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WAR DEPARTMENT
AIR CORPS, MATERIEL DIVISION

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MEMORANDUM REPORT ON
Republic XP-47B, A.C. No. 40-3051

RLF-AL
Date August 28, 1941

SUBJECT: Speed Tests.

SECTION.....Flying Branch.....

Contract No.

SERIAL No....PHQ-M-19-1288-A

Expenditure Order No. 430-1-41

Purchase Order No.

A. Purpose

Flight test of Republic XP-47B Airplane. Equipped with R-2800-35 engine and Curtiss 4 bladed, constant speed propeller, blade design No. 714-1C2-12, with cuffs, set 28° minimum, 58° maximum. Gross weight of airplane was 12,400 lbs. with c.g. at 28.09% m.a.c. Airplane was camouflaged and flown with 6 wing guns installed and second pitot heat located in right outboard gun location. Wheels up; wing flaps neutral; cowl flaps closed; intercooler and oil cooler shutters neutral; radio antenna in place; mixture automatic rich.

B. Factual Data

1. High speed at 25,800 ft. was 412 m.p.h. at 1960 torque meter b.h.p. at 2700 R.P.M. and 52.6" hg. manifold pressure.
2. High speed at 15,600 ft. was 382 m.p.h. at 1970 torque meter b.h.p. at 2700 R.P.M. and 52.6" hg. manifold pressure.
3. High speed at 5425 ft. was 344.5 m.p.h. at 1975 torque meter b.h.p. at 2700 and 52.6" hg. manifold pressure.
4. When these tests were run it was impossible to draw the full military rated 2000 b.h.p. from the engine. The engine became rough and ran hot when an attempt was made to draw 2000 b.h.p. The figure of 52.6" hg. manifold pressure was the highest manifold pressure at which tests were made and the engine was running rough at this power. At the completion of the tests number 10 cylinder head was found to be cracked. This condition may have existed during the tests as this cylinder head was running consistently hottest. The cylinder head was changed and ceramic spark plugs were installed in an attempt to improve this condition but the airplane was grounded due to faulty propeller control before a check could be made.

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MEMORANDUM REPORT NO. PHQ-M-19-1288-A

5. No check was obtained on the critical altitude of the engine - turbo combination but the engine will develop 1940 torque meter b.h.p. at 25,750 ft. at 2680 R.P.M. under standard conditions.
6. Airspeed and altimeter error with airspeed static holes located 47" in from left wing tip and 17-3/8" forward of leading edge of wing.

Indicated Airspeed, M.P.H.	Indicator vs Water column, M.P.H.	Calibrated Airspeed M.P.H.	Airspeed Installation Error, M.P.H.	Altimeter Installation Error at sea level ft. (calculated)
150	150	157	-7	50
180	178.5	187.5	-9	85
210	209.5	218.5	-9	125
240	240	250	-10	165
270	270.5	281	-10.5	205
300	300.5	312	-11.5	240

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