

In Reply Refer To: U. S. NAVAL AIR TEST CENTER
PATUXENT RIVER, MD.

CONFIDENTIAL

NA83/VF6F-3/BIS 2116

FEE/vbs (FT)

Serial: C-443

JUL 9 1945

To: Board of Inspection and Survey

Subj: TED No. BIS 2116 - Model F6F-3 Airplane -
Production Inspection Trials - Supplementary
Data.

Refs: (a) NAS Patuxent River, Md. conf. Final Flight
Report of Production Inspection Trials of
Model F6F-3 Airplane TED No. BIS 2116 dated
27 Nov 1944.
(b) BuAer conf. ltr. Aer-E-211-RC, C-90071 C11926
dated 8 June 1943.
(c) BuAer conf. ltr. Aer-E-211-RJ, C-90071 C14761
dated 13 July 1943.
(d) BuAer conf. ltr. Aer-E-211-RJ C-90071, C17360
dated 13 Aug 1943.
(e) FT Memo NA83 VF6F-3 for VF Design Desk,
dated 29 June 1943.
(f) FT Memo NA83 VF6F-3 (FT) (44) for VF Design
Desk, dated 30 Aug 1943.

1. Production Inspection Trials of the model F6F-3 airplane were conducted under TED No. BIS 2116. The final report of the Flight Test portion of these trials was submitted in reference (a). References (b), (c), and (d) requested that, as a part of the above mentioned trials, flight tests be conducted on the model F6F-3 airplane carrying various combinations of bombs and droppable fuel tanks and also when carrying a MK 13-2 torpedo. Reports of the results of these tests were made by references (e) and (f) and are also included in reference (a). These results, however, did not include maximum speed or maximum rate of climb data. These data have been determined by flight tests of model F6F-3 airplane No. 41588 and are herewith submitted to complete the subject tests.

2. Airplane No. 41588, photographs of which are included in enclosure 3, possessed a smooth dark blue finish and was a typical late production model F6F-3 airplane except that special elevator and rudder balance tabs were installed, and the plexiglass of the cockpit hatch was molded in a single

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piece instead of the normal type 5 piece framed hatch. The windshield was the flat front type as on later model F6F airplanes. The airplane was equipped with a Pratt and Whitney model R-2800-10 two-stage supercharged engine and a Hamilton Standard, constant-speed, three-blade propeller of 13'1" diameter, blade design No. 6501A-0. The ARC antenna installed was a wire leading from a mast on the vertical fin to a mast slightly aft of the cockpit. A lead-in extended from this mast to an insulator on the right upper portion of the fuselage slightly aft of the mast. An APX-1 wire mast antenna extended upward from the top of the fuselage at a point approximately midway between the cockpit and the fin. An electric outside air temperature element was mounted on the upper surface of the right wing at approximately the 60% chord station, midway between the side of the fuselage and the inboard edge of the aileron. The details discussed above may be clearly seen in the attached photographs of the airplane. The twin pylons shown in the enclosed photographs were not installed when the airplane was in the clean condition.

3. The basic loading of the airplane for all tests was that of an overload fighter and included full internal fuel, 250 gals., 16 gals. of oil, full ammunition, 2400 rds., and 6-50 cal. machine guns. The dummy MK 13-2 torpedo used was fitted with a nose drag ring and an air stabilizer mounted on its tail as shown in the photographs. The drop tank used was a standard F6F type, 165 gal. tank. The bombs used were 1,000 pound dummy G.P.

4. The results of the maximum speed and climb tests at military power are given by the curves of enclosure 2 and are summarized in the table of enclosure 1. All maximum speed runs were made with cowl, intercooler, and oil cooler flaps fully closed. All climbs were made with cowl flaps 1/3 open and oil and intercooler flaps closed. The climbing speed up to high blower critical altitude was 135 kts., Vi. All tests were run with mixture control in auto lean.

By direction of Commander, Naval Air Test Center:

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cc: BuAer (VF Design Branch)
~~BuAer~~ (Design Coordination) (5)
BuAer (Aerodynamics & Hydrodynamics Section, Engrg. Div.)
AAF ATSC Liaison Office, Room 2242, Munitions Bldg.,
Washington, D. C. Attn: Lt. Col. James H. Sams

Encls: (HW)

1. Performance Characteristics of Model F6F-3 Airplane No. 41588 at Various Loadings - Military Power.
2. Three (3) Performance Curves, Photo PTR Nos. 26770, 26768, and 26769.
3. Eight (8) Photographs, Photo PTR Nos. 22000, 21999, 22001, 22002, 22171, 22172, and 22170, 22173.

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ENCLOSURE 1

PERFORMANCE CHARACTERISTICS OF MODEL F6F-3 AIRPLANE NO. 41588
AT VARIOUS LOADINGS - MILITARY POWER

Loading	Overload Fighter (clean)	Overload Fighter + 1-1000 lb. Bomb	Overload Fighter + 2-1000 lb. Bombs	Overload Fighter + 2-1000 lb. Bombs + 1-165 gallon Drop Tank	Overload Fighter + 1-Mk 13-2 Torpedo
Gross weight- lbs.....	12,440	13,475	14,510	15,568	14,222
Maximum speed at high blower a.c.a.-MPH....	382	367	352	337	331
High blower airplane crit. alt. - ft.....	22,400	22,100	21,800	21,600	21,300
Service Ceil- ing - ft.....	37,700	35,500	33,200	30,500	32,600
Maximum rate of climb at S.L. - ft.....	3040	2690	2340	2000	2220

MODEL F6F-3 AIRPLANE No 41588
PERFORMANCE CHARACTERISTICS
(HIGH BLOWER)

MILITARY POWER
2100 RPM

<u>NO</u>	<u>CONFIGURATIONS (OVERLOAD FIGHTER)</u>	<u>GROSS WEIGHT (LBS.)</u>
1.	CLEAN	12440
2.	1-1000 LB. BOMB	13475
3.	2-1000 LB. BOMBS	14510
4.	2-1000 LB BOMBS & 1-165 GAL. DROP TK.	15568
5.	1- TORPEDO AND DRAPE RING.	14222

STANDARD ALTITUDE - FEET

BRAKE HORSEPOWER
AVAILABLE

MANIFOLD
PRESSURE

TRUE AIRSPEED

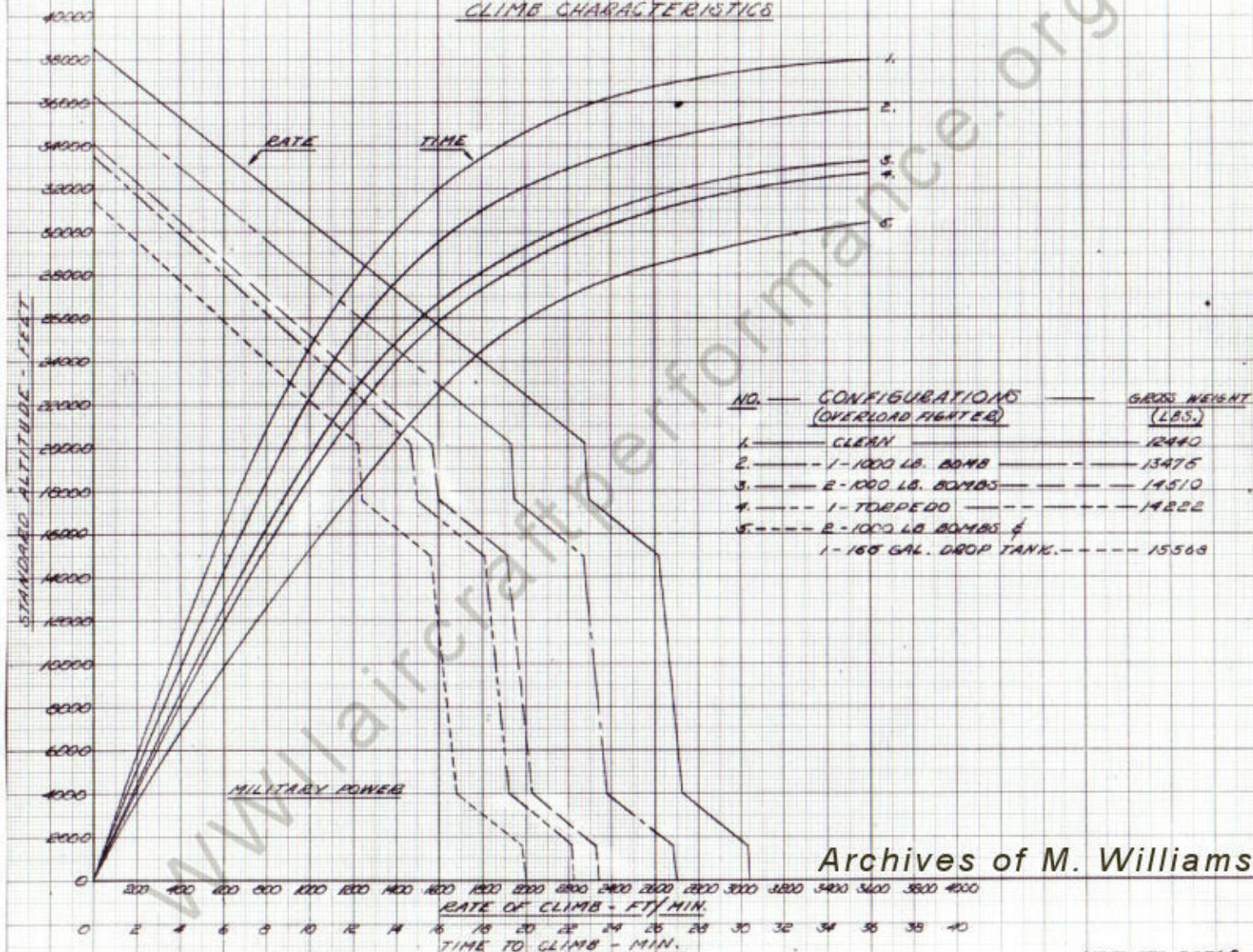
1400 1600 1800
BHP

45 50 55
MAP "HG.

300 320 340 360 380 400
V₄ - MPH.

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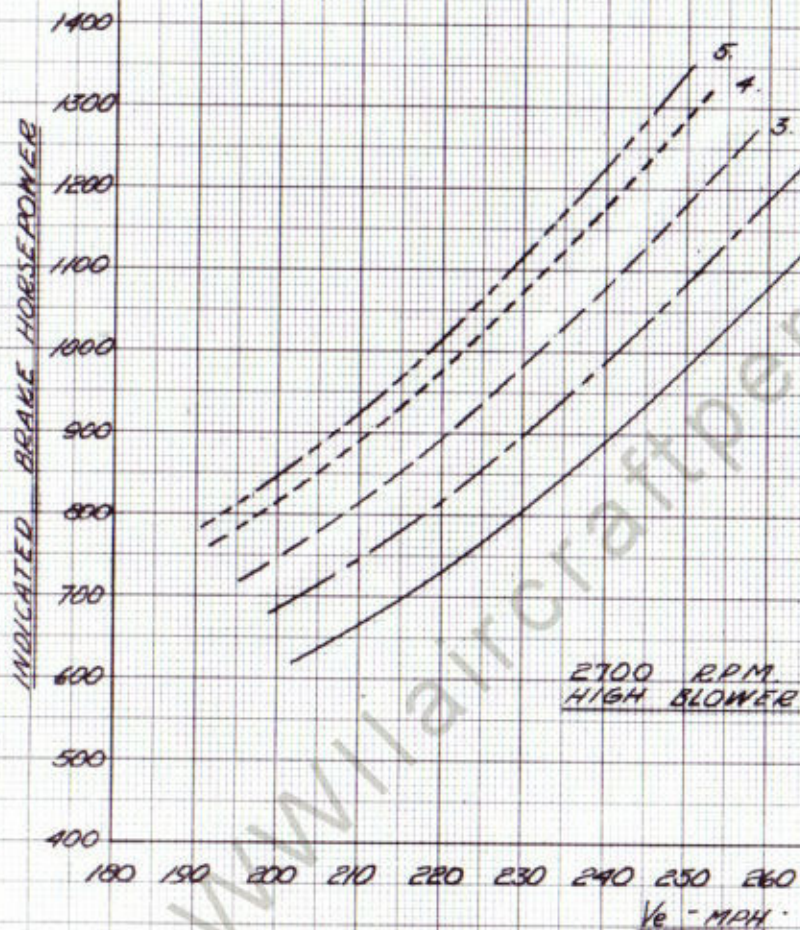
MODEL F6F-3 AIRPLANE NO. 41593
CLIMB CHARACTERISTICS



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AVOID FTS 26768.

MODEL F6F-3 AIRPLANE No. 41588
EFFECT OF VARIOUS LOADINGS ON SPEED.



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BIS 2116 - P6F-3 No. 41588
Loaded with 2-1000 lb. Bombs and
1-165 gal. drop tank - 3/4 Right
Front View

Photo PTR 22000
3-27-45

RESTRICTED
OFFICIAL NAVY PHOTOGRAPH
NOT TO BE USED FOR PUBLICATION