Model P6F-3 Airplanes - Periodic Performance Check - Report on TBN No. PFR-2125.

REFERENCES
(a) Baker conf. 1tr. Aer-E-211-JMG 024549 of 21 October 1943.
(b) Power curves for Model R-3300-6 Engine A.E.I. Project 3911, dated 12 August 1942.
(c) Report of Trouble, Model P6F-3 Airplane No. 40164, Items 1 to 3 dated 15 November 1943 to 25 February 1944.

INTRODUCTION
1. Reference (a) requested that performance tests be conducted on approximately each 1000th model P6F-3 airplane. This report covers the tests of the first airplane submitted in accordance with the above directive.

PURPOSE
1. The purpose of these tests was to check the performance of model P6F-3 airplane No. 40164.

METHOD OF TEST
1. The performance data were obtained and reduced to standard conditions in accordance with the established Flight Test methods.

DISCUSSION
1. As the most representative service condition the airplane was loaded as an overload fighter for all tests, giving gross weight of 12,243 pounds. This included full fuel load of 250 gallons and six .50 caliber machine guns with full ammunition of 2400 rounds. Photographs forming enclosure 1 show model P6F-3 airplane No. 40164 as flown during the tests.

RESULTS
1. Charts contained in enclosure 2 are plots of the performance obtained during the tests. Reference (b) was used as a basis for estimating the HP developed by the engine installed.

2. The performance of the airplane is summarized on the following page, with comparative values obtained on previous model.
F6F-3 airplanes. It should be noted that this performance was available only after extensive work on the carburetor, and that as received the production airplane fell far short of acceptable performance because of carburetor difficulties, (reference (c)).

<table>
<thead>
<tr>
<th>Model</th>
<th>P6F-3</th>
<th>XF6F-3</th>
<th>F6F-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airplane number</td>
<td>40154</td>
<td>02932</td>
<td>07746</td>
</tr>
<tr>
<td>Loading</td>
<td>Overload</td>
<td>Normal</td>
<td>Overload</td>
</tr>
<tr>
<td>Gross weight - lbs.</td>
<td>12,245</td>
<td>11,364</td>
<td>12,225</td>
</tr>
</tbody>
</table>

**Military Power Performance**

- Airplane critical altitude - ft. 23,200
- Maximum speed at airplane critical altitude - MPH 387.5
- Service ceiling - ft. 37,000
- Maximum rate of climb at sea level - FPM 2,900

**Normal Power Performance**

- Airplane critical altitude - ft. 24,550
- Maximum speed at airplane critical altitude - MPH 375
- Service ceiling - ft. 36,400
- Maximum rate of climb at sea level - FPM 2,900
- Take-off distance, no wind - ft. 715
- Take-off distance, 25 knot wind - 335
- Take-off speed - MPH 86.0

**Stalling Speed**

- Clean - power on - MPH 97.0
- Clean - power off - MPH 93.5
- Landing condition power on - MPH 79.5
- Landing condition power off - MPH 85.5

* Overload Fighter gross weight = 12,155 pounds

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CONCLUSIONS

1. a) Model P6F-3 airplane No. 40164 possesses substantially the same performance characteristics as previous model P6F-3 airplanes tested by Flight Test.

   b) There are no significant changes in handling qualities.

RECOMMENDATIONS

1. a) Several difficulties were encountered during the trials and were reported on by reference (c) with recommendation for correction made therein.

   b) The major military importance of the carburetor difficulties encountered in R-2800 engines and exemplified in this airplane, as received, is again emphasized. It is recommended that positive measures be taken to insure proper carburation in every individual production airplane.

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Enccl.
1. HW - Photographs of Model P6F-3 Airplane No. 40164.
2. HW - Performance Charts.
MODEL F6F-3, AIRPLANE NO. 40164
PERFORMANCE CHARACTERISTICS
OVERLOAD FIGHTER, GROSS WEIGHT = 12,243 LB.

TIME TO CLimb & RATE OF CLimb
VS. STANDARD ALTITUDE

- - - MILITARY POWER
- - - NORMAL POWER

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TIME TO CLimb - MIN.
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40

RATE OF CLimb - FT./MIN.
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000 8500 9000 9500 10000

PHOTO FTR 3558
MODEL F6F-3, AIRPLANE No. 40/64
PERFORMANCE CHARACTERISTICS
OVERLOAD FIGHTER, GROSS WEIGHT 12,243 LBS.

AIRSPEED INDICATOR CALIBRATION

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