SUBJECT: Installation of Hanlon & Wilson Exhaust System

MODELS AFFECTED: M-21 (M-20B), Serial Numbers 1701 thru 1939

TIME OF COMPLIANCE: At Owner's Discretion

INTRODUCTION:
The purpose of this service letter is to introduce you to the entirely new exhaust system offered to you by Mooney Aircraft. This exhaust system, which is made for Mooney by the Hanlon & Wilson Company, is now standard equipment on the 1962 Model M-21 (M-20C) and has proven quite successful in the many tests to which we have subjected it. Some of the advantages offered by this system are as follows:

1. Lighter weight
2. Greatly decreased engine noise
3. Higher carburetor heat temperature
4. Higher cabin air temperature

Although the use of this system is not mandatory, we highly recommend the use of this system on 1961 Model M-21 (M-20B) aircraft.

INSTRUCTIONS:
To install the new exhaust system, the following sequence should be followed in the order listed:

1. Remove the following equipment from the aircraft:
   a. Alternate air source, carburetor heat, and cabin heat ducts.
   b. Exhaust system (P/N 6363).
   c. Exhaust extensions (P/N 6035) from cylinders.
   d. Landing light and landing light adjustment screws.

2. Remove the engine crank case quick drain from the right side of the engine and re-install it on the left side of the case. The quick drain is installed in the same manner on the left as it was on the right side.

3. Rework the cabin heat valve as shown in Figure 2, Detail C.

4. Rework the landing light bracket as shown in Figure 3.

5. Install the following equipment in the sequence listed below:
   a. Install P/N 6504-1 on carburetor air box as shown in Figure 2, Detail B. DO NOT tighten clamp or install screw at this time.
   b. Install Hanlon & Wilson No. 637 Muffler Assembly.
   c. Hanlon & Wilson No. 637-11, -12, -13, & -14 exhaust extensions on cylinders as shown in Figure 1, Detail B. Leave the nuts attaching extensions very loose at this time.
   d. Install exhaust extensions on muffler assembly as shown in Figure 1, View A-A. Nuts should be installed on the bolts only far enough so that the cotter pins may be installed. DO NOT TIGHTEN THE NUTS.
   e. Shake muffler assembly slightly to seat the exhaust extensions to the muffler and tighten nuts attaching exhaust tubes to cylinders to 110-150 inch/pounds torque.
   f. Install Hanlon & Wilson No. 637-60 tail pipe as shown in Figure 1.
   g. Attach 6484-5 duct to heater and 6504-1 elbow. Rotate elbow on carburetor air box to obtain 1/16" to 1/2" clearance between 6484-5 and 6719 air intake duct. Tighten clamp and install screw to secure P/N 6504-1 elbow.
   h. Install P/N 6467 alternate air source tube as shown in Figure 2, View A-A.
   i. Re-install P/N 6060 cowl brace at firewall attachment.
   j. Install P/N 6484-1 & -3 ducts as shown in Figure 2.
   k. Seal the original alternate air source inlet on the landing light bracket as shown in Figure 3, View A-A.
   l. Install landing light as shown in Figure 3.

6. To correct aircraft weight and balance data, correct the Equipment List as follows:
   - Exhaust System Removed
     - 18.75
     - 10.0
     - 187.5
   - Exhaust System Installed
     - 15.00
     - 12.8
     - 192.0
   - Totals
     - 3.75
     - 4.5

Add Aircraft Empty Weight

Adjusted Aircraft Empty Weight

After the empty weight and balance (Page 3, Section 5) is adjusted, a new loading schedule may be made, if desired. The required forms are included for this purpose.

S.L. KIT 20-86 – Exhaust System Installation Equipment

1 6504-1 Elbow
2 6484-1 Tube
3 6484-3 Tube
4 6484-5 Tube
5 6461-7 90° Offset Bracket
6 AN735-34 Clamp
7 AN42-3A Bolt
8 AN3-3A Bolt
9 AN970-3 Washer
10 AN950-10 Washer
11 Hanlon & Wilson Muffler Dwg. #637
12 AN365-1032 Nut
13 AN363-1032 Nut
14 AN735-6 Clamp
15 QS100-M-36 Clamp
16 6467 Alternate Air Source Tube Assembly
17 AN470-AD4-8 Rivet
18 6490 Clamp
19 AN3-SA Bolt
20 65321 Lycoming Gasket
21 AN366-1032 Nut Plate
22 AN520-1032R-16 Screw
23 #6 x 3/8 Sheet Metal Screw
24 AN470-AD3-6 Rivet
25 AN526-1032R-8 Screw
26 AN3-6A Bolt
27 AN742D20 Clamp
28 .020 Aluminum Plate (2.12 x 3.50)
Installation for H. & W. Exhaust System