Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

RB-47E
STRATOJET
Boeing

SIX J47-GE-25
GENERAL ELECTRIC

20 JAN 54
POWER PLANT

No. & Model: (6)47-GE-25
Mfr: General Electric
Engine Spec No: E-597
Type: Axial Flow
Length: 148"
Diameter: 30.5"
Weight (dry): 2707 lb
Tail Pipe: Fixed Area
Augmentation: Water/Alcohol

ENGINE RATINGS

S, L, Static: 6970 - 7950 - 5
Max: 5970 - 7950 - 5
Mil: 5670 - 7800 - 50
Nor: 5320 - 7630 - Cont

*ATO
Thrust (lb): 18,000
Duration (sec): 14

Thrust (lb): 18,000
Duration (sec): 15

*46th article and subsequent to be fitted with 33x1000 lb thrust external units. Present plans call for retrofitting the first 45 articles.

MISSION AND DESCRIPTION

Navy Equivalent: None
Mfr's Model: 450-158-36

The principal mission of the RB-47E is strategic photo-reconnaissance.
Alternate missions are day and night mapping, charting and bomb damage assessment.

The normal crew consists of pilot, co-pilot and photo-navigator.

Features incorporated for improved crew comfort and efficiency are automatic heating, ventilation, pressurization, NESA glass de-icing for the pilot's windshield, de-frosting of windshield, nose window and other transparent sections by recirculated cabin air, thermal anti-icing for wings and empennage, and hydraulic boost on all control surfaces. Crew ejection seats are provided for in-flight escape. The pilot and co-pilot are ejected upward and the photo-navigator downward.

The water/alcohol injection system utilizes a total tank capacity of 550 gallons which is divided into six individual bladder-type tanks, three each located in the inboard sections of the right and left wings.

Solid propellant rockets are installed internally for assist take-off.

A two-gun tail turret incorporating a radar computer at the co-pilot's station is installed. A rotatable seat allows the co-pilot to face aft while functioning as the A-5 Fire Control System operator.

Other features are Single-Point and Air Refueling, and an approach chute to increase drag, drag chute for decreasing landing roll distance and an anti-skid braking device.

The bicycle landing gear is electrically operated.

There are provisions for a periscopic sextant and a bomb scoring device.

Major differences from the B-47E are that it can only carry photo flash bombs and incorporates four camera stations and associated structural changes.

DEVELOPMENT

Design Initiated: Mar 51
First Flight: Aug 53
First Delivery: Sep 53

WEIGHTS

Loading: 37820 lb
L, F:
Empty: 22000 lb
Basic: 49400 lb
Design: 125,000 lb
Combat: 34,000 lb
Max T.O. Wt: 178000 lb
Max In Flt: 132020 lb
Max Land: 178000 lb

*(E) Estimated
† Limited by strength
‡ Limited by strength with extended tanks

FUEL

Location No. Tanks Gal
Fwd, main* 1 2036
Fwd, aux 1 1016
Cenner, main* 1 2837
Fwd, Bomb bay, 1 1200
Aft, Bomb bay 1 2495
Aft, Main* 1 3426
Wg, Drop † 2 3316
ATO 1 544

Total 17,770
Fuel Type: MIL-F-5824A
Grade: JP-4
Specific Gravity: 0.838

Wing 5 (tot) 56.4
OIL

Grade: 1005
Specific Gravity: MIL-L-46081A

WATER/ALCOHOL

Wg, Inh: 1 600
Self-Sealing

Electronics

VHF Command ** AN/ARC-37
Liaison ** AN/ARC-37
Interphone ** AN/ARC-23
Radio Compass ** AN/ARC-6
Marker Beacon ** AN/ARC-10
 Glide Path ** AN/ARC-12
Fire Control ** AN/ARC-18
Omni-Directional ** AN/ARC-25
Rendezvous Radar, ** AN/ARC-76
ECM (2) ** AN/ARC-76
IFF ** AN/ARC-8
Bombing Nav, Radar, AN/ARQ-31A

* Provisions only
<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>BASIC MISSION</th>
<th>DAY RECONNA</th>
<th>FERRY RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td>(lb)</td>
<td>(lb)</td>
<td>(lb)</td>
</tr>
<tr>
<td>Fuel at 5.5 lb/gal (grade JP-4)</td>
<td>185,000</td>
<td>185,000</td>
<td>185,000</td>
</tr>
<tr>
<td>Payload (Camera)</td>
<td>91,743</td>
<td>93,307</td>
<td>93,307</td>
</tr>
<tr>
<td>Payload (Flash Bombs)</td>
<td>694</td>
<td>694</td>
<td>694</td>
</tr>
<tr>
<td>Wing loading (lb/sq ft)</td>
<td>126</td>
<td>126</td>
<td>126</td>
</tr>
<tr>
<td>Stall speed (power off)</td>
<td>138</td>
<td>136</td>
<td>136</td>
</tr>
<tr>
<td>Take-off ground run at SL (ft)</td>
<td>7100</td>
<td>7100</td>
<td>7100</td>
</tr>
<tr>
<td>Take-off ground run with ATO (ft)</td>
<td>5800</td>
<td>5800</td>
<td>5800</td>
</tr>
<tr>
<td>Take-off to clear 50 ft (ft)</td>
<td>8450</td>
<td>8450</td>
<td>8450</td>
</tr>
<tr>
<td>Take-off to clear 50 ft w/ATO (ft)</td>
<td>7150</td>
<td>7150</td>
<td>7150</td>
</tr>
<tr>
<td>Rate of climb at SL (fpm)</td>
<td>2630</td>
<td>2630</td>
<td>2630</td>
</tr>
<tr>
<td>Rate of climb at SL (one engine out) (fpm)</td>
<td>2040</td>
<td>2040</td>
<td>2040</td>
</tr>
<tr>
<td>Time: SL to 20,000 ft (min)</td>
<td>9.6</td>
<td>9.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Time: SL to 30,000 ft (min)</td>
<td>18.7</td>
<td>18.7</td>
<td>18.7</td>
</tr>
<tr>
<td>Service ceiling (100 fpm) (ft)</td>
<td>34,200</td>
<td>34,200</td>
<td>34,200</td>
</tr>
<tr>
<td>Service ceiling (one engine out)</td>
<td>31,600</td>
<td>31,600</td>
<td>31,600</td>
</tr>
<tr>
<td>COMBAT RANGE (n. mi)</td>
<td>1731</td>
<td>1765</td>
<td>------------</td>
</tr>
<tr>
<td>COMBAT RADIUS (n. mi)</td>
<td>433</td>
<td>433</td>
<td>433</td>
</tr>
<tr>
<td>Average cruise speed (kn)</td>
<td>433</td>
<td>433</td>
<td>433</td>
</tr>
<tr>
<td>Initial cruising altitude (ft)</td>
<td>31,100</td>
<td>31,100</td>
<td>31,100</td>
</tr>
<tr>
<td>Target speed (kn)</td>
<td>467</td>
<td>467</td>
<td>------------</td>
</tr>
<tr>
<td>Target altitude (ft)</td>
<td>39,450</td>
<td>39,600</td>
<td>------------</td>
</tr>
<tr>
<td>Final cruising altitude (ft)</td>
<td>43,100</td>
<td>43,100</td>
<td>43,100</td>
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<tr>
<td>Total mission time (hr)</td>
<td>8.52</td>
<td>8.17</td>
<td>8.33</td>
</tr>
</tbody>
</table>

| COMBAT WEIGHT                    | (lb)          | (lb)        | (lb)        |
| Combat altitude                  | 127,600       | 128,400     | 95,420      |
| Combat speed (kn)                | 39,450        | 39,600      | 43,100      |
| Combat speed (fpm)               | 469           | 469         | 469         |
| Combat climb (ft)                | 610           | 560         | 1050        |
| Combat ceiling (500 fpm) (ft)    | 40,000        | 39,900      | 45,950      |
| Service ceiling (100 fpm) (ft)   | 41,350        | 41,200      | 47,250      |
| Service ceiling (one engine out) | 38,950        | 38,800      | 44,650      |
| Max rate of climb at SL (fpm)    | 4580          | 4550        | 6090        |
| Max speed at 20,000 ft (kn)      | 497           | 497         | 497         |
| Basic speed at 35,000 ft (kn)    | 469           | 469         | 469         |
| LANDING WEIGHT                   | 95,410        | 95,416      | 95,420      |
| Ground roll at SL (ft)           | 4650          | 4650        | 4650        |
| Ground roll (auxiliary brake) (ft)| 2875          | 2875        | 2875        |
| Total from 50 ft (auxiliary brake) (ft) | 5550          | 5550        | 5550        |
| Total from 50 ft (auxiliary brake) (ft) | 3575          | 3575        | 3575        |

**NOTES**

1. T.O. power
2. Max power
3. Normal power
4. Detailed descriptions of Radius
5. With braking parachute
6. With 18,000 lb (ATO) thrust
7. Includes 1132 lb ATO and 3668 lb water and alcohol
8. Values quoted are for T.O. weight
9. Less ATO, water and alcohol
10. Structural limit
11. Performance Basis:
   a. Data source: Flight Test
   b. Performance is based on powers shown on page 6.

**RB-47E**

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**20 JAN 54**
**Take-Off**
- **SEA LEVEL**
- CLEAR 50 FT
- GROUND RUN

**Climb**
- MAX POWER
- NORMAL POWER

**Speed**
- MAX POWER
- NORMAL POWER
- 127,600 LB
- 180,000 LB

**Radius**
- 185,000 T. O. GROSS WT
- 14,114 GAL FUEL
- (10) M-120 FLASH BOMBS

**Nautical Miles**

**KNOTS**

**DISTANCE (1000 ft)**

**ALTITUDE (1000 ft)**

**RATE OF CLimb - FT/Min**

**GROSS WEIGHT (1000 lb)**

**S.L.**

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**SERVICE**

20 JAN 54

RB-47E
NOTES

FORMULA: RADIUS MISSIONS I & II

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speeds increasing altitude with decreasing airplane weight. Climb so as to reach cruising ceiling 15 minutes from target. Run into target at normal power, drop flash bombs if carried, conduct 2 minutes evasive action and 8 minutes escape from target at normal power. Cruise back to base at long range speeds increasing altitude with decreasing airplane weight. Range free allowances include 5 minutes normal power fuel consumption for starting engines and take-off, 2 minutes normal power fuel consumption at combat altitude for evasive action and 30 minutes of maximum endurance (four engines) fuel consumption at sea level plus 5% of initial fuel load for landing reserve.

FORMULA: RANGE MISSION III

Take-off and climb on course to optimum altitude at normal power. Cruise out at long range speeds increasing altitude with decreasing airplane weight until all usable fuel is consumed. Range free allowances include 5 minutes normal power fuel consumption for starting engines and take-off and 30 minutes of maximum endurance (four engines) fuel consumption at sea level plus 5% of initial fuel load for landing reserve.

GENERAL DATA:

(a) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used for performance calculations are:

(b) For detailed planning refer to Technical Order AN01-20ENC-1 and latest applicable technical orders.
(c) Maximum landing weight of 180,000 lb based on approximately 8 ft/sec ultimate rate of descent with 1G wing lift.
(d) Speed limitations shown were taken from "Safety of Flight Supplement AN01-20ENC-1," dated 15 July 1953.

PERFORMANCE REFERENCE:


REVISION BASIS:

Initial Issue.