

7 APR 1942

AVIATION 734

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT,

UNCLASSIFIED *TS. A. J. G. S.* BOSCOMBE DOWN.

Kittyhawk AK. 572 & AK. 764.  
(Allison V.1710 F.3.R.)

Carbon Monoxide Contamination Tests.

A. & A.E.E. ref: 4484/1 - A.S.76.

M.A.P. ref: R.A. 1571/DANA.1.

DATE	Summary.	STOCK
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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 and action by the Ministry of Aircraft Production.

Tests were made on Kittyhawk AK. 572 and AK. 764 to determine if, in the former, any carbon monoxide was present whilst taxiing and under four typical flight conditions, and in AK. 764 to determine if any concentration was present after firing the six 0.50" Colt guns installed in the wings.

In the case of Kittyhawk AK. 572, which is an older type fitted with four 0.50" Colt guns in the wings, no contamination was present under the four flight conditions tested, but after taxiing a very slight concentration of 0.001% was detected; the samples being taken on 21st February, 1942.

Tests on Kittyhawk AK. 764 after firing the six 0.50" Colt wing guns in flight gave nil results in all cases; the samples being taken on 8th March, 1942.

1. Introduction.

Routine Carbon Monoxide Contamination tests were conducted on Kittyhawk AK. 572 whilst taxiing and during four typical flight conditions. Tests were also carried out on Kittyhawk AK. 764 prior to and after firing the six wing guns.

2. Condition of aeroplane relevant to tests made.

Kittyhawk AK. 572.

- (i) The exhaust system consists of six stub pipes, open end, on the port and the starboard sides of the engine.
- (ii) The cabin is heated by two ducts behind the engine coolant radiator.
- (iii) All ventilators and windows were closed and the cabin heating was "On."

Kittyhawk AK. 764.

- (i) The exhaust system is as fitted to Kittyhawk AK. 572.
- (ii) All ventilators and windows were closed and cabin heating was "Off."
- (iii) There are six 0.50" Colt guns installed, three in the port wing and three in the starboard wing.

3. Method of Tests.

Samples of the air were taken in the cockpits of both aeroplanes after complying with each test condition, and these were analysed in the laboratory by the method employing Palladium Chloride in a solution of Acetone.

4. Results.

The results of the tests on Kittyhawk AK. 572 are tabulated below :-

Test No.	Conditions.	% of Carbon Monoxide in the pilot's cockpit.
1	After taxiing up wind, down wind and with the wind on the port and starboard sides. Wind velocity 10 m.p.h.	0.001%
2	After full throttle climb to 12,500 ft.	Nil
3	After 1/2 hour level flight at 12,500 ft. at max. power for continuous cruising in weak mixture.	Nil
4	After 1/2 hour level flight at 12,500 ft. at max. power for continuous cruising in rich mixture.	Nil
5	After dive from 12,500 ft. to 4,000 ft. with throttle partly open.	Nil



It will be noted that there is no detectable carbon monoxide present after the four flight conditions but there is a contamination of 0.001% after taxiing. The small percentage present is considered negligible, as the maximum permissible concentration during taxiing is 0.01%.

The results of the tests on Kittyhawk AK.764 are given in the table below :

Test No.	Conditions.	% of Carbon Monoxide in the pilot's cockpit.
1	Prior to firing the guns.	Nil
2	Immediately after firing a three second burst.	Nil
3	One minute after firing the guns.	Nil
4	5 minutes after firing the guns.	Nil

There is no detectable carbon monoxide contamination in this aeroplane after firing the guns.

5. Conclusions.

The results show that these aircraft are free from carbon monoxide contamination in flight and after fixing all guns.

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