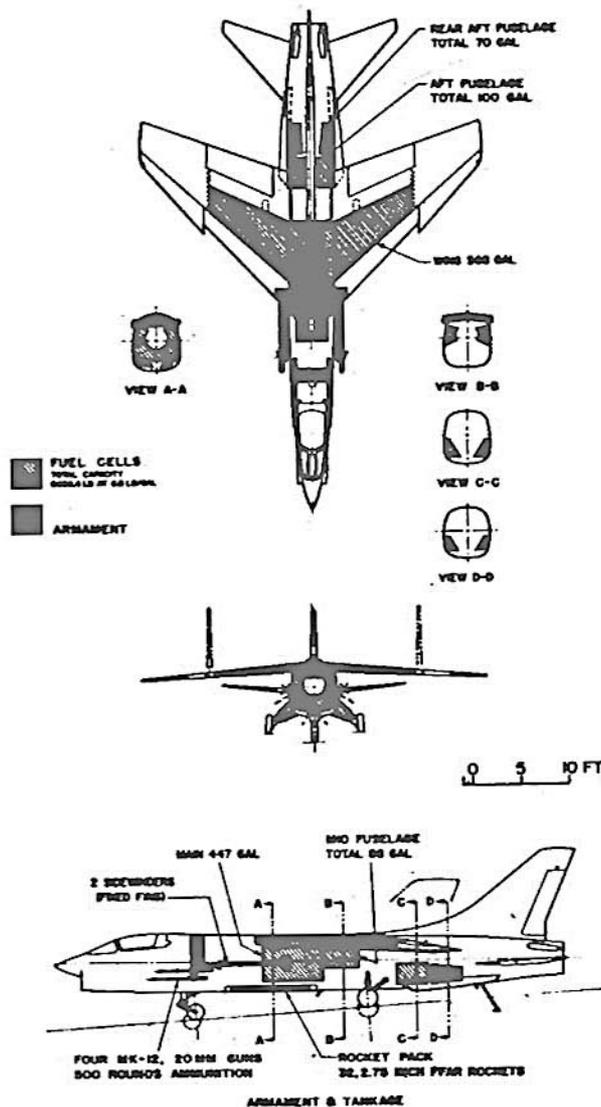
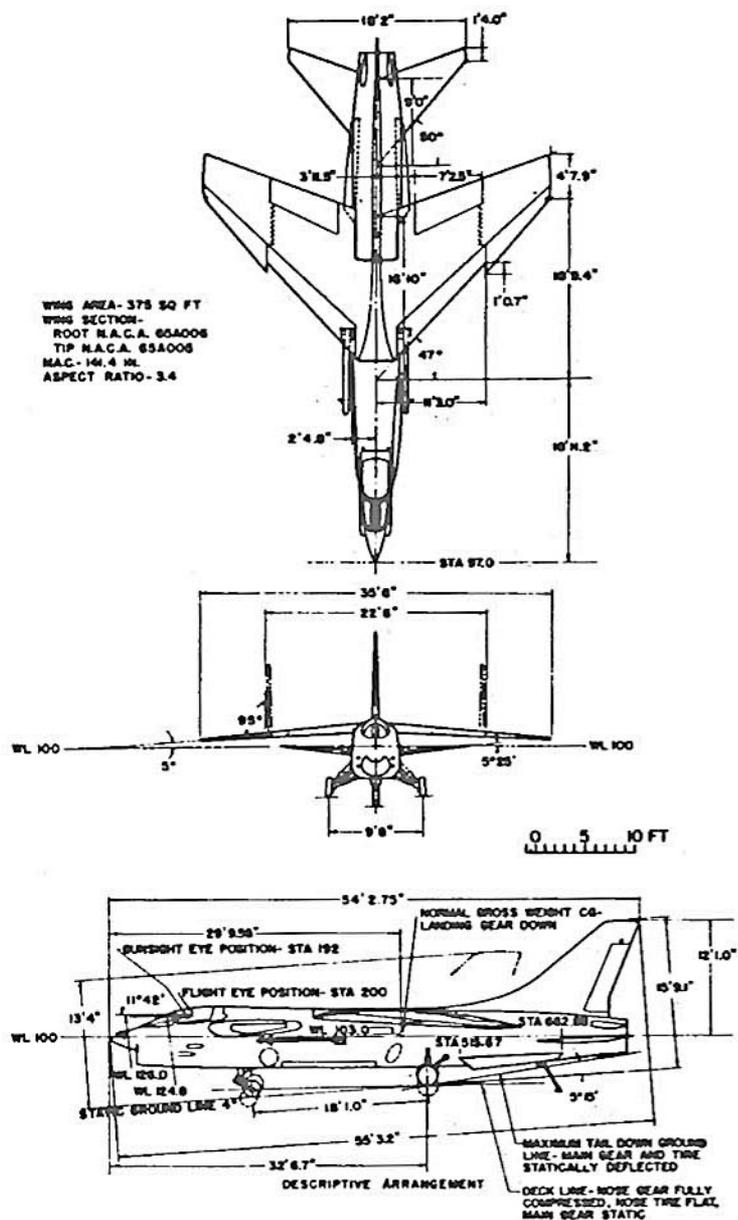


# STANDARD AIRCRAFT CHARACTERISTICS

## F-8C CRUSADER

CHANCE VOUGHT



**POWER PLANT**

NO. & MODEL ..... J57-P-16  
 MFR ..... Pratt and Whitney  
 TYPE ..... Axial Flow  
 LENGTH ..... 270"  
 DIAMETER ..... 40.44"  
 AUGMENTATION ..... Afterburner

**RATINGS**

	LBS	RPM	ALT
MIL. + AB	16,900	6400	S.S.L.
MIL.	10,700	6350	S.S.L.
NORM.	9,150	6050	S.S.L.

Eng. Spec. No. P&W N-1714E

**MISSION AND DESCRIPTION**

The F8U-2 day fighter is designed to maintain air superiority in daylight fair weather during the period of task force strikes when the enemy will mount large numbers of aircraft.

The F8U-2 is an improved version of the F8U-1 airplane. The modifications which differentiate the two airplanes are: (1) an improved engine (J57-P-16) for increased performance capabilities, (2) low aspect ratio ventrals for additional stability in the extended flight boundary region, (3) external cooling air scoops for added cooling of the afterburner section as well as for increased afterburner thrust due to better air-flow characteristics, and (4) APS-67 radar and EX-16 Fire Control System for improved tracking and armament capabilities. In all other respects, the F8U-2 is the same as a typical fleet operational F8U-1.

**DEVELOPMENT**

First Flight ..... August 1958  
 Service Use (Estimated) ..... February 1959

**WEIGHTS**

LOADINGS	LBS	L.F.
EMPTY	16,483	
BASIC	17,673	
DESIGN	23,192	6.4
COMBAT	24,475	
MAX. T.O. (Field)	27,938	
(Cat.)	27,938	
MAX. LAND. (Field)	23,500	
(Arrest)	22,000	

All weights are estimated.

**FUEL AND OIL**

GALS	NO. TANKS	LOCATION
535	3	Main Fuselage
170	4	Aft Fuselage
568	1	Wing

FUEL GRADE ..... JP-5  
 FUEL SPEC (applicable) .... MIL-F-5624

**OIL**

CAPACITY (gals.) ..... 4  
 SPEC (applicable) ..... MIL-L-7808

**ORDNANCE**

NO.	DESCRIPTION	LOCATION
4	20 MM aircraft guns, MK-12	Fuselage Front Section
500	Rounds of 20 MM ammunition	
32	2.75 inch FFAR Rockets carried internally in rocket pack	Fuselage Centerline
2	Sidewinder air-to-air missiles carried externally on pylons	Each side of fuselage

**DIMENSIONS**

WING	
AREA	375 sq. ft.
SPAN	35' - 8"
MAC	141"
SWEEPBACK 1/4 Chord	42°
LENGTH	54' - 3"
HEIGHT	15' - 9"
TREAD	9' - 8"

**ELECTRONICS**

INTEGRATED ELECTRONIC CENTRAL ..... AN/ASQ-17B  
 (contains functions of AN/ARC-27A, AN/APX-6B and AN/ARA-25)  
 CODER GROUP ..... AN/APA-89  
 RADIO SET (TACAN) ..... AN/ARN-21  
 CYRO STABILIZED MAGNETICALLY SLAVED COMPASS ..... MA-1  
 ARMAMENT CONTROL SYSTEM ..... AN/AWG-3  
 (includes AN/APS-67, 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	lb. (JP-5)	8,657		8,657	
Fayload	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	ft. (A)	5,720		5,660	
Take-off run at S.L. 25 kn. wind	ft. (A)	4,130		4,080	
Take-off to clear 50 ft. - calm	ft. (A)	7,560		7,480	
Max. speed/altitude	kn./ft. (A)	583/31,100		570/15,000	
Rate of climb at S.L.	fpm. (A)	5,200		4,090	
Time: S.L. to 20,000 ft.	min. (A)	4.2		4.5	
Time: S.L. to 30,000 ft.	min. (A)	6.8		8.2	
Service ceiling (100 fpm)	ft. (A)	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	4,750
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	

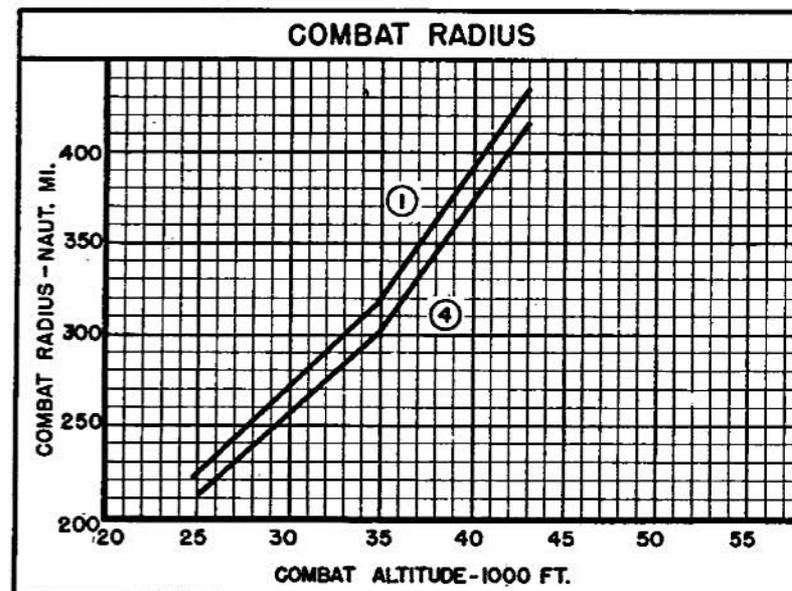
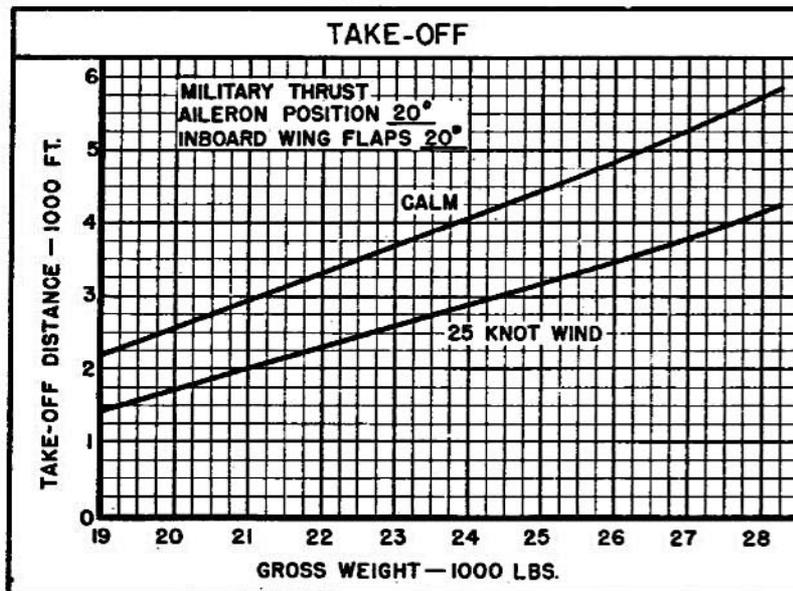
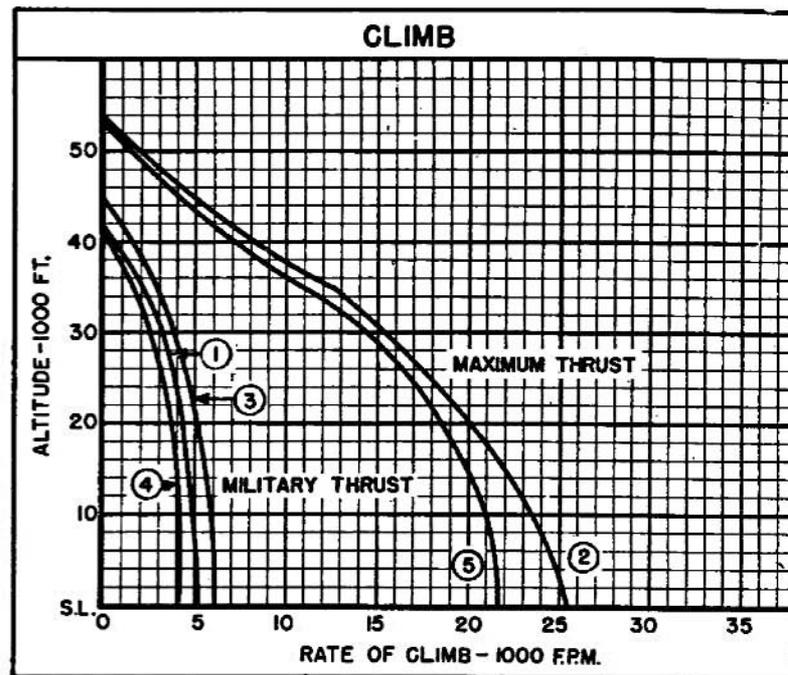
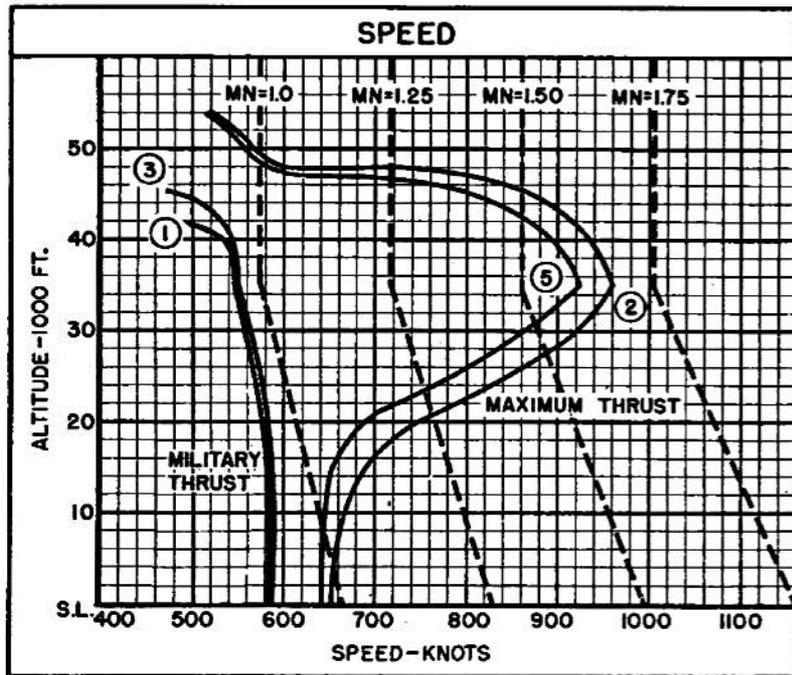
## NOTES

- (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 FIGHTER

**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. 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.  
**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.

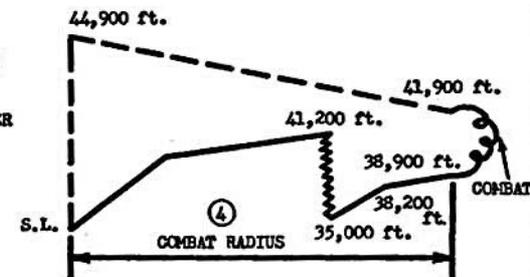
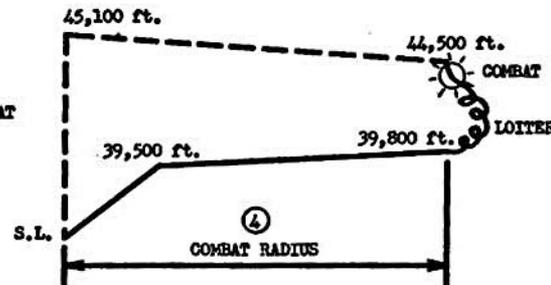
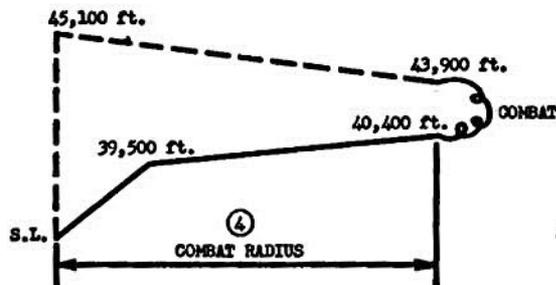
## COMBAT AIR PATROL

**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 speed: 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  $V_{max}$  with maximum thrust and  $V_{max}$  with military thrust plus 15 minutes at  $V_{max}$  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 IN-FLIGHT 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.  
**DESCEND** to 35,000 ft. **REFUELING ALTITUDE:** No fuel used, no distance gained.  
**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.  
**CLIMB:** On course to cruise altitude with military rated thrust.  
**CRUISE:** Continue cruise-out at altitudes and speeds for maximum range.

The remainder of the problem is the same as the General Purpose Fighter Problem of loading condition column number ④.



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

- |   |  |
|---|--|
| ① | General Purpose Fighter; guns and rockets                |
| ② | In-flight Refueling; guns and rockets                    |
| ④ | General Purpose Fighter; guns and 2 external sidewinders |
| ④ | In-flight Refueling; guns and 2 external sidewinders     |

△ WEIGHT

△ RANGE

△ RADIUS

△ MISSION TIME

-382 lbs.

-82 n. mi.

-41 n. mi.

-.17 hrs.

-582 lbs.

-128 n. mi.

-64 n. mi.

-.26 hrs.

-382 lbs.

-79 n. mi.

-39 n. mi.

-.16 hrs.

-582 lbs.

-120 n. mi.

-60 n. mi.

-.24 hrs.

○ LOADING CONDITION COLUMN NUMBER