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Basic: Letter from Washington dated 10 April, 1945. Subject: P-47M Difficulties.

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Hq., Air Technical Service Command, Wright Field, Dayton, Ohio

TO: Commanding General, Army Air Forces, Washington 25, D. C. Attn: Asst. Chief of Air Staff, M&S, Materiel Division, Aircraft Projects Branch, Lt. Col. Hockett.

1. With regard to improper preparation for shipment which allowed cylinder barrels to rust, as outlined in basic communication, Air Technical Service Command submits the following comments:

a. Project EN4B-138 has been established on the cylinder and piston failures on P-47M aircraft operated by the Eighth Air Force. Positive evidence of rusted cylinder barrels on two engines has been found and a follow-up with Atlantic Overseas ATSC, Newark, New Jersey, reveals these engines were processed in the usual manner, and reasons for existence of rust could not be determined.

b. It is possible that personnel preparing these engines for storage were not complying with existing directives; however, material specification of rust preventative compound used is known to be satisfactory. Several possibilities for these failures have appeared, one being rust, another is aircraft being ferried to various bases without water in the water injection system and operated at war emergency powers. All war emergency power operation on the R-2800-C engine should be with a mixture of 25% Ethyl alcohol and 25% Methanol by volume and 50% water to prevent piston failures due to detonation. At the present time, Methanol is not available and, therefore, cannot be utilized as an anti-detonant.

c. Action has been taken to inform the Eighth Air Force that no war emergency power should be utilized without the specified alcohol and water mixture. Additional information on these failures, peculiar to cylinder assemblies, is not available at the present time, although it is known that the Eighth Air Force is removing all installed engines, regardless of time, and replacing them with spare engines which they state have performed very satisfactorily.

2. With regard to the General Electric regulator failures in P-47M airplanes, Air Technical Service Command submits the following comments:

a. The difficulties being experienced with the General Electric AAF Type C-9 turbo regulator installed in the P-47M airplanes

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FILE 5/12/45

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has been discussed with General Electric Company representatives. The cause of the failure does not appear to be oil seepage but build-up on the contacts of the waste gate relays. Build-up of this nature would cause both fields of the waste gate motor to be energized simultaneously, thus resulting in failure of the waste gate motor. Oil seepage on the waste gate motor, clutch or brake would only result in overcoasting and not motor failure.

b. General Electric Company is now placing in production a V-46 relay with improved contact points which is supposed to eliminate present difficulties; however, this relay is not expected to be in quantity production for at least 30 days.

c. It is recommended that a C-9 regulator that has failed be returned to Air Technical Service Command for thorough inspection to determine the exact cause of failure. Further recommendations will be withheld pending examination of a malfunctioning C-9 turbo regulator. It is believed that this type of failure will be reduced to a minimum when the new relays are placed in production. It should be noted that the General Electric AAF Type C-1 automatic engine control scheduled for P-47N airplane will have the present relays until the V-46 relay is available in quantity.

For the Acting Director:

*Wm M Barstow*

W. M. BARSTOW  
Major, Air Corps  
Office, Chief of Administration

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