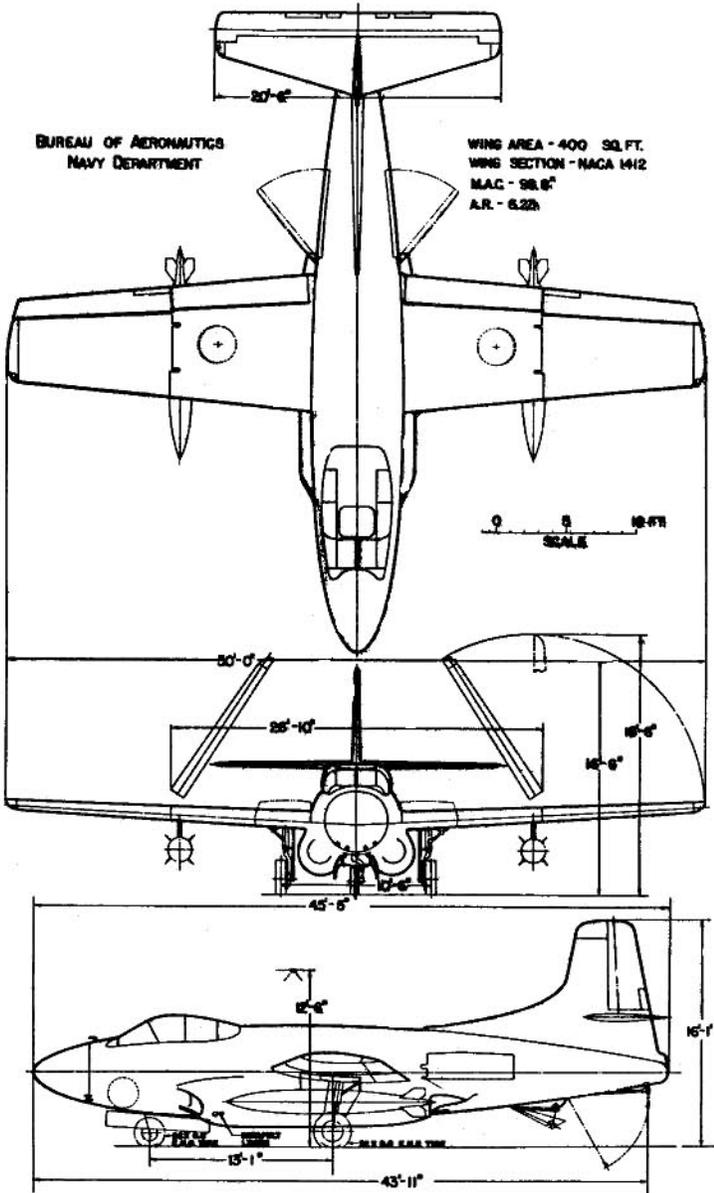


STANDARD AIRCRAFT CHARACTERISTICS

F3D-2 "SKYKNIGHT"

DOUGLAS

Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

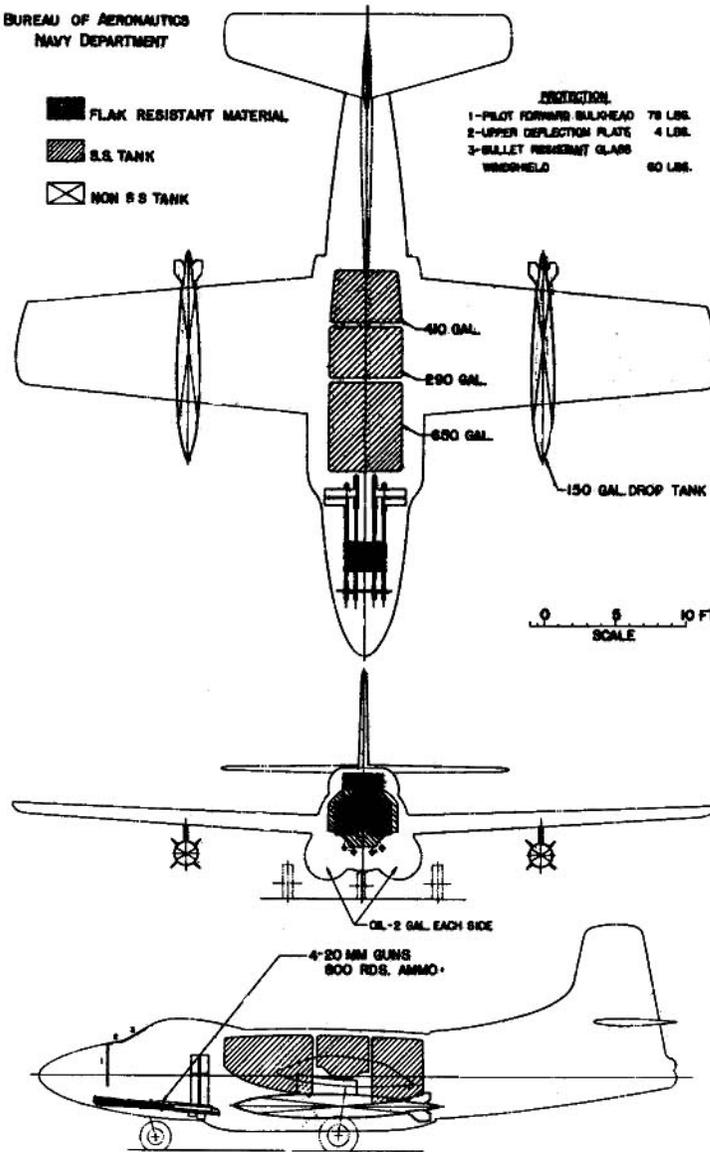


DESCRIPTIVE ARRANGEMENT

**BUREAU OF AERONAUTICS
NAVY DEPARTMENT**

- FLAK RESISTANT MATERIAL
- U.S. TANK
- NON U.S. TANK

- PROTECTION**
- 1-PILOT FORWARD BULKHEAD 75 LBS.
 - 2-UPPER DEFLECTION PLATE 4 LBS.
 - 3-BULLET RESISTANT GLASS WINDSHIELD 80 LBS.



ARMAMENT & TANKS

Standard Aircraft Characteristics, NAVIER 1335B (REV. 1-49)

POWER PLANT

NO. & MODEL.....(2) J34-WE-36
 MFR.....Westinghouse
 TYPE.....11 Stg. Axial Compr.
 2 Stg. Turbine

RATINGS

	Lbs.	@ Rpm	@ Alt.
T. O.	3,400	12,500	S.S.L.
MIL.	3,400	12,500	S.S.L.
NORM.	3,000	11,930	S.S.L.

SPEC. NO. WAGT-24C4E-2B

ORDNANCE**GUNS**

No.	Size	Location	Rds.
4	20 mm	Nose	800

Mk. 20 Mod. 0 Gunsight

BOMBS AND ROCKETS

Type	Size	Location	No.
Bomb	2,000#	Inner Wing	2
Bomb	1,000#	Inner Wing	2
Bomb	500#	Inner Wing	2
A.R.	11.75"	Inner Wing	2

MAX. BOMB CAP.....4,000 lbs.

MISSION AND DESCRIPTION

The mission of the F3D-2 airplane is to search out and destroy enemy aircraft at night.

This twin-jet fighter is designed to operate from aircraft carriers with the aid of a catapult, or from land bases.

Side by side accommodations are provided for the pilot and a radar operator.

The airplane is conventional in structure with all-metal two-spar wing and semi-monocoque fuselage. Tricycle landing gear, slotted flaps and wing folding are hydraulically operated.

Hydraulically operated fuselage speed-retarding brakes with hand controls are provided. These may be used for maneuvering or to increase the angle of descent.

Pilot escape provisions are furnished both through the power operated escape hatch and through a special high speed ball-out chute on the bottom of the fuselage.

DIMENSIONS

WING AREA.....	400 sq. ft.
SPAN.....	50' - 0"
FOLDED SPAN.....	26' - 10"
LENGTH.....	45' - 5"
HEIGHT.....	16' - 1"
HEIGHT*.....	16' - 6"
TREAD.....	10' - 6"
M.A.C.....	8' - 4"

* Wings Folded

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	14,989.....	
BASIC.....	15,500.....	
DESIGN.....	19,700..5.5	
COMBAT.....	21,374..5.1	
MAX.T.O. (Field).....	26,731".4.0	
MAX.LAND (Field).....	24,500.....	

All weights are actual.

*Maximum anticipated loading.

FUEL AND OIL

Gals.	No. Tanks	Location
650	1 (Seal.)	Fuse., Fwd.
290	1 (Seal.)	Fuse., Ctr.
410	1 (Seal.)	Fuse., Aft
300	2	Wing, Drop

FUEL GRADE...115/145
 FUEL SPEC..MIL-F-5572

OIL

CAPACITY (Gals.).....4.0
 GRADE.....1010
 SPEC.....MIL-O-6081

ELECTRONICS

VHF COMMAND.....(2) AN/ARC-1
 UHF COMMAND.....AN/ARC-27
 (With provisions for alternate installation of (1)
 AN/ARC-1 VHF) P.S.I.
 (Replaces (2) AN/ARC-1)
 INTERPHONE.....AN/AIC-4, -4A
 D.F. EQUIPMENT.....AN/ARN-6
 HOMING.....AN/ARR-21
 (P.S.I., Repl. for AN/ARR-2A
 and AN/ARN-6)
 HOMING REC.....AN/ARR-2A
 (Continued on NOTES sheet)

PERFORMANCE SUMMARY					
TAKE-OFF LOADING CONDITION		(1) FIGHTER Full Internal Fuel	(3) FIGHTER 2-150 Gallon External Tanks		
TAKE-OFF WEIGHT	lb.	24,614	26,731		
Fuel	lb.	8,100	8,100/1,800		
Payload (Ammunition)	lb.	450	450		
Wing loading	lb./sq.ft.	61.5	66.8		
Stall speed - power-off	kn.	97.1	101.2		
Take-off run at S.L. - calm	ft.	2,080	2,500		
Take-off run at S.L. 25 kn. wind	ft.	1,270	1,530		
Take-off to clear 50 ft. - calm	ft.	---	---		
Max. speed/altitude	(1) kn./ft.	426/15,000	387/10,000		
Rate of climb at S.L.	(2) fpm	2,970	2,375		
Time: S.L. to 20,000 ft.	(2) min.	9.9	13.7		
Time: S.L. to 30,000 ft.	(2) min.	20.9	31.6		
Service ceiling (100 fpm)	(2) ft.	36,700	32,400		
Combat range	n.mi.	995	1,195		
Average cruising speed	kn.	395	395		
Cruising altitude(s)	ft.	34,100/39,800	31,250/39,200		
Combat radius	n.mi.	415	520		
Average cruising speed	kn.	395	395		
COMBAT LOADING CONDITION		(2) CLEAN			
COMBAT WEIGHT	lb.	21,374			
Engine power		Military			
Fuel	lb.	4,860			
Combat speed/combat altitude	kn./ft.	428/35,000			
Rate of climb/combat altitude	fpm/ft.	550/35,000			
Combat ceiling (500 fpm)	ft.	35,500			
Rate of climb at S.L.	fpm	3,570			
Max. speed at S.L.	kn.	458			
Max. speed/altitude	kn./ft.	460/10,000			
LANDING WEIGHT	lb.	17,799			
Fuel	lb.	1,285			
Stall speed - power-off	kn.	82.6			
Stall speed - with approach power	kn.	80.6			

NOTES

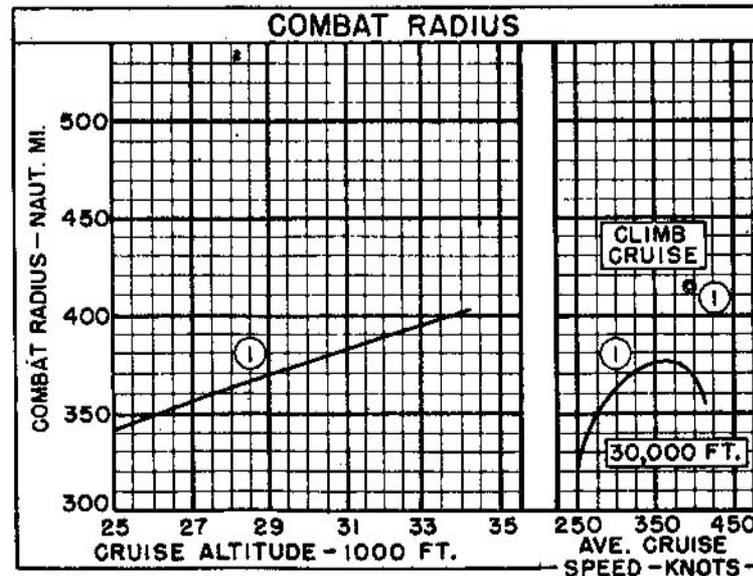
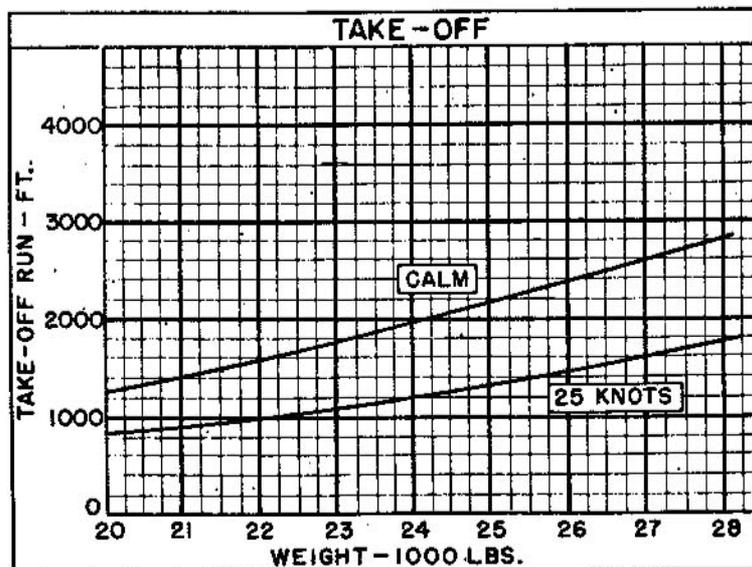
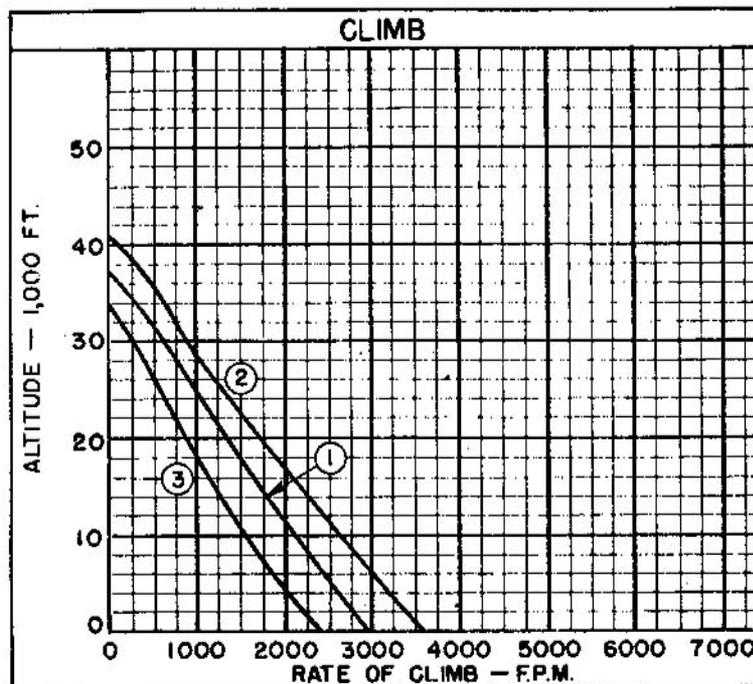
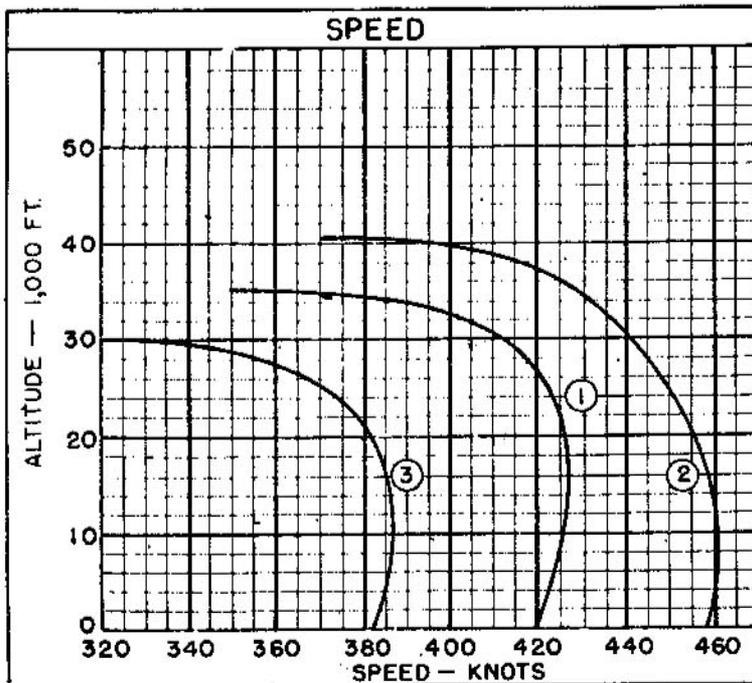
- (1) Normal Power
(2) Military Power

Performance is based on calculations and preliminary NATC flight test of F3D-2 airplane.

Range and radius are based on engine specification fuel consumption data increased by 5%.

External store pylons are not included in conditions (1) and (2).

141



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVALP 1335E (REV. 2-50)

NOTES

Spotting: 200 ft. length is required to spot 17 airplanes on the 96 ft. wide deck immediately aft of the forward ramp on CV-9 class carriers.

GENERAL PURPOSE AND ESCORT FIGHTER COMBAT RADIUS PROBLEM (GAS TURBINE)

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal power.

CLIMB: To cruising ceiling at military power. (Cruising ceiling = altitude for 300 ft./min. at normal power.)

CRUISE-OUT: At V for long range at cruising ceiling.

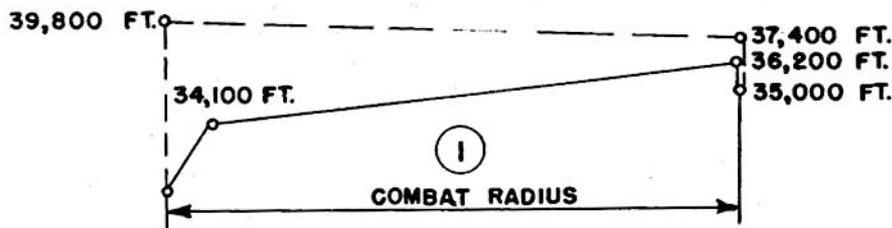
DESCEND: To 35,000 ft. (No fuel used, no distance gained.)

COMBAT: At 35,000 ft. for 20 minutes at military power. (Assume combat concluded at initial cruise-back altitude).

CRUISE-BACK: At V for long range at cruising ceiling.

RESERVE: 20 minutes at V for maximum endurance at Sea Level plus 5% of initial fuel load.

$$\text{COMBAT RADIUS} = \text{CLIMB} + \text{CRUISE-OUT} = \text{CRUISE-BACK}$$



Based on F-5 problem, combat radius would increase to 485 n.mi. for Condition (1) and 585 n.mi. for Condition (3).

 ELECTRONICS (Continued):

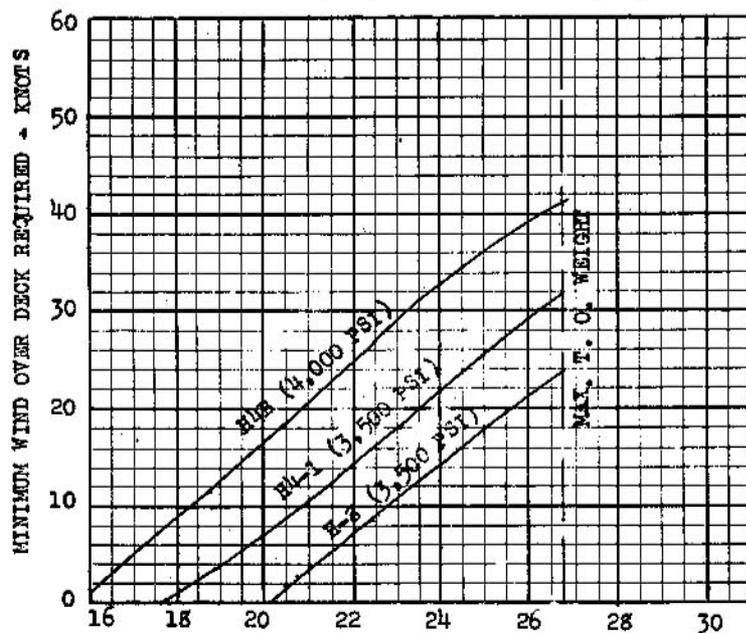
UHF D.F.....AN/ARA-25 (P.S.I.)
 RADIO ALTIMETER.....AN/APN-1
 RADAR SYSTEM.....AN/APQ-35A, -35B

IFF EQUIPMENT.....AN/APX-6
 IFF (I-R UNIT).....AN/APX-17
 (Planned Service Installation)

CARRIER SUITABILITY

WIND OVER DECK REQUIRED FOR CATAPULTING VS. GROSS WEIGHT

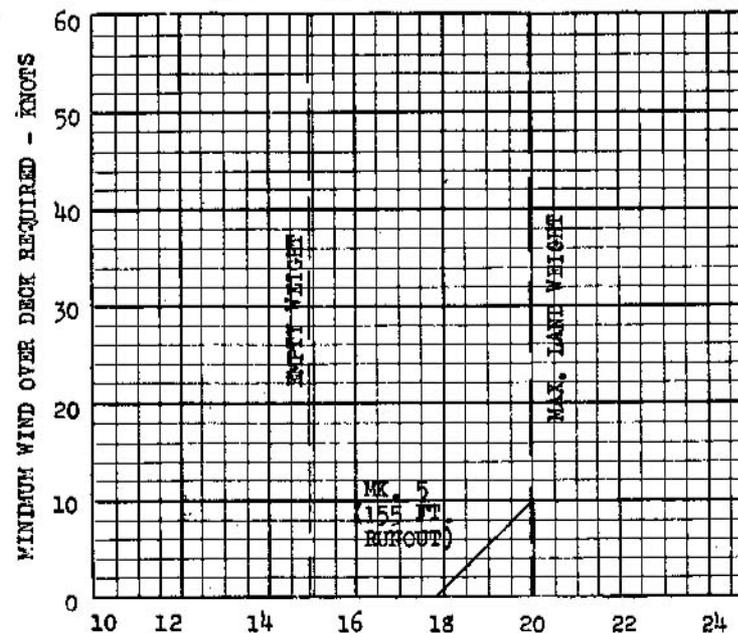
Based on Minimum Safe Take-Off Speed



TAKE-OFF GROSS WEIGHT - 1,000 LBS.

WIND OVER DECK REQUIRED FOR LANDING VS. GROSS WEIGHT

Based on Approach Speed of 1.2 Power-Off Stall Speed



LANDING GROSS WEIGHT - 1,000 LBS.

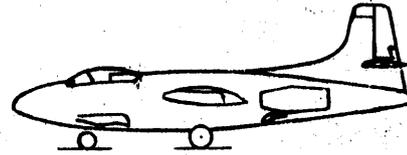
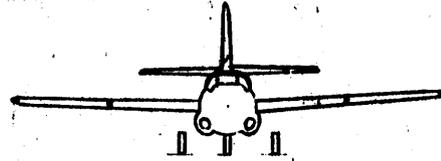
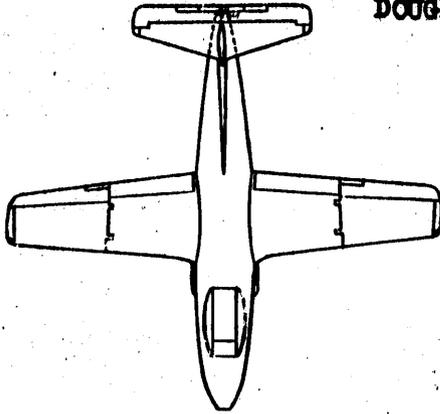
NOTE: No wind required for Mk. 7 arresting gear

CHARACTERISTICS SUMMARY

NIGHT FIGHTER

F3D-2

DOUGLAS "SKYKNIGHT"



WING AREA 400 sq. ft.
WING SPAN 50' - 0"

LENGTH 45' - 5"
HEIGHT 16' - 1"

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

STATUS

First Flight - - - -14 February 1951
Service Use - - - - - May 1951

ENGINES

2 West. J34-WE-36
Lbs./ Rpm / Alt.
T. O. 3400/12500/S.S.L.
MIL. 3400/12500/S.S.L.
NORM. 3000/11930/S.S.L.

FEATURES

Crew - 2
Slotted flaps
Folding wings
Tricycle landing gear
Pilot escape provisions
Catapulting provisions
Arresting gear

1,650 gallons fuel,
Maximum Capacity

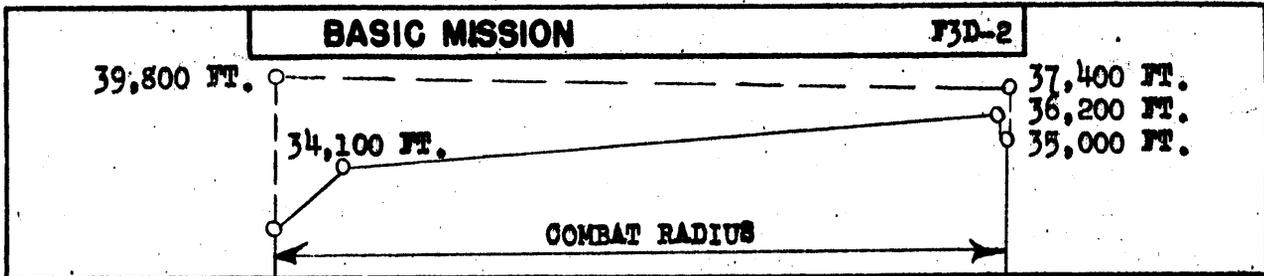
ARMAMENT

4 - 20mm, Nose, 800 rds. amm.
Bombs and rockets located on inner wing:
2 - 2,000# Bombs
2 - 1,000# Bombs
2 - 500# Bombs
2 - 11.75" A. R.

MAX. BOMB CAP...4,000#

NAVAER 1519 A (REV. 1-49) 51 35807

CHARACTERISTICS SUMMARY



PERFORMANCE		
COMBAT RADIUS	COMBAT RANGE	SPEED
415 naut. mi. 395 knots avg.	995 naut. mi. 395 knots avg. Start Alt. 34,100 Ft. End Alt. 39,800 Ft.	460 knots at 10,000 ft. 428 knots at 35,000 ft. 424 knots at 36,200 ft. Combat Weight Maximum Power
CLIMB	CEILING	TAKE OFF
2,970 ft./min. Sea Level, T. O. wt. Military Power	36,700 ft. 100 ft./min., T. O. wt. Military Power	2,080 ft. - Calm No assist.
3,570 ft./min. Sea Level, Combat Wt. Military Power	35,500 ft. 500 ft./min., Combat Wt. Military Power	1,270 ft. - 25 Kn. No assist.
LOAD	WEIGHTS	STALLING SPEED
Fuel 1,350 gal. fixed 1,350 drop — Payload (Ammunition) 450 lbs.	Empty 14,989 lbs. Combat 21,374 lbs. Take-off 24,614 lbs.	97.1 knots Flaps down, T. O. wt.
		TIME TO CLIMB
		— ft. in — min. Combat Wt., Max. Power

NOTES

Performance is based on calculations and preliminary NATO flight test of F3D-2 airplane.
 Range and radius are based on engine specification fuel consumption data increased by 5%.
 This sheet supersedes previously issued sheet dated 1 September 1949.
 Reason for reissue: Preliminary NATO flight test data on F3D-2 available.

C 20085

NAVAER-15198 (Rev. 10-51)