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**WAR DEPARTMENT
AIR CORPS, MATERIEL DIVISION**

**MEMORANDUM REPORT ON
P-38D Airplane, A.C. No. 40-774**

PFB-BC
Date December 24, 1941

SUBJECT: Performance Tests

SECTION Elying Branch

Contract No. W-535 AC-13205
Expenditure Order No. 431-1-13
Purchase Order No. _____

SERIAL No. PHQ-M-19-1328-A

A. Purpose

1. To report on performance tests conducted on the P-38D airplane, A.C. No. 40-774. Airplane equipped with Allison V-1710-27 and V-1710-29 engines and three-bladed constant speed propellers, blade design No. 615-CC1.5-6 and 614-CC1.5-6, normal blade angle range 51.5° to 21.5° at 42" radius. Airplane not weighed at Wright Field but loaded with 2485 lbs. useful load. Landing gear retracted, wing flaps neutral. Cockpit cabin closed, prestone and oil cooler shutters in faired position, radio antenna in place, guns installed and not covered. Engine equipped with individual port backfire screens.

B. Test Results: Based on horse power figures furnished by power Plant Laboratory. Data obtained from dynamometer tests of V-1710-27 engine, A.C. No. 40-3012. However, horse power data still appears doubtful in the light of results obtained in flight test (i.e. Note: that 300 h.p. are required to change from 319.5 mph at 2600 rpm at 2000 bhp to 322 mph at 3000 rpm at 2300 bhp at 5000 ft.). Practically all flight tests on airplanes equipped with torque meters show that the power chart method for determination of B.H.P. is not reliable.

1. Level flight speeds:

Altitude Ft.	True Speed MPH	R.P.M.	B.H.P. Per Engine
*20,100	375	3000	1150
20,100	340	2280	750
20,100	328.5	2200	675
20,100	313.0	2100	575
20,100	293.0	1900	450
20,100	271.0	1700	330
5,000	322	3000	1150
5,000	319.5	2600	1000
5,000	295.5	2280	750
5,000	277.5	2200	625
5,000	266.0	2100	550
5,000	249.0	1900	450
5,000	224.0	1700	325

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*Carburetor air intercooling is insufficient to meet Air Corps requirements but is better than on the P-38E.

2. Airplane was transferred before balance of tests could be completed.

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