

ARMY AIR FORCES
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5 pages

MEMORANDUM REPORT ON TSPTE/ALS/rah/26217
FW-190, D-9, AAF Number FE-121

Date 20 May 1946

SUBJECT: Pilot's comments and handling characteristics of
FW-190, D-9

OFFICE TSPTE

Contract or Order No.

SERIAL No. TSPTE-1988

Expenditure Order No.

25 Nov 1949
Field Inspection
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A. PURPOSE:

To forward pilot's comments and handling characteristics of FW-190 - D-9.

B. FACTUAL DATA:

1. Introduction:

The German Focke-Wolfe 190 - D-9, FE-121 is a single place, low wing, all metal monoplane, powered with a 1750 H.P. JU-213-E inverted "V", pressure liquid cooled engine.

A total of six hours was flown on the airplane by various flight test pilots to determine its handling characteristics and obtain pilot's comments.

During the flights considerable difficulty was encountered with the function of the landing gear and the flap.

None of the pilots gave favorable reports on the trim characteristics and all agreed that for better accessment of the airplanes handling characteristics, controllable trim of rudder and aileron was needed.

2. Weight and C. G. Information:

All flights were conducted with a take-off weight of 8,420 pounds and a C. G. location of 26.7% M.A.C.

3. Flight Characteristics:

a. Cockpit Layout: Access to the cockpit is good, and sufficient steps and handles are provided, however, the pilot experiences some difficulty in seating himself due to the seat location and lack of space. Shoulder and arm room is somewhat limited, and the seat is adjustable only on the ground. Rudder pedals cannot be adjusted in flight. The seat is very narrow and tilts backward too much causing the pilot some discomfort in flight.

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The arrangements of instruments could be improved by locating the lower panel of instruments in a position where they would not be blanked out by the upper panel. The coolant flap control is located under the instrument panel and is not visible to the pilot therefore its operation is very awkward, other controls are well located and within reach of the pilot. As in other models of the FW-190 the neatness of cockpit layout is aided by the system of push button controls for flaps, landing gear, battery, generator, fuel booster pumps, etc. The engine control which automatically selects the correct propeller pitch and fuel mixture for any power setting is a desirable feature since it relieves the pilot of individual attention to these items.

b. Taxiing and Ground Handling: The airplane is difficult to taxi due to extremely poor brakes and limited visibility. Much discomfort was experienced by the pilots taxiing with the canopy open due to acrid smoke and fumes from the exhaust.

c. Take-Off and Initial Climb: Take-off run is short but brake and rudder must be used to overcome torque effect. Initial climb is good and the gear retracts rapidly but lateral trim effect is very offensive at initial climb speeds.

d. Climbs: The plane has steep climb but vision and trim in the climb are not desirable. No rudder or aileron trim is provided.

e. Handling and Control at Various Speeds: The controls are highly effective at most speeds. Forces are moderate and control feel is good up to approximately 375 M.P.H. indicated airspeed. At this speed elevator forces in turns become quite heavy and lateral forces are excessive. Some buffeting and vibration occurs also.

f. Trim and Stability: Longitudinal trim of the airplane is obtained by changing the angle of incidence of the stabilizer rather than by trim tabs on the elevator. Ground adjustable tabs only are provided for rudder and aileron trim but these were found to be wholly inadequate due to the great amount of torque effect and an apparent defect in rigging in this particular airplane.

Stability, as near as could be determined with the existing trim difficulties, was found to be satisfactory except in the power off stall condition.

g. Stalls and Stall Warning: The airplane has a gentle stall and controls remain effective up to the stall except in the power off condition wherein some difficulty is encountered in applying enough elevator to obtain abrupt stalls. Adequate warning of stalls is given by shaking of the airplane and controls. No abrupt roll off is evident in any of the stalls and recovery is rapid and easy to accomplish.

h. **Maneuverability and Aerobatics:** The outstanding maneuverability trait of this airplane is its rate of roll. In this respect it compares well with the P-51D or the P-47, but it cannot match the rate of roll of the P-80 or P-38J. The radius of turn, however, is poor and elevator forces in tight turns are excessive. Constant stabilizer adjustments is required in turns and if pulled in too abruptly a fast stall with little warning will occur.

The airplane responds well to controls in all other fly through maneuvers attempted.

i. **Changes in Trim When Operating Landing Gear, Flaps, etc.:** Changes in trim which result from the operation of gear and flaps are very slight and can be easily corrected by use of stabilizer adjustment or controls.

j. **Noise and Vibration:** The noise level in the cockpit is very high under most conditions, however, engine vibration is excessive only at very high engine speeds and while taxiing.

Vibration and buffeting of the airplane is noticeable at speeds in excess of 375 M.P.H. indicated airspeed.

k. **Comfort:** Lack of head and shoulder room plus an unnatural seat attitude together with a high noise level all add to the discomfort of the pilot. It is believed that missions of two or more hours duration would prove very fatiguing.

l. **Vision:** Vision forward is poor on the ground and in a climb, but is good for other flight attitudes. Side and rear vision is fair at all times.

m. **Approach and Landing:** This airplane has a slightly shallow glide angle and seems to have a higher approach speed than normal. Vision on approach is good and landings are not difficult. Landing roll is particularly short and directional control is easy to maintain even with poor brakes.

4. General Functioning:

a. **Power plant and associated equipment:** The functioning of the 1750 H.P. JU-213-e power plant was excellent and it seemed to provide ample reliable power to make the FW-190 a high performance airplane comparable with allied types of fighters of the same date.

It is believed that the single engine control provided was not properly adapted to the power plant since complete momentary power failure resulted from retarding the power while in the approach.

All other power plant equipment functioned well throughout all flights.

b. Hydraulic, Pneumatic, and Electric Systems: The electric flap and landing gear systems left much to be desired in their operation. Failure of the gear to retract and flaps to extend was a common occurrence.

The electric instrument system also gave frequent trouble in flight.

The hydraulic system for operating the coolant flap functioned poorly and was very difficult to operate.

c. Emergency Systems: An emergency system for jettisoning the canopy is provided and is operated by pressing a lever located near the canopy crank handle. The landing gear can be lowered in emergencies by pulling the up lock release handle located in the cockpit. This allows the gear to fall by gravity alone.

C. CONCLUSIONS:

1. The FW-190-D-9, although well armored and equipped to carry heavy armament, appears to be much less desirable from a handling standpoint than other models of the FW-190 using the BMW fourteen cylinder radial engine.

Any advantage that this airplane may have in performance over other models of the FW-190 is more than offset by its poor handling characteristics.

D. RECOMMENDATIONS:

None

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