

CONFIDENTIAL
NA83/44169
VF6F-3
PTR 2125
JWG/vba (FT)

TITLE: TED No. PTR 2125 - Model F6F-3 Airplanes -
Periodic Performance Check - Report on.

REFERENCES: (a) BuAer conf. ltr. Aer-E-211-JMC 624549
dated 21 Oct 1943.
(b) Periodic Performance Check - Report on -
NA83 PTR 2125, VF6F-3 (FT) (44044) dated
16 Mar 1944.

INTRODUCTION:

1. Reference (a) requested that performance tests be conducted on approximately each 1000th model F6F-3 airplane. This report covers the tests of the second airplane submitted in accordance with the above directive. Reference (b) covered similar tests on the first model F6F-3 submitted, airplane No. 40164.
2. Photographs showing model F6F-3 airplane No. 42633 in various ground positions are included in enclosure 1.

PURPOSE:

1. The purpose of these tests was to determine the performance of model F6F-3 airplane No. 42633, and to compare the results with those obtained on previous model F6F-3 airplanes.

METHOD OF TEST:

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

DISCUSSION:

1. The airplane was loaded as an overload fighter for all tests. This included full fuel load of 250 gallons, 16 gals. of oil, 15 gals. anti-detonant fluid, and 2400 rounds of ammunition for the six .50 caliber machine guns, giving a gross weight for the airplane of 12,416 lbs.

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2. A model R-2800-10W engine and a Hamilton Standard 3-blade, 13'-1" diameter, constant-speed propeller, blade design No. 6501A-0 was installed on the airplane.

3. The external configuration of the airplane was as follows: antennas for the ATA/ARA, ARR-2, and VHF were installed. A resistance type, electrical, outside air temperature gage was located on the starboard, upper wing panel, and all gun blast openings and muzzles were faired over with tape.

4. All tests were conducted at military power, using auto lean mixture setting, and the brake horsepower developed was measured by a torquemeter. The failure of the engine to deliver rated military brake horsepower in neutral blower, 52.5" Hg. MAP should be noted. This condition apparently is common to many current production model F6F-3 airplanes.

5. Considerable trouble was encountered during the initial stages of testing because of the improper setting of the auxiliary stage supercharger pressure regulator. Upon receipt of the airplane, military power in auxiliary blower could not be obtained because of the fact that the regulator was maintaining a carburetor impact pressure of only 26.5 to 26.8" Hg. instead of the required value of $28.1 \pm .5$ " Hg.

RESULTS:

1. The performance of the airplane is summarized below, with comparative values obtained on the previous model F6F-3 submitted for a periodic check, reference (b).

2. Performance characteristics are shown graphically on three charts in enclosure 2.

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Airplane Number.....	42633	40164
Loading.....	Overload Fighter	Overload Fighter
Gross weight.....	12,416	12,243

Military Power Performance:

Airplane critical altitude-ft.....	22500	23200
Maximum speed at airplane critical alt.-MPH.....	378.0	379.5
Service ceiling-ft.....	38,000	37,000
Maximum rate of climb at sea level - FPM.....	3020	2900

Stalling Speed:

Clean-power on - MPH.....	98.0	97.
Clean-power off - MPH.....	100.5	98.5
Landing condition power on - MPH.....	80.0	79.5
Landing condition power off - MPH.....	84.5	85.5

Take-off Data:

Take-off distance, no wind - ft.....	760	715
Take-off distance, 25 knot wind - ft..	365	335
Take-off speed - MPH.....	87.5	85.5
BHP at take-off.....	1840	

CONCLUSIONS:

1. The performance of model F6F-3, No. 42633, exceeds that of the previous model F6F-3 airplane submitted for test in several respects, including rate of climb and service ceiling.
2. The lack of power in neutral blower is considered to be the primary cause of the increase in take-off distance. At 2700 RPM, 54" Hg. MAP, the power measured was approximately 140 BHP less than the rated take-off power for this engine.

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RECOMMENDATIONS:

1. It is recommended that steps be taken to insure that the auxiliary stage supercharger pressure regulators are set correctly prior to future deliveries of model F6F-3 airplanes.
2. The failure to obtain rated power at take-offs and in neutral blower should be investigated and remedied on model F6F-3 airplanes.

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Encls: (HW)

1. Photographs PTR Nos. 8958, 8959, 8960, 8961, 8962, and 8963.
2. Performance Curves PTR Nos. 11205, 11206, and 11207.



Model F6F-3 No. 42633
Left Front View

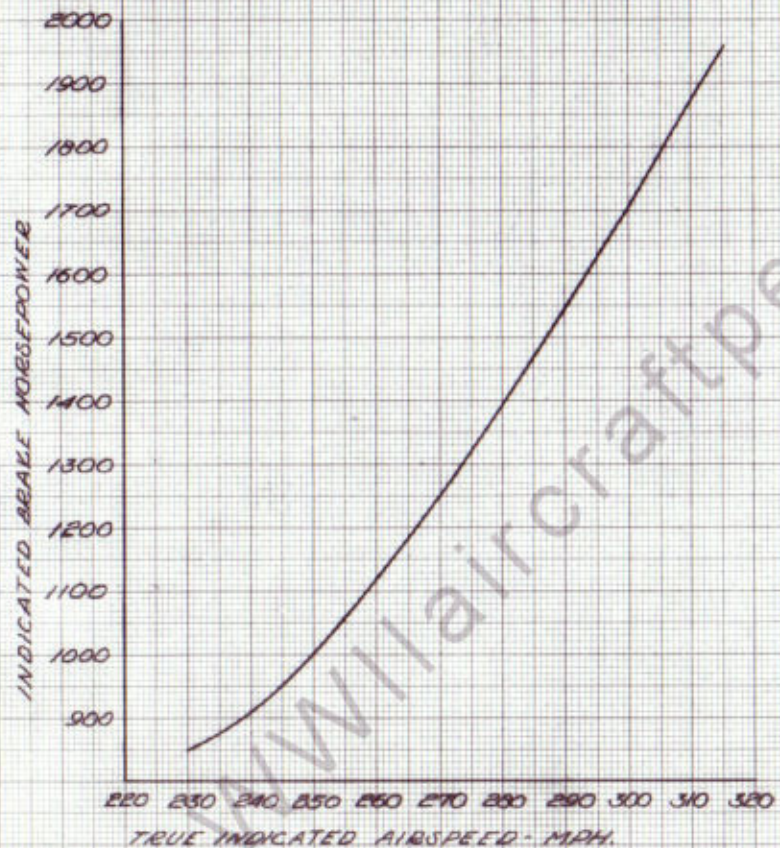
Photo PTR 8958
6-22-44

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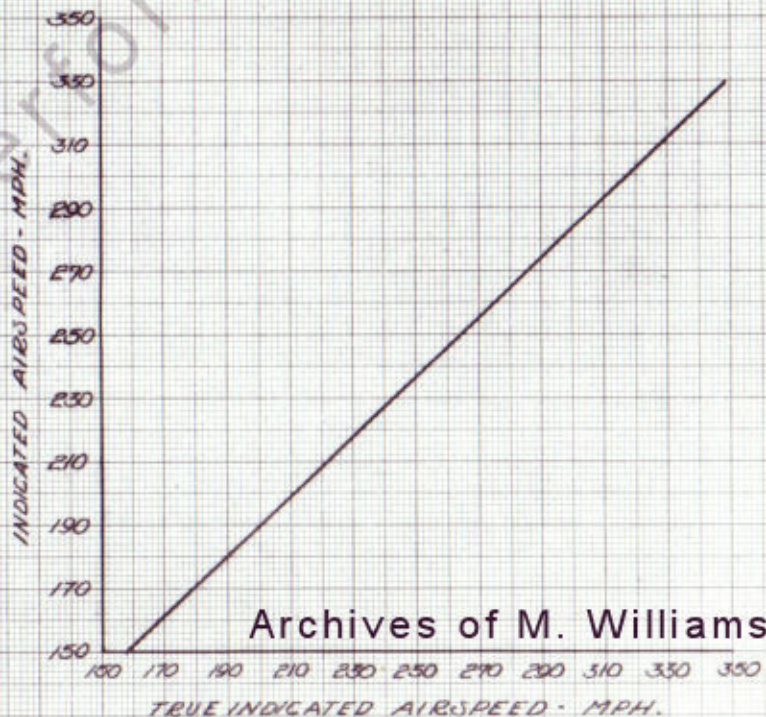
PHOTO PTR. 11205

MODEL F6F-3 AIRPLANE No. 42633
PERFORMANCE CHARACTERISTICS
OVERLOAD FIGHTER - GROSS WEIGHT 12416 LBS.

BRAKE HORSEPOWER REQUIRED



AIRSPED INDICATOR CALIBRATION



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PHOTO PTR. 11206

MODEL F6F-3 AIRPLANE No. 42633
PERFORMANCE CHARACTERISTICS
OVERLOAD FIGHTER GROSS WEIGHT 12,416 LBS.

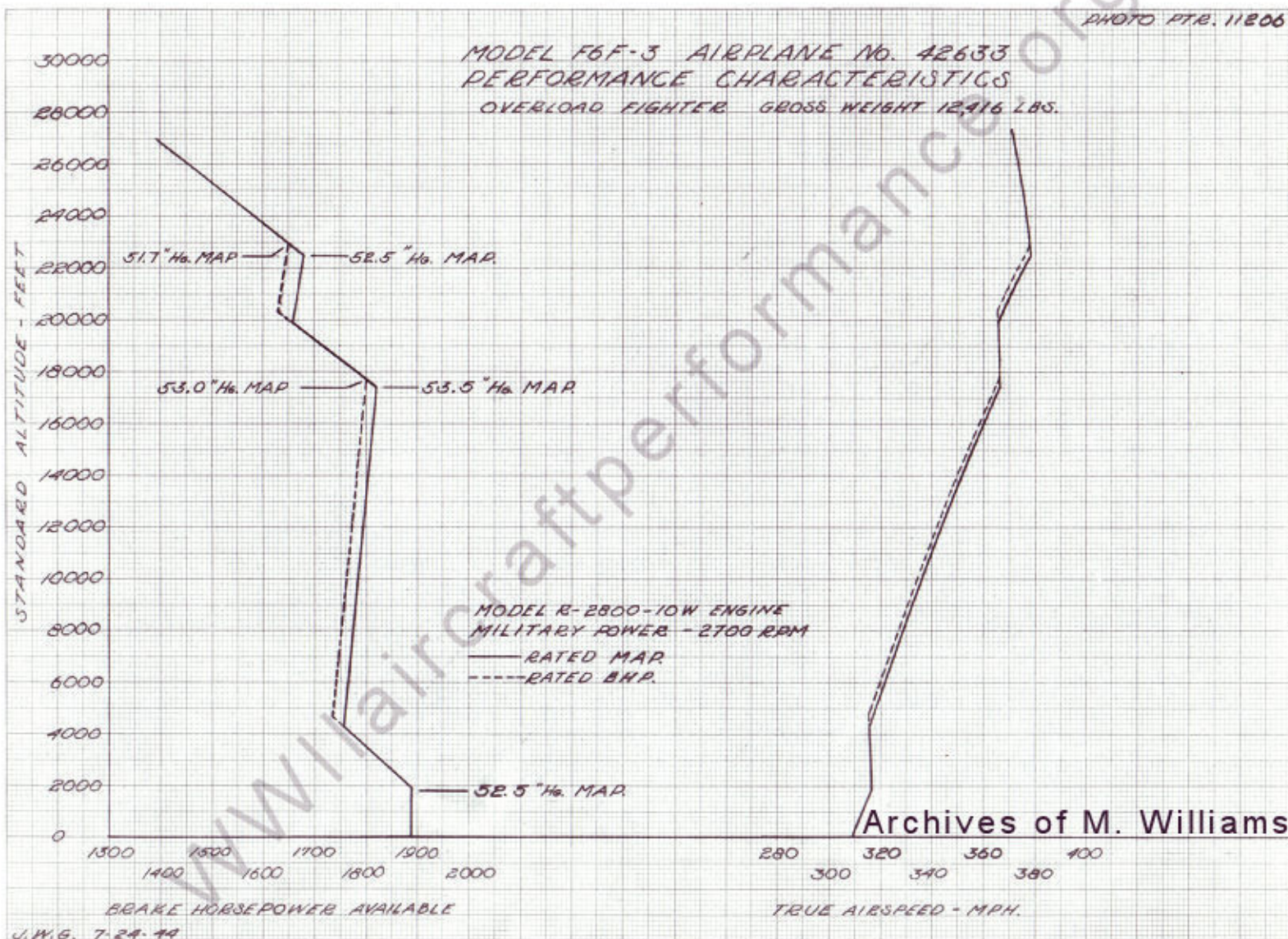


PHOTO PTR. 11207

MODEL F6F-3 AIRPLANE No. 42633
PERFORMANCE CHARACTERISTICS
OVERLOAD FIGHTER - GROSS WEIGHT 12416 LBS.
MILITARY POWER

STANDARD ALTITUDE - FEET

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TIME TO CLIMB - MINUTES
RATE OF CLIMB - FEET PER MINUTE

J.W.G. 7-25-44.