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ARMY AIR FORCES
MATERIEL ~~CENTER~~ COMMAND

MEMORANDUM REPORT ON

German Fighter - Focke-Wulf 190

ELS/mac/47

Date 6 December 1943

SUBJECT: Pilot's Comments

SECTIONFlight.....

Contract No.

Expenditure Order No.

SERIAL No. Eng-47-1658-D

Purchase Order No.

A. Purpose.

1. To submit pilot's comments on the Focke-Wulf 190, German Fighter Airplane.

B. Factual Data.

1. Introduction.

A captured German Focke-Wulf 190 fighter was flown on two short "handling" flights by two Flight Section pilots at Farnborough, England the R.A.E. This was reportedly the latest model with a BMW 9-801-D2 engine.

2. Weight & C.G. Information.

Weight & c.g. information was not available at the time the aircraft was flown. Weight included full gas and oil but no ammunition or external bombs or gas tanks.

3. Flight Characteristics.

a. Cockpit Layout

The instrument panel is quite untidy as there are several decks of gages and also the gas tank selector control, emergency gear control, and windscreen cleaner control and cowl flap hand crank protrude through the center portion of the panel.

The engine control (combined propeller, mixture and throttle and idle cut out) is very large and coarse to operate with no friction adjustment provided. Toe brakes are provided and are easy to reach in all positions. Rudder pedal adjustment was very difficult to operate. All flight controls were light and free on the ground. The pilot position, which necessitates extending the legs almost straight out, seems quite suitable for pursuit work. The shoulder room and head room are extremely limited and are the main objections to the cockpit arrangement. The pilot is bound to feel like a "rat in a trap" when the canopy is closed and it must be closed for both ground and air operation with

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just a jettison button provided for emergency exit.

The cockpit was very hot at the low altitudes tried (below 10,000 ft.) and gasoline fumes were quite strong probably originating from the primer which cannot be locked closed.

The push button controls for flaps, gear, master switch, fuel pumps, etc., are very novel and seem to work well. Also, they are neat and take relatively little cockpit space. Many features would be useless in case of an electrical system failure.

b. Taxiing & Ground Handling.

Vision on the ground is very poor because of the limited headroom, relatively high angle of inclination of the fuselage with the ground, and the radial engine installation. A tail wheel lock of the P-51B type incorporated in the stick and good brakes makes ground handling pleasant.

c. Take-Off & Initial Climb.

The take-off run is very blind until the tail can be raised. The run is short as the aircraft accelerates rapidly. An indicated air-speed of 120 (no flaps) seems about right for take-off.

Initial climb is good with the ship exhibiting a relatively steep angle of climb. Gear retraction is rapid and smooth with no trim change to speak of. Airspeed acceleration after take-off is noticeably good.

d. Climbs.

Angle of climb is steep with indicated rate of climb about 3500 fpm. full power.

e. Handling & Control at Various Speeds.

All controls are good at slow speeds but tend to get heavy at about 350 indicated. On this particular machine, the ailerons were overbalanced to the left at high speeds. The airplane buffets and shakes considerably in a dive with this characteristic being more noticeable at reduced power.

f. Trim & Stability.

No rudder or aileron trimmers are provided. They can successfully be eliminated because there is remarkably little trim change with speed.

The elevator tab is electrically operated and activates too slowly in maneuvers to handle such cases as the minimum radius of turn wherein elevator loads are excessive without trim.

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Stability at cruising speed is very satisfactory.

g. Stall & Stall Warning.

The clean stall power off is about 118 IAS. The dirty stall power off is about 105 IAS. There is very little stall warning and the airplane falls off sharply to the right. Elevator loads are heavy requiring trim to get a complete stall.

h. Maneuverability and Aerobatics

The outstanding maneuverability feature of the airplane is its extremely high rate of roll especially from one bank to another. The turn is poor with a very unpleasant accelerated stall occurring at 180 with about 2 "g" applied. The maneuver flap position, 10°, brings this down to 140 IAS. The elevators are very heavy in a tight turn necessitating trim.

i. Trim Changes with Gear, Flaps, etc.

Trim changes with alteration of configuration is very slight.

j. Noise & Vibration

The engine is rather rough causing slight vibration at all times. Both vibration and buffeting in the dive, especially at reduced power, are considered excessive.

k. Comfort.

There is entirely insufficient head and shoulder room provided for comfort.

l. Vision.

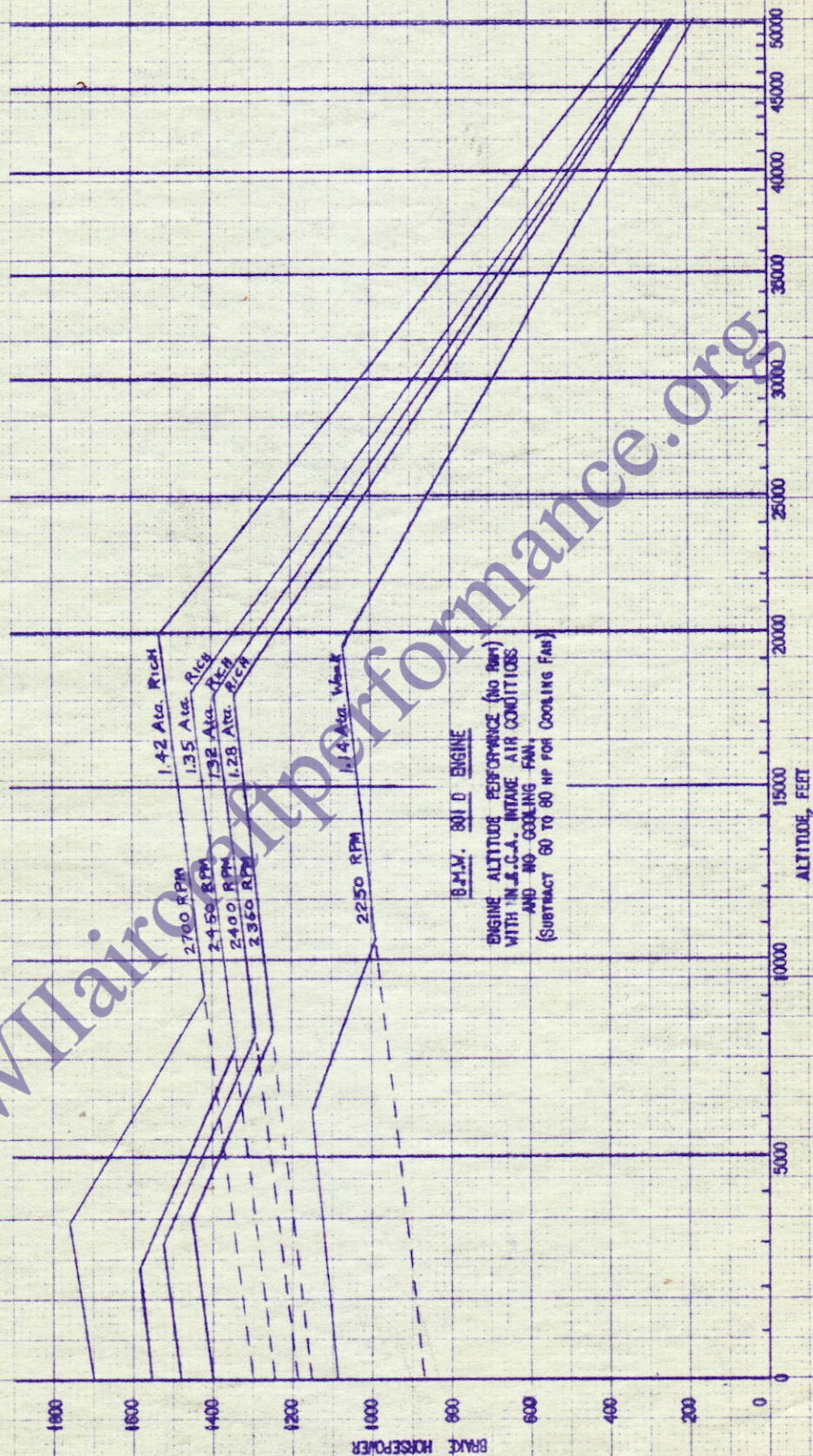
Vision forward is poor in take off and climb, satisfactory for cruising and diving. Side and rear vision is good at all times.

m. Approach & Landing.

Vision is adequate on the approach but poor for the ground run. An approach speed of 130 IAS seems satisfactory. Elevator force to get the stick back is large with use of trim tab being necessary. The slow electrical operation of the tab would create a bad condition in case of a "go around".

n. Power Plant and Associated Equipment.

A B.M.W. 801D2 engine was installed. A Farnborough power curve for this engine is attached. The simplified engine control is commendable for pursuit work. With the propeller selector in the automatic position, one control operates the propeller, mixture and throttle. In the manual position, the propeller rpm is selected by a



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thumb switch on the end of the engine control. Engine operation was noticeably rough at all powers.

o. Emergency Systems.

These systems were not tried but appeared simple to operate, one handle being provided for the emergency gear lowering and another for jettisoning the canopy.

p. Performance.

The dive limitations listed for the airplane were as follows:

10000 ft. - 466 IAS
16000 ft. - 428 IAS
26525 ft. - 360 IAS

but from the feel of the airplane in a dive, checking these speeds is not recommended. Preliminary speeds obtained by Farnborough were:

Throttle	RPM	True Speed	Alt.	Remarks
W.O.	2700	395	18000	High blower critical
W.O.	2700	345	10000	
W.O.	2700	345	5000.	Low blower critical

The absolute ceiling was reported to be 38000 feet.

C. Conclusions.

While this airplane has some good fighter features such as high rate of roll and good climb, these are offset by such undesirable characteristics as poor radius of turn, bad stall, poor landing qualities, and insufficient head and shoulder room in the cockpit.

D. Recommendations

None

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