



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


Garmin GRA 5500 RAD ALT 5G Filter and Antenna Relocation Upgrade


Bell 212


TBN-212-006

Revision A

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Prepared: 
C. Pesiao

Reviewed: 
D. Singh

Released: 
M. Peters

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Revision Record

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TABLE OF CONTENTS

1. Introduction	4
1.1. Approval.....	4
1.2. Purpose	4
1.3. Effectivity	4
1.4. Compliance.....	4
1.5. Description.....	4
1.6. Manpower	5
2. Installation Data.....	6
2.1. Parts and Materials.....	6
2.2. Removed Parts	6
2.2.1. TBN-212-006-011.....	6
2.2.2. TBN-212-006-013.....	6
2.3. Locally Supplied Parts and Equipment.....	6
2.4. Weight and Balance.....	7
2.5. Electrical Loads	7
3. Installation Procedure.....	8
3.1. TBN-212-006-011 Installation Procedure.....	8
3.2. TBN-212-006-013 Installation Procedure.....	10
3.2.1. Garmin GRA 5500 5G External Filter Installation	10
3.2.2. Radar Altimeter Antenna Installation.....	11
3.2.3. Coax Cables Installation.....	13
4. Post-Modification Test Procedure	18
5. Aircraft Record Set Update and Eagle Notification	23

LIST OF TABLES

Table 1 – TBN-006-011 Manpower.....	5
Table 2 – TBN-006-013 Manpower.....	5
Table 3 – KIT-212-008 Installation Kits.....	6
Table 4 – TBN-212-006-011 Removed Parts	6
Table 4 – TBN-212-006-013 Removed Parts	6
Table 5 – Locally Supplied Parts & Equipment.....	7
Table 6 – TBN-212-006-011 Weight and Balance	7
Table 7 – TBN-212-006-013 Weight and Balance	7
Table 8 – Bonding Check Results.....	18
Table 9 – EMI / EMC Check Sheet.....	22

LIST OF FIGURES

Figure 1 – Radar Altimeter and 5G External Filter Installation	9
Figure 2 – Rx Radar Altimeter Antenna Installation.....	14
Figure 3 – Tx Radar Altimeter Antenna Installation	15
Figure 4 – TBN-212-006-011 Wiring Diagram	16
Figure 5 – TBN-212-006-013 Wiring Diagram	17

1. Introduction

1.1. Approval

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

TCCA STC: SH21-44

1.2. Purpose

This Technical Bulletin provides instructions for the addition of 5G External Filter and relocation of the Radar Altimeter antennas to the aft part of the tailboom on existing Garmin GRA 5500 Radar Altimeter installations.

1.3. Effectivity

MSN
30759
31265
35034
35048
35060
35088

1.4. Compliance

Optional

1.5. Description

This Technical Bulletin provides information required for the installation of 5G External Filter and the relocation of the antennas to the aft part of the tailboom on the existing Garmin GRA 5500 Radar Altimeter installations.

The -011 configuration of this Technical Bulletin provides instructions for the installation of 5G External Filter that will be mounted next to the Garmin GRA 5500 Radar Altimeter located on the aft cargo wall panel.

The -013 configuration of this Technical Bulletin provides instructions for the installation of 5G External Filter and the relocation of the existing Radar Altimeter antennas. The existing Radar Altimeter antennas are currently positioned at FS 280.00 for Transmit (Tx) and FS 300.00 for Receive (Rx) on the Tailboom. The new Radar Altimeter antenna configurations are located at FS 355 for Receive (Rx) and FS 393 for Transmit (Tx).

1.6. Manpower

The hours below are the approximate time required to complete this bulletin. Man-hours are based on hands-on time and may vary with personnel and facilities available.

Item	Task	Man-hours	Max. Person	Elapsed Time
1	Job Set-Up	0.50	2	0.25
2	Installation	10.00	2	5.00
3	Close Out	0.50	2	0.25
	Total	11.00		5.50

Table 1 – TBN-006-011 Manpower

Item	Task	Man-hours	Max. Person	Elapsed Time
1	Job Set-Up	0.50	2	0.25
2	Installation	20.00	2	10.00
3	Close Out	0.50	2	0.25
	Total	21.00		10.50

Table 2 – TBN-006-013 Manpower

2. Installation Data

2.1. Parts and Materials

The Parts and Materials required for the installation are defined in document KIT-212-008 Kit Lists, Garmin GRA 5500 RAD ALT 5G Filter and Antenna Relocation Upgrade.

Part Number	Description	Note
KIT-212-008-101	Installation Kit	w/ 5G External Filter
KIT-212-008-103	Installation Kit	w/ 5G External Filter and AFT Antennas

Table 3 – KIT-212-008 Installation Kits

2.2. Removed Parts

2.2.1. TBN-212-006-011

The following parts are removed from the aircraft:

Qty	Reference Designator	Part Number	Description
4	-	190108	Connector, TNC, Coax
14.50ft	RAD ALT RX	S44193	Cable, Coax 50 Ohm

Table 4 – TBN-212-006-011 Removed Parts

2.2.2. TBN-212-006-013

The following parts are removed from the aircraft:

Qty	Reference Designator	Part Number	Description
8	-	190108	Connector, TNC, Coax
2	-	204-032-836-045	Access Panel
2	-	212-030-283-003	Access Panel
24	-	MS21069L3	Screw
26.57ft	RAD ALT RX, RAD ALT TX	S44193	Cable, Coax 50 Ohm

Table 5 – TBN-212-006-013 Removed Parts

2.3. Locally Supplied Parts and Equipment

Locally Supplied Parts and Equipment required for the installation of this Technical Bulletin.

Qty	Reference Designator	Part Number	Description
AR	-	C-317	Adhesive
AR	-	130-005-2N ALT: M23053/8-002-C	Plastic Tube
AR	-	C-406	Aluminum Oxide Abrasive Paper
AR	-	C-426	Masking Tape
AR	-	M-CR 1132	Alodine
AR	-	MIL-PRF-23377K	Primer
AR	-	-	Paint
AR	-	MS20995C20	Safety Wire

Qty	Reference Designator	Part Number	Description
1	-	-	Personal Computer (installed with Microsoft Windows XP Service Pack 3 or later) with GRA 5500/55 Retrofit Installation Tool (PN:006-A0451-00)
1	-	-	USB-A Plug to USB-B Plug Cable

Table 6 – Locally Supplied Parts & Equipment

2.4. Weight and Balance

The incorporation of TBN-212-006 requires amendment to the current Weight and Balance report of the aircraft. The following table ensures the necessary information required for the upgrade.

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
TBN-212-006-011 Modification	0.51	18.94	9.66	222.22	113.33

Table 7 – TBN-212-006-011 Weight and Balance

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
TBN-212-006-013 Modification	1.20	15.31	18.37	245.69	294.83

Table 8 – TBN-212-006-013 Weight and Balance

2.5. Electrical Loads

The incorporation of this Technical Bulletin has no effect on the electrical load. Therefore, no electrical load analysis amendment is required.

3. Installation Procedure

3.1. TBN-212-006-011 Installation Procedure

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

WARNING:

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

2. Gain access to the Aft Cargo LHS Door in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.
3. Locate the Garmin GRA 5500 Radar Altimeter LRU and disconnect the Rx Antenna connector.
4. Install Inserts (P/N: 80-005-6-6) in accordance with BHT-SRM-3-2-12 Application A, in the positions indicated in Figure 1 and using the GRA 5500 5G External Filter to locate the hole pattern.
5. Touch up Primer in accordance with MIL-PRF-23377 Type I Class 2 on surrounding areas of the installation where applicable.
6. Touch up the Paint in accordance with MIL-PRF-85285 Type I Class H or equivalent on surrounding areas of the installation where applicable.
7. Install the GRA 5500 5G External Filter (P/N: 011-06280-00) to the panel as shown in Figure 1.
8. Perform an Electrical Bonding Check to a suitable ground location on the GRA 5500 5G External Filter chassis. Resistance between equipment and surrounding aircraft structure not to exceed 2.5 Milliohms. Refer to BHT-ELEC-SPM Chapter 8 for Bonding Procedures.
9. Locate the Garmin GRA 5500 Radar Altimeter LRU and disconnect the Rx Antenna coax connector.
10. On the Aircraft's Tailboom, locate the existing Radar Altimeter Rx Antenna on FS 300.
11. Remove Radar Altimeter Access Panel in accordance with Bell Helicopter Maintenance Manual BHT-212-MM. Retain the access panel mounting hardware.
12. Disconnect and discard all existing RAD ALT RX coax connectors and cables.
13. From the Radar Altimeter Rx Antenna Port, route and terminate RAD ALT RX A Cable Assy (P/N: E212-5015-041) to the GRA 5500 5G External Filter (P/N: 011-06280-00) as shown on Figure 4.
14. Route and terminate the RAD ALT Rx B (P/N: E212-5015-047), and RAD ALT Rx C (P/N: E212-5015-051) Cable Assemblies to the Tailboom Disconnect and Radar Altimeter antenna as shown on Figure 4.
15. Secure and clamp coax in accordance with BHT-ELEC-SPM Chapter 6.
16. Re-install the Rx Radar Altimeter Access Panel on FS 300 using its retained screws in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.

NOTE:

Ensure that the antenna arrows point towards each other (i.e. the forward antenna arrow must point aft and the aft antenna arrow must point forward). If necessary, remove the antenna from the antenna mount and reinstall in the correct orientation.

17. Perform Antenna Bonding Check between access panel and aircraft structure. Resistance between equipment and surrounding aircraft structure not to exceed 2.5 Milliohms. Refer to BHT-ELEC-SPM Chapter 8 for Bonding Procedures.
18. Close out and secure Aft Cargo LHS Door in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.
19. Perform post-modification test procedure in accordance with Section 4.

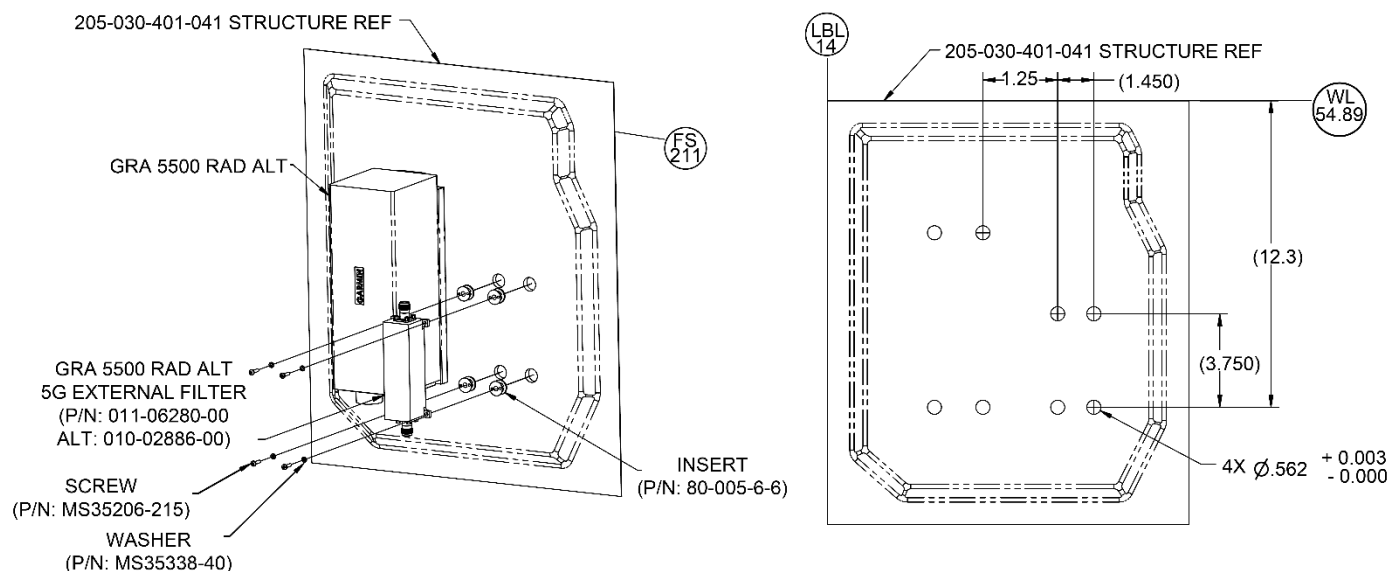


Figure 1 – Radar Altimeter and 5G External Filter Installation

3.2. TBN-212-006-013 Installation Procedure

3.2.1. Garmin GRA 5500 5G External Filter Installation

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

WARNING:

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

2. Gain access to the Aft Cargo LHS Door in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.
3. Locate the Garmin GRA 5500 Radar Altimeter LRU and disconnect the Rx Antenna connector.
4. Install Inserts (P/N: 80-005-6-6) in accordance with BHT-SRM-3-2-12 Application A, in the positions indicated in Figure 1 and using the GRA 5500 5G External Filter to locate the hole pattern.
5. Touch up Primer in accordance with MIL-PRF-23377 Type I Class 2 on surrounding areas of the installation where applicable.
6. Touch up the Paint in accordance with MIL-PRF-85285 Type I Class H or equivalent on surrounding areas of the installation where applicable.
7. Install the GRA 5500 5G External Filter (P/N: 011-06280-00) to the panel as shown in Figure 1.
8. Perform an Electrical Bonding Check to a suitable ground location on the GRA 5500 5G External Filter chassis. Resistance between equipment and surrounding aircraft structure not to exceed 2.5 Milliohms. Refer to BHT-ELEC-SPM Chapter 8 for Bonding Procedures.
9. Close out and secure Aft Cargo LHS Door in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.

3.2.2. Radar Altimeter Antenna Installation

NOTE:

Areas requiring masking shall be masked using tape (C-426) and/or suitable masking devices as required.

1. Locate the Garmin GRA 5500 Radar Altimeter LRU and disconnect the Tx Antenna coax connector.
2. On the Aircraft's Tailboom, locate the existing Radar Altimeter Antennas on FS 280 and FS 300.
3. Remove both Radar Altimeter Access Panels in accordance with Bell Helicopter Maintenance Manual BHT-212-MM. Retain the access panel mounting hardware.
4. Disconnect and discard all existing RAD ALT TX and RAD ALT RX coax connectors and cables.
5. Disassemble the Tx and Rx Radar Altimeter Antennas (P/N: S67-2002), and Antenna Mount Assemblies (P/N: E2006-02-15-041) from the Access Panels. Discard the Access Panels and retain the hardware.
6. On the Aircraft's Aft Tailboom, locate the Access Panels on FS 355 and FS 393. Remove and discard the existing Access Panels but keep all associated hardware.
7. Prepare Access Panels (P/N: E212-1029-101 and E212-1029-103) by drilling antenna holes and perimeter holes as shown in Figure 2 and Figure 3. Perimeter hole locations shall be located to suit existing locations and to ensure 2D ED or greater.
8. Break all sharp edges and remove burrs to the drilled holes.
9. Remove all coatings on access panel under footprint of antenna mount in accordance with BHT-ELEC-SPM Chapter 8 Bonding Procedures.
10. Touch up CCC in accordance with MIL-DTL-5541 Type I Class 3 on surrounding areas of the installation where applicable.
11. Install the Rad Alt Antenna Mount (P/N: E206-02-15-041) and its associated parts that were retained as shown on Figure 2 and Figure 3.
12. Lockwire using Double-Strand .020 Safety Wire Antenna Mount attachment bolt heads in accordance with AC 43.13 1-B paragraph 7-124 or equivalent.
13. Install the Radar Altimeter antennas (P/N: S67-2002), antenna gaskets and O-rings that were previously retained as shown on Figure 2 and Figure 3.

NOTE:

Ensure that the antenna arrows point towards each other (i.e. the forward antenna arrow must point aft and the aft antenna arrow must point forward).

14. Perform Antenna Bonding Check between antenna and access panel. Resistance between equipment and surrounding aircraft structure not to exceed 2.5 Milliohms. Refer to BHT-ELEC-SPM Chapter 8 for Bonding Procedures.

15. Fillet seal around the Antenna and Mount bases using P/N: PR1422B (or equivalent) in accordance with BHT-ELEC-SPM Chapter 8-24.
16. Touch up Primer in accordance with MIL-PRF-23377 Type I Class 2 on surrounding areas of the installation where applicable.

3.2.3. Coax Cables Installation

1. From the Garmin GRA 5500 Radar Altimeter LRU Rx Antenna port, route and terminate RAD ALT Rx A Cable Assy (P/N: E212-5015-041) to the Garmin GRA 5500 Rad Alt 5G External Filter as shown on Figure 5.
2. Route and terminate the RAD ALT Rx B (P/N: E212-5015-047), RAD ALT Rx C (P/N: E212-5015-049), RAD ALT Tx A (P/N: E212-5015-043) and RAD ALT Tx B (P/N: E212-5015-045) Cable Assemblies to the Tailboom Disconnect and Radar Altimeter antennas as shown on Figure 5.
3. Secure and clamp coax in accordance with BHT-ELEC-SPM Chapter 6.
4. Install the Rx Radar Altimeter Access Panel on FS 355 using its retained screws in accordance with Bell Helicopter Maintenance Manual BHT-212-MM and as shown on Figure 2.
5. Install the Tx Radar Altimeter Access Panel on FS 393 using its retained screws in accordance with Bell Helicopter Maintenance Manual BHT-212-MM and as shown on Figure 3.
6. Perform Antenna Bonding Check between access panels and aircraft structure. Resistance between equipment and surrounding aircraft structure not to exceed 2.5 Milliohms. Refer to BHT-ELEC-SPM Chapter 8 for Bonding Procedures.
7. Install replacement Access Panels (P/N: 204-032-836-045) using the retained hardware on locations FS 280 and FS 300 in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.
8. Restore exterior paint scheme using MIL-PRF-85285 Type I Class H (or equivalent) in accordance with BHT-ALL-SPM Chapter 4.

WARNING:
DO NOT PAINT ANTENNA.

9. Close out and secure Aft Cargo LHS Door in accordance with Bell Helicopter Maintenance Manual BHT-212-MM.
10. Perform post-modification test procedure in accordance with Section 4.

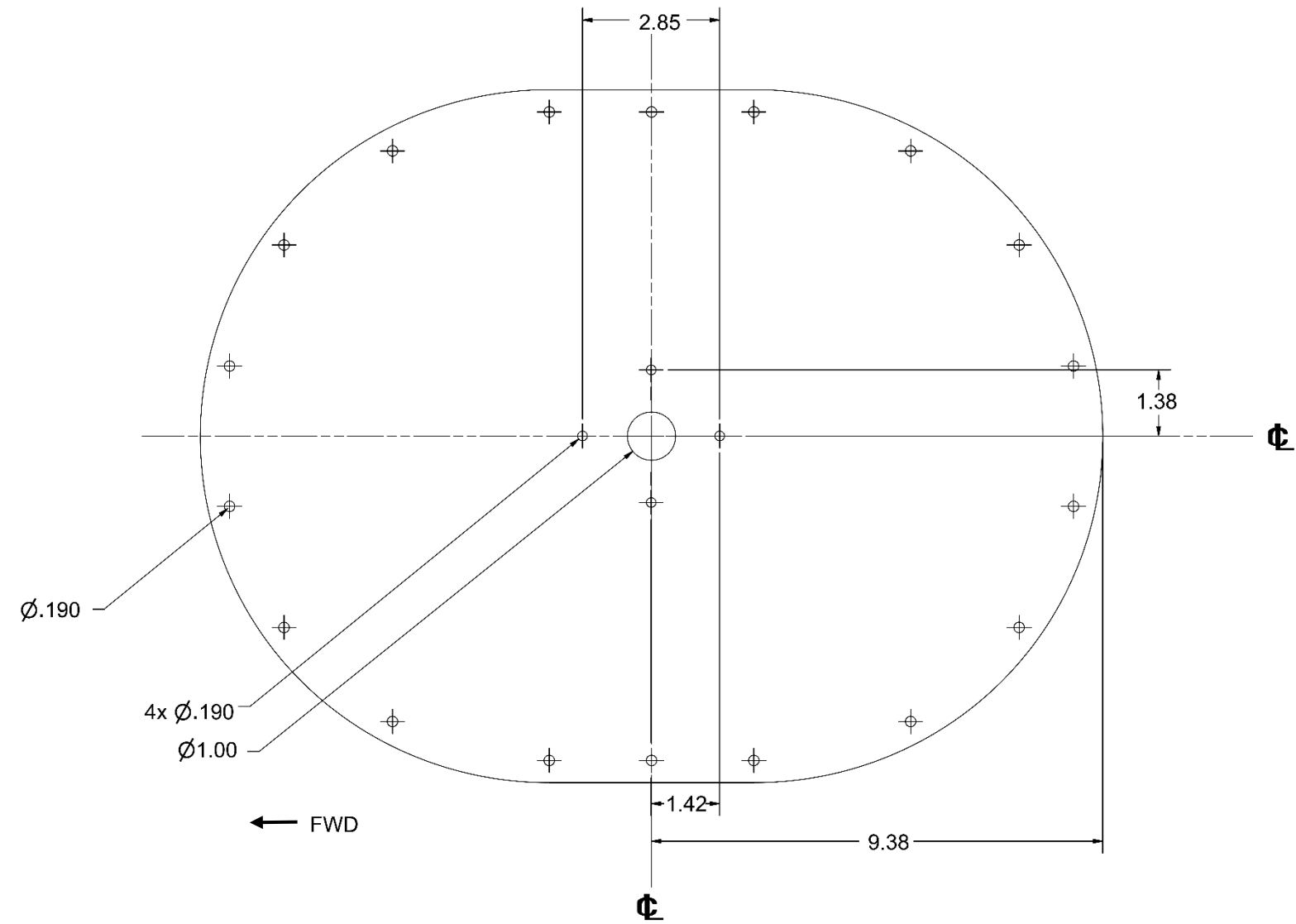
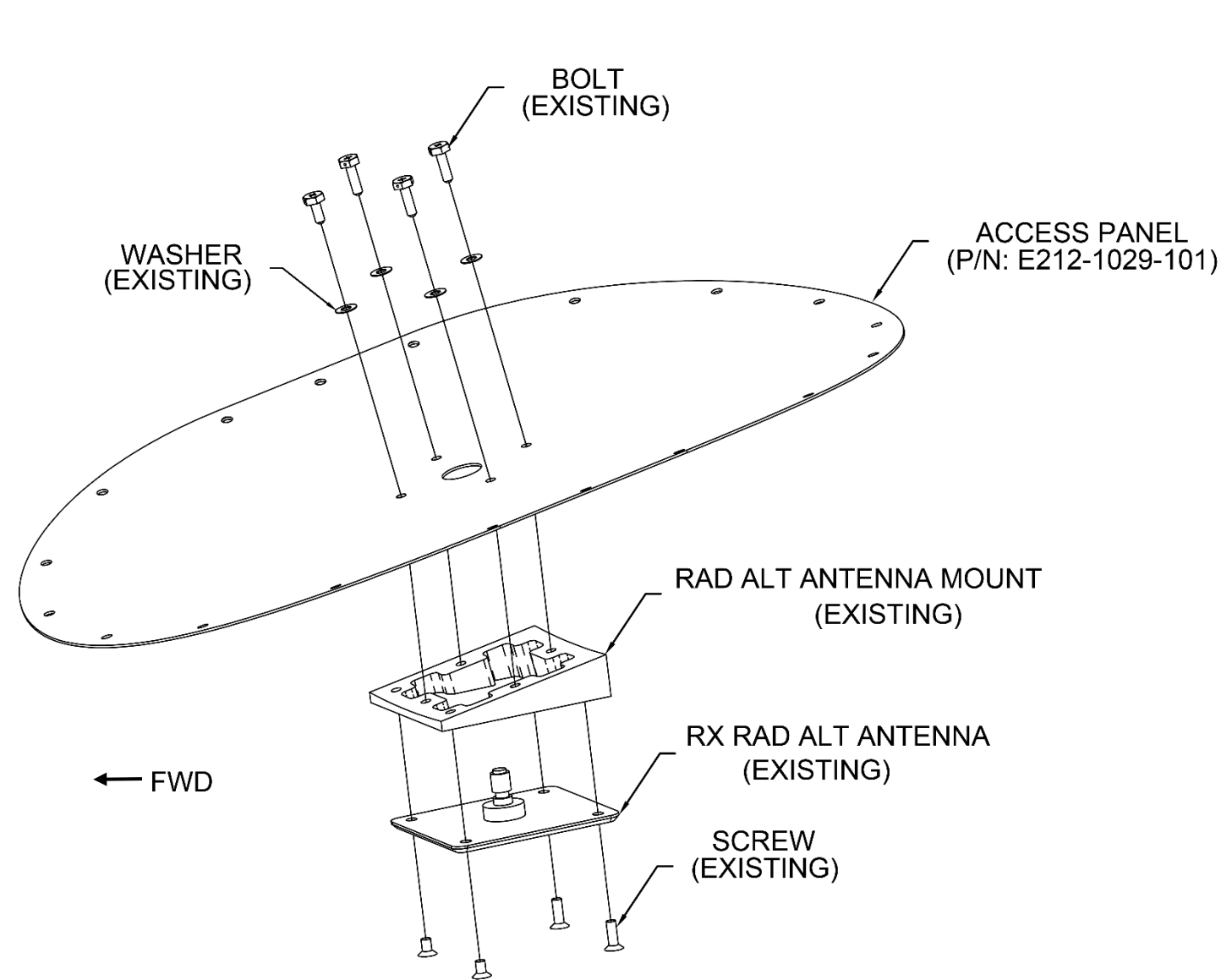


Figure 2 – Rx Radar Altimeter Antenna Installation

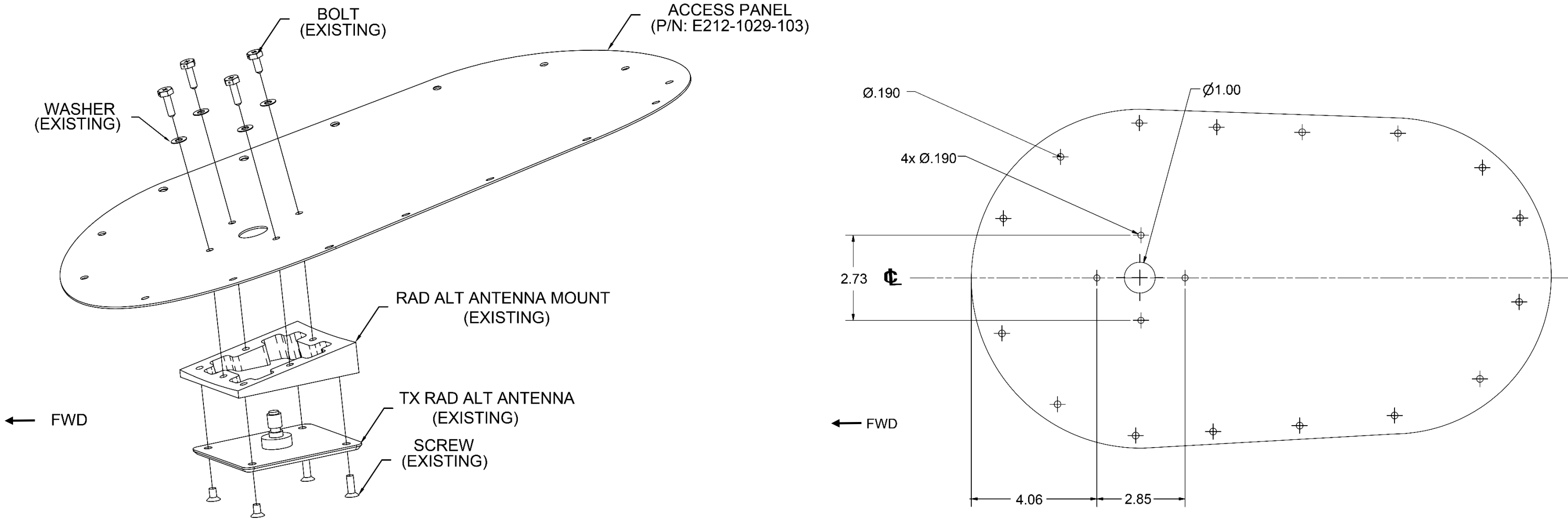
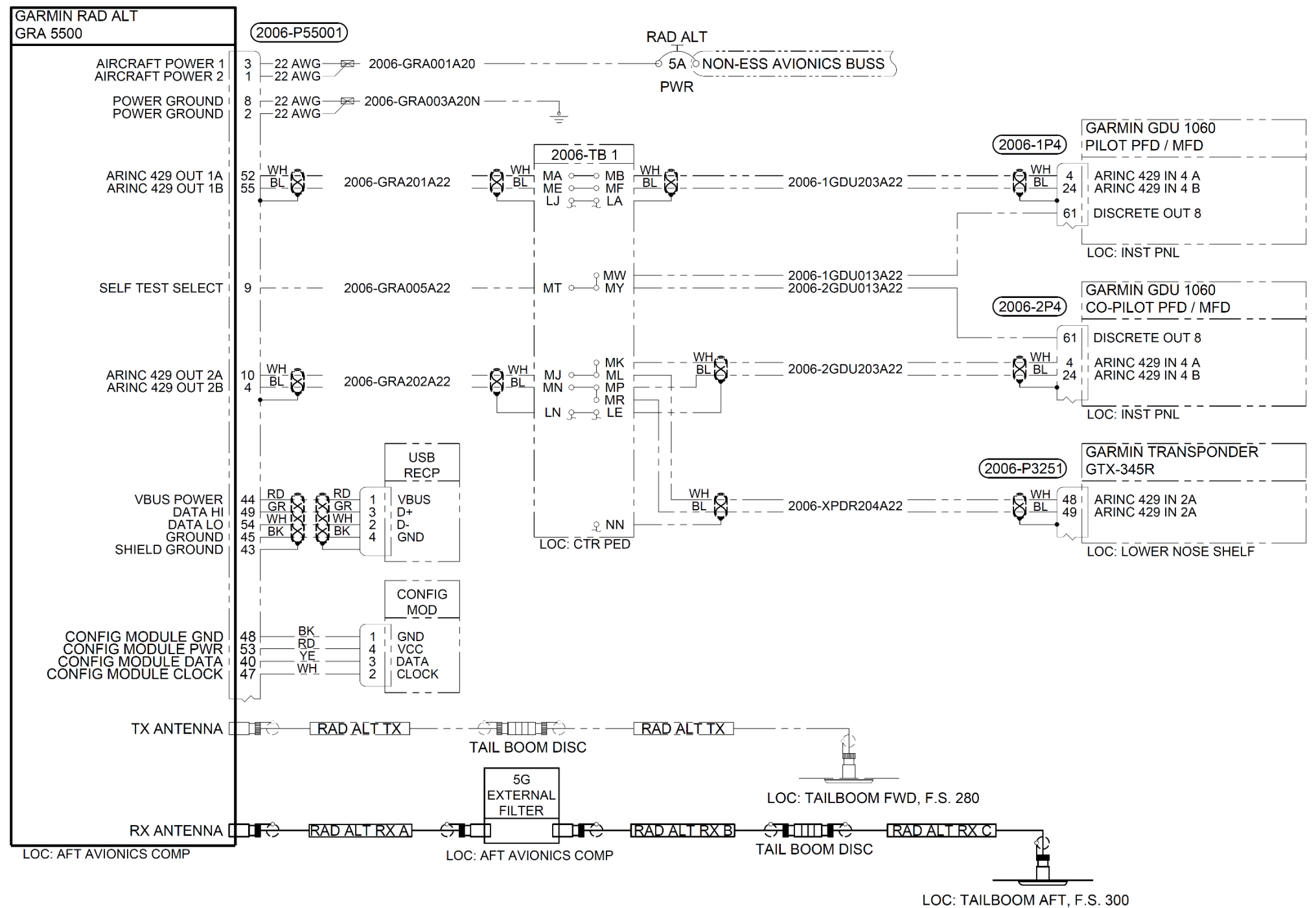


Figure 3 – Tx Radar Altimeter Antenna Installation



1. PERFORM ALL WORK IN ACCORDANCE WITH BELL HELICOPTER STANDARD PRACTICES MANUAL BHT-ELEC-SPM.
2. ALL AIRFRAME GROUNDS SHALL BE VIA AMP LUG OR GROUNDING BLOCK AND PROVIDE SEPARATE GROUND STUD LOCATIONS FOR DC POWER GROUNDS, AC POWER GROUNDS, CHASSIS GROUNDS, SIGNAL GROUNDS AND SHIELD GROUNDS.
3. ALL EQUIPMENT BONDING TO ADJACENT AIRFRAME STRUCTURE TO BE 0.003 OHM OR LESS. ALL ELECTRICAL GROUNDING AND BONDING TO BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 8.
4. ALL CONNECTORS TO BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 5. ENSURE ALL UNUSED CONNECTOR CONTACTS ARE FILLED WITH SPARE PINS/sockets OR PLASTIC GROMMET SEALING PLUGS. ENSURE ALL BULKHEAD MOUNTED CONNECTORS ARE PROPERLY BONDED TO AIRFRAME.
5. ROUTE ALL WIRES AND CABLES WITH EXISTING WIRE ROUTES WHERE POSSIBLE AND CLAMP IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 6. WIRES MUST BE ROUTED WITH A MINIMUM OF 6 INCHES OF SEPARATION FROM OXYGEN AND FLUID LINES (MIN 2 INCHES IF WIRES IN CONDUIT).
6. THE CUMULATIVE COAX CABLE LENGTH BETWEEN LRU AND ANTENNA NOT TO EXCEED 30 FT.
7. PART NUMBER MENTIONED BELOW FOR 5G EXTERNAL FILTER IS THE PRIMARY VENDOR P/N STATED BY GARMIN. UNIT MAY ALSO BE IDENTIFIED AS GARMIN P/N 010-02886-00.

Reference Designator	Part Number	Description
-	011-06280-00	GRA 5500 5G External Filter
-	E212-5015-041	Rad Alt Rx A Cable Assy
-	E212-5015-047	Rad Alt Rx B Cable Assy
-	E212-5015-051	Rad Alt Rx C Cable Assy



-011 GRA 5500 RAD ALT W/ 5G EXTERNAL FILTER

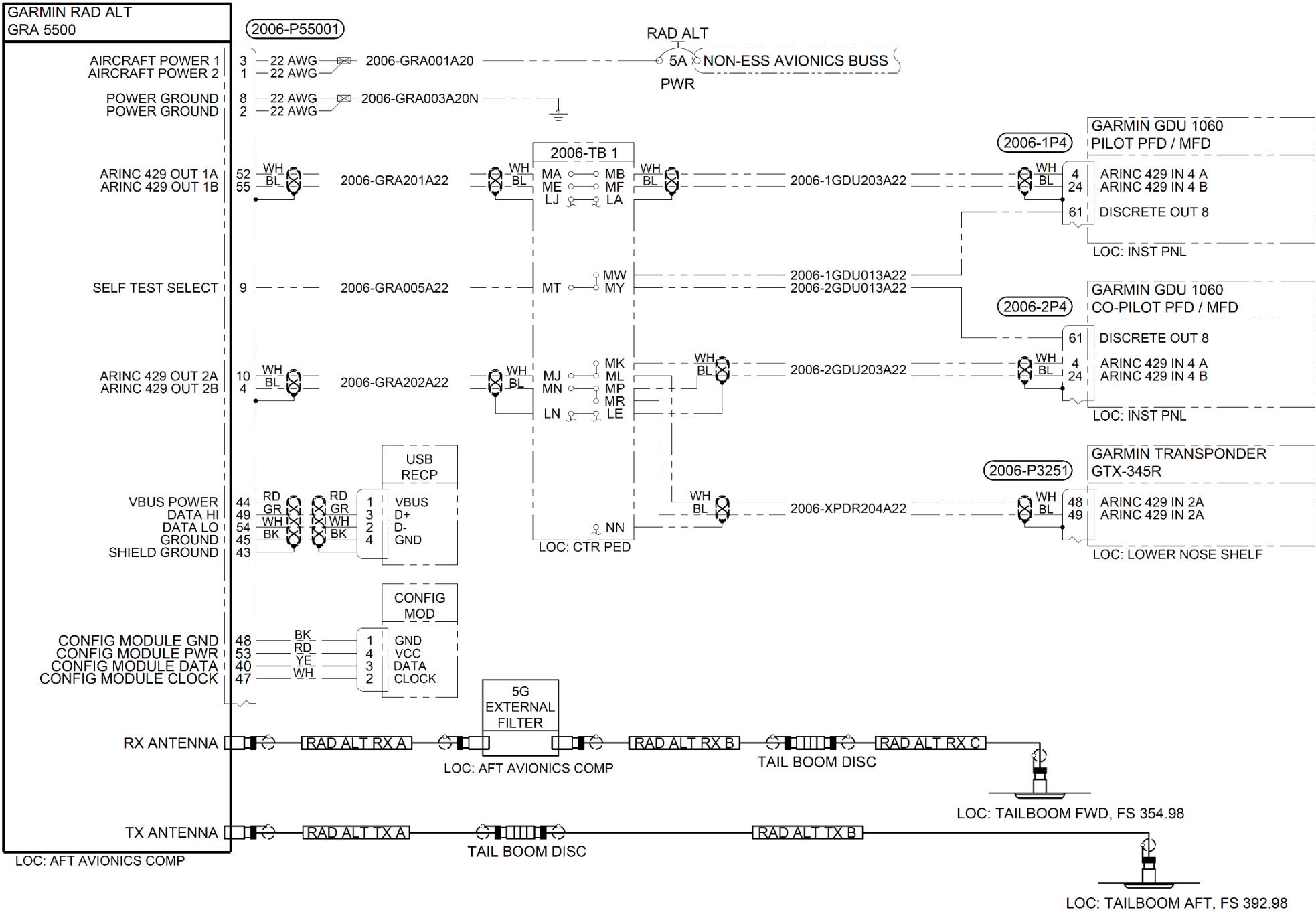
Figure 4 – TBN-212-006-011 Wiring Diagram

_____ NEW WIRE / UNIT
----- EXISTING WIRE / UNIT

NOTES:

- PERFORM ALL WORK IN ACCORDANCE WITH BELL HELICOPTER STANDARD PRACTICES MANUAL BHT-ELEC-SPM.
- ALL AIRFRAME GROUNDS SHALL BE VIA AMP LUG OR GROUNDING BLOCK AND PROVIDE SEPARATE GROUND STUD LOCATIONS FOR DC POWER GROUNDS, AC POWER GROUNDS, CHASSIS GROUNDS, SIGNAL GROUNDS AND SHIELD GROUNDS.
- ALL EQUIPMENT BONDING TO ADJACENT AIRFRAME STRUCTURE TO BE 0.003 OHM OR LESS. ALL ELECTRICAL GROUNDING AND BONDING TO BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 8.
- ALL CONNECTORS TO BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 5. ENSURE ALL UNUSED CONNECTOR CONTACTS ARE FILLED WITH SPARE PINS/SOCKETS OR PLASTIC GROMMET SEALING PLUGS. ENSURE ALL BULKHEAD MOUNTED CONNECTORS ARE PROPERLY BONDED TO AIRFRAME.
- ROUTE ALL WIRES AND CABLES WITH EXISTING WIRE ROUTES WHERE POSSIBLE AND CLAMP IN ACCORDANCE WITH THE LATEST REVISION OF BHT-ELEC-SPM CHAPTER 6. WIRES MUST BE ROUTED WITH A MINIMUM OF 6 INCHES OF SEPARATION FROM OXYGEN AND FLUID LINES (MIN 2 INCHES IF WIRES IN CONDUIT).
- THE CUMULATIVE COAX CABLE LENGTH BETWEEN LRU AND ANTENNA NOT TO EXCEED 30 FT.
- PART NUMBER MENTIONED BELOW FOR 5G EXTERNAL FILTER IS THE PRIMARY VENDOR P/N STATED BY GARMIN. UNIT MAY ALSO BE IDENTIFIED AS GARMIN P/N 010-02886-00.

Reference Designator	Part Number	Description
-	011-06280-00	5G External Filter
-	E212-5015-041	Rad Alt Rx A Cable Assy
-	E212-5015-043	Rad Alt Tx A Cable Assy
-	E212-5015-045	Rad Alt Tx B Cable Assy
-	E212-5015-047	Rad Alt Rx B Cable Assy
-	E212-5015-049	Rad Alt Rx C Cable Assy



-013 GRA 5500 RAD ALT W/ 5G EXTERNAL FILTER & ANTENNA RELOCATION

Figure 5 – TBN-212-006-013 Wiring Diagram

4. Post-Modification Test Procedure

1. Ensure that the 'RAD ALT PWR' circuit breaker on the Non-Essential Avionics Bus is pulled and collared.
2. Ensure that all new installations and connections are properly installed and secured.
3. Connect ground power and turn on aircraft power in accordance with ICA-D212-725.

WARNING:

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

4. Perform a ground bonding check. Record the measurements to airframe ground in Table 9 below.

LRU Point	Ground Point	Measurement	Pass/Fail
Suitable ground location on the GRA 5500 LRU	Airframe ground on or near the instrument panel	3 milliohms (< 0.003Ω)	Resistance: _____Ω Pass: <input type="checkbox"/> Fail: <input type="checkbox"/> Initial: _____
Suitable ground location on the Rad Alt S67-2002 Antenna Rx	Airframe ground on or near the instrument panel	3 milliohms (< 0.003Ω)	Resistance: _____Ω Pass: <input type="checkbox"/> Fail: <input type="checkbox"/> Initial: _____
Suitable ground location on the Rad Alt S67-2002 Antenna Tx	Airframe ground on or near the instrument panel	3 milliohms (< 0.003Ω)	Resistance: _____Ω Pass: <input type="checkbox"/> Fail: <input type="checkbox"/> Initial: _____
Suitable ground location on the GRA 5500 5G External Filter chassis	Airframe ground on or near the instrument panel	3 milliohms (< 0.003Ω)	Resistance: _____Ω Pass: <input type="checkbox"/> Fail: <input type="checkbox"/> Initial: _____

Table 9 – Bonding Check Results

NOTE:

On the following steps below, the helicopter must be on a hard, flat surface and away from buildings or other metal structures that may affect the radar signal and in normal ground run operation at ground idle.

Prior to completing the zero-foot calibration procedure for the first time on an individual GRA 5500 unit, the status of the GRA 5500 should indicate "fail" and a calibration fault should be annunciated. This is normal operation and is used to indicate that a valid zero-foot calibration has not yet occurred.

5. Connect the P.C. (Personal Computer) to the GRA 5500 Radar Altimeter USB Receptacle using the USB-A Plug to USB-B Plug Cable.
6. Start engine in accordance with FMS-D212-725-1.
7. Power up all the Avionics System.
8. Start and launch the GRA 5500/55 Retrofit Installation Tool from the provided "Start Menu" shortcut on you P.C. (Personal Computer).
9. Remove the collar and push in the 'RAD ALT PWR' circuit breaker.

10. Ensure that the connection status in the lower, right-hand corner of the GRA 5500/55 Retrofit Installation Tool will transition from "Not Connected," to "Connected".

NOTE:

If the GRA 5500/55 Retrofit Installation Tool does not display "Connected" in the lower, right-hand corner, check the GRA 5500 Installation Manual 190-01277-00.

11. Select the "Status Tab" and verify that the Calibration Active Faults: Zero-Foot Cal is being displayed.
12. Select the "Initiate Calibration Procedure" on the status tab.
13. Ensure that the progress report is being displayed next to the "Initiate Calibration Procedure" button.
14. Once the calibration procedure has completed, the text display "Calibration Complete" and the status tab will be updated.
15. Ensure that the fault list on the status tab does not annunciate any faults and the information displayed in the status bar area indicates "0 ft" and "Normal" indicating a successful calibration process.

NOTE:

The GRA 5500 Radar Altimeters provides an automated self-test during power cycles; therefore, no pilot-initiated self-test is required.

16. On the GDU 1060 PFD, ensure that an amber "RA FAIL" is not present and the RA Value displays "0 ft" after the self-test is complete.
17. Disconnect the USB connection from the GRA 5500 Radar Altimeter USB Receptacle.
18. Ensure that all avionics systems, communications systems, and aircraft instruments are in a serviceable condition.

The objective of the Electromagnetic Compatibility test (EMC) is to ensure there is no Electromagnetic Interference (EMI) by observing the operation of the aircraft systems and recording the results.

The test procedure will be conducted as follows:

- a. Ensure all systems are installed and functioning correctly. The ground testing 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 10 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 (ex. turn equipment on and off and adjust any user interfaces).

For the specific VHF COMM tests, open the squelch of the VHF COMM #1 and VHF COMM #2 receiver and tune it to each frequency listed below (low / mid / high) and sample various combinations of MHz / KHz frequencies across the band. Change the frequency between 118.000 to 135.975 (or 136.975 if equipped), by increasing the

whole MHz and next KHz selection (ex. 118.000, 119.025, 120.050, 121.075, 122.100, 123.200 ... 131.975, 132.000, 133.250, 134.500, 135.975). Listen for any potential interference caused by the newly installed units.

If interference is noticed, pull the suspected system circuit breakers to verify that the suspected system is the source.

NOTE: If other radio systems that can be channeled through a frequency band are installed, they should be tested in a similar manner to the VHF COMM (for example VHF NAV receivers and certain VHF FM transceivers). If a radio system is preprogrammed and only able to be tuned to pre-defined channels, test the low, middle and high bands of the available frequencies as best as possible.

- d. Using engine driven generators as the power source, complete testing of any systems that could not be tested on ground power (ex. 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.

NOTE:

SHUTDOWN ENGINE IN ACCORDANCE WITH FMS-D212-725-1.

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

Aircraft Systems	EMI Source Radar Altimeter		EMI Victim Radar Altimeter		Notes
	YES	NO	YES	NO	
VHF COMM 1 tuned to 118.000 MHz					
VHF COMM 1 tuned to 127.500 MHz					
VHF COMM 1 tuned to 135.975 MHz					
VHF COMM 2 tuned to 118.000 MHz					
VHF COMM 2 tuned to 127.500 MHz					
VHF COMM 2 tuned to 135.975 MHz					
NAV (VOR/ILS) No. 1 tuned to 108.000 MHz					
NAV (VOR/ILS) No. 1 tuned to 108.100 MHz					
NAV (VOR/ILS) No. 1 tuned to 113.500 MHz					
NAV (VOR/ILS) No. 1 tuned to 117.975 MHz					
NAV (VOR/ILS) No. 2 tuned to 108.000 MHz					
NAV (VOR/ILS) No. 2 tuned to 108.100 MHz					
NAV (VOR/ILS) No. 2 tuned to 113.500 MHz					
NAV (VOR/ILS) No. 2 tuned to 117.975 MHz					
FM No. 1 (low frequency, record in notes)					
FM No. 1 (mid frequency, record in notes)					
FM No. 1 (high frequency, record in notes)					
FM No. 2 (low frequency, record in notes)					
FM No. 2 (mid frequency, record in notes)					
FM No. 2 (high frequency, record in notes)					
FM No. 3 (low frequency, record in notes)					
FM No. 3 (mid frequency, record in notes)					
GPS No. 1					
GPS No. 2					
Pilot Audio					
Co-pilot (TFO) Audio					
Public Address System					
Pilot PFD / MFD					
Co-pilot PFD / MFD					
Pilot Standby Instrument					
Co-pilot Standby Instrument					
Standby Compass					
Traffic Collision Avoidance System (TCAS I)					
Radio Altimeter					
Transponder					
DME					
Generator / Inverter					
Strobe Lights					
Interior Lights					
Pumps / Motors					
Dual Tach (Engine / Rotor RPM) Indicator					
Torquemeter Indicator					
Gas Producer (Ng) Tach Indicator					
MGT Indicator					
Fuel Quantity Indicator					
Engine Oil Temp and Pressure Indicator					
DC Volt / Ammeter Indicator					
Hydraulic Fluid Temp and Pressure Indicator					

Aircraft Systems	EMI Source Radar Altimeter		EMI Victim Radar Altimeter		Notes
	YES	NO	YES	NO	
Transmission Oil Temp and Pressure Ind.					
Fuel Pressure Indicator					
Landing Light					
Search Light					
Others:					

Table 10 – EMI / EMC Check Sheet

5. Aircraft Record Set Update and Eagle Notification

1. Make an entry in the aircraft record set that TBN-212-006 has been incorporated, as applicable.
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-212-006 Revision A has been incorporated by emailing the below information to customersupport@eaglecopters.com:

Aircraft Serial Number

Aircraft Owner

Date Incorporated

Configuration Incorporated