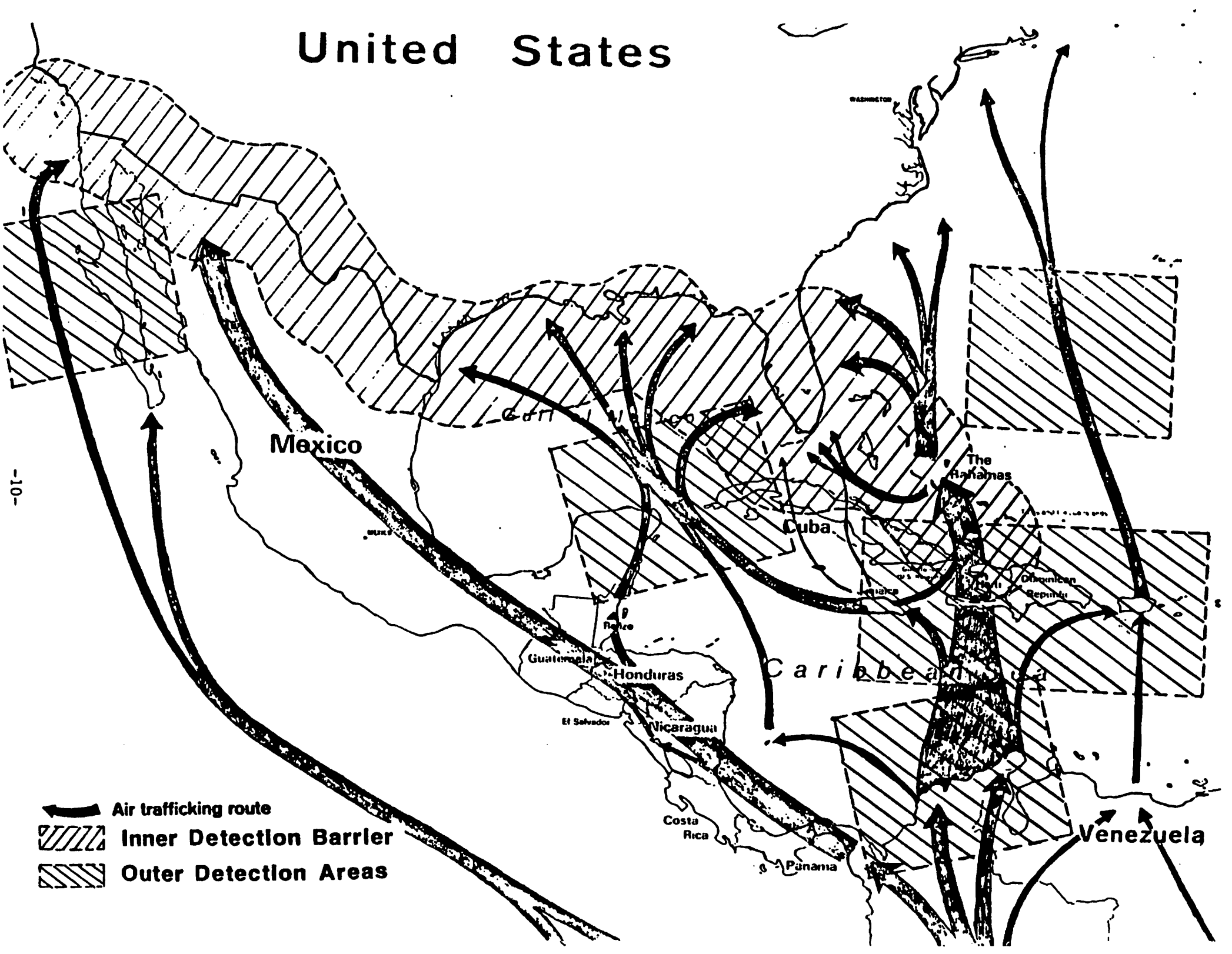
MAR. 1 6 1989

U S COAST GUARD

AIR INTERDICTION PROGRAM


United States
Mexico
Cuba
The Bahamas
Dominican Republic
Haiti
Jamaica
Belize
Guatemala
Honduras
El Salvador
Nicaragua
Costa Rica
Panama
Venezuela
Caribbean Sea
Air trafficking route
Inner Detection Barrier
Outer Detection Areas

AIR INTERDICTION STRATEGY

- For both maritime and air, smuggling routes are divided into 3 distinct zones:

  Departure Zone - the source country where transshipment begins.

  Transit Zone - the central transit area.

  Arrival Zone - Areas along the border of, or internal to, the U.S.

- Coast Guard efforts/objectives vary from zone to zone.

  Departure Zone - gather intelligence, attempt to identify smuggling vessels/aircraft, when they depart, and their course and speed.

  Transit Zone - attempt to locate suspicious targets identified in the departure zone. Attempt to interdict vessels before the bulk cargo can be subdivided and dispersed to smaller vessels. Attempt to identify and track suspect aircraft until the Arrival Zone.

  Arrival Zone - attempt to seize the aircraft upon landing. If airdropping the contraband and departing U.S. airspace again, attempt to coordinate apprehension with foreign authorities. Intercept and seize vessels that have slipped thru or are receiving airdropped contraband.

- Air smuggling, unlike maritime smuggling, is not confined by depth of water. The natural geographic "choke points" which exist for maritime smuggling do not apply to air smuggling.

- The time available to interdict air smuggling can be incredibly short. In addition, an aircraft cannot be boarded and searched while en route. It must be on the ground to be apprehended.

- Due to the large numbers of clandestine airfields in the source countries, the lack of law enforcement authority to interdict in foreign countries, the absence of radar detection facilities, and other reasons, the Departure Zone was rejected as a theater for air interdiction. However, developing and improving intelligence assets in the source and transshipment countries would improve the chances for interdiction in other zones.

AIR INTERDICTION STRATEGY (Cont'd)

- The size of the Transit Zone, the lack of physical "choke points", the inability to "board" an aircraft while en route, and limited resources, all combine to make extensive air interdiction operations in the Transit Zone infeasible at this time. However, limited operations in this area can be effective in increasing the early warning time and thus increasing the probability of apprehension in the Arrival Zone. Some additional benefits to be derived from limited operations in the Transit Zone are the psychological effects on the smugglers if they know they are subject to detection at any point after takeoff, and the ability to deploy a detection resource to any point in the Transit Zone to determine air smuggling patterns, trends, and volume.

- Detection, tracking and apprehension in the Arrival Zone is considered the most economically feasible at the present time. However, a smuggler can land and offload virtually anywhere within this very large area, which makes apprehension a major challenge.

- Special, interagency, international, coordinated operations are also conducted near the primary source and transshipment countries to apply additional pressure on the smuggling organizations. This increases the feeling of vulnerability to detection during the entire transit rather than in particular areas.

- A proposed Coast Guard concept of operations for maritime air interdiction was provided to the National Drug Enforcement Policy Board on July 30, 1986. It presented what the Coast Guard determined to be the best means of providing early detection over the maritime region.

- Early detection is necessary to allow apprehension forces time to be in position for the handoff and apprehension of air smugglers at a reasonable cost. It was intended that the Coast Guard would hand off suspect aircraft to Customs Service aircraft in the vicinity of the U.S. coast. However, if necessary, the Coast Guard could also hand off suspect aircraft further inland, or directly to other apprehension forces on the ground.

- The specific strategy selected was based on air defense doctrine and principles developed by the U.S. Air Force, since a proven military air defense doctrine would apply to an air interdiction program focused on air smugglers.

- The concept of operations focused upon the use of an "Inner Detection Zone" or barrier composed of fixed detection assets forming an unbroken chain along the southern tier of the United States, and "Outer Detection Areas", composed of mobile detection assets that provide the depth of force and flexibility needed to respond to a changing threat. (The following Chart shows the Inner Detection Zone and examples of the flexible Outer Detection Areas.)

AIR INTERDICTION STRATEGY (Cont'd)

- Given the offensive advantage that an air smuggler has against a fixed, reactive air defense system, the air smuggler can concentrate on identified weak points in the fixed, reactive line of defense, and can capitalize on these weaknesses.

- Adding mobile detection/control assets to a system of fixed defensive assets allows the air interdiction system to project defensive capability rapidly, over great distances, and at will, keeping a smuggler's operations off balance.

- Resources that were considered in the Coast Guard's Concept of Operations for their air search capability were:

  - **FIXED RADAR SITES** - Existing land based radars used by the Federal Aviation Administration (FAA) and the Department of Defense (DOD) for air traffic control and elementary early warning. These existing radars provide radar coverage that is restricted to their immediate vicinity, and are generally ineffective against low flying aircraft. The air smugglers know this and use it to their advantage.

  - **LAND BASED AEROSTAT RADARS** - Radars installed in large aerostat balloons, which are flown at altitudes up to 10,000 feet and moored to facilities on land. There are three in current use - one at Cudjoe Key near Key West, FL; one at Patrick AFB near Cape Canaveral, FL; one at High Rocks on Grand Bahama Island.

  - **PLATFORM BASED AEROSTAT RADARS** - While there are none in existence, the technology exists for these resources. They are simply land based aerostats which are moored to and operated from an offshore platform. Moving the aerostats offshore enables their radars to detect air targets at greater distances from the shoreline, and provides valuable additional time for identifying, intercepting and apprehending resources. In addition, because of the geography of the Gulf of Mexico, moving the aerostats offshore allows for deeper, unbroken radar coverage of the gulf shore using only three or four.

  - **AIR SEARCH CAPABLE SURFACE PLATFORMS** - Includes air search capable USN and USCG vessels. Due to the relatively limited radar range and high cost of these resources, no new air search capable surface platforms or upgrades of existing platforms are being requested.

AIR INTERDICTION STRATEGY (Cont'd)

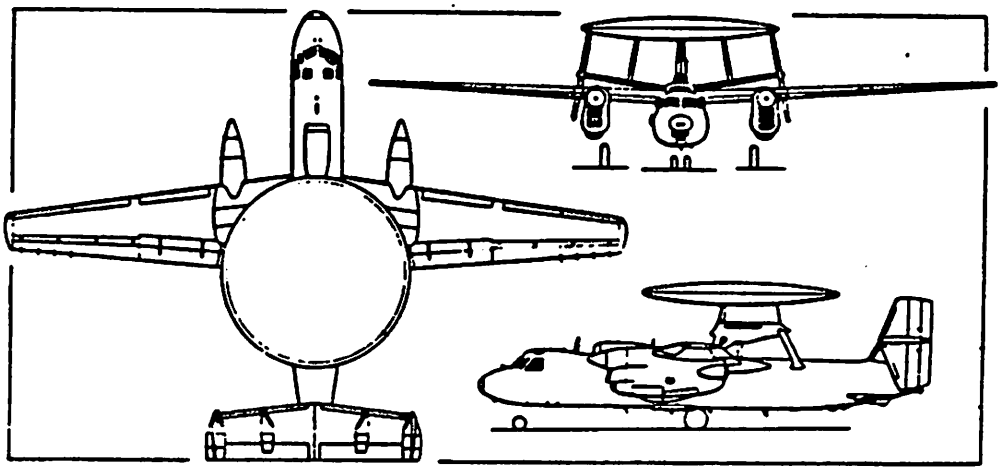
- o **SEA BASED AEROSTAT RADARS** - These are similar to the land based aerostats, but are much smaller and are not capable of flying the balloons above 2500 ft. Because of this, their radar coverage area is less. However, the they are mobile, and thus provide flexibility in the deployment of detection resources to meet a fluid threat. They can be deployed well offshore to increase the depth of radar detection in a particular area on a short or long term basis, as needed. They are also high endurance platforms, able to operate for approximately thirty days at a time. Eight of these, equipped for surface surveillance only, are already planned for the next two years. The procurement contract specifies that the Coast Guard has the option of also installing a dual mode surface/air search radar.

- o **AIR SEARCH CAPABLE AVIATION ASSETS** - Includes DOD aircraft equipped with long range 360 degree air search radar. Some examples are the USN E-2C and USAF E-3 Airborne Warning and Control System (AWACS) aircraft.

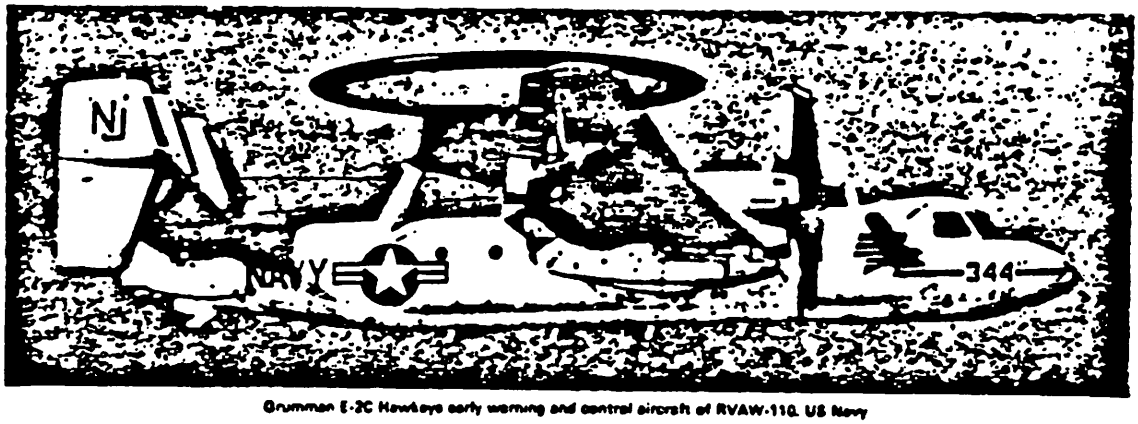
- Besides air surveillance aircraft, other long range detection resources, such as Lighter-Than-Air (LTA) airships, Over-The-Horizon (OTH) radar, and Satellite Imagery were considered. All are presently in the developmental stage and would not be available for several years.

- Command, Control, Communications and Intelligence (C^3I) Centers are essential to coordinate efforts by all air interdiction forces. They are ~~would be~~ responsible for gathering intelligence and detection information from all available sources, sorting radar contacts, scrambling interceptors, vectoring intercept and tracker resources, and coordinating apprehension.

E-2C AIRBORNE EARLY WARNING (AEW)/COMMAND AND CONTROL (C^2) AIRCRAFT:



Grumman E-2C Hawkeye twin-turboprop airborne early warning aircraft *(Pilot Press)*



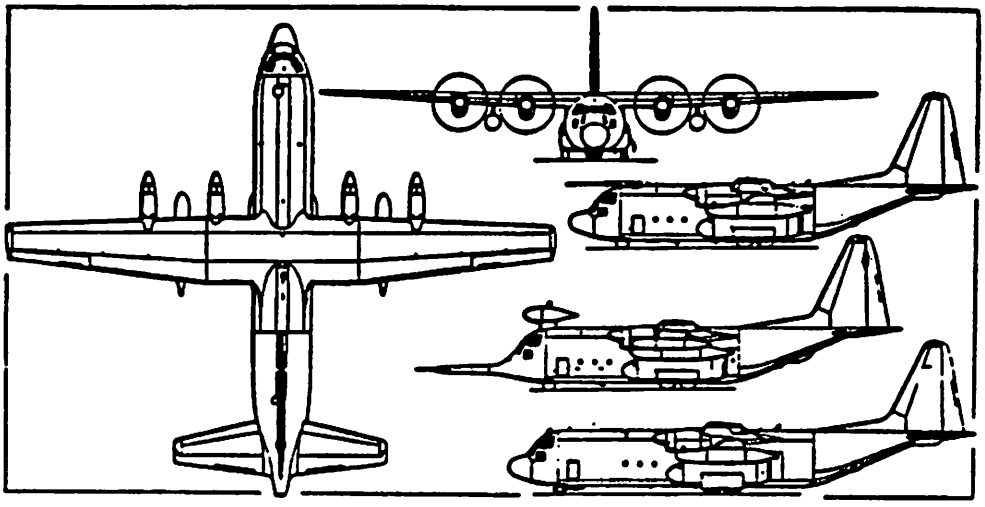
Grumman E-2C Hawkeye early warning and control aircraft of RVAW-110, US Navy

The E-2C "Hawkeye", built by Grumman Aerospace Corporation of Bethpage, NY, is a twin-turboprop, all-weather, carrier based aircraft specifically designed as an AEW/C^2 system. It has a substantially strengthened airframe to absorb the punishment of carrier catapult launches and arrested landings, and the fuel capacity has been limited due to gross take-off and landing weight considerations. The current E-2C and its immediate predecessors have been in continuous operational service since 1965. The design mission of this aircraft is to detect unknown airborne targets over the horizon from the aircraft carrier task force.

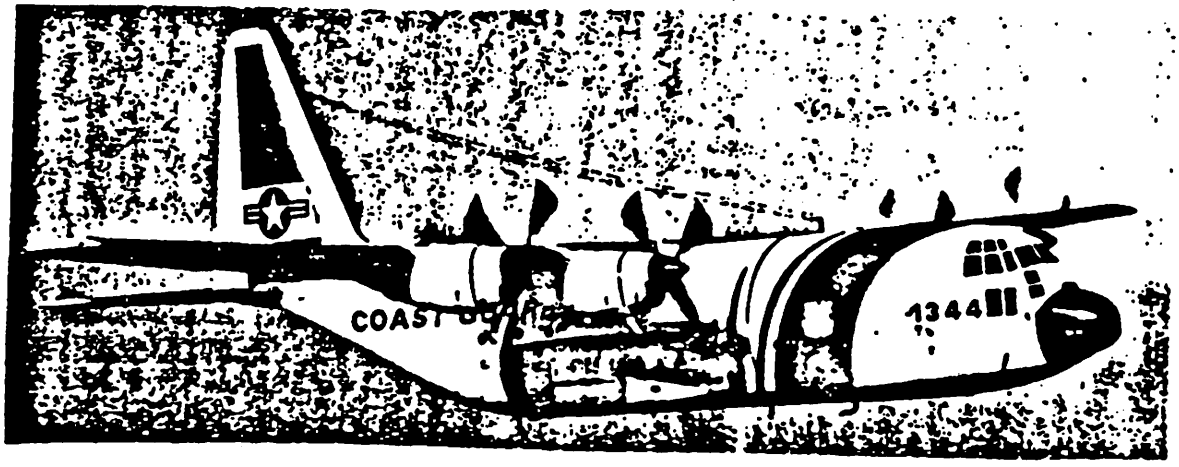
To provide the maximum radar and passive detection radii possible, the E-2C normally operates at 25,000 - 30,000 feet. Operating at lower altitudes reduces the detection ranges of all sensor systems on the aircraft. It also reduces an already limited endurance.

1. Cruise: 270 kts. Patrol Speed: 215 - 240 kts at 25,000.
2. Max patrol endurance: 5 hours at 25,000 feet.
3. Max mission radius (no time on station): 600 nm at 25,000 feet.

C-130 AIRBORNE EARLY WARNING (AEW)/COMMAND AND CONTROL (C^2) AIRCRAFT:



Lockheed C-130H-30 'stretched' Hercules with upper side view of C-130K (RAF C. Mk 1) and centre side view of W. Mk 2 *(Pilot Press)*



The C-130 series of aircraft was developed by Lockheed Corp. as USAF cargo aircraft; has undergone numerous changes as additional missions were found suitable. Lockheed has begun development of a AEW C-130 with the APS-138 radar system and display consoles installed in the cargo hold. Initial wind tunnel testing of a model of the C-130 AEW was completed in September 1985.

With radome installed, estimated C-130H performance would be:

1. Cruise: 270 kts. Patrol Speed: 270 kts at 25,000.
2. Max patrol endurance: 12 hours.
3. Max mission radius (no time on station): 1,950 nm.

U.S. COAST GUARD C-130 AEW MISSIONS

PRIMARY MISSION (Drug Interdiction)

- Detect and track small general aviation aircraft and surface vessels
- Control intercept aircraft
- Gather intelligence
  - ELINT
  - Communications monitoring

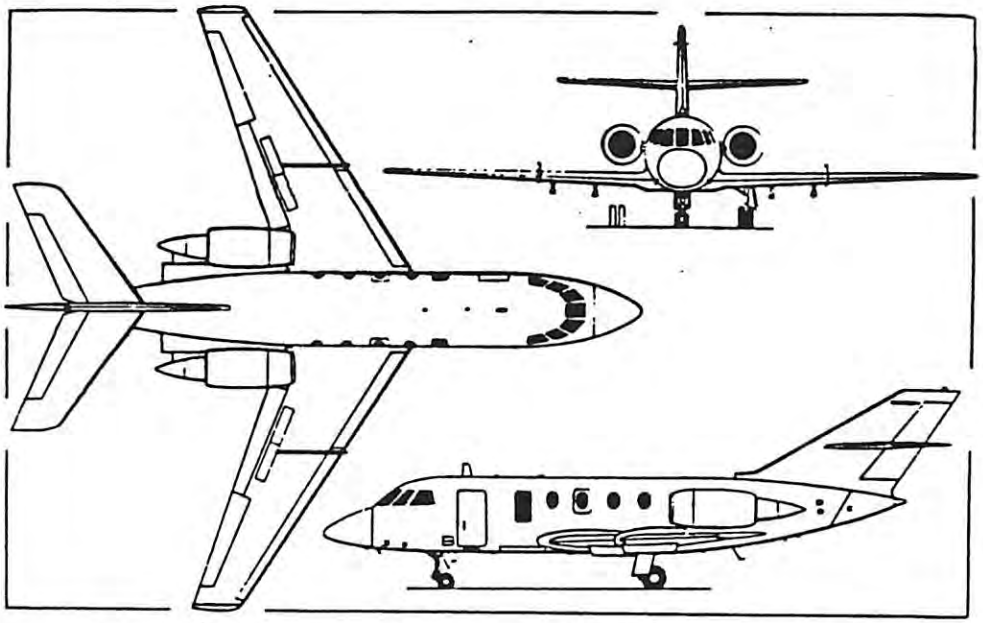
SECONDARY MISSIONS

- Maritime Defense Zone (MDZ) Command and Control
  - Command & control of MDZ assets in medium/low threat environment

- Surface Search & Rescue
  - Radar search
  - Command & control of search/rescue units

- Logistics support
  - Primarily self-support while on AEW deployed missions
  - Logistics support for other missions, but <u>not</u> to impair primary mission

COAST GUARD HU-25 INTERCEPTOR AIRCRAFT:

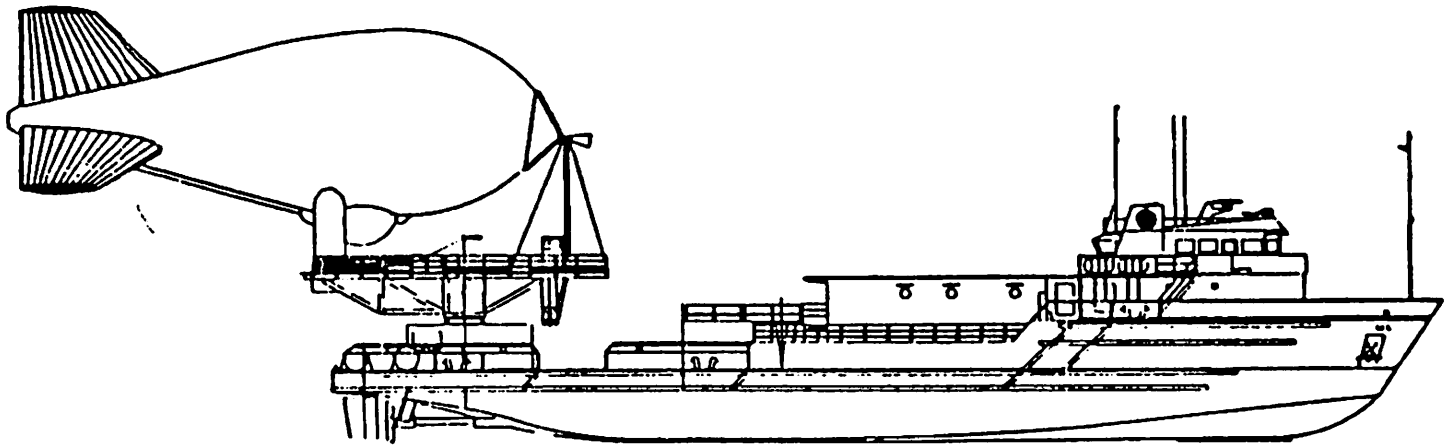


Dassault-Breguet HU-25A Guardian (two Garrett ATF 3-6-2C turbofans) *(Pilot Press)*

The HU-25A Guardian was purchased from Falcon Jet Corporation to meet requirements for a medium range surveillance aircraft. The Coast Guard has modified nine of the aircraft (designated HU-25C) with air intercept radar (APG-66), FLIR (WF-360), and ANVIS-6 Night Vision Goggle compatible cockpits. These nine aircraft intercept and track suspect drug smuggling aircraft.

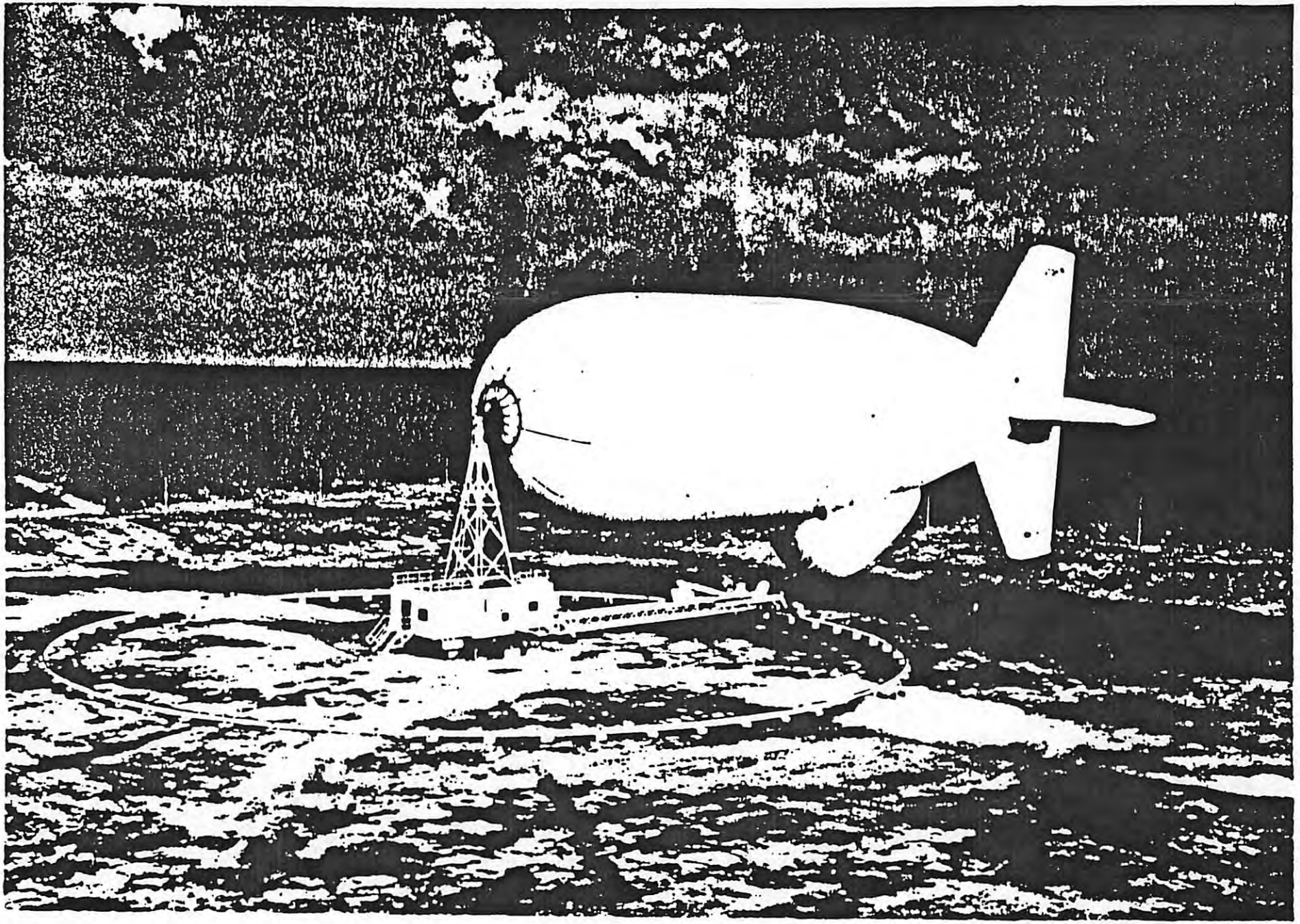
HU-25C performance:
1. Cruise: 410 kts at 40,000 feet
2. Max patrol endurance: 4.5 hours
3. Max mission radius (1/2 hour on station): 800 nm

SEA BASED AEROSTAT



SBA OPERATIONAL SCHEDULE:	ON PATROL 27 DAYS, INPORT 3 DAYS 4 OF 5 SYSTEMS OPERATIONAL AT ANY GIVEN TIME
OPERATIONAL ALTITUDE:	0 TO 2500 FEET
CREW:	10 CIVILIAN/9 MILITARY
RADAR SYSTEMS #2 - #5:	AN/APS 143(V)2 W/AIR & MARINE SURVEILLANCE CAPABILITY TO 60NM
RADAR SYSTEM #1:	AN/APS 128J WITH MARINE SURVEILLANCE CAPABILITY ONLY

LAND BASED AEROSTAT

<u>OPERATING PARAMETERS</u>:

OPERATING ALTITUDE:	10,000 TO 15,000 FEET
DETECTION RANGE:	150 NM
SCHEDULE:	24 HOURS/DAY, 7 DAYS/WEEK
CREW:	CONTRACTOR OPERATED AND MAINTAINED BY APPROXIMATELY 33 PEOPLE
TARGET INFO:	DATA LINKED TO C3I CENTER IN MIAMI, FL
RADARS:	WESTINGHOUSE: TPS-63 GENERAL ELECTRIC: L-88