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MOST SECRET.

Reference:-
AASF/S.4759/Air Ops.

HEADQUARTERS,
A. A. S. F.,
ROYAL AIR FORCE.

7th May, 1940.

Report of Comparative Trials of Hurricane
versus Messerschmitt 109.

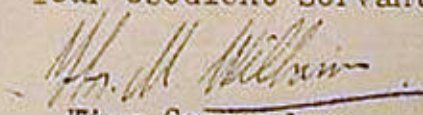
Sir,

I have the honour to inform you that, in accordance with verbal instructions from Headquarters, B.A.F.F., a section of Hurricane aircraft of No. 1 Squadron proceeded to ORLEANS on 2nd May, 1940, to carry out certain preliminary trials to assess the fighting qualities of a Hurricane compared with a M.E.109.

2. A report by the Officer Commanding, No.1 Squadron on the trials is forwarded herewith for information.

3. The M.E.109. has now been flown to ENGLAND for further tests.

I have the honour to be,
Sir,
Your obedient Servant,



Wing Commander,
for Air Vice-Marshal,
Air Officer Commanding, A.A.S.F.

The Under Secretary of State,
Dept. A.I.1 (g),
Air Ministry,
London.

Encl. (11 copies of report).

Copy each to:- H.Q., B.A.F.F.
H.Q., Air Component, B.E.F.
A.F.D.E. Northolt.
H.Q. Bomber Command.



APPENDIX B
REPORT ON TRIAL OF HURRICANE versus MESSERSCHMITT 109.

18

On 2nd May, 1940, a trial took place to discover the fighting qualities of the M.E.109 as compared with the Hurricane.

2. Owing to the absence of oxygen apparatus in the M.E.109 the trial was carried out between 10,000 and 15,000 feet.

3. The comparison consisted of (a) take-off and climb to 15,000 feet, (b) a dog-fight, and (c) line astern formation.

4. Both aircraft took off together. Both the take-off and initial climb of the M.E.109 was better than that of the Hurricane, in spite of the fact that the Hurricane was fitted with a Constant Speed airscrew, and full throttle and full revs were used.

5. At 15,000 feet the aircraft separated and approached one another head-on for the dog-fight. The Hurricane did a quick stall turn followed by a quick vertical turn and found himself on the 109's tail. The pilot of the 109 was unable to prevent this manoeuvre succeeding. From that point the Hurricane pilot had no difficulty in remaining on the tail of the M.E.109. The pilot of the 109 tried all possible manoeuvres and finally the one most usually employed by German pilots, namely a half-roll and vertical dive. The Hurricane followed this manoeuvre, but the M.E. drew away at the commencement of the dive, and it is felt that had the pilot continued this dive he might have got away. However, in the pull-out the pilot of the M.E.109 found that it was all that he could do to pull the machine out of the dive at all, as fore and aft it had become very heavy. In fact, the pilot was of the opinion that had he not used the tail adjusting gear, which itself was extremely heavy, he would not have got out of the dive at all. The pilot of the Hurricane found that he had no difficulty in pulling out of his dive inside the 109, but that he had a tendency to black-out, which was not experienced by the pilot of the 109. This tendency to black-out in the Hurricane when pulling out of high speed dives is in my opinion largely due to the rather vertical position in which the pilot sits. It is very noticeable that in the 109 the position of the pilot is reclining, with his legs well up in front of him. It has been noticed that German pilots do pull their aircraft out of dives at very high speeds, and as I think the position in which the pilot sits is the main reason that black-out is avoided, I feel that this is a point which should be duly considered when in the future a fighter is designed to meet other fighters.

6. After the dog-fight the 109 took position in line astern on the Hurricane and the Hurricane carried out a series of climbing turns and diving turns at high speeds. In the ordinary turns the Hurricane lapped the 109 after four complete circuits, and at no time was the pilot of the 109 able to get his sights on the Hurricane. In the climbing turns, though the 109 could climb faster he could not turn as fast, which enabled the Hurricane again to get round on his tail. In climbing turns after diving, the weight on the elevators and ailerons of the 109 was so great that the pilot was unable to complete the manoeuvre, and in the diving turns he was unable to follow the Hurricane for the same reason.

7. During these tests one point became abundantly clear, namely that the 109, owing to its better under camouflage, was very much more difficult to spot from underneath than was the Hurricane. This difference gives the 109 a definite tactical advantage, namely when they are below us they can spot us at long distances, which we when below them find most difficult. As in

all our combats at the moment initial surprise is the ideal at which we aim, I strongly recommend that the underside of Hurricanes should be painted a duck-egg blue, the roundels remaining the same, as it is the contrast between black and white only which is so noticeable from below.

Conclusion.

8. The M.E.109 is faster than the Hurricane by some 30 to 40 miles an hour on the straight and level. It can out-climb and initially out-dive the Hurricane. On the other hand it has not the manoeuvrability of the Hurricane, which can turn inside without difficulty. After this clear-cut demonstration of superior manoeuvrability there is no doubt in my mind that provided Hurricanes are not surprised by 109's, that the odds are not more than two to one, and that pilots use their heads, the balance will always be in favour of our aircraft, once the 109's have committed themselves to combat.

9. In this connection, judging from the tactics at present being employed by the 109's, namely sitting above us and only coming down when they can surprise a straggler, and then only completing one dive attack and climb away, I am fairly certain that the conclusion of the German pilots is the same as our own, and I cannot help feeling that until all Hurricane aircraft have Constant Speed airscrews to enable them to get up to the height at present adopted by the 109's, we shall have few further chances of combat with this particular type of German aircraft.



Squadron Leader, Commanding,
No. 57 Wing, Royal Air Force.
