4400.3, (Comptroller Manual Volume II, Disbursing), explaining SURF procedures. Under this system, subsistence specialists are responsible for contacting their unit's supply representative when utensils or other non-food supplies are needed.

(2) The supply representative may not have a knowledge of subsistence items so the information must be accurate.

b. Maintain an accurate inventory of equipment and supplies. This inventory must contain the NSN of each item, the source of supply, a description of each item, the number on-hand, and a low limit to indicate when to reorder supplies. Set realistic low limits.

F. Commercial Purchase Procedures.

1. Conditions for Commercial Purchase. Purchases from commercial suppliers are authorized under the following conditions:

a. The supplies or services are not available through the local SERVMART or supply activity.

3-F-l.b. There is an urgent requirement for authorized supplies and services.

c. Time and scheduled operations will not permit procurement through military or GSA sources.

d. The authorized purchase of supplies by an installation or activity logistically supported by it is known as "local purchase." Local purchases are not limited to the immediate geographical area in which the purchasing installation is located but typically are made in the local area where the supplies are consumed.

2. Documents Used for Commercial Purchase.

a. Order for Supplies or Services (OF 347). Use the OF 347 form for negotiating CGDF supply and nonpersonal services purchases. The form, Order for Supplies or Services (DD 1155), is no longer authorized for Coast Guard use. More detailed information and instructions for OF 347 will be included in this instruction at a later date.

b. Purchase Order-invoice-Voucher (SF-44). SF-44 is a multi-purpose form used as a purchase order, receiving report, supplier8s invoice or voucher. it is designed primarily for local, over-the-counter purchases. Use SF-44 when:

(1) The transaction is not over $2,500.

(2) The suppliers or service are immediately available.

(3) One delivery and one payment are made.

c. SF-44 Use.

(1) General procedural instructions governing the use of SF-44 are printed on the forms and inside covers of the SF-44 pad.

(2) SF-44 users are subject to applicable administrative and accounting instructions issued by cognizant authority (i.e., normally district or group commanders).

d. SF-44 Preparation. See Figure 3-4 for sample SF-44.

(1) Prepare SF-44s by typewriter or hand. Dealer's name and address will be typed or printed. Required signatures must be legible and handwritten.

(2) Assign order numbers in a regular fiscal year series maintained for the unit or from those assigned by the authority authorizing use of the forms.

(3) Promptness in making payments is essential. Authorizing officials are responsible for instructing users in the completion and handling of these forms so payment may be effected promptly.

(4) The SF-44 will be distributed as required by local administrative procedures:

(a) SF-44a is a dealer's invoice.

(b) SF-44b is the dealer's copy.

Date of order, delivery or performance by supplier.

FY series serial No. assigned by unit or by other authority.

Name and address of ordering unit.

The quantity, complete description, unit, and extended price of supplier or services.

Authorized ordering officer's signature.

Include appn, allot. symbol, unit cost code, obj. of expenditure.

Employee receiving material will complete this section for all deliveries.

Signed and returned by dealer, then sent to cognizant acct. office for payment. Exception: When dealer retains copy 1 to submit unsigned with his own invoice. (See instructions to seller, copy 2).

Forwarded promptly(copy 1, or copy 1 and dealer's invoice) by the ordering activity to the accounting office.

EMERGENCY PURCHASES require an explanation on the reverse of all copies, except COPY 2.

U.S. GOVERNMENT

PURCHASE ORDER—INVOICE—VOUCHER

1 June 19 | WLR-285-175/

Diamond Egg & Poultry Co.
13 River Street
Cairo, Illinois 63111

Commanding Officer
USCGC FOXGLOVE (WLR-285)
Market St. Piers, Cairo, Illinois 63111

Eggs, fresh, large, grade A. Request Delivery Prior to 11 A.M. 3 June	30 Dz	.80	24.00

U. S. Coast Guard
Commanding Officer
USCGC FOXGLOVE(WLR-285)
CGBase, St. Louis, Mo. 63111

TOTAL 24.00
Net $ 30
3 June 19

John Snerha, CW03 Commanding Officer

COAST GUARD
DINING FACILITY SUBSISTENCE
69x4535, Coast Guard Supply Fund
02-82 02-15803 8520

PURCHASER—To sign below for over-the-counter delivery of items

U. P. Dodge
SS2, USCG | 3 June 19

SELLER—Please read instructions on Copy 2

☐ $ | ☒ $ 24.00

NO FURTHER INVOICE NEED BE SUBMITTED

W. S. Barber, Mgr. | 3 June 19

These spaces used only by authorized certifying officer

1. SELLER'S INVOICE
2. SELLER'S COPY OF ORDER
3. RECEIVING REPORT—ACCOUNTING COPY
4. MEMORANDUM COPY

Figure 3-4 - Sample SF-44

3-F-2.d.(4)(c) SF-44c is the receiving report copy and must accompany SF-44a to the appropriate accounting office.

(d) SF-44d is the issuing unit file copy.

3. Order Record Books. All units assigning numbers to purchase orders, SF 44s or cash purchases, must maintain an order record book or log, briefly summarizing purchase transactions and providing a reference to the open purchase files. Normally, the record will be kept in ink in a bound book with columns provided for: (1) the order number, (2) date of order, (3) source of supply, (4) description of the items ordered, (5) date receiving report was transmitted to cognizant accounting office and (6) remarks.

4. Taxes Applicable to Small Purchases. As a general rule, purchases of materials or services for the exclusive use of the Coast Guard are exempt from state or local taxes. When tax exemption certificates are required by the vendor or the vendor refuses to sell exclusive of state or local taxes, refer the matter to higher authority for advice and instruction.

5. Follow-up Action. Follow-up action to commercial suppliers begins when the material is not received by the date specified in the procurement document or information concerning the shipment has not been received. When a phone call is made, document the purchase folder to show: (1) date of call, (2) names of caller and vendor representative, and (3) status of the order.

Receipt of Supplies. Follow procedures in Comptroller Manual (COMDINST M4061.3A), Volume V, subsistence, chapter 5 for receipt of supplies.

CHAPTER 4

INSPECTION AND STORAGE

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CHAPTER 4. INSPECTION AND STORAGE

A. Inspection. The physical conditions for determining acceptability of food items at the rime of breakout are discussed in this chapter. For more technically detailed information concerning the formal inspection of subsistence items, consult Comptroller Manual Volume TV Subsistence (COMDTINST M4061.3) and the Food Service Sanitation Manual (COMDTIN5T M6240.4).

1. Meats. Thawed meat is normally firm and elastic to the touch, free from slime, abnormal odors and discoloration. Generally, the first indication of deterioration is slime. Unless the slime is extensive, or long standing, it may be removed by trimming. The characteristics of acceptability of different types of meat are:

a. Beef - Acceptability evidenced by varying degrees, bright, red color.

b. Veal - Typical veal has a grayish-pink lean portion of smooth, velvety texture.

c. Lamb - Typical lamb has a light red color with lean portions finely textured.

d. Pork - Pork fat is white and firm. The flesh is light pink. Darkening of the meat and discoloration and rancidity of fat indicates spoilage.

e. Sausage Meats - Sliminess and mold indicate decomposition of sausages. External mold is common on dry sausages such as salami; it is, however, harmless and can be washed off if confined to casing. Mold penetrating a broken casing may give it a moldy taste but is not dangerous to health.

2. Fish and Shellfish.

a. Fish. Check fish carefully. Do not use fish that has been frozen, thawed and refrozen. Refrozen fish when thawed will have a soft, flabby flesh, a sour odor and will be off-color. Wrapping paper will be quite moist, slimy and even discolored. The bottom of the fish container will have ice formed on bottom of the container and container may be distorted. These &e some additional pointers in fresh fish inspection:

(1) Acceptable fresh fish have bright-red gills, prominent clear eyes, and firm flesh.

(2) Unacceptable fish have a dull appearance, cloudy red-bordered eyes and soft flesh. Finger impressions are made easily and remain.

(3) Do not eat fish caught over the side unless there is no doubt of the nonpoisonous nature of the fish. Poisonous alkaloids present in poisonous fish are not destroyed by cooking. Serious illness, and even death, may occur if this cautionary note is neglected.

b. Shellfish. Fresh lobster must be alive for acceptance. It will remain satisfactory as long as the flesh contour retains shape and does not shrink. Additional pointers in the inspection of lobsters are:

(1) The edible portion of lobster must have a normal odor with firm flesh.

4-A-2.b.(2) The quality of whole lobster will deteriorate after an extended storage period.

3. Butter, Cheese and Eggs.

a. Butter.

(1) Butter must be received in dean unbroken containers.

(2) The taste must be sweet and fresh.

(3) The color must be uniform and texture firm. There must not be specks or foreign substances present.

b. Cheese.

(1) If the cheese has a rind, the rind must be clean and unbroken.

(2) Check for characteristic flavor and texture of the cheese as well as for uniform color.

(3) If mold is present, remove and serve the cheese.

c. Eggs. Fresh eggs or processed fresh eggs must not be more than 30 days old when received from the vendor. Store "fresh" and "processed fresh" eggs at 32F.

4. Fruits and Vegetables.

a. Fruits. Appearance is an indication of the quality of fruit but it is not a sufficient guide for accepting or rejecting an item. Occasionally, surface blemishes may be present and the quality unimpaired, in which case taste as the best indicator of quality. Abnormally large fruits of any type are usually more woody and coarse in consistency. Acceptable and unacceptable characteristics of fruits are:

(1) Apples. Best grades are firm, a good color, without blemishes and are flavorful. Immature apples have poor color, lack flavor and tend to shrivel after storage. Overripe apples are dull, have an over yellowish appearance, and may wilt and begin to show decay. Freezing or bruising leaves the skin brown, watersoaked, tough and leathery.

(2) Bananas. Yellow peel indicates produce may be eaten. Yellow peel flecked with brown indicates bananas are fully ripe and must be eaten immediately. Moldy, black peel generally indicates poor quality; bananas like this must be withheld. This condition also indicates an exceptionally ripe product that generally may be used for cooking.

(3) Cantaloupe. Melon generally is good when the external netting is thick and stands out from the main covering. No trace of stem at blossom end and delicate aroma indicate quality produce. When shaken, seeds may be heard. Skin beneath netting usually is yellow; however, too deep a yellow indicates overripeness.

4-A-4.a.(4) Cherries, Sweet. Acceptable cherries are bright in color. Immature cherries have a bitter tang and are undesirable. Do not use soft. overripe or shriveled fruit.

(5) Grapefruit. Acceptable grapefruit is firm but springy to the touch, not soft, wilted or flabby. A coarse skin, puffiness and sponginess indicate lack of juice or flavor or both. Decay is indicated by soft discolored areas.

(6) Grapes. Acceptable grapes are plump and each is firmly connected to the stem. Decay is indicated by wetness or the presence of mold.

(7) Honeyball Melon. Quality melons have thick, green-colored, sweet, fine-flavored flesh with a distinct, pleasant odor. Decay generally is indicated by mold or dark, sunken, watery areas.

(8) Lemons. Lemons are greenish-yellow with a smooth, fine-textured skin. Mold and soft spots on ends indicate decay. If too springy, the center may be decayed.

(9) Nectarines. Appearance is similar to peaches without fuzz. Fruit must be firm and plump with reddish, white or yellow flesh.

(10) Oranges. Skin is yellowish-orange, smooth and fine in texture. Puffy, spongy fruit is not acceptable. Examine containers for hidden decayed fruit.

(11) Peaches. Acceptable peaches are firm, with smooth skin, and are well-rounded. Overripeness is indicated by deep reddish-brown color and softness.

(12) Pears. Pears must be firm and shiney. Receipt of green pears is not indicative of improper shipping procedures. Pears develop off the tree and they should be fully ripe for fresh use.

(13) Pineapples. Fully ripe fruit is slightly soft to the touch, golden yellow in or, with a piny odor. Slight decay at the base and dark watery spots on the sides are signs of overmaturity.

(14) Plums. Acceptable if in full color and soft enough to yield to slight pressure. If hard and poor in color or flavor, the fruit is immature. Overripe is soft and usually leaky.

(15) Strawberries. Good quality fruit is firm, plump and bright red. Overripe strawberries are dull, soft, leaky and must not be used. Mold at the surface indicates decay.
decay.

(16) Tangerines. Discolored skins or extremely soft, mushy spots indicate

(17) Watermelons. The surest way to determine quality is to cut a plug extending to the center. A fully ripe watermelon has a thin outer skin that peels easily when scraped with the fingernail. Interior meat is firm, watery and sweet. Ground rot will appear as soft spots on the skin.

4-A-4.b. Vegetables. Because of their perishability, handle fresh vegetables with extreme care. Pinching, squeezing and unnecessary handling cause bruising, which heads to decay and early spoilage. Acceptable and unacceptable characteristics of vegetables are:

(1) Asparagus. Acceptable asparagus spears are straight, fresh in appearance, crisp and tender, with a minimum of tough woody base to remove (preferably not to exceed one inch).

(2) Cabbage. Acceptable heads &e solid and are not discolored.

(3) Carrots. Acceptable if color is bright and vegetable is well-shaped. Wilted, soft, flabby or shriveled carrots are not acceptable.

(4) Cauliflower. Bright-green color on leaf jacket indicates fresh produce. Head must be solid. Spread of flower clusters indicates poor quality.

(5) Celery. Leaf stems and stalks must be brittle enough to snap. If rough or puffy to the touch, produce will be pithy.

(6) Corn (White and Yellow). Kernals must be tender and milky, with no vacant areas, and filled to the tips.

(7) Cucumbers. Acceptable if firm. Overmaturity is indicated by overall puffy appearance and dull yellow color. in addition, flesh is tough, seeds are hard, and seed cavity flesh is jellylike if overmature.

(8) Eggplant. Acceptable eggplant is heavy and firm, and color is clear, dark and glossy. Decay shows as dark-brown patches. Discard wilted, soft or flabby eggplant.

(9) Endive. Tough, coarse-leaved plants are undesirable. Test for this quality by breaking or twisting a leaf.

(10) Escarole. Characteristics of quality and acceptability are crispness, freshness and tenderness.

(11) Lettuce (iceberg). Discolored leaf areas indicate decay. Soft rot ma penetrate center of head.

(12) Onions (Spanish and American). Onions must be bright, clean, hard, well-shaped, and dark skinned. Moisture around neck indicates decay.

(13) Onions (Green). Green onions must be fresh in appearance, young, crisp and tender. Reject bruised, yellow or wilted-topped vegetables are of poor quality.

(14) Parsnip. Reject vegetables with rust spots. Withered parsnips are old and tough, and evidence a strong flavor.

(15) Peppers, Sweet. Peppers must be well-shaped, thick-walled, firm and have a glossy color. Immaturity is indicated by pale color and soft seeds. Sunken, blistering surface spots indicate potential decay.

4-A-4.b.(l6) Potatoes. Acceptable produce is clean, firm and free from cuts or growth cracks. Frost damage is evidenced by watery appearance or black ring near surface when sliced.

(17) Sweet Potatoes. Clean, firm and free from any indication of decay.

(18) Radishes. Root examination must indicate smooth, crisp and firm consistency.

(19) Rutabagas. Vegetables must be smooth skinned, firm and heavy.

(21) Squash (Acorn, Buttercup, Hubbard, Yellow, Zucchini). Generally avoid hard rinds for Buttercup, Zucchini and Yellow Squash. Hard rinds are desirable for Acorn and Hubbard squash.

(22) Tomatoes. Acceptable tomatoes must be firm, plump, fairly well-formed and free from blemishes. Mishapen, angular, ribbed, scarred or mushy tomatoes are inferior.

(23) Turnips. Smooth skin, firmness and heavy for size denote quality.

5. Canned Products.

a. Inspection Procedures. Discard canned foods that appear abnormal in odor or appearance. When inspecting canned meats, fish, poultry, vegetables, fruits and juices, consider:

(1) Can Labels. Check to ensure contents and processing date are stamped on the end of the container or on the label.

(2) Can Exterior. Examine the can exterior for general appearance, dents, swelling, rust and pinholes. Do not use cans having severe dents which cross the ends or side ££ or crinkle the metal. Rusty cans may be used if the rust does not penetrate the can. Rust that can be wiped off is not penetrating.

(3) Can Interior. Remove contents, rinse can and examine interior for pinholes against a strong light. If pinholes are present, destroy contents.

(4) Contents. Examine can contents for characteristic odor and appearance of the product.

b. Rejection or Survey. Except for coffee and molasses, foods in cans where the following conditions exist are unsatisfactory and must be surveyed:

(1) Pinholes. Tiny holes present caused by action of food acids during prolonged storage.

(2) Swells (or swellers). Both ends of can bulge outward because of bacterial action and gas production. Ends do not yield to finger pressure. Molasses may bulge in tropical areas but this condition is not dangerous; product need not be rejected for this reason.

4-A-5.b.(3) Springers. One or both ends bulge outward because of bacterial actions. However, bulge will yield on pressure and spring back to bulged condition on release. 5pringers or swellers of coffee containers, however, usually indicate a properly sealed container that has retained natural coffee-bean gases.

(4) Flippers. Both ends are flat but one end will bulge outward when the opposite end receives pressure. This condition is caused by either bacterial action or chemical action resulting in gas production.

(5) Dents. Reject the can when any of the following "dent" conditions are present:

(a) Any severely dented can with a very sharp angular dent with verv acute crimping of the body.

(b) Any severely dented can where the end seam has been forced out of position to an extent the countersink has been buckled, which materially affects or is likely to affect the safety and usability of the container.

(c) Any severely dented can where the end seam is pulled out of position to an extent the mal-position is readily noticeable and there is evidence the end seam may have been placed under tension.

6. Dry Food Items. Cereals, sugar, dried fruit, vegetables, flour and meat must be stored under correct environmental conditions of temperature, humidity and ventilation.

a. Indications of Unacceptable Items.

(1) Individual containers having tears, slashes or other physical indications which permit insect and rodent contamination of the food.

(2) If the outside of a container is damp or moldy, thoroughly inspect it for integrity of container. Contents may, however, be fit for consumption If container is otherwise intact.

b. Vacant.

B. Storage.

1. Storage Area Requirements.

a. All areas where food is stored must be kept clean and clear of unnecessary traffic and unpleasant odors. Keep food away from asphalt, fuel, creosote or lubricating oil. Smoking in food storage spaces is prohibited to avoid fire and prevent certain foods from absorbing the smell of smoke. Under normal conditions, store food in original containers. Items in damaged containers or bags must be issued immediately if they are fit for use; otherwise, survey them. If there is any doubt about the contents being edible, have the food inspected by a medical representative and if found unwholesome, survey it. Place food in all spaces on metal pallets or grating (in

shipboard reefers) to permit easy cleaning and to facilitate air circulation. Inspect all food regularly for signs of damage, spoilage, insect infestation or rodent contamination (i.e., perishables daily and semiperishables on a cyclical basis).

b. Steam or other heated pipes must not be present in a well constructed storeroom. If pipes are present, place food items as far away from them as possible and rotate items frequently. Paint storage areas, especially chill and freeze spaces, and the refrigeration equipment with a quick-drying, odor-free paint to avoid odor absorption by food items.

2. Fresh (Chilled) Perishable Foods.

a. Handling and Storage.

(1) Handle fresh (chilled) food items to reduce exposure to weather and eliminate items that could cause spoilage. Do not store citrus fruits, onions, tomatoes, cabbages, cantaloupes and celery with eggs or butter or in rooms where it is possible for odors from such fruits and vegetables to penetrate into egg or butter storage rooms. Keep all fast-spoiling food and beverages refrigerated at the proper temperature except when being prepared or served. Cleanliness of refrigerated spaces helps prevent the growth of mold and other causes of decay. Proper storage promotes cleanliness and prevents contamination. Overloading decreases the efficiency of the cooling equipment, makes cleaning more difficult, and leads to other sanitary problems. Start stocking from the wall and work inward toward the center. Stocks should be four inches from the bulkheads or coils.

(2) Storage temperature for chilled perishable food items is generally within a temperature range of 320F-330F. For some items, better quality is maintained at temperatures higher or lower than this range. Some items are damaged by slow freezing; for these items, the average freezing points are listed in enclosure 4-1. Maintain a recommended humidity of g5%-90% in chill storage spaces. Storage at higher relative humidities may allow water to condense on or to be absorbed in the item, while at lower relative humidity the item may become dry and shrink.

(3) Storerooms containing fresh fruits and vegetables do not usually require outside air, but if the compartment is kept tight at temperature of 400F or higher, the carbon dioxide given off by the fruits and vegetables will sometimes reach a high level. If this condition occurs, air out the room before personnel are allowed to work there.

b. Approximate Storage Life (elapsed time from date of pack to date of issue for consumption). The approximate storage life of all chilled perishable food items is listed in enclosure 4-1. Approximate normal and maximum storage life for different varieties of apples and pears are given in enclosure 4-2. The approximate storage life is based on the assumption that products delivered to the government were processed and procured in accordance with current specifications and were in good condition at time of delivery.

4-B-3. Frozen perishable Foods.

a. Handling and Storage.

(1) Handle frozen-food items expeditiously to minimize temperature fluctuation. Storage temperature for all frozen foods must be 00F or below. For ice cream, the recommended temperature is -10F and in no case should the storage temperature exceed 0F. Enclosure 4-3 gives approximate storage life for perishable frozen foods.

(2) Upon delivery, promptly transfer frozen fruits and vegetables to a low-temperature storage space. Check the load temperature upon arrival by taking temperature readings of cartons selected from top layers inside the shipping cases. If the product temperature is higher than freezer-room temperature, but no higher than 20F, scatter shipping cases loosely around the room on handtrucks, dunnage or grating with adequate space between individual cases to permit rapid lowering of the product temperature to freezer-room temperature. Using a portable fan to create an air current over the products will speed up temperature equalization. When the product temperature has been lowered sufficiently, stack cases compactly. If the product temperature upon delivery is the same as or below the temperature of the freezer room, immediately stack the cases compactly. Keep the freezer room clean and the temperature uniform. Generally, when the recommended temperature is maintained within the stacks in the freezer space, circulation may be considered adequate. Reclose open containers. Opened containers of meat will result in freezer burn and off odors of the meat.

b. Approximate Storage Life. The approximate storage life given in enclosure 4-3 is based on the assumption that products delivered to the government were processed and procured in accordance with current specifications and were in good condition at time of delivery. Do not store frozen perishable food items with an approximate storage life of three months or less for shipment to overseas areas. Prior to shipping, inspect frozen perishable food items having less than six months storage life to ensure there is sufficient storage life remaining to enable routine. issue within overseas areas.

4. Semiperishable Foods. The term "semiperishable foods" refers to foods that are canned, dried, dehydrated, dehydrated compressed or otherwise processed to the extent such items may, under normal conditions, be stored in nonrefrigerated spaces.

a. Storage procedures.

(1) Although semiperishable foods are not nearly as susceptible to spoilage as perishable foods, spoilage can and will occur if the products are mishandled, improperly stored or stored for long periods of time. Base the length of storage on the date of packing and not on the date of receipt.

(2) Segregate and mark all receipts, if necessary, to ensure the oldest dates are issued first except when it may become necessary to issue a lot quickly to avoid loss by spoilage or when another lot of the same commodity is in better condition for continued storage.

4-B-4.b. Storage Conditions. The optimum storage conditions for most semiperishable foods are clean, cool, dry, well-ventilated storage areas. High temperature and high humidity accelerate spoilage by promoting the deterioration of containers and the growth of food bacteria. Freezing is detrimental to the quality of products with a high water content, but most items remain edible after having been frozen and thawed. infestation by rodents and insects can cause great damage to items packaged In bags and canons. These items also tend to absorb odors and lose flavor. This is especially true in storage areas lacking adequate ventilation.

c. Overaged Stock. Consider semiperishable foods overaged when stored in excess of the inspection test date (ITD) marked on the case, and/or the keeping time shown in the semiperishable food storage table in enclosure 4-4.

(1) The veterinary services at the stock points inspect overaged food items and have the warehouse personnel mark the cases and/or the DD 1348-i (DOD Single Line Item/Release Receipt Document) of those items in good condition to indicate the keeping time was extended. Even when overaged items are not marked, consider them fit for use if the container is in good condition, and the food item has no offensive odor and is palatable.

(2) Overaged items are not considered suitable for continued storage unless they are extended by a qualified inspector. items must not be surveyed solely because of age; survey overaged foods only if a qualified inspector finds them to be unfit for human consumption. Serve extended food items as soon as feasible.

d. Identification of Spoiled Items. A change of color of a food product is indicative of a loss of quality and may indicate spoilage. Unpleasant odors and flavors are the beet indications of spoilage without submitting the item to a laboratory for analysis or an examination by a qualified inspector. Foods suspected of being unfit for human consumption must be inspected by the unit's medical officer or senior medical representative and, when available within the immediate geographical area, by an Army or Air Force veterinary unit for confirmation of the unsatisfactory condition prior to initiating surveyed action.

e. Rotation of Semiperishable Food Items. The semiperishable food storage table, enclosure 4-4, is provided for guidance in the rotation of semiperishable foods. Composite food packet storage times are given in enclosure 4-5. The keeping times shown are average keeping times for products stored at 70F. Keeping times decrease approximately 50% if storage temperatures are maintained at OF and increase approximately 100% if stored at 40F.

5. Figuring Space Requirements.

a. Several formulas may be used for computing stowage space. Figures 4-1 and 4-2 are the basic formulas most commonly used.

4-B-5.b. Unfortunately, all storage spaces are not easy to figure. Many times there are coils, pipes, lights and passageways or aisles, preventing you from using all the space. Do not pack or stow subsistence items close to the overhead or bulkhead; room must be allowed for ventilation and access to the subsistence items.

(1) For example, a stowage space is 22 feet 6 inches long, 14 feet 3 inches wide and 9 feet 9 inches high as shown in Figure 4-3.

(2) There are coils extending out 6 inches from the bulkhead along both long sides of the space; also, 30-inch passageway must be provided down the center of the space, parallel to the length. In addition, the lights extend down 7 inches from the overhead, and gratings 8 inches high were placed on the deck as shown in Figure 4-3, side view.

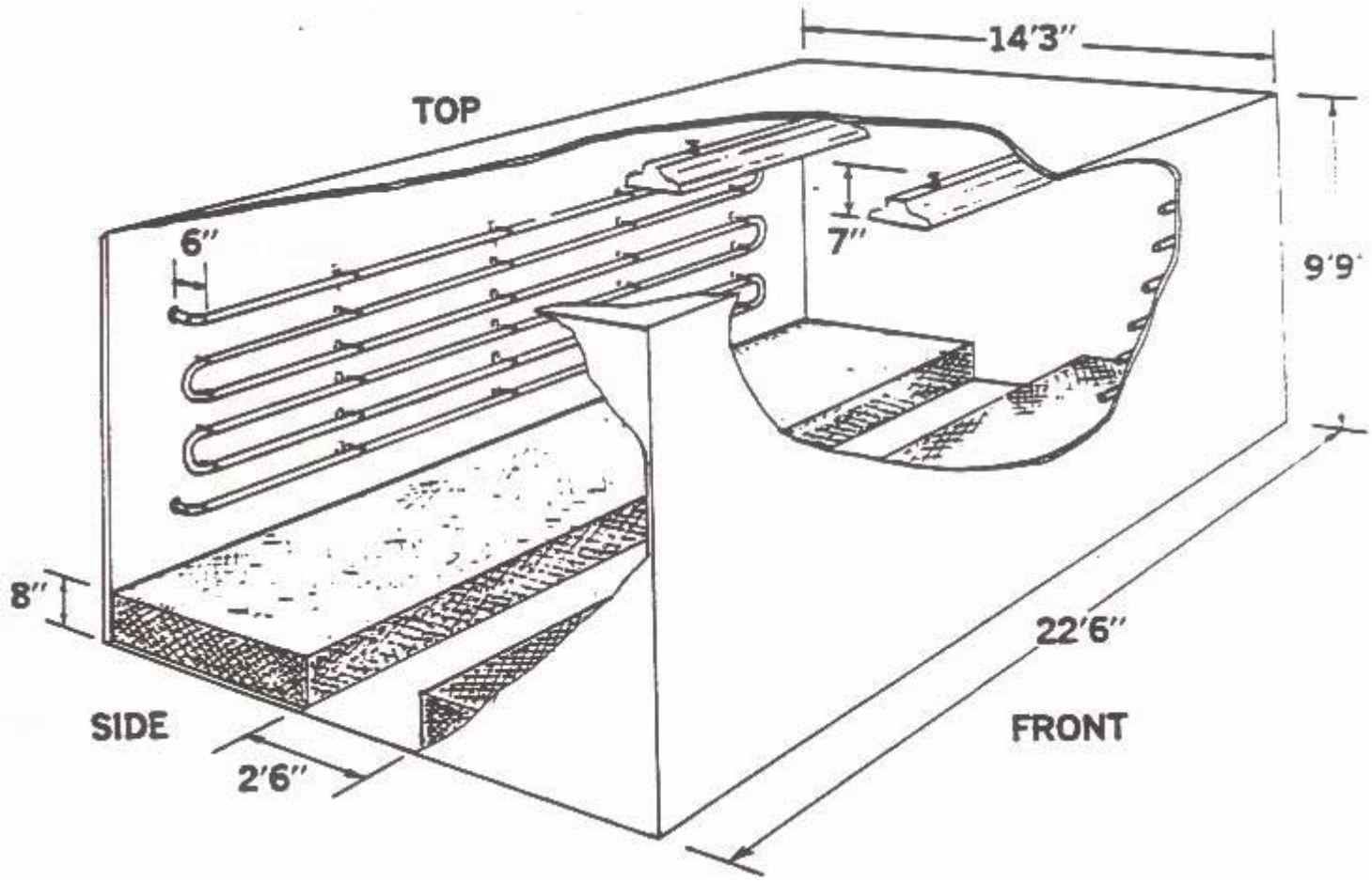

Figure 4-3 - Tri-view of Sample Stowage Area

4-B-5.b.(3) To find the usable cubic area of the stowage space in Figure 4-3, write down the actual dimensions of the space. Then subtract the dimensions of the needed allowances. Note: If coils, passageways, etc., run the length, subtract from the width; if they run the width, subtract from the length.

EXAMPLE:

Total Length	22'6"
USABLE LENGTH	22’6”
Total Width	14'3"
Passage	-2’6”
Coil	- 1'
USABLE WIDTH	l0'9"
Total Height	9'9"
Lights	- 7"
Gratings	- 8"
USABLE HEIGHT	8’6”

(4) Using the usable dimensions, find the usable cubic capacity of the storage space:

LENGTH x WIDTH x HEIGHT = CUBIC CAPACITY

EXAMPLE: 22'6" x 10'9" x 8'6": 2,056 CUBIC FEET

(Round the answer to the nearest whole number)

c. Figure 4-4 illustrates another unused stowage situation. To figure the cubic capacity: First, multiply LENGTH by WIDTH by HEIGHT of the large area; Second, multiply LENGTH by WIDTH by HEIGHT of the small area; third, subtract TOTAL CUBIC CAPACITY OF SMALL AREA from TOTAL CUBIC CAPACITY OF LARGE AREA.

d. The formula for determining the volume of the trapezoidal-shaped storage space illustrated in Figure 4-5 is:

EXAMPLE: Large area 20' x 10' x 10' : 2,000 CUBIC FEET

Small area : 10' x 5' x 10' : 500 CUBIC FEET

Large area: 2,000 CUBIC FEET

LESS Small area: 500 CUBIC FEET

TOTAL 1,500 CUBIC FEET

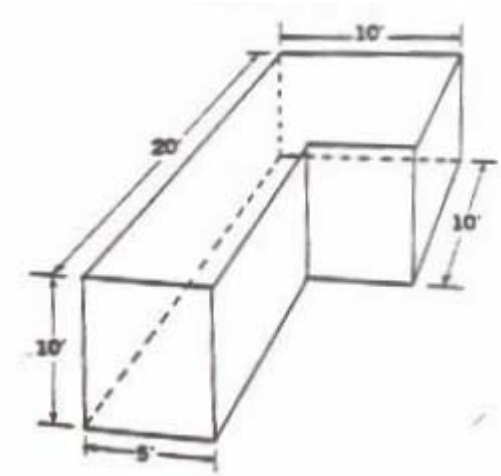

Figure 4-4 - Figuring Cubic Capacity for Unused Storage Situations

(1) First, find the average length. Do this by adding the 2 lengths together and dividing by 2.

EXAMPLE:

$$\frac{12' + 20' = 32 \text{ div } 2}{2 \qquad 2} = 16 \text{ FEET AVERAGE LENGTH}$$

(2) Then: Multiply AVERAGE LENGTH by WIDTH and HEIGHT.

EXAMPLE: 16' x 16' x 10': 2,360 CUBIC FEET

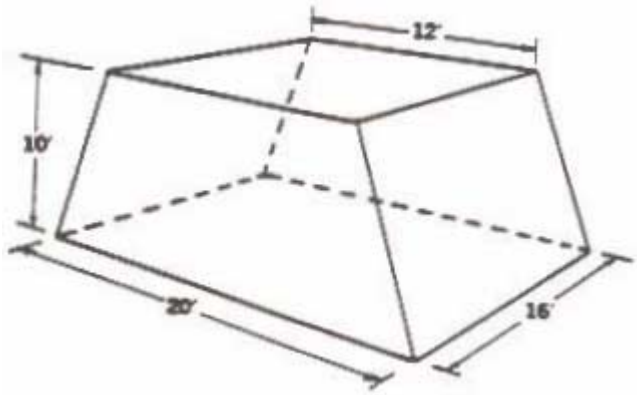

Figure 4-5 - Formula used for Computing Stowage Space for Trapezoidal-Shaped Areas

4-B-5.e. The formula for determining the volume of a cylindrical stowage space is shown below. Figure 4-6 gives a sample of this situation.

EXAMPLE:

To find the volume of cylinders:

(a) π x R2 x H = CUBIC CAPACITY

(1) The following definitions apply to the above formula.

(a) π = (PI) 3.1416 standard mathematical figure

(b) Radius = The distance from the circumference towards the center point.

(c) Diameter = The distance across the circle through the center.

(d) Circumference = The distance around the outside of the circle.

(2) Round the answer to the nearest whole number.

EXAMPLE: π x R2 x H = CUBIC CAPACITY

3.1416 42 10' CUBIC FEET

3.1416 x 16' x 10' = CUBIC FEET

502.656' = 503 CUBIC FEET

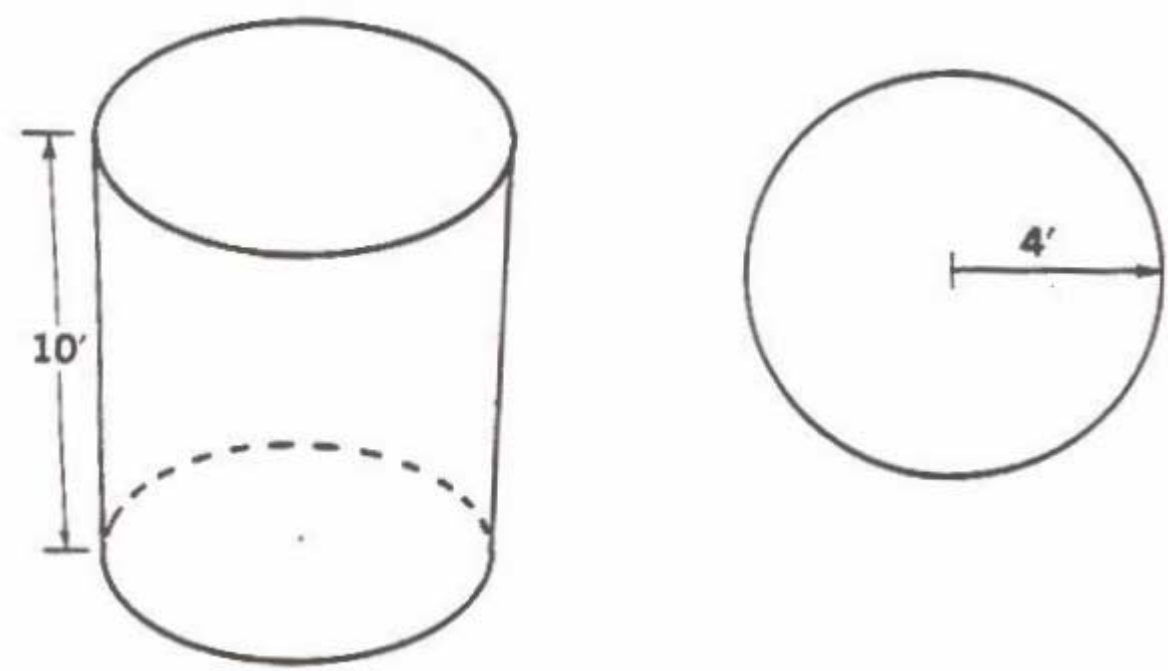

Figure 4-6 - Sample for Determining Cylindrical Stowage Space Capacity

4-C. Load List Information. When preparing for a vessel's deployment, the senior subsistence specialist is responsible for providing stockage requirements for all subsistence items. Once this information is obtained, the number of case units needed and storage space required can be provided for load list purposes.

1. Determining Stockage Requirements. Stockage requirements for each subsistence item are based on: 1) number of times the item will be served during deployment, and 2) quantity required each time the item is served. These factors are determined using the methods outlined below;

a. Number of Times the Item will be Served During Deployment.

(1) The first step is to identify the period of deployment time involved. Compute this as follows:

Operating Level	+	Safety Level	=	Stockage Objective	+	Replenish Time	Total Time
(Duration of Deployment in days)		(l4-day safety factor for large units and 3-day safety factor for small units is always included)		(Total time Involved)			

Example: if the deployment period is set for 21 days, the total time involved (stockage objective) is computed as 35 days and then adding the number of days it takes to replenish.

21 days	+	14 days	=	35 days	+	7 days	42 days
(Operation Level)		(Safety Level)		(Stockage Objective)		(Replenish)	(Total Time)

(2) Using the stockage objective total, the senior subsistence specialist must review the menu or cycle menu to determine how many times the item will be served during the total period involved. (The cycle menu is a valuable tool in determining stockage requirements).

Example: The total time period involved has been computed as 42 days. The senior subsistence specialist has established a 21-day cycle menu for this deployment. The 21-day cycle menu serves the item, "sausage," the following number of times:

1st week - 3 times
2nd week - 2 times
3rd week - 1 time

Sausage, therefore, will be served 6 times during cycle and 6 times during the additional 3 weeks of deployment and I week of replenish time.

Cycle	1st week - 3 times
	2nd week - 2 times
	3rd week - 1 time
Cycle repeats	4th week - 3 times
	5th week - 2 times
	6th week - 1 time

TOTAL 12 times

4-C-1.b. Quantity Required Each Time an Item is Served. To find the quantity needed each time an item is served, obtain the following information from the recipe card: 1) quantity required; 2) number of servings per batch.

(1) Using the number of recipe servings and the number of personnel being served, a working factor is computed as follows:

Number of crewmembers being served	-	Number of recipe servings	=	Working Factor

(2) Multiply the QUANTITY REQUIRED BY THE RECIPE by WORKING FACTOR = TOTAL QUANTITY OF THE ITEM NECESSARY EACH TIME THE ITEM IS SERVED.

Computation:

Recipe Quantity	X	Working Factor	=	Quantity Needed Each Time Served

Example: The recipe calls for 10lb of sausage to prepare 100 servings. The crew size of the vessel is 50.

50 crewmembers	-	100 recipe servings	=	.5 Working Factor

THEN

10lb (Recipe Quantity)	X	.5 (Working Factor)	=	5lb Quantity Needed Each Time Served

c. Total Stockage Requirement. Once the item quantity needed for each preparation is found, multiply AMOUNT by TOTAL NUMBER OF TIMES THE ITEM WILL BE SERVED. This amount is the total quantity requirement for the deployment.

Quantity per serving	X	Number of times served	=	Total Stockage

Example: Using the information obtained on sausage menu requirements, the total stockage requirement for sausage is:

5lb (Quantity per Serving)	x	12 (Times Served)	=	60lb (Total Stockage)

2. Load List Guide. To determine total cases, total case weight, total cubic feet, etc.,refer to Federal Supply Catalog Stock List Group 89, Subsistence.

Enclosure 4-1 (Continued).

Freezing Point (F), Storage Temperature (F), and
Approximate Storage Life of Chilled, Perishable Foods

Product	Freezing point	Best storage temperature	Storage life
FRUITS AND VEGETABLES (Cont'd)			
Eggplant, Persian melons[6]	31	45-50	10 days
Endive, escarole, kale, radishes, red-topped	31	32	2 weeks
Garlic, dry	30	32	7 months
Grapefruit[10]	30	50	4 weeks
Grapes, seedless pack, export	29	30-31	6 weeks
Grapes	29	30-31	4 weeks
Honeyball melons	30	45-50	3 weeks
Honeydew melons	30	45	3 weeks
Juice, lemon, reconstituted	31	50	4 months
Lemons	30	55	2 months
Lettuce[11]	31	32	3 weeks
Lettuce, table-ready, chopped	31.2	32	5 days
Lettuce, table-ready, whole head	31.2	31.2-32	5 days
Limes	29	48-50	2 months
Nectarines, peaches, plums	30	32	2 weeks
Onions, dry, peeled, domestic	30	32	5 days
Onions, dry, cooking, globe[12]	31	32	5 months
Onions, dry, Bermuda or Spanish	31	32	6 weeks
Onions, green, or radishes, whole, table-ready[12]	31	32	5 days
Onions, green[12]	31	32	12 days
Oranges, Calif., varieties	30	40-44	7 weeks
Oranges, temple	30	38	10 days
Oranges, Florida varieties	30	32-35	2 months
Parsnips, rutabagas	30	32	3 months
Pears	See chart following footnotes.		
Peppers, sweet	31	45-50	9 days
Pineapple	30	45	2 weeks
Potatoes, sweet[13]	30	55-60	4 months
French-style, or whole peeled	30	35	7 days
Potatoes, white, fresh harvest	–	40	2 months
Potatoes, white, storage crop	–	50	3 months
Radishes, fresh, table-ready	–	32	10-12 days
Romaine	32	32	2 weeks
Squash, fall and winter	30	50-55	4 months
Strawberries	31	32	5 days
FRUITS AND VEGETABLES (Cont'd)			
Tangelos	29	32-38	3 weeks
Tangerines	30	31-38	2 weeks
Tomatoes[6, 14]	31	55	See footnotes.
Tomatoes, cherry	31	50	5 days
Turnips	30	32	4 months
Watermelons	31	35-40	2 weeks
BAKERY AND CEREAL PRODUCTS			
Bread: marble, part whole wheat, pumpernickel, raisin, rye, French, Vienna, white, sliced[15]	–	75-80	7-10 days
Cake, coffee	–	60	5 days
Cake, layer	–	35	7 days
Cake, loaf	–	35	10 days
Cookie dough, chocolate, raisin, or sugar	–	32	6 months
Doughnuts, all flavors	–	60	3 days
Fruitcake	–	40	10 months
Pie, fruit-filled, or fried	–	35	3 days
Rolls: bagel[15]	–	70	1 day
English[15]	–	70	7 days
finger or sweet[15]	–	70	2 days
bread, French, pan, rusk, dinner, muffin, parker-house, sandwich[15]	–	75-80	7-10 days
brown-and-serve	–	32	3 weeks
SUGAR, CONFECTIONERY AND NUTS			
Honey, boat, cup/pouch	–	50	6 months
Nuts, mixed, unshelled	20-24	32-40	12 months
Syrup, imitation, maple, boat, cup/pouch	–	50	12 months
JAMS, JELLIES, AND PRESERVES			
Jam or Jelly, all flavors, boat-type	–	50	6 months
Jam or Jelly, all flavors, cup-type	–	50	12 months
Peanut Butter, boat-type	–	50	6 months
Peanut Butter, cup-type	–	50	12 months
FOOD OILS AND FATS			
Shortening Compound, carton or cube	–	32-35	5 years

Enclosure 4-1.

Freezing Point (F), Storage Temperature (F), and
Approximate Storage Life of Chilled, perishable Foods

Product	Freezing point	Best storage temperature	Storage life
MEAT, POULTRY, AND FISH			
Bacon, slab	–	32-35	2½ months
Bologna, Lebanon	–	32-35	2 months
50% beef/50% pork	–	32-35	12 days
Frankfurters, 50% beef/50% pork	–	32-35	2 weeks
Ham, boned, whole, pear, or pullman-shaped	–	32-35	9 months
Liver sausage or luncheon loaf	–	32-35	2 weeks
Lobster, whole, fresh[1]	–	32-35	See Note 1.
Pepperoni, dry	–	32-35	4 weeks
Pork sausage, links	–	32-35	3 weeks
Salami, cooked, or Thuringer	–	32-35	2 weeks
DAIRY FOODS AND EGGS			
Buttermilk	31	32-35	2 weeks
Cheese: American, processed, loaf	16	32-35	8 months
American, processed, slices	–	32-35	6 months
blue-veined, natural	–	32-35	4½ months
cheddar, natural	–	32-35	12 months
cottage[2]	30	32-35	2 weeks
cream, pg	–	32-35	2 months
mozzarella, natural	–	35	4 weeks
pimiento, processed, slices	–	32-35	6 months
pizza blend, cn	–	32-45	6 months
provolone, natural	31	35	
Swiss, natural, sandwich	–	32-35	6 months
Swiss, natural, block	–	32-35	12 months
American & Swiss processed	16	32-35	6 months
Food, American, processed	16	32-35	6 months
Cream, table, or whipping	31	32-35	10 days
sour	31	32-35	2 weeks
UHTASP, whipping	31	35-50	6 months
Eggs, shell, medium or large, fresh, domestic	27	32	4 months
shell, medium or large processed, export	27	32	6 months
Eggnog, milk fat, or vegetable fat	–	32-35	7 days
ultra high temperature	–	40-45	3 months
homogenized	–	40-45	12 days
UHTASP	–	32-35	6 months
DAIRY FOODS AND EGGS (Cont'd)			
Flavored dairy drink, chocolate	29	32-35	1 week
dairy drink, UHTASP, chocolate[3]	29	32-35	6 months
milk, chocolate	29	32-35	7 days
half and half	31	32-35	7 days
Ice Milk Mix, fresh, liquid, chocolate, or vanilla	31	40-45	12 days
Milk, homogenized, fresh, filled, or recombined	30	32-35	7 days
Milk, lowfat, or skim	32	32-35	10 days
white, UHTASP[3]	29	32-35	6 months
Milk Shake Mix, fresh, liquid chocolate or vanilla	31	40-45	12 days
Yogurt, plain, or fruit flavor	30	40-45	30 days
FRUITS AND VEGETABLES			
Apples, cooking or eating	See chart following footnotes.		
Apricots	30	32	7-14 days
Asparagus[4], spinach, squash, summer	31	32	10 days
Avocados, rough-skin, Calif., varieties	31	55	2 weeks
Avocados, smooth-skin, Florida, varieties	31	40-45	4 weeks
Bananas, green[5]	31	56-58	7-10 days
Bananas, ripe, unwrapped[5]	–	56-58	2-4 days
Bananas, ripe, plastic-wrapped	–	40	7 days
Cabbage, Danish	31	[illegible]	5 weeks
Cabbage, red	32	32-40	4 weeks
Cabbage, shredded	31	32-35	7 days
Cantaloupes[6]	30	32-34	10 days
Carrots, slices, table-ready	30	32-35	10 days
Carrots[7]	30	32	4½ months
Casaba melons	30	40-45	4 weeks
Cauliflower	31	32	3 weeks
Celery[8]	31	32	3 months
Cherries, sweet[9]	29	32	12 days
Collards, corn, fresh, on-the cob, parsley	31	32	7 days
Cranberries	30	36-40	6 weeks
Cranberry sauce, pg	–	50	6 months
Cucumbers	31	45-50	2 weeks
Dates	5	32	6 months

Enclosure 4-2.

Approximate Normal and Maximum Storage Life (Months)
for the Different Varieties of Apples and Pears

Apples

Variety	Storage period at 32°F. Normal	Maximum	Variety	Storage period at 32°F. Normal	Maximum
Jonathan, Grimes Golden	2 to 3	4	Stayman Winesap, York Imperial	4 to 5	5 to 6
McIntosh	2 to 4	4 to 5	Northern Spy	4 to 5	6
Golden Delicious, Delicious	3 to 4	6*	Rome Beauty	4 to 5	6 to 7
Courtland	3 to 4	5	Winesap	5 to 7	8
Rhode Island Green	3 to 4	6	Yellow Newton	5 to 6	8
Baldwin	4 to 5	6 to 7			

Pears

Variety	Stored After Harvest at 30° to 31°F.		Stored After 12 Days at 30° to 31°F. Not Precooled		Stored After 12 Days at 30° to 31°F. Precooled	
Angoulueme	4 to 6	Nov to Jan				
Anjou	5 to 6*	Feb to Mar			4 to 5	Mar
Barry	6 to 8	Mar to May				
Bartlett	1-1/2 to 3	Aug to Oct	0 to 1	Jul to Sep	1-1/2 to 2	Jul to Sep or Oct
Bosc	3 to 3-1/2	Nov to Dec	2*	Nov	2 to 3*	Oct to Dec
Clairgeau	2 to 4	Nov to Jan	2 to 4	Oct to Dec	3 to 6	Nov to Feb
Comice	2 to 3	Nov to Dec			2 to 3*	Nov to Dec
Easter Beurre	5 to 7	Mar to May	4 to 6	Jan to Mar	5 to 7	Mar to May
Flemish Beauty	3 to 4	Dec to Jan				
Forelle	6 to 8	Mar to May				
Gio Morreau	5 to 7	Feb to Apr				
Hardy	2 to 3	Sep to Nov			2 to 3	Oct to Nov
Howell	3 to 4	Nov to Dec				
Kieffer	2 to 3	Sep to Nov				
Winter Nelis	6 to 7	Mar to May	2 to 4	Oct to Jan	6 to 7	Mar to May

* The storage life of these varieties may be extended for an additional 1 - 2 months by packaging in polyethylene bag liners.

Enclosure 4-1 (Continued).

Freezing Point (F), Storage Temperature (F), and
Approximate Storage Life of Chilled, Perishable Foods

Product	Freezing point	Best storage temperature	Storage life
CONDIMENTS AND RELATED PRODUCTS			
Catsup, tomato, or mustard prepared boat-type	–	50	6 months
Catsup, tomato, or mustard prepared cup or pouch	–	50	12 months
Horseradish, prepared . .	–	32	3 months
CONDIMENTS AND RELATED PRODUCTS (Cont'd)			
Relish, pickle, sweet, boat-type	–	–	6 months
Relish, pickle, sweet, cup or pouch	–	–	12 months
Salad Dressing, boat, cup or pouch	–	50	3 months
Yeast, bakers, active-dry	–	32	6 months

1 Fresh whole lobster should be procured only as a live product. It will remain in satisfactory condition only as long as it is kept alive and the flesh is not shrunken. DO NOT FREEZE.

2 Do not freeze.

3 If this item is held for periods of 3 months or less, it may be stored at temperatures below 72°F. Chill storage will extend storage life. Product is not to be frozen.

4 Asparagus held too long at 32°F. is subject to chill injury. The butts of asparagus should be placed in dry absorbent material during storage.

5 Full-ripe bananas may be held at 40°F. for several days with only slight discoloration of the peel and without any flavor change. Full-ripe bananas wrapped in cellophane or plastic bags should be stored at 40°F. Wrapped bananas, when held at room temperature, will turn brown and spoil more quickly than unwrapped bananas.

6 Damage will result if item is stored at lower temperature than indicated.

7 Carrots may become bitter if stored with fruits which give off ethylene, such as apples and pears.

8 Polyethylene liners will extend storage life 1 - 2 weeks.

9 Sweet cherries packed in sealed polyethylene bag liners can be stored up to 3 weeks.

10 Grapefruit is very susceptible to rind pitting and aging at comparatively low temperatures, especially at 38°F.

11 The storage life shown for lettuce is lengthened substantially when trimmed closely and packaged individually in polyethylene bags and stored at 33°F.

12 Onions keep best at a storage temperature of 32°F. This commodity should not be stored with items such as apples and grapefruit since the apples and grapefruit will acquire an onion taste. Compartments should be kept dark.

13 Exposure to temperatures below 50°F. even for a few weeks causes chilling injury and increased decay. The chilling injury causes the interior of the sweet potato to turn gray, brown, or nearly black, depending on how low the temperature is and the length of exposure.

14 Mature green tomatoes should never be stored at low temperature (chill box), where they will fail to ripen, become injured and develop extensive decay. When mature green and/or pink tomatoes are received, they should be stored at 57° to 59°F. until ripe, then held at 32°F. for maximum shelf life of 30 to 35 days. Since individual tomatoes in any given lot will not ripen evenly, it will be necessary to selectively remove the individual fruits which are nearing a firm-ripe condition so that they can be stored at 32° to 35°F. for maximum shelf life.

15 Breads and rolls should not be stored at chill temperatures. Temperatures below 75°F. cause these items to stale rapidly. Galley baked bread and rolls that are to be held for longer than 24 hours should be thoroughly cooled, wrapped in plastic bags or aluminum foil, sealed, and stored at freeze temperature 0°F. or below. Commercial breads and rolls (wrapped and sealed) that are to be held for longer than 48 hours should be stored at freeze temperatures 0°F. or below.

Enclosure 4-3 (Continued).

Approximate Storage Life of Frozen, Perishable
Foods at OF or Below

Product	Months
BAKERY AND CEREAL PRODUCTS (Cont'd)	
PIZZA CRUST	6
PIES: fruit-filled (procured frozen)	18
cream-filled (procured frozen)	6
TORTILLAS: corn or wheat flour	18
WAFFLES, brown and serve	6
FOOD SPECIALTY PREPARATIONS	
BURRITOS, prepared	3
EGG ROLLS	3
ENCHILADAS, beef or cheese w/sauce	3
MANICOTTI, cheese or meat w/o sauce	6

Product	Months
FOOD SPECIALTY PREPARATIONS (Cont'd)	
PIZZA, prepared	6
RAVIOLI, cheese or meat w/o sauce	6
TAMALES, beef, prepared	3
TOPPING, dessert and bakery	24
COMPOSITE FOOD PACKETS	
Meal, Flight, beef burgundy, beef sirloin steak, french-fried shrimp, ham w/egg, or omelet w/meat entree, roast turkey, salisbury or Swiss steak[5]	6

1 Store compactly.

2 Whole lobster procured commercially frozen in the shell and wrapped in polyethylene bags: Keep at 0° F. or below. DO NOT ALLOW TO THAW BEFORE COOKING.

3 Shrimp is extremely susceptible to deterioration at temperatures above 0° F. At 14° to 16° F., quality can be maintained for only 30 days.

4 Individual sliced packages of luncheon meats are procured as commercially packaged chilled items. To minimize rancidity, items should be stowed only in freeze spaces.

5 The meals may be used for up to 9 months after date of pack provided that the surveillance inspections at 30-day intervals, subsequent to the 6-month period, indicate that the product is safe for human consumption. Each case of meals is equipped with a thaw/refreeze indicator. Any evidence that the meal has thawed is sufficient reason for discarding.

Enclosure 4-3 (Continued).

Approximate Storage Life of Frozen, Perishable Foods at OF or Below

Product	Months
MEAT, POULTRY, AND FISH	
BACON: precooked, pkg	9
slab	12
sliced, vacuum-packed	4-1/2
sliced, bulk shingle	2-1/4
sliced, re-formed slab	6
BEEF: Boneless, chuck short ribs, oven, pot and round roasts	10
Boneless, formed grill or Swiss steaks	6
corned	6
diced	8
dried	12
ground, bulk	4
patties	3
rib, round or tenderloin[1]	10
liver	12
liver, sliced	10
BOLOGNA: Lebanon	8
60% beef/40% pork	3
75% beef/25% pork	6
sliced[4]	1-2
CANADIAN-STYLE BACON	6
CHICKEN: RTC, cut up or quartered	8
RTC, whole	10
breast, leg or thigh	8
gizzard	3
CHITTERLINGS: precooked or raw	3
CLAMS, shucked	9
CRAWFISH, TAIL (lobster tail)	8
DUCK, RTC, whole	10
FISH: breaded portions or sticks, fillets or steaks, all species	6
FRANKFURTERS: bag, type III, export	12
bag, type II, domestic	6
box, type II, domestic	2-1/2
HAM: cooked, boneless	6
and cheese, sliced[4]	1-2
pressed, sliced[4]	1-2
LAMB: boneless, chops	6
boneless, roast	3
LIVER SAUSAGE	3
LOBSTER, whole, frozen[2]	3-5
LUNCHEON LOAF:	3
pickle and pepper, sliced[4]	1-2
pickle & pimiento, sliced[4]	1-2
OYSTERS, shucked, eastern or gulf, IQF, or Pacific	9
PASTRAMI, precooked, slab	6
PEPPERONI, dry	5
PIGS FEET	6
PORK: butt, Boston; ham, boneless or loin bladeless; country-style ribs or tenderloin, and beef sausage, links; hocks (ham hocks) fresh	6
PORK: diced; roast, loin, boneless; boneless slices or spareribs	4
sausage, bulk	3
sausage, links, domestic	2
sausage, links, export	3
RABBIT, RTC, cut up	5
ROCK CORNISH HEN, RTC, whole	8
SALAMI: cooked	3
cooked, sliced[4]	1-2
SCALLOPS	8
SCRAPPLE	6
SHRIMP: raw, breaded or molded breaded, raw, peeled or unpeeled[3]	8
THURINGER	3
TURKEY: boneless, cooked	9
boneless, raw	8
gizzard	3
RTC, whole	10
VEAL, boneless, 3-way	6
SPECIALTY SAUSAGE	
BOCKWURST, BRATWURST AND KNOCKWURST, all beef	6
ITALIAN, Hot or Sweet, all pork	2
POLISH, all pork	3
DAIRY FOOD AND EGGS	
BUTTER: prints, bulk, RTS, patties	12
CREAM CHEESE, pkg	6
EGG: whole, bakery or table-type	9
whites	12
ICE CREAM: bar, cone preformed or sandwich	3
bulk or sherbets	9
FRUITS AND VEGETABLES	
FRUITS: blackberries, blueberries, boysenberries and peaches	18
strawberries	15
cherries and raspberries	24
JUICES: fruit: lemon, concentrate and lime, single strength	18
fruit concentrate: grape, grapefruit or orange	24
VEGETABLES: asparagus, beans, green or wax, french-style, broccoli, brussels sprouts, cauliflower, mixed vegetables, potatoes, french fries, diced and shredded (hash brown), sweet peppers, diced and whole, succotash, onion rings raw, breaded	12
okra	18
beans, lima, greens, peas and carrots, spinach	14
carrots slices, corn and summer squash	24
BAKERY AND CEREAL PRODUCTS	
BREAD: procured frozen	6
CAKE: loaf or round	12

Enclosure 4-4 (Continued).

Approximate Storage Life of Semiperishable Foods

BAKERY AND CEREAL PRODUCTS (Cont'd)	
Cookies, filled or unfilled, assorted varieties	4
Corn flake crumbs	12
meal, pg	12
Cracker crumbs, 80 lb, bg	6
Crackers, cheese or onion flavored, oyster, rye, salad, sesame, soda or wheat, bacon, lb or bx	4
Cup, ice cream, sugar or wafer	18
Flour, rye, bg[3]	12
wheat, bread, cake, or pastry, bg[4]	12
wheat, bread, cn[4]	18
Fry mix, breading or batter	12
Hominy, grits, co	12
whole, cn	36
Noodles, chow mein, cn	12
egg, bowtie or straight[5]	24
Pasta: lasagna, noodles; macaroni, elbow form; rigatoni, shell or twist; spaghetti; vermicelli[5]	36
Pie crust mix	6
shell, graham	4
Rice, parboiled, bg or co[5]	12
Starch, corn, bx[5]	36
pregelatinized, cn[5]	Indef
Taco shells, corn, co	2
Tapioca, bx	48
Tortillas, corn, co	24
Wheat base, bg[5]	36
SUGAR, CONFECTIONERY, AND NUTS	
Almond paste	9
Candy: bridge mix, bx	12
bridge mix, cn	38
caramel, bx	9
hard, cn	24
starch jelly, bx	12
starch jelly, cn	48
Chewing gum, pg	4
Chocolate, cooking, semisweet, chips, pg[7]	18
Chocolate: cooking, unsweetened, sk[7]	24
syrup, cn	24
Coconut: prepared, sweetened, co, domestic	6
prepared, sweetened, cn	18
prepared, unsweetened, bg	6
Fruit, candied: cherry, mixed; pineapple, green or natural, jr or lb	6
Honey, extracted, jr	24
Icing mix, chocolate or vanilla, cn	24
Marshmallows, co	2
Molasses, cn	18
Nuts: cashew	12
mixed, shelled, peanuts, pecans or walnuts	24
mixed, unshelled	6
Syrup, blended, corn or imitation maple, cn	24
Sugar: brown, bg or bx[6]	18
refined, granulated, bg, co or sp[6]	Indef
refined, powdered, confectioner's, bg, bx or poly bg[6]	18
JAMS, JELLIES, AND PRESERVES	
Apple butter, cn or jr	18
Jams: cherry, peach, pineapple, strawberry, cn or jr	18
Jelly: apple, blackberry, grape, mint, cn or jr	18
Marmalade, orange, jr	18
Peanut Butter, chunky, smooth, cn or jr	36
SOUPS AND BOUILLONS	
Bouillon, dried, cubes, beef or chicken, jr	24
Clam chowder, New York, condensed, cn[8]	36
Soup, condensed: barley w/beef, bean w/ bacon, beef or chicken, noodle, chicken w/rice, cream of chicken, or mushroom, minestrone, split pea, tomato, vegetable, vegetable w/beef, cn[8]	36
Soup, dehydrated: beef noodle, chicken, chunk chicken, pg	18
chicken w/noodles, tomato-vegetable, cn	24
green pea, onion, vegetable, pg or cn	12
onion, cn	30
Soup, instant: beef or chicken, pg	18
onion, pg	12
Soup, RTS: beef or chicken noodle, chicken w/rice, cream of chicken, mushroom, or tomato, vegetable w/beef, cn	36
Soup and gravy base, beef, chicken or ham, bx, cn, or jar	24
FOOD SPECIALTY PREPARATION	
Beans, refried	24
Chili con carne w/o beans, dehydrated w/beans, cn	36
Corn chips, pg	1/2
Cream substitute, pg	36
Dessert powder, gel, cherry, lemon, lime, orange, raspberry, strawberry, co[5]	12
Dessert powder, pud: butterscotch, chocolate, vanilla, instant, chocolate or vanilla, cn	18
Dessert powder, pud: butterscotch, chocolate, vanilla, pg	12
Gelatin, plain, co	36
Meringue powder, cn	24
Mincemeat, cn	24
Pie filling, apple, blueberry, cherry, peach, cn[8]	12
Popcorn, unpopped, cn	36
Potato chips: pg	1-2
cn	12
sticks: cn	24
Ravioli w/meat sauce, cn	24
Tamales, beef, cn	24
Topping: dessert and bakery, dehydrated, cn	24

Enclosure 4-4.

Approximate Storage Life of Semiperishable Foods

Product	Months
MEAT, POULTRY, AND FISH	
Bacon, sliced, precooked, cn.	30
Beef, corned or beef, chunks, cn	42
Chicken, boned or turkey, boned, cn.	36
Clams, minced or crabmeat, cn	18
Ham, boned, vinegared juices or ham, chunks, cn	48
Hamburgers, w/o gravy, cn.	42
Hash, corned or roast beef, cn.	12
Luncheon meat, cn	36
Meat spread: potted, deviled or liverwurst, cn.	12
Pork, chops, dehydrated, cn.	36
Salmon, cn.	30
Sardines, cn	18
Shrimp: cn.	18
dehydrated, cn	36
Tuna: in oil, cn	30
in water, cn	24
DAIRY FOODS AND EGGS	
Cheese, cottage, dehydrated, cn	12
grated, Parmesan, Parmesan and romano, cn	6
processed, American, dehydrated, cn.	15
spread: American and pimiento, jr	6
American and Monterey, jr.	6-9
Egg mix, dehydrated, cn	36
Ice cream mix, dehydrated, vanilla, cn	15
Ice milk-milk shake mix, chocolate or vanilla, cn	12
Malted Milk, unflavored, cn	24
Milk, nonfat, dry, instant, conventional (style A or C), cn or dr	24
Sour cream sauce mix	12
FRUITS AND VEGETABLES	
Fruits:	
apples, sliced; applesauce; peaches, halves, quarters, or slices, cn	36
cherries, dk sweet, pitted; cranberry sauce, jellied or whole, figs, dates, cn.	24
apricots; fruit cocktail; pineapple, chunks, tidbits, crushed, or slices, cn	33
blackberries, cn	22
blueberries; cherries, red tart; crabapple, spiced, cn.	18
cherries, maraschino, jr	18
grapefruit; cherries, lt sweet, unpitted; plums, purple, cn.	30
pears, halves or quarters, cn	40
prunes, whole, unpitted, cn	14
Dehydrated:	
apples or applesauce, instant; cherries, red tart, cn	24
Dried:	
apricots, bx.	3
currants, pg.	12
raisins, cn.	18
FRUITS AND VEGETABLES (Cont'd)	
Juices:	
apple; grapefruit; grapefruit, instant; grapefruit and orange; orange; orange, instant; pineapple; cranberry juice cocktail, cn	36
grape; tomato, concentrated, cn	18
tomato, single strength; vegetables; nectar, apricot, cn	24
Vegetables:	
asparagus; beans, green or wax, white in in tomato sauce w/pork; peppers, sweet, red; pimientos, cn	36
beans, kidney, lima, pinto, cn	48
bean sprouts, beets, okra, onions, cn	24
carrots; corn, cream style, whole grain; peas; peas, blackeye; peas, field, cn	42
mushrooms; potatoes, sweet or white; tomatoes, cn	30
pumpkin, cn	27
sauerkraut, cn	18
spinach, cn	33
tomato paste, cn.	18
Dehydrated:	
beans, green, cooked, cn	60
cabbage; garlic; onions, chopped; onions, compressed; peas, compressed; peppers, green; spinach, cooked, cn	24
chives, cn	12
parsley, cn	9
potato mix, bg	8
cn[2]	12
potatoes, sliced, cn, export.	30
bg, domestic	9
instant, cn, domestic	5
export	30
Dried:	
beans, dry, blackeye, kidney, lima, pinto, white, bx, or co[1]	12
peas, dry, bx, or co[1]	12
BAKERY AND CEREAL PRODUCTS	
Barley, pearl, bx.	24
Bakery mixes:	
biscuit; bread and roll; bread, white; cake, devil's food, gingerbread, white, or yellow; cookies, oatmeal; cornbread; doughnut; pancake, regular; sweet dough, cn	36
cake: angel food, banana, cheese, devil's food, pound, spice, white or yellow; pancake, butter, or buckwheat, pg	6
doughnut mix, or sweet dough mix, bg	6-9
Bread crumbs, breading, pg	4
Cereals:	
dry, sugarcoated, uncoated, granules, assorted varieties, bx or ind. bowl	12
farina, bx	9
rolled oats, instant, QC, bx or cn	12

Enclosure 4-4 (Continued).

Approximate Storage Life of Semiperishable Foods

7 Do not store near other material capable of imparting odor to chocolate.
8 Freezing alters appearance of starch thickening. Baking restores desirable appearance.
9 Cream-style soups break down on freezing, but are not spoiled.
10 When held below 32°F., may show solid material which will disappear on warming.
11 Separates at high temperatures or after freezing.
12 If held above 90°F., changes may occur in texture unfavorable to normal creaming properties.
13 Above 100°F. there is complete loss of flavor in less than 6 months. Whole spices keep longer than ground spices.
14 Humidity above 80% will cause caking. Caked salt is usable.
15 If stored at 140°F., shelf life is 1 (one) month.
16 Salad dressings packaged in large size (gallon) containers deteriorate faster than those packaged in smaller containers.

Enclosure 4-5.

Composite Food Packets Storage Table

ITEM	NSN	PACKAGING	KEEPING TIME (in months)1/
Case, Survival Food Packet	8970-00-399-6212	Each	48
Food Packet In Flight	8970-00-163-4871	Packet	36
Food Packet Long-Range Patrol, indiv.	8970-00-926-9222	Packet	36
Food packet, Survival abandon ship, indiv.	8970-O0-299-1395	BOX	48
Food Packet, Survival aircraft lift raft	897O-O0-028-9406	Packet	120
Food Packet, Survival aircraft life raft	897O-00-132-6359	Packet	120
Food Packet, Survival gen'l purpose, "indiv.	897O-00-O82-5665	Packet	48
Meal, Combat, indiv.	897O-00-577-4513	Box	36

Note 1: The keeping times shown we the avenges for items stored at 70F. Keeping times win be reduced by approximately 50% if storage temperatures are maintained at 90F., and win be increased by approximately 100% if stored at 40F.

Enclosure 4-4 (Continued).

Approximate Storage Life of Semiperishable Foods

Product	Months
FOOD SPECIALTY PREPARATION (Cont'd)	
Topping (Cont'd)	
ice cream, butterscotch, fudge, marshmallow, pineapple, strawberry, en or walnut, jr	6
FOOD OILS AND FATS	
Salad oil, ct, gl or cn[10]	12
Shortening compound, bakery[11] general purpose, or deep-fry, cn[12]	24
Shortening compound, deep-fry, drum	36
CONDIMENTS AND RELATED PRODUCTS	
Spices: ground or whole, allspice, basil, bay leaves, caraway seed, celery seed, chili powder, cinnamon, cloves, cumin, curry, ginger, mace, marjoram, mustard flour, nutmeg, oregano, paprika, pepper black, cayenne, red, crushed, white, poppy seed, poultry seasoning, rosemary, savory, sesame seed, tarragon, thyme, en, co or pg[13]	18
Spices: celery, garlic or onion, salt, co	36
Antioxidant compound	36
Baking powder, en	12
soda, bx	Indef
Catsup: tomato, bt	24
tomato, en	18
Chili sauce, bt	24
Chutney sauce, jr	12
Cream of tartar, co	Indef
Dressings: salad, bleu cheese, French, oil and vinegar, cole slaw, green goddess, Italian, Thousand island, bt or jr[15]	5
Dressing Mix: salad, bleu cheese, French, Thousand Island, Italian, pg	12
Emulsifier, bread and roll	12
Extract, peppermint, bt	18
Flavoring, imit., or natural, almond, banana, black walnut, brandy, lemon, orange, pineapple, rum, wild cherry, bt	18
Flavoring, imit., maple, smoke, vanilla, bt	Indef
Flavoring, rye	6
Food coloring, liquid, assortment, caramel, egg shade, red, bt	Indef
Food coloring, paste, black, blue, egg shade, green, red, jr	24
Horseradish, dehydrated, bt	24
Hot sauce, bt	24
Inhibitor, mold and rope[5]	9
CONDIMENTS AND RELATED PRODUCTS (Cont'd)	
Monosodium glutamate, co	Indef
Mustard, prepared, en or jr	18
Olives, green, jr	18
Olives, ripe, sliced, whole pitted or unpitted, en	24
Peppers, pickled, cherry, jr	18
Peppers, pickled, jalapeno, en	15
Pickles: cuc, dill, slices, whole, Kosher style, jr	24
cuc, dill, whole cured, en	12
cuc, sweet, sliced or whole, jr	24
cuc, sweet, whole, en	12
mixed, sweet, en	12
mixed, sweet, jr	24
Relish: pickle, sweet, en	12
pickle, sweet, jr	24
Salad dressing, co or jr[12]	5
Salt, table, bg or pg[14]	Indef
Sauce for meat, bt	24
Sauce mixes	12
Soy sauce, bt	24
Vinegar, cider or wine, bt	30
Vinegar, dry, synthetic, pg	12
Worcestershire sauce, bt	24
Yeast food, bg	24
COFFEE, TEA, AND COCOA	
Cocoa, natural, en	24
Coffee: instant, freeze-dried, pg	18
roasted, and ground, en	12
roasted, and ground, bg	2
Tea: black, loose, or bags, bx or en	18
instant, instant lemon flavor w/sugar, bx or jr	18
BEVERAGES, NONALCOHOLIC	
Beverage base: powdered, unsweet, cherry, grape, lemon-lime, orange[5] gl yld pg	24
carb: cherry, lemon-lime, orange, root beer, gl	8
carb: cola, gingerale, grape, pepper, strawberry, gl	6
noncarb: fruit punch, grape, lemon, orange	8
Imit: powdered, assorted, grape, lemon, lemon-lime, orange, pg	24
Cocoa beverage, powder, pg	24
Water drinking, en	Indef
COMPOSITE FOOD PACKAGES	
Meal, combat, individual	36

1 High temperatures harden, high humidity causes molding.
2 Absolute storage life not yet established. One year at 70°F. is a conservative estimate.
3 Rye flour loses its delicate flavor 2 months at 40°F., and one week at 90°F. After this time, further flavor change is very slow.
4 Flour should be stored under cool, dry conditions. The best storage conditions are at 82°F. through 55°F. and 50% through 65% relative humidity.
5 Highly susceptible to damage by moisture.
6 Keeping time is based on relative humidity not more than 60%. For storage longer than one month, sugar should be covered with tarpaulins and not stored on damp or concrete floors or near cold walls.

CHAPTER 5

MENU PLANNING

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CHAPTER 5. MENU PLANNING

A. Benefits of Menu Planning. A menu is a plan of foods offered for one meal, for one day or several weeks. Menu planning is an important responsibility because menus must provide nutritious and enjoyable meals within specified cost limits. They must also use food service personnel and equipment effectively and be compatible with the available storage space. Since all aspects of the food service operation are influenced by the menus, they are the key to good management.

B. Considerations for Menu Planning.

1. Nutrition.

a. Functions of Nutrients.

(1) Nutrition is of first importance in menu planning because the menus promote good health through food. The three major functions of food are:

(a) Providing proteins for building and repairing body tissues throughout life.

(b) Providing vitamins and minerals for regulating body functions.

(c) Providing carbohydrates and fats, which are fuel for the body's energy and warmth.

(2) The functions of some specific nutrients are in Figure 5-1. In addition. food has special value and can promote good morale.

b. Food Energy.

(1) Energy-Yielding Nutrients.

(a) Most foods contain more than one kind of energy nutrient. A food is called a "protein;' "carbohydrate" or "fat" because it contributes a larger share of one nutrient than another or because it is an outstanding source of that nutrient. In the body, food is transformed by digestion into energy to keep body processes operating. The calorie is the unit of measurement used to express the energy-producing value of a food. For example, four slices of white bread furnish about 270 calories.

(b) The amount of food needed for energy depends mainly on body size and activity. An average-size, 25-year-old man who is a desk worker and is only moderately active outside the office needs about 2,700 calories daily. A fast-growing 17-year-old may need 3,000 calories. A young moderately-active woman needs only about 2,200 calories daily.

(c) If one's body weight is appropriate for height and build, calorie intake has been matching one's needs. When the body gets more food energy than it can use, it stores the excess as fat. Fat tissues are an available reserve supply of fuel. If insufficient calories are eaten, the body draws on these reserves for energy.

Nutrient	Function	Principal Food Sources
Carbohydrates	Provide fuel for body warmth and energy (calories).	Starches, sugars
Fats	Provide fuel for body warmth and energy (calories); carry fat-soluble vitamins A, D, E, and K.	Vegetable oils, meat1 whole milk, butter, cheese, ice cream, egg yolk.
Protein	Builds and repairs body tissues; provides fuel for body warmth and energy (calories).	Meat, fish, poultry, milk and milk products, eggs, dried beans and peas, nuts, cereals, vegetables.
	Minerals	
Calcium	Builds bones and teeth; aids blood clotting; regulates action of nerves and muscles.	Milk and milk products, leafy green vegetables.
Phosphorus	Builds bones and teeth.	Same as above.
Iron	Builds red blood cells.	Liver, meats, dried beans and peas, egg yolks, dried fruits, enriched bread and cereals.
Iodine	Helps thyroid gland work properly.	Fish and seafood, iodized salt.
Vitamins	About 20 vitamins are known to be important to human well-being. Each performs one or more special functions. A few of the most important are:	
Vitamin A	Protects body against infection; maintains normal eye functions.	Liver, egg yolks, milk and milk produc'6s. dark green vegetables, deep yellow vegetables.
Vitamin B	Regulates processes so the body can use proteins, fats, carbohydrates and minerals.	
Vitamin (B1)	Helps maintain healthy nerves, good appetite and digestion and skin.	Enriched flour, bread and cereals.
Riboflavin (B2)	Same as above.	Milk, meats and grains.
Niacin	Same as above.	Meats, poultry, fish, flour, grains, milk.
Folic Acid	Important for healthy blood.	Green leafy vegetables, liver, dried beans and peas, meats, whole grains.
Vitamin B12	Same as above.	Liver, milk, cheese, eggs, meat.
Vitamin C (ascorbic acid)	Maintains healthy gums, bones, joints and muscles.	Citrus fruits, tomatoes, strawberries, blueberries, cantaloupe, raw cabbage, spinach, kale, green pepper, white potatoes, sweet potatoes, broccoli, brussel sprouts.
Vitamin D	Works along with minerals to help form straight, strong bones and teeth.	Egg yolk, butter, salmon, tuna, sardines, milk, fortified with vitamin D.

Figure 5-1 - Function of Some Essential Nutrients

5-B-l.b.(2) Weight Control.

(a) Exercise and control of the quantity of food eaten are necessary for maintaining desirable weight. Nutritious meals at regular intervals are recommended for successful weight control.

(b) Smaller servings mean fewer calories. Reduce high calorie foods if weight reduction is an objective. Fatty meats, salad oil, fried foods, rich gravies and sauces, nuts, pastry, cakes, cookies, other rich desserts, candy, jelly, jam and sugar-sweetened beverages are examples of high calorie foods. When planning low calorie menus, continue to include foods from each of the four groups of the Daily Food Guide shown in Figure 5-2.

c. Providing Adequate Nutrition.

(1) Daily Food Guide. Menu planners must judge the nutritional adequacy of their menus and special rations. Detailed analysis of nutrients is not required if the menu includes a wide variety of foods and the Daily Food Guide system of evaluation is used. This system is a simple, quick and reliable method of judging nutritional adequacy. Figure 5-2 gives the Daily Food Guide.

(a) If the minimum number of servings of each of the basic four food groups listed in Figure 5-2 is included in each day's menu and a large variety of foods are used, the menu is nutritionally adequate. The kinds of foods found in each group are listed in Figure 5-3.

(b) The four basic food groups do not include the "enras'1 that are part of the meal: the butter, the salad dressing, the sugar in coffee and sweet desserts. Such additional foods also make some contributions to the total nutritional value of the meal. These foods help make meals more enjoyable for those who need the extra calories. Additional calories are also provided by incorporating additional servings recommended in the Daily Food Guide.

(c) The last check for nutritional adequacy is making sure there is sufficient fiber in the foods chosen. Fiber is necessary for eliminating body waste. Whole rain products and fresh fruits and vegetables will provide the needed fiber.

Food Group	Minimum Number of Servings	Minimum Serving Size
Milk	2-4	1 cup
Meat	2	3 ounces
Fruits-Vegetables	4	1/2 cup
Breads-Cereals	4	1 slice or 1/2 cup

Figure 5-2 - Daily Food Guide

Milk Group

2-4 servings:
Persons over 20 years: 2 servings
Persons under 20 years: 4 servings
Count as a serving: 1 cup fluid milk.
Any form of milk counts toward the total. Cheese and ice cream can be substituted for part of the milk, based on the amount of these foods that have a calcium content equal to the calcium content of 1 cup of milk.

2 servings equal:
1 cup fluid whole milk.
1 1-inch cube of Cheddar cheese.
1/2 cup ice cream, and 2 tablespoons non-fat dry milk (in cooked dishes).

4 servings equal:
2 cups fluid whole milk.
2 1-inch cubes of Cheddar cheese.
1 cup ice cream, and 4 tablespoons non-fat dry milk (in cooked dishes).

Fruits-Vegetables Group

4 or more servings.
Count as a serving: 1/2 cup vegetable or fruit.
Any fresh, frozen, canned, or dehydrated fruit or vegetable can count toward the four servings, but the selection should include:
2 good sources of vitamin C; or
2 fair sources of vitamin C daily; and
I source of Vitamin A every other day.

Sources of Vitamin C

Good: Grapefruit, grapefruit juice, oranges, orange juice, cantaloupe, guava mango, papaya, fresh strawberries, broccoli, brussel sprouts, green peppers.
Fair: Honeydew melon, lemon, tangerinn, watermelon, asparagus, raw cabbage, mustard greens, potatoes and sweet potatoes, spinach, tomatoes, tomato juice, turnip greens.

Sources of Vitamin A

Apricots, broccoli, cantaloupe, carrots pumpkin, spinach, sweet potatoes, turnip greens, other dark green leafy vegetables, winter squash.

Meat Group

2 or more servings.
Count as a serving: 3 ounces lean meat, poultry, fish; 2 eggs; 1 cup cooked dried beans or peas.

Breads-Cereals Group

4 or more servings.
Count as a serving: 1 slice bread; 1 ounce ready-to-eat cereal; 1/2 cup cooked cereal cornmeal, grits, macaroni, noodles, rice, or spaghetti.

Figure 5-3 - Kinds of Foods in Daily Food Guide Groups

5-B-l.c.(2) Meal Patterns. A list of foods normally served every day can be an aid to planning menus in accordance with the Daily Food Guide. The following list represents the recommended pattern:

Example: Breakfast Pattern

Fruit or juice	Main dish	Butter
Cereal	Breakfast pastry	Other beverage
Milk	Bread	

Lunch and Dinner Pattern

Soup	Vegetable	Bread
Main Dish	Salad	Butter
Gravy or Sauce	Dessert	Milk
Potato or substitute		Other beverage

(a) These meal patterns may be altered. For example, it is not necessary to serve soup every day.

(b) Other types of meals, such as brunch and flight meals, follow a less defined pattern.

2. Factors Affecting Menus. Many factors affect the menu planner's choice of foods, including nutritional requirements, customer preferences, food costs and availability of supplies. These and other restrictions narrow food choices. All of these factors may affect which items are chosen:

a. Monetary Allowances. The allowances determine the financial resources of the Coast Guard menu planner. Economic factors invariably concern all menu planners. The cost of the ration fluctuates according to food prices. The monetary allowance permits a good and plentiful ration. A menu writer must stay within the food cost allowance. Careful planning will help eliminate rewriting menus and making last-minute substitutions.

b. Item Usage Restrictions. Consider restrictions when planning menus. The Federal Supply Catalog, Group 89, Subsistence, lists all food items procured for the military services. The "Usage Management Code" column indicates which types of facilities may produce each item. To request a new food item, consult the introduction to the Federal Supply Catalog, Group 89, Subsistence for procedures.

c. Seasonal Availability of Foods. Adjust menus to capitalize on seasonal changes in the supply of fresh produce and seasonal changes in appetite. Select fruits and vegetables in season as price and storage space permit. Canned, frozen and dehydrated fruits, juices and vegetables supplement the fresh menu items and are comparable in nutritive value.

d. Equipment, Personnel, and Storage Facilities. The menu planner must consider the galley equipment available, the number of personnel to be fed, and the number who work in the galley. Avoid menus that require too much last minute preparation. Plan a balance between foods that can be prepared early without deteriorating and those that must be prepared just before serving time.

B-2.e. Limited Storage Space. Limited storage space, especially on small ships deployed on long cruises, does not permit the use of many perishable foods. Wide use of custom foods can extend the perishable foods available. Plan menus well in advance to ensure acceptable meals as well as adequate stocks.

f. Artistic Factors. A good menu is an artistic creation and shows imagination. The menu planner needs to keep the principles of good design in mind. A pleasing combination of color, texture and shape in foods is important.

(1) Variety plays an important role in the art as well as the science of menu planning. Varying food choices and the ways of serving food will unlock the door to artistic menus and is necessary for adequate nutrition as well. For example, plan to use different recipes for potatoes such as creamed, mashed, au gratin, French-fried and baked.

(2) The Armed Forces Recipe Service (AFRS) index is a valuable aid in planning varied menus. This index lists different ways to prepare foods and will serve as a reminder for including several dishes not frequently served.

(3) Vary menus from week to week. Do not serve the same food on the same day of each week. Consider similarity of foods in menu planning. Color, for example, can be a menu planning problem, and yet it is one of the most important aspects of planning. A colorful selection of foods is far more appetizing than a colorless one such as creamed chicken, boiled potatoes and cauliflower. All white food is uninteresting; whereas, a meal of browned meat, buttered carrots, and broccoli polonaise is colorful and attractive.

(4) Vary flavors. A meal of all tart, sweet or spicy foods is poorly planned. Do not combine several highly seasoned foods in one meal. Space the use of gassy vegetables such as cabbage, broccoli and sauerkraut. Serve strongly flavored foods with milder ones. Do not serve soups, entrees or vegetables with the same flavor, such as tomato-based soup and toma-toes for the vegetables, at flit same time.

(5) Vary shape and form. The Lee of all small-cut items, such as a meal of chili con came, stewed tomatoes, and creamed potatoes, presents food of only one form. Sliced meat, diced potatoes and leaf spinach, for example, offers a variety of shapes.

(6) Texture repetition can be another menu planning problem. Foods that are all soft, chewy, crisp or hard are monotonous. A meal of creamed chipped beef, mashed potatoes, cottage cheese and custard would have uninteresting texture as compared with a meal of fried chicken, mashed potatoes, waldorf salad, ice cream and brownies. A good rule to follow is to include a crisp, a firm and a soft food in every meal.

(7) Serving foods in the most attractive, pleasing fashion is desirable from an artistic standpoint and also stimulates appetites.

3. Menu planning Tools.

a. Food preparation Worksheet. The Food preparation Worksheet (NAV5UP 1090) will reveal one's talent as a menu planner. When the preparation of the daily menu is plotted on a worksheet, trouble spots, weakness and bottlenecks stand out. See paragraph 5-H on preparation of the worksheet.

(1) The worksheet will help plan and organize the work to be done by subordinates, and will help subordinates plan their work. The worksheet will also help in supervision. It communicates instructions concerning the preparation of the day's menu.

(2) The worksheet will help in training subordinates to become responsible for galley operations. Discuss the worksheet with the watch captains so they will know exactly how to prepare the menu. Record the acceptability of each menu item on the worksheet and use it to judge the acceptability of the meal as a whole. Train the watch captains in its development.

(3) The worksheet serves as a means for controlling issues, quantities of menu items. prepared, portion sizes and use of leftovers. Keep completed worksheets on file to provide the invaluable history to establish these controls.

b. Acceptance Factors. An acceptance factor is an index of the popularity of a menu item. After observing an item at several meals, use the acceptance factor when estimating the number of portions of the item to prepare the next time it is served. Acceptance factors for the same menu item may vary from meal to meal. Different combinations of foods on a menu, the weather and varying appetites may alter the acceptance of an item. Excessive quantities of prepared food may result for several reasons, but one of the major causes is misfiguring the likes and dislikes of the patrons. Use of food acceptance factors can result in less plate waste and fewer leftovers.

(1) To obtain an acceptance factor for an individual menu item, divide the number of portions of the item served by the number of patrons served at the meal. For example, if 150 portions of buttered carrots are served to 225 people, the acceptance factor is calculated as shown. This example indicates that 67 percent of the patrons attending this meal selected carrots.

Example: $\frac{\text{150 (portions served)}}{\text{225 (meal attendance)}} = 0.67$ (acceptance factor)

(2) If additional portions of an item were prepared because requests exceed predictions, change the figure in the "portions to prepare" column of the Food Preparation Worksheet as given in the example below. Note the increase under the "comments" column. Complete the acceptability percentage using the revised figure.

Example: Original Portions to Prepare + Additional Portions prepared = Total Portions prepared

5-8-3.b.(3) If an item runs out and a substitute is offered, note the head count at the time the menu item was exhausted under the "comments" column. Divide the number of portions of the original item by this head count to get the acceptability factor. Acceptability is based only on the original item and not on the alternate. Record the acceptance factors on the Food Preparation Worksheet.

Example: Portions Served (Head Count When Menu Item Ran Out) x 100: Acceptance Factor.

c. Food Preference Ratings. Determining which foods are not liked or least liked is of great help to the menu planner. Items chosen are not necessarily the same as food preferences. Several methods may be used to determine food preferences.

(1) One way to learn the most popular foods is to check trays returning to the scullery after each meal. Observe plate waste. Keep a record of the food left most often.

(2) Another means of determining food preferences is to obtain written opinions of particular items. A menu planner can develop a questionnaire to determine the food preference of an item.

(3) The manner of describing the foods, the instructions given for answering the questionnaire, and where it is filled out can influence the results.

(4) The most commonly used food preference questionnaire is a rating scale given to each person in a serving line or at another appropriate time. This type of questionnaire is easily tabulated because only the checking of a block is required. Food preference questionnaires can determine which food items are most or least popular, their desired frequency, and what menu combinations are most or least liked. An example of how to canvass opinions on food items is in Figure 5-4. Update food preference questionnaires periodically because tastes change, new personnel arrive, and new foods and recipes are introduced.

d. Meal Attendance Predictions. Meal attendance records are kept by signature head count ashore and during inport periods for ships. Afloat oat predictions are based on actual shipboard complement. There are variations in meal attendance from day-to-day and meal-to-meal. Keep head count records to show how many people were served at each meal. Estimates of future attendance are based on past records and experience. Factors such as weather, proximity to payday, and liberty trends must be taken into account when predicting attendance. Do not use the number of portions of an item served used as an indication of attendance at a meal.

e. Loading Guides. The best guides for planning menus and determining loading requirements are accurate records of a ship's own past usage and menu plans or menu summaries of previous extended cruises. Collect usage data and menus used during extended cruises to provide a basis for balanced loading for future deployment.

Check one answer for each food item.

Food Item	Never tried	Like a lot	Like a little	Do not care	Dislike a little	Dislike a lot
Simmered Frankfurters						
Cottage Cheese and Sliced Pine apple Salad						
Spaghetti with Meat Balls						
Fluttered Cauliflower						
Succotash						

Figure 5-4 - Food Preference Questionnaire

5-B-3.f. Frequency Charts. A frequency chart is a plan outlining the basic structure a menu and lists the number of times major foods will appear. See Figure 5-5.

(1) Major foods include meats and meat substitutes, potatoes, vegetables and desserts in their most frequently used forms. Item such as gravies. salad dressings and sauces are not included. Improved menus and stabilized usage of particular food items will result from frequency charts.

(2) The frequency chart checks the menu for repetition, an important step in the final review of cycle menus. The number of meals containing each type of food are listed. Be sure spacing of similar items (ground beef dishes, for example) is adequate, different methods of preparation are used, and the basic menu features an acceptable variety of dishes. It is particularly important to check the meal plans for the first three days at the beginning of the first week's menu and the end or last three days of the preceding week's menu in the cycle. Eliminate identical or similar items on these days because these meals are served in succession.

4. Food Usage Record. An up-to-date Provision Ledger (CG-4246) will make it possible to take quick inventories of food supplies. This record or other similar informal records of supplies used will assist the menu planner in predicting what foods will be needed.

a. Records for Menu Planning. Ideally, the menu planner uses food usage records as a guide in choosing items and in plotting their frequency.

VEGETABLES	1st Week[2]			2nd Week[2]			3rd Week[2]			4th Week[2]			5th Week			6th Week[2]			Total Times Served[3]		
Item	B	L	D	B	L	D	B	L	D	B	L	D	B	L	D	B	L	D	B	L	D
Corn (10 meals)																					
Frozen—on the cob		1																		1	
—whole kernel					1						1							1		2	1
Canned—cream style			1					1						1						2	1
—whole kernel		1										1					1			2	1

1. **Item Column** - List major menu items and not recipe components, such as flour, salt, butter. This list reflects the varieties or forms in which the foods are available. As food preferences change or availability of certain items is altered, the foods listed may be changed.

2. **Week Column** - Each weekly column is divided into three columns representing breakfast (B), lunch (L), and dinner (D). This breakdown assists in planning the distribution of the menu items among these meals over a 42-day period. If, over a 6-week period, corn is planned for 10 meals, the chart shows: Frozen corn on the cob, 1st week, once at lunch; frozen whole kernel corn, 2nd and 4th week, once at lunch and 6th week, once at dinner; canned corn, cream style, 1st week, once at dinner, 3rd and 5th week, once at lunch; canned whole kernel corn, lst and 6th week, once at lunch, and 4th week, once at dinner.

3. **Total Times Served Column** - This is subdivided into three meals to assist in estimating breakout requirements. It indicates the number of times major menu items are served at specific meals over the 42-day period.

Figure 5-5- Sample Frequency Chart

5-B-4a.(1) The recommended procedure for planning is to write the menu first and then to order supplies. However, all kinds of situations may interfere with this menu planning sequence. Plans must be flexible to be workable.

(2) A first consideration in advance menu planning must be balanced requisitioning. Past usage records help attain this balance by showing what is on-hand and what items are needed. Planned calendars of stock rotation will prevent a rewrite of menus to incorporate surplus stocks.

5-B-4.b. Menu Planning Guides. A menu planner needs to be resourceful, imaginative, and well informed. Previous menu plans and worksheets provide valuable information for planning menus. These give a good indication of practical menus for facilities and number of personnel at a particular location.

5. The Cycle Menu Planning System.

a. Advantages of Cycle Menus. A cycle menu requires much less planning time than writing a fresh start at the beginning of each week. A cycle menu is a series of menus planned to be used consecutively and to be repeated, with some variations, over a period of time. It can be used most effectively for a three-month period or for any seasonal period of the year, that is, winter, spring, summer and fall.

(1) Perishable Plans. It is reasonable and practical to assume once a good menu is written, the plan is reusable as it is or with minor alterations to bring it in line with available supplies. Successful menus can become part of a cycle menu and used effectively by any activity with adequate stocks on-hand or an established schedule of stock replenishment. The cycle period may consist of as many weeks or months as practical, but a cycle length of five or six weeks is recommended. The principal advantages of cycle menu are better meals, time savings, improved cost control, and more effective supervision and training.

(2) Longer Deadlines. Alter a cycle is established, each weekly menu can met without starting with a blank form and going through the many required steps; the menu planner only needs to make minor changes when the need arises. When the pressure of a fast approaching weekly deadline is removed, better menus can be planned. Because a cycle menu can be used for a three-month period, sufficient time for planning each cycle can be scheduled. While the cycle menu is in use, the menu planner is able to further refine the menu and make changes by tailoring them to the customer's preferences before the men is used again.

(3) Breakout Quantities. These quantities can be brought closely in line with requirements when menus are repeated. This is especially true when a selective menu is offered. If only 30% of the customers selected an entree at a meal when 50% had been predicted, an adjustment reflecting the 30% acceptance rate can be made when the meal is repeated during the next cycle. Usage data generated during a cycle furnish a base for pricing future menus and for assessing inventories.

(4) Cycle Lengths. Food service operations cycles of three, four, five or six wee are most practical. Less than a three-week cycle would cause monotony, while a cycle longer than six weeks loses some of the advantages.

(5) In deciding on the best cycle length, take the variety and frequency of resupply and the number of duty sections into consideration. Shipboard menu planners will find a well-managed, three-week cycle menu to be workable and very acceptable. Ashore, where frequent resupply and a greater variety of foods are available, a four-, five-, or six-week cycle may be best.

B-5.b. Varying the Cycle Menu.

(1) Improving the Menu.

(a) Perfecting the basic cycle menu and introducing variety into each rotation of the menus -can be made easier with sample cycle menus available from other sources. Use past menus as a guide if they have gained acceptance.

(b) When a cycle menu is used, correct any faults or omissions that detract from the quality of a meal the next time it is served. Experience gained through actual preparation and service of the meal points out shortcuts, best preparation techniques, proper timing of preparation, best arrangement of food on the serving line, preferred portion sizes, and the most attractive placement of food on the trays. Supervisors can provide the level of training and supervision required to perfect each meal.

(c) If the daily ration control record shows the costs of the meals in the cycle menu are excessive or grossly below the allowed ration rate, the menu can be changed to bring costs within acceptable limits. If inventories point out stocks that are either in long or short supply, make temporary adjustments to the cycle menu to balance stocks.

(d) The cycle menu affords administrative shortcuts with no compromise to acceptance if on each rotation a few changes are made as described below.

(2) Frequency of Specialty Menu Items.

(a) If unusual menu items, such as some nationality specialties, are given a permanent spot on the cycle menu, these may prove less acceptable than more common dishes. Alternating unusual dishes with other more familiar ones can provide acceptable spacing. For example, alternate hot roast beef sandwiches with Yankee pot roast, grilled steak with sukiyaki, breaded pork slices with mexicana pork slices. If, for example, corned beef finds favor only once in two months, it can be used at this frequency, replacing a steady favorite or another less frequently served but well-liked food such as spareribs.

(b) Desserts and other menu items fall into this category, too. There is no need to eliminate raisin pie or turnips and bacon from the menu just because the cycle span does not favor including them on the basic menu. Alternate spots can be set up on the cycle and the now-and-then favorites can be rotated with other dishes that are also popular if not served too often.

(3) Ways to Prepare Similar Foods. The simplest type of cycle menu repeats basic meal combinations on the same days with every rotation. For this reason it is wise to change the preparation method for some components of several of the meals in each rotation of the menu. While enjoying a

Tuesday fried-chicken supper, it is unlikely that a Tuesday chicken cacciatore meal served three weeks before, will be remembered. Since the meat-potato combination tends to be remembered, changing the potato or potato substitute may be enough to keep out menu monotony when an oven roast beef or baked ham comes up again. With a cycle menu it is not necessary to make an excessive number of these changes to maintain high meal acceptance. The number of changes of this type required to revitalize a cycle menu is determined by experience.

(4) Meal Sequence and Order of Menu Choices. Occasional use of the lunch menu for dinner and the dinner menu for lunch will also give a new look to a cycle menu. A noon meal of grilled ham slices or breaded veal cutlets with a vegetable choice of buttered broccoli or green beans with mushrooms can become an evening meal of baked ham or Italian veal steaks with broccoli polonaise or buttered green beans.

(5) Frequency of 5pecial Meals. In addition to holiday and special celebration menus, many activities make meals festive by naming them and going all out to feature dishes representative of the name.

Examples are: "Neapolitan Night," "Sea Captain's Dinner," "Kentucky Colonel Special," "New England Dinner" and "Hawaiian Night." To benefit from this merchandizing technique, the menu planner can feature two or three different specialty meals on each cycle menu. If the Monday night spaghetti-and-meatballs was given special billing last time, feature a dinner meal of a "Mariner's Delight" on the next rotation. Go one step further to promote interest in these special meals.

c. Selective Menus.

(1) Criteria for Use.

(a) Whether or not selective menus are practical must be decided by each command. Undoubtedly, more responsibility is required of food service personnel to plan and prepare a selective menu. Alert supervision at all stages of production is required. If unsupervised or if personnel are inexperienced in handling a menu of this type, meals are likely to be poorly prepared and result in equally poor acceptability. An honest evaluation of this type of menu must be made by each activity to determine whether selective menus will work.

(b) The use of a selective menu is recommended under the following circumstances:

1 If a less popular entree or vegetable is to be served, offer an alternative.

2 If savings can be realized by offering a high-cost entree with a low-cost one, offer a choice.

3 If practical from a production standpoint, a selection of various meal components can be offered, including entrees, vegetables, breads and beverages.

5-B-S.c.(2) Choice of Foods. The menu planner first determines the relative popularity of the various dishes used. Food preference records will indicate popularity. Cost records will reveal which dishes are most and least expensive. The quantity to prepare of each alternate dish is also difficult to determine. Entrees offered normally as a single items may be less desirable when offered as a selective entree. The menu planner must maintain acceptance records of selective entree combinations. Cooking and serving facilities also will determine which entrees can be offered. Storage space, equipment capacity, and the number and skill of food service personnel will also limit the selection of entrees.

C. Drafting, Recording, and Posting the Menu.

1. Drafting the Menu. Menu drafting has much to do with the quality of the finished product. Careful work in the initial drafting helps to avoid mistakes later.

a. General Considerations.

(1) Most meals are planned around main dishes of meat, fish or poultry, and other food items are planned to complement the main dishes. Draft menus as far in advance as practical.

(2) The following example illustrates the recommended sequence in drafting major meal components:

Example: Step 1. Main dishes

Step 2. Potatoes, potato substitutes and vegetables

Step 3. Salads

Step 4. Breakfast fruits and cereals

Step 5. Desserts

Step 6. Breads and breakfast pastries

Step 7. Soups and beverages

(3) Foods on the menu are listed in the order usually eaten in an meal. Write menu accompaniments alongside or directly underneath it.

Example:

Breakfast	Lunch or Dinner
Fruit and/or Juice	Soup-Crackers
Cereal	Main Dish-Gravy or Sauce
Main Dishes	Potato or Substitute
Breakfast Pastry	Vegetable
Bread-Butter	Salad-Dressing
Jam-Jelly	Bread-Butter
Beverages	Dessert
	Beverages

5-C-l.a.(4) The menu planner accurately names each menu item listed. Consistently referencing the correct AFRS number for each item on the draft menu will eliminate guesswork.

(a) Indicate a recipe number for all menu items requiring a recipe for preparation:

Example: CORRECT: Buttered Asparagus O-G-3
INCORRECT: Asparagus

(b) The menu that spells out exactly what items the menu planner intends to use reduces the chances for breakouts of the wrong items. The use of standard symbols or abbreviations is all that is required to achieve coordination between the menu writer and the storekeeper, cooks and bakers. For example, use standard abbreviations such as: (F) for frozen, (cn) for canned, (dehyd) for dehydrated, and (inst) for instant foods.

Example: CORRECT: Chilled applesauce (inst)
INCORRECT: Chilled applesauce

(c) Beware of generalizations on the menu. Remember, every item worthy of being eaten is deserving of a name.

Example: CORRECT: Vegetable Soup P-7
INCORRECT: Soup du jour

b. Meat, Poultry and Fish. A frequency chart for meat is known as a "meat block." Its purpose is to distribute beef, veal, pork, lamb, fish, poultry and other meat substitutes. See Figure 6.

(1) Meat or meat substitute gives a meal its individuality and predominant character. In reply to "What did you have for dinner?" the answer will often be "hamburgers," "roast beef" or some other meat or meat substitute rather than a more detailed description of an entire meal. Balance the variety of meats and meat substitutes to prevent the menu from becoming "heavy on beef" or "light on fish."

(2) It is important to consider meat items not only from the popularity standpoint but also from the cost standpoint. Meat, which constitutes over 40% of the ration cost, is the largest single dollar investment on the menu. A planned pattern of meat and meat substitutes will stabilize use for costly and popular meat items and make it easier to accurately predict menu requirements.

(3) The various types of meat, fish, poultry, egg and cheese dishes to be used on a menu must be related to the cost of these items, their relative popularity and their availability.

(4) With acceptability and frequency charts, cost data and other related information, the menu planner can plot the meat items for the menu. Plan the number of meals for meat, poultry and fish, breaking down the different market forms of these foods into the various categories of fabricated items and canned, salt and smoked items.

Meat Items	Number of Meals Per Week			
LUNCH and DINNER	1st Week	2nd Week	3rd Week	Total
Beef, boneless:				
Oven roast	1	1	1	3
Pot roast	1	1	1	3
Grill steak	.....	1	1	2
Swiss steak	1	1	.....	2
Diced	.....	1	1	2
Ground beef and patties	4	2½*	4	10½
Veal, boneless:				
Slices	.....	.....	1	1
Ham:				
Boneless	.....	.....	2	2
Canned whole	1	1	.....	2
Pork:				
Loin	.....	.....	1	1
Ham	1	1	.....	2
Slices	.....	1	1	2
Diced	.....	1	.....	1
Corned beef	.....	1	.....	1
Liver	.....	½*	.....	½*
Frankfurters	½*	.....	½*	1
Cold cuts	½*	½*	.....	1
Turkey:				
Ready-to-cook	1	.....	.....	1
Boneless	.....	1	.....	1
Chicken	1	1	2	4
Canned beef	.....	1	.....	1
Seafood:				
Fish fillets or steaks	½*	1	½*	2
Fish portions	.....	.....	1	1
Canned salmon	½*	.....	.....	½*
BREAKFAST				
Pork slices	.....	½*	.....	½*
Ham	.....	.....	½*	½*
Bacon	3	2	2	7
Pork sausage patties	1	1	.....	2
Pork sausage links	.....	1	1	2
Luncheon meat	½*	.....	½*	1
Ground beef	1	.....	1	2
Dried beef	.....	.....	1	1
Grill streaks	.....	1	.....	1
Corned beef	½*	½*	.....	1

*Fractions indicate that this item is intended as an alternate entree or is planned as a breakfast meal with less than the usual attendance.

Figure 3-6 - Meat Block for Three-Week Cycle Menu
(includes meat, fish and poultry)

5-C-l.b.(4)(a) Alternate the types of meat items and their specific cuts between lunch and dinner. Plan breakfast meats as carefully as those for lunch and dinner.

(b) Offer popular items such as chicken, steaks and pork slices at lunch and dinner rather than always at the same meal.

(c) Extend fresh supplies by interspersing canned items occasionally, beginning soon after in port loading and after replenishment. Stores of frozen meats and meat substitutes can be offered on the menu right up to the time of replenishment only with long-range planning.

(d) Balance the number of times breakfast meats, such as bacon, pork sausage and sliced ham, are served over the three-week period.

(e) Select a wide variety of recipes so the menu will not be repetitious. When the meats and meat substitutes are chosen and plotted on a meat block, write these items on the menu draft according to the meal and day they are planned.

c. Potatoes and Other Vegetables. Potatoes and other vegetables are selected to complement the main dish. They are included on the menu draft as the second step in menu planning.

(1) Potatoes and Potato Substitutes.

(a) The popularity of potatoes is well established. White potatoes may be well accepted twice every day and occasionally three times a day. The problem of maintaining a fresh potato supply at sea can be solved by serving nonperishable potato items and potato substitutes at regular intervals.

(b) Vegetables with a high starch content, such as dried peas, beans and corn can be used as potato substitutes in addition to grain products such as macaroni, noodles, spaghetti and rice. Some kinds of beans are almost traditional with certain types of meats and meat dishes and make a very good menu without potatoes. For example, frankfurters with white baked beans; chili with kidney beans; and ham with pinto beans or black-eye peas.

(c) If acceptance of potato substitutes and dehydrated potatoes is found to be lower than that for fresh potatoes, space them on the menu so fresh potatoes are alternated with dehydrated potatoes and potato substitutes.

(d) Develop a general plan for using potatoes and potato substitutes by plotting the number of servings of each form of these items available or normally used on the menu. See Figure 7. This will extend the supply of fresh potatoes, guarantee liberal use of custom foods, and make a varied menu.

C-l.c.(l)(e) Be sure a menu plan includes dehydrated potatoes in a variety of ways to be bring out their best flavor and texture. Alternate crisp, browned potatoes with boiled and mashed potatoes, choosing recipes according to the kind of entree used. Variety is essential in choosing potato substitutes.

Item	Number of Meals Per Week			
	1st Week	2nd Week	3rd Week	Total
Beans, dry	1	1	2	4
Potatoes, white:				
Fresh	9	9	7	25
Dehydrated, shoed	1	2	3	6
Instant	1	2	3	6
Macaroni	1		1	2
Noodles		1		1
Rice	2			2
Spaghetti		1	1	2
Sweet potatoes:				
Fresh	1			1
Instant			1	1

Figure 7 - Three-Week Cycle Menu Frequency Chart for Potatoes and Potato Substitutes

(2) Vegetables.

(a) Base the kind of vegetables to serve with the entree on food preference and a planned system of use. Use fresh, canned, frozen, dried and dehydrated forms of these important foods.

(b) Eye appeal in a menu is due largely to the selection of vegetables and salads. Menu planning must take this artistic aspect into account. Because color is related to the vitamin content of a food, a varied choice of vegetables most frequently used are those belonging to the cabbage family such as brussels sprouts, broccoli, green and red cabbage, cauliflower, rutabagas, and turnip greens.

(c) Vegetable accompaniments, such as sauces and garnishes, enhance eye and flavor appeal and must be planned in accordance with the day's total menu.

5-C-l.d. Salads and Salad Dressings. An array of salads and relishes can be prepared from the large variety of fresh, frozen and canned fruits and vegetables. The AFRS offers many varieties of salads and kinds of salad dressings as well as recipes for relishes. These numerous recipes are a good foundation for a varied salad menu of consistently high quality. With some forethought and a little imagination, the menu planner can use the salad component in meals to the following advantages:

(1) To provide contrast in:

Color:	Seafood platter with cucumber, onion and sweet pepper salad.
Shape/form:	Chili con came with dill pickle slices and celery sticks.
Flavor:	Pepper steak with jellied fruit salad.
Texture:	Corned beef with lettuce wedges.

(2) To balance light and heavy meals:

Simmered frankfurters I carrot, celery, and apple salad.
Oven roast of beef / lettuce and tomato salad.

(3) To serve fresh produce in season:

Fresh tomato wedges; fresh peaches in fruit salads; fresh cranberries as relish.

(4) To give other menu items traditional accompaniments:

Grilled steak with tossed salad.
Roast turkey with chilled cranberry sauce
Grilled hamburgers with pickle relish and raw onion rings.

(a) Salads. Eye appeal is important when planning salads. Color and tenure must be uppermost in the menu planner's mind as salad selections for the week are plotted on the menu draft. Plan garnishes for salads as carefully as the salad. When planning for salads and relishes or salad bars, there are several factors to consider.

1 Seasonal Availability. Fresh fruits and vegetables in season are a refreshing change from the processed varieties as often as their availability and the replenishment schedule allow.

2 Temperature and Climate. Cool, colorful salads are most welcome in warm weather. The lighter meals of hot weather go well with hearty chilled salads, such as potato, macaroni, and meat or fish salads. Crisp relishes and green leafy salads are an enjoyable contrast with the hot, heavier dishes of cold weather meals.

5-C-l.d.(4)(a)3 Salad Ingredients. Avoid repetition of flavor in the vegetables, dessert, or breakfast foods as much as possible. Some duplication when combinations of fruits and vegetables are used in salads is unavoidable, but should be kept to a minimum.

(b) Salad Dressings. Select a salad dressing well suited to the salad ingredients. Offer a tart dressing with bland-flavored salads. A varied group of salad dressings can be selected for each salad bar. Some salads include dressing as it is being prepared. For example, hot potato salad has a sweet and sour dressing. It hot spiced beets or sweet and sour frankfurters are on the day's menu, hot potato salad would not be a good choice because of repetitious flavor.

(c) Salad Bars. Crisp, colorful salads and relishes may be selected and enjoyed from salad bars. Successful salad bars are thoroughly planned to present an enticing combination of these important foods. Salad bar menus may be planned for both lunch and dinner or for only one of these meals. The following example gives items normally included in a salad bar menu.

Example:

A raw vegetable salad, such as lettuce wedges
Chef's salad or cole slaw

One other prepared salad, such as fruit salad, cooked vegetable salad, fish or meat salad, or gelatin salad

Vegetable relishes, such as celery sticks, radishes, carrot sticks, green onions, cauliflower buds and green pepper rings

Pickles or olives

Salad dressings

1 A series of basic salad bar menus may be planned that will enable the menu planner to easily select a salad menu for each week. With the week's general menu in-hand, choose a preplanned salad bar menu best suited to the meal. Necessary changes are made to eliminate duplication of predominate food flavors between the menus and to add items particularly popular with certain meal combinations. Other salads or relishes may be added to increase variety.

2 The menu planner indicates by number the combination desired for each meal on the weekly menu draft. Each week, post a salad bar instruction sheet in the vegetable preparation area with a copy of the basic salad bar menus. See Figure 8 for sample menu instruction sheet. indicate each meal's salad bar selection number on the instruction sheet and any changes to the basic salad bar menus. For example,

if a salad bar including waldorf salad is selected for a meal featuring apple pie for dessert, avoid repetition of apples by substituting a citrus fruit salad for a waldorf salad, and record the change in the appropriate space on the salad bar instruction sheet.

3 Other salad, relish and salad dressing recipes added to or substituted for items in the basic salad bar menus will expand the variety of the basic combinations.

Day	Lunch	Dinner
Monday.....	Salad Bar Menu No.17	Salad Bar Menu No.12 Delete: Cottage cheese Add: Perfection salad M-36
Tuesday.....	Salad Bar Menu No.9 Delete: Jellied fruit Add: Cottage cheese and tomato M-14	Salad Bar Menu No.11
Wednesday.....	Salad Bar Menu No.13	Salad Bar Menu No.10 Delete: Green olives Add: Cranberry orange relish M-75 (Change made to feature cranberries with roast turkey.)
Thursday.....	Salad Bar Menu No.1	Salad Bar Menu No. 8 Delete: Quartered tomatoes Add: Celery sticks (Change made because tomato wedges are on Salad Bar No.1 for dinner
Friday.....	Salad Bar Menu No.3	Salad Bar Menu No.19
Saturday.....	Salad Bar Menu No.4 Add: Shrimp Salad L-123	Salad Bar Menu No.14
Sunday.....	Salad Bar Menu No.2	Salad Bar Menu No.7 Add: Chopped onions (8 favorite when hamburgers are on menu)

Figure 8 - Sample Salad Bar Menu instruction Sheet

5-C-1.e. Fruit and Fruit Juices. Fruit is a most versatile item. It has a place in all three meals. A breakfast fruit or juice is an essential part of the meal. In addition to being served alone, fruit is often added to cooked breakfast foods, such as raisins in oatmeal or rice, blueberry pancakes and apple fritters.

(1) Fresh fruits in season are always popular on the breakfast menu. They can also prove to be economical if care is exercised in storage and timely usage. Fresh fruit that has spoiled and become inedible is expensive no matter what the purchase price. Fruits are one of the most perishable, but certainly one of the most versatile menu items. Because of the comparatively brief season during which some fresh fruits may be bought, purchase them when local supplies are plentiful and cost is within reason. Take advantage of the excellent quality of the various forms in which fruits are available. Fresh, frozen, canned, dried and dehydrated fruits allow many favorites to be served over a long period of time. Use canned, frozen and dehydrated counterparts of fresh fruits to supplement the supply of fresh fruits, even when the fruits are in season. Fresh fruits are bulky and perishable, and an adequate quantity of each one in season cannot be stored over an extended period.

(2) Fruit juices are an asset to a new planner when the fresh fruit supply as almost depleted or unavailable. As a breakfast component, fruit juices rate highly. Their tart, tangy flavor perk up early morning appetites and help make other foods more enjoyable. Fruit juices are not likely W be passed up if offered regularly.

f. Cereals. Steaming, hot cooked cereals are a warming part of a hearty breakfast in cold weather. During warmer weather, preferences tend toward cold, ready-to-eat cereals.

(1) Check the breakfast menus as carefully for cereals as for meat and eggs. A good variety of cooked and ready-to-eat cereals tailored to the preferences of the patrons will increase acceptance and ensure a choice for light and hearty appetites.

(2) Endurance requirements affect cereals greatly. Dry, ready-to-eat cereals are among the most bulky items to store, but cooked cereals are dense. The replenishment schedule will affect the proportion of ready-to-eat to cooked cereals that can be served.

g. Desserts. Desserts must be planned for each meal just as other menu components are, taking into account preferences, eye appeal and other factors, such as climate, cooking facilities and the skills of personnel.

(1) Carefully plot each week's menu to provide an equitable distribution of favorite cakes, pies, fruit, ice cream and cookies. Just as important is planning the baker's schedule to allow adequate time and oven space to make the desserts. If bread and breakfast pastries are galley-baked, coordinate production schedules.

5-C-l.g.(2) Desserts are classified as light, medium or heavy. Plan to use one of these according to the rest of the meal. If the meal includes hearty salads and creamed vegetables, a light dessert such as fruit cup or flavored gelatin is most appropriate. Balance the day's desserts by planning, for example, a light dessert with a heavy lunch (chilled pear halves and oatmeal cookies) and a heavy dessert with a light dinner (yellow cake with lemon cream frosting).

(3) Desserts can contribute to the. festivity of a special event meal. Traditional holiday desserts such as cherry, pumpkin and mince meat pies or fruit cake, for example, pave the way for a feeling of well-being. Desserts, such as make-your-own sundaes, using ice cream, fruit sauces, and whipped toppings, are popular and should be served as often as costs and supplies permit.

(4) In planning desserts, avoid repetitous flavors. It is easy to miss flavor repetitions when salads and breakfasts contain fruit. Watch for these duplications in dessert planning.

h. Breads and Breakfast Pastries.

(1) Piping hot yeast rolls and quick breads dress up a meal any day. Hot breads have a special power with menus. Simple meals are made more elaborate by adding hot yeast rolls or biscuits. Regional or nationality breads can be served with other foods of the same region or country. Hot corn bread with fresh pork hocks and greens, and hot garlic toast with spaghetti demonstrate how hot breads help carry out a meal theme.

(2) The menu planner must be realistic in writing menus. If baking facilities are limited or personnel have not yet fully developed their baking skills, limit baked goods. As skills improve and facilities allow, gradually add more baked products to the menu. Use of different breads on the menu will also depend on the local situation. A large activity with separate baking facilities will be able to provide a large assortment of breads.

(3) Breakfast pastries, doughnuts and coffeecake can be offered as frequently as bakery schedules permit. If commercially-prepared bread is served, planning special breads is less difficult.

i. Soups.

(1) Soup is among the last items planned for a lunch or dinner menu. This sequence in menu planning is not based on the relative importance of soup to a menu, but rather on its relation to other menu items. Make selections that offer a good variety of soups on the menu. They may be appropriate for each meal and mix well with the other menu items. Soups are especially appropriate for speedline menus since they are a good accompaniment for sandwiches.

(2) Plan soup as carefully as any other item on the menu and specify by name. It is not necessary to serve soup at every lunch and dinner or even every day; however, if soup is served twice in one day, offer two different types. Avoid repeating flavors in the soup that are found in other meal components.

5-C-l.j. Beverages.

(1) Beverages include coffee, tea, milk, and fruit drinks. Milk deserves a permanent place on the menu since it is such a nutritious beverage. It can also be served as a chilled flavored milk drink or hot cocoa. However, coffee and tea have no nutritional value 50 offering another beverage in their place is quite acceptable.

(2) Chilled beverages are a refreshing addition to the menu. All chilled fruit beverages in the AFRS contribute vitamins and minerals as well as energy; however9 chilled drinks prepared from beverage base contribute only energy. Coordinate fruit juices and beverages on menus to eliminate frequent repetition of similar flavors.

2. Recording the Menu.

a. The menu draft must be carefully checked and edited for accurate recipe numbers as well as for correct recipe titles and then be presented to the food service officer for approval. The food service officer analyzes the menu to ensure it is nutritionally adequate and reflects sound management with respect to personnel, food supplies and equipment. Return the menu draft to the senior subsistence specialist (approved or with noted changes) for typing on the Coast Guard Dining Facililty (CGDF) menu (NAVSUP Form 1080).

b. The NAVSUP Form 1080 is signed by the senior subsistence specialist in the "Prepared by" block, by the food service officer in the first "Approved" block, and submitted to the commanding officer for approval and signature in the second "Approved" block. Menus may be submitted for command approval each week, or the cycle menu may be submitted in its entirety quarterly or seasonally or when a new cycle menu is prepared.

3. Posting the Menu.

a. Menus are posted daily in the CGDFs to describe the meal. Take a tip from big-name restaurants using the technique of christening their specialties. "Waikiki Lau," "Space Needle Salad Bowl" or "Gold Rush Hot Cakes" are examples of the selling role words can play in menu writing. Menu boards posted in the dining facility can be inviting, too. Bill special meals and new recipes, using catchy names having special local meanings. Indicate which foods comprise the low calorie menu or list them separately.

b. All the menu components from soup to dessert should receive equal and careful billing. Specifics such as recipe numbers and abbreviations are essentials on the working copies of the menu used in the galley, but not on menu boards. Descriptive terms that are inviting and appetizing to the menu reader, such as buttered fresh corn on the cob, Indian style lamb, liver fiesta, and steak smothered with onions, are mouth-watering descriptions that can make the meal sound good.

C. With the properly-arranged menu posted, train those on the serving line to know exactly what they are serving. Let serving line personnel inform the patrons. They should know there are giblets, not mushrooms, in the brown gravy; there are caraway seeds in the sauerkraut; and what the available low calorie foods are.

D Types of Menu.

1. Low Calorie Meals. There is a continual need for weight control programs to enhance the physical fitness and personal appearance of Coast Guard personnel. The role of the food service division in meeting this need is providing low calorie food choices. Because patrons will always have the freedom to choose what they like from all the foods offered, do not become discouraged if they do not always follow your advice. However, do try to educate by regularly offering and promoting low calorie foods. Flag or label the foods intended for the low calorie selections by adding attractive garnishes. Inform the servers of the low calorie menu so they can be of assistance. Check with the medical department for information on weight reduction, including nutrition and exercise. Plan low calorie menus using the same principles and standards used for the general menu. Consider it a low calorie variation of the general menu. Careful selection of a variety of foods will assure nutritious and appealing low calorie meals. This menu must include all the basic menu components while eliminating the high calorie extras, such as sauces, gravies, pastries and toppings. If professional assistance for planning low calorie menus is wanted, contact a dietition at your nearest military hospital. The low calorie menu as described provides approximately 1300 calories per day: 300 at breakfast, 600 at lunch and 600 at dinner.

a. Breakfast.

(1) Offer fruit or vegetable juice in a 1/2 cup portion. Use unsweetened fruit juice.

(2) Cereal may be unsweetened ready-to-eat or unbuttered cooked. Portion sizes are 1 box or 1/2 cup, respectively.

(3) Offer eggs or meat daily. Eggs may be poached, soft or hard boiled; prepare scrambled eggs or omelets using one egg plus a small amount of grated cheese, cottage cheese, mushrooms or vegetables if desired. L se a minimum amount of fat on the grill. Portion size is I egg. One ounce of lean meat or 2 tablespoons of peanut butter may be substituted for the egg.

(4) Bread may be I slice of unbuttered, plain or toasted white, whole wheat, rye or raisin bread, or half an English muffin.

(5) Butter may be added to bread or cereal by the patron. Portion size is 1 pat.

(6) Beverages should include 1 cup (8 or) skim milk, 3/4 cup (6 or) low tat milk, or 1/2 cup (4 oz) whole milk, and coffee and tea as desired. Have sugar substitute available.

(7) Speedline breakfast may include juice, ready-to-eat cereal, hard boiled egg or peanut butter, toast, bread, or English muffin, butter, milk, coffee, tea and sugar substitute. Portion sizes are indicated above.

b. Lunch and Dinner.

(1) Appetizers may be clear broth or bouillon, tomato or vegetable juice, or a plain vegetable soup. The vegetable soup may be galley-prepared.

tomato, tomato boullion, or vegetable, dehydrated onion, condensed vegetable, or condensed tomato (made with water, not milk); portion size is cup per day. The portion size for the broth, bouillon and vegetable juices is unlimited.

(2) Trim meat, fish, and poultry of all visible fat. At lunch and dinner serve a 3-ounce portion of roast, broiled or grilled meat, fish or poultry without added fat, sauce or gravy. Use hot tomato juice or meat broth skimmed of fat for moistening if needed. When fried entrees are on the general menu, prepare the same food using another method for the low calorie menu. When the general menu features a mixed dish, offer a plain entree, such as beef patties, roast beef au jus, or baked chicken on the low calorie menu. Display only a small number of servings of the low calorie item in 1/5, 1/3, or 1/2-size pan on the serving line. For condiments with meat, serve catsup, mustard or vinegar. With fish, serve lemon or lime wedges, cocktail sauce or catsup.

(3) Potatoes and potato substitute may include plain, unbuttered, mashed, boiled and baked potatoes or boiled rice, noodles, macaroni, spaghetti, corn, or dried peas or beans. Portion size is l2 cup or I small potato or 1 small ear of corn per day. These foods are often avoided by those wishing to lose weight because they are believed to be too starchy. But this starch, i.e., carbohydrate, is accompanied by minerals and vitamins; and one serving of these foods has fewer calories than one ounce of meat. Avoid the fat-laden foods, such as gravy, sauces and sour cream, usually served with these foods since they are high in calories.

(4) Vegetables.

(a) Vegetables must also be plain, i.e., prepared without butter, bacon fat or sauces. Since they are very low in calories, there is no limit on their portion size. Keep in mind corn, dried peas and beans are considered potato substitutes and not vegetables for low calorie menu planning. include a cooked vegetable on the low calorie menu at lunch and dinner.

(b) Season vegetables as well as potatoes and potato substitutes with salt and pepper or other herbs and spices. These plain foods can also be perked up with garnishes. For example, try parsley flakes, paprika, toasted sesame seeds, poppy seeds, thinly sliced pimiento, green pepper, mushrooms and plain yogurt.

(5) Salads are perhaps the most popular low calorie food. Include a mixed green salad or a lettuce wedge at lunch and dinner. Offer low calorie dressings, such as zero dressing found in the AFRS or vinegar, tomato juice, or lemon or lime wedges. Use these dressings as desired. Regular salad dressings may be mixed with an equal amount or water to make thinned dressings. Limit portion sizes for the thinned dressings to 2 tablespoons per day.

(6) Bread or bread substitute may be served at lunch or dinner but not at both meals. Portion size is 1 slice of bread, I small roll or biscuit, 4 crackers or a 2-inch square of corn bread.

5-D-l.b.(7) Butter may be offered at lunch or dinner. Portion size is 1 pat. The patron may use it on the potato or vegetable as well as on bread.

(8) Desserts.

(a) Dessert may be offered twice a day. One meal should include, unsweetened fresh, frozen or canned fruit without juice or syrup. Portion size is I piece of fresh fruit or 1/2 cup frozen or canned fruit.

(b) The dessert for the other meal may be any one of the following: 1/2 cup hard or soft-serve ice cream or sherbet; 1/2 cup plain yogurt mixed with 1/2 cup unsweetened fresh, frozen or canned fruit without juice or syrup; 1/2 cup fruited or plain gelatin without topping; a 2 1/2-inch square of unfrosted applesauce, banana, chocolate, devil's food cake (1/13 of a cake); 1 plain cake doughnut; 1 galley-baked cookie (any type except brownie); 3 commercially prepared chocolate chip cookies, fig bars, oatmeal with raisin cookies, sugar cookies, ginger snaps, or graham crackers (2 1/2-inch squares); a 2 1/2-inch square apple, apricot, cherry, or peach crisp, or cranberry crunch. Do not serve commercial fruit-flavored yogurt as a substitute for the plain yogurt with fruit added in the galley because it has twice as many calories. Cake may be sprinkled with powdered sugar; use 1/2 cup per sheet cake.

(9) Beverages. Drinks should include 1 cup (8 oz) skim or buttermilk, 3/4 cup (6 oz)low-fat milk, or 1/2 cup (4 oz) whole milk. Coffee, hot or iced tea (unsweetened), and low calorie carbonated beverages may be offered in unlimited portions.

(10) Speedline entrees. There may be sandwiches, cold plate and salad bowls made from the allowed amounts of foods. Hot or cold open-faced sandwiches may be made with I slice of bread, 1/2 bun, or 1/2 English muffin and 3 ounces of meat or substitute.

(a) Cold plates should contain 3 ounces of lean, sliced meat, or equivalent. The following foods are the equivalent of 1 ounce lean meat; 1 ounce chicken or turkey, I slice cheese, 1/4 cup cottage cheese, I hard boiled egg, 1 ounce shrimp, 1/4 cup plain tuna or salmon. Two or three kinds of meat or meat substitutes may be combined on one cold plate as long as the total amount of these foods is equivalent to 3 ounces of meat. Cold plate accompaniments may include lettuce leaves, tomato slices or wedges, or other raw vegetables, lemon or lime wedges, catsup, mustard, horseradish or cocktail sauce.

(b) Salad bowls may also be made with the ingredients listed for cold plates. Cut the meat or cheese into julienne strips and use a mixed green salad as the base. Serve with low calorie salad dressing.

(c) A cottage cheese-fruit plate may be prepared using 3/4 cup cottage cheese (1/4 cup = 1 ounce meat) and one serving of unsweetened fresh, canned or frozen fruit. Do not include any other meat, fruit or dessert in the low calorie meal when this is offered.

5-D-1.b.(11) Foods may be moved from one meal to another so the calorie menu is as similar as possible to the general menu; however, the total amount of food for the day must remain the same. The following is an example of a Low Calorie Meal Patterns:

Example:

Breakfast	Lunch	Dinner
Fruit or Vegetable Juice	Appetizer	Appetizer
Cereal	Meat or Substitute	Meat or Substitute
Egg or Substitute	Vegetable	Potato or Substitute
Bread-Butter	Salad-Dressing	Vegetable
Milk	Bread-Butter	Salad-Dressing
Coffee-Tea	Dessert (Fruit)	Dessert
	Soft Drinks	Milk
	Coffee-Tea	Soft Drinks
		Coffee-Tea

2. Brunch Menus.

a. A brunch is not breakfast nor is it lunch. Brunch is something of each of these meals, yet it has its own special identity. The distinguishing features of brunch are time or service, and the special-occasion, leisurely atmosphere that accompanies this meal. The brunch meal is intended as a particularly pleasurable occasion because it is served between breakfast and lunch usually on Sundays and holidays with a number of extra touches.

b. Brunch menus need not be elaborate and lengthy to be attractive and satisfying. A number of menu items may be added to a heavy breakfast meal to make a brunch meal. These may be "extra" ranging from first courses to heavy entrees to special types of cake to complete the meal.

c. Imagination is the major key to successful brunch menus. Select luncheon entrees with "staying power" that combine easily and appetizingly with breakfast foods.

d. Above all, avoid overtaxing the cooking and serving facilities and personnel by planning brunch menus which, for example, require too much oven space. Cooked-to-order foods are especially appropriate for brunch meals.

e. The service of the brunch meal must be accomplished with an extraordinary flair. Keep a record of the number of customers served within each half hour throughout the brunch period for reference when planning future production schedules.

f. Garnishes, tablecloths and other extra attention to service will set this meal apart from routine breakfasts and lunches.

g. Figure 9 gives example of brunch menus.

All-American Brunch

Sandwich Tidbits
Fresh Whole Oranges
Hot Seasoned Tomato 3uice
Choice of Ready-to-Eat Cereals
French Toasted Bacon `and Egg Sandwiches
Baked Fish Fillet with Lemon Wedge
Blueberry Pancakes
Warm Honey
Hash Brown Potatoes
Green Peas with Carrots
Crisp Salads and Assorted Relishes
Cherry-Filled Virginia Pastry
Light and Dark Breads
Hot Cocoa
Coffee Milk Tea

Northwestern Brunch

Baked Apple with Cheese
Chilled Grapefruit Juice
Cream of Mushroom Soup
Salmon Loaf with Parsley Sauce
Western Sandwich
Golden French Fried Potatoes
Corn on the Cob
Crisp Vegetable Salad
Hot Flakey Biscuits with Maple Syrup
Raisin Toast
Blueberry Pie
Hot Cocoa
Coffee Milk Tea

Pennsylvania Dutch Brunch

Ambrosia Fruit Cup
Frosted Cranberry 3uace
Cream of Potato Soup
Saltines
Croutons
Baked Ham Slice
Pancakes
Hot Applesauce
Sausage Links
Soft Scrambled Eggs
Hot Potato Salad
Sauteed Mushrooms
Banana Fritters with Maple Syrup
Raw Salad Bar
Raised Crullers
Dark Breads
Strcus5el-Topped Cobbler
Applebutter-Butter
Hot Cocoa
Coffee Milk Tea

Figure 5-9 - Sample Brunch Menu

5-D-3. Fast-food Menus.

a. Many personnel have limited time for meals, especially at noon, and need a quick-serve meal. Fast-food lines are an answer to this need. Figure 5-10 gives a recommended fast-food meal pattern. Figure 5-11 gives a sample fast-food menu.

Fast-Food Meal Patterns

Breakfast	Lunch/Dinner
Juice	Soup
Ready-to-Eat Cereal	Sandwich
Breakfast Pastry	French Fries or Baked Beans
Toast-Butter	Salad
Butter-Peanut Butter	Dessert
Jam-JelIy	Beverages
Beverages	

Figure 5-lO - Recommended Fast-Food Meal Patterns

Sample Fast-Food Menu

Soup from Main Galley	Salad from Main Galley
Crackers	Salad Dressing
French Fries-Potato Chips	Dessert from Main Galley
Sandwiches	Beverages
Grilled Ham and Cheese	Iced Tea
Tuna Salad	Fruitade
Chili Burgers	Carbonate
Submarine	Milk
	Coffee

Figure 5-11 - Sample Fast-Food Menu

5-D-3.b. Fast-food lines, express line or sandwich bar services are expeditious because the foods on these menus may be prepared in advance, or the menu may be composed of short-order items requiring last-minute cooking. The items chosen for this type of menu must be quick cooking. A good quick-service menu is nutritious and appealing.

c. Timing is of great importance in producing the fast-food meal. With constant practice, a fixed cycle menu can be prepared in record time with costs predicted and controlled. Additional galley personnel may be required to prepare and serve the food for fast-food lines depending upon the menu.

d. Before the first menu draft is written, present this new meal concept as a proposal to the menu planning board. provide a handout chart of menu suggestions. This chart must give a clear understanding of the overall variety of foods the fast-food meal could offer. The chart of proposals could list hamburgers and other easy, popular items that could be available every day, along with other selections. Cake and pudding mixes, frozen French fries, dehydrated sliced potatoes, dehydrated soups, and many other items "custom-ed" for convenience make it easy to plan variety into this type of menu.

e. Variety is a good rule for making meals nutritious as well as for making them enjoyable. All four food groups (milk, meat, fruits-vegetables, breads-cereals) must be well-represented on fast-food menus. Fast-food salad bars and soup, along with a choice of two vegetables for the full-course meal, provide adequate daily opportunities for eating sufficient vegetables.

4. Cooked-to-Order (a la carte) Breakfast.

a. Menus following an a la carte pattern offer appetizing and practical choices of good things to eat at breakfast. An a la carte breakfast menu offers a choice in all or most of the usual kinds of breakfast foods. The following example shows a basic a la cane breakfast menu pattern and a typical menu.

b. An a la carte pattern is appropriate to use for breakfast menu planning. The first meal of the day needs a menu that can successfully compete with extra sleep and appeals to people with varying early morning appetites.

c The a la carte menu pattern Figure 5-12 shows the minimum choice of items this kind of menu usually offers. Three important factors to consider in deciding on a wider variety of breakfast items are: 1) the number of galley personnel, 2) the kind of cooking equipment available, and 3) the physical layout of the galley in relation to the dining hall. Overall quality must be assured before the quantity of menu items is increased.

d. If a daily breakfast fruit bar and the salad bar are planned for each day, specify the fresh fruit and fruit juice by name and coordinate with the fruit used in salads and desserts.

e. "A la carte" and "standard daily menu items" are not synonymous. If you let the menu become a routine standard, a la carte breakfasts lose their appeal. Vary the selections as you plan each day's breakfast.

Breakfast a la carte Menu

Number of Choices	Menu Pattern	Sample Menu
1	Fruit-fresh, canned, stewed	Chilled half of Grapefruit
1	Fruit or vegetable juice-instant, canned, frozen	Chilled Tomato Juice
1-2	Cereal- ready-to-eat	
	Cereal-cooked or instant	Oatmeal with Raisins
1-2	Egg-various styles	
1	Meat-sausage, bacon, ham	Baked Pork Sausage Links
1	Hot bread-French toast, fried corn-meal mush, pancakes, fritters	Pineapple Pancakes
0-1	Potato or substitute-potatoes, beans, grits, 2-3 times weekly	Hash Brown Potatoes
1-2	Bread-plain, toasted	
1	Breakfast pastry or quick bread	Apple Coffeecake
2-3	Hot beverages-coffee, tea, cocoa	Coffee Tea
	Daily	
	Milk, butter, jam or jelly, honey or syrup	Milk, butter, grape jam

Figure 3-12 - Breakfast a la carte Menu Pattern

5-D-5. Ethnic Meals.

a. Ethnic type foods are becoming increasingly popular with Coast Guard diners. Many CGDF's are serving special dinners featuring these foods. No only do these meals add to the variety of menus, they also are quite pleasing to the specific ethnic groups. Figures 3-13 through 3-20 give sample ethnic and specialty menus.

b. These menus are suggested to assist in the planning of meals. Food service personnel at local levels must determine what ethnic foods are most popular with their patrons and plan accordingly. To make the occasions more festive. feature appropriate decorations and music. Advertise the meals well advance to prepare the diners for the type of food being served.

"Soul" Dinner

Mulligatawny Soup with Stewed Chitterlings
simmered Pigs Feet

Southern Fried Chicken Cream Gravy

Candied Sweet Potatoes
Fried Rice

Simmered Black-Eyed Peas Southern Style Greens
Cole Slaw

Hot Corn Bread Butter

Pecan Pie
Applesauce Cake with Butter Cream Frosting

Coffee Milk Tea Soft Drinks

Additional Suggestions

Bean Soup
Barbecued Country Ribs
Deep-Fat Fried Fish
Creole Shrimp
Hash Brown Potatoes
Southern Fried Okra
Potato Salad
Hush Puppies
Stewed Tomatoes
Corn Fritters
Gingerbread
Baked Apples
Sweet Potato Pie

Figure l3 - "Soul" Dinner Menu

Oriental Dinner

Beef Noodle Soup with Crackers
Sukiyaki Tempura Fried Shrimp
Steamed Rice Fried Rice
Broccoli Polonaise Fried Cabbage
Chow Mein Noodles
5liced Cucumber and Onion Salad
Coconut Custard pudding Ice Cream
Coffee Milk Tea Soft Drinks

Additional Suggestions

Egg Rolls
Egg Foo Young with Sauce
Pineapple Chicken
Barbecued Pork
Chicken Chow Mein
Pork Chop Suey
Sweet Sour Spareribs
Baked Fish
Rice pilaf
peas with Mushrooms
Buttered Asparagus
Jellied Pear Salad
Fresh Fruit Cup
Sherbet with Ginger Fruit Bars

Figure l4 - Oriental Dinner Menu

Polynesian Dinner

South Seas Cocktail
Barbecued Pork Loin Teriyaki Steak
Shrimp Salad
Baked Sweet Potatoes Fried Rice
Sweet Sour Greens
Bananas Salad
Nut Muffins Butter
Pineapple Chiffon Pie Coconut Cream Pie
Coffee Milk Tea Soft Drinks

Additional Suggestions

Ambrosia
Sweet Sour Spareribs
Tempura Fried Shrimp
Pineapple Chicken
Coconut Rice pudding
Fresh pineapple and Banana Compote
Lime Sherbet Coconut Raisin Cookies

Figure 15 - Polynesian Dinner

Italian Dinner

Minestrone
(Minestrone Soup with Croutons)

Lasagna (Baked Lasagna)
Spaghetti con Polpettine (Spaghetti with Meat Balls)

Pizza alla Salsiccia con Peperoni
(Pepperoni Pizza)

Insalata Verdi all' acceto e olio with Parmesan Croutons
(Tossed Green Salad with Vinegar and Oil Dressing)

Pane Abbrustolito Agilo (Toasted Garlic Bread)
Burro (Butter)

Spumoni
(Spumone Ice Cream)

Caffee (Coffee)
Latte (Milk)
Te (Tea)

(Soft Drinks)

Additional Suggestions

Antipasto
Veal Parmesan
Chicken Cacciatore
Italian Style Veal Steaks
Fried Eggplant Parmesan
Ravioli with Meat
Ravioli with Cheese
Fried Zucchini
Ice Cream Filled Eclairs
Fresh Fruit
Assorted Cheese
Sponge Cake w/Apricot Sauce

Figure 5-16 - Italian Dinner

Mexican/Spanish Dinner

Guacamole Canapes
(Avocado Salad with Corn Chips)

Enchiladas de Carne
(Beef Enchiladas) (Tacos)

Puerco Mexicana
(Mexicana Pork) (Beef tamales)

Arroz Suriano
(Spanish Rice)

Frijoles Refritos Maiz
(Refried Beans) (Mexican Corn)

Ensalada de Frijoles
(Frijole Salad) Jalapeno & Cherry Peppers

Tortillas

Pudin de Pan Gelatin de Fruta
(Bread Pudding) (Fruited Gelatin)

Cafe Leche Te
(Coffee) (Milk) (Tea)

(Soft Drinks)

Additional Suggestions

Cheese Enchiladas
Beef Burritos
Tumale Pie
Bean Soup
Spanish Steak
Baked Fish
Chicken Vega
Pork Adobo
Chili Con Carne with Beans
Assorted Relishes (ripe olives, tomatoes, green peppers)

Figure l7 - Mexican/Spanish Dinner

Bright-eyed Breakfast

General Menu

Chilled Orange Juice
Assorted Fresh Fruit
Country Ham Omelet

or

Cheddar Cheese Omelet

Stacks of Blueberry Pancakes
with Hot Maple Syrup
Oven-Fried Bacon

Assorted Dry Cereals Hot Buttered Hominy Grits
Hash Brown Potatoes

Jolly Boy Doughnuts Homemade Biscuits
Old-Fashioned Apple Butter Jam and Jellies Churned Butter

Cocoa Milk Tea Coffee

Low Calorie Menu

1/2 cup Chilled Orange Juice
1/2 Cheddar Cheese Omelet
1 slice Toast 1 pat Butter
1/2 cup Plain Hominy Grits
1 cup Skim Milk
Coffee Tea Sugar Substitute

Figure l8 - Bright-Eyed Breakfast Menu

Mid Atlantic Luncheon

General Menu

Glazed Baked Ham with Cherry Sauce
Maryland Fried Chicken

Rissole Potatoes
Peas with Onions Glazed Carrots

Cabbage, Apple, and Celery Salad
Shaker Salad with Red Beet Egg Dressing

Old Fashioned Biscuits Knickerbocker Not Rolls
Apple Butter Butter Blackberry Jelly

Dutch Gingerbread with Lemon Sauce
Apple Jonathan Amish Raisin Pie

Coffee Tea Milk

Low Calorie Menu

Tomato Bouillon
3 oz Lean Baked Ham
Steamed Carrots with Parsley
Shaker Salad Zero Dressing
1 Small Knickerbocker Not Roll 1 pat Butter
1 Fresh Apple
Coffee Tea Sugar Substitute
Low Cal Soft Drinks

Figure 19 - Mid-Atlantic Luncheon Menu

Southern Dinner

General Menu

Jambalaya Shrimp Creole on Rice
Barbecued Spareribs

Buttered Georgia Grits Hoppin' John
5outhern-Style Greens Alabama Corn Fritter
Louisiana-Style 5mothered Squash

Tossed Vegetable Salad with Vinegar and Oil Dressing
Carolina Cole Slaw with Creamy Dressing

Hot Cornbread Butter Kentucky Pan Rolls
Lemon-Filled Cake with Coconut Frosting Sweet Potato Pie

Coffee Tea Milk Soft Drinks

Low Calorie Menu

Vegetable Juice
3 oz Boiled Shrimp with Lemon Wedge
1/2 cup Rice 1 pat Butter
Simmered Greens
Tossed Vegetable Salad Vinegar
2 1/2-inch square Plain White Cake
1 cup Skim Milk
Coffee Tea Sugar Substitute
Low Cal Soft Drinks

Figure 2O - Southern Dinner Menu

5-E. Custom Foods, Specialty Meals and Buffets.

1. Custom Foods. "Custom foods" is a general term for the various types of laborsaving and spacesaving processed foods authorized for Coast Guard dining facilities (CGDF). In the past, these foods were called "ration-dense." Foods so processed greatly extend the subsistence endurance of ships. There are three main types of custom foods and a miscellaneous category. The basic forms are canned, dehydrated and frozen.

a. Canned.

(1) 0mmercially-canned fruits, vegetables and juices were the earliest foods used by the Coast Guard. They have long since proved practical for Coast Guard operations in varied environments. They can be safely stored under a wide temperature range and are economical because they are trimmed, peeled and pitted. in the case of meat, poultry or fish, there are no bones, skin or gristle.

(2) The variety of canned foods available for Coast Guard use has greatly increased over the years. The initial list of fruits, vegetables, juices, and soups has expanded to include meats, poultry, fish, entrees, prepared puddings, pie fillings, concentrates, and many other items that simplify logistics and food preparation.

(3) Canned items such as concentrated tomato juice are especially desirable for Coast Guard use. The concentrated product can be diluted and served as a beverage or used in recipes requiring tomato paste. This product flexibility eliminates stocking two line items.

(4) Canned entrees such as beef stew with vegetables, spaghetti sauce with meat balls, canned beef hash, and roast-beef hash are also authorized for Coast Guard use.

b. Dehydrated.

(1) Dehydrated vegetables are now widely used in CGDFs. Their small weight and volume make them convenient to store. They are easy to prepare; all the precooking tasks associated with raw vegetables have been done. They are peeled, diced, sliced or chopped, and are ready to use. They eliminate waste and ensure portion-control.

(2) The aim in dehydrating is to remove most of the water from the food-sometimes 99% of it-without damaging the product. In packaging, desiccation is sometimes used to remove the remaining amount of water from dehydrated foods. A small envelope containing activated lime is put into the final package. It absorbs water from the food during storage. Discard this envelope after opening the food package.

(3) Dehydrated mashed potatoes and multiuse dehydrated sliced potatoes look and taste so much like fresh potatoes that potato peeling is a vanishing shipboard detail.

5-E-l.b.(4) Dehydrated sweet potatoes. green beans, peppers, onions, cabbage, egg mix. cream substitute, dessert topping, soups, and American and cottage cheese are important standard staples used by the Coast Guard. They are reconstituted by adding a measured volume of water. The water temperature varies (lukewarm or cool) with each specific dehydrated vegetable being reconstituted. Also, the time required for the reconstituting process varies. Recipes in the Q (vegetable) section of the AFR5 give more detailed instructions for reconstituting dehydrated vegetables.

(5) Dehydrated fruits, such as instant applesauce, apple slices, orange, grapefruit. lemon and pineapple juices, are readily reconstituted by adding a proportionable volume of water to a specified weight of the particular dehydrated fruit. Like dehydrated vegetables, dehydrated fruit because of their small weight and volume are convenient to store. Use dehydrated fruits for desserts such as pudding, pies and cakes or serve "as is" at any meal.

c. Frozen. Frozen foods (contribute much to the increased endurance of Coast Guard ships and the efficient operation of shore bases. Frozen foods routinely stocked are: boneless and refabricated meats, fish and poultry; fruits and vegetables; concentrated fruit juices and milk; butter, eggs and pies. Additional frozen items being authorized for use to reduce manpower are bread dough with precooked entrees, including Swiss steak with gravy, sliced pork loin with gravy, chicken cacciatore, shrimp creole, sliced turkey with gravy, macaroni and cheese, chicken a la king, creamed dried beef. and pork and beet chop suey.

d. Miscellaneous. The miscellaneous category includes many convenient time-saving items that provide end-products of consistent uniform quality. Included are the following bakery mixes: biscuit, bread and roll, cake, cookie, doughnut. muffin, pancake and sweet dough. This category of custom foods also includes instant dessert-powder puddings. soup and gravy bases, prepared salad dressing, dry icing mix and prepared icing, synthetic vinegar, dessert topping, individual portion packs of condiments, jams, and jellies, and instant oatmeal and farina.

2. Specialty Meals.

a. Meals must do more than just satisfy hunger or fulfill nutritional requirements. Mealtime is for socializing with shipmates, especially on holidays and special occasions. Meals should be morale builders as well as body builders.

b. Plan specialty meals for special occasions. Make these meals worthy of the very best creative efforts of the food service personnel.

c. Recipe names can be changed to fit the occasion. As an example, the dining hall menu board for Lincoln's Birthday could read "Lincoln Log Cake" rather than "Chocolate-Covered Cake Roll." Beginning with January, make a list of the holidays, anniversaries and special events within each month. See Figure 5-21. Include Ash Wednesday and Good Friday in the list. Although these days are not normally celebrated with festive activities. there are days when one entree should be a meat substitute.

d. Use a list of special days as a reference when planning the weekly bill of fare.

5-E-2.e. Meals on these days can be highlighted with one or more special dishes to commemorate the day. Decorate dining halls to fit the occasion, and create a great deal of festivity with printed menus. See Figure 3-22.

f. Plan artistic menus using foods traditionally associated with the holiday or occasion. Entrees should include the traditional holiday American dishes, or in the case of United Nations Day, as many traditional dishes representing the member countries of the United Nations as practical. The entree is important because it is the menu item around which the meal is constructed. Accompaniments to the entree, such as dressing and sauces, also contribute to the occasion.

g. Use traditional color schemes for holidays or other special-occasions to enhance the eye appeal and atmosphere of the meal. Color schemes can be carried out effectively with garnishes, paper props and other imaginative devices.

JANUARY:	New Year's Day	JUNE:	Father's Day
FEBRUARY:	Lincoln's Birthday Valentine's Day Washington's Birthday	JULY:	independence Day
		AUGUST:	Coast Guard Day
MARCH:	St. Patrick's Day Ash Wednesday *Easter Sunday	SEPTEMBER:	Labor Day
APRIL:	*Good Friday *Easter Sunday	OCTOBER:	Columbus Day United Nations Day
		NOVEMBER:	Thanksgiving Day
May:	Armed Forces Week Memorial Day Mother's Day	DECEMBER:	Christmas Day

*May be in either March or April

Figure 3-21 - Holidays and Events Requiring Specialty Meals

CHRISTMAS DINNER

Vegetable Juice Cocktail
French Onion Soup Crisp Saltines

Savory Roast Turkey
Cornbread Dressing Giblet Gravy

Baked Ham
Yellow Rice W/Green and Red Peppers
scalloped Sweet Potatoes and pineapple

Seasoned Green Beans

Vegetable Combo (Broccoli, Corn and Carrots)
Tossed Green Salad French Dressing

Hot Cloverleaf Rolls Cheese Biscuits
Butter

Vanilla Ice Cream with Crushed Peppermint Topping
Chocolate Cake with Lady Baltimore Frosting

Coffee Tea Milk Soft Drinks

Think Thin Christmas Dinner

3/4 cup Vegetable juice Cocktail
3 or Savory Roast Turkey
1/2 cup vegetable Combo
1 cup Tossed Green Salad
Low Calorie French Dressing
1 Cloverleaf Roll
1/2 cup vanilla Ice Cream (Without Peppermint Candy)
Coffee Tea Milk Low Calorie Soft Drinks

Figure 5-22 - Sample Christmas Dinner Menu

3-E-3. Buffets. Buffets introduce a festive dimension to food, whatever the occasion The versatility of the buffet makes it adaptable to all types of food service occasions in every kind of setting. Theme examples are Change of Command Thanksgiving, Christmas, etc. Simple buffets can be prepared with little prior experience. Such a buffet can be produced by selecting a limited number of item and perfecting their preparation. Every platter on the buffet table does not have t be a time-consuming centerpiece. Eye appeal is quite often a major element in the success of a buffet.

3-E-3.a. Buffet plans.

(1) Every buffet must start with a plan to ensure effective, timely preparation and presentation of all items.

(a) Put the complete schedule for buffet on paper.

(b) Review the entire plan well ahead of time with fellow workers.

(c) Post the plan where workers may refer to it and pace their progress to meet the time schedules.

(2) A plan should list:

(a) Decorations.

(b) Food to be served.

(c) Sources of recipes for each dish.

(d) Trays, bowls and platters to be used for each dish.

(e) Directions for positioning food on the table(s). See Figure 5-23 for table setups.

(3) If possible, arrange to have two tables for presenting the food. On one table have the appetizers, salads, breads, relishes and entrees. Use the other table for desserts. On it have cakes, pastry, cheese and fruit. If only one table is to be set up, group together like items or items which complement each other.

(4) in planning service table space, there should be 10 feet of buffet table length for each 60 people served.

(5) Do not set up beverages on the basic service tables. If room allows, punch is generally placed at the center of the appetizer table; cotter usually is set up on a small table of its own. Sometimes, punch is placed on the dessert table.

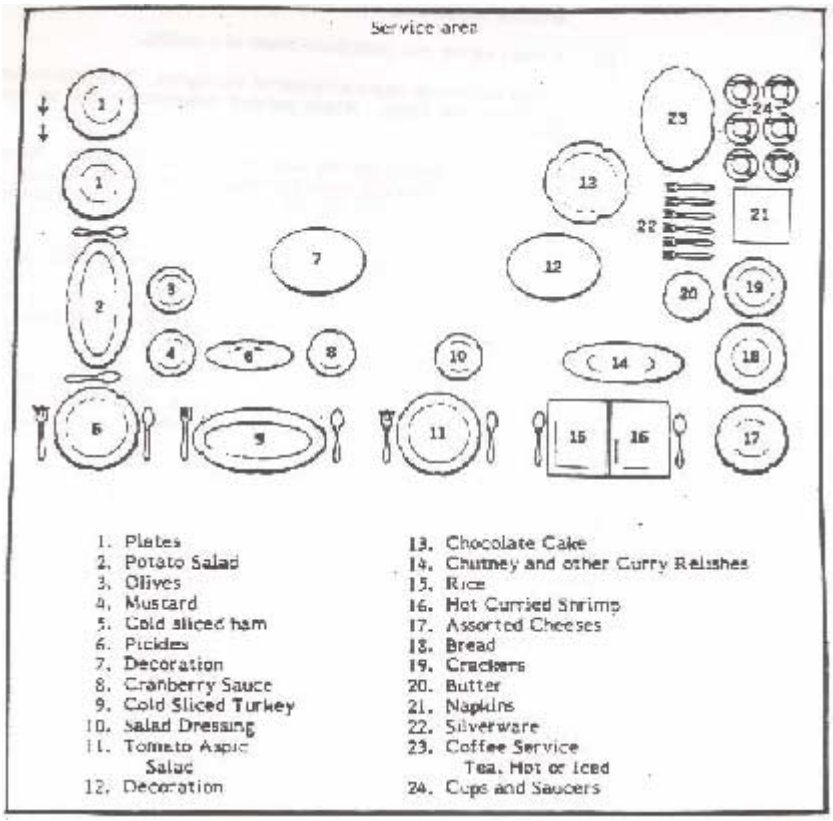
b. Presentation. Presentation is one of the key elements in buffet table preparation. Depending on the number and kinds of items offered, a bullet can be as elaborate and expensive or as moderate as wanted.

(1) To enhance buffet table(s) consider:

(a) Ice carvings always create a lavish impression.

(b) Ice molds and glass replicas can be used as substitutes.

(c) Live flowers, ferns and other plants are good buffet decorations.



1. Plates
2. Potato Salad
3. Olives
4. Mustard
5. Cold sliced ham
6. Pickles
7. Decoration
8. Cranberry Sauce
9. Cold Sliced Turkey
10. Salad Dressing
11. Tomato Aspic Salad
12. Decoration
13. Chocolate Cake
14. Chutney and other Curry Relishes
15. Rice
16. Hot Curried Shrimp
17. Assorted Cheeses
18. Bread
19. Crackers
20. Butter
21. Napkins
22. Silverware
23. Coffee Service Tea, Hot or Iced
24. Cups and Saucers

Figure 5-23 - Sample Buffet Setup

3-E-3.b.(l)(d) Decorated hams, roasts, poultry or whole fish gain added attention when there is careful planning to develop maximum color contrast with the foods surrounding them. These items can be set at a higher level by using an inverted container as a pedestal.

(e) Salads made in fancy molds add eye appeal.

3-E-3.b.(l)(f) Bowls and platters can be turned at various angles and garnished to enhance appearance. Too much garnish can ruin the total effect.

(g) A meat carver can contribute much to a buffet.

(2) Table skirts add to the impressiveness of the buffet. They should hang to 1/4 inch above the floor. White pressed tablecloths may be used as substitutes.

(3) Various types of lighting can be used to enhance the table. Spotlights might highlight a particular arrangement. When lighting is used as an added attraction to a buffet; the lighting for the rest of the room should be more subdued.

d. Self-Service vs. Served. Sometimes when guests serve themselves, they tend to be very generous; at other times, they may be very timid. For a sell-serve buffet, allow slightly more food than if the same buffet is to be served. Guests do not always take more themselves, but since they do not always know how to serve properly, more food is wasted.

e. Entree. Always plan the entree list first. A predetermined price range will usually control the entree selection. Factors to be considered are: 1) the reason for the buffet, 2) a theme, if any, 3) the number of guests, and 4) the location of the meal.

f. Canapes. Canapes, in American cuisine, are usually thought of as items to serve at large gatherings where people eat and drink standing up.

(1) The terms "canapes" and "hors d'oeuvres" are often used to mean the same thing. Canapes, however, are generally defined as bite size tidbits that can be picked up without utensils. Hors d'oeuvres, on the other hand, are foods served on plates and are eaten with a knife and fork as a first course to dinner. Since both canapes and hors d'oeuvres are eater first at a meal, they are referred to as appetizers. Canapes, in addition to being easy to eat, must also be colorful, piquant, spicy or salt. Canapes may be either hot or cold. For a large group, they are usually displayed on a buffet table, with the cold canapes arranged on large platters and hot canapes served from chafing dishes.

(2) Cold Canapes. Since there is no limit to the variety possible in canapes, this is where imagination can be used.

(a) Canapes consist of a base, a spread and a garnish.

1 The base can consist of pumpernickel, rye or white bread cut into numerous shapes. Crackers are also an acceptable base and can be purchased in different shapes and flavors.

2 The spread can consist of variations of cream cheese, meat, fish, hard-boiled eggs, flavored butter combinations, etc.

3-E-3.f.(2)(b) Cold canapes are versatile and convenient. They can be made ahead of time. Some of the canape recipes even offer creative ways to use leftovers. Additional suggestions for cold canapes are:

Stuffed Cherry Tomatoes
Salami Cones stuffed with Cheese-Spreads
Pate
Smoked Oysters
Smoked Salmon
Marinated Vegetables
Stuffed Celery
Herring in Sour Cream
Cheese Trays

(3) Centerpieces for Canape Trays.

(a) Colorful centerpieces for trays of cold canapes designed for table display can be made from whole fruit or vegetables. Bite-size canapes can be embedded with picks all around the fruit or vegetable centerpiece. Sometimes a hollow is made in the top of the fruit or vegetable for a container of dip.

(b) Among fruits and vegetables suggested for centerpiece displays are: watermelons, pineapple, pumpkin, honeydew melons, and large heads of cabbage wrapped in foil.

(c) Any vegetables or fruits selected to hold pick-embedded canapes, with or without dip containers, must be heavy enough to stay put while canapes are being removed.

(4) Hot Canapes.

(a) Canapes piping hot from the oven are always popular buffet treats. Use recipes for mini-bagels, puff pastry, mini-pizzas, pastry-wrapped franks, tarts, quiches, and crackers flavored with cheese, shrimp, beef or sesame seeds.

(b) Bacon-wrapped tidbits add variety to the buffet; serve these items in a chafing dish. Many combinations can be prepared such as rimaki (bacon-wrapped chicken livers), additional bacon-wrapped items could be scallops, oysters, mushrooms, shrimp, waterchestnuts, etc.

(c) Additional hot items include: miniature meat balls (plain or barbecued), cheddar cheese triangles, stuffed mushrooms, cheese balls, wingettes, drumettes, etc.

(5) Dips for Canapes.

(a) Another do-it-yourself system of canapes service is dip presentation. Most dips use cream cheese or sour cream as the basic ingredient. Chopped clams, sautéed onions, garlic, etc., can be used to heighten the flavor.

5-E-3.f.(5)(b) The consistency of a dip should be about that of mayonnaise.

(c) The "dippers" must be crisp and within easy reach of the dip bowl. Popular dippers are potato chips, corn chips, pretzels, crackers, miniature bread rounds (pumpernickel or rye), celery sticks, carrot sticks, cauliflower buds, etc.

g. Fancy Hard Cooked Eggs. Decorated in numerous ways, hard boiled eggs are basic to buffet presentation. With a spiced-up stuffing, these eggs are a decoration that gives good eating too.

h. Relishes.

(1) A Lazy Susan arrangement of relishes served with rolls or crackers and cottage cheese has gained wide acceptance in America as a first course. Many of the relishes used can be purchased ready-to-serve.

(2) The arrangement of the relish assortment must make the most of the contrasting colors and shapes of basic ingredients. Among the many purchasable relishes are cranberry, corn, green tomato, spiced fruits, mixed pickles9 etc.

i. Fruit. Fresh fruit must also be considered in buffet planning.

(1) Large watermelon baskets are the most common carved fruit for buffet tables. See Figure 5-24. The watermelon basket has two advantages. It provides the container, and the fruit scooped from it provides the major portion of fruit needed to fill it. Watermelons selected for this use must be fresh, with a rich green rind and no bruises.

(2) Fruits in watermelon baskets are usually eye-catching. Basket arrangments can be accented with strawberries and a slight touch of mint leaves. Also, black grapes provide a dark contrast. The fruit combination is unlimited.

(3) Grapefruit and orange baskets add an additional touch to a buffet tables. See Figure 5-25. The fruit combination can be honeydew wedges, cantaloupe balls, orange and grapefruit sections, bits of apples, pears, pineapple, and whole grapes.

(4) Additional items that can be made into baskets are cantaloupes, honeydew melons, Spanish melons and pineapple.

(5) When pineapples are used for carving, they must be fresh and not overripe. See Figure 5-26. They can be quickly carved into strands (for picks holding ham cubes or pineapple balls), carts (using slices from a second pineapple for wheels), or bird houses. With a special cutter, one half pineapple can be made into a bird of paradise.

(6) See Figure 5-27 for directions on cutting lemons.

(7) A Horn of Plenty or Cornucopia makes an attractive corner piece when filled with colorful fruits.

WATERMELON

Watermelon is seasonable. For variety here are a few attractive ways for serving this fruit. Baskets can be made from it, or it can be carved with attractive designs.

1. Cut watermelon this way with one or two stand on top. You can place other fruit on top using toothpicks to make attractive table decorations.

2. Shows how to remove the inside of a watermelon half. Carve edge like a picket fence. When hollowed out, fill it with watermelon and other fruits and use for buffet tables.

3. A basket with carving all around the edges and on the long handle.

4. A basket with split handle at each end makes an attractive piece.

5. A boat-like basket with shields on top edges.

6. Three standing baskets without handles, all with carved sides.

7. A basket especially appropriate for a graduation dinner. Make the figure resemble the guest of honor.

8. Do not carve designs too deeply. Color with fruit coloring.

9. A bear scene for a hunting party.

10. Watermelon with a carved cover and with hollowed-out lower half to be filled with other fruit.

Figure 5-24 - Watermelon Carving and Baskets

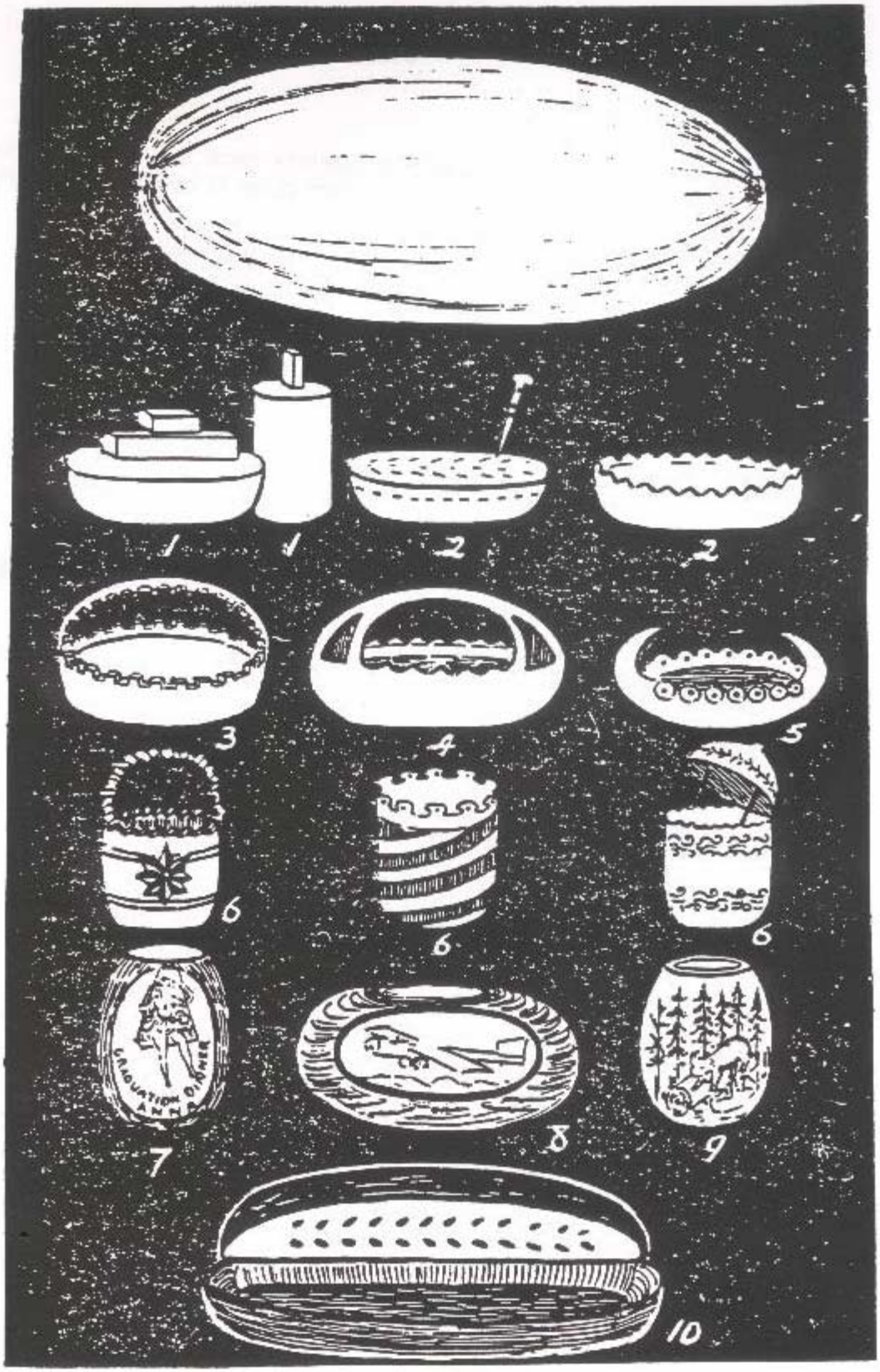


Figure 5-24 - Watermelon Carving and Baskets (continued)

ORANGES

Orange baskets are easy to make, no special skill is required, and they can be used on any table.

1. Select an orange with a good color. Mark handle and top of the basket.

2. Cut away the section as shown here to bring out the handle.

3. The handle fully cut out.

4. Remove the inside by cutting along line.

5. After the handle is completed, remove the inside of the orange half.

6. The finished basket.

7. An easy way to decorate it.

3. The finished, perfect basket.

Figure 5-25 - Orange Baskets

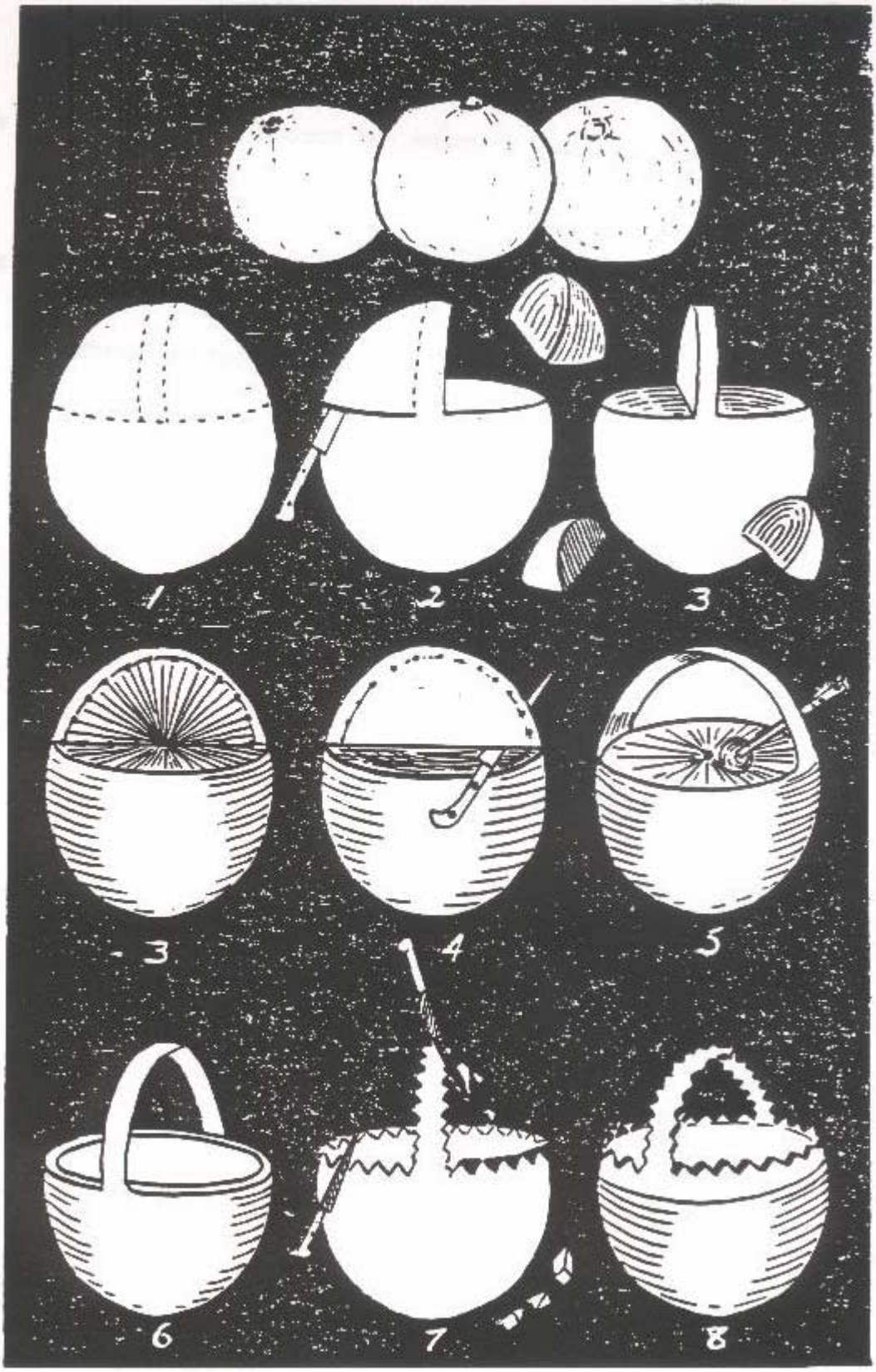


Figure 5-25 - Orange Baskets (continued)

PINEAPPLE

These are a few of the most attractive ways to serve pineapple.

1. Cut off top about two inches deep.

2. Cut inside on dotted line and remove the inside. This can be sliced or diced and put back into the pineapple.

3. This cover has two strong toothpicks in front and in back to hold it.

4. Fill with fruit and decorate with whipped cream.

5. Following the dotted line, cut about two inches above the bottom. Leave the top leaves untouched.

6. Fruit can be placed on this attractive stand. Do not overload with fruit. Use smaller fruits, such as grapes and berries, near the top.

7. This is a bird house, made as in No. 3. Cut a hole in the side for the nest entrance. A bird can be carved out of a rutabaga. Choose a specific type 0f bird and color it to make it attractive.

8. This a bird house with a raised top.

9. Shows a chariot full of fresh fruit. Hollow out the top and, from another pineapple, make wheels. Use some wood for the handle and legs. Instead of putting the top of the pineapple on the fruit, put it on the front of the chariot if you wish.

Figure 5-26 - Pineapple Carvings and Baskets

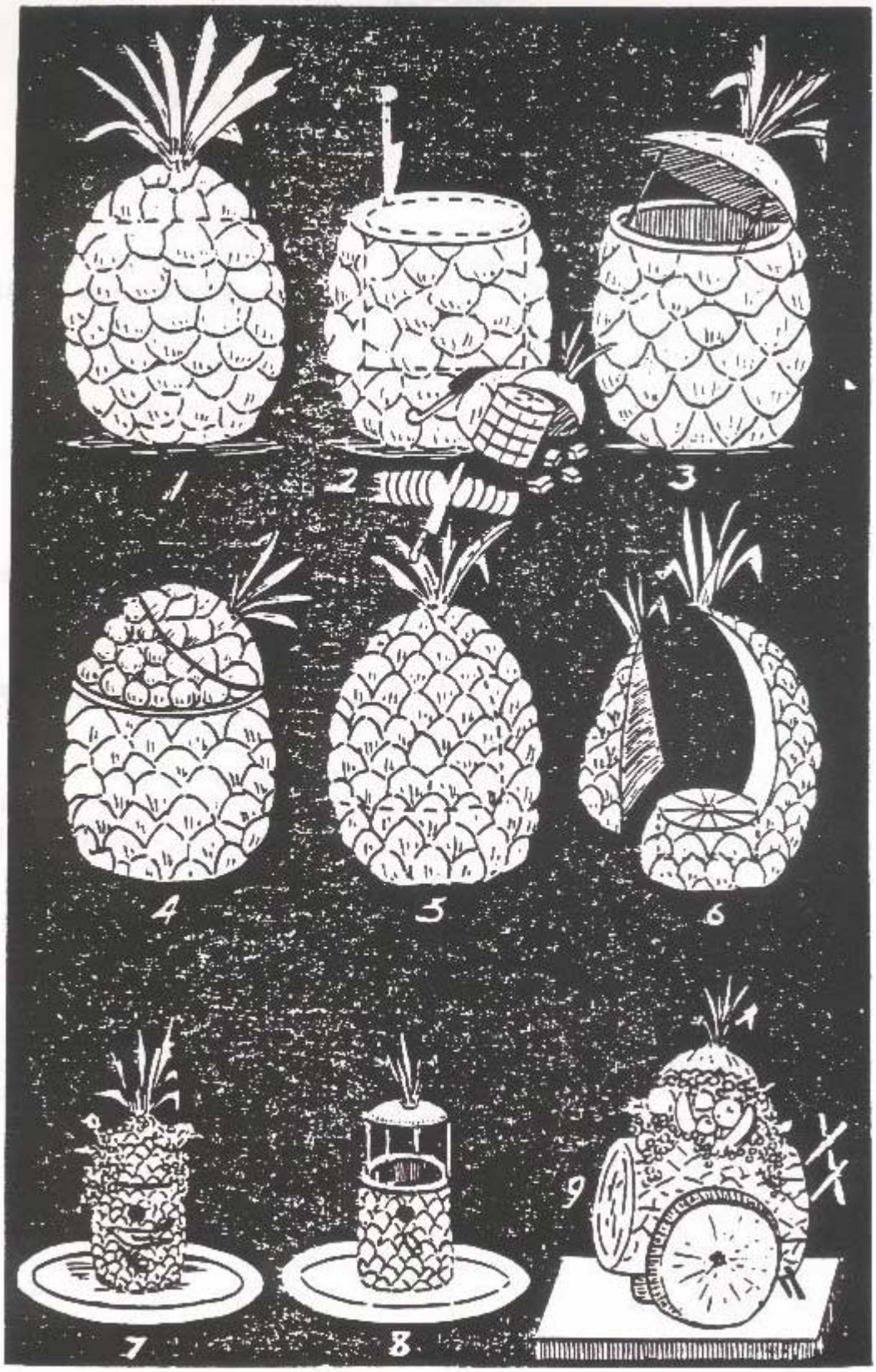


Figure 26 - Pineapple Carvings and Baskets (continued)

LEMONS

1. Just plain, sliced lemons, placed on a platter as a border.

2. Whole lemons grooved and sliced with rind on. place on platter.

3. Lemon sliced, cut in half, with dotted sections representing portion covered with chopped parsley. The center has red Hungarian or Spanish paprika on it.

4. A full slice of lemon with half of meat cut out. Skin is rolled inside. This also can be sprinkled with fine parsley. Both designs, above and below, can be used on food itself, or as platter border decoration.

5. A full slice of lemon cut in six wedges. Each lemon is cut in half, each half cut twice. This type is used for platter or tea glass decoration. Cut the skin side and place over the top of the glass.

6. A full slice of lemon with skin removed and the ends cut. In the center of this slice is an anchovy ring. The anchovy is wound around the finger and filled with capers. This is placed on the food itself, as it can be eaten. Serve this with fish.

7. Lemon sliced with skin on. Pieces are cut from the slice as shown here to form a cross. Each section can be a different color: green with chopped parsley, red with paprika, brown with anchovy butter, and the other black with caviar.

8. Full lemon slice partitioned and covered with different items as was No.7.

9. To make a basket, cut out each side of an end and also cut out the meat from the handle. The bottom is trimmed a little so the basket will stand.

10. The finished basket. It can be used to serve cold sauces.

11. Cut into a barrel shape. Cut off top and remove insides of lemon. Mark two bands on the side, remove the yellow skin along this band, and place little capers to represent nails. Fasten the top again with a toothpick and place a carved radish on top of the cover. Use this for cold sauces, also.

Figure 3-27 - How to Cut Lemons

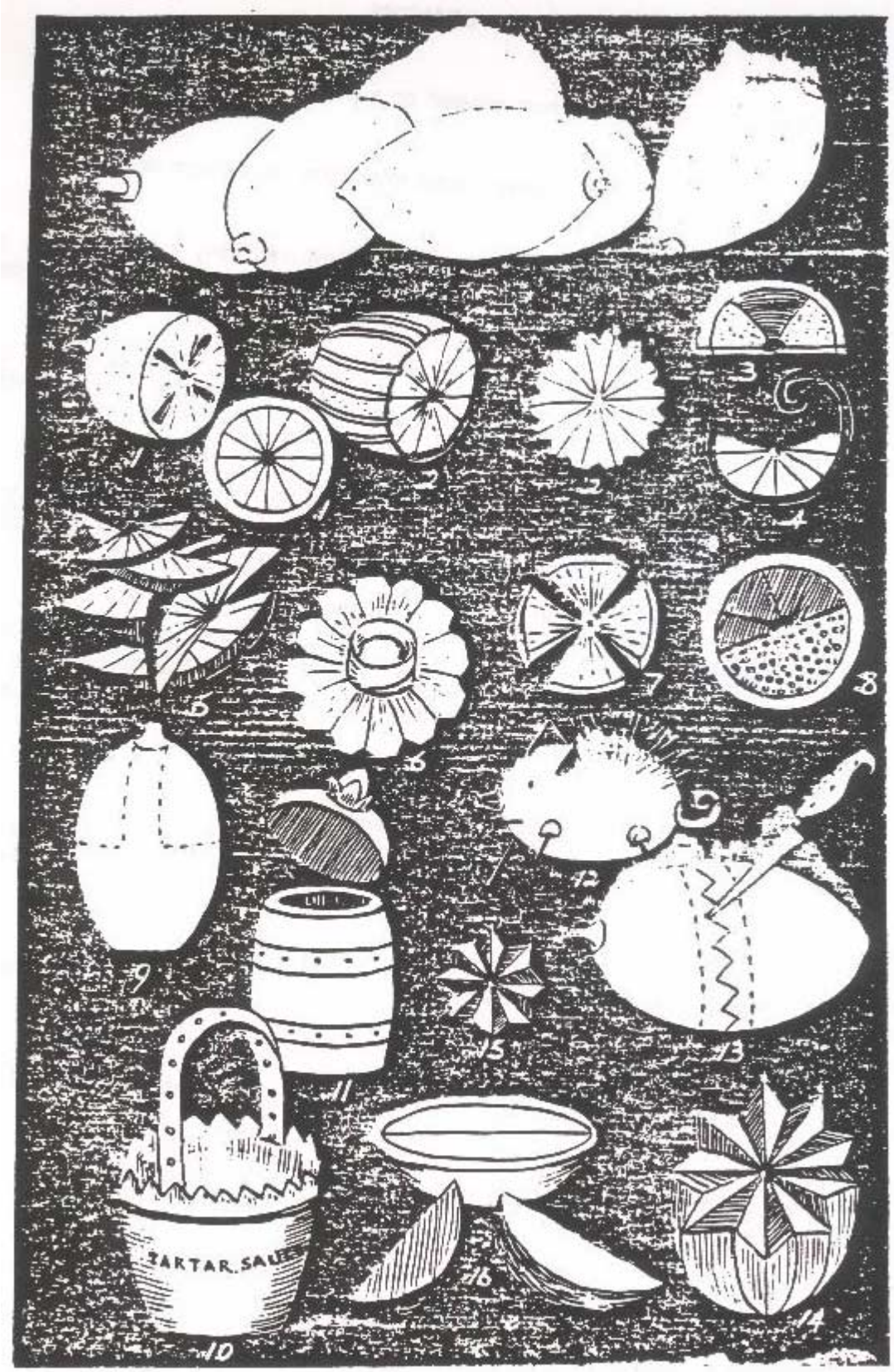


Figure 5-27 - How to Cut Lemons (continued)

E-3.j. Cheese. Cheese should accompany fruit on a buffet table. Cheese should be placed on a clean board and di5played for easy self-service. Clearly identify each type of cheese.

k. Salads.

(1) Salads, whether for the buffet or for other services, are divided into two classes.

(a) Simple Salads. These are made entirely from greens or other vegetables.

(b) Combined Salads. These are made with several types of ingredients. Included in this class would be fish, meat, gelatin and fruit salad.

(2) Salad is served as an appetizer, an accompaniment to the entree, or as the main course of a meal. For this reason, the size of the portion is varied, although the combination remains the same. The decoration of combined salads also plays an important role since they glamorize the buffet.

(3) Adapted to buffets, many salads may be used to your advantage. Gelatin salads are of particular interest since they can be arranged attractive on platters and are bright and colorful. Numerous styles of gelatin molds (fish, crowns and rounds) are available from commercial sources. The general rule when preparing gelatin for molds is to reduce the water by 3/5 of the specified amount. The impressiveness of the mold depends on the arrangement of fruit, vegetables or meat, and the color combinations worked out.

l. Bread. The type of bread offered must fit the meal. If the entree is a cold meat platter, use a variety of dinner rolls (regular, poppy seed, sesame seed, hard, onion, etc).

m. Pastry.

(1) These sweet dishes are very important on the buffet. Often the theme cake might be the centerpiece. Cakes are usually presented in their original decorated form and are cut on the buffet.

(2) The age and sex of the attendees should govern the types of pastries provided. If you have more females attending the buffet, an elaborate display of pastries would be appropriate. Considering all of the factors involved, this is another place where your imagination comes into play. Baking fancy pastries can be time consuming; therefore, commercial bakeries may be able to satisfy your needs.

n. Beverages.

(1) Coffee. Do not overlook coffee when planning the buffet. Have an ample supply of cups, spoons, sugar and cream available.

5-E-3.n.(2) Punch.

(a) Serve punch from punch bowls. Use a traditional punch bowl of silver or glass on a base. It should be set on a tray with its matching ladle.

(b) Use punch cups for all types of punch. Whatever the mixture, there must be enough cups or glasses to serve all guests at once. Usually a 5- or 6-ounce glass is used for punch.

0. Miscellaneous. provide sufficient amounts of flatware, plates, napkins, serving utensils and trash receptacles. The pieces needed will be determined by the type of service and the number of personnel attending.

(1) Flatware. Plastic disposable flatware is appropriate for most buffets. Display the flatware in a neat arrangement.

(2) Plates. Paper plates are appropriate for most buffets. If the buffet is planned around a theme, purchase the paper plates with the appropriate decoration. You must also decide the size of the plates to be used, whether it is a 4-, 6-, or 10-inch plate.

(3) Paper Napkins. A fine grade of paper napkins may be bought from commercial sources. Napkin sizes are:

Luncheon - 18 x 18 in.
Dinner - 20 x 20 in.

(4) Utensils. The serving pieces needed are determined by the type of service and number of food items available. Have a good supply of tongs, serving spoons and spatulas available.

(5) Trash Receptacles. Have an adequate supply of trash receptacles in the reception area. Do not place the receptacles near the buffet table.

F. Standard Recipes - The Armed Forces Recipe Service (AFRS). A recipe is standardized when the ingredients, procedures and techniques used meet an established standard.

1. Function of the AFRS.

a. Standardized recipes are a necessity for a well-run food service operation because recipes are the mainstays of food economy and quality. Without these food quality would be as varied as the cooks who prepare it. A set of standardized recipes is the most effective management tool for guiding the requisitioning of supplies and controlling breakouts and inventory. For new or experienced cooks, consistent use of standardized recipes is essential. The AFRS contains over 1400 tested recipes each yielding 100 portions printed on 5- by 8-inch cards.

b. Use these standard recipes constantly when planning and developing menus. Use of the AFRS enables the menu planner to determine the workload of food

service personnel and equipment, food items to be requisitioned, cost - records, and acceptability of individual recipes. It also contains:

(1) Guideline cards with general product and preparation information.

(2) Color photographs.

(3) "How-to-do-it" drawings.

2. Recipe Components.

a. Yield. This is the quantity of cooked product a recipe produces. The yield for each recipe in the AERS is given as 100 portions and in some recipes in count or volume, e.g., 2 pans, S loaves, 6 1/2 gallons. Portion size is a key to determining the quantity of food to be prepared. If the portions indicated, however, are too large or too small for a particular dining facility, the portion size may be changed.

b. Ingredients are listed in the order used.

(1) The specific form or variety of each ingredient is indicated.

Example: Flour, general purpose
Flour, bread

(2) The shape, sir' or form of an ingredient is specified.

Example: Ham, cooked, 1/2-inch cubes
Onions, dry, sliced
Nuts, unsalted, chopped

(3) Temperatures of ingredients are specified in many recipes. Descriptive terms are also used.

Example: Egg whites (room temperature)
Liver, sliced, partially thawed
Water warm (110F)

c. Measures and Weights.

(1) Measures and weights are the exact amount of each ingredient needed for 100 portions. Amounts are listed parallel to the list of ingredients. Quantities of dry ingredients weighing more than 1 ounce usually are given as both weights and measures. Most liquid ingredients are measured, not weighed. Use measures only when necessary.

(2) On the right side of the measures column, a blank space has been reserved for inserting the actual amounts of ingredients needed to prepare the number of portions the individual galley needs. These quantities may be inserted in pencil directly on the recipe card and changed as necessary.

5-F-2.d. Method.

(1) The method describes how the ingredients are combined and cooked, and represents the most accepted cooking procedures. For example, the method will describe the best way to sift dry ingredients together, to thicken a sauce, or to fold in beaten egg whites. Methods are standardized since the same terms are used whenever the same technique appears. The method contains directions for the most efficient order of work, eliminating unnecessary tools and equipment and unnecessary steps in preparation.

(2) The directions are stated in simple, clear terms for incorporating the ingredients. Each step begins with an action verb. These words are the keys to proper procedures and must be closely followed.

Example:	Dissolve	Divide	Drain
	Sift	Flatten	Cover
	Pour	Sprinkle	Bake

(3) Included under this method are specific details such as cooking time. Also, if certain ingredients are to be set aside for later use, this is stated. For example, "Gradually add sugar; beat to a light, firm peak. Set aside for use in Step 6."

(4) In a few instances, serving suggestions are included under method. For example, "Serve with Lemon Sauce (K-9) or, if desired, top with Whipped Cream (K-I 5)."

C. Abbreviations used in the AFRS are:

(1) Volume:

tsp = teaspoon(s)
tbsp = tablespoon(s)
c = cup(s)
pt = pint(s)
qt = quart(s)
gal = gallon(s)

(2) Ingredients:

A.P. = as purchased
E.P. = edible portion (e.g., potatoes, peeled, prepared for cooking; onions, peeled)

(3) Temperature: F = degrees Fahrenheit

(4) Weights:

oz = ounce(s)
lb = pound(s)

5-F-2.e. (5) Containers:

cn = can(s)
cyl = cylinder(s)
jr = jar(s)
pg = package(s)

f. Notes appearing below the recipe contain supplemental information such as possible substitutions for ingredients. Specific techniques are included to supplement information in the "Method" column, e.g., "If candy thermometer is not available, heat mixture in Step I until it forms a soft ball in cold water." Serving tips may also be included as notes, e.g., "If desired, top with Whipped Cream (K-15) before serving."

g. Variations are included on many recipes.

(1) Variations describe different ways to prepare the product and constitute a major addition to the total number of recipes in the AFRS. Each variation is listed as a separate recipe in the index. The recipe for yellow cake includes variations.

Example: Banana-Filled Cake
Lemon Cake
Chocolate Cream Cake

(2) The variations in this instance are named according to the principal ingredient which alters the basic recipe. in other recipes where different cooking techniques are used, these may determine the name of the variation.

3. Recipe Supplements.

a. Guideline Cards.

(1) These cards, found in some of the recipe sections, are directions for preparation of a basic type of food. For instance, a guideline card is used for the make-up of pie crust for a one-crust pie and a two-crust pie. This guideline card eliminates the need to repeat this information on the many different recipes using pie crust.

(2) Guideline cards in the salad, fish, poultry and vegetable sections include breakout information and the size, count and recommended use of products. In other instances, a guideline card is used instead of, or as a summary of, recipe information. For instance, in the vegetable section guideline cards are included for preparing canned, fresh and frozen vegetables.

b. Index Cards.

(1) These cards are found at the beginning of each AFRS section and give a complete listing of all recipes in the section. Recipes are listed in alphabetical order by type of food or dish.

F-3.b.(2) An additional breakdown of the index is given for recipe variations. For example, under Yellow Cake, eleven variations are listed alphabetically. Indexes are valuable tools for finding and using appropriate recipes.

c. Index of Recipes. The separate, consolidated index of recipes in the AFRS is a valuable reference for menu planners. The recipes in this index are grouped conveniently.

Example:
General Information
Appetizers and Beverages
Breads and Sweet Doughs
Cereals and pasta Products
Cheese and Eggs
Cakes, Fillings, and Frostings
Cookies
Pastry and Pies
pudding and Other Desserts
Desserts (Sauces and Toppings)
Meat
Fish
poultry
Salads
Salad Dressings and Relishes
Sandwiches
Sauces, Gravies, and Dressings
Soups
Vegetables

4. Recipe Adjustment. All the recipes in the AFRS are based on a standard of 100 portions. However, the number of patrons served per day (or per meal) changes constantly, requiring changes in the quantities of food to be prepared.

a. Types of Adjustments.

(1) Yield Adjustment. To increase or decrease a recipe, it is necessary to obtain a working factor. Multiply the quantity of each ingredient by the working factor and convert the quantity into a workable unit.

Step 1. To obtain a working factor, divide the number of portions desired by 100.

Example:

$$\frac{348 \text{ (number portions desired)}}{100} = 3.48 \text{ (working factor)}$$

Step 2. To determine the quantity of each ingredient to Use, multiply the quantity of each ingredient listed in the recipe by the working factor.

Example:

1.25 lb cornstarch (quantity in recipe) x 3.48 (working factor)--

4.35 lb cornstarch (quantity to use)

5-F-5.a.(2) Quantity Adjustment. A recipe may be adjusted on the basis of the quantity of an ingredient to be used. To obtain a working factor, divide the number of pounds you have to use by the number of pounds required to yield 100 portions.

Example:

$$\frac{\text{102 lb (quantity to be used)}}{\text{30 (number pounds to yield 100 portions)}} = \text{3.40 (working factor)}$$

(3) Serving Size Adjustment. Recipes may be adjusted to yield a specific number of portions of a specific size.

Step 1. Divide the desired portion size by standard portion of the recipe.

Example:

$$\frac{\text{3 oz (desired size)}}{\text{4 oz (standard portion sire}} = \text{0.75 (size factor)}$$

Step 2. Multiply the number of portions needed by the size factor and divide the answer by 100 to obtain the working factor.

Example:

348 (Number portions desired) x 0.75 (Sire factor) = 261

$$\frac{261}{100} = 2.61 \text{ (working factor)}$$

Step 3. Multiply the quantity of each ingredient in the recipe by the working factor to determine the quantity to use.

Example:

2 lb cornstarch (quantity in recipe) x 2.61 (working factor)=
5.22 lb cornstarch (quantity to use)

5. Converting and Rounding Calculated Quantifies. When a recipe is increased or decreased or ingredient quantities are altered, it is usually necessary to convert the amount calculated to another unit measure because, in most instances, a part of a pound or a partial measure results. To obtain a usable figure: 1) "round off" the calculated figure given in decimal pounds or measures to a whole figure, or 2) convert partial pounds into ounces and the partial measures into smaller units, e.g., partial quarts into cups. See Figure 5-28.

a. Converting Fractional Weights.

(1) When increasing or decreasing recipes, the division or multiplication of pounds and ounces is expressed as decimals to simplify cumbersome fractions. For example, if the quantity of an ingredient is multiplied by a working factor, the calculation is:

1.25 lb x 3.48 (working factor) = 4.35 lb

The quantity, 4.35 pounds, could be expressed by converting the fractional part of the pound into ounces.

Pounds-decimals-grams-ounces
453.59 grams = 1 pound

Lbs.	Decimal	Grams	Ozs.	Lbs.	Decimal	Grams	Ozs	Lbs.	Decimal	Grams	Ozs.	Lbs.	Decimal	Grams	Ozs.
1/128	0.007813	3.54	1/8	1/4	0.250000	113.40	4	1/2	0.500000	226.80	8	3/4	0.750000	340.19	12
1/64	.015625	7.09	1/4	17/64	.265625	120.48	4 1/4	33/64	.515625	233.88	8 1/4	49/64	.765625	347.28	12 1/4
1/32	.031250	14.17	1/2	9/32	.281250	127.57	4 1/2	17/32	.531250	240.97	8 1/2	25/32	.781250	354.37	12 1/2
3/64	.046875	21.26	3/4	19/64	.296875	134.66	4 3/4	35/64	.546875	248.06	8 3/4	51/64	.796875	361.45	12 3/4
1/16	.062500	28.35	1	5/16	.312500	141.75	5	9/16	.562500	255.14	9	13/16	.812500	368.54	13
5/64	.078125	35.44	1 1/4	21/64	.328125	148.83	5 1/4	37/64	.578125	262.23	9 1/4	53/64	.828125	375.63	13 1/4
3/32	.093750	42.52	1 1/2	11/32	.343750	155.92	5 1/2	19/32	.593750	269.32	9 1/2	27/32	.843750	382.72	13 1/2
7/64	.109375	49.61	1 3/4	23/64	.359375	163.01	5 3/4	39/64	.609375	276.41	9 3/4	55/64	.859375	389.80	13 3/4
1/8	.125000	56.70	2	3/8	.375000	170.10	6	5/8	.625000	283.49	10	7/8	.875000	396.89	14
9/64	.140625	63.79	2 1/4	25/64	.390625	177.18	6 1/4	41/64	.640625	290.58	10 1/4	57/64	.890625	403.98	14 1/4
5/32	.156250	70.87	2 1/2	13/32	.406250	184.27	6 1/2	21/32	.656250	297.67	10 1/2	29/32	.906250	411.07	14 1/2
11/64	.171875	77.96	2 3/4	27/64	.421875	191.36	6 3/4	43/64	.671875	304.76	10 3/4	59/64	.921875	418.15	14 3/4
3/16	.187500	85.05	3	7/16	.437500	198.45	7	11/16	.687500	311.84	11	15/16	.937500	425.24	15
13/64	.203125	92.14	3 1/4	29/64	.453125	205.53	7 1/4	45/64	.703125	318.93	11 1/4	61/64	.953125	432.33	15 1/4
7/32	.218750	99.22	3 1/2	15/32	.468750	212.62	7 1/2	23/32	.718750	326.02	11 1/2	31/32	.968750	439.42	15 1/2
15/64	.234375	106.31	3 3/4	31/64	.484375	219.71	7 3/4	47/64	.734375	333.11	11 3/4	63/64	.984375	446.50	15 3/4
												1	1.000000	453.59	16

NOTE: Blocked-in figures, namely 1, 2, 4, 6, 8, 10, 12, 14, and 16 oz and their equivalent values should be memorized.

Figure 5-28 – Conversion Table

5-F-5.a.(2) Another means of converting fractional parts of a pound is to make the calculation instead of consulting the conversion table. The part of the pound is converted to ounces by multiplying the figure by 16 ounces. For example:

0.35 x 16 or = 5.60 oz

b. Rounding Off Weights. After the part of the pound has been converted to ounces (0.60), as indicated in "Recipe Conversion" card, decimals may be "rounded off" to provide whole units of weight or measure. Decimal weights must be rounded off. Using the example given above, the 4.35 pounds (or 4 pounds 5.60 ounces) would be rounded to: 4 pounds 5 1/2 ounces.

Example:

Decimal:	Round to-
0.01 to 0.12	0.00 or 0 oz
0.13 to 0.37	0.25 or 1/4 oz
0.38 to 0.62	0.30 or 1/2 oz
0.63 to 0.87	0.75 of 3/4 oz
0.88 to 0.99	1.00 or 1 oz

c. Rounding Off Volume Measures.

(1) When converting volume measures, rounding of f is also necessary.

Example:

Calculated volume measure:	Round to:
S gal or more	Nearest full qt
5 114 qt to 4 3/4 gal	Nearest full cup
5 1/4 cups to 5 qt	Nearest full t/z cup
2 3/4 to 5 cups	Nearest lull 1/4 cup

(2) If the quantity being measured is less than a quart, it is more practical to adjust the volume to tablespoon and teaspoon measures.

Example:

Calculated volume measure:	Round to:
11/4 to 2 1/2 cups	Nearest tbsp
9 tbsp to 3 cup 3 tbsp	Nearest tsp
5 to 8 tbsp	Nearest 1/2 tsp
Under 5 tbsp	Nearest 1/4 tsp

(3) To convert volume measures from gallons, quarts, cups, tablespoons and teaspoons. See Figure 5-29.

Gallons	Quarts	Pints	Cups	Fluid Ounces	Tablespoons	Teaspoons
1.00	4.0	8.0	16.0	128.0	256.0	768.0
.50	2.0	4.0	8.0	64.0	128.0	384.0
.25	1.0	2.0	4.0	32.0	64.0	192.0
.12	.5	1.0	2.0	16.0	32.0	96.0
.06	.25	.5	1.0	8.0	16.0	48.0
.....	.125	.25	.5	4.0	8.0	24.0
.....	.....	.125	.25	2.0	4.0	12.0
.....	.....	.....	.125	1.0	2.0	6.0
.....	.....	.....	.....	.5	1.0	3.0
.....	.....	.....	.....	.....	.33	1.0

Figure 5-29 - Equivalent of Volume Measures

5.F-6. Weighing and Measuring Methods. Accuracy in measuring and weighing is important. How much food is wasted by measuring or weighing depends upon the method used. It is difficult to definitely draw the line between what is measured by volume and what is weighed. However, some generalities can be made about food measures and weights as applied to groups of foods

a. Liquids (Water, Milk, Juice). Use volume measures for liquid. To ensure accurate measurement, set the measure on a level surface so the graduation marks are parallel to the surface.

b. Oils and Syrups. These can be measured as liquids. Quantities of syrups used in recipes are given in weights or measures so the cook may select either method. Oils most often are given as a measure. These substances cling, so use a spoon or rubber scraper to remove the remaining oils or syrup from the measure.

c. Powder or Granular Foods.

(1) Use dried milk and egg mix, baking powder, salt, pepper, spices and herbs in small quantities. These ingredients are expressed in recipes as both weights and measures. In some instances, the material is so potent the quantity is expressed as a "dash," "few grains" or a "drop."

(2) Stir powders in the container to loosen and break up lumps that may have formed if the product has been stored for some time prior to use. Dip measuring spoon into the powdered material and bring it up heaping, even if a smaller quantity is required. Level off the excess with a straight knife or spatula.

(3) Ounce (or gram) scales are ideal for weighing small quantities of materials used frequently (such as salt, pepper, etc.).

d. Flours. Sift flour once before measuring so it will not be packed. Weigh flour for use in most recipes. Where flour is a less critical ingredient and a

5-F-6. d. (Continued)

smaller quantity is needed (for example, in thin sauces), measures are satisfactory but should be accurate. Lightly place sifted flour in a measuring cup using a scoop. Do not shake or pack down the cup. Level the excess flour off at the top of the cup with a straight-edge knife or spatula.

e. Cornmeal and Wheat Base. Stir these types of products lightly with a fork or spoon, but do not sift; then weigh or measure as described for flour.

f Sugars. Measure or weigh white sugar as described in paragraph F-6.c. Brown sugar is more difficult to weigh or measure and must be handled with care. If it is lumpy, roll and sift it. When measuring, pack brown sugar firmly in the container, then level off the top of the container with a straight-edge knife or spatula. The sugar will keep the shape of the measure when turned out if it has been properly packed. Sift confectioner's or powdered sugar prior to weighing or measuring. If lumps are present, roll out sugar before sifting.

g. Fats.

(1) Weigh all solid fats (butter, shortening, etc.) for accuracy. If you measure fat, however, press it firmly into the cup as for brown sugar. Eliminate all air pockets. Level with a knife or spatula.

(2) If butter is available in 1- or 1/4-pound prints, use these as measurements. One-pound prints are equivalent to 2 cups, while 1/4-pound prints measure about 1/2 cup.

7. Thermometers and Temperature. Observing times and temperatures is a fundamental aspect of cooking. A thermometer is an essential instrument used to measure temperature. There are many types of thermometers available or the market, but only three types are discussed here.

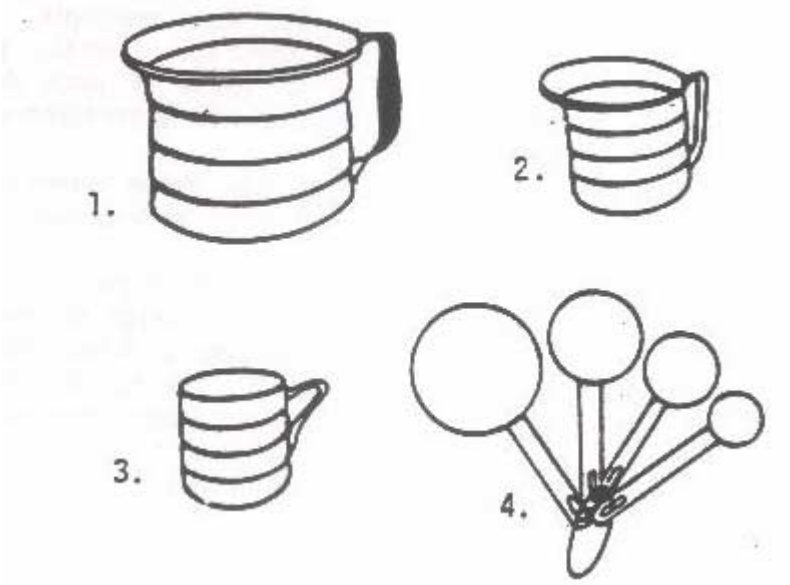
a. Deep-Fat-Frying Thermometers. These thermometers are used to ensure accurate fat temperatures in thermostatically-controlled fry kettles. Deep fat-frying thermometers are equipped with a clip-on device to attach the thermometer to the pan.

b. Meat Thermometers (Dial Roast-Meat Type). These thermometers are designed to use with meats of all types (beef, veal, lamb and pork) and with poultry. Thermometers of this type, inserted deeply into meat muscles, register and accurate inner temperature indicating the degree of meat doneness.

c. Oven Thermometers. These thermometers provide an accurate check On installed thermostats and can locate "hot" or "cold" spots in the oven. It the oven does not have a thermostat, use the oven thermometer to determine oven temperatures.

8. Volume-Measuring Devices and Scales.

a. Measuring cups are graduated standard units of measure. They are available in gallon, quart and pint size. Measuring cups designed to measure liquids are round, have a lip, and generally have a side handle. Measuring cups designed to measure solids, flour, sugar, etc. are also round, do not have a lip, and generally have a handle. See Figure 5-30.



1. One-gallon liquid measuring cup
2. One-quart liquid measuring cup
3. One-quart dry measuring cup
4. Measuring spoons

Figure 3O - Volume Measuring Devices

5-F-8.b. Measuring spoons are accurately calibrated spoons. They usually come with four spoons. These spoons are a tablespoon, a teaspoon 1/2 teaspoon, and 1/4 teaspoon. The spoons have parallel edges to level the ingredients for more accurate measurement. See Figure 5-3O.

9. Balance Scale. The balance scale eliminates guesswork when weighing the ingredients required for a given recipe. Using the balance scale is a must in food production, especially in preparing bakery products. See Figure 3l.

a. Parts.

(1) Weight Disc. The weights are placed on the weight disc when counter-an ingredient placed on the scale pan.

(2) Arms. These hold the scale pan.

(3) Ounce Locator. The ounce locator is manually moved to the desired position on the scale of ounces.

(4) Scale of Ounces. This scale is graduated from 1/4 to 15 ounces. Use it to weigh ounces or fractions of a pound. It is slotted so that you can properly place the ounce locator where you need it for exact weighing.

5-F-9.a.(5) Scale Pan. This pan is used to hold the ingredients to be weighed. Clean it after each use.

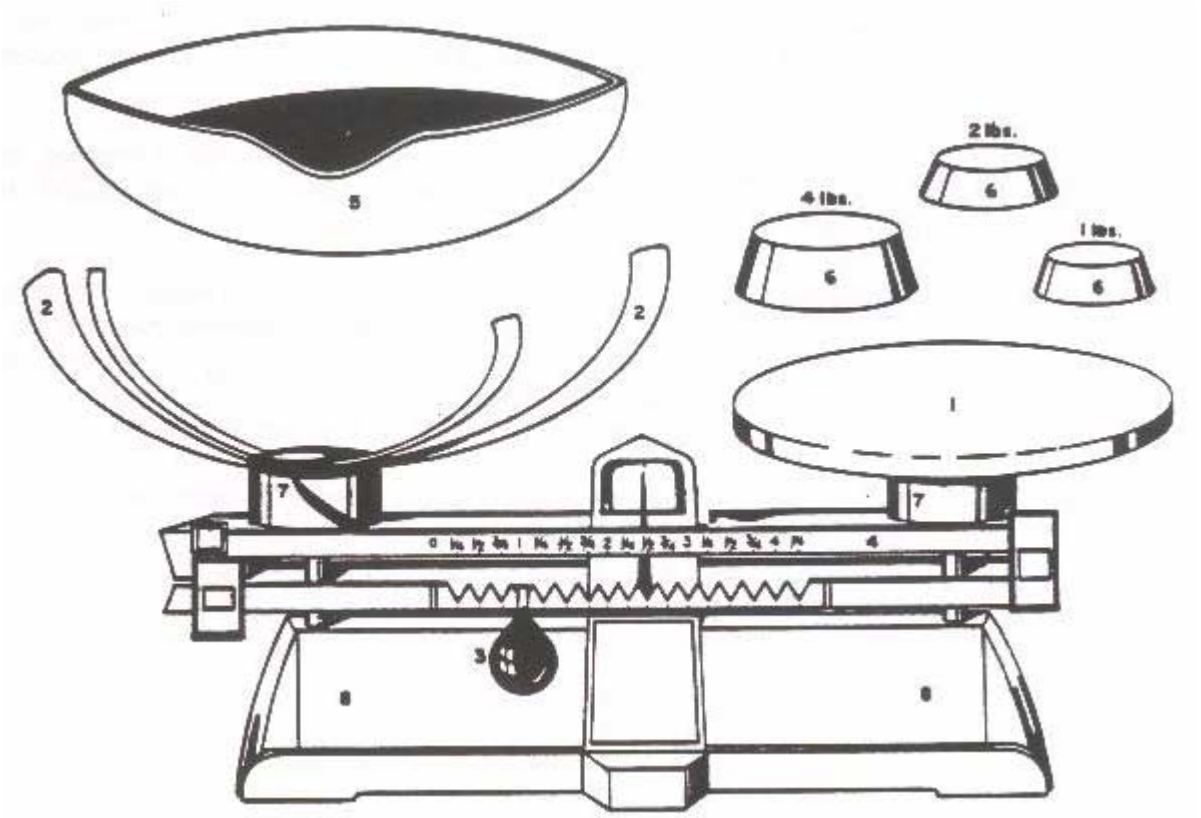
(6) Weights. These come in sizes from I to 4 pounds. They are for weighing ingredients 1 pound and over.

b. Operation. Before weighing anything, check to see if the scale is balanced, the scale pan on the arms and the ounce locator on "0" of the scale of ounces. The scale is balanced if neither pole is touching the base of the frame. Clean the scale pan before you put any ingredient on it. Weigh ingredients as follows:

(1) To weigh 6 ounces of flour, move the ounce locator to the 6 ounce slot on the scale of ounces. This will unbalance the scale, causing it to tilt to the right and touch the base of the frame.

(2) Spoon enough flour onto the scale pan to cause the scale to come to a balanced position.

(3) Remove the flour. Clean the pan and weigh the next ingredient.



1.	Weight Disc	5.	Scale Pan
2.	Arms	6.	Weights
3.	Ounce Locator	7.	Poles
4.	Scale of Ounces	8.	Base of Frames

Figure 5-31 - Balance Scale

5-G. Standards and Menu Costing. Cost is one of the major restrictions imposed on the menu planner. Costing, however, is simplified in the Coast Guard through certain standards.

1. Standards. standards are designed to eliminate human errors and guarantee the same result every time. Efficient food service personnel cook and bake with standard recipes. From these standard recipes, they get standard yields and serve standard portions in a style called a "standard dish-up."

   a. Standard Recipe. A standard recipe is a written formula for producing a food item of certain quantity. If the same amount of ingredients is used and the food is prepared exactly the same way each time, the results will be the same.

   b. Standard Yield. The word "yield" means the actual amount of servable food from a standard recipe. A 20-pound, raw (as purchased) turkey may yield only 12 pounds of actual turkey meat after shrinkage and waste is removed.

   c. Standard Dish-up. "Standard dish-up" is a very simple idea but it is very important. It means putting the food on the plate in the same pattern or arrangement each time. People enjoy a meal much more if it is attractively served with the right combination of placement, quantity and color on the plate.

   d. Standard Procedures. A "standard" procedure means workers use the same routine for doing a job each time it is done. Standard procedures are followed in all well-run dining facility.

2. Costing Standard Recipes. By using a standard recipe, knowing the standard yield to expect from it and serving the standard portions, the CGDF knows exactly how much it costs to prepare and serve a meal.

   a. Figuring Cost per Unit. When a recipe is being standardized for use in a particular CGDF, the cost of all the ingredients needed to make 100 portions is added up to get the total cost of the recipe. The total cost is then divided by 100 to find the unit cost. Knowing the exact per unit cost of a food item assists the menu planner to refigure the per unit cost as these changes occur.

   b. Procedures. Costing menus has a two-fold purpose. The menu planner needs to determine: 1) the total cost for preparing the recipe and 2) the cost per individual serving. To cost a menu, a menu planner uses two basic sources for recording information on the cost calculation worksheet (Figure 5-32): 1) the AFRS card (Figure 5-33) and 2) the Provision Ledger (CG-4246) (Figure 5-34).

      (1) Record the ingredients, quantities and units from the recipe card on the worksheet.

      (2) Compare the unit on the Provision Ledger with the unit on the recipe card.

      (3) If the units are the same, record the unit price from the Provision Ledger on the worksheet and multiply by the quantity to obtain the cost per item.

5-G-2.b.(4) If the units are not the same, compute and record the unit price on the worksheet.

Example:

A recipe calls for 8 ounces of nonfat dry milk and the provision Ledger prices milk as $4.63 per 5 pound can. The menu planner must find out what a pound of milk costs, then how much an ounce of milk costs as follows:

Cost per can	-	pounds per can	-	Cost per pound
$4.63		5		.926
Cost per pound	-	Ounces per pound		Cost per ounce
$.926		16		.0578
Number ounces	x	Cost per ounce	-	Total cost for worksheet
8		.0573		.4624 or .46 (Rounded off)

COST CALCULATION WORKSHEET RECIPE NAME & CARD NUMBER:

INGREDIENTS / ITEMS	UNIT	QUANTITY	UNIT PRICE	COST
Milk nonfat, dry	oz	8	.0578	.4624
Salt	oz	1	.0075	.0075
Sugar, granulated				
Eggs, wide				
Water	qt	21/4	N/C	N/C
Bread, dry, sliced	lb	12	.40	4.80
Shortening				
			TOTAL:	

COST PER PORTION:

Figure 5-32 - Sample Cost Calculation Worksheet

FRENCH TOAST

YIELD: 100 Portions — EACH PORTION: 2 Slices

TEMPERATURE: 375° F. Griddle

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Milk, nonfat, dry Salt Sugar, granulated	8 oz 1 oz 1 lb 8 oz	1¾ cups 1½ tbsp 3½ cups		1. Combine milk, salt and sugar; blend well.
Eggs, whole, slightly beaten	12 lb 8 oz	6¼ qt (125 eggs)		2. Add dry ingredients to eggs; whip.
Water		2¼ qt		3. Add water and mix well.
Bread, dry, sliced Shortening, melted	12 lb 2 lb	200 slices 1 qt		4. Dip bread in egg mixture to coat both sides.
INGREDIENTS	WEIGHTS	MEASURES		METHOD
				5. Place on well greased griddle; fry on one side until golden brown. Turn; fry on other side until golden brown. 6. Serve immediately.

Figure 5-33 - AFRS Card

STOCK NUMBER		ARTICLE
8910-00-285-1722		Milk, nonfat, dry
PACKAGING DATA: 6 5-lb. cans	UNIT: cn.	UNIT PRICE: $4.63

STOCK NUMBER		ARTICLE
8950-00-262-8886		Salt, table
PACKAGING DATA: 12 5-lb. bags	UNIT: lb	UNIT PRICE: $.12

STOCK NUMBER		ARTICLE
8920-00-753-5776		Bread, white, sliced
PACKAGING DATA: As needed	UNIT: lb.	UNIT PRICE: $.40

Figure 5-34 - Sample From Three Provision Ledgers (CG-4246)

5-G-2.b.(5) Alter alt computations are completed and the total cost of each item is entered on the worksheet, add the total costs of all individual items together to obtain the total cost for the recipe rounded of I to the nearest whole cent.

(6) Since the AFRS is based on 100 portions, the cost per portion is determined by dividing the total cost of the recipe by 100.

H. Food Preparation Worksheet.

1. Purpose. The Food preparation Worksheet (NAVSUP 1090) will be used by CGDF's having three or more subsistence specialists to account for food items issued. The worksheet is a valuable management tool to provide subsistence personnel with daily written instructions of food preparation, service, conservation, food acceptability and a reliable future reference. The Food Service Officer must establish daily controls to account for and file each NAVSUP Form 1090. See the sample worksheet in Figure 5-35.

2. Preparation. The senior subsistence specialist prepares the food preparation worksheet. Include the number of rations allowed and the predicted attendance for each meal, basing predictions on experience, historical acceptability and considering all aspects that will alter the attendance, i.e., weather, pay day. The watch captains review and sign the worksheet before going on watch, and must follow instructions for preparing each meal.

3. Entries on NAVSUP Form l090.

a. Heading Entries.

(1) Activity. Name of unit with CGDF.

(2) Reviewed by (signature). Signature of Food Service Officer after reviewing completed worksheet.

(3) Senior Subsistence Specialist. Signature of senior subsistence specialist.

(4) Document Number. Assigned from Document Number Control Log.

(5) Reviewed and Received by. Signature of watch captain after review to acknowledge receipt of NAVSUP Form 1090.

(6) Day. Day of the week.

(7) Date. Calendar date of preparation.

(8) Reviewed and Received by. On days of watch relief, the watch captain assuming the duty must also sign the NAVSUP Form 1090.

(9) Allowed. The total number of enlisted billets assigned to your unit.

(10) Percentage. Actual fed divided by allowed rations to find daily attendance rate.

FOOD PREPARATION WORKSHEET (4601)
NAVSUP FORM 1090 (REV. 1-89)

ACTIVITY	REVIEWED BY (Signature)	DOCUMENT NO.	DAY	DATE
USCG Base York River	CWO E. G. RE ELY CHIEF CORPS SERVICE SPEC. USCG B. C. CA HUELA	10-001 REVIEWED & RECEIVED BY 661 Jones P. Watch Capt.	Monday REVIEWED & RECEIVED BY SSI MITH S. Watch Capt.	10-03-83

MEAL	ALLOWED	%	PROJECTED	ACTUAL
Breakfast	300	55	175	167
Lunch	300	81	250	242
Dinner	300	54	175	162

	RECIPE CARD	MENU ITEM	PORTIONS TO PREPARE	ACTUAL PREPARED	INSTRUCTIONS	START PREPARATION	START COOKING	PORTIONS LEFT OVER	ACCEPTABILITY %	COMMENTS/DISPOSITION OF LEFTOVERS: PREPARED	COMMENTS/DISPOSITION OF LEFTOVERS: UNPREPARED
BREAKFAST		Amst R. T. E. Cereal	65								
	F-7	Fried Eggs to order	100	80	Crack 2 eggs per bowl; cook to order	0515	0630	05	65	For garnish	Next breakfast
	D-25	Pancakes	100	90	Cook in 20 portion batches	0545	0625	10	60	Discard	Discarded
	L-2-1	Bacon Oven Fried	85	85	Cook in 3 batches, drain well	0545	0600	5	68	For garnish	
	L-71-	Grilled Ham slices	65	58	Grill with line	0545	0625	7	31		For salad bar
	Q-46-	Potato Hashed Brown	75	75	Cook in 25 portion batches	0530	0610	5	42	Use w/reg menu next day	
LUNCH	P-8	Bean Soup	180	180	Step 3 use smoked ham hocks	0600	0615	6	72	Discarded -	ell accepted
	L-56	Grilled Beef Burgers	150	140	Grill with line; honor patrons' request	1030	1050	10	58		return to inv.
	L-83	Baked Pork Chops	100	100	Drain excess fat serve immediately	0945	1010	4	40	Save for frie	rice
	L-18	Natural Pan Gravy	60	60	Add Pork Gravy base to taste	0950	1000	6	22	Save for chop	suey
	Q-45	Potato French Fries	130	120	Apply progressive cooking. 10 portions per batch	1040	1050	15	68	Discarded	return to inv.
	Q-57	Mashed Potato	60	60	Prepare in 20 portion batches	1030	1015	5	23	Discarded	
	Q-80-	Broccoli Cora & Carrots	150	150	Don't overcook; apply progressive cooking; 30 portion per batch	1020	1040	0	62	Short 5 portions.	Carved w/k corn.
DINNER	P-7	Beef Vegetable Soup	90	90	Use soup & gravy beef base & dehy onion	0930	0950	3	54	Discarded	
	L-28	Chili Con Carne	140	140	Use canned kidney beans	0730	0800	2	85	Discarded - w	ll accepted.
	L-116	Simmered Frankfurters	35	30	Prepare in 5 portion batches	1030	1045	5	19		return to inv.
	E 5	Steamed Rice	100	100	Use the oven method	1000	1010	10	56	Save for frie	rice
	Q-2	Baked Beans	30	30	Substitute brown sugar with molasses	0930	0940	0	19	Ran out of 5	portions
	Q-7	Mayonnaise Green Beans	100	80	Apply progressive cookery 20 portion per batch. Omit salt. Sisters choice.	1030	1045	20	49		returned to inv.

Figure 5-35 - Food Preparation Worksheet (4601)(NAVSUP Form 1090)

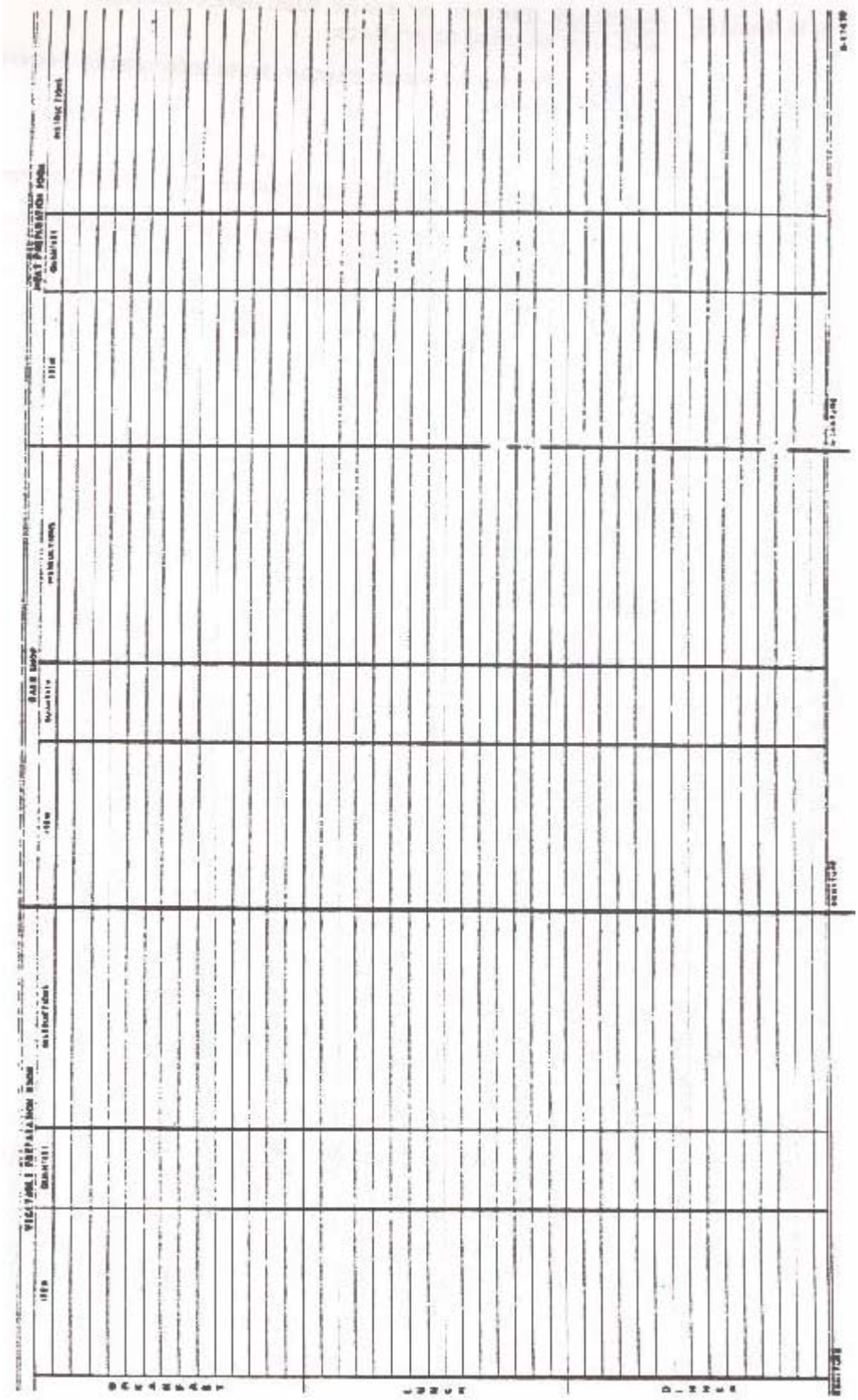


Figure 5-35 – Food Preparation Worksheet (4601)(NAVSUP Form 1090)Continued

5-H-3.a.(11) Predicted. Entered by senior subsistence specialist from historical records kept on meal attendance.

(12) Actual. Entered by watch captain from information received from CGDF master-at-arms.

b. Column Entries.

(1) Recipe Card. Insert recipe card number from AFRS or local recipe index.

(2) Menus. List the menu items to be prepared, including any leftovers to be served, in this column. Do not include items such as crackers, breads, jelly or beverages. Service of these items in the galley or serving area.

(3) Portions to prepare. Based on historical acceptability percentage data.

(4) Actual prepared. Portions actually prepared as computed by watch captain.

(5) Instructions. specific instructions on preparation and service. Do not use instructions such as "prepared according to recipe card."

(6) Start Preparation. Information from recipe card and local meal hours will determine this time.

(7) Start Cooking. Same as (6).

(8) Portions Left Over. The watch captain makes this entry after the meal. Entry includes both prepared and unprepared portions not served.

(9) Acceptability Percentage. Completed by senior subsistence specialist. Actual prepared minus leftovers divided by actual meals served.

(10) Comments. The senior subsistence specialist or watch captain will comment on prepared and unprepared products, i.e., returned to inventory, discarded, etc., include reason for short or excess preparation.

c. Vegetable Preparation Room. Enter the type of vegetable, quantity, method or preparation (diced, sliced, etc.) and the preparation time. At the end of the day the subsistence specialist assigned must sign to indicate all instructions were followed.

d. Bakeshop. Enter the bakery product, number of portions, items issued to serving line or bakeshop and any leftover after the meal. Note special instructions for time, portion size, garnish, cutting and serving. At the end of the day the baker must sign to indicate all instructions were accomplished.

e. Meat Preparation Room. List the meat items quantity and any specific instructions. When completing this section review meat items on the menu two to three days ahead to allow frozen meats proper thawing . The responsible subsistence specialist must sign at the end of each day's work.

4. Daily Analysis. At the end of each day, forward the completed NAVSUP Form 1090 to the Food Service Office for signature and in-depth analysis. Any questionable entries or results which may indicate wasteful practices in food issues or preparation, such as excessive leftovers or insufficient yields, etc., will be investigated and corrected entries be made.

5-I. Battle Feeding. The methods of subsisting gun crews and other personnel during extended periods at general quarters vary according to the Size and type of unit involved. Each ship or station must develop battle subsistence plans based on its own needs.

1. On-Station Feeding.

   a. Combat Meals. Individual prepackaged combat meals require no preparation and are procured for distribution to battle stations when required. Monitor this system constantly to ensure combat meals are not eaten during nonemergencies and proper stock rotation is practiced.

   b. Use of Central Distribution Points. Battle menus are prepared and food served from the galley or other central distribution point(s) to representatives from each battle station. These menus may be supplemental to the combat meals, or (if watertight integrity conditions permit) may be used in lieu of the prepackaged items. Make food carriers, racks, trays, and large coffee pots should be available for this type of feeding.

2. Galley Feeding. Where it is possible to relieve personnel individually or by groups from their battle stations, permit these personnel to go to the galley or to other auxiliary feeding stations for hot food. In many instances, the requirement to preserve watertight integrity make access to the galley impossible; set up various auxiliary feeding stations in that event.

CHAPTER 6

BASIC PRINCIPLES OF FOOD PREPARATION

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CHAPTER 6. BASIC PRINCIPLES OF FOOD PREPARATION

A. Functions of Food Materials. Although some ingredients may vary in form, style or state of preservation, their functions are consistent in preparing different products. Included in this group are:

1. Eggs and Egg products. Egg's high protein content is responsible for their ability to thicken, bind pieces of food together, emulsify, and provide an "elastic" film so air is incorporated for leavening.

a. Thickener and Emulsifier.

(1) Egg helps thicken sauces, custards and puddings, and acts as an emulsifier in cooked salad dressings. How fast it "sets" depends on the:

(a) Proportion of yolk to white.

(b) Amount of Liquid diluting the egg.

(c) Presence of sugar, acids or salts in a mixture.

(2) If a large amount of liquid is present, the mixture can be cooked at a higher temperature for faster thickening. If sugar is present, as in custard, the mixture tends to be thinner and requires more time to set. On the other hand, the more salt and acid present in salad dressing, the lower the set temperature. Egg whites thicken faster than egg yolks.

b. Leavening and Structure.

(1) Omelets, meringues and flour mixtures, such as chiffon cakes and crest puffs, depend mostly on eggs for the structure and support needed to incorporate air which leavens them.

(2) Egg whites are thick; they have a consistency capable of forming foam and incorporating air when whipped or beaten. The longer egg whites are whipped, the more finely divided the air bubbles become and the finer the structure of the foam.

(3) Egg-white foams are affected to a great degree by the freshness and temperature of eggs and how long they are whipped. Eggs whip more efficiently above room temperature. If the foam is to remain stable, not separate or leak, do not beat it the maximum time. Adding substances also affects the whipping properties of egg whites. Fat will prevent foam formation, whether the fat is from the egg yolk or Iron added milk, cream or butter.

(4) Add sugar to well beaten egg whites to increase the foam's staDt1Ii When preparing pie meringues and chiffon cakes, this is a crucial point in production because entrapped air must be retained for proper leavening action during baking.

c. Types of Eggs.

(1) In addition to fresh, shell eggs, the Coast Guard also buys frozen white eggs and dehydrated egg mix.

6-A-l.c.(2) Generally, frozen whole eggs (bakery type) may be used in all recipes where baking is specified. When eggs are frozen, there is no change in moisture content; therefore, frozen whole eggs or whites may be substituted for an equal weight of shell eggs or whites.

(3) Dehydrated egg mix is composed of whole egg, concentrated skim milk and vegetable oil. Because of its weight and space-saving characteristics, dehydrated egg mix is an excellent item for military use4 It can be substituted for fresh or frozen eggs in many breakfast dishes, breads, pastries, cakes and desserts.

(4) Dehydrated egg mix must be reconstituted before use where specified in recipes; however, the egg mix can be silted along with dry ingredients in many recipes. Then add the amount of water necessary to reconstitute the eggs to the total liquid in the recipe.

(5) Use the entire can of dehydrated egg mix as soon as possible after opening. Cover tightly and refrigerate partially used containers. Use reconstituted eggs within one hour unless refrigerated. Do not hold overnight.

(6) Dehydrated egg mix is not well adapted to uses where their foaming properties are important, for example, in sponge cakes.

2. Fats and Oils.

a. Types of fats. The types of fats and oils used in the Coast Guard Dining Facility(CGDF) are:

(1) Butter
(2) Salad oil
(3) Shortening compound
(4) Margarine

b. Fat Function.

(1) Fats have specific functions in food production and must be used as recommended to obtain satisfactory end-products. See Figure 6-1.

(2) Differences in appearance, consistency and flavor characteristics are readily noticeable. Fats are ordinarily solid at temperatures of 64F-77F, while oils are liquid.

C. Decomposition of Fats.

(1) The spoilage or breakdown of fats and oils occurs rapidly under conditions where there is moisture or air. These conditions cause fats to decompose or disintegrate into fatty acids. Unpleasant odor and flavor are not always associated with this breakdown because of the fat's chemical makeup. Some fats, such as butter, smell and taste rancid because of improper storage. Fats can be protected from decomposition by excluded air and light, and keeping them cold.

FAT/OIL	USE	FAT/OIL	USE
Butter.....	Spread for bread Frostings and icings Cream sauces Dessert sauces Vegetable seasonings Cakes and cookies (some recipes) Pan frying or sauteing	Shortening compound (general-purpose-type)	Quick breads Deep-fat frying Cakes / Cookies Sweet dough Bread Pie dough Sauces for meat Sautéing meats
Margarine.....	Same as butter	Shortening compound (deep-fat cookery-type)	Deep-fat frying
		Salad oil.....	Mayonnaise Salad dressings
Shortening compound (bakery, emulsifier-type)...	Cakes		Cakes

Figure 6-1 - Recommended Uses for Fats and Oils

6-A-2.c.(2) When fats are heated to high temperatures, such as frying, other changes take place causing them to decompose. If fat is heated to long, a vapor or fume rises from it. This point is referred to as the "smoke point" of fats, and varies according to the type of fat used.

(3) Shortening compounds contain vegetable and animal fats and have a lower fatty acid content than butter. These compounds have a higher smoke point and are more adaptable for frying. For best frying results, follow the recommended temperatures for deep-fat frying in the Armed Forces Recipe Service (AFRS).

d. Plasticity. Plasticity refers to the shortening's ease of blending. Fats vary in their degrees of hardness or plasticity, depending upon whether oil or soft fat has been used. Plasticized fats are creamed and can easily be worked into flour, as in pie dough, or they readily combine with sugar to produce a creamy texture.

c. Butter. Butter is made from pasteurized cream separated from other milk constituents by churning. Butter is procured in 1-pound prints, four prints of 1/4 pound each, and in two styles of patties Butter is used most often as a spread but there are many other uses in food preparation. Butter burns very quickly with intense heat. Do not use butter for deep-fat frying; however, it is excellent when used in Sauteing.

f. Shortening Compound. Shortening compound is prepared from deodorized animal or vegetable fats or oils. General purpose shortening is intended for many uses in food production, Bakery (emulsifier) type is intended for specific use in cake baking or preparation of some types of frosting. Use deep-fat cookery-type for deep-fat frying only. Butter and shortening have a uniform plastic texture and are workable at a range 65F – 95F, Do not substitute general-purpose shortening in recipes specifying bakery-type shortening.

6-A-2.g. Salad Oil. Use salad oils for salad dressings and when specified in particular recipes, such as easy chocolate cake.

3. Flour.

a. Flour is a mixture of protein, starch and other materials. This mixture, when combined with moisture, forms gluten, which gives doughs and batters texture. The elasticity of dough is due to a gluten which expands and holds the gas bubbles given off as yeast ferments in the dough.

b. There are several kinds of wheat flour, and each is suitable for particular products. Hard wheat and soft wheat flours are used in the CGDF. Hard wheat flour is strong in gluten content, whereas soft wheat flour is not. strength of flour to hold gas is less desirable in cakes. As a result, hard wheat produces the best bread flour, while soft wheat's produce flour suitable for cakes and cookies.

4. Leavening Agents. A substance used to produce fermentation or gas bubbles is a leavening agent.

a. Baking powder.

(1) The type of baking powder used by the CGDF is sodium-aluminum sulfate and orthophosphate, two acid materials, plus sodium bicarbonate with a cornstarch filler. This type of baking powder is "double" acting; that at. one acid material acts on the sodium bicarbonate to produce gas bet ore the mixture is heated in the batter stage, and the other acid material reacts when heated.

(2) When mixing any type of product containing baking powder, it is important the cook realize that some loss of gas may occur at room temperature, either during mixing, panning or while standing before baking. The combination baking powders lose less gas before baking than other types do. All quantities of baking powder specified in the AFRS are based on the use of double-acting types; however, it is important that any mixture containing baking powder be mixed for the period specified on the recipe and baked as quickly as possible.

(3) Other quality problems in baking powder use are careful measuring and mixing. Lumpy powder can be eliminated by sifting with the flour, and better distribution of the baking powder will produce a more uniformly textured product. Too much baking powder or unevenly distributed powder will produce brown spots on the crust of cookies, biscuits, cakes, etc.

b. Baking Soda. Measure soda accurately for best results in baking. Too much leave a residue in the baked product causing a disagreeable flavor and poor color.

c Yeast. Carbon dioxide is the major leavening agent in breads and rolls. It is produced by tiny yeast plants that use sugar for food. The leavening process with carbon dioxide, however, is much slower than with chemical leavening agents. To a certain degree, this time factor can be controlled by using more yeast or by adding more yeast food to the mixture.

6-A-4.d. Steam and Water Vapor. Steam has leavening capability when used in combination with beaten eggs. Steam is obtained by the moisture vaporizing in a product as it is being baked and will expand to many times its original volume. Products containing moisture are easier to leaven by steam. Steam is the principal leavening agent of cream puffs, but in products like yeast-raised doughs, the proportion of liquid to flour is relatively small; consequently, there is practically no leavening by steam or vapor.

e. Air. Air combined with beaten whole eggs is the chief leavening agent used in omelets and sponge cakes. Some air may be incorporated into other ingredients such as sifted flour or creamed fat and sugar.

5. Milk and Milk Products.

a. Spoilage Characteristics of Milk.

(1) Milk is a relatively unstable product. Under some conditions in quantity food production, sauces and other products containing milk may undergo a change in texture, appearance or flavor. This is particularly true for products held for long period of time.

(2) All milks-fresh, dried, frozen and canned-react to high degrees of heat. Milks are heated during the various stages of processing. All fresh milk used in the CGDF is subjected to heat in pasteurization; however, this process has a slight effect on its cooking properties. Dried and canned milks of all types are heat processed during manufacturing but they produce minimum change when incorporated in cooked products because the processing treatments stabilize the milk.

b. Factors Affecting Milk in Cooking.

(1) Usually, it is the excessive heating of products containing large quantities of milk, at high temperatures during cooking, that changes the products.

(2) The most familiar sign of the cooking change is the "skin" that forms on the top of milk as it cooks. Other factors contribute to the effect of heat on products containing milk, producing curdled or watery cooked dishes. The following substances or techniques are included in this category:

(a) Acid. If milk is not kept fresh and sweet, it tends to be more acidic and curdles when heated. The addition of an acid ingredient in a recipe (tomato or lemon juice or other fruits) also hastens curd formation. Curdling is greatly accelerated by high heat.

(b) Salt. The combination of milk and salted meats, as in creamed chipped beef or scalloped ham dishes, produces a mixture with watery appearance if overheated. Weeping custards and sauces also result if overcooked or if high temperatures are used on products containing sugar-milk combinations.

(c) Agitation. Failure to stir mixtures containing milk will hasten curdling; on the other hand, over-stirring will also result in curdling. Stir as directed on recipes.

6-A-5.c. Using Different Kinds of Milk for Specific Cooking Purposes. Conventional nonfat dry milk style B, and evaporated milk are recommended for cooking. Use other milks as needed, and note particular points in using all milks in food products.

(1) Fresh, Whole homogenized Milk. In a product containing high amounts of fat, such as in rich sauces, a slight fat separation from flour starch and other ingredients blended into the mixture may occur.

(2) Evaporated Milk.

(a) Evaporated milk, substituted for other types of milk, changes the texture or consistency of a product. This milk, even though diluted, makes a thicker white sauce than reconstituted nonfat dry milk. Evaporated milk produces dishes with a creamier texture than similar products made from whole milk. Evaporated milk appearing with a fat separation or set before dilution has been:

1 Exposed to excessively high temperature during transit or storage prior to delivery.

2 Improperly processed at point of origin.

(b) Do not use milk for preparing cooked dishes if it shows fat separation or if a brown discoloration appears. Dark-colored milk usually indicates exposure to excessive heat during storage or it could be due to overcooking or scorching during processing.

(c) Evaporated milk is sometimes used undiluted, such as in recipes that require cream.

(3) Dry Nonfat Milk, Conventional Types. Weigh all dried milks instead of measuring. Use dry nonfat milk style A for bread baking only. Adding this style of dry milk produces a binding effect on the flour protein. Lactose (milk sugar) helps regulate crust color and flavor, and improves the retention of moisture in the baked bread. Nonfat dry milk style B may be used in cooking or for beverages. Fat may be added to recipes it desired. Follow the table of milk equivalents in the AFRS. If batters appear thin, allow them to stand a few minutes. Do not increase flour in recipes to obtain a richer and thicker product.

6. Flavoring Agents. Dissolve flavoring agents, including maple, vanilla, orange and in alcohol, oils or glycerin. Add flavoring agents to partially or completely cooled foods to reduce flavor loss from the heat and steam. Measure extracts carefully just before using. All types are used in relatively small amounts because of their concentration. vanilla and lemon flavorings are most frequently used in baked desserts and puddings, ice cream and sweet sauces.

7. Starch Cookery. Starches have a major role in cooking and are used as thickening agents in many products.

a. Characteristics of Starch Products. Starches differ widely in chemical properties and produce different results in combination with other ingredients. The thickening action is caused by the swelling of the tiny grains or granules of a starch. These granules differ in size and shape according to the plants from which they are taken.

6-A-7.a.(l) Use the correct proportions of water to starch, fruit juice to starch, or fat to starch and cook the mixture to the right consistency. This will eliminate the possibility of the starch particles lumping together and preventing the mixture from reverting to a liquid alter cooking.

(2) When a starch has been combined with a "separating" mixture and hot liquid is added, the granules begin to swell to many times their original size. This swelling process is referred to as gelatinization. The point the mixture completely thickens depends on the heating temperature, the type of starch used, the length of time it is cooked, the nature of the other ingredients in the mixture, and on the amount of stirring it receives.

(3) Starch products will gelatinize more slowly when large amounts of sugar are included. Stirring helps distribute starch particles in the early stages of the cooking period, but does not speed up the thickening action and may, in tact, decrease thickening if too vigorous.

(4) Acid ingredients also affect gelatinization of starch. A cook who has experienced a lemon pie filling or salad dressing that will not thicken recognizes this problem. High concentrations of acid ingredients will prevent the starch from setting. The most practical way to control this problem is to add the acid ingredient after the starch has gelled. This procedure can be noted on applicable recipes.

(5) Undercooking and overcooking affect texture, consistency and flavor of starch mixtures. Cornstarch mixtures will completely gelatinize at about 2000F, but if allowed to reach boiling temperatures, a more agreeable flavor results in pudding or sauce mixtures.

(6) Control the thickness of a mixture containing starch by adjusting the amount of starch to the liquid. When substituting one type of starch for another, remember the thickening power of starches also differs. Pre-gelatinized starch varies in thickening power according to other ingredients with which it is combined and, thus, cannot be ranked in its degree of thickening in relation to other starches.

b. Cornstarch.

(1) Two major differences can be observed in using cornstarch in place of flour to thicken a mixture: 1) the resulting paste is more translucent or clear; 2) half as much cornstarch as flour is needed to thicken a given amount of liquid. These two important properties make cornstarch a desirable thickener for dessert sauces, pie fillings or in other products where color and appearance of the "gel" must remain unchanged.

(2) Mix cornstarch in cold liquid or fat or with sugar before adding to hot liquid. Stir while cooking to get maximum thickness. Thickness increases when cooling. Heating with an acid causes thinning as do high concentrations of sugar.

c. Flour. Hard-wheat flour is used as a thickening for thin soups; thick, thin and medium white sauces; gravies; some puddings; and a few pie fillings. Twice as much flour as cornstarch is needed to thicken liquid. Flour makes a more cloudy gel than cornstarch. Use the same precautions in mixing for flour-thickened mixtures as for cornstarch.

6-A-7.d. Tapioca.

(1) Tapioca is made from cassava root flour, mixed into a dough, pressed into various shapes and baked. The granulated form of tapioca is available in small and medium sizes for CGDF use. This type does not require a soaking period because it is made from a cooked dough and is already gelatinized.

(2) Tapioca is used for puddings and other desserts, particularly as a thickener for pie fillings. About three tablespoons per pint of liquid will thicken the fruit juice. Granulated tapioca can be mixed in cold or hot liquid. The mixture thickens as tapioca particles swell and become transparent during cooking. Guard against overstirring during cooking because tapioca tends to become gummy or rubbery.

e. Pregelatinized Starch (Cold-Water-Soluble).

(1) Pregelatinized starch requires no boiling period to thicken the starch-sugar-water (and/or juice) portion of the filling and may be used for thickening fresh, canned or frozen fruit fillings. This method of incorporating ingredients when using pregelatinized starch is:

Step 1: Blend pregelatinized starch, sugar and other dry ingredients until smooth with no lumps.

Step 2: Combine liquids and starch-sugar mixture. Blend until smooth.

Step 3: Fold in well-drained fruit and any remaining liquids.

Step 4: Place filling in unbaked pie shells and bake for the required period. Cool; use the fruit pies as soon as possible.

(2) Pregelantinized starch is simpler to use than other types of thickeners because two time-consuming steps are eliminated in the thickening process; 1) heating and boiling are not necessary to obtain a thickened mixture and 2) a cooking period is not necessary before adding fruit. Fruits remain whole and attractive and retain a more uniform texture when not cooked before baking in the oven. The finished filling bas excellent clarity and smooth color.

3. Sugars and Syrups.

a. Solid or Crystalline Sugars.

(1) As used in recipes, the term `1sugar" refers to white beet or cane sugar or sucrose. This sugar is "granulated" referring to the size crystal or grain particles.

(2) "Fine granulation" sugar is standard for general recipe use. The other milled forms of sugar have special use for sweetening cold drinks and in commercial cake production because they are more soluble. "Confectioner's" or "powdered" is granulated sugar crushed and screened to a desired fineness. This sugar is used in uncooked icings, glazes, frostings and as a topping.

6-A-8.a.(3) "Brown" sugar is raw sugar obtained from refiner's syrup remaining after the removal of white sugar crystals. Brown sugar, designated as "light," "dark" or "old-fashioned" brown, is named according to its characteristic color. The darker the color, the more concentrated the refiner's syrup. The different colored sugars produce specific flavoring effects in cooked dishes.

b. Blended Corn and Refiner's Syrup, Molasses and Honey.

(1) In addition to the solid sugars a number of syrups have important uses in food production. The principal one used is blended syrup which flavors the product. Refiner's syrup is a by-product of manufacturing beet or cane sugar clarified so it is colorless.

(2) Molasses is made by drawing off the liquid from a step in the process of making solid sugar from can or beets. Light-colored molasses contains a higher percentage of sugars than dark-colored molasses and has a milder flavor. Corn or cane syrup flavored with imitation maple is a popular item used for pancakes and fritters.

(3) Honey is the nectar of plants gathered by honeybees. The term “honey," as used in cookery, refers to extracted honey.

c. Functions of Sugars and Syrups in Cookery. In addition to sweetening, sugars and syrups have a prominent place in food production as in Figure 6-2.

Food Product	Function
Fruits	Prevents breaking up during cooking because it toughens cellulose.
Batters and doughs	Affects flour gluten. Enhances keeping qualities of baked products. Aids browning of all flour mixtures.
	Blended syrups prevent formation of large sugar crystals.

Figure 6-2 - Functions of Sugar

d. Stages of Sugar Cookery.

(1) In all products containing sugar, it is extremely important the sugars and syrups be accurately measured and weighed.

(2) Solutions containing sugar and sugar products are used constantly in cooking, so it is necessary to understand their reactions. Sugars absorb heat when dissolved in water and are more soluble at higher temperatures. This is important when making simple syrups for sweetening fruits or fruitade drinks, or for cake frosting production.

6-A-8.d.(3) Properly cooked sugar solutions or syrups do not have crystals, and the sugar is completely dissolved. Any crystals remaining tend to attract additional crystals; therefore, the solid sugar mass will continue to build up. Sometimes it is necessary to wash down the sides of the kettle with a wet cloth or cover the kettle so steam can melt any crystals forming.

(4) Sugar solutions are cooked to concentrate the mixture to the right stage for a particular purpose. The cooked stages are designated by the state of the mixture as "thread," "soft ball," "firm ball," etc., up to and including the "caramel" stage when the sugar turns brown and becomes syrupy. The most accurate means of measuring cooked stages of sugar solutions is by using a candy thermometer. Sugar temperatures are in the AFRS.

B. Vacant.

CHAPTER 7

FOOD PREPARATION

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CHAPTER 7. FOOD PREPARATION

A. Meat. To plan meals properly, subsistence specialists must have a thorough knowledge of the cuts and styles of various meats, fish and poultry. Meat is the flesh of any animal used for food. It is, however, generally used to mean beef, pork or lamb. Meat, poultry and seafood offer excellent nutritional benefits. These foods constitute a major share of the total ration dollar spent. Although some cuts or styles are expensive, many are economical to serve.

1. Meat Terminology.

a. Variety Meats. Variety meats include liver, heart, sweetbreads, tongue, tripe, and other edible glands of meat animals. The variety meats are all excellent sources of high quality protein, the B vitamins, iron and phosphorous. In addition, liver is high in vitamin A.

b. Liver. Military procurement of liver is limited to beef liver because this is the largest and most flavorful of the edible organs of meat animals. The cost of veal and calves' liver is usually higher than beef liver, and military procurement of these meats is limited to commissary resale.

c. Meat Food Products. These are products derived from any edible portion at meat animals in combination with other ingredients. Examples of meat food products are chili, corned beef hash, soup and gravies.

d. Processed Meat. These meats include dried beef, smoked and cured meats. and especially, canned meat items. Other types of processed meats are given in the example below.

Example: Corned beef
Sausage
Bologna
Salami
Frankfurters
Liverwurst

e. Completely Fabricated Meat. These meats are completely boned and and have been pre-cut into portion sizes or into roasts. All types of meat procured for the Coast Guard Dining Facilities (CGDF) are fabricated to some extent. Examples: Boneless pork loin and boneless loin strip.

f. Semifabricated Meat. Semifabricated meats have had some (one or more) bones removed to reduce the bulk weight and to facilitate cooking and serving. These meats are also trimmed of skin and excess fat. Examples: Smoked ham and standing rib roast.

g. Marbling. This is the intermingling of fat with lean muscle tissue. Adequately marbled meat is juicier and generally more tender.

2. Meat Inspection.

a. All meat procured for the armed forces is inspected and graded, and is procured from meat packing plants that operate under federal inspection regulations of the U. S. Department of Agriculture (USDA). This inspection

certification indicates the meat is wholesome and has been processed under sanitary conditions.

b. After products are inspected, stamps are imprinted on the meat to show compliance with federal specifications. Subsistence personnel must become thoroughly familiar with these stamps. See Figure 7-1.

Figure 7-1 - Inspection Stamps

3. Beef. Beef is the flesh of mature animals. Good to top quality beef has a moderate fat covering over most of the exterior. The lean is firm, velvety in appearance, and fine in grain.

a. Quality Grades of Beef.

(1) Briefly defined, "meat grading" is a system of classifying or sorting meat by quality classes. See Figure 7-2. Grades are intended as guides to meat quality and must not be regarded as absolute because there are differences in the same cut of meat of The same grade. Grading standards, however, may be relied on for an index of palatability. high-grade beef, for example, is more palatable than low-grade beet. There are few exceptions. Use the grade codes as guides, but exercise individual judgment in how the meat is used.

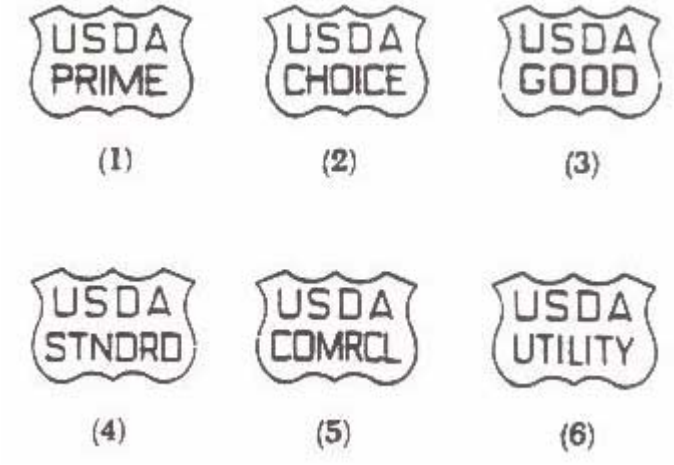
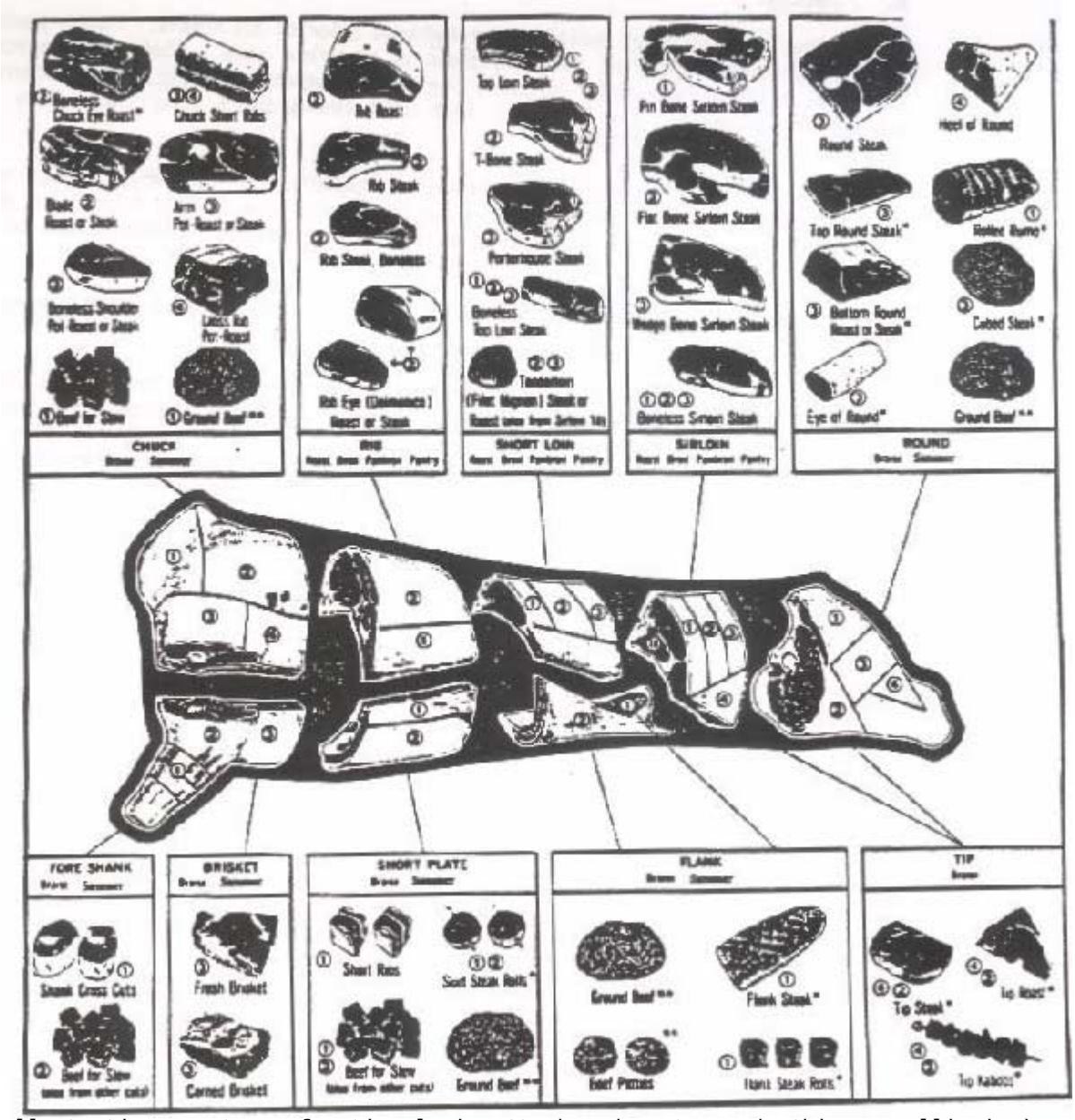


Figure 7-2 - Quality Grade Codes for Meat from Top Quality (1) to Least in Quality (6)

(2) Beef is graded as prime, choice, good, standard, commercial, and utility. Armed forces generally purchase only choice or good grades. Ground beef and beef tenderloins, however, are ungraded.

7-A-3.a.(3) Choice grade meats are tender, juicy and flavorful. Good grades of beef are not quite as tender, juicy or flavorful as choice grade, but if the proper preparation methods are used, an acceptable product is produced. Good grade beef has less fat marbling than choice or prime grade beef.

b. Retail Cuts of Beef. Figure 7-3 illustrates retail cuts of beef, where they come from and how to cook



(Illustration courtesy of National Live Stock and Meat Board, Chicago, Illinois.)

Figure 7-3 - Retail Cuts of Beef

7-A-4. Veal. Veal is immature beef. The faint red or pink color of lean veal is the best way to distinguish it from beef; sometimes it even has a grayish-pink hue. Lean beef is a deep, brighter red. Veal has little or no fat streaks through the lean meat, but the meat texture is velvety and the flesh tender and watery.

a. Quality Grades of Veal. Veal is also graded by the USDA. The top grades (prime, choice, good or standard) are purchased for the CGDFs.

b. Vacant.

5. Pork. The flesh of hogs (pork) is the lightest color of all meats. Young pork is a grayish pink; the meat of older animals is a darker pink. Most pork procured, however, is of uniform color because hogs are slaughtered young, usually from 6 to 12 months of age. The flesh is firm and fine-grained, and there is a good intermingling of fat and lean.

a. Quality Grades of Pork. Pork is USDA inspected and graded, but grade marks are not indicated on the meat for consumer use. The difference in the tenderness, juiciness and flavor or the different grades of pork is not as great as for beef.

b. Retail Cuts of Pork. Figure 7-4 illustrates retail cuts of pork, where they come from and how to cook them.

(1) Boston Butt. This cut is the portion of the skinned fresh pork shoulder remaining after the "picnic ham" is removed. The Boston Butt has most of the bladebone remaining but the excess fat is removed. This cut is not cured or smoked. It is used for preparing a number of entrees where moist heat is used. Examples are sweet and sour pork and pork chop suey.

(2) Loin Roast. Pork loins are prepared in a variety of ways using moist and dry heat methods. The kinds procured are:

(a) Bladeless: The portion of the loin remaining after removing the bladebone and cartilage.

(b) Boneless: A completely boned loin cut in half; the two halves are bound together to form a roast.

(c) Boneless slices: 2 1/2-or 5-ounce slices of the boneless loin.

(d) Boneless breaded pork cutlet: 4 112-ounces flaked cut pork slices.

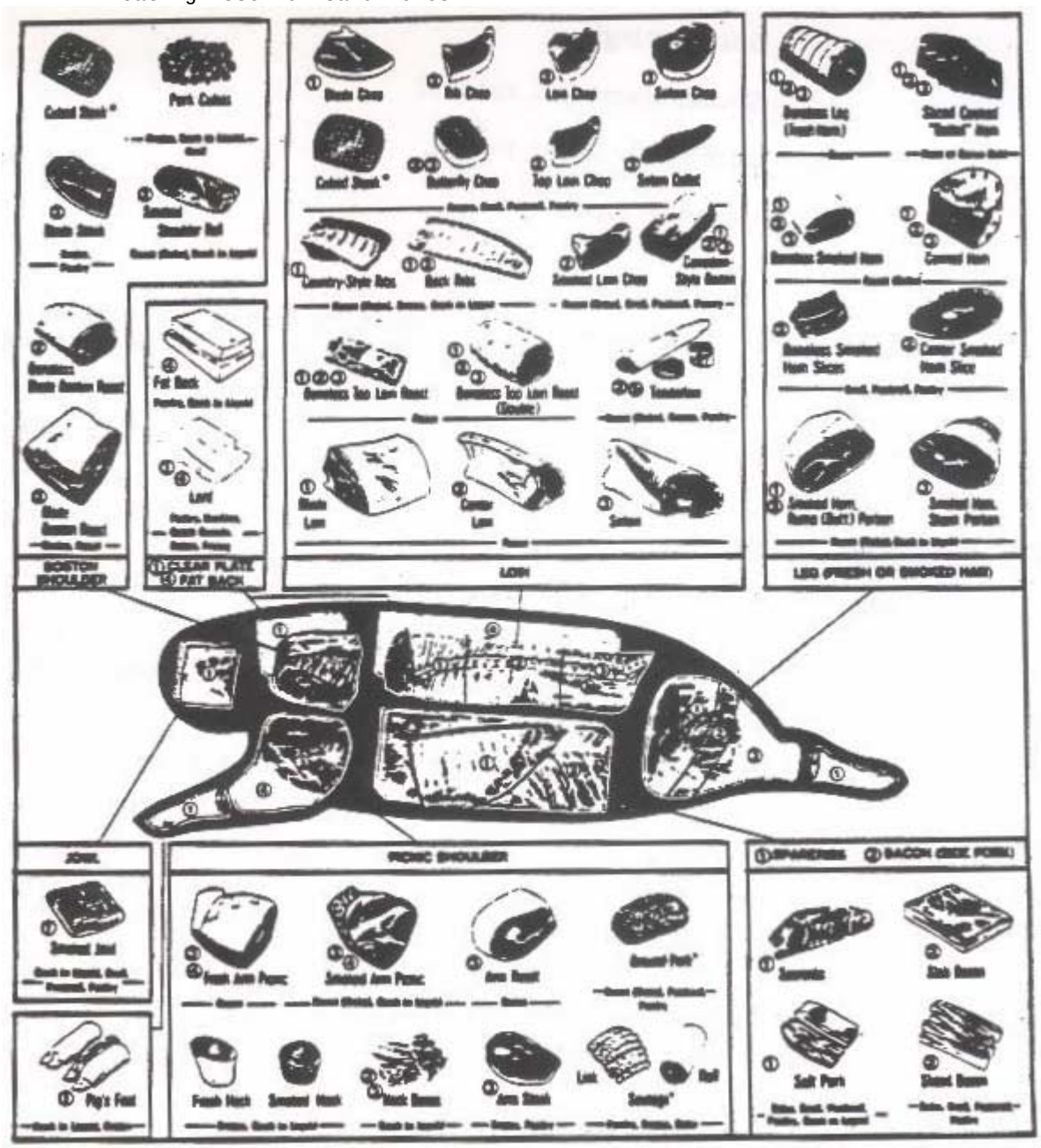
(3) Dried Pork. Prepared from pork ham or Boston butt.

(4) Tenderloin. A small muscle removed from the loin section.

(5) Spareribs. A cut of pork containing the rib bones removed intact from the bacon strip or belly.

(6) Pork or Ham Hocks. Received fresh (uncured) or smoked. The smoked type is used to season green or Navy beans. The fresh type is used primarily in German-style cooking.

7-A-5.b.(7) Pork Barbecue. prepared and frozen product requiring only thawing and heating. Use for sandwiches.



(Illustration courtesy of National Live Stock and Meat Board, Chicago, Illinois.)
Figure 7-4- Retail Cuts of Pork

(8) Hams. The kinds of cured hams available are:

(a) Boneless cooked, smoked.

(b) Canned, sectioned and formed.

(c) Canned chunks.

(c) Uncured Hams (pork ham, frozen).

7-A-5.b.(9) Bacon. This popular breakfast meat is procured in several forms:

(a) Slab.

(b) Sliced, shingle.

(c) Sliced, precooked, canned.

(d) Sliced, precooked, frozen.

(e) Canadian style.

b. Vacant.

6. Lamb. High-quality lamb has a smooth covering of clear, white, brittle fat over most of the exterior. The lean is pinkish-red; in yearling lamb, it is a deeper red. The lean texture is fine grained and velvety in appearance.

7 Rabbit. Like other lean meats, poultry and fish, rabbit is a good source of high quality protein. Cut-up frozen rabbit is ordered.

8. Other Meat Items.

a. Beef liver is available whole, unsliced or in portion-cut slices (4 oz).

b. Corned beet products are available frozen and canned. Corned beet is commercially prepared by pickling boneless brisket, rump or other selected beef cuts in a salt solution (brine).

c. Dried beef is a frozen product commercially prepared from beef rounds cured with sugar and salt, dried and sliced paper thin.

d. Sausage is finely or coarsely chopped meat stuffed in edible casing and seasoned with spices and herbs. Depending on the type of sausage they may be cooked or uncooked. Check cooking instructions. Types of sausages available include:

(1) Pork sausage is available in patties (raw and precooked), links, bulk and precooked diced styles.

(2) Pork and beef sausages is a precooked, link-style sausage; no preparation is needed except heating.

(3) Specialty sausages can be served as a sandwich or entree. The following varieties are available:

(a) Bratwurst is prepared from pork or beef or a combination. It is seasoned with spices and herbs and requires cooking.

(b) Knockwurst is a highly seasoned sausage prepared from beet. It requires cooking.

7-A-8.d.(3)(c) Italian sausage is available either mild (sweet) or hot. It is prepared from pork and requires cooking.

(d) Pepperoni is a precooked, highly seasoned beef sausage. It is available whole or diced.

(e) Polish sausage is a highly seasoned, thick, long smoked pork or pork and beef sausage that is cooked. it is also known as Kielbassa. It requires heating.

(f) Pastrami is precooked. it is commercially produced by curing and smoking beef with spices. Pastrami is usually served as hot slices in sandwiches.

(g) Chitterlings are small pork intestines. They are available frozen or canned (raw or precooked).

(h) Pigs feet are front feet of the pig. The product is raw and requires cooking.

e. Coldcuts, including bologna, salami, luncheon loaf, cervelat, and liver sausage, once thawed, are sliced and served for sandwiches or on cold-cut platters. Bologna and luncheon meat may be grilled and served as breakfast meats.

f. Frankfurters, popularly called hot dogs or weiners, are similar to sausage products but are always cooked. Only heating is required before serving. After heating, they may be served in a sandwich roll (hot dog) or as an entree, e.g., frankfurters and baked beans. There are two sizes: regular (10 links per pound) and 1/4 pound.

g. Scrapple is available frozen. It is made from cornmeal, pork scraps and seasonings. To prepare, thaw, slice and try. Check the label directions. Scrapple is usually served at breakfast.

9. Meat Structure and Composition. The meat tenderness depends on the amount of connective tissue in the meat and the location of the muscle on the animal. Muscles from the neck, leg, shoulder and joints are less tender than muscles in the rib and loin areas. Meat is held to the bone by tendons and ligaments composed of connective tissue. Surrounding each muscle is an outer coating of fat. Fat cells are distributed inside the lean tissues. This fat intermingled with lean muscle tissue is called marbling. Fat cells are distributed inside the lean tissues. Meat muscle is composed of solids and moisture. The moistures retention is important in cooking. Preparation according to the Armed Forces Recipe Service (AFRS) directions will minimize moisture loss. The proportion of lean to fat to bone in meat varies. Adequately marbled meat is juicier and is generally more tender than meat with little or no marbling.

10. Frozen Meats.

a. Handling procedures for Frozen Meats.

(1) Before and after cooking are extremely important to sanitation as well as for economy and palatability. Meat is a potentially hazardous food. Frozen meat improperly thawed risks bacterial contamination. Uncovered meat

surfaces are a perfect area for bacterial growth; therefore avoid long exposure of the moist surface to air. improper thawing also causes an unnecessary loss of meat juice and nutrients, and lowers quality.

(2) A steady, constant, low storage temperature (OQF or below) is essential for maintaining meat quality. After issue, close surveillance of frozen meat is also required. Once thawed, never refreeze meat because moisture loss occurs with each thawing period. Meat may be cooked frozen or tempered except for a few cuts where complete thawing is necessary, e.g., bulk hamburger, Swiss steak and diced meat. Extra time is required for completely thawing meats before cooking. On the other hand, additional energy as well as cooking time, is required to cook frozen meat.

b. Vacant.

11. Thawing Methods for Frozen Meats. The methods for thawing frozen meats are the "preferred" method and "alternate" method. The preferred method is slow thawing because there is less drip loss in the meat. Meat thawed slowly yields a juicier and more palatable cooked product. On small ships with limited chill space or when time is limited between meat issue and mealtime, slow thawing is not practical. The alternate method is recommended for such circumstances. Once meat has been defrosted or thawed, use it as soon as possible; do not refreeze. Breakouts must not exceed the amount to be served.

a. Preferred Thawing Method. Breakout the quantity of meat required and remove it from the shipping container but leave the meat inside the wrappings. Thaw slowly at temperatures between 360F and 380F until almost completely thawed. The thawing period will vary according to:

(1) Size of the meat cut - The larger the size, the longer the time required.

(2) Bone-in or boneless state - Bone-in meat takes less time to thaw.

(3) Air temperature and circulation in chill space - Moving air accelerates thaw mg.

(4) Quantity of meat being thawed in a given area - A large amount will lower the temperature of the room and decrease thawing action. Spread the cuts out. Do not stack them. it is almost impossible to predict the exact time required to thaw meat unless there is a perfectly controlled set of circumstances. Frozen wholesale beef cuts and frozen boneless beef may require up to 48 hours to thaw at temperatures of 360F to 380F. Cuts from pork, veal and lamb will probably thaw in about 24 hours under refrigerator temperatures.

b. Alternate Thawing Method. If it is necessary to thaw the frozen meat quickly, allow it to thaw in the original unopened container at room temperature (72F) for several hours. If the meat is not completely thawed, open the box so it is will thaw more rapidly. The container acts as a refrigerator and allows the meat to thaw from the outside. The outside thawed pieces remain sufficiently cold to prevent spoilage while the center is thawing.

7- Meat Cookery. Meat is by far the most popular food item on the menu; it is also the most expensive. The method used to cook meat is determined primarily by the kind of meat and the tenderness of the cut. Tough cuts require moist heat and low slow cooking. Methods of cooking meat are:

a. Dry Heat Methods. Tender cuts of meat are usually cooked by dry heat methods because they contain very little connective tissue.

(1) Roasting. Roasting is synonymous with baking, but the term "baking" is used when speaking of meat cookery, except with ham, meatloaf, fish and some chicken dishes. The term "roasting" is used when meat and poultry are cooked uncovered and carved or sliced after they are cooked. The following rules pertaining to roasting apply to beef, veal, pork and lamb. Included with each rule is the "why."

(a) Use a moderately low oven temperature (325F) so the roast will be uniformly done throughout, the cooking losses will be moderate, the meat will be more palatable, and the roast will be plump and full. high temperatures cause excessive shrinkage, uneven cooking, and decreased juiciness and tenderness.

(b) Do not sear meat before roasting. Searing toughens the outer layer of meat, increases cooking losses, causes a loss of tat, and contributes to excessive shrinkage.

(c) Place roast fat side up in the pan. This eliminates basting; as the meat cooks, it will baste itself with ;`he melting fat.

(d) Add salt to the roast before it is cooked. Salt penetrates less than half an inch below the surface, so any salt added before cooking adds flavor to the drippings.

(e) Unless specified in the AFRS never cover a roast. If the roasting pan is covered, the moisture escaping from the meat will surround it and the meat will be cooked by moist heat.

(f) Do not add water. Roasts cooked without water are juicier and more flavorful. The only reason for adding water would be to keep the drippings from becoming too brown. This will not happen, however, when using low oven temperatures.

(g) Do not flour the roast. Drippings from a floured roast may be a more attractive brown, but the same results can be obtained by browning flour in the drippings when you make the gravy.

(h) Use a meat thermometer to tell when the roast is done. The meat thermometer is the only accurate measure of doneness. The length of cooking time depends on the temperature of the oven, the weight and shape of the roast, and the kind of meat. A dial-type meat thermometer is shown in Figure 7-5.

(i) Insert the thermometer into the center of the main muscle (the thickest part of the meat) so the tip of the thermometer does not

touch the bone, gristle or fat. As the heat from the oven penetrates the meat, the internal temperature at the center of the roast gradually rises and is registered on the thermometer. When the thermometer registers the correct temperature of doneness for that particular meat, remove the roast from the oven.

(j) Boneless meat will require a longer cooking period than meat with bones. Follow the AFRS card specifying the type of meat required and the proper cooking temperature.

(2) Grilling.

(a) In grilling, the meat is placed directly on a greased griddle. The heat is transmitted to the meat from the hot metal of the griddle. A moderate temperature is maintained, which prevents the meat from over-browning. Enough fat cooks out to keep the meat from sticking. Remove excess fat as it collects to prevent the meat from trying. Use tongs or a food turner to turn the meat. Do not use a fork to turn the meat because puncturing the meat with the tines of a fork allows the juices to escape. If the juices escape, the meat becomes dry and coarse. Check the AFRS for cuts of beef, lamb and pork which may be grille

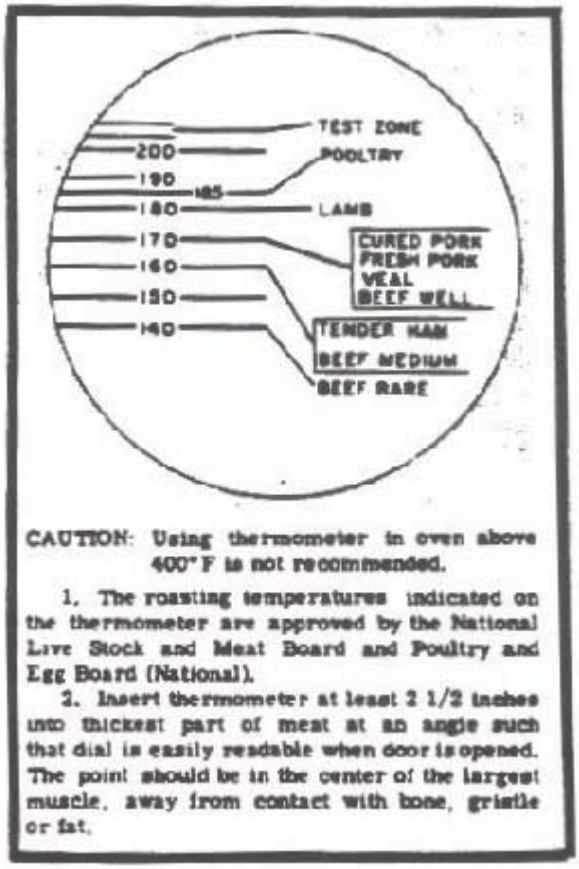


Figure 7-5 - Dial-Type Roast Meat Thermometer.

7-A-12.a.(2)(b) Pork requires thorough cooking to bring out its full flavor. Braised pork chops are more desirable from the standpoint of aroma, texture, tenderness and flavor of the lean meat. If pork chops and pork steaks are grilled, they require additional cooking in the oven to ensure complete doneness. Veal is usually not grilled because it is a lean meat and has an abundance of connective tissue which requires long slow cooking.

(c) Grilled meat is usually turned only once. The seasoning is applied to the cooked side just after it is turned.

(3) Broiling.

(a) Broil tender cuts of beef, if they are not less than one-inch thick. If you coat both sides of the meat with oil, the surface will not dry out as readily. Prior to cooking, slash the fat cover to prevent meat curling. Fat shrinks faster than meat does during cooking.

(b) Broil the meat on one side (two or three inches from the heat source), season that side, then turn it over and repeat the process. Do not pierce the meat with a fork when you turn it. Either insert the fork in the fat or use a steak turner. Puncturing the meat will cause an increased loss of juices.

(4) Pan Broiling. To pan broil, use an aluminum or Teflon-coated pan. In either case, rub the surface of the pan lightly with fat. You may pan broil tender cuts of meat or less tender cuts if they have been tenderized and are thinly sliced. Cook the meat and turn it as in paragraph 7-A-12.a.(3). Season the items just before serving them.

b. Frying. Meat may be fried: 1) in deep fat, 2) in a pan with a small amount of fat, or 3) in the oven.

(1) Shallow Pan Frying or Sauteeing.

(a) This method is accomplished on the range or griddle in a pan with just enough fat to keep the meat from sticking. This method of cooking is sometimes more economical and requires less work when only a small amount of food is fried.

(b) Heat the fat to the proper temperature before putting the meat in it; otherwise, the meat will absorb too much of the fat and will be unappetizing. The correct temperatures are indicated on the recipe cards.

(c) Breaded or floured liver, tender meats (such as grill steaks), and meat mixtures may be fried with good results.

(2) Deep Fat Frying.

(a) Deep-fat frying is accomplished by completely immersing the meat in deep fat and allowing it to remain in the fat until it is done.

7-A-l2.b.(2)(b) Bread meat to be deep-fat fried to prevent excessive moisture loss. it is also important to have the tat at the proper temperature. If it is too hot, the exterior of the meat will brown excessively before the interior has had time to cook. If it is too cool, the meat will absorb too much fat and be greasy. A deep-fat thermometer is the only accurate way to determine the temperature of the fat.

(c) For best results, the pieces to be fried must be of uniform size Do not overload the basket. 3ust enough pieces in the basket to completely cover the bottom. This method permits the hot fat to surround the meat and ensure thorough cooking. When the basket is overloaded, the fat is cooled excessively, and the hot fat cannot circulate freely.

(d) Fry only one kind of food at a time. Fry the meat as quickly as possible and only as needed. Drain to remove excess fat after cooking, then salt or season. Never salt or season food directly over the fryers.

(3) Oven Frying. Oven frying is similar to baking or roasting except tat as added. Food may be oven fried with or without breading.

c. Moist Heat Methods. Braising and stewing are the two methods used for cooking the less tender cuts of meat with less connective tissue. A higher internal meat temperature is reached much quicker with moist heat, which uses steam or water as the cooking medium, than with dry heat.

(1) Braising.

(a) Use braising when preparing tough cuts of meat. To braise, brown meat in a small amount of added fat, then cover and cook slowly in the juices from the meat or in a small amount of added liquid. The liquid may be water, stock, vegetable juices, thin sauces, or a combination of these. Use just enough liquid to start the natural juices in the meat. Add only a small amount of liquid at a time, since the color and appearance of the meat and gravy &C better U the liquid is kept to a minimum. Pot roast and Swiss steak are examples of this method of moist heat cooking. Flavor is improved by dredging the pieces of meat in seasoned flour then browning them in a small amount of fat, or marinating the meat in a well-seasoned mixture of vinegar, vegetables, and spices i.e., sauerbraten. Browning the meat develops flavor and aroma, and a rich brown color is typical of well-prepared braised dishes.

(b) After the meat is browned, reduce the temperature and continue to cook at a low temperature so the liquid will not boil. Braising may be done in the oven, on top of the range in a deep pot, or in the steam-jacketed kettle. Whichever means is used, cover the container tightly. The aim of braising is to produce a piece of meat which is evenly browned on the exterior, is tender, juicy, and evenly cooked throughout with no stringiness. Braised meat cuts are always cooked to well-done. Check the AFRS for the braised cuts of meat.

7-A-12.c.(2) Stewing or Simmering.

(a) The second method of moist heat cooking is stewing or simmering. It is used in preparing the less tender cuts of meat. Small pieces of meat cooked in liquid are stewed; large pieces are simmered. In each case, the meat is covered with liquid and simmered - kept just below the boiling temperature. It is never boiled. Boiling the meat for the length of time required to tenderize it will completely dissolve the connective tissue; the meat will fall apart and become stringy and dry.

(b) Stews are made in a steam-jacketed kettle with a hinged lid. Hold the stew at the simmering temperature until the meat is done, usually about two hours. Meat properly cooked in liquid is tender and juicy and holds its shape when sliced. Usually the steam-jacketed kettle is used so the meat can be completely submerged in the liquid at all times.

d. Cooking Frozen Meats.

(1) Most of the meat used in the CGDFs is frozen. Thaw or temper most cuts of meat before they are cooked. Completely thaw bulk hamburger and diced meat before they are cooked.

(2) If cooked frozen, roasts require approximately 1/3 to 1/2 additional cooking time. Delay seasoning until the outside is thawed and the surface is sufficiently moist to retain salt, pepper and flour. The meat thermometer insertion can be delayed until the roasts are partially thawed.

(3) Grill steak, hamburger patties, pork chops (slices) and lamb chops must be tempered before cooking. To temper meat, remove it from the freezer and refrigerate it until easily separated. Internal temperature of the food must be approximately 260F to 280F. The additional time required to cook meats from a frozen state ties up the cook's time as well as grill space.

13. Meat Carving Procedures.

a. General Carving Procedures.

(1) Carving requires practice and a basic knowledge of the muscle and bone structure of meat animals. Meats are much easier to carve if the carver can identify the muscle and observe the direction of the meat fiber bundles. This direction of meat grain decides the carver's course of slicing action. Cut all meats across the grain. Cross-grain slicing shortens the meat fibers, thus yielding a neater, more tender slice. If the carver is not familiar with or cannot identify the cut of meat, a safe rule is to slice parallel to the cut surface. Meats used for roasts are most often cut in this manner at the meat packing plant.

(2) Once the first slice has been cut off satisfactorily, subsequent carving is easier. Never change the direction of the knife or slicing blade. Follow the second slice after the first, working from left to right.

7-A-l3.a.(3) Thickness of each slice is a matter of customer preference. Some customers prefer thick roast beef slices and thin ham or lamb roast slices. Control portions by weight not slice thickness. in institution food service, it is good policy to have thin and medium-thick slices on insert pans to satisfy customer demands.

(4) Meats carve more easily and are more comfortable to work with if allowed a 20-minute "setting" or cooling-off period after cooking.

b. Slicing Canned Ham.

(1) Whole cooked hams packed in pear-shaped cans are authorized for all CGDFs because of their high yield, ease of use and economy. The full measure of these benefits is never gained; however, if canned ham is improperly sliced. Uneven portions are wasteful and costly, besides being unattractive -to serve.

(2) The following slicing technique is recommended to obtain the maximum number of usable slices from either whole or canned ham after it is baked or as it comes from the can.

(a) Divide the whole ham into three sections. Cut the upper third section straight across the butt end, and cut the remaining portion into two even pieces lengthwise.

(b) Cut the slices lengthwise with the grain, across the grain as shown in Figure 7-6.

(3) Cutting with the rain, as recommended for the butt section, is contrary to the general rule of meat carving. Canned hams, however, are already tenderized by the curing process used; consequently, ham carving is an exception to the cross-grain carving rule. Slicing the ham as described will produce the highest yield per ham.

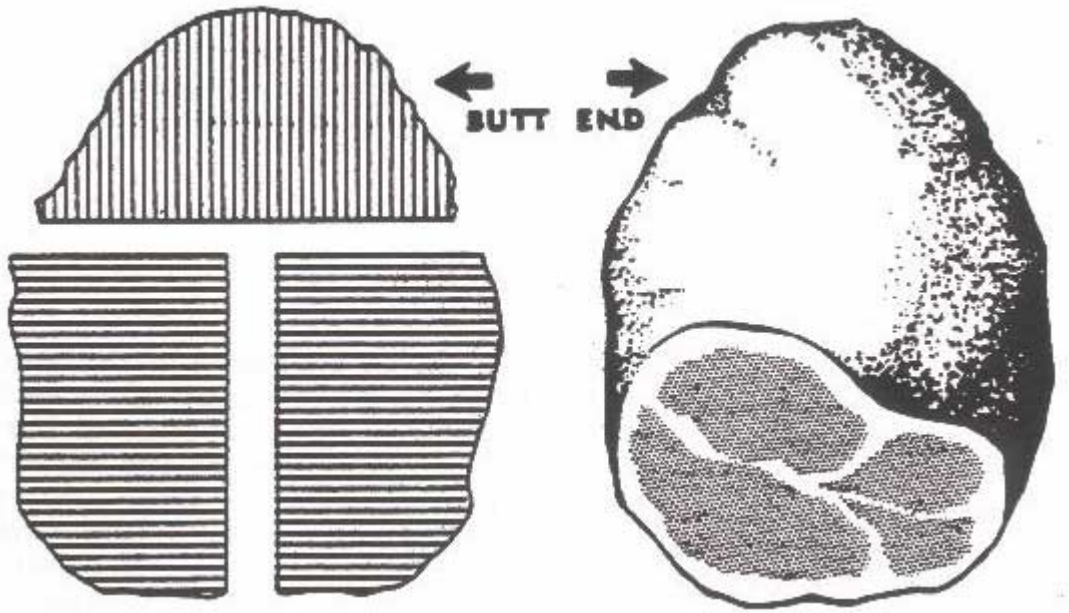


Figure 7-6 - Ham Grains

7-A-14. Carving Toots.

a. Toots and Their Function. Proper equipment is essential to good carving. Even the best carver is at a loss without sharp knives of proper size. Every CGDF must have thin, roast-slicer knives with long blades and a two-tined long-handle fork and reserved them especially for carving meats. No one can carve satisfactorily without sharp knives. Styrene surfaces are best for meat carving; metal surfaces will turn the cutting edge of the knife.

(1) Slicing machines set at the proper cycle can do an even, fast carving job. But by no means is the operation so mechanical that meats are properly sliced by merely placing the meat on the slicer and a pushing button. Consider meat grain to obtain whole, even slices.

(2) Several boneless roasts or hams can be sliced simultaneously on a meat slicer if properly placed on the carriage.

(3) Remove strings or skewers from roasts or hams before machine slicing.

(4) Each piece of cutlery is designed to do a certain job. The meat-cutter must study the tools and use each piece for the work it is intended to do.

(5) With few exceptions, the following tools will fill every meat-cutting and carving need:

(a) Boning knife, 6-inch blade (curved or straight).

(b) Butcher's knife or steak knife, scimitar, lO4nch blade (curved or straight).

(c) Slicing knife, 124nch blade (thin, flexible steel with a smooth or semi-smooth surface).

(d) Stone, sharpening, oil or water.

(6) Sharp knives are essential for efficient work. One way to keep them sharp is to use them only for the work they were designed to perform. A boning knife, for example, has a relatively narrow bevel along the rage; it will stand much more abuse and hard use than a properly ground steak knife with a wide bevel and a thin edge. Never use a steak knife for boning meat

(7) Use cleavers as little as possible, preferably not at all. Unless very sharp and used properly, the cleaver will shatter the bone and fill the surrounding meat with dangerous, tiny bone splinters.

b. Tool Maintenance.

(1) General Knife Care.

(a) Regardless of the care exercised in manufacturing a knife, it is impossible to rivet two pieces of wood to a piece of ste1 without leaving a crack or crevice where dirt can collect A good practice is to fill all the cracks around the handle with a plastic wood; however, do not let the piece of cutlery lie in hot water. Clean the

knives or cleaver by simply washing then rinsing in clean hot water. The preceding treatment not only will prolong the life of the cutlery, but will help keep it in better shape for inspection.

(b) The sharp edge of a knife, like a razor, can be dulled easily. For this reason, never put knives in a drawer with other tools. A wood strip, 1 X 2 X 12 or 20 inches long, can be secured to the bottom of a table drawer. First, saw notches at intervals of 2 to 3 inches on the wood strip. Make these notches about 1 1/4 inches deep and wide enough so a knife blade will fit easily. in many instances, a knife holder is fastened to the side of the meat block. This may be handier than the drawer arrangement; however, to protect the knives as well as the holder the knife handles must not protrude above the edge of the block. Whatever method is used, ii is essential tools receive the care and attention they deserve. Government specifications provide good knives and, if cared for, they will give satisfactory service for a long time.

(2) Knife Sharpening.

(a) When sharpening knives, a good sharpening stone is a varying-grit type oilstone assembly. This assembly may be ordered from the General Services Administration (GSA) Catalog. CAUTION: Use only the type of oil specified by the manufacturer's instructions.

(b) This type stone offers three different sharpening sides-coarse, medium. and fine. Use the coarse side to sharpen the knife and remove the nicks from the blade; use the medium side to renew the cutting edge and the fine side to hone the sharpened edge of the knife.

(c) Hold the cutting surface of the knife blade at an approximate 45-degree angle to the stone. Draw the knife blade across the oiled stone surface in a figure-eight pattern. Rotate the blade sides throughout the sharpening process.

(d) Never sharpen knives on a power-driven dry stone since this tends to remove the temper from the cutting edge. The 8 X 2 X 1 inch oilstone available for galleys is a good sharpening unit. it is a combination stone with a coarse cutting surface on one side and a smooth cutting surface on the other. For best results, liberally apply a light-grade oil to the stone when a knife is being sharpened. Afterwards, wipe the stone off carefully before it is put away.

(e) If the knife is very dull, it should be put on the coarse stone first in order to get the correct bevel on the edge. To remove the feather edge and actually sharpen the blade, use the smooth side of the stone. Use the entire side of the stone and it will not "hollow out." it is best to draw the full blade, from heel to tip, across the full length of the stone in each movement. Turn the knife over and pull it back in the same manner from the opposite end of the stone. By

following this procedure, the blade will be sharpened evenly and smoothly, and the stone will wear down uniformly. When the knife has a sharp edge, clean the blade and handle thoroughly before using.

(3) Steeling Procedures. After the knife has been sharpened, USC a smooth or semi-smooth steel to keep it sharp. The procedure is referred to as "steeling" knives. See Figure 7-7. A smooth steel is better than a coarse one for keeping a keen edge on a knife blade. The steel is used to true the blade and keep the edge in perfect condition. Although there is a technique to handling the steel, it is easily mastered with practice. Put the knife on the steel as often as you feel the edge needs it. Have the blade sharp at all times.

B. Poultry. Poultry includes chickens, turkeys, ducks, geese, guineas, and pigeons; however, or the purpose of this manual, the term "poultry" refers to chickens (including rock cornish hens), turkeys and ducks.

1. Physical and Chemical Structure of Poultry.

a. The physical and chemical structure of poultry is similar to meats. Edible poultry is made up of muscle surrounded by connective tissue and fat deposits. Bone supports this muscle structure. The skin of poultry is edible, and this is a unique difference from meat animals. The variation in flesh color (dark and light) is another characteristic feature of poultry that is unlike meat.

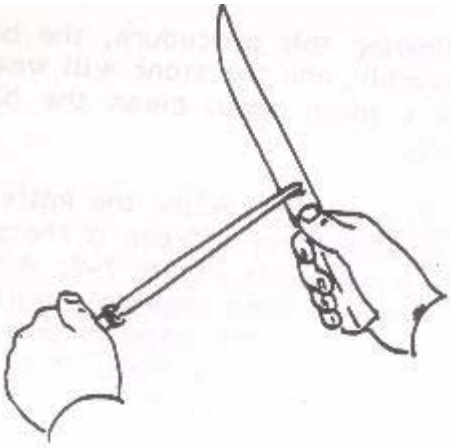
b. For all practical purposes, consider dark and light poultry comparable in nutritive value and usable alternately with meat in menus on an equal nutritional basis.

c. Regarding palatability, there are some flavor differences between chicken. duck and turkey; between dark and light poultry meat; and between sexes and ages of all kinds of birds. These differences are due largely fat content. Poultry has greater fat deposits in some areas of the carcass than in others and some kinds of poultry have a greater total fat content. Unlike meat, poultry flesh is not marbled.

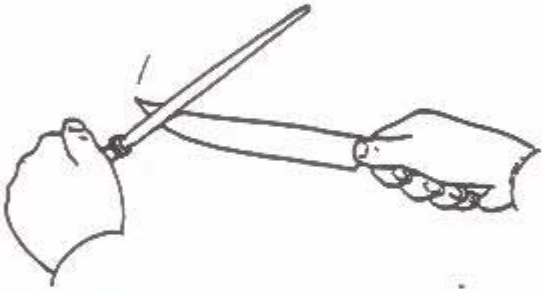
d. Poultry fat is deposited on the muscle and under the skin. it aids tenderness, makes the meat juicier, and enhances flavor of the cooked product unless it is old poultry and fat is excessive. Older female birds generally have more tat and fuller breasts than males. Turkeys have more fat than chickens, and ducks have more fat than turkeys or chickens.

e. In poultry, the greater the development of connective tissue, the less tender the meat.

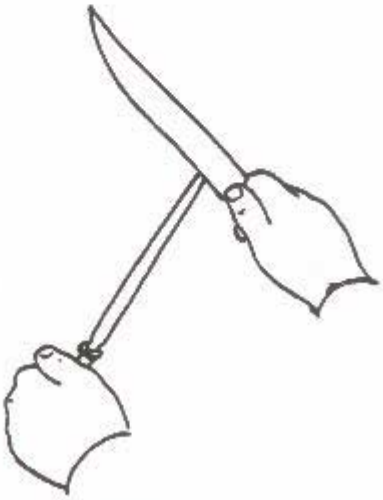
f. Leg muscles in poultry have more connective tissue than the breast meat does; hence, breast meat tends to be more tender and cooks faster than leg meat. By the same token, the poultry breast has less fat than the legs and will become dry from prolonged cooking unless the moisture lost during cooking is replaced through basting, or measures are taken to retain the original moisture present. Placing a piece of aluminum foil over the breasts is one method used to prevent excessive moisture loss from poultry meat.



1—Position for first stroke. Hold steel in left hand, thumb on top of handle. Place heel of blade against far side of steel at 25° angle.



2—Draw knife toward left hand passing entire edge of blade over steel.



3—Position for second stroke. Note blade of knife is on the near side of steel. Alternate sides of steel, making a dozen or more strokes to true knife blade.

Figure 7-7 - Steeling knives

7-B-2. Grading and Inspection.

a. All poultry is inspected by the U. S. Department of Agriculture (USDA) or by the state under USDA guidelines. This is your assurance the poultry has been processed under sanitary conditions.

b. Poultry may also be graded for quality. Grading is done according to overall appearance, meatiness, amount of fat, and the presence or absence of defects (torn skin, discoloration, bruises, and so forth).

c. USDA Grades A, B, and C are used to indicate poultry has been officially graded. See Figure 7-8.

The wing-tag also may include the class name - in this case "Frying Chicken."

Figure 7-8 - Quality Grading

d. Grades B and C are not as attractive as Grade A but are wholesome. They may have defects and faulty conformation, and could be lacking in meatiness and fat cover.

e. USDA Grades A and B chickens and turkeys are used by the military services.

7-B-3. Types of poultry.

a. Chicken.

(1) Frozen Broiler-Fryer Chickens.

(a) Chickens weighing 3 to 3 1/4 pounds are procured in several styles:

Examples:

Whole, with necks and giblets (liver, heart, and gizzards)
Cut-up, without backs, necks or giblets
Quartered, with necks and giblets
Breasts
Legs
Thighs

(b) Figure 7-9 gives procedures for cutting whole chickens by the eight-cut method. Figure 7-10 gives procedures for cutting whole chicken into 10 pieces.

(2) Frozen Rock Cornish Hens. These hens are young chickens weighing 20 to 24 oz produced by crossbreeding the Cornish chicken with other chicken species. They require only thawing and splitting in half and washing under cold water before cooking.

(3) Canned Boned Chicken. This chicken is available for afloat and over - seas activities, and offers space and weight savings. It needs no refrigeration and is usually stocked when freezer space is limited. Canned chicken may be used in recipes requiring diced chicken, such as chow mein, tetrazinni, baked chicken with noodles, and chicken salad.

b. Turkey.

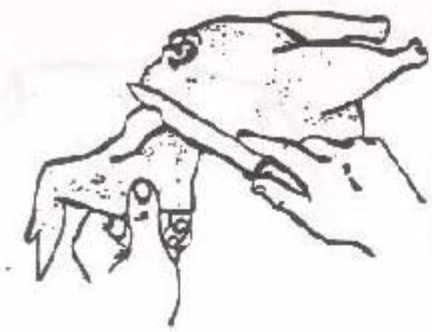
(1) Frozen Whole Turkeys. These turkeys vary widely in weight. Hen turkeys have a minimum weight of 12 pounds; tom turkeys weigh 16 to 24 pounds. Self-basting and regular whole turkeys are procured. The neck and giblets are included in all whole turkeys.

(2) Boneless Cooked Turkey Rolls. These weigh 6 to 7 pounds; raw boneless turkey rolls weigh 9 to 12 pounds and contain the same proportion of light and dark meat as whole turkey. Three to six pound raw turkey rolls are authorized for flight feeding. Raw turkey rolls require cooking; the cooked rolls need only thorough heating before service.

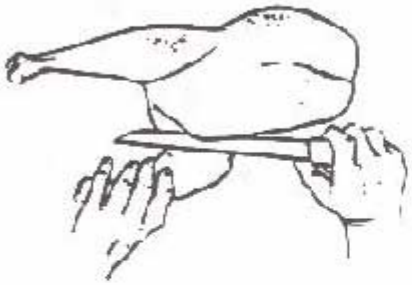
(3) Canned Boned Turkey. This turkey is similar to canned, boned chicken. It may be used to prepare several turkey entrees or substituted in any recipe specifying diced chicken. See the AFRS for directions.

(4) Frozen Chicken and Turkey Gizzards. These are available for prepara- tion of giblet gravy. Thaw and use according to AFRS directions.

c. Duck. Frozen whole roaster ducks weigh 3 to 5 pounds and require only thawing and washing before cooking. Necks and giblets are included.

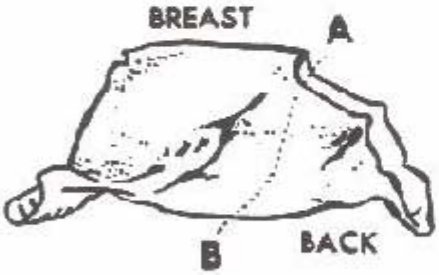


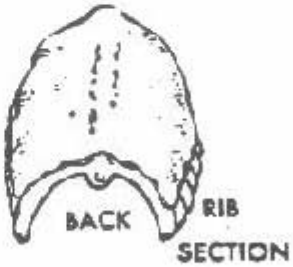
2 Wings—Remove each wing by passing a knife through the joint next to the body. Wing tips may be removed, if desired.



2 Thighs—Disjoint the legs from the body by passing a knife through the skin between the leg and body and along the thin membrane forming the body cavity to and through the joint at the backbone.

2 Drumsticks—Separate the legs into thighs and drumsticks by cutting at the knee joint.





2 Breasts and 1 Lower Back Piece—Remove the lower back or tail section by making a cut on both sides from the rear (A) of the breast downward to the juncture of the last rib and backbone (B). Bend the back and break it off at the cuts just made. Divide the breast into 2 pieces by making a cut along either side of the backbone. (The backbone may be completely removed by making a cut on both sides.)

Necks, giblets (livers, gizzards, and hearts)—These are wrapped separately and stuffed into the body cavity of the whole bird before blast freezing. These separate pieces should be removed from the cavity when thawing is completed.

Wing tips, backs and giblets are excellent for making chicken stock.

Figure 7-9 - Step-by-Step Procedures for Cutting Chicken by the Eight-Cut Method

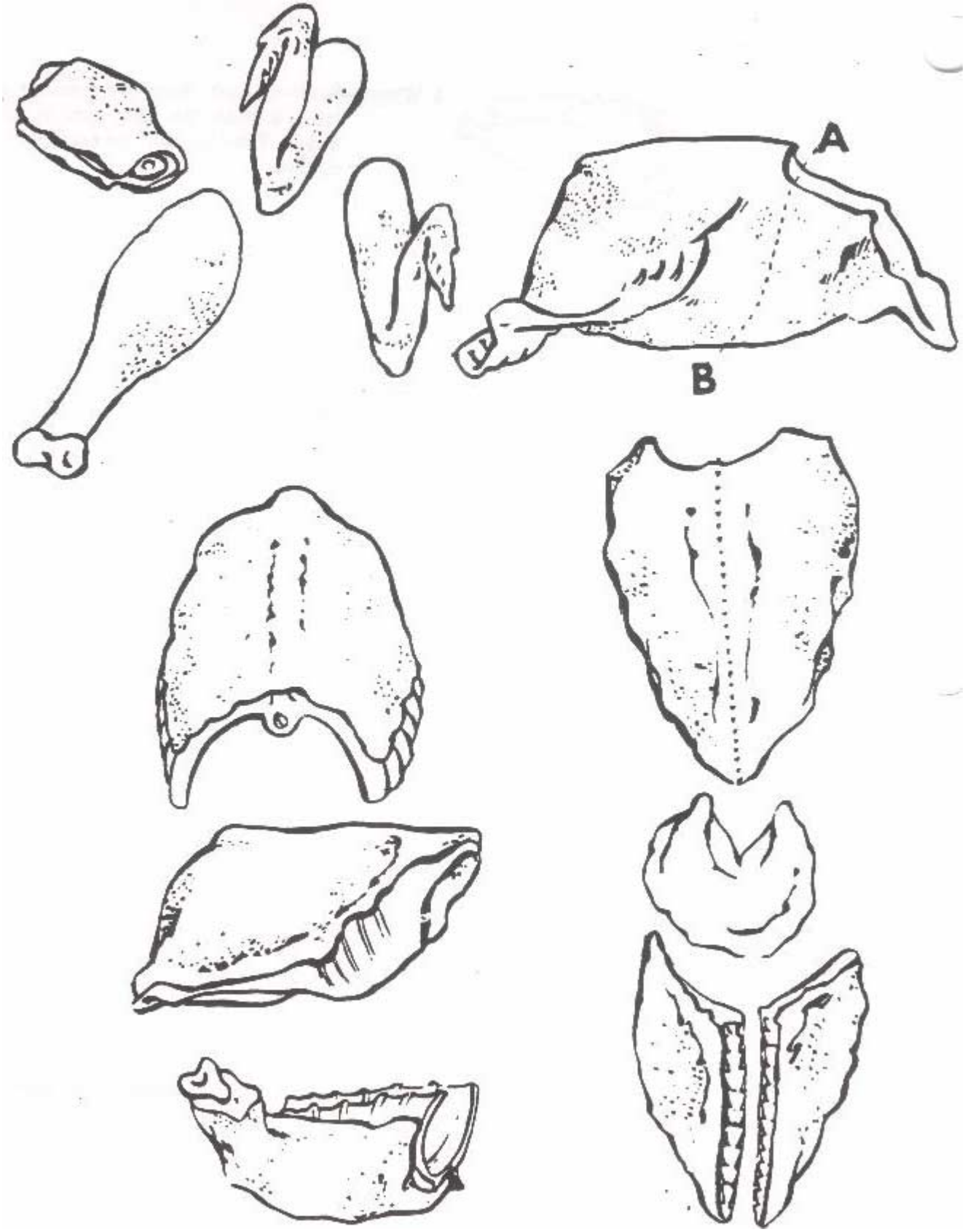


Figure 7-10 - Step-by-Step Procedure for Cutting Chicken into Ten Pieces

7-B-4. Thawing and Cleaning Poultry.

a. Thaw all poultry before cooking and refrigerate at 36F to 38F.

b. Thawing time will vary depending upon the size and market form but will usually require 18 to 24 hours for chicken and 24 to 48 hours for large turkeys (14 to 24 pounds). The temperature of the thawing space and the amount of circulating air also have an effect on the time required. Do not thaw poultry in water.

c. Most whole turkeys and chickens come bagged in paper or plastic materials to protect the poultry. For more rapid thawing, remove the whole birds from the outer shipping containers; loosen the inner bag or wrapper. Spread the poultry out to permit good air circulation.

d. Remove layer-packs of cut-up chicken from the carton by wax paper or other suitable material to protect it while it is thawing.

e. Since bacteria thrive on wet or moist surfaces and grow especially well in poultry, the poultry should not be held longer than 24 hours under refrigeration after it has thawed. Extended storage at 360F to 380F not only risks contamination but results in reduced quality of the meat.

f. After the poultry has thawed, inspect for and remove any spongy red lung tissue inside the back. Also remove loose membranes, pinfeathers or skin defects. Remove the necks and giblets packed inside the body cavity of whole poultry. Wash the poultry inside and out, under cold running water, and drain.

5. Holding and Storage.

a. Poultry is a potentially hazardous food. After cooking, keep all poultry hot or refrigerated. If held at temperatures between 4()0F and 1 400F to I 500F, Longer than three hours, consider poultry unsafe for eating and destroy.

b. Store all left-over portions of poultry property. Place sliced meat on a sheet pan and cover loosely with aluminum foil or waxed paper before refrigerating. Cool stock or broth as quickly as possible and keep refrigerated until required. Use within 24 hours.

6. Quality Problems.

a. Freezer burn is dehydration caused by exposure to air during frozen storage. It may be a light tan to medium dark brown mark. Freezer burn affects appearance and lowers quality; however, the poultry is safe to eat. Freezer burn is very noticeable if the chicken has come in contact with a metal surface of the freezer.

b. Bone darkening is most often found in cooked wings, thighs and legs. Darkening of the flesh around the bone is often mistaken for rawness or spoilage; however, it does not affect aroma, flavor texture, or eating quality. Bone darkening is caused by seepage of bone marrow and exposure to heat.

7-B-6.c. Flesh pinkness may be mistaken for rawness in roasted whole poultry. When testing shows the poultry is done, the meat may still have a pink color. This is caused by atmospheric gases in the oven. It does not affect eating quality or indicate spoilage.

7. Cooking Poultry. In moist-heat method, simmer the water rather than boil to avoid the toughening effect of high temperatures on the fibers. Depending on the cooking method used, temperatures will vary. Use slow to moderate temperatures at all times to develop maximum flavor, tenderness, color and juiciness. Intense heat will harden and toughen the protein, shrink the muscles, and dry out the juices, thus producing a less palatable product. Cook all poultry to the well-done stage. Follow the AFRS directions for preparation.

a. Dry Meat Methods.

(1) Roasting.

(a) To prevent dryness, rub the skin of the chicken or turkey thoroughly with salad oil or shortening. This is not necessary for duck because of its high fat content. if self-basting turkey is supplied, follow the package instructions for cooking. Place the poultry in an open pan, breast side up, on a V-shaped rack if available. Use a low temperature (3300F) for chicken and rock cornish hens. Cook duck and turkey at 32F.

(b) If the meat browns too soon, cover with aluminum loll to prevent overbrowning. The formation of a hard dry crust can be prevented by occasionally basting with pan drippings during roasting.

(c) Since turkey is larger than most poultry, it is more difficult to cook to the well-done stage without overdoing it. Do not cook turkey longer than necessary; overcooking will result in the loss of juices and will cause stringy, dry meat. The use of a meat thermometer inserted in the thickest part of the thigh muscle will register the internal temperature of the turkey. When the thermometer registers an internal temperature of l70F-l75F, remove it from the oven. The turkey has reached the required stage of doneness when it has reached the temperature between 180F - 185F. The AFRS contains a time table for roasting unstuffed turkeys.

b. Frying.

(1) Pan Frying. To pan fry poultry, dry the pieces, season them with salt and pepper, and roil them in flour. if a heavier coating (crust) is needed, dip the pieces in batter or a milk-and-egg mixture and roll them in soft bread crumbs before frying. Put approximately 1/2 inch of fat in a heavy frying pan and preheat to 360F to 365F. Add the poultry to the hot pan. Turn the pieces frequently using tongs or two spoons; do not use a fork, because puncturing the meat with the fork prongs allows the juices to escape. Cook until well done.

(2) Oven Frying. Dip the pieces of poultry in flour, milk and egg mixture, then into crumbs. Place poultry in a shallow pan. Pour the fat over the pieces to ensure even coating. Cook in the oven.

7-B-7.b.(3) Deep-Fat Frying. To deep-fat fry poultry, dry the pieces, season them with salt and pepper, and roll them in flour. If a heavier coating (crust) is needed, dip the pieces in batter or a milk-and-egg mixture and roll them in soft bread crumbs before they are fried. Place enough fat in the pan to completely cover the pieces of poultry. Preheat the fat to 3250F, then carefully lower the pieces into the fat. Do not crowd. The chicken may be cooked until done, or browned in deep-fry and placed in the oven to complete the cooking. Always allow the fat to regain the proper temperature before reloading the fryer.

C. Giblets.

(1) The giblets (gizzard, heart and liver) need no preparation other than ordinary washing in cold water prior to cooking. One precaution -inspect the liver closely to detect any sign of bile contamination. The bile sack is often broken during removal from the liver. Bile damage is easily recognizable by a greenish-brown or yellow color on the liver. Any liver indicating bile damage is unfit to eat and must be discarded.

(2) After washing the giblets in cold water, place them in just enough cold salted water to cover, bring to a boil, then reduce the heat and simmer approximately one hour or until they are tender. Liver cooks much faster than gizzards so cook separately. Save the stock and chop the giblets (do not grind) for use in the gravy or dressing. Refrigerate them until they are ready to use.

d. Dressing.

(1) The term "stuffing" and "dressing" are often used interchangeably, but they actually refer to dressing. if the dressing is cooked inside the poultry, it is referred to as stuffing.

(2) Poultry stuffed with dressing is not recommended for large-scale food operations because it increases cooking time, imposes a larger workload on food service personnel, and it does not improve or enhance the flavor of the meat. Most importantly, stuffing poultry is a sanitation risk and increases the possibility of food-borne illness.

(3) The AFRS includes the basic bread dressing recipe and its many variations which may be served with either chicken or turkey.

(4) Excellent dressings can be prepared that are not cooked inside the birds. Pan-baked dressing requires more moisture and is less firm than stuffing, but is easier to prepare and serve. Good dressing is light and moist, not heavy and pasty.

(5) Duck contains a much higher percentage of fat than other poultry, and stuffing in duck is less palatable because it absorbs so much of the fat during cooking. Ducks may be stuffed with bread or apples for the purpose of absorbing some of the tat; the stuffing may then be discarded after cooking.

7-B-8. Turkey Carving Procedures. Allow roasted poultry to cool 30 minutes in a warm place after removal from the oven before carving. This allows time for the "post-oven" rise in temperature. This rise in temperature always happens in meats or poultry after roasting in the oven. It will also allow the flesh of poultry time to firm up for better slicing and allow for absorption of juices.

a. Carving Roast Whole Turkey. Roast whole turkey is usually carved in the galley.

(1) To carve turkey, use the following procedure:

(a) Use a sharp, long-bladed knife. Place the legs to your right if you are right-handed or to your left if you are left-handed. Carve the side away from you.

(b) Remove the wing by placing the knife at a right angle to the breast, about 1 1/2 inches above the wing, and cut straight through the skin and wing joint.

(c) Remove the leg by holding the drumstick firmly with the thumb and forefinger. Cut through the skin by drawing the knife back and forth to sever the joint. Press the leg away from the body with the flat side of the knife. Cut the remaining skin on the back. Remove the oyster (choice, dark meat in spoon-shaped bone on back) with the leg.

(d) Slice the leg meat by holding the drumstick at a right angle to the board; cutting down, turn the leg to get uniform slices. To slice the thigh, straddle the bone with a fork and cut into lengthwise strips.

(e) Disjoint the drumstick and the thigh by holding the leg at a right angle to the board. Cut through the meat to the bone; then, hold the thigh with the knife and press down with the other hand until the joint snaps.

(f) To remove the breast from the back, insert the knife along the top and cut slowly, guide the knife along the curve of the rib section. Remove the breast on one piece. Place the breast on the slicing board and slice pieces 1/4-inch thick. You may slice the breast meat directly from the bird. Mold the bird with a fork straddling the breastbone or insert the fork in the ribs opposite the side being carved. Start the first slice just above the place where the wing was removed and, with the knife parallel to the breast, use a sawing motion and cut the slices about 1/4-inch thick.

(g) To complete the trimming, cut all remnants off the carcass. This meat can be used for sandwiches or soups, or in creamed or a la King dishes.

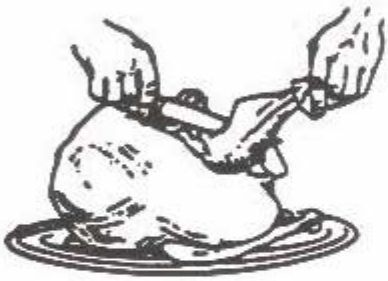
(2) There are two advantages to this method of carving. It ensures portion control, avoids waste, and makes it possible to use all meat on the carcass.

(3) On special occasions, roasted whole turkey may be carved on the serving line according to Figure 7-11.

1. CARVING POSITION – FIRST MOVE TURKEY COMFORTABLY CLOSE AND TURN IT ON ITS SIDE, BREAST AWAY FROM CARVER.

2. REMOVE WING – NEXT RAISE WING AND CUT IT OFF AT THE SECOND JOINT. SET WING ASIDE FOR OTHER DISHES.

3. BARE THIGH BONE – SLICE DARK MEAT OFF DRUMSTICK AND THIGH UNTIL THIGH BONE IS EXPOSED.

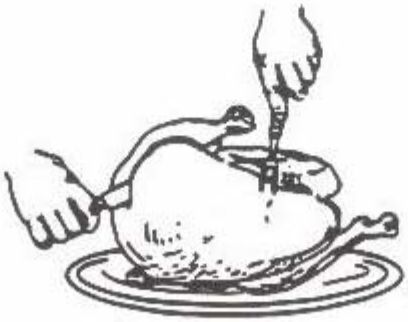


4. REMOVE DRUMSTICK – LIFT DRUMSTICK WITH NAPKIN AND CUT OFF AT THIGH JOINT, LEAVING THIGH ON BIRD.

5. MEAT FROM DRUMSTICK–SLICE AWAY DARK MEAT FROM DRUMSTICK.

6. CUT AWAY THIGH BONE – CUT AROUND THIGH BONE WITH KNIFE AND REMOVE FROM BIRD, AS PICTURED HERE.

7. SLICING DARK MEAT – SLICE DARK MEAT AWAY FROM TURKEY JUST ABOVE REMOVED THIGH BONE. ARRANGE NEATLY ON PLATTER.



8. BASE CUT – MAKE DEEP VERTICAL CUT IN BREAST JUST IN FRONT OF WING JOINT TO SERVE AS BASE FOR ALL BREAST SLICES.

9. BREAST SLICES – START FROM CENTER OF BREAST AND CUT TOWARD YOU, REMOVING SLICES ONE BY ONE AS SHOWN.

Figure 7-11 - Turkey Carving Procedures

7-B-8.a. (4) Be sure to store all unused portions of the bird properly. place the sliced meat on a tray and cover it loosely with waxed paper before it is placed in the refrigerator. place trimmings and other edible parts in the refrigerator if not used immediately.

b. Carving Boneless Turkey Roll. Boneless turkey roll may be roasted frozen. If cooked while frozen, allow one to two hours additional cooking time. If the turkey starts to become too brown, place a piece of foil loosely over the turkey for the last hour of cooking.

(1) If feasible, machine slicing of boneless turkey is preferable to hand slicing.

(2) The following method of slicing is recommended:

(a) Remove the netting and skin.

(b) Cut in slices about 1/4-inch thick.

(c) Place the slices in a shallow insert pan and cover with aluminum foil.

C. Seafood

1. Seafood Characteristics and Structure.

a. Basically, there are two classifications of seafood, fish and shellfish. Unlike meat and poultry, fish and shellfish have little or no connective tissue. The flesh is of very delicate structure. If not properly cooked at low temperatures, shellfish is apt to be less tender.

b. Fish and shellfish generally have a higher moisture content than beef. The highly perishable nature of fish makes it particularly subject to spoilage. This is due to the presence of chemical substances known as "enzymes" which all foods have. In fish and shellfish, however, there is a high degree of enzymatic activity, especially at high temperature, so it is essential fish be frigerated.

c. Most fish are edible, palatable, and wholesome, but there are a few with poisonous flesh. These poisonous fish are recognized easily because they have bristles instead of scales.

d. Like meat and poultry, fishery products are excellent protein foods as well as excellent sources of essential minerals and vitamins. As such, use them interchangeably with meat and poultry as entrees. Fat fish (salmon, swordfish, and mackerel, for example) are exceptionally rich in vitamins A and D. Lean fish are good sources of the important B vitamins. Shellfish are rich in minerals.

e. Although some species of fish are fatter than others, it does not follow that such fish are high in calories, although they may taste "sweet." Fish fat not only varies according to the species of fish, but the same fish species will have different amounts of fat at different seasons of the year.

2. Grading and Inspection.

a. Inspection of fishery products is not required by federal law. If a company wants its products inspected and graded, the company must request the service.

b. This inspection is done by an office under the U.S. Department of Commerce (USDC). The actual inspection is performed by the National Oceanic and Atmospheric Administration (NOAA). This is a relatively new service, and it is expanding quite rapidly. Companies who use this inspection service must pay a fee. For this fee, the inspectors actually work in the plants evaluating and grading raw materials, ensuring hygienic preparation of the products, and assuring quality.

c. The inspection marks on packages or labels attest to the product's safety, wholesomeness, and quality at the time or processing. The two inspection marks used are in Figure 7-12.

d. The important thing to remember is seafood products must come from approved sources. These approved sources can be found in each individual state.

Figure 7-12 - Inspection Marks

3. Fish (Vertebrates - with backbone).

a. Scale fish are divided into two groups: salt water and fresh water. Fish are also classified on the basis of their fat content. Fish having 5% or more fat have a more highly colored flesh. Low-fat fish are white fleshed.

b. Some of the more commonly-purchased fish are:

(1) Salmon.

(a) The flesh of salmon varies in color from a pinkish orange to deep red. it is firm, mild and sweet. Salmon is one of the most popular of all fishes served in CGDFs.

7-C-3.b.(l)(b) Salmon comes to the CGDFs as preportioned steaks and is more suited to baking than to deep-fat frying. This is because its color is highly appealing without the deep, rich, brown crust characteristic of deep-fat-fried fish.

(c) Salmon is a very popular canned fish. Species commonly used for canning are red and sockeye salmon. These are red and have good eye appeal. Salad preparation is a major use for this canned fish item.

(2) Halibut, Haddock and Snapper.

(a) These fish are procured as steaks and fillets. All have a relatively low fat content, but are suitable for baking if basted frequently with tat, principally butter.

(b) Of these three species, halibut is one of the most popular of all white-fleshed fish. it is most often used for steaks and is more abundant commercially than the other two species.

(c) The red snapper is a very acceptable fish because of its adaptability to different cooking methods.

(3) Flounder. This fish is also important commercially. Sole and flounder are terms used synonymously. There are five common species of flounder or flatfish: dab, gray sole, yellow sole, winter flounder, and lemon sole. These differ slightly in food quality. The gray sole, winter flounder and lemon sole are considered superior in flavor by many.

(4) Cod. The family of fish known as cod embraces a number of species. it is widely used for fillets. Whiting, for example, is a member of the cod family. Cod is mostly characterized by white flaky meat.

(5) Sardines. Sardines are packed in vegetable oil. The oil helps to preserve the fish and keeps if moist during serving. Sardines are available plain or smoked.

(6) Tuna.

(a) Tuna is either light or white fleshed. This fish is used in the canned form by the military services. Several species of this fish are used for canning. These include albacore, the only species of tuna permitted to be labeled "white" meat, and other species such as bluefin, skipjack and yellow fin labeled "light" meat.

(b) Tuna is canned in pieces or chunks. The larger the pieces packed, the more expensive or "fancier" the pack. Canned tuna is packed in water or vegetable oil which must be drained of f before the tuna is mixed with other ingredients.

c. Market Forms of Fish. Fish are marketed in various forms such as whole, drawn, dressed, steaks, fillets and sticks. These forms of fish are procured in various styles (fresh, frozen or canned). Some of the market forms of fish are shown in Figure 7-13.

Figure 1
Whole or Round Fish–These are marketed just as they come from the water.

Figure 2
Drawn Fish–These are market with only the entrails removed.

Figure 3
Dressed or Pan-Dressed Fish–These are scaled and eviscerated, usually with the head, tail, and fins removed

Figure 4
Steaks–These are cross-section slices of dressed fish.

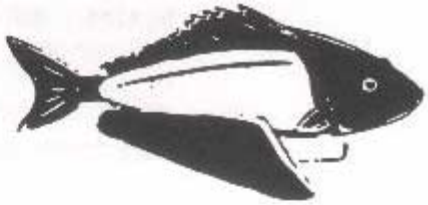


Figure 5
Single Fillets–These are the sides of the fish cut lengthwise away from the back bone. Sometimes the skin, with the scales removed may be left on the fillets; others are skinned. A fillet cut from one side of a fish is called a single fillet.

Figure 6
Butterfly Fillets–These are the two sides of the fish corresponding to two single fillets held together by uncut flesh and the skin.

Figure 7
Sticks–These are pieces of fish cut lengthwise or crosswise from fillets or steaks into portions of uniform width and length.

Figure 7-13 – Market Forms of Fish

7-C-3.d. Selecting Fresh Fish.

(1) When buying fresh fish locally, check for quality and freshness. Fresh fish should have:

(a) Eyes - bright, clear and full.

(b) Gills - reddish-pink and free from slime.

(c) Scales - adhering tightly to the skin; bright colored with characteristic sheen.

(d) Flesh - firm and elastic, springing back when pressed, not separating from the bones.

(e) Odor - fresh, free from objectionable odors.

(2) Fresh fillets, steaks and chunks must also have a mild, fresh odor and the flesh must have a fresh-cut appearance without any traces of browning or drying.

e. Frozen Fish.

(1) Frozen fish compares favorably in appearance, flavor and food value with fresh fish and may be used interchangeably.

(2) Keep all frozen fish and shellfish frozen until ready to use. Make certain packages remain solidly frozen, that none have been allowed to thaw and refreeze. Definite spoilage will result from improper freeze storage.

(3) Thawing Frozen Fish.

(a) Thaw frozen fish fillets and steaks gradually under refrigeration and use as soon as possible. The ideal temperature range for the thawing period is ,`O F to 380F. During the thawing period, keep the fish in the box for insulation; this permits the fish to thaw uniformly. U the fish is thawed at temperatures which are too high and it is not properly protected, the surface may begin to spoil before the inside is completely thawed. Never thaw frozen fish by exposure to heat.

(b) Fillets and steaks may be cooked frozen or thawed. Partial thawing first may be necessary to separate frozen fillets or steaks, but this fish can be cooked frozen. If coatings or breads are applied to fillets for frying, thaw the fillets completely.

(c) When fish are stuffed and baked, complete the thawing process for easier preparation. Once thawed, prepare by the same methods and at the same cook temperatures as fresh, chilled products. Allow additional cooking time for cooking frozen fish.

(d) Thawed fish must be handled with extreme care to prevent the tender flakes of flesh from breaking up. Some fish flesh is more easily broken than others.

(e) Do not thaw frozen breaded seafood products before cooking.

(f) The amount of fish thawed must not exceed the amount to be served.

(g) Thaw fish just before using; do not refreeze.

(h) Do not thaw seafood products under cold running water.

4. Shellfish (Invertebrates - no backbone).

a. Shellfish have some type of shell, but no scales, and are in two groups; 1) mollusks, those with soft structures and partially or wholly enclosed in a hard shell; 2) and crustaceans, those covered with a crustlike shell.

b. The chief varieties of shellfish available for use in the CGDFs include:

(1) Shrimp.

(a) Shrimp may be bought raw, whole; raw peeled and deveined; raw breaded, individually quick frozen; and breaded, molded, shrimp portions. "Green shrimp" is a commercial term used for raw shrimp.

(b) Shrimp are customarily sold according to size or grade. This is based on the number of heads-off shrimp to the pound. The count or number designation may also be described by such general terms as jumbo, large, medium and small. The largest sizes or grades run 15 or fewer shrimp to the pound; the smallest size runs 60 or more to the pound. Since all species may be used interchangeably in cooking, the size of the shrimp assumes more importance it the cost and time required to prepare a recipe are taken into consideration. 3umbo or large shrimp generally cost the most but take less time to peel and devein; small shrimp cost less but take longer to prepare. They have the same fine flavor and food value. Figure 7-14 shows some of the various market forms of shrimps.

(2) Scallops.

(a) Scallops are shellfish, similar to oysters and clams.

(b) Scallops are marketed throughout the year. Fresh scallops are a light cream color, sometimes varying to a delicate pink. Scallops are available fresh or frozen, but only in the form of dressed meat, since the scallops are opened and packed in ice at sea. Fresh scallops and frozen scallops, when thawed, should have a sweetish odor.

(3) Lobster.

(a) Lobster is one of the largest species of shellfish. There are two types:

1 Northern lobster. The true lobster. Distinguished by its large heavy claws. See figure 7-18.

1. Live or Green
2. Headless
3. Peeled
4. Deveined

Figure 7-14 - Market Forms of Shrimp

7-C-4.(3)(a)2 Spiny or Rock Lobster. Distinguished by the absence of large claws and by the of its long slender antenna and many prominent spines on its body and legs. See Figure 7-16.

(b) The spiny lobster, sometimes called "longosta," is nearly worldwide in its distribution.

(c) The meat of the spiny lobster comes almost entirely from the tail. The frozen tails of several species of spiny lobster, weighing from 4 ounces to more than a pound each, are sold on the market.

(d) Live lobster must be alive up to the moment of cooking; the tail must curl under the body and not hang down when the lobster is picked up. The normal color of live lobster varies from dark bluish green to a brownish olive. The weight varies from one to three pounds.

(e) Cooked lobsters, which are red in color, are a specialty item not generally found on the market in large quantities. They must have a fresh "seashore" odor and the tail of a cooked lobster should spring back quickly, once straightened.

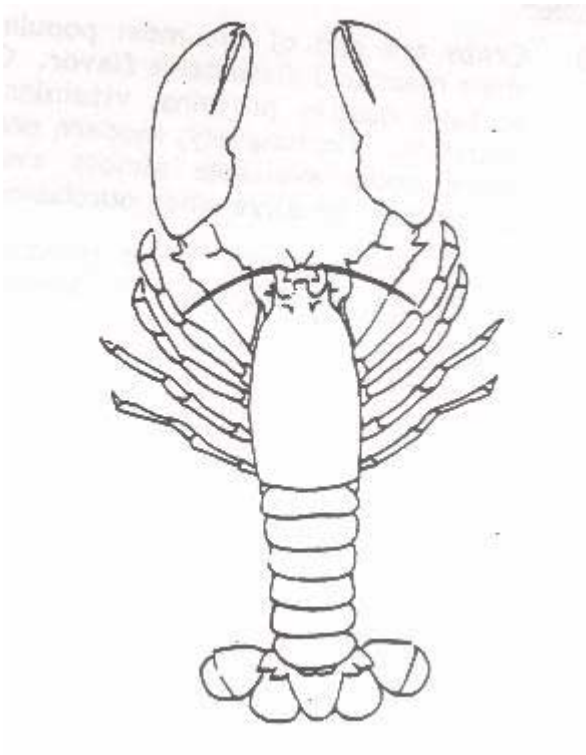


Figure 7-15 - Northern Lobster

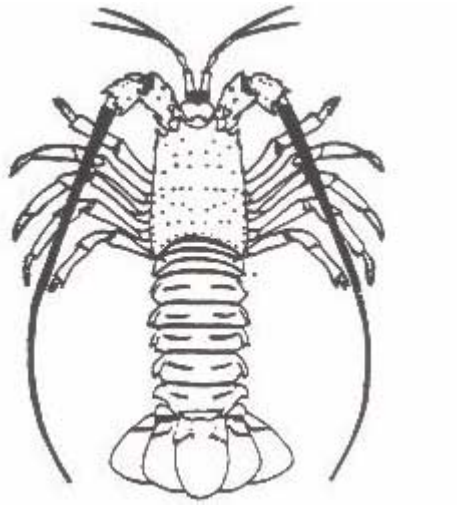


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Figure 7-16 - Spiny or Rock Lobster

7-C-4.b.(4) Crabs.

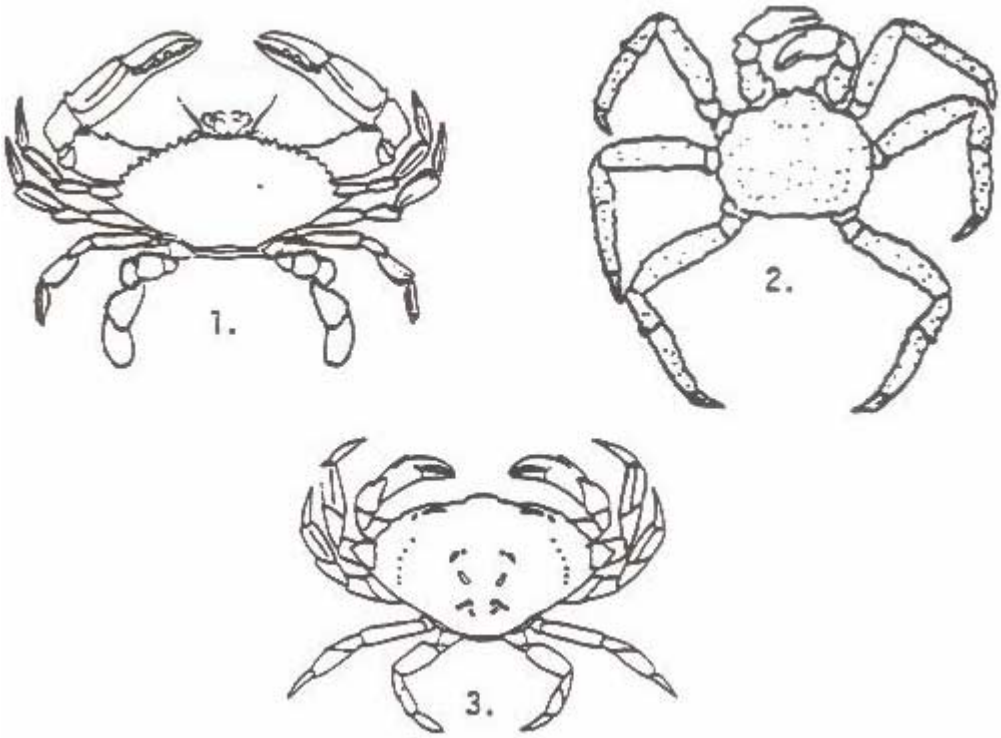
(a) Crabs are one of the most popular types of shellfish because of their meat and distinctive flavor. Crab meat is an excellent source of high quality proteins, vitamins and minerals needed for good nutrition. Fortunately, modem processing and marketing methods make crabs available almost everywhere in the United States. Crabs must be alive when purchased.

(b) There are basically three principal kinds of crabs available for CGDF use. See Figure 7-17. These are:

1 Blue Crab. Blue crabs usually weigh 1/4 to 1 pound each. soft shell crabs are molting blue crabs taken just after they have shed their hard shells and before their new shells have developed.

2 Dungeness Crab. These crabs usually weigh from 11/4 to 2 112 pounds.

3 King Crab. These crabs weigh from 6 to 20 pounds and may measure 6 feet from leg tip to leg



1. Blue Crab
2. King Crab
3. Dungeness Crab

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Figure 7-17 - Kinds of Crabs

7-C-4.b.(5) Clams.

(a) Shucked clams are available fresh frozen or individual quick frozen (IQF).

(b) Fresh clams may be purchased either in the shell, shucked or canned. There are soft- and hard-shell varieties. They may be sold by the dozen or by the pound in the shell. When shucked, they are sold by the pint, quart or gallon.

(c) East coast clams are classified as littlenecks, cherrystones, chowders or steamers; the west coast varieties are butter, littlenecks and razor clams. The eastern littlenecks and cherrystones are the smaller hard-shell clams often served on the half shell, while the larger varieties are used in soups and chowders. Do not thaw frozen clams until ready to use. Since IQF clams are frozen separately, they are easier to handle. Only the amount required needs to be removed. Return the remainder to the freezer for future use. Once thawed, do not refreeze. Canned minced clams are available for chowders and soups.

(d) Although dams are served most often in chowders, there are a variety of ways to serve them. Clams have a fine distinctive flavor. They are an excellent source of proteins, minerals and vitamins.

(6) Oysters.

(a) Shucked oysters have been removed from the shell. Shucked oysters should be plump and have a natural creamy color, have a clear liquor (natural juices), and be free from tell particles. Fresh shucked oysters are generally packed in metal containers or waxed cartons. The cartons must be refrigerated or surrounded by ice.

(b) Shucked oysters are also available frozen. Do not thaw frozen oysters until ready to use. Once thawed, do not refreeze. Frozen breaded oysters may be deep-fat fried.

b. Frozen Shellfish.

(1) Cleaning Frozen Raw Shellfish. Unpeeled frozen shrimp may be cooked in the shells. Thaw only enough to separate the shrimp. Thorough washing of green shrimp is necessary, however, to remove sand, silt, or other objectionable foreign matter present under legs.

(2) Thawing Frozen Shellfish.

(a) Shellfish not requiring thawing prior to cooking. Some frozen shellfish bought for the military services do not require thawing and must remain frozen prior to cooking. These include peeled and unpeeled raw shrimp to be boiled for use in cocktails and in creamed, creole or curried dishes. Raw peeled or unpeeled shrimp may be prepared by boiling prior to use as deep-fat fried products.

7-C-4.c.(2)(b) Breaded Frozen Shrimp. These shrimp must not be thawed prior to deep-tat trying.

(c) Shellfish requiring thawing prior to cooking. Thaw oysters completely just prior to cooking. These shellfish are particularly sensitive to overcooking and must be thawed before cooking to ensure exact cooking time.

d. Handling Fish and Shellfish.

(1) Fish and shellfish have a very delicate structure and, because they have a high degree of enzymatic activity, they must be handled carefully to prevent spoilage.

(2) Fish has been one of the most difficult foods to successfully freeze. Blast or fast freezing is used successfully for fish and shellfish. Fish have a tendency to lose moisture and flavor and dehydrate if improperly handled.

(3) Frozen fish and shellfish have a relatively short storage life. Always remove the oldest dated pack first.

5. Cooking Fish. Fish steaks and fillets, as well as breaded fish portions and sticks, are served in the CGDFs. Steaks are slices cut crosswise from large fish; fillets are sides of fish cut lengthwise away from the backbone. Fish is delicate in structure as well as flavor, and the flesh is tender and moist. Handle fish carefully.

a. Cooking Procedures. Fish must be cooked thoroughly but not overcooked. Seafood prepared too far in advance, even though properly cooked, becomes dry, hard, and loses its flavor and succulence. Bake fish at a moderate temperature (375F). It is done when it flakes easily with a fork. Cooking too long makes it dry and tough.

b. Use of Fat When Cooking Fish.

(1) Add some fat or oil to practically all varieties of fish, when cooking. The fat helps keep the fish moist and makes it more palatable. It the fish is baked, a solid fat such as butter or shortening may be "dotted" over the fish; melted fat or oil may be brushed on the fish; sliced bacon or thinly sliced salt pork may be laid over the fish. If the fish is to be deep-fat fried, some fat is added to the fish through the frying process. Fat may also be added to the fish by a sauce made with fat or oil.

(2) Since there are no tough cuts of fish, do not cook it in a large amount of water except when a soup or chowder-type dish is prepared. Usually, the water or stock is seasoned or flavored and is used in the finished food.

c. Seasoning. Simple seasoning is best for most fish. Add salt and pepper in moderation; monosodium glutamate also enhances the flavor. Lemon juice and the milder herbs such as parsley are good seasonings. Seasonings may be added to the fish or placed around it in a baking pan, or they may be incorporated into a sauce or a basting liquid that creates steam and helps to keep fish moist and flavorsome. When fish is cooked in a liquid or a sauce, lightly season the fish and the sauce to avoid a salty product.

7-D Fruits and vegetables. Fruit and vegetables add pleasant contrasts in flavor, texture and color to meals while providing important vitamins, minerals and fiber.

1. Fruits. Every daily menu should include some fruit. It adds color, variety, food value, and a refreshing flavor to any meal. Fruit is among the least expensive and the most nutritious of all foods and has the destinction of being the most versatile. At breakfast, fruit can be served alone or in a combination with cereal. It can be prepared as an appetizer, salad, main dish, relish, dessert or snack. It is excellent as a garnish and sometimes acts as seasoning. Fruit is an active partner in many meat dishes. Baked ham and pineapple are often teamed together, as are pork and applesauce, or turkey and cranberry sauce.

   a. Fruit Forms Available for Procurement. Fruit is bought by the CGDF in the fresh, frozen, canned, dehydrated and dried states. Fresh and processed fruits may be combined to vary the flavor and texture.

      (1) Fresh fruits, for the most part, are highly perishable and must be handled carefully to maintain quality. Some fruits are available year around: others are available seasonally, e.g., melons, berries, and citrus fruit. Most fresh fruits turn dark when peeled or cut and exposed to air. Use antioxidant compound to prevent darkening. See the AFRS for directions. If antioxidant compound is not available, use lemon or pineapple juice. All paring must be done with caution as much food value lies close to the outer skin.

      (2) Frozen fruits are convenient and available year around. Little preparation is needed, there is no waste, and less storage space is required for fresh fruit. Most frozen fruits are packed with sugar or syrup. Thaw them in the unopened container and use immediately to maintain quality.

      (3) Canned fruits require no refrigeration and are available all year. The may be packed in water, syrup or natural juices. Serve all canned fruits chilled.

      (4) Dried fruits, such as raisins, apricots, prunes and dates, can be used tar pastry and pie fillings and as ingredients in cakes, cookies, bread, sweet doughs and salads.

      (5) Dehydrated fruits, such as apples and applesauce, may be used in recipes when the fresh or canned fruit is not available. Check the AFRS for directions.

   b. Available Varieties of Fruit.

      (1) Apples (Fresh, Canned, and Dehydrated). The two types of fresh apples available are eating and cooking. Do not use eating apples for cooking because they become mushy. Apples generally used in cooking may be eaten out-of-hand but are not as sweet. Canned sliced apples and applesauce are used to prepare desserts. Applesauce may also be served as a salad or dessert. Dehydrated sliced apples, when rehydrated, may be substituted for sliced or chopped fresh apples when the recipe indicates. Rehydrated instant applesauce may be used as a substitute to canned applesauce. Discard the desiccant bag packed in each can. Us the entire contents of the can; otherwise, the remaining portions will cake and harden. Follow the label directions for rehydration.

7-D-l.b.(2) Apricots (Canned, Dried and Fresh). Canned and dried apricots are used to prepare pies, pastries and puddings. Dried apricots may be stewed with prunes. Fresh apricots are usually eaten out-of-hand.

(3) Avocado. See the salad section, 7.E.2, of this chapter.

(4) Bananas (Fresh). Bananas are green when harvested and gradually turn a lighter green and then yellow as they ripen. Supply activities issue light green, semi-ripe bananas for afloat and overseas activities; the riper bananas bought for shore activities are yellow-green. To prevent bananas from darkening after they are peeled and sliced, dip them in antioxidant compound or lemon or pineapple juice. Bananas may be eaten out-of-hand or sliced to use in salads or desserts.

(5) Berries.

(a) Blackberries (Canned and Frozen). Canned blackberries, packed in water, are used in pie filling and other desserts. Frozen blackberries are packed in syrup or sugar. They may be served alone, combined with other fruits, or as pie filling.

(b) Blueberries (Canned and Frozen). Canned blueberries are packed in water and used in pie filling, muffins and pancakes. Frozen blueberries are IQF and contain no sugar or syrup. They can be used in muffins, pancakes and desserts. IQF fruits can be removed from storage in quantities needed without thawing the entire package.

(c) Boysenberries (Frozen). Boysenberries are bought IQF with no sugar or syrup. They may be served alone, with sugar, combined with other fruits, or as pie filling.

(d) Cranberries (Fresh). Cranberries are used to make the cranberry sauce or cranberry and orange relish traditionally served with turkey and chicken. Fresh cranberries may be added to gelatin salads or used to make a topping for coffeecake. Canned cranberry sauce is also available.

(e) Raspberries (Frozen). Raspberries are frozen with sugar and may be used in pie filling.

(f) Strawberries (Fresh and Frozen). Fresh strawberries are perishable and must be stored and handled carefully. They may be used whole or sliced in salads and desserts. Frozen strawberries have added sugar and are available whole or sliced. Use them in shortcakes or as a topping for cheesecake or ice creams.

(6) Cherries (Canned, Fresh, and Frozen). Three kinds of canned cherries are available: light sweet, dark sweet, and red tart. Light sweet cherries are unpitted and are usually served for breakfast or dessert. Canned dark sweet cherries are pitted. They may be served as a dessert or used in pies, turnovers and other desserts. Frozen sour cherries may be used like canned red tart cherries. Fresh cherries are eaten out-of-hand.

7-D-l.b.(7) Currants (Dried). Currants are primarily used with other dried fruits, such as raisins, in sweet doughs and fruit cakes.

(8) Dates (Dried). These dates are pitted. They may be stuffed with cream cheese for appetizers or chopped for use in cakes, sweet dough and cookies.

(9) Figs, Kadota (Canned). Figs are usually served as a breakfast fruit.

(10) Fruit Cocktail (Canned). Fruit cocktail is a mixture of peaches, pears, seedless grapes, pineapple and maraschino or light sweet cherries. It may be served as an appetizer or dessert. Other fresh or frozen fruits and spices may be added. Fruit cocktail may also be used in gelatin salads.

(11) Grapefruit (Canned and Fresh). Canned and fresh grapefruit may be served as breakfast fruit5 and in mixed fruit salads. For variety, fresh grapefruit may be cut in half, sprinkled with sugar, and heated in the oven until the sugar melts.

(12) Grapes (Fresh). The two types of grapes are California and Eastern. They may be green, red or purple. California grapes have a higher sugar content than Eastern; the skin adheres tightly, and the seeds are easily removed. Eastern grape skins are easily removed and seeds cling to the pulp. Fresh grapes are perishable and must be kept refrigerated. They may be served in individual bunches or combined with other fruits in salads.

(13) Lemons (Fresh). Lemons are used widely in food preparation. Fresh lemon juice is used in beverages, desserts, sauces, marinades and salad dressings. It may be also be used as a substitute for antioxidant compound. Lemon wedges are served with seafood and iced tea. Some recipes call for grated lemon rind, which adds greater lemon flavor. Reconstituted lemon juice, packaged in individual serving pouches, may be substituted for lemon wedges on seafood platters when fresh lemons are not available.

(14) Limes (Fresh). Limes may be served or cut in wedges for use as garnishes and in beverages.

(15) Melons (Fresh). Melons may be served chilled and cut into wedges or as melon balls in mixed fruit salads and desserts. The varieties of fresh melons available are:

(a) Cantaloupes (Muskmelons) are usually round. They have a rough, netted rind, and golden or salmon colored flesh. There are several varieties which vary somewhat in shape and color.

(b) Casaba Melons are round. The rind is wrinkled and the flesh white.

(c) Honeyball Melons have a rough, netted rind, which varies from light green or gray to light yellow. The flesh is pale green.

7-D-l.b.(l5)(d) Honeydew Melons are larger than honeyball melons and have a smooth, light green to yellow rind.

(e) Persian Melons are similar to cantaloupe with a yellow rind and pink flesh.

(f) Watermelon is a large green melon with pink flesh and black seeds. White seeds in a watermelon indicate it is not fully ripe. Watermelon may be cut into slices, wedges, cubes or balls. Keep it chilled.

(16) Mixed Fruit (Candied). Candied mixed fruit is a mixture of candied cherries, citron, lemon peel, orange peel and pineapple. It is used mainly in fruit cakes.

(17) Nectarines (Fresh). Nectarines are similar to peaches. They may be served whole or sliced in mixed fruit salads.

(18) Oranges (Fresh). Oranges may be served whole or peeled and sectioned with other salad fruits. The juices are used to make beverages and sauces. Grated orange rind is sometimes added to dessert fillings and sauces.

(19) Peaches (Fresh, Canned and Frozen). The two kinds of peaches are freestone and clingstone, which may be either white or yellow. Fresh peaches may be served whole, in salads, or sliced with sugar for peach shortcake. If they are served whole, wash them in cool water to remove the fuzz. Canned and frozen peaches may be used in fruit salads, pies and other desserts.

(20) Pears (Fresh or Canned). Canned pears are available in halves or quarters. Serve as a breakfast fruit or dessert. Wash fresh pears before serving.

(21) Pineapple (Fresh, Canned and Candied). When ripe, fresh pineapple has a sweet fragrance, golden-yellow flesh, and the top leaves pull out easily. Over-ripe pineapple develops watery spots of decay at the bottom and around the eyes. Fresh pineapple may be served as slices or added to mixed fruit salads. Do not add to gelatin salads as fresh pineapple has an enzyme which prevents jelling. Canned pineapple is available crushed, sliced, chunked and as tidbits. it is packed in syrup or natural juice and may be used in sweet and sour entrees, gelatin salads, dessert toppings, ice cream and other desserts. Candied pineapple, natural-colored and green, is used primarily in fruit cakes.

(22) Plums (Canned and Fresh). Fresh plums are usually served whole as a breakfast fruit or as a dessert.

(23) Prunes (Canned and Dried). Prunes are dried plums. They may be eaten whole or chopped in cakes, cookies, and fillings for sweet doughs. They also may be stewed and served as a breakfast fruit.

(24) Raisins, Seedless (Dried). Raisins are dried grapes and are used in breads, rolls, pies, salads, pastry, cakes, and meat sauces.

7-D-l.b.(25) Tangelos (Fresh). Tangelos are a citrus fruit produced by crossing a tangerine with a grapefruit. They are approximately the size of an orange but peel easily. They may be sectioned and combined with other fruits in salads or served whole.

(26) Tangerines (Fresh). Tangerines are a small, citrus fruit similar to an orange. They peel and section easily and are usually served whole.

(27) Fruit Juices. Several kinds of canned, frozen and instant fruit juices are available. For variety, two or more kinds may be combined. In addition to their use as beverages, some juices are used as ingredients in sauces and salad dressings. Serve canned fruit juices chilled. Most frozen juices are concentrated and are reconstituted by adding three parts water to one of fruit juice. Frozen lime juice is procured single strength. Instant fruit juices require only water. Each can of instant juice contains a desiccant bag, which should be discarded. Once the can is opened, rehydrate the entire can. Any instant juice left in the can will cake and harden.

2. Vegetables. Vegetables of all types are nutritional necessities in a well-balanced diet. In addition to the contribution of important minerals and vitamins, vegetables add color, flavor and interest to meals. All too frequently, vegetables are rejected or left uneaten when they are poorly cooked; consequently, they are not pleasing in appearance or flavor. A vegetable can become unpopular simply from being overcooked, watery or poorly seasoned. Furthermore, the food value may be lost or diminished by improper handling and cooking.

a. Classification of Vegetables.

(1) Vegetables include a wide range of plants and are classified according to their place of origin on the plant.

(a) Leaves. Brussels sprouts, cabbage, mustard greens, spinach, and turnip greens.

(b) Seeds. Beans, peas, and corn.

(c) Roots. Beets, carrots, parsnips, radishes, rutabagas, and sweet potatoes.

(d) Tubers. White potatoes.

(e) Bulbs. Garlic and onions.

(f) Flowers. Broccoli and cauliflower.

(g) Stems and Shoots. Asparagus and celery.

(2) Color Classification. Vegetables have four color groups: white, red, green and yellow.

b. Vegetable Forms Available for Purchase. Fresh, frozen, canned, dried and dehydrated vegetables are available for purchase.

7-D-2.c. Fresh vegetables.

(1) Preparation Procedures. Careful preparation of fresh vegetables prior to cooking is essential to maintain the quality and nutrition of the food being prepared.

(a) Peeling and Slicing Considerations.

1 Most raw fresh vegetables have waste or inedible portions. When you peel, scrape, brush, trim or cut these vegetables, it is important not to destroy or damage edible portions and, especially, not to lose the valuable nutritional elements usually close to the outer skin or peel.

2 Freshly peeled potatoes (both white and sweet), eggplant, chopped celery and cabbage will discolor after long exposure to air. To prevent discoloration, dip vegetables in antioxidant compound as described in paragraph 7-E-l.d.(1).

3 plan for cooking unpeeled vegetables when possible.

4 Select vegetables about equal in size, or cut them into pieces of equal size. Then all the pieces will be cooked uniformly in the same length of time.

(b) General Washing Procedures.

1 Wash all fresh vegetables thoroughly. Use a brush to clean celery, carrots, beets, potatoes, turnips, parsnips or any vegetable pulled or dug from the soil. Tightly-grown blossoms, heads or stem-type vegetables, such as asparagus, broccoli, cabbage, cauliflower and brussel sprouts, will harbor worms and insects which may not be dislodged by casual washing. Soak vegetables of this type in cold salt water (I tablespoon salt to 1 quart of water) for 112 to 1 hour and then rinse thoroughly. Turn cauliflower blossoms end down in the soaking water; cut cabbage in halves or quarters and remove the cores.

2 Wash the leaf-type vegetables such as spinach, collards, kale and turnip greens in several changes of cold water to remove dirt and sand particles. Lift these vegetables from the water instead of draining the water off. The dirt and grit will remain in the washing pan or sink. If this water is drained or poured off, the dirt will remain on the vegetables.

3 After vegetables have been washed, keep them in a cool storage place until ready to use.

4 Wilted vegetables can be refreshened by placing them in ice-cold water and adding 1/2 cup of vinegar per gallon of water. When they are freshened, cover the vegetables with a clean ,damp cloth and place in a cool storage room until ready to use.

7-D-2.c.(l)(b)5 Keep the time between preparation and cooking as short as possible. Valuable vitamins are lost when vegetables are soaked too long or are allowed to remain at warm temperatures for several hours.

(c) Specific Preparation Procedures. The method of peeling, washing and slicing depends on the type of vegetable being served. These directions are for the type of fresh vegetable specified:

1 Asparagus. Remove tough or woody ends, clean well, remove lower scales, and rinse thoroughly to remove all dirt.

2 Corn on the Cob. Remove outer husks and corn silk strands. Cut out any spoiled or worm-eaten parts. The tip of the ear may be broken off. If desired, long ears of corn may be broken in half. Do not allow corn to stand in water before cooking. This will cause the ears to become water logged.

3 Eggplant. Wash and trim stem ends. Pare or leave skin on and cut as directed by the recipe.

4 Greens (Collards, Kale and Spinach). Discard any bruised or blemished leaves. Wash thoroughly in several changes of cool water to remove all dirt.

5 Parsnips. Wash and peel. Cut according to the recipe.

6 Peppers, Sweet. Wash, trim stem end and remove seeds. Slice, dice or cut into strips as the recipe directs. Large peppers used for stuffing are cut in half or used whole.

7 Potatoes. Wash and scrub thoroughly. Leave unpeeled or peel according to recipe. Remove any blemishes, sprouts and dark spots. Carefully peel potatoes requiring peeling so the peelings are thin. Much of the food value of potatoes lies close to the skin. Dip peeled or cut raw potatoes in antioxidant compound to prevent discoloration. Cut into quarters, dices or leave whole according to the recipe.

8 Rutabagas. Peel, trim and rinse. Cut according to directions on recipe.

9 Squash, Summer (Yellow and Zucchini). Young squash with thin skins do not need to be peeled. Wash thoroughly. Cut according to the recipe.

10 Squash, Winter (Hubbard and Acorn). Cut in half and remove inner membrane and seeds. in some recipes, squash may be cut into pieces.

11 Sweet Potatoes. Scrub thoroughly. Leave unpeeled or peel as the recipe directs.

12 Turnips. Prepare like parsnips.

7-D-2.c.(2) Cooking Considerations.

(a) When cooking fresh vegetables, it is important to maintain their fresh appearance, flavor, texture and nutritive value to the greatest extent possible.

(b) The AERS has guidelines and recipes for cooking fresh vegetables. Follow these carefully to avoid overcooking, which destroys flavor, color, appearance and texture.

(c) White vegetables, such as potatoes, onions and cauliflower, will turn yellow if cooked in alkaline water, but will stay white in acid water. A bit of lemon juice or vinegar may be added to the cooking water if wanted colors are developing, but use them sparingly to prevent flavor change.

d. Frozen Vegetables. Frozen vegetables must be stored at DOE or below. If vegetables thaw, do not refreeze them. Cook them as soon as possible. Frozen vegetables require less storage space, preparation time, and cooking time than fresh vegetables. Follow the AFRS guidelines for cooking frozen vegetables.

e. Canned Vegetables. Canned vegetables also save storage space, preparation an coo in time. The AFRS has guidelines for heating canned vegetables and a table of weights and measures for can sizes. Canned vegetables are usually packed in a salt solution, brine or in liquid from the vegetables. Sweet potatoes are packed in heavy syrup and vacuum packed without syrup. Whole kernel corn, packed in No. 10 cans only, may be brine packed or vacuum packed. Leftover liquid may be reserved for gravies and sauces. Refrigerate until needed.

(1) Cooking Considerations.

(a) Canned vegetables have already been cooked in the container and need only to be brought just to the boiling point and then simmered according to the AFRS cards. Never boil a canned vegetable; always avoid over heating or overcooking.

(b) Save the liquid from canned vegetables and use in soups, sauces or gravies.

(c) Follow the AFRS guidelines for heating canned vegetables.

(2) Vacant.

f. Dried vegetables. A variety of dried vegetables are used in the CGDFs. Dried beans and peas are used in soups and entrees supplemented with meats such as ham, bacon, or ground beef as in chili con came. Dried garlic is used as seasoning.

(1) Types of dried vegetables available:

(a) Black-Eyed Beans (Black-Eye Peas). Small, white beans with a black eye.

7-D-2.f.(l)(b) Kidney Beans. Large, light or dark red, kidney-shaped beans.

(c) Pinto Beans. Small, pink beans with brown dots used to make retried beans.

(d) White Beans. Several varieties of medium-sized, white beans including Navy beans (pea beans) and Great Northern beans.

(e) Split Peas. Dried green peas with skins removed.

(f) Garlic. White or red-skinned bulbs.

(g) Onions. Several sizes and varieties including Spanish and Bermuda.

(2) Preparation Procedures. Remove any foreign matter, wash thoroughly, soak, and cook according to AFRS directions.

g. Dehydrated Vegetables. Dehydrated vegetables are now widely used and popular in CGDFs. Their small weight and volume make them convenient to store. They are easy to prepare; all the precooking tasks associated with raw vegetables have been done for you. They are peeled, diced, sliced, or chopped, and ready to use. They eliminate waste and ensure portion-control.

(1) The aim in dehydrating is to remove most of the water from the food- sometimes 99% of it - without damaging the product. in packaging, desiccation sometimes is used to remove the remaining amount of water from dehydrated foods. A small envelope containing a chemical (activ- ated lime) is put into the final package. it absorbs water from the food during storage. Be sure to di5card the desiccant bag.

(2) Precooked potato granules, sliced raw potatoes, raw cabbage, chopped onions and green peppers are some of the dehydrated vegetables used by the Coast Guard. They are reconstituted by adding a measured quantity of vegetables to a measured volume of water. The temperature of the water will vary (1uhewarm or cool) with the specific dehydrated vege- table being reconstituted, as will the length of time required for the reconstituting process (15 to 30 minutes). Recipes in the vegetable section of the AFRS give more detailed instructions for reconstituting dehydrated vegetables.

(3) Dehydrated foods are just as susceptible to spoilage after they are reconstituted as the fresh. After dehydrated foods have been recon- stituted, do not allow them to remain at room temperature more than 3 hours (1 hour for eggs) from the time the water is added.

h. General Vegetable Cooking Procedures. Follow the proper vegetable cooking procedures to maintain appearance, flavor, texture and nutritive values.

(1) Cooking Methods. Use the proper cooking method for the vegetable being prepared. Follow these methods and directions:

(a) Simmering. Vegetables are simmered in water with seasonings in steam-jacketed kettles or covered stock pots. Vegetables will lose their fresh appearance, flavor and nutritive value it they are overcooked.

7-D-2.h.(l)(b) Steam Cooking. Steam cooking is an excellent method of cooking fresh, canned and frozen vegetables. It is faster than other methods and helps to preserve the fresh appearance and nutritive value of the vegetables. Follow the manufacturer's directions for cooking time and methods for each kind of vegetable. Guidelines for steam cooking are in the AFRS.

(c) Baking. Potatoes and squash are excellent products when baked. The AFRS also has recipes for baked vegetable combinations such as corn and tomatoes, baked beans, and eggplant.

(d) Oven Frying. Some vegetables may be parbroiled and then placed in a well-greased roasting pan in the oven to complete cooking. Hash browned and home-fried potatoes may be oven fried;

(e) Deep-Fat and Pan Frying. Potatoes, corn fritters, onions, and other vegetables, such as eggplant, cauliflower, okra and tomatoes, may be deep-fried. Vegetables that are deep-fried or pan-fried should be tender and cut into uniform-size pieces. Pan-fried vegetables are cooked in a small amount of fat on top of the range. Sauteing is another term for pan frying.

(f) Progressive Vegetable Cookery. To ensure a continuous supply of freshly cooked vegetables on the serving line, stagger cooking periods so several small batches of vegetables will be cooked one after the other. This also helps to control waste because a new batch will be started only if it is needed.

(2) Cooking Times.

(a) Cook only a small quantity of vegetables at a time. Vegetables must be cooked in the shortest time possible, and in a small amount of water. Never use baking soda to preserve color. Overcooking, cooking in too much water, or using soda in the water, destroys the nutrients you are trying to conserve.

(b) In fact, undercook rather than overcook vegetables. This is especially applicable when you know the cooked vegetable is to be placed on the steamtable or is to have a second heating or cooking period, such as creaming, scalloping or baking.

(c) To determine if the vegetable is done, taste it. If it is done, the vegetable should be tender but have a definite bite quality.

(3) Seasoning and Garnishing. Ways to make vegetables more delicious:

(a) Cook them in soup stock (clean and free from fat).

(b) Cook ham or pork bones with the vegetables. Do not use much of the pork fat.

(c) Serve them with a garnish of contrasting flavor, such as minced onion, diced crisp bacon, chopped parsley, a cheese sauce, chopped egg sauce, or fresh lemon.

7-F. Salads, Salad Dressings and Relishes.

1. Salads.

a. Benefits Provided by Salads.

(1) Salads have an important place on the menu. They contribute something nutritious and refreshing to the lunch or dinner meal. Not only is the salad nutritious and colorful, it also contributes bulk to the die! And adds pleasant texture and flavor contrasts to the meal. Fruit salads and vegetable salads are the most popular. They also introduce valuable vitamins, necessary minerals, and color into the meal.

(2) Salads can be made quickly and easily. Salads may be prepared individually, or the ingredients can be placed in pans on the serving line or salad bar so each person may make an individual salad.

(a) Individual salads often seem more appetizing and receive greater acceptance than a larger dish of salad.

(b) When preparing a large number of individual salads, use an assembly-line system. Line up plates, vegetable dishes or bowls on trays or sheet pans, and add one ingredient at a time. individual salads of coleslaw, waldorf salad, and other salads combined with dressing, must be accurately portioned as instructed on the Food Preparation Worksheet. The colors of the ingredients must harmonize, and the arrangement must be carefully considered, but the salads must not appear to be too "set:' Keep the garnish simple - too much garnish gives the salad a cluttered appearance.

(3) Weight Reduction Benefit. Salads consisting of fruits, vegetables, meat, or a combination of these ingredients provide a good menu for diet-conscious people or for people trying to lose weight.

b. Salad Ingredients. A salad usually consists of raw, crisp greens, a main ingredient, a dressing, and a garnish. The main ingredient may be vegetables, fruit, cheese, macaroni, rice, sliced meat or poultry, fish, or molded fruit gelatin, served individually or in various combinations. The ingredients must be fresh and cold and the salad attractively arranged.

(1) Salad Greens.

(a) Care and Preparation. Salad greens are highly perishable and must be handled carefully at all stages of storage and preparation.

1 They must be kept cold and not removed from the shipping container more than 24 hours before they are to be used. When removed from refrigeration, trim and wash them as quickly as possible. Greens may wilt if they are allowed to stand at room temperatures for more than one hour before combining in salads.

7-E-l.b.(l)(a)2 Greens should be cold, crisp and dry when added to salads. To prepare them, discard any damaged outer leaves; remove the stems, if any, and separate the leaves. Remove the core of the lettuce unless it is to be shredded or served in wedges. Wash greens in cool to lukewarm water; rinse, drain thoroughly, and store in covered container in the refrigerator. If greens are slightly wilted, soak them in ice water for 10 minutes or for 30 minutes in a solution of one half cup of vinegar to each gallon of water. The AFRS has guidelines for preparation of salad greens.

3 When making tossed or mixed green salads, mix small batches at a time, and toss lightly with two forks.

(b) Kinds of Salad Greens.

1 Iceberg Lettuce. This kind of lettuce has a compact head tightly packed leaves. The outer leaves can be used as a base for individual salad plates, in sandwiches, or shredded for sandwiches such as double-decker hamburgers. Shredded lettuce wilts rapidly and should be prepared just before serving. The inner leaves are light green and tender and shaped so they may be used as cups to hold portions of salad mixtures, e.g., potato salad, ham salad, tuna salad.

2 Boston Lettuce. Boston lettuce has tender, smooth, leaves And a formed head. The inner leaves are very tender and have a buttery texture and taste.

3 Romaine. Romaine is elongated; the leaves are crisp and have a sharp nutty flavor. It is less tender than Iceberg or Boston lettuce.

4 Endive and Escarole. These greens look much alike. Endive has narrow, curled, feathery leaves and a sharp, tangy flavor. Escarole has broader leaves and a milder flavor than Endive. Both provide pleasant flavor contrasts to other salad greens.

(2) Salad Vegetables. Raw and cooked fresh vegetables, and canned, and dehydrated vegetables are often used in salads. Several of the vegetables commonly used raw in salads (cucumbers, green onions, sweet peppers, radishes and tomatoes) are highly perishable and must be properly cared for. Other less perishable raw vegetables, such as carrots, also require careful storage and handling.

(a) Raw Salad Vegetables.

1 Cabbage. Cabbage is sometimes added to salads along with other greens, but more often, it is the main ingredient in cole slaw. Green and red cabbage may be used either individually or in combination. To prepare, remove bruised outer leaves, cut the cabbage into quarters, and remove the core. Soak the quarters in cold salted water (one tablespoon salt per gallon

of water) to remove any insects. Rinse and drain. To crisp, place in a tightly covered container in the refrigerator for several hours. The cabbage is then ready to be shredded. Cover and refrigerate dehydrated cabbage in cold water for 12 to 24 hours.

2 Carrots. Raw carrots cut into sticks, fans (see Figure 7-18) and other shapes are a popular relish tray item and make a decorative garnish for salads. To make carrot curls, cut them lengthwise into strips using a hand potato peeler and place the strips in ice water until they curl. Placing raw carrots in ice water before serving will also make them more crisp. For a salad ingredient, they may be diced, sliced, shredded and grated, according to the specific recipe. Peel carrots carefully to preserve valuable nutrients next to the skin.

3 Cauliflower. Soak raw, fresh cauliflower in salted water, rinse, drain, and break into flowerets.

4 Celery. Celery may be served in sticks, diced or shaped into curls, fans and rings. Cut off the leaves and stem end. separate the stalks, and trim off any bruised or blemished parts. Wash thoroughly; if necessary, scrub with a vegetable brush. Pascal celery has thick strings or ribs which can be removed with a hand potato peeler before slicing. Celery, hearts - the small, tender, inner stalks - may be served whole, or cut in half lengthwise. Wash each celery heart thoroughly but do not remove the leaves. To make celery curls or fans (see Figure 7-18), cut the stalks in 2 1/2-inch lengths. Make length cuts 1/8-inch apart and 1-inch long on one or both ends of the stalks. Place in ice water for about 2 hours to make the cut ends curl.

5 Cucumbers. Fresh cucumbers are dark green with a shiny, waxy appearance and are not shriveled or withered. Peel them before serving. Crisp by letting the slices stand in ice water for 15 minutes.

6 Green Onions. Green onions are highly perishable; use them within a few days after receipt. Remove the wilted leaves and the outer skin and root end of the bulb. Chop or leave whole for relish trays.

7 Dry Onions. Bermuda, Spanish and yellow onions can be used interchangeably in salads where onions are specified in the recipe. They can be diced, finely chopped, or sliced into rings. They have a strong. flavor; add them in the exact amounts specified in the recipe or they will overpower the flavors of the other salad ingredients. Dehydrated, chopped onions may be substituted for fresh ones. Once rehydrated and drained, they are ready to use.

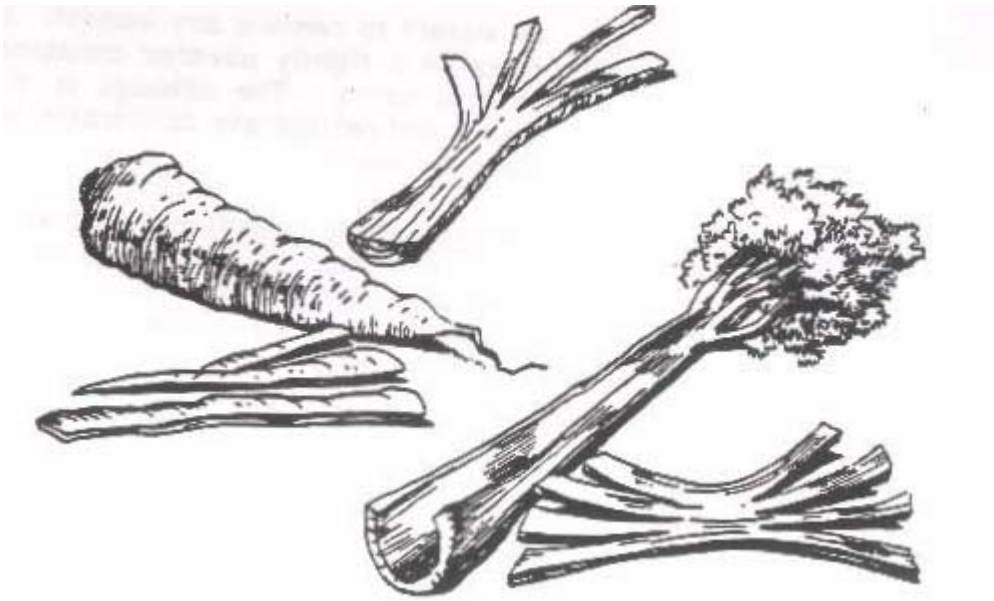


Figure 7-18 - Carrot Fans and Sticks, Celery Curls

7-E-l.b.(2)(a)8 Tomatoes. Both regular size tomatoes and smaller cherry tomatoes are available for the military services. Prepare and add tomatoes to salads just before serving because they cause salad greens to wilt and will make other ingredients soggy. Regular size tomatoes may be used peeled or washed and unpeeled. To peel, place them in a wire basket and dip them quickly in hot water; then dip immediately into cold water The skin will peel off easily. Cut out the stem end and chill. Tomatoes can be slid or cut in wedges and cubes, as desired. Cherry tomatoes require only washing, draining and chilling. They may be served whole or cut in hall for variety.

9 Sweet Peppers. Fresh, sweet peppers are highly perishable. They must be clear and bright green with red spots appearing as they mature. Wash and remove stem end and seeds. They may be cut in different shapes for salads or garnish. Frozen, diced or dehydrated peppers may be substituted in recipes calling for diced or chopped sweet peppers. Rehydrate dehydrated peppers before adding them to salads.

10 Radishes. Do not peel radishes instead, wash them thoroughly to remove bad spots or bruises. Make thin slices for mixed salads, or use trimmed, whole radishes in relish trays. Radish roses and accordions make colorful garnishes for salads. Make four or five slices down around the sides from the top toward the center. Place in ice water so the

cut portions will open to form a rose. To make accordions, remove the stem and top ends; make several parallel slices down, but not completely through each radish. Place in ice water until slices fan out. 5ee Figure 7-19.

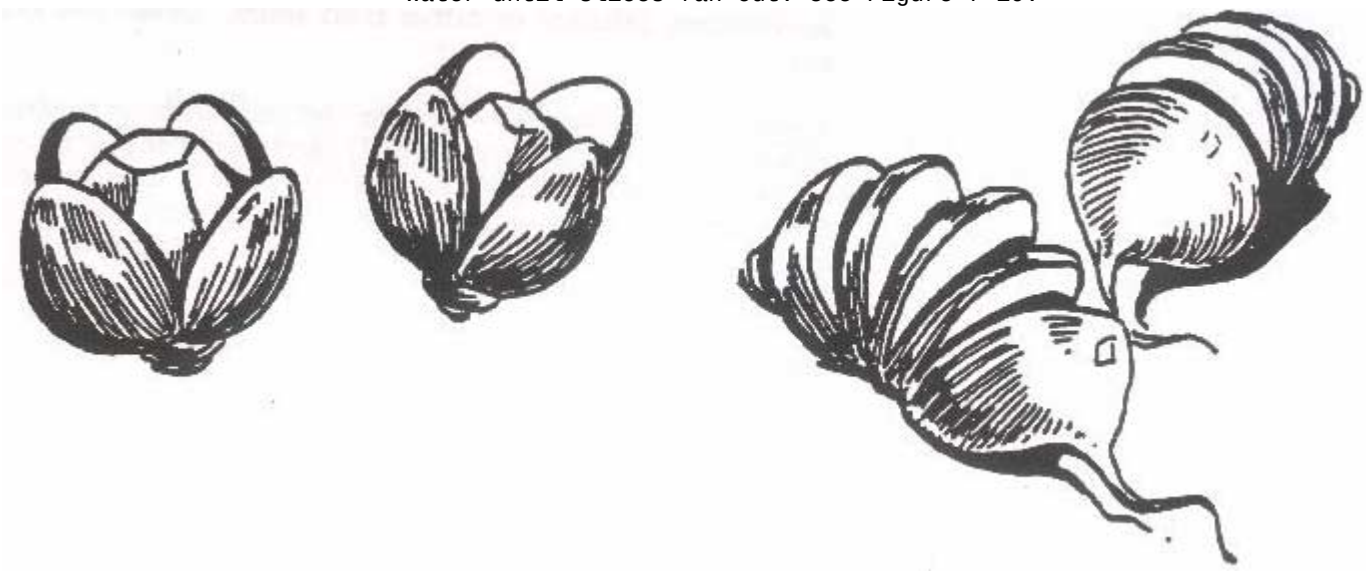


Figure 7-19 - Radish Roses and Accordions

11 Potatoes. To make potato salad, cook fresh, white, peeled potatoes; chill them thoroughly, then slice or dice them, add salad dressing and the other ingredients according to the recipe instructions. Use dehydrated, sliced potatoes to prepare both hot and cold potato salads. Specific recipes are in the AFRS.

(b) Some processed vegetables may be used to extend the variety of salads when raw vegetables are not available or are available in limited quantities (aboard ship, for instance).

Vegetable	Type
Asparagus	Canned, frozen
Beans, garbanzo (chickpeas)	Canned
Beans, green	Canned, cooked, frozen
Beans, kidney	Canned, cooked, dry
Beans, wax	Canned
Beets	Canned
Peas	Canned, cooked, frozen
Pimientos	Canned

7-E-1.b.(3) Salad Fruits. Fruit salads add variety as well as color and texture to the salad bar. Use fresh, frozen and canned fruits.

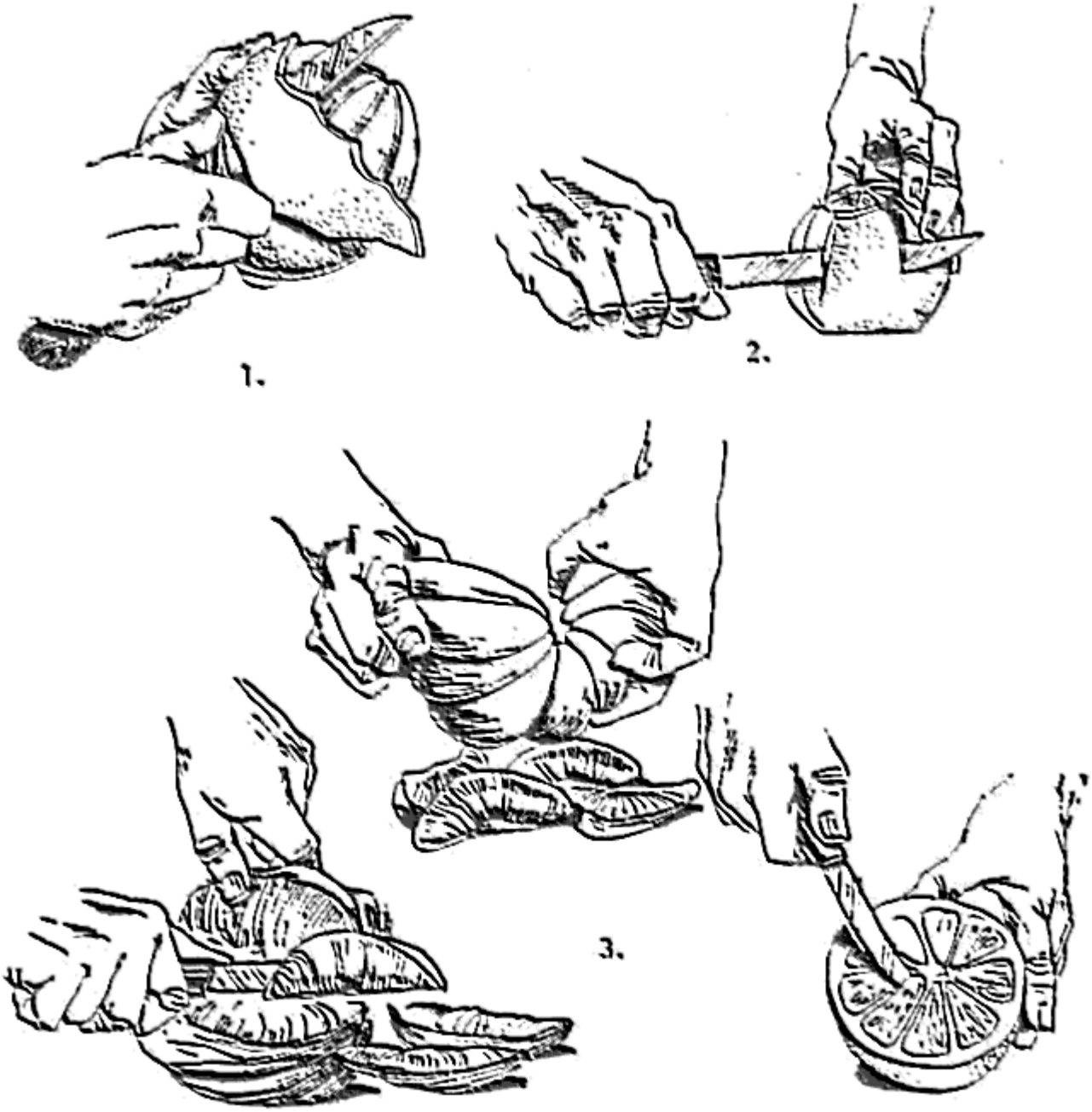
(a) Fresh Fruits for Salads.

1 Apples. Apples should be crisp, juicy and moderately acid with some sweetness. To prepare them for salads, wash, core and dice, or cut them into quarters. They may be added to salads peeled or unpeeled, according to the recipe instructions. To prevent discoloration, they may be dipped in antioxidant solution or citrus fruit juice. Drain and refrigerate.

2 Avocados. Avocados may be served with grapefruit and orange sections, or cut in half and the center filled with chicken or shrimp salad. For variety, cut in wedges and serve in mixed vegetable salads. Avocados are also excellent when mashed and mixed with seasonings for guacamole salad. When properly ripened, some varieties of avocados will have dark brown to black skins; others will remain green. All varieties will be soft to the touch. If necessary, they may be ripened by placing them in a warm, humid place (700F to 800F) for I to 5 days. When they are ripe, refrigerate them until used. Cut avocado into halves and remove the seed before peeling. Peel them shortly before serving by inserting a small knife at the stem between the skin and flesh. Slice or dice them according to the recipe. Because they discolor rapidly, they may be dipped in antioxidant solution or lemon juice and drained.

3 Bananas. To give variety to salads, vary the size and shape of cut bananas. They may be sliced crosswise or diagonally into small, medium or large pieces; or they may be cut in halves or thirds and sliced lengthwise. To prevent discoloration, dip in antioxidant solution and drain. Ripen unwrapped green or unripened bananas at temperatures of 56F to 58F. Store ripe bananas, wrapped in plastic or cellophane, at 40F.

4 Grapefruit and Oranges. Fresh grapefruit and oranges are peeled and cut into sections for fruit salads. To peel, place them in boiling water and allow them to stand 3 to 5 minutes. Place in cool water to chili; peel, and chill them until ready to use. Be sure to remove all the peel and membranes; otherwise, these will have a bitter taste. To cut into sections, place them on a cutting board and cut a thin piece from the top to the bottom of the peeled fruit. See Figure 7-20. Remove sections by cutting downward along the membrane of a section toward the center of the fruit. Repeat for each section. Do not add grapefruit and orange sections to salads until just before serving because they will cause other ingredients to wilt or become soggy.



Methods for preparing citrus fruits are:

1. Peeling
2. Slicing
3. Sectioning

Figure 7-20 - Preparation of Citrus Fruits: Peeling, Slicing and Sectioning

7-E-l.b.(3)(a)5 Melons. Melons to be used as a salad ingredient may be diced or cut into wedges. For variety, melon balls may be made by scooping out the inside of the melon with the teaspoon of a measuring set or with a melon ball cutter. Many varieties of melons are available.

Examples:

Cantaloupe (Muskmelons)
Casaba
Honeyball
Honeydew
Persian
watermelon

6 Peaches and Pears. Fresh peaches and pears may be added to fruit salads or cottage cheese salads. Peaches have a more limited season than pears and are more perishable. To peel, place them in boiling water for a few minutes. When the skins are removed, dip the pieces in antioxidant solution. Use pear halves, slices or wedges in combination fruit, gelatin or cottage cheese salads.

7 Pineapple. Fresh pineapple may be used in fruit salads. Use only or cooked pineapple in gelatin salads. Raw, fresh pineapple contains a chemical substance which prevents the gelatin from setting. To prepare fresh pineapple, cut into pieces. Sprinkle with sugar and let stand in the refrigerator for a few hours. For suggestions of ways to cut pineapple, see Figure 7-21.

8 Strawberries. Fresh strawberries, whole or sliced, provide color contrast when combined with other fruit. Strawberries are highly perishable and must be handled carefully during preparation. Wash them thoroughly to remove any sand or dirt. Remove the stem and slice or leave whole.

(b) Frozen Fruit. The Coast Guard purchases frozen fruits such as berries (strawberries, boysenberries), cherries and peaches. Frozen fruits are closest to their fresh counterparts in flavor and appearance. They may be thawed by placing the unopened container in the chill space 24 hours before they are to be used. This allows the frozen fruit to thaw completely and more evenly throughout.

(c) Canned Fruit. Canned fruit, including grapefruit, apples, peaches, pears, pineapple, sweet and maraschino cherries may be used for variety. Drain thoroughly before adding to other salad ingredients.

(d) Dried Fruits. Wash dried fruits thoroughly before they are used. They may be soaked to reduce cooking time, but avoid a long soaking period because it produces a watery, tasteless fruit. Cook raisins and dates without soaking. If sugar is added, do it at the end of the cooking period. If it is added at the beginning, it interferes with the water absorption.

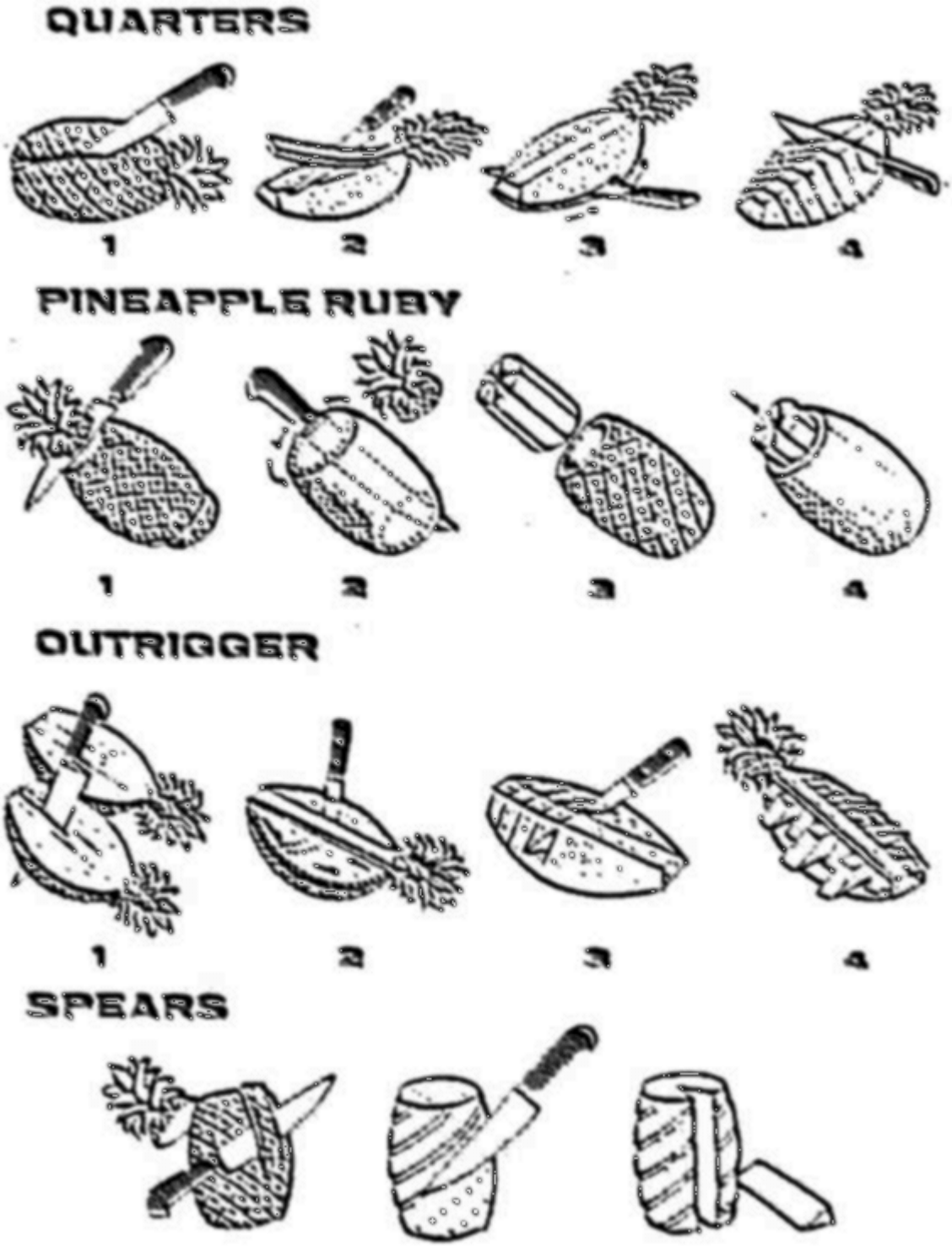


Figure 7-21 - How to Cut Fresh Pineapple

7-E-1.b.(4) Other Salad Ingredients.

(a) Cheese. American, Blue, Cheddar or Swiss cheese, diced, sliced, or shredded, add extra zest and color to vegetable and tossed green salads. Cottage cheese may be combined with fruits or mixed with chopped sweet pepper, pimiento and onion for variety. A paprika garnish adds extra color to plain cottage cheese salads. Grated Parmesan or Romano cheese may be sprinkled Lightly over green salads, if desired. Cream cheese, cubed and rolled in ground nuts, may be added to fruit salad plates.

(b) Macaroni and Rice. Cooked macaroni or rice salads can be substituted for potato salad. Garnish with pimiento strips or canned, red, diced peppers.

(c) Meat, poultry, Fish and Eggs. Thoroughly chilled, cooked beef, ham, chicken, turkey, and cold cuts such as salami and bologna may be cubed or cut into julienne strips for salads. Canned salmon and tuna must be drained, flaked, and the skin and bone of salmon removed. For special occasions, shrimp or lobster salads can be served as the main dish. Shrimp and lobster are highly perishable and must be carefully handled to prevent contamination. Refrigerate these salads at all times. Hard boiled eggs, sliced or quartered, add a finished touch to tossed salads and potato salad.

c. Gelatin Salads. These salads are made from fruit-flavored gelatin dessert powders which are dissolved in boiling water and chilled until firm. They serve as an attractive addition to the serving line. Fruit or finely-diced vegetables may be added when the gelatin is slighted jelled, but before it is completely set. When using pineapple, use only cooked or canned pineapple. Squares or sliced of gelatin can be removed from sheet pans using a spatula.

d. Antioxidant Compound.

(1) Some vegetables and fruits tend to discolor when they are peeled and exposed to air. Antioxidant compound is a chemical which will prevent discoloration. The powdered antioxidant is dissolved in water, and the peeled vegetables or fruit are quickly dipped in the solution. Make the antioxidant solution within I hour of use, and a fresh solution made for each type of food. The length of time food should remain in the solution varies from 30 seconds to 4 minutes. The Armed Forces Recipe Service Guideline Card for Antioxidant Compound gives directions for use and the specific times each type of food can remain in the solution.

(2) If antioxidant compound is not available, an acid fruit juice such as lemon, pineapple or grapefruit juice may be used.

C. Garnishes for Salads. Make garnishes simple so they do not detract from the salad.

(1) Garnishes for Vegetable Salads. A single green pepper ring, radish rose, or similar edible garnish will accent the beauty of a salad. Use many salad ingredients for garnishes.

Examples: Bacon, Cooked, Crumbled
Beans, Garbanzo (Chick Peas)
Beets, Slices or Julienne Strips
Carrot, Curls or Sticks
Celery, Curls, Hearts
Cheese, American, Swiss, Cheddar (Julienne, Sliced, Shredded)
Cheese, Parmesan or Romano, Grated
Croutons
Cucumber, Slices or Curls
Eggs, Hard-Boiled, Sliced, Quartered, or Stuffed
Egg Yolk, Crumbled
Green Onions, Sliced or Whole
Nuts, Chopped or Whole
Olives, Green or Ripe, Whole or Sliced
Onion Rings
Paprika
Parsley, Sprig or Chopped
Pickles, All Types, Slices or Strips
Pimiento, Strips or Chopped
Poppy Seed
Radish Roses, Slices or Whole
Sesame Seed
Sweet Peppers, Rings or Strips
Tomatoes, Slices or Quarters

(2) Garnishes for Fruit Salads. Garnishes, such as strawberries or nuts, add appeal and accent to fruit salads. Use the many edible ingredients available for this purpose.

Examples: Bananas, Sliced
Cherries, Maraschino or Sweet, Light or Sweet Dark
Coconut, Plain or Colored
Fresh Berries (5trawberries, etc.)
Grapes
Lemon Slices, Twists or Wedges
Marshmallows
Melon Balls or Wedges
Nuts, Whole or Chopped
Orange Slices, Twists or Wedges
Pineapple Chunks
Prunes
Dates

f. Mixing and Serving Salads. Mix the salad carefully just before it is to be served. Combine the prepared, chilled ingredients in small amounts. Mix or toss them lightly together. Use a large fork to distribute the ingredients and dressing.

(1) Use of Salad Dressing.

(a) The salad dressing is as important as the salad itself. Each type of dressing can take on a new flavor by adding different seasonings and herbs.

7-E-l.f.(l)(b) As a rule, add the dressing to a fruit or raw vegetable salad not more than a few minutes before serving. If you are preparing salads to be set out on the salad bar, and you are placing the various types of salad dressings in separate containers so each patron may have a choice, remember to use small size containers for the dressings. Discard any dressing left over after the meal.

(2) Serving the Salad. After a crisp, refreshing, and attractive salad is produced, serve it 50 none of its attractiveness is lost. Select a cool place for assembling and serving the salad. Bring individual salads from the refrigerator, a few at a time so they will remain crisp.

(3) Main Course Salads. Salads used for the main course for lunch or dinner should be substantial and provide the food values comparable to any other main dish. These salads must include an adequate serving of high protein foods, such as meat, fish, poultry, cheese, eggs, legumes (dried beans and peas) or peanuts combined with crisp salad greens or other vegetables. Potato salad, cold or hot, may be an accompaniment to cold meats on a dinner or supper plate. Portions for main dish salads are comparatively large, and mayonnaise or a mayonnaise-type dressing is usually served with the salad.

2. Salad Dressing. Just as a salad complements the meal, salad dressings should end we with the salad and accent the flavors of the ingredients. Choose and prepare the dressing carefully. The wrong band of dressing or an improperly prepared one can ruin even a well-made salad. Salad dressings cause greens to wilt so serve separately or add just before the salad is served. Never allow salad greens to soak in dressing. If the dressing is added before the salad is served, be careful to add the correct amount. Too much or too little dressing can ruin a salad.

a. Basic Dressing. The three basic kinds of salad dressings are French dressing, cooked salad dressing, and mayonnaise. They are made with oil, an acid ingredient (usually lemon juice or vinegar), and seasonings. Mayonnaise also contains an emulsifier. Commercial salad dressing is similar to mayonnaise except a cooked starch pane is added and less oil is used than in mayonnaise. Mayonnaise is also used for a garnish or topping for salads.

(1) French dressing is basically oil and vinegar with many seasonings added. Commercial French dressings usually contain tomato paste or puree as well as emulsifiers to keep the oil and vinegar from separating.

(2) Salad dressings made from seasoned oil and vinegar may be used to marinate salad ingredients. Marinating adds flavor to meat, poultry, fish and potatoes before they are added to salads. To marinate, the food is allowed to stand in the refrigerator for an hour or longer in a marinade made from French dressing or other combinations of oil, vinegar and seasonings. Before serving, the marinade is drained and another dressing is added.

(3) Salad dressings not only enhance the flavors of the ingredients, but serve to bind them together. Select the dressing best suited to the salad ingredients. Serve tart dressings with bland salads; bland dressing with tart foods. See Figure 7-22 for suggested salad and dressing combinations.

Salads	Dressings
Fruit salad:	Creamy fruit dressing, mayonnaise or salad dressing
Fruit salad	French dressing
Grapefruit-orange	Salad dressing
pineapple-cheese	Mayonnaise or salad dressing
Waldorf	
Vegetable-fruit:	
Carrot-celery-apple	Salad dressing or mayonnaise
Carrot-raisin-celery	Salad dressing or mayonnaise
Carrot-pineapple	Salad dressing or mayonnaise
Vegetable:	
Chef's	Blue cheese, French, garlic French, sour cream
Cole Slaw	Salad dressing, vinegar dressing
Cucumber-onion	Built into recipe
Lettuce, wedges	French dressing, mayonnaise, chiffonade, Russian, salad dressing, and thousand island.
or	
Lettuce leaves or any other salad green such as escarole or endive	
Perfection	Salad dressing, mayonnaise, French
Potato	Mayonnaise, salad dressing, or a built-in hot dressing
Spring or garden	Blue cheese, celery, French, garlic French, sour cream, thousand island
Tomato, sliced	Mayonnaise, French, Russian, salad dressing
Tossed	Mayonnaise, blue cheese, French, garlic French, Russian, salad dressing, sour cream

Figure 7-22 - Salad Dressing Combinations

7-E-2.b. Salad Dressing Ingredients.

(1) Salad Oil. Salad oil is an important ingredient in salad dressings. It must be fresh. Salad oil can become rancid and have an unpleasant taste it is exposed to light, air and heat. Wipe off the outside rim of the container after each use to remove any oil which could quickly become rancid. Oil will mix temporarily with liquid after being shaken or beaten, but if the mixture is allowed to stand, it will separate again.

(2) Acid. Fruit juices or vinegar are the acid ingredients in salad dressings. Pineapple or lemon juice can be used instead of vinegar in some recipes.

(3) Seasonings. Salt, pepper and sugar are the usual seasonings in salad dressings. Other seasonings such as mustard, ground red pepper, and herbs add color and flavor.

7-E-2.b.(4) Thickeners (Emulsifiers). Fresh egg yolks are used to thicken mayonnaise or to keep oil from separating from the other ingredients.

c. Salad Dressing Production. The basic rule in making salad dressings is to make them in advance so they will be blended.

(1) Galley-prepared mayonnaise separates if it is not made properly. Some important things to remember are:

(a) Have ingredients at room-temperature before mixing.

(b) Combine ingredients exactly as directed in the AFRS.

(c) Make sure the oil is mixed each time it is added before adding more.

(d) Use a bowl deep enough to allow the mixture to be well-beaten.

(2) Do not store mayonnaise where it could freeze or at warm temperatures. Cover and refrigerate the container when not in use.

(3) Mayonnaise will curdle or separate if the oil is added too fast or if the mixture is beaten too little after each addition of oil. If mayonnaise separates, it may be reformed by adding it very gradually to egg yolks. Use one egg yolk per gallon of mayonnaise.

3. Relishes. Relishes may be any side dish that adds flavor, color and zest to a meal.

a. Sweet-Sour Side Dishes. Relishes may be sweet-sour dishes, such as cranberry sauce, cranberry and orange relish, corn relish, applesauce, pickled cucumbers, beets, carrots, onions, olives, tomatoes, cauliflower, and cabbage. There are several of sweet-sour relish recipes in the AFRS.

b. Two or three different sliced vegetable relishes without dressing add crispness and color to a meal. Many sliced vegetables are excellent relishes.

Examples: Carrot, celery curls
Carrot, celery, sweet(green)pepper and cucumber sticks or strips
Sweet(green)pepper, slices cut crosswise, onion rings
Carrot, celery fans
Radish roses and accordions
Cauliflower buds
Green onions
Ripe or green olives
Crabapples
Spiced apple rings
Pickled cherry peppers or jalapeno peppers
Mixed sweet pickles
Dill pickles
Tomatoes

F. Soups, Sauces and Gravies.

1. Soups. Soup is a tasty, popular food. It is nutritious, wholesome and it stimulates the appetite. Serve soup at least once a day in cold weather, if practical, and at least every few days regardless of the weather. Serve soup as hot as possible.

7-F-1.a. Types of Soups. There are basically three types of soups: light, heavy, and cream soups.

(1) The light soup is thin and clear, and is usually served with a heavy meal.

(2) The heavy soups are thickened with cereals, such as barley, rice or macaroni; the purees are made from cooked peas, beans, or cooked fresh vegetables put through a sieve and added to a light meal. Chowders are a special category of heavy soups.

(3) The cream soups are made from either a stock base, with hot milk added or from a thin white sauce.

b. General Preparation.

(1) The soup section of the AFRS contains recipes for various kinds of meat and chicken stock. The standard stock items such as instant beef, chicken or ham soup and gravy base, may be reconstituted for use in any soup recipe. These powdered bases are seasoned, and when reconstituted in boiling water, they taste like beef, ham or chicken broth. Use the proportions to reconstitute these bases in the miscellaneous section of the AFRS.

(2) Soup stock spoils easily so place it in a clean container and refrigerate until it is used.

C. Vegetables for Soups.

(1) The vegetables most commonly used for soups are celery, carrots, beans, peas, green peppers, onions and tomatoes. Vegetables are cut into small cubes or into match-like strips called julienne. Cook vegetables to be used in soups according to the soup instructions in the AFRS.

(2) The dehydrated vegetables such as parsley, onions, green peppers and potatoes may be used in soups. It is not necessary to reconstitute them first; they may be added directly to the product being prepared.

d. Dehydrated Soups. The canned, dehydrated soups and condensed soups are not only easy to prepare, but they are time and spacesavers.

(1) Prepare dehydrated soups such as chicken noodle, green pea, and tomato-vegetable by adding the required amount of the soup to a specified amount of boiling water. Cover the mixture and allow to simmer for the specified time. The product closely approximates, in appearance and flavor, the same type of soup made from raw food items.

(2) Reconstitute canned condensed soups by using an equal amount of cold water stirred in slowly. A wire whip is a good utensil to use for stirring. Bring soup to a boil and then serve. Condensed soups have the same body, aroma, flavor, color and consistency as soups made from fresh ingredients.

C. Seasoning Soups. The individual recipe specifies the types and amounts of seasonings to use. When meat or chicken stock the flavor is very concentrated so it is essential to use accurate amounts of the ingredients. lust before the soup is served, check it again for proper seasoning. it is better to add more

seasoning a short time before serving than have a soup so highly seasoned it is unpalatable. if the taste check indicates the soup is too salty, add sliced raw potatoes to the soup, simmer for a few minutes, and then remove the potatoes.

f. Thickening Soups. Soups are thickened by adding roux or a paste (slurry).

(1) Roux is a mixture of fat and flour. A cold, light roux is usually added to soups to be thickened. in onion soup, for example, the cold roux is stirred into the 4'ot soup stock and the soup is cooked until no taste of raw starch remains. Roux may be prepared ahead of time and refrigerated.

(2) Paste (slurry) is prepared by whipping flour or cornstarch into a cold liquid usually water, and then adding it to hot liquid and cooked until it thickens. in the final step of preparing bean soup, for example, a flour and water paste is stirred into the soup and cooked for 10 minutes.

2. Sauces. Sauces add to the appearance and flavor of food, but they must not be overpowering. Handle sauces carefully to avoid contamination and food-borne illness. Store in chill space and never hold them longer than three hours at temperatures between 4OF and l40F to 150F.

a. Cream or White Sauce.

(1) Cream or white sauces are made with butter, flour and milk and have many variations. Cook these sauces over low heat. They require constant stirring to avoid scorching. Cook the sauce until it coats the back of the spoon.

(2) Thin and medium white sauces are used to bind ingredients together in scalloped meat, fish, egg and vegetable dishes. Medium white sauce may also be served over food.

b. Butter Sauces.

(1) A white sauce with a high percentage of butter and little or no seasoning other than salt is considered a "butter sauce." This sauce is used principally with green vegetables, such as asparagus and broccoli, %and with fish and shellfish.

(2) Butter sauces are "built-in" to some recipes in the vegetables section of the AFRS. One example is Broccoli Polonaise. Polonaise sauce is made from bread crumbs lightly browned in butter and garnished with chopped, hard-boiled cooked eggs. Polonaise sauce may also be served with cauliflower.

(3) Cold lemon butter sauce is an unthickened sauce made with creamed butter, lemon juice and seasonings served with seafood and vegetables such as brussels sprouts, broccoli and cauliflower.

(4) Drawn (clarified) butter sauce is served separately with lobster and crawfish. The butter is melted over low heat and allowed to stand until the milk solids settle to the bottom of the container. The clear butter fat is skimmed off to make the drawn butter.

7-F-2.c. Sweet Sauces. Sweet sauces or dessert sauces give a delightful finishing touch to dessert dishes. A wide variety of desserts is possible by combining the' various sauces with puddings, cake, fruit and ice cream. Many dessert sauces are named for the chief flavoring ingredient such as butterscotch, lemon, nutmeg, orange and vanilla sauces. These sauces are made principally from pregelatinized starch or cornstarch, sugar, water, butter, salt, and the flouring agent. Occasionally, milk and eggs are used in the preparation.

d. Other Sauces. Prepare sauces served with meat, chicken, seafood, omelets and spaghetti according to recipes in the AFRS. Also, commercially-prepared sauce mixes are available. These include basic tomato, cheese and barbecue sauce. Directions for use are on the containers.

Examples: Sauce	Uses
Sweet, thickened:	
Raisin	Baked ham
Pineapple	Baked ham
Unsweetened, thickened:	
Hot mustard	Ham
Tomato	Veal cutlets
	Stuffed green peppers
Uncooked, unthickened:	
Tarter	Seafood
Seafood cocktail	Seafood
Cooked, unthickened:	
Barbecue	Beef, pork
Spaghetti	Spaghetti

3 Gravies.

a. Kinds of Gravies. Thickened gravies are made by adding flour to the pan drippings after roasting and browning meats. This flour mixture forms a roux when added to stock. Stir and simmer the gravy until the mixture thickens. A good gravy is as smooth as cream.

(1) Cream Gravy. Cream gravies are made by adding milk to the roux instead of stock or water. Cream gravy is usually served with chicken or ham.

(2) Natural Pan Gravy (au jus). Natural pan gravy is thickened gravy usually served with roast beef. Water or stock is added to the meat drippings and the gravy is allowed to simmer until hot.

(3) Brown Gravy. Brown gravy is prepared by cooking the roux until it is brown. Brown gravy is the basic gravy used to make giblet, mushroom, onion and vegetable gravies. Dry brown gravy mix requires that only hot water be added.

7-F-3.b. Gravy Ingredients.

(1) Thickeners. To make smooth gravy, use a roux for thickening. Flour or other starch will form lumps if added directly to hot liquid. To make brown gravy, cook the roux until it is a rich, brown. Add the roux to the hot stock and simmer the mixture until it is thick. To make cream gravy, the roux is cooked but not browned. The roux is added to milk or light stock and cooked until thickened and no taste of the starch remains.

(2) Liquids. If a large amount of gravy is prepared, there should be enough stock to ensure a good-flavored gravy. Tomato juice or the liquid saved from mild-flavored cooked or canned. vegetables (beans, peas, carrots) can be substituted for part of the water. Reconstituted soup and gravy base can be substituted for all or part of the stock. Since salt is an ingredient in these bases, do not add salt until cooking is complete. Then taste the gravy and add salt only if necessary.

(3) Fat. Fat from the pan drippings provides flavor. if there is not enough fat remaining in the pan to make a sufficient quantity of gravy, add melted shortening.

(4) Seasonings. Seasoning the gravy is important. Avoid overseasoning. Add salt and pepper in moderate amounts and taste the gravy during preparation.

(5) Service. If gravy is not served immediately, cover the pan and keep it hot, or refrigerate and reheat it when ready to use. Handle gravy carefully to avoid contamination and food-borne illness. Store it in chill space and never hold gravy longer than three hours at temperatures between 40F and 140F to 130F.

C. Cheese and Eggs.

1. Cheese. Cheese is a milk product treated with an enzyme or acid to cause the milk to separate into solids (curds) and liquid (whey). The varieties of cheese are the results, primarily, of different methods of processing and aging the curd. Processed cheese is made by adding water and emulsifiers to a blend of natural cheese heated and formed into a homogeneous mass. Cheese food is made the same way as processed cheese but it has a higher moisture content. Cheese food melts readily and has a mild flavor.

a. Kinds of Cheese. The kinds of cheese purchased for the military services are:

(1) Blue-Veined Natural Cheese. Blue cheese is a semi-soft cheese which derives its name from the veins of blue mold running throughout. it is similar to Roquefort cheese. It may be served with crackers and as an ingredient in blue cheese salad dressing.

(2) Natural Cheddar Cheese.

(a) Cheddar cheese is a hard cheese used most commonly to make cheese sauce for rice, macaroni, noodle, vegetable and egg dishes.

It is also sliced to serve on sandwiches, with crackers, and diced and cut into strips to add to salads. The flavor of cheddar cheese becomes sharper as the cheese ages.

(b) Cheddar cheese is bought in different weights and shapes called "daisies or triplets" and "flats or twins." Rindless cheddar cheese is also bought. Weight ranges vary from 10 to 20 pound loaves to 40 pound blocks.

(3) Cottage Cheese. Cottage cheese is a soft, uncured cheese also called pot cheese and "farmer cheese." It is available for military services in creamed style and in small and large curd. It may be served alone, with fruit in a salad and in baked lasagna. It is perishable so refrigerate it until served. Check stocks on-hand daily to ensure that the cheese is fresh when served. Dehydrated cottage cheese, small curd creamed style, may be used in recipes specifying fresh cottage cheese. Once it is rehydrated, it is as perishable as fresh cottage cheese.

(4) Cream Cheese. Cream cheese is a soft, highly perishable cheese. Keep it refrigerated; it will keep up to three months. If it is kept frozen in the original container, it will keep up to six months. Thawed it in the chill space and use as soon as possible after thawing. Cream cheese can be combined with fruit in salads or mixed with other ingredients to make stuffed celery, sandwich fillings and appetizers. Soften cream cheese and room temperature before blending it with other ingredients.

(5) Parmesan and Romano Cheese. These are similar kinds of very hard sharp-flavored cheese, which are grated and sprinkled over dishes such spaghetti with tomato sauce and baked lasagna. They may also be used as toppings for casserole dishes and as ingredients in salads and salad dressings. They are sometimes sprinkled on buttered French bread, and heated or toasted.

(6) Provolone and Mozzarella Cheese. These are similar kinds of semi-soft cheese used most often to make italian dishes such as pizza and lasagna Provolone cheese is smoked; mozzarella is not.

(7) Pizza-Blend Cheese. This is a blend of shredded and grated mozzarella provolone, parmesan and romano cheese used to make pizza. it may also be substituted in recipes calling for mozzarella cheese. Unlike mozzarella cheese, keep pizza-blend cheese frozen until it is used.

(8) Pasteurized, Processed American Cheese. This cheese is available I loaves and individual slices. It melts and blends easily and may be use in any recipe specifying cheese. It has a milder cheddar flavor the natural cheese.

(9) Pasteurized, Processed American Cheese (Dehydrated). The AFRS h; guidelines for rehydrating this nonperishable cheese and for its uses cooking. it may be used in any recipe specifying regular process' cheese.

7-G-l.a.(l0) Pasteurized, Processed American Cheese Food. Cheese food is recommended primarily for making grilled cheese sandwiches and cheeseburgers. It melts more readily than processed and natural cheese and blends smoothly and quickly. It has a slightly milder cheddar flavor than processed American cheese.

(11) Swiss Cheese (Natural). Carefully wrap Swiss cheese, like other hard and semi-hard cheese, and store in the refrigerator to prevent drying out. The characteristic holes (eyes) in Swiss cheese develop naturally as the cheese ripens or ages. Swiss cheese may be used in sandwiches, salads, baked dishes and in other recipes specifying cheese.

(12) Processed Swiss and American Cheese. This blend of processed Swiss and American cheese may be used in any recipe specifying cheese.

b. Care, Storage, and Preparation.

(1) Store all cheese in the refrigerator carefully wrapped or in a tightly covered container to prevent drying out. The mold that forms on cheese while it is stored is harmless, but it should be removed before the cheese is cooked or served.

(2) Cheese is easier to rate or shred when it is thoroughly chilled than when it is at room temperature.

(3) Cheddar cheese, cheese food and processed American cheese may be used interchangeably in any recipe calling for cheese.

c. Cooking Cheese. Cook cheese at low temperatures as specified in the AFRS. High heat an prolonged cooking will cause cheese to become tough and stringy. Mixtures containing cheese must be stirred constantly while cooking. When cheese is used as a topping for casserole dishes, add it after the food has been cooked. Place the dish in the oven just long enough to melt and lightly brown the cheese.

2. Eggs. Eggs are a valuable food. They contain minerals, vitamins and protein to build new body tissues, repair old tissues and regenerate the blood. Eggs are easily digested and, if properly cared for and prepared, are delicate in flavor.

a. Egg Usage. There are hundreds of ways to use eggs in food preparation. Below are some of the ways eggs may be used.

(1) Thicken custards, puddings and sauces.

(2) Leaven cakes and cookies.

(3) Add color, richness and flavor to any dish.

(4) Help provide a coating on breaded meats and fish.

(5) Served as a colorful, good-tasting garnish for salads, soups or cold meat platters.

7-G-2.a.(6) Bind ingredients together as in meat or fish loaves and patties.

(7) Emulsify salad dressings.

b. Kinds of Eggs. Fresh and frozen eggs and dehydrated egg mix are available, enabling CGDFs to offer breakfast eggs and to use eggs as cooking and baking ingredients under all operating conditions. Eggs in any form are highly perishable and must be carefully handled to prevent contamination.

(1) Fresh Shell Eggs. These eggs have been in storage for 30 days or less. Processed fresh eggs are specially treated with oil or other processing fluids so they will have a storage life of up to six months if properly handled. Store both kinds of fresh eggs at 32F in a dry, well-ventilated place away from strong odors such as onions. Eggs will lose quality rapidly if stored at room temperature.

(a) Characteristics. The color of the shells and the yolks may vary but this does not affect the nutritive value of the eggs. Occasionally, dark specks may be found in eggs. These do not affect the eggs but they should be removed before the eggs are cooked. If the shell is cracked, use the egg only in recipes requiring cooking. Never use a cracked egg in salad dressings or other uncooked dishes.

(b) Preparation. Remove fresh eggs from the refrigerator one hour before cooking. This will prevent the shells from cracking when they are placed in boiling water and will assure more uniform cooking when they are fried or baked.

1 Egg whites used in cakes and meringues will reach greatest volume if held at room temperature for about one hour before beaten.

2 Before mixing two or more fresh eggs together, and before adding eggs to other ingredients, break one egg at a time into a small dish. If the egg is spoiled, it can be discarded without spoiling the other eggs or ingredients.

(2) Frozen Eggs. Three kinds of frozen eggs are available: whole table, whole bakery, and frozen egg whites. To thaw frozen eggs, place them in a chill or thaw box at 36F to 38F, or place them in a sink and cover the container with cold water. Thirty-pound cans will take two days or more to thaw. A day or more is required to thaw 10-pound cans at 36F to 38F. Do not thaw frozen eggs at room temperature; the outer edges will reach a temperature where bacteria can row, while the center of the container will remain frozen. Once the eggs are thawed, they are very perishable. Place any leftover, thawed eggs in a tightly covered container in a refrigerator and use within 24 hours. Do not refreeze thawed eggs.

(a) Frozen Whole Table Eggs. Frozen whole eggs are especially processed and pasteurized for making scrambled eggs and omelets. They are more expensive than bakery eggs so do not use for baking.

7-G-2.b.(2)(b) Frozen Bakery Eggs. Frozen bakery eggs have the same proportion of white and yolk as fresh eggs. They are unpasteurized so do not use them in omelets or scrambled eggs. Use them only in cakes and other foods requiring thorough cooking.

(c) Frozen Egg Whites. These are intended for use only in baked products. en used for pie meringues, they must be baked as a precaution against food-borne illness. Add dry ingredients slowly when folding them into beaten egg whites.

(3) Dehydrated Egg Mix. Dehydrated egg mix is prepared from fresh whole nonfat milk, vegetable oil, coloring material and salt. The mix may be used to make scrambled eggs and omelets, French toast, griddle cakes, and can be used in place of fresh eggs in baked foods. Place reconstituted egg mix, if not used immediately, in a tightly covered container in refrigerator and use within one hour. Dehydrated egg mix cannot be used in uncooked dishes.

c. Cooking Methods. The AFRS has recipes with detailed procedures for cooking omelets and for fried, scrambled, poached, soft and hard boiled eggs. Key steps for each of these are summarized below:

(1) Fried Eggs. Use only fresh shell eggs and cook them gently until the white is firm. Fried eggs must be cooked at low temperatures; high temperatures will cause them to be tough. Eggs may be fried in greased pans in the oven. Oven-fried eggs require a slightly longer cooking time than those cooked on a riddle.

(2) Scrambled Eggs. Scrambled eggs may be made from fresh eggs, frozen whole table eggs or dehydrated egg mix. Chopped ham or shredded cheese can be added for variety. If scrambled eggs are prepared in bulk for service from steam table inserts, remove them from the heat when they are only slightly thickened; they will continue to cook and thicken while being held. Cook them in small batches to prevent overcooking and drying out on the steam table.

(3) Poached Eggs. Break a fresh shell egg into a small bowl and slip it from the bowl into boiling water; reduce the heat; and allow it to simmer until the white is firm. Remove poached eggs from the water with a perforated spoon.

(4) Soft-Boiled Eggs. Remove from the refrigerator about one hour before cooking. Leave the eggs in the shell. Place them in a wire basket and lower the basket into cold water. Simmer the eggs for three to five minutes.

(5) Hard-boiled Eggs.

(a) Hard-boiled eggs may be served whole (e.g., for sandwich meals), sliced or quartered in salads, as a garnish, or as the main ingredient in dishes such as eggs a la king, creamed eggs and potato salad. Simmer 10 to 15 minutes.

7-G-2.c.(5)(b) Place hard-boiled eggs in cold water immediately after boiling: this will prevent the yolk from discoloring. Leave them in the shells if they are to be stored in the refrigerator after boiling; they may darken if peeled ahead of time. Leftover, hard-boiled egg yolks may be used to garnish green salads, potato salad, macaroni salad or cooked vegetables. To prevent the yolk from crumbling when slicing hard-boiled eggs, dip the knife into cold water before slicing.

(6) Omelets. Omelets are prepared from fresh whole eggs, frozen whole table eggs or dehydrated egg mix. The eggs are beaten just enough to blend the yolks and whites. Crumbled bacon, shredded or ground cheese, chopped ham, mushrooms or vegetables may be added for variation. Individual portions of the eggs are poured onto a greased griddle. The omelet is not stirred during cooking but is lifted to allow the uncooked part to flow onto the hot griddle. When the omelet is set, fold it in half or into three layers.

H. Sandwiches. Sandwiches make satisfying meals and are especially convenient to serve in emergency. This is true under battle feeding conditions when personnel are isolated from regular CGDFs or under similar circumstances. When sandwiches are prepared, remember they will probably be the primary item of that particular meal and must be substantial. When possible, serve sandwiches with a beverage, fruit or fruit juice, and raw vegetables which can be eaten by hand.

1. Preparing Sandwiches.

a. Type of Bread Used. Sandwiches may be made with any kind of bread. Varying the bread helps to avoid monotony. The kind of bread used must be appropriate for the type and flavor of the filling to be used; there is no set rule for such combinations, since the choice is determined by individual taste.

(1) Use slightly firm bread for making sandwiches. Day old bread is preferable because it is more easily handled than freshly baked bread.

(2) Vacant.

b. Sandwich Production. All materials must be ready and ample work space available to begin sandwich production. To make many sandwiches quickly:

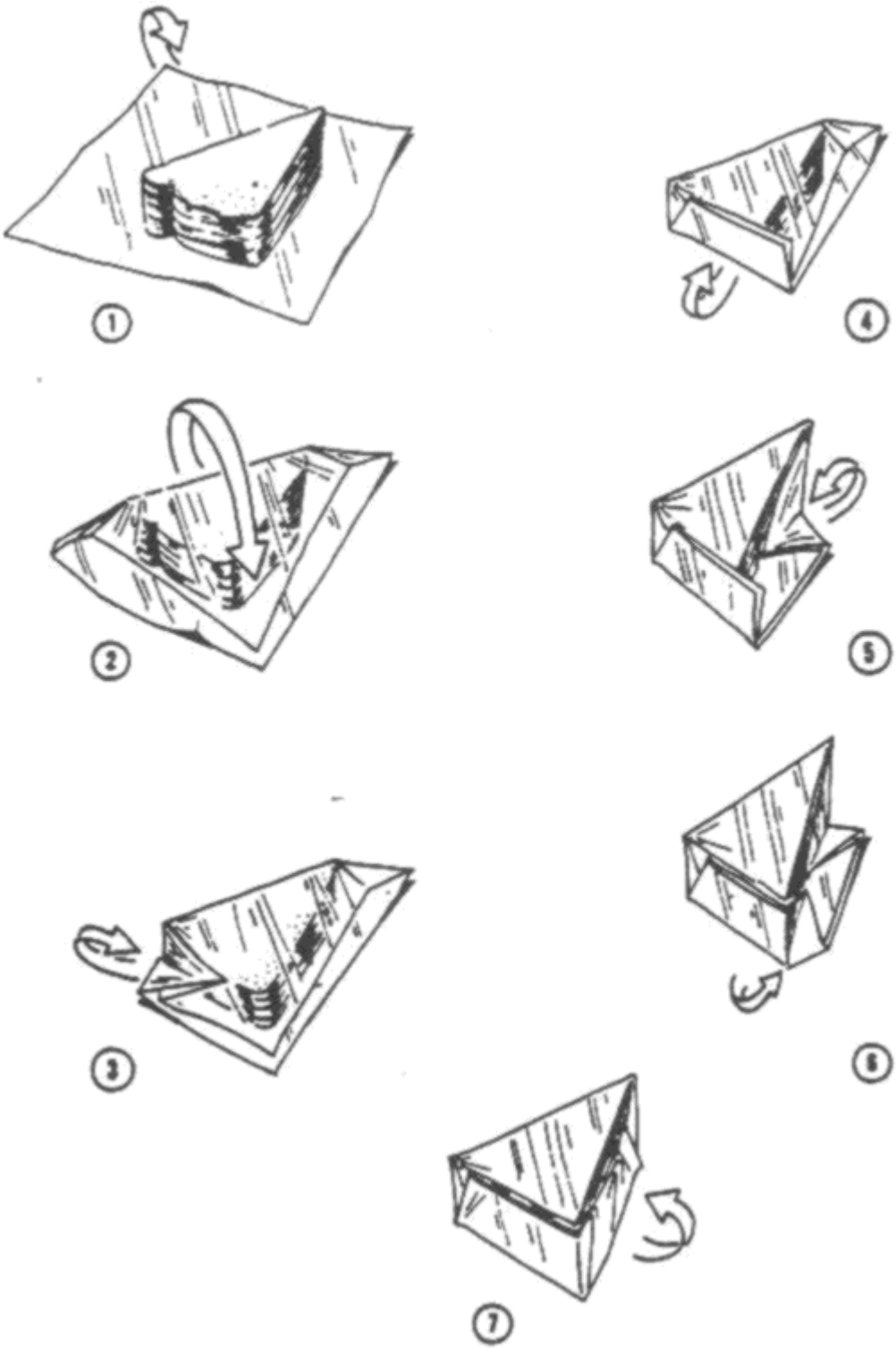
(1) Use a scoop to place salad fillings on bread.

(2) Spread fillings to edge of bread, using two strokes. Place matching slices of bread on top of filling. Use both hands.

(3) Stack sandwiches and cut in half diagonally.

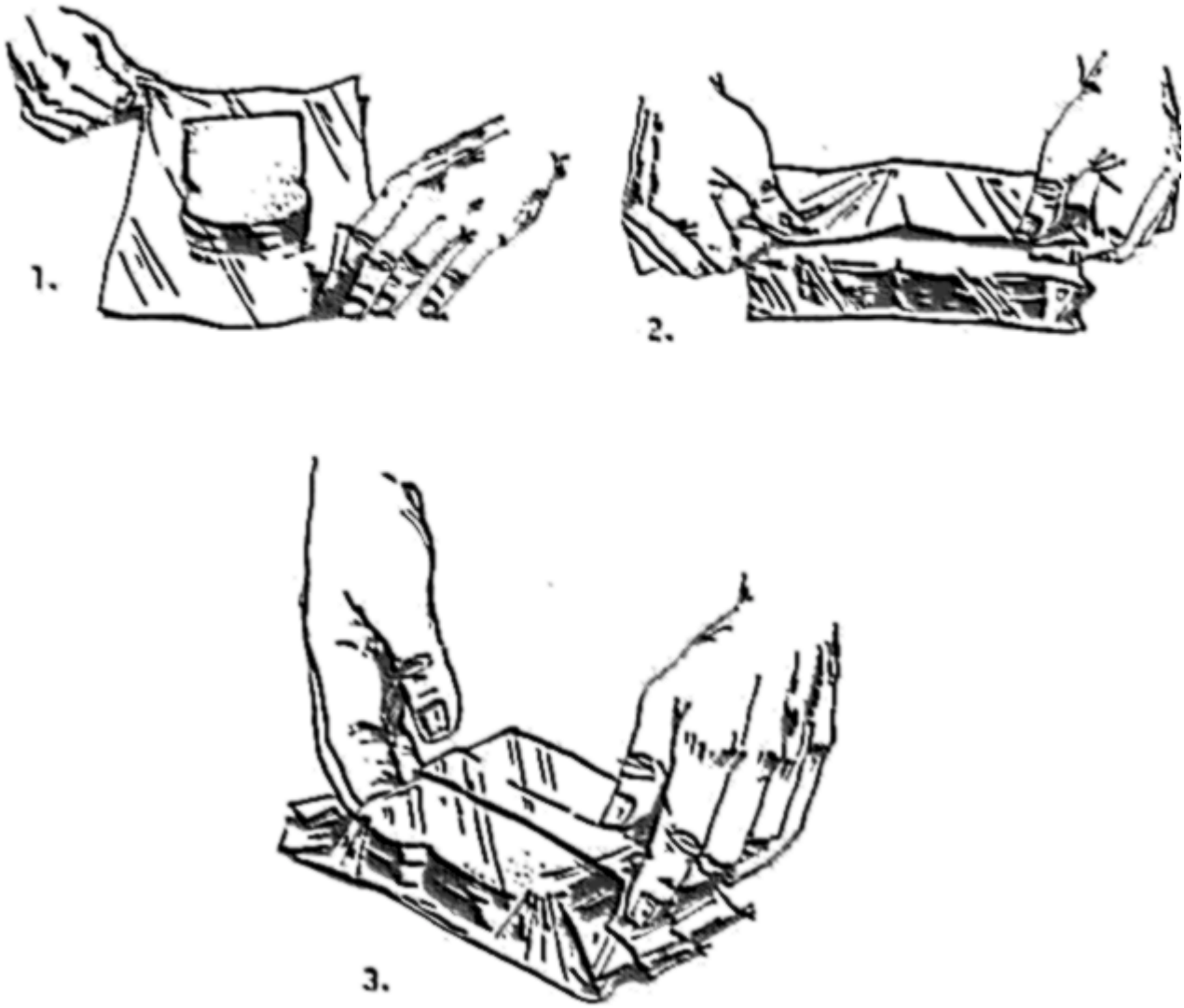
2. Wrapping and Storage Procedures. Bread requires special handling to prevent it from becoming stale. To prevent moisture loss or absorption, observe the tips listed below on wrapping and storing bread and rolls.

a. Wrapping Sandwiches. Place sandwiches in plastic sandwich bags or wrap in other moisture-proof wrapping material. Fold the tops of sandwich bags securely. Two methods of wrapping sandwiches are given in Figure 7-23 and 7-24. indicate the kind of sandwich filling on the wrapping.



Place sandwich in center of 12-inch Square of wrapping paper.
Place one-half of cut sandwich on top of other, the cut edges facing away.

Figure 7-23 - Wrapping Diagonally-Cut Sandwiches in Self-Sealing Packages



1. Use a rectangular piece of wrapping material; place it on the table with the shorter side of the rectangle parallel to the edge of the table. Center sandwich on the paper.
2. Bring the two sides of the paper together and fold over once or twice until fold is flat against the bread.

3. Fold both ends firmly under the sandwich.

Figure 7-24 - Pharmacy Fold Method for Wrapping Sandwiches

7-H-2.b. Storing Sandwich Bread.

(1) Freezing freshly baked bread immediately after it is cooled will prevent it from becoming stale. If properly wrapped and kept at a moderate temperature (75F to 95F), bread will stay fresh for approximately. three days.

(2) Maintain a clean, dry storage place for the bread and rolls; separate from other stores to prevent absorption of odors and flavors.

3. Handling Procedures. The primary rule in sandwich making is to avoid advance preparation. Advance preparation hastens food spoilage and possible food-borne infection. The timing of sandwich making is extremely important. Not more than three hours from preparation to consumption should elapse unless the sandwiches or fillings are refrigerated.

a. Handle the bread and filling as little as possible during all production processes. Do not use your hands directly on the food if tools or equipment can do the job efficiently.

b. Make prepared filling only in quantities as will be used during one serving period.

c. Keep the filled sandwiches at a temperature of 400F or lower, if possible.

d. Avoid leftovers. Do not use any foods for sandwich fillings, including leftover meat and eggs, that have been held at 4F or over for more than 30 minutes. Bacteria grows more rapidly in some foods than in others. Using pickle relish or slightly soured mayonnaise in sandwiches is of no practical value in the control of pathogens or toxins.

e. Do not expose fillings to room temperature for long periods of time, since food poisoning bacteria grow rapidly in many sandwich fillings, especially those fillings containing eggs, moist lettuce, tomatoes or similar foods. Bacteria will grow rapidly in the bread itself when it is moistened by mayonnaise or salad dressing.

f. Immediately following preparation, wrap each sandwich separately, if possible, and refrigerate. Never use a dampened cloth or towel to keep bread or sandwiches moist.

g. Avoid stacking a large number of sandwiches or placing sandwiches in cardboard boxes. This method of storing actually insulates the food and prevents it from cooling as fast as it should.

4. Sanitary Precautions.

a. Always prepare sandwiches under sanitary conditions to prevent contamination. Possible sources of contamination are the equipment, the ingredients (quality), and the workers. Worker’s good health and cleanliness is a must. Strict observance of the rules and regulations established by the medical department and observance of guidelines in the Food Service Sanitation Manual (COMDTINST M6240.4) is vital.

7-H-4.b. Keep sandwich counter and equipment clean and sanitary by thorough daily care.

c. Requisition and prepare refrigerated foods in quantities to guarantee top-quality sandwiches, rapid turnover, and spoilage prevention.

d. Clean the chill boxes and accessories regularly to keep mold and odors to a minimum.

5. Sandwich Variations. There is no limit to the interesting and tasty food combinations that can be used for filling sandwiches. Many good recipes are listed in the AFRS.

a. Club Sandwiches. These are made with three or more slices of toasted bread with butter and two different fillings, one in each layer. Each sandwich is cut into quarters to form triangles. Toothpicks may be used, if necessary, to hold layers together.

b. Grilled or Toasted Sandwiches. The filling, often cheese, is placed between two slices of bread, the top and bottom of the sandwich is spread with melted butter, and the sandwich is grilled on both sides. These sandwiches may be spread with butter placed in sheet pans, and toasted in the oven.

c. French Toasted Sandwiches. The sandwich is dipped in an egg and milk batter, then bread crumbs (optional), and browned in deep fat or on a well-greased griddle. Serve it hot.

d. Open-Faced Sandwiches. One or two slices of bread are spread with butter and topped with any desired filling or covered with slices of meat, cheese or tomatoes. When two slices of bread are used, place them side-by-side rather than one covering the other.

e. Submarine Sandwiches (Hero, Hoagie or Poor Boy). French bread or a hard roll is cut in half lengthwise; each hall is spread with salad dressing, and layers of thinly sliced, chilled salami, bologna, cheese, ham, t3matoes and lettuce are arranged on the bottom half. The sandwich is covered with the top half and cut vertically into portions. If these sandwiches are used for box meals or bag lunches, portion the salad dressings, tomatoes, and lettuce individually and wrap separately.

f. Sloppy floes. These sandwiches are made with barbecued ground beef spread between halves of toasted sandwich buns.

g Hot Sandwiches. Hot open-faced sandwiches with sliced meat and gravy, served with soup, potato and vegetables, are good main dishes for lunch and dinner. Hot sandwiches can also be topped with bread and cut in half.

h. Finger Sandwiches. Two slices of bread are spread with butter and a filling such as egg, tuna or ham salad. Cut the sandwich into three rectangular strips. Because these sandwiches contain salad mixtures, do not use them in box meals or bag lunches. Finger sandwiches are normally served as appetizers or for ceremonial occasions.

7-I. Grain Products.

1. Cereals. Cereals are made from grains of wheat, oats, corn, rice, rye and barley. Cereals are often referred to as breakfast foods but are not limited to the breakfast meal. Cereals can be used in many types of recipes. Cereals are usually classed as carbohydrates and thus are known as energy foods. Some cereals have a great amount of protein and are body-building foods.

   a. Cereal Classifications. Cereals are divided into three main classifications: to-be-cooked, ready-to-eat and instant.

      (1) There are two types of to-be-cooked cereals: 1) those prepared by quick-cooking, and 2) those requiring a longer cooking period (sometimes called regular or old-fashioned).

      (2) Quick-cooking cereals have been manufactured to completely cook in a few minutes. In these cereals the pieces of grain are cut finer and rolled thinner than those in the longer-cooking class.

      (3) Longer-cooking, cereals must be cooked longer so the starch is completely cooked.

   b. Cereal Preparation.

      (1) Grains contain a large proportion of starch. The grains increase in bulk and become thicker as they are cooked. The cooking process makes the cereal starch soft and more easily digestible and develops the flavor. The starch in cereal cooks quickly so long slow cooking is not necessary.

      (2) Cooked cereal must be lump-free and cooked to the proper consistency. So cooked cereal will retain its full flavor and not become too thick, cook it a short time before serving.

      (3) Serve cereal piping hot.

      (4) Cook flaked granular cereals such as rolled oats and whole wheat cereal by sprinkling them into boiling salted water.

      (5) Cereals such as farina and cornmeal are made into a paste by mixing them in cold water; then add the mixture to boiling salted water. The water must continue to boil while the cereal is being added.

      (6) Vigorous stirring or beating of the cereal while it cooks tends to make it sticky and gummy.

2. Other Cereal Foods. Macaroni, spaghetti, noodles, barley, vermicelli and rice are also made from grains and classed as cereal foods.

   a. Macaroni Products. These products are made of semolina (purified wheat substance),durum wheat flour and water. The resulting mixtures are rolled, shaped and dried into various forms. Included in this group of products are: 1)macaroni, 2) vermicelli, 3) spaghetti, 4) egg noodles and 5) lasagna noodles. In addition to the semolina paste, noodles contain eggs.

7-I-2.a.(l) Elbow-shaped macaroni is made into pieces varying from 3/4 to 1 1/2 inches in length. Macaroni cooks in about 15 minutes. Do not overcook macaroni. Overcooking develops a soft and shapeless unappetizing mass. Drain immediately after cooking.

(2) Vermicelli is a small, solid, round-rod spaghetti, not as thick in diameter as spaghetti, but is can be cooked and used similarly to spaghetti.

(3) Spaghetti is solid (not a hollow tube) and cooks in the same length of time as the macaroni.

(4) Egg noodles are narrow strips of unleavened egg dough that have been rolled thin and dried. Cooking procedures are the same as macaroni.

(5) To keep lasagna noodles from sticking together, add salad oil while cooking and drain and wash in cold water after cooking. Uncooked noodles may be broken in half to make handling easier.

b. Rice and Barley. Rice is a cereal-like product but is discussed separately because of the differences in cooking properties and uses.

(1) Rice. The rice purchased for the armed forces is parboiled and long grained. Cooking time is 20 to 25 minutes. Do not wash parboiled rice. Rice may be cooked in a steamer, steam-jacketed kettle, in the oven or in a stock pot. Rice will approximately double in bulk when cooked. Rice rains should appear tight textured when cooked, with grains standing apart separately. This standard can be obtained if cooking directions are followed. Cover cooking utensil tightly while simmering rice. Then uncover and allow rice to steam dry. Adding salad oil aids in keeping rice rains separated and improves the flavor of the cooked product. Do not stir.

(a) Rice Usage. Rice may be served plain, as a potato substitute, combine with other ingredients in a main dish, added to salads or topped with highly-seasoned sauce. For variety, combine rice with herbs, spices, chopped onions or nuts. Rice pudding can be served for dessert.

(b) Vacant.

(2) Barley. White pearl barley is made by removing the outer husks of the barley rain and polishing it to a round shape of various sizes. Barley is used in soups in the AFRS.

J. Beverages. Beverages are an important part of Coast Guard meals.

1. Beverage Quality. The quality of most beverages depends on:

a. Clean and sanitary mixing, dispensing and/or cooking equipment.

b. Correct preparation methods.

C. Accurate measurements as specified in recipes or on food containers.

d. Correct temperature during preparation and holding.

e. Batch preparation to ensure freshness.

7-3-2. Types of Beverages Available. These hot and cold beverages are served with Coast Guard meals:

Examples:		
	Milk	Fruit and vegetable juices
	Coffee	Fruit juice drinks
	Tea	Fruit-flavored drinks
	Cocoa	Soft drinks

3. Milk. Milk is usually classified as a beverage. In the literal sense of the term, however, milk is not a beverage but is one of our most important and highly used foods. In the Coast Guard, milk rates top billing on the list of the best liked foods.

a. Forms of Milk Available. Milk is `available in many forms. Listed below are the most common types used in the CGDFs.

Examples: For Beverage Use:
Fresh whole milk
Fresh skim milk
Instant, dry nonfat milk

For Baking and Cooking Use:
Dry nonfat milk, conventional, style A
(recommended for bread baking)
Dry nonfat milk, conventional, style B
Evaporated milk

(1) Fresh Whole Milk. Whole fresh milk is used primarily as a beverage, although it may be used in cooking if costs allow and storage is adequate.

(a) Food service personnel responsible for the dispensers and milk containers must be thoroughly familiar with regulations on holding milk.

(b) No advance preparation is necessary for fresh milk, except to keep a constant watch on holding temperatures to ensure maximum keeping quality and palatability.

(2) Fresh Skim Milk. Fresh skim milk is lower in fat content than whole milk and should be available.

(3) Instant Dry Nonfat Milk. This milk is used primarily as a beverage. it is more readily dissolved in water than the conventional dry nonfat milk. Directions for use of this milk are printed on the container. If acceptability of this type milk as a beverage is not as good as anticipated after following directions on the container, reconstitute it at a ratio of 18 ounces of milk solids to 1 gallon of cool water.

(4) Dry Nonfat Milk, Conventional.

(a) Style A milk is designed specifically for achieving volume, flavor and crust characteristics in yeast breads. Use only for bread baking.

7-3-3.a.(4)(b) Style B milk is designed for beverage use and for cooking and baking (other than bread).

(c) To increase palatability of beverage milk prepared from nonfat dry milk, weigh all dried milks to eliminate the possibility of underestimating or overestimating quantities used. Follow directions carefully; always add milk solids to water, not water to milk solids. Observe the procedure for combining ingredients to prevent pastiness and stickiness from undissolved milk crystals, especially of the conventional spray-produced types used.

(5) Evaporated Milk. The most generally used concentrated form of milk is rate milk. Although this milk is rarely used in its pure form as a beverage, it is discussed in this section because of its importance as an ingredient in the preparation of beverages.

(a) Evaporated milk is made by a process that removes about 60% of the water. This is done by using temperatures below boiling and applying vacuum. This concentrated form of milk is homogenized, fortified with vitamin D, and sealed in air-tight cans. These cans are heated by steam at high temperatures for a short period to destroy bacteria.

(b) The product of this process has unusually good storage and cooking qualities. Evaporated milk in unopened containers is storable for long periods of time if the containers are turned over every few weeks to prevent the separation of fat particles. On extended storage the fat tends to rise even though homogenized. By frequent turning of the cans, this fat may be reblended into the evaporated milk by shaking the cans.

(c) Evaporated milk can be restored to the original whole milk volume by replacing the removed water. Mix equal quantities of evaporated milk and water for a whole milk. Information in the AFRS specifies reconstituted evaporated milk may be used in any recipe requiring whole milk.

(d) Perhaps the greatest use of undiluted evaporated milk in the CGDFs is in coffee. The convenience of adding this product as "cream," directly from the can has helped perpetuate its use in the Coast Guard, a tradition almost as indispensable as coffee drinking itself. The only limitation to its constant use is in maintaining proper sanitation and refrigeration.

b. Problems with Milk Usage. Milk prepared for use as a beverage or used in food production may impose many technical and sanitary problems. The solution comes, not only through exact preparation techniques, but more importantly, by having a firsthand acquaintance with each type of milk. This includes:

(1) Selecting the proper types of milk to meet specific operational requirements.

(2) Knowing intended use of each item.

7-3-3.b.(3) Knowing how milk reacts in combination with other ingredients.

(4) Handling in accordance with safe sanitary procedures.

4. Coffee. The AFRS contains directions for brewing mild and strong coffee. Good coffee has a deep-brown, not black, color. It smells fragrant and mellow with no rancid, oily or bitter taste. The strength of the coffee depends on the proportion of coffee to water. A stronger brew is made by using more coffee in proportion to water; where as a milder brew is the result of a smaller proportion of coffee. Bitterness results from brewing the coffee too long.

a. Ingredients. Although only two ingredients are used in making coffee, the quality and proportion of each is very important.

(1) Water affects the flavor of the coffee. For best results, use freshly drawn cold water. Warm water makes the coffee taste flat. Flush out water from the cold water pipes before drawing the amount to be used.

(2) Coffee is available in these form:

(a) Roasted and Ground Coffee. This coffee is used in manual and automatic urns, automatic coffee makers, and steam-jacketed kettles.

(b) Freeze-Dried Instant Coffee. This coffee is usually used with a freezed-dried coffee dispenser, but may also be prepared in a coffee urn. This type of coffee packed in flexible packages offers reduced storage space, cost and weight as compared to roasted and ground coffee.

b. Coffee-Making Equipment.

1. Types of Equipment.

(a) Coffee Urns. These urns have a basket to hold the measured coffee. To get a clear brew, the baskets must have filters, such as urn bags or paper liners. An urn bag (leacher bag) is made of muslin and has a hem that slips over a metal ring. The ring rests on top of the inner liner of the coffee urn or may fit into an urn basket. Wash new urn bags or cloth filters thoroughly in 1400F water to remove the starch sizing or any foreign material. Do not allow urn bags to dry out because they will shrink and cause the coffee grounds to overflow into the urn. Disposable paper filters are available for most urns. If paper filters are used, the basket must be dry before the filter is placed in it. Then spread the measured coffee evenly in the filter. Never operate an urn without water because this may damage the heating elements and thermostatic control.

1 Manual Coffee Urns. Manual coffee urns heat the water by using a boiler. They may be a piece unit (2 urns connected to a boiler), a 2-piece unit (one urn and a boiler), or a combination or twin unit, used to save space. The water

boiler surrounds the urn instead of standing separately. These urns require more time to prepare coffee batches because a heat recovery period must be allowed. In some types, the coffee must be drawn off and kept warm while a new batch is being prepared. When a manual urn has no agitation system, the coffee must be drawn off and repoured into the urn after the urn bag has been removed.

2 Automatic Coffee Urns. Automatic coffee urns are designed to brew coffee by push-button control. The urn has an instant heater, to automatically heat the water. It then sprays a measured amount of water evenly over the ground coffee, blends the coffee and maintains the proper temperature. The timer automatically resets for continuous brewing.

(b) Automatic Coffee Makers. These coffee makers make one pot of coffee at a time. The measured coffee is placed on filter paper in a funnel and placed in the coffee maker. A clean, empty pot is placed on the heating element of the coffee maker. At the push of a button the water is instantly heated and passes through the grounds into the pot. Do not hold the coffee longer than 30 minutes.

(c) Steam-Jacketed Kettles. These kettles may also be used for brewing. The coffee is placed in a clean, cloth bag and then placed in a kettle of boiling water. The heat is reduced and the coffee is allowed to brew 12 to 13 minutes. Follow the AFRS instructions.

(d) Freeze-Dried Coffee Dispensers. These dispensers make coffee as needed. Boiling water is mixed with the coffee automatically at the push of the button. The dispenser has an aluminum hopper and adapter kits to allow interchange of funnels to accommodate the coffee granule size, which varies from one manufacturer to another. The institutional-size, flexible package of freeze-dried coffee is designed for use with the dispenser.

(2) Maintenance of Equipment. Coffee-making equipment must be properly maintained to ensure good coffee preparation. Following these basic procedures:

(a) Keep the coffee-making equipment absolutely clean. Wash the urn with clear, hot water immediately after use and at the end of the day clean it with hot water and urn cleaner. Rinse thoroughly with clear water. Never use soap or soap powder.

(b) When the equipment is not in use, leave one or two gallons of clear water in the urn. Drain it before making fresh coffee.

(c) Remove the urn faucet once a day and scrub it with hot water, baking soda and a brush. Use a tablespoon of baking soda for each quart of water. Be sure to rinse thoroughly.

7-3-4.b.(2)(d) Clean the glass gauges at least twice a week with hot water, baking soda and a brush.

(e) Rinse the urn bag in clear, hot water after each use. When not in use, keep the bag in cold water. Renew the cloth bag when necessary.

c. Coffee Preparation. Follow the AFRS instructions to ensure a good coffee brew. Also, these basic guidelines are important in coffee-making:

(1) Use clean equipment including coffee cups.

(2) Use fresh water and coffee.

(3) Follow measurements and brewing time exactly.

(a) Never allow coffee to boil since the flavor and aroma will boil off.

(b) Remove the grounds as soon as the coffee is made. Seepage from the used grounds will ruin the flavor of the best coffee.

(4) Prepare only quantities necessary to maintain continuous service. Hold at a temperature of 185F. Do not hold brewed coffee for more than one hour because it deteriorates in flavor and loses its aroma.

(5) Allow S to 10 minute setting period before service.

(6) Use equipment correctly. Read the manufacturer's directions. Storage. To ensure coffee is always fresh, use older stocks first. To help prevent staling, flavor loss and absorption of odors, keep opened containers tightly covered when not in use. Plastic lids are available for the pound can of roasted and ground coffee. If possible, refrigerate coffee to keep it fresh. Leave flexible packages of freeze-dried coffee in the shipping container until needed to avoid ripping or puncturing the bags and crushing the coffee.

5. Tea. Normally, two forms of tea are used: 1) bulk tea and 2) teabags. Instant, powdered tea, however, also has special uses in the military services.

a. Brewed Tea. The quality of brewed tea depends on how fast the boiling water extracts flavor and color from the tea leaves; it is the tannin present in the leaves that gives the tea a bitter taste. Improper temperatures, brewing too long and holding tea too long for service will bring out the bitterness. Measure the proper quantities of water and tea carefully. Never guess at the amounts.

(1) Hot Tea. In preparing hot tea beverages, follow these simple rules:

(a) When loose tea (not enclosed in cloth bag) is placed in the urn or kettle, strain the tea after it has steeped for five minutes.

(b) Make tea just before serving.

(c) Do not boil; this brings out the bitter taste.

7-3-5.a.(l)(d) Schedule preparation so not more than 15 minutes will elapse between its preparation and service; hold prepared tea at 175F to 185F.

(e) Keep all tea containers tightly closed to ensure freshness.

(2) Iced Tea. Observe the following points when preparing iced tea:

(a) A stronger brew is required for iced tea than for hot tea because of the diluting action of the ice.

(b) A tea concentrate may be brewed and chilled, then diluted before serving.

(c) Do not add cold water to the concentrate; this may produce a cloudy tea infusion. Pour the concentrate into the cold water.

(d) The tea may be presweetened by dissolving sugar in the hot concentrate before diluting it with cold water.

(e) If desired, cut lemons into eighths to serve with tea.

b. Instant Tea. Instant tea is available in institutional size containers for use with iced tea dispensers or for bulk preparation. Instant iced tea dispensers combine instant tea and water automatically for iced tea. The dispensers are preset to produce a beverage suited to the average consumer's taste. if a different setting is required, consult the manufacturer's guide.

6. Fruit and Vegetable Juices.

a. Single-Strength Fruit and Vegetable Juices. These juices are available in a wide variety of flavors. Preparation is simple, requiring only chilling, opening and pouring. To ensure a quality beverage: 1) shake the can to blend the juice and the solids which tend to settle; and 2) serve as soon as possible alter opening to ensure the particles stay suspended. Transfer unused portions of opened cans to a clean storage container with a tight-fitting cover. If uncovered, the juice will absorb refrigerator odors and flavors. A "tinny" taste may develop if the juice is stored in the can.

b. Frozen Concentrated Fruit Juices. Juices require minimum storage space and make an excellent tasting fruit juice. Keep them at 0F or lower to retain maximum quality.

C. Canned Tomato 3uice Concentrate. A concentrate may be used to make tomato juice or tomato paste. Follow the guideline card in the AFRS for reconstitution.

d. Instant Fruit Juices. These juices are easy to use and can be kept in dry storage. They are crystalline powders that readily dissolve in water. The reconstituted juices compare to fresh and frozen fruit juices in flavor and appearance. The instant fruit juices available are unsweetened orange, sweetened grape and grapefruit. They are packed in cans with a desiccant bag

to takes up moisture. When preparing the juice, discard the desiccant bag; its contents are not edible. Do not reconstitute partial quantities of a can. Instant juices absorb moisture rapidly and will cake and harden after opening.

e. Fruit Juice Drinks. These drinks may be prepared from canned, frozen or instant fruit)juices. They include cocktails, punches and ades, such as lemonade. Follow the directions in the AFRS.

7. Fruit-Flavored Drinks. Unsweetened, powdered beverage bases are used to make fruit-flavored drinks. Sugar and water are added according to directions on the container.

8. Soft Drinks. Sugar-sweetened and low calorie liquid beverage bases are available in various flavors for soft drinks. The liquid beverage bases are concentrated syrups, designed to be mixed with water or carbonated water in soft drink dispensers. Follow the manufacturer's directions for dispensing. Individual containers of carbonated and noncarbonated soft drinks are authorized for special occasions.

9. Cocoa. Cocoa beverages can be prepared with natural, dry cocoa, sugar, nonfat dry milk and other ingredients, or by using a presweetened cocoa beverage powder mixed with boiling water. The AFRS gives directions for both types; however, since the natural dry cocoa must be cooked, it is more often used in baking. individual and bulk packages of presweetened cocoa beverage powder are available. The individual size is intended for self-service; the bulk package is designed for use with a dry cocoa dispenser.

a. Dispenser. Ensure cocoa dispensers purchased are for the dry mix; liquid hot chocolate is not authorized. The dry mix and liquid products are not interchangeable nor are their dispensers.

b. Vacant.

K. Desserts. Dessert adds the finishing touch to a meal. Do not consider a dessert a sweet extra, but rather an important a part of the meal.

1. Serving Considerations. All foods in the meal must blend together and provide contrasts of color, texture, temperature, shape and flavor. Consider all of these things when planning the dessert.

a. A dessert must harmonize with the food preceding it.

b. The flavor of the dessert must blend with the other courses. With a light meal, the dessert may be a hearty one. With a hearty meal, a light dessert is in order.

c. With a rich and highly seasoned meal, a simple, mild-flavored dessert is best.

d. The dessert must help balance the meal. Too many sweet-tasting foods with no tart food or too many tart foods without some sweet-tasting food is not satisfying. A tart fruit dessert, therefore, seems the perfect finishing touch for a roast pork dinner, and a raisin rice pudding is a good dessert for a main fish course served with lemon.

7-K-2. Cakes. Cakes &e popular desserts in the CGDFs. A wide variety of colors from a few basic recipes is possible using varied frostings or fillings. Cakes are easily made in large quantities, and they are less perishable than many other types of desserts. Service in the CGDF is increased by using cakes for dessert because they can be made ahead of time.

a. Ingredients.

(1) Eggs. Eggs work with the gluten in the flour to bind cake batter. They act as a leavener by retaining air which expands during baking. Eggs also assist in emulsifying the fats in cake shortening ingredients and add moisture, color and flavor.

(a) Fresh shell eggs, frozen whole bakery eggs, frozen egg whites and dehydrated egg mix may be used. Frozen table eggs are specially processed for omelets and scrambled eggs. Do not use them for baking because they are more expensive than bakery eggs.

(b) Fresh shell eggs vary in size and must always be broken out of the shell and weighed to assure the correct amount.

(c) Egg whites for whipping must be free of grease or traces of egg yolk. As little as one-tenth of one percent of an egg yolk will adversely affect the whipping quality.

(d) Thaw frozen eggs. After thawing, stir and measure them. When substituting dehydrated egg mix for fresh eggs, follow the directions given in the AFRS Guideline Card A-a. Dehydrated egg mix cannot be used for spongecakes because processing and added ingredients in this mix cause it to interfere with the development of a foam-type batter.

(2) Fat. Fat carries the air in the finished cake batter; this air has a tenderizing action on the cake by virtue of its leavening action.

(a) Shortening makes the baked product tender and is considered a tenderizing agent.

(b) Butter and shortening compounds, with or without emulsifiers, are used in most cakes and cookies. Fat helps retain moisture and produce a tender product. Fat must be thoroughly dispersed throughout the batter. Bakery emulsifier shortening aids in even distribution of fat and yields cakes of larger volume, finer rain, and more moist and even texture than cakes made with shortening compounds without emulsifiers. Bakery emulsifier shortening, salad oil and other kinds of shortening cannot be used interchangeably. Cake recipes are formulated only for the kind of shortening specified; do not substitute another kind.

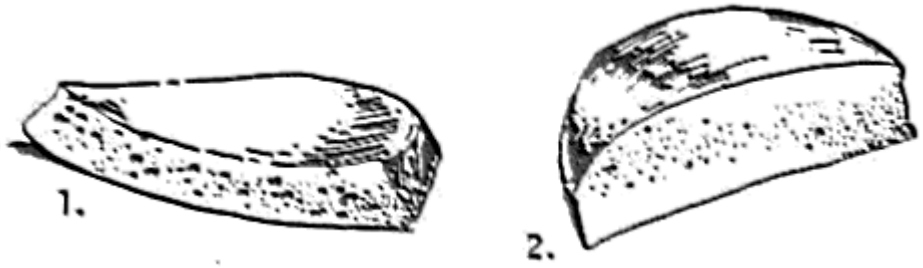
(3) Leavening Agents. Cakes and cookies are leavened during baking by the expansion 0 air incorporated during mixing and by the expansion of gas formed by chemical leaveners (baking powder and baking soda).

7-K-2.a.(3)(a) The manner of leavening depends on the type of cake being made (the richness of formula, consistency of batter and baking temperature).

(b) Vacant.

(4) Liquids. Liquids such as eggs and milk are needed to combine and activate the other ingredients and to control the consistency of the batter. Water and milk are usually specified in the AFRS recipes. The nonfat dry milk may be sifted with the other dry ingredients. Orange or pineapple juice may be substituted for all or part of the water called for in white or yellow batter cakes. Some recipes, such as Apple Dilly cake, specify coffee as the liquid.

(5) Flour. Flour furnishes structure to cakes and cookies, binds the ingredients together and stabilizes the batter during mixing. The AERS recipes for cakes and cookies specify general purpose flour. This flour produces cakes with medium grain and texture. Bread flour, by contrast, contains more protein and produces a dry, coarse textured cake. See Figure 7-25.



1. Cake made from Bread Flour
2. Cake made from General Purpose Flour

Figure 7-25 - Differences in Cake Flours

(6) Sweeteners.

(a) Sugars, used chiefly as sweeteners, have a tenderizing effect resulting from their ability to soften flour protein and starches. By lowering the caramelization point of the batter, sugars allow the cake crust to color at a lower temperature. Sugars also help to retain moisture in the baked cake keeping the cake moist and edible for several days.

(b) Other sweeteners, such as brown sugar and molasses used in spice cake and gingerbread, and some cookies such as chewy nut bars and brown sugar cookies, help retain moisture and add a distinct flavor4

7-K-2.a.(7) Salt. Salt brings out the flavor of the other ingredients.

b. Types of Cakes. Cakes can be divided into three separate groups according to the ingredients and the proportions of the ingredients used in each. The three groups are:

(1) Batter Cakes. Batter cakes contain shortening. They include:

(a) Pound cake (loaf-type) containing high percentages of fat.

(b) Plain cakes (basic-type or layer) containing smaller percentages of fat.

(c) Chocolate cakes (cakes using cocoa and soda) such as devil's food and mild chocolate cakes.

(2) Foam Cakes. These cakes contain no fat. They include:

(a) Angel Food cakes, using only egg whites for foam.

(b) Sponge cakes, using whole eggs Or egg yolks (or a combination of these) for foam.

(3) Chiffon Cakes. Chiffon cakes contain foam and batter, mixed separately and folded to a mixture.

C. Cake Preparation. The subdivisions of the three groups are many and generally depend on the method of mixing the ingredients, on the variation of ingredients and on the variation of ingredients added to the basic recipe. Batter and sponge-type cakes are the ones normally prepared in CGDFs.

d. Cake Mixes. Cake mixes are convenient to use as they require shorter preparation time, less storage space, no refrigeration, and less training and experience to prepare successfully than cakes made from recipes using the basic ingredients. Cake mixes are available in a variety of flavors and preparation instructions are printed on the containers. Depot-stocked cake mixes are complete mixes requiring only adding water. They contain a leavening agent, bicarbonate of soda (baking soda), packed separately inside the container. The soda packet must be mixed thoroughly with the dry ingredients before adding water. Cheesecake mix is combined with milk then mixed. No baking is required. Recipes for variation to cake fluxes are in the AFRS. Read the AFRS Guideline Card for Using Cake Mixes. Figure 7-26 illustrates a battercake scaled too heavily.

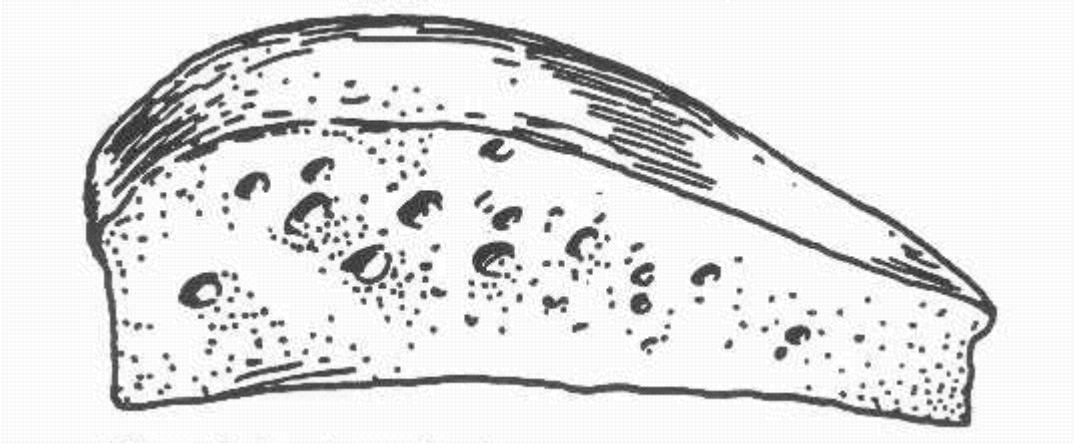


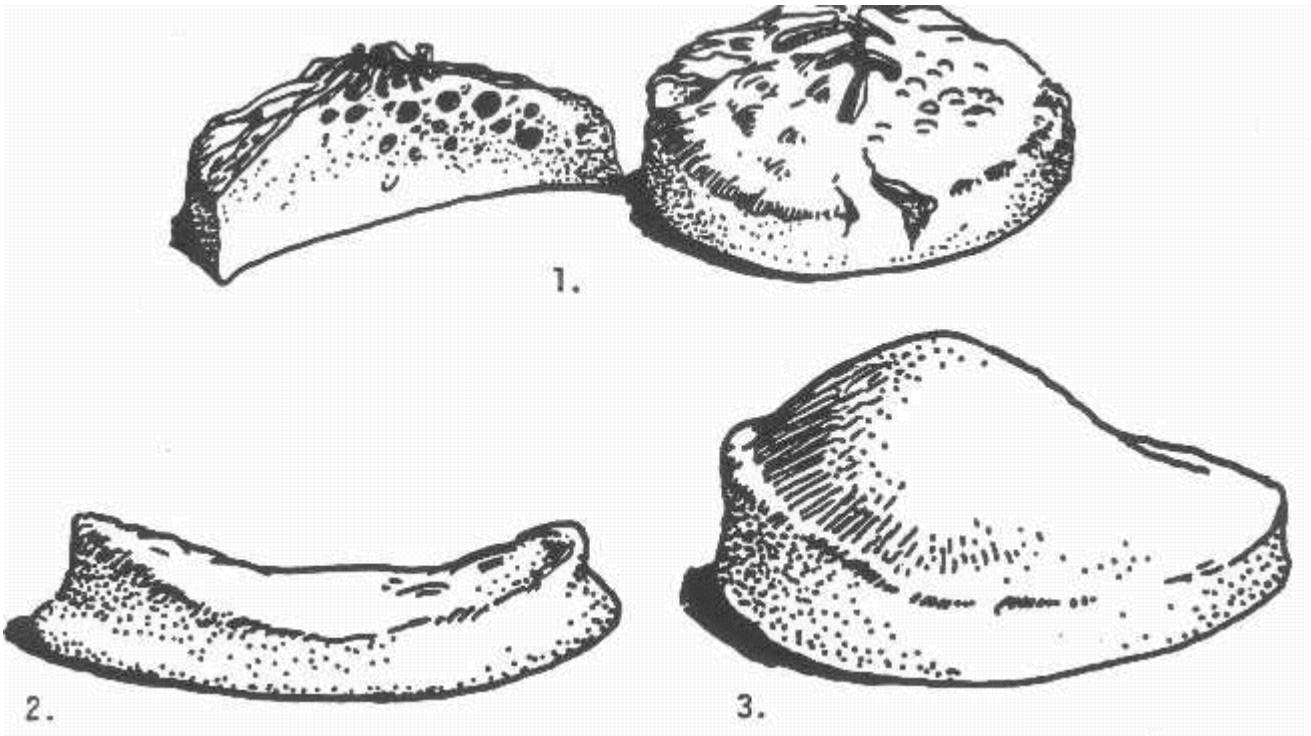
Figure 7-26 - Example of a Battercake Scaled Too Heavily

7-K-2.e. Cake Pans. Handle cake pans carefully so they do not warp or bend. Do not use pans that are bent out of shape because cakes will be uneven in shape and color. Cake pans may be greased, greased and dusted with flour, or lined with waxed paper. Each AFRS cake recipe specifies which method to use. A pan coating (dobie) made from shortening and flour mixed may be used to grease cake pans. In cold weather, salad oil may be added to the mixture to facilitate spreading. Note: Do not grease pans for angel food cake because the fat will keep the cake from rising.

f. Pan Cleaning. If grease is allowed to build up in pans, especially in corners, it can become rancid and give an objectionable taste. Clean baking pans thoroughly each time they are used.

g. Baking Temperatures. Baking temperature is of the utmost importance for it determines the texture of the baked product.

(1) Set the oven at the specified temperature and allow enough time for it to reach the correct temperature so the cakes can be placed in the oven as soon as they are mixed. Check the oven thermostat from time-to-time to make sure it is working properly. If the oven is too hot, the cake will have a peaked, cracked surface and will be too brown. It will also be dry and shrink excessively. If cakes are baked too rapidly, the outer edges will be done while the center will be uncooked and the cakes will fall when they are removed from the oven. If the temperature is too low, the cake will not rise well. Sec Figure 7-Z7.



1. Batter cake baked in too hot an oven
2. Cake at too low a temperature
3. Cake resulting from uneven oven floor

Figure 7-27 - Baking Conditions Affecting Cake Quality

7-K-2.g.(2) Allow space in the oven between the pans so that heat can circulate. Place cake pans so they do not touch each other or the sides of the oven.

(3) The AFRS Guideline Card gives the causes of cake failures and defects.

h. Baking. During baking, the proteins in the flour and eggs coagulate and the starch in the flour swells and absorbs moisture, causing the cake to become firm. Baking takes place in four stages. In the first stage, the batter is fluid and rises rapidly as the leavening develops. In the second Stage, the batter continues to rise and the cake becomes higher in the center than at the edges. Bubbles rise to the top, the surface begins to brown, and the batter begins to become firm on the edges. In the third stage, the cake has completed rising and it becomes firmer and browner. In the fourth stage, browning is completed and the structure is set.

i. Convection Ovens. In general, baking times for cakes are shorter and the cooking temperatures are lower in convection ovens than those specified in the AFRS. Do not open the oven door until baking time is almost ended or the cake may fall. In convection ovens, the four cake-baking stages described above may be observed through the view ports so over-and under-baking can be avoided.

(1) Overloading convection ovens will cause cakes to bake unevenly. To load cakes into convection ovens, start with the bottom racks, centering the pans. The pans must not touch the heating element located at the back or the sides of the oven. Leave one to two inches between pans so air can circulate.

(2) Turn the fan off when loading and unloading the convection oven. When baking cakes, preheat the oven 230F above the temperature specified in AFRS cake recipes. Turn off the fan and reduce the heat 250F.

(3) Load the cakes and allow them to bake for 7 to 10 minutes before turning on the blower fan; or if the fan has two speeds, use the lower speed.

(4) Check the cake in about one half the cooking time specified in the convection oven owners manual. If the cakes are baking too quickly (cooked around the edges, but not done in the middle), reduce the heat 15F to 25F further and use this lower temperature for each successive load. The oven vent must be open when baking cakes. If the vent is closed, the moisture in the oven will keep the cakes from rising. A fully loaded convection oven will bake cakes more slowly than a partially loaded oven. Note the correct times and temperatures on each recipe card for future reference.

j. Testing for Doneness. To determine if the cake is done, touch the center of the cake lightly I the impression remains, return the cake to the oven for three to five minutes more and then retest. A toothpick or wire cake tester may be inserted into the cake. If no batter clings when it is removed, the cake is done. Batter cakes will shrink slightly from the sides of the pans when done.

7-K-2.k. Cake Cooling. If space is limited, cakes may be cooled, frosted and served in the baking pan. If the cake is to be removed from the pan for icing, decorating and service, allow it to cool for about 15 minutes or as directed in the specific recipe.

(1) Remove jelly rolls from pans while they are hot.

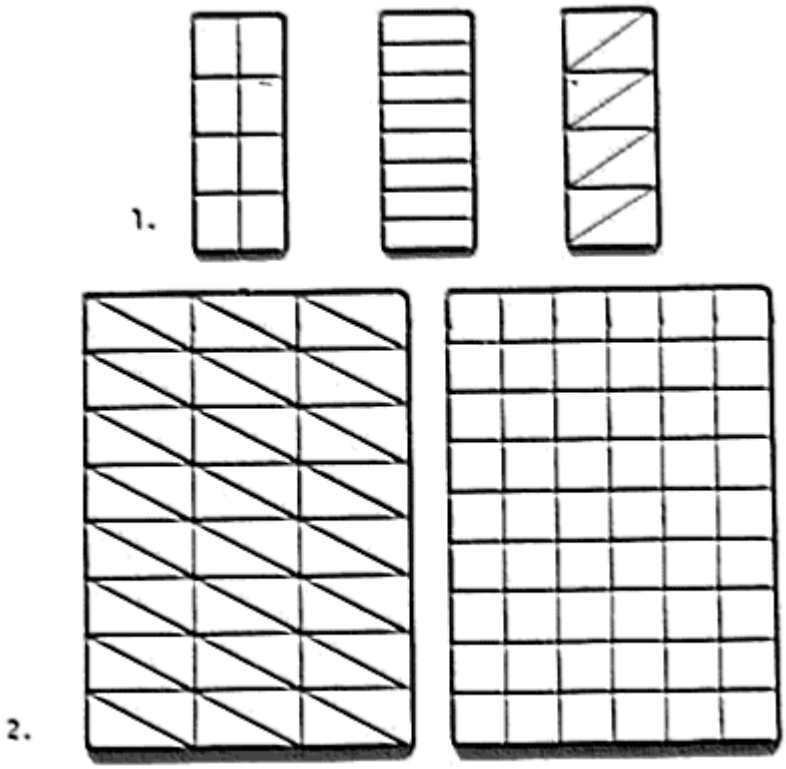
(2) Remove paper liners while the cake is still hot. If allowed to cool, the paper will cause the cake to pull apart and tear.

(3) Using a spatula, gently loosen the cake around the sides of the pan. Cover the cake with the bottom side of a clean pan.

(4) Cool cakes baked in loaf pans completely in an upright position before removing. Cut around the sides, tilt the pan and slide the cake out gently.

l. Fresh and Frozen Cakes. Fresh and frozen cakes are available in various sizes, shapes and flavors from local bakery contracts. Thaw frozen cakes in the original containers. Slice prepared cakes and serve them from the original containers, or remove them and arrange slices on individual plates for self-service.

m. Cake Cutting. To prevent breaking, allow cakes to completely cool before icing and cutting. Mark off the cake before cutting. Cakes baked in standard size sheet pans are usually cut into 54 square pieces (six pieces across and nine down). For other possible cake shapes, see Figure 7-28.



1. Loaf Cakes
2. Sheet Cakes

Figure 7-28 - Cake Shapes

7-K-2.m.(l) Use a knife with a sharp, straight edge and a thin blade.

(2) Dip the knife in hot water before cutting and repeat as necessary to keep crumbs and frosting from clinging to the knife.

(3) Cut with a light, even motion.

(4) Cut a loaf of fruit cake with a slow, sawing motion. Fruitcakes cut more easily if they are chilled.

n. Cakes. Cover cakes with moisture-proof paper and place them in a clean area (75F to 95F) where they will not absorb odors. To protect ornamental frosting, set cake in a box with high sides that extend 1 to 2 inches above the cake top. Cover box with plastic or aluminum foil wrap. Serve cakes within one to two days for best quality.

3. Frostings, Toppings, Glazes and Fillings, and Cake Decoration.

a. Frostings. Frostings add to the appearance and flavor of cakes and help to keep them moist. Some cakes, such as pound and fruit cakes, are genera1l served without frosting, but most cakes require some kind of frosting or glaze. 3eily rolls are filled with jelly or cream filling, and powdered sugar is sprinkled on top.

(1) Frosting Considerations.

(a) Cakes must be completely cooled, but not chilled before frosting. This prevents the cake from breaking when frosting is spread over it.

(b) Remove loose crumbs.

(c) The consistency of flu frosting must be such that it spreads easily, but is not so thin it runs off.

(d) Frost the cake far enough ahead of time (an hour or more) to allow the frosting to set before it is served.

(2) Spreading Procedures. To frost a cake, space six equal portions of frosting evenly over the center of the cake. Using a spatula, spread the frosting to the same thickness across the top and to the edges of the cake. See the AFRS Guidelines for Preparing Frostings.

(3) Ingredients.

(a) Egg Whites. Egg whites are the basis of most cooked frostings such as marshmallow and fluffy frosting, and of royal frosting used soley for decorating. Meringue powder may be substituted for egg whites. Substitution ratios are furnished in the AFRS.

(b) Liquids. Liquids make the frostings soft enough to spread. Milk, water, coffee and various fruit juices are specified in frosting recipes.

7-K-3.a.(3)(c) Sugar. Frosting sugars include: granulated, brown, powdered (Confectioner's), and blended syrup (corn and refiner's). Powdered sugar is preferable in uncooked frosting because it is fine grained and dissolves rapidly. Blended syrup prevents the formation of large crystals which cause graininess in cooked frostings. If too much syrup is used, it will keep cooked frostings from hardening.

(d) Fat. Butter is the fat ingredient usually specified in the AFRS frostings. General purpose shortening (with bakery emulsifiers) is also permitted. Check the AFRS Guidelines for Preparing Frostings when using bakery emulsifier shortening. Twelve ounces of shortening and four ounces of water may be substituted for the pound of butter.

(e) Flavoring. The AFRS frosting recipes specify vanilla flavoring, but other kinds of flavoring may be substituted where appropriate for the flavor of the cake. Some of the flavorings available are almond, brandy, black walnut, cherry, lemon, maple, orange and strawberry imitations.

(f) Salt. Salt is an important ingredient in frostings because it brings out the other flavors.

(g) Cream of Tartar. This frosting ingredient changes the chemical form of the sugar so small crystals form to give the frosting a creamy texture.

(4) Types of Frosting.

(a) Uncooked Frostings. Uncooked frostings are easy and quick to prepare. All ingredients should be at room temperature when blended. Powdered sugar is the major ingredient of cream frostings; other basic ingredients are softened butter and liquid. The secret of a good uncooked frosting is thorough creaming until the product is light and fluffy. If frosting is too thick, add a little liquid. If too thin, add additional powdered sugar until the desired consistency is obtained. More flavoring may be required to preclude a flat sugar taste.

1. Royal or Ornamental Frosting. This k a very hard uncooked frosting, used to make decorative or special occasion cakes. It is suitable for making designs, flowers, lattice work or other forms. The decorations can be set on waxed paper to dry and then removed and placed on the cakes. Because this type of frosting dries rapidly, cover unused portions. Royal frosting is better to use for decorating than other frostings which are softer and might run.

2. Vacant.

(b) Cooked Frostings. Temperature is very important in cooked frostings. Use a candy thermometer to get best results with fudge frostings, fluffy frostings and marshmallow frostings. These must

be cooked until they reach 240F. The frosting temperature can be checked with a thermometer by dropping a small amount of the cooked frosting into cold water. A soft ball will form when the frosting reaches 240F. Success in making fluffy and marshmallow frostings will also depend to a great extent on; 1) beating the egg whites sufficiently and, 2) on cooking the egg whites to the proper temperature. Beat the egg whites until stiff but not dry; if they are too dry, coarse sugar crystals will form and the frosting will have low volume; if they are too wet and soft, the frosting will be runny and thin. Rigorous scraping of the cooked frosting from the pan may cause the formation of large crystals, which will cause a coarse texture. For best results, use cooked frostings the same day they are prepared.

b. Toppings, Glazes and Fillings. Toppings, glazes and fillings, or a combination of these, can enhance the flavor, texture and appearance of cakes.

(1) Some cakes are identified by the toppings or glazes.

(a) Pineapple, or other fruit, combined with brown sugar and melted butter and covered with yellow cake batter makes upside down cakes.

(b) Shortcakes are made by serving fruit and whipped topping with plain cake.

(c) Gingerbread is usually served with whipped topping or lemon sauce.

(d) Boston Cream Pie is a cake with a cream filling and covered with chocolate glaze.

(e) To make jelly rolls, spongecake is spread with jelly, rolled and cut in slices.

(f) Vanilla glaze topping may be spread over angel food cakes or drizzled over bundt-type cakes such as chocolate macaroon cake.

(g) Ice cream toppings and powdered sugar may be served with pound cakes for variation.

(2) The Bread and Sweet Dough section of the AFRS contains recipes for glazes; the Dessert section (Sauces and Toppings) contains recipes for fillings, sauces and toppings which may be used instead of frostings.

c. Cake Decoration.

(1) Frosting Consistency. The first important step in cake decorating is to have a frosting of the type and consistency required to make the required shapes. Royal frosting and cream frostings are suitable. Frostings used for decorating must be stiffer than those used for spreading.

7-K-3.c.(2) Food Coloring. Food colorings are available in paste and liquid forms. A little coloring goes a long way.

(a) Coloring Paste. Concentrated paste colors are best to use as they give you dark shades and will not thin icings. Soften paste colors by adding a few drops of glycerin. This may be essential for the brush striping. It also keeps colors from drying out.

(b) Liquid Coloring. This coloring will thin icings and provide only pastel shades.

(3) Techniques in Coloring Frosting.

(a) To color frosting, blend the coloring into a small amount of the frosting; then add this blend gradually to the rest of the frosting until the desired shade is obtained. Use pastel shades. Use dark colors such as bright red, blue and green for accents and for holiday cakes. See Figure 7-29 for techniques of color.

(b) Secondary colors may be obtained by blending primary colors:

1 Blue and yellow make green.

2 Yellow and red make orange.

3 Red and blue make violet.

(c) Violet and blue make purple. Violet and red make reddish violet.

(d) A red or yellow-orange can be made by shading orange with either of these colors. Blue-green will result when green is shaded with yellow or blue.

(4) Cake Decorating Equipment. The cones used for cake decorating may be either pastry bags bought to fit commercial tubes or they may be made from paper.

(a) Paper Cones. Paper decorating cones are preferred by professionals over canvas or plastic cones as they are sanitary, disposable and can be made in the exact size needed for each tube. Also, you can make a separate cone for each color. Normally, use parchment paper triangles for making cones. Heavy waxed paper can be used; however, it is less rigid and more difficult to handle. Cone making is mastered in about 5 minutes. See Figure 7-30 for instructions.

1 To fill a cone with frosting, hold the base of the cone with one hand and using a spatula, fill the cone half full, packing the icing tightly so that air bubbles do not get into the frosting. If this happens, a sudden burst of air from the cone will throw icing out over the cake4 Fold the top of the cone over twice to keep the frosting from flowing backwards when pressure is applied.

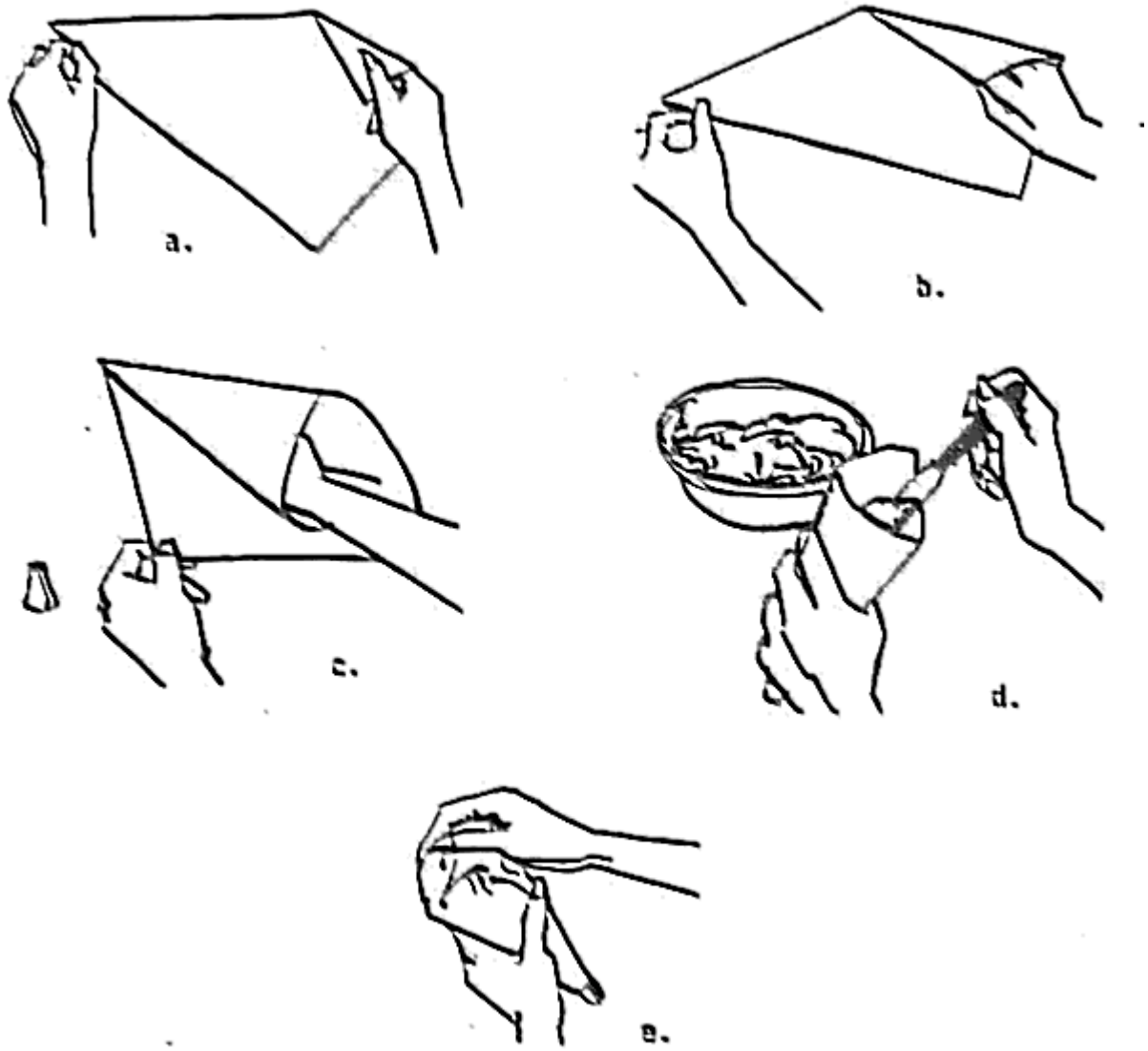
1. **Basic Color Blending**. Always take time to mix your color into a small bit of icing first, trying for a slightly darker shade than you want. Then blend with rest. Dip a toothpick into your paste color and start mixing that amount, then repeat to deepen shade. You can always add more color, but you cannot take any out. Proceed with caution.

2. **Spatula Striping**. Use this technique for a two-tone effect. Example: For flower with deep pink at tip of petals and pale tones inside, put I-inch strip of deep pink icing down to point of decorating cone with a small spatula. Fill rest with pale pink icing.

3. **Deep Color Method**. Example: brush red paste color right out of jar around entire inside of cone. Fill rest of cone with dark red icing. Result: darkest color on outside.

4. **Brush Striping**. A Wilton original. Gives deep multi-colors to use for accents or holiday cakes only. Example: for a life-like fall leaf, brush three 1/8-inch wide stripes of paste color into cone right out of jar-sides orange, center red. Fill rest of cone with yellow icing.

Figure 7-29 - Techniques of Color



1. **Making the Paper Cone Decorator**.

Step a: Lay parchment triangle fiat with smallest point at bottom. With hand palm up, grasp right-hand corner between thumb and fore fingers and turn inward. Thumb must be on top.

Step b: Roll right hand toward the center, drawing the right-hand corner toward you as you roll; a cone shape will form.

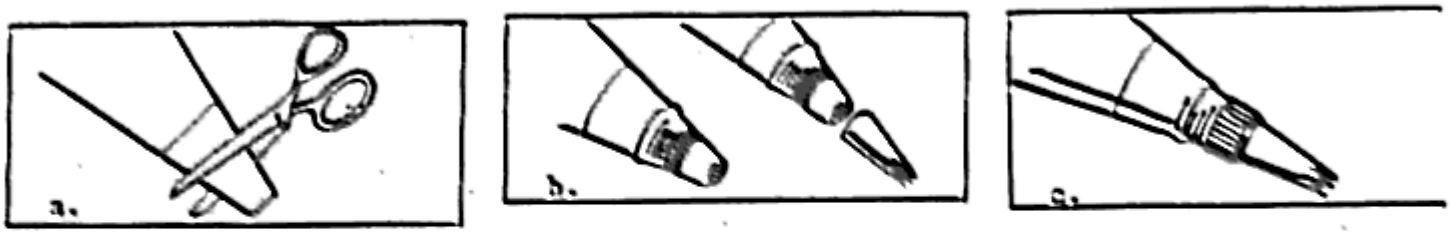
Step c: Twirl left hand corner all the way around cone and move it back and forth until point of the cone is needle sharp.

Step d: Fold top in or staple the secure. Cut point of cone to fit tip and drop it in. Hold cone at pointed end and using a spatula fill 3/4 full with icing. More will be too hard to handle.

Step e: After filling, fold two edges into a diaper fold as shown. This prevents icing from backing out the wrong end when cone is squeezed.

Figure 7-30 - Paper Cone Decorators

2.



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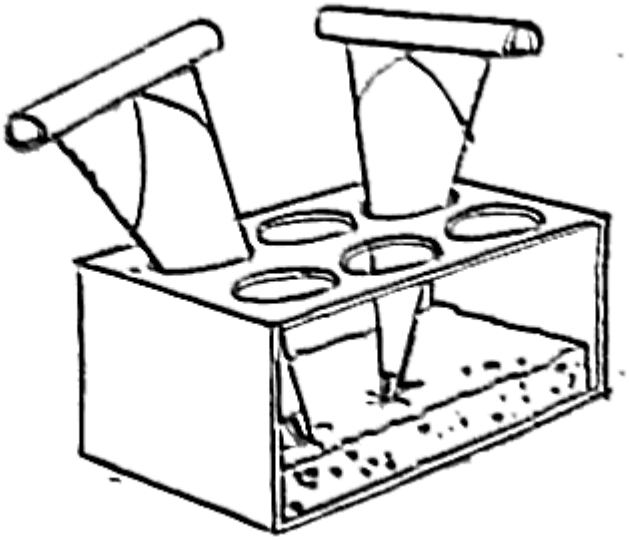


2. Using the Standard Coupler.

Step a: To use a standard coupler with the paper cone, cut off cone tip far enough so fine grooves on the coupler show (approximately 3/4 of an inch). Be careful when cutting. If the hole is too large, coupler will drop right through it and cone will be ruined. Start small and trim off more as needed.

Step b: Drop in coupler, upper part only. Twist off ring first.

Step c: Fit decorating tip over coupler. Hold tip in place while twisting ring on to secure it.

Note: To change tips, lust twist ring off, change tip and twist ring on again. A variety of tips can be used with a single decorating cone.

Hold-a-cone rack ends mix-ups and mess, making work easier. This plastic rack holds six decorating cones and a sponge to catch drips.

Figure 7-30 - Paper Cone Decorators (cont'd)

Figure 7-31 - Correct Method of Holding a Paper Cone

7-K-3.c.(1)2 The correct method of holding a cone is shown in Figure 7-31. To make a desired shape, it is necessary to know how to apply the proper pressure and at what angle to hold the cone. Hold the cone vertically to make items such as drop flowers. For writing, do not cut the top but leave a small opening about the size desired for the writing. For writing or mains borders, leaves, flowers and stems directly on the cake, a 45 deg. angle is usually desirable; for border or string work on the side of the cake, hold the cone level with the surface, making a right angle to the side of the cake.

3 To make flowers or other designs on a decorator's nail hold the cone at a 45 deg. angle. The left hand is used to guide or support the cone while the right hand only applies pressure and directs the flow. Do not apply pressure with the left hand because it will be difficult to maintain the gliding motion required and would push icing out of the top of the cone. Right-hand pressure is applied either with the fingers and thumb for fine work, or with four fingers and the m of the hand when a larger flow of frosting is needed. A left-handed person would reverse these directions. Note: Icing becomes soft if held in the hand too long. If this happens, refrigerate softened icing.

4 If the frosting breaks its flow, there is not enough pressure; a sudden spurt of frosting indicates too much pressure is being used or there are air bubbles in the frosting.

7-K-3.c.(4)(b) Decorating Tips. The decorating tip is the device on the end of the cone. It determines the size and shape of cake decoration. There are many kinds and sizes of tips available. They can be selected from those in standard stocks or purchased to fit individual requirements.

1. By varying the colors of frosting and the Sizes of the metal tips, you can make a wide variety of decorations. Borders can be plain or elaborate, depending on the tip. Carefully plan writing before starting so it will be well centered. See Figure 7-32. Examples of designs are shown in Figure 7-33.

2. Use an open star tip to make shell, rope and heavier ridged borders or small flowers. See Figure 7-34.

(5) Cake Decorating Techniques.

(a) Flowers. Many forms of flowers and decorations are made by placing frosting on a decorator's nail or on the waxed paper covered metal top of a glass jar. Put a small amount of frosting under the wax paper to hold it in place. The top of the decorator's nail is about 1/2 to 1 inch in diameter. To use, hold the nail with the thumb and forefinger and turn it counterclockwise. Use various tips, depending on the size of petal to be made. The secret of making a good flower is to turn the nail and simultaneously exert the proper amount of pressure to force the frosting out. Practice makes perfect. After the flower is made, set the paper and flower aside and allow it to dry. Remove the flower by placing a small spatula or sharp knife under the wax paper and lifting the flower off. Place the decoration on the cake or freeze it until needed. Individuals proficient in cake decorating can work directly on cakes to make some shapes. Directions for making a flower with a decorator's nail are:

1. Place a bit of frosting in the center of the nail, using tip No. 97.

2 Hold the cone at a 45 deg. angle and apply pressure to the cone, simultaneously turning the nail. This will form a petal.

3 As the flower petals are added, lower the cone to a 90 deg. angle to make outside petals.

(b) Leaves. To make a leaf decorations, have the frosting sufficiently soft to be able to draw it to a point. Use different leaf tips or combination leaf-and-border tips, depending on the size of leaf required. To make a small leaf, use a leaf tip. Apply a little pressure, and about halfway through the desired length, release pressure and lift up, slightly drawing out the tip. For larger leaves, use the combination tube. Use a slight side-to-side motion when pressure, applying pulling up and releasing pressure when the tip has passed the midway point of the leaf. The side-to-side motion gives a rough instead of a smooth edge.

WRITING PRACTICE

Writing with a decorating cone is easier than it looks, even if you have only average penmanship. To master it does take practice and the following exercises will help. Begin with tip number 3 and a cone only half full of icing, so you can fold it down to a small size and hold it between thumb and forefinger in pinching fashion. Use your left forefinger to guide and steady cone, then touch tip lightly to surface of your practice board and use a light, even pressure as you glide along. (Real icing must be thinned down slightly for writing to flow easily.)

EXERCISES

1. Practice curves. Rest tip lightly at a 45° angle on surface, press lightly and move along, outlining a "C" with your hands as you go. Do a string of "C's", trying to make them all the same size.

2. Do an up and down line. Try a line of joined up-and-down curves, again striving for a smooth unbroken line and even spacing.

3. Do "e" motion. By now you should be getting the feel of it. Do some joined "e's" over and over (break off at end of long tail before starting new "e", but keep close together for joined look.)

NOW TRY SOME WORDS

Start with the word "Mother", drawing tip along surface without digging in. After you begin to master the curves and swings of the letters, lift the tip up very slightly as you write, letting the icing "draw out" slightly over the surface and you'll find it gives you more control.

Next, try the word "Happy" and go on to "Congratulations" and "Merry Christmas". Then add some flair with "decorative build-up." Just pause slightly as you do a downstroke, but continue same pressure and icing will build up for a fancier look. Scrape board, do it again -- and again.

Figure 7-32 - Writing Practice

EXAMPLE OF DECORATOR DESIGNS

The Sweet Pea. Fit cone with tip number 104. Step 1. Hold cone at 45° angle with wide end of tip touching surface, narrow end out and pipe back petal, turning hand from left to right. Next, keeping narrow end of tip straight up, tough base of back petal and pipe center petal. Lift tip slightly, then move straight back down to starting point.

Step 2. Hold tip same way at same starting point, but point narrow end slightly left. Pipe left petal, going up and down again.

Step 3. Repeat for right petal, but point narrow end slightly right. Keep pressure light or petals will be thick and clumsy.

2. **The Rosebud.** Use tip number 104 again and hold cone at 45° angle, wide end of tip touching surface, narrow end straight up. Do back petal first, squeezing cone as you turn hand over to form small cup, pulling toward you at finish for high, sharp right edge. Touch tip to inside of this sharp edge and press lightly, lifting tip slightly at same time. As icing catches edge of back petal and pulls it forward, hesitate for a split second (still pressing) to let it roll itself into a spiraled inner petal. Then move hand back to right and down to surface. Add cuplike green petals (calyx) with tip number 3. For simple rosebud (Not shown), hold tube with wide end at bottom and press out a bud.

3. **The Leaf.** For small pointed leaf, fit cone with tip number 67. Hold cone at 45° angle and touch tip to surface, pressing lightly as you pull it along. At halfway point, relax pressure and then discontinue it as you lift tip away from surface. This will draw leaf to a point. Pipe some stems with tip number 3 and add small leaves at ends as shown. For larger leaf, use same tip and technique, but a heavier pressure. For ruffled leaf, make a series of back and forth movements.

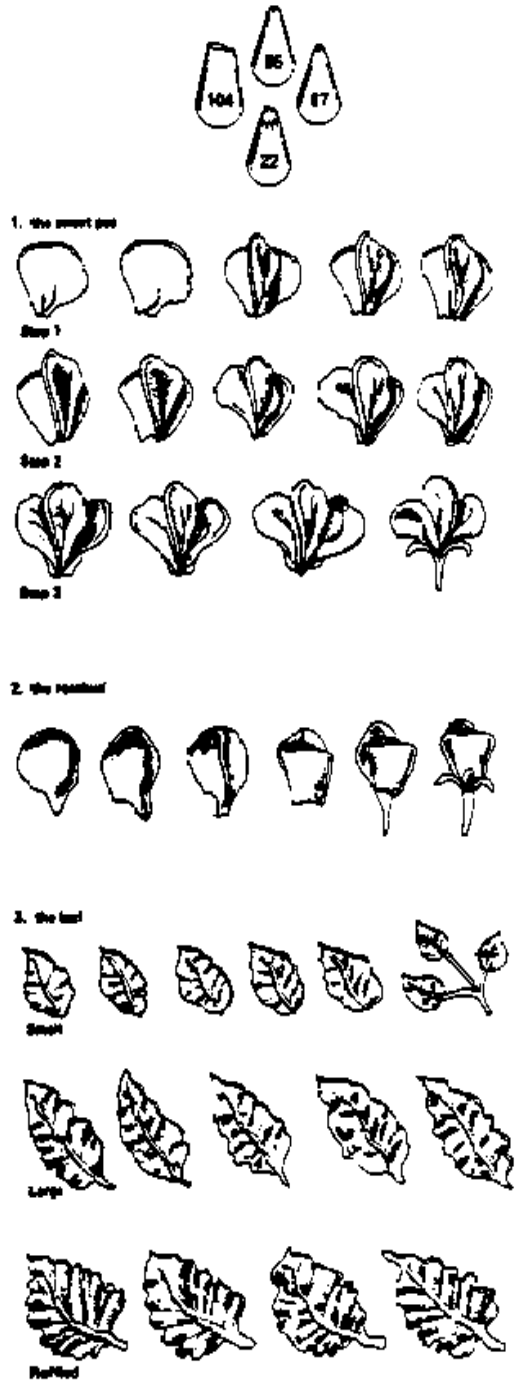


Figure 7-33 - Design Examples

OPEN STAR TIP

Start with simple borders, doing all w he star tip. For your first attempt, pr out a star. Then with the same star tip, go on to do lines, zigzags, rosettes and finally a vine. Now fit a decorating cone with a number 15 star tip (or the closest you have to it), set up the practice board and begin. Icing should be of medium consistency.

EXERCISES

1. The simple Star. Hold decorating cone straight up, a hair's breadth above surface. With a quick, heavy squeeze, press out a star. Stop pressure and lift tip away. Then do another and another. Pipe some close together for a versatile border.
2. The Curving Line. Hold cone at 45° angle and draw it along surface squeezing out icing and moving your hand slowly side-to-side. Try to make curves all the same length.
3. The Zigzag. Hold cone in same position as for curving line, drawing it along surface again. But this time, make sharper side-to-side movements to form zigzag line.
4. The Tight Zigzag. Use same position as for regular zigzag. Draw along surface again, but now make very short side-to-side movements, so zigzags are almost vertical. Try for a very neat, even row. Perfect this for a border suitable for a wedding cake.
5. The Rosette. Hold cone straight up as for star, almost to surface. Apply gentle pressure, then move away with a circular motion. Lift tube about 1/4 inch, then stop pressure, still circling, to break off. Do a row of rosettes, close together.
6. The Curving Vine. Step 1 - press out a curving line as in exercise 2 above. Step 2 - start at line and move outward to embellish curving line with a few short "branches" as shown. Step 3 -pipe rossette at end of each branch.

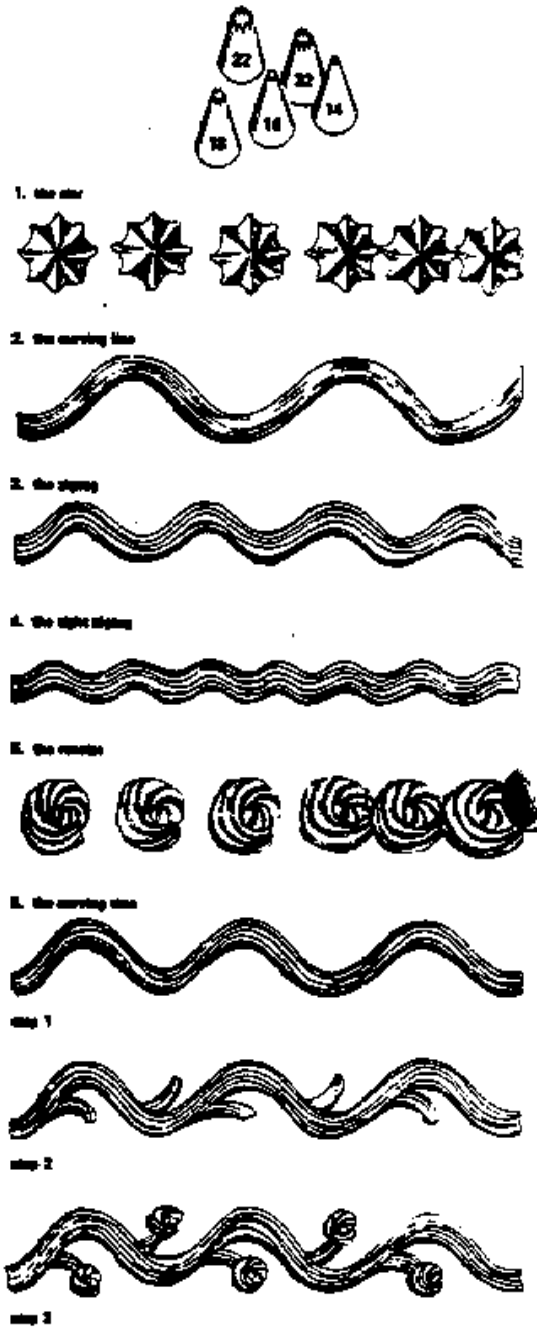


Figure 7-34 - Examples of Open Star Metal Tip Usage

7-K - 3.c.(3)(c) Other Decorating Methods.

1 Sheet cakes may be decorated simply by spreading two different colors of frosting on one cake and swirling the two colors together to produce a marbled effect.

2 A scene may be painted on a flat piece of ornamental frosting already cut to the desired shape and dried. Glaze this first with a bit of water icing and let it dry. After the painting has dried, place it on the surface of the cake and make borders around it to blend it into the surface of the cake.

3 Cutouts from sheet cakes can be used to make decorations on other cakes.

4. Cookies. Cookies are a popular dessert. Unlike most desserts, they can be stored for a day or more and used as needed. The various types of cookies are defined by the special processes used in making them. These types and processes are described below. General directions for successful cookie making are summarized.

a. Types of Cookies. Cookies are of five types: 1) rolled, 2) dropped, 3) refrigerator,4 bar, and 5) sheet.

(1) Rolled Cookies. Make the dough for rolled cookies as soft as can be handled. It may be more easily rolled if it is chilled before using. Rolling a small part of the dough at one time facilitates handling and lessens the amount of re-rolling. The dough is usually roiled to a thickness of s' inch and cut with a 2-inch floured cutter. Use the side of the spatula for removing cookies from the board to the baking sheets.

(2) Dropped Cookies. Dropped cookies are made from a soft dough. The consistency determines whether the cookies will be rough or flat and how well they will hold their shape. Drop the dough on greased, floured baking sheets.

(3) Refrigerator Cookies. To make refrigerator cookies, cut the dough into 10 ounce pieces and shape into rolls. Wrap each roll of dough in waxed paper, place in a pan, and chill or refrigerate overnight. Slice the chilled rolls with a knife or electric slicer, place on baking sheets and bake.

(4) Bar Cookies. Bar cookies are made of dough rolled into a strip 22 inches in length or in lengths to fit the baking sheet. Fold the two ends of the strip toward the center to move it to the baking sheet. Leave a small space between strips. Use your fingers to shape the dough in uniform 3- to 4-inch strips. Brush the top of the dough with Cu wash, if desired. After the bars are baked and cooled, cut them diagonally into pieces about two inches wide.

(5) Sheet Cookies. To make sheet cookies, spread the batter into shallow greased pans. Bake them in a moderate oven. Cut into squares or strips while they are still warm. Coat them with powdered sugar, if desired.

7-K-4.b. Mixing. For best results, follow the directions given in the AFRS recipes and guideline cards. When mixing the dough, keep the temperature of the ingredients about 700F. Some cookies are mixed by creaming the sugar and shortening before combining them with other ingredients. The one-stage or dump method used on other cookie recipes specifies mixing all the ingredients at one time. Always sift the baking powder or baking soda with the other dry ingredients to avoid dark spots on the cookies. Lumps of sugar left in dough not thoroughly mixed will turn to syrup and caramelize during baking causing the cookies to stick to the pans. Mix cookie dough just enough to incorporate the ingredients thoroughly.

C. Pans. Pans used for baking cookies must be clean, dry and smooth. Examine the pans carefully before using them. Dirty or bent pans will cause the cookies to stick or bake unevenly. Grease and flour the pans for cookie dough high in moisture, grease for average rich dough, and leave ungreased for dough rich in shortening.

d. Cooling and Storage. Loosen cookies from sheet pans and move to racks to cool. If left on hot pans, they will continue to cook and be difficult to remove once cooled. Cool brownies or similar types of cookies in pans before cutting and removing. Brownies will pull apart and stick to the cutting knife if cut while hot. To prevent brownies from drying out, store them in sheet pans covered with aluminum foil until ready to serve. Once cooled, store crisp-type cookies in a container with a loose-fitting cover. Store soft-types cookies in a container with a tightly fitted lid to help retain their moisture.

e. Panning. Place the dough for drop cookies on the sheet pans using a tablespoon, small scoop (No.30) or a pastry tube. See Figure 7-35. Place drop or sliced types of cookies about 2 inches apart on sheet pans to allow room for the dough to spread during baking. See Figure 7-36. Pan the bar-type cookies as directed on the specific recipe card. See Figure 7-37. When the dough is formed into a roll to be sliced after baking, it is important the roll be of equal diameter throughout and the slices be of equal thickness to ensure even baking.

f. Baking. Bake cookies according to the times and temperatures specified in the recipes. Place pans in oven so a 1- to 2-inch space is left on the sides to ensure heat circulation. Do not overbake cookies. When baking several batches of cookies, allow the sheet pans to cool between batches. If the dough is placed on warm or hot pans, the shortening will melt and the cookies will spread out too much during baking.

g. Variations. Chopped nuts or raisins may be added to basic cookie doughs to make variations. Cookie assortments may be featured on the dessert bar instead of just one type of cookie. Two or three kinds of bars, sliced or dropped cookies having the same basic ingredients or baked at the same temperature for the same length of time can be easily made together for cookie tray variety. For additional variety, frost cookies with chocolate or vanilla icings prepared from the basic recipes or mixes.

h. Cookie and Brownie Mixes. Oatmeal, chocolate, sugar cookie and brownie mixes are available and are quick and easy to prepare. The mixes require only water. Cookie mix doughs can be dropped, rolled and sliced to form cookies. Variations may be made by adding raisins, dates, nuts or chocolate chips. Brownie mixes are available in two flavors: chocolate and butterscotch.

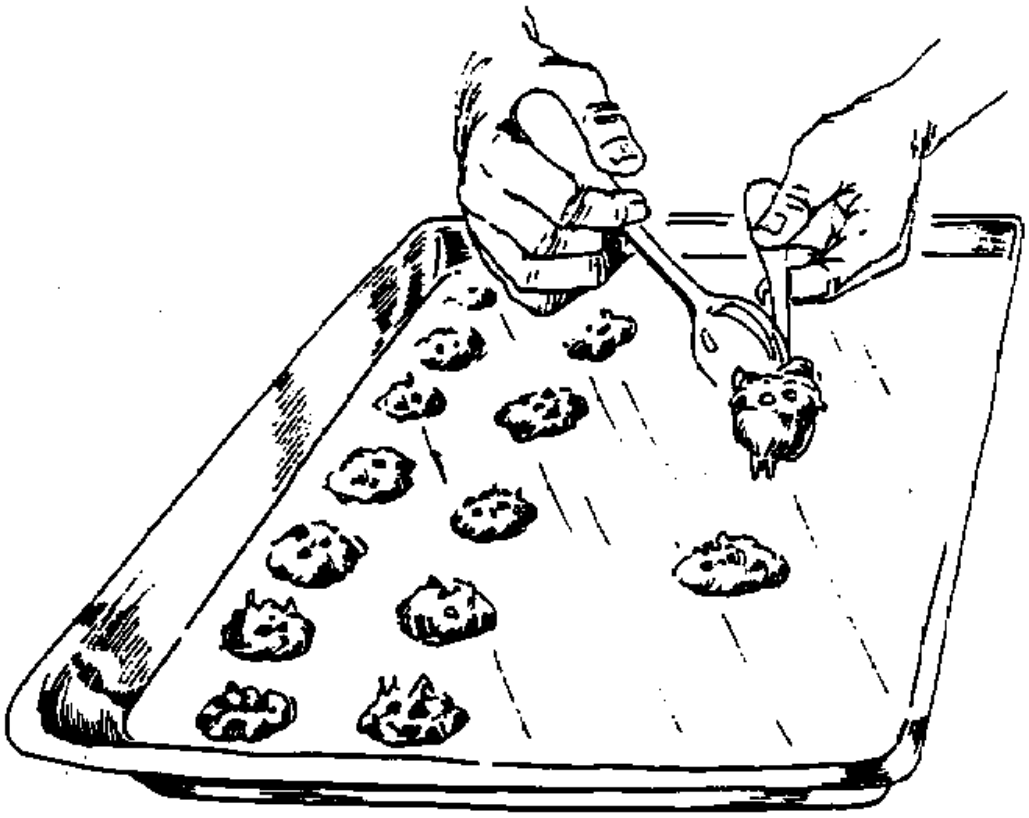
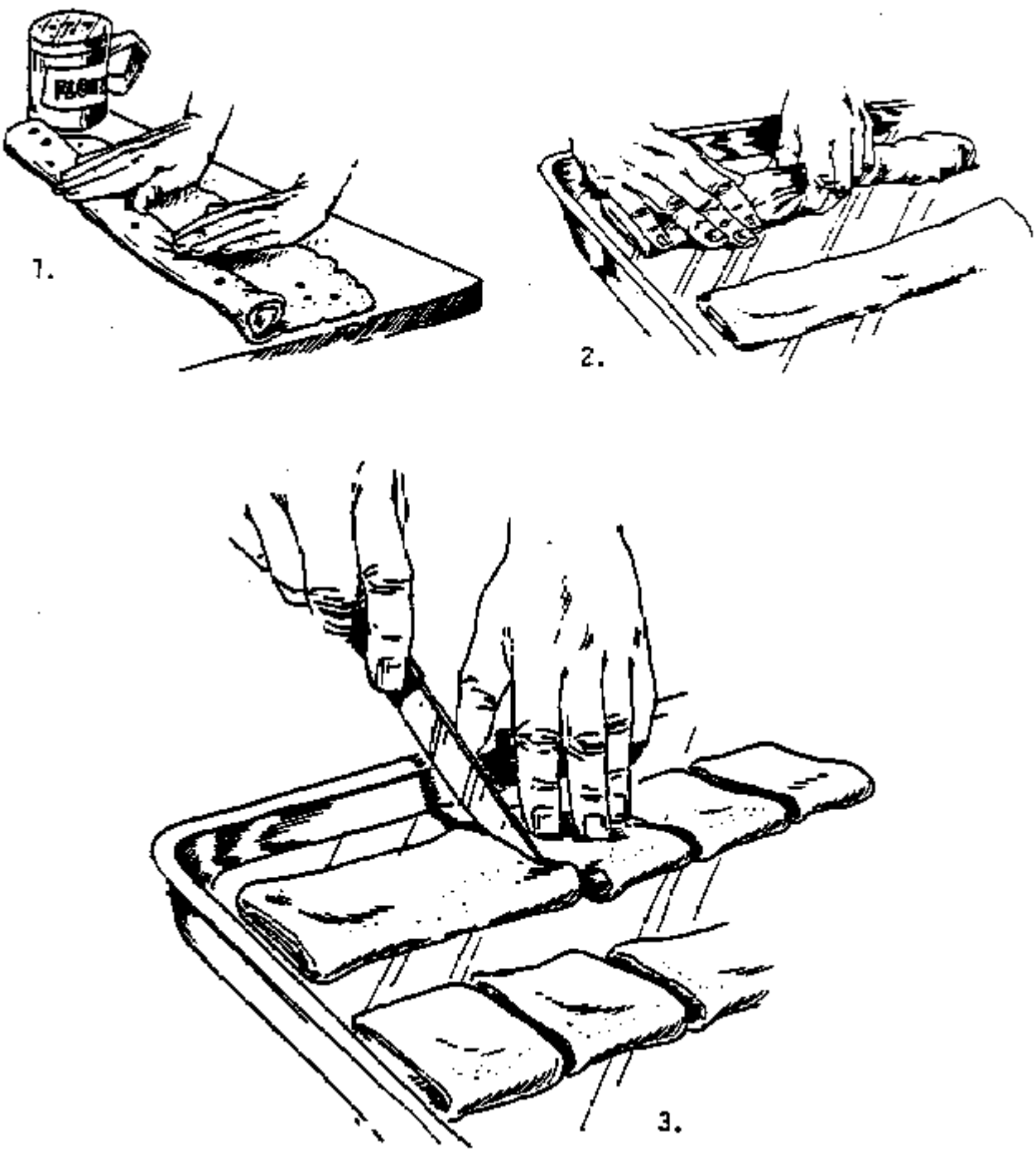


Figure 7-35 - Drop Cookies

Step 1. Dividing the Dough

Step 2. Flattening the Cookies

Figure 7-36 - Sliced Cookies



1. Roll cookie dough into strips.

2. Flatten to desired thickness.

3. Cut baked cookies into bars.

Figure 7-37 - One Type of Bar Cookies

7-K-5. Pies and Pastry.

a. Pie Crusts.

(1) Pie Crust Ingredients. Regular pie crusts are made from flour, shortening, water and salt.

(a) Flour. Use general purpose flour to make pie crust as it produces ugh easy to handle and pan. Bread flour will cause tough pastry.

(b) Shortening. Use general purpose shortening compound as it makes the crust flaky and tender. Rancid shortening or shortening that has absorbed other odors causes off flavors in pie crust and must not be used. The shortening should be approximately 60F when ready for mixing and just soft enough to blend with the other ingredients. At 60F the shortening blends well into the flour while giving firmness for a flaky pie crust. Do not use bakery emulsifier shortening, melted shortening or salad oil as they will cause the dough to be oily and hard to handle and will not produce flaky pie crusts.

(c) Water. The quantity of water and the method of mixing it with the other ingredients are the most important factors in making a tender pie crust. The water must be cold (40F to 50F). The amount of water must be sufficient to make a dough that forms a ball that does not crumble, but also is not sticky when rolled out. Too much water will cause toughness

(d) Salt. Salt aids in binding the ingredients together and enhances the flavors of the other ingredients.

(2) Mixing. Mix the flour and shortening together until they form very small particles and are granular in appearance. When mixing by hand, add the water gradually until the dough reaches the right consistency. When machine mixing, the water is added all at once and mixed just until the dough is made.

(3) Rolling the Dough.

(a) The dough will be easier to handle if it is chilled for one hour before rolling. When rolling the dough, handle it as little as possible. The pastry board or work bench and rolling pin must be dusted lightly with flour to prevent sticking. Divide the dough into easy-to-handle pieces, then roll each piece into a cylinder, about 3 inches in diameter. Using a dough divider, cut the dough roll into 7-ounce pieces for top crusts and 8-ounce pieces for bottom crusts when making two-crust pies. For one-crust pies, use 7 1/2- ounce pieces.

(b) Lightly dust each piece of dough with flour and flatten the pieces gently with the palm of the hand before rolling. Use quick strokes and roll from the center toward the edge to form a circle about 1

inch larger than the pan and about 1/8-inch thick. If the dough is stretched or forced, it will shrink back during baking. Pie dough pieces may be placed into a pie rolling machine, if available. Roll the pie dough out automatically into a circular shape and ready for panning. Check the AFRS Guideline Cards for additional information on one-crust and two-crust pies. Do not grease pie pans; the dough has sufficient shortening to keep the crust from sticking. Fold the circle of dough in half and place it in the pan; unfold it to fit smoothly in the pan. See Figure 7-38. Fit the dough carefully into the pan so it is flat and air pockets cannot form between the pan and dough.

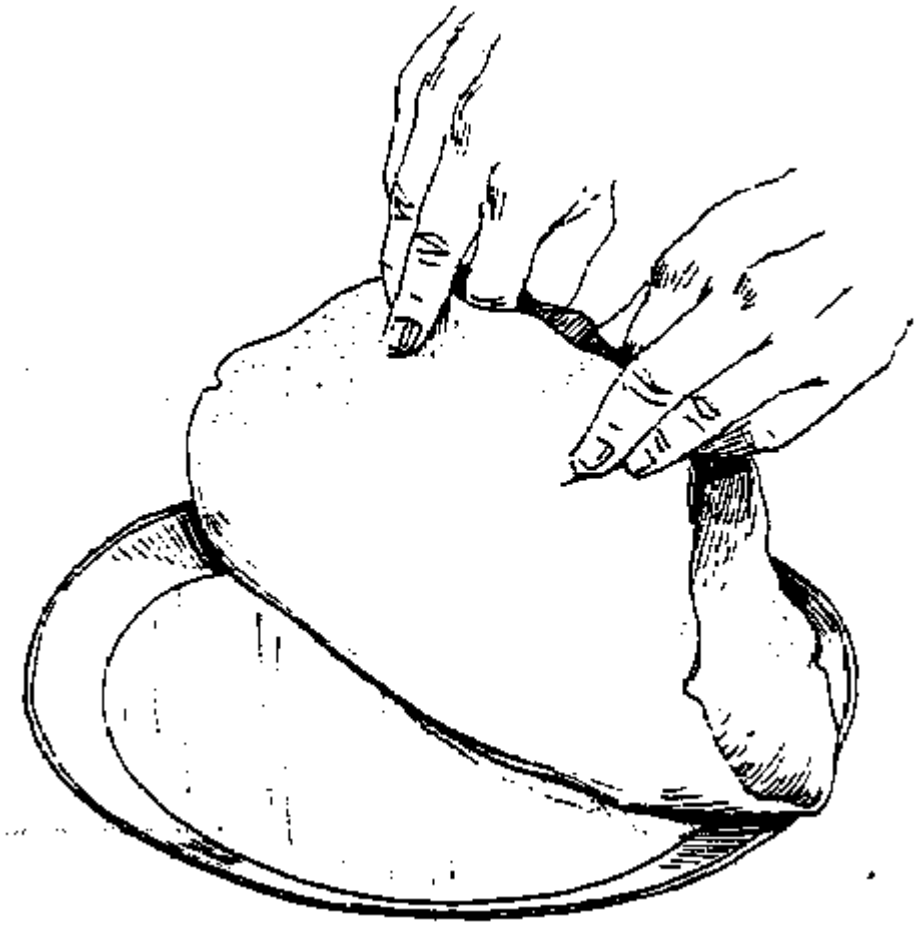
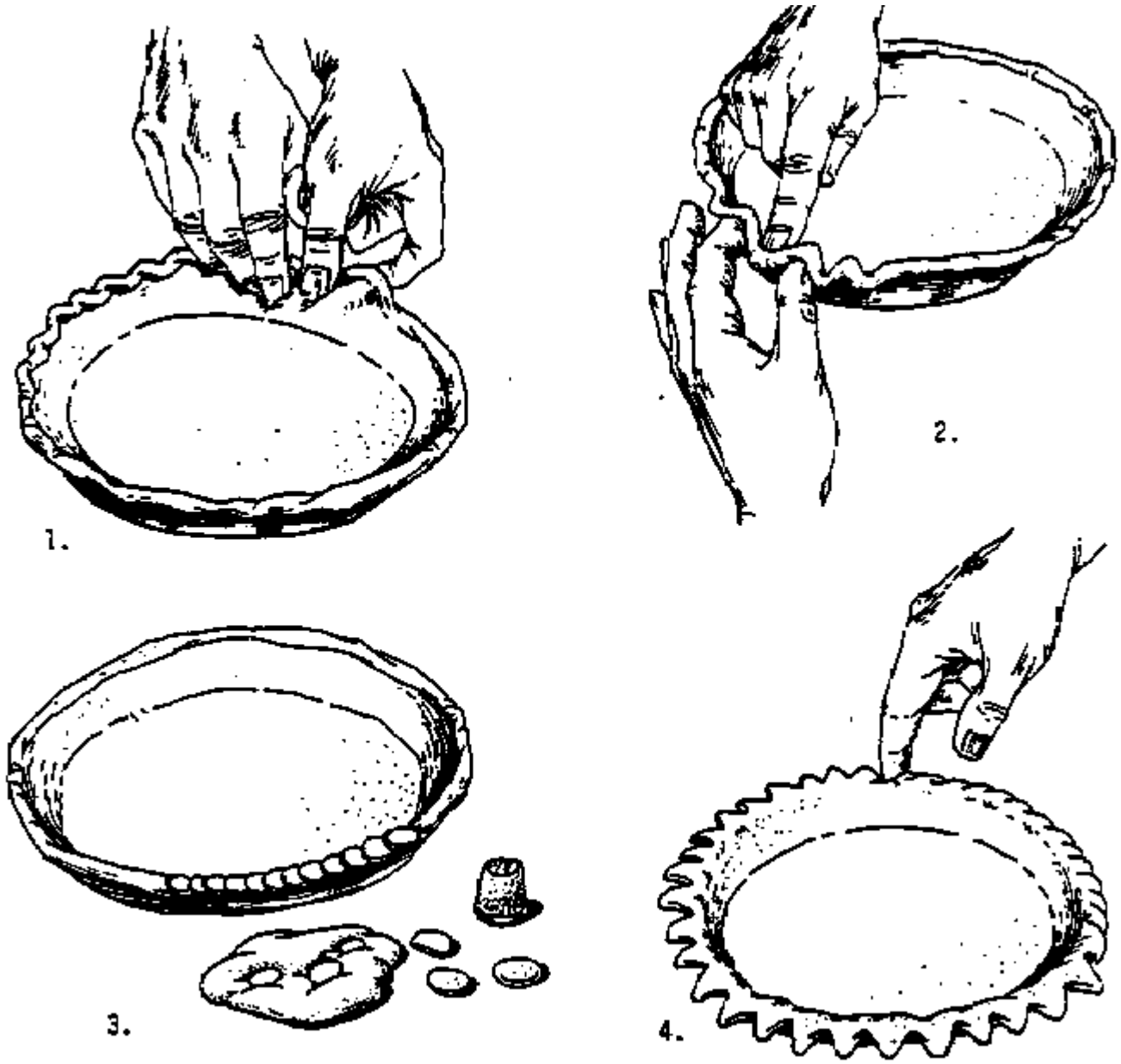


Figure 7-38 - Fold Dough and Place in Pan

(4) One-Crust Pies (Unbaked). After roiling out the dough and placing it in the pan, the edges may be fluted to help the pie crust retain its shape during baking. Fill the crust and bake according to the recipe instructions. See Figure 7-39.

(5) One-Crust Pies (Baked). After placing the dough in the pan and fluting the edges, prick the dough with a fork or dock. This enables air or steam that is formed underneath the crust during baking to escape without causing the crust to puff up or crack.



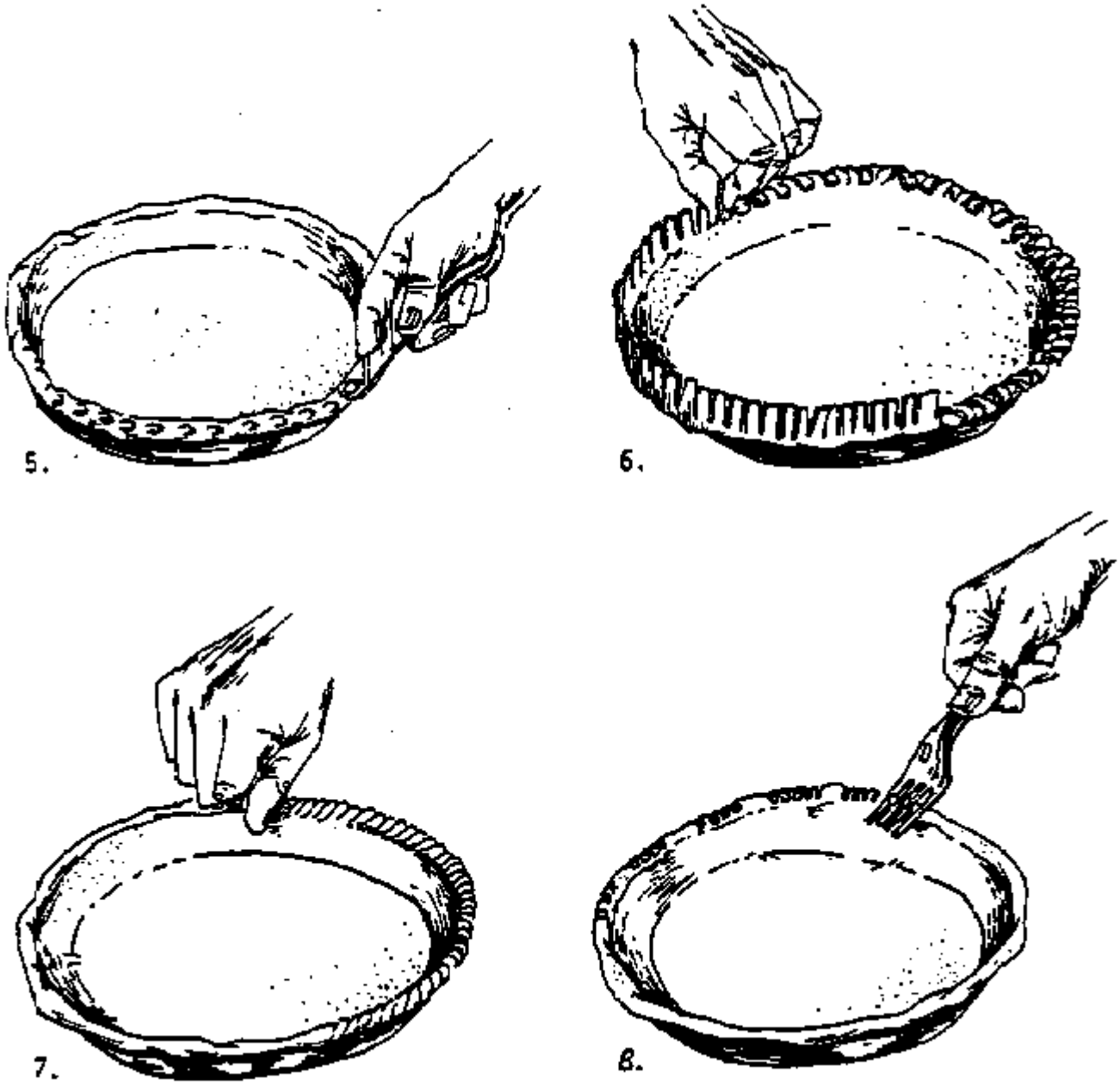
1. Fluted: Form a high standing rim. Place right index finger inside rim; make flutes every 1/2-inch by pushing pastry in V with left thumb and index finger outside rim. Pinch flutes for clean edges.

2. Scalloped: Form a standing rim; place left thumb and index finger 3/4-inch apart on outside of rim. With right index finger, pull pastry to center to form scallop.

3. Coin: Trim pastry even with edge of pan. Cut 3/4-inch circles from roiled pastry -- use center of doughnut cutter or thimble. Overlap circles on slightly moistened rim; press down lightly.

4. Cornucopia: Allow I-inch additional overhang; do not turn under or make rim. With scissors, cut overhang into triangles at I-inch intervals. Roll points in toward rim. Seal "Cornucopias" on inner edge.

Figure 7-39 - Making Edging for One-Crust Pies



5. Polka Dot: Allow 1/2-inch overhang; fold under and form a rim. Press rounded end of bottle opener firmly into pastry rim. Repeat around outside rim.

6. Leaf: Form a high standing rim. With scissors, clip rim at an angle every 1/4-inch. Press down clipped rim alternately to right and left.

7. Rope: Form a standing rim. Place thumb on pastry rim at an angle; press pastry against thumb with knuckle of index finger.

8. Fork Scalloped: Form standing rim. Mark edges every 3/4-inch as for fluted edge. Flatten rim to edge pan between points with floured fork.

Figure 7-39 - Making Edging for One-Crust Pies (cont'd)

7-K-5.a.(6) Two-Crust Pies. The bottom crust is filled with pie filling. Brush the pie crust rim with water. Before placing the top crust on the filling, make several slits in the top crust to allow steam to escape; fold the top crust in half for easy handling, then place on the pie filling. Unfold it carefully to prevent the crust from tearing. Press the edges of the pie crust lightly together. Trim the excess dough. The pie may be fluted in the same manner as one-crust pies. If a finish or glaze is desired, sprinkle the pie top lightly with sugar or brush with pie wash or other glazes included in the AFRS. Allow the glare to dry before baking the pie to ensure even browning.

(7) Variations. The AFRS has recipes for pie crust variations using graham crackers or cheese. Graham cracker crusts may be prepared from crushed graham crackers, granulated sugar, and melted butter or a prepared ready-to-use graham cracker crust. Cheese such as ground Cheddar or processed or dehydrated American cheese can be mixed with the flour ingredient of basic pie dough for cheese crust. Add sugar to the basic pie dough if a sweet crust is desired.

(8) Commercially-Prepared Pies. Fresh and frozen fruit pies and frozen cream pies are available. Cut and serve fresh pies as soon as possible after receipt so they do not become stale. Keep frozen pies completely frozen until they are removed for thawing and use. Follow the instructions on the package for storage temperatures and thawing time.

b. Pie Fillings.

(1) Fruit. Fruit fillings, except those using pregelatinized starch or canned prepared pie fillings, are cooked before being placed in an unbaked pie crust. if recipe instructions are carefully followed, the filling will be properly thickened and cut edges will ooze slightly. The pieces of fruit will be clear and distinct and the color will be bright.

(2) Cream. The AFRS has basic recipes for butterscotch, chocolate, and vanilla cream pie fillings. Cream fillings must be smooth, free from lumps, and rich in appearance. Never boil the filling because it will cause curdling. if fruit is added, follow the recipe directions carefully to avoid a thin, runny filling. Follow the AFRS procedure to prevent this. Once the pie filling is prepared, pour it into a baked pie crust and top with the desired filling.

(3) Dessert Powdered Pudding Mixes. Two types of powdered pudding mixes are used for making cream filling: cooked and instant requiring no cooking. Prepare both types, available in chocolate, butterscotch and vanilla flavors, with nonfat dry milk and water.

(4) Custard. Eggs are the main ingredient in custard pies. Pour the uncooked filling into the unbaked pie crust. Bake the pie until the filling has set and the crust is lightly browned.

(5) Pumpkin. Pumpkin pie filling is a custard-type filling with pumpkin and spices added. The filling is added to the unbaked crusts and baked like custard pie.

7-K-5.b.(S)(a) The pumpkin mixture for the filling must set one hour before adding the eggs. If not, the full amount of absorption will not take place and the filling will shrink and crack during baking.

(b) Cream or custard fillings are highly susceptible to food-poisoning bacteria. Never hold custard or cream fillings between 400F and 1400F longer than three cumulative hours. Refrigerate cream pies until served.

(6) Lemon. The AFRS lemon pie filling recipe specifies water rather than milk as the liquid. Add lemon juice flavoring after the filling is cooked. If the lemon juice is added while the filling is cooking, it will prevent the mixture from thickening. Prepared canned lemon pie filling is also available. The filling is ready to use and requires no cooking unless topped with a meringue. In that case, heat the pie filling before pouring it into the baked pie crust.

(7) Chiffon. Make lemon, pineapple and strawberry chiffon pie fillings by combining whipped topping with flavored gelatin which has been slightly beaten after it has thickened. Add well-drained fruits such as strawberries or pineapple. Pour the filling into a baked pie shell. Prepare another variation of chiffon pie by using fruit flavored gelatin cubes of different colors mixed with whipped topping.

(8) Other Fillings. For ice cream pies, fill baked pie crusts with softened ice cream and then freeze until ready to serve. Add ice cream pie toppings, such as coconut, meringue, chopped nuts, or maraschino cherries, before the pie is frozen. Serve ice cream pies immediately. Prepare pecan, mincemeat, sweet potato, and raisin pie fillings for pie filling variations. Pour these fillings into unbaked pie shells and cook according to AFRS directions.

c. Pie Toppings. Use meringues, whipped cream and whipped toppings as toppings to attractively garnish cream pies.

(1) Meringues. Meringues are generally used for topping cream or Lemon pies. Meringues are made with egg whites, sugar, vanilla, flavoring and salt. Always bake meringues. Egg whites will. have greater volume if they are at room temperature when they are beaten. Remove eggs from refrigeration at least one hour prior to use. Beat them at high speed until they are slightly foamy. Reduce the speed slightly and add the sugar gradually, beating well after each addition. If egg whites are not beaten sufficiently or if too much sugar is added, drops of moisture will form on the surface of the meringue when it is baked. The pie filling must be warm (about 1200F). Spread the meringue over the filling with a spatula so it touches the edges of the crust; this will keep it from shrinking. Leave the top rough. Bake until golden brown on top and firm inside. Meringues must not be thin, rubbery or tough.

(2) Meringue Powder. Dehydrated meringue powder is made from egg albumen, powdered sugar, cornstarch, flavoring, salt and stabilizers. Add water only to rehydrate. Once rehydrated, spread it over the filling and bake in the same method used for fresh meringue.

v-K-5.c.(3) Other Toppings. Use a slice of processed American cheese to top apple pie, ii desired. Other toppings for pies may be dehydrated whipped topping, whipped cream or frozen whipped topping. See section 7-k-6-e for further information on these toppings.

c. Pastry. There are several types of pastries included in the AFRS. These are cobblers, turnovers, dumplings and fried pies.

(1) Cobblers. Cobblers are pies baked on sheet pans instead of pie pans. Cobblers may be varied by topping the filling with pie dough cut into small dollar-sized circles or other shapes, or by using a streusel topping. Cobbler-style pies take less preparation time and require a shorter baking time than regular pies. Directions are in the AFRS.

(2) Turnovers, Dumplings and Fried Pies. Pie crust and fruit fillings are used according to the AFRS to make turnovers, fried pies and dumplings. For turnovers, roll the dough into a rectangles and baked. Cut fried pies into semi-circles and then deep-fat fry. For dessert dumplings pull the four points of the rectangle to the center then brush edges with water and seal. Serve warm with a dessert sauce (cinnamon, caramel, etc.).

(3) Cream Puffs. Cream puffs are round pastries which expand while baking, becoming hollow in the center. Eclairs have the same ingre-dients but are oblong Make cream puffs and eclairs by stirring bread flour into a melted butter and boiling water mixture, then cool the mixture slightly. Add the unbeatened eggs to the mixture a few at a time and beat the mixture until it is stiff and shiny. Bake cream puffs and eclairs immediately. During the last few minutes of baking, open the oven door. This will prevent them from becoming soggy and falling when removed from the oven. Fill cream puffs and eclairs with chilled pudding, whipped cream or ace cream. Sprinkle with powdered sugar or serve with chocolate sauce, if desired.

d. Cutting and Serving Pies and Pastry. Cut pies into six serving-size portions; if thicker pie is desired, pour more filling into the pie crust, then cut into eight serving portions. Cut extra rich pies, such as pecan, into smaller portions. Place pies on individual plates for self-service from the dessert bar or place on the mess tray. Serve pies so the point of the pie slice faces the front of the serving line. Serve turnovers, dumplings, fried pies and cobblers like pies.

6. Other Desserts.

a. Fruit Desserts.

(1) Fruit Crisps and Crunches. Fruit crisps and crunches are baked fruit desserts prepared from canned or dehydrated fruits (e.g., applesauce, apples, peaches, pineapple, apricots, red tart cherries, and cranberry sauce). Crunches may be also made by using prepared fruit pie fillings. Top crisps and crunches with mixtures such as buttered crumbs, oatmeal, oatmeal cookie mix, or cake mix. Add cinnamon and nutmeg to cooked apple dessert crisps for flavor.

7-K-6.a.(2) Baked Apples. Use cored fresh whole, unpeeled, cooking-type apples for baked apples. Pour a cinnamon-flavored sugar and butter syrup over the top before baking. Fill apples with a mincemeat, raisin nut, or raisin coconut filling, if desired. Serve the baked apples warm. Whipped cream or whipping topping may be added just before serving.

(3) Fruit Cups. Combine fresh, frozen and canned fruits to make eye appealing desserts. Ambrosia is a fruit cup with coconut added. 5easonally-available melons, such as cantaloupe, watermelon, honeydew and honeyball melons, give extra variety to fruit cups.

(4) Fresh, Canned, Frozen and Dried Fruit. Seasonally-available fresh fruits and the readily-available fruits, such as apples, oranges, grapefruit and bananas can complete a meal when offered as dessert. They offer an alternative to weight-conscious patrons. Canned and frozen fruits may be served as a simple dessert or dried fruit such as prunes may be cooked and chilled. Fresh pineapple may be cut into pieces and served as a dessert fruit.

b. Gelatin.

(1) Fruit Gelatin. Gelatin desserts are light, simple and colorful. They vary from plain-flavored gelatin served with a topping to gelatin-fruit and gelatin-pudding mixtures.

(a) Plain-fruit gelatin is the simplest of gelatin dishes and is the base for other gelatin desserts. Fruit-flavored gelatin dessert powders available to the military services contain: gelatin, sweetening agents, acids, slats, coloring and flavoring.

(b) These ingredients are combined to produce a good gel. Acid and sugar in the right proportions are necessary in the product formulas to obtain a good consistency in a finished gelatin dessert. Color is added to agree with the flavoring material.

(2) Gelatin Preparation. Several factors may affect the setting of gelatin:

(a) The chief factor is the concentration of the gelatin-water mixture. When too much gelatin is used in proportion to the water, the gel will be too stiff and the finished product will be tough and rubbery. Too much liquid in proportion to the amount of gelatin will produce watery or soft and runny gelatin. The texture of the gelled dessert must be firm but tender. If the gelatin is not completely dissolved, the mixture will not harden. If the mixture is stirred after the gel sets, the finished product will have an uneven texture.

(b) Temperature is another factor affecting gelatin. At 95F or above, gelatin mixtures will not set or remain solid even if previously gelled. Low temperatures of 32F or below will break the gel more quickly, and such a mixture will melt more rapidly than gelatin set at 32F to 45F. Melted gelatin will reset without a loss in quality.

7-K-6.b.(2)(c) When preparing gelatin desserts, follow directions given in the AFRS.

(3) Fruit Preparation for Gelatin Desserts. Before fruit can be added to gelatin, the gelatin must be chilled until slightly thickened. Before fruit is added to the gelatin, it must be well-drained and accurately measured. juice drained from the fruit may be used for part of the liquid (one-halt or less) required for preparing gelatin. Using all fruit juice would make the gelatin too sweet and the extra sugar might soften the set. Slice, dice or half fruit used in gelatins.

(4) Whipped Gelatin. An attractive gelatin dessert can be made by combining whipped gelatin and vanilla cream pudding. Gelatin whips easily when slightly thickened. U5e medium speed on an electric beater and whip until the mixture is light and fluffy. Vanilla cream pudding blended into the whipped gelatin makes a rich, smooth, light-colored product. Any gelatin powder flavor may be used in preparing this dish, but the dark-colored gelatins, such as raspberry, strawberry, and cherry, are usually more attractive when whipped because the mixture becomes light-colored when cream pudding is added.

(5) Serving Gelatin Desserts. Do not place gelatin desserts on the line until ready to serve. Keep them on ice before service to prevent melting. Cut servings with a sharp knife and loosen the slices for easy removal from the pan. Dehydrated whipped topping and dessert sauces make excellent garnishes as well as tasty additions to gelatin desserts.

c. Puddings. Puddings offer many advantages; they can be cooked by one of several methods, be served hot or cold, make use of leftover foods, and add immeasurable eating pleasure to a meal.

(1) Types of Puddings.

(a) Custard Puddings.

1 Plain-baked custard is simple and delicious. Custard has egg as the only thickening agent and contains milk, sugar, salt and flavoring. Pour the mixture into steamtable pans. This will facilitate easy removal and service of the baked custard. It is baked in moderated heat until firm. Test by slipping the tip of a knife into the middle of the mixture. If custard is sufficiently cooked, the knife comes out clean. Cool baked custards as soon as they are cooked to prevent curdling or weeping.

2 Baked custards may be flavored with brown sugar or caramelized white sugar instead of vanilla and nutmeg. Make caramelized sugar by slowly cooking white granulated sugar over direct heat until brown. The heated sugar becomes liquid as it melts so gradually add to milk and stirred constantly.

7-K-6.c.(l)(b) Bread Pudding. Bread puddings have a custard base. These are menu favorites as well as economical desserts because leftover bread can be used. The quantity of eggs used in custard for bread pudding is less than used for plain custard. Bread contains considerable quantities of starch, to help thicken the mixture.

(c) Rice Pudding. Baked rice pudding is another popular baked-custard variation. Thoroughly cook rice before combining with custard mixture. The proportion of basic custard ingredients is not altered when cooked rice is added. Rice does not thicken the mixture, although it is chiefly a starchy ingredient.

(d) Crisps and Cake-Type Puddings. Crisps are fruit puddings, sweetened and flavored a variety of ways, then baked with a crumb topping. The crumb topping is made with flour, shortening and sugar.

(e) Instant Puddings. These are flavored starch desserts prepared instantly with milk. instant dessert powders are available in chocolate, vanilla and butterscotch flavors. in addition to flavoring materials, the powders contain sugar, starch, salt, setting or gelling agents, coloring material, emulsifiers, powdered shortening, and nonfat dry milk. These instant dessert powders are not only puddings but may be used as pie fillings or as a filler in such recipes as Washington or Boston cream pie.

(f) Cream Pudding. Prepare cream puddings from the basic recipes or from cooked-type or instant dessert powder pudding mixes. Sliced bananas, orange sections, crushed pineapple or coconut may be added for variations.

(g) Tapioca Pudding. Tapioca pudding is similar to cream pudding except tapioca is used as the thickening agent instead of cornstarch. Do not boil tapioca pudding; high heat makes the pudding thin and runny. Follow the AFRS directions. Choose garnishes, toppings and sauces to complement the flavor and color of the custard or pudding.

(2) Pudding Preparation.

(a) When preparing puddings, follow directions in Section 3 of the AFRS.

(b) Strict sanitation measures are necessary in pudding production. The three-hour rule must be observed in those recipes containing milk and egg.

(3) Suggestions for Serving Puddings.

(a) Choose toppings, garnishes or sauces which complement the color and flavor of the pudding, and are appropriate to the season or special occasion. The "finishing touches" for puddings are almost unlimited.

Examples: Plain cream
Whipped cream, plain, sweetened, delicately - tinted, flavored with vanilla, mint or coffee
Whipped topping (dehydrated)
Soft custard
Colorful jam or jelly
Fruit sauce made from strawberries, raspberries, cherries, pineapple, oranges, apricots
Lemon sauce, plain or spiced
Orange sauce, plain or spiced
Hard sauce

(b) Serve puddings hot or cold and with hot or cold sauces; many puddings are thought to be especially good served warm or hot.

Examples: Steamed burnt sugar pudding
Apple Brown Betty pudding
Fudge pudding
Mocha pudding

d. Ice Cream and Sherbert Desserts. Ice cream and sherbert are popular desserts. Two kinds are used: I) commercially-prepared ice cream and sherbert, and 2) galley-prepared soft serve and milk shakes.

(1) Service Suggestions. Ice cream and sherbert is served liberally in CGDF. The ideal serving temperature is about 8F. Store ice cream at -10 deg. or below never exceed a temperature higher than OF. Dispense ice cream In as sanitary a manner as possible.

(2) Types of Ice Cream and Sherbert Desserts.

(a) Commercial Ice Cream and Sherbert. Commercial ice cream contains 10% to 14% milk fat for vanilla flavor and 8% to 12% milk fat for other flavors. Sherberts do not contain more than 5% milk fat. The milk fat in ice cream helps give ice cream flavor and improves the body or firmness. It also gives the ice cream a smooth texture. stabilizers are added by the manufacturer to prevent ice cream from losing its shape while melting.

(b) Galley-Prepared Ice Cream and Milk Shakes. Galley-prepared ice cream mixes greatly simplify making soft-serve ice cream and milk shakes. The kinds available are dehydrated ice milk-milk shake mix (dairy and non-dairy), fresh liquid ice milk mix and fresh liquid milk shake mix.

1 Dehydrated Ice Milk-Milk Shake Mix. Soft-serve ice cream and milk shakes may be made from dehydrated ice milk-milk shake mix. Dairy and nondairy products are available in chocolate and vanilla flavors. The dairy mix contains milk fat, milk solids, sweetening and flavoring. The nondairy products contain vegetable fat, sweetening, and flavoring. Both types of mixes are combined with 400F to 600F water in a mixture using a wire whip. Once reconstituted, they are

perishable. Keep refrigerated until ready to use. The mixture must not contain any lumps because they will clog the freezer. After mixing, chill the mixture to 33F to 40F and pour into the freezer. Do not add a warm mixture to the freezer. Start the dasher motor and then the refrigeration. Freeze the ice cream to 18F to 22F or until it is stiff when it is drawn off. Prepare milk shakes the same way; however, freeze the milk shake to 27F to 30F.

2 Fresh Liquid Ice Milk Mix. Prepare soft-serve ice cream from fresh liquid ice milk mix, which is available from local dairy contractors. The mix is available in chocolate and vanilla flavors. Fresh liquid ice milk is ready to use. No water is required.

3 Fresh Liquid Milk Shake Mix. Milk shakes in chocolate and vanilla flavors may be prepared from fresh liquid milk shake mix. This mix is intended for use in milk shake mix machines but may be prepared in a soft-serve ice cream machine if the other is not available. This produces a slightly slushier product. Both of the fresh, liquid mixes are perishable and must be kept chilled at all times. For cleaning soft-serve and milk shake machines, check the manufacturer's instructions.

e. Dessert Toppings and Sauces.

(1) Toppings. This term is a general one applied to a variety of miscellaneous ingredients sprinkled or spooned over baked products, especially yeast-raised rolls and buns, breakfast cakes, and cookies. Toppings are also used on many desserts, including custards, gelatins, ice creams and pies. Toppings have two functions: 1) to garnish or provide eye appeal, and 2) to add flavor and texture contrast to the product.

(a) Usage Considerations. The list of topping ingredients is a long one; in addition to the customary types used in the preparation of baked products and desserts, imaginative cooks can add even more to glorify their creations. The AFRS has several basic recipes used on standard products.

1 It is important to apply toppings at the appropriate point in the production of a dessert. Apply streussel topping, for example, to quick coffeecake batter before it is placed in the oven for baking. All sweet doughs to be topped with water icing or with a glaze must be warm but not hot. If nuts or fruits are to be used in addition to the icing, add before the topping has set; otherwise, the fruits and nuts will not stick to the baked product.

2 Time-saving toppings for ice cream, made from jams and jellies and water whipped together, are also used frequently in CGDFs.

7-K-6.e.(l)(b) Whipped-Type Toppings. Prepare whipped toppings from fresh or sterilized whipping cream, frozen dessert and bakery topping, and dehydrated dessert and bakery topping. For best results, follow the AFRS for all whipped toppings. The temperature of the product being whipped determines how the product responds to the whipping. Beater speed and the manner of adding flavoring materials are also points to be considered. Whipped toppings can be prepared faster by electric mixers. All whipped toppings can be varied by the adding fruit, flavorings, coconut, spices or chocolate.

1 Fresh Whipping Cream. Fresh whipping cream is highly perishable. It will turn to butter if overwhipped and will separate if held to long before serving. The cream must remain cold during whipping and must be served cold.

2 Sterilized Whipping Cream. Sterilized cream, intended for whipping, produces a stiff and stable whip. Just like fresh cream, the sterilized cream must be cold and whipped only until stiff peaks form.

3 Frozen Dessert and Bakery Topping. This ready-to-use topping needs only to be defrosted to a temperature of 40F to 50F. Whip it until smooth, stiff peaks form.

4 Dehydrated Dessert and Bakery Topping. This is a very stable product and is particularly suited to Coast Guard use because it saves refrigerator space. To prepare this topping, use high speed on the mixer. If the manufacturer specifies adding flavorings and for sweeteners, follow the instructions on the container.

(c) When to Apply Whipped Toppings. The standup endurance of the whipped toppings is short lived, so take every precaution to prevent premature breakdown of the foam structure.

1 Thoroughly chill the product being topped with whipped cream before it is applied.

2 Place the whipped toppings on individual desserts immediately before opening the food line.

3 Apply whipped pie toppings as close to serving time as possible, preferably after portioning and cutting.

(2) Dessert Sauces.

(a) Fruit Sauces. AFRS recipes for fruit sauces specify fruit juices, pulp, whole canned fruits or frozen fruits. The following varieties may be cooked or uncooked, depending on the type of thickener used: apricot, cherry, lemon, orange, peach or pineapple. If pregelatinized starch is used, cooking is not required. If cornstarch is used, the blended ingredients must be brought to a boil and cooked until the sauce is clear and thick. Strawberry gelatin is

used to thicken strawberry sauce; cooking is not required. Fruit sauces are served with cakes, puddings, dumplings, ice cream and other desserts.

(b) Ice Cream Sauces. Butterscotch. caramel, chocolate and several variations of chocolate sauces are used as toppings for ice cream. Preparation is simple; the sauces require few ingredients and a short cooking time. Recipes for these sauces are found in the AFRS.

(c) Miscellaneous Sauces. Recipes for custard, vanilla, nutmeg, cinnamon and hard sauce are also provided in the AFRS.

1 Custard sauce must be cooked regardless of the type of thickener specified. Custard sauce is used on cakes, puddings, and fruit desserts such as cranberry crunch.

2 Vanilla sauce used on cakes and puddings may be cooked or uncooked. spice-flavored sauces such as cinnamon and nutmeg rn3y be cooked or uncooked. The recipes specify either cornstarch or pregelatinized starch. Cinnamon sauce is served with apple dumplings and various puddings. Nutmeg sauce complements such desserts as steamed pudding and rice pudding.

3 Hard sauce is an uncooked dessert sauce made from butter and sugar with flavoring as desired. Ingredients are beaten until smooth and fluffy. This type of sauce is served with fruit-cake and steamed pudding. It should be made well in advance to permit chilling before it is served.

L. Breads. Two kinds of bread are discussed in this section: 1) yeast-raised products, including rolls, sweet-dough rolls of various kinds, coffeecakes, doughnuts and pizza; and 2) quick bread products leavened by chemical leavening agents and including biscuits, muffins, pancakes, cake doughnuts, fritters, dumplings, quick coffeecakes, cornbread and muffins.

1. Yeast-raised Products. The production of yeast-raised products is considerably more involved than for other bakery products. There are many different formulas for breads and yeast-raised products. Some of these formulas are called lean; others having high percentages of enriching ingredients (eggs, fat and sugar), are called rich. The ingredients used determine if the dough produces basic-dough or sweet-dough products.

a. Considerations in Production. The procedure used to produce yeast-raised products depends on the formula used and on conditions in the bake shop as production begins. Mixing the dough is one of the essential factors in making good yeast-leavened products. The other two factors are time and fermentation. These factors are very important and must be properly coordinated.

b. Recipe Yields. For bakers to produce a certain amount of bread or sweet dough, they must know how to determine the desired weight of each ingredient to produce the desired amount of dough. Follow the AFRS guidelines. True percentage of baker's percentages can be used in adjusting a recipe to yield a specific number of servings.

7-L-l.b.(1) True Percentages. True percentages are based on the total weight of all ingredients, the sum of which is 100%. Most AFRS recipes for breads and sweet doughs have an additional column on the left side of the card for true percentages.

(2) Baker's Percentages. In the baker's percent method, flour represents 100% of the formula. Baker's percentages for breads and sweet dough recipes are in the AFRS.

c. Basic-Dough Products. Many recipes are made from the basic-bread dough formulas. The most common product is white loaf bread; however, the formula can be altered to produce hot rolls, pizza crust and a variety of other breads.

(1) Ingredients.

(a) Wheat Flour. This type of flour is often referred to as "bread flour." Bread flour is an enriched, bleached product.

(b) Water. Water is one of the basic ingredients of bread. Water dissolves salt and sugar and aids in distributing these ingredients uniformly throughout the dough; it makes it possible for the enzymes to act on flour and for the yeast to cause fermentation. The water temperature determines the dough temperature during mixing. By regulating the water temperature, the baker can reasonably control change in dough temperature due to other ingredients, the mixing process and/or the bakery environment. The amount of water used determines the consistency of the dough. For good bread, the amount of water must be measured to produce a dough that is neither too stiff nor too soft; this will vary with the amount and quality of the protein in the flour and the type of product being made. Most importantly, water is necessary to form gluten from the protein of flour; this gives dough its elastic and gas-retaining properties.

1 Most water supplies consist of temporary or permanent hard or soft water. Soft water makes soft, sticky dough because the gluten is weak and incapable of holding large amounts of water. Gluten is made tough, strong and able to hold more water if certain minerals, such as common salt and those in hard water, are present. Small amounts of these minerals are sufficient. A large amount of salt retards fermentation, while a large amount of hardness in the water may make the gluten too firm decreasing the gas expansion necessary to produce good bread.

2 The undesirable effects of soft water can be overcome by adding the proper amount of dough conditioner or mineral yeast food. Such products contain definite quantities of hardening minerals for this purpose.

3 If water is temporarily hard, correct by boiling or adding vinegar. This causes the minerals to settle. The effects of permanent hardness may be corrected by using additional yeast.

7-L-1.c.(l)(c) Salt. This is one of the basic ingredients of dough; its use in the proper amount is important for The production of good bread. Salt toughens the gluten, making the dough more elastic. Weak gluten's are strengthened by salt; the resulting bread has improved grain. Doughs containing salt will ferment more slowly than those without salt. Salt improves the flavor of bread and whitens the crumb by producing bread of a finer cell structure. Salt controls the action of the yeast. It will prevent the growth of wild yeast, which, in long fermentation's, enters the dough from the flour and the air.

(d) Yeast. Yeast is a microscopic one-celled plant found everywhere in nature where sugar is present. Yeast is important primarily in bringing about fermentation. Yeast transforms heavy dough into a light, porous, elastic mass from which appetizing, digestible and nutritious products are baked. Yeast activity begins as soon as the ingredients are mixed and continues until the oven heat kills it. Dough ferments best around 80F. At lower temperatures, fermentation will be slow. At higher temperatures, fermentation may proceed too rapidly causing the dough to expand before it has become soft and pliable. Suspend active dry yeast in water at 105F to 110F for five minutes. Colder water slows fermentation and warm water may harm the yeast. Never use hot water. Active dry yeast does not require refrigeration; store in a dry and cool place. When properly stored, dry yeast will keep for many months.

(e) Sugar. Use refined granulated sugar for bread. Bread and sweet dough products become more tender as sugar is added. The amount of sugar ranges from 2% to 6% for bread. Sugar is not added to pizza doughs. Sugar in sweet dough ranges from 9% to 22%.

(f) Shortening. Shortening is used in bread to improve tenderness.

(g) Milk. Milk contributes so much to bread quality it is included in AFRS for white, whole wheat and raisin breads. Milk is recommended for all sweet-dough formulas for the increased tolerance it gives the dough during fermentation and makeup. For white bread, use conventional nonfat dry milk style A. Style A, a high-heat milk, is designed specifically for achieving the volume, flavor and crust desired in yeast breads.

(h) Eggs. Eggs are recommended for the richness, flavor, improved texture and keeping quality they give to products such as sweet doughs.

(i) Spices. Use spices to add flavor or variety to the baked product, but be careful when selecting and measuring them. The preservation or antiseptic qualities of some spices influence fermentation. Mace, nutmeg and caraway seeds used in normal quantities do not affect fermentation. Cloves used in high enough concentration, will slow or even stop fermentation. Cinnamon contains oils that retard fermentation. Use spices as specified in the AFRS.

7-L-l.c.(l)(j) Yeast Foods (Dough conditioners). Yeast foods, known as dough conditioners, have other more important functions than to supply food for yeast. Their major purposes are to condition the water and to assist in the proper fermentation of the dough.

1 Yeast foods contain three types of functional ingredients:

a Ammonium salts to supply yeast with a supply of nitrogen for growth;

b calcium salts to produce the proper hardness in the dough water and firm the gluten; and

c an oxidizing agent to give a firmer, less sticky dough.

2 In addition, these ingredients contain starch and salt to add bulk so the yeast food will be easier to scale accurately. Yeast food use is often determined by the strength of the flour and the fermentation period desired. Not all flours require yeast food. When the flour requires such material, its addition produces bread of larger volume, better grain and tenure, and improved loaf appearance. Too much will produce inferior bread with low volume and coarse grain.

(2) Production Procedures. The AFRS uses the Straight Dough Method to produce yeast-raised products; however, in CGDFs with limited bakery space, the Short Time Bread Formula is ideal.

(a) Straight Dough Method.

1 Dough Temperature During Mixing. Temperature has a definite influence on the function of yeast and its ability to condition a dough properly to produce a quality bread. Obtain the desired temperature of mixed dough by determining the rise induced by mixing and using this information at all times for the same mixer and the same dough weight. Adjust the temperature of the water used to control the temperature of the dough.

a Determining Desired Water Temperature. Regulate dough temperature by considering all factors that influence its temperature and then using water tempered to offset the adverse temperatures. Three factors are involved: I) room temperature (RT); 2) flour temperature (FT); and 3) friction factor (FF) (mixing temperature rise).

Example:

RT...84	Desired dough temperature	80
FT...82	Multiply by number of factors involved	3
FF...14		240
180	Less sum of 3 factors	180
	Desired water temperature	60

7-L-l.c.(2)(a)l b Use of Ice. When necessary, use ice to lower the water temperature. For example: If the desired water temperature is 40F and the available tapwater is 70F, use only the amount of ice to lower the temperature of the water 30F.

c If a formula calls for 100 pounds of water (the desired water temperature being 40F and tapwater 70F), use the following formula to calculate the amount of ice required:

Example:

$$\frac{\text{Pounds dough water X (Tapwater temperature - Desired water temperature)}}{\text{Tapwater temperature + 112}}$$

or

$$\frac{100 \text{ X } (70 - 40)}{70 + 112} = 16.48 \text{ lb Ice}$$

d To determine the actual number of pounds of water required in the dough, subtract the pounds of ice from the weight of water called for in the formula.

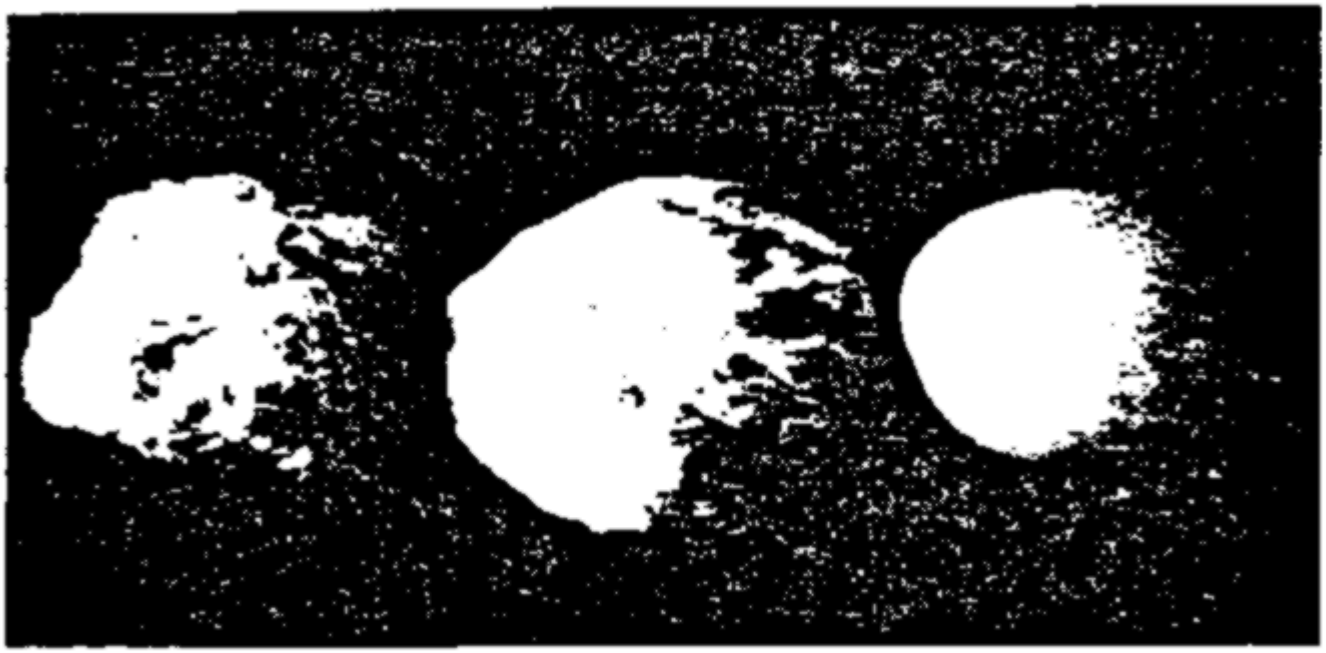
Example:

Pounds of water called for in formula	100.00
Pounds of ice required	-16.48
Pounds of water now required	83.52

2 Mixing. The mixing operation has two functions: 1) to agitate the dough until all the ingredients are dispersed evenly; and 2) to stretch the dough until the gluten is formed and distributed as widely and evenly as possible.

a Suspend yeast in a portion of 105F to 110F water. Place the remainder of the water, salt, and sugar and nonfat dry milk in a mixing bowl. Add flour and mix one minute. Add yeast solution and mix one minute. After flour is thoroughly wet, add shortening. Adding shortening to dry flour affects proper absorption and development time. During this early mixing stage, the dough will be moderately cohesive, rather wet and lumpy. See Figure 7-40, Phase 1.

b In high-speed mixers, the dough becomes firm after several minutes of mixing but has no stretching character. As mixing continues, the dough acquires a limited tendency to stretch and remains a little sticky. With further mixing, the dough becomes more cohesive and elastic. The lumpiness begins to disappear and the dough becomes firm as the flour picks up moisture. The dough at this stage is rather sticky and adheres firmly to the mixer bowl. See Phase II of Figure 7-40.



Phase I Phase II Phase III

Figure 7-40 - Dough Development

7-L-l.c.(2)(a)2 c As mixing progresses, the back of the bowl begins to be cleaned of dough, and ultimately it will be cleared. The dough begins to soften and relax. The stickiness disappears and the dough takes on a smooth appearance. See Figure 7-40, Phase 111. Note: It is here that careful judgment by the baker is essential. Dough mixed beyond this stage loses its elasticity, and becomes sticky and runny.

d After all mixing is complete, the dough temperature should range between 78F and 82F.

3 Fermentation Period. The total fermentation and its effects help develop the flavor of the bread. As this conditioning and fermenting process has great influence on the finished product, regulate times and temperatures to prevent undesirable changes during this period.

a Alter mixing the bread dough, set it aside to ferment in a clean, odor-free room. Maintain the room temperature at 80F with a relative humidity of 74% to 78%.

b Humidity Controls. When relative humidity cannot be controlled, brush the top of the dough lightly with oil or shortening. Cover the dough to prevent evaporation of moisture and crusting of the dough.

7-L-l.c.(2)(a)3 c Room Temperature Controls. When the room temperature cannot be controlled, keep the dough from becoming either too warm or too cold. Wrap clean paper or cloth around the dough container to help equalize the temperature. In cases of extreme cold, increase the amount of yeast used to raise dough temperature a few degrees and lengthen the fermentation time. If the weather is extremely hot, reduce the amount of yeast used to lower dough temperature three or four degrees and shorten the fermentation time.

d Several changes take place within the dough during the fermentation period. These changes cause the dough to produce good bread if handled properly during the entire process. During fermentation, part of the sugar is converted into a form of yeast food. Starches are converted into sugar that produces carbon dioxide gas and alcohol causing dough to expand, soften and become more pliable. The enzyme protean causes the gluten to become soft and stretchable. As the dough ferments, acidity develops in the dough helping it to stretch.

e Hold dough for two hours or until double in size. To test, insert fingers about three inches into dough. If dough recedes or puckers away from fingers, it is ready to be punched. If the imprint closes and the dough does not recede, the dough is not ready.

f Lack of Fermentation. Allow sufficient time for dough to mature to where it is relaxed, dry and still actively fermentating. in dough not properly aged the gluten is too tough, dough too strong, bread volume too small and crust color a reddish brown.

g Over-Fermentation. When fermentation is complete, the dough has good relaxation, active gas production, and good crust color. Common results of overfermentation are pale crust color, sticky dough, poor symmetry and sour flavor.

h Factors Affecting the Speed of Fermentation. Bakers adjust work to fit production schedules. Due to time limitations, effective fermentation may be difficult. When necessary to accommodate schedules, increase the amount of yeast in the formula 1 1/2% to 3%. The higher yeast content will produce faster fermentation. Increasing the dough temperature speeds fermentation but there is only a limited range of safe temperature variation. Yeast food may be added to reduce the time required to mature a dough and may be varied to achieve the adjustment of fermentation time. Increasing the amount of salt will slow the fermentation and decreasing it will speed the process, but a change in salt directly modifies flavors and is not recommended.

7-L-l.c.(2)(a)4 Punching. To punch the dough, fold it over from the sides into the middle until most of the gas is expelled. Turn dough mass upside-down in the fermentation container. Punching remixes ingredients to give the yeast new food.

5 Resting.

a After punching the dough, return it to the work bench to rest 30 minutes. This resting time allows the dough to relax and become pliable for makeup. A dough that contains more eggs and sugar (rich dough) requires less resting time.

b Final Dough Temperature. Expect the final temperature (the temperature when it goes to makeup) to be 6F or 7F higher because of the internal heat generated by fermentation. Maintain the room at 80F or set the dough a few degrees cooler than 78F to compensate for heat absorbed from the room. Regulate the temperature to allow the yeast to function properly. The yeast will be subjected to various temperatures during the entire dough stage.

6 Dough Makeup. After the dough has fermented, divide it into pieces, mold and let rest before panning. The advantages of molding and intermediate dough proofing are: 1) achieve uniform shape; 2) facilitate panning; 3) make texture uniform; 4) stretch gluten slowly; 5) expel excess gas; and 6) form skin on dough surface.

a Dividing into Uniform Pieces. Divide the dough into uniform pieces of the desired weight. They must be the same weight if they are to bake uniformly. In hand-operated shops, the dividing is done by cutting off pieces of dough with the scraper and weighing the pieces, adding more dough if it is too light or removing some of the dough if it is too heavy. Sometimes this is called "scaling" because the pieces of dough are scaled to the exact weight desired. In a machine-operated shop, the baker scales the pieces by machine, adjusting it so the pieces will be the desired weight.

b Molding the Dough. Mold the dough for the intermediate proofing by tucking in the raw edges and forming a round piece of dough. This stretches the skin over the piece of dough and seals in the raw edges left when the dough was divided. The round surface of the dough must be smooth. If the surface is rough, gas will escape during proofing. See Figure 7-41.

c Intermediate Proof. The intermediate proofing period is when the rounded piece of dough is allowed to rest between the time the dough is divided and rounded and

when it is formed for panning. The intermediate proofing period must be just long enough for the piece of dough to recover from being divided and rounded. The dough must be loose enough so it can be easily shaped. This requires from 12 to 15 minutes depending on the dough and the conditions of the shop.

Figure 7-41 - Dividing and Molding

7 Shaping and Panning. The pieces of dough are shaped so they rise in the pan and form a shaped loaf of bread.

a Place rounded pieces of dough on floured board, top or molded side down.

b Press out gas with palms of hands.

c Pull dough lengthwise to shape into an oblong piece the length of a finished loaf.

d Shape loaf by folding lengthwise to the center. Press firmly with fingers to seal.

e Fold over half of the dough and press for a final seal.

f Roll dough to complete sealing and shaping of the loaf.

g Lightly grease the bread pan to prevent the bread from sticking when it is removed. Too much grease on the pan surface can seriously affect the proofing, baking and slicing of the bread.

h Place the loaf, seam side down, an the center of the pan.

7-L-l.c.(2)(a)8 Pan Proofing.

a After shaping and panning, place the loaves in a properly controlled room or proof box, maintain the room temperature at 90F to 100F and the relative humidity at 80% to 85%. During pan proofing, the action of the yeast is accelerated by higher temperatures, and the gluten becomes more mellow and elastic. As the dough mass relaxes, the dough adjusts itself to the pan shape.

b Touch the loaf lightly with one fingertip and press in slightly. If the impression made by the tip of the finger remains, the loaf is proofed; if not, the loaf is still too tight and compact and must be proofed more.

9 Baking. The final stage in bread production is to place the pans of dough in an oven heated to a temperature sufficient to heat the dough quickly (see AFRS cards), and cause the carbon dioxide of the dough to expand; this greatly increases the size of the dough. The oven temperature also vaporizes surface moisture of the bread and ultimately causes caramelization of the sugars, starches and other ingredients composing the exposed dough surface. When using convection ovens, follow the operating manual instructions or use the AFRS. guideline card for convection ovens. Baking time and temerature are reduced as compared to conventional ovens. The oven temperature and time required to bake a loaf of bread will vary.

a If the loaf is large, the oven temperature must be regulated so the surface will not burn before the loaf is baked. The oven temperature must be raised so a small loaf will brown before the loaf is overbaked.

b Bake bread formulas containing a Large amount of sugar at lower oven temperatures so the crust will not brown excessively. Dough with a high milk content tends to make the crust darker. Bread with a thick hard crust has a low percentage of sugar and fat.

c Bread is the end product of a long line of chemical and physical reactions. If the loaf is removed from the oven before these changes occur, no matter what the crust color is, the loaf will lack desirable qualities. Crust color and thickness depend on the length of time the loaf is baked and the concentration of sugars. Aroma of underbaked bread is "green," lacking the full-scale fragrant characteristic of freshly baked bread. If sufficiently under baked, the loaf sides will collapse and proper slicing is not possible.

d The oven temperature may be controlled for influencing bread character in other ways than just color. A low

oven temperature tends to open the grain of the loaf. If too high a temperature is used, the loaf may burst violently, usually along the sides, resulting in unusable loaves.

e A properly-baked loaf of bread sounds hollow when tapped. Remove the baked loaf of bread from pans and cool on racks in draft-free areas. Bread will dry out faster if the air is too warm or too dry.

10 Storing and Serving.

a Store bread at a cool room temperature where it will not dry out. If wrapped in plastic bags closed with twisters, bread can be stored for up to 96 hours in a cool room. If the room is hot and humid, it may be necessary to refrigerate the bread to prevent mold from forming. However, refrigeration is not ideal for extended storage because refrigerated bread stales more rapidly than at room temperature. This staling makes the bread firm and the crumb becomes coarse and hard. Bread may be held for extended periods if frozen in plastic wrap or bags. If freezer storage is impractical, bread quality is best maintained by baking in quantities o be consumed within 48 hours.

b Arrange the bread storage so the older bread is always used first. Sliced bread left over from a previous meal can be dried and held for bread crumbs, bread pudding or crouton preparation.

11 Rope and Mold.

a The baker is faced with two problems that may arise during bread storage: 1) rope and 2) mold development. Because of these potential problems, it is most important to plan bread storage.

b Rope is a bread infection caused by development of bacteria spores. The symptoms of this disease are: 1) distinctive sickly sweetish odor and 2) the appearance of sticky, yellowish-brown spots in the crumb. As the disease progresses, the crumb becomes so soft and sticky that, when touched, it can be pulled out into long threads, hence, the name “rope.”

c Mold is a spore that infects bread under certain temperature and humidity conditions. When spore sacks develop they show multiple discolorations on the sliced surface of bread.

d If desired, a mold-preventive product called "Inhibitor, Mold and Rope, Baker's Products" can be added to the ingredients.

7-L-l.c.(2)(b) Short Time Bread Formula. The short time formula eliminates the intermediate proof and the final loaf-molding operation. This modified sponge-type dough produces an excellent loaf of bread.

1 In addition, and of prime importance to ships without production equipment, this formula reduces the total batch production time from a normal period of 5 to 6 hours to 2 to 2 1/2 hours for a standard bread formula. In addition to eliminating the 12 to 15-minute intermediate proof, the baker can roll the rounded pieces into sausage shape and pan. One baker can roll and pan an average of 20 pieces per minute. Hot rolls and variations may be prepared using the short time formula. Follow the AFRS for best results.

2 Maintain a room temperature of 800F to ensure the best finished product. Any increase in the bakeshop temperature will reduce the fermentation time. Because of the absence of fermentation rooms aboard ship, this control is strictly dependent on the baker's skill and knowledge in determining the dough readiness. Mixing times will not change, however, as the 10-minute periods appear to be optimum for proper dough development under practically all conditions.

(3) Types of Basic Dough Products.

(a) White Loaf Bread. Bread is a term used for centuries to describe a mixture of flour, sugar, shortening, salt and ii9uid. This mixture is made into dough. Another ingredient, yeast, is added to the mixture to make the dough rise. The resulting dough is leavened and baked. This basis dough recipe, without any variation, produces white loaf bread.

(b) Hot Rolls. The production of bread rolls differs principally from bread in that a richer formula is used and less mixing is required. The dough usually is much softer. The significant ingredients making richer formulas are the fat and sugar contents.

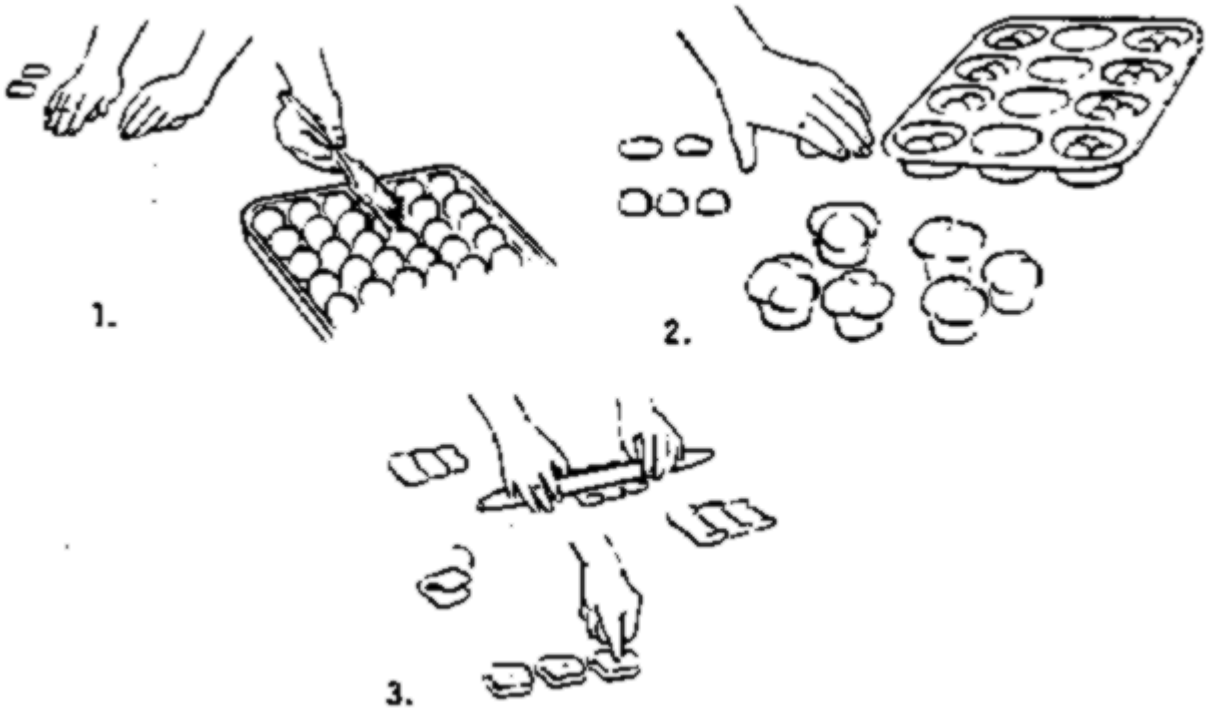
1 Hot Roll Mix. Timesaving roll mixes have all the necessary ingredients premeasured and combined, except water and yeast. Follow package and can instructions in mixing, fermentation, panning the dough and baking.

2 Problems Associated with Roll Production.

a Temperature. As with loaf bread production, temperature control is important. Use temperatures specified in the AFRS. Too high a temperature will cause dough to ferment too rapidly and rolls will be sour or yeasty-tasting. Too low a temperature causes heavy, tough rolls.

b Fermentation. The amount of time needed depends on the amount of yeast and sugar used. In the short-time formula rolls, about twice as much yeast is used as in bread production.

7-L-l.c.(3)(b)2 c Scaling and Shaping. Makeup of bread rolls constitutes the major step in production. The variety of shapes possible with soft and hard rolls is almost endless. Accurate scaling of dough and skilled manipulation in forming shapes are required. Follow AFRS guidelines for hot roll makeup. See Figure 7-42 for variations in hot roll makeup.



1. Pan Rolls
2. Clover Leaf Rolls
3. Parker House Rolls

Figure 7-42 - Hot Roll Makeup

d Proofing. Because rolls are considerably smaller than read, proofing time is very critical. Proof rolls until about doubled in volume from makeup size. Rolls overproofed will appear blistered on the surface and flattened when placed in oven, and will be coarse when baked.

3 Special Roll Production.

a Short Time Roll Formula. Two variations of hot rolls- whole wheat rolls and brown-and-serve rolls - can be made with the short time formula. About I 1/2 hours preparation time per batch of hot rolls is saved if the short time formula is used instead of the straight dough method.

7-L-l.c.(3)(b)2 b Brown and Serve Rolls. For makeup, follow procedures described in the AFRS. Proof at 90F for 30 minutes or until double in size. Bake at 300F for 12 to 15 minutes or until the first sign of color. partially baked rolls may be held in refrigerators at 40F for up to two days. If freezer space is available, these rolls freeze satisfactorily for up to five days. Finish baking at 425F for approximately 12 minutes.

c Hard Rolls. The quality most sought in hard rolls is a crisp crust. Hard rolls must be thoroughly fermented or well-aged because young dough produces tough, rubbery crusts. Use of bread flour is necessary for properly fermented or aged dough. Ferment at 80F for 1 1/2 hours or until double in size before punching. Varieties of hard rolls are round, French, and caraway seed.

(c) Rye Bread. Rye bread is made with a combination of medium rye flour and bread flour. This flour combination is necessary as rye flour gluten alone is too weak to produce a typical bread texture. The crust on rye bread differs from the crust of breads made with bread flour. Using the AFRS-recommended cornstarch or egg wash procedures produces a shiny crust and enhances the color.

1 Mixing the Rye Dough. Mix the dough until it is smooth and elastic like a white dough, free from lumps and streaks. When mixed the temperature of the dough must be 74F to 76F. The fermentation time will approximately 1 1/2 hours or until double in size.

2 Fermentation. Rye doughs ferment faster and require less fermentation than white doughs.

3 Mixing Speed and Time. Mixing speed and time is governed by the amount of rye flour in the dough. Dough recipes containing over 30,6 of medium rye flour are better mixed at low speed. Mix a rye dough until smooth. Avoid overmixing.

4 Proofing. Watch the proofing of rye bread very closely. The re ready to load into the oven when an indentation made lightly with a finger remains in the dough.

(d) Whole Wheat Bread. The AFRS recipe for whole wheat bread specifies wheat base instead of whole wheat flour. Wheat base is prepared from the germ, bran and other fragments of wheat kernels. It has a whole-wheat flavor and may be combined with bread flour to produce whole bread and other baked items. Wheat base, a stabilized product, resists rancidity and insect infestation so it has a longer storage life and is more suitable for military use.

1 Wheat-Type Bread Using Short Time Formula. This bread can be made using a short time formula, except use 4 pounds of bread flour and add 3 1/4 pounds of wheat base. Proceed as directed for white bread.

2 Vacant.

7-L-l.c.(3)(e) Raisin Bread. Raisin bread requires a strong flour to hold the raisins and liberal quantities of yeast for proper fermentation.

1 Mix the dough the same as a regular white dough, except add the raisins during the last two minutes of mixing. After the raisins are added, mix for one minute at low speed and one minute at medium speed. Dough temperature must be 78F to 82F. If the dough is mixed too much after the raisins are added, the raisins will be mashed and fermentation will be slowed.

2 Wash and drain raisins before putting them into the dough. Fermentation time is two hours. Makeup for raisin bread is the same as for regular white bread.

3 Raisin Molasses Bread Using Short Time Formula. Vary the white bread formula by using brown sugar instead of white sugar and molasses instead of cornstarch, adding cinnamon and raisins. The fermentation time is double that for white bread straight dough.

(f) French Bread. Mix the same as for regular white bread. Dough temperature must be 78F to 82F. Dough fermentation time is 2 1/4 hours or until double in size.

1 Makeup. French bread (or hearth bread) is made up in many shapes and lengths. The most popular shape is the long loaves or sticks. Usually, the French sticks are about 18 inches long.

2 Proofing. The modern way of proofing this type of bread is on pans evenly dusted with cornmeal. The loaves are properly spaced, seams down, on the pans. The loaves must be far enough apart so they do not touch while baking.

3 Marking. Cutting or marking each loaf before loading it in the oven produces the best finished appearance and variations. Before baking, brush the loaves with egg wash or cornstarch wash and make six cuts about 1/4-inch deep across the top of each loaf. Besides improving the appearance, cutting hearth bread results in uniformity and helps prevent bursting as loaf volume increases during baking.

4 Baking. Place the pans evenly in the oven and sufficiently to allow the heat to circulate freely, thus preventing bursting and ensuring an even bake for each loaf.

(g) Pizza. Almost any lean dough formula, such as French bread, can be used for making pizza. The major difference between a particular formula for pizza and lean bread doughs is the yeast is not fed; that is, sugar is not an ingredient in a pizza formula because it is not needed to supply the yeast energy. Volume is not a factor in pizza doughs. Fermentation for pizza is relatively short in comparison with other bread doughs, and makeup consists only of flattening the dough to the required dimensions.

7-L-l.c.3)(a)l Frozen Pizza Crust. partially-baked pizza crusts are prepared commercially and frozen. Add galley prepared pizza sauce and bake according to package directions.

2 Vacant.

d. Sweet Dough Products. Among the various yeast-raised doughs made in bakeries, sweet dough is one of the most common. Sweet dough must be sweet. Therefore, its formula is high in sugar, shortening, eggs, spices and other enriching ingredients not usually found in bread. Sweet doughs are used to make a variety of breakfast rolls and coffeecakes.

(1) Ingredients.

(a) Flour. Sweet dough in Danish pastry dough recipes is made from bread flour

.

(b) Sugar. - The most common sugar used is granulated sugar. The percentage of sugar in formulas ranges from 9% to 21%, depending on the product being made. When rolls are made with only 9% sugar, they are similar to buns or soft rolls, have good tolerance, are easy to makeup, and have good volume; but they lack sweetness and richness. Rolls made with a higher percentage of sugar have shortened tolerance, longer fermentation, smaller volume, and increased cost but they are sweeter, more tender and keep longer.

(c) Shortening. Using a formula of 16% to 22% fat gives the most desirable rolls. They are tender but not greasy and short, but not lacking in volume.

(d) Eggs. Whole eggs may be used in amounts from 16% to 21% depending on the type used and the product desired. The interior color of the roll does not give an indication of the amount of eggs used. This range keeps the cost down, yet achieves all the benefits possible from eggs. Eggs improve dough handling.

(e) Milk. Milk is recommended for all sweet dough formulas for increased tolerance to fermentation and makeup. Nonfat dry milk used in amounts of 2% to 5% yields a very favorable product.

(f) Yeast. The yeast cannot do its work uninhibited, as it does in many other doughs, because of the high concentration of sugar. Sugar slows the yeast action; usually, this is offset by greater amounts of yeast. The amount of yeast used in AFRS recipes ranges from 3% to 5%, depending on the richness of the formula. The use of greater amounts of yeast will shorten the fermentation and bench dough tolerance and, if not considered, will result in old doughs.

(g) Flavors and Spices. Use spices to add variety and flavor to the baked product. Carefully select and use spices. Spices do not materially affect the fermentation rate if used as specified in formulas. Excess flavoring extracts are undesirable.

7-L-l.d.(2) Sweet Dough Mix. Sweet dough mix has all the necessary ingredients, pt water and yeast, premeasured and combined. Follow package or can instructions in mixing, fermentation, panning and baking the dough.

(3) Types of Sweet Dough. There are two types of sweet dough: 1) regular sweet dough and 2) Danish pastry. products made from either of these doughs may be similar in size, shape and weight, but will differ considerably in texture. The fine, even grain and texture of regular sweet doughs is different from the flaky texture of the Danish pastry products. Handle sweet doughs either as doughs with normal fermentation and makeup or as retarded sweet doughs.

(4) Formulas for Sweet Doughs. The basic formula for a sweet dough can have variations, bakery conditions, handling and cost of ingredients. Sweet dough formulas may be rich or lean, according to the percentages of eggs, shortening, sugar and milk solids used. With increased quantities of these ingredients in a formula, increase yeast to induce the necessary leavening action. In addition, formulas for sweet doughs, coffeecake and Danish pastry may be altered to accommodate ship conditions or ingredient limitations. For example, some installations have sufficient space for the required fermentation of large batches of dough. To avoid bottlenecks, smaller batches can be made so fermentation action is speeded up. Do this by varying the ingredients:

(a) Increase the amount of yeast.

(b) Decrease salt and sugar content to allow the yeast more freedom so it can work faster.

(5) Special Points in Mixing Sweet Dough. Mix the Danish pastry and sweet doughs until the dough is smooth and elastic. The dough temperature must range between 78F and 82F. Dissolve the yeast in water. Sweet dough containing eggs can appear slack without being sticky; however, eggs improve dough handling.

(6) Fermentation of Sweet Dough. The fermentation tolerance of sweet doughs is less critical than regular bread doughs. The fermentation time can be adjusted according to the time required for makeup. Because the makeup time for various types of sweet rolls and coffeecakes differs, it is better to keep the dough on the young side and thus get longer bench tolerance. Allow a 15 minute rest period then divide into balls. The fermentation period of a sweet dough must not be long enough for the dough to develop excess acidity. Follow the AFRS directions.

(a) Fermentation for Basic Sweet Dough. Normal fermentation of basic sweet dough means one full rise is given the dough before makeup, proofing and baking. Retarded dough is yeast dough chilled before proofing and baking. Refrigeration retards the fermentation.

1 The key factor in control of retarded sweet dough fermentation is temperature. The ideal refrigerator temperature is 35F. Temperature must be kept below 40F if doughs are held as long as 24 hours. If possible, control humidity. Relative humidity of 85% is recommended.

7-L-l.d.(6)(a)2 Savings in production time of sweet doughs can amount to as much as 66% of a baker's time when the retarded method is used.

3 The number of mixings of frequent small batches can be reduced because the preparation of larger scale sweet roll production is made possible. Activities that have used the method find that being able to mix dough during a slack work period is a major advantage.

4 Sweet dough is retarded by two methods:

a Give the dough about three-fourths of its normal fermentation. Then makeup the dough in the desired roll shapes, pan and immediately refrigerate. Do not proof after panning, but give the madeup units normal pan proofing after removing from the refrigerator. The storage of madeup units may save and make better use of the baker's time. Another advantage is the rolls can be baked by someone other than the baker. Madeup units store safely about 60 hours if held at 32F, and they may be finished just in time to supply hot rolls for the serving line.

b Divide the dough into four equal pieces of approximately 6 1/4 pounds each. Place two flattened, lightly greased pieces in each greased baking pan and refrigerate until needed at 32F to 40F. When needed, the dough may be removed and made up into rolls without being brought to room temperature. Proof the rolls as usual.

(b) Fermentation of Danish Pastry. The AFRS recipe for Danish pastry uses the retarded method a fermentation.

1 Fermentation for Danish pastry dough is retarded by chilling the dough after mixing. Butter is then folded into the dough. The dough is chilled, then again goes through makeup, proofing and baking. The chilling period is necessary to keep the fat from melting and soaking into the layers of dough.

2 The proper dough temperature for roll-in dough is important. The dough temperature must be cold enough to keep the roll-in fat firm. Cool doughs will roll out with less effort. The dough temperature must be about 65F. Keep dough cool during the rest periods and between each rolling and folding.

3 Underproofed doughs will not be flaky. Overproof mg will cause the roll-in fat to leak out. The oven or baking temperature must not be too low. Check the AFRS.

(7) Sweet Dough Makeup. Makeup for sweet dough may be varied by: I) using a variety of shapes; 2) using different fillings in makeup; and 3) varying the

finish or glaze of the baked product. The shape of the finished dough piece on the pan will resemble the same shape when removed from the oven. Extreme care in makeup is essential for the production of attractively finished products. For a detailed description on the variety of possibilities for sweet-dough making, see the AFRS guideline for sweet dough makeup. See Figure 7-43 for variations in sweet dough makeup.

(8) Proofing of Sweet Doughs. All sweet dough products require a full proofing period. The baking temperature will vary, depending on the size and shape of the items being baked. Sweet dough products must not be baked slowly. Almost any variety of roll may be topped with nuts or other topping before being baked; wash the rolls with an appropriate wash before topping and proofing. Glaze or ice all products while warm.

(9) Yeast-Raised Doughnuts. Yeast-raised doughnuts are made from a rich sweet dough using yeast for leavening. The dough is mixed and fermented, rolled out, cut by hand or machine into desired shapes, proofed to the proper size and deep-fat fried. Sweet dough mix may be used for yeast raised doughnuts. Prepare the mix according to container instructions.

(a) Formula and Ingredients.

1 Basically, the doughnut formula is a sweet dough; however, to make doughnuts, the formula is varied somewhat. The major changes are leavening and eggs are decreased and a combination of bread and general purpose flour is used. The blend of general purpose and bread flours yields a product of more tender texture and fermentation time is shortened than if all bread flour is used.

2 Doughnut formulas contain different percentages of sugar, shortening and eggs; the greater the amount used, the richer the dough. However, the variations in richness for yeast-raised doughnuts do not extend over as wide a range as with cake doughnut formulas, which tolerate larger quantities of sugar and eggs.

3 The sugar content in yeast-raised doughnuts controls, to some extent, the amount of browning and fat absorption during the frying.

4 The quality of ingredients is just as important in doughnut production as it is in other yeast-raised items. Extreme care in mixing, fermentation and makeup is essential to high-quality doughnut production.

(b) Mixing. Control mixing temperature so the dough leaves the mixer at 78F to 82F. The temperature of the ingredients when mixed has a definite effect on the amount of fat absorbed during frying. Limit mixing time to 10 minutes or until the dough is smooth and elastic.

Variations of sweet dough makeup are:

1. Bear Claws
2. Sugar Rolls
3. Coffeecake
4. Coffeecake
5. Cinnamon Rolls (Butterfly)
6. Snails

Figure 7-43 - Sweet Dough Makeup

7-L-l.d.(9)(c) Fermentation and Makeup. Take mixed doughs to the bench at once and divide into uniform pieces, the size depends on the weight of the entire batch. Follow recipe instructions for rolling and cutting, as thickness of dough and uniformity of doughnut size is extremely important to proper frying. If there are cracks in the dough or if it is stretched unnecessarily, the dough tends to absorb more fat during frying.

(d) Cutting.

1 Use doughnut cutters carefully to prevent overlapping the cuts and wasting the dough. Reworked and rerolled dough can be used but will not give cut doughnuts a smooth surface nor an even brown color.

2 Doughnuts may be cut into various shapes. Other than the characteristic round shape without centers, there are Long 3ohns, crullers or twists.

3 Yeast-raised doughnuts are not dispensed from a machine into frying fat or mechanically cut because they require a short proofing period. This is a necessary part of the fermentation process.

(e) Frying.

1 Recommended temperature of the fat is 375F for raised doughnuts. Make certain the correct temperature is used because doughnuts will soak up fat that is too cool and will brown before they are done if fat is too hot. To allow for expansion of dough and turning room, place cut doughnuts carefully in fry baskets 1/2-inch apart and lower into hot fat.

2 If proper formula is used, doughnuts will not soak up grease during frying. Normal fat absorption should be two to three ounces per dozen. This absorption is both desirable and necessary to high-quality products. Grease soaking is undesirable, however, and is caused principally by undermixing dough, bad cuts, rough surfaces, and poor-quality fat used in the frying process. A fat-soaked doughnut is heavy and greasy tasting, and stales very rapidly.

3 Thoroughly drain doughnuts on brown paper and cool to 160F if glazed. If topped with coatings, cool doughnuts to 72F (room temperature).

2. Quick Breads. A baked product leavened by quick-leavening agents is called a quick bread. The rime required to mix and bake them is fast or comparatively short as compared to yeast bread products.

a. Batters and Doughs. Mixtures leavened by steam, incorporated air or chemical leavening agents makeup into different kinds of batters and doughs. Batter or dough consistency is the basis for the classification. The two major classifications are:

7-L-2.a.(l) Soft Batters. Soft batters have varying amounts of liquid and may be subdivided into pour batters and drop batters. Pour batters are thin enough to pour directly from a container into cooking pans. An example of a pour batter is pancakes. Drop batters are thick enough to require spooning into baking pans. Muffins are an example of a drop batter.

(2) Rollout Doughs. The flour mixtures referred to as doughs are soft dough, such as baking powder biscuits, and stiff dough, such as cake doughnuts.

b. Ingredients Used in Breads and Batters. Batters or doughs are made with dry mixtures of flour, baking powder, salt, liquids and other ingredients such as fats, eggs, sugar and flavoring.

(1) Flour. General purpose flour is used for quick breads and batters. General purpose flour produces finer grained baked items than bread flour.

(2) Liquids. Nonfat dry milk is specified in recipes for quick breads. The dry milk is sifted together with the dry ingredients and the liquid is added later in mixing.

(3) Leavening. Baking powder is the chemical leavening agent used in most AFRS recipes for quick breads. it is a double-acting baking powder in which one stage or leavening occurs in the batter and another occurs while the product is baking. The amount of baking powder used depends on the type of baked product and on the ingredients and their proportion. Measure baking powder accurately. Too much baking powder produces a coarse rain and may cause the product to fall after baking. The color will be dark and yellowish, and the taste will be salty or bitter if excess baking powder is used. If too little is used, the structure of the product will be heavy and dense with low volume.

(4) Fat. General purpose shortening compound is used in quick bread and batter production. Shortenings produce products with a soft crumb and aid browning.

(5) Eggs. An important ingredient in quick breads and batters is eggs, which add flavor, color and palatability. They also provide some leavening action. Use fresh whole eggs or frozen whole baking-type eggs. Dehydrated egg mix may be used as a substitute in any recipe if the eggs are sifted with the dry ingredients. This will ensure even distribution and uniform reconstitution when the liquid is added.

(6) Other Ingredients. Salt aids flavor. Other ingredients include spices, grated, whole or chopped fruits or nuts, poppy or caraway seeds, and cereals such as bran or cornmeal.

C. Mixing Methods. How ingredients are mixed determines to a large extent the structure and texture of the finished product. All ingredients must be evenly mixed. If needed, develop the flour gluten to the desired degree to keep the loss of the leavening gas to a minimum during baking.

7-L-2.c.(l) These general rules apply to mixing quick breads and batters, regardless of which mixing method is used:

(a) The degree of mixing is always limited when the leavening is produced by baking powder.

(b) The amount of mixing varies with the kind of ingredients and their proportion, except for leavening. For example, a product with a high percentage of fat and sugar may be mixed longer with less harm to the finished product's quality.

(2) Muffin Method. This method is used for pancakes, muffins, cornbread, ings and fritters. The sequence of steps for the muffin method include: sifting dry ingredients together, blending in the liquid and eggs, adding melted shortening, and mixing only until dry ingredients are moistened. Cornbread, muffin and dumpling batters should appear lumpy.

(3) Biscuit or Pastry Method. This means of combining ingredients is used principally for biscuits. This dough contains more flour than liquid, and is of a kneaded consistency. The dough is prepared by sifting dry ingredients together, blending in the shortening, adding the liquid, and mixing only enough to yield a homogeneous dough. The dough is cut into the desired shapes and baked.

(4) Cake Method. Several quick breads and batters are mixed by the cake method. Coffeecakes, cake doughnuts and muffins are mixed similarly to batter cakes. Steps in conventional method include:

(a) Cream shortening and sugar.

(b) Add eggs.

(c) Gradually add dry and liquid ingredients alternately, beginning and ending with dry ingredients.

d. Quick Bread Production.

(1) Soft Batters. Pour batters and drop batters are included in this category. Ingredient variations, mixing methods, production techniques and menu uses of these items are discussed separately.

(a) Coffeecakes. These products are popular breakfast or brunch items. The formulas are the same as for regular cakes eaten for desserts, except for minor ingredients changes. The major difference is in the frosting used on cakes. Coffeecakes are topped with sweetened crumbs or combined with fruit. Crumb cake and quick coffeecake recipes in the AFRS are of this type. Serve these cakes while still warm. Quick coffeecakes may be prepared with biscuit mix. Check the AFRS for variations.

(b) Cornbread. Cornbread is a popular quick bread. Yankee-style cornbread is prepared with sugar; southern style is prepared without sugar. Cornbread can be baked in sheet pans or the batter may be poured into muffin tins to make muffins.

7-L-2.d.(l)(c) Hush Puppies. Hush puppies are small (about 2 tablespoons) balls of deep-fat-fried cornbread batter. Finely chopped onions and black or white pepper are added to the cornbread batter. The sugar is eliminated. Cornbread mix, a complete mix except for water, is available for preparing cornbread, muffins and hush puppies. Check the AFRS for directions.

(d) Dumplings. The types of recipes for dumplings included in the AFRS are: 1) a meat accompaniment, cooked by steam or in boiling stock and 2) a filled baked dessert as described in Section "K" of this chapter. A finished dumpling must not be gummy. Dumpling quality should be the same when cooked in stock in kettles, stock pots, insert pans or steamers. The outside of the dumpling is characteristically moist; the inside is light and fluffy. Dumplings absorb the flavor of the accompanying meat dish.

1 Meat-Type. The meat dumpling accompanying meat stew or poultry is made from a dough containing eggs and has no fat. This dumpling is characteristically light in texture and sufficiently bland in flavor to accompany any meat or poultry entree without overpowering it. Dumplings for meat stews are dropped by scoop or 1/4 cup measure on top of simmering stew. Cover the kettle during the entire cooking period to ensure fast and even doneness.

2 Vacant.

(e) Fritter and Batter Mixtures. A fritter is a food, such as fruit, meat, poultry or vegetables, dipped in a milk-egg-flour batter and fried in deep fat. The food may be uncooked, cooked or leftover. Fritters are made by combining the food into the basic batter. The AFRS contains recipes for fruit fritters and corn fritters.

1 Use the muffin method for mixing fritters. The amount of miring is not as critical in the production of fritter or batter mixtures as it is with other quick breads because of the high ratio of liquid to flour and the solubility of the other ingredients. There is less tendency to overdevelop the flour gluten because the ingredients mix easily. Fritters are usually tender products because they are cooked in deep fat.

2 Thoroughly drain fritters after frying. Place the fritters on absorbent paper for a short period. Fry in small batches because fritters lose crispness if allowed to stand on steam-table.

3 Breading and batter fry mix is a product made of ingredients similar to those used on fritter batter. Fry mix may be used for deep fat frying, pan frying or grilling. Pancake mix batter may be also used for making fritters.

(f) Tempura Batter. Tempura batter is prepared from flour, baking powder, salt, ice cold water, and beaten eggs. The batter is unsweetened and lighter than fritter batter. It is used for dipping raw shrimp, onion rings or other vegetables before frying.

7-L-2.d.(l)(g) Pancakes. The proportion of liquid (including eggs) to dry ingredients varies to produce pancakes that are hearty, porous, and thick; or thin, moist, and tight-grained. Use the muffin method in mixing pancakes. Keep mixing to a minimum to prevent the overdevelopment of the flour gluten, causing a tough texture.

1 Begin cooking as soon as the ingredients are mixed. A hot, lightly-greased griddle is essential for high quality pancakes. Maintain a griddle temperature of 3750F. Too low or too high griddle temperature causes uneven browning and heavy textured pancakes.

2 When preparation time is limited, pancake mix is available for quick preparation of pancakes. The baking soda in this mix is packaged separately in a moisture-proof packet. Add water to the mix according to container instructions. Buttermilk pancake mix is also available. Use as directed on the container.

(h) Muffins. Muffins are mixed using the muffin method. The mixing time is more limited for muffins than for other products mixed by this method because of the high ratio of flour to liquid. After adding eggs, shortening and water, stir muffin mixtures until dry ingredients are slightly moistened. It is essential that dry flour lumps be dampened. After mixing, the batter should appear lumpy. If overmixed, tunnels and peaks form, the product texture is tough, and the volume is low. Cake muffins have more sugar, shortening and eggs than plain muffins and are prepared by the cake method of mixing. Plain and cake muffins may be varied.

1 Ingredients for muffins cover a wide range of products including fruits, nuts, bacon and cereals, in addition to the plain muffin ingredients. Fold drained blueberries, chopped nuts, or dates and raisins into the batter just before panning.

2 The panning procedure is an extremely important aspect in muffin preparation. The muffin pans be well greased. Gas that causes the muffin to rise can escape rapidly if the mixed batter is allowed to stand. Scale each muffin carefully, filling each muffin cup 2/3 full. Too much batter in muffin pans causes muffins to be coarse. A well-prepared muffin has a uniform texture, even grain and well-rounded but uniform top crust.

(2) Rollout Doughs.

(a) Baking Powder Biscuits. Baking powder biscuits are prepared from flour, liquid, shortening, salt and a leavening agent. Thoroughly cut in the shortening until the mixture resembles cornmeal. The proper blending of dry ingredients and shortening helps yield a product with tender crumb texture. The proportion of liquid to dry ingredients is extremely important in the production of biscuit dough. The dough must be soft, not dry or stiff. Ii must be soft

and slightly sticky. Add water gradually until dough is formed. The condition of the flour, moisture in the bakeshop, and the speed of mixing can alter the amount of liquid used. When to stop adding liquid will be recognized as experience is gained in biscuit-production.

1 Cutting and Panning. Biscuit cutters used are 2 1/2 inches in diameter. Dip cutters in flour and tap lightly to remove the excess flour before cutting out the biscuits. Cut the biscuits so rounds do not overlap. Biscuit dough also may be patted on baking sheets and cut with a sharp knife in squares to speed up production and to save rerolling of dough. If little space is left between each biscuit on the pan, less crust is formed. If more crust is wanted, place biscuits farther apart. Bake baking powder biscuits at the temperature in the AFRS. They are best when served piping hot.

2 Biscuit Mix. Biscuit mix contains all the ingredients except water. The leavening agent is packaged separately from the other ingredients. It must be thoroughly blended with the mix before adding required water. Follow container directions for baking. Biscuit variations may be prepared by rolling the dough in a rectangular shape, spreading the dough with butter, and adding brown sugar and nuts or a granulated sugar-cinnamon raisin filling. The biscuit dough is rolled up like a jelly roll and the biscuits are then sliced. Grated cheddar or American cheese may be added to the dry ingredients to make cheese biscuits. The AFRS also has recipes for baking powder and yeast biscuits. After panning, proof these biscuits for 43 minutes (80F to 83F) and bake.

(b) Doughnuts. The quality of the cake doughnuts depends on the recipe balance, the type of ingredients, and the techniques of mixing, rolling and cutting the dough. A flour high in gluten content, such as bread flour, will make a tough product. For this reason, doughnuts are made from general purpose flour. The amount of moisture absorbed also depends on the flour used. If the dough is too stiff, the doughnut will have a poor expansion, a tight dry texture and deep cracks. insufficient mixing produces a coarse, hard texture, while overmixing yields a compact, tough product.

1 Cake Doughnut Mix. Cake doughnut mix requires only adding water. The leavening agent is packed separately and is blended with the mix before adding the water. Follow directions on the mix package for mixing, panning and frying. Cake doughnuts may be made into many varieties by adding cocoa to the dry ingredients to make chocolate doughnuts, topping cooled doughnuts with a butterscotch or vanilla glaze, or dipping the doughnut in a cinnamon-sugar mixture. The shape may be varied by rolling the dough into strips and twisting them to produce crullers.

2 Vacant.

7-L-3. Fillings and Finishes. Fillings made from fruits, such as cherries; almond paste; millings; or sugar and spice mixtures may be used to fill coffeecakes, sweet dough and Danish pastry. Most customers prefer a coating of one type or another on sweet rolls, coffeecakes, doughnuts and other pastries. An endless combination of ingredients can be used.

a. Types of Fillings and Finishes. These are the more common combinations:

(1) Dry coatings, such as cinnamon sugar filling, powdered or granulated sugar.

(2) Glazes, such as vanilla or butterscotch for doughnuts, syrup-fruit glazes for sweet rolls and coffeecakes.

(3) Washes for breads, rolls and coffeecakes.

(4) Toppings.

(5) Flowing icings.

b. Dry Coatings. The dry coatings are used most often on cake doughnuts. Using dry sugar is more complicated than merely shaking a properly-cooled fried cake doughnut and sugar in a paper bag.

(1) Sugar coating will shed off rapidly from an overcooked, dry doughnut. On the other hand, a sugared doughnut appearing moist on the surface may be undercooked. If the sugar melts or disappears, the doughnut is too moist. This condition is called sweating. Follow the AFRS for preparing cake doughnuts. Cool cake doughnuts before sugaring.

(2) Vacant.

c. Glazes. A vanilla glaze is usually applied to yeast-raised doughnuts, but cake doughnuts also may be glazed. Other glazes using imitation maple, rum, brandy, cherry, almond and black walnut flavoring may be used.

(1) Doughnut glazing is more complicated than the sugaring process because the glaze is much less stable, particularly at warm temperatures. Glazes must be thin enough to flow and allow the excess to roll off.

(2) Yeast doughnuts must not be less than 1600F when glazed. Taken from 375F deep fat, a doughnut will cool in about one to two minutes. Submerge doughnuts into the glaze and drain on a wire screen until the glaze is set Air circulation around the entire doughnut is important in setting the glazes.

(3) Syrup glazes are usually applied to rolls or coffeecakes. Prepare a syrup glaze from a mixture of blended syrup and water, boiled for five minutes. For variation, prepare a fruit juice or pureed fruit, sugar and syrup mixture. Brush syrup glazes over hot baked coffeecakes and sweet rolls.

7-L-3.d. Washes. Apply washes to sweet doughs before baking and use in addition to glazes or toppings in many products. They are used also on pastry, some quick breads, yeast bread and bar cookies.

(1) Washes serve two functions: 1) to wash off excess flour and facilitate browning; and 2) to provide a surface to help added toppings stick to the products. Any one of these ingredients or combinations of ingredients can be used: butter, cornstarch, egg and egg whites.

(2) Vacant.

e. Toppings. Add toppings, such as glazed nut, orange coconut, raisin, streussel, pecan, or praline toppings, to sweet rolls or coffeecakes before baking.

f. Flowing Icings. Flowing icing is a combination of blended syrup, salt, powdered sugar, boiling water, egg whites and flavoring. Use as a spread over hot coffeecakes, sweet rolls or doughnuts.

M. Seasonings, Flavorings and Condiments. Seasoning makes food more palatable and enjoyable. Because personal tastes vary, it is advisable to underseason rath4er than overseason. Always taste and correct the seasoning of a dish before it finishes cooking or just before serving.

1. Salt. A small amount of salt blends flavors. Food just short of perfection can be brought to full roundness with a dash of salt. Begin by using a little and letting its effect intensify as the food cooks. More salt may be added later if necessary.

2. Pepper. Ground black pepper is the most common form. However, white pepper is used in dishes where black pepper would be noticeable; for example, in mashed potatoes. Use pepper sparingly in food preparation and Let the individual add more at the table if necessary.

3. Spices. Spices alone or in combination can add flavor to many foods. practically all spices develop their full flavor and aroma when heated. To preserve their flavor, keep them tightly covered in a cool, dry place. Open or issue small amounts at a time, rotate stocks and avoid overstocking.

4. Herbs. Herbs are in the form of dried, whole or powdered leaves. For best results in flavor, crush dried whole herbs and chop fresh ones before using. Dried herbs are about four times as strong as fresh ones. Blend herbs and spices into food; do not just sprinkle on top. Herbs, unlike spices, lose flavor during long cooking, so it is better to add them during the last hour or one-half hour of cooking, or as directed in the recipe. A list of authorized spices, herbs and seeds is in Figure 7-44.

5. Vegetable Seasonings.

a. Some fresh vegetables such as onions, garlic, celery, carrots and parsley can be used as seasonings. They add texture and color interest to food as well. Celery, onion and garlic salts can be used in place of fresh vegetables or in addition to plain salt as directed in some recipes.

Name	Uses
Allspice, ground	Boiled foods, cakes, puddings and relishes.
Basil, sweet, ground	Tomato dishes, bean and potato soups, potato dishes spaghetti sauce, steaks, egg dishes and vegetables.
Bay leaves, whole	Stews, soups, spaghetti sauce, and chowder. Combines well with fish and any tomato mixture.
Caraway seed, whole	Rye bread, sauerkraut, cabbage and on pork (before cooking).
Celery seed, whole	Fish, potato salad, coleslaw, tomato dishes; in salad dressings and stews.
Chili powder	Mexican dishes (chili con came); seafood, cocktail sauces; scrambled eggs, gravy, stew and canned corn.
Chives	Sour cream topping for baked potatoes; salads, salad dressings.
Cinnamon, ground	Bakery products and hot chocolate;
Cloves, whole or ground	Whole for baked ham garnish, spiced syrups, ground for baked goods, puddings and stews.
Cumin, ground	Egg and cheese dishes, soups, meat, rice, sausage and chili.
Curry powder	Curry sauce for meat, fish, eggs and chicken.
Dill weed	Meat loaves and meat balls, potato and seafood salads, and scrambled eggs.
Ginger, ground	Cakes, puddings, pumpkin pie, cookies and canned fruits.
Malt, ground	Pound cake, doughnuts and chocolate dishes (use sparingly).
Marjoram, whole	Lamb, poultry stuffing, sausages, stews and soups.
Mustard flour	Sauces, gravy and salad dressings.
Nutmeg, ground	Baked foods, sauces, puddings, on some vegetables (cauliflower, spinach), on eggnog, custards and in doughnuts.
Oregano, ground	Pizza, spaghetti sauce; with veal, lamb pork, eggs, salads; all tomato dishes; can replace thyme.
Paprika, ground	Garnish or flavor for seafood; mixed with butter.
Pepper, red, ground	Meat sauces, gravies, vegetables, egg dishes.
Poppyseed, whole	Topping for breads, rolls, cookies.
Poultry seasoning, ground	Stuffings for poultry, veal, pork and fish.
Rosemary, whole	Tomato and egg dishes, soups, fish, lamb, pork, beef and duck.
Savory, ground	Baked beans, vegetable soup, meat loaf, potato dishes and hamburger.
Sesame seed, whole	Yeast-raised rolls and breads.
Tarragon, ground	Salads, sauces, beets, peas and tomato dishes.
Thyme, ground	Soups; with other herbs in biscuit and muffin mixtures.

Figure 7-44 - Common Spices, Herbs and Seeds

7-M-5.b. Dehydrated vegetable seasonings such as chopped onions, chopped green peppers, chives, garlic granules and horseradish can save time and storage space. They can be used in place of fresh vegetables. Dehydrated onions, green peppers and garlic may be added directly to soups and stews. Dehydrated horseradish must be rehydrated before it is used. All dehydrated vegetable seasonings are potent so only very small amounts are needed. Follow the guidelines in the General information section of the AFRS and measure carefully according to the recipe.

6. Sauces. Bottled condiment and seasoning sauces may be used as ingredients in food preparation or served as condiments. The most common kinds are catsup, Worcestershire sauce, chili sauce, soy sauce, hot sauce and meat sauce. Fruit sauces, such as cranberry and apple sauce, may be used as ingredients in cooking or as accompaniments to meat and poultry.

7. Flavorings. Dissolve peppermint extract, almond, pineapple, maple, vanilla, orange, lemon, rum, wild cherry, banana, black walnut and brandy flavorings in alcohol, oil or glycerin. Add them to partially or completely cooled foods to lessen flavor loss from heat during cooking. Because they are concentrated, use them in small amounts and measure accurately. Add vanilla and lemon flavorings to baked desserts and puddings, ice cream and dessert sauces.

8. Vinegar. Vinegar is made from cider, wine, malt and grain. It is used in salad dressings, barbecue sauce, sweet and sour sauces and is one of the ingredients in marinades for meat, poultry, fish and vegetables. A dry, synthetic, cider-flavored vinegar Is used in CGDFS because it saves space. Food Preparation Hints. Use these hints and suggestions to increase the ease and quality of food preparation.

N. Food Preparation Hints. Use these hints and suggestions to increase the ease and quality of Food preparation.

1. Meat.

a. Meat loaf will not stick if a slice of bacon is placed on the bottom of it.

b. Link-type sausages will shrink less and not break if they are boiled about eight minutes before being fried or rolled lightly in flour before frying.

c. To rid a ham of the rind, slit the rind lengthwise on the underside before placing the meat an the roasting pan. As the ham bakes, the rind will pull away and can be removed easily without lifting the meat.

d. To prevent bacon from curling, dip the strips in cold water before frying or prick it thoroughly with a fork as it fries.

e. A quick way to separate slices of frozen bacon is to heat a spatula over the stove burner then slide it under each slice.

f. When browning any piece of meat, the job will be done more quickly and effectively if the meat is perfectly dry, and the fat is very hot.

g. When routing meat, use a moderately low oven temperature of 300F to 325F.

7-N-1.h. Meat is best roasted on a rack or in a shallow pan to allow even heat distribution. If a metal roasting rack is not available, make a grid of carrot and celery sticks and place the meat or poultry on it. An additional advantage of this is that the vegetables flavor the pan drippings.

i. Beef liver will be especially tender if it is soaked in milk. Refrigerate it about two hours, remove it, dry it thoroughly, bread and saute it.

j. Frozen meats require approximately 1/3 to 1/2 additional cooking time.

2. Poultry.

a. Before chicken is fried, blot it with paper towels to remove all moisture.

b. After flouring chicken, chill it for one hour to make the coating adhere better during frying.

c. For golden-brown chicken every time, put a few drops of yellow food coloring in the shortening after it has heated. This is for the pan-frying method.

d. When pan-frying chicken, use tongs or two spoons when turning to avoid piercing the muscle fibers and allowing juices to escape.

e. Basting during roasting adds moisture to the skin and breast and facilitates the browning and roasting process.

f. If turkey begins to brown too soon, cover it with a loose tent of aluminum foil.

g. Tied or netted turkey rolls may be wrapped in foil and cooked.

h. Frozen boneless turkey requires one to two hours increased cooking time.

3. Seafood.

a. Clams and oysters are easily opened if washed with cold water then placed in a plastic bag and put in the freezer for an hour.

b. Thaw fish in milk to draw out the frozen taste and provide a fresh-caught flavor, or soak fish in vinegar and water before cooking for a sweet, tender taste.

c. To get rid of the "canned" taste in canned shrimp, soak them in a little sherry and two tablespoons of vinegar for about 15 minutes.

d. The fishy smell can be removed from your hands by washing them with vinegar and water or salt and water.

4. Seafood Seasonings and Sauces.

a. Simple seasoning is best. Do not over-season.

b. Use lemon juice, parsley and chives, as well as other milder herbs.

7-N-4.c. When fish are cooked in a liquid or sauce, season the fish and sauce lightly. Blend sauces with the natural flavor of the fish.

d. Baking fish on a bed of chopped onion, celery and parsley not only makes fish taste better but also keeps it from sticking to the pan.

e Do not over-use tartar and seafood cocktail sauces.

5. Vegetables.

a. Cook vegetables in small batches.

b. Avoid having hot vegetables "swim" in liquid on the serving line.

c. Use simmering methods of cooking for frozen greens, onions and cauliflower. The vegetables do not steam cook well.

d. When preparing onions, hold them under cold water to keep eyes from watering.

e. To make thick asparagus stalks tender, peel the lower parts up to the tender part with a potato peeler. Stalks taste as good as the tip this way.

f. Broccoli stems can be cooked in the same length of time as the flowerettes if an "X" incision is made from top to bottom through stems.

g. To absorb cabbage odor while cooking, place a small cup of vinegar on the range.

h. To keep cauliflower bright white, add a little milk during cooking.

i. Never immerse mushrooms in water when cleaning; they absorb too much liquid.

j. For prime mushrooms, buy only those with dosed caps; the gills should not be showing.

k. If baked potatoes are needed in a hurry, cut a thin slice from each end of the potato before placing them into the oven.

6. Vegetable Seasonings and Garnishes.

a. Avoid seasonings or sauces that overwhelm or mask the natural vegetable flavor. Use those that delicately complement or bring out the flavor.

b. For a change of pace, cook vegetables in soup stock.

c. Serve vegetables with a garnish having a contrasting color; such garnishes might be minced onions, dried crisp bacon, chopped parsley, cheese sauce, chopped egg sauce or fresh lemon.

7. Sauces and Gravies.

a. A sauce must not over-power the food it accompanies.

7-N-7.b. If a sauce or gravy is too thin, sprinkle a small amount of potato granules into the mixture and stir constantly.

c Creamed dishes should include only enough sauce to add flavor and bind the vegetables, meat or fish together.

d. Use chicken wing tips, backs and necks to make chicken broth.

e Use general-purpose flour when preparing sauces and gravies.

8. Soup Garnishes.

a. Instead of serving crackers, garnish with parmesan, lemon-butter, bacon, garlic or curried croutons.

b. Sprinkle grated parmesan cheese on top of tomato, asparagus or celery soup.

c. Browned franks, cut into 1/16th inch slices, are great in pea and bean soups.

d. Toast sticks, trimmed from bread and baked into strips, with parmesan cheese, chopped parsley and thin-sliced lemon enhance onion soup.

e. Toasted almonds go well with cream of celery, cream of mushroom and corn chowder soups.

f. Crumble blue cheese into green pea, navy bean, French onion and vegetable soups.

g. Mint leaves enrich the flavor of cream of chicken, consomme, gumbo and tomato-vegetable soups.

h. Sliced mushrooms go well with beef noodle, French onion and vegetable soups.

i. Sliced stuffed olives enhance beef-barley, chicken noodle and clam chowders.

j. Slice green onions (scallions) into almost any soup.

k. Other garnishes, such as grated orange rind, chopped pickle, diced pimento, sour cream, thyme croutons and watercress make soups more exciting and hold patron's interest.

9. Baking.

a. Warm breakfast pastries and dinner rolls prior to serving to enhance their flavor and freshness.

b. Save and refrigerate leftover bread and bread ends for use in bread dressings, puddings and croutons.

c. To enhance eye appeal of sheet cakes, decorate them with icing of a contrasting color. Coconut can be sprinkled over cakes with pleasing results. Maraschino cherries, nuts, chocolate chips and canned fruit are only a few imaginative suggestions for garnishing cakes.

7-N-9.d. Whipped cream, meringue or similar toppings applied with decorating tips are good for garnishing pies.

e. If frosting becomes too hard or stiff during beating, add a little lemon juice.

f To make a 5rnooth-looking frosting, first frost cake with a thin layer of icing. When this "base'1 coat sets, apply a second final coat. It goes on easily and looks superb.

g. To keep fudge frosting soft and workable, keep frosting in a bowl in a pan of hot water; add one teaspoon of cornstarch for the smoothest frosting.

h. Fruits and raisins may be rolled in flour before adding to cake batter. will not be as likely to sink to the bottom of the cake.

i. If the top of a cake is browning too quickly, place a pan of warm water rack above the cake while it is baking in the oven.

I. Brush the unbaked bottom crust of a pie with well-beaten egg white before filling. This keeps berries and other fruits from making pie bottom mushy.

k. For the highest meringue, add a pinch of baking powder to room temperature egg whites before beating.

10. Eggs.

a. When peeling eggs, crack shell of boiled egg all over. Insert small wet spoon just between shell membrane and egg, then turn with the egg. Keep spoon wet while turning. The result is a perfectly-peeled egg every time.

b. For a more tender omelette, add a small amount of water instead of milk or cream.

11. Cheese.

a. Cottage cheese will remain fresher longer if stored upside down in a reefer.

b. Brush a little oil on the grater before grating so cheese will wash of I easily.

c. A dull knife works better than a sharp one for slicing cheese.

d. Warm the knife when cutting cheese so the cheese cuts as easily as butter.

12. Fruits.

a. Submerging a lemon or orange in hot water for 15 minutes before squeezing will yield almost twice the juice.
b. If oranges are put in a hot oven before peeling, no white will be left on them.

Enclosure 7-1

FOOD PREPARATION TERMS

Absorption:	(Baking) The property of flour to absorb and hold liquid. (Frying) Fat absorption in food products as they are fried in deep fat.
Acidity:	1) Sourness or tartness in a food product. 2) Condition indicating excess fermentation in yeast dough. Dough acidity combined with soda generates carbon dioxide for leavening in cakes.
Aeration:	Charging dough or batter with gas to produce volume increase. To induce air so that a mass becomes lighter or fluffier.
Aging:	A flavor-enhancing process usually applied to beef. The meat is hung in a temperature-controlled room for a specific period of time. During this time a chemical reaction occurs in the meat; it becomes more tender because of the partial "digestion: of the connective tissue in the meat. Aged flavor is noticeable after 21 days at chill temperatures.
A la King:	Food served with a rich cream sauce usually containing green peppers and pimientos, mushrooms or onions.
A la mode:	in a fashion or the style of; for example, desserts served with ice cream or pot roast of beef cooked with vegetables.
Albumen:	Egg white.
Almond paste:	A confection ingredient made of finely round almonds and sugar.
Ambrosia:	1) (Greek mythology) Descriptive term referring to any food or drink exquisitely gratifying in taste or scent. 2) The name of a favorite southern dessert made of oranges, bananas, pineapple, and shredded coconut.
Antapasti:	(Antipasto) (Italian) An appetizer or a spicy first course consisting of relishes, cold sliced meats rolled with or without stuffings, fish or other hors d' oeuvres eaten with a fork.
Appetizer:	A small portion of food or drink before or as the first course of a meal. These include a wide assortment of items ranging from cocktails, canapes, and hors d' oeuvres to plain fruit juices. The function of an appetizer is to pep up the appetite.
Aspic	(French) A molded jelly made from different preparations. The base is gelatin which sets the mixture. Various liquids may be used, but tomato juice is most common. Recipes may require chopped vegetables, fish, poultry, or meats in aspic.

Enclosure 7-1 (Continued).

Au gratin	(French) Food creamed or moistened with eggs, milk, or stock, covered with bread crumbs and butter or cheese, and baked until the top is brown.
Au jus:	(French) With natural juice. Rib Roast au jus, for example, is beef served with unthickened gravy (natural beef juice).
Bake:	Too cook by dry heat in an oven either covered or uncovered. Usually called roasting when referring to meats.
Barbecue:	To roast slowly, basting with a highly seasoned sauce.
Baste:	To moisten foods while they are cooking, especially used while roasting meat. You may baste with melted fat, meat drippings, stock, water and fat combined, or water alone.
Batter;	A homogeneous mixture of ingredients with liquid to make a mass that is semi-liquid.
Bavarian cabbage:	(German) Sauteed cabbage with onions and vinegar.
Bavarian cream:	(German) A variation of soft custard into which gelatin and whipped cream and sometimes egg whites and flavoring are folded.
Beat	To blend and introduce air by using a rapid over-and-over or rotary motion.
Bechamel sauce:	(French) A seasoned cream sauce with meat stock; egg yoIk'b may be added for color and different consistency. Used for vegetables, meat and poultry.
Bench tolerances:	(Baking term) The property of dough to ferment at a rate slow enough to prevent over fermentation while dough is being made up into units on the bench.
Bisque:	(French) A thick soup, usually made with a white sauce base and containing fish, shellfish, chicken or cooked meat. Ingredients are pureed. Also, a rich frozen dessert, often containing powdered nuts or macaroons.
Blanc mange:	(French) Literally, "white food." A pudding thickened wit) cornstarch only.
Blanch:	1) To partially cook in hot, deep fat for a short time until clear but not brown. Used for potatoes. 2) To rinse with boiling water, drain, and rinse with cold water. Use for rice, macaror1 and other pastas to prevent sticking. 3) A method used remove skins from almonds.

Enclosure 7-1 (Continued).

Bleeding.	Dough that has been cut and left unsealed at the cut, thus permitting the escape of leavening gas. Also applies to icing that bleeds.
Blend	To thoroughly mix two or more ingredients.
Boil:	To cook in an actively bubbling liquid. The boiling temperature at sea level is 212F.
Bolting:	Sifting of ground grain to remove the bran and coarse particles.
Bouillon:	(French) A clear soup made from beef or chicken stock. May be used as a soup or gravy base. Obtainable in cubes or powder for reconstituting.
Bowl knife.	A spatula or flexible dull-edge knife used to scrape batter or dough from bowl sides.
Braise:	To brown meat or vegetables in a small amount of fat; then to cover and simmer in a small amount of liquid at temperatures 185F to 210F. The liquid may be juices from the meat or added water, milk, or meat stock.
Bran:	Skin or outer covering of the wheat kernel.
Bread:	To cover with crumbs or other suitable dry coating ingredient; to dredge in a mixture of flour, seasonings, and/or condiments, dip in a mixture of milk and slightly beaten eggs and then dredge in bread crumbs.
Broil:	1) To cook under or over direct heat; to grill. No liquid is added. 2) To cook in an oven, uncovered. 3) To cook uncovered on a hot griddle removing grease as it accumulates.
Brown	To seal juices inside a piece of food by searing its surfaces on a hot griddle or pan.
Brunswick Stew:	A main dish combining poultry, meats, and vegetables.
Butterfly:	A method of cutting double chops (usually pork) from boneless loin strips. The double chops are joined by a thin layer of meat.
Butter sponge:	Cake made from sponge cake batter with shortening added.
Butterscotch:	A flavor produced by the use of butter and brown sugar.
Cacciatore:	(Italian) Refers to a chicken cooked "hunter" style. Browned chicken is braised in a sauce made with tomatoes, other vegetables, stock and herbs.
Camembert:	Soft, Full-flavored cheese.

Enclosure 7-1 (Continued).

Canape:	(French) An appetizer eaten with the fingers, served either hot or cold. Small pieces of bread, toast, or crackers topped with a tasty spread.
Candy:	To cook in sugar or syrup.
Capon:	A young male bird which has been castrated at an early age (to improve the flavor) and fattened.
Caramelize:	To heat sugar or food containing sugar until sugar melts and an brown color and characteristic flavor develop.
Caramelized sugar:	Dry sugar heated with constant stirring until melted and dark in color. Used for flavoring and coloring.
Carbohydrates:	Sugars and starches from fruits and vegetable sources and containing set amounts of carbon, hydrogen and oxygen.
Carbon dioxide:	A colorless, tasteless, edible gas obtained during fermentation or from a combination of soda and acid.
Cardamom	Seed of an East Indian spice plant used for flavoring.
Chiffon cake:	A sponge cake containing liquid shortening.
Chiffon pie:	A pie shell with a rich custard-type filling into which whipped egg whites and/or cream have been folded.
Chiffonade:	(French) A method of cutting foods into fine strips to be used as garnishes. (See also julienne).
Chiffonade dressing:	A salad dressing containing strips of hard cooked eggs and beets.
Chili:	(Spanish) A pepper or its fruit. Dried chili peppers are ground into chili powder.
Chili con carne:	(Mexican) A dish consisting of ground beef and beans seasoned with chili powder.
Chop:	To cut food into irregular small pieces with a knife or chopper.
Chop Suey:	A thick stew originating in American-Chinese restaurants, composed of thin slices of pork and various vegetables, among which is a generous amount of bean sprouts, celery, and onions.
Coagulate:	To curdle, clot, congeal, or solidify.

Enclosure 7-1 (Continued).

Choux paste:	A pastry dough interlayered with butter or shortening to attain flakiness and leavened during baking by internally generated steam. Used to make eclairs and cream puffs. Also called puff paste.
Chutney:	A pickle relish originating in India. Many kinds and amounts of different ingredients are used.
Coat	To cover entire surface of food with a given mixture.
Compounds:	(Baking term) Certain mixtures of fats and oils.
Condiments:	Substances furnishing little nourishment but have stimulating flavor.
Congealing point; Consomme:	Temperature at which a liquid changes to a plastic or solid. (French) A clear soup made from two or more kinds of concentrated meat stock.
Cooking losses:	Food weight loss, loss of nutrients, and possibly a lowered palatability due to cooking.
Corn:	A method of preserving and seasoning with salt brine and other preservatives.
Creaming:	The process of mixing and aerating shortening and another solid, such as sugar or flour; to thoroughly blend.
Cream puffs:	Baked, hollow puffs of cream puff dough, usually filled with whipped cream or cooked custard.
Creole:	1) A sauce cooked and used over poultry, served with rice, or in a casserole dish of poultry or seafood. 2) Rice cooked in such a sauce.
Crescent rolls:	Hard-crusted rolls shaped into crescents, often with seeds on top.
Cripple:	A misshapen, burnt, or otherwise undesirable baked item.
Croquette:	(French) A product made by incorporating a minced vegetable, fish, poultry, or meat into shaped balls or cones which are rolled in crumbs and fried.
Croutons:	(French) Bread cut into small, cubed pieces and fried or browned in the oven depending upon the intended use. They are fried for use as a garnish or baked for use as a soup accompaniment.

Enclosure 7-1 (Continued).

Crullers:	Long, twisted, baking powder doughnuts.
Crusting:	Formation of dry crust on surface of doughs due to water evaporation from the surface.
Cube:	To cut any food into square-shaped pieces.
Curdle:	To change into curd; to coagulate or thicken.
Currant:	The acid berry of some gooseberry shrubs. Used primarily for jelly and jam.
Curry:	A powder made from many spices and used as a seasoning for Indian and Oriental dishes (shrimp or chicken curry).
Cut in:	Baking term meaning to combine solid shortening and flour with a pastry blender or knife.
Danish pastry:	A flaky yeast dough having butter of shortening rolled into it.
Dash:	A scant 1/8 teaspoon.
Demitasse:	A half cup. In this country, the term applies to after-dinner coffee served in half-size cups. Demitasse coffee is usually made stronger than that served with a meal.
Dice:	To cut into cubes of approximately 1/4 inch.
Dissolve:	To mix a solid dry substance with a liquid until the solid is in solution.
Divider:	(Baking term) A machine used to cut dough into a desired size or weight.
Dock:	To punch vertical impressions in a dough with a smooth pencil-size stick to allow expansion and permit gas to escape during baking.
Dough:	The thickened uncooked mass of combined ingredients for bread, rolls, and cookies.
Drawn:	In poultry, when the feathers and intestines of the fowl are removed.
Drawn butter:	When salted butter is melted, the salt separates from the oil and settles. The oily portion is poured, or "drawn" off, hence, the name. Drawn butter may be used unthickened, seasoned with a little lemon or a dash of Worcestershire sauce and a bit of chopped parsley, chives, or mint. Drawn butter sauce is a thickened sauce made from drawn butter and used with fish, shellfish and green vegetables.

Enclosure 7-1 (Continued).

Dredge:	To coat food items with flour, sugar, or meal.
Dress:	To prepare for cooking or for the table. Example: Removing the feathers to prepare a chicken for cooking.
Drippings:	Fat and juices dripped from roasted meat.
Dry yeast:	A dehydrated form of yeast.
Duchess:	A name given to various mixtures with beaten whole eggs (or whites only in some dessert items) are added. The mixture is shaped into balls and baked. A method used most often with mashed potatoes.
Dusting:	A light flour or starch film placed on pans or work bench to prevent dough from sticking.
Eclair:	(French) A small filled pastry made from cream puff batter (or choux paste). The filling varies, but usually is vanilla cream filling or whipped cream injected from a special tube filler. The baked, filled shell is dusted with confectioners' sugar or covered with a thin layer of chocolate.
Emulsification:	The blending together of fat and water solutions to produce a stable mixture which will not separate on standing.
Enchiladas:	(Mexican) A dish popular in many parts of the United States consisting of tortillas topped with a meat sauce and cheese.
Enriched bread:	Bread made from enriched flour and containing Federally prescribed amounts of thiamin, riboflavin, iron and niacin.
Entree:	(French) An intermediary course of a meal, which in the United States is the "main'1 course.
Enzyme:	A substance produced by living organisms which brings about changes in organic materials.
Eviscerated:	In poultry, when the fowl is dressed, drawn, and cut-up ready to cook.
Extract	Essence of fruits or spices used for flavoring.
Fermentation:	The chemical change of an organic compound due to action of living organisms (yeast or bacteria), usually producing a leavening gas.
Filet:	(French) Designates a French method of dressing fish1 poultry, or meat to exclude bones and include whole muscle strips. The English term is "fillet."

Enclosure 7-1 (Continued).

Filet Chateaubriand:	Extra thick filet mignon, Russian style, baked in the oven.
Filet Mignon:	May be tenderloin of beef, mutton, veal, or pork.
Finger rolls:	A bun about 5 inches long and 1 inch wide.
First Joints:	In poultry, the wing joint next to the carcass.
Flow:	
Bleached flour:	Flour that has' been treated by a chemical to remove its natural color and make it white.
Clear flow:	Lower grade and higher ash content flour remaining after the patent flour has been separated.
Patent flow:	The flour made from the choice, inner portion of the wheat grain.
Straight flow:	Flow containing all the wheat grain except the bran, termed 100 percent.
Strong flow:	One which is suitable for the production of bread of good volume and quality because of its gas retaining qualities.
Graham flow:	Finely round whole wheat flour.
Fluff:	A mass of beaten egg white, air, and crushed fruit.
Foam:	Mass of beaten egg and sugar, as in spongecake before the flour is added.
Fold in:	To combine ingredients very gently with an up-and-over motion, lifting one ingredient up through the others.
Fondue:	A dish made of melted cheese, butter, eggs, milk, and bread crumbs. The dish has many variations.
Foo Young:	A dish made with scrambled eggs or omelet with cut Chinese vegetables, onions, and meat. Usually, the dish is served with a sauce.
Formula:	In baking, a recipe giving ingredients, amounts to be used, and the method of preparing the finished product.
Franconia:	An ancient German territory. In the culinary sense, means “browned,” as whole potatoes browned with roast.
French bread:	An unsweetened crusty bread, baked in a narrow loaf, and containing little or no shortening.

Enclosure 7-1 (Continued).

Frenching:	A method of preparing boneless veal or pork chops by flattening with a cleaver.
Fricassee:	To cook by braising; usually applied to poultry or veal cut into pieces.
Friners:	Originally a small portion of fruit dipped in batter and fried. The term now includes plain fried balls of batter or balls containing chopped meat, poultry, fruit, or vegetables.
Frizzle:	To cook in a small amount of fat until food is crisp and curled at the edges. A meat crimped, frizzed, or curled at the edges, as Frizzled Dried Beef and Scrambled Eggs.
Fry:	To cook in hot fat. When a small amount of fat is used, the process is known as pan frying or sauteing. Food partially covered by the fat is called shallow fraying. When food is completely covered by fat, the process is deep-fat frying.
Garnish:	To decorate a dish with colorful, savory food items, such as sprigs of parsley placed around fish or potatoes or a colorful bit of fruit added to a dessert.
Gelatinize:	The swelling of starch particles in hot water.
Giblets:	Heart, gizzard, and liver of poultry cooked and chopped for use in gravy. The neck and wingtips may also be used as giblets.
Glaze:	A thin sugar syrup coating (or a thickened sugar mixture) used for coating pastries, cakes, and meats.
Gluten:	A gray, sticky, nutritious substance found in wheat flour; gives dough its tough, elastic quality (this characteristic is evident when the flour is mixed with a liquid).
Goulash:	A national stew of Hungary, variously made in the United States of either beef, veal, or frankfurters with onions and potatoes. A covering sauce has tomato paste and paprika as ingredients. It may be served with sour cream.
Graining:	Refers to crystal formation in a cooled sugar solution after it has been boiled. If cooling is slow, large crystals will form. Rapid cooling produces small crystals. Small, fine crystallization, desired in making fondant, is accomplished by rapid mixing during cooling.
Grate:	To pulverize food items by rubbing on the rough surface of a grater.
Grease:	To rub utensil with grease (butter or other fat) before cooking foods.

Enclosure 7-1 (Continued).

Grill:	To cook, uncovered on a griddle, removing grease as it accumulates. No liquid is added.
Gumbo:	A creole dish resembling soup which is thickened with okra.
Hard sauce:	A dessert sauce made of butter and confectioners' sugar thoroughly creamed. The mixture is thinned or tempered with either boiling water or spirits.
Hash:	A dish made of chopped or minced meat and/or vegetable mixture in brown stock.
Hearth:	The heated baking surface of the oven's floor.
Hermits:	A rich short-flake cookie.
Hollandaise:	A hot sauce made with egg yolks and butter and served with vegetables.
Hor d” oeuvres:	(French) Light snack-type food eaten hot or cold at the beginning of the meal. These foods correspond to the Italian antipasto and the Scandinavian smorgasbord.
Hot cross buns:	A sweet, spicy, fruity bun with a cross cut on the top and usually filled with a plain frosting.
Humidity:	Usually expressed as relative humidity. The capacity of air to retain moisture varies with its temperature. Thus, relative humidity is the present moisture content related to total moisture capacity for the present temperature and stated as a percent.
Hush puppies:	A bread served mostly in the South with fish and is made by deep frying cornbread batter seasoned with onions.
Hydrogenated oil:	A natural oil that has been treated with hydrogen to convert I to a hardened form.
Italienne:	(French) Refers to italian style of cooking.
Jambalaya:	A creole rice-tomato dish with either fish, shellfish, or meat.
Jardiniere:	(French) A meat dish or a garnish, "garden" style, made 0 several kinds of vegetables.
Jellywreath:	A rolled ring of basic sweet dough containing jelly.
Julienne:	A way of cutting vegetables, meat, or poultry into find strips or shreds.
Kebab:	(Turkey) A combination of cubes of meat, usually lamb are chunks of vegetables or fruit, placed alternately on a skewer and broiled.

Enclosure 7-1 (Continued).

Knead:	To alternately press and turn and fold dough with the hands for the purpose of expelling gas and redistributing the yeast.
Laches:	(Czechoslovakia or Bohemia) A bun made from a soft dough topped with fruit, nuts, fruit-nut, or seed fillings.
Lactic acid:	An organic acid sometimes known as the acid of milk because it is produced when milk sours. Souring is caused by bacteria.
Lady fingers:	A cookie made with a sponge cake batter and based in special pans.
Larding:	To cover uncooked lean meat or fish with strips of fat, or to insert strips of fat on a skewer.
Lasagna:	(Italian) A baked italian dish with broad noodles, or lasagna macaroni, which has been cooked, drained, and combined in alternate layers with Italian meat sauce and two or three types of cheese (cottage, Ricotta, Parmesan, or Mozzarella).
Leavening:	Raising or lightening by air, steam, or gas (carbon dioxide). Usually the agent for generating gas in a dough or batter is yeast or baking powder.
Lyonnaise:	(French) A seasoning with onions and parsley originating in Lyons, France. Sauteed potatoes, green beans, and other vegetables are seasoned this way.
Macaroon:	A rich, chewy cookie made with almond paste and shredded coconut.
Macedoine:	(French) A name derived from the country of Macedonia; refers to a mixture of fruits or vegetables used for garnish or as a cocktail.
Madrilene:	(French) A name of a dear soup; other dishes flavored with tomato juice.
Magenta:	(Italian) A purplish shade of red produced by the use of tomato juice as, for example, in soup.
Makeup:	Manual or mechanical manipulation of dough to provide a desired size and shape.
Malt extract:	A syrupy liquid obtained from malt mash. A product obtained by converting the starch to sugar.
Marble cake:	A cake of two or three colored batters swirled together so the finished product retains the separate colors.

Enclosure 7-1 (Continued).

Marbling:	Intermingling of fat with lean in meat muscles. The presence or absence of marbling can be seen on meat surface when cut across the grain. Marbling indicates meat quality and palatability.
Marinate:	To cover food with a marinade (a preparation containing spices, vegetables, herbs, and a liquid, usually acid) and let stand to improve its flavor and tenderness.
Marmalade:	A thick, pulpy jam or preserve made with crushed fruits. Marmalades made of citrus fruits contain bits of the peel.
Marzipan:	A confection of almonds reduced to a paste with sugar and used for modeling, masking, and torte.
Masking:	To cover completely with a sauce, jelly aspic, mayonnaise, cream, icing, or frosting.
Meat Substitute:	Any food which may be used as an entree that does not contain beef, veal, pork, or lamb. The substitutes are protein-rich dishes such as eggs, fish, dried beans, and cheese.
Melba:	1) A cornstarch dessert sauce most frequently used with peaches. 2) A very thin toasted bread (melba toast).
Melting point:	The temperature at which a solid becomes a liquid.
Meringue:	A white frothy mass of beaten egg whites and sugar.
Milanaise:	(French) Foods prepared a la Milanaise contain eggs, parmesan cheese, and bread crumbs. Rice and macaroni products prepared a la Milanaise may be formed into different shapes, dipped into egg batter, rolled in bread crumbs, and fried, or panned and baked.
Mince:	To cut or chop into very small pieces (finer than chopped).
Minestrone:	(Italian) Thickened vegetable soup containing lentils or beans.
Mixing:	To unite two or more ingredients.
Mocha:	1) A variety of flavorable coffee from Mocha (Arabia). Today it refers to any coffee, especially that containing chocolate, including the instant form. 2) A rich butter cream icing containing cocoa and coffee essence.
Mold:	Microscopic, multi-cellular, threadlike fungi growing on moist surfaces or organic material.
Mornay:	A cheese sauce used principally with baked fish.

Enclosure 7-1 (Continued).

Mousse:	(French) The word means "froth." Mousse is a cold entree (meat, poultry, or seafood mousse) or a frozen dessert. The basic ingredients are beaten eggs, whipped cream, and gelatin.
Mulligatawny:	(East Indian) A soup with a chicken stock base highly seasoned, chiefly by curry powder.
Napoleon	A pastry made from choux (or puff) paste rolled very thin, baked, cooled, and layered with cream filling. Usually topped with icing or confectioners' sugar.
Newburg:	A dish made with a cream sauce containing egg yolks and, sometimes, wine. Customarily used with seafood.
Normandie:	(French) A province of France famous for its cuisine. Dishes prepared "a la normande or normandie" contain generous amounts of butter and/or cream.
Nutrient:	A food substance required to support human life and health.
O'Brien:	A style of preparing sauteed vegetables with diced green peppers and pimientos. (Corn O'Brien and O'Brien Potatoes are examples.)
Old dough:	Yeast dough fermented too long. It produces a baked loaf with dark crumb color, sour flavor, low volume, coarse grain, and tough texture.
Omelet:	Eggs cooked with yolks and whites beaten together or separately and blended, depending upon the type of omelet.
Oyster Muscle:	In poultry, the tender, oval dark meat found in recess on either side of back, above the wings.
Pan Broil:	To cook uncovered in a hot frying pan, pouring off fat as it accumulates.
Parboil:	To boil in water until partially cooked.
Pare:	To cut away outer covering.
Parfait	(French) Refers to cookery perfection but is most often associated with some desserts. The basic dessert foundation is a sugar syrup enriched with eggs and/or cream and stabilized with gelatin. Fruits, liqueurs, or other flavorings are used with the soft mixture or with ice cream parfaits.
Parkerhouse rolls:	Folded buns of fairly rich dough.
Parmesan:	(Italian) A very hard cheese originating in the Parma region of Italy.

Enclosure 7-1 (Continued).

Pasta:	(Italian) A term referring to macaroni products, including spaghetti, noodles, and other pastas made from hard wheat (durum or semolina).
Peel:	To remove skin, using a knife or peeling machine.
Pepper Pot:	A highly seasoned soup or stew.
Petits Fours:	Small decorated squares of cake.
Pickle:	A method of preserving food by a salt and water (or vinegar) solution.
Pilaf:	An oriental or Turkish dish made of rice. The cooking beef or chicken stock, mildly favored with onions.
Piquant:	(French) A tart, pleasantly sharp flavor. A piquant sauce or dressing contains lemon juice or vinegar.
Poach:	Method of cooking food in a hot liquid kept just below boiling point.
Polonaise:	(French) A garnish used on such vegetables as cau1i'.Lor. asparagus, or other dishes consisting of chopped egg and par sic . Bread crumbs may also be added.
Porcupines:	A meat dish prepared with ground beef and rice, formed into
Poultry:	balls, and baked. Fowl, such as chicken or turkey, especially valued for their meat and eggs.
Proof box:	A tightly closed box or cabinet equipped with shelves to permit the introduction of heat and humidity. Used for fermenting dough.
Proofing period:	The time during which dough rises between molding and baking.
Provoloni:	(Italian) A cured hard cheese which has a smoky flavor.
Puree:	To press fruit, vegetables, or other solid foods through a sieve food mill, or blender. Also, a soup made with pureed food combined with white sauce, cream, or stock.
Quick breads:	Bread products baked from a lean chemically leavened batter.
Ragout:	(French) Stew.
Ravioli:	(Italian) An appetizer or main dish made from meat 0 cheese-filled noodle squares poached in a liquid and served wit a tomato sauce.

Enclosure 7-1 (Continued).

Reconstitute:	The process of restoring a food to its natural structure or texture4 Also, to reheat frozen prepared foods.
Rehydrate:	To soak, cook, or use other procedures with dehydrated foods to restore water lost during drying.
Relish:	A side dish usually contrasting in flavor, color, shape, and/or texture to the main course.
Render:	To melt fat trimmed from meats by heating slowly at low temperature.
Roast:	To cook by dry heat; usually uncovered, in an oven.
Rocks:	Small, rough-surfaced, fruited cookies made from a stiff batter
Rope:	Slimy strands in food substances (milk, flour, bread) caused by contamination from bacteria or fungi; usually the result of poor sanitation practices.
Rounding:	Shaping dough pieces into a ball to seal surfaces and prevent bleeding (escape) of gas.
Roux:	Mixture of flour and melted fat which is used to thicken sauces, stews, and soups.
Royal icing:	Frosting of sugar and egg whites. Usually used for decorative work on pastries and cakes.
Savory steaks:	A ground meat dish cooked with onions and made to resemble steak in shape. Sometimes referred to as hamburger steak.
Sally Lunn:	A bread used principally in the south United Sates and named for the woman who is said to have first made it. Prepared either as a quick bread or raised with yeast; baked in muffin tins or a flat pan and cut into squares.
Saturation:	Absorption to the limit of capacity.
Sauerbraten:	(German) A beef pot roast cooked in a sour sauce prepared with spices and vinegar and sometimes served with sour cream.
Saute:	To pan fry lightly and quickly in a very little hot fat, turning frequently.
Scald:	To heat a liquid to just below the boiling point.
Scaling:	(Baking term) Apportioning batter or dough according to unit of weight.

Enclosure 7-1 (Continued).

Scallop:	To bake food, usually cut into small pieces with a sauce or other liquid. Topping of crumbs or shredded cheese is frequently used.
Scete:	A shortcake, containing raisins, which has an egg-milk wash and cinnamon topping to give a colorful rich crust.
Score:	To cut shallow slits or gashes in surface of food with knife, fork, or other implement.
Scotch Broth:	A soup made with lamp stock, barley, and vegetables.
Scotch Woodcock:	An egg dish baked with cheese sauce and a bread crumb topping.
Sear:	To brown the surface of meat by a short application of intense heat.
Second joint:	in poultry, the portion of the wing between the first joint and the wingtip. Also, the thigh portion of the leg.
Shred:	To cut or tear into thin strips or pieces using a knife or shredder.
Sifting:	Passing through fine sieve for effective blending, to remove foreign or oversize particles and to aerate.
Simmer:	To cook in liquid at a temperature just below the boiling point (190F to 210F). Bubbles will form slowly and break below the surface.
Service:	Refers to disposable articles used for food service. Eating or drinking utensils constructed wholly or in part from paper or synthetic materials and intended for one-time use.
Skewer:	A wood or metal pin used to hold meat or other foods in shape while cooking.
Skim:	To remove floating matter from the surface of a liquid with a spoon, ladle, or skimmer.
Slack dough:	Dough that is soft and extensible but has lost its resinency.
Smorgasbord:	(Swedish) A Scandinavian luncheon or supper served buffet style. Many different dishes are served, including hot and cold hor d' oeuvres, pickled vegetables and fish, assorted cheeses, jellied salads, fish and meats.
Smother:	To cook in a closed container or in a close mass as smothered onions.

Enclosure 7-1 (Continued).

Snaps:	Small cookies that run flat during baking and become crisp on cooling.
Snicker-doodle:	A coffeecake with a crumb topping.
Solidifying point:	Temperature at which a fluid changes to a solid.
Souffle:	(French) A delicate, spongy hot dish made of stiffly whipped egg whites. Cheese is commonly used, but other souffles include fish, meat, poultry, and vegetable. Also prepared as a dessert.
Spray drying:	A method of dehydrating liquids by spraying them into a drying chamber with hot, dry air circulation. The rapid evaporation causes a minimum of flavor change in the food.
Starch water:	A mixture of cornstarch and water made by boiling 1 quart of water containing 1 or 2 tbsp of cornstarch. This mixture brushed on bread dough gives a shine to the crust after baking.
Steam:	To cook in steam with or without pressure.
Steep:	To let stand in hot liquid (below boiling temperature) to extract flavor, color, or other qualities from a specific food.
Sterilize:	To destroy microorganisms by heat, ultraviolet light,irradiation, chemicals, or antibiotics.
Stew:	To simmer in enough liquid to cover solid foods.
Stirring:	To blend two or more ingredients with a circular motion.
Stroganoff:	A la Stroganoff I is a method of preparing beef with sour cream.
Succotash:	A combination dish consisting of whole-grain corn and lima beans.
Sugars:	
Dextrose:	(Corn) A form of sugar made from cornstarch and readily fermentable.
Glucose:	A simple sugar made by action of acid on starch. it is made chiefly from cornstarch and is usually referred to a corn syrup.
Lactose:	The sugar of milk.
Levulose:	A simple sugar found in honey, fruits, and invert sugar.
Maltose:	A form of sugar obtained by germinating cereal grain. Usually supplied as a syrup.

Enclosure 7-1 (Continued).

Sucrose:	(Cane or Beet) Most common, usually granulated, sweetening agent.
Sukiyaki:	(Japanese) A popular 3apanese dish of thin slices of meat fried with onions and other vegetables, including bean sprouts. Served with soy sauce containing seasoning, herbs, and spices.
Taco:	(Mexican) An open-face sandwich made of fried tortillas shaped like a shell and filled with a hot meat-vegetable mixture.
Tamale:	(Mexican) A steamed dish made of cornmeal with ground beef or chicken rolled in the center, usually highly seasoned.
Tartar sauce:	A rich sauce made with salad dressing, onions, parsley, pickle relish, sometimes olives and cucumbers, and served with seafood.
Tarts:	Small pastries with heavy fruit or cream filling.
Temper:	To remove from freezer and place under refrigeration for a period of time for ease of separation and handling of frozen product. Internal temperature of the food should be approximately 26F to 28F.
Tetrazinni:	(Italian) A dish with chicken, green peppers, and onions mixed with spaghetti and served with shredded cheese.
Texture:	The structure, fineness or coarseness, of a baked product when a cut surface is examined.
Thaw:	To remove from freezer and place under refrigeration; internal temperature should be above 30F.
Torte:	Rich cake containing nuts, fruits, and usually very little or no flour.
Tortifla:	(Mexican) A bread made with white corn flour and water. Special techniques are used in handling the dough to roll it thin as a pie crust. it is usually baked on a hot iron.
Toss:	To mix ingredients with a gentle lifting, circular motion. Usually used for salad ingredients.
Truss:	To bind or fasten together. Usually refers to poultry.
Vacuum drying:	Vacuum applied to food causing the inside air and moisture to expand and create bubbles (a putting effect). The puffed product is then dried leaving a solid fragile mass. This may be crushed to reduce bulk.

Enclosure 7-1 (Continued).

Vermicelli:	(Italian) A pasta or macaroni product, slightly yellow in color, Shaped like spaghetti and very thin.
Vinimi Bread:	A hearth-type bread with heavy crisp crust, sometimes finished with seed topping.
Vinaigrette:	(French) A mixture of oil and vinegar seasoned with salt, pepper and herbs. Used in sauces and dressings.
Wash:	A liquid mixture brushed on the product surface before and after baking. It may be composed of one or more ingredients (water, milk, starch solution, thin syrup, or eggs).
Welsh Rabbit:	(English) A cheese sauce served with toasted bread or crackers.
Whey:	Liquid remaining after the removal of fat, casein, and other substances from milk.
Whip:	1) To beat rapidly to increase volume by incorporating air; 2) a hand or mechanical beater of wire construction used to whip materials such as cream or egg whites to a frothy consistency.
Yeast:	A microscopic plant which reproduces by budding, causes fermentation, gives off carbon dioxide gas and serves as a leavening agent.
Young dough:	Underfermented yeast dough. This dough produces a baked product with a light color, tight grain, and low volume (heavy).
Zucchini:	(Italian) Slender green squash.
Zwieback:	A toast made of bread or plain coffeecake dried in a slow oven.

CHAPTER 8

FOOD PRESENTATION

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CHAPTER 8. FOOD PRESENTATION

A. Introduction. Although a great deal of effort is directed toward improving the quality of the food served in the Coast Guard Dining Facility (CGDF), the serving manner is often taken for granted. Good food service begins in the galley as food must be properly prepared to look, taste and smell good; however, food must also be properly served.

1. Purpose of Proper Presentation. Proper presentation can make food acceptable or unacceptable.

2. Importance of proper procedures. Personnel responsible for food service must strive continuously to improve procedures to ensure patrons are fed well and efficiently.

B. Applicable Equipment.

1. Steam Table Insert Pans.

a. Use the right size serving pans to ensure an appetizing appearance of food. Use shallow steam table insert pans for serving such vegetables as creamed potatoes, broccoli and cauliflower and for breaded foods like veal cutlets, baked pork chops and meat in spaghetti sauce. Do not stack fried items such as eggplant because foods at the bottom of the stack will become soggy.

b. Use standard size inserts to serve fried chicken, baked potatoes, macaroni au gratin, etc. if foods require cooking in larger pans, transfer them to standard inserts and garnish before serving. Use half- and quarter-sized inserts for serving vegetables, lasagna, gravy, sauces, etc. This will greatly increase the capacity of the steam line and prevent the waste of small amounts of vegetables on the bottom of a standard-sized insert. Cover foods to prevent shriveling and drying out.

2. Serving Utensils. Using proper serving equipment simplifies food service and controls waste. The subsistence specialist must determine the appropriate portion sizes for each meal. Regulate portion sizes for each meal by using the proper serving utensils.

a. The portion size indicated on the recipe card is a guide, not a rule. If the menu features two vegetables, preparing full portions of both may result in plate waste.

b. Indicate appropriate portion sizes on the Food preparation Worksheet. Follow through by checking for any items being left on trays. If there is food waste. reduce portion sizes as necessary.

c. If more than one serving line is being used, be sure the same item is being served in the same portion on each line.

d. When serving meat, guesswork on correct portion sizes can be eliminated by using scales to check one or two slices before cutting the entire batch. Some meat items are precut in individual serving portions; for example, grill and Swiss steaks, pork slices (chops) and veal slices.

8-B-2.d.(l) Standard-Sized Inserts. Serve foods having a longer “keeping" time without drying out in these pans. Items such as fried chicken, baked potatoes and macaroni au gratin are good foods to serve from these.

(2) Ice Cream Scoop.

(a) Use an ice cream scoop if portions are hard to control. Foods served in this manner include mashed potatoes, rice, bread dressing and baked beans.

(b) When serving bulk ice cream and other frozen desserts, keep the scoops in running water or in water maintained at l7F between each serving. Bulk ice cream must be served by food service personnel as a sanitary measure.

(3) Food Turner. Use the turner for lifting such foods as steak, scrambled eggs or grilled tomatoes.

(4) Basting Spoon (Shallow Spoon). Use this utensil for dipping sauce or gravy from a shallow pan.

(5) Ladle. Use this for dipping sauce or gravy from a deep insert.

(6) Perforated Spoon. Serve foods such as peas and boiled cabbage with a perforated spoon so the liquids can drain back into the serving pan.

(7) Serving Forks. Serving forks are needed for some meats.

(8) Tongs. Use tongs for fried chicken, asparagus, broccoli, corn on the cob and other similar foods.

(9) Pie Server. Use this for serving pies and cakes.

(10) Knife. Use a sharp, straight-edged, thin-bladed slicing knife for cutting cakes. Dip this in warm water before slicing a cake so frosting and cake crumbs will not nick to the slicing surface. Use a sharp paring knife for cutting pies.

(11) Salads. An adequate number and the proper kinds of serving utensils for the salad bar will promote proper traffic flow, good sanitary practices, and keep the salad bar in neat order during self-service. The most useful utensils for serving salads and salad dressings are:

(a) Small Ladle. Use this for thin salad dressing.

(b) Dessert Spoon (Tablespoon). Use this type spoon for thick salad dressings.

(c) Tongs. Use tongs with carrots, celery, pickles, olives, chief's salad, garden salad and lettuce.

(d) Perforated Spoon. Use this type spoon for salads mixed with thin dressing, i.e., cole slaw, fruit salad and cucumber and onion salad.

8-B-2.d.(11)(e) Basting Spoon. Use a basting spoon for compact salad mixtures as potato salad, ham salad or fish salad.

(f) Scoop. Use a scoop for cottage cheese, macaroni salad and similar salads.

3. Lighting. Foods are generally more attractive under warm, natural light. Use incandescent or warm white fluorescent bulbs to give natural warm colors to the serving lines. If colored lights are used, use the correct color to achieve the desired effect. Red lights tend to make salads appear hot rather than cool. Red light! will give roast beef a warm, rare, hearty appearance. Test the color lights needed for your particular layout. Correctly positioned lights on the food so the customer and the server are not blinded.

C. Serving Line Areas.

1. Salad Bar.

a. When possible, the menu should include a salad bar. Salads may be preportioned, displayed in bulk (mix your own), or, if space is severely limited or salad ingredients are scarce, the single salad may be used. Chill all salads properly. Salad items wilt rapidly and decrease in quality. Place salads in a refrigerated salad bar unit or in trays or pans on a bed of ice. Proper drainage is essential if ice is used. Do not place ice directly on salads. Refrigerated salad bar units should be large enough to accommodate shallow pans or trays of salads taken directly from the refrigerator. Use refrigerated salad units properly. Trays with salads placed 6 to 8 inches above the refrigerated unit will not get the maximum cooling benefits.

b. Relish trays are desirable and add variety to the salad bar. Relish trays, like salads, must be properly chilled. Guidelines for relish trays and salad bars are in the Armed Forces Recipe Service (AFRS).

c. Coordinate salad bar menus with the salad bar space available. Overcrowding detracts from the food and slows service. Do not extend the salad bar beyond its refrigerated limits. This could decrease quality and acceptability of salads. Base efforts to increase variety on customer preference.

d. Arrange salad items to eliminate reaching over one container to get to another. When traffic passes on only one side of a salad bar, arrange all food containers side by side along the bar rather than a front-to-back arrangement. If possible, arrange the salads so they are easily accessible from all sides. This will also speed traffic flow. Line up preportioned salads in neat rows rather than scattering haphazardly.

e. The single (large) salad is served more frequently in small CGDF's or wardroom dining facilities where space is limited and only one salad is featured. Set the bowl or pan in a bed of ice so the salad ingredients will stay crisp and cold throughout the serving period. Replenish in small batches. If the dressings are not served separately, add the selected dressing to the salad just before serving. Add dressing sparingly; too much dressing will wilt salad greens and cause fruits and vegetables to lose crispness.

8-C-l.f. Because of the high room temperature of most dining areas, place easily contaminated food (salad mixtures containing meat, fish, poultry, eggs, cooked salad dressing and mayonnaise) on the salad bar in small quantities and replenish as needed.

g. Watch colors closely; sliced tomatoes clash next to pickled beets. Replenish the salad bar as needed and check the appearance frequently. Do not allow lettuce and other ingredients to hang over the edge of containers, bowls or plates.

2. Hot Food.

a. A steam table must keep food hot but not cook it. Fill the steam table with hot water and maintain the temperature at 1800F to 2000F. Heat lamps aid in keeping food hot.

b. Prepared menu items are fragile and must be handled carefully. Place prepared items in steam table inserts and minimize handling to preserve form, size, arrangement or make up, as in stuffed peppers.

c. If possible, arrange hot foods in this order: soup, vegetables, potatoes or potato substitute, meat, sauce or gravy.

d. Serve all short-order-type items, such as pancakes, French toast, ham slices, bacon and eggs, from the grill on a prepared-to-order basis when possible. Timing is important.

e. "Eggs to order" can hold up the serving line if there is not a well-planned efficient method for fast grilling fried and scrambled eggs. Begin by setting up the grill area with all the necessary equipment and ingredients.

(1) Turn on grill to proper temperature.

(2) See AFRS.

(3) Set up a tray of small bowls. For fried eggs, break two eggs into each bowl. Remember, do not hold between 40F - l40F to 150F for longer than three hours.

(4) Have a container of scrambled egg mixture and a 4-ounce ladle on-hand for scrambled egg orders.

(5) Prepare grill by greasing well with either melted shortening or bacon drippings.

(6) As the patrons begin to come through the line, fill about three-fourths of the grill with the eggs broken into bowls. Reserve about one-fourth of the grill space for scrambled egg orders.

(7) Instruct your patrons to call out their orders as they approach the grill area. It may help to have a sign made to remind them of the procedure.

(8) As the eggs are being grilled and served, break eggs into the bowls so there will be no delay in replenishing the grill. Progressively grill eggs as you serve. The grill must never be completely empty as long as the line is moving. Keep eggs on grill to serve "sunny side up" or "over-easy" with little delay.

8-C-2.f. Cook vegetables in batches and replenish as required. Do not mix batches. The color of the new batch just out of the steam-jacketed kettle will be brighter than the one on the serving counter. Do not hold vegetables more than 20 to 30 minutes at serving temperature. Avoid hot vegetables swimming in liquid on the steamtable.

g. Begin serving foods from the edges of the pans rather than the middle. The foods will remain attractive and the garnishes will not be destroyed.

h. Soups and Chowders.

(1) Place soups and chowders in the steam table deep well inserts; use the 8-ounce ladle and serve as follows:

(a) Pick up the soup ladle. Hold the ladle about half way down the handle, grasping it between the thumb and forefinger. This firm hold makes it easier to balance a full ladle.

(b) Stirring the soup or chowder distributes the solid particles and the temperature evenly.

(c) Dip from the bottom. Solids settle to the bottom, and the soup or chowder at the bottom of the insert is the hottest. Dip while solid particles are in motion.

(d) Raise the ladle above the level of the soup bowl. The customer has extended the tray and soup bowl toward you. As you raise the ladle, the liquid will settle so it is easier to pour, and it will not spill over the sides.

(e) Tip the ladle slightly and pour slowly. Direct the pouring into the center of the soup bowl.

(2) When chili con came or any similar hem is served, use the same technique. This is the only time these items should be stirred. The less they are stirred, the better they will maintain their appetizing appearance.

i. Solid Foods. Serve items in shallow insert, like macaroni and cheese, baked lasagna, or lyonnaise potatoes, from the back of the pan toward the front in an orderly system across the pan. A uniform way of serving helps maintain the fresh appearance of the food and promotes eye appeal.

3. Cold Food.

a. Keep cold salad combination plates, such as ham, sliced cheese and potato salad combinations, cold by setting them on ice or on refrigerated salad bar units. Cover to prevent drying.

b. Because sandwiches dry out from standing, make them to order. Keep procedures simple, speedy and efficient. A fast-moving, well checked-out crew of sandwich makers will make sandwich meals a pleasure for the crew and food service attendants as well. Follow these simple procedures:

8-C-3.b.(l) Assemble the necessary equipment and ingredients: utensils-spatulas, sharp knives, tongs and scoops (depending on kind of sandwich). Place breads on sheet pan unopened until ready to use. Do not place on heated serving line. Open bread loaves from one end or the middle, one loaf at a time. Open roll packages as needed. Place sandwich filling on the line in a pan of ice or on the refrigerated section of serving line. Keep fillings chilled at all times! Limit supply on the line and replenish from refrigerated supply as needed. For meat sandwiches, preportion sandwich-sized stacks of thinly sliced meats.

(2) Remember to handle breads and fillings as little as possible to avoid having hands in direct contact with food. Follow AFRS guidelines for sandwich preparation. Keep sandwich spreads, condiments and garnishes cold.

c. Fresh fruits must arrive at the serving line washed, sorted and with the stems and leaves removed. Arrange neatly in rows or stack in cold inserts.

4. Desserts and Pastries.

a. Place desserts in a tempting arrangement. Serve neatly-cut slices of pie and evenly-sliced squares of cakes and cookie bars. Neatly spoon puddings and other similar desserts into bowls or dishes. Preportion most desserts and replenish frequently. If a special cake is prepared, set the unsliced cake on the serving line so the decorated cake can be seen; then slice and preportion on plates. One or two whole baked pies can be set on the serving line along with sliced portions of the pie.

b. Highly perishable desserts such as cream puddings and pies, custards, cream puffs and eclairs must be served chilled. Place them on refrigerated units or trays over ice. Keep ice cream frozen. Serve whipped toppings cold. Serve toppings from a small container and replenish frequently.

c. Place dessert dishes for ice cream next to the ice cream freezer. If soft serve ice cream is served, place paper cups or sugar cones near the machine. Locate sundae toppings near the ice cream. If pie a la mode is the featured dessert, add scoops of ice cream just as the patrons select the pie. Ice cream pies must remain frozen. Place only a few slices of ice cream pie on the serving line, and replenish as required.

5. Beverages. Do not dispense cold drinks and juices by ladle from an insert; use milk dispensers or other appropriate dispensers. Do not serve juices from their original container unless the cans are the individual size. Juices may be dispensed from beverage coolers or pitchers. Preportioned juices in paper cups speed service, aid in portion control and can be replenished as required.

6. Miscellaneous.

a. Serve butter patties from a dispenser. If a dispenser is not available, the ready-to-serve patties may be placed on a tray and set over a container of ice on the serving line. Place unwrapped patties on paper chips and arranged on a tray over ice.

8-C-6.b. Serve dry cereal from a dispenser. Never serve cereal directly from the box. If a dispenser is not available, arrange the individual packages on a tray on the serving line.

c. Bread will remain fresher if served from dispensers. Otherwise, open bread as needed, remove from the wrapper and place in a shallow container on the serving line. Slice galley-baked bread and replenish when needed during the meal. Heat chilled bread prior to servicing. To give a fresh-baked quality to breakfast pastries such as coffeecakes and sweet rolls, heat them in a 230F oven for 8 to 10 minutes before serving.

7. Equipment and Serving Line Arrangement.

a. Careful arrangement of hot and cold foods is extremely important. Route serving lines to avoid delay and unnecessary congestion in serving and dining areas. If the physical setup allows, it is recommended salad bars be situated to permit the patron to stop there before approaching the hot food serving line. Eliminating the stop at the salad bar en route to the table will enable the hot food to be eaten while hot.

b. If possible, separate the dessert bar from the serving line and place it in the center of the dining area. Using this setup, the patrons can pick up dessert after eating the main course. A reduction in the number of desserts consumed and a decrease in tray waste will usually be noticed.

c. Place trays and bowls at the head of the serving line. Place silverware at the end of the serving line. Place cups and glasses near beverage dispensers.

d. Although CGDF's with false overheads, wood paneling, brand new equipment and a showplace galley will enhance the atmosphere, the key to customer satisfaction is good food, well served.

8. Fast Food Operation. Properly introduced, merchandised and managed, fast food lines can be successful in any CGDF having the space and personnel to run them. Careful planning and extra work are required to operate this additional type of service.

a. Advantages.

(1) Costs usually are less for this type of meal than for a full course meal. Many customers prefer one light meal a day and will choose the fast food line.

(2) In some instances, fast food lines or sandwich bars are set up apart from the main dining facility to accommodate a group who cannot go to the dining hall because it is too far from their work.

(3) With some CGDFs, fast food service attracts sufficient patrons to eliminate the conventional full-course serving line once a day, either at lunch or dinner. Time and effort saved by serving a full-course meal only once a day allows a greater concentration of galley resources on perfecting every meal.

8-C-8.b. General Concepts and Procedures.

(1) Many fast food concepts and procedures are general in nature and can be adapted for use by any Coast Guard dining facility, whether the facility is specifically designed for fast food operation or the cafeteria/institutional feeding system. Among the concepts and procedures, effective management and supervisory control is of absolute importance.

(2) A fast food dining facility offers the subsistence specialist(55) a unique opportunity to develop and expand managerial abilities and knowledge of food service. This contributes toward crew morale and a positive food service image. The food service officer ensures the integration of regular and fast food menus, prevents repetition, increases variety and provides a nutritional balance.

c. Production. Prepare fast food items to meet line demand while using progressive cooking principles to prevent large buildups of inventory.

(1) Timing is of great importance in producing the fast food meal. With constant practice, a fixed cycle menu can be prepared in record time with costs predicted and controlled.

(2) Additional galley personnel may be required to prepare and serve the food for fast food lines depending upon the menu.

(3) Good training, accurately measured ingredients, proper cooking times and close supervision ensure the consistency needed for a fast food operation.

d. Advertising. Advertising enhances the patron's appetite. Food eye appeal and quality food items reinforces the positive opinion made through advertising. Menus provide the best source of advertising.

e. Fast Food Line Items. Some items particular to the fast food program are: hamburgers, cheeseburgers, submarines, hot dogs, sandwiches, pizza, fried fish, fried chicken, French fries and salads. (See Chapter 5 for fast food menus.)

D. Serving Techniques and Presentations.

1. Merchandising. "Presenting" menu items on a serving line is doing what commercial food operators call "merchandising" - making their fare so attractive and appealing the customer wants to buy them and, in the case of foods, eat them. The aim in presenting menu items on the serving line is to stimulate the appetite and promote the welfare of the patron.

a. Foods that do not have an attractive, appealing appearance are frequently rejected without even being tasted.

b. If you are not proud of the food's appearance on the serving line, chances are it is not tasty either. When menu items are prepared according to approved recipes, the food not only tastes good but looks good too. ignore a meat browning step in a recipe for stew or overcook a frozen vegetable and the flavor and appearance both suffer. Be sure the cooks are following approved recipes.

8-D-l.c. Foods selected for a menu should be of harmonious colors that present an inviting appearance on the plate. Consideration of color helps to avoid monotony and provide interest. Plan a menu so foods offer a pleasing color contrast. A serving line of all red foods or all yellow or pale foods, such as navy bean soup, roast veal, buttered noodles, summer squash, stuffed celery, butterscotch pie or rice pudding, is not attractive or eye appealing. A well-planned meal should contrast in color, shape, size and texture.

d. Place the menu at the head of the serving line. If possible, label all items on the serving line including salad dressings. Label or flag items intended for the low calorie menu.

e. Centerpieces can be the focal point of the serving line on holidays and special occasions. The realm of possibilities are limited only by imagination and time.

f. Ice, either crushed, cubed or carved, can be an interesting addition to highlight any meal. On special occasions, and when practical, ice carvings can be used as distinctive centerpieces. They can take on many forms, such as swans, baskets, rabbits, deer and even turkeys. They may be elaborate or simple in design. Ice cubes near beverage dispensers can be a "window dressing" if the container is embedded in a pan of green- or blue-colored ice decorated with a few sprigs of parsley or green mint leaves.

2. Garnishing. A garnish is an ornament, used for flavor or as a relish. Some garnishes are used merely as a decoration; others are planned to complement the flavor and texture of the dish as well as to add eye appeal. Generally, garnishes should be edible and an integral part of the food so it will not be left on the plate.

a. All food does not need to be garnished. Many AFRS recipes have built-in garnishes; examples are: beef stew with vegetables, tossed vegetable salads, and desserts such as frosted cakes. include explicit instructions for garnishing on the Food Preparation Worksheet.

b. The AFRS contains many color photographs of finished products showing the item attractively arranged in the steam table insert and/or in the correct serving dish.

c. Rules for garnishing are:

(1) View the entire service line setting as a whole.

(2) Plan simple garnishes. Do not sacrifice timely preparation just for the sake of garnishing.

(3) Vary the garnishes; don't let them become monotonous.

(4) Do not use garnishes to disguise deficiencies or poor quality of food. Sliced dried-out beef will not be helped by an attractive garnish.

(5) Colors should harmonize, never clash. Use small quantities of vivid natural color to accent a food.

(6) Use garnishes sparingly. A few small groups of garnish are often more attractive than a continuous decorative scheme. Do not overgarnish.

8-D-2.c.(7) Garnishes must never appear overworked or overdone. Take advantage of lettuce leaves, celery tops, etc., for garnishing.

3 Carving. Foods that require carving after preparation may be carved on the serving line. The appearance, texture and portion size can be controlled by carving.

a. On special occasions, roasted whole turkey may be carved on the serving line. This allows everyone to see and share in the festivity a holiday turkey symbolizes.

b. It is essential that subsistence specialists develop carving skills because carving plays such an important role in serving meats in an appetizing manner. The principles in carving must be learned before the actual carving begins. These principles are: the location of bones and joints, the structure of the animal, and the proper method of using the slicing knife and cutting board.

c. The direction of meat grain decides the carver's course of slicing action. All meats should be cut across the grain. Cross-grain slicing shortens the meat fibers and gives a neater slice. If the carver is not familiar with the cut of meat, slice parallel to the cut surface. See Chapter 7 for instructions in carving roasted meats.

4. Timing. The petty officer in charge of the line is responsible for keeping food on the serving line throughout the entire meal.

a. Do not set up the serving line too early. Allow just enough time so the butter will not melt, the bread won't dry out and the coffee will be fresh. Do not wait until an item is completely gone before replenishing. Give the cooks time to get the next container of food ready. When 15 servings are left and there are more than that number of patrons in line, tell the cooks so the second container will be ready when needed. Replenish by removing the inserts or containers and filling them in the galley rather than by dumping food into inserts on the serving line.

b. Do not leave food on the steam table too long. Prepare food in moderate quantities and replenish frequently. Prepare foods "to order" when possible. Breakfast eggs, many grilled foods and french-fried foods are good examples. Prepare foods that cook fast in small batches as needed to supply the serving line. This reduces the leftover quantities of most vegetables, cooked cereals and deep-fat-fried and breaded seafood items.

c. If one of several salads runs low, avoid hurrying back to the galley to prepare more. The patrons probably won't notice the reduced selection and will be satisfied with the remaining choices. This will result in fewer leftovers. Toward the end of meal service, when bulk salad containers are running low, portion what is left into individual salads instead of breaking out another whole container. Never mix leftover salad with fresh salads.

5. Food Service Attendants (Appearance and Attitude).

a. Every person assigned to the serving line must be and look clean. That requires washing hands many times during the day. Uniforms, hats, and aprons must be clean. Long sleeve uniforms must be rolled up to avoid

touching the food and equipment. Food service attendants not only must be clean and neat, they must be trained to serve food properly as serving techniques also effect sanitation and attractiveness. They must be given detailed instructions on the proper serving of each menu item. To avoid possible contamination, utensils and dishes must be properly handled while serving. Servers' hands should not touch eating surfaces of bowls, trays, silverware, etc.

b. The watch captain must check personnel to ensure they are correct in appearance and action. The captain's presence in the galley and constant supervision will have an effect on personnel. They will use extra care to maintain high sanitation standards.

c. Take care so food is not splashed or spilled on trays. There must be no "skylarking" behind the serving line as this poses a safety hazard and indicates lack of supervision and attention to duty.

d. Personnel must be alert and replenish foods on the serving line as required.

6. Appearance of Serving Line. Inspect all dining facility gear for cleanliness and maintain supplies in sufficient number to last the entire serving period. Check the serving counters and steam tables for cleanliness before foods are set in place. Thoroughly clean condiment bottles, including tops.

a. During meal service, keep serving lines and salad bars wiped down. Wipe up spills immediately. Keep sponges and other cleaning aids out of sight. If needed, they must be spotlessly clean. Dirty sponges, etc., detract from meal service.

b. Return soiled empty serving inserts and containers to the galley.

CHAPTER 9

SERVICES

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CHAPTER 9. SERVICES

A. Introduction. The wardroom dining facility (WDF) is usually a multipurpose area. It is The officers' dining area and lounge. It is where officers gather for social functions, for entertainment, to conduct business and to hold conferences. The pantry is also part of the(WDF). it is where officers4 meals are prepared. Beverages and light foods such as sandwiches, salads and desserts are usually. prepared there. Food for lunch and dinner is arranged on serving dishes in the pantry. Food for officers standing watch at mealtimes is held for them in the pantry.

1. Commanding Officer Dining Facility (CODF). The commanding officer (CO) ma, form his own CODF; this is usually done on larger ships. On most smaller ships, space and number of subsistence specialists are limited; therefore; the CO normally has meals in the WDF.

2. Wardroom Dining Facility (WDF). Officers who are not members of the CODF become members of the DF. The term WDF used in this chapter pertains to afloat units only.

B. WDF Personnel. The CO is responsible for the WDF on board. The CO ensures the WDF is operating properly and regulations are followed. The individual facility is operated by members selected to serve as officers and enlisted people assigned to WDF duty. Responsibilities of these personnel are:

1. Officer Personnel.

a. President. Each WDF has a president. The president is the senior line officer in command. This office presides at meals and ensures order is maintained. If the CO eats in the WDF, the CO is the president. If the CO sets up a CODF, the executive office becomes the WDF president by being senior member of the facility and next in the line of command.

b. Treasurer. Every WDF has a treasurer. This officer is responsible for the WDF finances. If there is no caterer on board, the treasurer is in charge of operating the WDF. A different treasurer is elected each month by other members of the facility. Most officers serve a term in this job.

C. Caterer. On some large units afloat, there is a WDF caterer. The caterer is an officer assigned by the CO.

(1) When there is a caterer, the duties of operating the WDF are divided between the caterer and the treasurer. The caterer is responsible for such tasks as menu planning, food procurement, preparation and service. This member checks the orderliness and sanitation of the WDF pantry and officers' quarters. The caterer is responsible for training and supervising personnel.

(2) When there is no caterer, the treasurer is responsible for all of the above duties. The term "WDF treasurer" is used in this chapter to include the duties of the caterer and treasurer.

9-l.d. WDF Audit and Inventory Board. Members of the WDF Audit and Inventory Board are appointed by the commanding officer. Each month they check the treasurer's accounts and take an inventory of the cash and flock of the facility.

2. Enlisted Personnel Assigned.

a. Leading FS. The leading FS is the senior enlisted supervisor. Under the WDF treasurer, this member directly supervises the other assigned enlisted personnel. This person is responsible for:

(1) Assigning duties to enlisted personnel in the WDF. Responsible for performance of tasks assigned.

(2) Assisting the treasurer and ship's training officer with the training program and supervising on-the-job training.

(3) Planning menus for the treasurer's approval. Responsible for directing food preparation.

(4) Day-to-day issue of subsistence items.

(5) Monitoring the cleanliness of food preparation and dining areas assigned to the WDF.

(6) Serving as the treasurer's chief assistant.

b. Other Enlisted Personnel with Supervisory Responsibilities. Other individuals assigned may also have supervisory duties. This depends on their rates and the number of people assigned.

(1) There is often a supervisor of the galley. These supervisors report to and get their orders from the leading SS.

(2) On larger ships, there may also be supervisors of the storerooms, scullery, and other work units.

c. WDF Supervisor. A FS may be selected to serve as supervisor. This member is selected for experience, knowledge of the job, leadership ability and appearance.

(1) The supervisor is responsible to the leading FS and treasurer for smooth and correct meal service.

(2) The supervisor supervises other WDF personnel. This supervisor ensures the WDF is ready for meals, food is properly served, and the WDF is promptly cleared after meals.

9-B2.c.(2)(a) The supervisor must know which officers will be eating late meals because of watches or other duties, and set aside sufficient portions. Keep these warm and edible until served.

(b) When the ship is in port, some officers may be ashore at mealtime. Others may have guests come aboard for a meal. The supervisor's responsibility for setting up the WDF includes finding out how many will be present and if there will be any guests. This information is obtained from the treasurer, and passed on to the leading subsistence specialist so enough food will be prepared. This information is also used to ensure tables are set with the correct number of covers. "Cover" is described in 9-C- la(2)(e) and illustrated in Figure 5-3.

(c) During meals, the supervisor observes other WDF food service personnel to ensure proper service and attention to guests. When necessary, the supervisor assists with the service.

(d) When there are no guests, officers have regular places at lunch and dinner. At these times they take turns being served first. Each WDF selects some object, called the "buck" to show which officer is served first at a particular meal. The supervisor must ensure the buck is set at the proper place. At breakfast, officers do not sit at their regular places so the buck is not used.

(3) The Supervisor Ensures:

(a) Breakfasts are prepared in the pantry on a "to order" basis. This requires food service personnel to prepare the orders on a first come, first served basis, and deliver the food promptly to the diner. A good breakfast is the start of a good day.

(b) For other meals, most of the food is prepared in the galley and delivered to the pantry in large containers. Pantry personnel must keep the foods at the proper temperature until served. The appearance of food served or placed on the table (family style) reflects the care, attitude and professionalism of the personnel preparing it.

(c) Keep substitute foods on-hand for occasions when the food prepared for a meal runs short. Such items as canned meat, vegetables and fruits can be opened, heated and served quickly.

(d) Most butter is now purchased as patties. Remove from the package, on the serving dish, and place in the refrigerator or on cracked ice until serving time. Cut butter that is not performed into patties and store.

(e) Coffee (except when a Silex-type coffee maker is used in the WDF) and other beverages are normally prepared in the pantry. Fresh coffee is made the first thing in the morning, before each meal and

often enough throughout the day so good coffee is always available. Beverages to be served cold, such as tea and fruit drinks, must be prepared well in advance of meal time so they can be chilled before they are served. This prevents excessive dilution from melting ice when the drink is poured into the glass.

(f) Sandwiches, individual salads and desserts may be prepared ahead of time. However, the supervisor must make sure the personnel preparing them store them properly to maintain freshness, flavor and appearance. in performing these duties they must observe the rules of sanitation.

(g) Cloth napkins must not be brought into the pantry. If they are, food service personnel may be tempted to use them as dishcloths or pot holders. This type of use might cause permanent stains and make the napkins unsuitable for use on the table.

(h) The supervisor is also responsible for table linens. This member issues clean linens as scheduled for the WDF and, when needed, for emergencies. The supervisor ensures soiled linen is taken to the laundry and clean linen is picked up. The soiled linen must be counted before it goes to the laundry. Clean linen must be counted and stowed properly.

(4) Pantry Subsistence Specialist. The pantry subsistence specialist performs the tasks listed under the WDF supervisor's responsibilities. This specialist is under the supervision of the supervisor. When no pantry subsistence specialist is assigned, the tasks are performed by the supervisor.

(a) The pantry subsistence specialist must keep pantry spaces clean. This member must also clean pantry equipment, wash and sanitize cooking utensils, china, and silver, and take proper care of dishcloths and towels. This member must draw stores and linens and stow them properly, take care of usable leftovers, and dispose of garbage. Food conservation is also the pantry subsistence specialists responsibility.

(b) When several pantry personnel are assigned, teamwork is most important. It begins with the subsistence specialist who prepares the food. This specialist works with the pantryman who arranges the food in serving containers. The pantryman works with the apprentice subsistence specialist and food service personnel who serve the food. If these personnel work together as a team and take pride in their jobs, feelings of pride and professionalism are generated and the patrons receive excellent service.

(c) Duties in the pantry and galley are very much alike in many respects. For example, in both areas, provisions must be obtained, food prepared, spaces and equipment cleaned, dishes washed, foodstuffs stored, and garbage disposed of. Furthermore, correct performance in either area requires high standards of personal hygiene and practicing sanitary and safety precautions.

9-B-2.c.(5) WDF Watch Personnel. Subsistence specialists are assigned to WDF watch duty between meals and at night. Assigned watch personnel report to the leading subsistence specialist. Watch personnel are responsible for the orderliness of the dining facility while on duty. If the WDF has heavy use, watch personnel may perform some of these tasks sever times during the watch.

C. WDF Procedures.

1. Preparation of WDF for Meals. Officers use the WDF as a lounge between meals. In setting up the space for a meal, the first thing to do is to put it in order. Put away books, playing cards, magazines and newspapers. Empty and clean ashtrays, and remove used coffee cups. Wipe, remove and store the day covers used on tables between meals.

a. Tablesetting. Tables are set after the space is put in order and cleaned.

(1) General Procedures. When subsistence specialists are assigned to WDF mw-they are responsible for setting the tables for meals and following the approved seating list when placing the buck or seating guests. Also they are responsible for quiet and efficient table service throughout the meal. This section discusses each of these responsibilities.

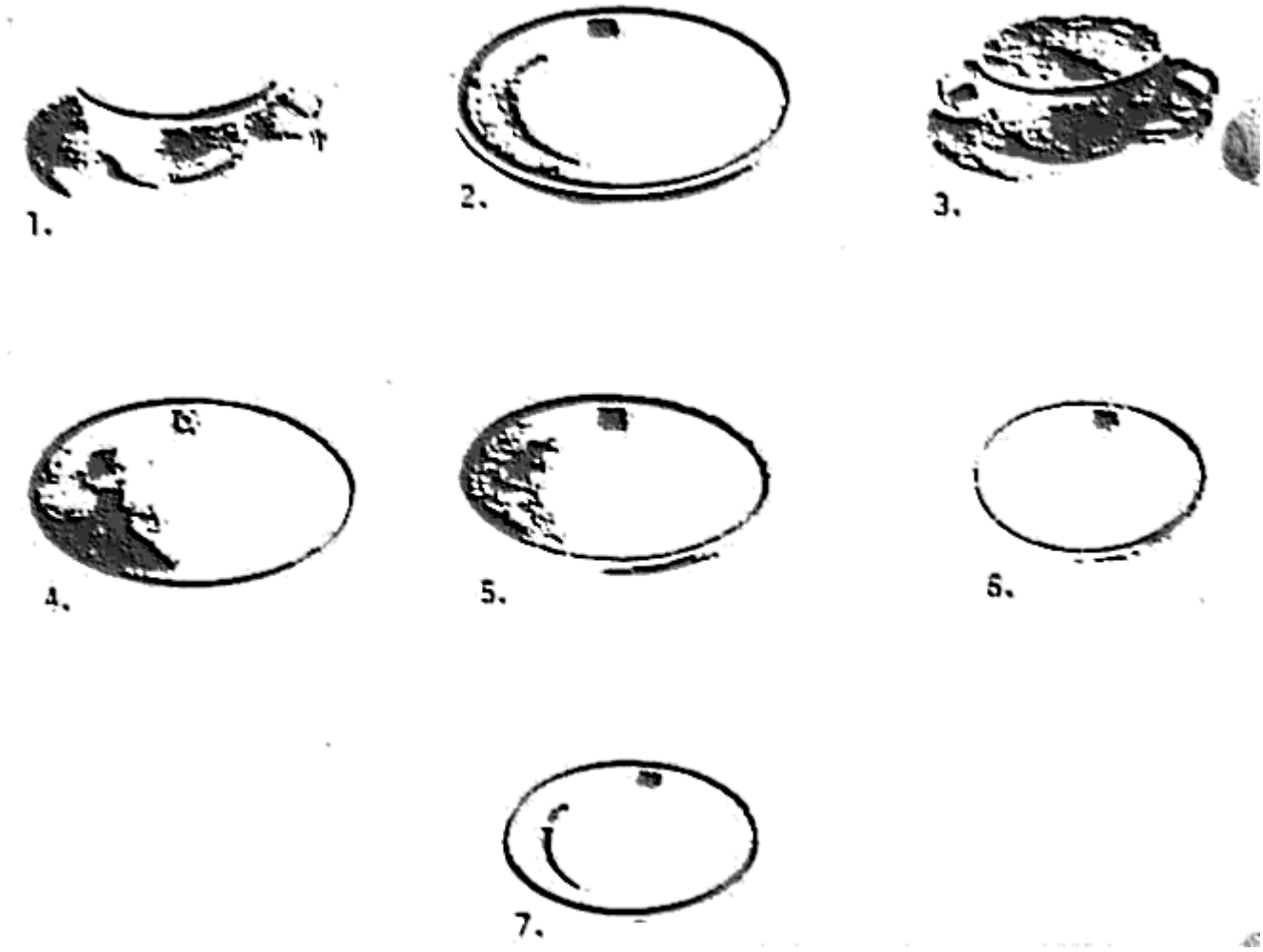
(a) Setting a table correctly helps to avoid confusion at meals and gives the table a neat appearance.

(b) For shipboard use, the Coast Guard provides silver and china. There are two kinds of silver; hollow ware and flatware. Hollow ware consists of serving pieces such as platters, bowls and pitchers. Knives, forks and spoons are flatware; they are also called flat silver.

1 Some of the china shown in Figure 9-1 has more than one use. The bouillon cup doubles as an egg cup for serving soft-cooked eggs. The salad plate may also be used as a bread and butter plate and as a dessert plate.

2 The dishes and silver needed for a meal depend on the occasion and the menu. See Figure 9-2. Meals for special occasions require more formal settings than every day meals.

(c) For all meals, knives and spoons are placed to the right of the plate. Knives are laid with the cutting edge toward the plate, and spoons with the insides of the bowls up. Forks, except the oyster fork, are placed to the left. The oyster fork is placed to the right of the spoons. The silver is placed according to the order it is to be used. The silver to be used first is placed farthest from the plate. Usually no more than six pieces of silver are set at one cover. Other silver may be brought in when later courses are served.



1. Coffee Cup and Saucer
2. Main Course/Breakfast Plate
3. Bouillon Cup and Saucer
4. Soup Plate
5. Dessert or Cereal Dish
6. Bread and Butter Plate
7. Dessert or Salad Plate

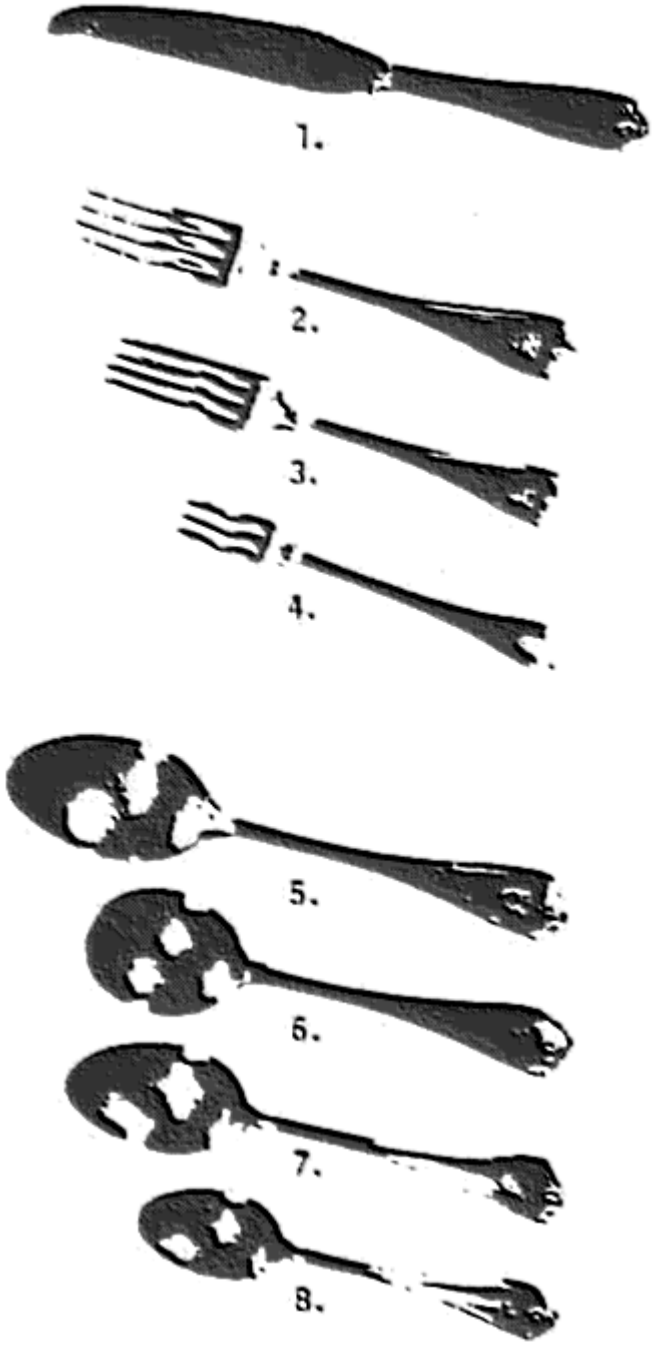
Figure 9-1 - Coast Guard China

9-C-1.a.(l)(d) A properly set table provides a pleasant background for a meal. An attractively set dining table contributes to the enjoyment of the meal. There is basically little difference between a formal and an informal tablesetting.

(2) Informal Tablesetting Procedures.

(a) Remove the tablecloth, fold it and place it in its designated location.

(b) Place the silence pad on the table. The silence pad is usually made from felt or other heavy fabric. its purpose is to prevent noise as tableware is placed on the table, to protect the table top, and to improve the appearance of the tablecloth. It should drop. approximately three inches over the edge of the table and be tight) fitted over the table top.



1. Knife for breakfast and main course
2. Fork for breakfast and main course
3. Dessert fork for salad and dessert
4. Oyster fork for salad and seafood cocktails
5. Tablespoon for serving
6. Soup spoon for soup
7 Dessert spoon for cereal, soup and dessert
8. Teaspoon for cup soups, hot beverages, soft-cooked eggs, fruit and dessert

Figure 9-2 - Coast Guard Flatware

9-C-l.a.(2)(c) Spread the tablecloth over the table so the lengthwise crease runs down the center of the table. Smooth the cloth and be sure ii hangs evenly below all edges of the table. A drop of approximately eight inches is preferable. A pleasing effect can be obtained by having the tablecloth pressed so it presents three creases. This is done by first pressing the cloth with one lengthwise fold to make a crease in the center. Then the cloth is opened and each side folded in to the center crease and pressed. When the cloth is placed on the table, it will have three creases running the length of the table.

(d) After it is used, refold the cloth on the pressed creases and roll or lightly fold to retain the creases.

(e) Setting the Cover.

1 The Cover. The number of dishes and pieces of silver necessary for a cover depend on the occasion and menu. Every day meals require fewer dishes and silver than formal meals. Always check the menu before setting the table. See Figure 9-3.

2 Dinner or Service Plate. The dinner plate is the center of the cover for meals. Place it directly in front of a chair and about one inch from the edge of the table. The ideal spacing of plates for family style or formal occasions is 24 inches from plate center to plate center. This is close enough to permit easy conversation and provides enough room for each individual diner. The dinner plate is omitted on the table when using the American form, cafeteria style, buffet style, or a la carte style of food service. See paragraph 9-C-5.b. for style definitions.

3 Bread and Butter Plate. Place the bread and butter plate, when used, to the left of the dinner plate, above the fork prongs.

4 Water Glass. Place the water glass to the right of the dinner plate, above the knife point. For purposes of safety, ease of serving and to avoid an accidental spill, fill water glasses in the pantry and place on the table just before the meal starts.

5 Coffee Cup. Place the coffee cup on the table to the right of the water glass.

6 Napkin. Place the napkin, either cloth or paper, to the left of the forks or on the dinner plate.

(f) After all covers are set, check the table once again to ensure all covers are alike and nothing was omitted. Be certain spoons are laid with bowls up and that the cutting edges of knives are turned toward the plate. Place the chairs so the front edge of the seats are just against or under the drop of the tablecloth.

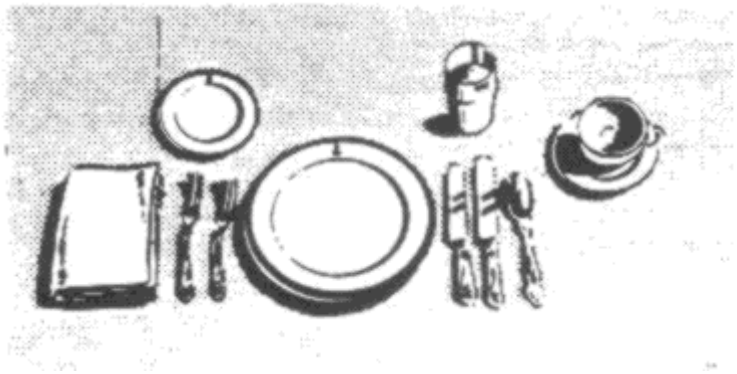


Figure 9-3 – Cover

9-C-l.a.(3) Formal Tablesetting. A formal tablesetting is a little different from the informal tablesetting. Often candles are used on the table with a centerpiece of flowers, fruit or some other attractive arrangement. Use place cards to show where people will sit. Menu cards are often provided with this setting.

(a) Each place card has the name of an individual who will attend the dinner. The cards are placed according to the seating list for the meal.

(b) When menu cards are used, place each card where about three people can see it or there may be one for each person.

(c) If bread and butter plates are not used at a formal dinner, the rolls are either buttered in the pantry or served without butter.

(d) Table Decorations.

1 Simple table decorations, when available, are appropriate for almost any meal. For special occasions use flowers or other decorations. Decorations, chosen must be in harmony with the tablesetting and the formality of the meal.

2 Table decorations must be carefully planned in advance. Candies and candle holders, the right type of container for the centerpiece, flower holders to keep each flower in place, and any table ornaments needed must be available for use.

3 A centerpiece adds much to the attractive appearance of any table. A small decoration will usually suffice for informal tablesettings. The purpose of an ornament is to add eye appeal to a table.

4 Arranging a centerpiece could involve a lot of time so be sure to allow plenty of time for this.

9-C-1.c.(3)(d) 5 Decorations for a formal dinner must be dignified and balanced; traditional rather than unusual. Simple, uncluttered decorations are best. Choose handsome silver or glass candlesticks and flower bowls. Never mix the two styles. Very simple clear glass or white china flower containers and candlesticks may be used. Do not use those made from wood or brightly colored china or pottery for formal dinners, although they may be used for other occasions.

6 The centerpiece or bouquet must not be so tall people at the table cannot see those on the opposite side. The flames of candles must be above eye level.

b. WDF Cleanliness. Apart from the `strictly basic reasons for maintaining cleanliness, having a clean, orderly facility gives added pleasure and enjoyment to the members who use it. Keeping the WDF dean is a continuous job. It begins before reveille when the clutter left by watchstanders and other late users is cleaned up and the WDF is made ready for breakfast; it continues until WDF watch personnel clean and straighten the room before securing it for the night.

(1) Officers going on and coming off watch and those returning to the ship after the watch has secured, generally use the WDF for coffee or a snack; consequently, there will be dirty dishes and ashtrays to be cleaned first thing in the morning. Any other cleaning necessary to the maintenance of a fresh, orderly appearance, must be done at this time.

(2) Immediately after each meal, clean the WDF and the pantry. The subsistence specialist in charge of the WDF must post a list outlining what is to be cleaned in a conspicuous place. This would simplify the daily and weekly cleaning schedule.

c. Preparation Prior To Seating Personnel. There are some details that must be taken care of just before the members are seated.

(1) Fill water glasses in the pantry (three-fourths full for ease of handling and less chance of spilling) and place on the table.

(2) Arrange butter patties on small plates and set out two per table.

(3) Ensure fresh coffee is ready.

(4) If the meal is informal, place individual salads on the table before the officers are seated; do this just prior to announcing the meal to ensure each officer receives a fresh, crisp salad.

(5) Ensure condiments, such as cream, sugar, salt and pepper, necessary for the particular meal being served, are available prior to serving.

(6) Place the buck on the table if it is to be used at that meal.

9-C-2. WDF Seating. There are special rules for WDF seating. Officers are assigned regular places or lunch and dinner when there are no guests. When guests are present, the seating arrangement is a little different. It then depends on whether the visitor is a guest of the ship or the guest of an individual. It also depends on whether there is one or more guests.

a. Daily WDF Seating. At lunch and dinner when there are no guests, officers sit at assigned regular places.

(1) The dining facility president sits at the head of the table. The officer next in seniority sits to the right of the president. The third in seniority sits to the left of the president, and so on, from right to left, down the table. Officers of the same grade sit in the order of precedence within grade as described in Figure 9-4.

(2) If the president is absent, the officer who is next in seniority sits at the head of the table. If there is just one table, the treasurer sits opposite the president. If there is more than one table, the treasurer usually sits at the head of the second table. These two officers sit at their assigned places at daily meals and when there are guests.

(3) At daily meals, other officers are seated around the table according to precedence. The highest ranking officer sits near the head of the table. Officers who have the same rank `1rade) are seated according to their dates of rank; the officer who has been in the grade the longest sits nearer the head of the table.

(4) When there are two or more tables, the most senior officers sit at the first table and the junior officers at the last table.

(5) When officers of the various Services have the same relative grade and the same date of rank, they have precedence according to the time each has served on active duty as a commissioned officer of the United States military services.

(6) A table showing the relative rank and precedence of officers of the various military services is in Figure 9-5.

b. Seating Guests.

(1) When the CO or other senior officers are invited for an occasional meal, they are considered to guests of honor and are seated as such.

(2) The seating arrangement changes when a guest is present. See Figure 9-6. If the visitor is a guest of the ship, the visitor sits to the right of the president. If the visitor is a guest of an individual officer, regardless of rank, the guest sits to the right of that officer.

(3) When two or more guests of individual dining facility members are present, each guest sits to the right of the host. When there are guests, members move down to other places to make room for them.

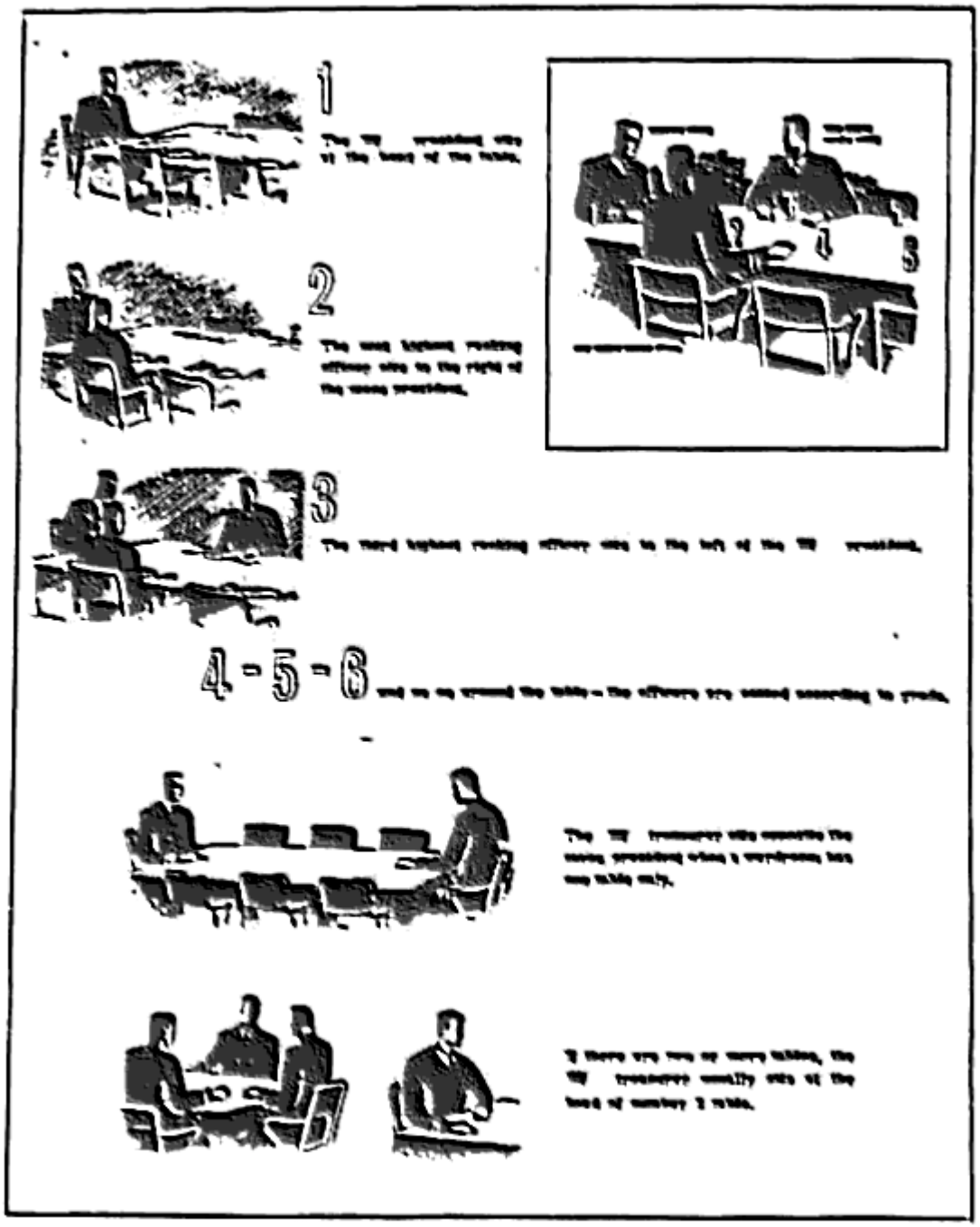


Figure 9-4 - Procedures for Seating Officers at Wardroom Dining Facility Tables

Coast Guard	Navy	Marine Corps	Army and Air Force	Public Health Service	Coast and Geodetic Survey
	Fleet Admiral		General of the Army		
Admiral	Admiral	General	General		
Vice Admiral	Vice Admiral	Lieutenant General	Lieutenant General		
Rear Admiral (upper half)	Rear Admiral (upper half)	Major General	Major General	Surgeon General Deputy Surgeon General	
Rear Admiral (lower half) and Commodore	Rear Admiral (lower half) and Commodore	Brigadier General	Brigadier General	Assistant Surgeon General	Rear Admiral
Captain	Captain	Colonel	Colonel	Medical Director	Captain
Commander	Commander	Lieutenant Colonel	Lieutenant Colonel	Senior Surgeon	Commander
Lieutenant Commander	Lieutenant Commander	Major	Major	Surgeon	Lieutenant Commander
Lieutenant	Lieutenant	Captain	Captain	Senior Assistant Surgeon	Lieutenant
Lieutenant (jg)	Lieutenant (ig)	First Lieutenant	First Lieutenant	Assistant Surgeon	Lieutenant
Ensign	Ensign	Second Lieutenant	Second Lieutenant	Junior Assistant Surgeon	Ensign

Figure 9-5 - Relative rank and precedence of officers in the military service

9-c-2.b.(4) When several guests are present, the seating arrangements are normally worked out by the WDF supervisor and approved by the treasure' (caterer). Place cards are prepared to eliminate confusion. The place card is laid flat on the napkin.

(5) These seating arrangements are followed regardless of the rank military/civilian status of the guest.

c. Seating Lists. The Treasurer is responsible for seating in the WDF. This officer approves the regular seating list and arranges for guest seating. These officers specify where to put napkins when the table is set. The lists also ensures that people seated are served in the correct order. See Figure 9-7.

Figure 9-6 - Guest Seating Procedures

THE SEATING LIST

The WOF treasurer keeps a list of officers arranged according to seniority and precedence. This seating list is usually posted in the Wardroom.

TO ARRANGE THE SEATING LIST, the WOF treasurer must know:

RANK (GRADE) OF OFFICERS

First the seating list is arranged by grade, highest ranking officers sitting nearest the head of the table.

WHICH OFFICER IS SENIOR

Within each of the grades, the officer who has been in that grade the longest heads the list. Officers of the same grade sit according to the precedence of the line and staff corps.

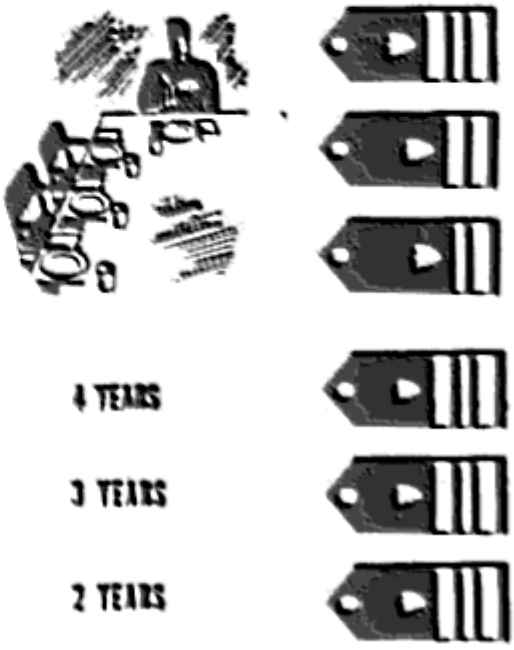


Figure 9-7 - The Seating List

9-C-3. Arranging Foods for Serving. Most main-course foods for the WDF are arranged in serving dishes in the pantry and passed to officers by an assigned server.

a. Appetizers, soups, salads and desserts are also arranged in the pantry. Subsistence specialists must arrange them attractively and ensure they are served at the proper temperatures. Serving dishes must be heated or chilled as necessary to keep hot foods hot and chilled foods cool. The subsistence specialist must avoid dishing up foods so far in advance of serving they will dry out, become soggy or look unappetizing.

b. A large piece of meat holds heat better than small pieces. For this reason, slice meat and arrange on a heated platter as close as possible to serving time.

C. Most vegetables lose heat rapidly. Because they usually require little arranging, they should not be dished up in advance.

d. A skin forms on gravies and cream sauces as they cool; therefore, they must not be dished up in advance.

C. If the menu calls for a first course of hot soup, ladle soup into heated soup plates just as the meal is announced so serving can begin as soon as officers are seated.

f. A first course of chilled food, such as seafood or fruit cocktail, may be arranged in individual portions well ahead of serving time.

4. Table Service Procedures.

a. Responsibilities of Food Service Personnel During Table Service. Prompt and courteous service adds much to the enjoyment of a meal.

(1) Subsistence Specialist Duties During Table Service. Serving personnel must be alert. They should not lean on the sideboard or lounge against the bulkhead when they are not busy. With proper training, serving personnel will know what their responsibilities are and how to meet them,

(a) Each subsistence specialist has special duties at mealtime. At lunch and dinner, for example, one person is responsible for keeping water glasses filled; another, for the coffee; and a third, for passing bread and butter, Others bring foods in from the pantry, pass them and remove used dishes after each course, If there is a shortage of personnel, each person may have to take care of more than one of these jobs. The leading subsistence specialist will assign serving duties,

(b) When the tables are ready, each person takes their place according to the duties to be performed. The WDF Supervisor stands to watch all tables and check on service. The individual responsible for bread, butter and condiments stands near the side table. The person responsible for coffee stands near the coffee urn, If coffee is not made in the WDF, the person responsible stands ready with a pot of fresh coffee from the pantry.

9-C-4.a.(l)(c) One subsistence specialist stands at the foot of each table ready to start serving when the officers are seated. Sometimes there are two people at each table, one at the foot and the other at the head. They usually hold chairs for guests at a meal.

(2) WDF Supervisor's Responsibilities.

(a) When all individuals are at their Stations, the supervisor or the person on WDF watch announces the meal, saying, "Dinner (or lunch) is served."

(b) The supervisor is in charge during the meals, watching all tables and the people who are serving. Because good table service adds to the enjoyment of meals, the supervisor ensures the service moves along quietly and efficiently and it is prompt but not hurried. The supervisor ensures all food service personnel who serve the dining facility are neat and clean and they pay close attention to their tables throughout the meal.

(c) The supervisor also sees the following parts of table service are taken care of before the meal begins:

1 Butter is cut into individual servings, placed on a plate, covered, and the plate placed on a tray of cracked ice about one-half hour before the meal begins. Immediately before the meal, a server picks up a square of butter with a fork or knife and places it just inside the rim of each bread and butter plate. The remainder is left on the plate and returned to the tray of ice so it will stay firm during the meal.

2 If condiments, such as jelly and catsup, are provided in individual containers, these also are placed on the bread and butter plates before the meal begins. If not in individual containers, condiments are served from small dishes during the meal.

b. Order of Service. Table service begins promptly after everyone is seated.

(1) The WDF president or the officer in front of whom the buck is placed (American service) is served first; then the service counterclockwise around the table. An officer does not lose his or her turn (being served first) because of guests being present; it is merely postponed. The buck is placed before that officer at the next meal.

(2) When guests are present, some changes to the seating and service order are necessary. A guest of the ship or the guest of honor, sits to the right of the WDF president and is always served first. Other guests sit to the right of their host officer. When no guest of honor is present and more than one officer has guests, the guest of the senior officer is served first. in all cases, after serving the guest of honor, the serving continues from that point counterclockwise around the table. Do not skip around in order to serve all guests first. 5ee Figure 9-8.

IF NO GUESTS ARE PRESENT .....

Serve the officer who has the buck in front of him. Then serve the officer who is sitting on his right and continue around the table.

IF ONE GUEST IS PRESENT .....

Serve the guest first. Then serve the officer who is sitting to the right of the guest and continue serving around the table.

IF MORE THAN ONE GUEST....

Serve the guest of the senior officer first. Then serve the officer to the right of the guest and continue around the table.

REMEMBER.....

If your ship has special rules for serving guests, the WR treasurer will relay this information to the leading Subsistence Specialist. Follow the rules of your ship.

Figure 9-8 - Order of Service

9-C-4.b.(3) If more than one person is serving a course, the second person serves the opposite side of the table. The server may start at either the foot or the head of the table. If starting at the foot, service begins with the officer seated opposite the president and continues to the right toward the head of the table. If the server starts at the head, the president is served first. The server then serves the officer on the president's right and continues down toward the foot of the table. Whatever the order decided on when two people are serving, it must be followed throughout the meal.

(4) The treasurer will instruct the leading subsistence specialist on an change in service procedures.

c. Serving from the Proper Side.

(1) Except at breakfast, all items on the menu are served instead of being placed on the table to be passed by the officers. Figure 9-9 shows food being served from the proper side.

Serve all foods from the left side.

Serve all beverages from the right side.

Figure 9-9 - Proper Serving Procedures

(2) When passing a serving dish, hold it on a tray or napkin on the palm of your left hand. Never grasp it by the rim. Point the handles of the serving spoon and fork toward the officer. Hold the dish close to the table and at a slight angle, as shown in Figure 9-l0. The officers can then see what is in the dish and can help themselves easily. After everyone has been served, return the serving dish to the pantry to be refilled and kept warm.

Stand to one side to avoid hitting officer or spilling food.

Hold serving dish close to table top for easy self-service.

Figure 9-10 - Proper Tray Passing Procedure

9-C-4.d. Removing the Dishes.

(1) At daily lunches and dinners, the subsistence specialist must remove dishes for each course as soon as any officer has finished. Be sure the person has finished eating. Never make anyone at the table feel rushed.

(2) As each officer finishes the first course, remove from the right, the dish - in which it was served. Do not stack the dishes in front of the officer. With the right hand, remove the plate and silverware used during the course. Steady the silver with your thumb so it will not slide oft the plate. Leave the dinner plate on the table.

(3) Remove all plates from an officer's place when finished with the main course. See Figure 9-11. When more than one plate is being removed, hold the first plate in the left hand and place the others on top of it.

(4) When everyone has finished the main course, remove the salt and pepper and any other side dishes, such as catsup, pickle and celery dishes.

(5) Remove the dessert dish as each officer finishes dessert.

(6) Leave the coffee cup, water glass and ashtray until the officer has left the table.

(7) The leading subsistence specialist will tell the subsistence specialist when to start removing dishes at a formal meal.

e. After the Meal.

(1) Clear the table as soon as all officers have finished eating and left the table. Return all dishes, silver and ashtrays to the pantry for washing.

(2) Refill the salt and pepper shakers as needed and store them in the pantry.

(3) Each officer must have their own napkin. Use napkin rings to show which napkins belong to individual officer. Put out clean ones when those in use get dirty. Single-service paper napkins are being used in many WDF's for regular meals and cloth napkins are used only for more formal occasions.

(4) Brush the crumbs from the tablecloth. Be careful not to rub food particles into the fabric.

(5) Shake the cloth out lightly and refold it along its original creases. Reroll or refold the silence pad as appropriate and stow it with the tablecloth.

(6) Replace the table cover.

5. Traditional Forms of Table Service. Good food service is achieved by adopting a suitable method of service, training the servers in its use, and requiring them to follow the specified procedures.

Figure 9-11 - Removing Dishes

9-C-Sa. Considerations for Table Service. The type of service adopted must be best suited for the particular conditions of the WDF

(1) Some of the conditions affecting the choice of service are: the kind of meal being served, the number of members, the number of servers and the physical layout of the WDF. Obviously, if there are a large number of officers to be fed and few servers, an elaborate service is impossible.

(2) Time is also important If, as on some vessels, the officers must be fed in shifts, the service must be simple. In such a situation the Ss concern is serving the food quickly so the officers can use what time they have to enjoy the food.

(3) In the CODF, and in Flag Public Quarters, the service is apt to be more elaborate than in a WDF. The type of service used will be at the discretion of the CO.

b. Forms of Table Service. The traditional forms of table service most commonly used are named for the countries in which the service originated - Russian, English and French. American service is an adaptation of these traditional forms.

(1) Russian. In this service, the individual portions of food are placed on plates in the pantry, garnished, and ready to serve. Russian service is used by many WDFs in serving all meals.

(2) English.

(a) This service is sometimes called most service." When this service is used, the platters and serving dishes are placed before the host or hostess, who then serves the individual plates. The server stands to the right of the host, receives each prepared plate and places it before a guest. Female guests may be served first, followed by the male members of the group. The usual procedure, however, is to serve each person in turn, beginning with the one seated at the right of the host.

(b) English service is used occasionally in the WDF. A good example of when it might be used is the honoring of officers on their birthday. The birthday cake, properly decorated, would be presented to the honored officer, who would cut the cake and serve the individual plates.

(3) French.

(a) This is the most elaborate form of table service. The server serves the guests from a food wagon or side table. Before serving, the dishes of the food may be presented to the officer for inspection. The individual plates are then prepared from the food on the planer, serving bowl or chaffing dish.

9-C-5.b.(3)(b) In a modification of this service, the food is arranged on a serving dish supplied with a serving spoon and fork so the officers may help themselves when the server presents the dish. A single course or entire meal may be served in this fashion.

(4) American.

(a) This service combines two or more of the traditional forms. One of the courses of the meal may be served in the French style another in the Russian, and so on. If, for instance, the appetizers are selected from a tray, the main course is brought from the pantry prepared on the plates for serving, and the host cuts and serves the cake for dessert, American service is being used.

(b) This is the form of meal service usually provided for the patrons a: the WDF's afloat.

c. Informal Table Service. The types of table service used for all meals are family, cafeteria, buffet or a la carte. These are generally served in the American form. The usual WDF dinner (informal) may consist of three sources: a first course of soup or shrimp cocktail (sometimes both are served) a main course of meat and vegetables; and a dessert course.

(1) Family Style Service.

(a) When foods are placed on the table family style, make sure each food is in the proper serving dish and the dishes are neatly arranged on the table. Wipe spilled foods from the edges and the bottoms of the serving dishes to avoid soiling the tablecloth.

(b) To avoid overcrowding the table during family style service, refill the water glasses as necessary instead of placing a water pitcher on the table for Officers to help themselves. In other types C service, such as cafeteria, a water pitcher may be placed on the table for those who want refills.

(2) Informal Service Procedures.

(a) If a salad is served, it is usually on a separate plate after the main course at formal meals. At informal meals, however, it is becoming customary to serve salad at the beginning of the meal so officers may eat it whenever they wish. Often it is served in individual dishes just before the meal is announced.

(b) If shrimp cocktail is served, serve it as soon as the members and their guests are seated. When all have finished this portion of their meal, remove the shrimp cocktail glass with the used silverware If soup is included, it is served at this time. Soup is normally ladled into the soup plates in the pantry and served rather than offered to the officer at the table.

9-C-5.c.(2)(c) When all have finished, remove the soup plate, service plate, and soup spoon. The heated dinner plate replaces the service plate for the main course. The food is brought in on a platter or in serving dishes. The food is presented to the guest who is seated to the right of the host. The service then proceeds counterclockwise around the table.

1 The meat is served first. vegetables are served next, then the gravy, and finally the rolls. If a sauce is served with a vegetable, a server with the sauce dish follows the person with the vegetable.

2 On some ships, bottles of catsup and chili sauce are passed by a server, but usually small bowls of these condiments are placed on the table to speed service. Bottles are not placed on the table.

3 Small dishes of other condiments, such as pickles, olives and preserves, also may be placed on the table, or the dishes may be passed. Pickles, jellies and so forth are always served in dishes, whether they are placed on the table or passed by a server. Do not use jars for serving.

(d) When the main course is finished, clear the table. This includes removing the dinner and salad plates, salt and pepper shakers, and condiment dishes. Brush crumbs from each person's place before dessert is served. Use a crumb knife and tray. hold the tray just below the table level at the officers' left and scrape the crumbs into it. Empty any used ashtrays.

(e) When desserts are not picked up from the line, they should be served. If dessert silver is not already on the table, bring it in on the dessert plates.

(f) Refill water glasses and coffee cups and see that there are enough ashtrays on the table. Keep water and coffee available until officers leave the table. Watch the tables throughout the meal to see second servings are offered promptly. No one should have1o ask for additional food or beverage.

(3) Special Serving Considerations.

(a) Serving Water. Refill water glasses when they are less than half full. They should be kept only four-fifths full because it is difficult to drink from a glass that is filled to the brim. When adding water, leave the glass on the table and lower the pitcher to it. Avoid brushing against the officer. Keep a napkin handy to wipe moisture from the outside of the pitcher so drops will not fall on the table or the officers.

(b) Serving Coffee. Usually one subsistence specialist is in charge of during a meal. The server tends the coffee maker in the dining facility or brings in fresh coffee from the pantry. Sometimes a team of two serves coffee. The first person carries the coffee pot, and the second, the cream and sugar. In some WDF's tables are set with coffee cups upside down on the

saucers. Officers turn their cups up when they are ready for coffee. If the table is set with the cups up, the server offers coffee to each officer in turn beginning at the buck if there are no guests.

(c) Breakfast. Service at breakfast is different from service at other meals; Officers come to the WDF at different times for breakfast. Serve them in the order they arrive.

1 When an officer is seated, fill the water glass. Offer coffee and take the meal order. Offer coffee again later. Give the order to the pantryman and serve the desired fruit. As each course is finished, remove the used dish and bring in the next course. Breakfast requires extra watchfulness. One officer may be ready for eggs, another for fruit, and still another, for cereal, all a! the same time. It is up to the server to keep foods moving promptly from the pantry to the table.

2 When eggs or cooked cereal are ordered, special care is needed to see they are served when freshly cooked and hot. Both of these foods lose flavor d change in texture when cool.

3 If food is not hot when served, it may be wasted. Most people will not eat cold eggs or cooked cereal.

d. Formal Table Service. The service required for formal meals is more elaborate than for informal meals. Usually four or five courses are served. All food from each course is served to all diners in prompt succession. Maintain high standards for all WDF meals, but everything should be perfect at a formal meal. Note: Although the formal service is more elaborate, the tablesetting is basically the same as for informal dining.

(1) Formal Dining Procedures. For a formal diner, everything is served; nothing is set on the table except the salt and pepper shakers. Condiments and other seasonings are served at the appropriate time.

(a) Service plates are normally used at formal dinners. These are large plates placed on the table when it is set for the meal. They are not removed until replaced by the heated dinner plate for the first hot course after the soup. They are used only because it is considered bad form for the diners not to have plates before them throughout the meal until the table is cleared for dessert. No food is placed directly on the service plate. Instead, dishes containing the first courses of the meal, such as fruit, shrimp cocktail and soup, are set on the service plate. Bread and butter plates are rarely used for formal dinners. When used, however, the bread and butter plates are placed above the fork prongs.

(b) In both formal and informal service, all foods are served from the left, and beverages are served from the right. Remove dishes from the right. An exception to this rule is the replacing of silverware.

Those pieces of silverware placed to the right of the place plate are replaced from the right. In this way, it is not necessary to reach in front of the diner.

(c) Upon completion of the main course, remove the dinner plate and used silverware, putting the salad plate in its place. To provide faster service, the salad is usually arranged on the salad plate before it is brought in.

(d) When all have finished their salads, remove the salad plate and silverware. At this point, the only items remaining from the original setting are the water and wine glasses. The dessert course with appropriate silverware is then placed before the diners.

(e) Coffee is served with the dessert course or following it. If cups are placed on the table and coffee offered to those who want it, service is from the right.

(f) It is customary not to smoke at formal dinners until after the coffee or demitasse has been served. At the appropriate time, cigarettes and cigars are passed and ashtrays are placed before those persons wanting them.

(h) Ordinarily, dishes for a course are not removed until all at the table have finished the course. If there is a shortage of servers, it may be necessary to begin removing dishes before all have finished, but under no circumstances must anyone be made to feel hurried. A formal dinner is a leisurely social occasion.

(2) Formal Luncheons. A formal luncheon is very much like a formal dinner with the main difference being fewer courses and lighter foods are served.

6. WDF Maintenance. Field day is the time to do those major cleaning jobs that are not necessary every day. These jobs are not in place of, but in addition to, the daily cleaning jobs.

a. Most cleaning can be accomplished with the materials regularly used aboard ship; however, because there are a variety of materials used in furnishings and fixtures of the WDF, commercial cleaning products often give better results on some materials than the products used for routine cleaning.

b. The following is a list of some of the jobs that should be performed at least weekly:

(1) Sideboards. Remove the drawers and clean thoroughly.

(2) Silverware. Inspect for signs of tarnish and polish as required. Stainless steel flatware with decorative handles is now available through the supply system for use in the WDF.

(3) Paintwork. Scrub and wash.

9-C-6.b.(4) Wood Paneling. Clean with furniture polish.

(5) Tables, Chairs, and Sofa Covers. Inspect and take the soiled items to the dry cleaners.

(6) Overhead and Electric Fans. Clean and/or brush.

(7) Lounge Furniture with Vinyl Upholstery. Check and clean as necessary.

(8) Carpeting. Shampoo as necessary.

CHAPTER 10

MANPOWER USE

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Chapter 10. **MANPOWER USE**

A. Introduction. People are the single most important resource in a food service operation and require effective and efficient management. This chapter discusses important factors in manpower, management, methods for evaluating job requirements and relationships between lob and people requirements.

B. Manpower Management.

1. Costs. Manpower costs are at an all-time high and have become the largest expense item in operating a Coast Guard Dining Facility (CGDF). From a management point of view, this important resource deserves a great deal of analysis and control.

2. Resources. CGDFs are expected to maintain the traditional fine quality of Coast Guard food service and also place special emphasis on personal services offered to Coast Guard patrons. With limited manpower resources, service to Coast Guard patrons must be accomplished through efficient manpower management and use. This requires an efficiently organized system with work schedules geared to the ability and workload of all personnel assigned.

   a. In consideration of the management of manpower resources, there are three basic areas which need to be addressed:

      (1) Evaluation of factors impacting on manpower use.

      (2) Techniques to improve work flow and performance, often referred to as "work simplification."

      (3) Work scheduling.

   b. By periodically using analysis techniques developed in these three areas, the local food service manager must be able to improve manpower use. This basic management function of planning and controlling the total manpower efforts is the sole responsibility of top management. First line supervisors, galley watch captains, etc., are responsible for transmitting direction and planning to cooks and attendants within the individual functional areas; they are not in a position to assess the total food service operation (system). A specific evaluation procedure must not be more sophisticated than actually required.

   c. Although the guidance in this chapter is general, the principles can be extended as required, dependent on the local situation.

3. Evaluation. Activities operating below manning levels often overcome this disparity with longer work hours or less effort resulting in a lower quality of food service. Conversely, activities that are overmanned may not appreciably increase their service to patrons, and they are overmanned at the expense of other Coast Guard activities. Regardless of manning levels, subsistence specialists and mess attendants must know what is expected of them. Develop production objectives and work tasks for all levels and translate into daily plans. Summarily, establish management control to ensure all available workhours are used to the best possible advantage.

10-B-3. General Evaluation Factors. There are many time-loss factors inherent in any food service operation, such as sick call, pay lines, rest, training and other service diversions. However, this time loss can be of small consequence when compared to time waste resulting from poor management planning.

(1) Poor management planning may result in:

(a) Poorly planned menus.

(b) Failure to follow recipe cards.

(c) Poor requisitioning.

(d) Inadequate production planning.

(e) Inefficient production techniques.

(f) Waiting for food to be delivered.

(g) Shortage of equipment and/or utensils.

(h) Performing work in the wrong sequence.

(i) Waiting for a work assignment in a functional area.

(j) Lack of instructions.

(k) Overstaffing in one functional area while understaffed in another.

(l) Using spaces not actually required.

(2) Rather elaborate charts of staffing criteria have resulted from careful studies of particular activities. These studies considered the facility layout, operating conditions, number of meals served, productivity requirements and equipment. Normally, the staffing levels developed from these studies are used as standards in relationship to the number of personnel on board, e.g., one mess attendant or cook for every so many number of personnel. However, these standards can be very misleading when applied to individual CGDFs with varying layouts and operating conditions. Therefore, periodic evaluation of manpower use with a fresh look towards eliminating duplication and inefficiency is required.

b. Menu Planning. The first step in such an evaluation is the review of menu planning. The menu is a CGDF's plan for each meal over a specific time period providing short and long range planning guidance.

(1) All facets of food service are influenced by the menu planners; the type of food served; the type of utensils on the serving line; the galley equipment used; oven time; and preparation effort.

l0-B-3.b.(2) In addition to the nutritional aspects and popularity of items, the menu must consider manpower ability and availability.

(3) A well-written menu must distribute the workload without overloading production equipment. It must be balanced between the production items that can be prepared early and those that must be prepared just before serving. A poorly planned menu will result in some food service personnel and equipment being overworked while others are comparatively idle.

(4) The following are specific knowledge factors to be considered in menu planning:

(a) Know the capability of your personnel. Don't force inexperienced people to prepare elaborate menus; train them progressively.

(b) Know your food types. Remember, some foods require additional preparation time, i.e., dried beans require a soaking period and fresh vegetables must be cleaned, and may require trimming, peeling, dicing or slicing.

(c) Know the productivity potential of your equipment to meet peak service periods. Remember vegetables will cook more quickly in a pressure steamer than in the steam-jacketed kettle, and multiple entrees such as french toast, eggs and pancakes will be limited by the amount of available rill space.

(d) Know which "custom foods" can be used to balance and reduce daily workloads, such as cake and cookie mixes, instant puddings, condensed soups and gravies, dehydrated green peppers and instant oatmeal. in planning menus, this alone can reduce or balance manpower efforts.

(5) One of the most important toots that can be used to convey the thoughts and plans used in developing the menu is the Food Preparation Worksheet. When used properly, this tool provides consistent direction, eliminates guesswork and charts the course from soups to desserts; but most important, it plans and controls time.

c. Equipment. An evaluation of manpower use must also consider there are many pieces equipment available that affect manpower effort.

(1) Use of equipment listed below inherently reduces the number of work-hours required to perform certain tasks without doing a detailed job analysis or work study:

(a) Stack ovens.

(b) Grills.

(c) Mobile Dispenser (mess gear).

10-B-3.c.(I)(d) Automatic Bread Dispensers.

(e) Deep Fat Fryer.

(f) Mixing Machine.

(g) Coopers.

(h) Vegetable Peeler.

(i) Butter Dispensers.

(2) The above equipment, as well as much of the standard equipment installed in CGDFs, was designed primarily to eliminate much of the hand-labor involved in food preparation and service, and to improve production efficiency. However, eliminating hand-labor and increasing production efficiency cannot be accomplished unless the equipment is properly used and maintained in good operating condition.

(3) A planned preventive maintenance schedule is essential. Nothing can be more frustrating or create more confusion than loss of time and inefficient use of manpower due to equipment that breaks down or does not operate properly. For example:

(a) Roasting and baking oven thermostats out of calibration resulting in loss of temperature control and mistiming.

(b) Heating elements and thermostats on grills that need calibrating.

(c) Deep fat fryers not covered, letting in dust and foreign matter, resulting in the requirement to refilter the fat.

(d) Cutting blades and knives dull and worn.

(e) Plating on mixing machine bowls, whips and attachments badly worn.

(f) Steam loss due to leaks in steamers.

(g) Overloading vegetable peeler. To operate properly, peelers must not contain more than 2/3 of their capacity.

(h) Detergent dispenser equipment not operating properly which requires rewashing of gear.

d. Operations. In addition to menu and equipment factors, an evaluation of the food service effort must consider operating factors. Food service personnel may be organized into a well-planned work force appearing to work a! a high productivity rate, yet the activity can be inefficient or overstaffed. An example of this would be an activity operating two regular serving lines, when line rates and number of seats indicate one serving line would be sufficient to

serve all patrons during the scheduled meal period. Personnel manning the serving lines in this example are considered productive for they are "at attention" during the serving process, although they are idle much of the time. In this situation, closing down one serving line would eliminate the many workhours needed to attend the serving line, the daily cleaning, and in many cases the subsistence specialist spends hours tied up in serving the entree, as well as supervising the serving line. These workhours saved can be used in understaffed areas to improve or expand menus or to reduce the number of workhours for food service personnel.

(1) Do not restrict an analysis of the serving lines to lunch. In the majority of cases, lunch is the peak period of feeding and an analysis may show two serving lines are not required at breakfast or supper.

(2) In many instances an analysis of this type may reveal other areas where adjustments are warranted. For example, one of the salad bars may not be required, part of the dining area may not be needed or one of the sculleries might be secured. Again, this analysis may show these areas cannot be completely closed down but are needed only for peak meal periods.

(3) Also analyze the length of the meal periods. The analysis may show it is not necessary to continue the present meal periods when, in fact, head counts indicate there are not enough patrons being fed the last 15 minutes or first 15 minutes to justify including in the meal period. if each meal period can be reduced by 15 minutes, and activity using 20 subsistence specialists can save 16.5 workhours a day.

(4) Figure 10-1 is an example of a Head Count Record that can be used to record the number of patrons fed at different time intervals. This record will give valuable information to use when analyzing meal period lengths, peak periods, scheduling, and opening and closing serving lines.

(5) in any evaluation of operations, there are a number of other factors to consider. For example, the extent of self-service, use of carpeting to reduce maintenance efforts and use of mobile busing carts are factors which can have an impact On efficient manpower use.

4. Work Simplification Techniques. Menu writing, equipment and operations are just some areas that offer potential for an immediate adjustment in manpower requirements without lowering the quality of food service. Further studies requiring more detailed analyses to increase productivity and to more efficiently use manpower may be required within individual functional areas. This can be accomplished by conducting an analysis of the movement of food and material. In industrial engineering the term "work simplification" means the arranging of tools, equipment, materials and workers in a job to enable workers to achieve a high rate of production with minimum expenditures of energy and time. To simplify a job, it is required that productive and non-productive effort be defined.

a. In simple terms, most work simplification is merely organized common sense-finding a better or easier way of making maximum use of existing facilities and manpower. Work simplification does not mean working harder or taster.

HEAD COUNT RECORD

STATION:
DATE:

OBSERVER:
LINE NO.

TIME	COUNT	TIME	COUNT	TIME	COUNT	TIME	COUNT	TIME	COUNT	TIME	COUNT
00		00		00		00		00		00	
05		05		05		05		05		05	
10		10		10		10		10		10	
15		15		15		15		15		15	
20		20		20		20		20		20	
25		25		25		25		25		25	
30		30		30		30		30		30	
35		35		35		35		35		35	
40		40		40		40		40		40	
45		45		45		45		45		45	
50		50		50		50		50		50	
55		55		55		55		55		55	
00		00		00		00		00		00	
05		05		05		05		05		05	
10		10		10		10		10		10	
15		15		15		15		15		15	
20		20		20		20		20		20	
25		25		25		25		25		25	
30		30		30		30		30		30	
35		35		35		35		35		35	
40		40		40		40		40		40	
45		45		45		45		45		45	
50		50		50		50		50		50	
55		55		55		55		55		55	

Figure 1l - Head Count Record

Work done in a hurry speeds up all parts of the job, including those which should be eliminated. Nor does work simplification necessarily mean purchasing different or additional equipment. The proper use of existing facilities often makes it unnecessary to buy additional or expensive utensils or equipment. Work simplification is a matter of watching a person or persons on the job, analyzing the work and coming up with some suggestions for improving the job by eliminating necessary steps or parts, combining and rearranging other parts and simplifying the necessary remaining parts of the job.

b. Detailed work simplification is usually achieved through "job Analysis." The need for job improvement may not be apparent to those closest to it. The inefficiencies of a job or function may continue undetected because they have existed for so long. These inefficiencies blend in with the work cycle and become accepted parts of the method simply through habit or custom and in too many cases, are overcome by overmanning.

(1) A job analysis requires the breaking down of a job to see what part of the work is actually productive and what part is waste. When the job is rebuilt, the wasteful parts are eliminated and only the productive parts are retained. This means the complete job process is examined and analyzed in detail. Because a job analysis requires knowing every detail of the job, it is very time-consuming.

(2) After questioning the job as a whole and validating its need, the analysis, which depicts the job, must begin with the "operations" portion of the job, as these are the essential work elements. Each "operation" that can be eliminated takes with it the other job elements, i.e., transportation. delay, storage, etc.

(3) The entire job as defined, should then be questioned:

(a) Why is it done at all? Is it necessary? Where is it done?

(b) Why is it done there? Is that the right place for it?

(c) Where is the best place?

(d) When is it done?

(e) Why is it done then? is there a better time?

(f) Who does it?

(g) Why does this person do it?

(h) Is he the right person(s)?

(i) How is it done?

(j) Why is it done this way? Is there a better way?

(k) Why is that material, those toots, that equipment used?

l0-B-4.b.(4) Further questioning of where, when and who, for example, may lead to combining. When two operations can be combined, they can often be performed by fewer personnel. In addition, the transportation and storage between the two operations are eliminated. Questioning the why,, where, when and who can also lead to further improvements by helping to find the best place, time and person(s) for the job.

(5) Only after every possibility of elimination, combination and change in sequence, place or person of the elements is exhausted, question "how should the job be done?" After questioning and analyzing the job and its elements, the development of the new improved method follows.

(6) It is most important during the analysis question that an objective, unbiased attitude be maintained. In other words, question the traditional ways of doing things. Do not jump to conclusions or make unwarranted assumptions based on past experience. When the new method is developed, evaluate it to assure the solution is in fact a better method; that it is suitable or practicable; that it is feasible and acceptable. Only then should it be adopted.

5. Work Scheduling. Once a local food service manager is satisfied, through formal or job analysis, that job requirements are valid, there is one remaining consideration. Work scheduling often one of the most neglected areas of manpower use, is an area that has significant potential for increased manpower efficiency. Proper scheduling must take into account all the variables affecting the entire food service operation; defining functional workload areas of operations; the coverage assigned at all work stations throughout the work day; and the amount of work that can be shifted to ease the peak periods of activity.

a. A very productive, albeit time-consuming, tool of work scheduling is to prepare job descriptions by functional area.

(1) The end result of a job description is to define what is to be done, when it is to be done, where and by whom. This is especially important when routine tasks need to be accomplished by transient, nonprofessional personnel such as mess attendants (MA). These job descriptions should be to the MA what the Food Preparation Worksheet is to the subsistence specialist.

(2) Once it has been established what is to be done, the next step is to determine workload demands. For example, in the MA area, i.e., scullery, dining area, serving lines, etc., the workload usually remains constant regardless of the menu. Washing trays or dishes is a function that remains fairly constant regardless if the menu is roast beef or beef stew. However; an analysis of most food service operations will reveal that workload for vegetable preparation occurs before and clean-up after the meal period.

b. While the total amount of work is fairly constant from day-to-day, there are peak periods of work that occur at definite times in the day and vary for the food production personnel. For instance, the peak workload for galley personnel usually occurs one to two hours before lunch. For the MA it may occur during and shortly after the meal.

10-5.c. Again within the MA functions, the workload is different for food serving line personnel than it is for vegetable preparation personnel. A major part of the vegetable preparation work is done before the meal periods, while work for MA on the serving line begins and continues through the meal.

d. It is essential to establish and record these peak periods to provide the necessary information required to schedule or move personnel from one functional area to another. In this way the peak workloads in the various functional areas can be evenly distributed among the food service personnel. All too often, especially in the MA areas, functional crossovers are not practiced. Normally each functional area is staffed for peak periods without considering different peak periods of other areas. This results in idle periods in some areas while at the same time other areas are at the height of their activity.

(1) The bake shop, depending on the menu, usually produces two dessert items and breakfast pastry. Afloat units also produce bread products. Although these items must be ready for the meal periods, they need not be ready before the meal periods. In other words, cakes can be finished many hours before the meal they are intended for, thus allowing more flexibility, and virtually no peaks and valleys. Conversely, peak galley production for the dinner and supper meals is timed for completion just before and throughout the meal period. This results in peaks and valleys during the workday. However, this workload can be determined by analyzing the activity of the galley production for two to three weeks. A pattern will emerge showing when the peaks and valleys occur and work effort required. With this information, an effective work schedule can be developed to facilitate the flow of work and minimize the hectic pace normally occurring during rush hour peaks.

(2) Vacant.

C. Foodservice Training. Personnel, properly trained, form the foundation of an efficient foodservice operation. A vigorous training program will result in better personnel performance and, consequently, an improved operation in terms of both production and quality of service to patrons. Equally important, it affords personnel a better opportunity for advancement, thus improving morale. Aboard ship, sufficient time is seldom available for attending shore-based schools. Because of this, it is mandatory to give close attention to the training potential in the individual commands. While methods of training vary between ship/activities, the principle of time remains constant and must be carefully allocated to satisfy foodservice training. When time requirements are established, carefully plan, execute and control training and maintenance programs.

1. Division Training Program. The primary purpose of this section is to provide assistance in the organization of a local foodservice training program. Contents will be determined by the needs of the local command. A comprehensive training program should include four means of training: correspondence courses, schools, on-the-job training, and lectures / demonstrations. In organizing a training program, remember that training is a means to an end, and that end should form the structure of the program. Decide specifically what the end or goal should be; that is, consider the foodservice areas that require increased attention and then establish an objective. Consider the following points in establishing a program tailored to your own needs: 1) Instructor aids; 2) training methods, and 3) training aids.

l0-C-1.a. Instructor Aids. The suggestions given below are intended to help upgrade and improve the level of instruction in a formal training program. Undoubtedly, the burden of instructing will fall on the foodservice division's petty officer, who may have had little formal training in the art of instructing. Aids are available, however, to improve their skill in this area.

(1) Instructor Training Schools. These schools help in developing the skills and confidence required of good instructors.

(2) Training Sessions. Sessions for instructors may be the first step in establishing a training program. There are a few principles of learning that each instructor should know. First, a great deal of self-motivation for training may not be present, in which case the instructor must provide the motivation essential to learning, e.g., self-satisfaction, promotion, recognition, etc. Second, the learning process is considerably enhanced by the use of various training methods; therefore, the use of displays, mockups, movies, slides, and other audiovisual aids is desirable. Third, it is a well-known fact that to unlearn and relearn is more difficult than to learn correctly the first time. The instructor must be sure of his facts and present them correctly. Fourth, the retention of new knowledge and skills is dependent upon repetitive exercise. The instructor must provide the time for the trainees to practice what they have learned. Last, the relationship that the instructor maintains with the trainees is important. It is easy to fall prey to the temptations of ridiculing the slow learner; by doing so, an instructor is almost certain to lose the trainee. On the other hand, the more intelligent may be lost through boredom. The instructor must, therefore, plan interesting activities related to the session for the faster learning trainees to perform while the point is being made to the slower ones.

(3) A final suggestion In solving the problem of lack of qualified instructors is to use instructors from other divisions for damage control, first aid, and firearms training. The foodservice officer should arrange with other division officers for the services of their personnel to perform specialized training.

(b) Training Methods. Most training sessions can be taught by lecture; however, this method should be combined with demonstrations when the applicable equipment, records, and other materials are available. In addition, because many professional topics correspond to actual job requirements, on-the-job training will frequently be the most effective method of training.

(1) Lecture. The lecture method of giving information orally is quick and effective if the subject matter has been thoroughly developed and organized. It is particularly useful in discussing policies and procedures and conveying new fundamental knowledge. This method is particularly useful in giving trainees background information in subject areas prior to on-the-job training. For example, in a course on bread making, such topics as baking theory and the effects of time and the conditions to which the bread dough is subjected, are well suited to a presentation by this method; however, for effective retention, the demonstration or training phase of instruction should follow soon after.

l0-C-l.b.(2) Demonstration. Use dramatization to give emphasis to a specific subject. Demonstration promotes interest through observation and stimulates a faster acquirement of skills. When using this method, remember that prior planning and organization are necessary- -everything that is part of the demonstration must be ready. If time permits, the demonstrator should rehearse before a knowledgeable spectator who can determine whether the presentation "comes across." This method is suitable for teaching trainees equipment operation; how to prepare reports, requisitions or similar forms; and how to perform other duties that have a set procedure or definite standard. When used in conjunction with a lecture, present sufficient information to familiarize the trainees with the subject and prepare them for the demonstration. Ir' conducting the demonstration, the instructor must be exact, sincere and explain each step and show why it is important to the overall operation. Periodically, questions should be asked by the instructor to see whether the trainees understand the demonstrated steps. Be sure everyone understands all the materials and steps covered. After a demonstration, conduct a practice session So the trainees put into practice what they have learned.

(3) On-the-Job Training. This method is individually oriented and is done while a person is engaged in normal work activity. It is usually accomplished under informal conditions with small groups and should take place where the job is actually performed. On-the-job training helps to correct weaknesses in job performance and is useful when new products d methods are introduced or to explain a change to an established procedure. it is the best method for teaching complex operations. ideally, precede on-the-job training by classroom training to give the trainee a thorough understanding of the subject matter. Guidelines for on-the-job training are the following: prepare the learner (tell); demonstrate the correct techniques (show); tryout performance by the trainee (do); follow through (check up).

(4) Role Playing. Includes participation of the trainees in the enactment of a play or episode, followed by a group discussion. This method is particularly useful in developing the poise and tact required of wardroom dining facility foodservice personnel and mess attendants. The instructor describes a situation, has the trainees play the parts and lets the class analyze the episode.

(5) Conferences. Conferences have value in changing attitudes, extending practical knowledge through the experiences of others and correcting misunderstanding This method is effective with experienced FSs for resolving problems, stimulating ideas and for establishing or changing policy.

c. Training Aids. Training aids that are properly constructed and used, are valuable to any training lesson. In addition to illustrating or demonstrating the subject matter, training aids stimulate and hold the interest of the trainees; however, it should be borne in mind that training aids only reinforce the instructor, they do not replace him. The following training aids are mainly for use in a training situation.

l0-C-1.c.(l) Printed Material. Printed materials such as books, pictures, drawings, etc., are valuable to learning because they provide easy reference material; however, these aids should not be used as a substitute for teaching. Reading or passing out material to trainees and then asking a few questions about the material is a waste of valuable time that could be put to better use. Printed material should be passed out or assigned for reading before the class session so the trainees can study the material to gain basic information about the subject matter. For example, if the subject training session is table setting, the appropriate material should be assigned to the trainees as required reading. This will lay the foundation for proper table setting and help the trainees follow the presentation.

(2) Training Films. Training films are extremely useful as training aids to present a information and to demonstrate skills or techniques. Before showing, the film should be previewed by the instructor and notes made of the main points and of those portions of the film that are of particular importance. The film should be introduced to the class; give the title, the reasons for showing it and alert the trainees to those portions of particular importance. After the film has ended, discuss it, summarize it, and clear up any misunderstanding the trainees may have.

(3) Specialized Personnel. A person having expertise in a particular field or area being covered in a class session is a very valuable training asset. These specialized personnel offer experience and knowledge in their field that can develop trainee enthusiasm for the subject. For example, an expert on manpower usage can demonstrate proper techniques of work flow that can be practiced on the job; an expert storekeeper can explain inventory procedures; and an expert parry cook could demonstrate the fine points of preparing pies that would be Impossible to learn from a recipe card. These people add to the training program by inspiring a desire for learning the subject.

(4) Chalkboards and Charts. To gain the most effective use from a chalkboard, haven much of the class material as possible written on it before the session began:. When writing new material, do it quickly, and try to avoid getting in the trainees' line of vision or writing with your back to the clan. Charts are valuable as permanent aids since they can be prepared in advance and are easily moved around; however, to be effective, they should simple, the material understandable at first glance, and the lettering and illustrations large enough to be easily read or recognized. Charts are quite effective in presenting such material as enlargements of forms, diagrams of equipment, or illustrating the sequence of steps in a procedure.

(5) Job Sheets. A job sheet tells the trainees how to do a job, or how to operate equipment. Directions should consist of the major steps involved and should be arranged in the order to be performed. In a training program, job sheets are useful as: 1) operating instructions posted near appropriate equipment to guide those operating the equipment; 2) trainee instruction sheets for on-the-job training; and (3) as check-off sheets to prepare trainees for advancement.

a. Summary. The assurance of effective and efficient use of manpower can only be accomplished through an interest in people. Personnel, the most important resource available, must get as much attention as records, returns and food. Use of the principles in this chapter should provide the tools for assuring effective manpower use. These management principles do not replace leadership but are a tool of leadership.