

STANDARD AIRCRAFT CHARACTERISTICS

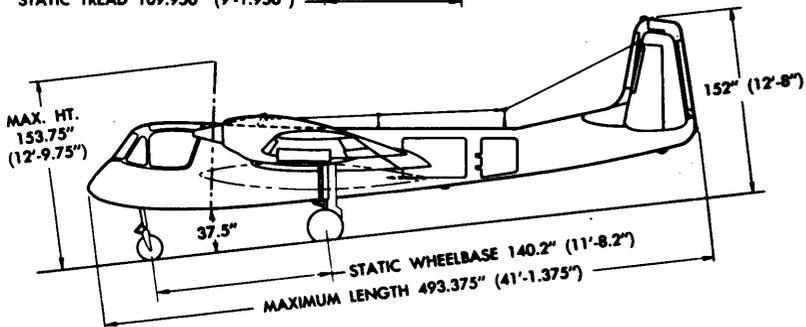
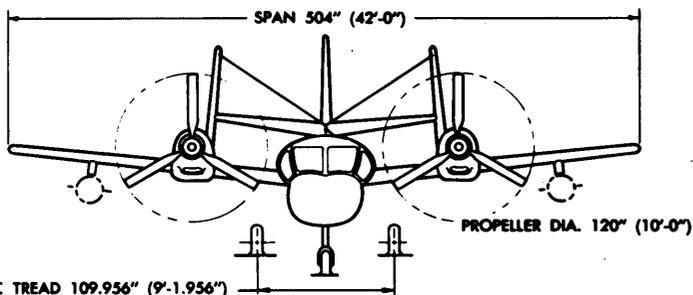
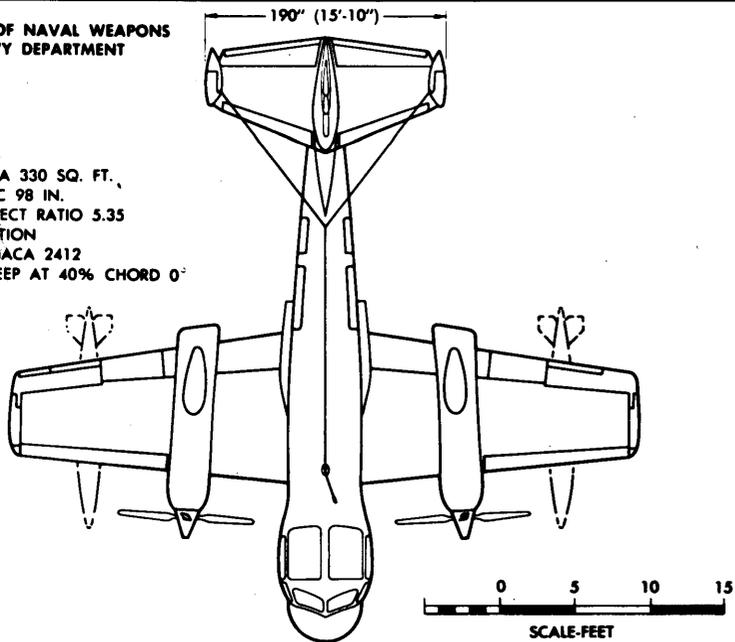
AO-1AF MOHAWK

GRUMMAN

SERVICE

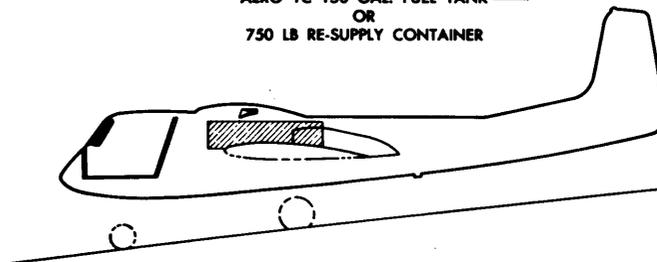
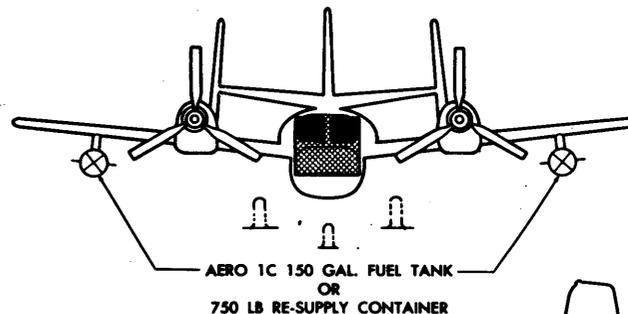
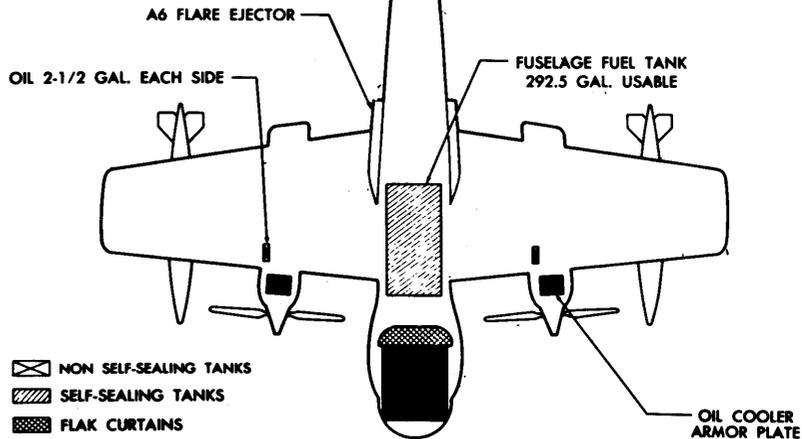
BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT

WING
AREA 330 SQ. FT.
MAC 98 IN.
ASPECT RATIO 5.35
SECTION
NACA 2412
SWEEP AT 40% CHORD 0°



DESCRIPTIVE ARRANGEMENT
AO-1AF

BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT



ARMAMENT & TANKAGE
AO-1AF

POWER PLANT

Turboprop
 Model.....(2) T-53-L-3
 Mfgr. Lycoming
 Type Axial-Centrif.
 Eng. Length 58.85"
 Eng. Diam. 23"
 Eng. Spec. No. 104.11
 Reduc. Gear Ratio 12.46
 Prop. Mfgr. Ham Std.
 No. Bl. /Diam. 3/10'
 Prop Bl. Des. No. 7103-6

RATINGS

<u>COND.</u>	<u>SHP @</u>	<u>PRPM @</u>	<u>ALT</u>
Take-off	960	1674	S. SL
Military	900	1674	S. SL
Normal	825	1674	S. SL

ELECTRONICS

UHF Command SetAN/ARC-55
 FM Radio SetAN/ARC-44
 LF-ADF Dir. Finder.....AN/ARN-59
 VOR Navigational Set.....AN/ARN-30
 Interphone - Transistorized -
AN/AIC-12
 Marker Beacon Rec.....AN/ARN-68
 Complete Provisions For:
 Identification Set.....AN/APX-44
 Space Provided For:
 Doppler Radar AN/APN-118
 Auto Pilot AN/ASW-12
 MHF Set AN/ARC-73
 VHF Transmitter T366
 Radar Altimeter APN-22

MISSION AND DESCRIPTION

The Grumman AO-1AF is a two place, twin turboprop aircraft, capable of operating from small fields and unimproved runways. The aircraft is capable of performing missions of observation, artillery gun fire spotting, air control emergency resupply liaison, and radiological monitoring.

Design features include a dual controlled, midwing, three tail configuration of semi-monocoque construction equipped with wide span flaps, and leading edge slats.

The crew of two are seated side-by-side within a bubbled enclosure at the extreme forward end of the fuselage.

A remotely operated day and night KA-30 camera installation provides horizon-to-horizon photo coverage along the airplane flight path.

External provisions are incorporated to carry 150 gallon fuel tanks and emergency resupply containers.

DEVELOPMENT

First Flight (Proto)..... April 1960
 Estimated First Service Use..... Sept. 1960

DIMENSIONS

Wing
 Area 330 sq. ft.
 Span 42' - 0"
 M. A. C. 98"
 Length 42' - 9.5"
 Height 12' - 8"
 Tread 9' - 2"

WEIGHTS

<u>Loading</u>	<u>Lbs.</u>	<u>L. F.</u>
Empty E	9400	
Basic	9781	
Design	11715	5
Combat		
(Basic Mission)	11252	
Normal T. O.	12012	
Max. T. O.	15020	
Max. Land.	15020	

FUEL AND OIL

JP-4 (6.5#/Gal.) MIL-F-5624A

<u>Gal.</u>	<u>No. Tanks</u>	<u>Location</u>
292.5	1	Fuselage
150	2	External

OIL

Capacity..... 5 Gallons
 Spec. MIL-L-7808B

ORDNANCE

2 Flare Ejectors
 2 Resupply Containers

PERFORMANCE SUMMARY

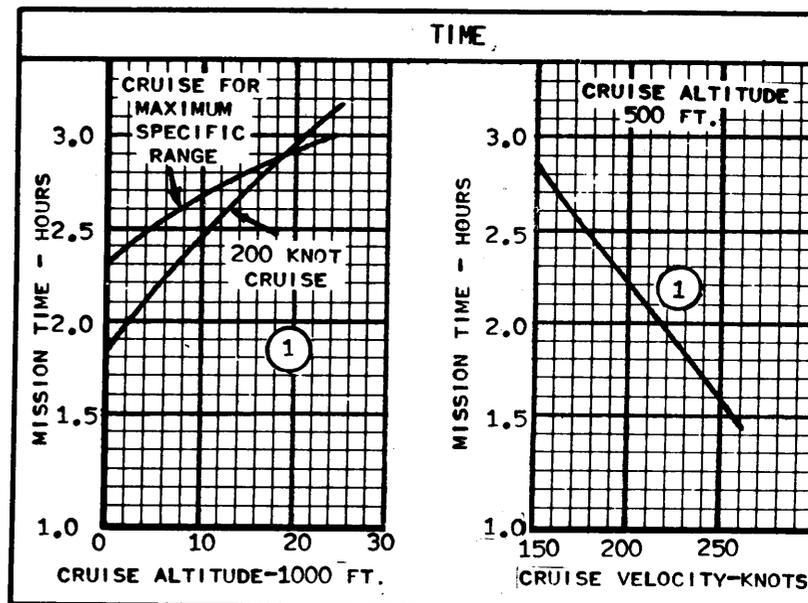
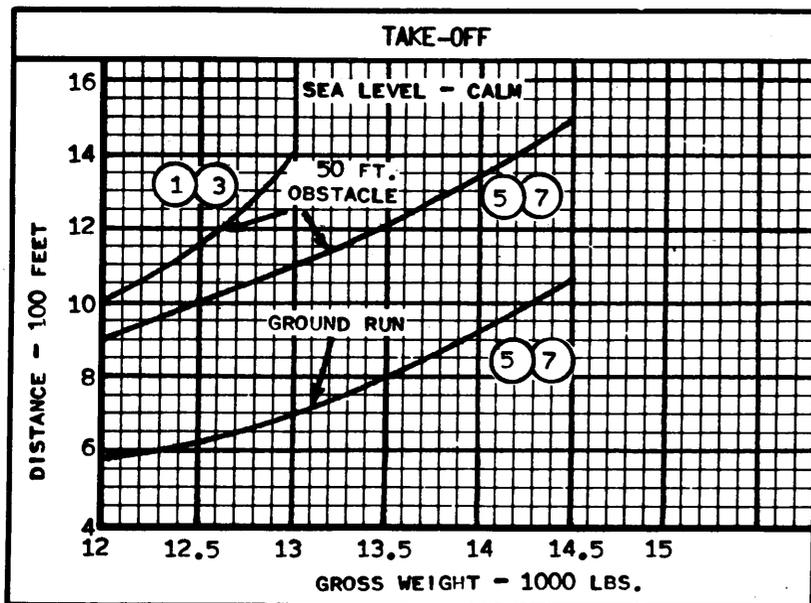
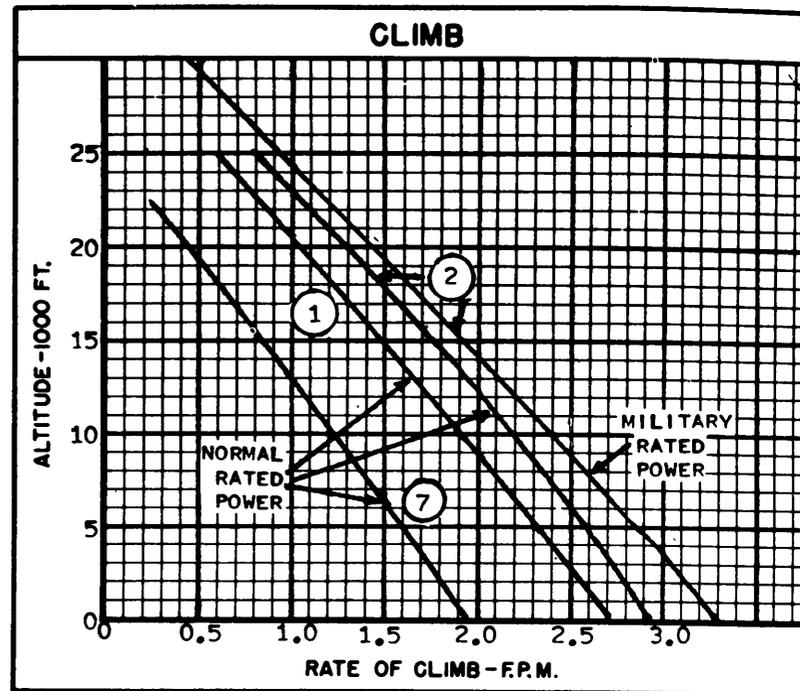
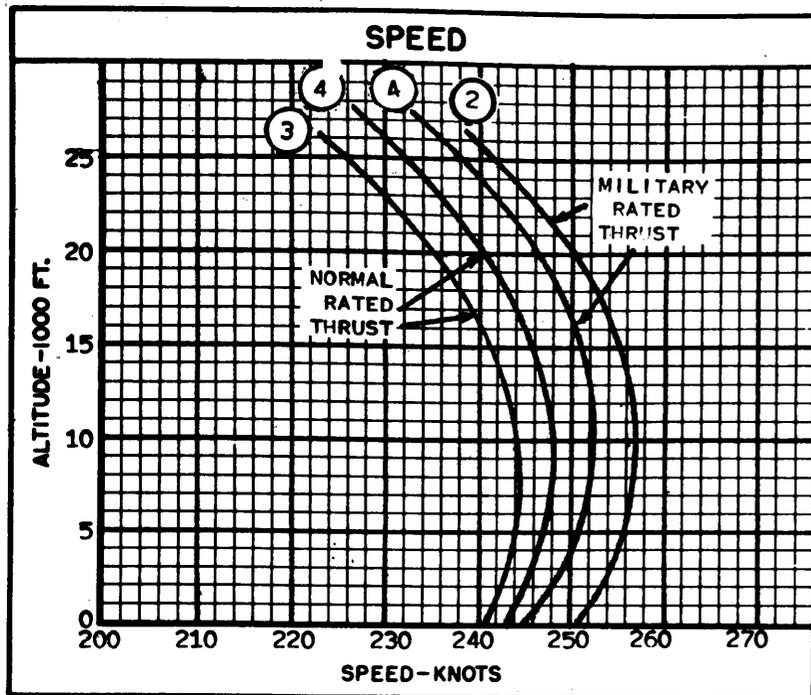
TAKE-OFF LOADING CONDITION	①	OBSERVATION NO STORES	③	NIGHT PHOTO 2-A6 EJECTORS	⑤	EMERGENCY RESUPPLY 2-RESUPPLY CONTAINERS	⑦	FERRY 2-150 GAL. EXT. TANKS	⑨
TAKE-OFF WEIGHT lb.		12012		12273		13647		14371	
Fuel lb.		1901		1901		1901		1901/1950	
Payload lb.		-		264		1500		-	
Wing loading lb./sq.ft.		36.4		37.2		41.4		43.5	
Stall speed-power-off (D) kn.		68		69		74		76	
Take-off run at S.L. -calm ft.		660(F)		722(F)		825(G)		1005(G)	
Take-off run at S.L. - 25 kn. wind ft.		270(F)		320(F)		355(G)		430(G)	
Take-off to clear 50 ft.-calm ft.		1010(F)		1080(F)		1255(G)		1450(G)	
Max. speed/altitude (A) kn./ft.		260/10000		257/10000		245/9000		244/8000	
Rate of climb at S.L. (A) fpm		2675		2560		2100		1935	
Time: S.L. to 20000 ft. (A) min.		11.0		12.0		16.0		18.5	
Time: S.L. to 25000 ft. (A) min.		16.5		18.4		28.0		35.0	
Service ceiling (100 fpm) (A) ft.		30380		30380		27000		23800	
Combat range (C) n.mi.		433		424		390		1195	
Average cruising speed kn.		200		200		200		205	
Cruising altitude(s) ft.		5000		5000		5000		20000	
COMBAT RAD./MISSION TIME KN./hr.		175 / 2.14		174/2.09		156/ 1.92		- / 5.63	
AVG. CRUISING SPEED KN.		200		200		200		205	
COMBAT LOADING CONDITION	②	NO STORES	④	2-A6 EJECTORS	⑥	2-RESUPPLY CONTAINERS	⑧		⑩
COMBAT WEIGHT 60% Int. Fuel Aboard lb.		11252		11513		12887			
Engine power		Military		Military		Military			
Fuel lb.		1141		1141		1141			
Combat speed/combat altitude kn./ft.		250 / 5000		250/5000		250/5000			
Rate of climb/combat altitude fpm/ft.		2860/5000		2752/5000		2253/5000			
Combat ceiling (500 fpm) ft.		25500		25200		24000			
Rate of climb at S.L. fpm		3310		3185		2645			
Max. speed at S.L. kn.		251		248		246			
Max. speed/altitude kn./ft.		256 / 10000		255 / 10000		251 / 8000			
LANDING WEIGHT 10% Int. Fuel Aboard lb.		10301		10562		11936			
Fuel lb.		190		190		190			
Stall speed-power-off (D)/approach power (E) kn.		60/53		61/54		65/57			
Landing distance GND./50' Obst. -Calm ft.		858(I)		878(I)		1300(H)			

- (A) Normal Rated Power
 (B) Military Rated Power
 (C) See Notes on Mission Specs
 (D) Flt. Idle Power, Propeller Control at MAX RPM
 (E) Power for Level Flight at 120 per cent of Stall Speed - Power Off, Propeller Control at MAX RPM

NOTES

- (F) Take-Off Distances are Based upon Take-Off and Obstacle Speeds Satisfying minimum speeds for Single Engine control and Positive rate of climb as per Detail Spec. 532-1.

- (G) Take-Off Distances are Based upon Take-Off and Obstacle speeds satisfying single engine control.
 (H) Landing Distance is Based on a Rate of Sink of 8 Feet Per Second
 (I) Landing Distance is Based on a Rate of Sink of 14 Feet Per Second.



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAL 1322S (Rev. 1-55)

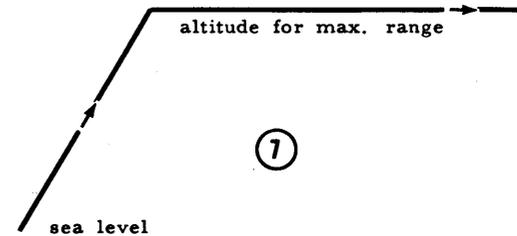
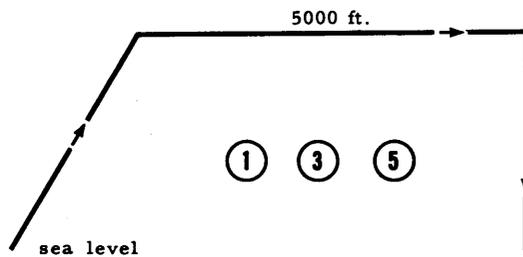
NOTES

TACTICAL AIR OBSERVATION MISSION
& NIGHT PHOTOGRAPHY

5 min. for warm-up, taxi, and take-off @ normal rated power
 climb to 5000 ft. @ normal rated power
 cruise @ 200 knots @ 5000 ft.
 reserve-10% of initial internal fuel

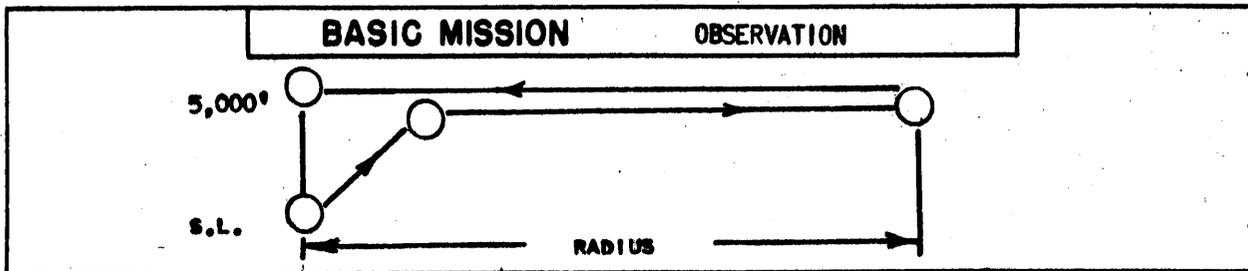
FERRY MISSION

5 min. for warm-up, taxi, and take-off @ normal rated power
 climb to altitude for max. range @ normal rated power
 cruise at altitude and velocity for max. range
 reserve-10% of initial internal fuel
 external fuel tanks dropped when empty



○ LOADING CONDITION COLUMN NUMBER

CHARACTERISTICS SUMMARY

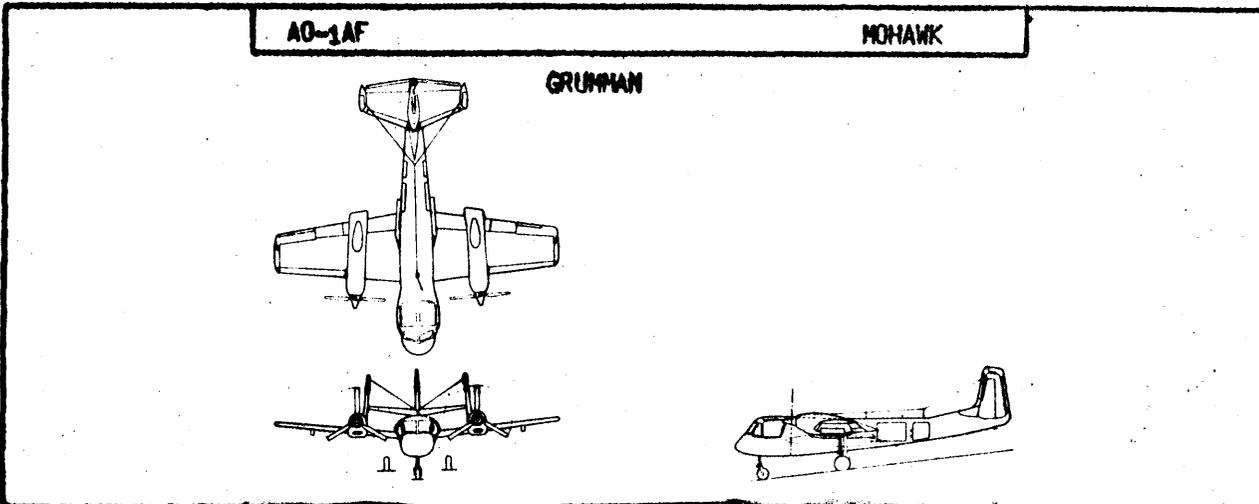


PERFORMANCE		
COMBAT RADIUS	COMBAT RANGE	SPEED
216 naut. mi. 200 knots avg. SEE NOTES 2, 3, AND 4	433 naut. mi. 200 knots avg. CRUISE TIME = 2.14 hours SEE NOTES 2, 3, 4, AND 5	264 knots at S.L. ft. 269 knots at 5000 ft. 270 knots at 10000 ft. COMBAT WEIGHT 11252 LBS. MILITARY Power
CLIMB	CEILING	TAKE OFF
2675 ft./min. Sea Level, T. O. wt. NORMAL RATED Power	SERVICE CEILING ABOVE 25000 FT.; NORMAL RATED POWER; T.O. WEIGHT	1010 FT. - TOTAL DISTANCE TO CLEAR 50 FT. OBSTACLE T.O. WT.; S.L.; CALM SEE NOTE 8
LOAD	WEIGHTS	STALLING SPEED.
Fuel 1901 lbs. 292.5 gal. fixed 1901 drop 0	Empty 9400 lbs. Combat 11252 lbs. Take-off 12012 lbs.	68 KNOTS FLAPS @ 15; GEAR DOWN T.O. WT.; FLT. IDLE POWER
		TIME TO CLIMB
		5000 ft. in 1.8 min. T.O. WT.; N.R.P

NOTES
<ol style="list-style-type: none"> NO EXTERNAL STORES. 5 MINUTES FOR WARM-UP, TAXI, AND TAKE-OFF @ NORMAL RATED POWER CLIMB TO 5000 FT. @ NORMAL RATED POWER. CRUISE @ 200 KNOTS @ 5000 FT. RESERVE - 10% OF INITIAL INTERNAL FUEL. ROCKETS CARRIED ALL THE WAY. ALL FUEL FLOWS INCREASED 5%. PERFORMANCE FROM GAEC REPORTS. TAKE-OFF DISTANCE IS BASED UPON TAKE-OFF AND OBSTACLE SPEEDS SATISFYING MINIMUM SPEEDS FOR SINGLE ENGINE CONTROL AND POSITIVE RATE OF CLIMB AS PER DETAIL SPECIFICATION 532-1

NAVAER-1519B (Rev. 10-51)

CHARACTERISTICS SUMMARY



WING AREA 330 SQUARE FEET
WING SPAN 42' - 0"

LENGTH 42' - 9.5"
HEIGHT 12' - 8"

AVAILABILITY			PROCUREMENT				
NUMBER AVAILABLE			NUMBER DELIVERED				
			IN FISCAL YEARS				
ACTIVE	RESERVE	TOTAL					

STATUS
<p>FIRST FLIGHT AERODYNAMIC PROTOTYPE APRIL 1960 FIRST FLIGHT PRODUCTION PROTOTYPE APRIL 1960 SCHEDULED FIRST SERVICE AVAILABILITY SEPTEMBER 1960</p>

ENGINES	
(2) T-53-L-3 LYCOMING	
RATINGS:	
T.O.	960HP @ 1674 PRPM
MIL.	900HP @ 1674 PRPM
NORM.	825HP @ 1674 PRPM

FEATURES
<p>DESIGN FEATURES INCLUDE A DUAL CONTROLLED, MID-WING, THREE TAIL CONFIGURATION OF SEMI-MONOCOQUE CONSTRUCTION EQUIPPED WITH WIDE SPAN FLAPS, AND LEADING EDGE SLATS.</p>

ARMAMENT
<p>2 FLARE EJECTORS 2 RESUPPLY CONTAINERS</p>

NAVAER 1519 A (REV. 1-49)