EAGLE COPTERS MAINTENANCE LTD.
823 McTavish Road NE
Calgary, AB, T2E 7G9
Canada

Phone: 1.403.250.7370
Toll Free: 1.800.564.6469

e-mail: engineering@eaglecopters.com
http://www.eaglecopters.com

Technical Bulletin

Second Hour Meter and Collective Switch Installation

Bell 212

TBN-212-001

Revision C

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Prepared: Dilip Singh
D. Singh

Reviewed: for
C. Pesiao

Released:
M. Peters

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Revision Record

Rev	Date	Description of Revision
A	December 21, 2022	Initial Release
B	October 8, 2024	Updated Sec 2.1, 2.3, 3.1, corrected Collective Switch connection as shown in Figure 2 and CB Installation as per Figure 6.
C	See Cover Page	Updated Section 2.1 to add item 17, -015, -017 Configurations, and correct quantities. Updated Sections 2.3, 3.1, 3.2 and 4.1 to clarify Configurations. Added Section 4.2 for Collective Switch Post Installation Test. Updated Table 5 for minor corrections. Updated Figure 2 for Second Hour Meter wiring diagram. Updated Aircraft Record Set Update and Eagle Notification.

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1. Introduction

1.1. Approval

This Technical Bulletin is approved data in accordance with the following STC:

TCCA STC: SH07-28

FAA STC: SR02831NY

1.2. Purpose

This Technical Bulletin provides instructions for the installation of the Second Hour meter in the centre pedestal and interconnecting it with the collective switch, relay and terminal block.

1.3. Effectivity

MSN
ALL

1.4. Compliance

Optional.

1.5. Description

This Technical Bulletin provides information required for the installation of the Second Hour meter in the Centre Pedestal as well as a cam actuated switch on the collective to initiate the counter. The Second Hour Meter captures the time data between the time the collective is pulled up to the flight position, to the time it is lowered to the normal idle position. A configuration is also provided to install the collective switch as a stand-alone option for other uses.

2. Installation Data

2.1. Parts List

Item	-011 Qty	-013 Qty	-015 Qty	-017 Qty	Part Number	Description
1	1	-	1	-	LM-HH3AS-H21	Hobbs Hour Meter
2	1	-	1	-	M22073-1	Circuit Breaker, 1A
3	1	1	1	1	DT-2R-A7	Switch, DPDT
4	1	1	1	1	M81714/60-22-02	Terminal Block
5	1	-	1	-	209-075-323-001	Relay
6	1	1	-	-	MD3211Q5	Actuator Switch
7	-	-	1	1	ZAQ-22	Actuator Switch
8	1	1	2	2	MA10210	Nut
9	3	3	3	3	640903-1	Faston Terminal
10	80ft	40ft	80ft	40ft	M22759/41-22-9	Wire, 22 AWG
11	1	-	1	-	D-436-37	Splice
12	2	-	2	-	MS25036-148	Ring terminals
13	1	1	1	1	D212-725-1-947	Cam Assembly
14	1	1	1	1	D212-725-1-061	Bracket Assembly
15	2	-	2	-	MS35206-215	Screw
16	3	3	3	3	HL64BP6-4	Fasteners
17	1	-	1	-	1N4007	Diode

Table 1 – Parts List

2.2. Weight and Balance

The incorporation of the Technical Bulletin has a negligible effect on the rotorcraft weight and balance.

2.3. Electrical Loads

System	Start & Warm-up 15 Min.		Take-off 15 Min.		Cruise 15 Min.		Land 15 Min.	
	-011/ -015	-013/ -017	-011/ -015	-013/ -017	-011/ -015	-013/ -017	-011/ -015	-013/ -017
Total for all DC Busses	50.9 Amps		109.7 Amps		114.0 Amps		110.2 Amps	
TBN-212-001-011	0.35 Amps	0 Amps	0.35 Amps	0 Amps	0.35 Amps	0 Amps	0.35 Amps	0 Amps
Total	**51.3 Amps**	**50.9 Amps**	**110.5 Amps**	**109.7 Amps**	**114.35 Amps**	**114.0 Amps**	**110.55 Amps**	**110.2 Amps**

Table 2 – Electrical Loads

3. Installation Procedure

3.1. Second Hour Meter Installation (-011/-015 Configuration)

1. Disconnect the battery and external power in accordance with ICA-D212-725.

WARNING:
OBEY ALL THE SAFETY PRECAUTIONS WHEN YOU DO MAINTENANCE ON OR NEAR ELECTRICAL/ELECTRONIC EQUIPMENT.

2. Cut panel for Second Hour Meter in accordance with Figure 1. Install the Second Hour Meter (P/N: LH-HH3AS-H21) into the mounting hole.

3. Install circuit breaker (P/N: M22073-1) in accordance with Figure 6. The circuit breaker can be installed on the Overhead Circuit Breaker Panel, RH Non-Ess Bus DC, see Figure 6. Label CB “NO 2 HOUR METER” IAW Figure 2.

4. Install wiring in accordance with Figure 2, as applicable.

5. Install cam assembly in accordance with Figure 4.

6. Install bracket and switch in accordance with Figure 5 using HL64BP6-4 Hi-Lok fasteners. The D212-725-1-061 bracket overlaps and uses common fasteners for the forward leg. Fabricate a shim from 0.040” AMS-QQ-A-250/5 2024-T3 sheet to suit the D212-725-1-061 bracket installation.

7. Install relay onto existing mounting point under co-pilot seat using 2x MS35206-215 in accordance with Figure 5.

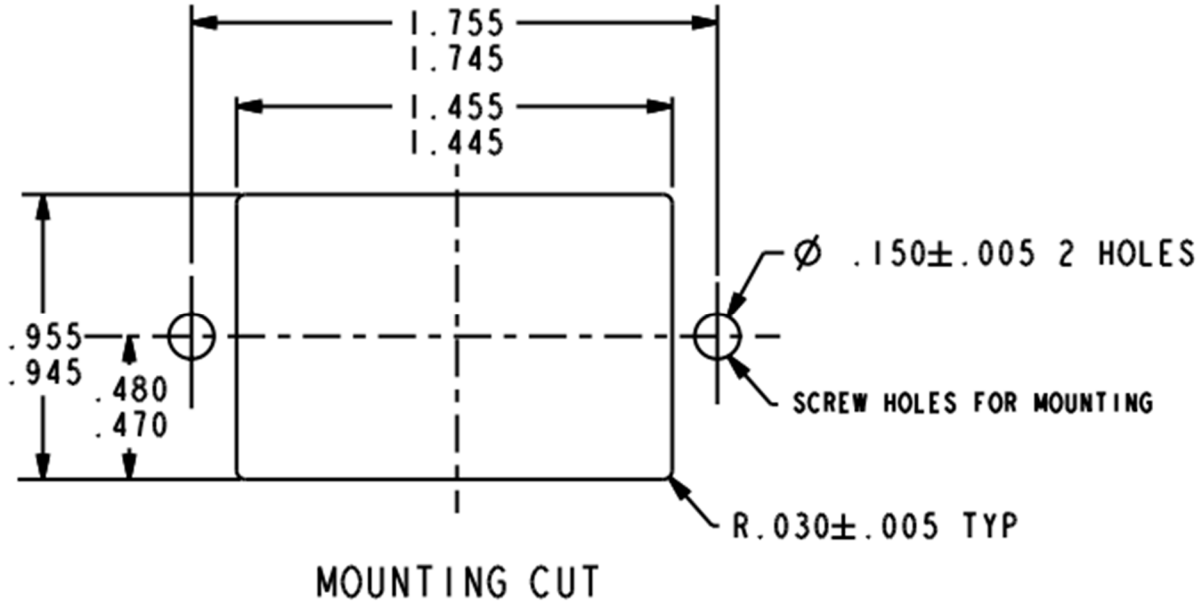

Figure 1 – Hour Meter Mounting Hole

3.2. Collective Switch Installation (-013/-017 Configuration)

1. Disconnect the battery and external power in accordance with ICA-D212-725.

WARNING:
OBEY ALL THE SAFETY PRECAUTIONS WHEN YOU DO MAINTENANCE ON OR NEAR ELECTRICAL/ELECTRONIC EQUIPMENT.

2. Install wiring in accordance with Figure 3, as applicable.

3. Install cam assembly in accordance with Figure 4.

4. Install bracket and switch in accordance with Figure 5 using HL64BP6-4 Hi-Lok fasteners. The D212-725-1-061 bracket overlaps and uses common fasteners for the forward leg. Fabricate a shim from 0.040” AMS-QQ-A-250/5 2024-T3 sheet to suit the D212-725-1-061 bracket installation.

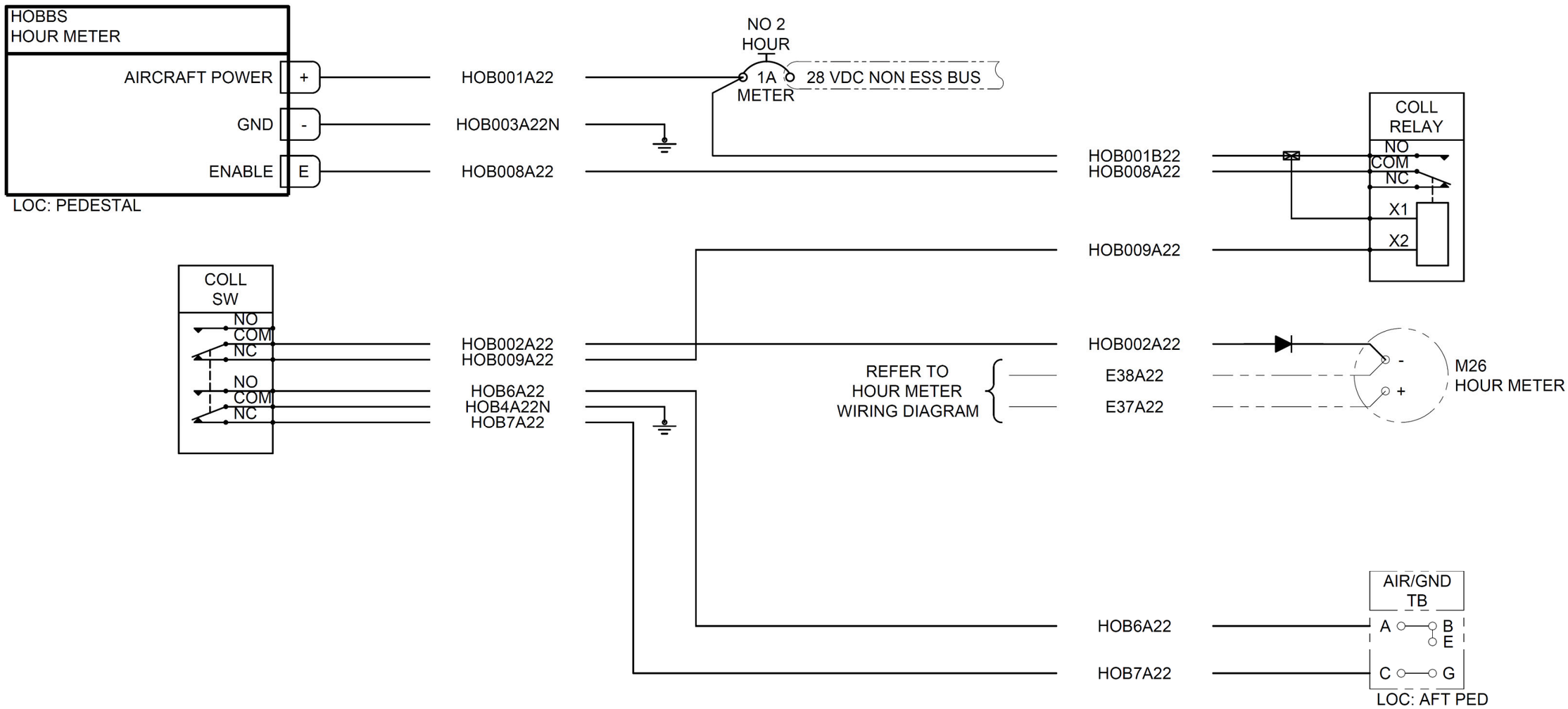

Figure 2 – Second Hour Meter Installation Wiring Diagram (-011/-015 Configuration - with flight timer)

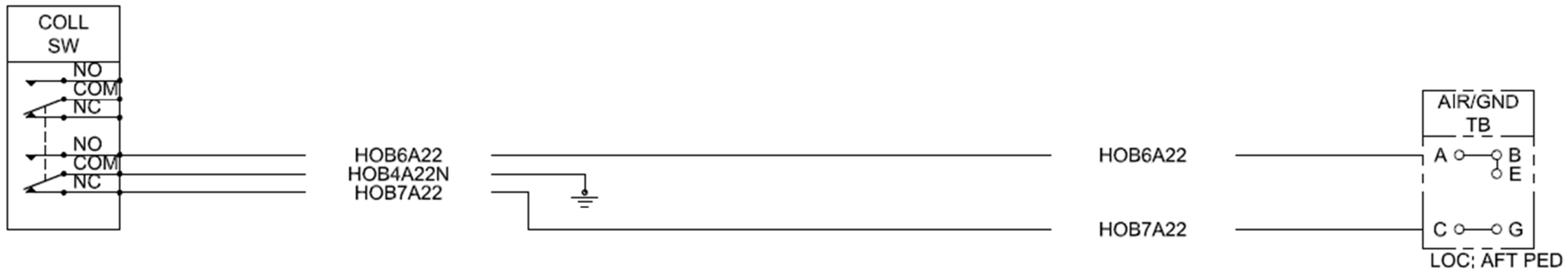

Figure 3 – Collective Switch Installation Wiring Diagram (-013/-017 Configuration)

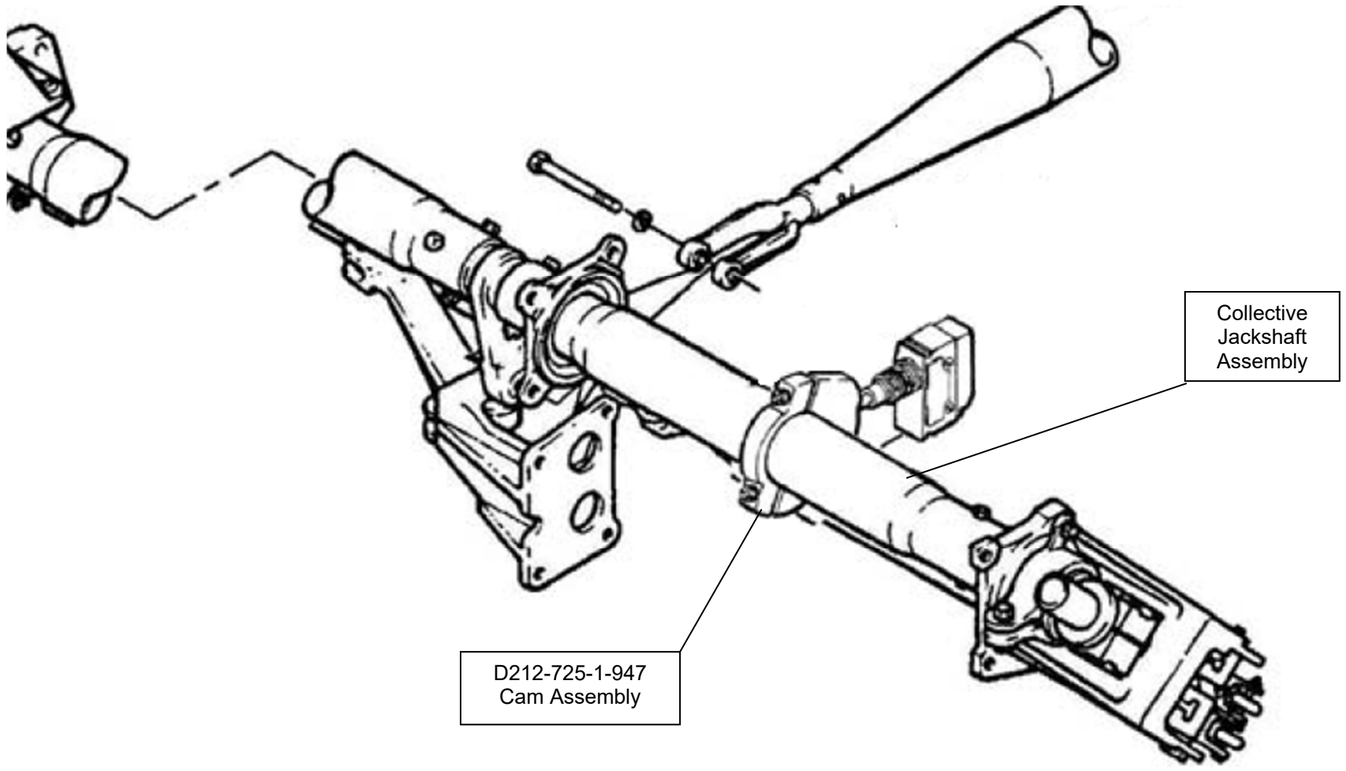

Figure 4 – Cam Assembly Installation Diagram

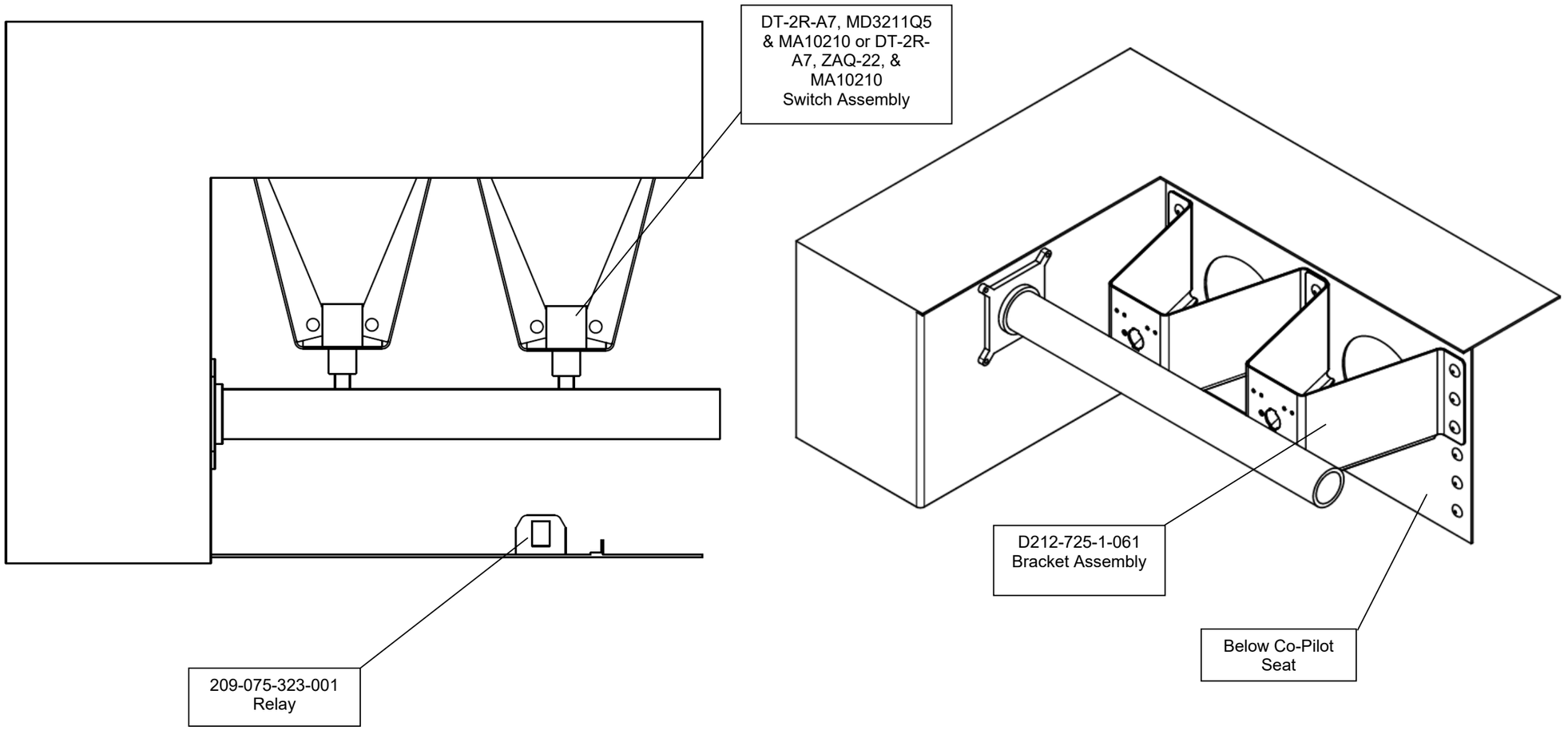

Figure 5 – Bracket Assembly/Relay/Switch Installation

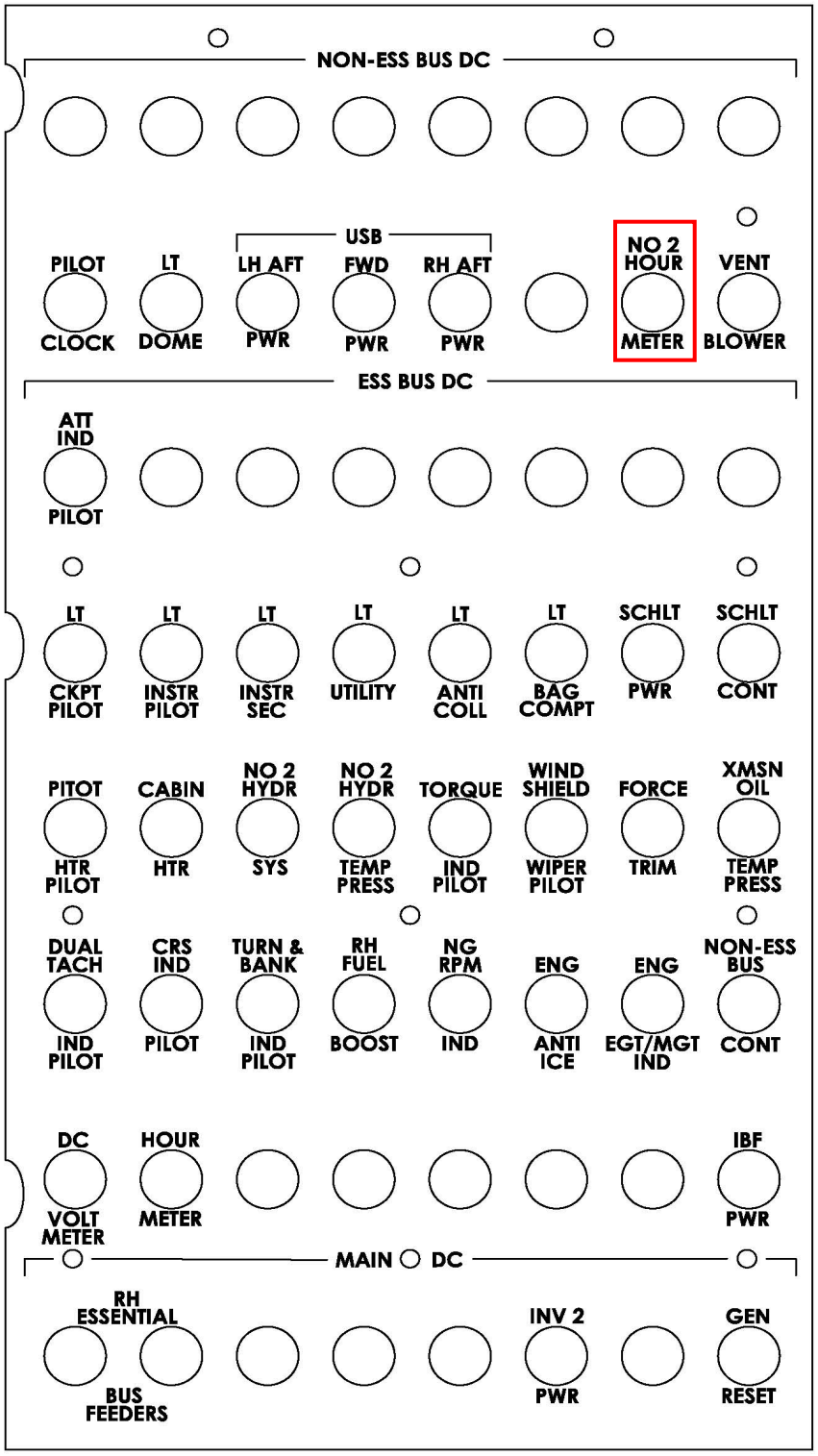

Figure 6 – CB Installation Overhead Panel, RH

4. Test Procedure

4.1. Second Hour Meter Post Installation Test (-011/-015 Configuration)

1. Ensure that the circuit breakers are pulled and collared. Disconnect the Second Hour Meter connectors.
2. Check all pins for shorts to ground or adjacent pins.
3. Ensure that all cables are properly secured in accordance with Figure 2.
4. Ensure that the Second Hour Meter is grounded and connectors are disconnected. Perform a ground bonding check on each clock. Record the measurements to airframe ground in Table 3 below.

LRU Point	Ground Point	Measurement	Pass/Fail
Suitable ground location on the hour meter	Airframe ground on or near the instrument panel	3 milliohms (< 0.003Ω)	Resistance: _____Ω Pass: ☐ Fail: ☐ Initial: _____

Table 3 – Bonding Check Results

5. Connect ground power and turn on aircraft power IAW ICA-D212-725.

WARNING:

OBEY ALL THE SAFETY PRECAUTIONS WHEN YOU DO MAINTENANCE ON OR NEAR ELECTRICAL/ELECTRONIC EQUIPMENT.

6. Remove collars and push in the Second Hour Meter circuit breaker.
7. On the Second Hour Meter connector, check the following pins.

PIN	MEASUREMENT	PASS/FAIL
+	+28 Vdc relative to ground	Pass: ☐ Fail: ☐ Initial: _____
-	<0.5 Ω to ground	Pass: ☐ Fail: ☐ Initial: _____
E	+28 VDC when collective switch is closed and relay is active	Pass: ☐ Fail: ☐ Initial: _____

Table 4 – Power and Ground Check Results

8. Ensure the Second Hour Meter circuit breaker is pulled and collared.
9. Connect the Second Hour Meter connectors.
10. Remove collar, push in the Second Hour Meter circuit breaker.
11. Ensure the Second Hour Meter is powered on.
12. Simulate AIR/GND and verify that the Second Hour Meter continuously record.
13. Perform EMI/EMC testing following the below steps. Refer to Table 5. For tests that include a frequency, test at the listed frequencies and at approximately one MHz intervals between the listed frequencies. For other radio systems with controllable frequencies, test in a similar manner for low, middle, and high frequency bands.
    a. Ensure all systems are installed and functioning correctly. All previous steps in this section must be successfully completed before beginning EMI / EMC checks.

b. Ensure the aircraft is in a normal flight configuration. For example: all doors and windows are closed.

c. Using ground power, test each system outlined in Table 5 and record any aircraft abnormality that would indicate whether each system is a source or victim of EMI. Evaluate all possible scenarios and ensure that as many possible system settings are tested. Repeatedly perform tasks to ensure EMC (e.g., turn equipment on and off and adjust any user interfaces).

d. Using engine driven generators as the power source, complete testing of any systems that could not be tested on ground power (e.g., engine indications) and verify the evaluation performed in step c. Ensure that all systems are tested and any potential EMI that was noted is investigated further.

14. Turn off aircraft power and disconnect ground power in accordance with ICA-D212-725.

Aircraft Systems	EMI Source: Second Hour Meter		EMI Victim: Second Hour Meter		Notes
	YES	NO	YES	NO	
VHF COMM 1, 118.000 MHz					
VHF COMM 1, 127.500 MHz					
VHF COMM 1, 135.975 MHz					
VHF COMM 2, 118.000 MHz					
VHF COMM 2, 127.500 MHz					
VHF COMM 2, 135.975 MHz					
NAV (VOR/ILS) NO. 1, 108.000 MHz					
NAV (VOR/ILS) NO. 1, 108.100 MHz					
NAV (VOR/ILS) NO. 1, 113.500 MHz					
NAV (VOR/ILS) NO. 1, 117.975 MHz					
NAV (VOR/ILS) NO. 2, 108.000 MHz					
NAV (VOR/ILS) NO. 2, 108.100 MHz					
NAV (VOR/ILS) NO. 2, 113.500 MHz					
NAV (VOR/ILS) NO. 2, 117.975 MHz					
GPS1					
GPS2					
PILOT AUDIO					
COPILOT AUDIO					
PUBLIC ADDRESS SYSTEM					
PILOT PFD/MFD					
COPILOT PFD/MFD					
ADAHRS 1					
ADAHRS 2					
HSVT					
STANDBY INSTRUMENT					
STANDBY COMPASS					
TCAS I					
RADIO ALTIMETER					
TRANSPONDER					
DME					
ELT					
GENERATOR / INVERTER					
EXTERIOR LIGHTS					
INTERIOR LIGHTS					
PUMPS / MOTORS					
PILOT TORQUE					
PILOT DUAL TACH					
COPILOT DUAL TACH					
FM 1					
FM 2					
NG					
MGT					
FUEL QUANTITY					
FUEL PRESSURE					
ENG OIL TEMP AND PRESS					
XMSN OIL TEMP AND PRESS					
HYD 1 OIL TEMP AND PRESS					
HYD 2 OIL TEMP AND PRESS					
GENERATOR VOLTMETER AND AMMETER					
MASTER CAUTION PANEL					
FIRE DETECTION AND WARNING					
OTHER:					
OTHER:					

Table 5 – EMI / EMC Check Sheet

4.2. Collective Switch Post Installation Test (-013/-017 Configuration)

1. Check all pins for shorts to ground or adjacent pins.
2. Ensure that all cables are properly secured in accordance with Figure 3.
3. Simulate AIR/GND and using multimeter verify that the ground is available on AIR/GND TB.

Aircraft Record Set Update and Eagle Notification

1. Make an entry in the aircraft record set that TBN-212-001-011, TBN-212-001-013, TBN-212-001-015, TBN-212-001-017 has been incorporated.
2. Update the aircraft's Weight and Balance and Electrical Loads records with the values in Section 2 as required.
3. Notify Eagle Copters that TBN-212-001 has been incorporated by emailing the below information to customersupport@eaglecopters.com:

   Aircraft Serial Number

   Aircraft Owner

   Date Incorporated

   Configuration Number Installed