Standard Aircraft Characteristics

F-47N
THUNDERBOLT
Republic

BY AUTHORITY OF
COMMANDING GENERAL
AIR MATERIEL COMMAND
U. S. AIR FORCE

ONE R-2800-57, -73, -77 OR -81
PRATT-WHITNEY

17 MAY 1950
**POWER PLANT**

- No. & Model: (1) R-2800-57, -73, -77 or -81
- Mfr: Pratt & Whitney
- Turbocharger: CH-5
- Red. Gear: 0.450
- Prop Mfr: Curtiss
- Prop Dia: 130"""
- Prop Type: C.S., Elect.
- Blade Design: 836-14C2-18-R1

**ENGINE RATINGS**

- BHP - RPM - ALT - MIN:
  - T.O: 2100 - 2800 - S.L. - 5
  - Mil: 2100 - 2800 - 3500 - 5
  - Nor: 1700 - 2600 - 8000 - Cont.

**DIMENSIONS**

- Span: 42.5'
- Length: 36.1'
- Height: 14.7'
- Tread: 18.7'
- Prop Grd Clearance: 3"'

**MISSION AND DESCRIPTION**

The tactical mission of the F-47N is to serve as a "Fighter-Offensive", "Fighter - Bomber" or a "Very Long Range Escort Fighter".

The wing is full cantilever, all metal stressed skin construction. NACA slotted type trailing edge flaps are provided for increasing lift and drag.

The fuselage is semi-monocoque all metal, stressed skin construction. Cockpit canopy is jettisonable in flight.

A General Electric, Navy type G-1 automatic pilot is installed maintaining any set attitude up to approximately 30° in a bank and approximately 20° in a climb and dive.

A K-14B Gunsight is installed.

**Development**

Design initiated (XF-47) ......................... July 1940
First acceptance .................................. Sept 1944
Production completed .............................. Dec 1945

**WEIGHTS**

- Loading: Lb
- Empty: 11,017 (A)
- Basic: 12,600 (A)
- Design: 13,823 ........... 8.0
- Combat: 17,228**
- Max T.O: 20,867**
- Max Land: 20,867

*For basic mission
**Limited by space
(A) Actual

**FUEL**

- Location: Tanks
- Fus, main*: 1
- Fus, aux: 1
- Wings*: 2
- Fus, drop: 1
- Wings, drop: 2
- Self-sealing: Total 997

**OIL**

- Grade: 100/130
- Cap, (gal): 40
- Grade: S-1120/W-1100

**DIMENSIONS**

- Span: 42.5'
- Length: 36.1'
- Height: 14.7'
- Tread: 18.7'
- Prop Grd Clearance: 3"

**BOMBS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1000</td>
<td>G.P.</td>
</tr>
<tr>
<td>3</td>
<td>500</td>
<td>G.P.</td>
</tr>
<tr>
<td>3</td>
<td>250</td>
<td>G.P.</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>G.P.</td>
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</table>

**GUNS**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>.50</td>
<td>500</td>
<td>Wings</td>
</tr>
</tbody>
</table>

**ROCKETS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>5&quot;</td>
<td>HVAR</td>
</tr>
</tbody>
</table>

**ELECTRONICS**

- VHF Command: AN/ARC-3
- Range Receiver: BC-453B or E
- Homing Adapter: AN/ARA-8
- IFF: SCR-695A
# Loading and Performance—Typical Mission

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>BASIC</th>
<th>INTERCEPTOR</th>
<th>GR. ATTACK</th>
<th>FERRY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>IV</td>
</tr>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(lb)</td>
<td>20,837</td>
<td>20,837</td>
<td>17,867</td>
<td>20,867</td>
</tr>
<tr>
<td>Fuel (gal)</td>
<td>997</td>
<td>997</td>
<td>557</td>
<td>557</td>
</tr>
<tr>
<td>Military Load (bombs) (lb)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Ammunition (rds/cal)</td>
<td>4000/.50</td>
<td>4000/.50</td>
<td>4000/.50</td>
<td>4000/.50</td>
</tr>
<tr>
<td>Wing Loading (lb/sq ft)</td>
<td>64.7</td>
<td>64.7</td>
<td>55.5</td>
<td>64.8</td>
</tr>
<tr>
<td>Take-off Power Loading (lb/hp)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stall Speed (power off) (kn)</td>
<td>101.2</td>
<td>101.2</td>
<td>93.5</td>
<td>101.3</td>
</tr>
<tr>
<td>TAKE-OFF DISTANCE SL (ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Run (no wind) (ft)</td>
<td>4600</td>
<td>4600</td>
<td>2550</td>
<td>4640</td>
</tr>
<tr>
<td>To Clear 50 ft Obst (ft)</td>
<td>6250</td>
<td>6250</td>
<td>3680</td>
<td>6280</td>
</tr>
<tr>
<td>CLIMB FROM SL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of Climb at SL (fpm)</td>
<td>640</td>
<td>640</td>
<td>2800</td>
<td>638</td>
</tr>
<tr>
<td>Time To 10,000 Feet (min)</td>
<td>17.0</td>
<td>17.0</td>
<td>3.7</td>
<td>17.1</td>
</tr>
<tr>
<td>Time To 25,000 Feet (min)</td>
<td>78.0</td>
<td>78.0</td>
<td>10.9</td>
<td>79.0</td>
</tr>
<tr>
<td>Service Ceiling (100 f.p.m.) (ft)</td>
<td>25,000</td>
<td>25,000</td>
<td>40,350</td>
<td>25,000</td>
</tr>
<tr>
<td>COMBAT RANGE or RADIUS (n.mi) (kn)</td>
<td>800</td>
<td>1705</td>
<td>465</td>
<td>463</td>
</tr>
<tr>
<td>Avg. Cruising Speed (kn)</td>
<td>237</td>
<td>242</td>
<td>235</td>
<td>212</td>
</tr>
<tr>
<td>Total Mission Time (hr)</td>
<td>7.3</td>
<td>7.2</td>
<td>4.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Cruising Altitude (ft)</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

## COMBAT WEIGHT

- (lb) 17,228 15,123 16,280 16,049 15,123
- (ft) 25,000 25,000 25,000 S.L. 10,000

## SPEED

- Max Speed (combat alt) (kn) 374 377 375 310 336
- Max Speed At 35,000 Ft (kn) 395 397 389 391 397

## CLIMB

- Rate of Climb (combat alt) (fpm) 2480 3280 2820 3350 3700
- Rate of Climb at SL (fpm) 2960 3680 3270 3350 3680

## CEILING

- Combat Ceiling (ft) 39,700 41,500 40,500 40,650 41,500
- Service Ceiling (ft) 40,800 42,450 41,500 41,700 42,450
- Service Ceiling (ft) 38,000 42,450 40,600 41,300 42,450

## LANDING WEIGHT SL

- (lb) 14,599 15,123 14,467 14,467 15,123
- Ground Roll (ft) 1350 1450 1300 1300 1450
- From 50' Obst. (ft) 1650 2000 1800 1800 2000

## NOTES

1. Take-off power
2. Max power
3. Normal power
4. Take-off and landing distances are obtainable at sea level using normal technique. For airport planning distances should be increased by appropriate factors to determine runway requirements.

## CONDITIONS:

1. Performance Basis: NACA standard conditions, no wind, single airplane
2. Fuel consumption used in computing RADIUS & RANGE is increased 5% based on flight tests.
3. Powers use for performance data are listed on page 6.
I RADIUS FORMULA: BASIC MISSION
  a. Start engine, warm up and take-off at sea level. Fuel allowance is 10 minutes at normal rated power.
  b. Climb to cruising altitude (25,000 ft) using normal rated power.
  c. Cruise out with long range operation at cruising altitude. Drop tanks are jettisoned when empty.
  d. Combat at 25,000 ft for 20 minutes; consists of 5 minutes maximum power and 15 minutes military power.
  e. Cruise back with long range operation at cruising altitude.
  f. Fuel reserve: 5% total fuel at take-off.

II RANGE FORMULA: BASIC MISSION
  a. Start engine, warm up and take-off at sea level. Fuel allowance is 10 minutes at normal rated power.
  b. Climb to cruising altitude (25,000 ft) using normal rated power.
  c. Cruise out with long range operation at cruising altitude until 90% of total usable fuel at take-off is consumed. Drop tanks are jettisoned when empty.
  d. Fuel reserve: 10% total fuel at take-off.

III RADIUS FORMULA: INTERCEPTOR MISSION
  a. Start engine, warm up and take-off at sea level: Fuel allowance is 10 minutes at normal rated power.
  b. Climb to cruising altitude (25,000 ft) using 5 minutes max power and remainder with military power.
  c. Cruise out with long range operation at cruising altitude.
  d. Combat at 25,000 ft for 20 minutes; consists of 5 minutes at max power and 15 minutes at military power.
  e. Cruise back with long range operation at cruising altitude.
  f. Fuel reserve: 5% of total fuel at take-off.

IV RADIUS FORMULA: GROUND ATTACK MISSION
  a. Start engine, warm up and take-off at sea level. Fuel allowance is 10 minutes at normal rated power.
  b. Climb to cruising altitude (10,000 ft) using normal rated power.
  c. Cruise out at long range operation at cruising altitude.
  d. Descend to sea level, drop bombs and combat for 5 minutes at max power.
  e. Climb to cruising altitude (10,000 ft) using normal rated power.
  f. Cruise back with long range operation at cruising altitude.
  g. Fuel reserve: 5% total fuel at take-off.

V RANGE FORMULA: FERRY MISSION
  a. Identical to basic range except flight is made at a cruising altitude of 10,000 ft.

GENERAL DATA:
  b. For detailed planning refer to T.O. AN01-65BD-1

ENGINE RATINGS:

<table>
<thead>
<tr>
<th>Mambo</th>
<th>Horsepower</th>
<th>RPM</th>
<th>CRIT. ALT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.O.</td>
<td>2060</td>
<td>2800</td>
<td>S.L.</td>
</tr>
<tr>
<td>Max: (wet)</td>
<td>2660</td>
<td>2800</td>
<td>25,000</td>
</tr>
<tr>
<td>Max: (dry)</td>
<td>2810</td>
<td>2800</td>
<td>36,500*</td>
</tr>
<tr>
<td>Nor:</td>
<td>2220</td>
<td>2800</td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td>1840</td>
<td>2800</td>
<td>40,800*</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>2600</td>
<td>S.L.</td>
</tr>
<tr>
<td></td>
<td>1840</td>
<td>2600</td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>2600</td>
<td>42,000*</td>
</tr>
</tbody>
</table>

* Turbo critical