

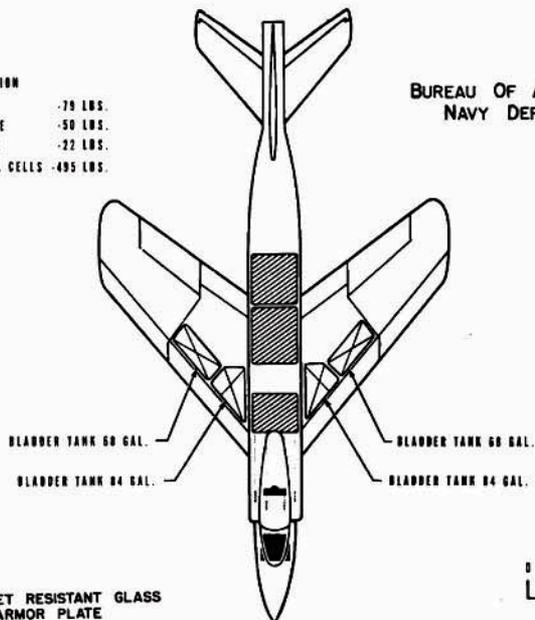
STANDARD AIRCRAFT CHARACTERISTICS

F3H-1 "DEMON"

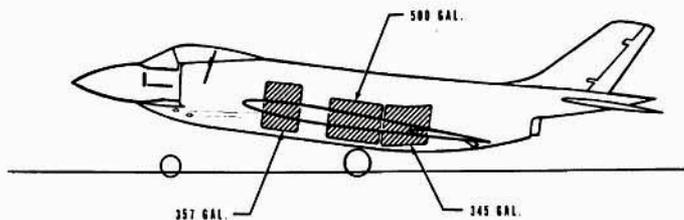
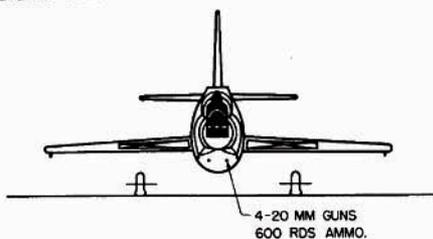
MC DONNELL

**BUREAU OF AERONAUTICS
NAVY DEPARTMENT**

PROTECTION
 PILOT FWD -70 LBS.
 BACK ARMOR PLATE -50 LBS.
 FLOOR FLAR PLATE -22 LBS.
 SELF-SEALING FUEL CELLS -495 LBS.

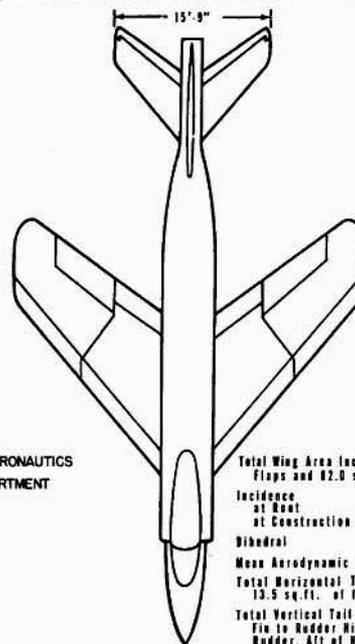


- BULLET RESISTANT GLASS ARMOR PLATE
- SELF-SEALING TANKS
- NON SELF-SEALING TANKS



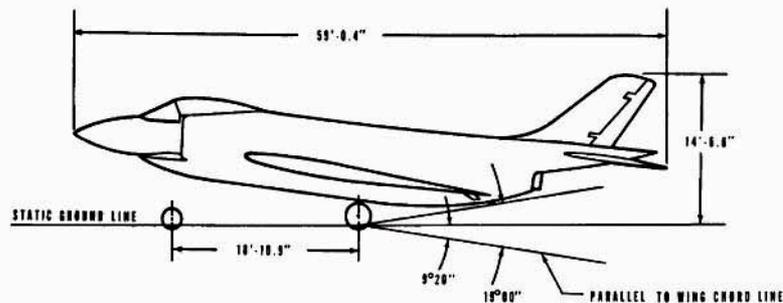
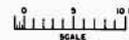
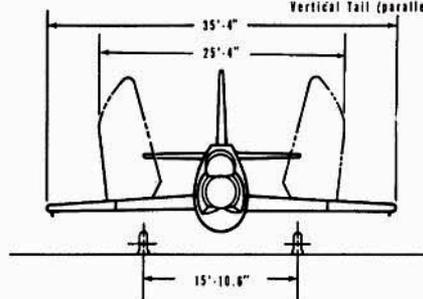
ARMAMENT & TANKAGE

**BUREAU OF AERONAUTICS
NAVY DEPARTMENT**



Total Wing Area including Ailerons, Flaps and 82.0 sq.ft. of fuselage 442 sq.ft.
 Incidence at Root at Construction Tips 7°
 Dihedral 6°
 Mean Aerodynamic Chord 155.4"
 Total Horizontal Tail Area including 13.5 sq.ft. of fuselage 82.5 sq.ft.
 Total Vertical Tail Area 45.4 sq.ft.
 Fin to Rudder Ringe 34.1 sq.ft.
 Rudder, Aft of Ringe 11.3 sq.ft.
 Air-fall Designation Parallel to Center line Wing Root: NACA0006.6-1.00 41/1.28 (Mod.)
 Wing Tip (Construction Tip) NACA0005.4-1.10 32/1.14 (Mod.)
 Horizontal Tail NACA0007.1-10 38/1.14 (Mod.)
 Vertical Tail (parallel to Fuselage Water line) NACA0007.1-10 38/1.14 (Mod.)

Geometric Aspect Ratio
 Wing 2.82
 Horizontal Tail 3.00
 Vertical Tail 1.12



DESCRIPTIVE ARRANGEMENT

Standard Aircraft Characteristics NAVAER 1335B (REV. 1-4-9)

POWER PLANT

NO. & MODEL.....(1) J40-WE-10
 MFR.....Westinghouse
 TYPE.....Axial-Flow-Turbo-Jet
 LENGTH(Incl.AB).....285"
 DIAMETER.....39"
 AUGMENTATION.....Afterburner

RATINGS

	Lbs	@ Rpm	@ Alt
MIL. + A.B.	13,700	7,260	S.S.L.
MILITARY	9,275	7,260	S.S.L.
NORMAL	8,330	7,260	S.S.L.

Spec. No. WAGT-X40E3A-2C

ORDNANCE**GUNS**

No.	Size	Location	Rds.
4	20 mm (Mk 12)	Nose	600

BOMBS AND ROCKETS

Racks	No.	Location	Max. Cap.
Bomb	2	Fuselage	2000#
Launcher	6	Wing	500#

MAX. BOMB CAPACITY 4,400 Lbs.

FIRE CONTROL

ACS AERO 13D

SPECIAL ORDNANCE

Special Kits 1 in 4 Basis
 1 Mk 51-11 Bomb Rack
 1 Aero-1A Bomb Rack Adaptor
 1 Mk 3-4 Bomb Director

MISSION AND DESCRIPTION

The primary mission of the F3H-1 is the destruction of enemy aircraft. The airplane is a single place, swept-wing, jet propelled fighter designed for land or carrier operations.

Armament consists of four 20 mm. guns and AN/APQ-41 search and fire control radar. Eight rocket launchers and bomb racks are provided for carrying external ordnance loads.

Equipment includes automatic pilot, ejection seat, and pressurized cockpit. An auxiliary power unit may be carried externally to provide for engine starting when operating from advance bases.

Additional lift for landing and take-off is provided by power actuated leading edge slats and trailing edge slotted flaps. Drag control is provided by fuselage mounted speed brakes. The primary control system incorporates power actuation with artificial feel forces.

DEVELOPMENT

Mock up.....July 1951
 First flight.....July 1953
 Service use.....January 1954

DIMENSIONS**WING**

AREA.....442 Sq. ft.
 SPAN.....35' -4"
 MAC.....155"
 SWEEPBACK(@ c/4).....45°
 LENGTH.....59' -0"
 HEIGHT.....14' -7"
 TREAD.....15' -11"

WEIGHTS

Loading	Lbs	L.F.
EMPTY.....	19,314.....	
BASIC.....	19,891.....	
DESIGN.....	25,650...7.5	
COMBAT.....	25,936...7.5	
MAX.T.O.(Field)	32,528#.....	
(Cat.)	32,528.....	
MAX.LAND(Field)	27,000.....	
(Cat.)	23,500.....	

* Max. Anticipated Loading
 All weights are calculated.

FUEL AND OIL

Gal.	No. Tanks	Location
1202	3	Fuselage
168	2	Wing, Inb.
136	2	Wing, Outb.

FUEL GRADE,...80 or higher
 FUEL SPEC.... MIL-F-5572

OIL

CAPACITY (Gals).....15
 GRADE.....1010
 SPEC.....MIL-O-6081

ELECTRONICS

UHF TRANSMTR-REC...AN/ARC-27A
 (with alternate prov. for AN/
 ARC-1)
 RADAR ALTIMETER....AN/APN-22
 UHF-ADF.....AN/ARA-25
 RADIO COMPASS.....AN/ARN-6
 HOMING.....AN/ARN-21
 (P.S.I. -Repl. for AN/ARN-6)
 RADAR.....AN/APQ-50
 IFF.....AN/APX-6

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	(1) Fighter Full Internal Fuel	(4) Interceptor Partial Inter- nal Fuel	(5) Fighter Full Internal Fuel 6-5" HAVR 12-5" HPAC WFR
TAKE-OFF WEIGHT lb.	29,550	25,656	32,528
Fuel lb.	9,036	5,142	9,036
Payload lb.	-----	-----	2,250
Wing loading lb./sq.ft.	66.9	58.0	73.6
Stall speed - power-off kn.	111.7	104	117.2
Take-off run at S.L. - calm (D) ft.	1,850(3,135)	1,365(2,270)	2,290(3,970)
Take-off run at S.L. 25 kn. wind(E)ft.	1,225(2,070)	870(1,450)	1,540(2,670)
Take-off to clear 50 ft. - calm ft.	-----	-----	-----
Max. speed/altitude (A) kn./ft.	567/S.L.	571/S.L.	476/15,000
Rate of climb at S.L. (B) fpm	5,040	(C) 20,220	3,680
Time: S.L. to ft./Min (B) min.	20,000/5.1	(C) 40,000/4.6	20,000/7.3
Time: S.L. to ft./Min (B) min.	30,000/9.2	(C) 47,000/7.5	30,000/17.8
Service ceiling (100 fpm) (B) ft.	37,800	(C)&(D) 47,900	30,700
Combat range n.mi.	1,025	-----	655
Average cruising speed kn.	485	-----	431
Cruising altitude(s) ft.	36,900/41,100	-----	28,400/33,000
Combat radius n.mi.	31.5	-----	22.5
Average cruising speed kn.	485	-----	439
Total endurance (Point intercept) Min.	-----	65	
COMBAT LOADING CONDITION	(2) Clean	(3) Clean	
COMBAT WEIGHT lb.	25,936	25,936	
Engine power	Military	Military + A.B.	
Fuel lb.	5,422	5,422	
Combat speed/combat altitude kn./ft.	529/35,000	562/35,000	
Rate of climb/combat altitude fpm/ft.	1,320/35,000	6,300/35,000	
Combat ceiling (500 fpm) ft.	38,600	47,000	
Rate of climb at S.L. fpm	5,930	19,940	
Max. speed at S.L. kn.	592	636	
Max. speed/altitude kn./ft.	592/S.L.	636/S.L.	
LANDING WEIGHT lb.	21,989		
Fuel lb.	1,475		
Stall speed - power-off kn.	95.9		
Stall speed - with approach power kn.	92.5		

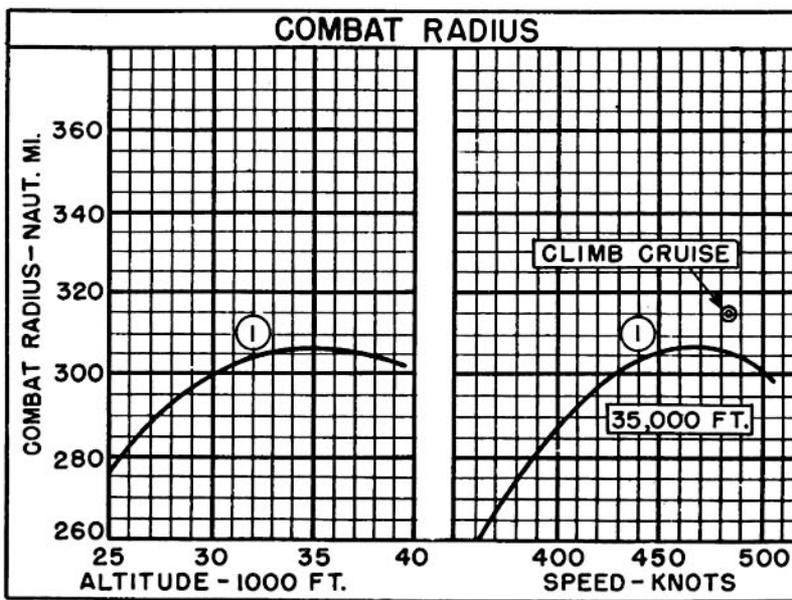
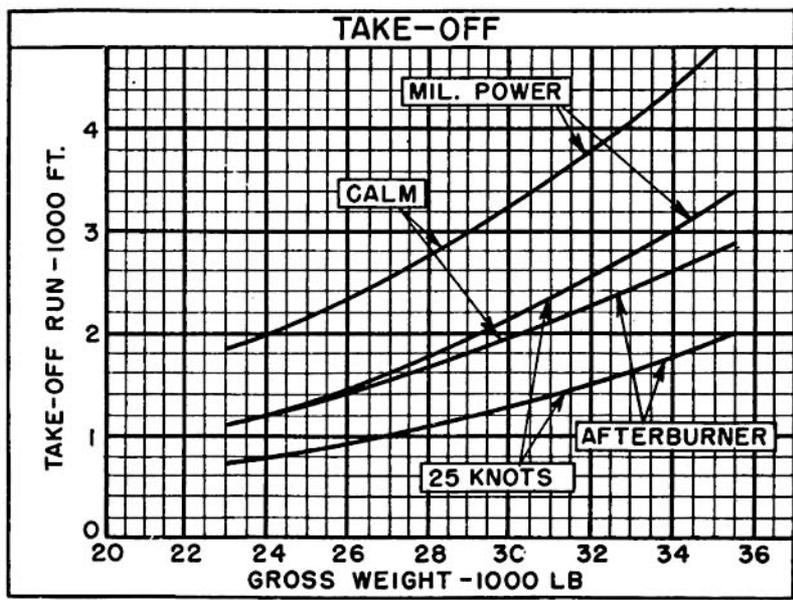
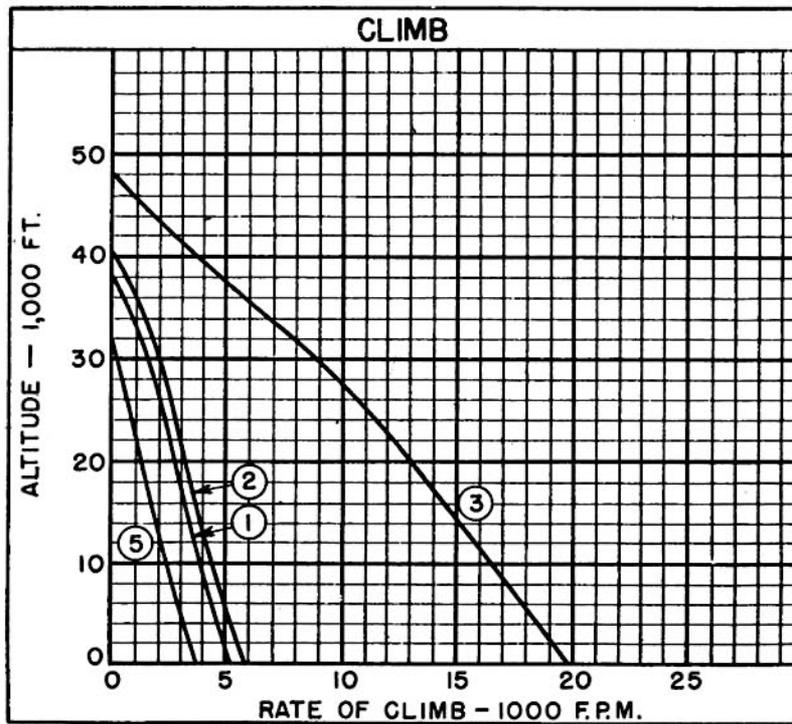
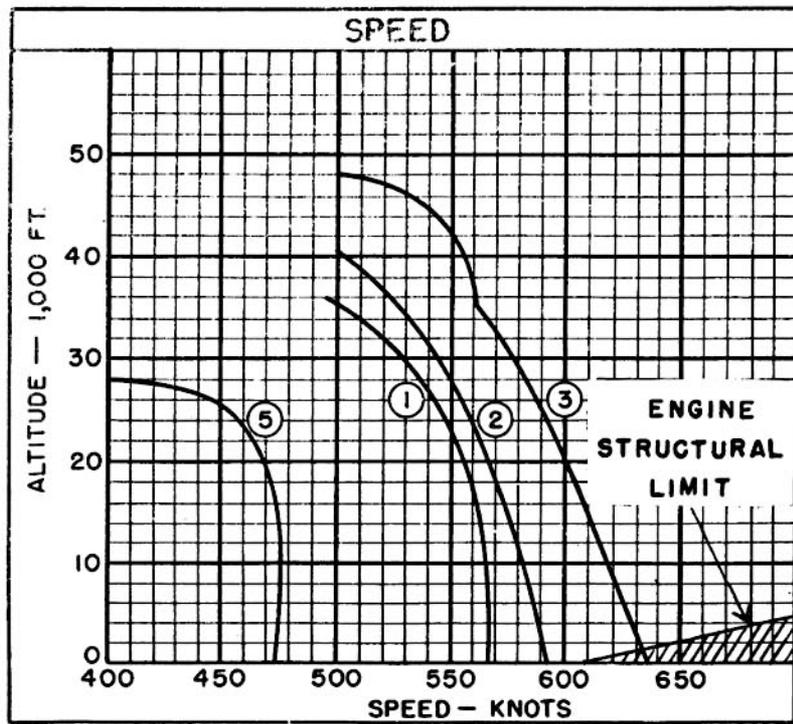
NOTES

(A) Normal rated thrust.

(B) Military rated thrust.

(C) Military and afterburner thrust. Time to climb includes time for take-off and acceleration to climb speed.

(D) Blow-out ceiling when operating the afterburner.



○ LOADING CONDITION COLUMN NUMBER

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

NOTES

(E) Take-off distances are with afterburner operating. Figures in parentheses are with military rated thrust.

Interceptor mission is with maximum fuel in forward and center fuselage fuel tanks.

Performance is based on calculations.

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

13 airplanes (wings folded) can be spotted in a rectangular area 200 feet long and 96 feet wide.

COMBAT RADIUS PROBLEM - GENERAL PURPOSE FIGHTER (GAS TURBINE)

START, TAKE-OFF, ACCELERATION: 5 minutes at normal thrust, 1 minute at military thrust plus afterburning.

CLIMB: to cruising ceiling at military thrust.

CRUISE-OUT: at speed for long range at cruising ceiling.

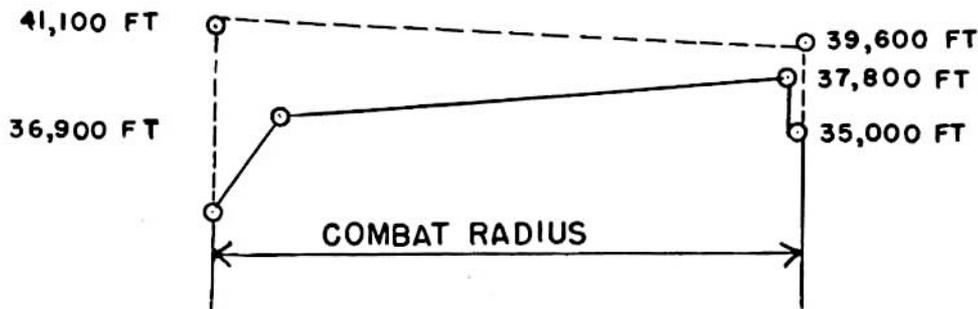
DESCEND: to 35,000 feet (no fuel used, no distance gained).

COMBAT: at 35,000 feet for 20 minutes, of which 15 minutes is at military thrust, and 5 minutes is at military thrust plus afterburning (assume combat concluded at initial cruise-back altitude).

CRUISE-BACK: at speed for long range at cruising ceiling.

RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5% of initial fuel load.

COMBAT RADIUS = CLIMB & CRUISE-OUT = CRUISE-BACK



INTERCEPTOR FIGHTER COMBAT ENDURANCE PROBLEM (POINT INTERCEPT)

WARM-UP, TAKE-OFF ACCELERATE: 2 minutes at normal thrust, 1 minute at military thrust plus afterburning.

CLIMB: to 47,000 feet at military thrust plus afterburning.

COMBAT: at 47,000 feet for 5 minutes with military thrust plus afterburning.

LOITER: at 35,000 feet for 29.3 minutes at speed for maximum endurance.

DESCEND: to sea level (no fuel used, no distance gained).

RESERVE: 20 minutes at speed for maximum endurance.

The total endurance shown in the performance summary is total mission time.

NOTES

Performance data is based on the specification engine, J40-WE-10. The first 50 aircraft will have J40-WE-22 engines. Subsequent to these aircraft, use will be made of the J40-WE-24 and -26 engines whose ratings are somewhat less than that specified for the J40-WE-10. The date of delivery of aircraft with the specification engine (J40-WE-10) is indefinite. The difference in performance of the airplane with the -22 engine installed in lieu of the -10 is as follows:

J40-WE-22

<u>Item</u>	<u>Δ Performance</u>
Gross weights (lbs)	-403
Max. speed, MIL + AB	
Sea Level (kts)	-10
35,000 ft. (kts)	-5
Rate of climb, MIL + AB	
Sea Level (fpm)	-7,670
35,000 ft. (fpm)	-2,740

Standard Aircraft Characteristics NAVAER 1395F (REV. 1-49)