STANDARD AIRCRAFT CHARACTERISTICS

F8U-1 "CRUSADER"

CHANCE VOUGHT

15 APRIL 1957

Superseded by 30 June 1957
POWER PLANT

NO & MODEL .......... (1) J-57-P-4
MFR. ............... Pratt & Whitney
TYPE ............... Axial Flow
LENGTH .............. 420" 
DIAMETER .............. 41" 
AUGMENTATION .......... Afterburner

RATINGS

UNITED

MIL + A.R. ......... 16,000 ........ S.S.L.
MIL. ............. 10,200 ........ S.S.L.
NORTH ........... 8,700 ........ S.S.L.

SPEC. NO. P&W H-1669-C

MISSION AND DESCRIPTION

The F-86D Dayfighter is designed to maintain air superiority in daylight fair weather. It is a single-place, swept-wing airplane having a high variable incidence wing and a low unit horizontal tail. The wing and tail arrangement permits use of a very short landing gear and results in a relatively low fuselage attitude for take-off and landing. The high wing position makes the wing readily adaptable to carrying missiles and other stores on the wing and for possible future flexible deck operations. The wing incorporates full span leading-edge droop and ailerons that are drooped as flaps when the wing is in the take-off and landing position.

DEVELOPMENT

First Flight ....................... March 1955
Service Use ....................... March 1957

WEIGHTS

LOADING  LBS.  LbF.
BASIC ......... 15,512 ........ 677
DESIGN ......... 21,445 ........ 9.4
COMBAT ........ 20,995 ........
MAX. T.O. (Field) ...... 27,500 approx.
(Cat.) ......... 27,500 ........
MAX. LND (Field) ...... 21,500 
(Arrest) .......... 20,000 ........

All weights are calculated.

FUEL AND OIL

NO. TANKS  TOTAL GAL.  LOCATION
3 ............... 514 ........ Main Fuselage
2 ............... 170 ........ Aft Fuselage
1 ............... 389 ........ Wing

FUEL GRADE ............... JP-4
FUEL SPEC. applicable .......... MIL-F-5624A

OIL

CAPACITY (gals) .......... 5.5
SPEC. applicable .......... MIL-D-7828

ORDNANCE

NO.  DESCRIPTION  LOCATION  RUG.
4  20mm aircraft  Fuselage  500
  Guns Mk.12
32  2.75 in. FFAR  Fuselage  (Internal)
  Rockets
2  Sidewinder  Wing  (External)
  Missiles

DIMENSIONS

WING
AREA .................. 375 sq. ft.
SPAN .................. 35° ±8°
NUG. .................. 1.11°
SWEETBACK (g chord) .... 62°
LENGTH ................ 24° ±3°
HEIGHT ............... 15° ±5°
TREAD ................ 9° ±8°

ELECTRONICS

AN/APS-27A
AN/AI-50
AN/APS-68
AN/AY-1
AN/AW-99

15 APRIL 1957
### PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th>TAKE-OFF LOADING CONDITION</th>
<th>(1) BASIC FIGHTER</th>
<th>(4) BASIC FIGHTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 - 20mm GUNS</td>
<td>4 - 20mm GUNS</td>
</tr>
<tr>
<td>22 - 2.75&quot; FPAR</td>
<td>32 - 2.75&quot; FPAR</td>
<td></td>
</tr>
</tbody>
</table>

| TAKE-OFF WEIGHT             | 1 lb.           | 26,969          | 27,468          |
| Fuel                        | 1 lb.           | 8,775           | 8,775           |
| Max. speed/altitude         | 6 lb.           | 134.8           | 134.8           |
| Stall speed - power-off     | 6 lb.           | 73.9            | 73.9            |
| Take-off run at S.L. - calm | 1 lb.           | 5,200           | 5,630           |
| Take-off run at S.L. 25 kn. | 1 lb.           | 5,720           | 4,260           |
| Take-off to clear 50 ft. - | 1 lb.           | 6,180           | 6,630           |
| Max. speed/altitude         | 1 lb.           | 590/5,000       | 570/15,000      |
| Rate of climb at S.L.       | 1 lb.           | 5,380           | 3,950           |
| Time: S.L. to 20,000 ft.    | 1 lb.           | 5,380           | 3,950           |
| Time: S.L. to 30,000 ft.    | 1 lb.           | 5,380           | 3,950           |
| Service ceiling (100 fpm)   | 1 lb.           | 6,180           | 6,630           |
| Combat range                | 1 lb.           | 1,080           | 1,080           |
| Average cruising speed      | 1 lb.           | 494             | 494             |
| Cruising altitude(s)       | 1 lb.           | 2,025           | 2,025           |
| Combat radius/Mission Time  | 1 lb.           | 360/1.73        | 360/1.73        |
| Average cruising speed      | 1 lb.           | 494             | 494             |
| GAP at 40,000 ft. Mission   | 1 lb.           | .77/1.72        | .65/1.59        |
| IPR - radius/Mission Time   | 1 lb.           | 800/3.5         | 730/3.25        |

| COMBAT LOADING CONDITION    | (2) Rockets, Gns | (3) Rockets, Gns | (5) Rockets, Gns | (6) Rockets, Gns |
|                             | Retained         | Retained         | Retained         | Retained         |

|                             | 1 lb.           | 23,659          | 23,659          | 23,659          |
|                             | 1 lb.           | 4,960           | 4,960           | 4,960           |
|                             | 1 lb.           | 860/35,000      | 552/35,000      | 813/35,000      |
|                             | 1 lb.           | 10,760/35,000   | 3,020/35,000    | 9,800/35,000    |
|                             | 1 lb.           | 51,500          | 43,550          | 50,950          |
|                             | 1 lb.           | 20,000          | 6,000           | 12,190          |
|                             | 1 lb.           | 639             | 979             | 699             |
|                             | 1 lb.           | 880/35,000      | 588/2,000       | 813/35,000      |

| LANDING WEIGHT              | 1 lb.           | 16,075          | 16,075          |
| Fuel                        | 1 lb.           | 4,960           | 4,960           |
| Stall speed - power-off     | 1 lb.           | 113.5           | 113.5           |
| Stall speed - with approach | 1 lb.           | 108.2           | 108.2           |

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**NOTES**

**RANGE AND RADIUS**: Range and radius are based on engine specification.

**Fuel consumption increased 5%**.

**SPOTTING**: A total of 21 aircraft can be accommodated in a landing spot on the flight deck of a CVA-19 class cruiser, under a carrier flight deck (Flight 3), hangar 38 airpier (Hangar 38).

**REASON FOR REISSUE**: Current loadings and new complete flight test data.

**PERFORMANCE BASIS**: Flight test data plus wind tunnel drag for the 2 external Sidewinders.

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**F 8U-1**

15 APRIL 1957
NOTES

GENERAL PURPOSE AND ESCORT FIGHTERS
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 midway between Vmax with maximum thrust and Vmax with military thrust plus 15 minutes at Vmax 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.

If JP-5 fuel is used, the following are applicable:
1) General Purpose Fighter; guns and rockets
2) Inflight Refueling; guns and rockets
3) General Purpose Fighter; 2 external sidewinders
4) Inflight Refueling; 2 external sidewinders

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 midway 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
(AGM-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 SPEED-UP, FOLLOW 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.

○ LOADING CONDITION COLUMN NUMBER

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