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From:- Headquarters, FIGHTER COMMAND.

To:- Headquarters, No. 10 Group. (Copies to  
" No. 11 Group. all Sta-  
" No. 12 Group. tions and  
" No. 13 Group. Squadrons.)  
" No. 14 Group.

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HANDLING of MERLIN in HURRICANE,  
SPITFIRE and DEFIANT  
AIRCRAFT.

A recent increase in the number of engine failures, due to the failure of bearings, is an indication that some pilots are overstepping the engine limitations laid down in the Pilot's Handbook.

2. The use of the automatic boost cut out control enables the pilot to get an emergency boost of + 12 lbs. per sq.in. from the engine for 5 minutes when circumstances demand it. Some pilots "pull the plug" with little excuse on every occasion.

*Speed*

3. The introduction of Constant <sup>A</sup>airscrews permits an increase in the rate of climb. This has led some pilots to climb their aircraft at too steep an angle, with the result that there is a considerably diminished forward speed and the engine does not receive the cooling which it

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requires. A less steep angle with a forward speed of 150 to 180 miles per hour will not affect the rate of climb materially, and will prevent the engine from overheating with the subsequent liability of engine trouble.

4. It is not always realised that inverted glides and also slow rolls, bring about a loss of engine oil pressure, and care is necessary to ensure that the throttle is not opened again until this oil pressure returns. This loss of oil pressure also has an effect on the Rotol airscrew in that the blades return to a fine pitch position, and when the engine is subsequently opened out there will be a very sudden and undesirable acceleration of the engine.

5. The consequences of exceeding the engine limitations are liable to manifest themselves on some subsequent occasion, perhaps during night flying or over the sea out of gliding distance from land. Pilots, therefore, are to be instructed not to exceed:-

- (i) Maximum specified temperatures for oil and engine coolant.
- (ii) Limit of 5 mins. for maximum of 3,000 r.p.m. at  $6\frac{1}{4}$  lbs/sq.in. or more.

6. It is in the interests of pilots themselves, when operations with the enemy may have resulted in engine limitations being exceeded, to acquaint the maintenance personnel with the facts, so that oil filters may be inspected at the first convenient opportunity to investigate whether damage to the bearings has resulted. <sup>the</sup>

H.C.T.DOWDING.

Air Chief Marshal,  
Air Officer Commanding-in-Chief,  
FIGHTER COMMAND.