



ICA-E212-2006

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## Instructions for Continued Airworthiness

**ICA-E212-2006**

# ***Eagle Single Avionics Upgrade***




BELL 212 MODELS MODIFIED BY TCCA SH07-28 (FAA STC SR02831NY)

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## CHAPTER 01 – INTRODUCTION (01-00-00)

### 1.1 Scope

This manual provides the requirements outlined in Appendix A of AWM Chapter 529 / FAA Part 29 for the Instructions for Continued Airworthiness for the Eagle Single Avionics Upgrade. This manual must be used in conjunction with the Eagle Single ICA-D212-725.

### 1.2 Description

The Eagle Single helicopter is a single engine conversion, the Honeywell T5317A/B/BCV engine, of the twin engine Bell 212, approved under TCCA STC SH07-28 (ref. FAA STC SR02831NY). The installation of the Avionics Upgrade consists of the following equipment integrated with the existing airframe and equipment:

- Garmin G500H TXi PFD / MFD Installation consisting of:
  - Instrument Panel (Qty 1)
  - Instrument Panel Overlay (Qty 1)
  - Garmin GDU 1060 PFD/MFD (Qty 2)
  - Garmin GSU 75H ADAHRS (Qty 2)
  - Mid-Continent MD 302 Series Standby Attitude Module (SAM) (Qty 2)
  
- Garmin GI 275 Multi-Functional Display Installation consisting of:
  - Instrument Panel (Qty 1)
  - Instrument Panel Overlay (Qty 1)
  - Garmin GI 275 ADAHRS ADI (Qty 2)
  - Garmin GI 275 HSI (Qty 2)
  
- Garmin Sensors Installation consisting of:
  - Garmin GMU 44/44B Magnetometer (Qty 2)
  - Garmin GTP 59 OAT Sensor (Qty 2)
  
- Garmin GPS / NAV / COMM Installation consisting of:
  - Garmin GTN 750H Xi GPS/COM/NAV (Qty 1)
  - Garmin GTN 650H/750H Xi GPS/COM/NAV (Qty 1)
  - Comant CI-2480-200 VHF/GPS Antenna (Qty 1)
  - Comant CI-292-2 COMM Antenna (Qty 1)
  - Garmin GA 35 GPS Antenna (Qty 1)
  - Centre Pedestal Modification (optional)
  
- Garmin Transponder Installation consisting of:
  - Garmin GTX 345R Transponder (Qty 1)
  - Comant CI-105 Transponder Antenna (Qty 1)
  
- Garmin TCAS I Installation consisting of:
  - Garmin GTS 855 TCAS I System (Qty 1)
  - Garmin GA58 TCAS Antenna (Qty 2)

- Garmin RADAR Altimeter Installation consisting of:
  - Garmin GRA 5500 RADAR Altimeter System (Qty 1)
  - Sensor System S67-2002 RAD ALT Antenna (Qty 2)
  - Garmin GRA 5500 5G External Filter (Qty 1)
  
- Bendix King DME Installation consisting of:
  - Bendix King KN 63 DME System (Qty 1)
  - Garmin GAD 43e Adapter (Qty 1)
  - Comant CI-105-16 DME Antenna (Qty 1)
  
- Garmin GDL 69AH SXM Installation consisting of:
  - Garmin GDL 69AH SXM System (Qty 1)
  - Garmin GA55 XM Antenna (Qty 1)
  
- Rugged HD-19 Video Camera Installation Provisions consisting of:
  - AJA HD5DA Splitter Distribution Amplifier (Qty 2)
  - True Blue Power DC to DC Converter (Qty 1)

### 1.3 Distribution

This manual is provided to each operator at incorporation of modification. Changes to this manual are made available to operators and maintainers by electronic means.

As a rule, Airworthiness Directives (ADs) that apply to the BHT 212 rotorcraft continue to apply to the Eagle Single with these modifications incorporated unless the part or equipment that they reference has been removed as part of the modification. If confusion regarding the applicability exists when new Eagle Single series ADs are issued, the operator/maintainer should refer to ADR-D212-725 and/or contact Eagle Copters for clarification.

### 1.4 Implementation and Record Keeping

Modification of a rotorcraft by this STC obligates the rotorcraft operator to include the maintenance information provided by this document in the operator's aircraft maintenance manual and/or the operator's rotorcraft scheduled maintenance program.

### 1.5 Fastener Torque

Following initial installation, per Installation Instructions IIN-E212-2006, these components can be easily removed and re-installed depending on operational requirements. An appropriately approved person certified to carry out maintenance should perform this task. Torques are specified as either standard or special within IIN-E212-2006. Standard torque values for various type fasteners will be found in BHT-ALL-SPM. Where applicable, special torques are specified within the text (or on illustrations) within IIN-E212-2006.

### 1.6 Configurations

Following initial installation, per Installation Instructions IIN-E212-2006, these components can be easily removed and re-installed depending on operational requirements. An appropriately approved person certified to carry out maintenance should perform this task. Equipment Configurations are specified within IIN-E212-2006.

If re-installing a previously configured LRU, verify that the configuration has not been altered since removal.

If installing a new LRU, configure the unit IAW IIN-E212-2006 Section 5 using the applicable paragraphs.

## **CHAPTER 04 – AIRWORTHINESS LIMITATIONS (04-00-00)**

### General

There are no Airworthiness Limitations associated with this type design change.

### TCCA Approval

The Airworthiness Limitations section is approved by the Minister, and specifies maintenance required by any applicable airworthiness or operating rule, unless an alternative program has been approved by the Minister.

### FAA Approval

The Airworthiness Limitations section is FAA approved, and specifies maintenance required under Section 43.16 and 91.403 of the Federal Aviation Regulations, unless an alternative program has been FAA approved.

### EASA Approval (if applicable)

The Airworthiness Limitations Section is approved and variations must also be approved.

## CHAPTER 05 – INSPECTIONS AND COMPONENT OVERHAUL SCHEDULE (05-00-00)

### 5.1 100 Hour (12 Month Inspection)

(To be performed every 100 hours or 12 months, to coincide with the airframe inspection or if damage is found on the Daily Inspection)

**NOTE:** For the convenience of scheduling maintenance, the tolerance for scheduled inspection intervals is  $\pm 10\%$  ( $\pm 15$  hours or  $\pm 1$  month). In each case, the subsequent interval will be adjusted to re-establish the original schedule. When an inspection is done more than 10% early, subsequent inspections will be advanced as required not to exceed the maximum tolerance. Concurrence and final approval of the inspection interval tolerance by the governing civil aviation authority is the responsibility of the owner/operator.

Perform the inspections outlined in the following table and replace unserviceable parts and/or components per Chapter 95 or 97 as applicable.

<b>GARMIN G500H TXi PFD / MFD Installation</b>	
Instrument Panel	<ul style="list-style-type: none"> <li>a) Visually inspect the instrument panel, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration. <sup>[1]</sup></li> <li>b) Check operation of panel switches, panel backlighting, and displays. Confirm legends are clean and readable.</li> <li>c) Check equipment bonding to the airframe.</li> </ul>
Garmin GDU 1060 PFD / MFD	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GSU 75H ADAHRS	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> <li>e) Follow the pitot static system inspect schedule and process in accordance with ICA-D212-725 Chapter 5 and Chapter 95.</li> </ul>
Mid-Continent MD 302 Standby Attitude Module	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> <li>e) Follow the pitot static system inspect schedule and process in accordance with ICA-D212-725 Chapter 5 and Chapter 95.</li> </ul>

<b>GARMIN GI 275 Multi-Functional Display Installation</b>	
Instrument Panel	<ul style="list-style-type: none"> <li>a) Visually inspect the instrument panel, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration. <sup>[1]</sup></li> <li>b) Check operation of panel switches, panel backlighting, and displays. Confirm legends are clean and readable.</li> <li>c) Check equipment bonding to the airframe.</li> </ul>
Garmin GI 275 ADAHRS ADI	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> <li>e) Follow the pitot static system inspection schedule and process in accordance with ICA-D212-725 Chapter 5 and Chapter 95.</li> </ul>
Garmin GI 275 HSI	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
<b>GARMIN Sensors Installation</b>	
Garmin GMU 44/44B Magnetometer	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GTP 59 OAT Sensor	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
<b>Garmin GPS / NAV / COMM Installation</b>	
Garmin GTN 750H Xi GPS/COM/NAV	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GTN 650H/750H Xi GPS/COM/NAV	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Centre Pedestal Modification	<ul style="list-style-type: none"> <li>a) Visually inspect the Center Pedestal Modification, including the Riser Panel Assembly, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration. <sup>[1]</sup></li> </ul>
Comant CI-2480-200 VHF/GPS Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
Comant CI-292-2 COMM Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> </ul>

	<ul style="list-style-type: none"> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
Garmin GA 35 GPS Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
Tail Rotor Gearbox GPS Bracket	<ul style="list-style-type: none"> <li>a) Visually inspect the bracket, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration. [1]</li> <li>b) Check bracket bonding to the airframe.</li> </ul>
<b>Garmin Transponder Installation</b>	
Garmin GTX 345R Transponder	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Comant CI-105 Transponder Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
<b>Garmin TCAS I Installation</b>	
Garmin GTS 855 TCAS	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GA 58 Directional TCAS Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
<b>Garmin RADAR Altimeter Installation</b>	
Garmin GRA 5500 RADAR Altimeter System	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Sensor System S67-2002 RAD ALT Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
E2006-02-15 RAD ALT Mount	<ul style="list-style-type: none"> <li>a) Visually inspect the mount, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration. [1]</li> <li>b) Check mount bonding to the airframe.</li> </ul>

E2006-01-12-3 RAD ALT 5G External Filter	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine coax cables for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
<b>DME Installation</b>	
Bendix King KN 63 DME System	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GAD 43e Adapter	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine coax cables for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Comant CI-105-16 DME Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
<b>GDL-69AH SXM Installation</b>	
Garmin GDL 69AH SXM Receiver	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
Garmin GA 55 XM Antenna	<ul style="list-style-type: none"> <li>a) Inspect the antenna for proper installation and condition of the sealant around the antenna.</li> <li>b) Perform a visual inspection of the surrounding structure. Check for damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration of the skin structure.</li> <li>c) Check antenna coaxial connectors for signs of corrosion and verify securely connected.</li> <li>d) Check antenna bonding to the airframe.</li> </ul>
<b>Rugged HD-19 Video Camera Provisions Installation</b>	
AJA HD5DA Splitter Distributor Amplifier	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>
True Blue Power DC to DC Converter	<ul style="list-style-type: none"> <li>a) Visually inspect the equipment, mounting hardware and surrounding structure for installation security and damage such as fastener deterioration, cracks, corrosion, paint exfoliation, and other signs of structural deterioration.</li> <li>b) Check the equipment and external connectors for damage, corrosion, and correct installation.</li> <li>c) Examine electrical wiring harness and circuit breaker for condition and correct installation and any evidence of damage, fraying, chafing, overheating, damage, or corrosion.</li> <li>d) Check equipment bonding to the airframe.</li> </ul>

<sup>[1]</sup> If cracked, the Instrument Panel, GPS Bracket, RAD ALT Mount or Riser Panel, should be replaced. Blend out scratches, nicks, corrosion damage to a depth of 0.020" (0.5 mm) using 400 grit sandpaper. Touch up finish with Alodine per MIL-DTL-5541, apply primer per MIL-PRF-23377 and touch up paint finish per Aircraft Maintenance Manual.

## CHAPTER 08 – WEIGHING AND BALANCE (08-00-00)

Table 8-1 – Weight and Balance

**NOTE:** The following table shows the weight increase associated with each of the E2006 Installations. All weights are net, except where indicated by “\*”.

Item	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
Garmin G500H TXi PFD / MFD Installation*	22.60	0	0	44.33	1001.86
Garmin GI 275 ADAHRS ADI and GI 275 HSI*	9.54	0	0	44.33	422.91
Garmin GPS / NAV / COMM Installation	20.37	-0.47	-9.57	73.99	1507.18
Garmin Transponder Installation	3.75	8.69	32.59	20.93	78.49
Garmin TCAS I Installation	15.15	-5.78	-87.57	17.28	261.79
Garmin RADAR Altimeter Installation	4.20	22.02	92.48	220.93	927.91
Garmin RADAR Altimeter with 5G External Filter and FWD Antenna Location	5.39	18.94	102.09	222.22	1197.76
Garmin RADAR Altimeter with 5G External Filter and AFT Antenna Location	6.67	15.31	102.12	245.69	1638.75
DME Installation	5.89	3.31	19.49	14.62	86.11
Garmin GDL 69AH SXM Receiver Installation	4.27	10.50	43.83	11.50	49.10
Rugged Video HD19 Provisions Installation	3.29	-7.50	-24.67	8.50	27.96
Centre Pedestal Modification	.32	0	0	25.63	8.20

\* Weights indicated are gross weight increases. Subtract the weight of the removed parts to determine the net weight change.

**NOTE:** Garmin GMU 44/44B Magnetometer and GTP 59 OAT Sensor are part of G500H or GI 275 installation.

## CHAPTER 11 – PLACARDS AND MARKINGS (11-00-00)

### 11.1 GPS / NAV / COMM Placard

The following Placard (P-TOUCH Label or equivalent) is installed on the instrument panel within clear sight of the pilot, where space permits:



Figure 11-1 – Instrument Panel Placard

## CHAPTER 95 – INSTRUMENT SYSTEM (95-00-00)

### 95.1 Garmin G500H TXi PFD / MFD Installation

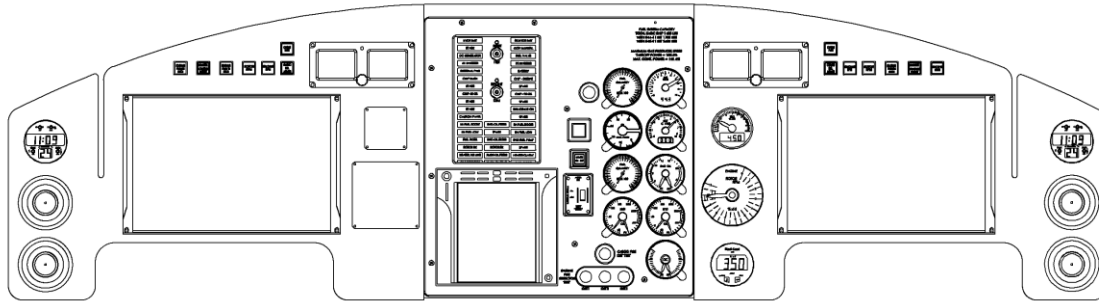


Figure 95-1 – Instrument Panel Installation (E2006-01-1-1).

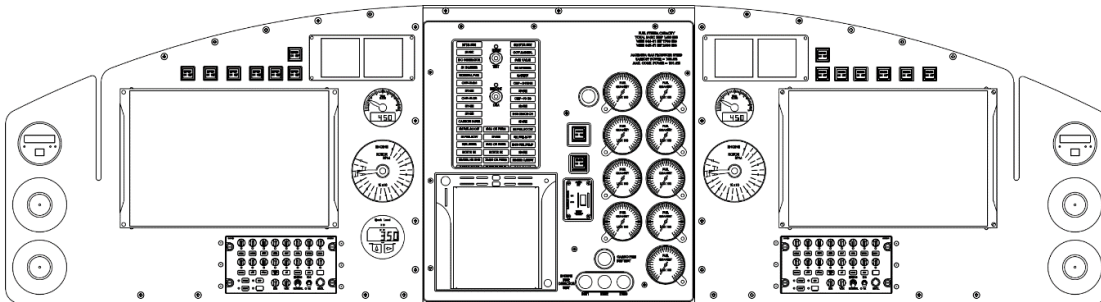


Figure 95-2 – Instrument Panel Installation (E2006-01-1-3).

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 95-1 – Instrument Panel Equipment

Item	Description	PN (E2006-01-1-1)	PN (E2006-01-1-3)
1	Instrument Panel Assembly	E2006-02-1-041	E2006-02-1-043
2	Garmin GDU 1060 PFD / MFD	011-03308-20 ALT: 011-03308-22	011-03308-20 ALT: 011-03308-22
3	Garmin GTN 750H Xi GPS / COMM / NAV	011-04634-00	011-04634-00
4	Mid-Continent MD 302 SAM	6420302-7	6420302-7
5	Overlay	E2006-03-1-001	E2006-03-1-001

## 95.1.1 Instrument Panel – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-1 Instrument Panel Installation  
E2006-02-1 Instrument Panel Assembly  
E2006-03-1 Instrument Panel Overlay  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Remove the required LRUs from the Instrument Panel Assy (PN: E2006-02-1-041 or PN: E2006-02-1-043) using the information found in sections 97.1, 97.2, ICA-D212-725 Section 97 and BHT-212-MM.
- b. Remove and retain attachment fasteners.
- c. Remove Instrument Panel Assy (PN: E2006-02-1-041 or PN: E2006-02-1-043). Retain hardware.

#### F.2 Installation

- a. Install Instrument Panel (PN: E2006-02-1-041 or PN: E2006-02-1-043) using existing installation mounting provisions with retained hardware per E2006-01-1 drawing. Torque IAW Section 1.5.
- b. Install the required LRUs to the Instrument Panel using the information found in sections 97.1, 97.2 ICA-D212-725 Section 97 and BHT-212-MM.
- c. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.

## 95.2 Garmin GI 275 Multi-Functional Display Installation

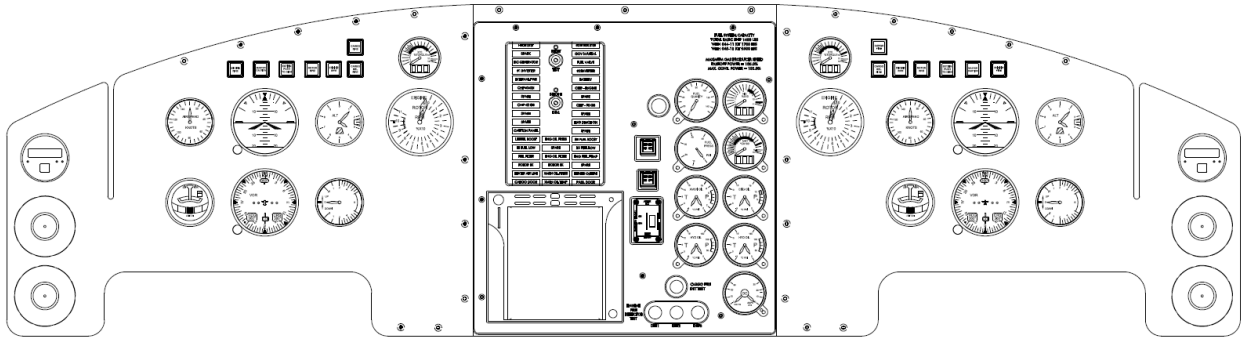


Figure 95-3 - Instrument Panel Installation (E2006-01-1-5).

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 95-2 – Instrument Panel Equipment		
Item	Description	PN (E2006-01-1-5)
1	Instrument Panel Assembly	E2006-02-1-045
2	Garmin GI 275 ADAHRS ADI	011-04489-30
3	Garmin GI 275 HSI	011-04489-00
4	Garmin GTN 750H Xi GPS / COMM / NAV	011-04634-00
5	Overlay	E2006-03-1-003

## 95.2.1 Instrument Panel – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-1 Instrument Panel Installation  
E2006-02-1 Instrument Panel Assembly  
E2006-03-1 Instrument Panel Overlay  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Remove the required LRUs from the Instrument Panel Assy (PN: E2006-02-1-045) using the information found in sections 97.1, 97.2, ICA-D212-725 Section 97 and BHT-212-MM.
- b. Remove and retain attachment fasteners.
- c. Remove Instrument Panel Assy (PN: E2006-02-1-045). Retain hardware.

#### F.2 Installation

- a. Install Instrument Panel (PN: E2006-02-1-045) using existing installation mounting provisions with retained hardware per E2006-01-1 drawing. Torque IAW Section 1.5.
- b. Install the required LRUs to the Instrument Panel using the information found in sections 97.1, 97.2 ICA-D212-725 Section 97 and BHT-212-MM.
- c. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.

## CHAPTER 97 – AVIONICS (97-00-00)

### 97.1 Garmin G500H TXi PFD / MFD Installation

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

**CAUTION:** IF OPERATION OF THE G500H TXI IS REQUIRED FOR MAINTENANCE WHEN THE CABIN TEMPERATURE IS BELOW -20°C, THE CABIN TEMPERATURE MUST BE RAISED ABOVE -20°C BEFORE OPERATING THE EQUIPMENT.

Table 97-1 – G500H TXi PFD / MFD System Equipment		
Item	Description	Part Number
1	Garmin GDU 1060 PFD/MFD	011-03308-20 ALT: 011-03308-22
2	Garmin GSU 75H ADAHRS	011-03094-20
3	Mid-Continent MD 302 SAM	6420302-7

#### 97.1.1 Garmin GDU 1060 PFD / MFD – Removal / Installation

##### A. APPLICABLE DOCUMENTS

- E2006-01-1 Instrument Panel Installation
- E2006-11-1 Garmin G500H TXi Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

##### B. SPECIAL TOOLS

None

##### C. CONSUMABLE MATERIALS

None

##### D. ROUTINE REPLACEMENT PARTS

None

##### E. JOB SET UP

- E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

## F. PROCEDURE

### F.1 Removal

- a. Ensure that the PILOT GDU (COPLT GDU) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. Remove the four (4) fasteners on the GDU 1060 to release the display from the panel.
- c. Support the GDU 1060 and gently pull it away from the instrument panel.
- d. Disconnect the connectors and remove the GDU 1060.
- e. Install dust caps on the GDU 1060 connectors and cap and stow the electrical cables.
- f. Retain the GDU 1060 mounting hardware.

### F.2 Installation

- a. Ensure that the PILOT GDU (COPLT GDU) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. Remove the dust caps from the GDU 1060 and the electrical connectors.
- c. Connect the electrical connectors to the GDU 1060.
- d. While supporting the GDU 1060, install the four (4) fasteners to attach the GDU 1060 onto the instrument panel structure IAW drawing E2006-01-1. Torque all fasteners IAW Section 1.5.
- e. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- f. Ensure that the PILOT GDU (COPLT GDU) circuit breaker has the collar removed and is pushed in (closed).
- g. Apply power to GDU 1060 and test by observing the function of the system.
- h. Ensure the configuration has been completed IAW Section 1.6.
- i. Function test the GDU 1060 IAW Section 97.1.4, Step D.1.

## 97.1.2 Garmin GSU 75H ADAHRS – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-2 ADAHRS Installation  
E2006-01-17 Pitot Static Installation  
E2006-11-1 Garmin G500H TXi Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the PILOT ADAHRS (COPLT ADAHRS) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. Disconnect the pitot static lines and install dust caps on each line.
- c. Disconnect the connectors, install dust caps on the GSU 75H connectors and cap and stow the electrical cables.
- d. Loosen the two (2) thumb screws and remove the GSU 75H from the upper avionics shelf.
- e. If required, remove the four (4) fasteners and (4) washers, and remove the mounting tray. Retain the mounting hardware.

## F.2 Installation

- a. Ensure that the PILOT ADAHRS (COPLT ADAHRS) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. If required, locate the position of the GSU 75H mounting tray on the RH and LH side of the upper avionics shelf IAW drawing E2006-01-2 and install the four (4) fasteners and four (4) washers retained from the removal.
- c. Remove the dust caps from the GSU 75H, the electrical connectors and pitot static lines.
- d. Attach the GSU 75H to the Mounting rack and tighten the two (2) thumb screws.
- e. Connect the connectors and the pitot static lines to the GSU 75H.
- f. Ensure all equipment bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the PILOT ADAHRS (COPLT ADAHRS) circuit breaker has the collar removed and is pushed in (closed).
- h. Perform a Pitot Static System Operational Check IAW ICA-D212-725 Section 95.2.2.
- i. Apply power to the GDU 1060 and function test the GSU 75H IAW Section 97.1.4, Steps D.2, D.3, D.4, and D.8.

### 97.1.3 Mid-Continent MD 302 SAM – Removal / Installation

#### A. APPLICABLE DOCUMENTS

- E2006-01-1 Instrument Panel Installation
- E2006-01-17 Pitot Static Installation
- E2006-11-13 Standby Attitude Module Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

- E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### F. PROCEDURE

##### F.1 Removal

- a. Ensure that the PILOT ESI (COPLT ESI) circuit breaker, located on the MAIN DC BUSS (MAIN DC BUSS) is pulled (opened) and collared.
- b. Remove and retain the four (4) fasteners on the MD 302 to release the display from the panel.
- c. Support the MD 302 and gently pull it away from the instrument panel.
- d. Disconnect the pitot static lines and install dust caps on each line.
- e. Disconnect the connectors, install dust caps on the MD 302 connectors and cap and stow the electrical cable.

##### F.2 Installation

- a. Ensure that the PILOT ESI (COPLT ESI) circuit breaker, located on the MAIN DC BUSS (MAIN DC BUSS) is pulled (opened) and collared.
- b. Remove the dust caps from the MD 302, electrical connectors, and pitot static lines.
- c. Connect the connectors and the pitot static lines to the MD 302.
- d. While supporting the MD 302, install the four (4) fasteners to attach the MD 302 onto the instrument panel structure IAW drawing E2006-01-1.
- e. Ensure that the PILOT ESI (COPLT ESI) circuit breaker has the collar removed and is pushed in (closed). Apply power to MD 302
- f. Ensure the configuration has been completed IAW Section 1.6.
- g. Perform a Pitot Static System Operational Check IAW ICA-D212-725 Section 95.2.2.
- h. Function test the MD 302 IAW Section 97.1.4, Step D.10.

#### 97.1.4 Garmin G500H TXi – Functional Test

##### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

##### B. SPECIAL TOOLS

None

##### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

##### D. PROCEDURE

###### D.1 Configuration Mode Ground Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up the pilot and co-pilot GDU 1060's in Configuration mode.
- d. Ensure all installed LRU's are powered on and configured.
- e. In the Devices Online window ensure that all LRUs connected or configured to each display have a green indicator.
- f. Touch the Summary button.
- g. Verify that all configuration settings listed are consistent with the interfaced systems.
- h. For LRU sections have a yellow warning triangle present, verify that the configuration is valid. Reference Section 1.6
- i. Remove power from the pilot and co-pilot GDU 1060's.
- j. Power up the pilot and co-pilot GDU 1060's in normal operation mode.
- k. Ensure all required display data is present and that there is no red "X" in any of the data fields.
- l. Remove power from the pilot and co-pilot GDU 1060's.
- m. Disconnect power from the aircraft.

D.2 Airspeed Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Connect the pitot-static ramp tester.
- c. Apply ground power to the aircraft.
- d. Power up the pilot and co-pilot GDU 1060's in Normal mode.
- e. Ensure all self-tests pass on the main start-up screen.
- f. Increase the IAS through the airspeed range of the aircraft and complete Table 97-2. Ensure that both displays match.
- g. Decrease the airspeed to zero.
- h. If Required complete steps 1 through 5 for the co-pilots PFD.
- i. Remove power from the pilot and co-pilot GDU 1060's.
- j. Disconnect power from the aircraft.

Table 97-2 AIRSPEED TEST POINTS								
Airspeed (kt)	PFD Airspeed (kt)		Tolerance (kt)	Standby Airspeed (kt)		Tolerance (kt)	Pass / Fail	Initials
	PLT	CPLT		PLT	CPLT			
25			±5.0			±5.0		
40			±5.0			±5.0		
60			±5.0			±5.0		
80			±3.5			±3.5		
100			±2.0			±2.0		
125 (Vne)			±2.0			±2.0		

D.3 Altimeter Check

The GDU 1060 and standby altitude displays must be verified per TC CARs Part V – Standard 571 Appendix B – Altimeter System Test and Inspection except paragraph (b)(1) (iv) Friction and (vi) Barometric Scale Error are not applicable to the GDU 1060 due to the digital display.

- a. Connect the pitot-static ramp tester.
- b. Apply ground power to the aircraft.
- c. Power up the pilot and co-pilot GDU 1060's in Normal mode.
- d. Ensure all self-tests pass on the main start-up screen.
- e. Increase the Altitude through the altitude range of the aircraft and complete Part V – Standard 571 - Table I (copied below in Table 97-3). Ensure that both displays match.
- f. Decrease the Altitude to zero.
- g. Complete steps 1 through 5 for the co-pilots PFD.
- h. Remove power from the pilot and co-pilot GDU 1060's.
- i. Disconnect power from the aircraft.

Table 97-3 ALTITUDE TEST POINTS							
Altitude (Feet)	Tolerance (Feet)	PFD Airspeed (feet)		Standby Airspeed (feet)		Pass / Fail	Initials
		PLT	CPLT	PLT	CPLT		
-1,000	±20.0						
0	±20.0						
500	±20.0						
1,000	±20.0						
1,500	±25.0						
2,000	±30.0						
3,000	±30.0						
4,000	±35.0						
6,000	±40.0						
8,000	±60.0						
10,000	±80.0						
12,000	±90.0						
14,000	±100.0						
16,000	±110.0						
18,000	±120.0						
20,000	±130.0						

#### D.4 Pitch Roll Offset Compensation

**NOTE:** If calibrating two AHRS simultaneously, verify that Step e. is completed on both GDUs prior to touching the Calibrate button. The button must be selected on both GDUs in order to calibrate both AHRS units.

- a. Connect the pitot-static ramp tester.
- b. Level the aircraft to within  $+0.25^\circ$  of zero pitch and zero roll. See ICA-D212-725 Chapter 8 for leveling procedure.
- c. Apply ground power to the aircraft.
- d. Power up the pilot and co-pilot GDU 1060's in Configuration mode.
- e. Select Pitch/Roll Offset from the Procedures menu (Home → Calibration/Test → Attitude/Heading).
- f. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
- g. Complete the Before Calibration steps listed on the display; select each step when complete so that a green checkmark appears next to the selection.
- h. Touch the Calibrate button when it becomes active to start the calibration procedure.
- i. Follow the on-screen command prompts.
- j. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.
- k. Remove power from the pilot and co-pilot GDU 1060's.
- l. Disconnect power from the aircraft.

#### D.5 Magnetometer Calibration

- a. Ensure the aircraft is pushed away from any building or obstacles.
- b. Perform a normal engine start IAW the Rotorcraft Flight Manual Supplement (RFMS) and if required disconnect ground power.
- c. With all of the rotorcraft and systems powered and operating normally, position the rotorcraft on a compass rose at a heading  $360^\circ$  (Magnetic North), or select a level and magnetically clean location and use a calibrated sight compass.
- d. Remove power from the pilot and co-pilot GDU 1060's and then power up the pilot and co-pilot GDU 1060's in Configuration mode.
- e. Select Magnetometer from the Procedure menu (Home → Calibration/Test → Attitude/ Heading).
- f. Select the desired AHRS unit to calibrate from the AHRS Unit selection. (The procedure can be done simultaneously)
- g. Complete the Before Calibration steps listed on the display. Touch each step when complete so that a green checkmark appears next to the selection.
- h. Touch the Calibrate button when it becomes active to start the calibration procedure.
- i. Follow the on-screen commands to complete the calibration.

## D.6 Compass Swing

**NOTE:** If the following procedure must be performed on both AHRS #1 and AHRS #2, it is permitted to run the procedure below simultaneously on two displays.

- a. With all of the rotorcraft and systems powered and operating normally, position the rotorcraft on a compass rose at a heading 360° (Magnetic North), or select a level and magnetically clean location and use a calibrated sight compass
- b. Navigate to the System Units page. (System → Units)
- c. Select the Magnetic (°) option from the NAV Angle selection.
- d. Return to the main screen.
- e. Record the PFD #1 and PFD #2 HDG value in Table 97-4.
- f. Record the heading displayed on the standby compass and non-stabilized compass. Verify or correct the standby compass deviation card.
- g. Calculate the heading errors by subtracting the displayed PFD #1 HDG (B) or PFD #2 HDG (C) value from the actual (A) value for each of the headings. If each heading displayed on the PFD #1 and PFD #2 is at or within  $\pm 3^\circ$  of the actual heading, no further adjustments are necessary. If one or more of the displayed heading values are outside this range, further calibration is needed.
- h. If all calculated heading errors are between  $-5^\circ$  and  $+5^\circ$  inclusive, the Heading Offset Compensation procedure can be used.

**NOTE:** If at least one Heading Error (A-B) is greater than  $5^\circ$  / less than  $-5^\circ$ , DO NOT perform the Heading Offset Procedure until the GMU 44/44B installation has been physically corrected.

- i. If at least one Heading Error (A-B) is greater than  $5^\circ$  / less than  $-5^\circ$ , calculate the average error by adding all errors and dividing by 12. This is the angle by which the GMU 44/44B must be physically rotated to correct the installation.
- j. Modify the installation to rotate the GMU 44/44B by the amount calculated in the previous step. When looking down at the GMU 44/44B, rotate clockwise for positive values and counter clockwise for negative values.
- k. After physically correcting the GMU 44/44B installation, repeat the Magnetometer Calibration and Compass Swing
- l. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.
- m. Position the rotorcraft near the hangar landing area.
- n. Remove power from the pilot and co-pilot GDU 1060's.

Table 97-4 HEADING VERIFICATION TEST POINTS					
Actual Heading (A)	ADAHRS #1 Heading (B)	ADAHRS #2 Heading (C)	ADAHRS #1 Error (A-B)	ADAHRS #2 Error (A-C)	Standby Compass Heading
360° (North)					
30°					
60°					
90° (East)					
120°					
150°					
180° (South)					
210°					
240°					
270° (West)					
300°					
330°					

D.7 Heading Offset Compensation (Optional)

The Heading Offset Compensation Procedure is not required if it was determined during the compass swing that all calculated heading errors are between  $\pm 3^\circ$  inclusive. It is recommended to perform the Heading Offset Compensation Procedure ONLY if the calculated heading errors indicate a constant (i.e., same direction and same approximate magnitude) heading offset at all headings around the compass rose, not exceeding  $5^\circ$  in magnitude. Otherwise, physically correct the GMU 44/44B installation and repeat the Magnetometer Calibration Procedure.

**NOTE:** If the Heading Offset Compensation Procedure must be performed on both AHRS #1 and AHRS #2, it is permitted to run the procedure below simultaneously on two displays.

- a. Start the rotorcraft engine IAW the aircraft RFM.
- b. Power the displays on in Configuration mode.
- c. Select Heading Offset from the Procedure menu (Home → Calibration/Test → Attitude/Heading).
- d. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
- e. Complete the Before Calibration steps listed on the display; touch each step when complete so that a green checkmark appears next to the selection.
- f. Touch the Calibrate button when it becomes active to start the calibration procedure.
- g. Follow the on-screen commands to complete the calibration.
- h. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.
- i. Position the rotorcraft near the hangar landing area.
- j. Remove power from the pilot and co-pilot GDU 1060's.
- k. Perform a normal engine shut down IAW the Rotorcraft Flight Manual Supplement (RFMS).

#### D.8 Run-Up Vibration Check

**NOTE:** If the following procedure must be performed on both AHRS #1 and AHRS #2, it is permitted to run the procedure below simultaneously on two displays.

- a. Ensure the aircraft is pushed away from any building or obstacles.
- b. Perform a normal engine start IAW the Rotorcraft Flight Manual Supplement (RFMS) and if required disconnect ground power.
- c. With all of the rotorcraft and systems powered and operating normally, ensure that the pilot and co-pilot's GDU 1060 is in Normal mode.
- d. Select Engine Run-Up Test from the Procedure menu.  
(Home → Calibration/Test → Attitude/Heading).
- e. Select the desired AHRS unit to calibrate via the AHRS Unit selection. (The procedure can be done simultaneously)
- f. Follow the Before Test checklist items on the display and touch each as they are completed. When all checklist items have a green checkmark, the Test selection will become active.
- g. Touch "Test" to begin the procedure.
- h. Follow the on-screen commands.

**NOTE:** If failures are indicated, the engine run-up check may be repeated up to two more times. If the check does not pass after three attempts, the installation cannot be considered reliable until the source of the vibration problem is identified and fixed. In the event of repeated failures during the engine run-up check, record the values that are reported to be out of range for future reference.

- i. Perform a normal engine shut down IAW the Rotorcraft Flight Manual Supplement (RFMS).

#### D.9 OAT Check

- a. Apply ground power to the aircraft.
- b. Power up the pilot and co-pilot GDU 1060's in Normal mode.
- c. Ensure all self-tests pass on the main start-up screen.
- d. Verify the correct units (Celsius or Fahrenheit) and temperature reference (SAT, TAT, ISA) are displayed on the PFD.
- e. If Required complete steps a. through d. for the co-pilots PFD.
- f. Remove power from the pilot and co-pilot GDU 1060's.
- g. Disconnect power from the aircraft.

#### D.10 MD 302 Standby Attitude Module Check

- a. Apply ground power to the aircraft.
- b. Power up all the avionics systems.
- c. Verify the basic operation of the MD302.
- d. Apply 120 knots and disconnect power to the aircraft. Verify continued operation without shut down notification. Reapply power to the aircraft.
- e. Complete the Airspeed checks IAW section D.2.
- f. Complete the Altimeter Checks IAW section D.3.
- g. Power down all the rotorcrafts avionics systems.
- h. Disconnect power from the aircraft.

## 97.1.5 Garmin G500H TXi – Fault Isolation

### A. APPLICABLE DOCUMENTS

E2006-11-1 Garmin G500H TXi Wiring Diagram  
E2006-01-17 Pitot Static Installation  
E2006-11-13 Standby Attitude Module Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-1 Garmin G500H TXi Wiring Diagram and / or E2006-11-13 Standby Attitude Module Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

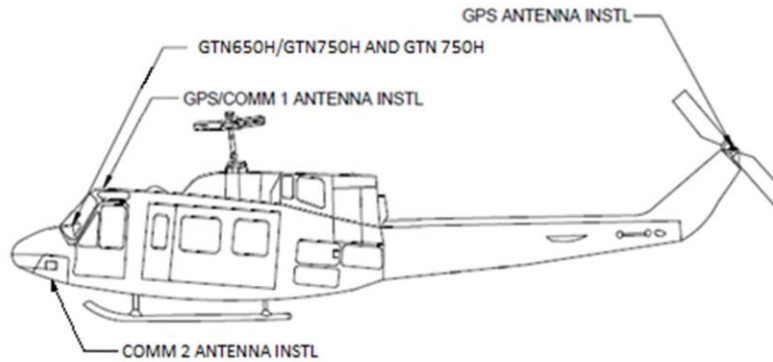
#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.1.4.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-5 - FAULT ISOLATION - G500H TXi</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-1 and E2006-11-13
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.2 Garmin GPS / NAV / COMM Installation



**Figure 97-1 – GPS / NAV / COMM System Installation.**

**CAUTION: OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).**

<b>Table 97-6 – GPS / NAV / COMM System Equipment</b>		
<b>Item</b>	<b>Description</b>	<b>Part Number</b>
1	Garmin GTN 750H Xi GPS / COMM / NAV	011-04634-00
2	Garmin GTN 650H/750H Xi GPS / COMM / NAV	011-04631-00/011-04634-00
3	GPS/COMM 1 Antenna	C12480-200
4	COMM 2 Antenna	CI292-2
5	GPS Antenna	013-00235-00
6	Centre Pedestal Riser Panel Assy (optional)	E212-1015-041

**NOTE:** When the optional E212-1021-011 Centre Pedestal Modification is embodied, a maximum of 45 lbs of additional equipment may be installed using the Dzus rails in addition to the GTN 650H Xi installed in the Riser Panel.

## 97.2.1 Garmin GTN 750H Xi (No. 1 GPS/NAV/COMM) – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers, located on the ESS AVIONICS BUSS are pulled out (opened) and collared.

**NOTE:** The No. 1 GPS/NAV/COMM can be located in either the instrument panel or centre pedestal position. Verify the configuration prior to starting the removal.

- b. Remove the GTN 750H Xi by locating the unit retention mechanism access hole at the bottom-left corner of the unit face.
- c. Insert a 3/32" hex tool into the access hole and turn the fastener counter clockwise until the unit is forced out about 3/8 inches and can be freely pulled from the rack.
- d. Gently pull the GTN 750H Xi out.

#### F.2 Installation

- a. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers, located on the ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Slide the GTN 750H Xi straight into the rack until it stops about 1 inch short of the fully seated position.
- c. Insert a 3/32" hex drive into the unit retention mechanism access hole at the bottom of the unit face and turn the tool clockwise while pressing the bezel until the unit is firmly seated in the rack.
- d. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers have the collar removed and are pushed in (closed).

- e. Apply power to the GTN 750H Xi
- f. Ensure the configuration has been completed IAW Section 1.6.
- g. Function test the GTN 750H Xi IAW Section 97.2.7 Steps D.1, D.2, and D.3.

## 97.2.2 Garmin GTN 650H/750H Xi (No. 2 GPS/NAV/COMM) – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.

**NOTE:** The No. 2 GPS/NAV/COMM can be located in either the instrument panel or centre pedestal position. Verify the configuration prior to starting the removal.

- b. Remove the GTN 650H/750H Xi by locating the unit retention mechanism access hole at the bottom-left corner of the unit face.
- c. Insert a 3/32" hex tool into the access hole and turn the fastener counter clockwise until the unit is forced out about 3/8 inches and can be freely pulled from the rack.
- d. Gently pull the GTN 650H/750H Xi out.

#### F.2 Installation

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Slide the GTN 650H/750H Xi straight into the rack until it stops about 1 inch short of the fully seated position.
- c. Insert a 3/32" hex drive into the unit retention mechanism access hole at the bottom of the unit face and turn the tool clockwise while pressing the bezel until the unit is firmly seated in the rack.
- d. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers have the collar removed and are pushed in (closed).

- e. Ensure the configuration has been completed IAW Section 1.6.
- f. Function test the GTN 650H/750H Xi IAW Section 97.2.7 Steps D.1, D.2, and D.3.

### 97.2.3 Centre Pedestal Riser Panel – Removal / Installation

#### A. APPLICABLE DOCUMENTS

E212-1021 Installation, Centre Pedestal Modification, B212  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

E.1 Comply with the general safety instructions for the mechanical assemblies  
(ICA-D212-725 and BHT-212-MM).

#### F. PROCEDURE

##### F.1 Removal

- a. Turn each Dzus fastener on the Riser Panel Assy a quarter turn to release them.
- b. Gently pull the Riser Panel Assy free from the Dzus rails on the Centre Pedestal Assy.

##### F.2 Installation

- a. Align the Riser Panel Assy Dzus fasteners with the appropriate Dzus rail holes on the Centre Pedestal Assy.
- b. Turn each Dzus fastener a quarter turn to engage the rail and secure the Riser Panel Assy.

## 97.2.4 Garmin GTN 750H Xi GPS/COMM #1 Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

- E2006-01-6 GPS/COMM 1 Antenna Installation
- E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

- E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers, located on the ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fastener holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the four (4) fasteners. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the GPS/COMM antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the GPS/COMM antenna, o-ring and gasket from the top of the fuselage.

## F.2 Installation

- a. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers, located on the ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Unstow the GPS/COMM antenna coax cable.
- c. Remove the dust caps from the GPS/COMM antenna connector and the coax cable.
- d. Connect the coax cable to the GPS/COMM antenna connector.
- e. Install the GPS/COMM antenna using four (4) fasteners, antenna gasket, and O-ring that were previously retained. Torque all fasteners IAW Section 1.5.
- f. Ensure that the GPS/COMM antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of GPS/COMM antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the NO 1 VHF and the NO 1 NAV/GPS circuit breakers have the collar removed and are pushed in (closed).
- i. Function test the GTN 750H Xi IAW Section 97.2.7 Steps D.2 and D.3.

## 97.2.5 Garmin GTN 650H/750H Xi COMM #2 Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

- E2006-01-7 COMM Antenna Installation
- E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fastener holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the four (4) fasteners. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the COMM antenna connector and cap and stow the antenna cable.

#### **CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the COMM antenna, o-ring and gasket from the bottom of the fuselage.

## F.2 Installation

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Unstow the COMM antenna coax cable.
- c. Remove the dust caps from the COMM antenna connector and the coax cable.
- d. Connect the coax cable to the COMM antenna connector.
- e. Install the COMM antenna using four (4) fasteners, antenna gasket, and O-ring that were previously retained. Torque all fasteners IAW Section 1.5.
- f. Ensure that the COMM antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of COMM antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers have the collar removed and are pushed in (closed).
- i. Function test the GTN 650H/750H Xi IAW Section 97.2.6 Steps D.2.

## 97.2.6 Garmin GTN 650H/750H Xi GPS Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

- E2006-01-4 GPS Antenna Installation
- E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fastener holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the four (4) fasteners. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the GPS antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the GPS antenna, o-ring and gasket from the top of the fuselage.

## F.2 Installation

- a. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Unstow the GPS antenna coax cable.
- c. Remove the dust caps from the GPS antenna connector and the coax cable.
- d. Connect the coax cable to the GPS antenna connector.
- e. Install the GPS antenna using four (4) fasteners, antenna gasket, and O-ring that were previously retained. Torque all fasteners IAW Section 1.5.
- f. Ensure that the GPS antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of GPS antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the NO 2 VHF and the NO 2 NAV/GPS circuit breakers have the collar removed and are pushed in (closed).
- i. Function test the GTN 650H/750H Xi IAW Section 97.2.7 Steps D.2.

### 97.2.7 Garmin GTN 750H Xi / 650H Xi – Functional Test

**A. APPLICABLE DOCUMENTS**

- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

**B. SPECIAL TOOLS**

None

**C. JOB SET UP**

- C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

**D. PROCEDURE**

**D.1 Power Up Self-test Ground Check**

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up the GTN 750H Xi and/or GTN 650H Xi and touch continue until the Instrument Panel Self-Test page is displayed.
- d. Ensure all outputs match Table 97-7.
- e. Turn off power to the GTN 750H Xi and/or GTN 650H Xi.
- f. Disconnect power from the aircraft.

<b>Table 97-7 - Self-Test Values</b>	
<b>PARAMETER</b>	<b>SELF-TEST VALUE</b>
Course Deviation	Half-scale left deviation, TO indication, flag pulled
Glideslope/Vert. Deviation	Half-scale up deviation, flag pulled
Annunciators	All On
Selected Course (OBS)	The GTN Xi displays the OBS value (149.5° if interfaced to an HIS with driven course pointer).
Desired Track	149.5° (Displayed as 150°)
Items below are not displayed on the Instrument Panel Self-Test page	
Distance to Go	10.0 nautical miles
Time to Go	4 minutes
Bearing to Waypoint (RMI)	135°
Active Waypoint	“GARMN”
Groundspeed	150 knots
Present Position	N 39°04.05', W 94°53.86'
Waypoint Alert	Active
Phase of Flight	En Route
Message Alert	Active
Leg/OBS Mode	Leg Mode
GPS Integrity	Invalid

## D.2 COMM / NAV Audio Ground Check

- a. Apply ground power to the aircraft.
- b. Power up all the avionics systems.
- c. Connect a headset to the pilot's headset output and mic input jack.
- d. Using a handheld radio, verify that the GTN 750H Xi and/or GTN 650H Xi radio can receive audio when selected on the audio control panel.
- e. Verify that the GTN 750H Xi and/or GTN 650H Xi radio sidetone is appropriate and can be heard under all operating conditions.
- f. Using a handheld radio, verify that the GTN 750H Xi and/or GTN 650H Xi radio keys for transmission and transmits clear audio from the pilot's mic when selected for on the audio control panel.
- g. Tune the GTN 750H Xi and/or GTN 650H Xi (NAV) receiver to a local VOR station.
- h. On the GTN 750H Xi and/or GTN 650H Xi verify that the navigation morse code identifier audio is being received over the crew headsets and ensure the volume is sufficient for all anticipated cockpit noise conditions.
- i. Move the headset to the co-pilot's headset jacks and repeat steps d through h.
- j. Repeat steps c through i on the GTN650H/750H Xi.
- k. Power down all the rotorcrafts avionics systems.
- l. Disconnect power from the aircraft.

## D.3 GPS Antenna Ground Check

- a. Apply ground power to the aircraft.
- b. Ensure the GTN Xi is able to acquire sufficient satellites to compute a GPS position by performing the following steps:
  1. Tap System > GPS Status.
  2. Under GPS Solution, ensure that a 3D NAV or 3D DIFF NAV fix is obtained.
  3. If the unit is unable to acquire satellites, move the aircraft away from obstructions which might be shading GPS reception. If the situation does not improve, check the GPS antenna installation.
- c. Once GPS position information is available, perform the following steps:
  1. Verify the LAT/LON agree with a known reference position.

## 97.2.8 Garmin GTN 750H Xi / 650H Xi – Fault Isolation

### A. APPLICABLE DOCUMENTS

E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-3 Garmin 750 Xi and 650 Xi Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

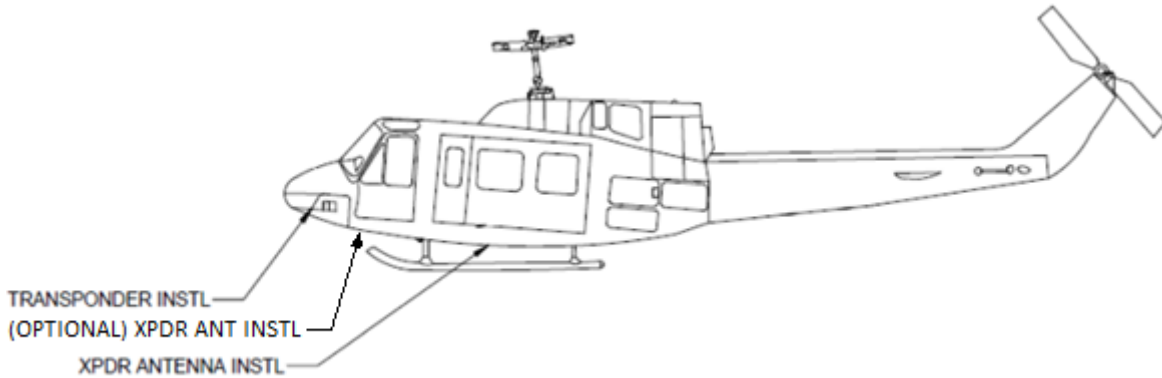
#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.2.7.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-8 - FAULT ISOLATION - GTN 750H Xi / 650H Xi</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) circuit breaker
	Check if circuit breakers fail	Replace THE circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-3
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

**97.3 Garmin Transponder Installation**



**Figure 97-2 – Transponder System Location**

**CAUTION: OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).**

<b>Table 97-9 – Transponder System Equipment</b>		
<b>Item</b>	<b>Description</b>	<b>Part Number</b>
1	Garmin GTX 345R Transponder	011-03303-00
2	XPDR Antenna	CI-105

### 97.3.1 Garmin GTX 345R – Removal / Installation

#### A. APPLICABLE DOCUMENTS

- E2006-01-8 Transponder Installation
- E2006-11-9 Garmin GTX345R Transponder Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### F. PROCEDURE

##### F.1 Removal

- a. Ensure that the XPDR PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the GTX 345R connectors and cap and stow the electrical cables.
- c. Loosen the thumb screw and remove the GTX 345R from the lower avionics shelf.
- d. If required, remove the tray by removing the six (6) fasteners and six (6) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the XPDR PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. If required, locate the position of the GTX 345R mounting tray on the lower avionics shelf IAW drawing E2006-01-8 and install the four (4) fasteners and four (4) washers retained from the removal.
- c. Remove the dust caps from the GTX 345R and the electrical connectors.
- d. Attach the GTX 345R to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the GTX 345R.
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the XPDR PWR circuit breaker has the collar removed and is pushed in (closed).
- h. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- i. Function test the GTX 345R IAW Section 97.3.3 Steps D.1 and D.2.

## 97.3.2 Garmin GTX 345R Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

- E2006-01-9 Transponder Antenna Installation
- E2006-11-9 Garmin GTX 345R Transponder Wiring Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

- E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the XPDR PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the screw holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the two (2) nuts and (2) washers. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the transponder antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the transponder antenna, o-ring and gasket from the bottom of the fuselage.

## F.2 Installation

- a. Ensure that the XPDR PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Unstow the transponder antenna coax cable.
- c. Remove the dust caps from the transponder antenna connector and the coax cable.
- d. Connect the coax cable to the transponder antenna connector.
- e. Install the transponder antenna using OEM provided (2) nuts and (2) washers, and O-ring that were retained from the removal. Torque all fasteners IAW Section 1.5.
- f. Ensure that the transponder antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of transponder antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the XPDR PWR circuit breaker has the collar removed and is pushed in (closed).
- i. Apply power and function test the GTX 345R IAW Section 97.3.3 Steps D.1 and D.2.

### 97.3.3 Garmin GTX 345R – Functional Test

#### A. APPLICABLE DOCUMENTS

- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. JOB SET UP

- C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### D. PROCEDURE

##### D.1 Control Display Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Ensure there is no red “X” in the Transponder Data field on the GTN 750H Xi NAV #1 navigator.
- e. Ensure transponder code can be entered (and changed) in the Code field on the GTN 750H Xi and is correctly displayed.
- f. Remove power from the transponder and verify there is a red “X” in the Transponder Data field on the GTN 750H Xi.
- g. Power down all the rotorcrafts avionics systems.
- h. Disconnect power from the aircraft.

##### D.2 ATC Transponder Correlation Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Complete the altitude reporting equipment test IAW CAR Part V – Standard 571 Appendix B.
- e. Complete the ATC Transponder test IAW CAR Part V – Standard 571 Appendix F.
- f. Power down all the rotorcrafts avionics systems.
- g. Disconnect power from the aircraft.

### 97.3.4 Garmin GTX 345R – Fault Isolation

#### A. APPLICABLE DOCUMENTS

E2006-11-9 Garmin GTX345R Transponder Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### F. PROCEDURE

##### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-9 Garmin GTX 345R Transponder Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

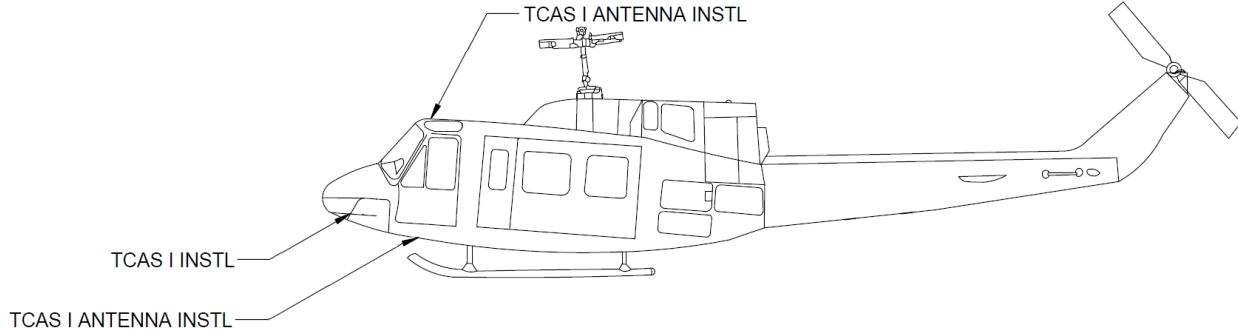
##### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.3.3.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-10 - FAULT ISOLATION - GTX 345R</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) circuit breaker
	Check if circuit breakers fail	Replace THE circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-9
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.4 Garmin TCAS I Installation



**Figure 97-3 – TCAS System Location**

**CAUTION: OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).**

<b>Table 97-11 – TCAS System Equipment</b>		
<b>Item</b>	<b>Description</b>	<b>Part Number</b>
1	Garmin GTS 855 TCAS	011-02571-00
2	TCAS Antenna	011-01346-00

## 97.4.1 Garmin GTS 855 TCAS I – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-10 TCAS I Installation  
E2006-11-11 Garmin GTS 855 TCAS Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the TCAS PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the GTS 855 connectors and cap and stow the electrical cables.
- c. Loosen the two (2) thumb screw and remove the GTS 855 from the lower avionics shelf.
- d. If required, remove the tray by removing the six (6) fasteners and six (6) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the TCAS PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. If required, locate the position of the GTS 855 mounting tray on the lower avionics shelf IAW drawing E2006-01-10 and install the six (6) fasteners and six (6) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the GTS 855 and the electrical connectors.
- d. Attach the GTS 855 to the Mounting rack and tighten the two (2) thumb screw.
- e. Connect the connectors to the GTS 855.
- f. Ensure all equipment bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the TCAS PWR circuit breaker has the collar removed and is pushed in (closed).
- h. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- i. Function test the GTS 855 IAW Section 97.4.3.

## 97.4.2 Garmin GTS 855 TCAS I Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-11 TCAS I Antenna Installation  
E2006-11-11 Garmin GTS 855 TCAS Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the TCAS PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fasteners holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the four (4) fasteners. Retain the mounting hardware.
- d. Disconnect the four (4) coax connectors, put a protective cover on the TCAS antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the TCAS antenna, o-ring and gasket from the fuselage.

## F.2 Installation

- a. Ensure that the TCAS PWR circuit breaker, located on the ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Unstow the TCAS antenna coax cables.
- c. Remove the dust caps from the TCAS antenna connectors and the coax cables.
- d. Connect the four (4) coax cables to the TCAS antenna connectors.
- e. Install TCAS antenna using four (4) fasteners, antenna gasket, and O-ring that were previously retained. Torque all fasteners IAW Section 1.5.
- f. Ensure that the TCAS antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of TCAS antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the TCAS PWR circuit breaker has the collar removed and is pushed in (closed).
- i. Ensure the configuration has been completed IAW IIN-E212-2006.
- j. Apply power and function test the GTS 855 IAW Section 97.4.3 Steps D.1 and D.2.

### 97.4.3 Garmin GTS 855 TCAS I – Functional Test

#### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### D. PROCEDURE

##### D.1 System and Audio Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Connect a headset to the audio panel in accordance with audio panel operating instructions. Set the volume to a typical in-flight volume level.
- e. On the installed COM receiver in the aircraft, tune to the appropriate Automatic Terminal Information Service (ATIS) frequency.
- f. Place the GTS 855 into self-test mode.
- g. When the self-test is completed, ensure the aural announcement “TCAS SYSTEM TEST PASSED” can be heard.
- h. Evaluate the audio for acceptable volume and intelligibility during anticipated cockpit noise conditions. Ensure that the traffic audio is not muted during transmission of the ATIS broadcast.
- i. If Required, adjust the volume as needed in the Configuration System Mode tab.
- j. After making any adjustments, place the GTS 855 into self-test mode again and re-verify audio.
- k. Ensure the GTS Processor is in Operate mode and the onboard transponder is in Airborne mode.
- l. Ensure there is no TA issued on or near own-aircraft position.
- m. Power down all the rotorcrafts avionics systems.
- n. Disconnect power from the aircraft

D.2 Ramp Check

**NOTE:** While performing the ramp check, ensure the aircraft is positioned away from hanger and other objects that may cause reflection and multiple target returns. The aircraft may need to be relocated to an unobstructed location or use an antenna donut style test antenna.

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Ensure the GPS source has acquired a position.
- d. Ensure the GTS 855 TCAS I is in ground test mode, if not enable ground test mode using the following procedures:
  - 1) Ensure the GTS 855 TCAS I is in Normal System mode and in Standby.
  - 2) Connect a laptop to the GTS 855 using a USB cable.
  - 3) Using the GTS Processor Install Tool, enable ground test mode.
- e. Position the TIC TR220 or equivalent test set directional antenna with a clear line of sight to the GTS 855 antenna at 90 degrees.
- f. Cycle the GTS 855 to "Operate".
- g. Ensure "Operate", without indicating a fault, is displayed on the indicator.
- h. Position ramp test set at 0 degrees and turn the test set on.
- i. Select the following scenario for the ATRBS intruder type on the ramp tester:

Intruder Distance	Start	Intruder Start Altitude	Vertical Speed	Velocity
10 NM		50,000 ft	0 fpm	360 Kts

- j. Initiate the intruder scenario and verify that the following occurs:
  - 1) Traffic should be acquired at approximately 10 NM at 0 degree bearing and co-altitude. Observe intruder closes on own aircraft at a rate of .1 NM/sec. Verify that only a single target is displayed in the expected quadrant.
  - 2) The intruder should transition from Other Traffic (displayed as an open diamond with 00 displayed above), to proximate traffic (displayed as a filled white diamond with 00 displayed above), to a Traffic Advisory (TA) alarm.
  - 3) The appropriate TA symbology (yellow filled circle with 00 displayed above) displayed, and an audio annunciation of "Traffic! 3 O'clock! Same Altitude! 3 Miles!", when the intruder approaches within 3 NM.

**NOTE:** When in Ground Test Mode, the GTS 855 will inhibit audio if a Radar Altimeter is installed and reading a value of less than 400 ft AGL.

**NOTE:** When a GTS 855 is configured not to have a Radar Altimeter installed and the gear is extended (in a retractable gear aircraft), the audio annunciation of Traffic will be inhibited.

- k. Toggle intruder traffic to standby or off and reposition ramp test set and directional antenna to a starboard position of 90°.
- l. Re-engage the intruder scenario from Step i. and ensure a target is annunciated on the GTS 855 TCAS display at the correct bearing of approximately 90 degree azimuth at 10 NM and co-altitude.
- m. Toggle intruder traffic to standby or off and reposition ramp test set and directional antenna to a starboard position of 180°.

- n. Re-engage the intruder scenario from Step i. and ensure a target is annunciated on the GTS 855 TCAS display at the correct bearing of approximately 180° azimuth at 10 NM and co-altitude.
- o. Toggle intruder traffic to standby or off and reposition ramp test set and directional antenna to a starboard position of 270°.
- p. Re-engage the intruder scenario from Step i. and ensure a target is annunciated on the GTS 855 TCAS display at the correct bearing of approximately 270° azimuth at 10 NM and co-altitude.
- q. If multiple targets are displayed during the antenna tests, recheck the antenna coaxial connections
- r. Power down all the rotorcrafts avionics systems.
- s. Disconnect power from the aircraft.

#### **97.4.4 Garmin GTS 855 TCAS I – Fault Isolation**

##### **A. APPLICABLE DOCUMENTS**

E2006-11-11 Garmin GTS 855 TCAS Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

##### **B. SPECIAL TOOLS**

None

##### **C. CONSUMABLE MATERIALS**

None

##### **D. ROUTINE REPLACEMENT PARTS**

None

##### **E. JOB SET UP**

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

##### **F. PROCEDURE**

###### **F.1 Continuity Checks**

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-11 Garmin GTS 855 TCAS Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

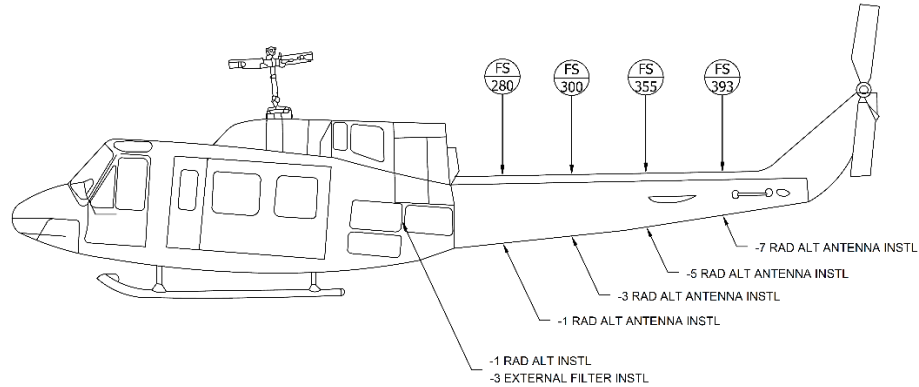
###### **F.2 System Component Checks**

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.4.3.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-12 - FAULT ISOLATION - GTS 855</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) the circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-11
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.5 Garmin RADAR Altimeter Installation



**Figure 97-4 – RAD ALT System Location**

**CAUTION: OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).**

Table 97-13 – RAD ALT System Equipment		
Item	Description	Part Number
1	Garmin GRA 5500 Rad Alt	010-00946-00
2	RAD ALT Antenna	S67-2002 Alt: 013-00378-00
3	RAD ALT 5G External Filter	011-06280-00 Alt: 010-02886-00

## 97.5.1 Garmin GRA 5500 Rad Alt with 5G External Filter – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-12 RAD ALT Installation  
E2006-11-5 Garmin GRA 5500 Rad Alt Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the RAD ALT PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the GRA 5500 connectors and cap and stow the electrical cables.
- c. If installed, disconnect the connectors, install dust caps on the GRA 5500 5G External Filter connectors and cap and stow the electrical cables.
- d. On the GRA 5500 Rad Alt unit pull back on the lockdown mechanism and simultaneously turn counterclockwise until free.
- e. Disengage the lockdown mechanism collar from the GRA 5500 Rad Alt unit hook.
- f. Loosen the thumb screws and remove the GRA 5500 Rad Alt from the aft cargo.
- g. Remove the four (4) fasteners and four (4) washers on the GRA 5500 5G External Filter. Retain the hardware for installation.
- h. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the RAD ALT PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. If required, locate the position of the GRA 5500 mounting tray on the Aft Cargo Bay wall IAW drawing E2006-01-12 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. If required, locate the position of the GRA 5500 5G External Filter on the Aft Cargo Bay wall IAW drawing E2006-01-12 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- d. Remove the dust caps from the GRA 5500 Rad Alt, 5G External Filter and the electrical connectors.
- e. Attach the GRA 5500 Rad Alt to the Mounting rack and tighten the thumbscrews.
- f. Lift the lockdown mechanism collar in place on the GRA 5500 Rad Alt hook and hand turn the lockdown mechanism knob clockwise until the unit is secure and the knob cannot reasonably be ratcheted any tighter by hand.
- g. Connect the connectors to the GRA 5500 Rad Alt and to the 5G External Filter.
- h. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- i. Ensure that the RAD ALT PWR circuit breaker has the collar removed and is pushed in (closed).
- j. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- k. Function test the GRA 5500 Rad Alt IAW Section 97.5.3.

## 97.5.2 Garmin GRA 5500 Rad Alt Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-13 RAD ALT Antenna Installation  
E2006-11-5 Garmin GRA 5500 Rad Alt Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the RAD ALT PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fastener holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the four (4) (P/N: MS24693-S) fasteners and the Antenna (P/N: S67-2002 (Alt: 013-00378-00)). Retain the mounting hardware.
- d. Disconnect the coax connectors, put a protective cover on the Rad Alt antenna connectors and cap and stow the antenna cables.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the Rad Alt antennas, o-ring and gasket from the fuselage.
- f. If required, remove the four (4) fasteners and the Antenna Mount Assy (P/N: E2006-02-15-041) and Access Panels. Retain the mounting hardware.

## F.2 Installation

- a. Ensure that the RAD ALT PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Unstow the Rad Alt antenna coax cable.
- c. Remove the dust caps from the Rad Alt antenna connector and the coax cable.
- d. If required, position the Antenna Mount Assy (P/N: E2006-02-15-041) onto the tail boom. Use the retained four (4) fasteners for the installation as indicated in drawing E2006-01-13. Torque all fasteners IAW Section 1.5.
- e. Connect the coax cable to the Rad Alt antenna connector.
- f. Install the Rad Alt antenna using four (4) fasteners, antenna gasket, and O-ring that were previously retained. Torque all fasteners and lock-wire IAW Section 1.5.
- g. Ensure that the Rad Alt antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- h. Dome seal the antenna fasteners and fillet seal the edges of Rad Alt antenna IAW Bell BHT-ALL-SPM Chapter 8.
- i. Ensure that the RAD ALT PWR circuit breaker has the collar removed and is pushed in (closed).
- j. Ensure the configuration has been completed IAW IIN-E212-2006.
- k. Apply power and function test the GRA 5500 IAW Section 97.5.3.

### 97.5.3 Garmin GRA 5500 Rad Alt – Functional Test

#### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### D. PROCEDURE

##### D.1 System Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Ensure that an amber “RA FAIL” is not present on the GDU 1060 PFD’s radar altimeter display while the helicopter is on the ground.
- e. On the GDU 1060, press “RA Test” and ensure the unit completes a successful self test.
- f. Power down all the rotorcrafts avionics systems.
- g. Disconnect power from the aircraft.

## 97.5.4 Garmin GRA 5500 Rad Alt – Fault Isolation

### A. APPLICABLE DOCUMENTS

E2006-11-5 Garmin GRA 5500 Rad Alt Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-5 Garmin GRA 5500 Rad Alt Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

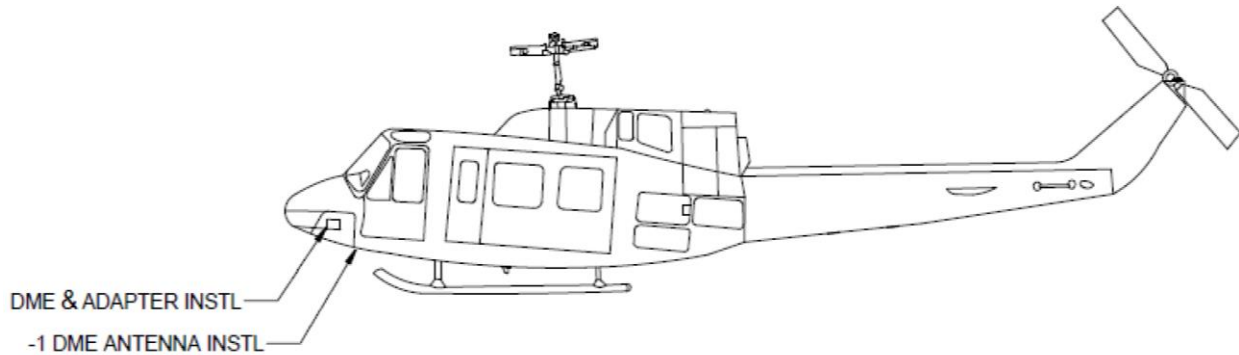
#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.4.3.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-14 - FAULT ISOLATION - GRA 5500</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) the circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-5
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.6 Bendix King DME Installation



**Figure 97-5 – DME System Location**

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 97-15 - DME System Equipment		
Item	Description	Part Number
1	Bendix King DME KN 63	066-1070-00/01
2	Garmin GAD 43e Adapter	010-00852-02
3	DME Antenna	CI-105-16

## 97.6.1 Bendix King KN 63 DME – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-14 DME Installation

E2006-11-7 Bendix King KN 63 DME Wiring Diagram

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness

BHT-212-MM Bell 212 Maintenance Manual

BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the DME PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Loosen the thumb screw and remove the KN 63 from the lower avionics shelf.
- c. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.
- d. Disconnect the connectors, install dust caps on the KN 63 connectors and cap and stow the electrical cables.

## F.2 Installation

- a. Ensure that the DME PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. If required, locate the position of the KN 63 mounting tray on the lower avionics shelf IAW drawing E2006-01-14 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the KN 63 and the electrical connectors.
- d. Attach the KN 63 to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the KN 63.
- f. Ensure all equipment bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the DME PWR circuit breaker has the collar removed and is pushed in (closed).
- h. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- i. Function test the KN 63 IAW Section 97.6.4.

## 97.6.2 Garmin GAD 43e Adaptor – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-16 Adapter Installation  
E2006-11-7 Bendix King KN 63 DME Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the GAD PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the GAD 43e connectors and cap and stow the electrical cables.
- c. Loosen the thumb screw and remove the GAD 43e from the lower avionics shelf.
- d. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the GAD PWR circuit breaker, located on the NON-ESS AVIONICS BUSS is pulled out (opened) and collared.
- b. If required, locate the position of the GAD 43e mounting tray on the lower avionics shelf IAW drawing E2006-01-16 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the GAD 43e and the electrical connectors.
- d. Attach the GAD 43e to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the GAD 43e.
- f. Ensure all equipment bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the GAD PWR circuit breaker has the collar removed and is pushed in (closed).
- h. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- i. Function test the KN 63 IAW Section 97.6.4

### 97.6.3 Bendix King KN 63 DME Antenna – Removal / Installation

#### A. APPLICABLE DOCUMENTS

E2006-01-15 DME Antenna Installation  
E2006-11-7 Bendix King KN 63 DME Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### F. PROCEDURE

##### F.1 Removal

- a. Ensure that the DME PWR circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fasteners holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the two (2) nuts and (2) washers. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the DME antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the DME antenna, o-ring and gasket from the fuselage.

## F.2 Installation

- a. Ensure that the DME PWR circuit breakers, located on the NON-ESS AVIONICS BUSS are pulled out (opened) and collared.
- b. Unstow the DME antenna coax cable.
- c. Remove the dust caps from the transponder antenna connector and the coax cable.
- d. Connect the coax cable to the DME antenna connector.
- e. Install DME antenna using two (2) nuts and (2) washers, antenna gasket, and O-ring that were previously retained.
- f. Ensure that the DME antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of DME antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the DME PWR circuit breaker has the collar removed and is pushed in (closed).
- i. Ensure the configuration has been completed IAW IIN-E212-2006.
- j. Apply power and function test the KN 63 IAW Section 97.6.4.

## 97.6.4 Bendix King KN 63 DME – Functional Test

### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### D. PROCEDURE

#### D.1 Function Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Position the test set, such as a TIC TR220 or equivalent, directional antenna with a clear line of sight to the KN 63 antenna.
- e. Ensure the distance on the test set matches the distance displayed on the GDU 1060 PFD.
- f. Ensure that the audio ident tone can be heard when selected on the audio control panel.
- g. Power down all the rotorcrafts avionics systems.
- h. Disconnect power from the aircraft

## 97.6.5 Bendix King KN 63 DME – Fault Isolation

### A. APPLICABLE DOCUMENTS

E2006-11-7 Bendix King KN 63 DME Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E2006-11-7 Bendix King KN 63 DME Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.6.4.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-16 - FAULT ISOLATION - DME SYSTEM</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) the circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E2006-11-7
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.7 Garmin GDL 69AH SXM Installation



Figure 97-6 – GDL 69AH SXM Location

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 97-17 – GDL 69 AH System Equipment		
Item	Description	Part Number
1	Garmin GDL-69AH SXM	011-03177-35
2	Garmin GA55 XM Antenna	011-01153-00

## 97.7.1 Garmin GDL 69AH SXM – Removal / Installation

### A. APPLICABLE DOCUMENTS

E212-9007 Garmin GDL 69AH SXM Wiring Diagram  
E212-5003 Installation Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the SXM PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the GDL 69AH connectors and cap and stow the electrical cables.
- c. Loosen the thumb screw and remove the GDL 69AH from the lower avionics shelf.
- d. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the SXM PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. If required, locate the position of the GDL 69AH mounting tray on the lower avionics shelf IAW drawing E212-5003 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the GDL 69AH and the electrical connectors.
- d. Attach the GDL 69AH to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the GDL 69AH.
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the SXM PWR circuit breaker has the collar removed and is pushed in (closed).
- h. Apply power and ensure the configuration has been completed IAW IIN-E212-2006.
- k. Function test the GDL 69AH IAW Section 97.7.3.

## 97.7.2 Garmin GA 55 XM Antenna – Removal / Installation

### A. APPLICABLE DOCUMENTS

E212-9007 Garmin GDL 69AH SXM Wiring Diagram  
E212-5003 Installation Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the SXM PWR circuit breakers, located on the NON-ESS AVIONICS BUS are pulled out (opened) and collared.
- b. Remove sealant from around the antenna and the fasteners holes with a non-metallic tool (to prevent scribing or scratching of the airframe).
- c. Remove the two (4) nuts and (4) washers. Retain the mounting hardware.
- d. Disconnect the coax connector, put a protective cover on the SXM antenna connector and cap and stow the antenna cable.

**CAUTION: DO NOT PULL ON THE ANTENNA WHILE THE CABLES ARE STILL ATTACHED.**

- e. Remove and retain the SXM antenna, o-ring and gasket from the fuselage.

## F.2 Installation

- a. Ensure that the SXM PWR circuit breakers, located on the NON-ESS AVIONICS BUS are pulled out (opened) and collared.
- b. Unstow the SXM antenna coax cable.
- c. Remove the dust caps from the transponder antenna connector and the coax cable.
- d. Connect the coax cable to the SXM antenna connector.
- e. Install SXM antenna using two (4) nuts and (4) washers, antenna gasket, and O-ring that were previously retained.
- f. Ensure that the SXM antenna bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Dome seal the antenna fasteners and fillet seal the edges of SXM antenna IAW Bell BHT-ALL-SPM Chapter 8.
- h. Ensure that the SXM PWR circuit breaker has the collar removed and is pushed in (closed).
- i. Ensure the configuration has been completed IAW IIN-E212-2006.
- j. Apply power and function test the GDL 69AH SXM IAW Section 97.7.3.

### 97.7.3 Garmin GDL 69AH SXM Kit – Functional Test

#### A. APPLICABLE DOCUMENTS

- E212-9007 Garmin GDL 69AH SXM Wiring Diagram
- E212-5003 Installation Diagram
- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### D. PROCEDURE

##### D.1 Function Check (Systems Operational Check)

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up all the avionics systems.
- d. Allow two to four minutes for initialization.
- e. The GDL 69AH SXM must be activated before use.
- f. Before performing systems checkout, ensure that the configuration module is properly programmed and the GDL 69AH is connected to the correct communication port.
- g. Make sure the rotorcraft is outside and that there is an unobstructed view of the sky.
- h. Power down all the rotorcrafts avionics systems.
- i. Disconnect power from the aircraft.

##### D.2 Function Check (Satellite Radio Weather Check)

- a. Apply ground power to the aircraft.
- b. Power up all the avionics systems.
- c. With the No. 1 GTN 750Xi running in normal mode, tap System > External LRUs > More Info corresponding to “GDL 69”.
- d. Verify the Data Radio ID field should display a valid ID.
- e. Verify at least one subscribed weather product turns green on the GDL 69 status page. During GDL 69AH SXM activation, “Detecting Activation” displays in the SERVICE CLASS field on the XM Information page, and “Aviator” or “Aviator Pro” displays once the GDL 69AH SXM signal is detected.

**NOTE:** This may take several minutes. This indicates the weather product are being received.

- f. Power down all the rotorcrafts avionics systems.
- g. Disconnect power from the aircraft.

## D.2 Function Check (Satellite Radio Audio Check)

- a. Apply ground power to the aircraft.
- b. Power up all the avionics systems.
- c. With the No. 1 GTN 750Xi operating in normal mode, tap Services > Music.
- d. Ensure the GDL 69AH is not muted.
- e. Set audio panel to route music to headsets.
- f. Verify audio can be heard over the headsets. Adjustment of the volume may be required.
- g. Verify that the GDL 69AH audio to the crew headphones are muted when each warning alarm is activated.
- h. Power down all the rotorcrafts avionics systems.
- i. Disconnect power from the aircraft.

## 97.7.4 Garmin GDL 69AH SXM Kit – Fault Isolation

### A. APPLICABLE DOCUMENTS

E212-9007 Garmin GDL 69AH SXM Wiring Diagram  
E212-5003 Installation Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the drawing E212-9007 GDL 69AH SXM Receiver. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as describe in step F.2.

#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.7.3.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-18 - FAULT ISOLATION – GDL 69AH SXM SYSTEM</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) the circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E212-9007
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

### 97.8 Rugged HD-19 Video Camera Provision Installation



Figure 97-7 – Camera Locations

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 97-19 - Camera System Equipment		
Item	Description	Part Number
1	AJA HD5DA Splitter Distribution Amplifier	AJA-HD5DA
2	True Blue Power DC to DC Converter	64430240-1

## 97.8.1 Splitter Distribution Amplifier – Removal / Installation

### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual  
E212-5004 Installation Diagram  
E212-9011 Wiring Diagram

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the 12 VDC PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the splitter amp connectors and cap and stow the electrical cables.
- c. Loosen the screws (4) and remove the splitter amp from the lower avionics shelf.
- d. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the 12 VDC PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. If required, locate the position of the splitter amp mounting tray on the lower avionics shelf IAW drawing E212-5004 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the splitter amp and the electrical connectors.
- d. Attach the splitter amp to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the splitter amp.
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.

## 97.8.2 DC to DC Converter – Removal / Installation

### A. APPLICABLE DOCUMENTS

ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual  
E212-5004 Installation Diagram  
E212-9011 Wiring Diagram

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the 12 VDC PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. Disconnect the connectors, install dust caps on the DC to DC converter connectors and cap and stow the electrical cables.
- c. Loosen the screws (4) and remove the DC to DC converter from the lower avionics shelf.
- d. If required, remove the tray by removing the four (4) fasteners and four (4) washers. Retain the hardware for installation.

## F.2 Installation

- a. Ensure that the 12 VDC PWR circuit breaker, located on the NON-ESS AVIONICS BUS is pulled out (opened) and collared.
- b. If required, locate the position of the DC to DC converter mounting tray on the lower avionics shelf IAW drawing E212-5004 and install the four (4) fasteners and four (4) washers retained from the removal. Torque all fasteners IAW Section 1.5.
- c. Remove the dust caps from the DC to DC converter and the electrical connectors.
- d. Attach the DC to DC converter to the Mounting rack and tighten the thumb screw.
- e. Connect the connectors to the DC to DC converter.
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.

## 97.9 Garmin GI 275 Multi-Functional Display Installation

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

**CAUTION:** IF OPERATION OF THE GI 275 IS REQUIRED FOR MAINTENANCE WHEN THE CABIN TEMPERATURE IS BELOW -20°C, THE CABIN TEMPERATURE MUST BE RAISED ABOVE -20°C BEFORE OPERATING THE EQUIPMENT.

Table 97-20 – GI 275 Display System Equipment		
Item	Description	Part Number
1	Garmin GI 275 ADAHRS ADI	011-04489-30
2	Garmin GI 275 HSI	011-04489-00

### 97.9.1 Garmin GI 275 ADAHRS ADI – Removal / Installation

#### A. APPLICABLE DOCUMENTS

E2006-01-1 Instrument Panel Installation  
 E2006-01-17 Pitot Static Installation  
 E212-9022 Garmin GI 275 ADI HSI Installation Wiring Diagram  
 ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
 BHT-212-MM Bell 212 Maintenance Manual  
 BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

## F. PROCEDURE

### F.1 Removal

- a. Ensure that the PILOT PFD (COPLT PFD) circuit breaker, located on the ESS AVIONICS BUSS is pulled (opened) and collared.
- b. Remove the three (3) fasteners retaining the GI 275 ADAHRS ADI in the instrument panel.
- c. Disconnect the pitot static lines and install dust caps on each line
- d. Gain access to GI 275 ADAHRS ADI from back of the instrument panel and gently pull it away.
- e. Disconnect the connectors and remove the GI 275 ADAHRS ADI.
- f. Install dust caps on the GI 275 ADAHRS ADI connectors and cap and stow the electrical cables.
- g. Retain the GI 275 ADAHRS ADI mounting hardware.

### F.2 Installation

- a. Ensure that the PILOT PFD (COPLT PFD) circuit breaker, located on the ESS AVIONICS BUSS is pulled (opened) and collared.
- b. Remove the dust caps from the GI 275 ADAHRS ADI and the electrical connectors.
- c. Connect the electrical connectors to the GI 275 ADAHRS ADI
- d. While supporting the GI 275 ADAHRS ADI flush with backside of the instrument panel, install the three (3) fasteners to attach the GI 275 ADAHRS ADI onto the instrument panel structure IAW drawing E2006-01-1. Torque all fasteners IAW Section 1.5
- e. Connect the pitot static lines to the GI 275 ADAHRS ADI
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Ensure that the PILOT PFD (COPLT PFD) circuit breaker has the collar removed and is pushed in (closed).
- h. Perform a Pitot Static System Operational Check IAW ICA-D212-725 Section 95.2.2.
- i. Apply power to GI 275 ADAHRS ADI and test by observing the function of the system
- j. Ensure the system configuration has been completed IAW Section 1.6.
- k. Function test the GI 275 ADAHRS ADI IAW Section 97.9.3, Step D.1.

## 97.9.2 Garmin GI 275 HSI – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-1 Instrument Panel Installation  
E212-9022 Garmin GI 275 ADI HSI Installation Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Ensure that the PILOT HSI (COPLT HSI) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. Remove the three (3) fasteners retaining the GI 275 HSI in the instrument panel.
- c. Gain access to GI 275 HSI from back of the instrument panel and gently pull it away.
- d. Disconnect the connectors and remove the GI 275 HSI.
- e. Install dust caps on the GI 275 HSI connectors and cap and stow the electrical cables.
- f. Retain the GI 275 HSI mounting hardware.

## F.2 Installation

- a. Ensure that the PILOT HSI (COPLT HSI) circuit breaker, located on the ESS AVIONICS BUSS (NON-ESS AVIONICS BUSS) is pulled (opened) and collared.
- b. Remove the dust caps from the GI 275 HSI and the electrical connectors.
- c. Connect the electrical connectors to the GI 275 HSI.
- d. While supporting the GI 275 HSI flush with backside of the instrument panel, install the three (3) fasteners to attach the GI 275 HSI onto the instrument panel structure IAW drawing E2006-01-1. Torque all fasteners IAW Section 1.5.
- e. Ensure all equipment bonding to adjacent airframe structure is  $0.0025\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- f. Ensure that the PILOT HSI (COPLT HSI) circuit breaker has the collar removed and is pushed in (closed).
- g. Apply power to GI 275 HSI and test by observing the function of the system.
- h. Ensure the system configuration has been completed IAW Section 1.6.
- i. Function test the GI 275 HSI IAW Section 97.9.3, Step D.1.

### 97.9.3 Garmin GI 275 – Functional Test

#### A. APPLICABLE DOCUMENTS

- ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness
- BHT-212-MM Bell 212 Maintenance Manual
- BHT-ELEC-SPM Bell Electrical Standard Practices Manual
- FMS-212-008 Eagle Single Avionics Upgrade, Flight Manual Supplement
- FMS-D212-725-1 Rotorcraft Flight Manual Supplement

#### B. SPECIAL TOOLS

None

#### C. JOB SET UP

C.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

C.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

#### D. PROCEDURE

##### D.1 Configuration Mode Ground Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Apply ground power to the aircraft.
- c. Power up the pilot and co-pilot GI 275 ADIs and HSIs in Configuration mode.

**NOTE:** The Configuration mode is accessed by holding down the inner knob located at the bottom-left of the unit upon initial power-up. The knob must be held down until the Garmin splash screen with Configuration Mode appears. Touch Accept to proceed to the Configuration mode home page.

- d. Ensure all interfaced LRU's are powered on and configured.
- e. Navigate to the Devices Online page via the Systems Info page, ensure that all LRUs connected or configured to each display have a Green Checkmark at the LRU Status Indicator.
- f. Touch the Device Info page.
- g. Verify that all configuration settings listed are consistent with the interfaced systems.
- h. For LRU sections that have a Yellow Question Mark present, verify that the system configuration is valid. Reference Section 1.6
- i. Remove power from the pilot and co-pilot GI 275 ADIs and HSIs.
- j. Power up the pilot and co-pilot GI 275 ADIs and HSIs in normal operation mode.
- k. Ensure all required display data is present and that there is no Red "X" in any of the data fields.
- l. Remove power from the pilot and co-pilot GI 275 ADIs and HSIs.
- m. Disconnect power from the aircraft.

D.2 Airspeed Check

- a. Ensure that the rotorcraft is in a serviceable configuration, all circuit breaker collars are removed, and all circuit breakers are pushed in (closed).
- b. Connect the pitot-static ramp tester.
- c. Apply ground power to the aircraft.
- d. Power up the pilot and co-pilot GI 275 ADIs in Normal mode.
- e. Ensure all self-tests pass on the main start-up screen.
- f. Increase the IAS through the airspeed range of the aircraft and complete Table 97-21. Ensure the standby analog ASI and ADI displays on both pilot and co-pilot are within the tolerance per Table 97-21.
- g. Decrease the airspeed to zero.
- h. Remove power from the pilot and co-pilot GI 275 ADIs.
- i. Disconnect power from the aircraft.

**Table 97-21 AIRSPEED TEST POINTS**

Airspeed (kt)	ADI Airspeed (kt)		Tolerance (kt)	Standby Analog ASI Airspeed (kt)		Tolerance (kt)	Pass / Fail	Initials
	PLT	CPLT		PLT	CPLT			
25			±5.0			±5.0		
40			±5.0			±5.0		
60			±5.0			±5.0		
80			±3.5			±3.5		
100			±2.0			±2.0		
125 (Vne)			±2.0			±2.0		

D.3 Altimeter Check

The GI 275 ADI and standby analog altitude displays must be verified per TC CARs Part V – Standard 571 Appendix B – Altimeter System Test and Inspection except paragraph (b)(1) (iv) Friction and (vi) Barometric Scale Error are not applicable to the GI 275 due to the internal ADAHRS and digital display.

- a. Connect the pitot-static ramp tester.
- b. Apply ground power to the aircraft.
- c. Power up the pilot and co-pilot GI 275 ADIs in Normal mode.
- d. Ensure all self-tests pass on the main start-up screen.
- e. Increase the Altitude through the altitude range of the aircraft and complete Table 97-22. Ensure that both pilot and co-pilot displays are within the tolerance per Table 97-22.
- f. Decrease the Altitude to zero.
- g. Remove power from the pilot and co-pilot GI 275 ADIs.
- h. Disconnect power from the aircraft.

Table 97-22 ALTITUDE TEST POINTS							
Altitude (Feet)	Tolerance (Feet)	ADI Altitude (feet)		Standby Analog Altitude (feet)		Pass / Fail	Initials
		PLT	CPLT	PLT	CPLT		
-1,000	±20.0						
0	±20.0						
500	±20.0						
1,000	±20.0						
1,500	±25.0						
2,000	±30.0						
3,000	±30.0						
4,000	±35.0						
6,000	±40.0						
8,000	±60.0						
10,000	±80.0						
12,000	±90.0						
14,000	±100.0						
16,000	±110.0						
18,000	±120.0						
20,000	±130.0						

#### D.4 Pitch Roll Offset Compensation

**NOTE:** If calibrating two GI 275 ADI with an integrated ADAHRS simultaneously, verify that Step d. is completed on both GI 275 ADIs prior to touching the Calibrate button. The button must be selected on both GI 275 ADIs in order to calibrate both ADAHRS units.

- a. Level the aircraft to within  $+0.25^\circ$  of zero pitch and zero roll. See ICA-D212-725 Chapter 8 for leveling procedure.
- b. Apply ground power to the aircraft.
- c. Power up the pilot and co-pilot GI 275 ADIs in Configuration mode.

**NOTE:** The Configuration mode is accessed by holding down the inner knob located at the bottom-left of the unit upon initial power-up. The knob must be held down until the Garmin splash screen with Configuration Mode appears. Touch Accept to proceed to the Configuration mode home page.

- d. Navigate to the Calibration Pitch/Roll page from the on-screen menu (Calibration/Test → Attitude/Heading → Calibrate Pitch/Roll).
- e. Select pilot and co-pilot GI 275 ADIs to calibrate from the ADAHRS Unit selection.
- f. Complete the Before Calibration steps listed on the display; select each step when complete so that a green checkmark appears next to the selection.
- g. Touch the Calibrate button when it becomes active to start the calibration procedure.
- h. Follow the on-screen command prompts.
- i. Repeat the procedure for each installed ADI unit if they were not completed simultaneously.
- j. Remove power from the pilot and co-pilot GI 275 ADIs.
- k. Disconnect power from the aircraft.

#### D.5 Magnetometer Calibration

- a. Ensure the aircraft is pushed away from any building or obstacles.
- b. Perform a normal engine start IAW the Rotorcraft Flight Manual Supplement (FMS-D212-725-1) Section 2.5 and if required disconnect ground power.
- c. With all of the rotorcraft and systems powered and operating normally, position the rotorcraft on a compass rose at a heading  $360^\circ$  (Magnetic North), or select a level and magnetically clean location and use a calibrated sight compass.  
Remove power from the pilot and co-pilot GI 275 ADIs and then power up the pilot and co-pilot GI 275 ADIs in Configuration mode.

**NOTE:** The Configuration mode is accessed by holding down the inner knob located at the bottom-left of the unit upon initial power-up. The knob must be held down until the Garmin splash screen with Configuration Mode appears. Touch Accept to proceed to the Configuration mode home page.

- d. Select Magnetometer from the on-screen menu (Calibration/Test → Attitude/Heading → Calibrate Magnetometer.).
- e. Select pilot and co-pilot GI 275 ADIs unit to calibrate from the ADAHRS Unit selection. (The procedure can be done simultaneously)
- f. Complete the Before Calibration steps listed on the display. Touch each step when complete so that a green checkmark appears next to the selection.

g. Touch the Calibrate button when it becomes active to start the calibration procedure. Follow the on-screen commands to complete the calibration.

#### D.6 Compass Swing

**NOTE:** If the following procedure must be performed on both ADAHRS units, it is permitted to run the procedure below simultaneously on two displays.

- a. With all the rotorcraft and systems powered and operating normally, position the rotorcraft on a compass rose at a heading 360° (Magnetic North), or select a level and magnetically clean location and use a calibrated sight compass.
- b. Power up the GI 275 ADIs in Normal mode, press and hold the knob in to open the menu.
- c. Navigate to the System Units page. (System → Units)
- d. Select the Magnetic (°) option from the NAV Angle selection.
- e. Return to the main screen.
- f. Record the Pilot ADI and Copilot ADI HDG value in Table 97-23.
- g. Record the heading displayed on the standby compass. Verify or correct the standby compass deviation card.
- h. Calculate the heading errors by subtracting the displayed Pilot ADI HDG (B) or Copilot ADI HDG (C) value from the actual (A) value for each of the headings. If each heading displayed on the Pilot ADI and Copilot ADI is at or within  $\pm 3^\circ$  of the actual heading, no further adjustments are necessary. If one or more of the displayed heading values are outside this range, further calibration is needed.
- i. If all calculated heading errors are between  $-5^\circ$  and  $+5^\circ$  inclusive, the Heading Offset Compensation procedure can be used.

**NOTE:** If at least one Heading Error (A-B) is greater than  $5^\circ$  / less than  $-5^\circ$ , DO NOT perform the Heading Offset Procedure until the GMU 44B installation has been physically corrected.

- j. If at least one Heading Error (A-B) is greater than  $5^\circ$  / less than  $-5^\circ$ , calculate the average error by adding all errors and dividing by 12. This is the angle by which the GMU 44B must be physically rotated to correct the installation.
- k. Modify the installation to rotate the GMU 44B by the amount calculated in the previous step. When looking down at the GMU 44B, rotate clockwise for positive values and counter clockwise for negative values.
- l. After physically correcting the GMU 44B installation, repeat the Magnetometer Calibration and Compass Swing
- m. Repeat the procedure for each installed ADAHRS unit if they were not completed simultaneously.
- n. Position the rotorcraft near the hangar landing area.
- o. Remove power from the pilot and co-pilot GI 275 ADIs.

**Table 97-23 HEADING VERIFICATION TEST POINTS**

<b>Actual Heading (A)</b>	<b>ADI Pilot Heading (B)</b>	<b>ADI Copilot Heading (C)</b>	<b>ADI Pilot Heading Error (A-B)</b>	<b>ADI Copilot Heading Error (A-C)</b>	<b>Standby Compass Heading</b>
360° (North)					
30°					
60°					
90° (East)					
120°					
150°					
180° (South)					
210°					
240°					
270° (West)					
300°					
330°					

#### D.7 Run-Up Vibration Check

**NOTE:** If the following procedure must be performed on Pilot and Copilot GI 275 ADI integrated with internal ADAHRS, it is permitted to run the procedure below simultaneously on two displays.

- a. Ensure the aircraft is pushed away from any building or obstacles.
- b. Perform a normal engine start IAW the Rotorcraft Flight Manual Supplement (FMS-D212-725-1) Section 2.5 and if required disconnect ground power.
- c. With all of the rotorcraft and systems powered and operating normally, ensure that the pilot and co-pilot's GI 275 ADIs is in Normal mode.
- d. Select Engine Vibration Test from the on screen menu.  
(Calibration/Test → Attitude/Heading → Engine Vibration Test).
- e. Select the desired ADI unit to calibrate via the ADAHRS Unit selection. (The procedure can be done simultaneously)
- f. Follow the Before Test checklist items on the display and touch each as they are completed. When all checklist items have a green checkmark, the Test selection will become active.
- g. Touch "Start" to begin the procedure.
- h. Follow the on-screen commands EXCEPT execute the run-up check between GROUND IDLE and FULL ROTOR RPM.
- i. Smoothly increase the throttle from ground idle to full rotor RPM for flight and then back to ground idle over a period of approximately 1 minute.
- j. Observe the readout on the display while performing the engine run-up. The values shown during the test must not exceed 100 in order for the test to be considered a pass. Values in excess of 100 will cause the display to indicate a failure.

**NOTE:** If failures are indicated, the engine run-up check may be repeated up to two more times. If the check does not pass after three attempts, the installation cannot be considered reliable until the source of the vibration problem is identified and fixed. In the event of repeated failures during the engine run-up check, record the values that are reported to be out of range for future reference.

- k. Perform a normal engine shut down IAW the Rotorcraft Flight Manual Supplement (FMS-D212-725-1) Section 2.12.

#### D.8 OAT Check

- a. Apply ground power to the aircraft.
- b. Power up the pilot and co-pilot GI 275 ADIs in Normal mode.
- c. On the ADI page, open the menu and touch ADI Options → Misc. Field.
- d. Touch the button that displays temperature and select OAT. Touch OAT to enable it.
- e. Verify the correct units (Celsius or Fahrenheit) and temperature reference (SAT, TAT, ISA) are displayed on the ADI
- f. If Required complete steps a. through e. for the co-pilots ADI.
- g. Remove power from the pilot and co-pilot GI 275 ADIs.
- h. Disconnect power from the aircraft.

## 97.9.4 Garmin GI 275 – Fault Isolation

### A. APPLICABLE DOCUMENTS

E212-9022 Garmin GI 275 ADI HSI Installation Wiring Diagram  
E2006-01-17 Pitot Static Installation  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Continuity Checks

- a. To determine cause of problem, troubleshoot wiring for continuity IAW the E212-9022 Garmin GI 275 ADI HSI Installation Wiring Diagram. Inspect connectors for bent, pushed-back or damaged pins. If problem persists, perform system component check as described in step F.2.

#### F.2 System Component Checks

- a. If a problem remains after conducting a continuity check, continue troubleshooting rotorcraft systems IAW AMM or other OEM documents. Faulty items are identified through observation and/or performance.
- b. Repair is accomplished through the removal and replacement of faulty items with known-serviceable items. Remove and replace defective components IAW Removal and Installation Section of this manual.
- c. Verification of repair is accomplished through observation and performing a system functional test IAW Section 97.9.3.

F.3 Fault Isolation Table Troubleshooting

<b>Table 97-24 - FAULT ISOLATION – Garmin GI 275</b>		
<b>FAILURE</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
No system power	Ground Power is not connected	Apply power IAW ICA-D212-725, BHT-212-MM
	Power switched off	Ensure all Switches are ON
	Wiring Installation inoperative	Inspect electrical wiring
Rotorcraft power on but system will not operate	Check if circuit breakers open	Push in (close) circuit breaker
	Check if circuit breakers fail	Replace the circuit breaker
Equipment failure	Connector disconnected	Trouble shoot IAW E212-9022
	Power or signal wire is damaged	Connect, repair or replace wire
	Equipment inoperative	Remove equipment for servicing

## 97.10 Garmin Sensors Installation

**CAUTION:** OBSERVE ALL SAFETY PRECAUTIONS AND FOLLOW APPROVED PROCEDURES WHEN APPLYING OR REMOVING AIRCRAFT ELECTRICAL POWER AS NOTED IN THE AIRCRAFT MAINTENANCE MANUAL (AMM).

Table 97-25 – Garmin Sensors Installation		
Item	Description	Part Number
1	Garmin GMU 44 MAGNETOMETER	011-00870-10
1	Garmin GMU 44B MAGNETOMETER	011-04201-00
2	Garmin GTP 59 OAT SENSOR	011-00978-00

**NOTE:** Due to wiring differences, the GMU 44 and GMU 44B are not interchangeable

### 97.10.1 Garmin GMU 44/44B Magnetometer – Removal / Installation

#### A. APPLICABLE DOCUMENTS

E2006-01-3 Magnetometer Installation  
 E212-5014 GMU 44B Magnetometers Installation  
 E2006-11-1 Garmin G500H TXi Wiring Diagram  
 E212-9022 for Garmin GI 275 ADI HSI Installation Wiring Diagram  
 ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
 BHT-212-MM Bell 212 Maintenance Manual  
 BHT-ELEC-SPM Bell Electrical Standard Practices Manual

#### B. SPECIAL TOOLS

None

#### C. CONSUMABLE MATERIALS

None

#### D. ROUTINE REPLACEMENT PARTS

None

#### E. JOB SET UP

- E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).
- E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

## F. PROCEDURE

### F.1 Removal

- a. Pull (open) and collar the ADAHRS circuit breakers as follows:
  - i. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - ii. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.
- b. Disconnect the connectors and install dust caps on the GMU 44/44B connectors and cap and stow the electrical cables.
- c. Remove and retain three (3) fasteners attaching GMU 44/44B to the mounting rack and remove the GMU 44/44B from the mounting rack.
- d. If required, remove and retain three (3) fasteners attaching the mounting rack to the adapter assembly and remove the mounting rack from the adapter assembly.
- e. If required, remove and retain three (3) fasteners attaching the adapter assembly to the existing structure and remove the adapter assembly.

### F.2 Installation

- a. Pull (open) and collar the ADAHRS circuit breakers as follows:
  - i. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - ii. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.
- b. If required, attach the Adapter Assembly to the existing bracket with three (3) fasteners, retained hardware from the removal.
- c. If required, attach the Mounting Rack to the Adapter Assembly with three (3) fasteners, retained hardware from the removal. Torque all fasteners IAW Section 1.5.
- d. Attach the GMU 44/44B to the Mounting Rack with three (3) fasteners retained from the removal. Locate the position of the GMU 44 IAW drawing E2006-01-4. Torque all fasteners of the GMU 44 IAW Section 1.5. Locate the position and torque all fasteners of the GMU 44B IAW drawing E212-5014.
- e. Remove the dust caps from the GMU 44/44B and the electrical connectors and connect the connectors to the GMU 44/44B.
- f. Ensure all equipment bonding to adjacent airframe structure is 0.0025Ω or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.
- g. Remove the collars and push in (close) the ADAHRS circuit breakers as follows:
  - i. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - ii. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.

### F.3 Function test

Calibrate and function test as follows:

- i. For G500 installations: Verify power to the GDU 1060s and calibrate and function test IAW Section 97.1.4 steps D.5, D.6 and D.7 (as required).
- ii. For GI 275 installations: Verify power to the ADIs and HSIs and calibrate and function test IAW Section 97.9.3, steps D.5 and D.6.

## 97.10.2 Garmin GTP 59 OAT Sensor – Removal / Installation

### A. APPLICABLE DOCUMENTS

E2006-01-5 GTP 59 Sensor Installation  
E2006-11-1 Garmin G500H TXi Wiring Diagram  
E212-9022 for Garmin GI 275 ADI HSI Installation Wiring Diagram  
ICA-D212-725 Eagle Single Instruction for Continuing Airworthiness  
BHT-212-MM Bell 212 Maintenance Manual  
BHT-ELEC-SPM Bell Electrical Standard Practices Manual

### B. SPECIAL TOOLS

None

### C. CONSUMABLE MATERIALS

None

### D. ROUTINE REPLACEMENT PARTS

None

### E. JOB SET UP

E.1 Comply with the general safety instructions for the electrical power supply system (ICA-D212-725, BHT-212-MM, and BHT-ELEC-SPM).

E.2 Comply with the general safety instructions for the mechanical assemblies (ICA-D212-725 and BHT-212-MM).

### F. PROCEDURE

#### F.1 Removal

- a. Pull (open) and collar the ADAHRS circuit breakers as follows:
  - i. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - ii. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.
- b. Remove and retain the shield washer, mounting nut and remove the GTP 59 from the hole.

#### F.2 Installation

- a. Pull (open) and collar the ADAHRS circuit breakers as follows:
  - i. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - ii. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.
- b. Locate the position of the GTP 59 on the aircraft belly location IAW drawing E2006-01-5.
- c. Put the GTP 59 in the hole and install using the retained nut and shield washer. Torque the nut to 100 inch-pounds  $\pm$  20 inch-pounds.
- d. Ensure the shield washer is bonded to adjacent airframe structure with a resistance of 0.0025 $\Omega$  or less. All electrical grounding and bonding is to be done IAW BHT-ELEC-SPM.

- e. Remove the collars and push in (close) the ADAHRS circuit breakers as follows:
  - iii. For G500 installations, PILOT ADAHRS and COPILOT ADAHRS on the ESSENTIAL and NON-ESSENTIAL AVIONICS BUSES respectively.
  - iv. For GI 275 installations, PILOT PFD and COPLT PFD on the ESSENTIAL AVIONICS BUSS.

### F.3 Function test

Calibrate and function test as follows:

- i. For G500 installations: Verify power to the GDU 1060s and calibrate and function test IAW Section 97.1.4 steps D.9.
- ii. For GI 275 installations: Verify power to the ADIs and HSIs and calibrate and function test IAW Section 97.9.3, step D.8.