

APPENDIX A - CONNECTOR INFORMATION

A.1 G5

A.1.1 J51

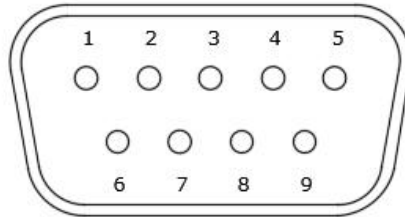


Figure 6-7 J51 on the G5

J51 Pin Descriptions

Pin	Pin Name	I/O
1	CAN-H	I/O
2	CAN-L	I/O
3	UNIT ID	In
4	RS-232 RX 1	In
5	RS-232 TX 1	Out
6	SIGNAL GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	POWER GROUND	--

A.1.2 Aircraft Power

The G5 operates using power from one 14 / 28 VDC input. Pin 8 (AIRCRAFT POWER 2) is not used as a part of this STC.



NOTE

AIRCRAFT POWER 2 is for connecting to an alternate power source, such as on aircraft with two electrical buses.

A.1.3 RS-232

The G5 has one RS-232 channel that may be used to interface to an existing GPS navigator or GPS source to receive GPS data for attitude aiding. Also, the G5 RS-232 port can be used to receive VHF and GPS navigation information.

For specific configuration settings for RS-232 refer to Section 6.3.6.2.

If an existing connection is made to the RS-232 port, the G5 connection can be spliced into the existing wiring at the connector. For specific wiring information, refer to Section 5.

A.1.4 CAN

The G5 CAN bus conforms to the BOSCH standard for Controller Area Network (CAN) 2.0-B and ISO 11989. See Section 3.4.5.2 for details. The G5 can utilize CAN bus connections when specified by a specific equipment configuration to allow heading information from the GMU 11, communication of navigation data from the GAD 29/29B, communication between the G5 Attitude or Turn Coordinator and the G5 HSI, and communication from the GAD 13 for Outside Air Temperature (OAT) information.

For specific wiring information, refer to Section 5.

A.1.5 Unit ID

The G5 detects its assigned unit type at startup by checking the UNIT ID pin. This pin can be strapped into the following configurations. A maximum of two G5 units may be used in a single installation.

Unit ID Configurations

Unit ID	Comment
G5 #1	Pin 3 No Connection
G5 #2	Ground pin 3

A.2 GMU 11

A.2.1 J111

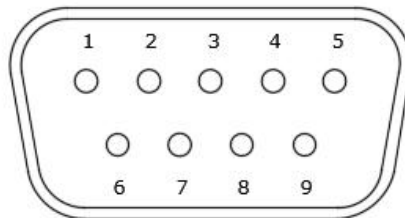


Figure 6-8 J111 on the GMU 11

J111 Pin Descriptions

Pin	Pin Name	I/O
1	CAN-H	I/O
2	CAN-L	I/O
3	UNIT ID	In
4	RS-232 RX 1	In
5	RS-232 TX 1	Out
6	SIGNAL GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	POWER GROUND	--



A.2.2 Aircraft Power

The GMU 11 operates using power from one 14 / 28 VDC input. Pin 8 (AIRCRAFT POWER 2) is not used as a part of this STC.



NOTE

AIRCRAFT POWER 2 is for connecting to an alternate power source, such as on aircraft with two electrical buses.

A.2.3 RS-232

RS-232 is not used or approved for use by this STC.

A.2.4 CAN Bus

The GMU 11 CAN bus conforms to the BOSCH standard for Controller Area Network (CAN) 2.0-B and ISO 11898. See Section 3.4.5.2 for details. The CAN bus connection on the GMU 11 is used to connect the GMU 11 to one or two G5s, a GAD 29/29B, and a GAD 13.

For specific wiring information, refer to Section 5.

A.2.5 Unit ID

The GMU 11 detects its assigned unit type at startup by checking the UNIT ID pin. Only one GMU 11 may be installed by this STC. Ensure pin 3 is not connected to allow the GMU 11 to properly detect its assigned unit type.

Unit ID Configurations

Unit ID	Comment
GMU 11 #1	Pin 3 No Connection
GMU 11 #2 (Not Used)	Ground pin 3 (Not Used)

This area intentionally blank

A.3 GAD 29/29B

A.3.1 J291

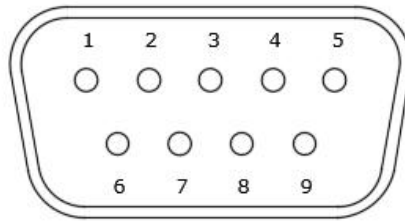


Figure 6-9 J291 on the GAD 29/29B

J291 Pin Descriptions

Pin	Pin Name	I/O
1	CAN-H	I/O
2	CAN-L	I/O
3	RESERVED	--
4	RESERVED	--
5	RESERVED	--
6	GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	GROUND	--

A.3.2 J292

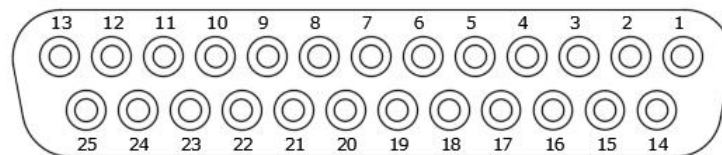


Figure 6-10 J292 on the GAD 29/29B

J292 Pin Descriptions

Pin	Pin Name	I/O
1	AC REFERENCE HI (GAD 29B ONLY)	In
2	AC REFERENCE LO (GAD 29B ONLY)	In
3	HDG/CRS VALID (GAD 29B ONLY)	Out
4	ARINC 429 RX 4B	In
5	ARINC 429 RX 3B	In
6	ARINC 429 TX 2B	Out

7	ARINC 429 TX 2B	Out
8	HEADING ERROR HI (GAD 29B ONLY)	Out
9	CAN TERM 1	--
10	ARINC 429 RX 2B	In
11	ARINC 429 RX 1B	In
12	ARINC 429 TX 1B	Out
13	ARINC 429 TX 1B	Out
14	HEADING ERROR LO (GAD 29B ONLY)	In
15	COURSE ERROR HI (GAD 29B ONLY)	Out
16	ARINC 429 RX 4A	In
17	ARINC 429 RX 3A	In
18	ARINC 429 TX 2A	Out
19	ARINC 429 TX 2A	Out
20	COURSE ERROR LO (GAD 29B ONLY)	In
21	CAN TERM 2	--
22	ARINC 429 RX 2A	In
23	ARINC 429 RX 1A	In
24	ARINC 429 TX 1A	Out
25	ARINC 429 TX 1A	Out

A.3.3 Aircraft Power

The GAD 29/29B operates using power from one 14 / 28 VDC input. Pin 8 (AIRCRAFT POWER 2) is not used as a part of this STC.



NOTE

AIRCRAFT POWER 2 is for connecting to an alternate power source, such as on aircraft with two electrical buses.

A.3.4 RS-232

RS-232 is not used or approved for use by this STC.

A.3.5 CAN Bus

The GAD 29/29B CAN bus conforms to the BOSCH standard for Controller Area Network (CAN) 2.0-B and ISO 11898. See Section 3.4.5.2 for details. The CAN bus connection on the GAD 29/29B is used to connect the GAD 29/29B to one or two G5s, a GMU 11, and a GAD 13.

For specific wiring information, refer to Section 5.

A.3.6 ARINC 429

The ARINC 429 outputs conform to ARINC 429 electrical specifications when loaded with up to 5 standard ARINC 429 receivers. The G5 in conjunction with the GAD 29/29B can receive GPS and VHF navigation data and send selected course when connected to a GPS or GPS/VHF navigator.

For specific wiring information, refer to Section 5

A.3.7 Autopilot Heading/Course (GAD 29B Only)

The GAD 29B can provide analog heading and course error outputs to third-party analog autopilots. In the case of an AC autopilot, the GAD 29B has an AC REFERENCE signal input.

For specific wiring information, refer to Section 5.

A.4 GAD 13

A.4.1 J131

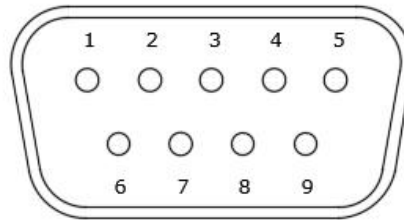


Figure 6-11 J131 on the GAD 13

J131 Pin Descriptions

Pin	Pin Name	I/O
1	CAN-H	I/O
2	CAN-L	I/O
3	TEMP PROBE IN HI	In
4	ACTIVE TEMP PROBE IN	In
5	ACTIVE TEMP PROBE POWER OUT	Out
6	TEMP PROBE IN LO	In
7	AIRCRAFT POWER	In
8	TEMP PROBE POWER OUT	Out
9	GROUND	--

A.4.2 Aircraft Power

The GAD 13 operates using power from one 14 / 28 VDC input.

A.4.3 CAN Bus

The GAD 13 CAN bus conforms to the BOSCH standard for Controller Area Network (CAN) 2.0-B and ISO 11898. See Section 3.4.5.2 for details. The CAN bus connection on the GAD 13 is used to connect the GAD 13 to one or two G5s, a GMU 11, and a GAD 29/29B.

For specific wiring information, refer to Section 5.

A.4.4 OAT Probe Interface

The GAD 13 has three pins for interface to a passive (RTD type) and two pins for interface to an active OAT probe. This interface provides excitation voltage/current, and temperature sensing capabilities for a OAT probe. For specific wiring information, refer to Section 5.

A.5 GTP 59

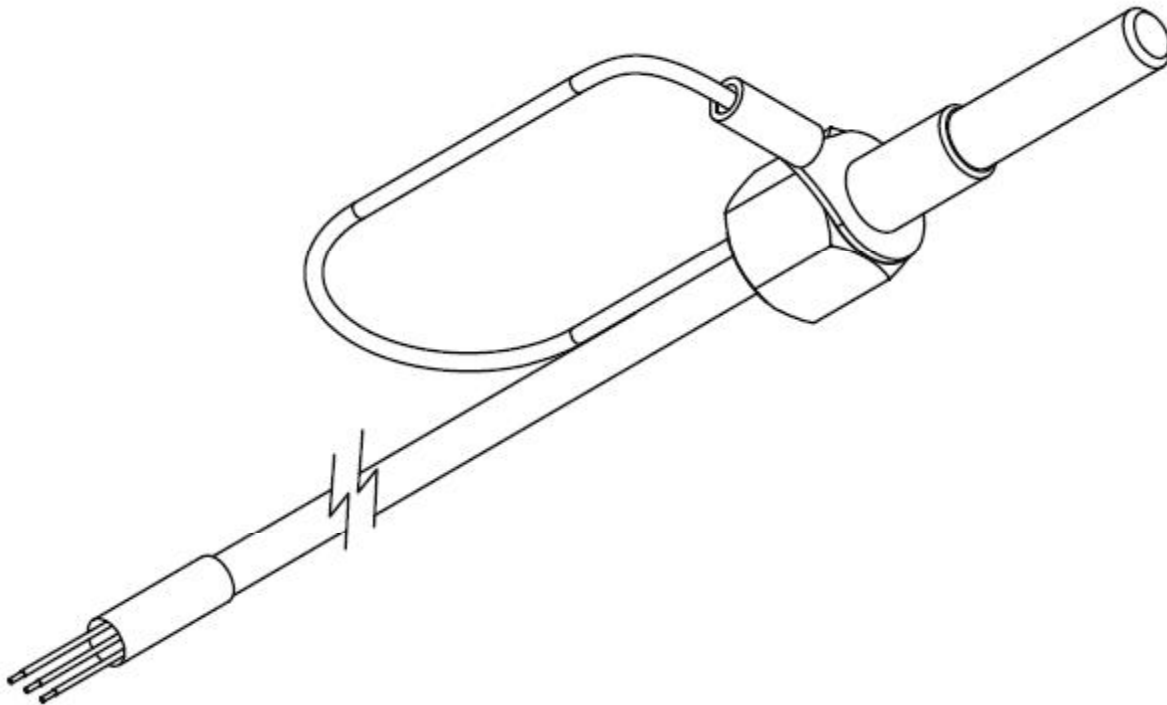


Figure 6-12 GTP 59

PIN	WIRE	I/O
WH	TEMP PROBE POWER IN	IN
BL	TEMP PROBE OUT HI	OUT
OR	TEMP PROBE OUT LO	OUT

A.5.1 OAT Sensing

The GTP 59 is an OAT sensing device. The connection to this LRU is made via pre-installed lead wires, if they are not long enough to reach the GAD 13, crimp splices can be used to extend the lead wire to the GAD 13. The pre-installed lead wires are ten feet in length. For specific wiring information, refer to Section 5.

This area intentionally blank

26.4 GDU 4XX (Display Unit)

26.4.1 P4501/4601/4701 (P4X01) Connector

The P4501/4601/4701 connector (referred to as P4X01 connector in this section) can be used for connections to the GSU 25 when mounting the GSU 25 to the back of the GDU 4XX ([Figure 8-2](#)). This mounting method may not be recommended for all installations, contact Garmin for details before using this method.

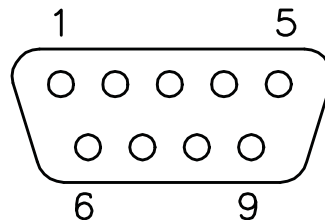


Figure 26-7 P4X01 on GDU 4XX, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN BUS HI	I/O
2	CAN BUS LO	I/O
3	RESERVED	--
4	RS-232 TX	Out
5	RS-232 RX	In
6	GND	--
7	PWR 1	--
8	PWR 2	--
9	GND	--



NOTE

It is recommended to connect the serial port from the GSU 25 (use the GSU 25 designated as #1 in a multiple GSU 25 installation) to the P4X01 connector regardless of mounting method used for the GSU 25 per [Figure 26-8](#). Connector kit 010-11825-20 which includes a 9 pin connector, pins, and metal backshell may be used for the P4X01 connections.

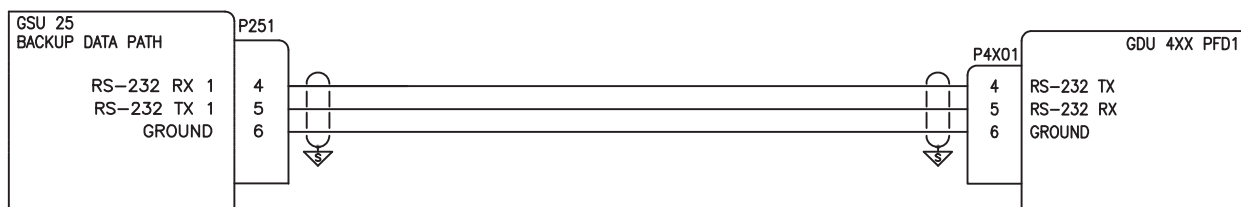


Figure 26-8 GDU 4XX to GSU 25 Backup Data Path Connections

26.4.2 P4502/4602/4702 (P4X02) Connector

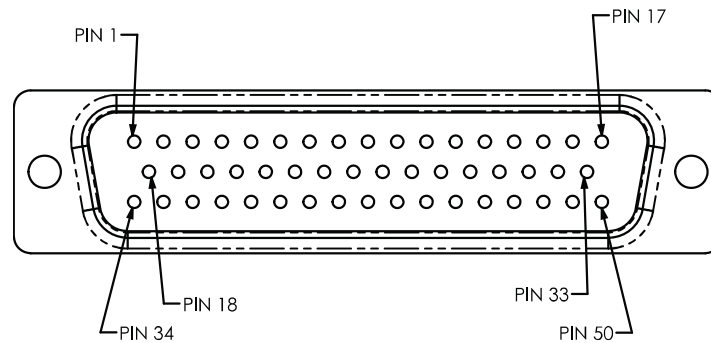


Figure 26-9 View of P4X02 Connector from Back of Unit

Pin	Pin Name	I/O
1	MONO AUDIO OUT HI	Out
2	STEREO AUDIO OUT LO	--
3	STEREO AUDIO OUT LEFT	Out
4	SPARE	--
5	SPARE	--
6	DO NOT USE	--
7	DO NOT USE	--
8	DO NOT USE	--
9	CDU SYSTEM ID PROGRAM* 2	In
10	CDU SYSTEM ID PROGRAM* 1	In
11	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	--
12	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	--
13	RS-232 OUT 3	Out
14	RS-232 IN 2	In
15	POWER GROUND	--
16	POWER GROUND	--
17	CONFIG MODULE POWER OUT (3.3V VERY LOW CURRENT)	Out
18	MONO AUDIO OUT LO	--
19	STEREO AUDIO OUT RIGHT	Out
20	STEREO AUDIO OUT LO	--
21	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	In
22	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	In

*Indicates Active Low

Pin	Pin Name	I/O
23	RS-232 IN 4	In
24	RS-232 IN 5	In
25	CDU SYSTEM ID PROGRAM* 3	In
26	28V LIGHTING BUS HI	In
27	SIGNAL GROUND	--
28	CAN BUS TERMINATION	--
29	RS-232 IN 3	In
30	RS-232 OUT 2	Out
31	AIRCRAFT POWER 2	In
32	AIRCRAFT POWER 1	In
33	CONFIG MODULE CLOCK	I/O
34	SIGNAL GROUND	--
35	SIGNAL GROUND	--
36	SIGNAL GROUND	--
37	SIGNAL GROUND	--
38	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	In
39	RESERVED FOR FUTURE DEVELOPMENT, DO NOT USE	In
40	RS-232 OUT 4	Out
41	RS-232 OUT 5	Out
42	CDU SYSTEM ID PROGRAM* 4	In
43	14V LIGHTING BUS HI	In
44	SIGNAL GROUND	--
45	CAN BUS LO	I/O
46	CAN BUS HI	I/O
47	RS-232 IN 1	In
48	RS-232 OUT 1	Out
49	CONFIG MODULE GROUND	--
50	CONFIG MODULE DATA	I/O

*Indicates Active Low

26.4.3 P4503/4603/4703 (PX03) Connector

Do not use P4X03, this connector is reserved for future development.

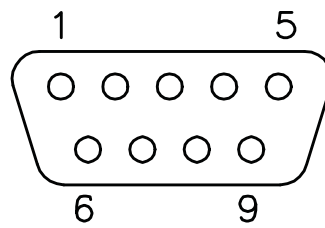


Figure 26-10 View of P4X03 Connector from Back of Unit

Pin	Pin Name	I/O
1	CAN BUS HI	I/O
2	CAN BUS LO	I/O
3	RESERVED	--
4	RESERVED	--
5	RESERVED	--
6	RESERVED	--
7	RESERVED	--
8	RESERVED	--
9	RESERVED	--

26.4.4 Video Input



Figure 26-11 View of Video Input BNC Connector from Back of Unit

The GDU 4XX supports the following composite video input formats:

- NTSC “National Television Standards Committee” (J,M,4.43)
- PAL “Phase Alternating Line” (B,D,G,H,I,M,N,Nc,60)
- SECAM “Sequential Color with Memory” (B,D,G,K,K1,L)

Composite video is a one-wire format with intensity, color, and timing information transferred together. Video signals are transferred using a 75 Ω coaxial cable (see the following recommended cable types.)

- M17/94-RG179, PIC Wire & Cable p/n V75268 or V76261,
- M17/94-RG179, Electronic Cable Specialists (ECS) p/n 442501 or equivalent



NOTE

Particular attention must be taken in routing the coaxial cable through the aircraft to avoid potential radiated interference sources in addition to minimizing the cable bend radii. Concerns about interference sources may necessitate the use of coaxial cable with a higher noise rejection rating.

NTSC (M) (also called RS-170A), is the most common video format supported by the GDU 4XX. NTSC has the following characteristics:

- 59.94 Hz vertical interlaced refresh rate
- 15.75 kHz horizontal line frequency
- 525 scan lines
- 29.97 frame per second update rate
- Luminance or luma (black and white) also called “monochrome NTSC” or RS-170, is the standard black and white format which contains both image and timing information.
- Chrominance or chroma (color) encoding system

26.4.5 Aircraft Power

The GDU 4XX can operate using power from one or both inputs (AIRCRAFT POWER 1 AND AIRCRAFT POWER 2). The pins are internally connected using diodes to prevent current from flowing between the two power inputs. AIRCRAFT POWER 2 is for connecting to an alternate power source, such as on aircraft with two electrical buses. Use 22 AWG wire (min) for all power and ground connections.

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER 1	P4X02	32	In
AIRCRAFT POWER 2	P4X02	31	In
POWER GROUND	P4X02	15	–
POWER GROUND	P4X02	16	–

4 SYSTEM INTERCONNECTS

4.1 Connector Description

The GMA 245 has two 44-pin connectors located at the rear of the unit designated J2401 and J2402 which are oriented as shown in Figure 4-1. The GMA 245 is installed into a rack with shield block backshells. The GMA 245R is remote mounted using jackscrew backshells.

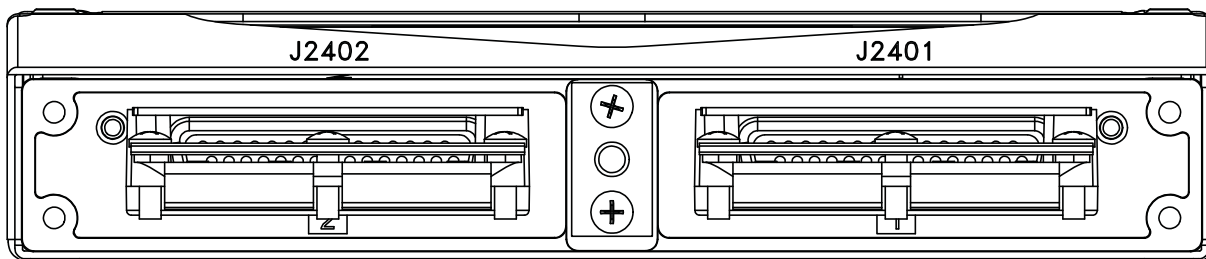


Figure 4-1 Rear View of Backplate and Connectors

4.2 Pin List

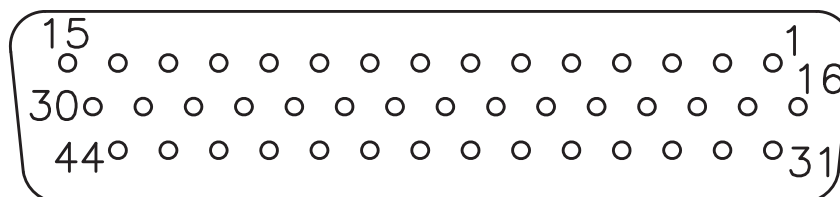


Figure 4-2 Rear Connectors J2401 & J2402, Viewed from Back of Unit

J2401 and J2402 pins are configured as shown in Figure 4-2. J2401 and J2402 pin assignments are given in Table 4-1, [Table 4-2](#), and [Appendix C](#).

Following the Table 4-1 & [Table 4-2](#), additional tables group pin connections by function.

An asterisk (*) following a signal name denotes that the signal is active low logic. Active low inputs are connected to ground to activate. Active low outputs sink current to ground when active.

4.2.1 P2401 Connector

Table 4-1 J2401 Pin Assignments

Pin	Pin Name	I/O
1	RESERVED	--
2	RESERVED	--
3	XCVR 3 AUDIO IN (WIRED TEL)	IN
4	XCVR 3 AUDIO LO (WIRED TEL)	--
5	XCVR 3 MIC OUT HI (WIRED TEL)	OUT
6	RESERVED	--
7	RCVR 4 AUDIO IN HI (AUX 2)	IN
8	RCVR 4 AUDIO IN LO (AUX 2)	--

Table 4-1 J2401 Pin Assignments

Pin	Pin Name	I/O
9	COM 1 AUDIO IN HI	IN
10	COM 1 AUDIO LO	--
11	COM 1 MIC AUDIO OUT HI	OUT
12	COM 1 MIC KEY* OUT	OUT
13	COM 2 AUDIO IN HI	IN
14	COM 2 AUDIO LO	--
15	COM 2 MIC AUDIO OUT HI	OUT
16	PILOT ICS KEY*	IN
17	NAV 1 AUDIO IN HI	IN
18	NAV 1 AUDIO IN LO	--
19	NAV 2 AUDIO IN HI	IN
20	NAV 2 AUDIO IN LO	--
21	RCVR 3 AUDIO IN HI (AUX 1)	IN
22	RCVR 3 AUDIO IN LO (AUX 1)	--
23	RCVR 5 AUDIO IN HI (AUX 3)	IN
24	COM ACTIVE OUT*	OUT
25	RESERVED	--
26	RESERVED	--
27	RESERVED	--
28	RESERVED	--
29	ALERT 3 AUDIO IN HI	IN
30	COM 2 MIC KEY* OUT	OUT
31	ALERT 1 AUDIO IN HI	IN
32	ALERT 1 AUDIO IN LO	--
33	PILOT MIC AUDIO IN HI	IN
34	PILOT MIC KEY* IN	IN
35	PILOT MIC AUDIO IN LO	--
36	CAN BUS HI	I/O
37	CAN BUS LO	I/O
38	RESERVED	--
39	RESERVED	--
40	PASS HEADSET AUDIO OUT LEFT	OUT
41	PASS HEADSET AUDIO OUT RIGHT	OUT
42	PASS HEADSET AUDIO OUT LO	--
43	ALERT 3, 4, AUX 3 AUDIO IN LO	--
44	ALERT 4 AUDIO IN HI	IN

*Denotes Active Low (Inputs: ground to activate; Outputs: grounded when active)

4.2.2 J2402 Connector

Table 4-2 J2402 Pin Assignments

Pin	Pin Name	I/O
1	PILOT HEADSET AUDIO OUT LO	--
2	COPILOT HEADSET AUDIO OUT LO	--
3	COPILOT HEADSET AUDIO OUT LEFT	OUT
4	COPILOT HEADSET AUDIO OUT RIGHT	OUT
5	LIGHTING BUS 14V LO/28V LO	--
6	LIGHTING BUS 14V HI/28V LO	IN
7	LIGHTING BUS 14V HI/28V HI	IN
8	AIRCRAFT POWER	IN
9	AIRCRAFT POWER	IN
10	POWER GROUND	--
11	POWER GROUND	--
12	RESERVED	--
13	PASSENGER ICS KEY*	IN
14	ALERT 2 LO, FAILSAFE AUDIO IN LO	--
15	ALERT 2 AUDIO IN HI	IN
16	PILOT HEADSET AUDIO OUT LEFT	OUT
17	RESERVED	--
18	RESERVED	--
19	RESERVED	--
20	COM SWAP*	IN
21	GROUND	--
22	PLAY KEY*	IN
23	MUSIC 1 IN LEFT	IN
24	MUSIC 1 IN RIGHT	IN
25	MUSIC 1 IN LO	--
26	MUSIC 2 IN LEFT	IN
27	MUSIC 2 IN RIGHT	IN
28	MUSIC 2 IN LO	--
29	FAILSAFE WARN AUDIO IN HI	IN
30	COPILOT ICS KEY*	IN
31	PILOT HEADSET AUDIO OUT RIGHT	OUT
32	COPILOT MIC AUDIO IN HI	IN
33	COPILOT MIC KEY* IN	IN
34	COPILOT MIC AUDIO IN LO	--
35	PASS 1 MIC AUDIO IN HI	IN

*Denotes Active Low (Inputs: ground to activate; Outputs: grounded when active)

Table 4-2 J2402 Pin Assignments

Pin	Pin Name	I/O
36	PASS 1 MIC AUDIO IN LO	--
37	PASS 2 MIC AUDIO IN HI	IN
38	PASS 2 MIC AUDIO IN LO	--
39	PASS 3 MIC AUDIO IN HI	IN
40	PASS 3 MIC AUDIO IN LO	--
41	PASS 4 MIC AUDIO IN HI	IN
42	PASS 4 MIC AUDIO IN LO	--
43	SPEAKER AUDIO OUT LO	--
44	SPEAKER AUDIO OUT HI	OUT

* Denotes Active Low (Inputs: ground to activate; Outputs: grounded when active)

4.3 Aircraft Power

The GMA 245 has four pins for aircraft power bus inputs. Use one wire for each of the pins connecting to the aircraft power and ground. Do not splice the power and ground pins at the unit and use only one wire to aircraft power and ground.

Table 4-3 Aircraft Power

Pin	Connector	Pin Name	I/O
8	J2402	AIRCRAFT POWER	IN
9	J2402	AIRCRAFT POWER	IN
10	J2402	POWER GROUND	--
11	J2402	POWER GROUND	--

4.4 CAN Bus

The CAN bus is used to interface with G3X Touch systems, and conforms to the BOSCH standard for Controller Area Network 2.0-B, and complies with ISO 11898.

Table 4-4 CAN Bus

Pin	Connector	Pin Name	I/O
36	J2401	CAN BUS HI	I/O
37	J2401	CAN BUS LO	I/O

26.9 GMC 507 (AFCS Mode Controller)

26.9.1 J7001 Connector

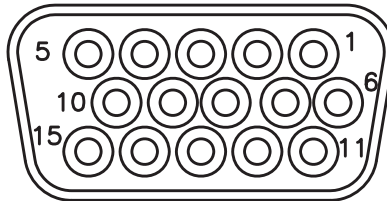


Figure 26-20 J7001 on GMC 507, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	RESERVED	--
2	RESERVED	--
3	CAN HI	I/O
4	CAN LO	I/O
5	RESERVED	--
6	CAN BUS TERM 2	--
7	AIRCRAFT POWER 1	In
8	CAN BUS TERM 1	--
9	AIRCRAFT POWER 2	In
10	TO/GA DISCRETE IN	In
11	LIGHTING BUS HI	In
12	RESERVED	--
13	RESERVED	--
14	RESERVED	--
15	POWER GROUND	--

26.9.2 Power

This section covers the power input requirements. The GMC 507 is compatible with 14V and 28V systems. AIRCRAFT POWER 1 and AIRCRAFT POWER 2 are “diode ORed” to provide power redundancy.

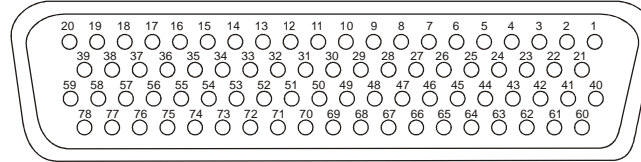
Pin Name	Connector	Pin	I/O
AIRCRAFT POWER 1	J7001	7	In
AIRCRAFT POWER 2	J7001	9	In
POWER GROUND	J7001	15	--

5. CONNECTOR PINOUT INFORMATION

5.1 Pin Function List

5.1.1 P1001 Main Connector – Main Board

(View looking at rear of unit, Pin 1 is top right)



Pin	Pin Name	I/O
1	MAIN OBS ROTOR H (GND)	--
2	MAIN OBS ROTOR C	Out
3	TIME MARK OUT A	Out
4	AUDIO OUT HI	Out
5	RS-232 OUT 4	Out
6	RS-232 OUT 3	Out
7	RS-232 OUT 2	Out
8	RS-232 OUT 1	Out
9	ARINC 429 OUT 2A	Out
10	ARINC 429 OUT 1A	Out
11	MAIN +TO OUT	Out
12	MAIN VERTICAL +UP OUT	Out
13	MAIN LATERAL SUPERFLAG OUT	Out
14	OBS ANNUNCIATE*	Out
15	GPS ANNUNCIATE*	Out
16	OBS MODE SELECT*	In
17	LIGHTING BUS 1 LO	In
18	LIGHTING BUS 1 HI	In
19	AIRCRAFT POWER	In
20	AIRCRAFT POWER	In
21	MAIN OBS STATOR D	In
22	TIME MARK OUT B	Out
23	AUDIO OUT LO	Out
24	RS-232 IN 4	In
25	RS-232 IN 3	In
26	RS-232 IN 2	In
27	RS-232 IN 1	In
28	ARINC 429 OUT 2B	Out
29	ARINC 429 OUT 1B	Out
30	MAIN +FROM OUT	Out
31	MAIN VERTICAL +DOWN OUT	Out
32	MAIN VERTICAL SUPERFLAG OUT	Out
33	WAYPOINT ANNUNCIATE*	Out
34	TERMINAL ANNUNCIATE*	Out
35	TAWS AUDIO ACTIVE OUT*	Out
36	AUDIO INHIBIT IN*	In
37	TAWS INHIBIT IN*	In
38	AIR/GROUND*	In
39	CDI SOURCE SELECT*	In
40	MAIN OBS STATOR E (GND)	--
41	MAIN OBS STATOR F	In

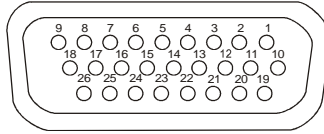


P1001 Connector Cont'd		
Pin	Pin Name	I/O
42	LIGHTING BUS 2 LO	In
43	FAN GROUND	--
44	RS-232 GND 3/4	--
45	RS-232 GND 2	--
46	RS-232 GND 1	--
47	ARINC 429 IN 2A	In
48	ARINC 429 IN 1A	In
49	MAIN LATERAL +LEFT OUT	Out
50	MAIN LATERAL +FLAG OUT	Out
51	MAIN VERTICAL +FLAG OUT	Out
52	VOR/LOC ANNUNCIATE*	Out
53	LOI ANNUNCIATE*	Out
54	MESSAGE ANNUNCIATE*	Out
55	APPROACH ANNUNCIATE*	Out
56	ILS/GPS APPROACH	Out
57	TAWS INHIBIT ANNUNCIATE*	Out
58	FAN TACH IN	In
59	FAN POWER OUT (12 VDC)	Out
60	MAIN OBS STATOR G (GND)	--
61	LIGHTING BUS 2 HI	In
62	CONFIG MODULE DATA	I/O
63	CONFIG MODULE CLOCK	Out
64	CONFIG MODULE GND	Out
65	CONFIG MODULE POWER	Out
66	ARINC 429 IN 2B	In
67	ARINC 429 IN 1B	In
68	MAIN LATERAL +RIGHT OUT	Out
69	MAIN LATERAL -FLAG OUT	Out
70	MAIN VERTICAL -FLAG OUT	Out
71	TERRAIN WARNING ANNUNCIATE*	Out
72	TERRAIN NOT AVAILABLE ANNUNCIATE*	Out
73	TERRAIN CAUTION ANNUNCIATE*	Out
74	GPS SELECT*	Out
75	TRAFFIC TEST*	Out
76	TRAFFIC STANDBY*	Out
77	AIRCRAFT GND	--
78	AIRCRAFT GND	--

An asterisk (*) following a signal name denotes that the signal is Active-Low, requiring a ground to activate. If there is no asterisk, the signal is Active-High.

5.1.2 P1002 Connector

(View looking at rear of unit, Pin 1 is top right)

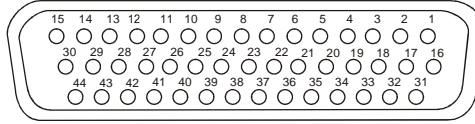


Pin	Pin Name	I/O
1	DEMO MODE SELECT*	In
2	RESERVED	--
3	SUSPEND ANNUNCIATE*	Out
4	ETHERNET OUT 4A	Out
5	ETHERNET OUT 4B	Out
6	ETHERNET IN 1A	In
7	ETHERNET IN 1B	In
8	ETHERNET OUT 1A	Out
9	ETHERNET OUT 1B	Out
10	SYSTEM ID PROGRAM*	In
11	SPARE DISC IN D*	In
12	SPARE DISC OUT B*	Out
13	ETHERNET IN 4A	In
14	ETHERNET IN 4B	In
15	ETHERNET IN 2A	In
16	ETHERNET IN 2B	In
17	ETHERNET OUT 2A	Out
18	ETHERNET OUT 2B	Out
19	RESERVED	--
20	RESERVED	--
21	RESERVED	--
22	RESERVED	--
23	ETHERNET IN 3A	In
24	ETHERNET IN 3B	In
25	ETHERNET OUT 3A	Out
26	ETHERNET OUT 3B	Out

An asterisk (*) following a signal name denotes that the signal is Active-Low, requiring a ground to activate. If there is no asterisk, the signal is Active-High.

5.1.3 P1003 COM Connector

(View looking at rear of unit, Pin 1 is top right)

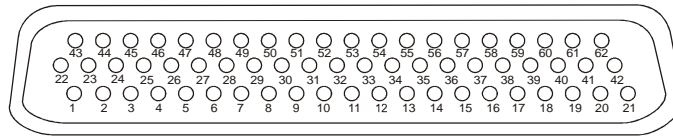


Pin	Pin Name	I/O
1	RESERVED	--
2	RESERVED	--
3	RESERVED	--
4	RESERVED	--
5	COM MIC 1 AUDIO IN HI	In
6	RESERVED	--
7	500Ω COM AUDIO HI	Out
8	RESERVED	--
9	RESERVED	--
10	RESERVED	--
11	COM MIC 1 KEY*	In
12	RESERVED	--
13	RESERVED	--
14	RESERVED	--
15	RESERVED	--
16	RESERVED	--
17	RESERVED	--
18	500Ω COM AUDIO LO	--
19	RESERVED	--
20	MIC AUDIO IN LO	In
21	RESERVED	--
22	RESERVED	--
23	RESERVED	--
24	RESERVED	--
25	RESERVED	--
26	RESERVED	--
27	COM REMOTE TRANSFER*	In
28	COM REMOTE TUNE UP*	In
29	COM REMOTE TUNE DOWN*	In
30	AIRCRAFT POWER	In
31	RESERVED	--
32	RESERVED	--
33	RESERVED	--
34	RESERVED	--
35	RESERVED	--
36	RESERVED	--
37	AIRCRAFT GND	--
38	AIRCRAFT GND	--
39	RESERVED	--
40	AIRCRAFT GND	--
41	RESERVED	--
42	RESERVED	--
43	AIRCRAFT POWER	In
44	AIRCRAFT POWER	In

An asterisk (*) following a signal name denotes that the signal is Active-Low, requiring a ground to activate. If there is no asterisk, the signal is Active-High.

5.1.4 P1004 NAV Connector

(View looking at rear of unit, Pin 1 is on bottom left)



Pin	Pin Name	I/O
1	VOR/LOC +TO	Out
2	VOR/LOC +FROM	Out
3	VOR/LOC +FLAG	Out
4	VOR/LOC -FLAG	Out
5	VOR/LOC +LEFT	Out
6	VOR/LOC +RIGHT	Out
7	RESERVED	--
8	VOR/LOC COMPOSITE OUT	Out
9	VOR OBS ROTOR C	Out
10	VOR OBS ROTOR H (GND)	--
11	VOR OBS STATOR E (GND)	--
12	VOR OBS STATOR F	In
13	VOR OBS STATOR D	In
14	VOR OBS STATOR G (GND)	--
15	VOR/LOC SUPERFLAG	Out
16	500Ω VOR/LOC AUDIO OUT HI	Out
17	500Ω VOR/LOC AUDIO OUT LO	Out
18	SERIAL DME - CLOCK	In/Out
19	SERIAL DME - DATA	In/Out
20	SERIAL DME- RNAV/CH REQ	In
21	SERIAL DME - RNAV MODE	In
22	AIRCRAFT GND	--
23	VOR/ILS ARINC 429 OUT B	Out
24	VOR/ILS ARINC 429 OUT A	Out
25	VOR OBI CLOCK	In
26	VOR OBI SYNC	In
27	VOR OBI DATA	In
28	VLOC REMOTE TRANSFER	In
29	ILS ENERGIZE	Out
30	RESERVED	--
31	RESERVED	--
32	GLIDESLOPE +FLAG	Out
33	PAR DME 1MHZ-D/SERIAL DME ON	Out
34	GLIDESLOPE +UP	Out
35	VOR/ILS ARINC 429 IN B	In
36	VOR/ILS ARINC 429 IN A	In
37	PAR DME 100KHZ-A/SERIAL DME HOLD	Out
38	GLIDESLOPE SUPERFLAG	Out
39	PAR DME 100KHZ-B	Out
40	PAR DME 100KHZ-C	Out
41	DME COMMON	In
42	PAR DME 100KHZ-D	Out
43	PAR DME 50KHZ	Out
44	SERIAL DME - DME REQUEST	In/Out
45	PAR DME 1MHZ-A	Out
46	PAR DME 1MHZ-B	Out

P1004 Connector Cont'd		
Pin	Pin Name	I/O
47	PAR DME 1MHZ-C	Out
48	RESERVED	--
49	AIRCRAFT GND	--
50	RESERVED	--
51	AIRCRAFT POWER	In
52	AIRCRAFT POWER	In
53	GLIDESLOPE -FLAG	Out
54	PAR DME 100KHZ-E	Out
55	GLIDESLOPE +DOWN	Out
56	PAR DME 1MHZ-E	Out
57	RESERVED	--
58	GLIDESLOPE COMPOSITE OUT	Out
59	DIGITAL AUDIO OUT	Out
60	AIRCRAFT GND	--
61	AIRCRAFT GND	--
62	AIRCRAFT GND	--

5.2 Power, Lighting, And Antennas

This section covers the power input requirements, lighting bus input, and antenna connections. See Appendix D for interconnect information.

5.2.1 Power

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER (MAIN)	P1001	19	In
AIRCRAFT POWER (MAIN)	P1001	20	In
AIRCRAFT POWER (COM)	P1003	30	In
AIRCRAFT POWER (COM)	P1003	43	In
AIRCRAFT POWER (COM)	P1003	44	In
AIRCRAFT POWER (NAV)	P1004	51	In
AIRCRAFT POWER (NAV)	P1004	52	In
AIRCRAFT GROUND (MAIN)	P1001	77	--
AIRCRAFT GROUND (MAIN)	P1001	78	--
AIRCRAFT GROUND (COM)	P1003	37	--
AIRCRAFT GROUND (COM)	P1003	38	--
AIRCRAFT GROUND (COM)	P1003	40	--
AIRCRAFT GROUND (NAV)	P1004	60	--
AIRCRAFT GROUND (NAV)	P1004	61	--
AIRCRAFT GROUND (NAV)	P1004	62	--

Power inputs P1001-19 and P1001-20 provide power for everything except for the COM radio and NAV radio. Both pins must be connected.

Power inputs P1003-30, P1003-43, and P1003-44 provide power for the COM radio. All three pins must be connected.

Power inputs P1004-51 and P1004-52 provide power for the NAV radio. Both pins must be connected.

5.2.2 Lighting Bus

CAUTION



Connection of the lighting bus to incorrect pins can cause damage to the unit that will require return to the factory for repair. Ensure that the lighting bus is connected to the correct pins and does not short to any adjacent pins prior to applying power to the unit, including the lighting bus.

Pin Name	Connector	Pin	I/O
LIGHTING BUS 1 HI	P1001	18	In
LIGHTING BUS 1 LO	P1001	17	In
LIGHTING BUS 2 HI	P1001	61	In
LIGHTING BUS 2 LO	P1001	42	In

The GTN can be configured to track 28 VDC, 14 VDC, 5 VDC or 5 VAC lighting buses using these inputs. Two lighting buses allow for independent control of display and bezel lighting. Alternatively, the GTN can automatically adjust for ambient lighting conditions based on the photocell. Refer to 6.6.6 for instructions on configuring the lighting inputs.

5.2.3 Antennas

Pin Name	Connector	I/O
GPS/SBAS ANTENNA	P1006	In
COM ANTENNA	P1007	I/O
NAV ANTENNA	P1008	In

The GPS/SBAS antenna use a TNC coaxial connector on the connector backplate. The COM and NAV antennas use BNC coaxial connectors on the connector backplate. Reference Figure D-5 for splitter/diplexer block diagrams.

5.2.4 Serial Data

5.2.4.1 Serial Data Function

5.2.4.1.1 RS-232

The GTN is capable of interfacing with other aviation instruments by transmitting RS-232 Type 1 and Type 2 data on any RS-232 OUT port. The data consists of the following (refer to Section B.1 for a detailed data format description):

- Current latitude, longitude, and GPS altitude in feet (see Note below)
- Current velocity vector (ground speed and direction of velocity vector over the ground)
- Distance to waypoint
- Cross track error
- Desired track
- Destination waypoint identifier
- Bearing to destination waypoint
- Magnetic variation
- Navigation and warning status
- Waypoint sequence in route
- Waypoint position (latitude and longitude) and magnetic variation

NOTE



Aviation RS-232 data may be transmitted with or without the current GPS altitude in feet. Refer to Appendix B.

The GTN can receive pressure altitude, air data, and fuel data from certain systems on any RS-232 IN port.

26.2 GAD 29/29B (ARINC 429 Adapter)

26.2.1 J291 Connector

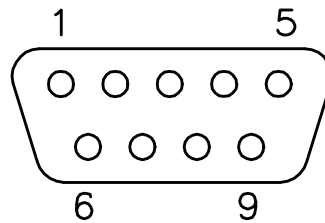


Figure 26-4 J291 on GAD 29/29B, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN HI	I/O
2	CAN LO	I/O
3	RESERVED	--
4	RESERVED	--
5	RESERVED	--
6	GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	GROUND	--

26.2.2 J292 Connector

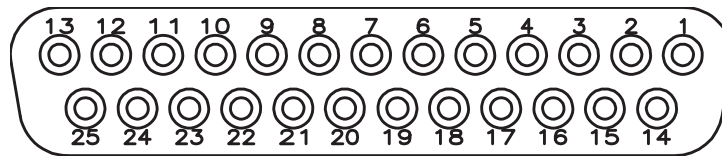


Figure 26-5 J292 on GAD 29/29B, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	RESERVED	--
2	RESERVED	--
3	RESERVED	--
4	ARINC RX 4B	In
5	ARINC RX 3B	In
6	ARINC TX 2B	Out
7		
8	RESERVED	--
9	CAN TERM 1	--
10	ARINC RX 2B	In
11	ARINC RX 1B	In
12	ARINC TX 1B	Out
13		
14	GROUND	--
15	RESERVED	--
16	ARINC RX 4A	In
17	ARINC RX 3A	In
18	ARINC TX 2A	Out
19		
20	GROUND	--
21	CAN TERM 2	--
22	ARINC RX 2A	In
23	ARINC RX 1A	In
24	ARINC TX 1A	Out
25		

26.2.3 Power

This section covers the power input requirements. AIRCRAFT POWER 1 and AIRCRAFT POWER 2 are “diode ORed” to provide power redundancy.

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER 1	J291	7	In
AIRCRAFT POWER 2	J291	8	In
POWER GROUND	J291	6	--
POWER GROUND	J291	9	--

26.2.4 ARINC 429 RX/TX

The ARINC 429 outputs conform to ARINC 429 electrical specifications when loaded with up to 5 standard ARINC 429 receivers. Each ARINC 429 Transmitter pin is physically connected to two DSUB pins. When running one transmitter to two receivers use two separate pins to avoid splicing wires. Running one transmitter to more than two receivers will require splicing wires.

Pin	Connector	Pin Name	I/O
23	J292	ARINC RX 1A	In
11	J292	ARINC RX 1B	In
24	J292	ARINC TX 1A	Out
25	J292		
12	J292	ARINC TX 1B	Out
13	J292		
22	J292	ARINC RX 2A	In
10	J292	ARINC RX 2B	In
18	J292	ARINC TX 2A	Out
19	J292		
6	J292	ARINC TX 2B	Out
7	J292		
17	J292	ARINC RX 3A	In
5	J292	ARINC RX 3B	In
16	J292	ARINC RX 4A	In
4	J292	ARINC RX 4B	In

26.14 GSU 25 (AHRS/Air Data Sensor Unit)

26.14.1 J251

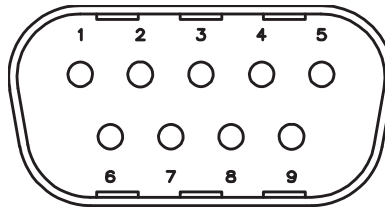


Figure 26-25 J251 on GSU 25, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN H	I/O
2	CAN L	--
3	RESERVED	--
4	RS-232 RX 1	In
5	RS-232 TX 1	Out
6	GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	GROUND	--

26.14.1.1 J252

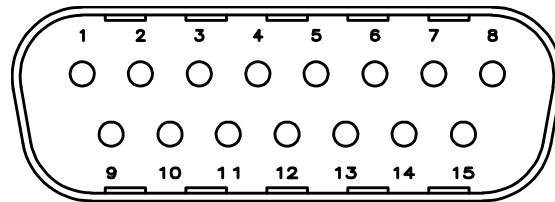


Figure 26-26 J252 on GSU 25, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	OAT POWER	Out
2	OAT HIGH	In
3	OAT LOW	In
4	UNIT ID 1 GROUND	--
5	UNIT ID 1	In
6	+12V MAGNETOMETER POWER	Out
7	MAGNETOMETER GROUND	--
8	RESERVED	--
9	RS-232 TX 3	Out
10	RS-232 RX 3	In
11	GROUND	--
12	RS-485 RX A	In
13	RS-485 RX B	In
14	GROUND	--
15	RS-232 TX 2	Out

26.11 GMU 22 (Magnetometer)

26.11.1 J441 Connector

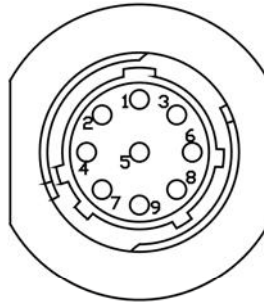


Figure 26-22 J441 on GMU 22, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	SIGNAL GROUND	--
2	RS-485 OUT B	Out
3	SIGNAL GROUND	--
4	RS-485 OUT A	Out
5	SPARE	--
6	POWER GROUND	--
7	SPARE	--
8	RS-232 IN	In
9	+12 VDC POWER	In

26.11.2 Power Function

Power-input pins accept supply voltage from ADAHRS (GSU 25/73).

Pin Name	Connector	Pin	I/O
+12 VDC POWER, GMU 22	J441	9	In
POWER GROUND, GMU 22	J441	6	--

26.11.3 Serial Data

26.11.3.1 RS-232

The RS-232 input pin accepts data from the ADAHRS (GSU 25/73).

Pin Name	Connector	Pin	I/O
RS-232 IN	J441	8	In

26.11.3.2 RS-485

The RS-485 pins provide data to the ADAHRS (GSU 25/73).

Pin Name	Connector	Pin	I/O
RS-485 OUT A	J441	4	Out
RS-485 OUT B	J441	2	Out

26.5 GEA 24 (EIS Interface)

26.5.1 J241 Connector

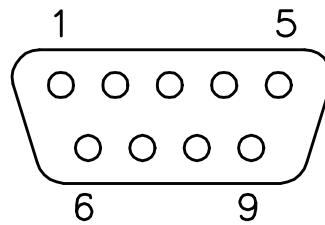


Figure 26-12 J241 on GEA 24, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN HI	I/O
2	CAN LO	I/O
3	RESERVED	--
4	RS-232 RX	In
5	RS-232 TX	Out
6	GROUND	--
7	AIRCRAFT POWER 1	In
8	AIRCRAFT POWER 2	In
9	GROUND	--

26.5.2 J242 Connector

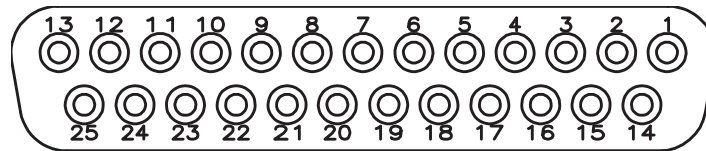


Figure 26-13 J242 on GEA 24, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	RESERVED	--
2	CHT6 LO / CHT 2 RESISTIVE LO	In
3	EGT6 LO	In
4	CHT5 LO / CHT 1 RESISTIVE LO	In
5	EGT5 LO	In
6	CHT4 LO	In
7	EGT4 LO	In
8	CHT3 LO	In
9	EGT3 LO	In
10	CHT2 LO	In
11	EGT2 LO	In
12	CHT1 LO	In
13	EGT1 LO	In
14	CHT6 HI / CHT 2 RESISTIVE HI	In
15	EGT6 HI	In
16	CHT5 / CHT 1 RESISTIVE HI	In
17	EGT5 HI	In
18	CHT4 HI	In
19	EGT4 HI	In
20	CHT3 HI	In
21	EGT3 HI	In
22	CHT2 HI	In
23	EGT2 HI	In
24	CHT1 HI	In
25	EGT1 HI	In

26.5.3 J243 Connector

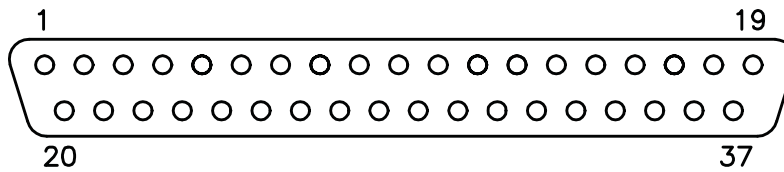


Figure 26-14 J243 on GEA 24, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	FUEL PRESS GND	--
2	FUEL PRESS	In
3	FUEL PRESS XDCR +12V	Out
4	FUEL PRESS XDCR +5V	Out
5	RPM XDCR GND_2	--
6	RPM 2	In
7	RPM XDCR GND_1	--
8	RPM 1	In
9	RPM XDCR +12V_1	Out
10	RPM XDCR +12V_2	Out
11	RESERVED / SPARE	In
12	MANIFOLD PRESS GND	--
13	MANIFOLD PRESS	In
14	MANIFOLD PRESS XDCR +12V	Out
15	MANIFOLD PRESS XDCR +5V	Out
16	OIL PRESS GND	--
17	OIL PRESS HI	In
18	OIL PRESS XDCR +12V	Out
19	OIL PRESS XDCR +5V	Out
20	FUEL XDCR GND_1	--
21	FUEL RETURN (shared w/Pin 37, J244 connector)	In
22	FUEL XDCR GND_2	--
23	FUEL FLOW (shared with Pin 36, J244 connector)	In
24	FUEL XDCR +12V_1	Out
25	FUEL XDCR +12V_2	Out
26	GP +5V_1	Out
27	GP GND_1	--
28	POS 7 / TIT 2 / MISC TEMP 2 LO	In
29	POS 7 / TIT 2 / MISC TEMP 2 HI	In
30	POS 6 / TIT 1 / MISC TEMP 1 LO	In

Pin	Pin Name	I/O
31	POS 6 / TIT 1 / MISC TEMP 1 HI	In
32	OIL TEMP LO	In
33	OIL TEMP HI	In
34	SHUNT 2 LO (shared with Pin 47, J244 connector)	In
35	SHUNT 2 HI (shared with Pin 46, J244 connector)	In
36	SHUNT 1 LO	In
37	SHUNT 1 HI	In

26.5.4 J244 Connector

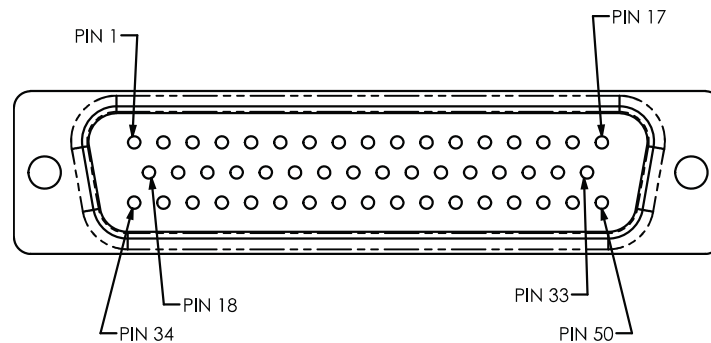


Figure 26-15 J244 on GEA 24, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	SYSTEM ID 1A*	In
2	SYSTEM ID1B / GND	--
3	RESERVED	--
4	RESERVED	--
5	FUEL QTY +5V_1	Out
6	FUEL QTY 1	In
7	FUEL QTY 1 GND	--
8	FUEL QTY +5V_2	Out
9	FUEL QTY 2	In
10	FUEL QTY 2 GND	--
11	POS 3 HI / +5V_3	Out
12	POS 3 / GP 3 / FUEL QTY 3	In
13	POS 3 LO / GND	--
14	POS 4 HI / +5V_4	Out
15	POS 4 / GP 4 / FUEL QTY 4	In
16	POS 4 LO / GND	--

*Indicates Active Low

**Can be configured as active high or active low

Pin	Pin Name	I/O
17	CAN2_H	I/O
18	GP1 HI / +5V	Out
19	GP1 / POS 1	In
20	GP1 LO / GND	--
21	GP2 HI / +5V	Out
22	GP2 / POS 2	In
23	GP2 LO / GND	--
24	GP +5V_2	Out
25	VOLTS 1	In
26	GP GND_2	--
27	GP +5V_3	Out
28	VOLTS 2	In
29	GP GND_3	--
30	POS 5 HI / +5V	Out
31	POS 5 / MISC PRESS	In
32	POS 5 LO / GND	--
33	CAN2_L	I/O
34	FUEL XDCR +12V_3	Out
35	FUEL XDCR +12V_4	Out
36	FUEL FLOW (shared with Pin 23, J243 connector)	In
37	FUEL RETURN (shared with Pin 21, J243 connector)	In
38	FUEL XDCR GND_3	--
39	FUEL XDCR GND_4	--
40	DISCRETE IN** 1	In
41	DISCRETE IN** 2	In
42	DISCRETE IN** 3	In
43	DISCRETE IN** 4	In
44	DISCRETE OUT* 1 / MASTER WARNING	In
45	DISCRETE OUT* 2 / MASTER CAUTION	In
46	SHUNT 2 HI (shared with Pin 35, J243 connector)	In
47	SHUNT 2 LO (shared with Pin 34, J243 connector)	In
48	RESERVED / SPARE 1	In
49	RESERVED / SPARE 2	In
50	GP +12V	Out

*Indicates Active Low

**Can be configured as active high or active low

A.3.7 Autopilot Heading/Course (GAD 29B Only)

The GAD 29B can provide analog heading and course error outputs to third-party analog autopilots. In the case of an AC autopilot, the GAD 29B has an AC REFERENCE signal input.

For specific wiring information, refer to Section 5.

A.4 GAD 13

A.4.1 J131

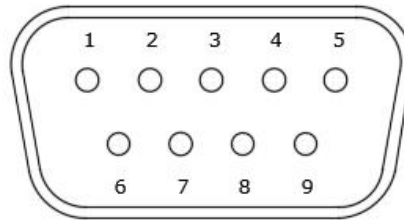


Figure 6-11 J131 on the GAD 13

J131 Pin Descriptions

Pin	Pin Name	I/O
1	CAN-H	I/O
2	CAN-L	I/O
3	TEMP PROBE IN HI	In
4	ACTIVE TEMP PROBE IN	In
5	ACTIVE TEMP PROBE POWER OUT	Out
6	TEMP PROBE IN LO	In
7	AIRCRAFT POWER	In
8	TEMP PROBE POWER OUT	Out
9	GROUND	--

A.4.2 Aircraft Power

The GAD 13 operates using power from one 14 / 28 VDC input.

A.4.3 CAN Bus

The GAD 13 CAN bus conforms to the BOSCH standard for Controller Area Network (CAN) 2.0-B and ISO 11898. See Section 3.4.5.2 for details. The CAN bus connection on the GAD 13 is used to connect the GAD 13 to one or two G5s, a GMU 11, and a GAD 29/29B.

For specific wiring information, refer to Section 5.

A.4.4 OAT Probe Interface

The GAD 13 has three pins for interface to a passive (RTD type) and two pins for interface to an active OAT probe. This interface provides excitation voltage/current, and temperature sensing capabilities for a OAT probe. For specific wiring information, refer to Section 5.

26.17 GTR 20 (VHF Communications Radio)

26.17.1 J2001 Connector

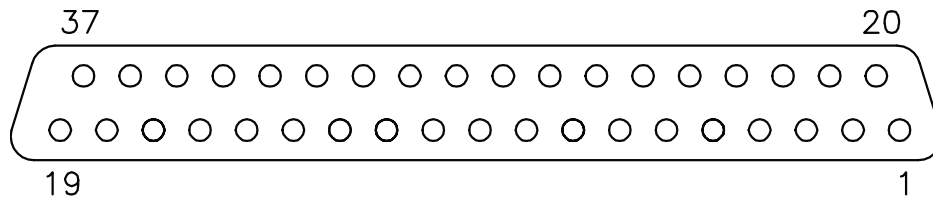


Figure 26-32 J2001 Looking at rear of unit

Table 26-1 J2001 Connector

Pin	Pin Name	I/O
1	AIRCRAFT POWER	In
2	DISC 1*	In
3	RESERVED	--
4	TX INTERLOCK OUT	Out
5	TX INTERLOCK IN*	In
6	CAN BUS LO	--
7	CAN BUS HI	--
8	ID IN	In
9	AUX MONO IN 2	In
10	RECEIVER AUDIO OUT HI	Out
11	COPILOT HS RIGHT	Out
12	COPILOT HS LEFT	Out
13	PILOT HS RIGHT	Out
14	PILOT HS LEFT	Out
15	COPILOT PTT*	In
16	COPILOT MIC IN	In
17	PILOT MIC IN	In
18	MUSIC IN RIGHT	In
19	MUSIC IN LEFT	In
20	AIRCRAFT GROUND	--
21	SPARE	--
22	DISC 2*	In
23	RESERVED	--
24	RESERVED	--
25	CAN TERM B	--
26	CAN TERM A	--
27	ID LO	--
28	AUX 2 LO	--
29	RECEIVER AUDIO LO	--

*Indicates Active Low

Table 26-1 J2001 Connector

Pin	Pin Name	I/O
30	COPILOT HS LO	--
31	AUX 1 LO	--
32	AUX MONO IN 1	In
33	PILOT HS LO	--
34	COPILOT MIC LO	--
35	PILOT PTT*	In
36	PILOT MIC LO	--
37	MUSIC LO	In

*Indicates Active Low

26.17.2 Power

Pins 1 & 20 supply power to the GTR 20. Refer to drawings in [Section 29](#) for power and ground wire gauges.

Pin Name	Pin	I/O
AIRCRAFT POWER	1	In
AIRCRAFT GROUND	20	–

26.17.3 CAN Bus

The CAN Bus conforms to the BOSCH standard for Controller Area Network 2.0-B, and complies with ISO 11898. Pins 25 and 26 are used to terminate the CAN bus. To terminate the CAN bus at the GTR 20, short the pins (25 and 26) together. Refer to [Section 2.3.1.3](#) for details on configuring and terminating the CAN bus. The CAN bus on J2001 shall be used for communications between G3X LRUs.

Pin Name	Pin	I/O
CAN BUS LO	6	I/O
CAN BUS HI	7	I/O
CAN TERM B	25	–
CAN TERM A	26	–

26.17.4 Unit ID

Refer to drawings in [Section 29](#) for ID connections.

Pin Name	Pin	I/O
ID IN	8	In
ID LO	27	–

26.10 GMU 11 (Magnetometer)

26.10.1 J441 Connector

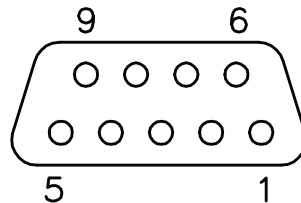


Figure 26-21 J111 on GMU 11, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN BUS HI	I/O
2	CAN BUS LO	I/O
3	UNIT ID	IN
4	RESERVED	--
5	RESERVED	--
6	SIGNAL GROUND	--
7	AIRCRAFT POWER 1	IN
8	AIRCRAFT POWER 2	IN
9	POWER GROUND	--

26.10.2 Power Function



NOTE

The GMU 11 must be powered from aircraft power. Do not connect the GMU 11 to the magnetometer power output pins on the GSU 25 (these pins are intended for use only with the GMU 22).

The GMU 11 is compatible with 14V and 28V systems. AIRCRAFT POWER 1 and AIRCRAFT POWER 2 are “diode ORed” to provide power redundancy.

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER 1	J111	7	In
AIRCRAFT POWER 2	J111	8	In
POWER GROUND	J111	9	--

26.13 GSA 28 (Autopilot Servo)

26.13.1 J281 Connector

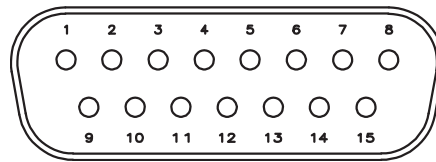


Figure 26-24 J281 on GSA 28, as viewed looking at connector on unit

Pin	Pin Name	I/O
1	CAN_H	I/O
2	CAN_L	I/O
3	CAN_TERM_1	--
4	CAN_TERM_2	--
5	ID_STRAP_1	In
6	ID_STRAP_2	In
7	ID_STRAP_3/(RS-232 TX for Roll Servo Only)	In
8	ID_STRAP_4/(RS-232 RX for Roll Servo Only)	In
9	AIRCRAFT GROUND	--
10	AIRCRAFT POWER	In
11	TRIM_IN_1	In
12	TRIM_IN_2	In
13	TRIM_OUT_1	Out
14	TRIM_OUT_2	Out
15	CWS/DISCONNECT	In

26.13.2 Power Function

Supply voltage (14/28Vdc) inputs.

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER	J281	10	In
AIRCRAFT GROUND	J281	9	--

5 CONNECTOR PINOUT INFORMATION

5.1 Main Board Connector - P3251

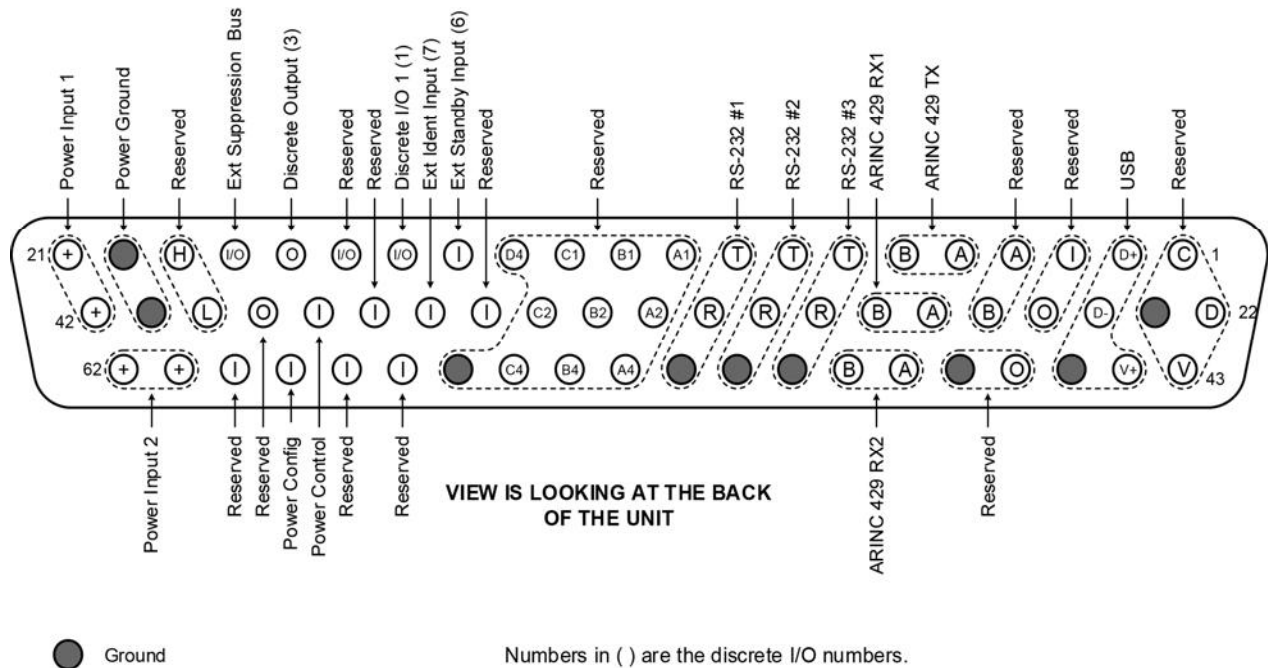


Table 5-1 P3251 Connector

Pin	Pin Name	I/O
1	RESERVED	--
2	USB DATA HI	I/O
3	RESERVED	--
4	RESERVED	--
5	ARINC 429 OUT A	O
6	ARINC 429 OUT B	O
7	RS-232 OUT 3	O
8	RS-232 OUT 2	O
9	RS-232 OUT 1	O
10	RESERVED	--
11	RESERVED	--
12	RESERVED	--
13	RESERVED	--
14	EXTERNAL STANDBY SELECT*	I
15	TIS-A SELECT (GTX 35R Only)*	I/O
16	RESERVED	--
17	XPDR FAIL 1*	O

Pin	Pin Name	I/O
18	EXTERNAL SUPPRESSION	I/O
19	RESERVED	--
20	AIRCRAFT GROUND	I
21	AIRCRAFT POWER 1	I
22	RESERVED	--
23	RESERVED	--
24	USB DATA LO	I/O
25	RESERVED	--
26	RESERVED	I/O
27	ARINC 429 IN 1A	I
28	ARINC 429 IN 1B	I
29	RS-232 IN 3	I
30	RS-232 IN 2	I
31	RS-232 IN 1	I
32	RESERVED	--
33	RESERVED	--
34	RESERVED	--
35	RESERVED	--
36	EXTERNAL IDENT SELECT*	I
37	RESERVED	--
38	POWER CONTROL*	I
39	RESERVED	--
40	RESERVED	--
41	AIRCRAFT GROUND	--
42	AIRCRAFT POWER 1	I
43	RESERVED	--
44	USB VBUS POWER	I
45	USB GND	--
46	RESERVED	--
47	RESERVED	--
48	ARINC 429 IN 2A	I
49	ARINC 429 IN 2B	I
50	RS-232 GND 3	--
51	RS-232 GND 2	--

Pin	Pin Name	I/O
52	RS-232 GND 1	--
53	RESERVED	--
54	RESERVED	--
55	RESERVED	--
56	RESERVED	--
57	RESERVED	--
58	RESERVED	--
59	POWER CONFIG*	I
60	RESERVED	I
61	AIRCRAFT POWER 2	I
62	AIRCRAFT POWER 2	I

An asterisk (*) following a signal name denotes the signal is an Active-Low discrete, requiring a ground to activate. If there is no asterisk, the signal is an Active-High.

5.2 ADS-B Board Connector – P3252 (GTX 45R Only)

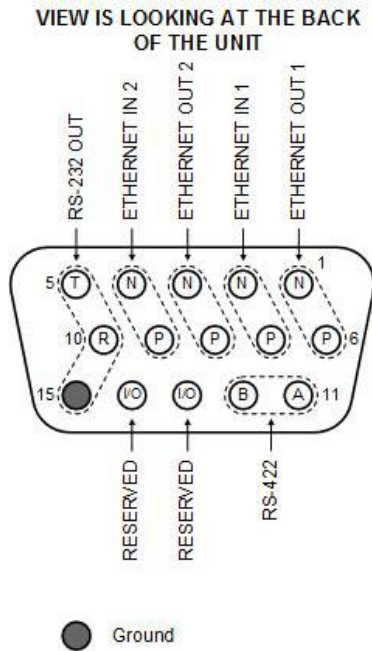


Table 5-2 P3252 Connector

Pin	Pin Name	I/O
1	ETHERNET OUT 1B	O
2	ETHERNET IN 1B	I
3	ETHERNET OUT 2B	O
4	ETHERNET IN 2B	I
5	RS-232 OUT 4	O
6	ETHERNET OUT 1A	O
7	ETHERNET IN 1A	I
8	ETHERNET OUT 2A	O
9	ETHERNET IN 2A	I
10	RS-232 IN 4	I
11	RS-422 A	O
12	RS-422 B	O
13	RESERVED	--
14	RESERVED	--
15	RS-232 GND 4	--