



SUBJECT: Mooney Aircraft With Tailcone Mounted Standby Vacuum Systems  
MODELS/ SN: All M20 Series Installed With Tailcone Mounted Standby Vacuum System  
AFFECTED:

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 re-installation.
- 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 reused 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).

**CAUTION:**

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

- 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  $4.75 \pm .25$  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.
- 2.16. Complete log book entry.



**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](mailto:support@mooney.com) for more information.**

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

WARRANTY: N/A

REFERENCE DATA: 1. Applicable Mooney Service and Maintenance Manual

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

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
1	MIL-H-5593-10	HOSE, .6250 I.D 5/8" - (STK #RM026940)	14 ft
2	AN4-6A	Bolt	4
3	NAS1149F0463P	Washer	4
4	MS21045L3	Nut	4
5	1U128	Pump, Vacuum	1
6	SB M20-317	Copy of M20-317 Service Bulletin	1

To order this Service Bulletin kit - email [serviceparts@mooney.com](mailto:serviceparts@mooney.com) or call Service Parts at (830) 792-2901

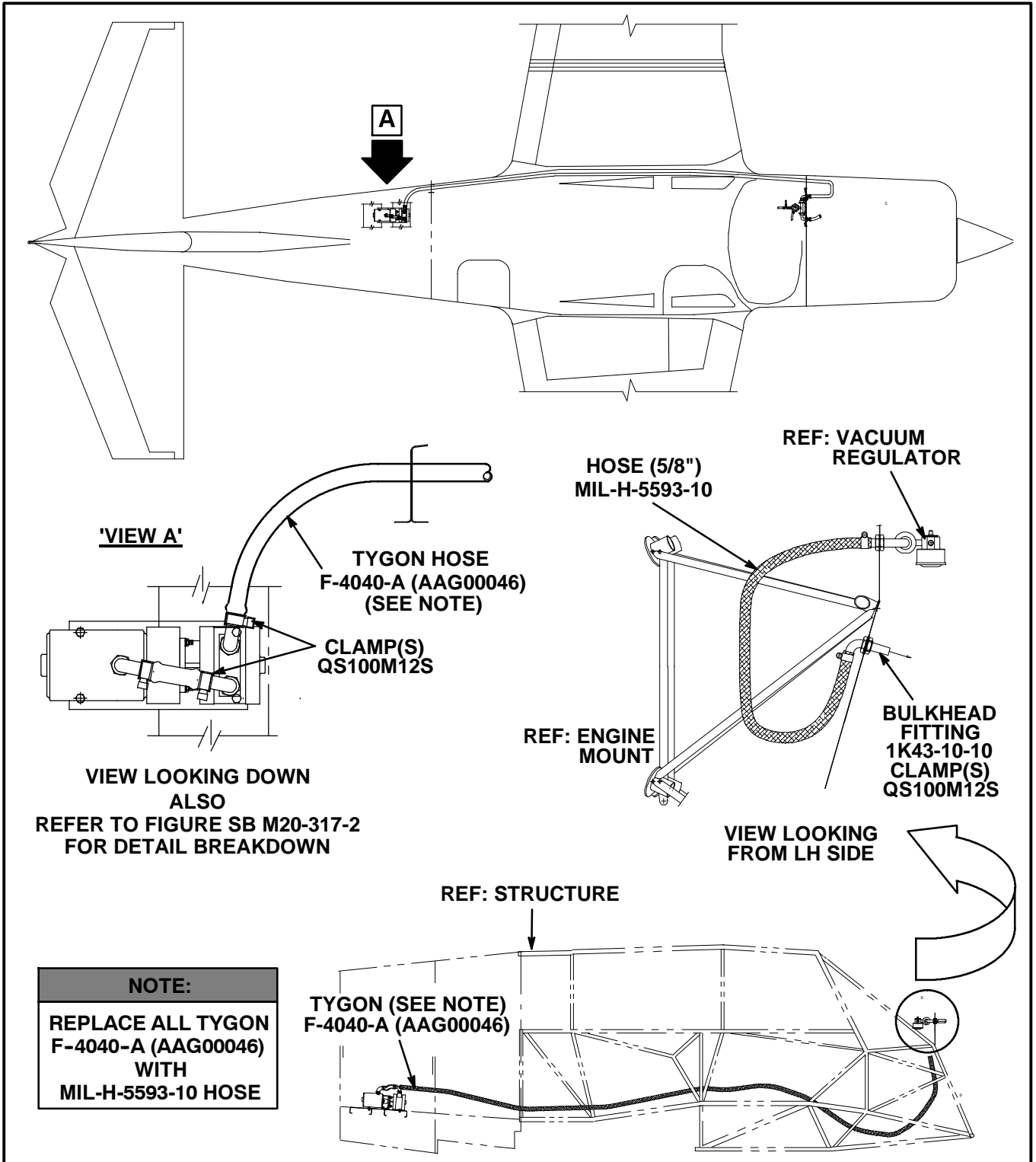


Figure SB M20-317-1 - TYGON HOSE ROUTING HARDWARE INSTALLATION

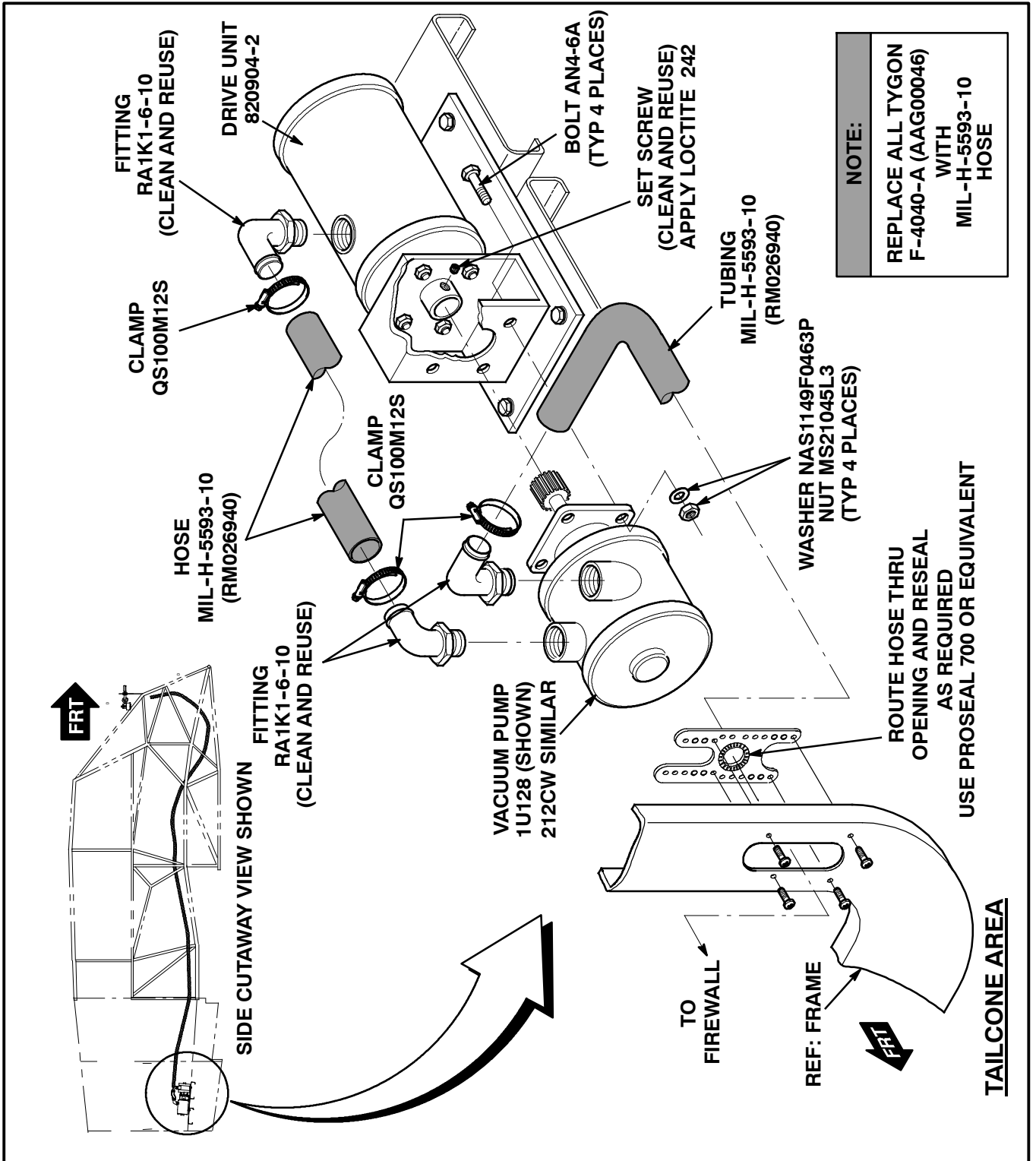


Figure SB M20-317-2 - VACUUM PUMP REMOVAL AND REPLACEMENT



**THIS BULLETIN IS FAA APPROVED FOR ENGINEERING DESIGN**

**SERVICE BULLETIN M20-317  
Date: JANUARY 7, 2014**

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

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PLACE  
STAMP  
HERE**

**MOONEY INTERNATIONAL CORPORATION**  
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**