POWER PLANT

No. & Model ......... (1) V-1650-9
Mfr. ................. Packard
Engine Spec No. ...... AC1090B
Sup. ................. 2 stg, 2 spd
Red. Gear Ratio ...... 479
Prop. Mfr. .......... Aeropropaga
Blade Design No. ... H20D156-23M5
Prop. Type .......... C.S., Unimatic
No. Blades .......... 4
Prop. Dia ........... 11'1"
Augmentation ......... Fluid Injection

MISSION AND DESCRIPTION

The F-51H is designed to operate as an interceptor, long range fighter, rocket-attack or fighter-bomber.

The engine is equipped with a speed density injection type carburetor. Although the H model is similar to other F-51 models in outward appearance, this aircraft has many new design features. The structural strength was increased 10% throughout over its immediate predecessor.

All built-in fuel cells are self-sealing and the drop tanks are pressurized for positive operation at altitudes up to 30,000 feet.

The wing is full cantilever structure of aluminum alloy construction employing a low drag laminar type airfoil. Fuselage is semi-monocoque, aluminum alloy structure. A type K-14A or K-14B gunsight is provided.

DEVELOPMENT

Design Initiated (XF-51) ..................... May 1940
First Acceptance: ..................... Jan. 1945
Production Completed: ..................... Nov. 1945

ENGINE RATINGS

BHP - RPM - ALT - MIN
T. O: *1400-3000-S. L. -5
Mil: *1400-3000-S. L. -30
1320-3000-14, 400-30
1275-3000-26, 500-30
1005-2700-S. L. -Cont.
1160-2700-16, 500-Cont.
985-2700-28, 500-Cont.

*Low Blower
**High Blower

DIMENSIONS

Wing Span ............... 37.0'
Incidence (root) ...... 2°
(tip) ............... -1°18'
Dihedral (25% Chord) ....... 5°
Sweepback (LE) ........ 3°39'33"
Length ............... 33.3'
Height ............... 13.7'
Tread ............... 11.1'
Prop, Grd. Clearance .... 10"
## Loading and Performance - Typical Mission

<table>
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<tr>
<th>Conditions</th>
<th>Basic Mission</th>
<th>Interceptor Mission</th>
<th>Ground Attack Mission</th>
<th>Ferry Mission</th>
<th>Range</th>
</tr>
</thead>
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<td>I</td>
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<td>V</td>
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<td>VI</td>
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### Take-off Weight
- (lb): 11,029
- Fuel at 6.0 lb/gal: 12,409
- Military load: 2,880
- Wing loading (lb/sq ft): 46.6
- Stall speed (power off): 92
- Take-off ground run at SL: 1,800
- Take-off to clear 30 ft: 2,720
- Rate-of-climb at SL: 1,100
- Time: SL to 10,000 ft: 8.5
- Time: SL to 25,000 ft: 24.0

### Service Ceiling (100 fpm)
- (ft): 32,400

### Combat Range
- (n.mi): 1,865
- Avg cruising speed (kn): 250
- Cruising altitude (ft): 25,000
- Total mission time (hr): 6.8

### Combat Radius
- (n.mi): 770
- Avg cruising speed (kn): 249
- Cruising altitude (ft): 25,000
- Total mission time (hr): 6.7

### Combat Weight
- (lb): 9,430
- Combat altitude (ft): 25,000
- Combat speed (kn): 406
- Combat climb (fpm): 2,850
- Combat ceiling (500 fpm) (ft): 39,000
- Service ceiling (100 fpm) (ft): 37,200
- Max rate-of-climb at SL (fpm): 5,000
- Max speed at 22,700 ft (kn): 410
- Landing Weight (lb): 8,087
- Ground roll at SL (ft): 1,310
- Total from 50 ft (ft): 2,155

### Notes:
1. Take-off power
2. Max power (wet-7 min. only)
3. Normal power
4. Take-off and landing distances are obtainable at sea level using normal technique. For airport planning distances should be increased appropriate factors to determine runway requirements.

### Conditions:
(a) Performance Basis: Flight Test Data
(b) In computing Radius and Range, specific fuel consumptions have been increased 5% to allow for variations of fuel flow in service aircraft.
(c) Performance is based on powers shown on page 6.
FORMULA: RADIUS MISSION I

Take-off (take-off power), climb on course to 25,000 feet at normal power, cruise to objective at long range speeds at 25,000 feet (external tanks are dropped when empty). Combat at 25,000 feet for 5 minutes with maximum power (water injection) and 15 minutes with maximum power (dry), cruise back at long range speeds at 25,000 feet. Range free allowances include 10 minutes at normal power for starting engine, warm-up and take-off, fuel for 20 minutes of combat plus 5% of initial fuel for reserve.

FORMULA: RANGE MISSION I

Take-off (take-off power), climb on course to 25,000 feet at normal power, cruise at 25,000 feet at long range speeds until 90% of initial fuel has been used (external tanks are dropped when empty). Range free allowances include 10 minutes at normal power for starting engine, warm-up and take-off plus 10% of initial fuel for reserve.

FORMULA: RADIUS MISSION II

Take-off (take-off power), climb on course to maximum power (5 minutes with water injection) to 25,000 feet, cruise at long range speeds at 25,000 feet. Combat for 20 minutes at maximum power (2 minutes with water injection), cruise back at long range speeds at 25,000 feet. Range free allowances same as Radius Mission I above.

FORMULA: RANGE MISSION II

Take-off (take-off power), climb on course to maximum power (5 minutes with water injection) to 25,000 feet, cruise at long range speeds at 25,000 feet until 90% of initial fuel has been used. Range free allowances same as Range Mission I above.

FORMULA: RADIUS MISSION III (Two, 1000 pound bombs and six, 5" HVAR rockets)

Take-off (take-off power), climb on course at normal power to 10,000 feet, cruise to objective at long range speeds at 10,000 feet. Descend to sea level, expend military load and combat for 5 minutes at maximum power (with water injection). Climb to 10,000 feet at normal power and cruise back at long range speeds at 10,000 feet. Range free allowances include 10 minutes at normal power for starting engine, warm-up and take-off, fuel for 5 minutes of combat at sea level plus 5% of initial fuel for reserve.

FORMULA: RANGE MISSION III (Two, 1000 pound bombs and six, 5" HVAR rockets)

Take-off (take-off power), climb on course at normal power at 10,000 feet cruise out at long range speeds at 10,000 feet until 90% of initial fuel has been used. Military load is carried to destination. Range free allowances same as Range Mission I above.

FORMULA: RADIUS MISSION IV (Six rockets and two, 110 gallon external tanks)

Same as Radius Mission III except external tanks are carried and dropped when empty.

FORMULA: RANGE MISSION IV (Six rockets and two, 110 gallon external tanks)

Same as Range Mission III except external tanks are carried and dropped when empty.

FORMULA: RADIUS MISSION V (Two, 500 pound bombs)

Same as Radius Mission III above.

FORMULA: RANGE MISSION V (Two, 500 pound bombs)

Same as Range Mission III above.

FORMULA: FERRY MISSION VI

Same as Range Mission III except external tanks are carried and dropped when empty.

GENERAL DATA:

(a) For detailed planning refer to Tech Order AN 01-60 JF-1.

(b) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used in performance calculations are as follows:

<table>
<thead>
<tr>
<th>V-1650-9</th>
<th>BHP</th>
<th>RPM</th>
<th>ALT*</th>
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<tbody>
<tr>
<td>T. O.:</td>
<td>1325</td>
<td>3000</td>
<td>S. L.</td>
</tr>
<tr>
<td>Max(wet):</td>
<td>2220</td>
<td>3000</td>
<td>9,000</td>
</tr>
<tr>
<td>Max(dry):</td>
<td>1790</td>
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<td>Max(dry):</td>
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<tr>
<td>Max(dry):</td>
<td>1280</td>
<td>3000</td>
<td>29,800</td>
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<tr>
<td>Nor:</td>
<td>1065</td>
<td>2700</td>
<td>21,800</td>
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<tr>
<td>930</td>
<td>2700</td>
<td>31,800</td>
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</table>

* Level flight critical altitude