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 Air Service Command  
 Fairfield  
 29 April 1944

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29 April 1944

Project P.P.F.  
 Installation Instructions

Commanding General  
 Air Service Command  
 Patterson Field  
 Fairfield, Ohio  
 Atten: Major G.S. Richards, ASCMM6

1. Utilization of P-38, P-47, and P-51 series airplanes on Project P.P.F. can be accomplished by first modifying the airplanes in accordance with instructions contained in the following attachments hereto:

- a. Exhibit A - General Instructions for P-38
- b. Exhibit B - General Instructions for P-47
- c. Exhibit C - General Instructions for P-51
- d. Lockheed Service Bulletin #P-38/SB-259 dated 18 Apr 44
- e. Republic Memo Instructions for PPF dated 11 Apr 44
- f. Packard Service Bulletin #98 dated 20 Apr 44
- g. Packard Service Bulletin #99 dated 20 Apr 44
- h. Packard Service Bulletin #100 dated 20 Apr 44
- i. North American Service Bulletin #73-104 dated 25 Feb 44
- j. Power Curves (four sheets) for V-1650-3 and V-1650-7 engines.

2. Technical Orders referred to in the above material are not attached. It is recommended that they all be attached to the instructions dispatched overseas because of the known fact that distribution of technical orders in the theatre is often unavoidably delayed for months.

3. Operating Instructions will be forwarded at a later date, upon completion of tests now being conducted by the Materiel Command. The P-51 series airplanes are now released for 75" manifold pressure on this project. Release, when issued, will be for 70" in the P-38 and for 65" (with and without water injection) in the P-47.

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
W.H. DOWNER
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

100-1-100  
 PROD. ENG.  
 W.H. DOWNER

Classification, or changed to  
 AUTH: By CD 356  
 Signature and Grade  
 Date 11-1-45

CENTRAL FILES

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Com. General  
Air Service Command  
Fairfield, Ohio  
29 April 1944

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4. It is recommended that instructions based upon the attachments hereto be forwarded overseas immediately. It has been recommended to higher authority that the kits of parts be shipped immediately. Utilization of almost all of the parts in accordance with the attached instructions will have to be accomplished anyway to prevent certain failures now being encountered, and their prompt installation will not interfere with present type of normal operation, while it will minimize the "last minute rush" type of preparations for Project P.P.F.

5. It is requested that installation instructions based on the above be forwarded, in addition to their normal recipients, to the following:

- Col. B.S.Kelsey, Chief, Operational Engineering Section, Hq. 8th A.F.
- Col. C.S.Hough, Chief, Air Tech. Sect. Hq 8th Fighter Command.
- Col. J.S.Griffith, Director of Maintenance, U.S. ST.A.F.E.
- Col. B.J.Toohar, Chief of Maintenance, Hq 9th A.S.C.
- Col. H.G.Bunker, Chief, Air Tech. Sect. Hq 8th A.S.C.

For the Commanding General:

*J. Sebell* Lt Col

for - GEORGE E. PRICE  
Colonel, Air Corps  
Chief, Production Engineering Section

10 Encls:

- Encl 1 - Exhibit A (2 pages)
- " 2 - Exhibit B (2 pages)
- " 3 - Exhibit C (3 pages)
- " 4 - Lockheed S.B. #P-38/SB-259
- " 5 - Republic Memo Inst for PPF 4-11-44
- " 6 - Packard S.B. #95
- " 7 - Packard S.B. #99
- " 8 - Packard S.B. #100
- " 9 - North American S.B. #73-104
- " 10 - Power Curves (four sheets) V-1650-3 & V-1650-7 Eng.

*not attached to this file*



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EXHIBIT A

INSTRUCTIONS FOR MODIFICATION OF P-38-J AIRPLANES  
FOR PROJECT PPF

1. The following modifications must be accomplished in order to use P-38-J airplanes on Project PPF:

a. Install either AC Type LS-82 (formerly AC-433M) or Champion P-43S spark plugs.

b. The coolant system should be pressurized to 23 pounds in lieu of the 15.75 lb. pressure currently being used. This is accomplished by adjusting the No. 850-331 snaffle valve to 23 pounds and by installing a 1/4-inch pressurizing line from the carburetor deck to the coolant header tank. A check valve should be installed in the pressurizing line to prevent coolant from flowing back into the carburetor. It is the understanding of Materiel Command that the 8th and 9th Air Force Service Commands have already issued instructions for accomplishing this change on all P-38-J airplanes in England. Should be done immediately. Will not interfere with normal airplane operation.

c. The carburetors should be modified by installing 0.25-inch diameter fuel nozzles and 2400 cc power enrichment jets in lieu of those presently installed. These changes are necessary to provide for the high fuel flows required.

d. In order to provide for full fuel flow at the higher manifold pressure, Type B-7A sump type fuel boost pumps should be installed in accordance with the instructions given in the attached copies of Lockheed Service Bulletin No. 259 (Encl. #4). These pumps are installed on the main tanks only. Can be done immediately. No interference with normal operation.

e. The linkage for adjusting the Type A-13 turbo regulators should be modified in accordance with the instructions given in the attached Lockheed Service Bulletin No. 25 (Encl. #4).

2. Sufficient supplies of kits for accomplishing the above changes have been shipped. The following data on these shipments may be of value:

a. Spark Plugs - 364,000 plugs are being shipped. This is sufficient to provide 8 sets of plugs for 1000 P-38-J airplanes. 288,000 LS-82 plugs and 76,000 Champion P-43S plugs are being shipped. The AC plugs are being shipped on Emergency Request No. 3E-9277-RO-PPF, and the Champion plugs are being shipped on Emergency Request No. 3E-9294-RO-PPF.

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EXHIBIT A (Contd)

INSTRUCTIONS FOR MODIFICATION OF F-47 AIRPLANE  
FOR PROJECT #1

b. Coolant Pressurization Kits - 900 kits for accomplishing this change were shipped on Emergency Request No. 3E-9230-RO. These kits should now have arrived at destination.

c. Carburetor Changes - 1000 kits of parts for installing the fuel nozzles and the 2400 cc power enrichment jets have been shipped on Emergency Request No. 3E-9283-RO-PPF.

d. Fuel Boost Pump - 2000 Type B-7a pumps for these kits were shipped on Emergency Request No. 3E-9276-RO-PPF. 1000 Lockheed kits for installing these pumps were shipped on Emergency Request No. 3E-9293-RO-PPF. The pumps were obtained from GFE stock and the parts for installing the pumps were fabricated by Lockheed. Note that the turbo regulator linkage parts and these parts are packed together and forwarded under the same E.R. number.

e. Turbo Regulator Kits - 1000 kits for modifying the turbo regulator linkage are now at Newark awaiting overseas shipment. They are being shipped on Emergency Request No. 3E-9293-RO-PPF.

1. Install new reinforced carburetor air duct flexible hose connector. Install new duct. Should be done immediately. No interference with normal operation.

2. Install new turbo pressure gage. Can be done immediately. No interference with normal operation.

3. Install 15.000 cc water pump. Can be done immediately. No interference with normal operation.

4. Install 1-43 supercharger regulator.

5. Install 6-10 fuel pump. Can be done immediately. No interference with normal operation.

6. Change boost resist.

7. Change instrument markings.

8. Check that standard water regulator jets are installed.

Complete instructions for the accomplishment of all these changes are contained in memorandum prepared by Republic Aviation Corporation under date 11 April 1944, copy attached as enclosure #5.

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