

R.T.P. FILE COPY

H.S.P. 2019
AVIA 12/734

2nd Part of Report No. A. & A.E.E./783, a.

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT

20 SEP 1942

BOSCOMBE DOWN.

Kittyhawk II. F.L.220
(Packard Merlin V. 1650-1)

V1650-1

UNCLASSIFIED
RESTRICTED
TS 18/2/63

Flame damping trials with short stub exhaust flame dampers.

A. & A.E.E.ref:- 4484/1 - A.S. 76/4.
M.A.P.ref:- R.A. 1862/D.A.

DATE	5/1/53	STOCK
REDUCE TO	99	AUTHORISED

This report deals with the aircraft (or equipment) as tested. Action to remedy defects or decisions to accept items not in strict compliance with the specification are matters for decision & action by the Ministry of Aircraft Production.

Report No.	12	DATE	6.1.53	Title
1st Part of A.A.E.E./783, a.		F.L. 220 - Weights and loading data.		

Summary

The flame damping qualities of the short stub exhausts fitted to the Packard Merlin engine of the Kittyhawk II aeroplane do not approach the present requirements. The Packard Merlin engine is fitted with the Stromberg carburettor but this does not appear to have any noticeable effect on the flame damping.

1. Introduction.

Ground to air tests were conducted to estimate the qualities of the short stub exhaust flame dampers fitted to the Packard Merlin engine of the Kittyhawk II aeroplane. (See photograph).

2. Ground to air tests.

The air tests were conducted on 27.8.42. under the following weather conditions:- Full moon, low on the horizon, clear summer sky. Six runs were made at an approximate height of 200 feet under the following engine conditions:-

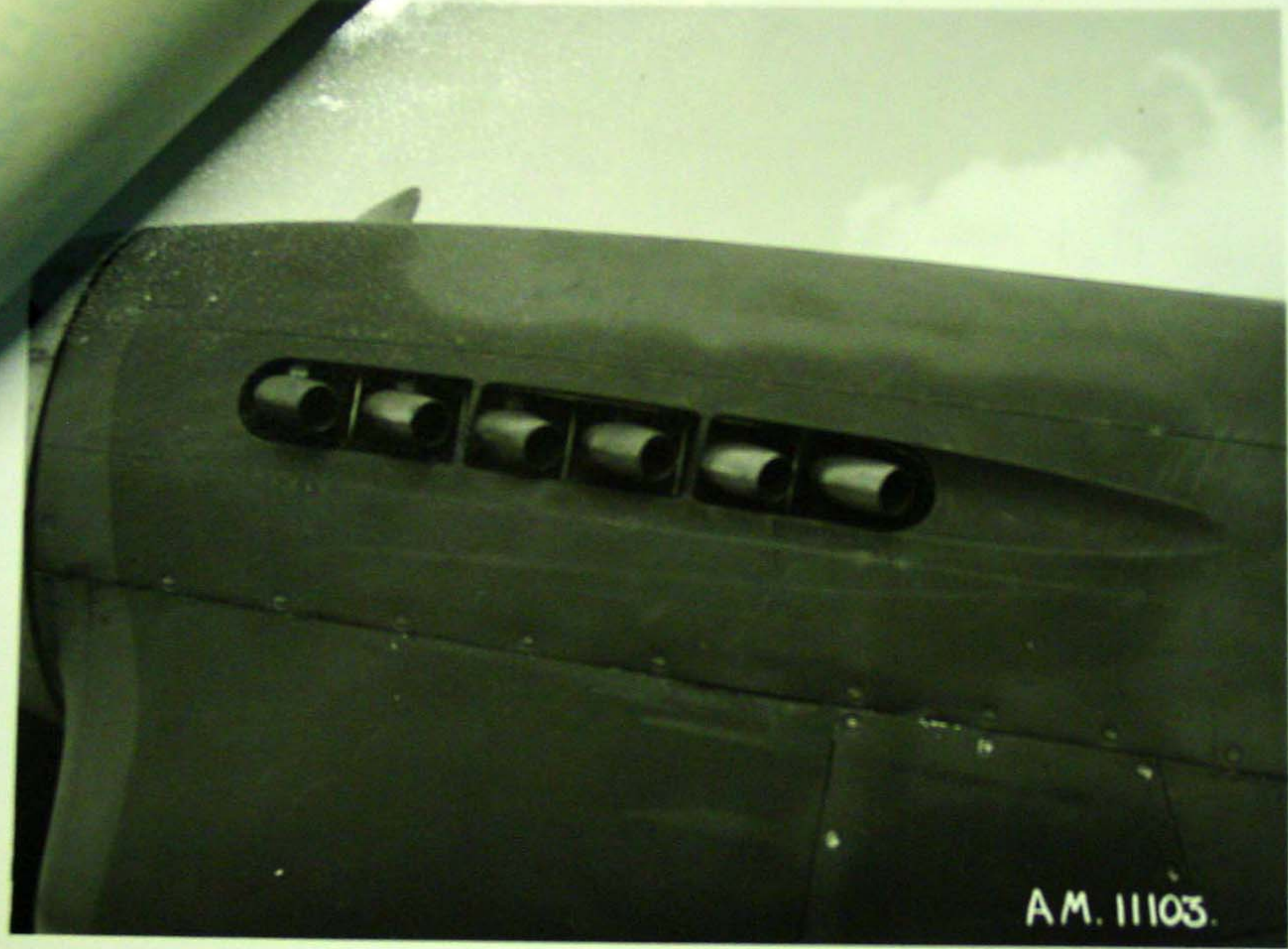
Maximum power for continuous cruising weak	2650 R.P.M.	+4 lb/sq.in. boost.
" " " " " "	" rich	2650 " +7 " " " "
" " " " " "	Full throttle	3000 " +9 " " " "

The aeroplane was flown directly over two observers, the times during which flames or glow were visible being noted by stopwatch.

3. Results of ground to air tests.

Engine Condition	Distance in yards flames visible	
	Approaching	Receding
Maximum power for continuous cruising weak	850	1,200
Maximum power for continuous cruising rich	750	1,000
Full throttle	1,150	1,700

4. Conclusions. The qualities of the short stub exhaust flame dampers fitted to the Packard Merlin engine of the Kittyhawk II aeroplane do not approach the required conditions, namely, that no flame or glow be seen from any direction under all engine conditions for a distance greater than 100 yards. The Packard Merlin engine is fitted with the Stromberg carburettor but this does not appear to have any noticeable effect on the flame damping qualities of the engine.



A.M. 11103.