ARMY AIR FORCES
MATERIEL ~~CENTER~~ COMMAND

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MEMORANDUM REPORT ON
XP-39E Airplane, AAF No. 41-19502

Date June 7, 1943

SUBJECT: Pilot's Comments

SECTION Flight

SERIAL No. Eng-19-1603-A

Contract No.
Expenditure Order No. 430-70
Purchase Order No.

A. Purpose

1. To forward Pilot's Comments on the XP-39E Airplane, AAF No. 41-19502, made at Wright Field. The airplane was flown at a gross weight of 8919 pounds at take-off; C.G. location 26.2 percent M.A.C.

B. Factual Data

1. Cockpit Layout

The cockpit and instrument arrangement is similar to other P-39 models. The cockpit is small and cramped, and the instruments in general are awkwardly located. Prestone cooler and oil cooler shutter controls, landing gear circuit breakerswitch, carburetor heat control, etc., are poorly placed and awkward to operate.

2. Taxiing

The airplane is easy to taxy and vision is excellent. Kelsey-Hayes type brakes were installed on this airplane for service tests and proved to be unreliable. Pedal action was too stiff and brakes had a tendency to grab. When applied quickly, brakes would invariably lock.

3. Take-off and Climb

The airplane requires a comparitively long ground run before taking off. Take-off is improved considerably with use of approximately one-fourth flaps.

The airplane has a slow rate of climb and cooling is inadequate in climb.

4. Stability and General Flying Characteristics

The airplane has positive longitudinal stability in most flight conditions, positive directional stability, and neutral lateral stability. Aileron control forces are exceptionally light, elevator control forces moderate, and rudder forces fairly heavy. The poorly coordinated controls and heavy

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weight condition contribute to the poor handling qualities of the airplane. There is a marked change in directional trim from diving to climbing and longitudinal trim is greatly affected by operation of landing gear, flaps and cooling shutters. The elevator trim tab is inadequate in power off stall condition and rudder trim is inadequate in power on stall conditions.

The control effectiveness appears to be adequate from stalling to maximum allowable indicated speed, although considerable lateral movement of stick is necessary before gaining any affect on the ailerons at stalling speeds.

The airplane is restricted to 300 M.P.H. indicated airspeed and all acrobatics and spins are prohibited.

5. Stalls

The airplane stalls abruptly with little warning. Sufficient control, however, is maintained at the stall.

6. Approach and Landing

The airplane has a normal angle of glide and vision is excellent. Landing can be made with ease into a cross wind and airplane has no tendency to ground loop.

7. Night Flight

The airplane is poorly equipped for night flying. The landing light installation gives a poorly focused beam and the glare from the propeller arc and the light itself is objectionable. Instruments are poorly lighted and also insufficient lighting is provided for reading maps.

C. Conclusion

The airplane is not considered suitable for its design purpose as a fighter due to its generally poor handling qualities and apparent lack of adequate performance. The trim characteristics and instrument and cockpit deficiencies combine to make it an airplane unsuitable for night or instrument operation.

Concurrence:

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