DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
CG-4005 (REV. 8-79)

SMALL PASSENGER VESSEL SIMPLIFIED SUBDIVISION CALCULATION

(In accordance with 46 CFR 178.20-1)

Name of Vessel _____ Official No. _____ Route _____

Owner or Representative Present at Measurement _____ Inspector _____ Date _____

Location of Vessel at Time of Measurement _____ No. of W.T. Bhds. _____ No. of Passengers _____

INSTRUCTIONS

1. The vessel is to be in maximum load condition except that the fuel and water tanks are to be three-quarters full. Ballast, if required, is to be on board and in place. A capacity load of passengers, crew, cargo, vehicles, stores, etc., is to be on board (or weight equivalent thereto) in proper location.

2. The vessel is to be afloat in water of a density not greater than that of the route for which she is to be certificated, i.e., salt water or fresh water.

3. The vessel is to be in her normal trim, i.e., at a waterline established by the normal distribution of the weight on board. If there is a slight list it is to be corrected by a transverse movement of some of the weight on board so that the vessel is upright in the water.

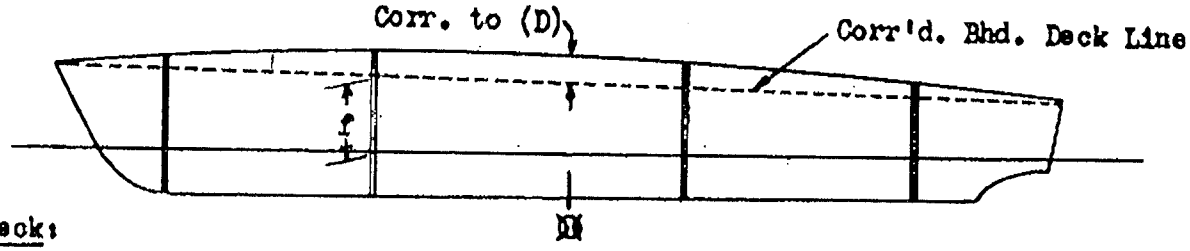
4. The measurements specified on sheet 4 are to be carefully taken and recorded as indicated in steps (5) or (6) as applicable to the type of vessel. The length (L) is the length of the hull proper, measured over the bulkhead deck, and shall not include fishing platforms, bowsprits, guards, etc. The depth (D) is especially important and should be double-checked. If this particular dimension cannot be measured amidships, as required, due to obstructions, etc., it is to be made at points fore and aft of, and equidistant from amidships and the mean thereof shall be recorded as (D). The beam (B) shall be measured amidships to the outside of the hull and shall not include the guards. The freeboards (f) shall be measured at the bulkheads from the load waterline to the top of the bulkhead deck at the side. The distance from the stem to each bulkhead shall be indicated on the plan in the same manner as bulkhead "A".

5. If the vessel has no portlights which can be opened and is flush decked with normal sheer or no sheer, record the dimensions on sheet 4 and proceed as indicated in step (7).

6. If the vessel has portlights which can be opened, or if it is flush decked with reverse sheer, or if it has a raised deck forward (as in the case of the typical cockpit boat), do not use the sketch on sheet 4. Instead, prepare to accurate scale a profile of the hull above the load waterline, locate the bulkheads, and the portlights, if any, draw in the "corrected bulkhead deck line" as shown on sheets 2 or 3, and then proceed as indicated in step (7).

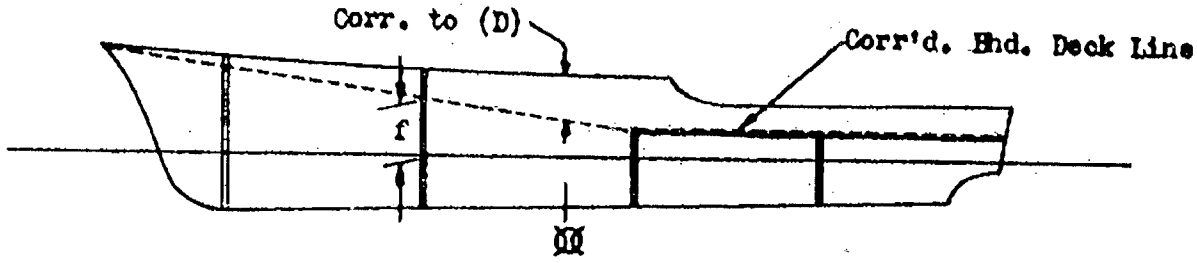
(a) For Reverse Sheer:

Draw a straight line from the stem (at the top of the bulkhead deck) to the stern (at the top of the bulkhead deck at the side) to establish the "corrected bulkhead deck line".



(b) For Raised Deck:

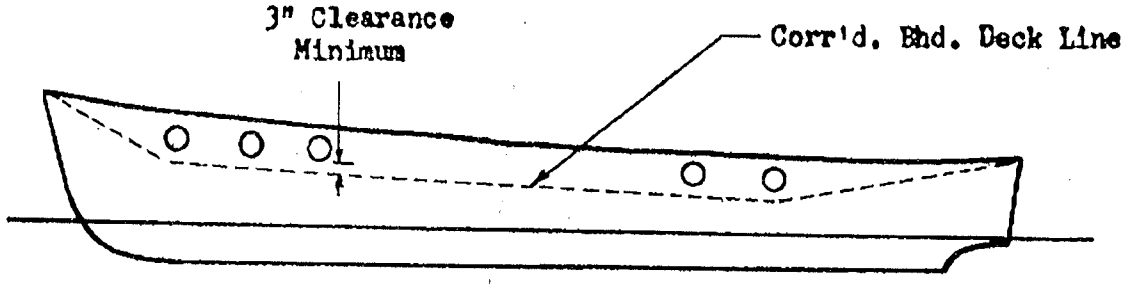
Draw a straight line from the bulkhead deck at the stem to the top of the foremost of the bulkheads which extend to the lower bulkhead deck, to establish the "corrected bulkhead deck line".



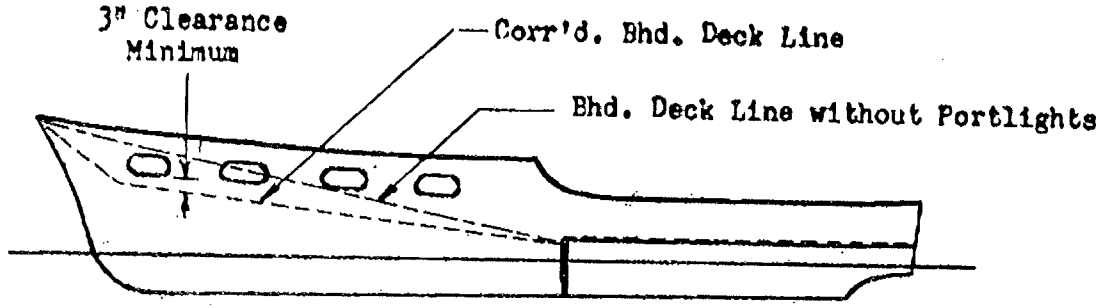
(c) For Vessels of Any Type Having Portlights Which Open:

The "corrected bulkhead deck line" shall be a line which extends from the stem at the actual bulkhead deck, passes not less than 3 inches below the portlights and thence to the stern at the actual bulkhead deck. This line shall not be, at any point, above the corrected bulkhead deck line which would be indicated for the same hull if portlights were not installed.

FLUSH DECK TYPE:



RAISED DECK TYPE:

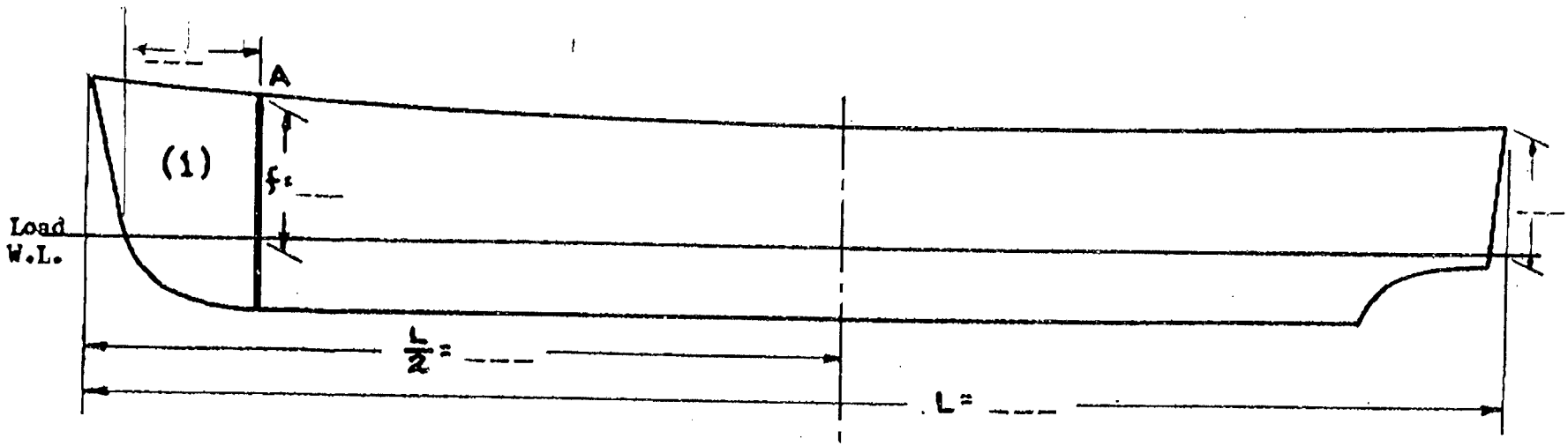


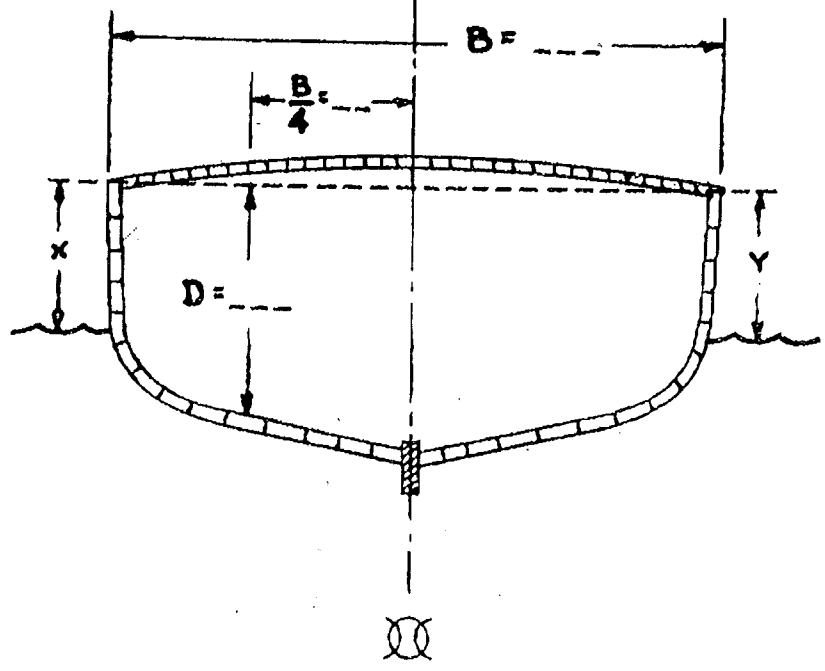
The freeboards at each bulkhead are to be scaled, on the drawing, to this corrected bulkhead deck line. Also, the distance amidships measured from this line upward to the top of the actual bulkhead deck at the side shall be deducted from the depth (D), which was measured as shown on sheet 4, to obtain the correct (D) to be used with these types of hulls.

7. From the dimensions recorded on sheet 4 (or on the specially prepared profile) and the factors listed below, complete the table on sheet 5. The actual compartment lengths should not exceed the calculated permissible compartment lengths -OR- L/3 whichever is the least. The nomograph on sheet 6 may be used to check results.

MIDPOINT OF COMPARTMENT IN PERCENT (L) FROM BOW	FLOODABLE LENGTH FACTOR
0-15%	.33
20	.34
25	.36
30	.38
35	.43
40	.48
45	.54
50	.61
55	.63
60	.58
65	.53
70	.48
75	.44
80	.40
85	.37
90-100	.34

Name of Vessel_____ Official No._____





1. Draw in other W.T. bulkheads. Indicate distance from stem and freeboard for each as shown for Bulkhead "A".

2. Freeboards "x" and "y" Amidships must be equal.

3. Record all dimensions in feet and tenths.

4. Indicate water density at time of measurement.
   ☐ Salt ☐ Brackish ☐ Fresh

$\frac{L}{D}$ = ___ = ___

Maximum Length of Any Compartment
$\frac{L}{3} = \frac{\quad}{3} =$ ___

Name of Vessel _____ Official No. _____

1	2	3	4	5	6	7	8	9	10	11
Compt. No.	Boundary Bhds.	Dist. Stem/Bhd sheet 4	Dist. Stem/Bhd (as % L) Col.3x100 / L	Freeboard (f) sheet 4	Midpoint of Compt. (as % L) Avrg. of 2 in Col. 4	Floodable Length Factor sheet 3	Effective Freeboard Avrg. of 2 in Col. 5	L/D sheet 4	Permissible Compt. Length Cols. 7 x 8 x 9 NOT to exceed L/3 = _____ ft.	Actual Compt. Length Diff. of 2 in Col. 3
1	Stem	0	0						*	
	A									

Tested and Proven Watertight

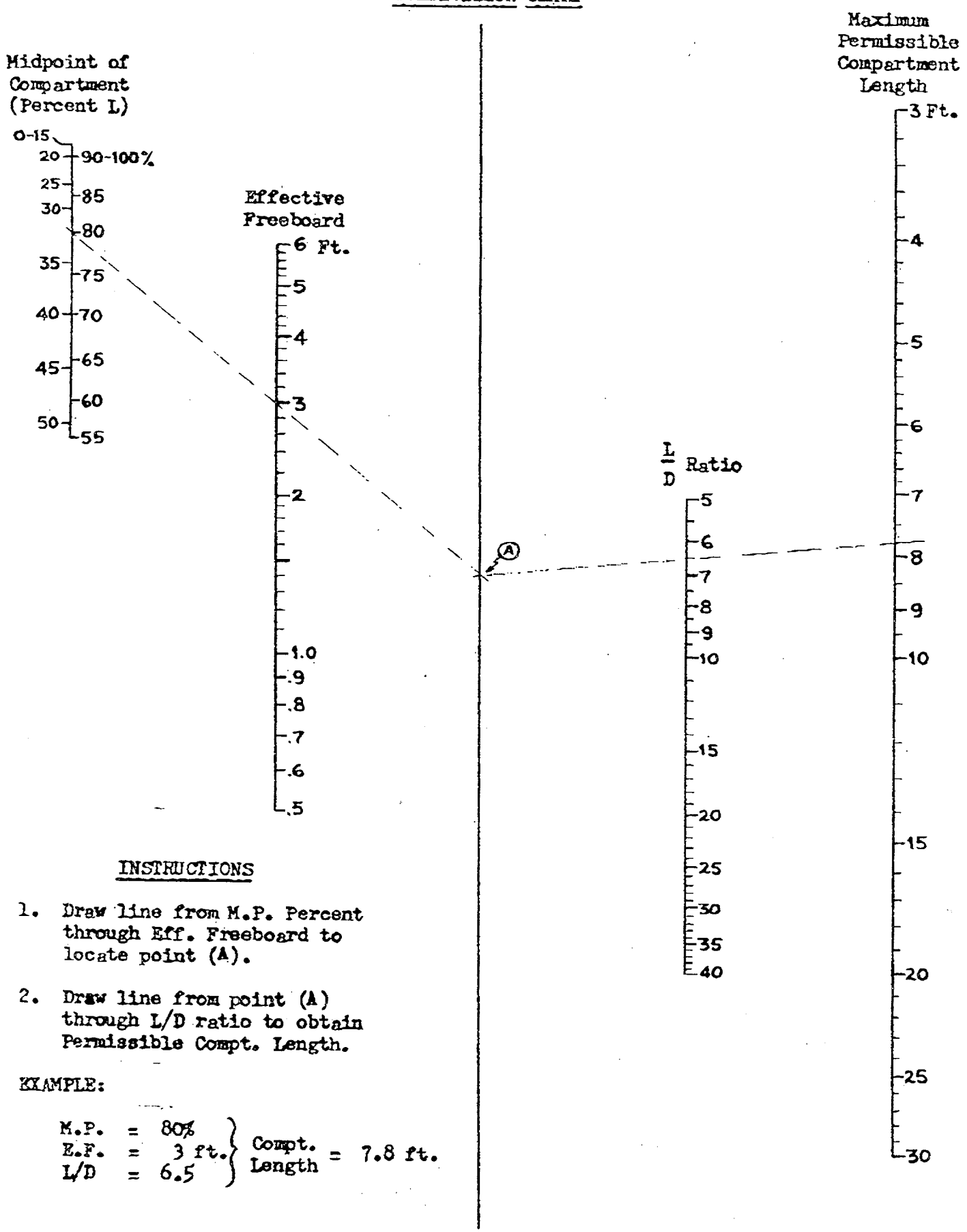
_____
Marine Inspector

*-OR- as required by 46 CFR 178.15-1, whichever is least.

Measured and Computed by

_____
Marine Inspector

SUBDIVISION CHART



INSTRUCTIONS

1. Draw line from M.P. Percent through Eff. Freeboard to locate point (A).

2. Draw line from point (A) through L/D ratio to obtain Permissible Compt. Length.

EXAMPLE:

M.P. = 80%
E.F. = 3 ft.
L/D = 6.5
} Compt. Length = 7.8 ft.

GPO 945-169