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CLASSIFICATION CANCELLED OR CHANGED TO Restricted
4/4/46

WAR DEPARTMENT

AIR CORPS, MATERIEL DIVISION

MEMORANDUM REPORT ON

Medium Bomber (B-26) Airplane, A.C. No. 40-1361 LHR-BC

Date January 28, 1941

SUBJECT: Performance Test

SECTION Flying Branch

SERIAL No. PHQ-M-19-1184-A

Contract No. AC-13243
Expenditure Order No. 426-4-26
Purchase Order No.

A. Purpose

1. Report on flight tests of Martin Medium Bomber (B-26) airplane equipped with two (2) Pratt-Whitney R-2800-5 engines and four-bladed constant speed propellers, blade design No. S14C3-18A, normal range 23° to 55° at 42" radius. Gross weight normal military load 26,734 lbs., c.g. wheels retracted 14.63% m.a.c. Landing gear retracted, wing flaps neutral, cowl flaps zero degrees, oil cooler flaps flush with cowling, carburetor cold, except where otherwise stated. Propellers equipped with cuffs, radio antenna in place, de-icer equipment not installed, airplane not camouflaged.

B. Test results

1. High speed, wide open throttles in high blower ratio, mixture controls automatic rich at 14,250 ft., is 323 mph at 2400 rpm at 1440 bhp per engine.

Speed, wide open throttle with mixture controls set for maximum power at 14,250 ft., is 326 mph at 2400 rpm at 1480 bhp per engine. The airplane will not meet Air Corps cooling requirements when leaned for maximum power.

2. Guaranteed operating speed of 266 mph at 15,000 ft. obtained at 860 bhp per engine in low blower ratio at 1890 rpm, corresponding fuel consumption with mixture controls in automatic lean position is 130 gals/hr (0.453 lbs/hp/hr), fuel required for 1800 miles range, is 880 gals.

3. Fuel required for 3000 miles range at 15,000 ft., is 1270 gals at 210 mph at 1600 rpm at 615 bhp per engine in low blower ratio with mixture controls adjusted manually for best economy (specific fuel consumption 0.433 lbs/hp/hr). Fuel required for 3000 miles range under the same conditions except mixture controls in automatic lean, is 1345 gals (specific fuel consumption 0.458 lbs/hp/hr).

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4. Airplane service ceiling is 25,000 ft., absolute ceiling 26,200 ft.

5. The airplane will climb in excess of 100 ft/min on either engine alone at 13,260 ft.

6. It was not possible to measure the amount of carburetor preheat available, since there is no provision for cockpit control of the hot air flapper valve or means of closing off the cold air entrance duct.

7. Total distance required to clear 50 ft. obstacle on take-off with wing flaps down 25°, was 2500 ft. Results from the one best out of four tests. The wind velocity was high on these runs (12 mph) and since wind corrections at that high a velocity are questionable, it is recommended that take-off tests be repeated.

8. Total distance required to clear 50 ft. obstacle and come to a stop on landing was 2200 ft. Only one landing made, testing discontinued due to a broken hydraulic line.

9. Cruising data in low blower ratio at 15,000 ft.:

True Speed MPH	R.P.M.	BHP per Engine
293	2110	1085
266	1890	860
246	1740	725
210	1600	615

10. Climb data, low blower used up to 10,000 ft. with throttles open to 38" Hg. manifold pressure or wide when below, high blower used above 10,000 ft. with throttles open to 40" Hg. manifold pressure or wide when below:

Altitude	True Speed MPH	R.P.M.	B.H.P. per Engine	Rate of Climb Ft/Min	Time of Climb Min.
S.L.	152	2400	1400	1700	0
5000	164	2400	1415	1720	2.9
10,000	176	2400	1340	1450	5.9
15,000	188	2400	1265	1175	9.5
20,000	198	2400	1080	575	16.4
S/C 25,000	207	2400	-	100	36.0
A/C 26,200	209	2400	-	0	-

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11. Determination of airspeed indicator and altimeter errors. Airspeed heads located approximately 24" in from wing tips and approximately 30" ahead of leading edge of wing at that point:

Indicated Airspeed MPH	Indicator Vs Water Column MPH	Calibrated Airspeed MPH	Airspeed Installation Error MPH	Altimeter Installation Error Ft.
285	284.5	291.0	-6.5	-20
260	258.5	262.5	-4.0	-30
235	233.0	237.5	-4.5	-35
210	209.0	213.5	-4.5	-40
185	185.0	189.5	-4.5	-40
160	160	165.5	-5.5	-40

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