

REVISION			
REV	DESCRIPTION	DATE	APPROVAL
I	Drawing Redrawn. Added new Spare Keylines. Added note on shield grounding. Clarified notes and instructions.	4/10/15	SJC
J	Fixed Gnet port names on sheet 3. Fixed headset port assignments on sheet 8. Changed P5 Power Supply pin names. Removed Flag Note 11. Added Flag Notes 16, 17 & 18. Changed breaker names to match RFMS. Changed Gnet External Power note.	11/06/17	GA

## AUDIO BOARD OPTIONS:

This drawing set applies to the G13000 Audio Router.  
It is not compatible with the G13160 3-board Audio Router.

The G13000 Audio Router can be set up in one of two configurations:  
-- Dual Audio Board system with 4 audio connectors J1, J2, J3, J4  
-- Single Audio Board with 2 audio connectors J2 and J4

Pages 1, 11 and 12 are common to all installations.  
Wiring diagrams for the Dual Audio Board system are found on pages 2 through 7  
Wiring diagrams for the Single Audio Board system are found on pages 8 through 10

Wiring Diagram for using physical switches on G13115/G13116 control panels are on page 13.


## NOTES:

- Unless otherwise noted: All wires are 22 awg; all shielded wire is MIL-DTL-27500; all unshielded wire is MIL-W-22759/16.
  - All Grounding and Bonding will be I/A/W AC 43.13-1B, Chapter 1, Section 15.
  - Ground the shield return to the metal connector backshell if used, or otherwise to the metal connector housing.
  - SPARE KEY line function and connections are installer defined and depend on the specific system configuration.
  - D50M connector assembly consists of: Connector M24308/4-5F; Cinch backshell DD-24661-34; 2ea. Cinch Screwlocks D20420-42. Alternate Backshell: Conec 165X10179X.
  - D50F connector assembly consists of: Connector M24308/2-5F; Cinch backshell DD-24661-34; 2ea. Cinch Screwlocks D20420-42. Alternate Backshell: Conec 165X10179X.
  - D9F connector assembly consists of: Connector M24308/2-1F; Cinch backshell DE-24657-30; 2ea. Cinch Screwlocks D20419-46. Alternate Backshell: Conec 165X10139X.
  - When COM1DIR (P5, Pin 10) is not grounded, the Pilot headset is in EMERGENCY mode and the following lines are diverted:
    - HEADSET 1 connects directly to RX1, RX11 (Unswitched Alert Tones) and the emergency intercom.
    - MIC 1 connects directly to TX 1 and the emergency Intercom.
    - XMIT KEY 1 and PLT COM1 KEY connect to TX KEY 1.
    - ICS KEY 1 keys the emergency intercom, if at least one Power Input Circuit Breaker to the G13000 Audio Router has power.
    - TX11 (CVR) transmits HEADSET1, MIC1 and Emergency Intercom if at least one Power Input Circuit Breaker to the G13000 Audio Router has power.
  - When COM2DIR (P5, Pin 11) is not grounded, the Copilot headset is in EMERGENCY mode and the following lines are diverted:
    - HEADSET 2 connects directly to RX2, RX20 (Unswitched Alert Tones) and the emergency intercom.
    - MIC 2 connects directly to TX 2, and the emergency Intercom.
    - XMIT KEY 2 and CPLT COM2 KEY connect to TX KEY 2.
    - ICS KEY 2 keys the emergency intercom, if at least one Power Input Circuit Breaker to the G13000 Audio Router has power.
    - TX20 (CVR) transmits HEADSET2, MIC2 and Emergency Intercom if at least one Power Input Circuit Breaker to the G13000 Audio Router has power.
  - TERMINAL BLOCK assembly consists of: Deutsch block CTJ122E05E; Deutsch socket contacts CTS-S22/22 or M39029/22-191. A Gnet channel that is connected to only one control panel or other device may be wired directly without using a terminal block.
- 10 D15F connector preferred assembly consists of: Connector M24308/2-2F; Cinch backshell DA-24658-31; 2ea. Cinch Screwlocks D20419-46. Alternate Backshell: Conec P/N: 165X10149X. Splices on 20 AWG wire shall also be 20 AWG, length 3 inches maximum. Alternate assembly consists of: Kobiconn Solder-Cup Connector 156-1315T-E and Cinch backshell DA-24658-31; 2ea. Cinch Screwlocks D20419-46. Alternate Backshell: Conec P/N: 165X10149X. Conductors shown with splices may be implemented by soldering the supply wire to both pins after soldering and insulating the adjacent connections.
- 12 D9M connector assembly consists of: Connector M24308/4-1F; Cinch backshell DE-24657-30; 2ea. Cinch Screwlocks D20419-46. Alternate Backshell: Conec 165X10139X.
- 13 The COM1DIR pin MUST be wired to an appropriate switch to control Emergency Mode for the pilot headset. Emergency Mode is mandatory when the G13000 Audio Router is used as the primary audio system. See notes on sheet 13.
- 14 For EC135 connect alert tone ports to TB9 of factory wiring. See Eurocopter Maint. Manual WDM for detail.  
For EC145 connect alert tone ports to TB55028 of factory wiring. See Eurocopter Maint. Manual WDM for detail.  
For Bell 204, 205, 214 and 412 connect alert tone ports to 8Z1P3. See Bell Maint. Manual BHT-xx-MM for detail.
- 15 SHIELDING: For shielded wire, the shield must be connected to airframe ground or connector ground as follows:
  - For wire carrying audio signals, the shield must be grounded at one end ONLY. Grounding both ends may lead to audio noise.
  - Audio shield ground connections should be made at the G13000 connectors but may be made at the other end at the installers discretion.
  - For all other shielded wire, e.g. Gnet and power, the shield must be grounded at both ends.
- 16 BUS CONNECTIONS: Breakers should be connected to two separate busses for redundancy. Consult installation instructions to determine appropriate bus assignments.
- 17 CONTROL PANEL CONNECTIONS: Control panel J1 is the default Gnet connection. J2 is used for expansion in specific configurations only.
- 18 HEADSET LO is NOT a power ground and MUST NOT be used as a ground for powered devices. MIC LO may be used as a ground for low-powered devices or use an external ground connection.

## DEFINITIONS:

N/C: MAKE NO CONNECTION. The pin is not connected to anything internally and therefore shall have no connection externally

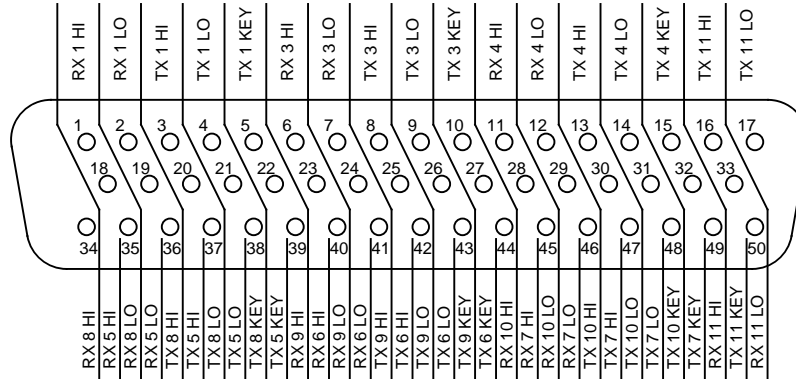
RESERVED: MAKE NO CONNECTION. Internal circuitry may be added in the future, or may be present and relevant for testing but not relevant to operation for flight.

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		CHECKED	JSW	DATE	10/30/08		
APPROVAL	CLB	DATE	10/30/08				
PRO NO.	GA182	SHT.	1 of 13	DWG NO.	G13004		REV.

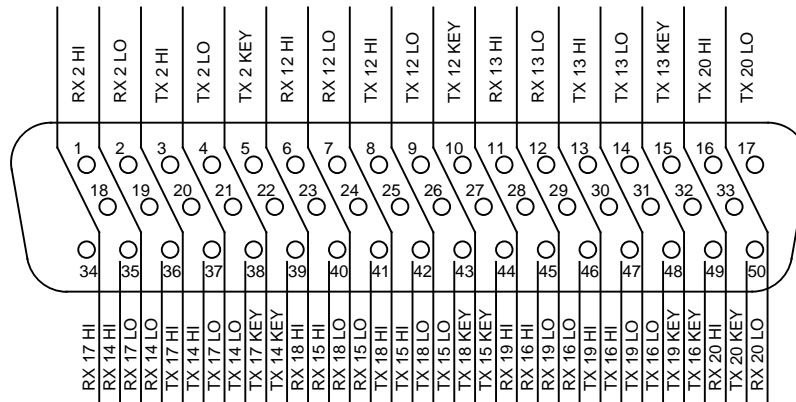
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P1  
D50F  
△  
6

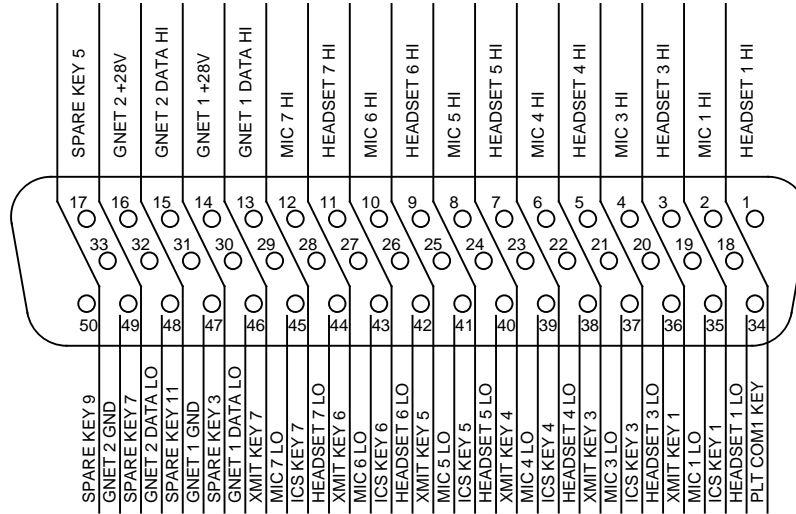


P2  
D50F  
△  
6

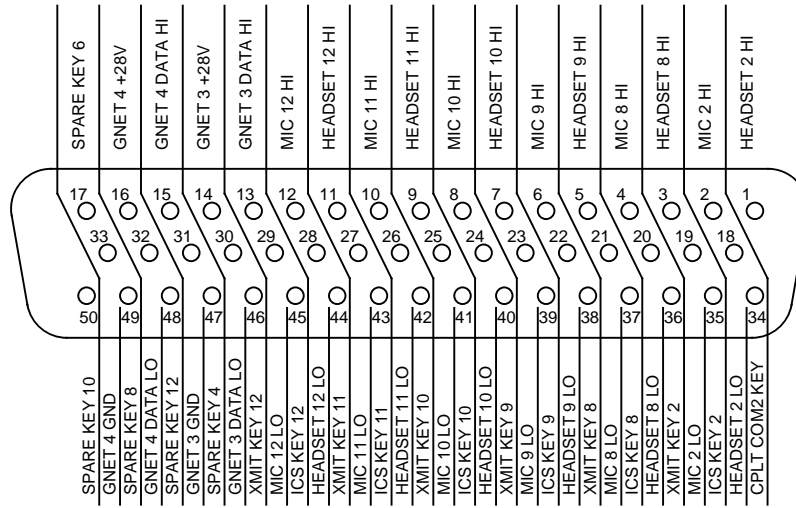
NOTE: VIEW IS FROM REAR OF AIRFRAME CONNECTOR

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	APPROVAL	CLB	DATE	10/30/08		
	PRO NO.	GA182	SHT.	2 of 13	DWG NO.	
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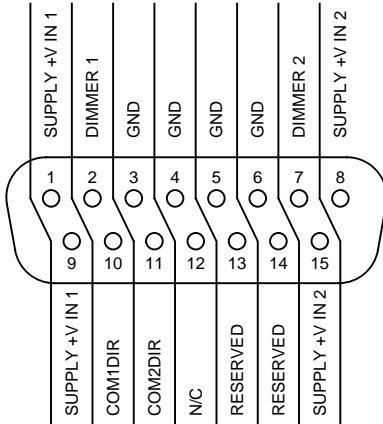
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**P3**  
D50M



**P4**  
D50M

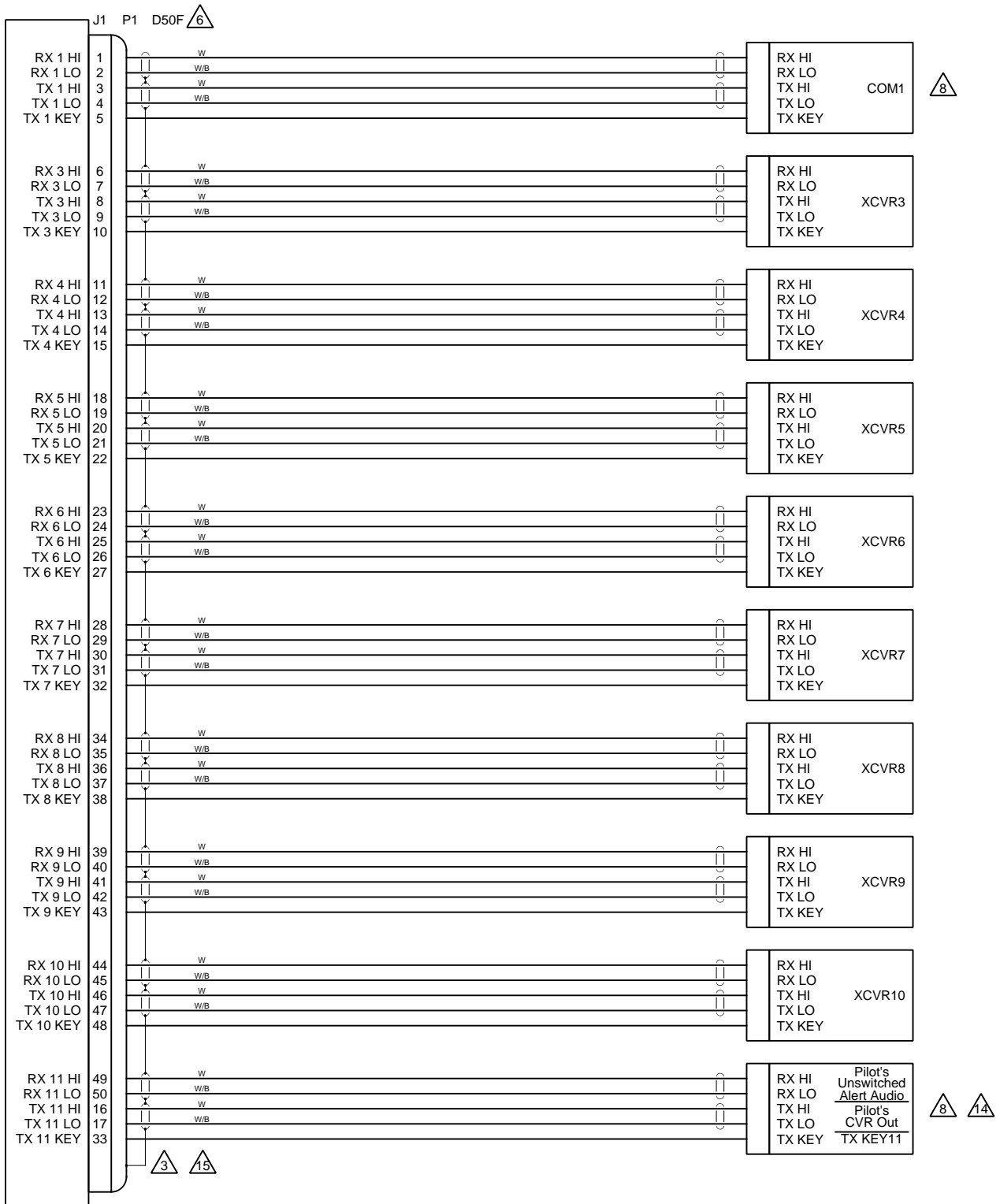


**P5**  
D15F

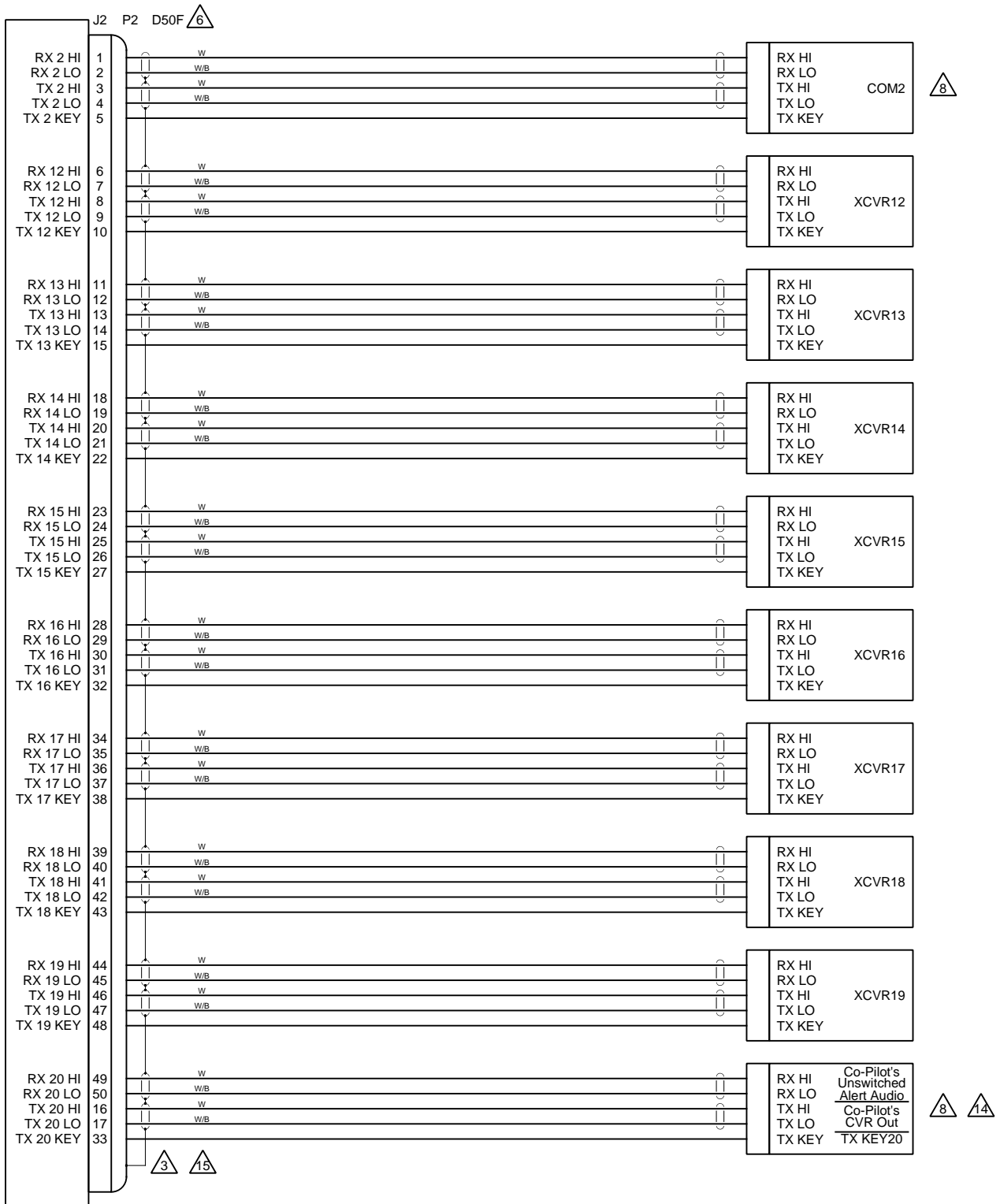
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	CHECKED	JSW	DATE	10/30/08			
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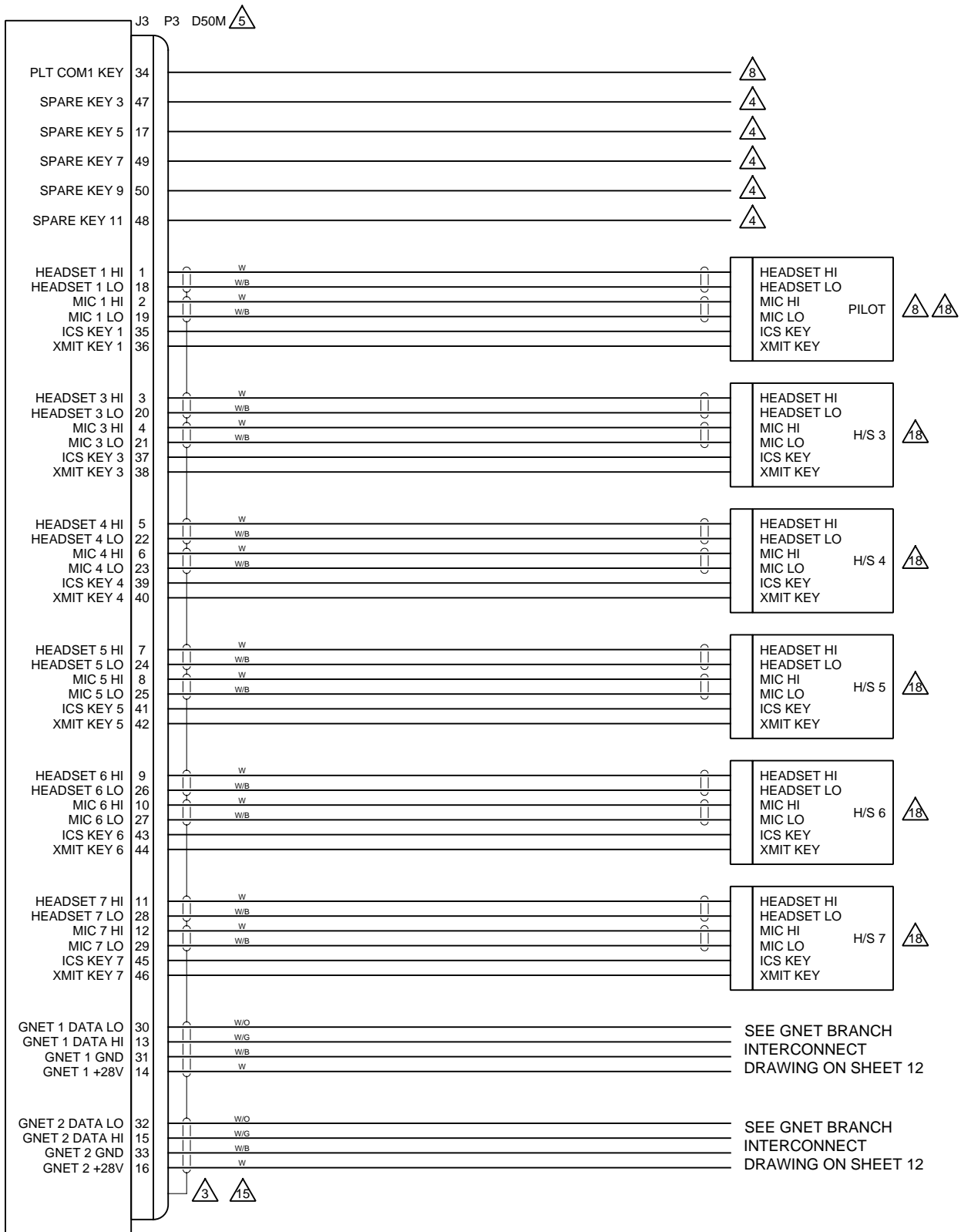



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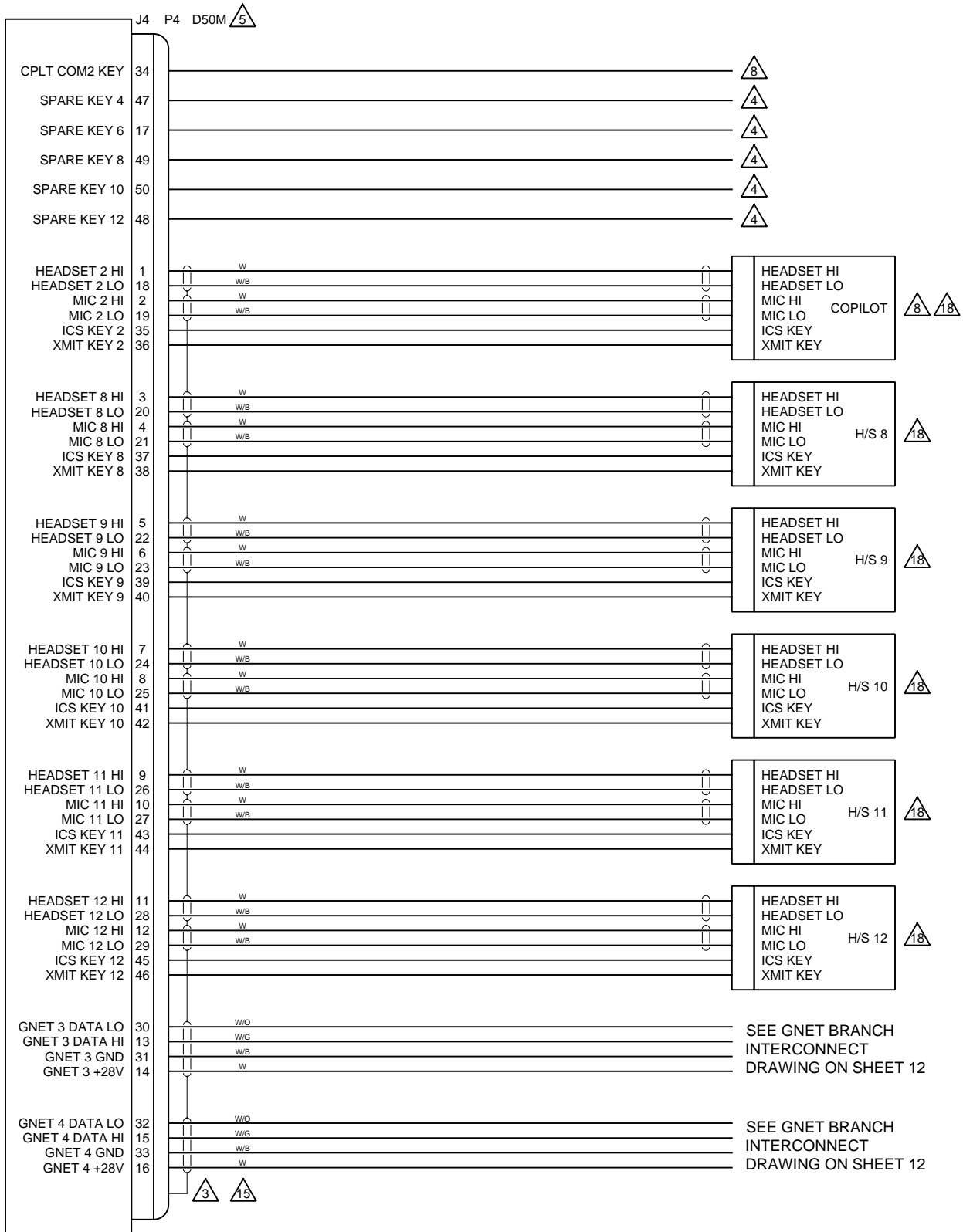
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	APPROVAL	CLB	DATE	10/30/08		
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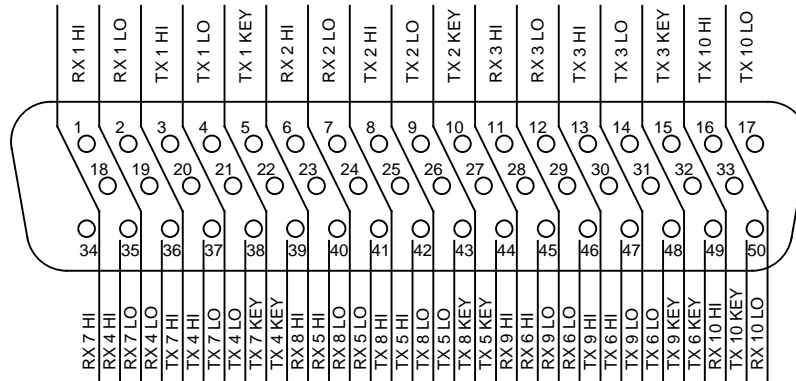
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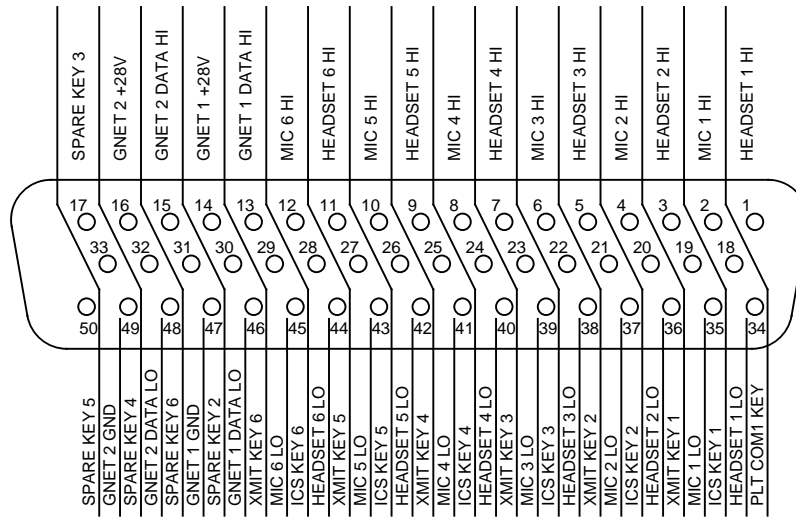


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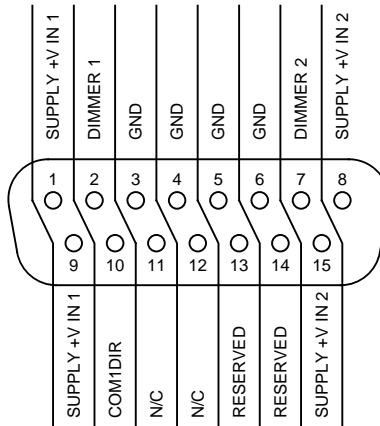
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P2  
D50F  
6




P4  
D50M  
5



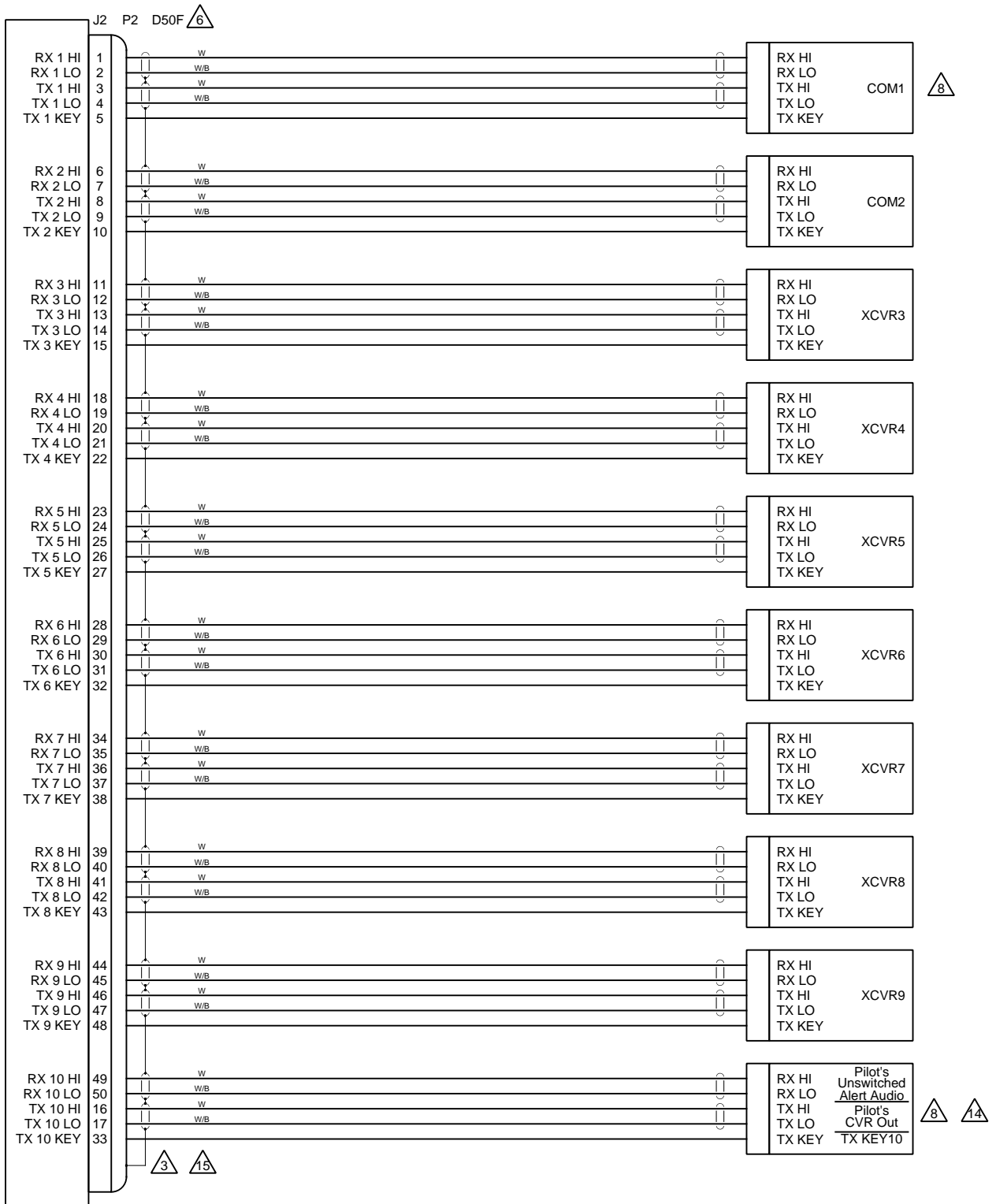
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D15F  
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NOTE: VIEW IS FROM REAR OF AIRFRAME CONNECTOR

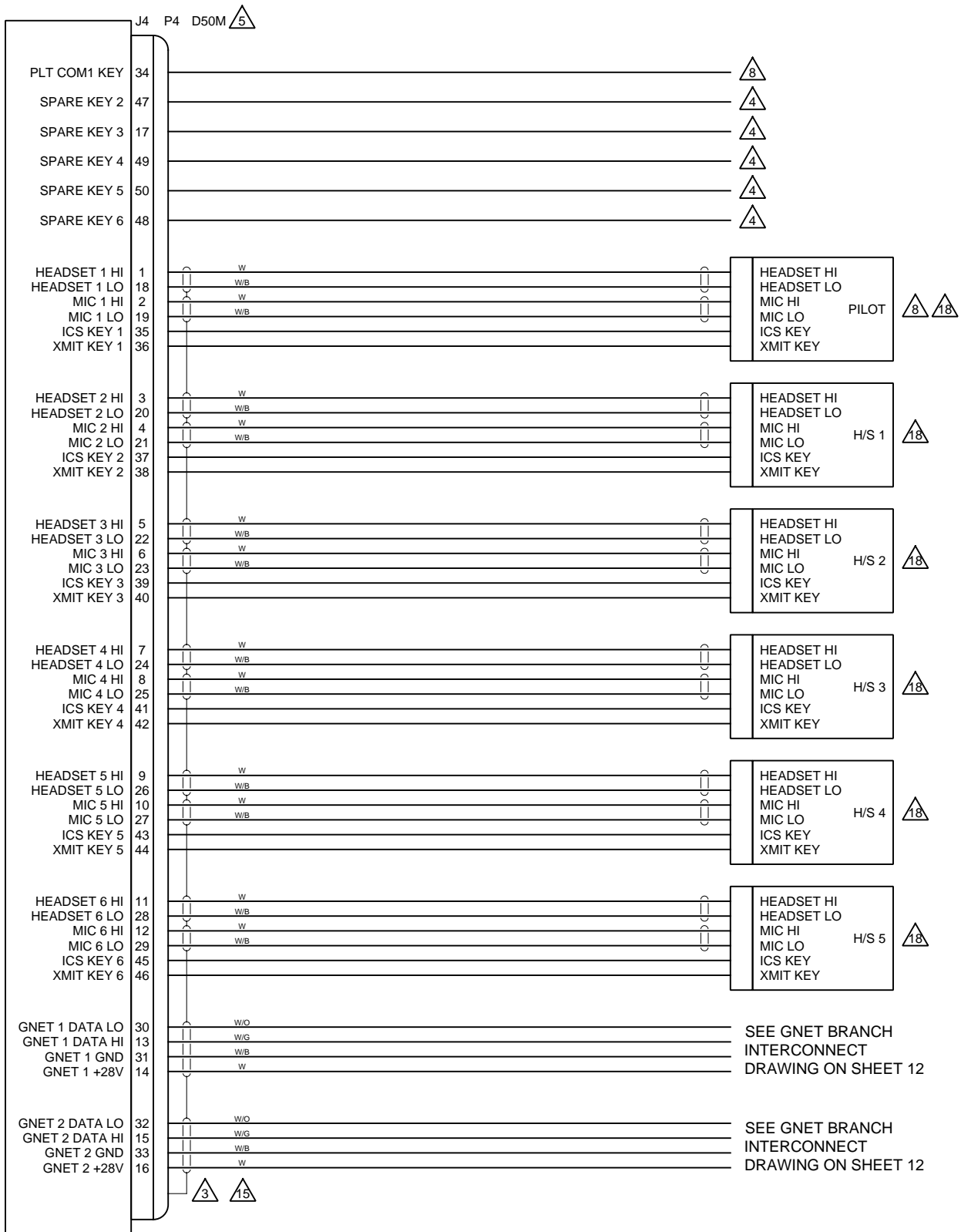
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	CHECKED	JSW	DATE	10/30/08		
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REVISION			
REV	DESCRIPTION	DATE	APPROVAL
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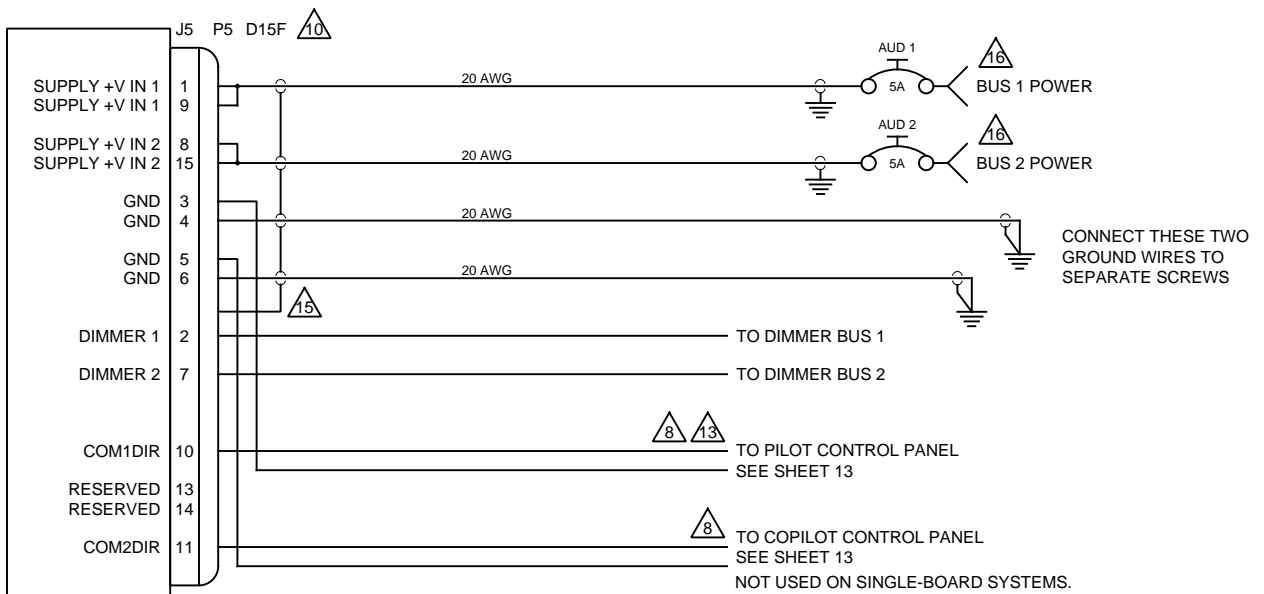



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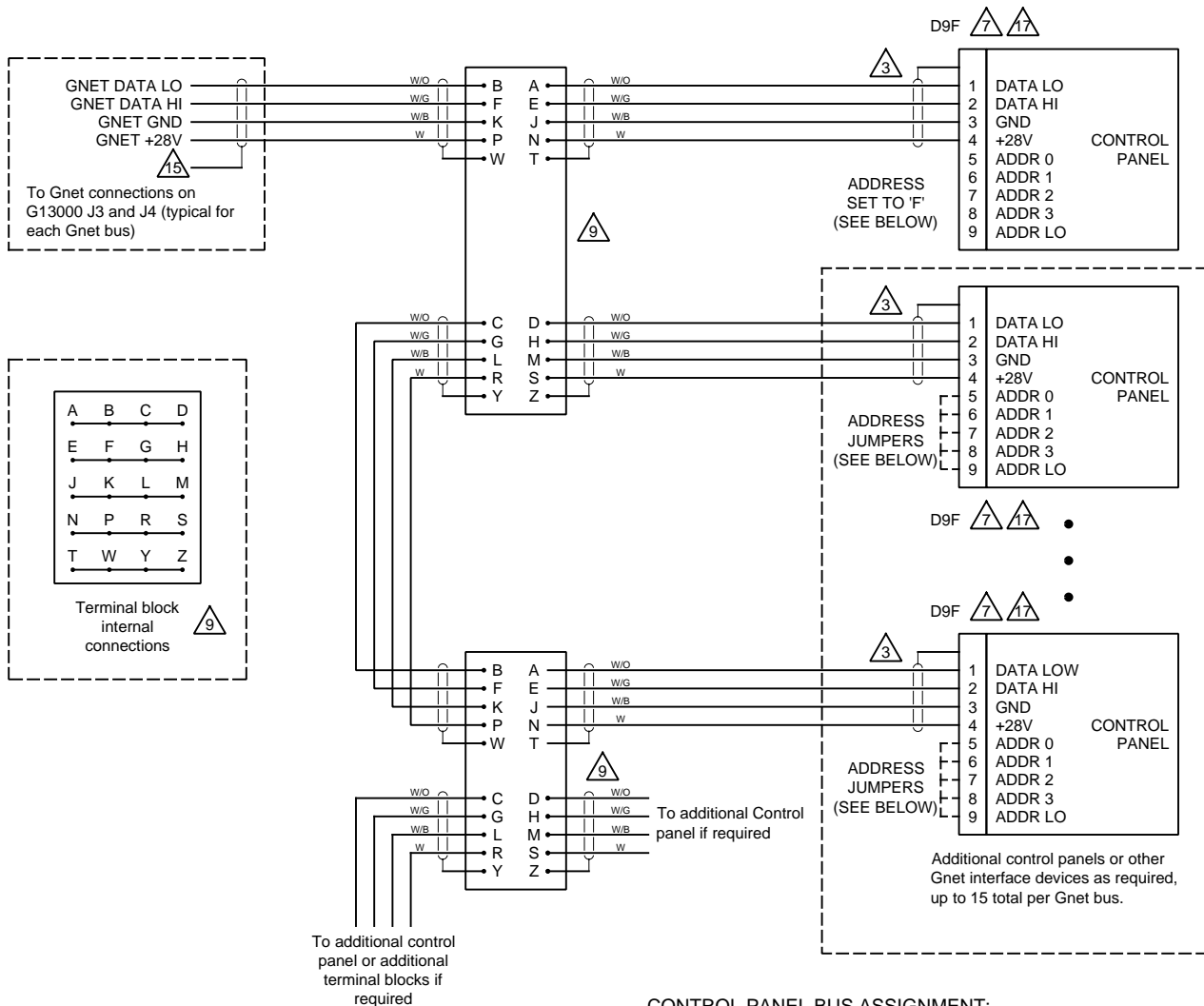
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	APPROVAL	CLB	DATE	10/30/08			
	PRO NO.	GA182	SHT.	11 of 13	DWG NO.		G13004
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REVISION			
REV	DESCRIPTION	DATE	APPROVAL
See sheet 1 for revision history			



**CONTROL PANEL BUS ASSIGNMENT:**

If the number of installed control panels is equal to or less than the number of available Gnet busses (4 for dual-board, 2 for single-board) then each panel should be connected to a separate Gnet bus and terminal blocks are not required.

The pilot's primary control panel should be the first device on Gnet bus 1. The copilot's primary control panel should be the first device on Gnet 3 in a dual-board system and the first device on Gnet 2 on a single-board system.

Additional control panels should be evenly distributed among available Gnet busses.

**GNET ADDRESS JUMPERS:**

For every control panel or other peripheral device connected to a particular Gnet bus, a unique device address from "1" to "9" or "A" to "F" must be wired into the connector. The address for each device on each Gnet bus is defined in the system configuration software for the specific installation.

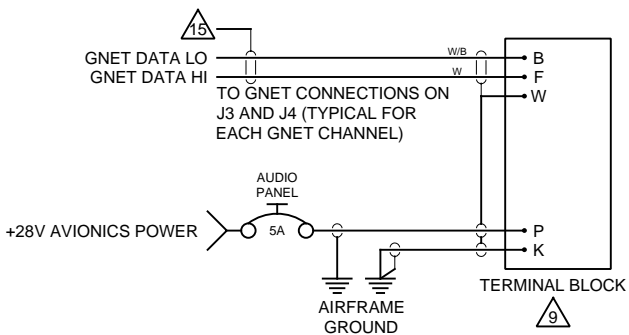
Using 24 AWG wire 1.5" long for each jumper, connect the following pins together for Gnet addressing for each connector, as specified in the system configuration requirements. Make no connections to unlisted pins.

The first control panel on any given Gnet bus should be set as address "F" with no jumpers. Additional panels on the same bus should be given addresses in descending order: "E", "D", "C" etc.

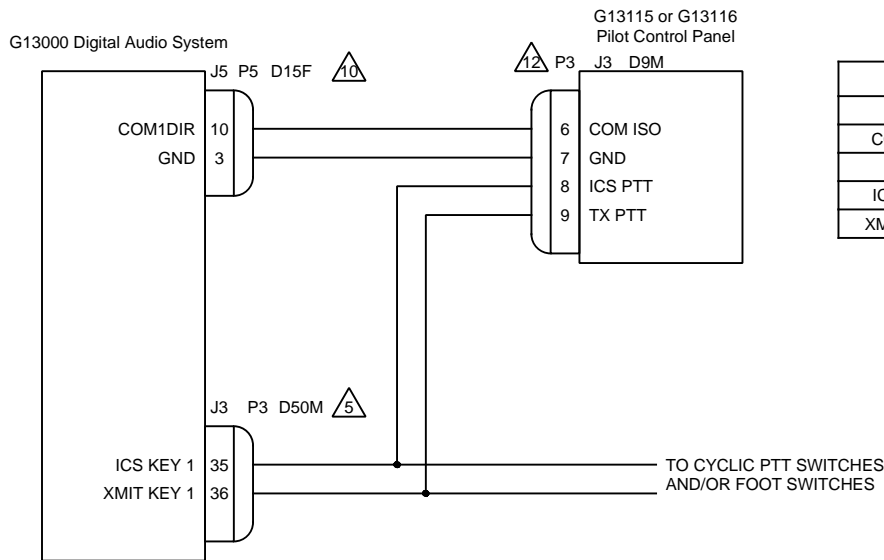
- "1" = 6-7-8-9
- "2" = 5-7-8-9
- "3" = 7-8-9
- "4" = 5-6-8-9
- "5" = 6-8-9
- "6" = 5-8-9
- "7" = 8-9
- "8" = 5-6-7-9
- "9" = 6-7-9
- "A" = 5-7-9
- "B" = 7-9
- "C" = 5-6-9
- "D" = 6-9
- "E" = 5-9
- "F" = NONE

**GNET EXTERNAL POWER:**

If the audio system has more than 6 control panels an external power source for the additional panels must be provided. Up to 12 additional control panels may be powered from each external 5A breaker. Control panels powered by an external breaker should not be connected to router Gnet power.



REVISION			
REV	DESCRIPTION	DATE	APPROVAL
See sheet 1 for revision history			



Copilot Pin Assignment		
NAME	G13115/6	G13000
COM2DIR	J3 pin 6	J5 pin 11
GND	J3 Pin 7	J5 pin 5
ICS KEY2	J3 pin 8	J4 pin 35
XMIT KEY 2	J3 Pin 9	J4 pin 36

The G13115 and G13116 control panels have two electromechanical toggle switches on the front panel; an EMERG/NORMAL locking toggle switch, and a 3-position momentary switch for ICS/OFF/TX PTT. When each switch is "on" the appropriate pin on the J3 connector is connected to GND, pin 7.

The above wiring diagram illustrates the use of the EMERG/NORMAL switch on the pilot's G13115 or G13116 primary control panel to control the Emergency Mode operation for the pilot headset. The operation of the Digital Audio System in Emergency Mode is detailed in NOTE 8 on G13004 sheet 1.

The pilot's primary control panel MUST be wired to COM1DIR as shown if this is the primary audio system installed. ONLY if the audio system is installed as a secondary may the connection be omitted and the COM1DIR pin on the G13000 be directly connected to ground.


In most installations, the copilot's primary control panel will be wired to COM2DIR, connecting to the appropriate pins as shown in the above table. Exceptions are if the audio system is not the primary audio system or if the HEADSET 2 port is not at a location used by flight crew. In these situations the COM2DIR pin on the G13000 should be directly connected to ground.

On a single-board system there is no copilot Emergency Mode, and the COM2DIR pin is not connected.

The EMERG/NORMAL switch is only connected for the pilot's and copilot's primary control panel. For other control panel locations, a G13115NS or G13116NS panel with the EMERG/NORMAL switch not installed may be used.

The ICS PTT and TX PTT pins on the copilot control panel should be connected in parallel with the appropriate PTT switches on the copilot cyclic and/or foot switches.

In all other crew positions the ICS PTT and TX PTT pins on the associated control panel may be connected in parallel with the appropriate PTT switches for that headset.

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	CHECKED	JSW	DATE	10/30/08		
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	PRO NO.	GA182	SHT.	13 of 13		
		DWG NO.	G13004		REV.	J