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SERVICE BULLETIN

TBM AIRCRAFT

SB 70-250

34

ATA No.

FACULTATIVE

The technical content of this document is approved
 under the authority of DOA No. EASA.21J.013

SUBJECT : GTX 345R TRANSPONDER RETROFIT

REFERENCE : MODIFICATION SHEET N° 70-0542-34 Version G, H, I, J, K and L

EFFECTIVITY : TBM aircraft S/N 434 to 1159 which have GDU software G1000 NXi version SW20.80 (P/N 006-B3086-00) and above, loaded through the application of SB70-247-34 with transponders configurations listed in Table 1A.

PURPOSE : To allow users to install a GTX 345R transponder.

SUMMARY :

- A. PREPARATION
- B. KTA 810 WIRING MODIFICATION
- C. GTX 345R INSTALLATION (TRANSPONDER 1)
- D. GTX 345R INSTALLATION (TRANSPONDER 2)
- E. PL1 CIRCUIT BREAKER PANEL MODIFICATION
- F. SOFTWARE CONFIGURATION
- G. RECONDITIONING

APPLICATION : At user's convenience (can be done simultaneously with SB70-247-34).

WARRANTY : None.

PROCURABLE MATERIAL :

– Parts to be ordered from your GARMIN parts distributor.

Item	Reference	Description	Qty/ aircraft
	6033997297	GTX 345R rack P/N 115-02250-00	1
	6033987241	GTX 345R nut plate P/N 011-00915-01	1
	6033997299	GTX 345R connector Kit P/N 011-02977-01	1
	6033997298	GTX 345R backplate P/N 011-02976-00	1
	6033997296	GTX 345R equipment P/N 011-03303-00	1

NOTE :
 The content of the part list is given for information and will not be updated.

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- Parts to be ordered from your TBM parts distributor.

Item	Reference	Description	Qty/ aircraft
1	7173250053	Circuit breaker EN2595–03A M	1
	7126225620	Pin contact P/N EN3155–016M2018	1
	7146025836	Lug NSA936501 TA1603	4
	7091244904	Pin contact M39029/58–360	2
	7146032656	Lug NSA936501 TA2003	4
	4847765245	Sheath P/N EN6049–003–04–5	60 in (1500 mm)
	4847765265	Sheath P/N EN6049–003–06–5	67 in (1700 mm)
	5741152832	Washer NAS1149FN832P	6
	5123300217	Screw MS35206–242	6
	7743063842	Washer MS35338–42	6
		Pilot's Operating Handbook Supplement 60 ⁽¹⁾	1

NOTE :

The content of the part list is given for information and will not be updated.

⁽¹⁾ Only if aircraft wasn't equipped with Extended Squitter transponder before SB70–250–34 application.

CONSUMABLE MATERIAL or OTHER PRODUCTS (Local purchase) :

- Wire P/N EN2267–010A004S
- Wire P/N EN2267–010A006S
- Wire P/N EN2714–013B004F
- Wire P/N 922404
- Splice ASN E0541–10
- Splice ASN E0541–11
- Splice ASN E0160–1–1H
- Clamp ASN E0043–2A9P or equivalent
- Clamp ASN E0043–5A9P or equivalent
- Clamp ASN E0043–4A9P or equivalent
- Insulated spare wire caps P/N NSA936604CA0931 ⁽²⁾

TOOLS :

- Standard aeronautical maintenance station tools

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RELATED DOCUMENTS :

- Maintenance Manual, Chapter 24–30–00 page 501
- Maintenance Manual, Chapter 24–40–00 page 301
- Maintenance Manual, Chapter 24–60–01 page 401
- Maintenance Manual, Chapter 25–12–01 page 401
- Maintenance Manual, Chapter 25–12–02 page 401
- Maintenance Manual, Chapter 34–28–10 page 401
- Maintenance Manual, Chapter 34–28–11 page 401
- Maintenance Manual, Chapter 34–28–14 page 401
- Maintenance Manual, Chapter 34–53–01 page 401

MANPOWER :

- With a TAS KTA 810 : 1 aeronautical electrician : 12 hours
- With a TAS GTS 820 : 1 aeronautical electrician : 7 hours

TECHNICAL INCIDENCES :

- Weight : –0.99 lb (–0.450 kg)
- Lever arm : –0.5 inch (–13 mm)
- Power consumption : –0.42A under 28V

DESCRIPTION OF ACCOMPLISHMENT INSTRUCTIONS :

NOTE :

Operations required in this Service Bulletin must be accomplished by persons authorized by their Airworthiness Authorities and according to the procedure described hereafter.

NOTE :

Refer to in force technical documentation GARMIN “G1000 NXi Line Maintenance Manual” (LMM) P/N 190–02383–00.

A. PREPARATION

- 1) Make sure the “SOURCE” selector is set to “OFF” and the crash lever is down.

Aircraft S/N 434 to 684

- 2) Make sure the “AVIONICS MASTER” selector is set to “OFF”.

All

- 3) Connect the ground power unit – refer to Chapter 24–40–00 page 301 of the Maintenance Manual.

- 4) On PL1 panel, pull “PFD1”, “PFD2” and “MFD” circuit breakers.

- 5) Set “SOURCE” selector to “GPU”.

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- 6) Set “AVIONICS MASTER” selector to “ON”.

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All

- 7) Successively start “PFD1”, “PFD2” and “MFD” screens in configuration mode – refer to “G1000 NXi Line Maintenance Manual” (LMM).
- 8) Select SYSTEM page group, then select the “AIRCRAFT CONFIGURATION” page. Write down the aircraft parameters to be reinserted at step F.9).
- 9) Select the GTX page group, then select the “TRANSPONDER CONFIGURATION” page. Write down the aircraft parameters to be reinserted at step F.9).
- 10) According to Table 1, identify transponders aircraft configuration.
- 11) According to Table 1A, identify transponders to replace and note the list of paragraphs you’ll have to apply.

Aircraft S/N 434 to 684

- 12) Set “AVIONICS MASTER” selector to “OFF”.

All

- 13) Set “SOURCE” selector to “OFF” and pull down the crash lever.
 - 14) Remove front seats – refer to Chapters 25–12–01 page 401 and 25–12–02 page 401 of the Maintenance Manual.
 - 15) Remove A4 keyboard – refer to Chapter 34–28–14 page 401 of the Maintenance Manual.
 - 16) Remove PFD1/PFD2 units – refer to Chapter 34–28–10 page 401 of the Maintenance Manual.
 - 17) Remove MFD unit – refer to Chapter 34–28–11 page 401 of the Maintenance Manual.
- B. KTA 810 WIRING MODIFICATION – See Figures 3, 3A and 3B

According to Figure 3 :

- 1) Remove and discard wire SHB16 between connector P406 pin H, J and K and A77P10 connector pins 20 and 21 (Remove X280, X281 and X947).
- 2) Disconnect X358 ground wire from wire SHC10, discard X358 ground wire.

CAUTION

**WIRES MUST BE INSULATED INDIVIDUALLY AND FIXED USING ANY
APPROPRIATE MEANS.**

- 3) Install insulated spare wire cap on SHB103 wire on J406 pin T.
- 4) Install insulated spare wire cap on SHD103 wire on A700P4 pin 38.
- 5) Install insulated spare wire cap on X622 wire (on A701P4 connector, pin 38).

WARNING

**NEW WIRING MUST BE EQUIPPED WITH SHEATH P/N EN6049–003–06–5 OR
P/N EN6049–003–04–5.**

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According to Figures 3, 3A and 3B :

Configuration 1 (see Table 1A) : GTX 345R to install on XPDR1

- 6) Disconnect wire SHB12 from A701P4 pin 36 (it will be connected later to WT702 splice).
- 7) Disconnect wire SHB22 from A701P4 pin 37 (it will be connected later to WT703 splice).
- 8) Prepare wire P/N EN2267–010A004S at a suitable length. Identify it as “SHB13” and equip one side with a pin contact supplied in GTX 345R kit (the other side will be connected to WT702 splice).
- 9) Prepare wire P/N EN2267–010A004S at a suitable length. Identify it as “SHB21” and equip one side with a pin contact supplied in GTX 345R kit (the other side will be connected to WT703 splice).

Configuration 2 (see Table 1A) : GTX 345R to install on XPDR2

- 6) Disconnect wire SHB12 from A701P4 pin 36 (it will be connected later to A57P1-15).
- 7) Disconnect wire SHB22 from A701P4 pin 37 (it will be connected later to A57P1-16).

All

- 10) Disconnect wire SHC10 from A701P3 pins 10 and 11 (it will be connected later to WT700 and WT701).
 - 11) Prepare wire P/N EN2714–013B004F at a suitable length. Identify it as “SHC11” and equip one side with a two–pin contact supplied in GTX 345R kit (the other side will be connected to WT700 and WT701 splices).
 - 12) Prepare two wires P/N EN2267–010A004S at a suitable length, X1467 and X1468. Equip one side of each of them with pin contact M39029/58-360 (the other side will be connected to WT700 and WT701 splices).
 - 13) Prepare wire P/N EN2267–010A004S at a suitable length, X281. It will be connected between SHC10 and SHC11.
 - 14) Prepare wire P/N EN2267–010A006S at a suitable length, X358 and equip one side with lug NSA936501 TA2003 (the other side will be connected to SHC10 wire).
- C. GTX 345R INSTALLATION (TRANSPONDER 1) – See Table 1A and Figures 4 and 4A
- 1) Remove GTX 33 (transponder 1) – refer to Chapter 34–53–01 page 401 of the Maintenance Manual.
 - 2) Using rack and nut plates supplied in GTX 345R kit, replace GTX 33 rack by GTX 345R rack.
 - 3) Prepare wire P/N EN2267–010A004S at a suitable length. Identify it as “RMB26N” and equip one side with a pin contact P/N EN31550–16M2018 (the other side will be connected to WT316 splice).
 - 4) Prepare cable P/N 922404 at a suitable length. Identify it as “UAB36” and equip wire with eight pin contacts supplied in GTX 345R kit.
 - 5) Prepare two wires P/N EN2267–010A004S at a suitable length, X1347 and X1348. Equip one side of each of them with pin contact supplied in GTX 345R kit (the other side will be connected to WT316 splice).

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- 6) Prepare two wires P/N EN2267–010A006S at a suitable length, X1352 and X1353. Equip one side of each of them with lug NSA936501 TA2003 (the other side will be connected to UAB36 wire).
- 7) Extract all wires from GTX 33(ES) connector and reconnect to GTX 345R connector (Figures 4 and 4A).
- 8) Connect UAB36 between A56P2 and M2-P1.

If KTA 810 installed

- 9) Connect SHB13–SHB21 and SHC11 to A56P1.

All

- 10) Install GTX 345R (transponder 1) – refer to Chapter 34–53–01 page 401 of the Maintenance Manual.

D. GTX 345R INSTALLATION (TRANSPONDER 2) – See Table 1A and Figures 5 and 5A

- 1) Remove GTX 33 (transponder 2) – refer to Chapter 34–53–01 page 401 of the Maintenance Manual.
- 2) Using rack and nut plates supplied in GTX 345R kits, replace GTX 33 rack by GTX 345R rack
- 3) Prepare wire P/N EN2267–010A004S at a suitable length. Identify it as “RMB41N” and equip one side with a pin contact P/N EN3155–016M2018 (the other side will be connected to WT319 splice).
- 4) Prepare cable P/N 922404 at a suitable length. Identify it as “UAB36” and equip wire with eight pin contacts supplied in GTX 345R kit.
- 5) Prepare two wires P/N EN2267–010A004S at a suitable length, X1350, X1351 and X1466. Equip one side of each of them with pin contact supplied in GTX 345R kit (the other side will be connected to WT319 splice).
- 6) Prepare two wires P/N EN2267–010A006S at a suitable length, X1352 and X1353. Equip one side of each of them with lug NSA936501 TA2003 (the other side will be connected to UAB36 wire).
- 7) Extract all wires from GTX 33(ES) connector and reconnect to GTX 345R connector (Figures 5 and 5A).
- 8) Connect X1350, X1351 and X1466 to WT319 and A57P1 (Figure 5A).
- 9) Connect UAB36 between A57P2 and M2-P1.

If KTA 810 installed

- 10) Connect SHB13–SHB21 and SHC11 to A57P1.

All

- 11) Install GTX 345R (transponder 2) – refer to Chapter 34–53–01 page 401 of the Maintenance Manual.

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E. PL1 CIRCUIT BREAKER PANEL MODIFICATION – See Figures 1, 2, 3A, 3B, 4A and 5A

- 1) Tilt PL1 panel.

Configuration 1 or 3 – See Table 1A

- 2) Replace “CB90” circuit breaker – refer to Chapter 24–60–01 page 401 of the Maintenance Manual.

Configuration 2 or 4 – See Table 1A

- 2) Replace “CB75” circuit breaker – refer to Chapter 24–60–01 page 401 of the Maintenance Manual.

All

- 3) Close PL1 panel.
- 4) Perform a bus bars supply test – refer to Chapter 24–30–00 page 501 of the Maintenance Manual.

F. SOFTWARE CONFIGURATION

- 1) Install MFD unit – refer to Chapter 34–28–11 page 401 of the Maintenance Manual.
- 2) Install PFD1/PFD2 units – refer to Chapter 34–28–10 page 401 of the Maintenance Manual.
- 3) Install A4 keyboard – refer to Chapter 34–28–14 page 401 of the Maintenance Manual.
- 4) On PL1 panel, pull “PFD1”, “PFD2” and “MFD” circuit breakers.
- 5) Set “SOURCE” selector to “GPU”.

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- 6) Set “AVIONICS MASTER” selector to “ON”.

All

If SB applied simultaneously with SB70–247–34 (GARMIN G1000 NXi INTEGRATED FLIGHT DECK AND SOFTWARE V20.80 (P/N 006-B3086-00))

- 7) Load transponders software as described in SB70–247–34, paragraph F “DATA LOADING TO UPGRADE SOFTWARE TO VERSION 20.80”.

If SB applied independently from SB70-247-34 (GARMIN G1000 NXi INTEGRATED FLIGHT DECK AND SOFTWARE V20.80 (P/N 006-B3086-00))

- 7) From airplane bag, take TBM system software loading SD card G1000 NXi V20.80 (P/N 010-02054-00) or later version.
- 8) Using SD card P/N 010–02054–00, perform transponders software loading as per procedure provided in “G1000 NXi Line Maintenance Manual” (LMM), paragraph “LOADING SOFTWARE FOR OPTIONAL EQUIPMENT”.
- 9) Do “Aircraft Registration Number Entry” operation as per procedure provided in “G1000 NXi Line Maintenance Manual” (LMM).

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Aircraft S/N 434 to 684

- 10) Set "AVIONICS MASTER" selector to "OFF".

All

- 11) Set "SOURCE" selector to "OFF" and pull down the crash lever.

G. RECONDITIONING

- 1) Install front seats – refer to Chapters 25–12–01 page 401 and 25–12–02 page 401 of the Maintenance Manual.
- 2) According to "G1000 NXi Line Maintenance Manual" (LMM), perform "GTX 33D or GTX 345R Testing" and "ADS–B OUT TESTING".

If Aircraft wasn't equipped with Extended Squitter transponder before SB70–250–34 application

- 3) After application of the Service Bulletin, please contact Technical Publications Department at the following e-mail address : techpubs@daher.com, to order Supplement 60 and update your subscription contract to Pilot's Operating Handbook and associated supplements. Please mention aircraft serial number.

UPDATING OF THE AIRCRAFT DOCUMENTATION :

Upon completion of Service Bulletin No. SB 70–250–34 "GTX 345R TRANSPONDER RETROFIT" (Reference MOD70–0542–34 Version G, H, I, J, K or L), make an appropriate maintenance record entry, according to Table 1A.

Update the weighing report.

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Equipment Description	Procedure to check installation
GTX 33DE/S	2 conditions : – Diversity antenna installed (Aft from GPS antenna) AND – Config Mode > GIA > GIA SERIAL CONFIGURATION. Select unit GIA1 on RS–232 / CHNL5, the “GTX 33ES # 1 w/TIS” is selected.
GTX 33 or GTX 33E/S as XPDR1	Config Mode > GIA > GIA SERIAL CONFIGURATION. Select unit GIA1 on RS–232 / CHNL5, the “GTX 33ES # 1 w/TIS” or “GTX 33 # 1 w/TIS” is selected.
GTX 33 or GTX 33E/S as XPDR2	Config Mode > GIA > GIA SERIAL CONFIGURATION. Select unit GIA2 on RS–232 / CHNL5, the “GTX 33ES # 2 w/TIS” or “GTX 33 # 2 w/TIS” is selected.
GTS 820	Config Mode > System > SYSTEM CONFIGURATION. GTS is installed if there is a green tick in front of GTS in the OTHER LRUS PRESENT frame.
KTA 810	Config Mode > GIA > GIA SERIAL CONFIGURATION. Select unit GIA2. In the ARINC429 frame, KTA 810 is installed if CHNL4 has a green tick and the bus is called TRAFFICADVISORY.

Table 1 – Configuration transponders identification

Conf.	Pre-SB70-250-34		TAS	Post-SB70-250-34		Paragraph to apply	S/N	MOD70–0542–34 Version applied
	XPDR1	XPDR2		XPDR1	XPDR2			
1	GTX 33 or GTX 33E/S	GTX 33 or GTX 33E/S	KTA 810	GTX 345R	GTX 33 or GTX 33E/S	A.,B.,C.,E., F.,G.	434 to 554	H
2	GTX 33DE/S	GTX 33 or GTX 33E/S	KTA 810	GTX 33DE/S	GTX 345R	A.,B.,D.,E., F.,G.	434 to 554	G
3	GTX 33 or GTX 33E/S	GTX 33 or GTX 33E/S	GTS 820	GTX 345R	GTX 33 or GTX 33E/S	A.,C.,E.,F., G.	555 to 684	L
							687 to 1159	J
4	GTX 33DE/S	GTX 33 or GTX 33E/S	GTS 820	GTX 33DE/S	GTX 345R	A.,D.,E.,F., G.	555 to 684	K
							687 to 1159	I

NOTE :

For TBM having a GTX 33D as transponder 1, GTX 33D will have to be upgraded as GTX 33DE/S (SB70–227–34 to apply).

Table 1A– Transponders configuration

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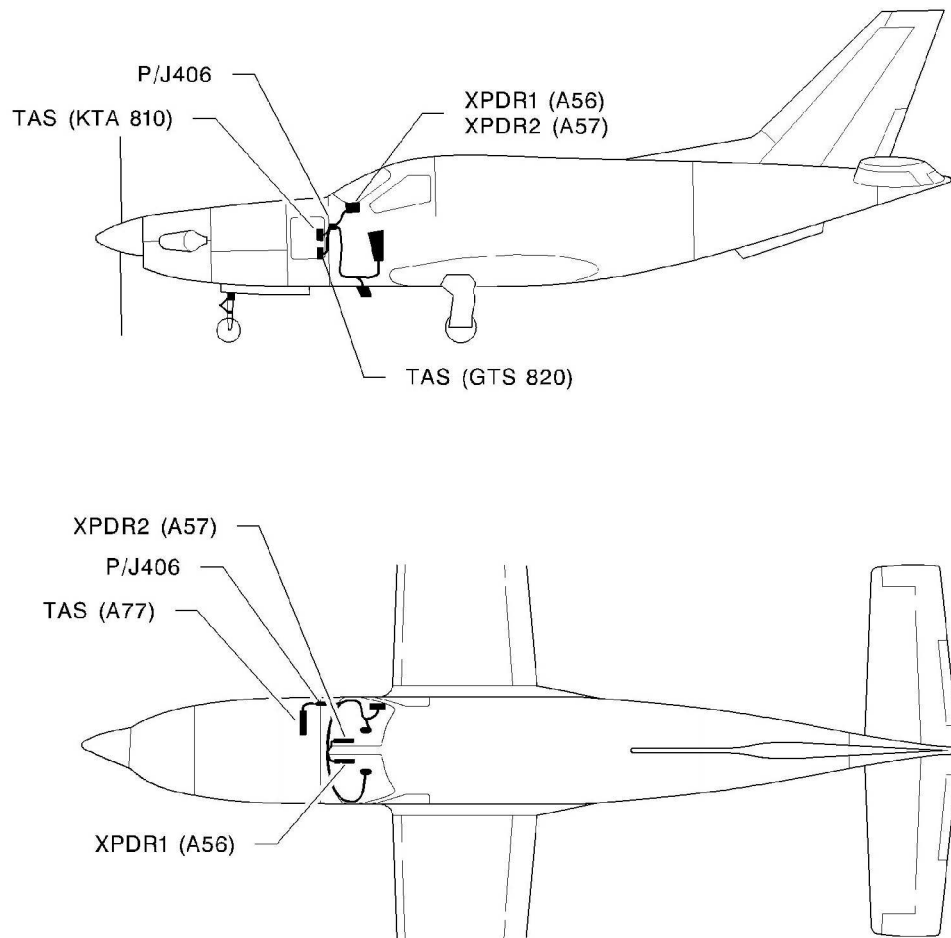
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NOTE :
1. ROUTING ADDITIONAL CABIN AND FRONT WIRINGS
WITH EXISTING WIRINGS AS WORK PROCEEDS.
2. ATTACH NEW WIRES WITH EXISTING BUNDLE
WITH CLAMP. CUT AND REMOVE EXISTING CLAMP.



Figure 1

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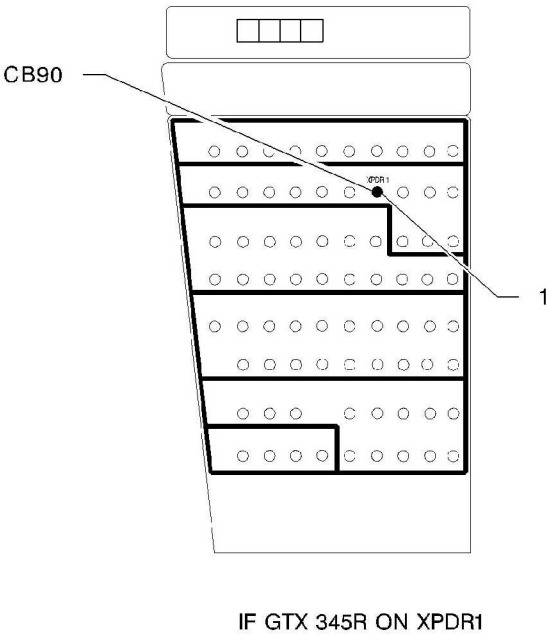
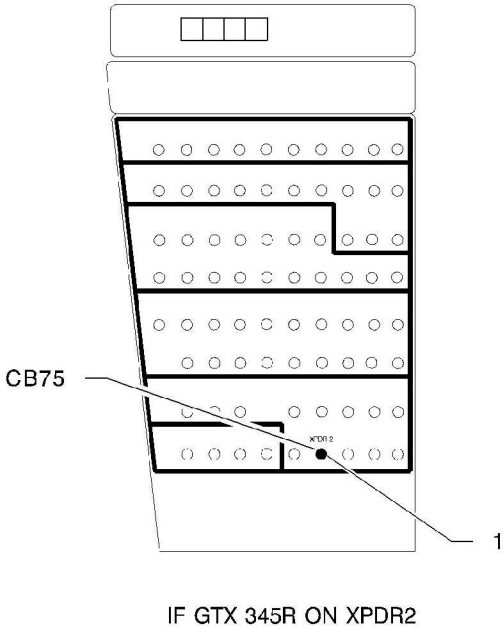


Figure 2

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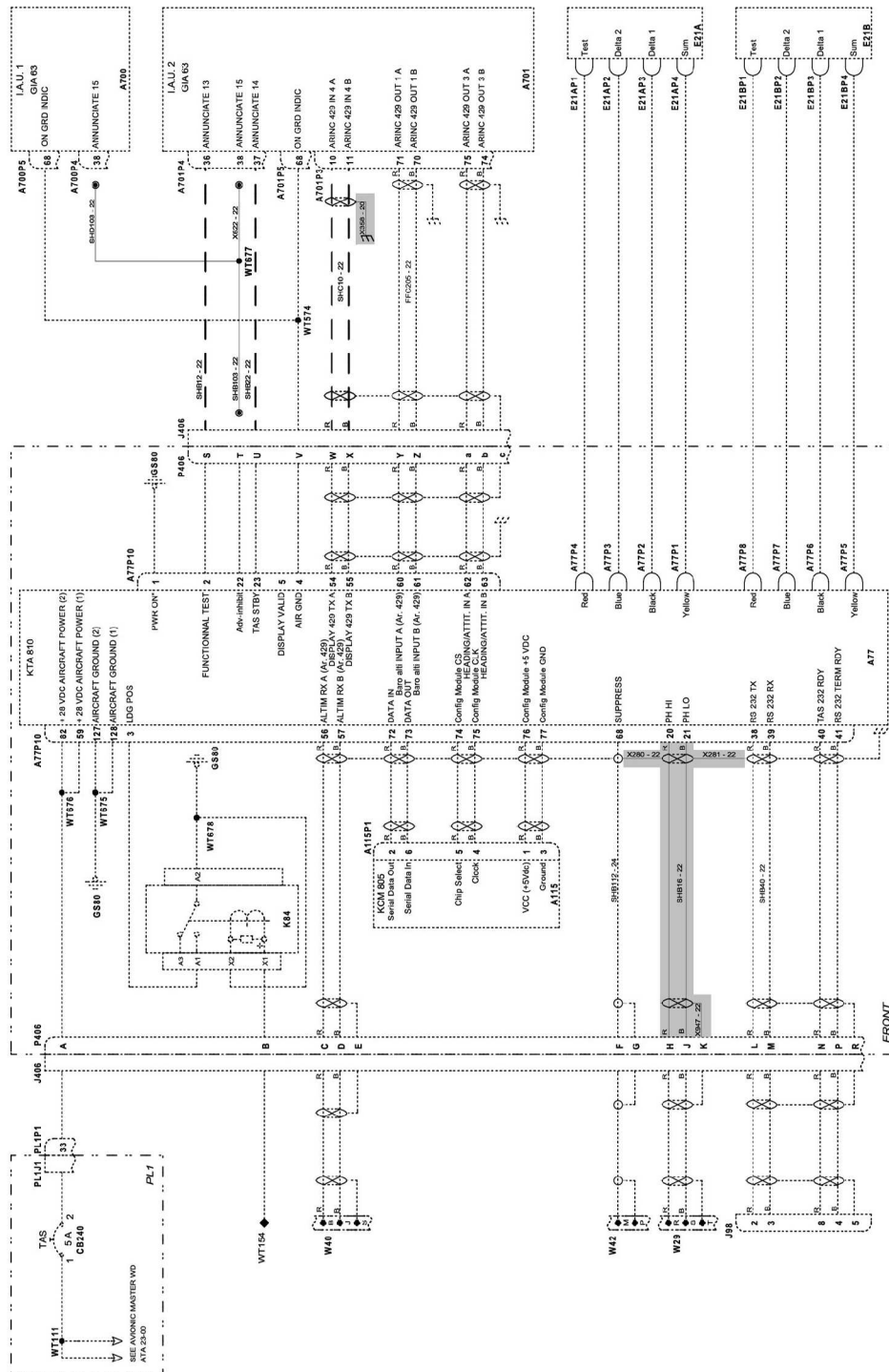


Figure 3 – TAS KTA 810 Wiring modification – Pre-SB70-250-34

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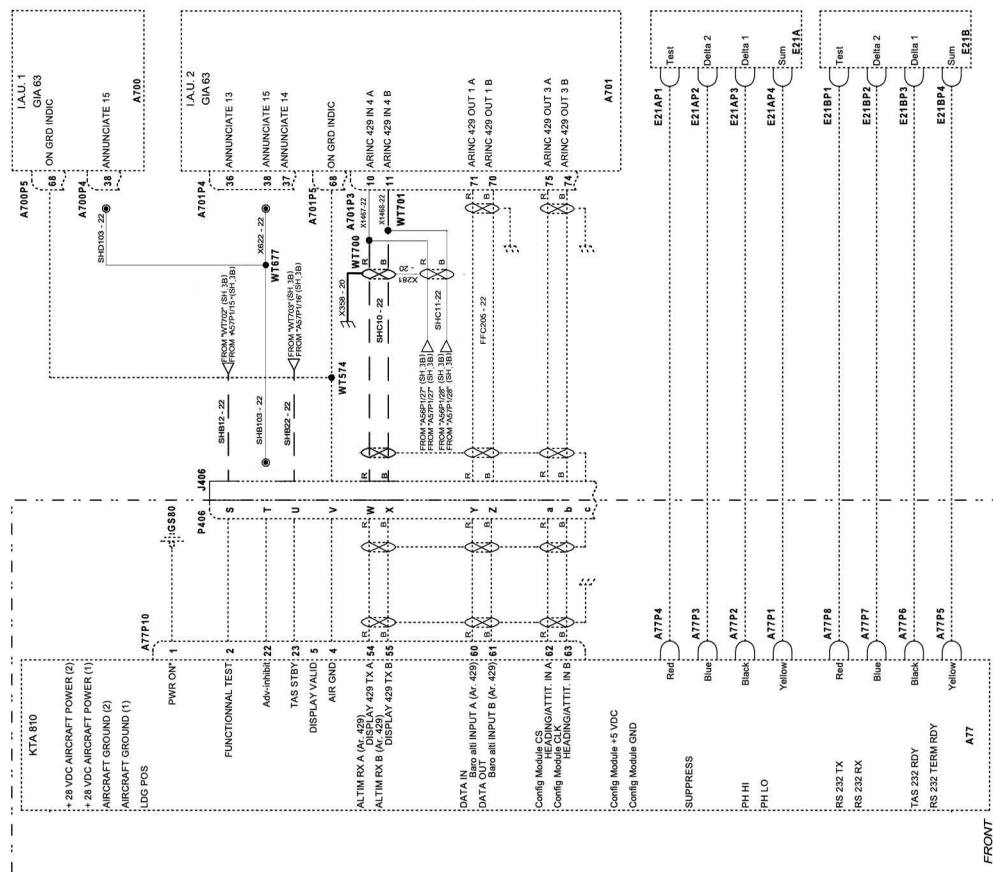
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CAPTION: Wires and equipment existing on aircraft

Figure 3A – KTA 810 Wiring modification – Post-SB70-250-34

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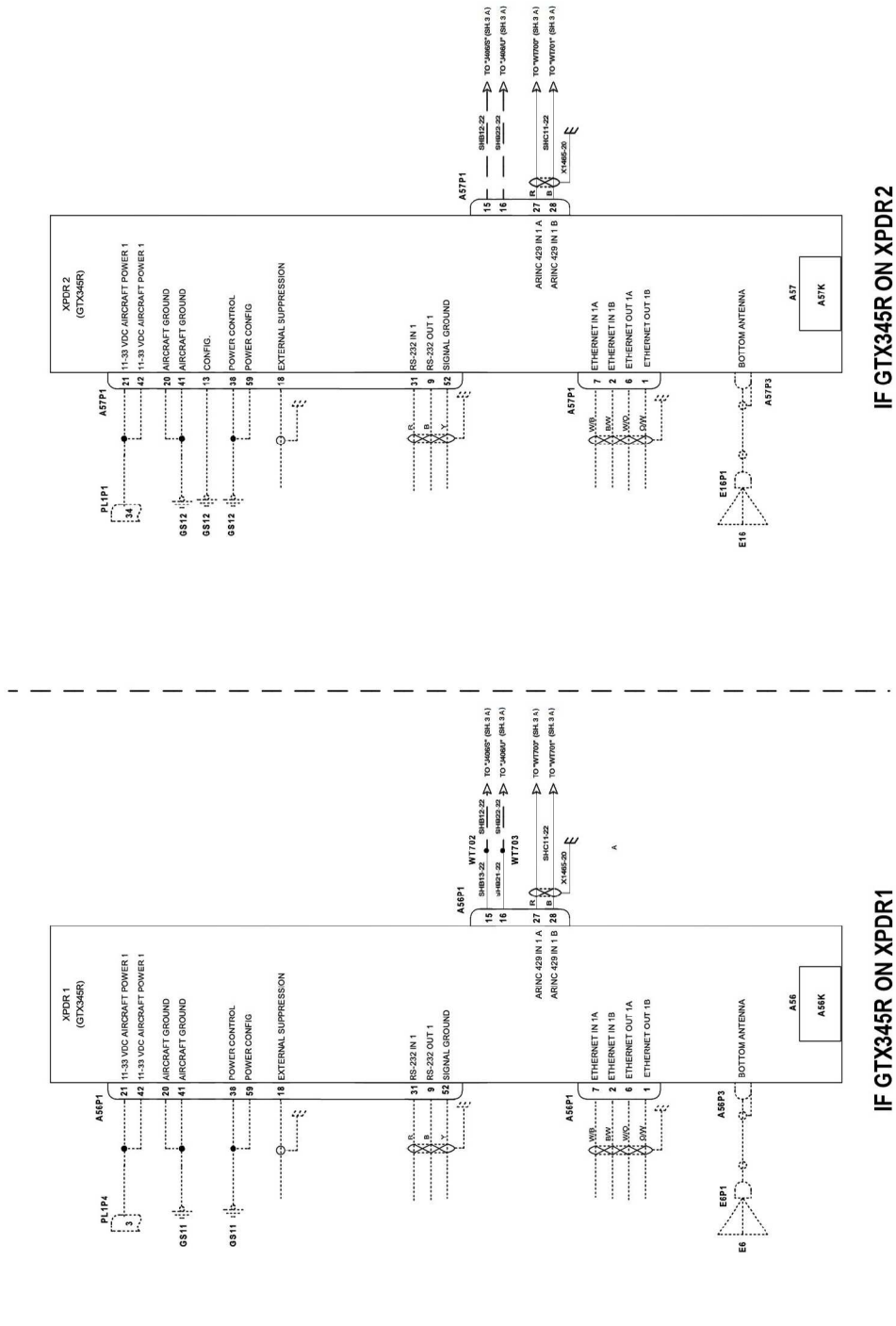


Figure 3B – KTA 810 Wiring modification – Post-SB70-250-34

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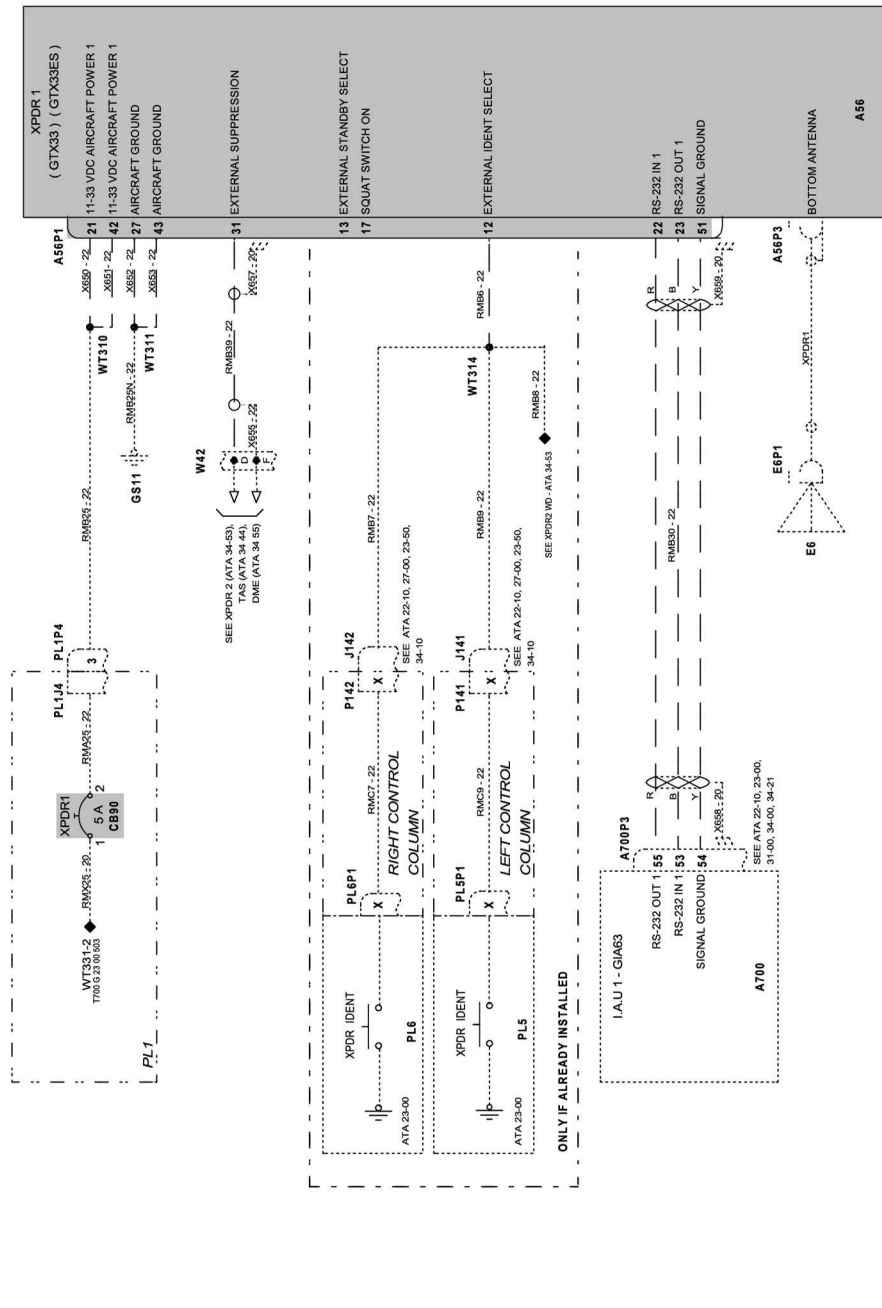
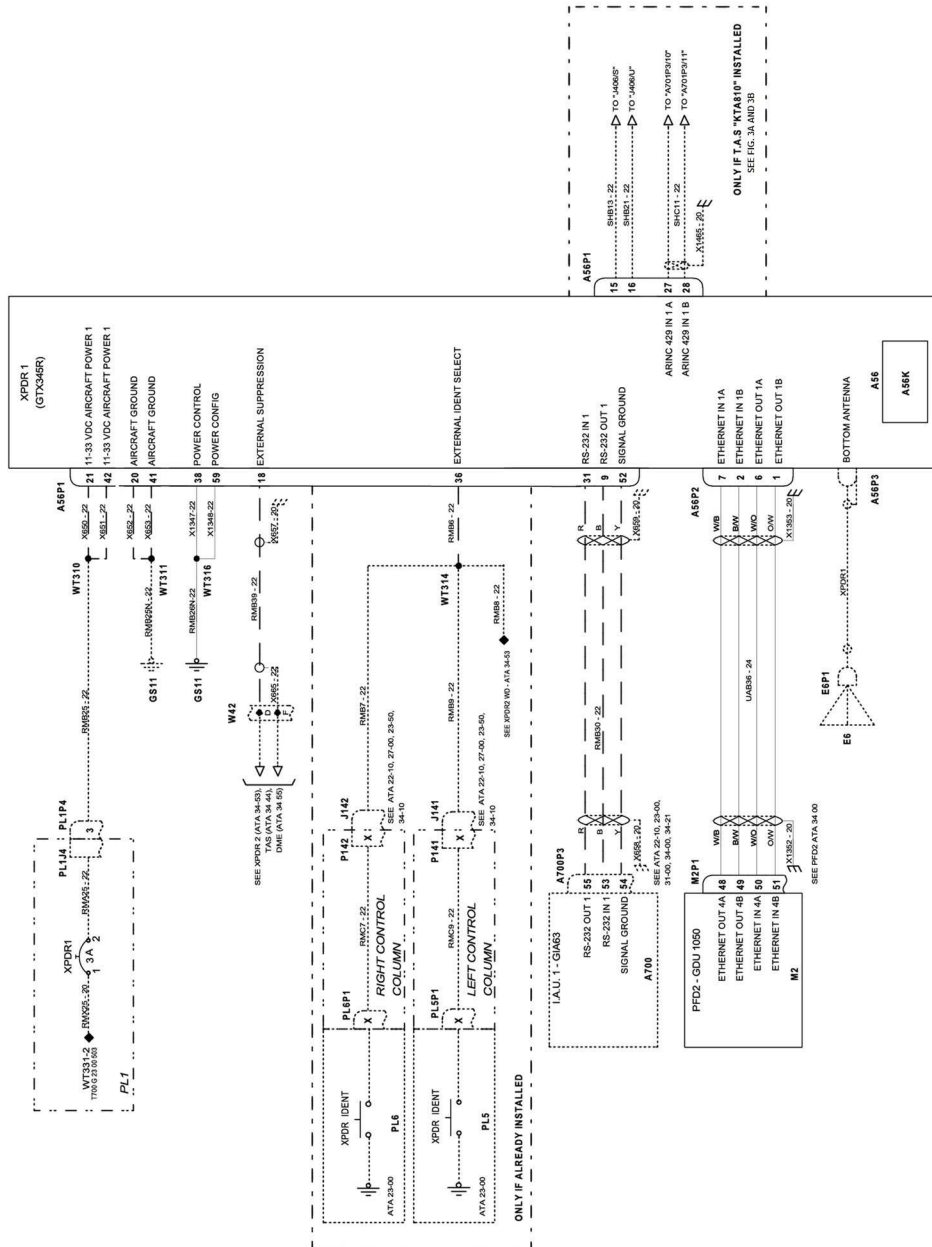


Figure 4 – GTX 345R Installation (XPDR1) – Pre-SB70-250-34

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CAPTION :	
—	WIRES EXISTING ON AIRCRAFT BUT MODIFIED FOR XPDR1 GTX345R RETROFIT
.....	WIRES AND EQUIPMENT EXISTING ON AIRCRAFT

Figure 4A – GTX 345R Installation (XPDR1) – Post-SB70-250-34

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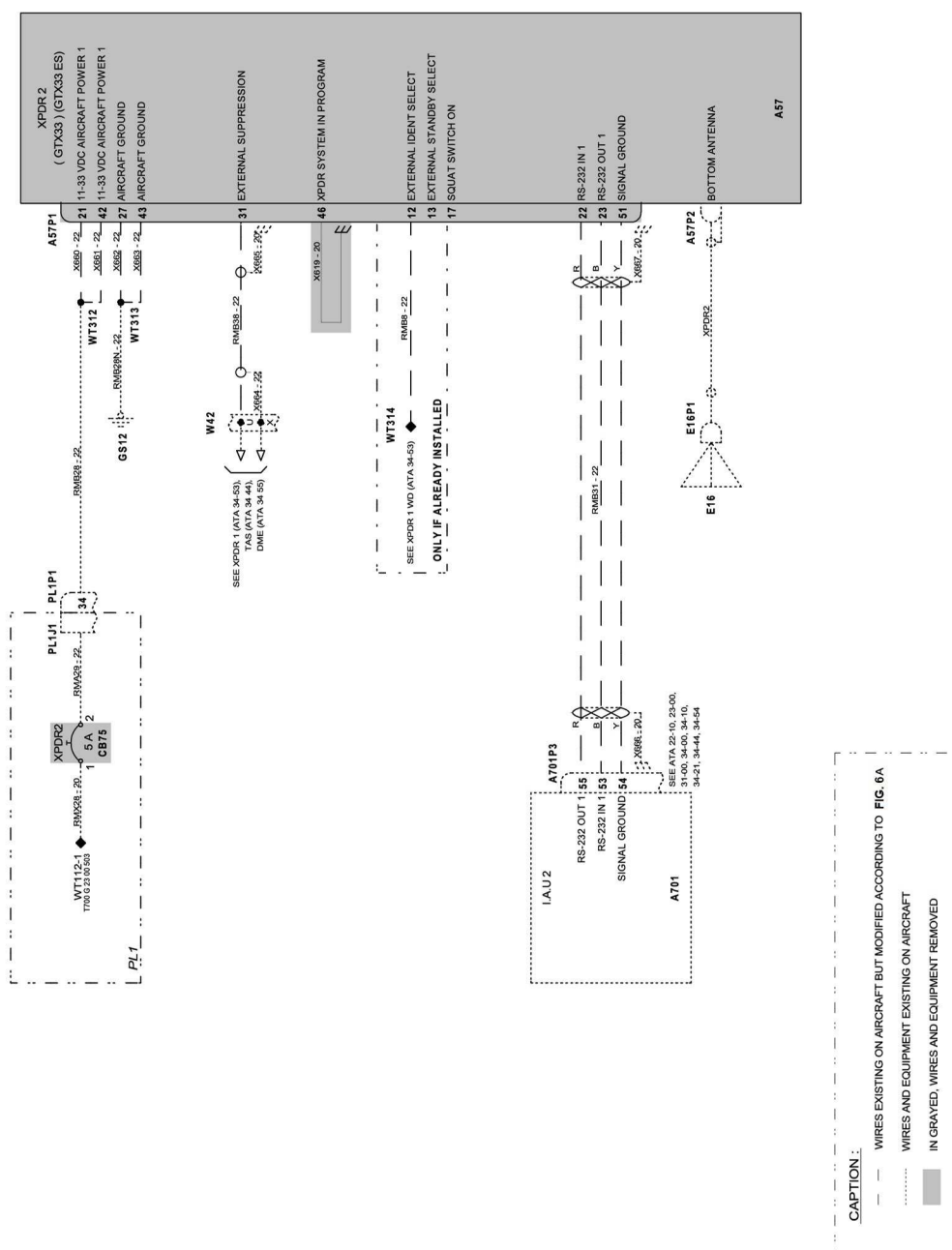


Figure 5 – GTX 345R Installation (XPDR2) – Pre-SB70-250-34

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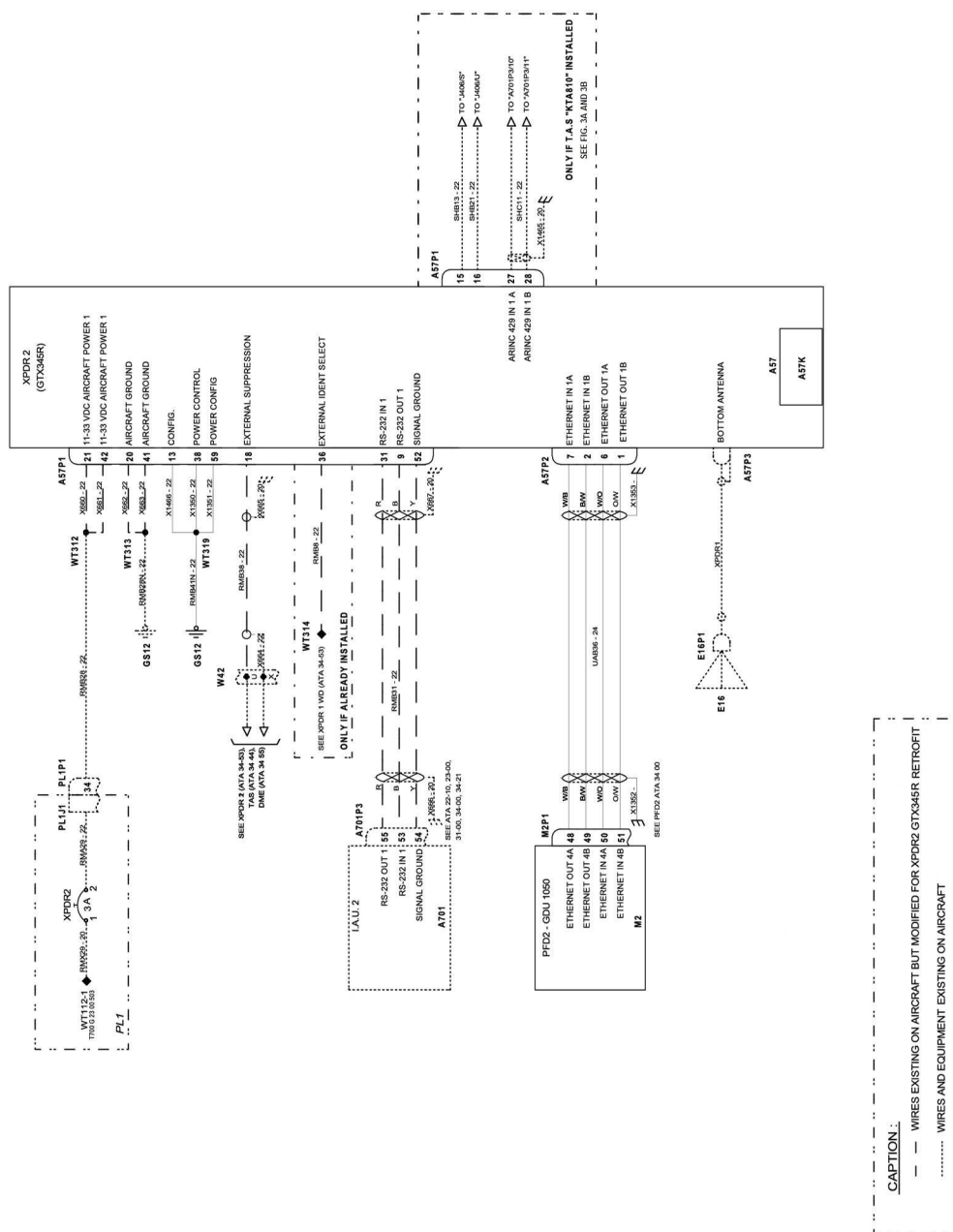


Figure 5A – GTX 345R Installation (XPDR2) – Post-SB70-250-34