Standard Aircraft Characteristics

F-94C

STARFIRE
Lockheed

ONE J48-P-5 or 5A

PRATT & WHITNEY

By authority of the Secretary of the Air Force

10 OCT 56
POWER PLANT

Nr. & Model ... (1) J48-P-5 or 5A
Manufacturer ... Pratt & Whitney
Engine Spec No. ... A-1625-E
Type ... Centrifugal
Length ... 202.0"
Diameter ... 50.3"
Weight (dry) ... 2760 lb
Tail Pipe ... Auto, two-position
Augmentation ... Afterburning
ATO
No. & Model(2) 14AS-1000D4 or D5
Manufacturer ... Aerojet
Weight (loaded) ... 200 lb or 12AS-1000D4 used for performance shown herein.

ENGINE RATINGS

S. L. Static LB - RPM - MIN
Max ... 8750 - 11,000 - 15
Mill ... 6550 - 11,000 - 30
Nor ... 5250 - 10,500 - Cont
* With afterburner operating
ATO
Thrust (lb) ... 2 x 1090
Duration (sec) ... 14

DIMENSIONS

Wing
Span ... 37.3'
Incidence (root) ... 20'
Incidence (tip) ... -17.0'
Dihedral ... 8o
Sweepback (LE) ... 9.18'
Length ... 44.5'
Height ... 14.9'
Tread ... 9.2'

BOMBS

(Provisions)
Nr. Class (lb) Type
2 ... 1000 G.P.
2 ... 250 G.P.
2 ... 100 G.P.
Max, Bomb Load ... 2000 lb

ROCKETS

Nr. Size Type Location
24 ... 2.75" FFAR, Fus, Nose
24 ... 2.75" FFAR, Wing, Pod

WEIGHTS

Loading Lb L. F.
Empty ... 12,700(A)
Basic ... 12,890(A)
Design ... 16,300 ... 8.67
Combat ... 17,670 ... 8.67
Max, T.O. ... 24,184 ... 44.00
Max, Land ... 116,398 ... 3.30

FUEL

Location Nr. Tanks Gal
Wgs ... 2 ... 231
Fus, main ... 1 ... 94
Fus, sump ... 1 ... 41
Wg, tip drop ... 2 ... 500
Wg, pylon drop ... 2 ... 460
Total ... 1236
Grade ... JP-4
Specification ... MIL-F-5624A

OIL

Engine ... Integral ... (tot) 3
Grade ... 1010
Specification ... MIL-L-6081

ELECTRONICS

UHF Command Set ... AN/ARC-27
Radio Compass ... AN/ARN-6
Marker Beacon ... AN/ARN-12
Glide Path ... AN/ARN-18
1 F. P. ... AN/APX-6
Localizer ... RC-103D
Search & Track ... AN/AGP-40
Interphone ... AN/AIC-2A
Westinghouse Autopilot-Radar Coupler NADAR

Mission and Description

Navy Equivalent: None
Mfr's Model: 880-75-13

The principal mission of the F-94C is the interception and destruction of hostile aircraft during day or night and in all types of weather.

The crew consists of a pilot and a radar operator. Seating arrangement is tandem, with the radar operator located aft of the pilot, both crew positions being enclosed by one canopy.

This airplane incorporates electronic equipment serving the functions of communications, navigation, instrument approach, target detection, rocket course computing and identification.

Special features include a thin laminar flow wing, wing and horizontal stabilizer thermal de-icing, windshield de-icing, pressurized fuel system, ejection seats, jettisonable canopy, high pressure oxygen system, single-point refueling, E-5 Fire Control System, Zero Reader, ILS, and a Westinghouse Type W-3A auto-pilot used in conjunction with instrument approach.

Major differences from the F-94B include higher thrust engine, rocket nose in lieu of gun nose, mid wing rocket pods, new wing with increased dihedral, sweepback horizontal stabilizer, single-point refueling, aft dive flaps, drag chute, auto-pilot, increased fuel capacity, additional radar and other minor changes.

Development

First Flight (Prototype) ... 18 Jan 50
Contract Date ... 21 Jul 50
First Flight (Production) ... Oct 51
First Delivery ... May 52
Production Completed ... May 54

UNCLASSIFIED

F-94C

F-94C
## Loading and Performance - Typical Mission

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>BASIC MISSION</th>
<th>ESCORT</th>
<th>FERRY RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POINT</td>
<td>AREA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td>(lb)</td>
<td>20,824</td>
<td>20,824</td>
</tr>
<tr>
<td>Fuel at 6.5 lb/gal (grade JP-4)</td>
<td>(lb)</td>
<td>5,630</td>
<td>5,630</td>
</tr>
<tr>
<td>Payload</td>
<td>(lb)</td>
<td>890</td>
<td>890</td>
</tr>
<tr>
<td>Wing Loading</td>
<td>(lb/sq ft)</td>
<td>89.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Stall speed (power off)</td>
<td>(kn)</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>Take-off ground run at SL</td>
<td>(ft)</td>
<td>2,790</td>
<td>2,790</td>
</tr>
<tr>
<td>Take-off ground run with ATO</td>
<td>(ft)</td>
<td>3,800</td>
<td>3,800</td>
</tr>
<tr>
<td>Take-off to clear 50 ft.</td>
<td>(ft)</td>
<td>3,750</td>
<td>3,750</td>
</tr>
<tr>
<td>Take-off to clear 50 ft. with ATO</td>
<td>(ft)</td>
<td>3,300</td>
<td>3,300</td>
</tr>
<tr>
<td>Rate of climb at SL</td>
<td>(ft/min)</td>
<td>5,720</td>
<td>5,720</td>
</tr>
<tr>
<td>Time - S L to 40,000 ft</td>
<td>(ft)</td>
<td>10,2/20,000</td>
<td>25,1</td>
</tr>
<tr>
<td>Time - S L to 50,000 ft</td>
<td>(ft)</td>
<td>20,8/30,000</td>
<td>42,4</td>
</tr>
<tr>
<td>Service Ceiling (100 fpm)</td>
<td>(ft)</td>
<td>51,400</td>
<td>44,200</td>
</tr>
<tr>
<td>COMBAT RANGE</td>
<td>(n, mi)</td>
<td>3</td>
<td>206</td>
</tr>
<tr>
<td>COMBAT RADIUS</td>
<td>(n, mi)</td>
<td>3</td>
<td>428</td>
</tr>
<tr>
<td>Average cruise speed</td>
<td>(kn)</td>
<td>36,000</td>
<td>30,800</td>
</tr>
<tr>
<td>Initial cruising altitude</td>
<td>(ft)</td>
<td>41,800</td>
<td>41,800</td>
</tr>
<tr>
<td>Final cruising altitude</td>
<td>(ft)</td>
<td>5,10</td>
<td>5,10</td>
</tr>
<tr>
<td>Total mission time</td>
<td>(hr)</td>
<td>1,13</td>
<td>5,09</td>
</tr>
<tr>
<td>TOTAL MISSION TIME</td>
<td>(hr)</td>
<td>0,86</td>
<td></td>
</tr>
<tr>
<td>Interception altitude</td>
<td>(ft)</td>
<td>49,700</td>
<td></td>
</tr>
<tr>
<td>COMBAT WEIGHT</td>
<td>(lb)</td>
<td>16,609</td>
<td>17,600</td>
</tr>
<tr>
<td>Combat altitude</td>
<td>(ft)</td>
<td>49,700</td>
<td>48,000</td>
</tr>
<tr>
<td>Combat speed</td>
<td>(kn)</td>
<td>484</td>
<td>448</td>
</tr>
<tr>
<td>Combat climb</td>
<td>(ft)</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Combat ceiling (500 fpm)</td>
<td>(ft)</td>
<td>49,700</td>
<td>48,900</td>
</tr>
<tr>
<td>Service ceiling (100 fpm)</td>
<td>(ft)</td>
<td>51,800</td>
<td>50,000</td>
</tr>
<tr>
<td>Max. rate of climb at S L</td>
<td>(ft/min)</td>
<td>10,800</td>
<td>10,800</td>
</tr>
<tr>
<td>Max. speed at S L</td>
<td>(kt)</td>
<td>545</td>
<td>545</td>
</tr>
<tr>
<td>Basic speed at 40,000 ft</td>
<td>(kn)</td>
<td>500</td>
<td>483</td>
</tr>
<tr>
<td>LANDING WEIGHT</td>
<td>(lb)</td>
<td>15,200</td>
<td>15,10</td>
</tr>
<tr>
<td>Ground roll at S L</td>
<td>(ft)</td>
<td>3,500</td>
<td>3,500</td>
</tr>
<tr>
<td>Ground roll (auxiliary brake)</td>
<td>(ft)</td>
<td>5,400</td>
<td>5,400</td>
</tr>
<tr>
<td>Total from 50 ft</td>
<td>(ft)</td>
<td>4,200</td>
<td>4,200</td>
</tr>
<tr>
<td>Total from 50 ft (auxiliary brake)</td>
<td>(ft)</td>
<td>6,100</td>
<td>6,100</td>
</tr>
</tbody>
</table>

**NOTES**

1. **Military power**
2. **Detailed descriptions of Radius and Range missions are given on Page 6.**
3. **Using 2 x 12 AS-1000 D4 ATO units.**
4. **Does not include 400 lb for ATO units.**
5. **Includes 480 lb for ATO units.**

**Performance Basis:**

(a) **Data Source: Flight test.**
(b) **Performance is based on powers shown on page 3 corrected for installation losses.**
NOTES

FORMULA: POINT-INTERCEPT MISSION I

Take-off and accelerate to best climb speed with maximum power, climb to combat ceiling with maximum power, (drop external tanks during climb), combat 5 minutes at combat ceiling with maximum power, (fuel flow based on 5 minutes maximum power at 49,700 feet), loiter at 35,000 feet at speeds for maximum endurance, Reserve is the fuel required to loiter 20 minutes at sea level at speeds for maximum endurance. Total mission time does not include time required to start engine, warm-up, and taxi, or reserve.

FORMULA: AREA-INTERCEPT MISSION II

Take-off and accelerate to best climb speed with maximum power, climb to initial cruise altitude with military power, cruise at cruise altitude at long range speeds, climb to combat ceiling with maximum power, combat 5 minutes at combat ceiling with maximum power, cruise back at cruise altitude at long range speeds. Range-free allowances include 2 minutes of normal power at sea level for start engine and taxi, plus one minute of maximum power for take-off, 5 minutes combat at combat ceiling with fuel flow based on maximum power at 48,000 feet, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance and 5% of initial fuel load.

FORMULA: RADIUS MISSION III

Take-off, with maximum power, climb on course to cruise altitude with military power, cruise at cruise altitude at long range speeds to target, combat 20 minutes, cruise back to base, cruise at cruise altitude at long range speeds. Range-free allowances include 5 minutes at normal power and 1 minute at maximum power at sea level for starting engine and take-off, combat 20 minutes (15 minutes military power and 5 minutes maximum power) based on fuel flow at 35,000 feet, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance and 5% of initial fuel load.

FORMULA: RANGE MISSION IV

Take-off with maximum power, climb on course to cruise altitude with military power, cruise at cruise altitude at long range speeds to remote base. Range-free allowances include 5 minutes at normal power and 1 minute at maximum power at sea level for starting engine and take-off, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance and 5% of initial fuel load.

GENERAL DATA:

(a) For all missions, external tanks are dropped when empty.

(b) For detailed planning refer to Technical Order 1F-94C-1 and other applicable technical orders.

PERFORMANCE REFERENCE:


REVISION BASIS:

Data reorganized this date.