A Textron Company

TECHNICAL BULLETIN 429-15-42

15 December 2015
Revision A, 21 July 2016
Revision B, 27 November 2019

MODEL AFFECTED: **429**

SUBJECT: **GTX 330 ES (ADS-B) TRANSPONDER (429-704-020) RETROFIT OF.**

HELICOPTERS AFFECTED: **Serial numbers 57001 through 57185 and 57289 equipped with GNS 530W and/or GNS 430W NAV/COM/GPS and Garmin GTX 330 Transponder.**

[Serial numbers 57001 through 57185 equipped with the Garmin GTN 750/650 NAV/COM/GPS and GTX 33H ES Transponder per Retrofit 429-704-009 or 429-704-019 are not affected by this bulletin.]

[Serial numbers 57186 through 57288, 57290 and subsequent are not affected by this bulletin.]

COMPLIANCE: Bell recommends compliance with this bulletin prior to January 1st, 2020.

DESCRIPTION:

In most countries, ADS-B OUT (Automatic Dependent Surveillance broadcast) will be required to occur on 1090 MHz as part of an extended Mode-S transponder message. This is referred to as “1090 ES” or “Extended Squitter”.

This Technical bulletin provides instructions and guidance to retrofit the transponder model GTX 330 to meet the ADS-B OUT requirement.

Part 1 provides the instructions to remove and send the GTX 330 transponder to an authorized Garmin Aviation service center to upgrade. Part 2 provides the instruction for

wiring modification. Part 3 provides the instructions to accomplish the configuration set-up, and Part 4 contains the transponder system operational checks.

Note that Technical Bulletin TB 429-15-41 entitled *GNS 530W/430W Series Unit Main Software Version 5.20 and GPS Software Version 5.0, Upgrade to,* **must be** complied with prior to or along with this bulletin

The initial release of this bulletin was applicable only to the helicopters listed in the HELICOPTER AFFECTED block that operate in the Australian airspace. Revision A makes this bulletin applicable to all helicopters listed in the HELICOPTERS AFFECTED block regardless of their geographical location.
Revision B of this Bulletin revise the Helicopters Affected and Technical Publication references.

Applicability of this bulletin to any spare shall be determined prior to its installation on affected helicopter.

-NOTE-

Owners/Operators who have already complied with either of the two previous version of this Technical Bulletin are considered to have already met the intent of this bulletin.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering
INTERMEDIATE Tel: 450-437-2077 / 1-800-463-3036 / productsupport@bellflight.com

MANPOWER:

Approximately 40.0 man-hours are required to complete this bulletin. This estimate is based on hands-on time and may vary with personnel and facilities available.

WARRANTY:

There is no warranty credit applicable for parts or labor associated with this bulletin.

MATERIAL:

Required Material:
The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Supply Center.

Part Number	Nomenclature	Qty
1250-00302-00 (04044-24-9)	Wire	A/R (14 feet)
1250-00313-00 (04049L24-01N24)	Cable	A/R (30 feet)
1250-00314-00 (04049L24-02N24)	Cable	A/R (13 feet)

Part Number	Nomenclature	Qty
100-075-5W	Plate Marking	12
130-005-3-2	Insulation Tubing	4
M39029/56-348	Contact	2
M39029/58-360	Contact	16
S200-2-00	Shield Terminal	4
S200-3-00	Shield Terminal	1
S200-2-01-100HN	Solder sleeve	4
S200-2-W1-22-9	Shield Terminal	1
20-108-1	Band	2
M85049/93-10	Shield Support Ring	2

Consumable Material:
The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

Part Number	Nomenclature	Qty	Reference *
10875 (MIL-PRF-81733, 2.5 ounces)	Sealant	2.5 ounces	C-251
299-947-110,Type III, Class 1	Tape, Adhesive, Pressure Sensitive, PTFE Extruded	Roll	C-460
2000-00730-00 11293 A-A-59163,Type I	Insulation Tape, Electrical, Reinforced Silicone	Roll	C-548

* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual

SPECIAL TOOLS:

Equipment	Type or Model
Test Set, XPDR/TCAS/TIS/DME	IFR 6000 with Option 3, ADS-B add On SW Version 02.08.00 or later (or equivalent)
Pitot-Static Test Set	Barfield Type 1811G (or equivalent)

WEIGHT AND BALANCE:

Not affected (it is recommended however that the record be amended accordingly).

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

TB 429-15-41, Technical Bulletin.
PMC-429-97499-020000-00, Bell Model 429 Maintenance Manual
BHT-429-FMS-32, Flight Manual Supplement

PUBLICATIONS AFFECTED:

PMC-429-97499-020000-00, Bell Model 429 Maintenance Manual
BHT-429-IPB, Illustrated Parts Breakdown

ACCOMPLISHMENT INSTRUCTIONS:

Part 1 - Transponder Unit Removal

1. Remove the GTX-330 transponder (P/N 011-00455-00) and make the necessary arrangements to have it sent to your local Garmin Aviation Service Center (http://www.garmin.com/dealers/) for a product change/upgrade to P/N 011-00455-60, GTX 330 **ES** transponder, and specify that the software version must be updated to 7.02 or later.

Part 2 - Wiring Modification

1. Prepare the helicopter for maintenance.
2. Ground the helicopter (DMC-429-A-12-00-00-00A-028A-A).
3. To gain access, remove the following panels or components:
   - Right upper nose access panel cover (100DR)
   - Left pedestal circuit breaker panel (3940A1)
   - Right pedestal circuit breaker panel (3940A2)
   - Center crew belly panel assembly
   - GNS 530W and/or GNS 430W units
   - Left (if equipped) and center display unit(s)
   - Center console equipment, as required
4. Disconnect the helicopter battery connector and cap. Make sure the external power receptacle door is closed and there is no Ground Power Unit (GPU) connected to the helicopter.

-NOTE-

Refer to Table 1 for the list of wires and termination details. Refer to Figure 1 and 2 for wire routing details. Refer to Figure 3 for cable/harness assembly architecture. Refer to Figure 4 for wiring diagram.

5. Route wires ATC-030A24 from the transponder (3427TR1P1) to the SDM (3960AT2P9).
6. Route wires ATC-031B24 and ATC-032B24 from the transponder (3427TR1P1) to the right instrument panel disconnect (4296J10).
7. Route wires ATC-031A24 from the right instrument panel disconnect (4296P10) to the GNS 430 (3450TR2P1).
8. Route wires ATC-032A24 from the right instrument panel disconnect (4296P10) to the GNS 430/530 (3450TR1P1).

9. At the transponder connector (3427TR1P1), ground wire ATC-030A24 shield using wire ATC-035A24N.

10. At the transponder connector (3427TR1P1), ground wire ATC-031B24 shield using wire ATC-036A24N.

11. At the transponder connector (3427TR1P1), ground wire ATC-032B24 shield using wire ATC-037A24N.

12. Terminate wires ATC-030A24 (WHT BLU) at the transponder connector (3427TR1P1).

13. At the transponder connector (3427TR1P1), terminates wire ATC-031B24.

14. At the transponder connector (3427TR1P1), terminates wire ATC-032B24.

15. Route wires ATC-035A24N, ATC-036A24N, and ATC-037A24N to the transponder connector (3427TR2WT1).

16. Terminate wire ATC-035A24N, ATC-036A24N, and ATC-037A24N at the transponder connector (3427TR1WT1).

17. Terminate wires ATC-030A24 shield at the SDM connector (3960AT2P9).

18. Terminate wires ATC-030A24 (WHT BLU) at the SDM connector (3960AT2P9).

19. Terminate shield of wires ATC-031B24 and ATC-032B24 at the right instrument panel disconnect connector (4296J10).

20. Terminate wires ATC-031B24 and ATC-032B24 at the right instrument panel disconnect connector (4296J10).

21. Terminate shield of wires ATC-031A24 and ATC-032A24 at the right instrument panel disconnect connector (4296P10).

22. Terminate wires ATC-031A24 and ATC-032A24 at the right instrument panel disconnect connector (4296P10).

23. At the GNS 430 (3450TR2P1), ground wire ATC-031A24 shield using wire ATC-033A24N.

24. At GNS 430/530 (3450TR1P1), ground wire ATC-032A24 shield using wire ATC-034A24N.

25. Terminate wires ATC-031A24 at the connector (3450TR2P1) of the GNS 430W.

26. Terminate wires ATC-032A24 at the connector (3450TR1P1) of the GNS 430W/530W.

27. Route wire ATC-033A24N to the GNS 430 (3450TR2WT1).

28. Route wire ATC-034A24N to the GNS 430/530 (3450TR1WT1).

29. Terminate wire ATC-033A24N at the connector (3450TR2WT1) of the GNS 430.

30. Terminate wire ATC-034A24N at the connector (3450TR1WT1) of the GNS 430/530.

31. Reinstall the following components:

    - Left pedestal circuit breaker panel (3940A1)
    - Right pedestal circuit breaker panel (3940A2)
    - GNS 530W and/or GNS 430W units
    - Center console equipment
    - Left (if equipped) and center display unit(s)
    - Right upper nose access panel cover (100DR)

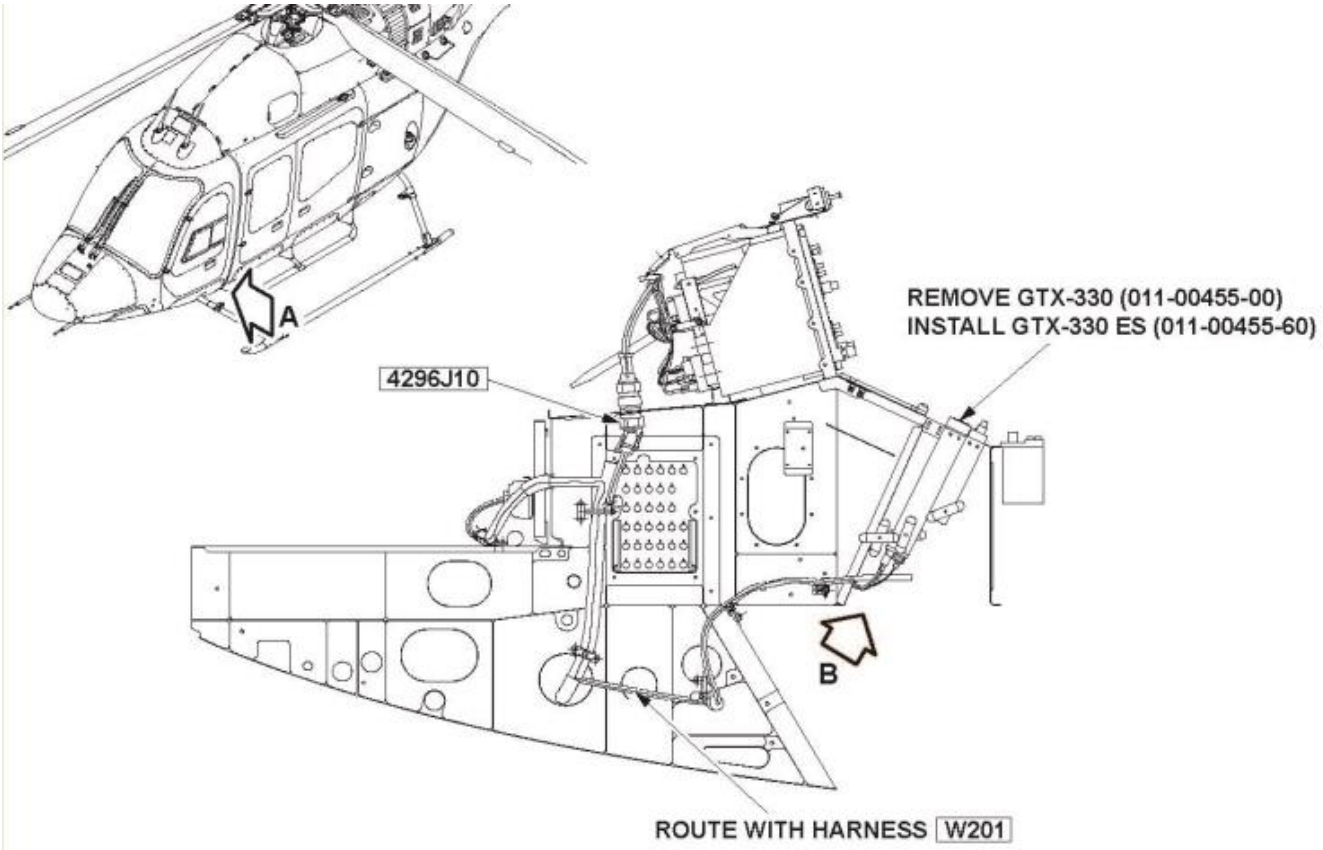
	Length (Inch)	From	Pin	Hardware	To	Pin	Hardware	Note
ATC-030A24 WHT	155	3427TR1P1	26	M39029/58-360	3960AT2P9	2	M39029/58-360	1,2
ATC-030A24 BLU	155	3427TR1P1	29	M39029/58-360	3960AT2P9	23	M39029/58-360	1,2
ATC-030A24 **SHLD**	12	3427TR1P1		S200-3-00	3960AT2P9	44	M39029/58-360, S200-2-W1-22-9	1,4
ATC-031B24	118	3427TR1P1	24	M39029/58-360	4296J10	30	M39029/56-348	1,2
ATC-031B24 **SHLD**	12	3427TR1P1		S200-2-00	4296J10		130-005-3-2 S200-2-01-100-HN	3,4,5
ATC-032B24	118	3427TR1P1	22	M39029/58-360	4296J10	37	M39029/56-348	1,2
ATC-032B24 **SHLD**	12	3427TR1P1		S200-2-00	4296J10		130-005-3-2 S200-2-01-100-HN	1,3,4,5
ATC-031A24	60	4296P10	30	M39029/58-360	3450TR2P1	58	M39029/58-360	1,2
ATC-031A24 **SHLD**	12	4296P10		130-005-3-2 S200-2-01-100-HN	3450TR2P1		S200-2-00	1,4
ATC-032A24	60	4296P10	37	M39029/58-360	3450TR1P1	58	M39029/58-360	1,2
ATC-032A24 **SHLD**	12	4296P10		130-005-3-2 S200-2-01-100-HN	3450TR1P1		S200-2-00	1,4
ATC-035A24N	19	3427TR1P1	SHLD		3427TR1WT1	6	M39029/58-360	1,2,4
ATC-036A24N	19	3427TR1P1	SHLD		3427TR1WT1	4	M39029/58-360	1,2,4
ATC-037A24N	19	3427TR1P1	SHLD		3427TR1WT1	5	M39029/58-360	1,2,4
ATC-033A24N	19	3450TR2P1	SHLD		3450TR2WT1	6	M39029/58-360	1,2,4
ATC-034A24N	19	3450TR1P1	SHLD		3450TR1WT1	6	M39029/58-360	1,2,4
4296P10				-130-5-3-2 -M85049/93-10 -S200-2-01-100HN -20-108-1				1
4296J10				-130-5-3-2 -M85049/93-10 -S200-2-01-100HN -20-108-1				1

Wire List and Termination Details

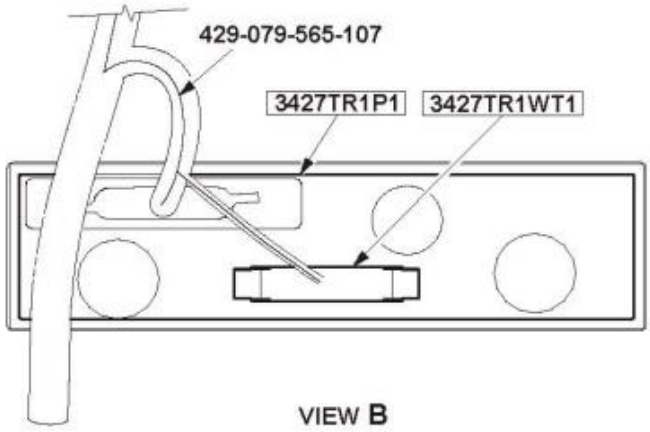
Notes:

1. Assemble in accordance with the BHT-ELEC-SPM, Electrical Standard Practice Manual and/or Figure 4**.**
2. Wire end termination preparation to be per the BHT-ELEC-SPM, Electrical Standard Practice Manual.
3. Insulation tape used to replace shrink tubing removed while adding wires to existing connectors.
4. Used for terminating the shield of a single conductor or multi-conductor cable.
5. Insulation tubing used for dead ending shields.
6. Mark wire number on wire per the BHT-ELEC-SPM.

Wire Routing Details



VIEW A



VIEW B

Figure 1

15629_001

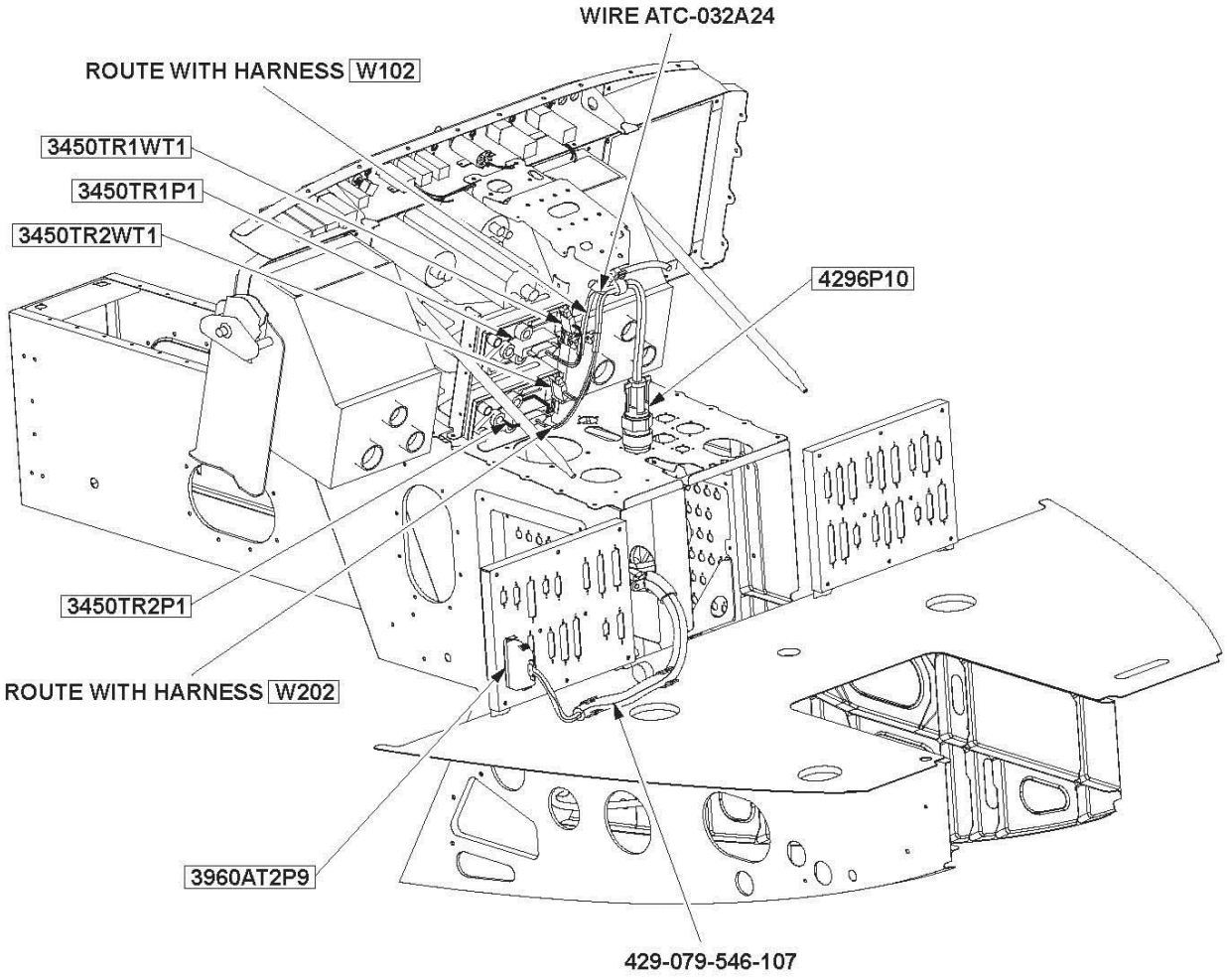
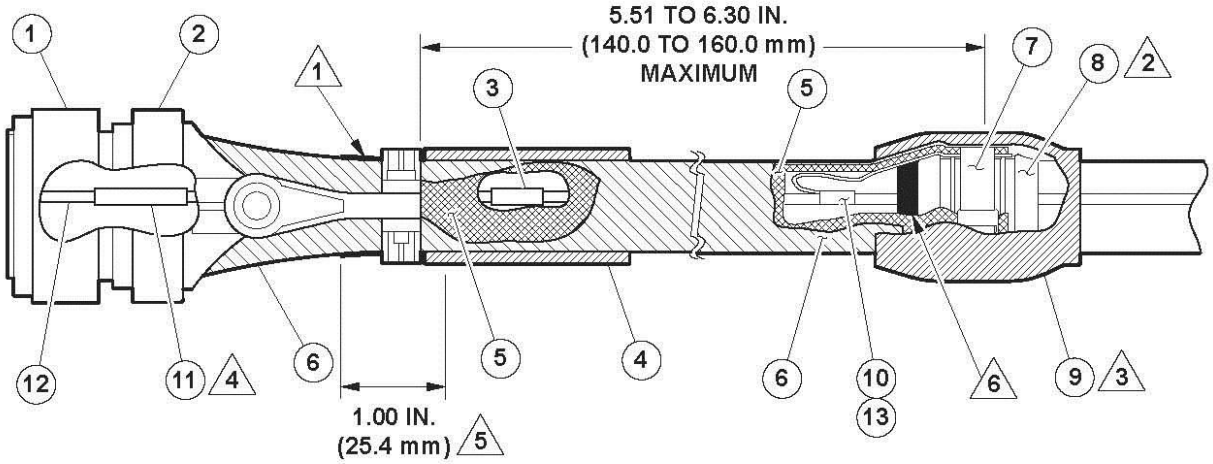


Figure 2

15629_002

Cable / Harness Assembly Architecture



1. Connector (Ref)
2. Adapter (Ref)
3. Insulation sleeve (130-005-4-2)
4. Identification sleeve (Ref)
5. Braid sock (Ref)
6. Braided sleeve (Ref)
7. Band (20-108-1)
8. Shield support ring (Ref)
9. Insulation sleeve (Ref)
10. Shield termination (S200-2-01-100HN)
11. Insulation sleeve (130-005-3-1)
12. Contact (Ref)
13. Shield termination (S200-2-W1-22-9)

NOTES

1. Use insulation tape (C-548) to build the wire bundle diameter (BHT-ELEC-SPM, Chapter 6).

2. Select the shield support ring (8) for the applicable connector/receptacle from the table below.

SHIELD SUPPORT RINGS	QUANTITY	CONNECTORS/RECEPTACLES
M85049/93-10	2	4296J10, 4296P10

3. Insulation tape (C-548) may be used as an alternate for replacement of insulation sleeve.

4. When installing 24 gauge wire into 20 gauge contacts (12) and when specified in the instructions, a piece of insulation sleeve (11) shall be shrunk into position on the wire where it enters the connector grommet to effect a good environmental seal. The tubing shall not protrude more than 1 inch (25.4 mm) out of the connector grommet and shall fit snug tight on the wire insulation when shrunk. If a single piece of insulation sleeve does not provide sufficient diameter, then a second piece shall also be installed. Ensure that the insulation sleeve is not applied on any portion of the contact.

5. Wrap 1.5 to 2 turns of adhesive tape (C-460) between the wire bundle and braid sock (5) for protection against chafing.

6. Use adhesive tape (C-460) around the wire bundle to ensure a snug fit for the shield support ring (8).

15629_003

Figure 3

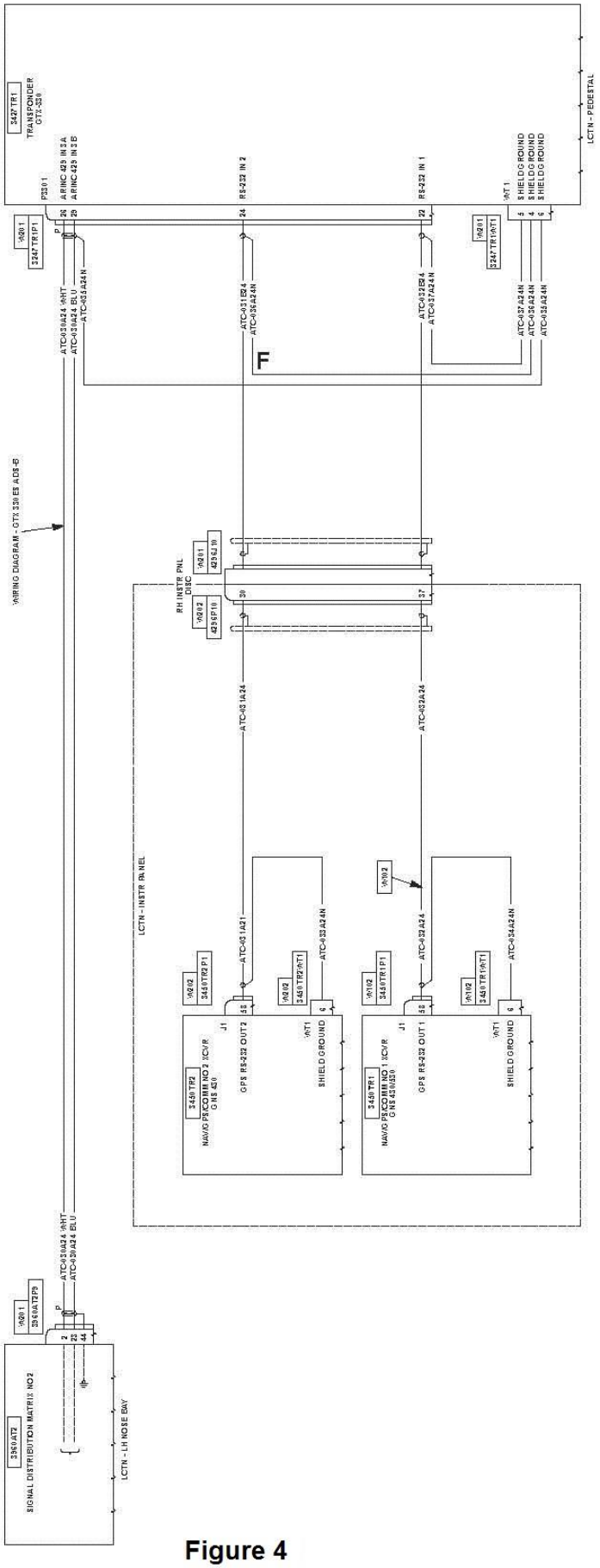
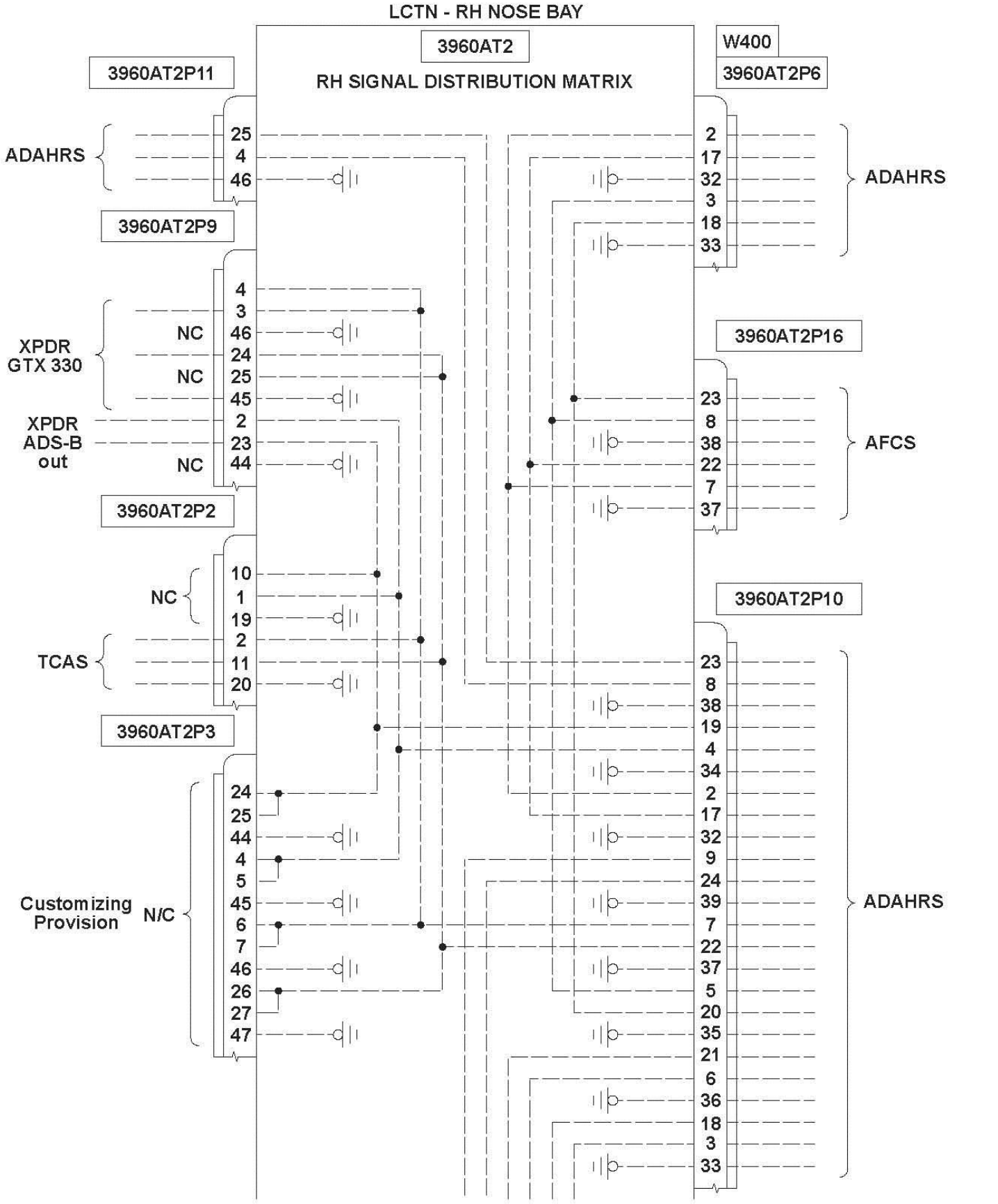


Figure 4

15629_004a



Figur 4 Sheet 2

Approved for public release.

Part 3 - Configuration Set-ups

-NOTE-

Unless otherwise specified, functional test shall be accomplished after installation of the equipment, wiring, and circuitry check, and prior to ground run and flight.

Any electrical/avionics systems that have been disturbed, must be functionally tested in accordance with the procedure outlined in the PMC-429-97499-020000-00, Bell Model 429 Maintenance Manual .

1. Apply power to the helicopter by connecting a 28 VDC Ground Power Unit (GPU) to the external power receptacle. Switch the helicopter battery to the ON position as a precaution to prevent power interruption.

2. Make sure that **TB 429-15-41** entitled - *GNS 530W/430W Main Software Version 5.20 and GPS Software Version 5.0, Upgrade to,* is done prior to proceeding to the next step.

3. Validate that GNS 430W and or GNS 530W are at software level indicated below:

GNS 430W#1/530W	
Main Software	5.20
GPS/WAAS Software	5.00

GNS 430W#2	
Main Software	5.20
GPS/WAAS Software	5.00

4. Access the GNS 530W and/or the GNS 430W unit configuration pages (DMC-429-A-97-20-00-01A-020A-A and DMC-429-A-97-20-00-00A-020A-A) and set up their respective MAIN RS-232 CHNL 2 input and output as follows:

GNS 430W #1/530W MAIN RS-232 PAGE	**VALUE**	
	INPUT	OUTPUT(1)
CHNL 2	OFF	ADS-B OUT+

(1)

GNS 430W #2 MAIN RS-232 PAGE	**VALUE**	
	INPUT	OUTPUT(1)
CHNL 2	OFF	ADS-B OUT +

*Make sure that **ADS-B OUT+** is selected and not just **ADS-B OUT** (without the **+**), otherwise the ADS-B out functionality will be noncompliant. If the -103 kit only (provisions) is installed (without the GNS SW upgrade), the ADS-B Out + option may not be available, then the ADS-B OUT can be selected for testing purposes only.*

5. Access the GNS 530W and/or the GNS 430W unit configuration pages (DMC-429-A-97-20-00-01A-020A-A and DMC-429-A-97-20-00-00A-020A-A) and set their respective MAIN SYSTEM CONFIG TAWS N/A to NORMAL.

GNS 430W #1/530W MAIN SYSTEM CONFIG	**VALUE**
TAWS N/A	**NORMAL**

GNS 430W #2 MAIN RS-232 PAGE	**VALUE**
TAWS N/A	**NORMAL**

6. If the GNS 430W No. 1 / 530W is HTAWS enabled, access the GNS 530W and/or the GNS 430W unit HTAWS configuration pages (DMC-429-A-97-20-00-01A-020A-A and DMC-429-A-97-20-00-00A-020A-A) and set HTAWS AIRPORT CRITERIA CONFIGURATION as follows;

HTAWS AIRPORT CRITERIA CONFIGURATION	VALUE
RUNWAY SURFACE	ANY
MINIMUM LENGHT	0 FT

7. Turn OFF electrical power (GPU and helicopter battery) on the helicopter.

8. Install the upgraded (or replacement) transponder GTX 330 ES, P/N 011-00455-60 (DMC-429-A-97-50-00-00A-720A-A).

-NOTE-

Transponder GTX 330 ES (P/N 011-00455-60) must be at software Version 7.02 or later.

9. Apply 28 VDC electrical power to the helicopter.

10. Confirm the GTX 330 is an ES version by looking at the Self Test screen when the unit is first powered ON. It must display GTX 330 ES.

11. Access the GTX 330 ES transponder configuration page and set up the parameters (DMC-429-A-97-50-00-00A-020A-A).

12. Configure/set up the parameters of the GTX 330 ES transponder as follows:

ARINC 429 INPUT CONFIG PAGE (1st)	**SPEED**	**DATA**
CHANNEL 1	LOW	OFF
ARINC 429 INPUT CONFIG PAGE (2nd)	**SPEED**	**DATA**
CHANNEL 3	HIGH	AHRS
RS-232 PAGE		**VALUE**
	INPUT	OUTPUT
CHNL 1	REMOTE	OFF
CHNL 2	REMOTE	OFF
GPS CONFIG PAGE		**VALUE**
GPS X OFST		0 (C)
GPS Y OFST		02
GPS INTEGRITY		1 E-7
ADS-B TX		**VALUE**
ADS-B TX		PILOT SET
1090 IN		NO
UAT IN		NO
EHS		**VALUE**
EHS		**ENABLE**

AIRCRAFT SIZE PAGE	**VALUE**
AC LENGHT	**LENGHT < = 15 mt**
AC WIDTH	**WIDTH < = 11.5 mt**

13. Configure the following parameters of the GTX 330 ES transponder, as required:

MODE S FLIGHT ID PAGE	VALUE Description
US TAIL	Set the Default Flight ID Registration number
ENTRY	Set the Default Flight ID using this page

Allow Pilot To Set FLT ID Selection	
Selection	**Description**
NO	The Default Flight ID set in instalation is used as the normal mode Flight ID.
YES	The Flight ID can be set in the normal mode by the flight crew by pressing the CRSR key on the FLIGHT ID page.

Part 4 - Operational Checks

1. Do an operational check of all disturbed systems (PMC-429-97499-020000-00).

2. Do an operational check of the transponder (DMC-429-A-97-50-00-00A-320A-A) and/or refer to the applicable regulation regarding ATC transponder performance test (i.e., TCCA Part V, Standard 571, Appendix F/FAA Appendix F to Part 43). All the features of the standard GTX 330 transponder are retained in the ES version.

3. Do operational checks of the ADS-B feature of the GTX 330 ES transponder per **Appendix A** of this bulletin. If using an equivalent test set, refer to the test set manufacturer's procedure.

4. Make sure the BHT-429-FMS-32 Flight Manual Supplement is in the helicopter.

5. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.

APPENDIX A

Transponder (GTX 330 ES) ADS-B out operational check using the IFR Model 6000 (with Option 3, ADS-B add on, SW Version 02.08.00 or later) Test Set.

1. Setup Information (for IFR 6000)

-NOTE-

It may be acceptable to use the antenna coupler method, described in the IFR 6000 operator's manual instead of the directional antenna, as an alternate method.

a. Mount the directional antenna on the IFR 6000 test set.

b. Position the test set within 80 to 100 inches (203 to 254 cm) of the forward quadrant in line with the site of the bottom transponder antenna.

c. Power up the test set. Use the SETUP control key to cycle to the SETUP XPDR screen.

d. Select ANTENNA. Set to BOTTOM.

e. Select RF PORT. Set to ANTENNA.

f. Select ANT RANGE. Set to the horizontal range of the IFR 6000 antenna to the helicopter transponder antenna.

g. Select ANT HEIGHT. Set to setup height of 1 foot from the IFR 6000 antenna to the transponder antenna.

h. Select ANT CABLE. Set to actual cable length "X feet". Enter CABLE LOSS value as identified on ANT CABLE. No entry required for DIR CABLE LOSS.

i. Select ANT GAIN (dBi). Set 1.03 GHz and 1.09 GHz antenna gain to figures identified on the supplied directional antenna.

j. Select UUT ADDRESS. Set to AUTO. No entry required for MANUAL AA.

k. Select DIVERSITY. Set to OFF.

-NOTE-

Depending on the country where the test is performed, selection may be different.

l. Select PWR LIM. Set to FAR 43.

m. Select CHECK CAP. Set to YES.

n. Press the XPDR mode key to return to XDPR Auto Test Screen.

o. Press the CONFIG softkey to display the XPDR CONFIG screen. Use data keys to select the configuration file MODE S CLASS A. Press the return softkey to confirm selection.

2. Operating Mode

a. Verify on the GTX 330 ES that the XPDR status indicates STBY (on the left side of the display).

CAUTION

Avoid selecting code 7500 and all codes in the 7600-7777 range (7500 - Hijacking of Aircraft, 7600 - Communications Failure, 7700 - Emergency, Aircraft in Distress, 7777 - Military Interceptor Operations (never squawk this code)).

-NOTE-

Depending on the country where the test is performed, selection may be different.

b. Using the numeric keys (1-7), enter a code of 2300. Verify 2300 is displayed.

c. Select XPDR to ALT mode. Verify that the GND indication changes to ALT.

d. Verify valid pressure altitude (Flight Level FL 000 or greater) is displayed to the right of the display code.

e. Press the IDENT pushbutton and verify that the GTX 330 ES annunciates IDENT on the upper left of the display for approximately 20 seconds.

3. Ramp Test

a. On the test set, press the XPDR mode key to return to the XDPR Auto Test screen.

-NOTE-

If Automatic Airborne Determination senses the helicopter is on the ground, the GTX 330 will not respond to ATCRBS or Mode S All-Call interrogations regardless of the operating mode.

b. Set WOG SW 3260S1 (skid) or 3260S9 (wheel gear) to the OPEN state for AIR mode.

c. Press the RUN TEST softkey to start auto test. TESTING is displayed at the bottom of the screen. Verify on completion of the test that a PASS is indicated at the top of the screen.

-NOTE-

Any warnings/errors are identified by an arrow symbol to the left of the item.

d. On the Auto Test screen, verify that the AA (Aircraft Address displayed in HEX and (OCTAL), TAIL (Aircraft Tail Number), and FLT ID are correct.

-NOTE-

If the FLIGHT ID (Aircraft Identification) is not entered in the transponder, then the FLIGHT ID field on the test set is zero (0).

Record AA_____
Record TAIL_____
Record FLT ID_____

-NOTE-

Depending on the country where the test is performed selection may be different.

e. Press the TEST LIST softkey to display test list items 1 through 17 (displayed over two screens). Except where noted, verify that the line items listed below are identified as PASS:-: PASS:

( )	1	A/C DECDR/SLS
( )	2	A/C F1/F2 SPACE/WIDTH
( )	3	POWER/FREQ
( )	4	S ALL-CALL
( )	5	S REPLY TIMING
( )	6	S REPLY
( )	7	UF0
( )	8	UF4
( )	9	UF5
( )	10	UF11
( )	11	UF16
( )*	12	UF20 **= NO REPLY**
( )*	13	UF21 **= NO REPLY**
( )**	14	UF24 **= NOT CAP**
( )	15	ELEMENTARY SURV 1
( )	16	ELEMENTARY SURV 2
( )	17	ENHANCED SURV **= NOT CAP**

Notes:

*Transponders without active subsystems capable of accepting Comm. A data do not reply to UF20 and UF21 interrogations. An ADLP (Air Data Link Processor) is required to accept Comm. A data. ADLP is reserved for future data link applications. **NO REPLY** is indicated.

The BDS 1.0 Data link Capability Report determines level of transponder under test. If a Level <3 is reported, test is not run. Since GTX 330 ES is a Level 2 transponder, **NOT CAPABLE is indicated.

4. Mode C Altitude Reporting

a. Verify ALT (Mode C altitude reporting) mode is selected, as indicated by **ALT** annunciation on the GTX 330 ES.

b. On RH-DU, set the BARO setting to 29.92 inches of mercury (1013.2 millibars), as required, by pressing the BARO softkey R6, adjusting RID to 29.92 and pressing RID.

c. Execute the XPDR Auto Test and verify the indicated altitude of the transponder test set display is within ±125 feet of the RH-DU altimeter (on-side ADC source). Record values.

RH-DU _____ Feet
XPDR Test Set _____Feet

d. Verify satisfactory completion of test of modes A, C, and S interrogations.

5. ADS-B Ramp Test

a. Make sure WOG SW 3260S1 (skid) or 3260S9 (wheel gear) is set to the OPEN state for AIR mode and on the GTX 330 ES make sure ADS-B TX is set ON.

b. On the IFR 6000, press the SETUP key until the SETUP XPDR screen is displayed.

-NOTE-

If not set previously The LAT and LONG need to be entered into the test set. See the IFR 6000 manual.

c. Press the ADS-B SETUP softkey to display the SETUP ADS-B screen and then use the NEXT PARAM or PREV PARAM softkeys to select parameters with the following settings:

( ) POS DECODE: GLOBAL
( ) ADSB MON: DF17
( ) GICB: DF20
( ) LAT:
( ) LONG:

Record the LAT:_____GPS LAT in Deg, Min, Sec N or S.
Record the LONG:_____GPS LONG in Deg, Min, Sec N or S.

d. Verify that the LAT/LONG corresponds with either the GNS 430W and GNS 530W indicated positions by selecting the System page, followed by the GPS Status page on either system.

-NOTE-

The ADS-B MON screen will indicate that the BDS is either AVAIL (squitter captured), NO SQTR (squitter not captured), or NOT CAP (squitter not supported).

e. Press the XPDR mode key until the ADS-B/GICB main menu screen is displayed and then press the ADS-B MON softkey to display the ADS-B MON list screen.

f. Press the BDS ON softkey to enable all listed items and then press the RUN TEST softkey to start the test.

g. Verify that the following status is indicated on the ADS-B MON screen for the listed BDS registers below.

( )	BDS 0,5 AIRBORNE POS:	AVAIL
( )	BDS 0,6 SURFACE POS :	NO SQTR
( )	BDS 0,8 IDENT & CAT :	AVAIL
( )	BDS 0,9 AIRBORNE VEL :	AVAIL
( )	BDS 6,1 A/C STATUS ST1	AVAIL
( )	BDS 6,1 A/C STATUS ST2	NO SQTR
( )	BDS 6,2 TSS SUBTYPE 0	NOT CAP*
( )	BDS 6,2 TSS SUBTYPE 1	NOT CAP
( )	BDS 6,5 A/C O/P STATUS AIR:	AVAIL
( )	BDS 6,5 A/C O/P STATUS SUR:	NO SQTR
( )	BDS 0,A TEST MSG S:	NO SQTR

-NOTE-

*If transponder has software Version 8.01 onwards, this line will read NO SQTR.

6. Enhanced Surveillance Test

a. Press the XPDR mode key until the ADS-B/GICB main menu screen is displayed, and then press the GICB softkey to display the GICB list screen.

b. Press the RUN TEST softkey to start test.

c. Verify the following status indicated on the GICB screen for the listed BDS registers below:

( ) BDS 5, 0 TRACK & TURN:	AVAIL
( ) BDS 6, 0 HDG & SPEED:	AVAIL

d. Select the BDS 5.0 screen and verify that the valid ROLL ANGLE value given is similar to the attitude indication on the RH-DU PFD.

e. Select the BDS 6.0 screen and verify that the valid MAG HDG value given is similar to the heading indication on the RH-DU PFD.

f. Return WOG switch to closed state (GROUND).

g. Reinstall center crew belly panel assembly.

-NOTE-

The following testing is not required if the Traffic Information System (TIS) is not active or not used. TIS coverage may differ or may not be available, depending on the region/country location.

7. Traffic Information Service (TIS) and TA Mute

a. Refer to the GTX 330 ES configuration setup and access the second page of the GTX 330 ES operational configuration.

b. Set the SQUAT SWITCH value to NO. Turn XPDR power to OFF. Turn XPDR power to ON and verify that the display indicates **ON**. Position the test set within 80 to 100 inches and in line of site of the bottom transponder antenna.

c. On test set, press the TCAS mode key twice to obtain the TIS screen.

d. On test set, press the SETUP softkey to display the SET UP TIS screen.

e. Select RF PORT. Set to ANTENNA.

f. Select ANT RANGE. Set to the horizontal range of the IFR 6000 antenna to the helicopter transponder antenna.

g. Select ANT HEIGHT. Set to setup height from IFR 6000 antenna to transponder antenna.

h. Select ANT CABLE. Set to actual cable length “X feet”. Enter the CABLE LOSS value as identified on ANT CABLE. No entry required for DIR CABLE LOSS.

i. Select ANT GAIN (dBi). Set 1.03 GHz and 1.09 GHz antenna gain to figures identified on supplied directional antenna.

j. Select UUT ADDRESS. Set to AUTO (MANUAL address IGNORED).

k. Select TCAS key to obtain the TIS operation screen and then set TARGET number to 1.

l. Enter the following target parameters:

BRG (deg)	0
RNG (nm)	1.125
ALT (ft)	1500
ALT RATE	CLIMB
HDG (deg)	0
TRAFFIC	PROX

m. Set XPDR to ALT mode. Verify **ALT** indicated on the display. Turn power on for the GNS No. 1 and GNS No. 2 systems.

n. Select the Traffic page (turn right outer and inner rotary controls to select the NAV No. 3 page) on both systems. Use the RNG key, as required, on GNS units to select 2NM range.

o. Verify **OPER** is indicated in the upper right corner on the Traffic page for GNS No. 1 and GNS No. 2. (If **STBY** is indicated, push the lower right rotary control and rotate the outer control to select **OPER**.) Traffic data will be indicated after approximately 15 seconds.

p. Verify that both the GNS No. 1 and GNS No. 2 Traffic pages indicate **HDG** (i.e., confirms valid receipt of on-side DU (IAS GCTL A429)) data.

q. Power on the audio control panel. On Test Set, Press RUNS TEST.

r. On the GNS No. 1 and GNS No. 2, verify the following symbol and color presented on the Traffic pages:

- One Proximity Advisory (**PA**) symbol, represented as a hollow cyan diamond with arrow pointing up, with a +15 digital display.

s. Monitor the crew headset. On test set, change the traffic field from PROX to TRFC. Verify that the traffic alert is heard over the headset.

t. On the GNS No. 1 and GNS No. 2 units, verify that the following symbol is presented on the TRAFFIC pages:

- One Traffic Advisory (**TA**) symbol represented as a solid yellow circle with an arrow pointing up, with a +15 digital display.

u. Verify, after approximately 59 seconds on the GNS No. 1 and GNS No. 2 Traffic pages, that the audio alert **TRAFFIC UNAVAILABLE** is heard over the headset.

v. Reconfigure XPDR with the SQUAT SWITCH to a value + YES. Turn XPDR power off/on to store configuration.

w. Turn off XPDR.

x. Turn Off aircraft power.