Never one of the most glamorous of Navy/Marine fighters, the Douglas F3D *Skyknight* shared with its Douglas stablemate, the AD *Skyraider,* the distinction of serving with combat squadrons in both the Korean and Vietnamese Conflicts.

The Navy turned to jet power after WW II for its carrier fighters. A night fighter was needed. Douglas received a contract for three prototype XF3D-1s in April 1946. The first flew in March 1948. Typical of early jet fighters, it was a straight wing design. A wide cabin providing side-by-side seats for pilot and radar operator, engines semi-buried in each side of the lower fuselage, four 20mm guns under the radar in the nose and large internal fuel capacity resulted in a bulky fuselage. An unusual feature was the escape system — depending primarily on a bailout chute, out through the bottom of the fuselage.

Subsequent flight testing confirmed the basic soundness of the design and led to correction of problems unearthed in initial carrier operation of this large carrier jet aircraft.

Although underpowered with its two Westinghouse J34 jet engines, 28 aircraft were bought while the -2 was being developed to use the higher powered Westinghouse J46. Delays in the J46 program led to use of uprated J34s and the *Skyknight* was never a high performance aircraft.

Initial flights of production F3D-1s in early 1950 led to service introduction late in the year, with VC-3 and VMF(N)-542. A swept wing version, the F3D-3 was also contracted for but was destined to be stillborn, being cancelled before reaching flight.

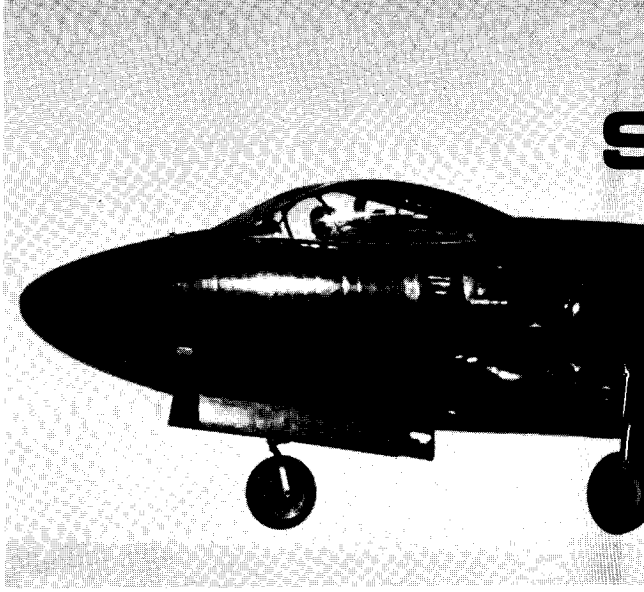
Another foresighted project involved the F3D in 1950: one of the XF3D-1s was modified to carry and fire four *Sparrow Is.*

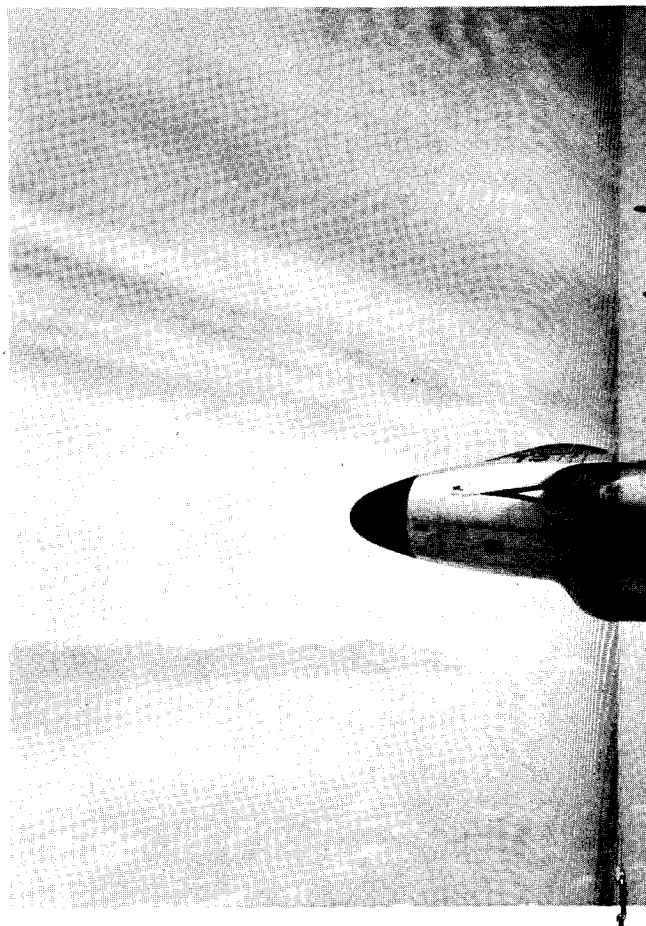
The first F3D-2 flew in February 1951. Over the next two years, 237 were delivered. Sixteen of these were F3D-2Ms in the *Sparrow I* configuration, prototyped by the one XF3D-1M in 1950. The F3D-2s served with Navy composite and Marine night fighter squadrons, but went into combat in Korea only with Marine land-based squadrons, in the fall of 1952.

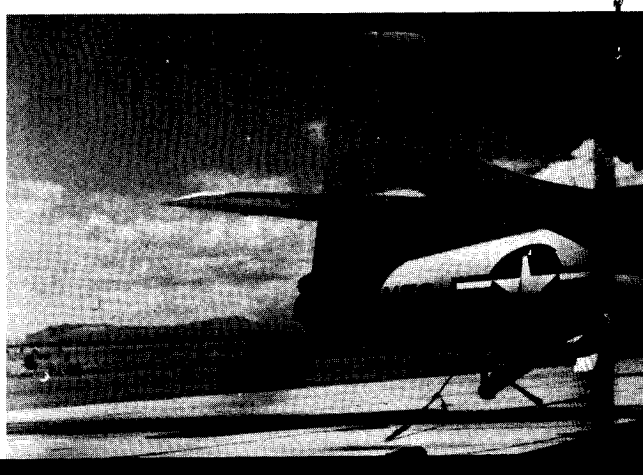
As land-based night fighters, the F3Ds were effective, destroying both jet and prop aircraft in night engagements. However, for carrier use, smaller, single-place night fighters were considered more satisfactory.

By the late Fifties, as the F4D (*NANews,* April 1975) and F3H (*NANews,* March 1974) came into service, the *Skyknights* were converted for trainers and electronic warfare. F3D-2Ts and -2T2s, depending on the radar and fire control system installed, were used for training *Demon* and *Skyray* pilots in radar intercept techniques. The Marines used converted F3D-2Qs as tactical ECM aircraft.

By 1960, the F3Ds were being replaced by later designs. With the DoD redesignations in 1962, the -2Qs became EF-10Bs, and the -2T2s still in service became TF-10Bs. The TFs lasted until late 1963. The EFs continued, flying combat through much of the Vietnam conflict before their retirement.







skyknight

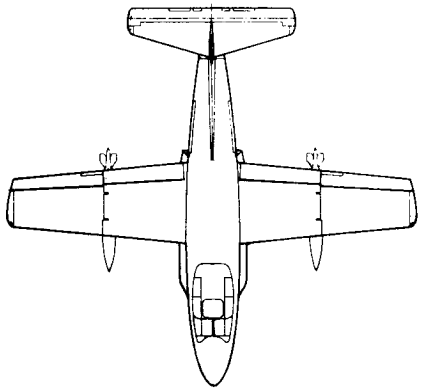
XF3D-1

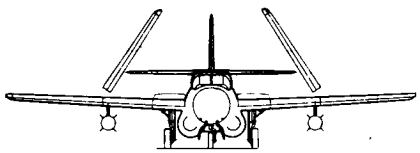
F3D-2

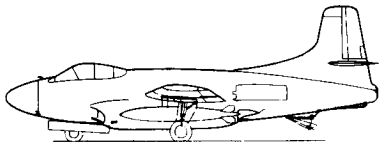
F3D-2Q

F3D

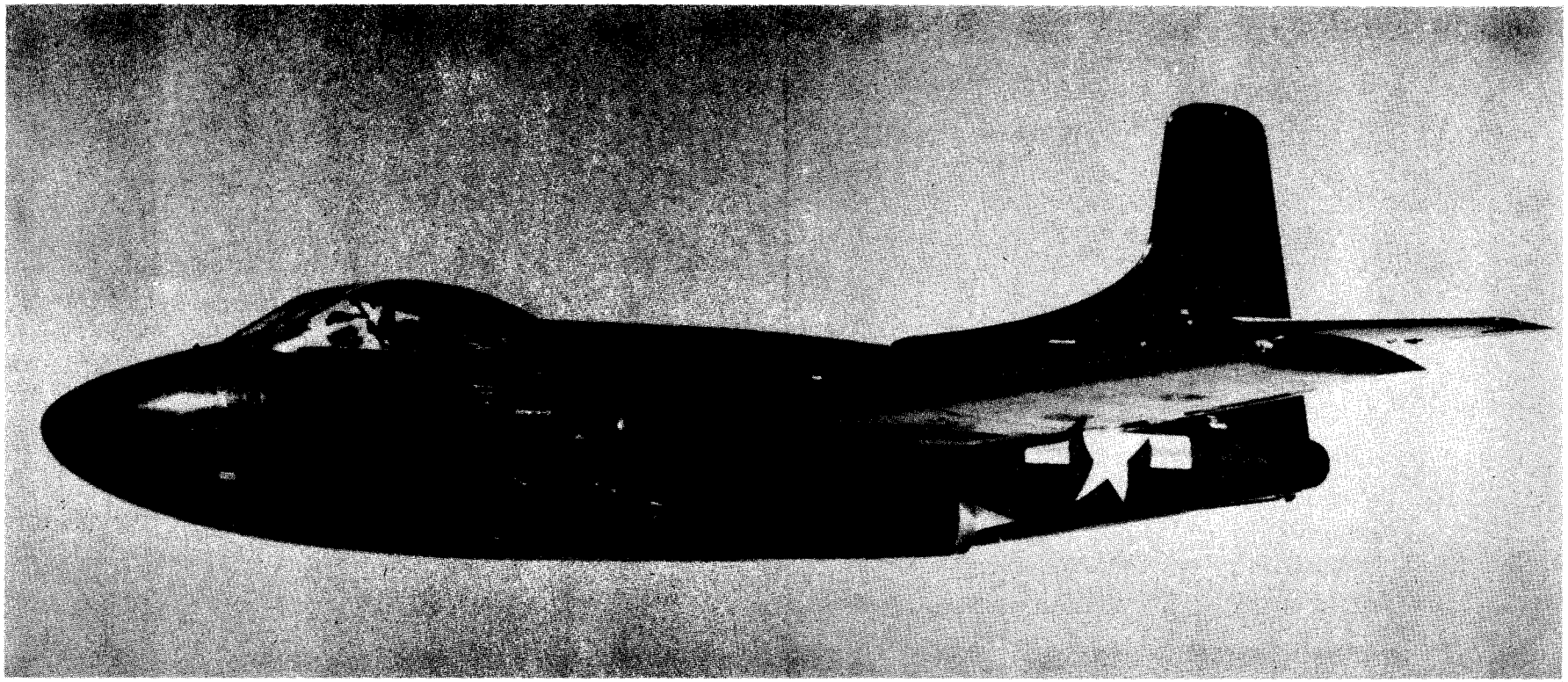
Span	50'
Length	45'5"
Height	16'1"
Power plant	Thrust
1 2 Westinghouse J34-WE-34/38	3,250 lbs.
2 2 Westinghouse J34-WE-36	3,400 lbs.
Max speed	
1	433 knots
2	460 knots
Service ceiling	
1	34,000'
2	36,700'
Range	
1	1,145nm (with ext. tanks)
2	1,195nm (with ext. tanks)
Crew	2
Armament	
All	four 20mm guns
2	two bombs (up to 2,000 lbs.)
2M	four Sparrow Is







UNCLASSIFIED



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

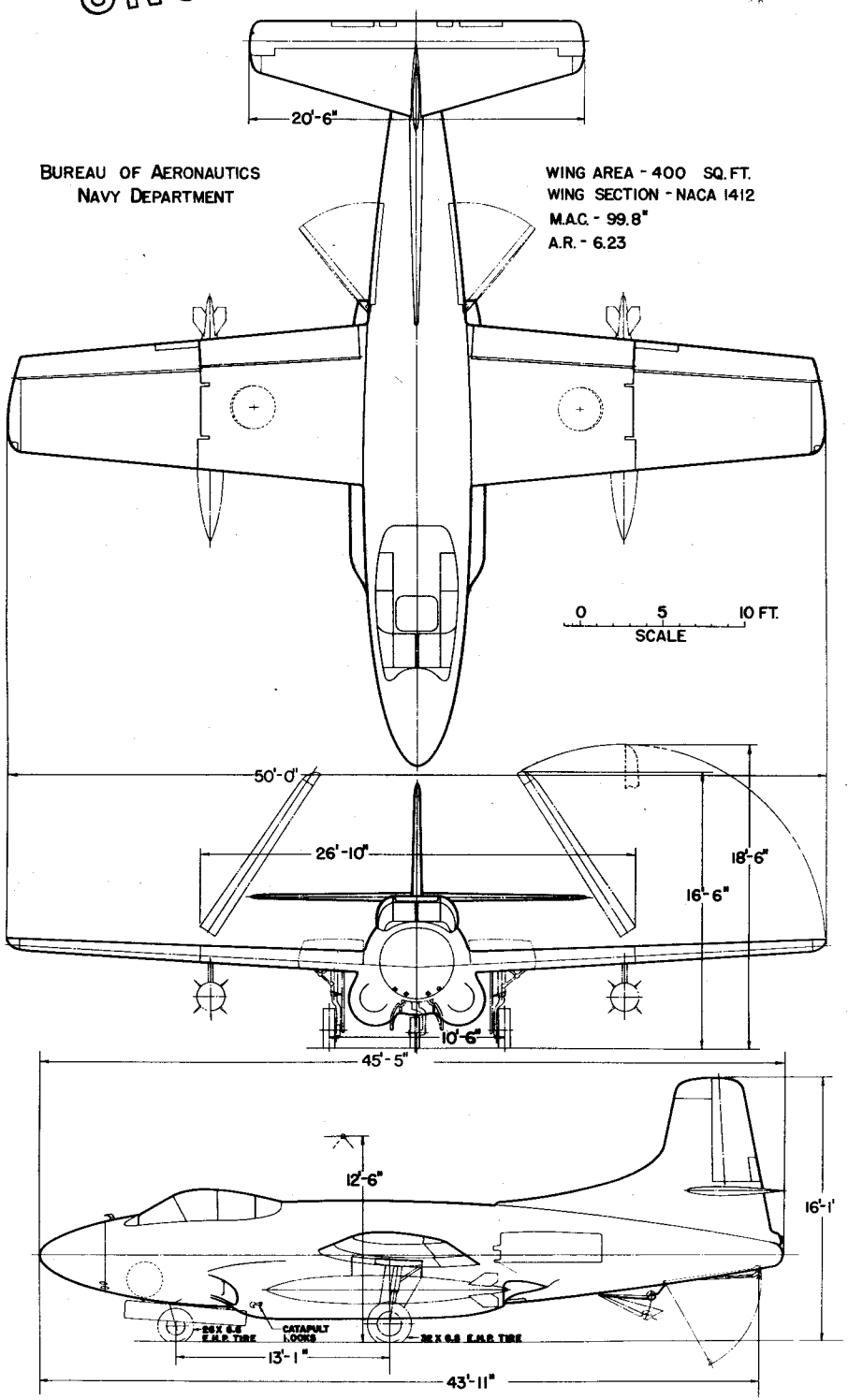
STANDARD AIRCRAFT CHARACTERISTICS

F3D-2 "SKYKNIGHT"

DOUGLAS

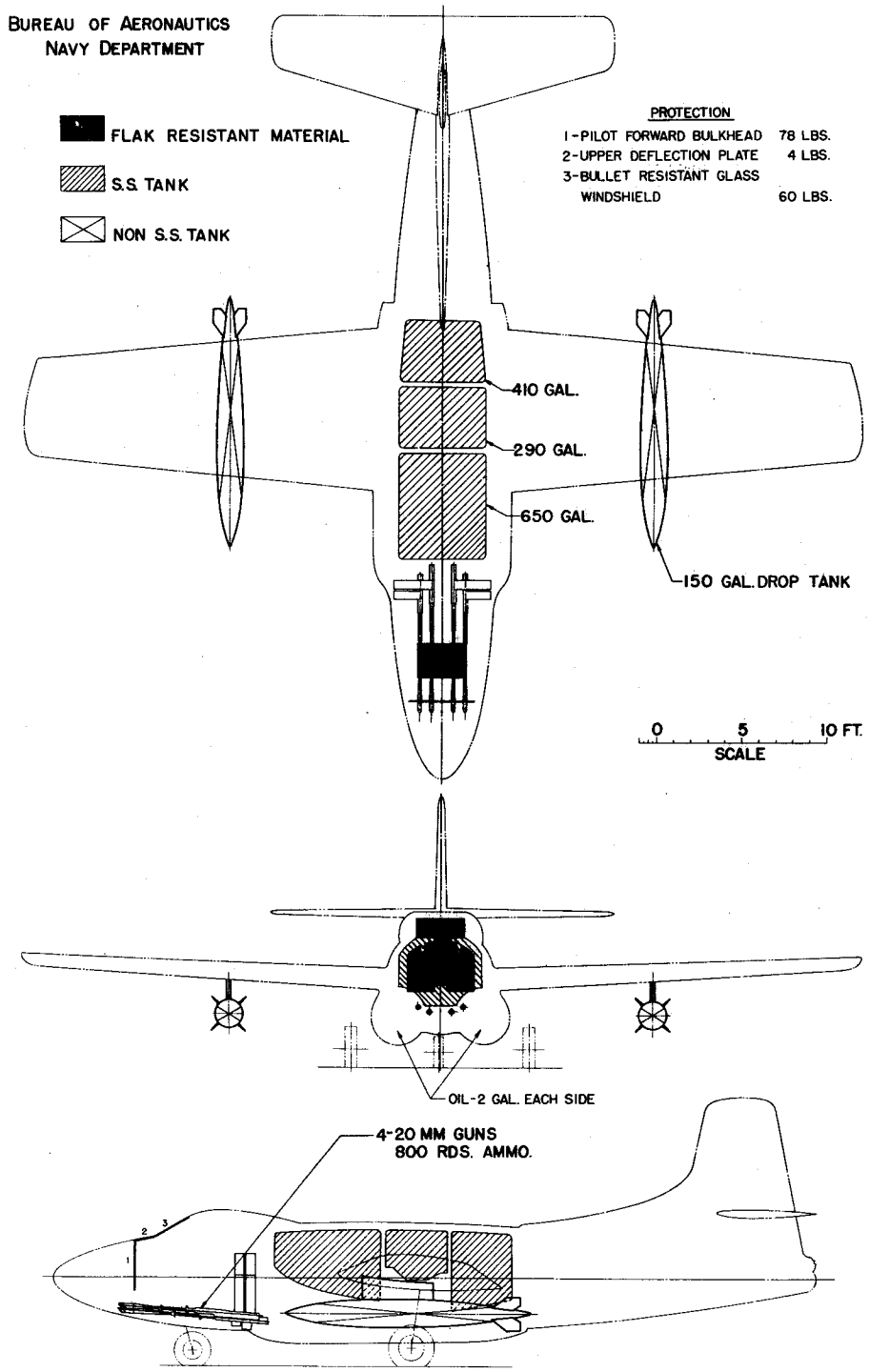
DECLASSIFIED

UNCLASSIFIED



DESCRIPTIVE ARRANGEMENT

DECLASSIFIED



ARMAMENT & TANKS

UNCLASSIFIED

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 bail-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/ARN-21
(P.S.I., Repl. for AN/ARR-2A and AN/ARN-6)
HOMING REC.....AN/ARR-2A
(Continued on NOTES sheet)

UNCLASSIFIED

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

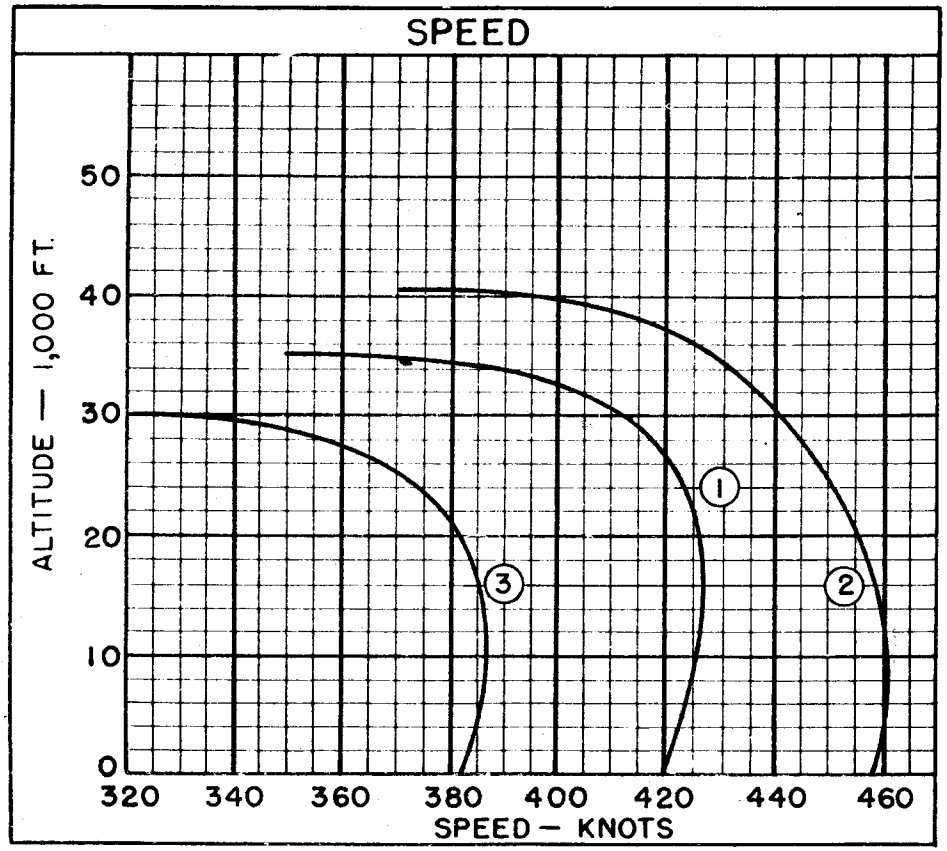
(1) Normal Power
(2) Military Power

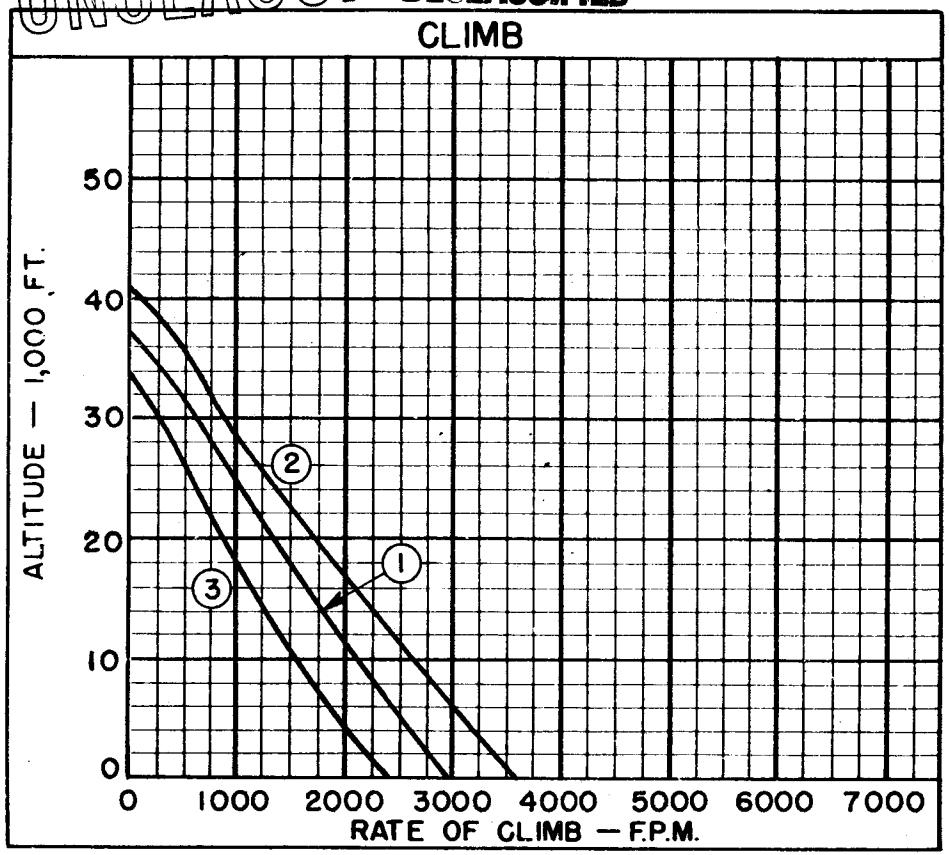
Performance is based on calculations and preliminary NATC flight test of F3D-2 airplane.

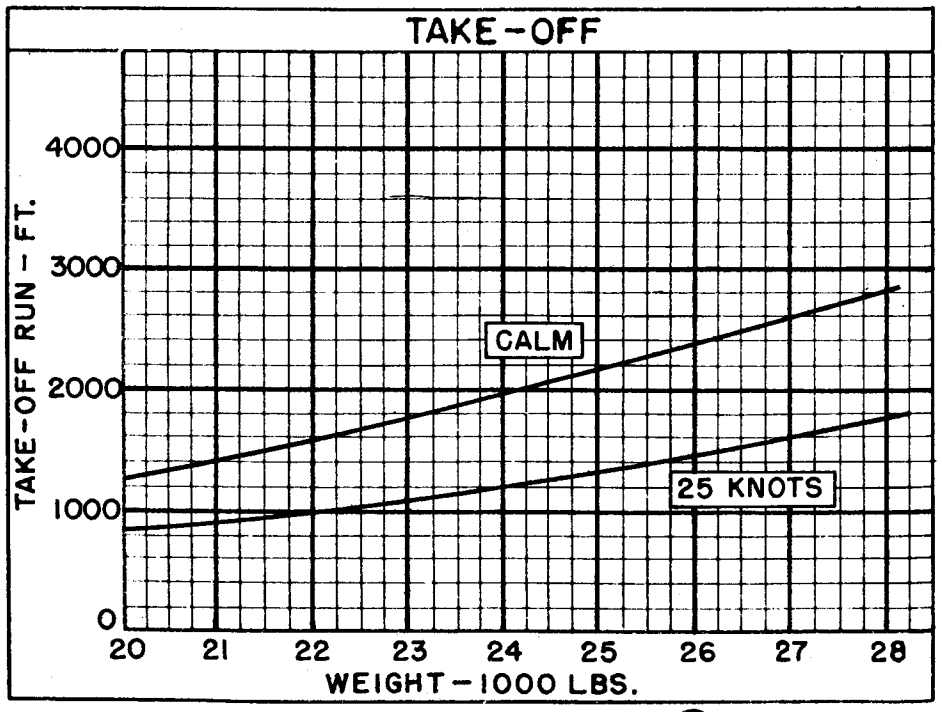
Range and radius are based on engine specification fuel consumption data increased by 5%.

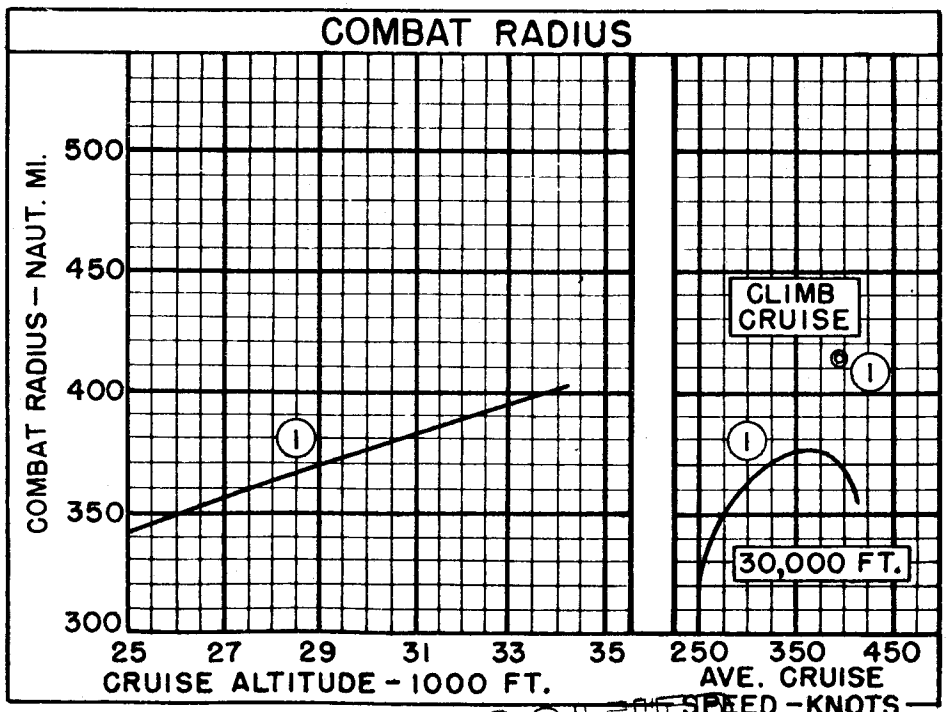
External store pylons are not included in conditions (1) and (2).

UNCLASSIFIED









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

UNCLASSIFIED
UNCLASSIFIED
UNCLASSIFIED

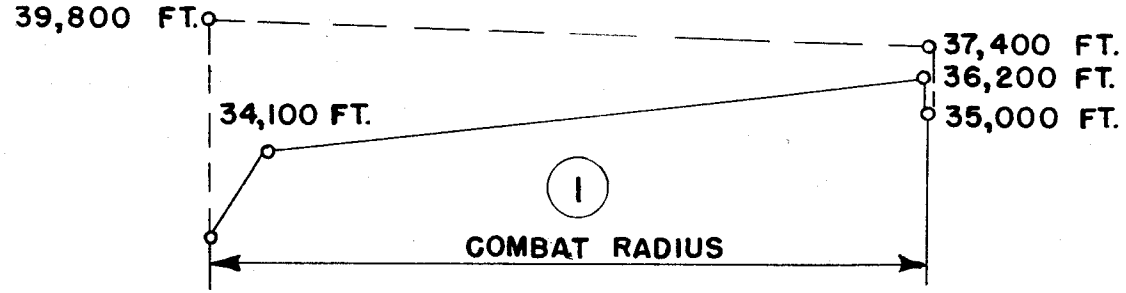
NOTES

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.

COMBAT RADIUS = CLIMB + CRUISE-OUT = 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):

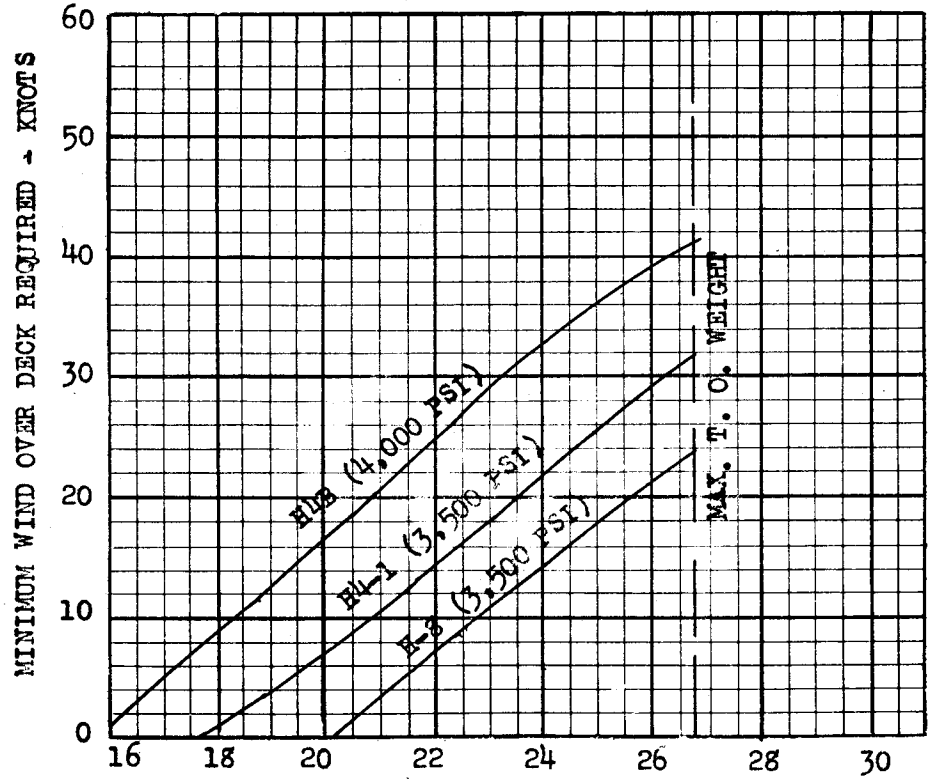
UHF D.F.....AN/ARA-25 (P.S.I.)	IFF EQUIPMENT.....AN/APX-6
RADIO ALTIMETER.....AN/APN-1	IFF (I-R UNIT).....AN/APX-17
RADAR SYSTEM.....AN/APQ-35A, -35B	(Planned Service Installation)

UNCLASSIFIED

DECLASSIFIED

WIND OVER DECK REQUIRED FOR CATAPULTING VS. GROSS WEIGHT

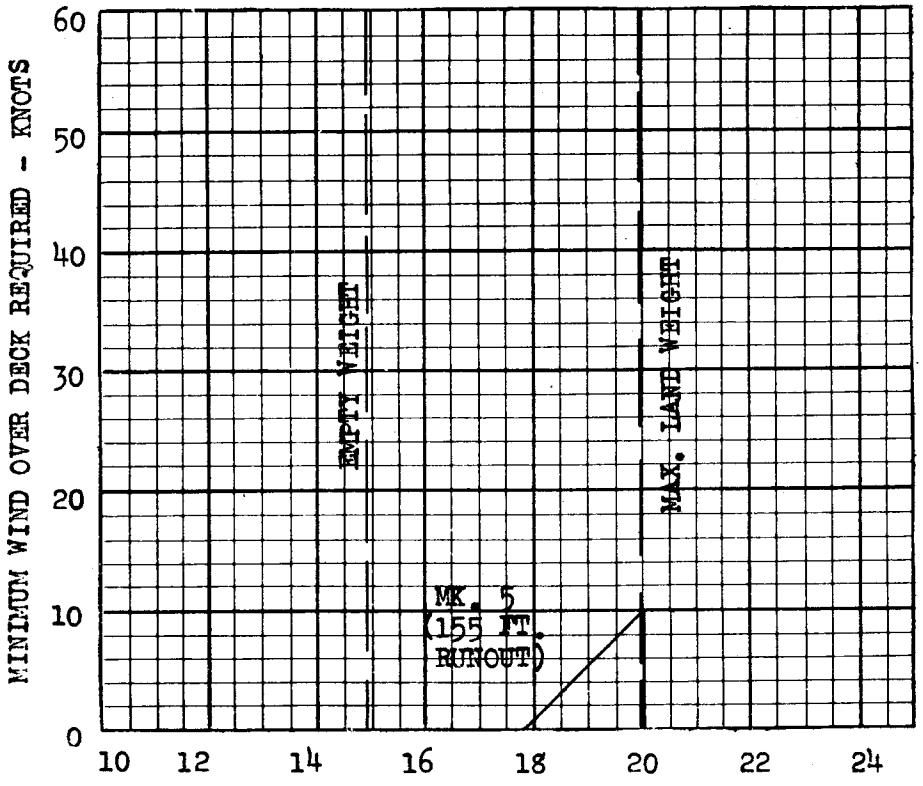
Based on Minimum Safe Take-Off Speed



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