

Summary of comparative performance results with tropical and non tropical engine cowling on Spitfire V.C. aircraft

Source of Test Results	Spitfire V.C. Merlin 46 Non Tropical Cowling	Spitfire V.C. Merlin 46 Tropicalized Cowling
Kingsway AL.330 Enc. 29A 9/41/72 Enc. 26A 1/501/478	-	New cowling being designed including filter to give increase of 15 m.p.h.
Special Duties Flight 5.4.43 Enc. 28B 9/41/72	<i>Verbal</i> - 372 <i>4 mph</i>	365 m.p.h. at 22,500 ft. Military Power 3,000 r.p.m. 8.1 min. to 20,000 ft.
Air Ministry Report Enc. 18A 9/41/72	Max. T.A.S. m.p.h. 375 climb 20,000 in 7.3 min. ceiling 37,600 ft.	359 20,000 in 7.7 1,000 ft. less
Kingsway Report Enc. 1A 9/41/72	Ceiling 37,800 Max. Speed 370 at 22,000	Range less 4% Max. speed less 2% <i>4 mph</i>
Kingsway letter 10051 Enc. 21A 1/501/478	With Merlin 45 Max. speed 369 at 19,500 ft. Ceiling 36,000 <i>17 mph</i>	With Merlin 45 Max. speed 352 at 18,500 ft. Ceiling 35,000
Kingsway AL.741 Enc. 18A 1/501/478		<i>15 mph</i> Max. speed less 4.6% Ceiling " 2.8% Range " 4.5% Climb to 20,000 increased time by 5.7%
No.1 Fighter Wing Memo to E.A. Enc. 15B 1/501/	Local tests 2 A.D. indicate that small increase in performance does not warrant cowl change.	
S.D.F. C.S.I.R. Report No.4 Enc. 44A 9/53/27	Results indefinite due to rough running of engine rated ceiling increase of 1500 ft. Max. speed less no figure stated	
Report from 79 Squadron Enc. 57A 9/53/27	Rough running at 17,000 ft. Climb to 30,000 ft. 1 minute less acceleration better no figures. Handles better above 30,000 ft.	

AL-379 Aug 4. Drag the same. 4 mph

FIGHTER PERFORMANCE FIGURES.

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OPERATIONAL DETAILS	SPITFIRE <u>IX</u> Non Trop.	SPITFIRE <u>VIII</u> Tropical	SPITFIRE <u>VC</u> Tropical	SPITFIRE <u>VC</u> Non Trop.
CREW.	1	1	1	1
ENGINE	Merlin 61	Merlin 61	Merlin 45 or 46	Merlin 45 or 46.
No. OF ENGINES	1	1	1	1
H.P. OF ENG.	M1645-9,500' S1410-21,750'	M.1300	1235-17,750	1235-17,750
LIGHT WEIGHT	6518	7008		6020
MEAN WT. LBS.	7106	7575	6883	6495
MAX. WT. LBS.	7450	8046		6970
NORM. PETROL IMP. GALLS		120		84
MAX. PETROL IMP. GALLS		+ 30 + 90		174
GUNS NO. & CALIBRE	2 x 20 mm - 120 rds. 4 x .303" - 350 rds.	2 x 20mm - 120 rds. 4 x .303" - 350 rds.		
NORM. BOMB LOAD.	Nil.			
NORM. T.A.S. M.P.H.	E. Cruise 228- 22,000' 364-29,000" (+7)	216-20,000'	308	E.C. 230-20,000' Max. 316-" Weak Mixture Power.
MAX. T.A.S. M.P.H.	M. Gear Mean Wt. 380-15,000' S. 406-26,500'	364-14,000' 386-25,000'	359	S- 375
RANGE ENDUR- ANCE.	472 - Normal 672 - W/Aux.	740 - Normal 850 - + 30 gals. 1114 - 210 gals.	420 610 935	460 - 84 640 - 114 gals. 980 - 174.
CEILING FT.	40,750' Max. Wt. 41,500' Mean Wt.	40,600' - Max. Wt.	-1050'	36,800' 37,600'
RATE OF CLIMB	20,000' - 7.4 Mins	20,000' - 7.0 Mins	20,000' - 7.7 Mins.	20,000' - 7.3 Mins
ARMOUR PLATING	Fully	Fully	Fully	Fully
AIRSCREW	Rotol. 4 Blade	Rotol 4 Blade		
Span Length Wing Area Height	36'10" 30' 242 10'	40' 2" 30' 248'5" 10'		36'10" 30' 242 10'