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BY T.G. Helt ON 12/19/96

NAVAIR 00-110AF11-1

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## Standard Aircraft Characteristics

### NAVY MODEL F-11A AIRCRAFT

(TITLE UNCLASSIFIED)

(F-11F-1)

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1 MAY 1955 IN PART AND ALL ADDENDA THERETO

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PUBLISHED BY DIRECTION OF THE  
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1 JULY 1967

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# STANDARD AIRCRAFT CHARACTERISTICS

## F-11A TIGER

GRUMMAN

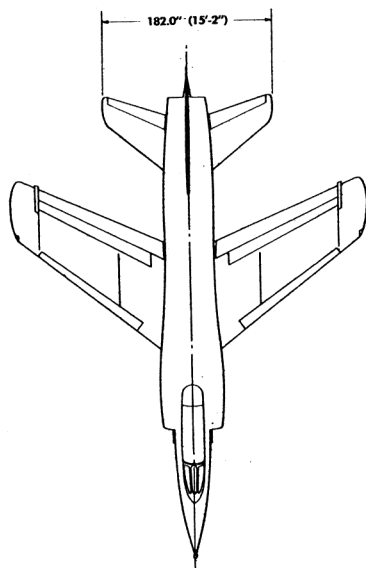
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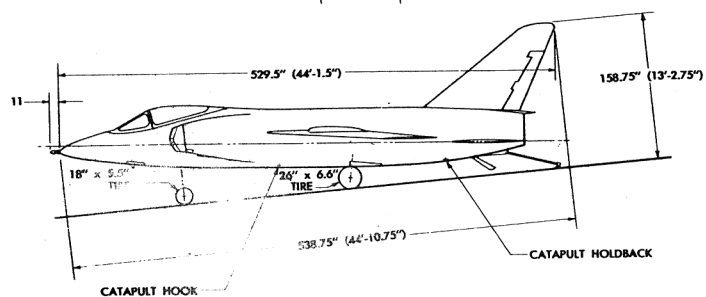
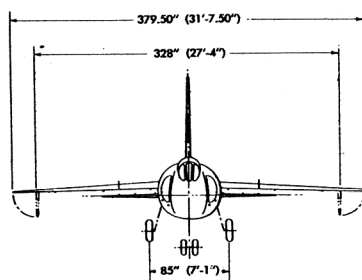
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BUREAU OF AERONAUTICS  
NAVY DEPARTMENT



0 5 10  
SCALE FEET

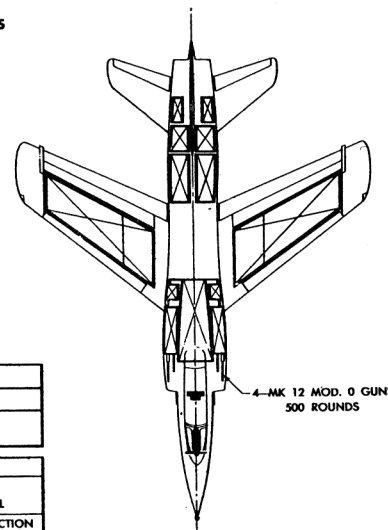


DESCRIPTIVE ARRANGEMENT  
F11F-1

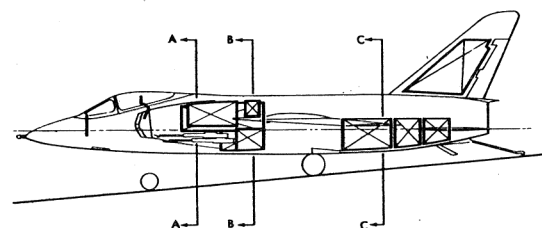
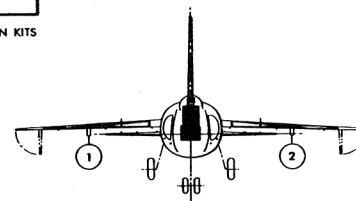
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WING STA 109.7
PYLON 1 & 2
150 GAL. C.F.E. TANK XAAM-N-7 SIDEWINDER
FUEL
AFT FUSELAGE SECTION 270 GALLONS TOTAL
FORWARD FUSELAGE SECTION 511 GALLONS TOTAL
WING 96 GALLONS PER SIDE TOTAL 192 GALLONS
FIN 50 GALLONS

\*ARMOR PLATE SUPPLIED IN KITS



0 5 10  
SCALE FEET



ARMAMENT & TANKAGE  
F11F-1

BULLET RESISTANT GLASS  
AND ARMOR PLATE \*

NON-SELF-SEALING TANKS



VIEW "A-A"



VIEW "B-B"



VIEW "C-C"

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## POWER PLANT

NO. & MODEL.....(1) J65-W-18  
 MFR.....Wright Aero  
 TYPE.....Axial Flow  
 LENGTH.....184"  
 DIAMETER.....41"  
 AUGMENTATION.....Afterburner

## RATINGS

	LBS.	RPM	ALT.
MAX.	10,500	8,300	S.S.L.
T.O. &			
MIL.	7,450	8,300	S.S.L.
NORMAL	6,470	8,030 max.	S.S.L.

SPEC. NO. N-927-B

## ORDNANCE

UHF COMMUN.....AN/ARC-27A  
 UHF.....AN/ARA-25  
 UHF.....AN/ARR-40  
 VHF NAV\*.....AN/ARN-14E  
 IFF.....AN/APX-6B  
 VIDEO CODER.....AN/APA-89  
 RANGING RADAR\*\*.....AN/APG-30A

\*Provision for AN/ARN-21 as alternate.

\*\*Provision for AN/APS-67 as alternate  
 A/C #45 and subsequent.

## MISSION AND DESCRIPTION

The F11F-1 is a single-seat jet propelled day fighter designed for land and carrier operations. The primary mission is the destruction of enemy aircraft.

The cockpit is pressurized for high altitude flight and a pilot ejection seat is provided. High lift devices are slotted flaps and leading edge slats. Speed brakes are located on the bottom of fuselage.

Control about all three axes is achieved by irreversible hydraulically actuated surfaces. Two continuously operating independent systems of equal power supply pressure to tandem cylinders. Longitudinal control is effected by an all-movable stabilizer in flaps-up configuration and augmented by a geared elevator when flaps are down. Lateral control is provided by flaperons, while a conventional rudder is used for directional control.

Wing folding is manual. The engine may be serviced or removed by removal of tail section of fuselage.

A short nose boom is provided for in-flight refueling.

## DEVELOPMENT

First Flight.....30 July 1954  
 Service Use.....March 1957

## WEIGHTS

LOADINGS	LBS.	L.F.
EMPTY.....	13,307.....	
BASIC.....	13,810.....	
DESIGN.....	18,375.....	6.5
COMBAT.....	18,375.....	6.5
MAX. T.O. (Field).....	23,459.....	
(Cat.).....	23,459.....	
MAX. LAND. (Field).....	20,600.....	
(Arrest).....	15,715.....	

All Weights are Actual.

## FUEL AND OIL

No. Tanks	Total Gals.	Location
2	722	Fuselage
4	59	Fus. (Cheek)
1	50	Vert. Tail.
2	192	Wings
Fuel Grade .....		JP-4
Fuel Spec.....		applicable.MIL-F-5624

## OIL

CAPACITY (Gals.).....4.36  
 SPEC.....applicable.MIL-L-7808

## DIMENSIONS

WING  
 AREA.....250 sq.ft.  
 SPAN.....31'8"  
 MAC.....8'2"  
 SWEEPBACK (1/4 chord).....35°  
 ASPECT RATIO.....4  
 LENGTH.....44'10.75"  
 HEIGHT.....13'2.75"  
 TREAD.....7'1"

## ELECTRONICS

No.	Size	Location	Rds.
4	20mm	Fuselage	500

## FIRE CONTROL

RANGING RADAR.....AN/APG-30  
 AFCS.....MK-16, MOD. 2

## EXTERNAL STORES

Provisions:

- (1) Sidewinder
- (2) 150 gal. drop tank (CFE)
- (3) Aero 7A Rocket Package
- (4) Aero 6A Rocket Package

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## PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	(1) GENERAL PURPOSE FIGHTER GUNS + FULL INTERNAL FUEL	(3) GENERAL PURPOSE 2-SIDEWINDERS + GUNS 2-150 GAL. DROP TANKS	(5) GENERAL PURPOSE FIGHTER + 4 SIDEWINDERS + GUNS		
TAKE-OFF WEIGHT	lb.	21,035	23,899	21,915	
Fuel	lb.	6,650	6,650/1,950	6,650	
Payload	lb.	300	610	920	
Wing loading	lb./sq.ft.	84.14	95.6	87.66	
Stall speed - power-off	kn.	124.5	132.8	127.1	
Take-off run at S.L. - calm	ft.	4,260	5,750	4,700	
Take-off run at S.L. 25 kn. wind	ft.	3,100	3,980	3,300	
Take-off to clear 50 ft. - calm	ft.	5,600	7,200	6,180	
Max. speed/altitude (A)	kn./ft.	588/18,000	542/26,000	551/25,000	
Rate of climb at S.L. (A)	fpm.	5,130	3,700	4,050	
Time: S.L. to 20,000 ft. (A)	min.	4.7	7.2	6.0	
Time: S.L. to 30,000 ft. (A)	min.	8.1	13.7	11.0	
Service ceiling (100 fpm) (A) (E)	ft.	41,900	35,000	37,700	
Combat range	n.mi.	1,108	1,146	784	
Average cruising speed	kn.	502	466	454	
Cruising altitude(s)	ft.	38,000/41,800	25,500/31,100	30,000/32,000	
Combat radius/Mission Time	n.mi./hr.	310/1.57	420/2.11	250/1.41	
Average cruising speed	kn.	504	476	473	
CAP - Loiter Altitude/Loiter Time/Mission Time (B) Ft./hr./hr.		30,500/.622/1.56	28,500/1.08/1.85	28,000/.40/1.39	
IFR - Radius/Mission Time (C) n.mi./hr.			690/3.76		
COMBAT LOADING CONDITION	(2) CLEAN	(4) CLEAN + 2-SIDEWINDERS + 2-PYLONS	(6) CLEAN + 4-SIDEWINDERS	(7) CLEAN + 4-SIDEWINDER PYLONS	
COMBAT WEIGHT	lb.	18,375	20,195	19,255	18,635
Engine power		Maximum	Maximum	Maximum	Maximum
Fuel	lb.	3,990	5,160	3,990	3,990
Combat speed/combat altitude	kn./ft.	632/35,000	591/35,000	585/35,000	612/35,000
Rate of climb/combat altitude	fpm/ft.		6,200/35,000	6,000/35,000	7,400/35,000
Combat ceiling (500 fpm) (E)	ft.	49,000	47,300	47,500	49,000
Rate of climb at S.L.	fpm.	16,300	11,200	10,800	13,600
Max. speed at S.L.	kn.	654	641	630	650
Max. speed/altitude	kn./ft.	654/S.L.	641/S.L.	630/S.L.	650/S.L.
LANDING WEIGHT	lb.	15,275	15,732	15,550	
Fuel	lb.	1,190	1,307	1,205	
Stall speed - power-off (D)	kn.	106	107.5	106.9	
Stall speed - with approach power (D)	kn.	103.3	104.9	104.3	

## NOTES

(A) MILITARY RATED THRUST

(B) COMBAT AIR PATROL (CAP) - 150 n. mi. radius

(C) INFLIGHT REFUELING (IFR) - Outbound only. Transfer 4,800 lb at 455 nautical miles out. Radius is reduced 26 nautical miles and refuel allowance is increased 5 minutes for each additional aircraft up to a total of 3 aircraft.

(D) MINIMUM CONTROL SPEED.

(E) No. Provisions for Pilot Pressure Suit.

PERFORMANCE BASIS: Calculations.

RANGE AND RADIUS are based on engine specification fuel consumption increased by 5%.

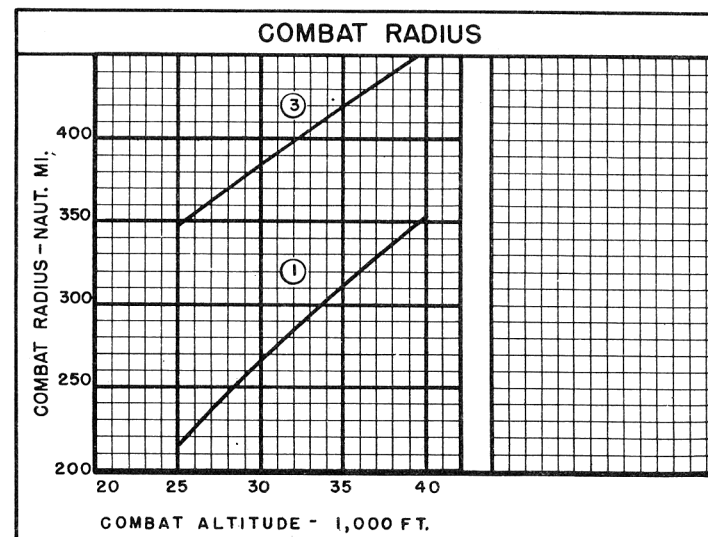
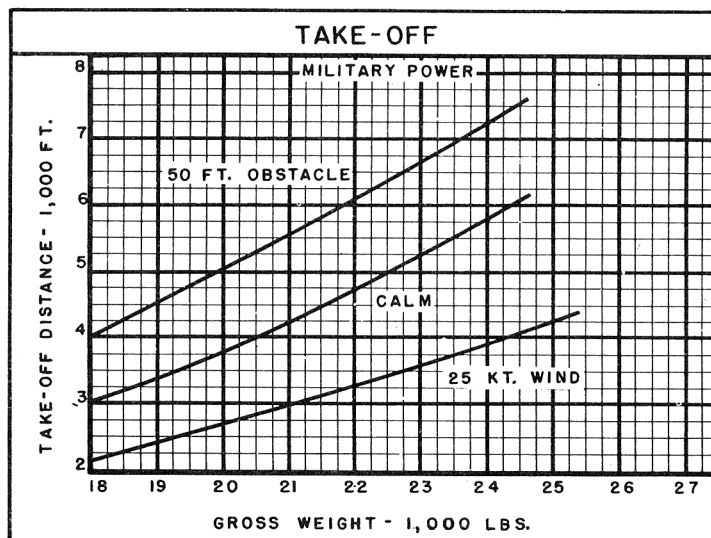
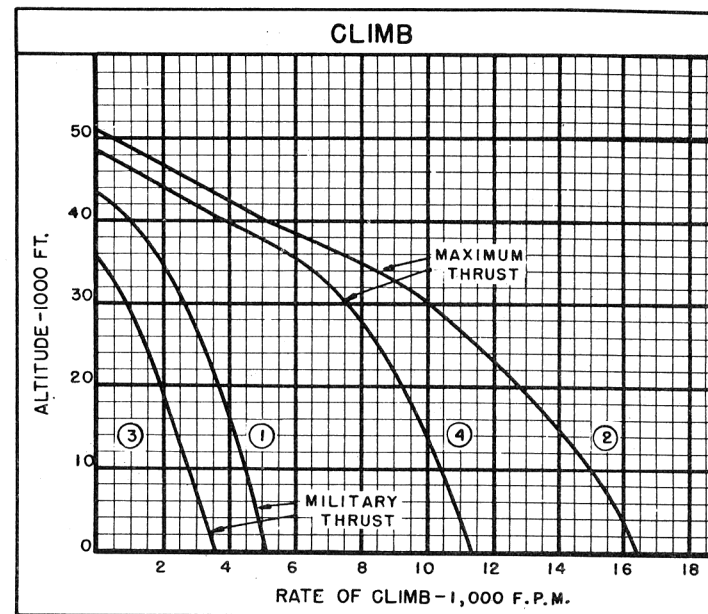
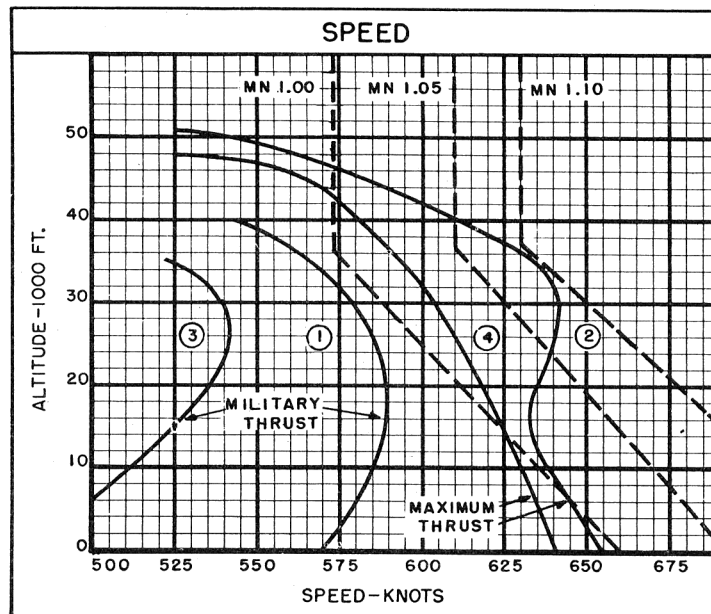
Aircraft weights for the above data are for Contract No. 53-1013. Aircraft for Contract 55-187 have increased 244 lb. in the clean configuration.

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○ LOADING CONDITION COLUMN NUMBER

5

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# NOTES

SPOTTING: A total of 80 airplanes can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class angled deck carrier.  
(flight deck 45; hangar deck 35 airplanes)

## GENERAL PURPOSE AND FIGHTER ESCORT

WARM-UP, TAKE-OFF, ACCELERATE: 5 minutes with normal thrust at sea level.  
CLIMB: On course to cruise altitude with military rated thrust.  
CRUISE-OUT: At altitudes and speeds for maximum range.  
COMBAT FUEL ALLOWANCE: At 35,000 ft., 15 minutes at military rated thrust plus 5 minutes at maximum thrust.  
CRUISE BACK: At altitudes and speeds for maximum range.  
RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5 per cent of initial fuel load.

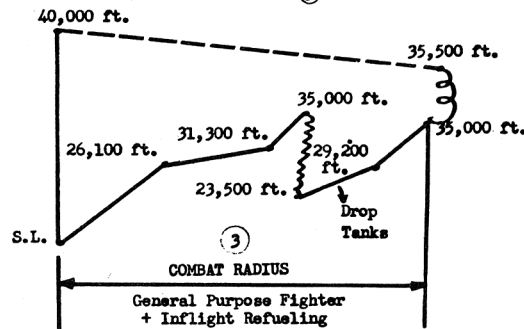
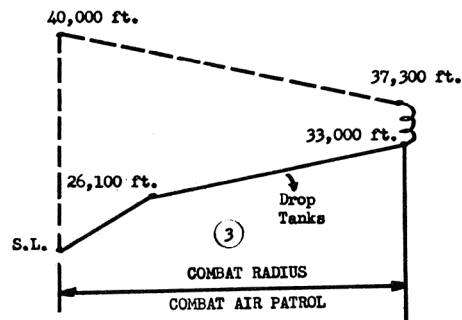
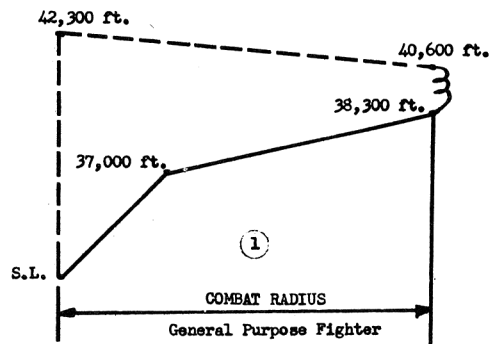
## COMBAT AIR PATROL

WARM-UP, TAKE-OFF, ACCELERATE: 5 minutes with normal thrust at sea level.  
CLIMB: On course to cruise altitude with military rated thrust.  
CRUISE: To a point 150 nautical miles from base at altitudes and speeds for maximum range.  
LOITER: On station at speed for maximum endurance at approximate final cruise out altitude.  
COMBAT FUEL ALLOWANCE: At 35,000 ft. for 5 minutes at maximum thrust at a velocity mid-way between Vmax with maximum thrust and Vmax with military thrust plus 15 minutes at Vmax with military thrust.  
CRUISE-BACK: 150 nautical miles to base at altitudes and speeds for maximum range.  
RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5 per cent of initial fuel load.

## GENERAL PURPOSE FIGHTER WITH INFLIGHT REFUELING (A3D-2 Tanker)

WARM-UP, TAKE-OFF, ACCELERATE: 5 minutes with normal thrust at sea level.  
CLIMB: On course to cruise altitude with military rated thrust.  
CRUISE-OUT: At altitudes and speeds for maximum range.  
CLIMB: To 35,000 ft. refueling altitude with military rated thrust.  
ALLOWANCE FOR RENDEZVOUS, HOOK-UP, AND FLIGHT CONTINGENCIES: 15 minutes at maximum endurance airspeeds. (Assume no fuel used, no distance gained during transfer of fuel.)  
REFUEL POINT: Limited to return of aircraft to base with normal reserve if contact for refueling is not made.  
CRUISE: Continue cruise-out at altitudes and speeds for maximum range.  
CLIMB: To combat altitude 35,000 ft.

The remainder of problem is the same as the general purpose fighter problem of loading condition column number ③.



If JP-5 Fuel is Used, the Following are Applicable:

- ① General purpose fighter; clean.
- ③ General purpose fighter; 2 sidewinders + 2 150 gal. tanks.
- ③ Combat air patrol; 2 sidewinders + 2 150 gal. tanks.
- ③ General purpose fighter - inflight refueling; 2 sidewinders + 2 150 gal. tanks.

	Δ WEIGHT	Δ RANGE	Δ RADIUS	Δ MISSION TIME
①	+ 306 lb.	+ 78 n. mi.	+ 39 n. mi.	+ .154 hrs.
③	+ 396 lb.	+ 81 n. mi.	+ 40 n. mi.	+ .170 hrs.
③	+ 396 lb.	- - -	- - -	+ .158 hrs.
③	+ 396 lb.	- - -	+ 56 n. mi.	+ .152 hrs.

○ LOADING CONDITION COLUMN NUMBER

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