SUBJECT: Mooney Aircraft With Tailcone Mounted Standby Vacuum Systems
MODELS/ SN AFFECTED: All M20 Series Installed With Tailcone Mounted Standby Vacuum System
TIME OF COMPLIANCE: INITIAL INSPECTION WITHIN 10 FLIGHT HOURS / NEXT 100 HR INSPECTION
INTRODUCTION: There has been a report from the field of an “Oil like” contaminate found inside of the TYGON F-4040-A (AAG00046) hose used in the installation of the Tailcone Mounted Standby Vacuum Systems. All TYGON F-4040-A is easily identified by the “Yellow” coloring of the hose material. Mooney Engineering has determined this “Oil like” contaminate could affect the vacuum pump's ability to function properly.

INSTRUCTIONS: Read entire procedures before beginning work.

STEP 1 - Initial Inspection of Vacuum Pump and F-4040-A TYGON Hose:

1.1. Turn master switch - OFF.
1.2. Remove access panel on left side of aircraft tailcone for access to equipment rack, (refer to applicable Mooney Service and Maintenance Manual).
1.3. Disconnect Aircraft batteries ground cable(s).
1.4. From inside the tailcone, locate the Standby Vacuum pump/motor assembly and loosen (2) QS100M12S clamp(s) to remove F-4040-A TYGON hose from both sides of pump, do not discard clamps, these will be reused upon installation.
1.5. Inspect F-4040-A TYGON hose for any signs of the “Oil like” contaminate within the hose or at the RA1K1-6-10 Fitting connection(s).
1.6. If no "Oil like" contaminate is found, perform STEP 2 of this service bulletin.
1.7. If "Oil like" contaminate has been found - continue to next steps of this service bulletin.
1.8. Locate and remove (2) RA1K1-6-10 fittings from current vacuum pump, do not discard fittings, these will be reused upon installation. Take note of the 'clocked' position of fittings for ease of reinstallation.
1.9. Locate and remove set screw from 820904-2 drive unit coupling to current vacuum pump, do not discard, this will be reused upon installation.
1.10. Remove and discard (4 QTY) AN4-6A Bolts, NAS1149F0463P washers and MS21045L3 nuts mounting vacuum pump to 820904-2 drive unit and remove vacuum pump.
1.11. Clean all RA1K1-6-10 fittings that were previously removed from old vacuum pump and install into the new vacuum pump, be sure all surfaces are clean and dry. Clock fittings into previous position(s).

CAUTION:
CLEAN ALL LINES AND FITTINGS BEFORE INSTALLATION, USE NO THREAD LUBE. DO NOT ALLOW OIL OR GREASE TO ENTER VACUUM PUMP.

1.12. Install new vacuum pump 1U128 by inserting the drive coupling into place and install new (4 QTY) AN4-6A Bolts, NAS1149F0463P washers and MS21045L3 nuts mounting to 820904-2 drive unit. Tighten hardware equally and torque to specifications (refer to applicable Mooney Service and Maintenance Manual).
1.13. Clean and install previously removed set screw from 820904-2 drive unit coupling to new vacuum pump 1U128 apply LOCTITE® 242 to set screw and torque to 15-20 IN-LB.
1.14. When STEP 1 has been completed, perform STEP 2 of this service bulletin.
STEP 2 - Replacing F-4040-A TYGON with MIL-H-5593-10 Hose:

2.1. Remove pilot and co-pilot seats and store in protected area so as not to damage upholstery (refer to applicable Mooney Service and Maintenance Manual).

2.2. Remove pilot side upholstery panel to access full length of F-4040-A TYGON hose (approximately 13 feet), refer to Mooney Service and Maintenance Manual.

2.3. Locate Bulkhead Fitting 1K43-10-10 and loosen QS100M12S clamp(s) and remove F-4040-A TYGON hose from bulkhead fitting, do not discard clamp(s), these will be re-used upon installation (refer to Figure SB M20-317-1).

2.4. Remove and discard full length routing of F-4040-A TYGON hose from aircraft structure. The hose may be secured to structure using ty-wraps, remove as required.

2.5. Route full length of new MIL-H-5593-10 hose through structure, insure there are no kinks or restrictions in hose. Secure using ty-wraps, as required per good aircraft service. Reseal any hose routing’s through frame with PROSEAL700® or Equivalent (refer to Figure SB M20-317-2).

2.6. Install previously removed QS100M12S clamp(s) on both bulkhead fitting 1K43-10-10 and on vacuum pump 1U128, tighten as required (refer to Figure SB M20-317-1 and M20-317-2).

2.7. If small cooling hose between vacuum pump 1U128 and drive unit is identified as F-4040-A TYGON hose, locate and loosen QS100M12S clamp(s) from small F-4040-A TYGON hose from vacuum pump to 820904-2 drive unit, do not discard clamps, these will be re-used upon installation. (refer to Figure SB M20-317-2).

2.8. Remove and discard small F-4040-A TYGON hose from vacuum pump 1U128 to 820904-2 drive unit (approx 3 to 4 inches) (refer to Figure SB M20-317-2).

2.9. Install new MIL-H-5593-10 hose that connects vacuum pump 1U128 to 820904-2 drive unit (approx 3 to 4 inches) reuse previously removed QS100M12S clamp(s) tighten as required (refer to Figure SB M20-317-2).

2.10. Re-connect aircraft batteries ground cable(s).

2.11. Turn “ON” master switch and standby vac switch. Verify vacuum and gyro operation - vacuum to be 4.75 ± .25 IN. Hg.

2.12. Reinstall pilot side upholstery panel.

2.13. Reinstall pilot and co-pilot seats.

2.14. Reinstall access panel on left side of aircraft tailcone for access to equipment rack.

2.15. Reinstall top and bottom cowling, refer to applicable Mooney Service and Maintenance Manual.


CAUTION:
CLEAN ALL LINES AND FITTINGS BEFORE INSTALLATION, USE NO THREAD LUBE. DO NOT ALLOW OIL OR GREASE TO ENTER VACUUM PUMP.
NOTE:

Fill out compliance card completely - List any defects if detected and send by MAIL or FAX to Mooney International Corporation as indicated on the attached Compliance Card (see Figure M20-317-3) - For any reason you are having trouble with installation as demonstrated in this Service Bulletin, Please contact Mooney Technical Support at 830-896-6000 or email support@mooney.com for more information.

2.19. Return aircraft to service.
2.20. Procedure complete.

WARRANTY: N/A

REFERENCE 1. Applicable Mooney Service and Maintenance Manual

PARTS LIST: Service Bulletin Kit part number: M20-317-001 (contains the items below)

<table>
<thead>
<tr>
<th>Item</th>
<th>P/N</th>
<th>Description</th>
<th>Qty</th>
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<tr>
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<td>MIL-H-5593-10</td>
<td>HOSE, .6250 I.D 5/8&quot; - (STK #RM026940)</td>
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<td>2</td>
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<td>6</td>
<td>SB M20-317</td>
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To order this Service Bulletin kit - email serviceparts@mooney.com or call Service Parts at (830) 792-2901
NOTE:
REPLACE ALL TYGON F-4040-A (AAG00046) WITH MIL-H-5593-10 HOSE

Figure SB M20-317-1 - TYGON HOSE ROUTING HARDWARE INSTALLATION
This bulletin is FAA approved for engineering design.

SERVICE BULLETIN M20-317
Date: JANUARY 7, 2014

Figure SB M20-317-2 - VACUUM PUMP REMOVAL AND REPLACEMENT
SERVICE (BULLETIN) (INSTRUCTION) NO.________________HAS BEEN COMPLIED
WITH ON AIRCRAFT MODEL _______________ SERIAL NUMBER _______________

Tach. Time: _________________________ N-Number _______________ (Reg. No.)

Owner: ______________________________

Date of Compliance: ______________________

Complied By: ____________________________

Inspection Report: ______________________

______________________________

Form 07-0002

MOONEY INTERNATIONAL CORPORATION
KERRVILLE, TEXAS 78028 - FAX 830-257-4635

ATT’N: TECHNICAL SUPPORT
165 Al Mooney Road, North
Kerrville, Texas 78028

SEND TO:
Mooney International Corporation
165 Al Mooney Road North
Kerrville, TX 78028
FAX 830-257-4635 OR email support@mooney.com

Figure SB M20-317-3 - Compliance Card