

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

SERVICE BULLETIN M20-301

Date: September 19, 2007

SUBJECT: Aircraft "Retrofitted" (Non-Production) with Garmin GFC700 - Manual Electric Trim Installation.

MODELS/ SN AFFECTED: **M20R:** 29-0361, 29-0401, 29-0444, 29-0463, 29-0464, 29-0466, 29-0471, 29-0473
M20TN: 31-0003, 31-0004, 31-0006, 31-0013, 31-0014, 31-0015, 31-0016, 31-0018, 31-0019, 31-0020, 31-0021, 31-0026, 31-0028, 31-0029, 31-0031

TIME OF COMPLIANCE: **STEP 1 - MANDATORY - Before Next Flight**
STEP 2 - MANDATORY - Before Next Flight
STEP 3 - Within NEXT 10 Hours of Flight

INTRODUCTION: There has been a reported incident, of Garmin GFC-700 Manual Electric Trim switch wires being labeled incorrectly. Results indicated the switch had two wires incorrectly labeled in an Aircraft "Retrofitted" with GFC700 Manual Electric Trim Retrofit kit (NOT a production installation). **FAA requires the attached compliance card be filled out and returned to Mooney Airplane Company.**

INSTRUCTIONS: **Read entire procedures before beginning work.**

STEP (1) - Testing the Manual Electric Trim:

- 1-1. Operate Manual Electric Trim through range of motion ensuring correct upward and downward position of Trim Indicator.
 - a.) If Manual Electric trim is not functioning properly proceed to **Step 2**.
 - b.) If Manual Electric Trim is functioning properly, comply with **Step 3** at or before the next 10 Hours of flight.

STEP (2) - Reverse Trim Switch Wires:

- 2-1. Turn master switch - OFF.
- 2-2. Remove LH and RH Tailcone access panels, disconnect batteries.
- 2-3. Locate AMP connector with specified wires at end of the Pilot's Control Wheel tube (ref Figure M20-301-1).
- 2-4. Note each wire number and location, remove #1 and #2 pin wires from the [PL110A] connector using an AMP extractor tool (ref Figures M20-301-1 & 2).
- 2-5. Complete a functional test by temporarily reversing original position of the #1 and #2 pin wires in the [PL110A] connector (ref Figures M20-301-1 & 2).
- 2-6. Connect batteries.
- 2-7. Turn master switch - ON.
- 2-8. Operate Manual Electric Trim through range of motion ensuring correct upward and downward position of Trim Indicator. If trim is functioning properly proceed to **Step 3**.

STEP (3) - Label Trim Switch Wires:

- 3-1. Turn master switch - OFF.
- 3-2. Identify specified wire labels at end of the Pilot's Control Wheel tube (ref Figures M20-301-1 & 2).
 - a.) If Manual Electric Trim wire labels comply with print, proceed to **Step 3-21**.
 - b.) If Manual Electric Trim wire labels are switched, continue with this procedure.

- 3-3. Remove the (2) screws mounting Trim Switch from the Pilot's Control Wheel (ref Figure M20-301-1).
- 3-4. Pull Manual Electric Trim Switch from the Pilot's Control Wheel enough to obtain access to wire connection to switch.
- 3-5. Disconnect AMP connector with specified wires at end of the Pilot's Control Wheel tube (ref Figure M20-301-1).
- 3-6. Remove the #1 pin wire from [PL110A] connector.
- 3-7. Verify #1 pin wire at trim switch by performing a continuity check on #1 pin wire from [PL110A] connector to trim switch terminal. This may require test meter lead to penetrate "potting" material to access wire terminal.
- 3-8. Place Heat Shrink label (P/N HT-MET03A22) over #1 pin wire (at PL110A) with corrected wire number. Cover any portion of original wire identification marks with heat shrink label, heat label to wire surface as required (ref Figure M20-301-1).
- 3-9. Place split label (P/N SPL-MET03A22) over #1 pin wire (at PL110A) with corrected wire number. Cover any portion of original wire identification marks, cable tie to wire surface as required (ref Figure M20-301-1).
- 3-10. Insert wire labeled MET03A22 into #1 pin position on [PL110A] connector (ref Figures M20-301-1 & 2).
- 3-11. Remove the #2 pin wire from [PL110A] connector.
- 3-12. Verify #2 pin wire at trim switch by performing a continuity check on #2 pin wire from [PL110A] connector to trim switch terminal. This may require test meter lead to penetrate "potting" material to access wire terminal.
- 3-13. Place Heat Shrink label (P/N HT-MET04A22) over #2 pin wire with correct wire number. Cover any portion of original wire identification marks with heat shrink label, heat label to wire surface (ref Figure M20-301-1).
- 3-14. Place split label (P/N SPL-MET04A22) over #2 pin wire (at PL110A) with corrected wire number. Cover any portion of original wire identification marks, cable tie to wire surface as required (ref Figure M20-301-1).
- 3-15. Insert wire labeled MET04A22 into #2 pin position on [PL110A] connector (ref Figures M20-301-1 & 2).
- 3-16. Reconnect AMP connector at end of the Pilot's Control Wheel tube.
- 3-17. Install Trim Switch into Control Wheel with the (2) screws mounting Trim Switch from the Pilot's Control Wheel (ref Figure M20-301-1).
- 3-18. Turn master switch - ON.
- 3-19. Operate Manual Electric Trim through range of motion ensuring correct upward and downward position of Trim Indicator. If trim is functioning properly, cable tie as required.
- 3-20. Turn master switch - OFF.
- 3-21. **Fill out compliance card and send by MAIL or FAX to Mooney Airplane Company as indicated on the attached Compliance Card (ref Figure M20-301-3).**
- 3-22. Complete log book entry for procedures completed.
- 3-23. Return aircraft to service.
- 3-24. Procedure complete.

WARRANTY: Mooney Airplane Company, Inc. will warrant labor (Step 1 approximately 1/2 hour) and/or (Steps 2 & 3 approximately 1.5 hours), when done in accordance with the procedures of this Service Bulletin for aircraft currently covered under the Mooney Airplane Company, Inc. factory warranty program.

REFERENCE
DATA:

MAC Service & Maintenance Manuals (applicable A/C)

PARTS LIST:

Mooney Airplane Company, Inc., Parts Kit: M20-301-001

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
1.	HT-MET03A22	Heat Shrink Tag	1
2.	HT-MET04A22	Heat Shrink Tag	1
3.	SPL-MET03A22	Split Wrap Tag	1
4.	SPL-MET04A22	Split Wrap Tag	1
5.	T1819M4	Cable Ties (Small)	4
6.	FORM 01-0007	Compliance Card	1

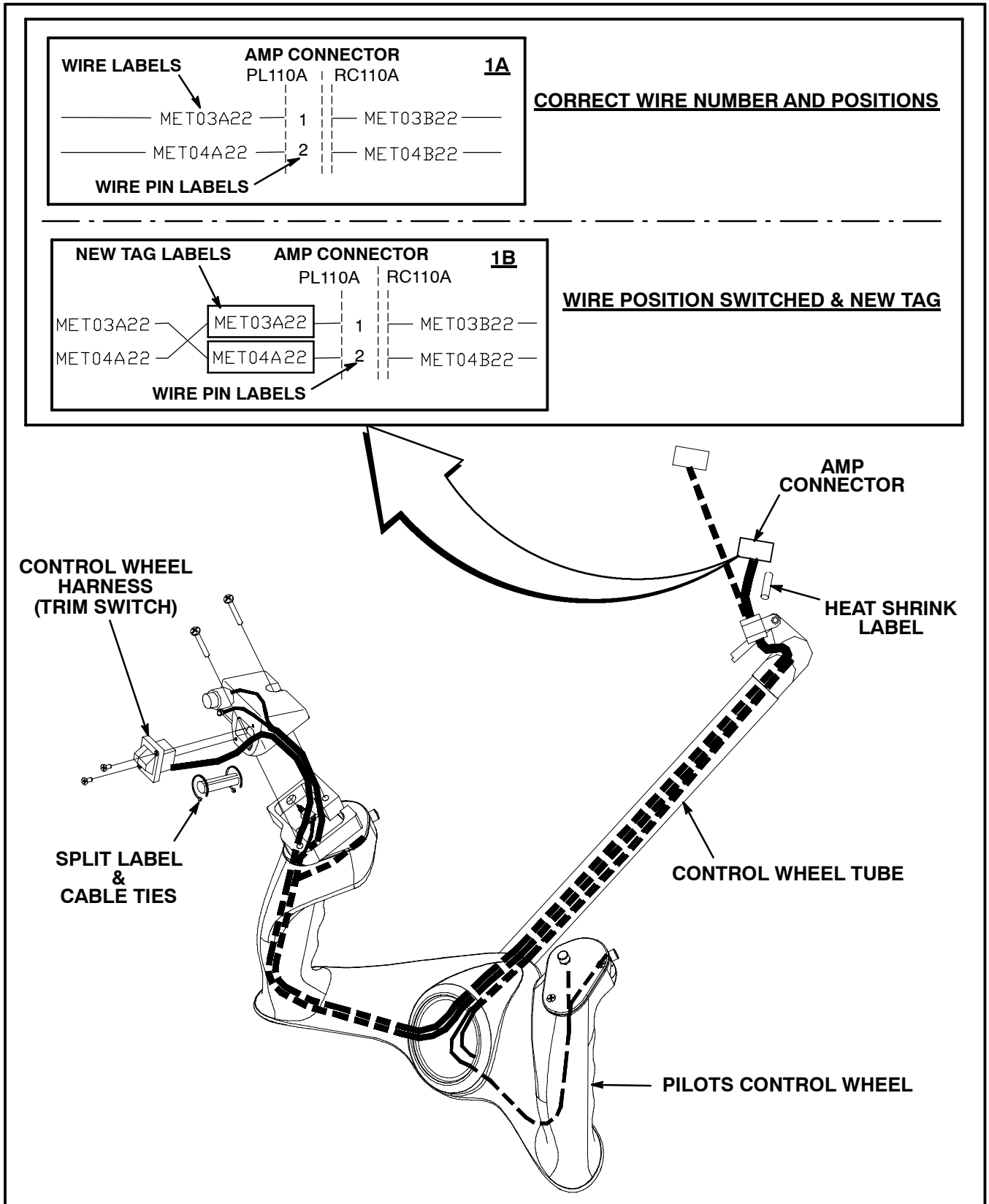


Figure SB M20-301-1 - Control Wheel Harness - Wire Identification

(Retrofit Installed GFC700 - Wire Numbered Trim Switch Harness)

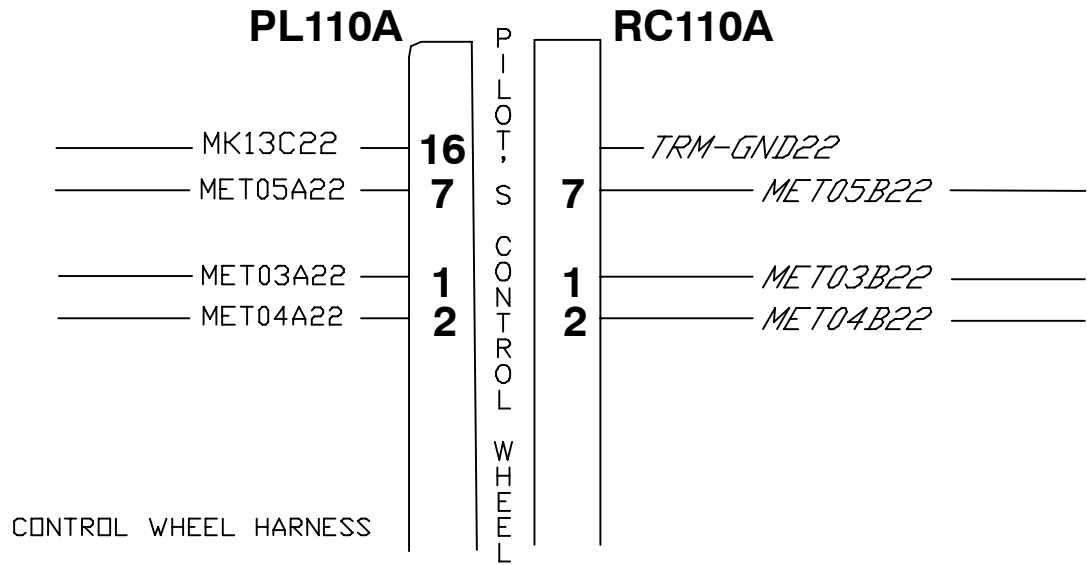


Figure SB M20-301-1 - Control Wheel Harness Connector

MOONEY AIRPLANE COMPANY

KERRVILLE, TEXAS 78028 - 1-800-331-3880

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 07-0001

PLACE
STAMP
HERE

MOONEY AIRPLANE COMPANY

ATT'N: TECHNICAL SUPPORT

165 Al Mooney Road, North

Kerrville, Texas 78028

SEND TO:

Mooney Airplane Company

165 Al Mooney Road North

Kerrville, TX 78028

OR FAX: (830) 896-3133

Figure SB M20-301-3 - Compliance Card