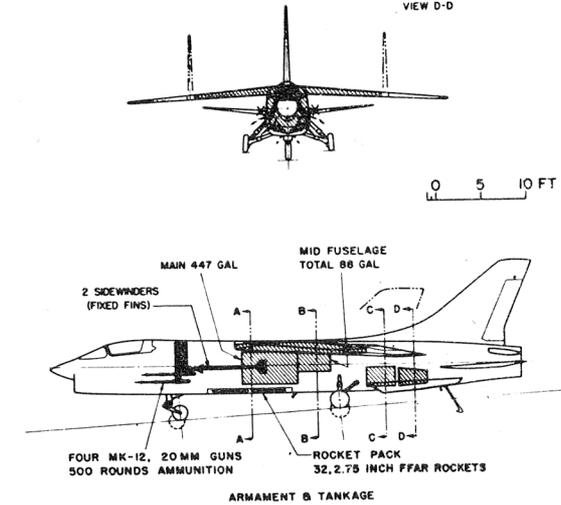
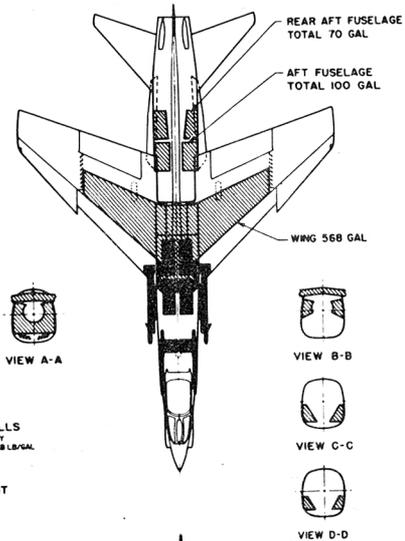
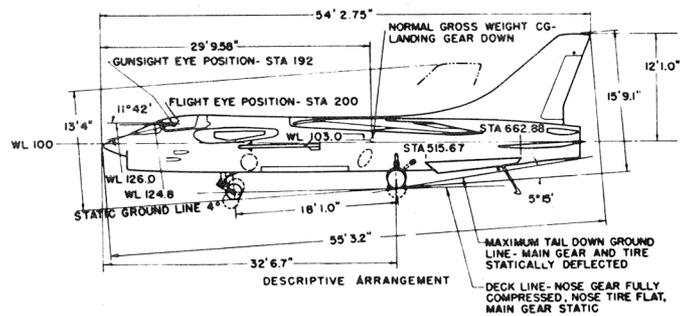
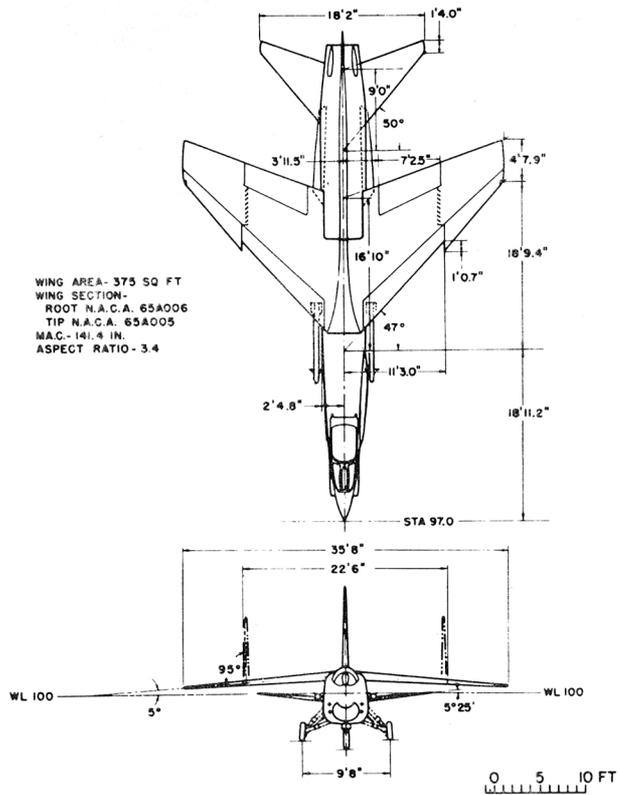


# STANDARD AIRCRAFT CHARACTERISTICS

## F8U-2 "CRUSADER"

CHANCE VOUGHT

Standard Aircraft Characteristics NAVAR 1335A (REV. 1-55)



Standard Aircraft Characteristics NAVAER 1335B (Rev. 1-55)

**POWER PLANT**

NO & MODEL ..... (1) J57-P-20  
 AUGMENTATION .... AFTERBURNER  
 MFR. .... PRATT & WHITNEY  
 LENGTH ..... 269.52 INCHES  
 DIAMETER ..... 40.44 INCHES  
 TYPE ..... AXIAL FLOW

**RATINGS**

THRUST (SEA LEVEL STATIC)  
 MAXIMUM (A/B) 18,000 LBS  
 MILITARY 16,700 LBS  
 NORMAL 9,150 LBS

ENG. SPEC. NO. P&W N-1754

**ORDNANCE**

NO.	DESCRIPTION	LOCATION
4	20 MM AIRCRAFT GUNS, MK-12	FUSELAGE FRONT SECTION
500	ROUNDS OF 20 MM AMMUNITION	
20R4	SIDEWINDER AIR TO AIR MISSILES CARRIED EXTERNALLY ON PYLONS	EACH SIDE OF FUSELAGE

**MISSION AND DESCRIPTION**

THE F-8D IS A SINGLE-SEAT, CARRIER BASED JET FIGHTER DESIGNED TO MAINTAIN AIR SUPERIORITY DURING TAKE FORCE STRIKES WHEN THE ENEMY WILL MOUNT LARGE NUMBERS OF AIRCRAFT. THE AIRPLANE IS A NATURAL DEVELOPMENT OF THE F-8C. BUT WITH IMPROVED PERFORMANCE AND WITH INCREASED ABILITY TO DETECT AND DESTROY TARGETS AT NIGHT AND IN FOUL WEATHER. THE PRIMARY IMPROVEMENTS DISTINGUISHING THE F-8D ARE: (1) THE J57-P-20 ENGINE (IMPROVED OVER THE J57-P-16) WHICH PROVIDES INCREASED PERFORMANCE; (2) THE AUTOPILOT, WHICH PROVIDES A THREE-AXIS ATTITUDE HOLD (AUXILIARY ALTITUDE HOLD AND BANK CONTROL FEATURES ARE ALSO PROVIDED); (3) THE APQ-83 ANGLE TRACKING RADAR FOR IMPROVED DETECTION AND ATTACK CAPABILITY; (4) THE 75 GALLONS OF ADDITIONAL FUEL FOR INCREASED RANGE; (5) COMPATIBILITY WITH MK-29 AND MK-30 SIDEWINDER MISSILES AND (6) PROVISIONS FOR MOUNTING FOUR MISSILES. EXTERNALLY THE F-8D IS THE SAME AS THE F-8C, INCLUDING THE LOW ASPECT RATIO VENTRAL FINS, AFTERBURNER COOLING AIR SCOOPS, EXTERNAL IFR FAIRING, AND FOUR MARK XII 20MM AIRCRAFT CANNON.

**DEVELOPMENT**

FIRST FLIGHT ..... FEBRUARY 1960  
 SERVICE USE ..... OCTOBER 1960

**DIMENSIONS**

WING  
 AREA ..... 375 SQ. FT.  
 SPAN ..... 35'8"  
 M.A.C. .... 141"  
 SWEEPBACK (1/2 CHORD) ... 42.0"  
 LENGTH ..... 54'-2.75"  
 HEIGHT ..... 15'-9.1"  
 TREAD ..... 9'-8"

**WEIGHTS**

LOADINGS	LBS.	L.F.
EMPTY	17,541	
BASIC	18,423	
DESIGN	26,000	6.4
COMBAT (GUNS ONLY)	24,482	
(2S/W)	25,098	
(4 S/W)	25,805	
MAX T.O. (FIELD)	29,500	
(CAT)	29,500	
MAX LAND (FIELD)	26,000	
(ARREST)	22,000	

**FUEL AND OIL**

GALS (TOTAL)	NO. TANKS	LOCATION
514	3	FUSELAGE, BLADDER MAIN SYSTEM
245	5	FUSELAGE, BLADDER, TRANSFER SYSTEM
589	1	WING INTEGRAL TRANSFER SYSTEM
FUEL CAPACITY (TOTAL USABLE) ... 1348 GALLONS		
FUEL ..... MIL-F-5624C		
FUEL GRADE... <b>OIL</b> ..... JP-5		
CAPACITY (TOTAL) ... 8.5 GALS.		
(USABLE) ... 3.0 GALS.		
SPEC (APPLICABLE) .MIL-L-7808C		

**ELECTRONICS**

INTEGRATED ELECTRONIC CENTRAL ... AN/ASQ-17B  
 (CONTAINS FUNCTIONS OF AN/ARC-27A, AN/APX-6B & AN/ARA-25)  
 CODER GROUP ..... AN/APA-89  
 RADIO SET (TACAN) ... AN/ARN-21  
 GYRO STABILIZED MAGNETICALLY SLAVED COMPASS ..... MA-1  
 ARMAMENT CONTROL SYSTEM ..... AN/AWG-4  
 (INCLUDES AN/APQ-83, RADAR SET AND EX-16, AIRCRAFT FIRE CONTROL SYSTEM)

## PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	(1) BASIC FIGHTER GUNS AND 32 - 2.75" FFAR ROCKETS		(4) BASIC FIGHTER GUNS + 2 EXTERNAL SIDEWINDERS		
TAKE-OFF WEIGHT	lb.	27,938		27,810	
Fuel (JP-5)	lb.	8,657		8,657	
Payload	lb.	934		683	
Wing loading	lb./sq.ft.	74.5		74.2	
Stall speed - power-off	kn.	137.5		137.3	
Take-off run at S.L. - calm (A)	ft.	5,720		5,660	
Take-off run at S.L. 25 kn. wind (A)	ft.	4,130		4,080	
Take-off to clear 50 ft. - calm (A)	ft.	7,560		7,480	
Max. speed/altitude (A)	kn./ft.	583/S.L.		570/15,000	
Rate of climb at S.L. (A)	fpm.	5,200		4,090	
Time: S.L. to 20,000 ft. (A)	min.	4.2		4.5	
Time: S.L. to 30,000 ft. (A)	min.	6.8		8.2	
Service ceiling (100 fpm) (A)	ft.	41,700		40,800	
Combat range	n.mi.	1,295		1,195	
Average cruising speed	kn.	495		495	
Cruising altitude(s)	ft.	41,600		41,800	
Combat radius/ MISSION TIME	n.mi./hrs.	320/1.65		300/1.56	
Average cruising speed	kn.	495		495	
CAP Loiter @ 40,000 ft./Mission Time (B) hrs/hr.		.68/1.63		.59/1.54	
IFR RADIUS/MISSION TIME	n.mi./hr.	765/3.49 (C)		730/3.38	
COMBAT LOADING CONDITION	(2) ROCKET RETAINED	(3) ROCKETS RETAINED	(5) SIDEWINDERS RETAINED	(6) SIDEWINDERS RETAINED	
COMBAT WEIGHT	lb.	24,475	24,475	24,347	24,347
Engine power		Maximum	Military	Maximum	Military
Fuel	lb.	5,184	5,184	5,184	5,184
Combat speed/combat altitude	kn./ft.	960/35,000	548/35,000	922/35,000	539/35,000
Rate of climb/combat altitude	fpm/ft.	12600/35,000	2,590/35,000	12,000/35,000	2,200/35,000
Combat ceiling (500 fpm)	ft.	52,500	43,000	52,000	42,000
Rate of climb at S.L.	fpm.	25,400	6,000	21,700	4,790
Max. speed at S.L.	kn.	653	585	640	560
Max. speed/altitude	kn./ft.	960/35,000	586/5,000	922/35,000	572/15,000
LANDING WEIGHT	lb.	19,560		19,683	
Fuel	lb.	1,213		1,213	
Stall speed - power-off/with appr. power	kn./kn.	113, 7/110.4		114.1/110.7	
Distance - ground roll/over 50' obstacle	ft./ft.	5,700/5,450		4,750/5,500	

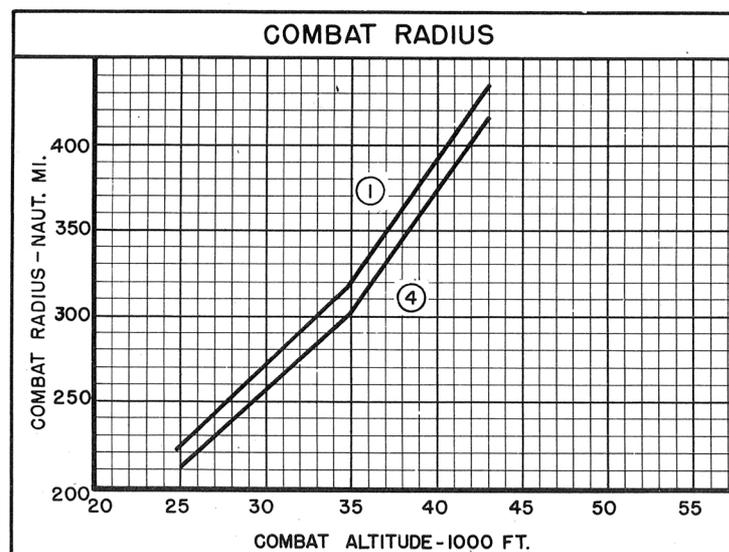
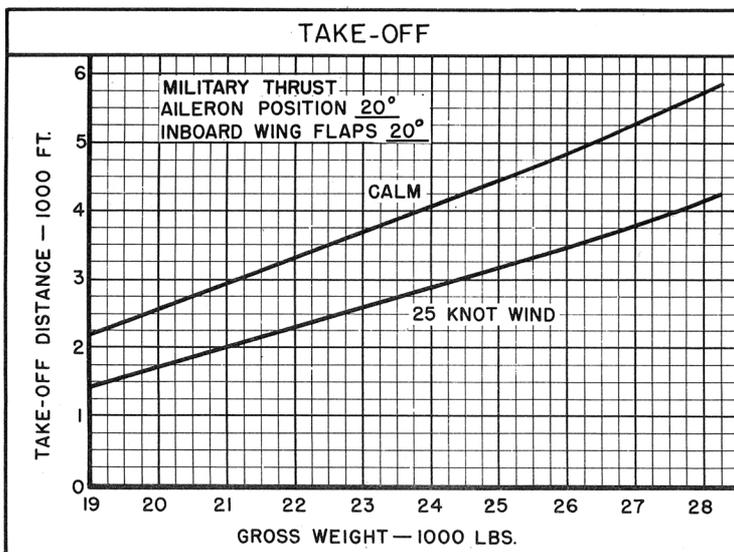
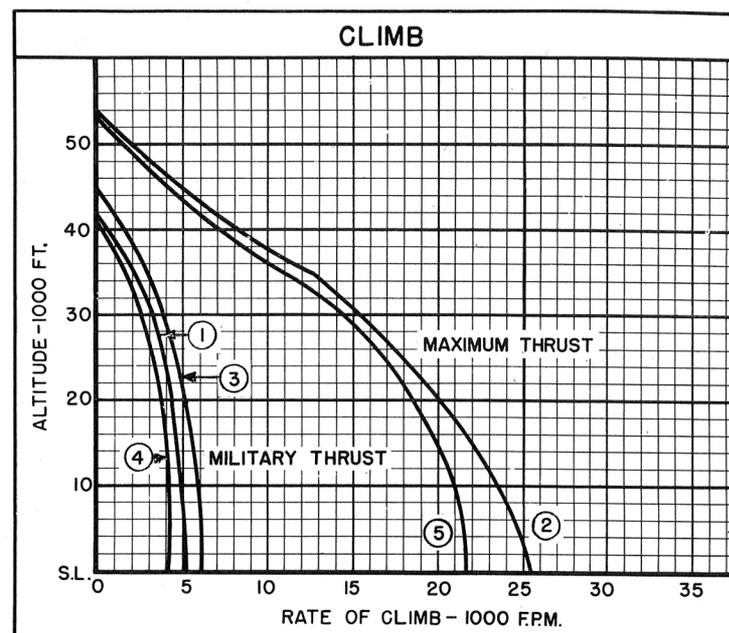
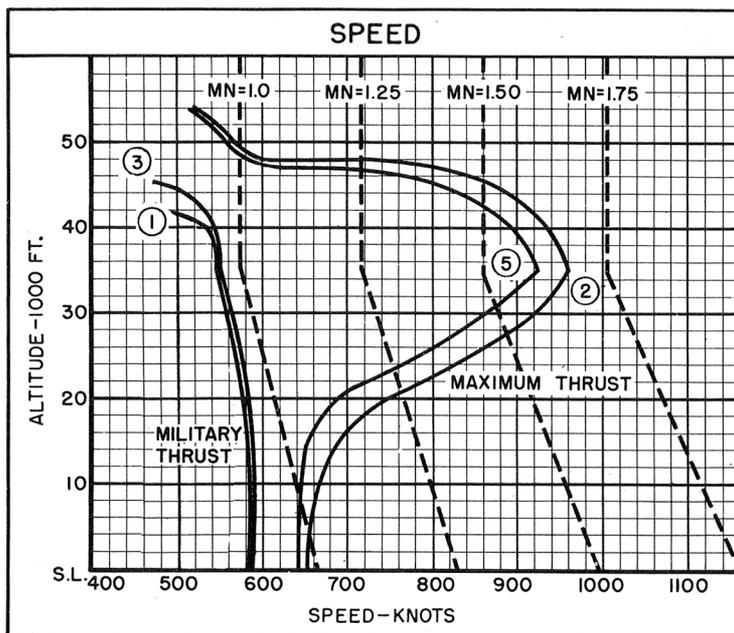
## NOTES

- (A) Military Power  
 (B) Combat Air Patrol - 150 n.mi. Radius  
 (C) INFLIGHT REFUELING - Outbound only. Transfer 4400 lbs at 520 n.mi. out. Radius is reduced 16 n.mi. and refuel allowance is increased 5 minutes for each additional aircraft up to a total of 4 aircraft.

PERFORMANCE BASIS: Flight test of the F8U-1 plus wind tunnel drag for the sidewinders and calculations.

RANGE and RADIUS: Range and radius are based on engine specification fuel consumption increased 5%.

SPOTTING: A total of 81 aircraft can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class angled deck carrier (flight 43; hangar 38 airplanes)



○ LOADING CONDITION COLUMN NUMBER

# NOTES

## GENERAL PURPOSE AND ESCORT FIGURE

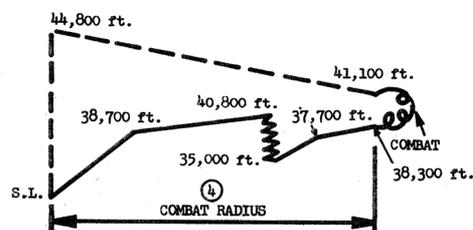
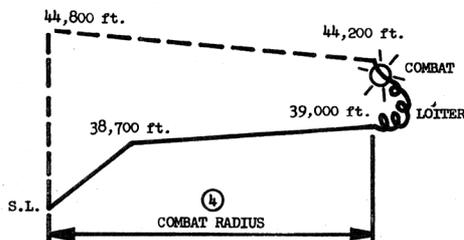
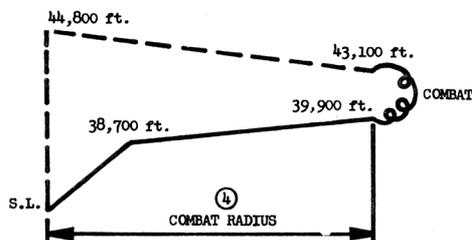
1. WARM-UP, TAKE-OFF, ACCELERATE: 5 minutes with normal thrust at sea level.
2. CLIMB: On course to cruise altitude with military rated thrust.
3. CRUISE-OUT: At altitudes and speeds for maximum range.
4. COMBAT FUEL ALLOWANCE: At 35,000 ft. for 5 minutes at maximum thrust at a velocity mid-way between  $V_{max}$  with maximum thrust and  $V_{max}$  with military thrust plus 15 minutes at  $V_{max}$  with military thrust.
5. CRUISE-BACK: At altitudes and speeds for maximum range.
6. RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5 per cent of initial fuel load.

## COMBAT AIR PATROL

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

## GENERAL PURPOSE FIGHTER WITH IN-FLIGHT REFUELING (A3D-2 TANKER)

1. WARM-UP, TAKE-OFF, ACCELERATE: 5 minutes with normal thrust at sea level.
2. CLIMB: On course to cruise altitude with military rated thrust.
3. CRUISE-OUT: At altitudes and speeds for maximum range.
4. DESCEND to 35,000 ft. REFUELING ALTITUDE; No fuel used, no distance gained.
5. 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.)
6. REFUEL POINT: Limited to return of aircraft to base with normal reserve if contact for refueling is not made.
7. CLIMB: On course to cruise altitude with military rated thrust.
8. CRUISE: Continue cruise-out at altitudes and speeds for maximum range.
9. LOITER (AS MISSION 4)
10. COMBAT (MISSION 4)
11. CRUISE BACK
12. RESERVE



If JP 4 fuel is used, these decrements in performance are applicable:

	$\Delta$ WEIGHT	$\Delta$ RANGE	$\Delta$ RADIUS	$\Delta$ MISSION TIME
① General Purpose Fighter; guns	-405 lbs.	-78 n. mi.	-39 n. mi.	-0.24 hrs.
① In-flight Refueling; guns	-639 lbs.	-124 n. mi.	-62 n. mi.	-0.25 hrs.
④ General Purpose Fighter; guns and 2 external Sidewinders	-405 lbs.	-72 n. mi.	-36 n. mi.	-0.22 hrs.
④ In-flight Refueling; guns and 2 external Sidewinders	-639 lbs.	-116 n. mi.	-58 n. mi.	-0.23 hrs.
⑦ General Purpose Fighter; guns and 4 Sidewinders	-405 lbs.	-70 n. mi.	-35 n. mi.	-0.20 hrs.
⑦ In-flight Refueling; guns and 4 Sidewinders	-639 lbs.	-100 n. mi.	-50 n. mi.	-0.19 hrs.

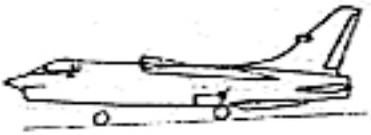
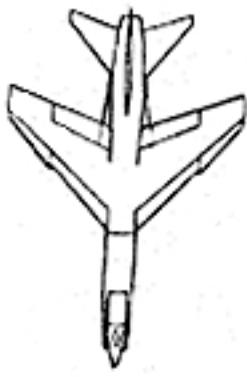
MISSION TIME EXCLUDES WARM-UP, TAKE-OFF AND RESERVE  
CYCLE TIME EXCLUDES WARM-UP AND TAKE-OFF FUEL

LOADING CONDITION COLUMN NUMBER

# CHARACTERISTICS SUMMARY

GENERAL PURPOSE FIGHTER F8U-2

CHANGE VOUGHT



WING AREA 375 Sq. ft.  
WING SPAN 35' - 8"

LENGTH 54' - 3"  
HEIGHT 15' - 9"

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

STATUS	
First Flight .....	January 1958
Service Use .....	October 1958

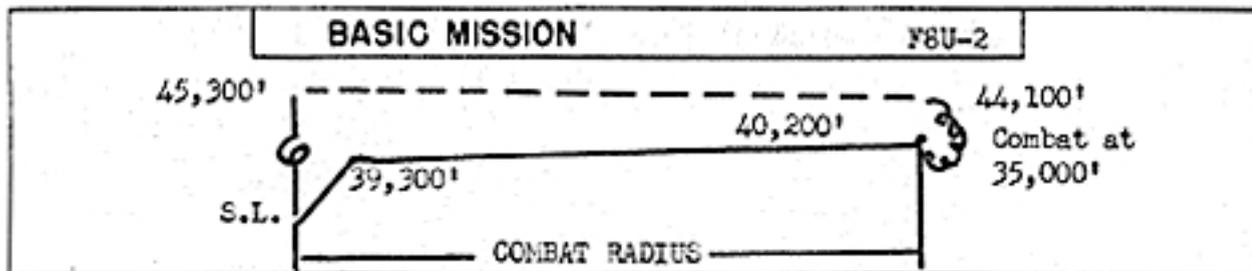
ENGINES	
Pratt & Whitney -	J57-P-16
<u>LBS</u>	<u>ALT</u>
MIL * A.B	16900 S.S.L.
MIL.	10700 S.S.L.
NORM.	9150 S.S.L.
Eng. Spec. N-1714C	

FEATURES
Crew - 1
Variable Incidence Wing
Low Unit Horizontal
Tail
Fixed Ventral Fin
Full Span Wing Leading
Edge Droop

ARMAMENT
4 - 20mm MK-12 Guns
500 RDS Ammunition
32 2.75" FFAR Rocket
and
2 - External Sidewinder
or
2 - 5" HVAR
AN/APS-67 Radar
AN-16 Fire Control Sys.

NAVAIR 1519 A (REV. 1-49)

## CHARACTERISTICS SUMMARY



PERFORMANCE		
COMBAT RADIUS	COMBAT RANGE	SPEED
315 naut. mi. **730 naut. mi. 490 knots avg.  1.6 hrs. mission time Basic Fighter 4-20 mm guns and 2 External S/W	1200 naut. mi.  494 knots avg.  hours	643 knots at Sea Level 966 knots at 35,000 ft. 850 knots at 45,000 ft.  * Combat Weight Military + A. B. Power
CLIMB	CEILING	TAKE OFF
4600 ft./min.  Sea Level, T. O. wt. Military Power	41,700 ft.  100 ft./min., T. O. wt. Military Power	4,150 F. Calm  No Assist T.O. Wt., Military Power
18,700 Ft. Min Sea Level T. O. Weight Military + A. B. Power	52,300 Ft. 500 Ft./Min., *Combat Wt. Military + A. B. Power	2,850 Ft., 25 Knot Wind No Assist T.O. WT., Military Power
LOAD	WEIGHTS	STALLING SPEED
Fuel 1,273 gal.  fixed 1,270 drop  Fuel JP-5	Empty 16,655 lbs. *Combat 24,598 lbs. Take-off 28,050 lbs.  *Sidewinders retained	138 knots  Flaps down, T. O. wt.
		TIME TO CLIMB
		35,000 ft. in 2.63 min.  Combat Wt., Max. Power

## NOTES

PERFORMANCE BASIS: CALCULATIONS and FLIGHT TEST DATA  
 RANGE and RADIUS are based on flight test fuel consumption  
 \*COMBAT WEIGHT: Missiles Retained  
 \*\*IFR RADIUS: Mission time 3.5 hrs.  
 CAP MISSION: 150 N.Mi. Radius - loiter time - .6 hrs mission time  
                                   1.6 hrs.  
 DIFFERENCE Over F8U-1   a. Higher Performance Engine  
                                   b. Fixed Ventral Fins