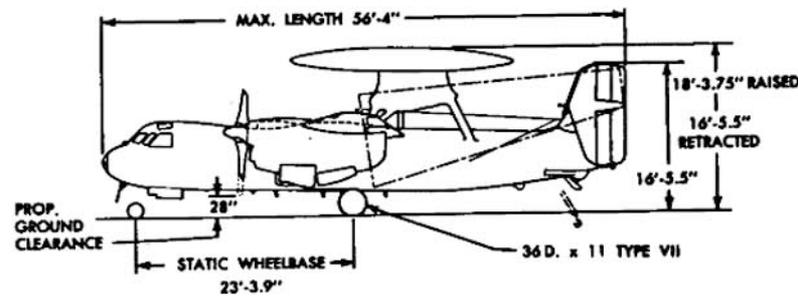
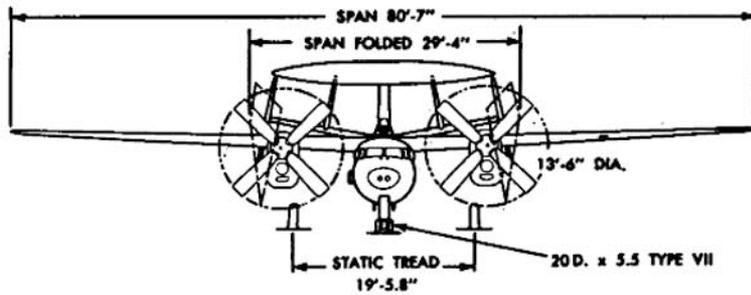
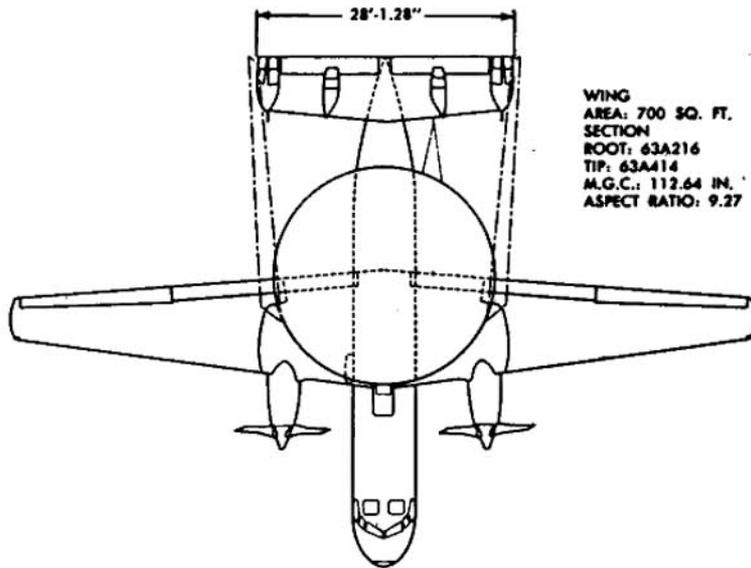


STANDARD AIRCRAFT CHARACTERISTICS

E-2A HAWKEYE

GRUMMAN

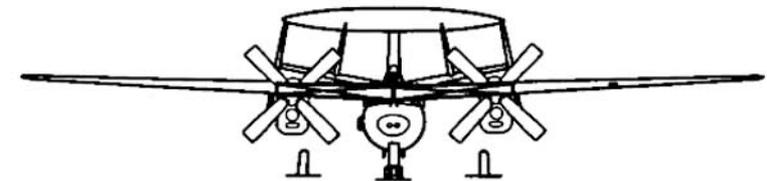
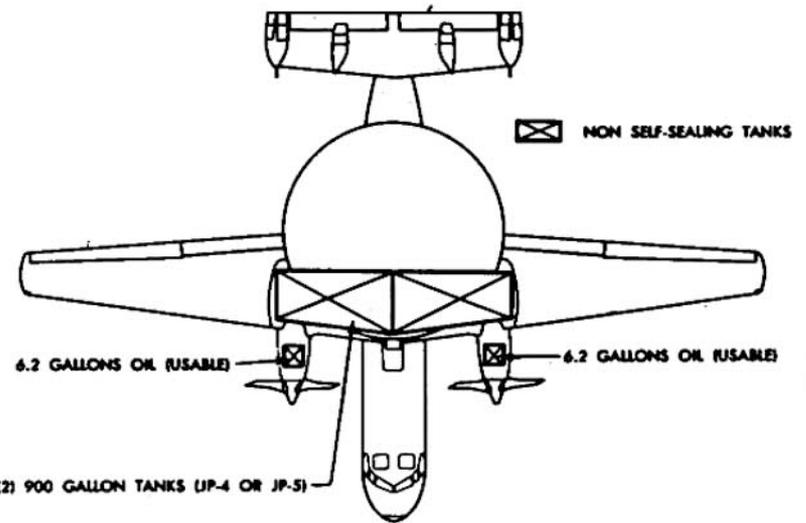
BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT



DESCRIPTIVE ARRANGEMENT
E-2A



BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT



ARMAMENT AND TANKAGE
E-2A



POWER PLANT

Number & Model.....(2) T56-A-8
 Manufacturer..... Allison
 Prop Gear Ratio..... 12, 49:1
 Number of Blades..... 4
 Propeller Diameter..... 13, 5 ft.
 Prop Manufacturer..... Aero Products
 Prop Blade Design..No. A6441 FN-248

RATINGS

	ESHP	SHP	RPM
T. O.	4050	3755	13820
MIL	4050	3755	13820
Normal	3730	3443	13820

Engine Specification..... No. 458-B
 Dated 1 August 1960.

ELECTRONICS**GFE ELECTRONICS**

AFCS.....AN/ASW-15
 Radar Set.....AN/APS-96
 Computer Detector.....CP-413/ASA-27
 Computer Indicator Group..AN/ASA-27
 L. F. Auto. Dir. Finder..AN/ARD-13
 Navig. Display Ind.....IP580/A
 TACAN Encoder.....CV-954A
 Air Data Computer.....A/A24G-13
 In-Flight Perf. Monitor..AN/ASM-33
 Inertial Navig. Sys.....AN/ASN-36

GFE ELECTRONICS

Data Transmission Sys..AN/ASW-14A
 (For automatic interceptor control)
 Multi-Purpose Communication
 System.....AN/ASQ-52(XN-1)
 Doppler Navig. Radar Set..AN/APN-122
 Intercommunication Set.....AN/AIC-14
 Radar Altimeter.....AN/APN-22
 IFF Interrogator.....RT-2610/APX-7
 (Modified For operation with ATDS)
 Integrated Electronic Control
 CNI Package.....AN/ASQ-58

MISSION AND DESCRIPTION

The Grumman E-2A is an all weather carrier based AEW/CIC aircraft. The primary mission of the airplane is to maintain a duty station at some distance from a Task Force, provide early warning of approaching enemy aircraft, and to vector interceptors into attack position. It is designed to carry a five man crew: pilot, co-pilot, radar operator, air control operator, and combat information center operator.

The E-2A contains a specialized complement of electronic equipment designed to permit search, identification, and tracking of 250 targets, and control of 30 intercepts by three operators. The interior is arranged to facilitate interchange of crew positions in flight.

The E-2A is powered by two T56-A-8 turbo-prop engines and is equipped for catapult and arrested landing operation. The airplane is capable of operating from all angle-deck CVA-19 class and larger carriers. The high wing, and the tail which is equipped with four vertical stabilizers, are mounted on a fully pressurized cylindrical fuselage. Appearance of the aircraft is characterized by a 24-foot diameter rotodome which can be partially retracted for hangar deck stowage. The E-2A is equipped with a slotted type flap and powered flight controls.

DEVELOPMENT

First Flight.....October 1960
 Service Use (estimated).....March 1964

WEIGHTS

	LBS.	Load Factor
Empty Design	35,477	
Basic	41,996	3
Combat (60% fuel)	35,572	
Max. T. O. (Field)	44,199	
(Cat)	49,052	
Landing (Field) (48.3% fuel)	42,779	
(Arrest) (40% fuel)	49,052	

All weights are based on actual weight and balance RPT #3851H, dated September 22, 1962.

FUEL AND OIL

No. Tanks.....(2) Integral
 Location.....C. S. Wing
 Total Capacity.....1784 gals. (usable)
 Fuel Grade.....JP-4 or JP-5
 Spec (Applicable).....MIL-F-5624C-1

OIL

Capacity.....12.4 gals. (usable)
 Spec (Applicable).....MIL-L-7808

DIMENSIONS

Wing Area.....700 sq. ft.
 Span.....80 ft. - 7 in.
 Span Foiled.....29 ft. - 4 in.
 MGC.....112.64 in.
 Length.....56 ft. - 4 in.
 Height, Rotodome raised...18 ft. - 3.75 in.
 Height, Rotodome retracted..16 ft. - 5.5 in.
 Tread.....19 ft. - 5.8 in.
 Prop Clearance.....28 in.
 (3 point attitude)

ORDNANCE

None

PERFORMANCE SUMMARY

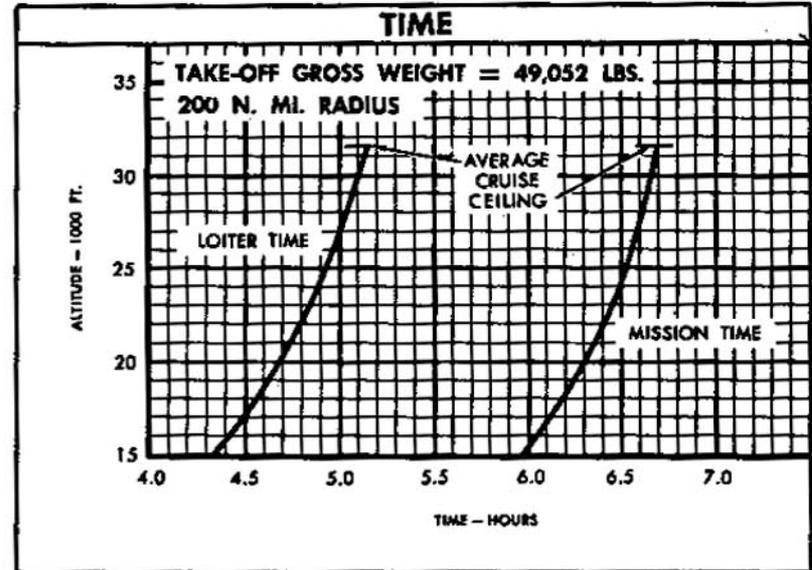
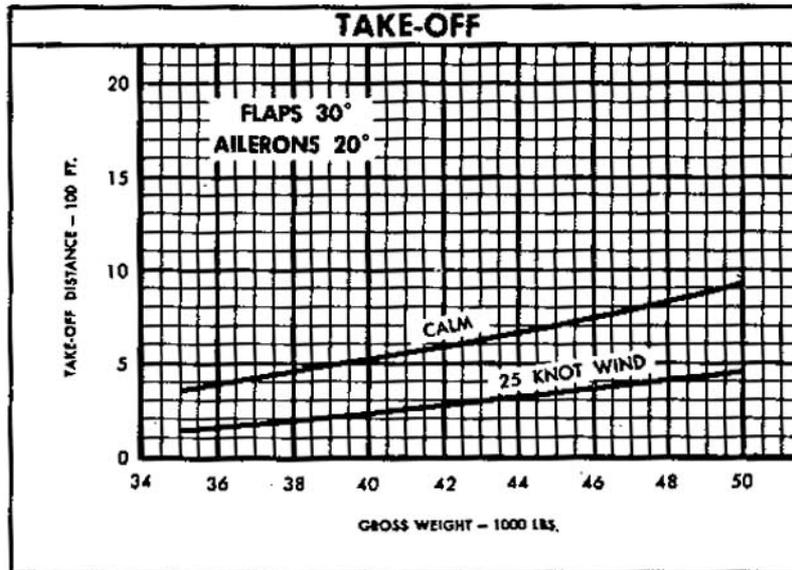
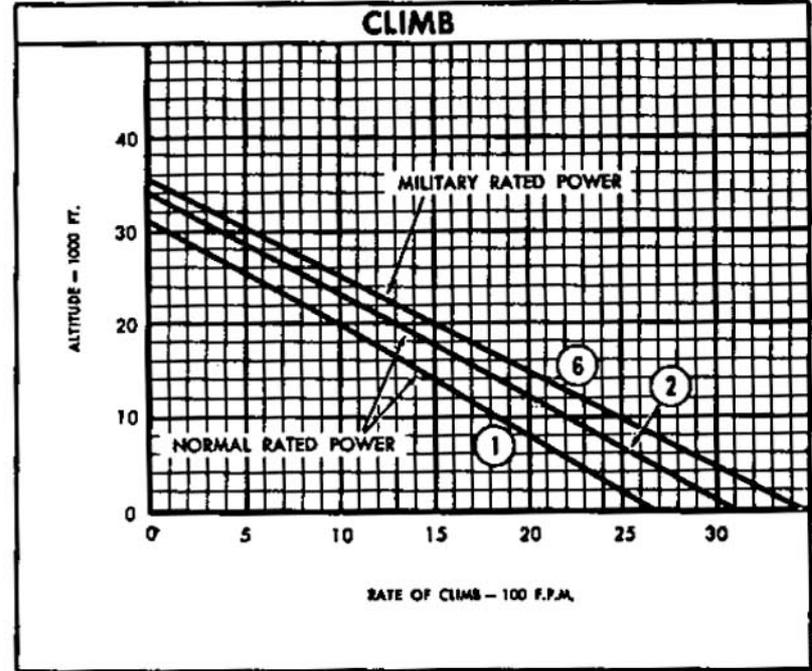
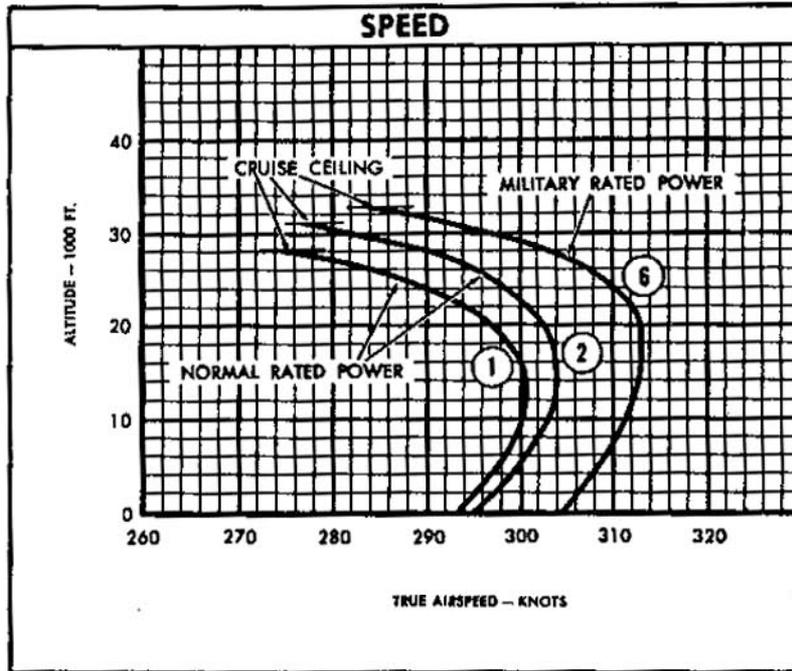
TAKE-OFF LOADING CONDITION	① BASIC MISSION 15,000 FT.	③ BASIC MISSION 25,000 FT.	⑤ BASIC MISSION CRUISE CEILING	⑦ ATTITUDE HOLD MISSION	⑨ FERRY MISSION
TAKE-OFF WEIGHT lb.	49,052	49,052	49,052	49,052	49,052
Fuel lb.	12,133	12,133	12,133	12,133	12,133
Wing loading lb./sq. ft.	70,074	70,074	70,074	70,074	70,074
Stall speed — power-off kn.	91.9	91.9	91.9	91.9	91.9
Take-off run at S.L. — calm ft.	890	890	890	890	890
Take-off run at S.L. — 25 kn. wind ft.	440	440	440	440	440
Max. speed/altitude — true airspeed (A) kn./ft.	301/12,400	301/12,400	301/12,400	301/12,400	301/12,400
Rate of climb at S.L. (A) f.p.m.	2650	2650	2650	2650	2650
Time: S.L. to 20,000 ft. (A) min.	12	12	12	12	12
Time: S.L. to 30,000 ft. (A) min.	29	29	29	29*	29
Service ceiling (100 f.p.m.) (A) (B) ft.	31,100	31,100	31,100	31,100	31,100
Combat radius/mission time n. mi./hr.	200/5.97	200/6.52	200/6.70	200/6.09	—
Station altitude ft.	15,000	25,000	31,600 (C)	31,400 (C)	—
Average cruising speed — true airspeed kn.	260	273	280	280	280
Cruising altitude (ft)	15,000/34,600	25,000/34,550	29,050/34,500	29,050/34,500	28,800/34,800
Loiter time hr.	4.33	4.93	5.15	4.54	—
Range/mission time n. mi./hr.	—	—	—	—	1622/5.91
COMBAT LOADING CONDITION (60% FUEL)					
	② 15,000 FT. ALTITUDE	④ 25,000 FT. ALTITUDE	⑥ 25,000 FT. ALTITUDE	⑧	⑩
COMBAT WEIGHT lb.	44,199	44,199	44,199		
Engine power	Normal	Normal	Military		
Fuel lb.	7280	7280	7280		
Combat speed/combat alt. — true airspeed kn./ft.	304/15,000	297/25,000	309/25,000		
Rate of climb/combat altitude f.p.m./ft.	1760/15,000	850/25,000	1000/25,000		
Combat ceiling (500 f.p.m.) ft.	28,800	28,800	30,300		
Rate of climb at S.L. f.p.m.	3080	3080	3420		
Max. speed at S.L. kn.	295	295	305		
Max. speed/altitude — true airspeed kn./ft.	304/14,600	304/14,600	313/17,200		
LANDING WEIGHT					
LANDING WEIGHT lb.	38,200	—	—		
Fuel lb.	1281	—	—		
Stall speed — power-off kn.	78.5	—	—		
Stall speed — approach power kn.	71.5	—	—		

NOTES

- (A) Normal rated power
 (B) Take-off gross weight minus fuel for warm-up, taxi, take-off and climb.
 (C) Cruise ceiling at loiter weight

PERFORMANCE BASIS:
 Flight tests of the E-2A.

Engine specification fuel flows not increased 5%.



○ LOADING CONDITION COLUMN NUMBER

NOTES

BASIC MISSION

Fuel allowance for starting engines, take-off and accelerate-to-climb speed is the pounds of fuel used in five minutes with normal power at sea level.

Climb on course to station altitude with up to maximum power.

Cruise at airspeeds for maximum specific range at station altitude to total distance of 200 nautical miles

Loiter on station altitude at airspeed for maximum endurance.

Cruise back 200 nautical miles at airspeeds for maximum specific range at best altitude.

Fuel allowance for reserve and landing is the sum of five percent of initial fuel and fuel required for twenty minutes at speed for maximum endurance at sea level.

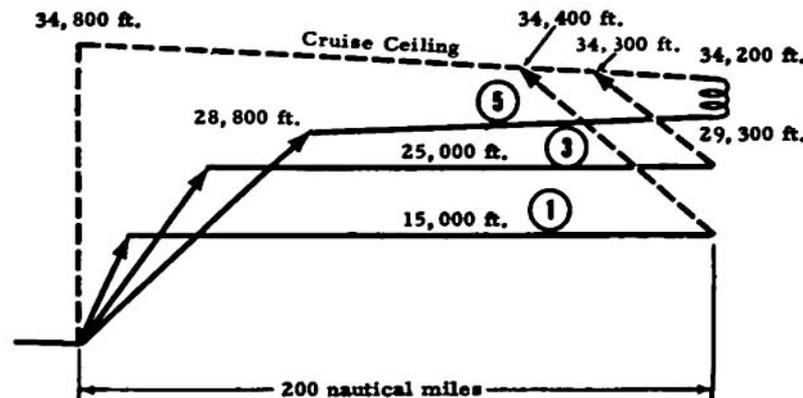
MISSION TIME: EXCLUDES WARM-UP & TAKE-OFF TIME & 20 MIN SEA LEVEL LOITER

CYCLE TIME: EXCLUDES WARM-UP & TAKE-OFF TIME

TAKE-OFF LOADING COLUMN No. (1) (3) (5) = LOITER AT MAXIMUM ENDURANCE.

TAKE-OFF LOADING COLUMN No. (7) = LOITER HOLDING BEST RADAR ATTITUDE (ROTODOME BETWEEN $+3^{\circ}$ AND -3° TO THE HORIZON).

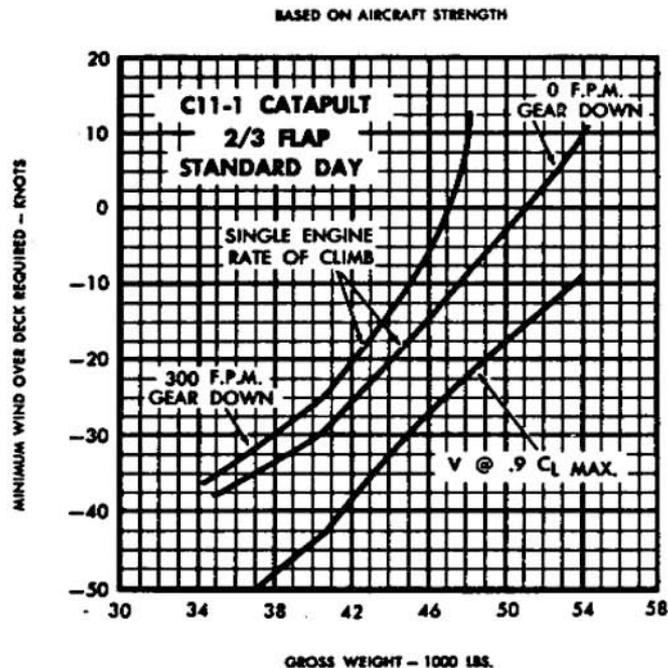
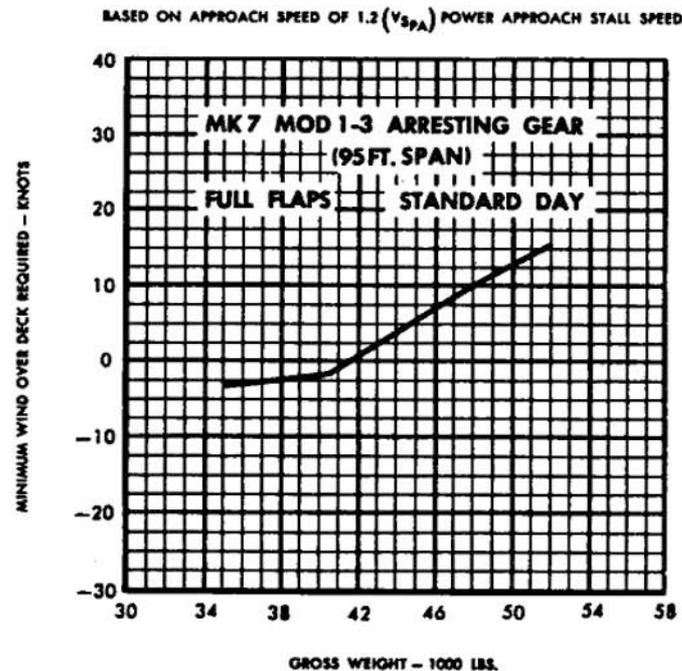
TAKE-OFF LOADING COLUMN No. (9) = MISSION FOR MAXIMUM RANGE.



SPOTTING: A total of 46 airplanes can be accommodated on the flight and hangar decks of a CVA-19 class angled deck carrier.

○ LOADING CONDITION COLUMN NUMBER

CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHTMINIMUM WIND OVER DECK REQUIRED FOR ARRESTING
VS. GROSS WEIGHT

NOTES

- (A) These curves should be used for planning purposes only. Actual catapult and arresting gear operation should be in accordance with applicable Aircraft Technical Orders, and Catapult and Arresting Gear Bulletins.
- (B) For catapulting, the longitudinal acceleration with military rated power, tropical day, launching airspeed of 97.7 knots, is 5.1 ft./sec.^2 at take-off gross weight (49,052 lbs).
- (C) For arresting, the longitudinal acceleration with military rated power, tropical day, $1.15 V_{SPA}$, is 6.6 ft./sec.^2 at take-off gross weight less 60% usable fuel (41,772 lbs.).