

Approach
Fast Stack

FAST STACK PRO-X HUB

INSTALLATION MANUAL - Rev A

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Manual Rev Information

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SECTION 1 GENERAL DESCRIPTION

1.1 INTRODUCTION

The Fast Stack PRO-X Hub and Cable System is a revolutionary product that provides a complete solution for the installation of avionic equipment into an existing aircraft or one you are building. It delivers everything you need to make avionic installs and upgrades fast, cost-effective and safe while eliminating the “rat’s nest” behind the instrument panel. This system also minimizes electronic noise and other problems associated with hand wiring by using centralizing grounding, uniform cable shielding and proper termination.

The Fast Stack PRO-X Hub was designed for a full Garmin, Apollo, or Bendix/King stack but can also accept and connect most NAV, GPS, COM, EFIS, Audio Panels, Intercoms, Moving Map Displays, VOR Indicators, HSIs, RMIs, ADFs, and almost any RS-232 and ARINC formatted send/receive electronic device.

This manual describes the physical, mechanical, and electrical characteristics of the installation requirements for the Fast Stack PRO-X Hub interconnect box and associated Fast Stack cables.

1.1.1 EQUIPMENT DESCRIPTION

The Fast Stack PRO-X Hub and its associated cables are designed to make the various interconnections in an IFR installation. This document assumes the IFR Aircraft does not require mode switching, mode annunciation or GPS deviation indication connections.

The Fast Stack PRO-X Hub can be used to connect:

- | | |
|------------------------------------------------------------|-------------------------------------|
| Two GPS / NAV devices | Two COM devices |
| Two INDICATOR devices | One AUDIO PANEL and/or INTERCOM |
| One TRANSPONDER | One ENCODER |
| One AUTOPILOT | One GENERAL PURPOSE I/O (i.e. EIFS) |
| One CONFIGURATION PLUG and/or a second GENERAL PURPOSE I/O | |

NOTE: Combination cables can be used to increase the number of connections.

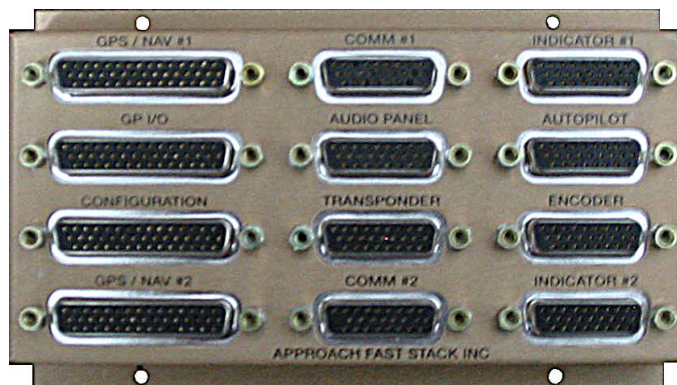


Figure 1: PRO-X rev A – Front View

1.1.2 FEATURES

The Fast Stack PRO-X Hub features the following:

- Modular Custom Cabling
- Milspec Tefzel Wiring
- Cable enclosed in braid
- Simple to Install
- Simplifies Upgrades
- Limited hand wiring which reduces errors
- Lower Upgrade Costs
- Single Point Grounding

1.2 TECHNICAL SPECIFICATIONS

Mounting	Behind Instrument Panel
Box Width	3.46"
Box Length	5.85"
Box Height	0.895"
Box Weight	10.5 oz

1.2.1 PHYSICAL CHARACTERISTICS

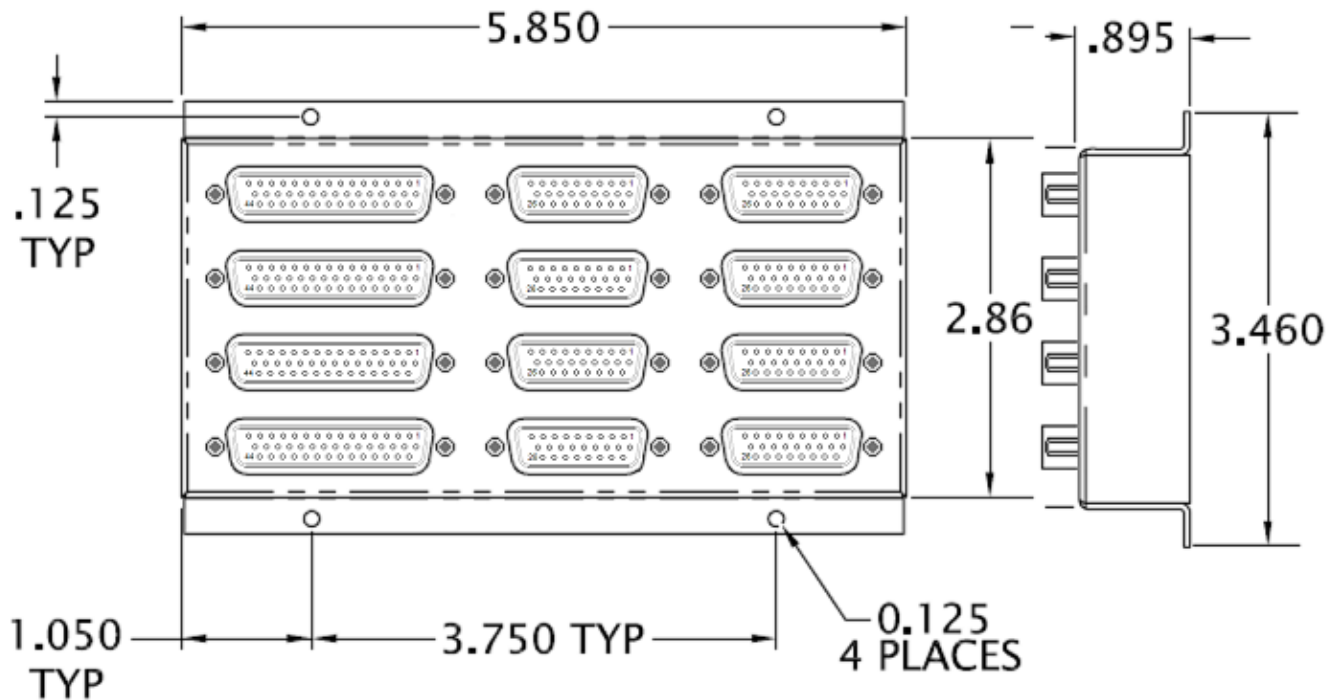


Figure 2: PRO-X Hub Dimensions

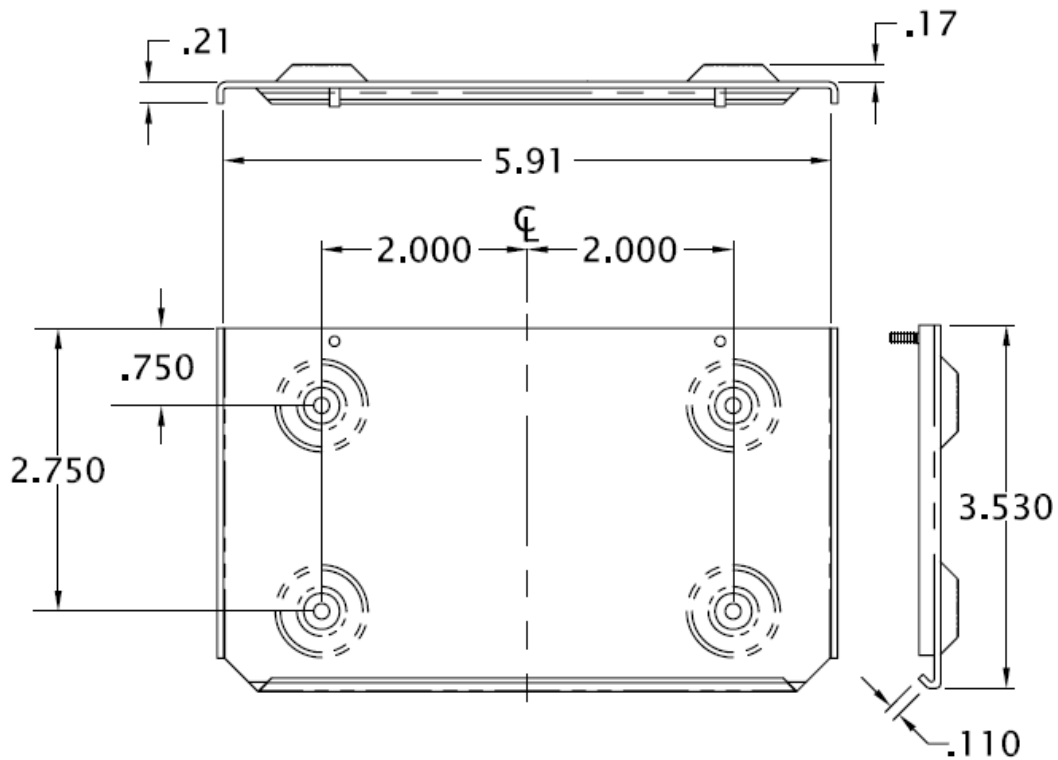


Figure 3: PRO-X Hub Mounting Bracket Dimensions

1.2.2 FAST STACK CABLES

All Fast Stack cables are built with shielded and non-shielded Milspec Tefzel wire which is enclosed in braid and an insulating covering. Fast Stack cables come in four general forms: BASIC, SPLIT, COMBINED and COMBINATION. The length of each cable can be specified by the customer. However, two standard lengths will work for most installations: 36 inches for indicators and 24 inches for other panel mounted avionic equipment. The benefits of shorter cable lengths include less noise, less potential for “ground loops” and lower voltage losses. The standard length for power, ground and other non-intercom pigtail leads is 48 inches.

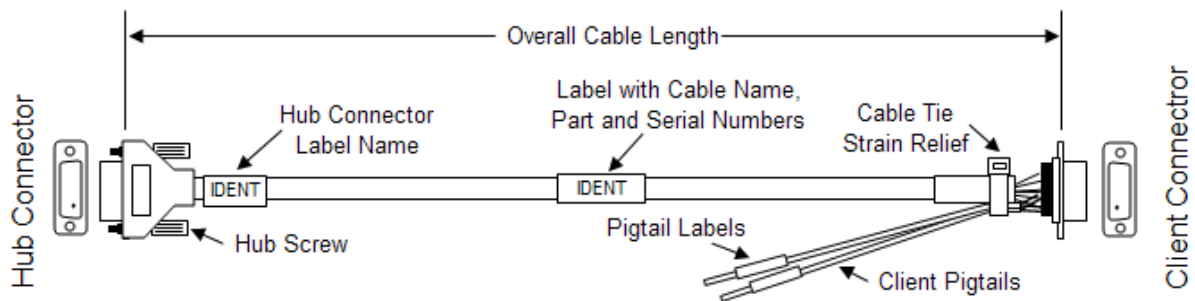


Figure 4: Basic Cable

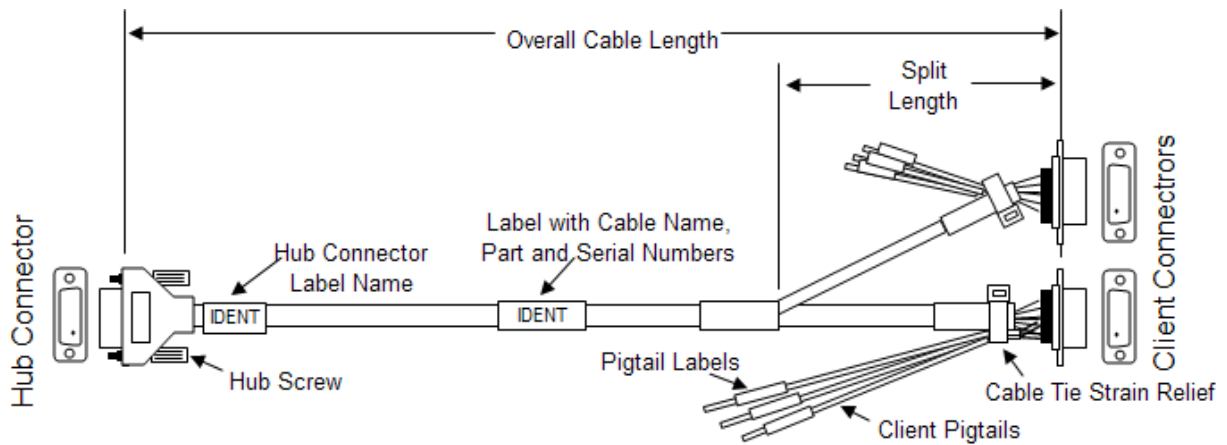


Figure 5: Split Cable

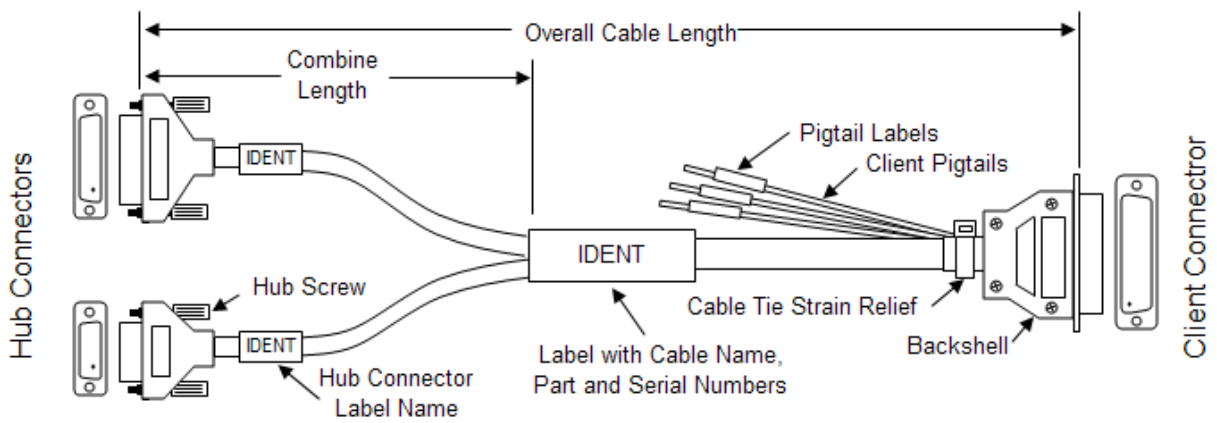


Figure 6: Combined Cable

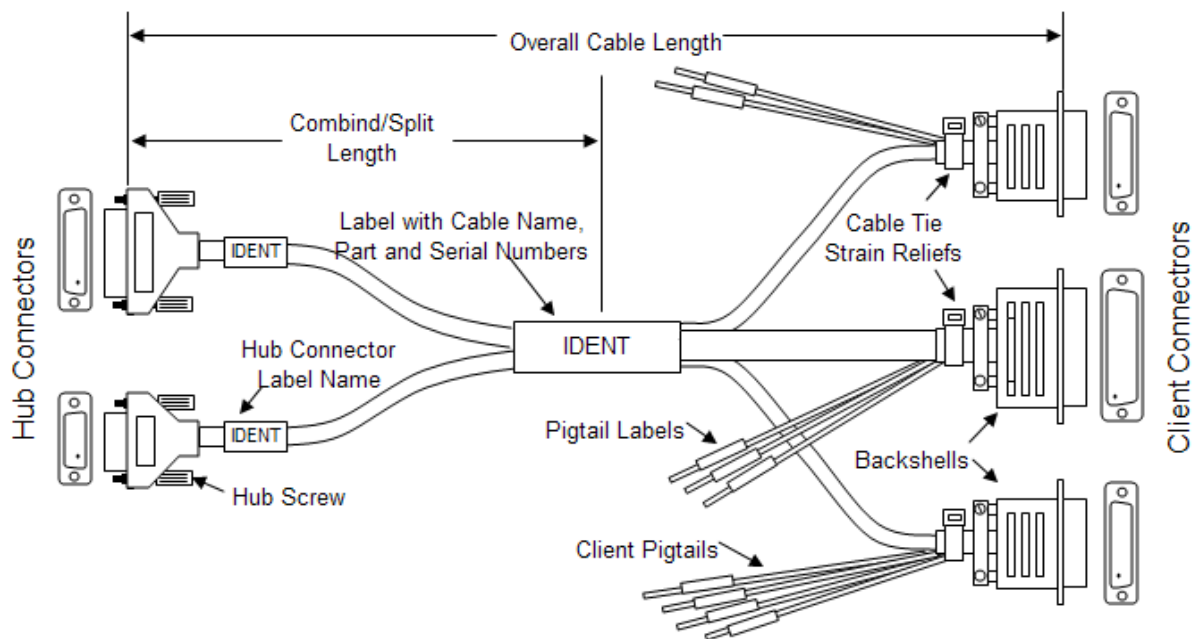


Figure 7: Combination Cable

SECTION 2 INSTALLATION PROCEDURES

2.1 GENERAL INFORMATION

The Fast Stack PRO-X Hub is compact and lightweight and designed for installation behind the instrument panel. Simply select the appropriate Approach cables for your avionics, plug them in, attach pigtails and you're done. The Approach Hub is not considered an "active" component and Fast Stack cables comply with FAA AC43.13-1B/2A. This means that the connections made using the Hub and Fast Stack cables already exist behind the instrument panel and should be FAA approved.

2.2 UNPACKING AND INSPECTING

The Fast Stack system comes in two or more boxes. One box contains the Fast Stack PRO-X Hub, install manual, and a packing slip of what was ordered (keep these for future reference). The other box(s) contain the cables you ordered for your installation.

2.3 MOUNTING FAST STACK PRO-X HUB

1. Select a mounting location that will provide a good electrical grounding point and which will avoid excessive bends in the cables that will be attached to the hub - Refer to figures 9 through 12. In the case of a non-aluminum (wood, composite, etc.) aircraft, a large gauge wire must be used to provide the ground.
2. Attach the PRO-X Hub mounting bracket to an electrical grounding point or airframe ground using four screws – AN526C632R or equivalent. Proper grounding shall have a Maximum of 2.5 milli-ohm resistance between unit and airframe structure.
3. Slide the Fast Stack PRO-X Hub into place and secure it using the two lock nuts

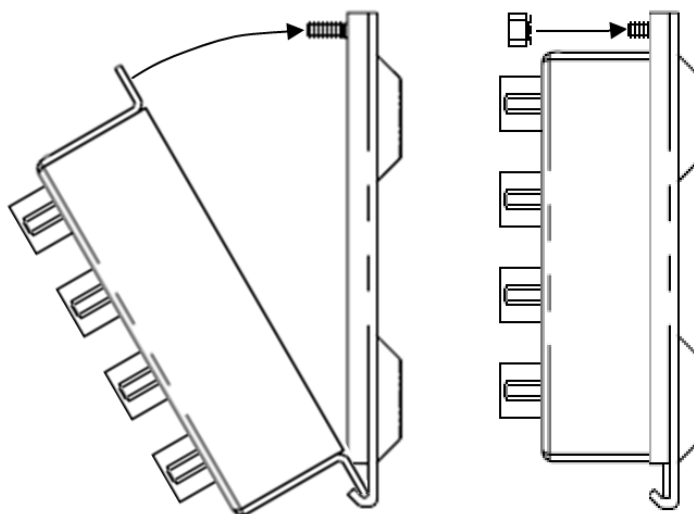


Figure 8: Side View of Hub attaching to Mounting Bracket

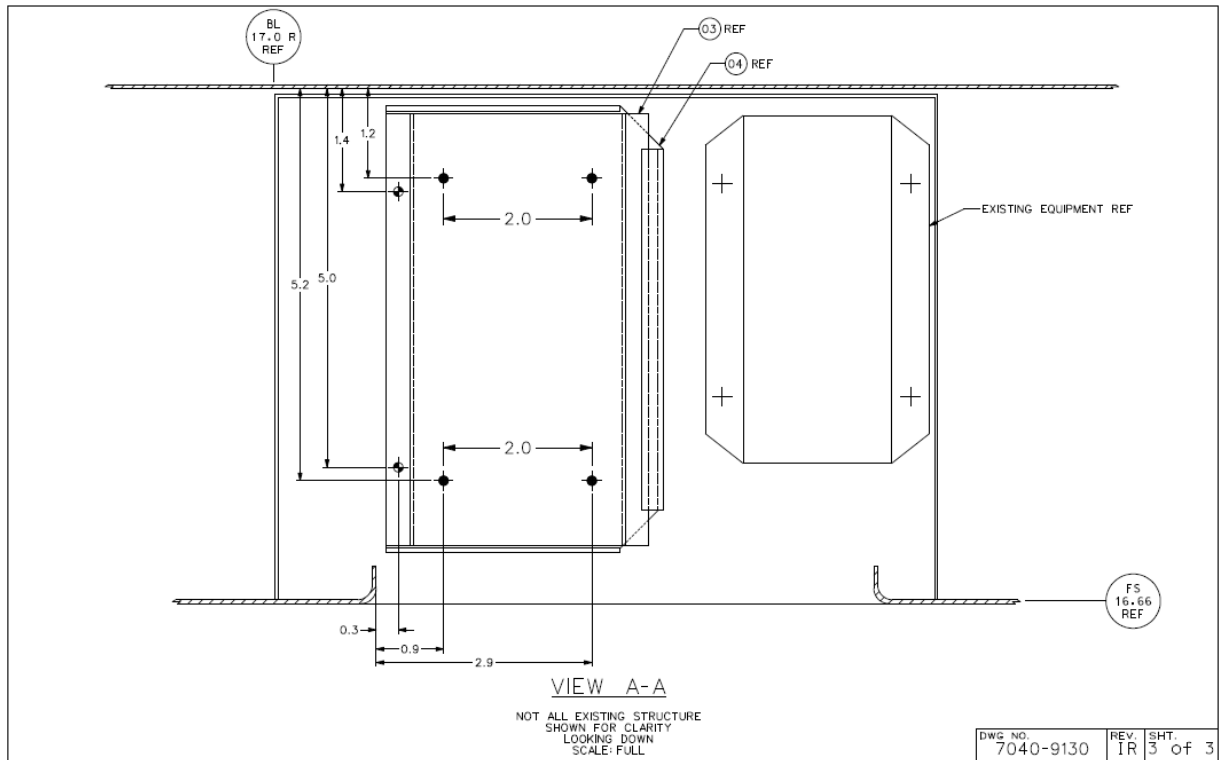


Figure 11: PRO-X HUB INSTALLATION - Sheet 3 of 3

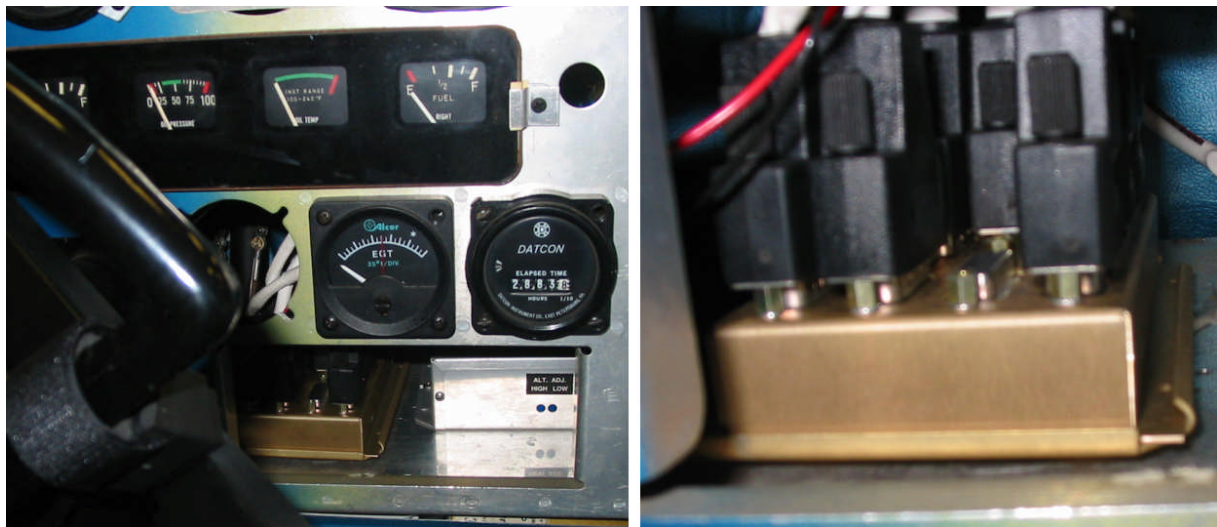


Figure 12: PRO-X HUB INSTALLED IN CESSNA 172 H

2.4 CONNECTING FAST STACK CABLES

1. The Fast Stack cables must be plugged into the proper connectors on the PRO-X Hub (e.g., GPS/NAV1, COM #1, AUTOPILOT, etc.). Refer to the cable build sheet that came with your Fast Stack PRO-X Hub and check the labels on PRO-X cables to

ensure they are connected correctly. **DO NOT USE EXCESSIVE FORCE** to plug cable connectors into the PRO-X Hub. If a cable does not easily plug into the hub, check the cable connector pins to ensure they are not damaged. **Improper cable connections will prevent the connected equipment from functioning properly and may also cause damage.**

2. Cables should be routed using proper bend radii, drip loops and slack to allow for easy access, maintenance repairs and inspection. **Route wires in such a manner that it does not violate any regulatory safety requirements.** (Ref: AC43.13-1B, Chapter 11, Sections 8, Paragraphs 11-96 (b), (q-y) and (aa-gg) and Chapter 9).
4. Move cables away from high energy sources such as coaxial cables, 400HZ AC, etc.
5. Attach the client connector of the Fast Stack cable to the associated avionic equipment or tray in the Avionic Stack. (Refer to owner's manual of the equipment for more details). Connect pigtail leads from the Approach cables to the circuit breaker switch, power source or other point specified by the associated equipment's owner or installation manual.

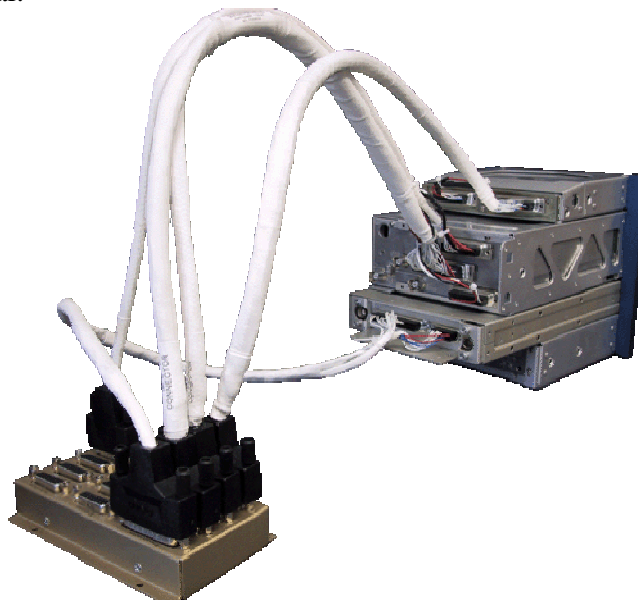


Figure 13: PRO-X Equipment Bench Test

6. Connect the appropriate cable leads to lighting (see individual avionics installation manual). Pay close attention to lighting connections. In the case of some King devices, 14V or 28V wiring is selected by wire connection combinations. (See the device's specific installation manual).
7. When stripping wires for termination, be sure not to nick or cut strands of wire.
8. Secure wiring in the aircraft to prevent chaffing. (Ref: AC43.13-1B, Chapter 11, Section 8, Paragraphs 11-96 (a-p) and Sections 9 and 11).
9. When crimping terminals and/or splices, use the correct size for the wire gauge. Also ensure that the proper crimping tools are used and that these tools are set to the proper setting for a correct crimp.
10. If soldering is necessary, be sure a cold solder joint does not exist and that shrink tube of the proper size and type is installed over the wire and connection point. (Ref: AC43.13-1B)

11. Whenever a cable is terminated, care should be taken to ensure proper grounding of the over-braid, preventing EMI (Electromagnetic Interference) and noise introduction into the system as is required for HIRF and Lightning protection. Proper grounding shall be a Maximum of 2.5 milli-ohm resistance between the grounded device and the adjacent airframe structure.
12. Any wire added to or removed from the aircraft should satisfy separation requirements and wiring standards, in accordance with FAA Advisory Circular AC43.13-1B, Chapter 11, Section 8, Paragraphs 11-96 (w), (z) and (dd)
13. Upon completion of installation, each avionics component will need to be tested according to its corresponding equipment's installation requirements.

Note: *You do not need to have cables attached to every connector in the Fast Stack PRO-X Hub.*

SECTION 3 CONNECTOR DEFINITIONS

3.1 GENERAL INFORMATION

The Fast Stack PRO-X Hub has 12 HD (high-density) gold-plated female connectors: Four connectors are 44-pin and eight connectors are 26 pin.

Make sure all cables are attached to the PRO-X hub as specified.

3.2 HUB CONNECTOR NAMES AND PIN LOCATIONS



Figure 14: PRO-X Rev A – Connector Identification

3.2.1 PRO-X rev A HUB SORTED BY SIGNAL

	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
Ground / Shield	3, 44	13, 26	26	44	26	26	44	1, 26	15, 26	3, 44	13,26	26
TIS	6			22				10		6		
A4		19						5	4			19
A1		17						6	2			17
B2		21						7	9			21
C4		24						8	12			24
C1		23						9	11			23
A2		18						12	13	3		18
B4		22						14	10			22
B1		20						15	5			20
C2		25						16	13			25
D4		16						17	14			16
GP I/O-1				19			19					
GP I/O-2				20			20					
GP I/O-3				26	21		26					
GP I/O-4				27	22		27					
GP I/O-5				28			28					
GP I/O-6				30			30					
ENCODER TXD1				36			6		7			
ENCODER TXD2							7		1			
TRANSPONDER RXD1							4	2				
TRANSPONDER TXD1							16	3				
TRANSPONDER RXD2							24	19				
TRANSPONDER TXD2							38	20				
TRANSPONDER ARINC Out A							36	23				
TRANSPONDER ARINC Out B							33	24				
AUTOPILOT RX						22	25					
AUTOPILOT ARINC In A						24	40					
AUTOPILOT ARINC In B						25	15					
CDI +Right #1	13		12				1					
CDI +Left #1	14		11				2					
NAV +Valid #1	10		7				3					
NAV -Valid #1	29		8				4					
VDI +Up #1	30		13				5					
VDI +Down #1	31		14				6					
VDI +Valid #1	28		15				7					
VDI -Valid #1	32		16				8					
ILS/GPS Approach #1	23			23		10						
GPS/NAV1 RXD1	2			18			3					
GPS/NAV1 TXD1	1			16			1					
GPS/NAV1 RXD2	4						21					
GPS/NAV1 TXD2	5						22					
GPS/NAV1 RXD3	42						12					
GPS/NAV1 TXD3	43						29					
GPS/NAV1 RXD4	35			5			5					
GPS/NAV1 TXD4	17			17			2					
GPS/NAV1 RXD5	22						23					
GPS/NAV1 ARINC Out1 A	40			10			10	21				
GPS/NAV1 ARINC Out1 B	41			11			11	22				
GPS/NAV1 ARINC In1 A	39			9			9					
GPS/NAV1 ARINC In1 B	38			8			8					
GPS/NAV1 ARINC Out2 A	36			6								
GPS/NAV1 ARINC Out2 B	37			7								
GPS/NAV1 ARINC In2 A	8			24								
GPS/NAV1 ARINC In2 B	9			25								

BOLD pins are RESERVED

	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12
	HD44	HD26	HD26	HD44	HD26	HD26	HD44	HD26	HD26	HD44	HD26	HD26
OBS C #1	25		2									
OBS D #1	7		3									
OBS E #1	26		5									
OBS F #1	16		4									
OBS G #1	34		6									
OBS H #1	24		1									
To + #1	12		9									
From + #1	11		10									
ILS Energize #1	33		24									
Backcourse #1	15		19									
Approach Annunciate #1	18		23									
VOR/LOC Composite #1	19		25	3								
GPS Annunciate #1	20		17	4		23						
VLOC/NAV Annunciate #1	21		18	21		9						
COMM1 PTT / Interlock		4			1						2	
COMM1 Mic HI		8			2							
COMM1 Audio HI		14			3							
NAV1 Audio HI	27	10			4							
COMM1 RS232 TX		3										
COMM1 RS232 RX				13								
LAT Superflag #1		5										
VERT Superflag #1		6										
CDI +Right #2										13		12
CDI +Left #2										14		11
NAV +Valid #2										10		7
NAV -Valid #2										29		8
VDI +Up #2										30		13
VDI +Down #2										31		14
VDI +Valid #2										28		15
VDI -Valid #2										32		16
ILS/GPS Approach #2				37						23		
GPS/NAV2 RXD1				32			32			2		
GPS/NAV2 TXD1				31			31			1		
GPS/NAV2 RXD2							34			4		
GPS/NAV2 TXD2							35			5		
GPS/NAV2 RXD3							43			42		
GPS/NAV2 TXD3							14			43		
GPS/NAV2 RXD4				2			18			35		
GPS/NAV2 TXD4				1			17			17		
GPS/NAV2 RXD5							37			22		
GPS/NAV2 ARINC Out1 A				42			42			40		
GPS/NAV2 ARINC Out1 B				43			13			41		
GPS/NAV2 ARINC In1 A				41			41			39		
GPS/NAV2 ARINC In1 B				39			39			38		
GPS/NAV2 ARINC Out2 A				29						36		
GPS/NAV2 ARINC Out2 B				14						37		
GPS/NAV2 ARINC In2 A				38						8		
GPS/NAV2 ARINC In2 B				40						9		
OBS C #2										25		2
OBS D #2										7		3
OBS E #2										26		5
OBS F #2										16		4
OBS G #2										34		6
OBS H #2										24		1
To + #2										12		9
From + #2										11		10

BOLD pins are RESERVED

	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
ILS Energize #2										33		24
Backcourse #2										15		19
Approach Annunciate #2										18		23
VOR/LOC Composite #2				33						19		25
GPS Annunciate #2				34						20		17
VLOC/NAV Annunciate #2				35						21		18
COMM2 PTT / Interlock		2			5						4	
COMM2 Mic HI					6						8	
COMM2 Audio HI					7						14	
NAV2 Audio HI					8					27	10	
COMM2 RS232 TX											3	
COMM2 RS232 RX				12							9	
LAT Superflag #1											5	
VERT Superflag #2											6	
COMM3 PTT					9							
COMM3 Mic HI					10							
COMM3 Audio HI					11							
ADF Audio HI					12							
DME Audio HI					13							
AUX Audio HI					14							
Unswitched Input 1					15			12				
Unswitched Input 2					16	15						
Unswitched Input 3					17				8			
Unswitched Input 4				15	18							
OBS ANNUN / SUSPEND #1		11	22									
MSG/WRN Audio #1		12			19							
OBS ANNUN / SUSPEND #2											11	22
MSG/WRN Audio #2					20						12	

3.2.2 PRO-X rev A HUB SORTED BY GPS / NAV #1 J1

	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
GPS/NAV1 TXD1	1			16			1					
GPS/NAV1 RXD1	2			18			3					
Ground / Shield	3, 44	13, 26	26	44	26	26	44	1, 26	15, 26	3, 44	13,26	26
GPS/NAV1 RXD2	4						21					
GPS/NAV1 TXD2	5						22					
TIS	6			22				10		6		
OBS D #1	7		3									
GPS/NAV1 ARINC In2 A	8			24								
GPS/NAV1 ARINC In2 B	9			25								
NAV +Valid #1	10		7			3						
From + #1	11		10									
To + #1	12		9									
CDI +Right #1	13		12			1						
CDI +Left #1	14		11			2						
Backcourse #1	15		19									
OBS F #1	16		4									
GPS/NAV1 TXD4	17			17			2					
Approach Annunciate #1	18		23									
VOR/LOC Composite #1	19		25	3								
GPS Annunciate #1	20		17	4		23						
VLOC/NAV Annunciate #1	21		18	21		9						
GPS/NAV1 RXD5	22						23					
ILS/GPS Approach #1	23			23		10						
OBS H #1	24		1									
OBS C #1	25		2									
OBS E #1	26		5									
NAV1 Audio HI	27	10			4							
VDI +Valid #1	28		15			7						
NAV -Valid #1	29		8			4						
VDI +Up #1	30		13			5						
VDI +Down #1	31		14			6						
VDI -Valid #1	32		16			8						
ILS Energize #1	33		24									
OBS G #1	34		6									
GPS/NAV1 RXD4	35			5			5					
GPS/NAV1 ARINC Out2 A	36			6								
GPS/NAV1 ARINC Out2 B	37			7								
GPS/NAV1 ARINC In1 B	38			8			8					
GPS/NAV1 ARINC In1 A	39			9			9					
GPS/NAV1 ARINC Out1 A	40			10			10	21				
GPS/NAV1 ARINC Out1 B	41			11			11	22				
GPS/NAV1 RXD3	42						12					
GPS/NAV1 TXD3	43						29					

3.2.3 PRO-X rev A HUB SORTED BY COMM #1 J2

N/C pins are NOT connected.	COM #1	GPS / NAV #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J2 HD26	J1 HD44	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
N/C	1											
COMM2 PTT / Interlock	2				5						4	
COMM1 RS232 TX	3											
COMM1 PTT / Interlock	4				1						2	
LAT Superlag #1 - Reserved	5											
VERT Superlag #1 - Reserved	6											
N/C	7											
COMM1 Mic HI	8				2							
COMM1 RS232 RX	9			13								
NAV1 Audio HI	10	27			4							
OBS ANNUN / SUSPEND #1	11		22									
MSG/WRN Audio #1	12				19							
Ground / Shield	13, 26	3, 44	26	44	26	26	44	1, 26	15, 26	3, 44	13,26	26
COMM1 Audio HI	14				3							
N/C	15											
D4	16					21		17	14		16	
A1	17					11		6	2		17	
A2	18					12		13	3		18	
A4	19					13		5	4		19	
B1	20					14		15	5		20	
B2	21					16		7	9		21	
B4	22					17		14	10		22	
C1	23					18		9	11		23	
C4	24					19		8	12		24	
C2	25					20		16	13		25	

3.2.4 PRO-X rev A HUB SORTED BY INDICATOR #1 J3

N/C pins are NOT connected.	INDICATOR #1	GPS / NAV #1	COM #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J3 HD26	J1 HD44	J2 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
OBS H #1	1	24										
OBS C #1	2	25										
OBS D #1	3	7										
OBS F #1	4	16										
OBS E #1	5	26										
OBS G #1	6	34										
NAV +Valid #1	7	10				3						
NAV -Valid #1	8	29				4						
To + #1	9	12										
From + #1	10	11										
CDI +Left #1	11	14				2						
CDI +Right #1	12	13				1						
VDI +Up #1	13	30				5						
VDI +Down #1	14	31				6						
VDI +Valid #1	15	28				7						
VDI -Valid #1	16	32				8						
GPS Annunciate #1	17	20		4		23						
VLOC/NAV Annunciate #1	18	21		21		9						
Backcourse #1	19	15										
N/C	20											
N/C	21											
OBS ANNUN / SUSPEND #1	22		11									
Approach Annunciate #1	23	18										
ILS Energize #1	24	33										
VOR/LOC Composite #1	25	19		3								
Ground / Shield	26	3, 44	13, 26	44	26	26	44	1, 26	15, 26	3, 44	13,26	26

3.2.5 PRO-X rev A HUB SORTED BY GP I/O J4

	GP I/O	GPS / NAV #1	COM #1	INDICATOR #1	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J4 HD44	J1 HD44	J2 HD26	J3 HD26	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
GPS/NAV2 TXD4	1						17			17		
GPS/NAV2 RXD4	2						18			35		
VOR/LOC Composite #1	3	19		25								
GPS Annunciate #1	4	20		17		23						
GPS/NAV1 RXD4	5	35					5					
GPS/NAV1 ARINC Out2 A	6	36										
GPS/NAV1 ARINC Out2 B	7	37										
GPS/NAV1 ARINC In1 B	8	38					8					
GPS/NAV1 ARINC In1 A	9	39					9					
GPS/NAV1 ARINC Out1 A	10	40					10	21				
GPS/NAV1 ARINC Out1 B	11	41					11	22				
COMM2 RS232 RX	12										9	
COMM1 RS232 RX	13		9									
GPS/NAV2 ARINC Out2 B	14									37		
Unswitched Input 4	15				18							
GPS/NAV1 TXD1	16	1					1					
GPS/NAV1 TXD4	17	17					2					
GPS/NAV1 RXD1	18	2					3					
GP I/O-1	19						19					
GP I/O-2	20						20					
VLOC Annunciate #1	21	21		18		9						
TIS	22	6						10		6		
ILS/GPS Approach #1	23	23				10						
GPS/NAV1 ARINC In2 A	24	8										
GPS/NAV1 ARINC In2 B	25	9										
GP I/O-3	26				21		26					
GP I/O-4	27				22		27					
GP I/O-5	28						28					
GPS/NAV2 ARINC Out2 A	29									36		
GP I/O-6	30						30					
GPS/NAV2 TXD1	31						31			1		
GPS/NAV2 RXD1	32						32			2		
VOR/LOC Composite #2	33									19		25
GPS Annunciate #2	34									20		17
VLOC/NAV Annunciate #2	35									21		18
ENCODER TXD1	36						6		7			
ILS/GPS Approach #2	37									23		
GPS/NAV2 ARINC In2 A	38									8		
GPS/NAV2 ARINC In1 B	39						39			38		
GPS/NAV2 ARINC In2 B	40									9		
GPS/NAV2 ARINC In1 A	41						41			39		
GPS/NAV2 ARINC Out1 A	42						42			40		
GPS/NAV2 ARINC Out1 B	43						13			41		
Ground / Shield	44	3, 44	13, 26	26	26	26	44	1, 26	15, 26	3, 44	13,26	26

3.2.6 PRO-X rev A HUB SORTED BY AUDIO PANEL J5

	AUDIO PANEL	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J5 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
COMM1 PTT / Interlock	1		4								2	
COMM1 Mic HI	2		8									
COMM1 Audio HI	3		14									
NAV1 Audio HI	4	27	10									
COMM2 PTT / Interlock	5		2								4	
COMM2 Mic HI	6										8	
COMM2 Audio HI	7										14	
NAV2 Audio HI	8									27	10	
COMM3 PTT - Reserved	9											
COMM3 Mic HI - Reserved	10											
COMM3 Audio HI - Reserved	11											
ADF Audio HI - Reserved	12											
DME Audio HI - Reserved	13											
AUX Audio HI - Reserved	14											
Unswitched Input 1	15							12				
Unswitched Input 2	16					15						
Unswitched Input 3	17							8				
Unswitched Input 4	18				15							
MSG/WRN Audio #1	19		12									
MSG/WRN Audio #2	20										12	
GP I/O-3	21				26		26					
GP I/O-4	22				27		27					
N/C	23											
N/C	24											
N/C	25											
Ground / Shield	26	3, 44	13, 26	26	44	26	44	1, 26	15, 26	3, 44	13,26	26

3.2.7 PRO-X rev A HUB SORTED BY AUTOPILOT J6

	AUTOPILOT	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J6 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
CDI +Right #1	1	13		12								
CDI +Left #1	2	14		11								
NAV +Valid #1	3	10		7								
NAV -Valid #1	4	29		8								
VDI +Up #1	5	30		13								
VDI +Down #1	6	31		14								
VDI +Valid #1	7	28		15								
VDI -Valid #1	8	32		16								
VLOC/NAV Annunciate #1	9	21		18	21							
ILS/GPS Approach #1	10	23			23							
A1	11		17					6	2		17	
A2	12		18					13	3		18	
A4	13		19					5	4		19	
B1	14		20					15	5		20	
Unswitched Input 2	15					16						
B2	16		21					7	9		21	
B4	17		22					14	10		22	
C1	18		23					9	11		23	
C4	19		24					8	12		24	
C2	20		25					16	13		25	
D4	21		16					17	14		16	
AUTOPILOT RX	22						25					
GPS Annunciate #1	23	20		17	4							
AUTOPILOT ARINC In A	24						40					
AUTOPILOT ARINC In B	25						15					
Ground / Shield	26	3, 44	13, 26	26	44	26	44	1, 26	15, 26	3, 44	13,26	26

3.2.8 PRO-X rev A HUB SORTED BY CONFIGURE J7

	CONFIGURE	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J7 HD44	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J8 HD26	J9 HD26	J10 HD44	J11 HD26	J12 HD26
GPS/NAV1 TXD1	1	1			16							
GPS/NAV1 TXD4	2	17			17							
GPS/NAV1 RXD1	3	2			18							
TRANSPONDER RXD1	4							2				
GPS/NAV1 RXD4	5	35			5							
ENCODER TXD1	6				36				7			
ENCODER TXD2	7								1			
GPS/NAV1 ARINC In1 B	8	38			8							
GPS/NAV1 ARINC In1 A	9	39			9							
GPS/NAV1 ARINC Out1 A	10	40			10			21				
GPS/NAV1 ARINC Out1 B	11	41			11			22				
GPS/NAV1 RXD3	12	42										
GPS/NAV2 ARINC Out1 B	13				43					41		
GPS/NAV2 TXD3	14									43		
AUTOPILOT ARINC In B	15						25					
TRANSPONDER TXD1	16							3				
GPS/NAV2 TXD4	17				1					17		
GPS/NAV2 RXD4	18				2					35		
GP I/O-1	19				19							
GP I/O-2	20				20							
GPS/NAV1 RXD2	21	4										
GPS/NAV1 TXD2	22	5										
GPS/NAV1 RXD5	23	22										
TRANSPONDER RXD2	24							19				
AUTOPILOT RX	25						22					
GP I/O-3	26				26	21						
GP I/O-4	27				27	22						
GP I/O-5	28				28							
GPS/NAV1 TXD3	29	43										
GP I/O-6	30				30							
GPS/NAV2 TXD1	31				31					1		
GPS/NAV2 RXD1	32				32					2		
TRANSPONDER ARINC Out B	33							24				
GPS/NAV2 RXD2	34									4		
GPS/NAV2 TXD2	35									5		
TRANSPONDER ARINC Out A	36							23				
GPS/NAV2 RXD5	37									22		
TRANSPONDER TXD2	38							20				
GPS/NAV2 ARINC In1 B	39				39					38		
AUTOPILOT ARINC In A	40						24					
GPS/NAV2 ARINC In1 A	41				41					39		
GPS/NAV2 ARINC Out1 A	42				42					40		
GPS/NAV2 RXD3	43									42		
Ground / Shield	44	3, 44	13, 26	26	44	26	26	1, 26	15, 26	3, 44	13,26	26

3.2.9 PRO-X rev A HUB SORTED BY TRANSPONDER J8

N/C pins are NOT connected.	TRANSPONDER	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	ENCODER	GPS / NAV #2	COM #2	INDICATOR #2
	J8 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J9 HD26	J10 HD44	J11 HD26	J12 HD26
Ground / Shield	1, 26	3, 44	13, 26	26	44	26	26	44	15, 26	3, 44	13,26	26
TRANSPONDER RXD1	2							4				
TRANSPONDER TXD1	3							16				
N/C	4											
A4	5		19				13		4		19	
A1	6		17				11		2		17	
B2	7		21				16		9		21	
C4	8		24				19		12		24	
C1	9		23				18		11		23	
TIS	10	6			22					6		
N/C	11											
Unswitched Input 1	12					15						
A2	13		18				12		3		18	
B4	14		22				17		10		22	
B1	15		20				14		5		20	
C2	16		25				20		13		25	
D4	17		16				21		14		16	
N/C	18											
TRANSPONDER RXD2	19							24				
TRANSPONDER TXD2	20							38				
GPS/NAV1 ARINC Out1 A	21	40			10			10				
GPS/NAV1 ARINC Out1 B	22	41			11			11				
TRANSPONDER ARINC Out A	23							36				
TRANSPONDER ARINC Out B	24							33				
N/C	25											

3.2.10 PRO-X rev A HUB SORTED BY ENCODER J9

N/C pins are NOT connected.	ENCODER	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	GPS / NAV #2	COM #2	INDICATOR #2
	J9 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J10 HD44	J11 HD26	J12 HD26
ENCODER TXD2	1							7				
A1	2		17				11		6		17	
A2	3		18				12		13		18	
A4	4		19				13		5		19	
B1	5		20				14		15		20	
ENCODER TXD1	7				36			6				
Unswitched Input 3	8					17						
B2	9		21				16		7		21	
B4	10		22				17		14		22	
C1	11		23				18		9		23	
C4	12		24				19		8		24	
C2	13		25				20		16		25	
D4	14		16				21		17		16	
Ground / Shield	15, 26	3, 44	13, 26	26	44	26	26	44	1, 26	3, 44	13,26	26
N/C	16-25											

3.2.11 PRO-X rev A HUB SORTED BY GPS / NAV #2 J10

	GPS / NAV #2	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	COM #2	INDICATOR #2
	J10 HD44	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J11 HD26	J12 HD26
GPS/NAV2 TXD1	1				31			31				
GPS/NAV2 RXD1	2				32			32				
Ground / Shield	3, 44	3, 44	13, 26	26	44	26	26	44	1, 26	15, 26	13,26	26
GPS/NAV2 RXD2	4							34				
GPS/NAV2 TXD2	5							35				
TIS	6	6			22				10			
OBS D #2	7											3
GPS/NAV2 ARINC In2 A	8				38							
GPS/NAV2 ARINC In2 B	9				40							
NAV +Valid #2	10											7
From + #2	11											10
To + #2	12											9
CDI +Right #2	13											12
CDI +Left #2	14											11
Backcourse #2	15											19
OBS F #2	16											4
GPS/NAV2 TXD4	17				1			17				
Approach Annunciate #2	18											23
VOR/LOC Composite #2	19				33							25
GPS Annunciate #2	20				34							17
VLOC/NAV Annunciate #2	21				35							18
GPS/NAV2 RXD5	22							37				
ILS/GPS Approach #2	23				37							
OBS H #2	24											1
OBS C #2	25											2
OBS E #2	26											5
NAV2 Audio HI	27					8					10	
VDI +Valid #2	28											15
NAV -Valid #2	29											8
VDI +Up #2	30											13
VDI +Down #2	31											14
VDI -Valid #2	32											16
ILS Energize #2	33											24
OBS G #2	34											6
GPS/NAV2 RXD4	35				2			18				
GPS/NAV2 ARINC Out2 A	36				29							
GPS/NAV2 ARINC Out2 B	37				14							
GPS/NAV2 ARINC In1 B	38				39			39				
GPS/NAV2 ARINC In1 A	39				41			41				
GPS/NAV2 ARINC Out1 A	40				42			42				
GPS/NAV2 ARINC Out1 B	41				43			13				
GPS/NAV2 RXD3	42							43				
GPS/NAV2 TXD3	43							14				

3.2.12 PRO-X rev A HUB SORTED BY COMM #2 J11

N/C pins are NOT connected.	COM #2	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	INDICATOR #2
	J11 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J12 HD26
N/C	1											
COMM1 PTT / Interlock	2		4			1						
COMM2 RS232 TX	3											
COMM2 PTT / Interlock	4		2			5						
LAT Superflag #1 - Reserved	5											
VERT Superflag #2 - Reserved	6											
N/C	7											
COMM2 Mic HI	8					6						
COMM2 RS232 RX	9				12							
NAV2 Audio HI	10					8					27	
OBS ANNUN / SUSPEND #2	11											22
MSG/WRN Audio #2	12					20						
Ground / Shield	13,26	3, 44	13, 26	26	44	26	26	44	1, 26	15, 26	3, 44	26
COMM2 Audio HI	14					7						
N/C	15											
D4	16		16				21		17	14		
A1	17		17				11		6	2		
A2	18		18				12		13	3		
A4	19		19				13		5	4		
B1	20		20				14		15	5		
B2	21		21				16		7	9		
B4	22		22				17		14	10		
C1	23		23				18		9	11		
C4	24		24				19		8	12		
C2	25		25				20		16	13		

3.2.13 PRO-X rev A HUB SORTED BY INDICATOR #2 C12

N/C pins are NOT connected.	INDICATOR #2	GPS / NAV #1	COM #1	INDICATOR #1	GP I/O	AUDIO PANEL	AUTOPILOT	CONFIGURE	TRANSPONDER	ENCODER	GPS / NAV #2	COM #2
	J12 HD26	J1 HD44	J2 HD26	J3 HD26	J4 HD44	J5 HD26	J6 HD26	J7 HD44	J8 HD26	J9 HD26	J10 HD44	J11 HD26
OBS H #2	1										24	
OBS C #2	2										25	
OBS D #2	3										7	
OBS F #2	4										16	
OBS E #2	5										26	
OBS G #2	6										34	
NAV +Valid #2	7										10	
NAV -Valid #2	8										29	
To + #2	9										12	
From + #2	10										11	
CDI +Left #2	11										14	
CDI +Right #2	12										13	
VDI +Up #2	13										30	
VDI +Down #2	14										31	
VDI +Valid #2	15										28	
VDI -Valid #2	16										32	
GPS Annunciate #2	17				34						20	
VLOC/NAV Annunciate #2	18				35						21	
Backcourse #2	19										15	
N/C	20											
N/C	21											
OBS ANNUN / SUSPEND #2	22											11
Approach Annunciate #2	23										18	
ILS Energize #2	24										33	
VOR/LOC Composite #2	25				33						19	
Ground / Shield	26	3, 44	13, 26	26	44	26	26	44	1, 26	15, 26	3, 44	13,26