GARMIN™

GDU 620
Installation Manual

Garmin International, Inc.
1200 E. 151st Street
Olathe, KS 66062 USA
Telephone: 913-397-8200
Aviation Dealer Technical Support Line (Toll Free): (888) 606 5482
http://www.garmin.com

Garmin (Europe) Ltd.
Liberty House
Bull Copse Road
Hounsdown Business Park
Southampton, SO40 9RB, UK
Telephone: +44 (0) 870 850 1243

Garmin AT, Inc.
2345 Turner Rd., SE
Salem, OR 97302 USA
Telephone: 503.581.8101

RECORD OF REVISIONS

Revision	Revision Date	Description
1	12/27/07	Initial Release
2	1/3/08	Corrected title on specification sheet.
3	4/1/08	Changed manual to reflect the current operation of the software.
A	6/12/08	Production Release
B	7/22/08	Added 'Current Revision Description' table. Added note to TSO-C52b, corrected range for minimum display setting, updated Figures B-4, B-5, B-6, B-7, B-8, and C-9. Global change from trim ring to trim plate.

CURRENT REVISION DESCRIPTION

Revision	Page Number(s)	Section Number	Description of Change
B	1-7	1.5.1	Added note 1 to TSO-C52b.
	2-1	2.2.1	Changed trim ring to trim plate.
	2-2	2.5	Changed trim ring to trim plate.
	3-1	3.3	Changed trim ring to trim plate.
	3-2	3.3.1	Changed trim ring to trim plate.
	3-10	3.7	Changed trim ring to trim plate.
	5-7	5.5.1.3	Corrected range of Minimum Display Setting.
	B-6	Appendix B	Updated Figure B-4, changed 'Trim Ring' to 'Trim Plate'.
	B-7	Appendix B	Updated Figure B-5, changed note 2 and note 3.
	B-8	Appendix B	Updated Figure B-6, corrected dimensions for cutout.
	C-11	Appendix C	Updated Figure C-9, removed reference to ARINC 708 WXR.

DOCUMENT PAGINATION

This manual reflects the operation of software version 2.00. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

INFORMATION SUBJECT TO EXPORT CONTROL LAWS

WARNING

This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This Notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at www.garmin.com/prop65/

CAUTION

The GDU 620 lens is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coatings.

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GDU 620 HARDWARE MOD LEVEL HISTORY

The following table identifies hardware modification (Mod) Levels for the GDU 620. Mod Levels are listed with the associated service bulletin number, service bulletin date, and the purpose of the modification. The table is current at the time of publication of this manual (see date on front cover) and is subject to change without notice. Authorized Garmin Sales and Service Centers are encouraged to access the most up-to-date bulletin and advisory information on the Garmin Dealer Resource web site at www.garmin.com using their Garmin-provided user name and password.

MOD LEVEL	SERVICE BULLETIN NUMBER	SERVICE BULLETIN DATE	PURPOSE OF MODIFICATION

1. GENERAL DESCRIPTION

1.1 Introduction

The GDU 620 PFD/MFD is the control display device for the G600 Integrated Flight Deck. The G600 is an advanced technology avionics suite designed to replace the standard six-pack of instruments. (i.e. ADI, HSI / CDI, airspeed indicator, altimeter, turn coordinator (if installed) and vertical speed indicator (if installed)). The system combines primary flight instrumentation, aircraft systems instrumentation, and navigational information, all displayed on dual 6.5" color screens.
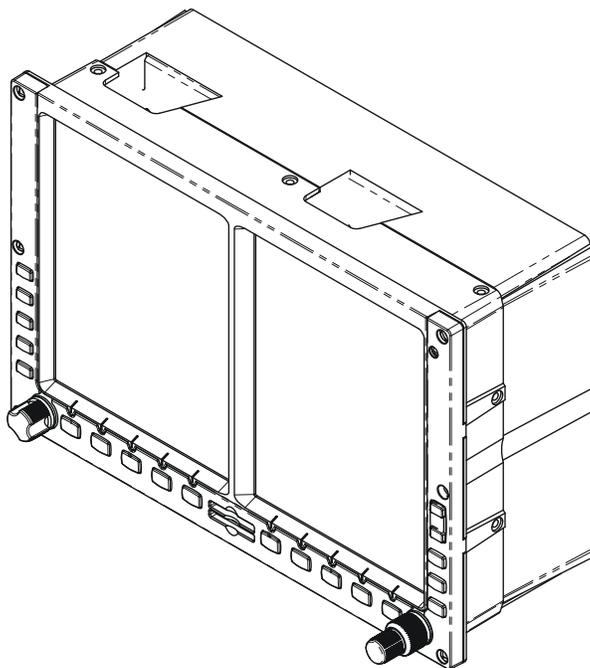
Figure 1-1. GDU 620 Unit View

1.2 Equipment Description

1.2.1 Flight Instrument Functions

- Display of attitude (pitch and roll), rate of turn, slip/skid, heading, airspeed, altitude, and vertical speed information

- Display of CDI/VDI/Flags along with ARINC 429 roll steering output

- Emulation of both course and heading error signals for both AC and DC HSIs

1.2.2 Navigation Instrument Functions

- Display of position and ground speed for use by the pilot/flight crew

- Display of stored navigation and map databases for use by the pilot/flight crew

- Control and display of the HSI, RMI, selected heading and selected courses (PFD only)

- Area navigation functions using the determined position/velocity and stored navigation data

- Approach navigation functions and associated databases

1.2.3 System Interface Functions

- Interfacing with an approved GPS navigator (400W Series, 500W Series, or GNS 480)

- Interfacing with the GRS77 AHRS (includes GMU44 interface)

- Interfacing to approved autopilots to provide heading and course datum information, lateral and vertical deviation information and roll steering information

- Display of information obtained from dual NAV receivers (GNS 430W, GNS 530W, GNS 480 and SL30)

- Display of information obtained from a traffic system

- Display of information obtained from an ADF receiver

- Interfacing to an external audio system for aural alerts

- Display and control of the GDL 69/69A

PFD   MFD

Heading Select — HDG
Course Select — CRS
Altitude Select — ALT
Vertical Speed Select — V/S
Barometric Correction — BARO

Range Select
Menu
Enter
Clear

PFD Knob

Inner MFD Knob
(Select Page)

Smart Keys
Bottom SD Card Slot
(Database Loader Card)
Smart Keys
Outer MFD Knob
(Select Page Group)

Top SD Card Slot
(Software Loader Card)
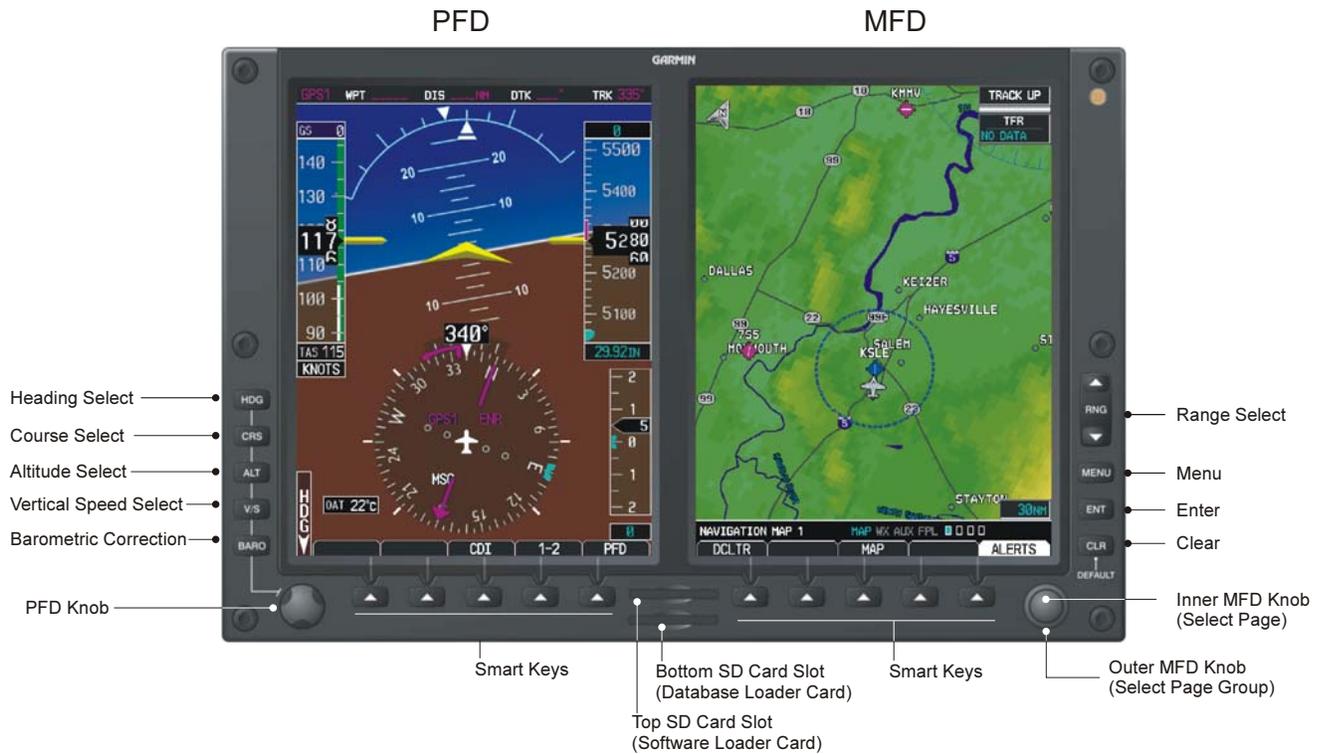
Figure 1-2. GDU 620 Description

1.3 Interface Summary

The GDU 620 is designed as an open architecture system that uses typical ARINC 429, RS-232, RS-422/485 and Ethernet communications interfaces. Various analog interfaces are also supported. All interfaces are described in the following sections.

1.3.1 ARINC 429 Interfaces

The GDU 620 has eight user-configurable ARINC 429 input ports and four ARINC 429 output ports. Each port can be configured for low or high speed operation. The GDU 620 can be set up to receive air data, attitude data, GPS data, and traffic data. The outputs can be configured to output ARINC 429 data in various formats.

1.3.2 RS-232 Interfaces

The GDU 620 has eight user-configurable RS-232 serial ports. The serial ports can be configured to receive RS-232 serial data from various sources, including 400W/500W Series unit, GNS 480, or an SL30. These ports can also be configured to transmit RS-232 serial data in various formats.

1.3.3 RS-422/RS-485 Interfaces

The GDU 620 has four user-configurable, bi-directional RS-422/RS-485 ports. Each port can be configured for RS-422 transmit, RS-422 receive or RS-485 bi-directional operation. The serial ports can receive/transmit serial data from/to various sources.

1.3.4 Ethernet Interfaces

The GDU 620 has two bi-directional Ethernet interfaces. The Ethernet ports can be configured to receive Ethernet data from various sources, including another GDU 620, a GDL 69/69A and a GWX 68 weather radar.

1.3.5 Autopilot Interfaces

The GDU 620 is capable of interfacing to numerous autopilots, as described in the following sections.

1.3.5.1 Heading and Course Datum Outputs

The GDU 620 can provide AC or DC heading and course datum outputs. An input for AC reference voltage is also provided and is used with autopilots that use AC datums.

1.3.5.2 Analog Deviation Outputs

The GDU 620 has one set of lateral and vertical deviation outputs and associated low-level flag and superflag outputs. These outputs are provided for the autopilot and will reflect the navigation source that is currently selected for navigation on the HSI.

1.3.5.3 Flight Director Interface

The GDU 620 accepts pitch and roll analog inputs and an associated active-high enable input. This input can be configured to support various FD inputs.

1.3.6 Lighting Bus Input

The GDU 620 has a lighting bus input. The GDU 620 can be configured to track 28 VDC, 14 VDC, 5 VDC or 5 Vac lighting busses using this input. Alternatively, the GDU 620 can be configured to automatically adjust for ambient lighting conditions based on its photocell.

1.3.7 Discrete Inputs and Outputs

The GDU 620 has 10 discrete inputs (eight active-low and two active-high) and eight active-low discrete outputs. These are user-configurable and support interfacing to a wide variety of systems.

1.3.8 ADF Input

The GDU 620 has one interface that allows the ADF bearing to be displayed on the HSI as a bearing pointer. This input allows ADFs that provide a DC SIN/COS output to be connected to the GDU 620. No ability to control the ADF is provided in the GDU 620.

1.3.9 ARINC 453/708 Inputs

The GDU 620 has two ARINC 453/708 inputs that will allow weather radar and TAWS data to be displayed on the GDU 620. The GDU 620 will also provide the necessary user interface and outputs to control the TAWS system. The display of weather radar and TAWS data is not currently supported.

1.3.10 Configuration Module Interface

The GDU 620 has one interface to an external configuration module. This allows the GDU 620 to store installation-specific configuration data, allowing the GDU 620 to be replaced without the need for reconfiguration of the new unit.

1.3.11 Time Mark Input

The GDU 620 has two differential time mark inputs, one for GPS 1 and another for GPS 2 (if installed). These are used to accurately determine the time of GPS messages that are sent to the GRS 77 AHRS.

1.3.12 Message Audio Output

The GDU 620 has one 500 Ω audio output that can be connected to an audio panel to provide audible messages to the pilot. Presently, this output only provides the altitude alerter chime.

1.3.13 Composite Video Inputs

The GDU 620 has two composite video inputs. These inputs are not currently functional, but in the future might be used to allow video to be displayed on the MFD.

1.4   Technical Specifications

1.4.1   Environmental Qualification Form

It is the responsibility of the installing agency to obtain the latest revision of the GDU 620 Environmental Qualification Form. This form is available directly from Garmin under the following part number:

GDU 620 Environmental Qualification Form, Garmin part number 005-00313-20.

To obtain a copy of this form, see the dealer/OEM portion of the Garmin web site (www.garmin.com).

1.4.2   Physical Characteristics

Characteristics	Specifications
Width	10.0 inches (25.4 cm)
Height	6.7 inches (17.0 cm)
Depth with Connector Kit	5.50 inches (14.0 cm)
Unit Weight w/out Connector Kit	6.38 pounds (2.90 kg)
Unit Weight with Connector Kit	7.04 pounds (3.20 kg)

1.4.3 General Specifications

The table below contains general environmental specifications. For detailed specifications, see the Environmental Qualification Form.

Characteristics	Specifications
Operating Temperature Range	-20°C to +55°C
Humidity	48 Hours 50°C 95%
Altitude Range	35,000 ft
Software Compliance	RTCA/DO-178B levels B, C, and D
Hardware Compliance	RTCA/DO-254 Level B
Environmental Compliance	RTCA/DO-160D
Input Voltage Range	10 to 40 VDC

1.4.4 Display Specifications

Active Display Size	6.5" Diagonal (3.9" W x 5.2" H)
Display Format	480 pixels (W) x 640 pixels (H)
Viewing Angle (with 10:1 contrast ratio min)	
Left / Right:	45° from perpendicular
Up:	30° from perpendicular
Down:	10° from perpendicular
Brightness Range	0.1 to 180fL

1.4.5 Power Consumption

Ambient temperature above -15°C:

	Typical	Maximum
14 VDC	3.9A	5.4A
28 VDC	1.9A	2.7A

1.5 Certification

The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only in compliance under 14 CFR part 43 or the applicable airworthiness requirements.

1.5.1 TSO Compliance

The GDU 620 displays data for all classes of compatible interfaced TSO-C147 authorized equipment. The GDU 620 equipment class is identical to that of the interfaced equipment.

Function	TSO SAE/RTCA	Category
Airspeed Instruments	TSO-C2d SAE AS8019A Incomplete System [1]	Type C Range : 20 to 999 kts
Turn and Slip Instrument	TSO-C3d SAE AS8004 Incomplete System [1]	Type II
Bank and Pitch Instruments	TSO-C4c SAE AS8001 Incomplete System [1]	Turn Error, Category A
Direction (Heading) Instrument, Magnetic	TSO-C6d SAE AS8013A Incomplete System [1]	
Vertical Velocity Instruments (Rate-Of-Climb)	TSO-C8d SAE AS8016A Incomplete System [1]	Type C Range : -9950 to 9950 ft/min
Altimeter, Pressure Actuated, Sensitive Type	TSO-C10b SAE AS8009A Incomplete System [1]	Range : -1000 to 99,980 ft
ILS Glide Slope Receiving Equipment Operating Within The Radio Frequency Range of 328.6-335.4 Megahertz (MHz)	TSO-C34e RTCA DO-192 Incomplete System [1]	
Airborne ILS Localizer Receiving Equipment Operating Within The Radio Frequency Range of 108-112 Megahertz	TSO-C36e RTCA DO-195 Incomplete System [1]	
VOR Receiving Equipment Operating Within The Radio Frequency Range Of 108-117.95 Megahertz (MHz)	TSO-C40c RTCA DO-196 Incomplete System [1]	
Airborne Automatic Direction Finding Equipment (ADF)	TSO-C41d RTCA DO-179 Incomplete System [1]	
Flight Director Equipment	TSO-C52b SAE AS8008 Incomplete System [1]	
Airborne Multipurpose Electronic Displays	TSO-C113 SAE AS8034	
Traffic Alert and Collision Avoidance System (TCAS I)	TSO-C118 RTCA DO-197 Incomplete System [1]	
Traffic Advisory System (TAS) Airborne Equipment	TSO-C147 [2] RTCA DO-197A Incomplete System [1]	

Notes:

[1] The TSOs identified in the table above are for an incomplete system and requires the GDU 620 to be installed and checked out according to this installation manual.

[2] The GDU 620 displays data for all classes of compatible interfaced TSO-C147 authorized equipment. The GDU 620 equipment class is identical to that of the interfaced equipment.

Software Design Assurance

Function	DO-178B Level
Operating System	B
PFD display of Flight Director Bars	B
PFD display of VOR/ILS LOC/Glide Slope CDI & VDI information	B
PFD display of ADF bearing pointer information	B
PFD display of GPS altitude, CDI & VDI, and level of service information	B
PFD display of baro altitude, attitude, slip-skid, rate-of-turn, heading, track, air speed, vertical speed, ground speed, track information, and outside air temperature	B
Display of charts and TAS/TIS traffic information	C
Display of other information – moving map, terrain, flight plan overlay, XM weather data, XM audio entertainment, supplement waypoint and airport information, and time.	D

1.5.2 TSO Deviations

TSO	Deviation
TSO-C2d	1. Garmin was granted a deviation from TSO-C2d to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
	2. Garmin was granted a deviation from TSO-C2d to use SAE AS 8019A instead of SAE AS 8019 as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	3. Garmin was granted a deviation from TSO-C2d to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	4. Garmin was granted a deviation from TSO-C2d to eliminate the requirement 3.2.3 in SAE AS 8019A that requires "the instrument face to be marked with 'Airspeed' or 'IAS' and also with the applicable units of measure." The GDU 620 includes a primary flight display and is not dedicated to Airspeed indicator.
TSO-C3d	1. Garmin was granted a deviation from TSO-C3d to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C3d to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
TSO-C4c	1. Garmin was granted a deviation from TSO-C4c to use SAE AS 8001 instead of SAE AS 396B for Minimum Performance Standards and Environmental Standards.
	2. Garmin was granted a deviation from SAE Aerospace Standard AS 8001 to use RTCA DO-160D instead of RTCA DO-138 as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
TSO-C6d	1. Garmin was granted a deviation from TSO-C6d to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C6d to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
	3. Garmin was granted a deviation from TSO-C6d to use SAE AS 8013A instead of SAE AS 8013 as the Minimum Performance Standard.
TSO-C8d	1. Garmin was granted a deviation from TSO-C8d to use RTCA DO-160D instead of RTCA DO-160C as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C8d to use RTCA DO-178B instead of RTCA DO-178A to demonstrate compliance for the verification and validation of the computer software.
	3. Garmin was granted a deviation from TSO-C8d to use SAE AS 8016A instead of SAE AS 8016 as the Minimum Performance Standard.

TSO	Deviation
TSO-C10b	1. Garmin was granted a deviation from TSO-C10b to use SAE AS 8009A instead of SAE AS 392c as the Minimum Performance Standard.
	2. Garmin was granted a deviation from TSO-C10b to use RTCA DO-160D instead of RTCA DO160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	3. Garmin was granted a deviation from SAE AS 8009A Section 3.11 to not display ALTITUDE or ALT next to the tape indicating altitude. The GDU 620 presents a scrolling altitude tape with digital readout in a standardized format and location directly to the right of the attitude indication on the primary flight display.
TSO-C34e	1. Garmin was granted a deviation from TSO-34e to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C34e to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
TSO-C36e	1. Garmin was granted a deviation from TSO-C36e to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C36e to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
TSO-C40c	1. Garmin was granted a deviation from TSO-C40c to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
	2. Garmin was granted a deviation from TSO-C40c to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
TSO-C41d	1. Garmin was granted a deviation from TSO-C41d to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C41d to use RTCA DO-178B instead of RTCA DO-178 to demonstrate compliance for the verification and validation of the computer software.
TSO-C52b	1. Garmin was granted a deviation from TSO-52b to use RTCA DO-160D instead of RTCA DO-160C as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
TSO-C113	1. Garmin was granted a deviation from TSO-C113 to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
	2. Garmin was granted a deviation from TSO-C113 to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
TSO-C118	1. Garmin was granted a deviation from TSO-C118 to use RTCA DO-160D instead of RTCA DO-160B as the standard for Environmental Conditions and Test Procedures for Airborne Equipment.
	2. Garmin was granted a deviation from TSO-C118 to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.
TSO-C147	2. Garmin was granted a deviation from TSO-C118 to use RTCA DO-178B minimum software level C instead of RTCA DO-178A software level 2 to demonstrate compliance for the verification and validation of the computer software.

1.5.3 Non-TSO Functions

None

1.6 Limited Warranty

This Garmin product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, Garmin will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL GARMIN BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you.

Garmin retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, contact your local Garmin Authorized Service Center. For assistance in locating a Service Center near you, call Garmin Customer Service at one of the numbers shown below.

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Garmin International, Inc.
1200 E. 151st Street
Olathe, KS 66062 USA
Telephone: 913.397.8200
Aviation Panel-Mount Technical Support Line (Toll Free) 1.888.606.5482
www.garmin.com

Garmin (Europe) Ltd.
Liberty House
Bull Copse Road
Hounsdown Business Park
Southampton, SO40 9RB, UK
Telephone: +44 (0) 870 850 1243

Garmin AT, Inc.
2345 Turner Rd., SE
Salem, OR 97302 USA
Telephone: 503.581.8101

2.   INSTALLATION OVERVIEW

2.1   Introduction

This section provides hardware equipment information for installing the GDU 620 and related hardware. Installation of the GDU 620 should follow the aircraft TC or STC requirements. Cabling is fabricated by the installing agency to fit each particular aircraft. The guidance of FAA advisory circulars AC 43.13-1B and AC 43.13-2A, where applicable, may be found useful for making retro-fit installations that comply with FAA regulations.

2.2   Installation Materials

2.2.1   Configurations Available

The GDU 620 is available in various configurations under the following part numbers. Catalog part numbers are shown with and without the installation kit.

Table 2-1. Catalog Part Numbers

Model	Bezel Color	Unit P/N	Catalog P/N Without Installation Kit
GDU 620	Black	011-01264-00	010-00482-00
GDU 620	Gray [1]	011-01264-10	010-00482-10

[1] Contact factory for availability.

Table 2-2. Installation Accessories

Item	Garmin P/N
GDU 620 Connector Kit [2]	011-01656-00
Trim Plate, (0.032") [1]	115-01009-00
Trim Plate, (0.063") [1]	115-01009-10
GDU 620 Mounting Screw Kit	011-02078-00 [3]

[1] Trim Plate is not painted. It must be cut to size and painted to match the installation.
[2] Configuration Module P/N 011-00979-02 is included in GDU 620 connector kit, P/N 011-01656-00.
[3] Mounting screw kit contains screws P/N 211-64307-14 (qty. 6).

2.2.2   Optional Accessories

Each of the following optional accessories are provided separately from the GDU 620 unit.

Table 2-3. Accessories Provided Separately

Item	Garmin P/N
GDU 620 Cutout Template [1]	115-01010-00
Installer Unlock SD Card	010-00769-60
GDU 620 Main Loader Card	010-00678-( ) [2]

[1] Cutout Template is clamped to instrument panel and used to mark the cutout required by the GDU 620. It is also used as a drill template to drill the holes for the six GDU 620 mounting screws. This template can be used to make multiple cutouts.
[2] Card dash number -( ) changes based upon software version.

2.2.3 Optional Features

The GDU 620 has optional features that must be activated. Available features are listed below.

Table 2-4. Optional Features Available

Item	Part Number	Garmin Order Number
GDU 6xx ChartView Activation Card – Heavy Aircraft [1]	010-00769-50	010-00770-00
GDU 6xx ChartView Activation Card – Light Aircraft [1]	010-00769-53	010-00770-10
GDU 6xx Altitude Preselect Activation Card [1] [2]	010-00769-52	010-00770-30

[1] An SD activation card is required to enable the indicated feature. Each activation card can only be used once and, once used, the card will be only work with that particular system.

[2] The Altitude Preselect option is only available for certain autopilots. Contact Garmin for availability for a specific autopilot.

2.2.4 Materials Required But Not Supplied

The GDU 620 is intended for use with the standard aviation accessories. The following items are required for installation, but not supplied:

- Wire (MIL-W-22759/16 or equivalent)

- Shielded Wire (MIL-C-27500 or equivalent)

- Nut Plates, Reduced Rivet Spacing, No. 6 (six minimum – MS21071-06 or equivalent)

- Circuit Breaker (5A for 28V installations, 7.5A for 14V installations)

- Tie Wraps or Lacing Cord

- Ring Terminals (for grounding)

2.3 Database Options

Item	Garmin P/N
Data Card, Terrain/Obstacle/Airports, SafeTaxi, FliteCharts	010-00769-42

2.4 Optional Reference Material

Item	Garmin P/N
G600 Pilot's Guide	190-00601-02
G600 Cockpit Reference Guide	190-00601-03

2.5 Installation Considerations

The existing "six-pack instruments" (i.e. ADI, HSI / CDI, airspeed indicator, altimeter, turn coordinator (if installed) and vertical speed indicator (if installed)) must be removed, and the GDU 620 will be installed in the space vacated by the removal of these instruments. The instrument panel must be cut out to accommodate the GDU 620 and six fixed nutplates must be installed for fastening the GDU 620 to the instrument panel. An optional trim plate may be installed for cosmetic reasons. A different trim plate can also be used to provide support for the GDU 620 if the layout of the existing instruments does not provide adequate material for installing the nutplates after the cutout for the GDU 620 is made. Cabling must also be fabricated to fit each particular aircraft.

The following sections describe issues that must be considered for each installation.

2.5.1 Cabling and Wiring

Use AWG #24 or larger wire for all connections unless otherwise specified by the aircraft manufacturer or Garmin. The standard-density socket contacts supplied in the connector kit are compatible with up to AWG #20 wire (P6201 and P6202). The high-density pin contacts supplied in the connector kit are compatible with up to AWG #22 wire (P6203). In cases where some installations have more than one unit sharing a common circuit breaker, sizing and wire gauge is based on aircraft circuit breaker layout, length of wiring, current draw of units, and internal unit protection characteristics. Do not attempt to combine more than one unit on the same circuit breaker unless it is specified on aircraft manufacturer approved drawings.

Ensure that routing of the wiring does not come in contact with sources of heat, RF or EMI interference. Check that there is ample space for the cabling and mating connectors. Avoid sharp bends in cabling and routing near aircraft control cables.

2.5.2 Cooling Requirements

The GDU 620 has two cooling fans integrated into the bottom of the chassis to supply forced-air cooling to the unit. The mounting configuration should not restrict intake airflow into the fans at the bottom of the display, or exhaust airflow from the ducts at the top of the display.

2.5.3 Mounting Requirements

The GDU 620 is designed to mount in the instrument panel, in place of the existing "six-pack instruments". The GDU 620 mounting hardware is designed to accommodate various sheet metal panel thicknesses, from 0.063" to 0.125". Allow an additional 2" of clearance behind the mating connectors on rear of the display for routing cables. Display details are shown in Figure B-3.

2.5.4 Compass Safe Distance

After reconfiguring the avionics in the cockpit panel recalibrate the compass and make the necessary changes for noting correction data.

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3. INSTALLATION PROCEDURE

3.1 Unpacking Unit

Carefully unpack the equipment and make a visual inspection of the unit for evidence of damage incurred during shipment. If the unit is damaged, notify the carrier and file a claim. To justify a claim, save the original shipping container and all packing materials. Do not return the unit to Garmin until the carrier has authorized the claim.

Retain the original shipping containers for return shipments. If the original containers are not available, a separate cardboard container should be prepared that is large enough to accommodate sufficient packing material to prevent movement.

3.2 Special Tools Required

Crimp Tool

A crimp tool meeting MIL specification M22520/2-01 and a positioner/locator are required to ensure consistent, reliable crimp contact connections for the rear D-sub connectors. Refer to Table 3-2 for a list of recommended crimp tools.

3.3 Equipment Mounting

When installing GDU 620 into a retrofit installation, the existing six-pack instruments must be removed and the instrument panel cut to accommodate the GDU 620. Six fixed nutplates must be installed on the instrument panel for fastening the GDU 620 to the instrument panel. An optional trim plate may be installed for cosmetic reasons. A different trim plate can also be used to provide support for the GDU 620 if the layout of the existing instruments does not provide adequate material for installing the nutplates after the cutout for the GDU 620 is made.

3.3.1 Instrument Panel Cutout

Remove all instruments required to facilitate the installation of the GDU 620. For the majority of installations, the GDU 620 will be installed in place of the previously installed six-pack instruments.

NOTE

The GDU 620 mounting hole pattern is not symmetrical top to bottom or left to right. Care must be taken to ensure that the template is oriented in the correct direction.

NOTE

The outside dimensions of the GDU 620 cutout pattern in the cutout template are identical to the outside dimensions of the GDU 620.

1. Position the GDU 620 Cutout Template on the instrument panel at the desired location for the GDU 620 and temporarily affix the Cutout Template in this location. When positioning the template ensure that the existing instrument panel material is visible by the maximum number of mounting holes. This will permit the maximum number of nutplates to be mounted in the instrument panel.
2. Using the template as a guide, drill six 0.1285" holes for the GDU 620 mounting points using a #30 drill bit.
3. Transfer the GDU 620 LRU outline to the instrument panel, using the *outside* edges of the cutout pattern.
4. Remove the template from the instrument panel. Fill in the gaps in the cutout markings on the instrument panel using a straight edge.
5. Enlarge the six mounting holes to 0.144 using a #27 drill bit.
6. Cut out the GDU 620 outline on the instrument panel.

7. Install six No. 6 fixed nutplates (P/N MS21071-06) as shown in Figure B-7.

8. If required, install the trim plate prior to installing the GDU 620.

3.4 Unit Replacement

Whenever the GDU 620 is removed and reinstalled, verify that the slide-lock is engaged on both sides of each connector. Also verify that the GDU 620 unit power-up self-test sequence is successfully completed, all databases are present and no failure messages are annunciated. If the unit was serviced or if a different unit is being installed, verify that the configuration is correct using the previously completed checkout log prior to verifying that the GDU 620 unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

NOTE

The installation configuration settings are stored in the configuration module and will be retained when the GDU 620 is replaced with a new unit. However, user settings are in internal LRU flash memory and will be lost when the GDU 620 is replaced with a new unit.

3.5 Cabling and Wiring

The GDU 620 connector kit includes connectors and crimp contacts. Make the crimp connections with a crimp tool as specified in Table 3-2.

Refer to the interconnection diagrams in Appendix C for the appropriate interconnections. Use 22 or 24 AWG wire for all connections except for power. Use 20 AWG for power/ground. Install the configuration module as described in Section 3.6.1.2. Once the cable assemblies have been made, position the cable so that there is sufficient length to allow the GDU to be removed from the instrument panel with the cables attached. Route the wiring bundle as appropriate. Avoid sharp bends.

3.5.1 Wiring Harness

Allow adequate space for installation of cables and connectors. The installer supplies and fabricates all of the cables. All electrical connections are made through a 37-pin D-Subminiature connector, a 50-pin D-subminiature connector and a 62-pin D-subminiature connector provided by Garmin. Construct the wiring harness according to the information contained in this and the following sections. Cable lengths will vary depending upon installation. Strip all wires going to the connectors 1/8". Insert the wire into the pin and crimp with one of the recommended (or equivalent) crimping tools. Insert the pin into the connector housing location as specified by the interconnect drawings in Appendix C. Verify the pin is properly engaged into the connector by gently tugging on the wire. Route and secure the cable run from the GDU 620 to the other units away from sources of electrical noise.

Section 4 provides I/O definition of all input and output signals. Required connectors and associated hardware are supplied with the connector kit. See Appendix C for interconnect wiring diagrams.

CAUTION

Check wiring connections for errors before connecting the cables to the GDU 620. Incorrect wiring could cause component damage.

Table 3-1. Socket Contact Part Numbers

Wire Gauge	37-pin connector (P6201) 50-pin connector (P6202) 20-24 AWG [1]	Configuration Module 50-pin connector (P6202) 28 AWG [3]	62-pin connector (P6203) 22-28 AWG
Garmin P/N	336-00022-00	336-00022-01	336-00021-00
Military P/N	M39029/63-368	N/A	M39029/58-360
AMP	N/A	N/A	204370-2
Positronic	N/A	N/A	MC8522D
ITT Cannon	N/A	N/A	030-2042-000

Table 3-2. Recommended Crimp Tools

Manufacturer	Hand Crimping Tool	20-24 AWG (P6201/P6202) [3]		22-28 AWG (P6203)	
		Positioner	Insertion/ Extract Tool	Positioner	Insertion/ Extract Tool
Military P/N	M22520/2-01	M22520/2-08	M81969/14-02 M81969/1-02	M22520/2-09	M81969/14-01 M81969/1-04
Positronic	9507	9502-11	N/A	N/A	N/A
ITT Cannon	N/A	N/A	N/A	N/A	N/A
AMP	N/A	N/A	N/A	N/A	N/A
Daniels	AFM8	K13-1	N/A	K42	N/A
Astro	615717	615724	N/A	615725	N/A

Notes:

[1] Contacts listed are not to be used for configuration module wiring. Use the contacts supplied with the configuration module when installing configuration module wires in P6202.

[2] Non-Garmin part numbers shown are not maintained by Garmin and are subject to change without notice.

[3] For configuration module pins, ensure that the crimp tool is set to crimp 28 AWG wire.

3.6 Backshell Assemblies

3.6.1 Backshell Assembly and D-Subminiature Connectors

The GDU 620 connector kit (P/N 011-01656-00) includes three Garmin backshell assemblies and three Garmin ground adapter assemblies. Backshell connectors give the installer the ability to terminate shield grounds at the backshell housing using the shield block ground kit. Table 3-3 lists Garmin part numbers for the GDU 620 D-sub connectors and the backshell assemblies.

Table 3-3. Backshell Assembly

Figure 3-1 thru Figure 3-3 Ref	Description	Garmin P/N	Notes
1	Cast Housing (P6201 / P6203)	125-00084-00	[2]
	Cast Housing (P6202)	125-00085-00	
2	Shield block	117-00147-01	[3]
3	Screw, 4-40 x.250, FLHP100°, SS/P, Nylon	211-63234-08	[3]
4	Slide Lock Spring	N/A	[4]
5	Slide Lock Lever	N/A	[4]
6	Screw,4-40x.375,PHP,SS/P, w/Nylon	211-60234-10	[2], [5]
7	Strain Relief	115-00499-03	[2]
8	Cover (P6201 / P6203)	115-00500-03	[2]
	Cover (P6202)	115-00500-04	
9	Screw,4-40x.187,FLHP100,SS/P, w/Nylon	211-63234-06	[2]
10	Connector, D-Sub, 37 Socket (P6201)	330-00502-37	[5]
	Connector, D-Sub, 50 Socket (P6202)	330-00502-50	
	Connector, D-Sub, HD, 62 Pin (P6203)	330-00366-62	
11	Multiple Conductor Shielded Cable (See Interconnect Diagrams, Appendix C)	As Required	[6]
12	Shield Terminator	As Required	[6], [7]
13	Wire, Insulated, 20 – 22 AWG (3" max length)	As Required	[6], [7]
14	Socket Contacts, #20 (P6201 / P6202)	336-00022-00	
	Pin Contacts, #22D (P6203)	336-00021-00	
15	Ring terminal, #8, insulated, 18-22 AWG, 14-16 AWG	MS25036-149, MS25036-153, MS25036-156	[6]
16	Screw, PHP, 8-32x.312", Stainless or Cad Plated Steel	MS51957-42, MS35206-242	[6]
17	Split Washer, #8, (.045" compressed thickness) Stainless or Cad-plated steel	MS35338-137, MS35338-42	[6]
18	Flat Washer, #8, .032" thick, .174"ID, .375" OD, Stainless or Cad Plated Steel	NAS1149CN832R, NAS1149FN832P	[6]
19	Silicon Fusion Tape	249-00114-00	[6]

[1] All items are applicable to P6201, P6202 and P6203 unless otherwise specified.

[2] Supplied as part of Backshell Kits P/N 011-00950-03 (P6201 / P6203) and P/N 011-00950-04 (P6202).

[3] Supplied as part of Ground Adapter Kit P/N 011-01169-01.

[4] Supplied as part of Slide Lock Kit P/N 330-90006-03 (P6201 / P6203) and P/N 330-90006-04 (P6202).

[5] Supplied as part of GDU 620 Connector Kit P/N 011-01656-00.

[6] Not supplied – must be purchased separately.

[7] Solder sleeve with pre-installed lead may be used instead of items 12 and 13.

3.6.1.1 Shield Block Assembly Procedure

The parts for the connector and backshell assemblies for the GDU 620 installations are listed in Table 3-3. The GDU 620 connector kit (P/N 011-01656-00) includes three Garmin backshell assemblies and three Garmin ground adapter assemblies. Backshell connectors give the installer the ability to terminate shield grounds at the backshell housing using the Shield Block ground kit. Table 3-3 lists Garmin part numbers for the GDU 620 D-sub connectors and the backshell assemblies.
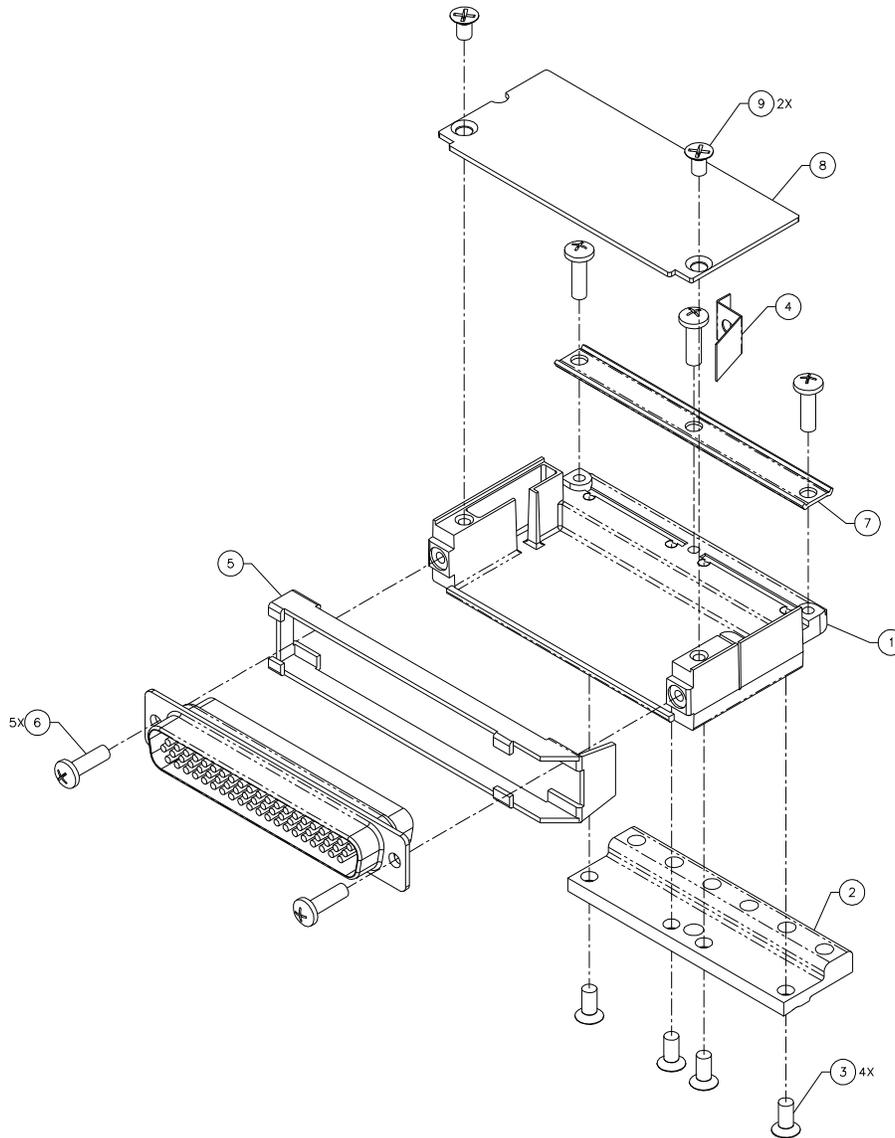
Figure 3-1. Connector and Backshell Assembly

2.0" MAX.

1/8"

.31" MAX. OF
EXPOSED SHIELD

⑫

⑬

SHIELD DRAINS NO LONGER THAN 3"
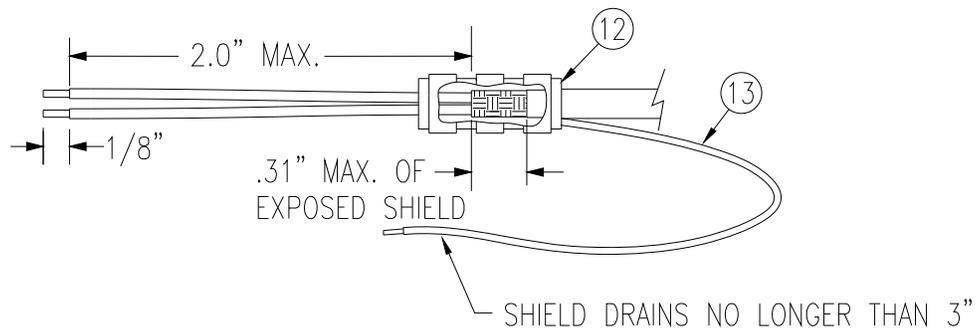
Figure 3-2. Shielded Cable Preparation

EDGE OF
SOCKET CONTACT

2.0" MAX.

BEGINNING OF SHIELD

A/R ⑭

⑩

A/R ⑲

⑫ A/R

⑪ A/R

.31" MAX.
EXPOSED
SHIELD

⑬ A/R

⑮ A/R

⑱ A/R

⑰ A/R

⑯ A/R
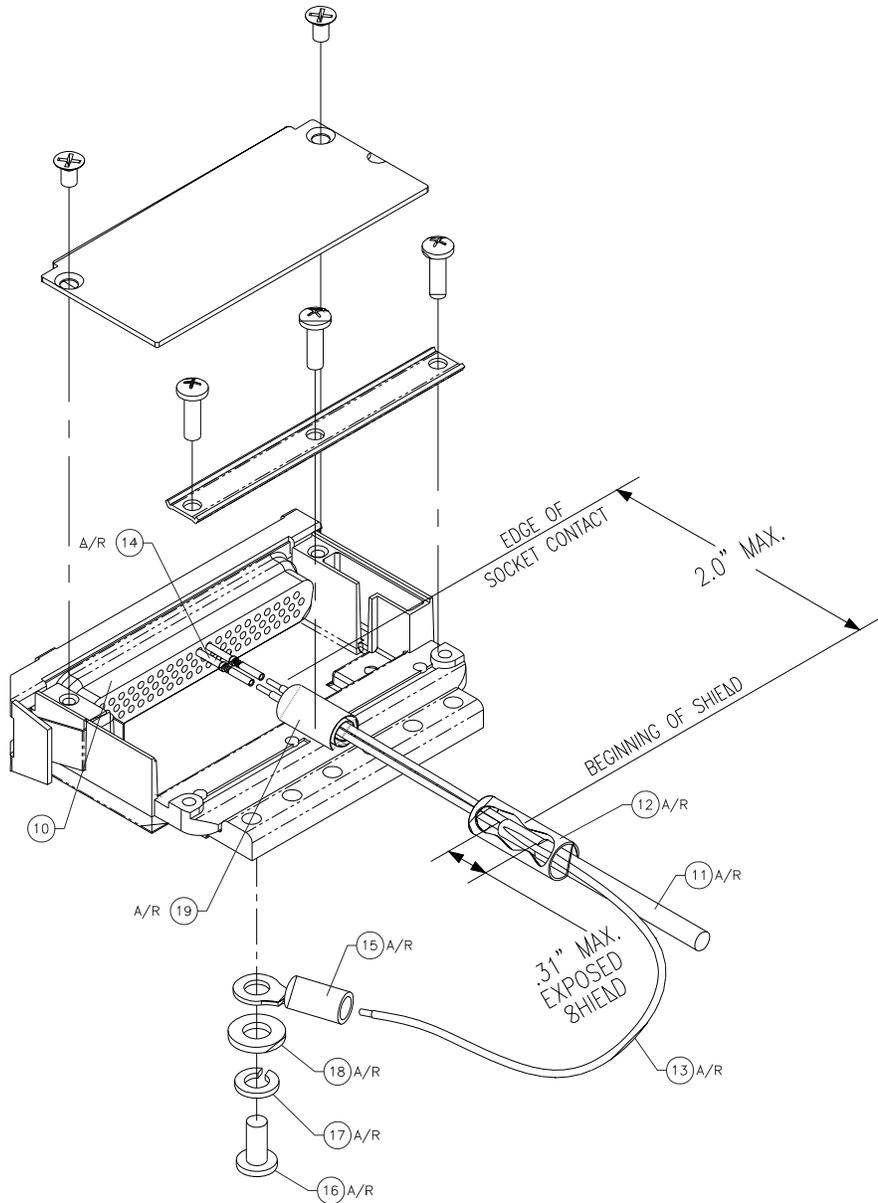
Figure 3-3. Shield Termination on Backshell Assembly

Prepare all of the shielded cables as shown in Figure 3-2. Refer to Figure 3-3 for details of the shield termination to the connector backshell.

1. At the end of the shielded cable (11), strip back a 2" maximum length of the jacket to expose the braid. Remove this exposed braid. Carefully score the jacket 1/4" to 5/16" from the end and remove the jacket to leave the braid exposed.

NOTE

Solder sleeves with pre-installed shield drains may be used instead of separate shield terminators and individual wires.

2. Connect a 20 or 22 AWG wire (13) to the exposed shield of the prepared cable assembly. (See Figure 3-2). AC 43.13 maybe a helpful reference for termination techniques.

NOTE

Solder Sleeves with pre-installed lead: A preferred solder sleeves is the Raychem S03 Series with the thermochromic temperature indicator. These solder sleeves come with a per-installed lead and effectively take the place of items 12 and 13. For detailed instructions on product use, refer to Raychem installation procedure.

3. Slide a shield terminator (12) onto the prepared cable assembly (11) and connect the wire (13) to the shield using a heat gun approved for use with solder sleeves. The chosen size of solder sleeve must accommodate both the number of conductors present in the cable and the wire (13) to be attached.

4. Repeat steps 1 through 3 as needed for the remaining shielded cables.

5. Crimp pins/sockets (14) onto the wires and terminate in the connector (10) in accordance with the aircraft wiring drawings.

6. For P6202, install the configuration module wires into the connector. Refer to Section 3.6.1.2, steps 1 and 2 for instructions on installing the configuration module.

Assemble the backshell onto the connector:

1. Attach the Shield Block (2) to the backshell (1) by inserting the flathead screws (3) through the holes on the Shield Block and threading into the tapped holes on the backshell (1). (See Figure 3-1).

CAUTION

When mounting the slide lock, use only the specified screws (6). Do not attempt to use the self-tapping screws supplied in the slide lock kit, as these will damage the backshell housing.

2. Place the slide lock (5) over the connector (10). While holding the slide lock in place, attach the connector / slide lock to the backshell (1) by inserting two screws (6) through the holes on the connector and threading into the tapped holes on the backshell (1). (See Figure 3-1)

3. Wrap the cable bundle with Silicone Fusion Tape (19 or a similar version) at the point where the backshell strain relief and cast housing will contact the cable bundle.

CAUTION

Placing the grooved side of the strain relief across the cable bundle may damage wires.

4. Place the smooth side of the backshell strain relief (7) across the cable bundle and secure using the three screws (6).

5. For P6202, install the configuration module into the connector backshell. Refer to Section 3.6.1.2 steps 3 through 6 for instructions on installing the configuration module into the backshell.

6. Insert the slide lock spring (4) into the connector backshell (1). Attach the cover (8) to the backshell using two screws (9).

NOTE

Each tapped hole on the shield block (2) may accommodate only two ring terminals (15). It is preferred that a maximum of two wires (13) be terminated per ring terminal. Two wires per ring terminal will necessitate the use of a ring terminal, #8, insulated, 14-16 AWG (MS25036-153). If only a single wire is left or if only a single wire is need for this connector a ring terminal, #8, insulated, 18-22 AWG (MS25036-149) can accommodate this single wire. If more wires exist for the connector than two per ring terminal, it is recommended that only three wires are terminated in each ring terminal to ensure a good electrical connection.

7. Install ring terminals (15) onto the wires (13), grouping wires as appropriate for the connector.

8. Terminate the ring terminals to the shield block (2) by placing items on the pan head screw (16) in the following order: split washer (17), flat washer (18), first ring terminal, second ring terminal if needed, before finally inserting the screw into the tapped holes on the shield block.

3.6.1.2 Configuration Module Installation (P6202 Only)

Table 3-4 lists part numbers for the Configuration Module Kit, which is used with P6202 only.

Table 3-4. Configuration Module Kit – 011-00979-02

Figure 3-4 Ref	Description	Garmin P/N
1	Configuration Module, PCB Board Assembly w/EEPROM	012-00605-00
2	Spacer, Config Module	213-00043-00
3	4-Conductor Harness	325-00122-00
4	Socket Contact, Crimp, #20	336-00022-01

Table 3-5. Configuration Module Wire Color Reference Chart

Color	Function	P6002 Contact
Black	Ground	27
Red	Vcc	24
Yellow	Data	19
White	Clock	17

Assemble the configuration module:

1. Crimp socket contacts (4) onto each wire of the four-conductor wire harness (3). Strip 1/8" of insulation from each wire prior to crimping.

2. Insert newly crimped socket contacts and wires (3, 4) into the appropriate connector housing location as shown in Figure 3-4, Figure C-1, and Figure C-12.

3. Apply the spacer (2) by wrapping it around the PCB board (1) making sure to insert the plastic connector mounted on the board into the hole provided in the spacer.

4. Plug the four-conductor wire harness (3) into the connector on the PCB board (1).

5. With pad (2) in position, insert PCB board (1) into the backshell recess.

6. Orient the connector housing so that the inserted four conductor wire harness (3) is on the same side of the backshell as the inserted PCB board (1), as shown in Figure 3-4.
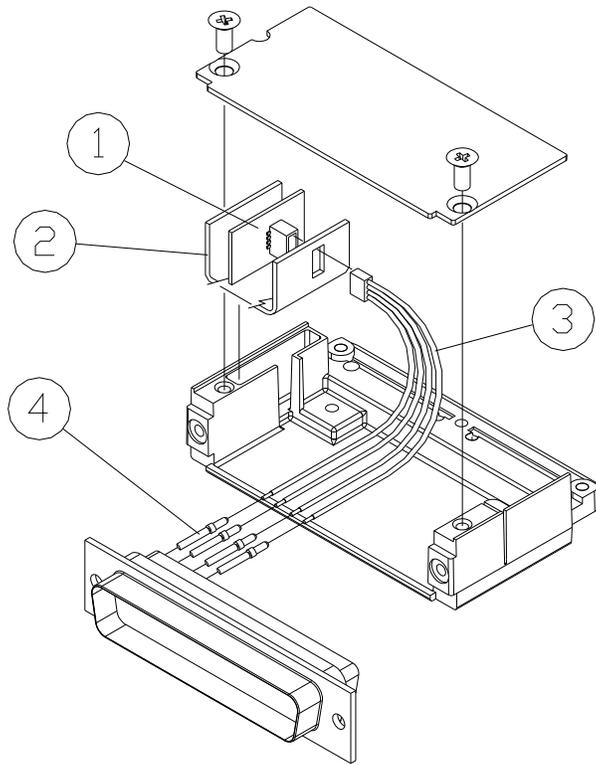
Figure 3-4. Configuration Module Installation

3.7 Unit Installation

The GDU 620 is mounted in the panel with six 6/32" socket head cap screws. Depending on installation specifics, the unit can be flush mounted with a standard 6-32 nut plate to an existing panel, panel doubler, or new sub-panel. A trim plate may be used as desired.

3.8 Continued Airworthiness

Maintenance of the GDU 620 is "on condition" only. For regulatory periodic functional checks, refer to approved aircraft maintenance manuals or manual supplements for actual aircraft maintenance requirements.

4. SYSTEM INTERCONNECTS

4.1 Pin Function List

4.1.1 P6201 Connector

View of J6201 connector from back of unit
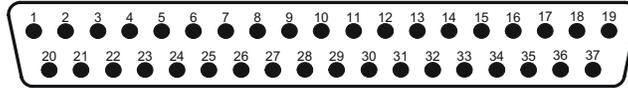
Table 4-1. P6201 Connector Pin-Out

Pin	Pin Name	I/O
1	COMPOSITE VIDEO IN 1 (*function not currently implemented*)	--
2	RESERVED	--
3	AUDIO INHIBIT IN* (*function not currently implemented*)	In
4	CDU SYSTEM ID PROGRAM*	In
5	SPARE DISC IN* 4	In
6	SPARE DISC IN* 5	In
7	SPARE DISC IN* 6	In
8	GPSS ENABLE IN*	In
9	FD ENABLE IN	In
10	ADF VALID IN	In
11	ETHERNET IN 1A	In
12	ETHERNET IN 1B	In
13	ETHERNET OUT 1A	Out
14	ETHERNET OUT 1B	Out
15	FLIGHT DIRECTOR PITCH UP	In
16	FLIGHT DIRECTOR PITCH DOWN	In
17	ADF X/COS IN	In
18	ADF Y/SIN IN	In
19	RESERVED	--
20	COMPOSITE VIDEO IN 2 (*function not currently implemented*)	Out
21	RESERVED	--
22	GROUND	--
23	TAWS AUDIO ACTIVE OUT* (*function not currently implemented*)	Out
24	ALTITUDE CAPTURE* (*function not currently implemented*)	Out
25	A/P BACKCOURSE* (*function not currently implemented*)	Out
26	TIS/TAS STANDBY*	Out
27	TAS TEST*	Out
28	AUDIO OUT HI	Out
29	AUDIO OUT LO	Out
30	ETHERNET IN 2A	In
31	ETHERNET IN 2B	In
32	ETHERNET OUT 2A	Out
33	ETHERNET OUT 2B	Out
34	FLIGHT DIRECTOR ROLL LEFT	In
35	FLIGHT DIRECTOR ROLL RIGHT	In
36	ADF DC REF IN	In
37	RESERVED	--

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

4.1.2 P6202 Connector

View of J6202 connector from back of unit
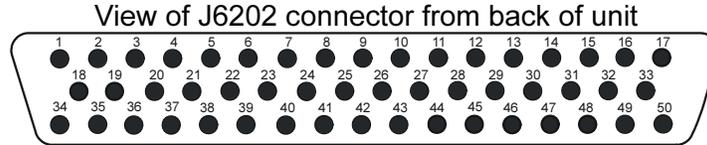
Table 4-2. P6202 Connector Pin-Out

Pin	Pin Name	I/O
1	AIRCRAFT POWER	In
2	AIRCRAFT GROUND	--
3	ARINC 429 OUT 1A	Out
4	ARINC 429 IN 1A	In
5	ARINC 429 IN 2A	In
6	ARINC 429 IN 3A	In
7	ARINC 429 IN 4A	In
8	ARINC 429 IN 5A	In
9	ARINC 429 IN 6A	In
10	RS-232 IN 1	In
11	RS-232 IN 2	In
12	RS-232 IN 3	In
13	RS-232 IN 4	In
14	RS-232 IN 5	In
15	LIGHTING BUS HI	In
16	LIGHTING BUS LO	In
17	RESERVED	--
18	AIRCRAFT POWER	In
19	AIRCRAFT GROUND	--
20	ARINC 429 OUT 1B	Out
21	ARINC 429 IN 1B	In
22	ARINC 429 IN 2B	In
23	ARINC 429 IN 3B	In
24	ARINC 429 IN 4B	In
25	ARINC 429 IN 5B	In
26	ARINC 429 IN 6B	In
27	RS-232 OUT 1	Out
28	RS-232 OUT 2	Out
29	RS-232 OUT 3	Out
30	RS-232 OUT 4	Out
31	RS-232 OUT 5	Out
32	CONFIG MODULE DATA	I/O
33	CONFIG MODULE CLOCK	Out
34	AIRCRAFT POWER	In
35	AIRCRAFT GROUND	--
36	DEMO MODE SELECT*	In
37	RESERVED	--
38	GROUND	--
39	RESERVED	--
40	TIME MARK IN 1A	In

Pin	Pin Name	I/O
41	TIME MARK IN 1B	In
42	TIME MARK IN 2A	In
43	TIME MARK IN 2B	In
44	RS-232 GND 1	--
45	RS-232 GND 2	--
46	RS-232 GND 3	--
47	RS-232 GND 4	--
48	RS-232 GND 5	--
49	CONFIG MODULE POWER	Out
50	CONFIG MODULE GND	Out

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

4.1.3 P6203 Connector

View of J6203 connector from back of unit
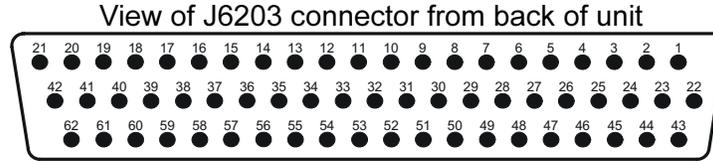
Table 4-3. P6203 Connector Pin-Out

Pin	Pin Name	I/O
1	ARINC 429 OUT 2A	Out
2	ARINC 429 OUT 3A	Out
3	ARINC 429 OUT 4A	Out
4	ARINC 429 IN 7A	In
5	ARINC 429 IN 8A	In
6	RS-232 IN 6	In
7	RS-232 IN 7	In
8	RS-232 IN 8	In
9	RS-485 1A	I/O
10	RS-485 2A	I/O
11	RS-485 3A	I/O
12	RS-485 4A	I/O
13	RESERVED	--
14	ARINC 708/453 IN 1A	In
15	ARINC 708/453 IN 1 TERM A	In
16	ARINC 708/453 IN 2A	In
17	ARINC 708/453 IN 2 TERM A	In
18	A/P HEADING ERROR HI	Out
19	A/P COURSE ERROR HI	Out
20	A/P AC REF HI	In
21	RESERVED	--
22	RESERVED	--
23	ARINC 429 OUT 2B	Out
24	ARINC 429 OUT 3B	Out
25	ARINC 429 OUT 4B	Out
26	ARINC 429 IN 7B	In
27	ARINC 429 IN 8B	In
28	RS-232 OUT 6	Out
29	RS-232 OUT 7	Out
30	RS-232 OUT 8	Out
31	RS-485 1B	I/O
32	RS-485 2B	I/O
33	RS-485 3B	I/O
34	RS-485 4B	I/O
35	RESERVED	--
36	ARINC 708/453 IN 1B	In
37	ARINC 708/453 IN 1 TERM B	In
38	ARINC 708/453 IN 2B	In
39	ARINC 708/453 IN 2 TERM B	In
40	A/P HEADING ERROR LO	--
41	A/P COURSE ERROR LO	--

Pin	Pin Name	I/O
42	A/P AC REF LO	In
43	RESERVED	--
44	GPS ANNUNCIATE*	Out
45	GPS SELECT*	Out
46	ILS/GPS APPROACH*	Out
47	WX RADAR ON* (*function not currently implemented*)	Out
48	GROUND	--
49	RS-232 GND 6	--
50	RS-232 GND 7	--
51	RS-232 GND 8	--
52	LATERAL +LEFT OUT	Out
53	LATERAL +RIGHT OUT	Out
54	LATERAL +FLAG OUT	Out
55	LATERAL –FLAG OUT	Out
56	VERTICAL +UP OUT	Out
57	VERTICAL +DOWN OUT	Out
58	VERTICAL +FLAG OUT	Out
59	VERTICAL –FLAG OUT	Out
60	LATERAL SUPERFLAG OUT	Out
61	VERTICAL SUPERFLAG OUT	Out
62	RESERVED	--

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

4.2 Functional Descriptions

4.2.1 Power

Pin Name	Connector	Pin	I/O
AIRCRAFT POWER	P6202	1	In
AIRCRAFT POWER	P6202	18	In
AIRCRAFT POWER	P6201	34	In
AIRCRAFT GND	P6202	2	--
AIRCRAFT GND	P6202	19	--
AIRCRAFT GND	P6201	35	--

The GDU 620 will accept input power from 9 to 33 VDC. At least two of the power inputs should be connected.

4.2.2 Configuration Module

Pin Name	Connector	Pin	I/O
CONFIG MODULE DATA	P6202	32	Out
CONFIG MODULE CLOCK	P6202	33	I/O
CONFIG MODULE POWER	P6202	49	Out
CONFIG MODULE GROUND	P6202	50	Out

The GDU 620 stores installation-specific configuration information in an aircraft configuration module located in the backshell of P6202. This eliminates the need to set up aircraft specific configuration items again if a new GDU 620 is installed. The configuration module is mounted within the connector backshell as described in Section TBD.

4.2.3 Serial Data

4.2.3.1 RS-232

Pin Name	Function	Connector	Pin	I/O
RS-232 IN 1	AHRS	P6202	10	In
RS-232 OUT 1	AHRS (GPS 1 DATA)	P6202	27	Out
RS-232 GND 1	--	P6202	44	--
RS-232 IN 2	ADC	P6202	11	In
RS-232 OUT 2	ADC	P6202	28	Out
RS-232 GND 2	--	P6202	45	--
RS-232 IN 3	GPS 1	P6202	12	In
RS-232 OUT 3	GPS 1	P6202	29	Out
RS-232 GND 3	--	P6202	46	--
RS-232 IN 4	GPS 2	P6202	13	In
RS-232 OUT 4	AHRS (GPS 2 DATA)	P6202	30	Out
RS-232 GND 4	--	P6202	47	--
RS-232 IN 5	SL30	P6202	14	In
RS-232 OUT 5	SL30	P6202	31	Out
RS-232 GND 5	--	P6202	48	--
RS-232 IN 6	LIGHTNING (WX 500)	P6203	6	In
RS-232 OUT 6	LIGHTNING (WX 500)	P6203	28	Out
RS-232 GND 6	--	P6203	49	--
RS-232 IN 7	SPARE	P6203	7	In
RS-232 OUT 7	SPARE	P6203	29	Out
RS-232 GND 7	--	P6203	50	--
RS-232 IN 8	SPARE	P6203	8	In
RS-232 OUT 8	SPARE	P6203	30	Out
RS-232 GND 8	--	P6203	51	--

The RS-232 outputs conform to EIA Standard RS-232C with an output voltage swing of at least ±5V when driving a standard RS-232 load.

The serial ports can receive/transmit serial data from/to various sources.

Refer to section 5.5.1.9 for configuration information.

4.2.3.2 ARINC 429

Pin Name	Function	Connector	Pin	I/O
ARINC 429 IN 1A	AHRS	P6202	4	In
ARINC 429 IN 1B	AHRS	P6202	21	In
ARINC 429 IN 2A	ADC	P6202	5	In
ARINC 429 IN 2B	ADC	P6202	22	In
ARINC 429 IN 3A	GPS 1	P6202	6	In
ARINC 429 IN 3B	GPS 1	P6202	23	In
ARINC 429 IN 4A	NAV 1	P6202	7	In
ARINC 429 IN 4B	NAV 1	P6202	24	In
ARINC 429 IN 5A	GPS 2	P6202	8	In
ARINC 429 IN 5B	GPS 2	P6202	25	In
ARINC 429 IN 6A	NAV 2	P6202	9	In
ARINC 429 IN 6B	NAV 2	P6202	26	In
ARINC 429 IN 7A	TRAFFIC SYSTEM	P6203	4	In
ARINC 429 IN 7B	TRAFFIC SYSTEM	P6203	26	In

Pin Name	Function	Connector	Pin	I/O
ARINC 429 IN 8A	EXTERNAL TAWS	P6203	5	In
ARINC 429 IN 8B	EXTERNAL TAWS	P6203	27	In
ARINC 429 OUT 1A	AHRS	P6202	3	Out
ARINC 429 OUT 1B	AHRS	P6202	20	Out
ARINC 429 OUT 2A	ADC	P6203	1	Out
ARINC 429 OUT 2B	ADC	P6203	23	Out
ARINC 429 OUT 3A	GPS 1	P6203	2	Out
ARINC 429 OUT 3B	GPS 1	P6203	24	Out
ARINC 429 OUT 4A	NAV 1	P6203	3	Out
ARINC 429 OUT 4B	NAV 1	P6203	25	Out

The ARINC 429 outputs conform to ARINC 429 electrical specifications when loaded with up to five standard ARINC 429 receivers.

Refer to Section 5.5.1.8 for configuration information.

4.2.3.3   Ethernet

Pin Name	Function	Connector	Pin	I/O
ETHERNET IN 1A	GDL 69/69A	P6201	11	In
ETHERNET IN 1B	GDL 69/69A	P6201	12	In
ETHERNET OUT 1A	GDL 69/69A	P6201	13	Out
ETHERNET OUT 1B	GDL 69/69A	P6201	14	Out
ETHERNET IN 2A	GWX 68	P6201	30	In
ETHERNET IN 2B	GWX 68	P6201	31	In
ETHERNET OUT 2A	GWX 68	P6201	32	Out
ETHERNET OUT 2B	GWX 68	P6201	33	Out

This Ethernet based HSDB (High Speed Data Bus) meets the hardware aspects of IEEE standard 802.3 for 10 base T Ethernet communications.

4.2.3.4   RS-422/RS-485

Pin Name	Function	Connector	Pin	I/O
RS-422/RS-485 1A	S-TEC 55X	P6203	9	I/O
RS-422/RS-485 2A		P6203	10	I/O
RS-422/RS-485 3A		P6203	11	I/O
RS-422/RS-485 4A		P6203	12	I/O
RS-422/RS-485 1B	S-TEC 55X	P6203	31	I/O
RS-422/RS-485 2B		P6203	32	I/O
RS-422/RS-485 3B		P6203	33	I/O
RS-422/RS-485 4B		P6203	34	I/O

The RS-422/485 ports conform to EIA Standard RS-485 (RS-422 when configured as RS-422) with a differential output voltage swing of at least ± 1.5V when driving a standard RS-422/485 load.

The serial ports can receive/transmit serial data from/to various sources.

Refer to section 5.5.1.9 for configuration information.

4.2.4 Lighting

Pin Name	Connector	Pin	I/O
LIGHTING BUS HI	P6202	15	In
LIGHTING BUS LO	P6202	16	In

The GDU 620 display and keys can be configured to track 28 VDC, 14 VDC, 5 VDC, or 5 VAC lighting buses using this input. Alternatively, the GDU 620 display and keys can automatically adjust for ambient lighting conditions based on the photocells on the front of the unit.

Refer to section 5.5.1.3 for configuration information.

4.2.5 Autopilot Interfaces

The GDU 620 is capable of interfacing to numerous autopilots using the interfaces described below.

Refer to section 5.5.5.1 for configuration information.

4.2.5.1 Heading and Course Datum Output

Pin Name	Connector	Pin	I/O
A/P HEADING ERROR HI	P6203	18	Out
A/P COURSE ERROR HI	P6203	19	Out
A/P AC REF HI	P6203	20	In
A/P HEADING ERROR LO	P6203	40	Out
A/P COURSE ERROR LO	P6203	41	Out
A/P AC REF LO	P6203	42	In
GPSS ENABLE IN*	P6202	8	In

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

The GDU 620 provides AC or DC heading and course datum outputs based upon the setting of the heading bug and course pointer on the HSI. An input for AC reference voltage is also provided and is used with autopilots that use AC datums.

When the GPSS Enable In* input is grounded, the heading datum output will be based upon GPSS information received from the selected navigator. Refer to Section 4.2.7.3 for additional details.

Refer to section 5.5.5.1 for configuration information.

4.2.5.2 Deviation Outputs

Pin Name	Connector	Pin	I/O
LATERAL +LEFT OUT	P6203	52	Out
LATERAL +RIGHT OUT	P6203	53	Out
VERTICAL +UP OUT	P6203	56	Out
VERTICAL +DOWN OUT	P6203	57	Out

Each deviation output provides ±150 mV full scale and is capable of driving up to a 333Ω load, (i.e. up to a maximum of three 1kΩ loads connected in parallel).

4.2.5.3   Flag Outputs

Pin Name	Connector	Pin	I/O
LATERAL +FLAG OUT	P6203	54	Out
LATERAL -FLAG OUT	P6203	55	Out
VERTICAL +FLAG OUT	P6203	58	Out
VERTICAL -FLAG OUT	P6203	59	Out

Each low-level flag output provides 375 mV when valid information is present and is capable of driving up to a 333Ω load, (i.e. up to a maximum of three 1kΩ loads connected in parallel).

4.2.5.4   Superflag Outputs

Pin Name	Connector	Pin	I/O
LATERAL SUPERFLAG OUT	P6203	60	Out
VERTICAL SUPERFLAG OUT	P6203	61	Out

Each superflag output provides (V_{in} – 2) volts relative to ground when valid information is present, where V_{in} represents the aircraft power supplied to the GDU 620. Each output is capable of supplying up to 250 mA.

4.2.6 Flight Director Interface

Pin Name	Connector	Pin	I/O
FLIGHT DIRECTOR PITCH UP	P6201	15	In
FLIGHT DIRECTOR PITCH DOWN	P6201	16	In
FLIGHT DIRECTOR ROLL LEFT	P6201	34	In
FLIGHT DIRECTOR ROLL RIGHT	P6201	35	In

The flight director pitch and roll analog inputs allow an external source (usually an autopilot) to control the display of the flight director bars on the GDU 620.

The flight director interface has a discrete input associated with it. When configured for an external flight director, this input is used by the GDU 620 to determine whether or not to display the FD bars. Refer to Section 4.2.7.4 for additional details.

Refer to Section 5.5.5.2 for configuration information.

4.2.7 Discrete Inputs

Pin Name	Connector	Pin	I/O
AUDIO INHIBIT IN* (*function not currently implemented*)	P6201	3	In
CDU SYSTEM ID PROGRAM*	P6201	4	In
SPARE DISC IN* 4	P6201	5	In
SPARE DISC IN* 5	P6201	6	In
SPARE DISC IN* 6	P6201	7	In
GPSS ENABLE IN*	P6201	8	In
FD ENABLE IN	P6201	9	In
SPARE DISC IN 9	P6201	10	In
DEMO MODE SELECT*	P6202	36	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.

Active-low discrete inputs are considered active if either the voltage to ground is <3.5 VDC or the resistance to ground is <375Ω. These inputs are considered inactive if the voltage to ground is 6.5-33 VDC or the resistance to ground is >100 kΩ.

Active-high discrete inputs are considered active if either the voltage to ground is > 6.5 VDC. These inputs are considered inactive if the voltage to ground is < 3.5 VDC or the resistance to ground is < 375 Ω.

The GDU 620 has 10 discrete inputs (eight active-low and two active-high) and eight active-low discrete outputs. These are user-configurable and support interfacing to a wide variety of systems.

4.2.7.1   Audio Inhibit In* *(function not currently implemented)*

The Audio Inhibit discrete input may be used to suppress the aurals out of the GDU 620. A low on this input will cause any output on the message audio output (see section 4.2.12) to be suppressed while this input is held low.

4.2.7.2   CDU System ID Program*

The CDU System ID Program input is used to determine if the GDU 620 is the #1 or #2 display in a dual GDU installation. Leave this input open for single GDU installations, or if the GDU 620 is the #1 display. Connect this input to P6201-22 (ground) if the GDU 620 is the #2 display.

4.2.7.3   GPSS Enable In*

The GPSS Enable In discrete input may be used to enable the GPS Steering (roll steering) function of the GDU 620. When the GPSS function is enabled, the heading datum (heading error) output to the autopilot will be driven based upon the roll steering command received from the selected GPS. A low on this input will enable the GPSS function. An open on this input will disable the GPSS function and the heading datum output will be based upon the setting of the heading bug.

4.2.7.4   FD Enable In

The FD Enable In discrete input is used to determine whether or not the FD bars should be displayed. A high on this input will cause the FD bars to be displayed based upon the flight director inputs (refer to Section 4.2.6). A low or open on this input will cause the FD bars to be removed.

4.2.7.5   Demo Mode Select*

The Demo Mode Select discrete input may be used to select Demo Mode on the GDU 620. A low on this pin at time of unit power-up invokes the Demo Mode. Demo Mode allows the GDU 620 to simulate inputs from the remainder of the G600 system.

CAUTION

⚠️   Do not connect DEMO MODE SELECT in an aircraft installation.

4.2.8 Discrete Outputs

Pin Name	Connector	Pin	I/O
TAWS AUDIO ACTIVE OUT* (*function not currently implemented*)	P6201	23	Out
ALTITUDE CAPTURE* (*function not currently implemented*)	P6201	24	Out
A/P BACKCOURSE* (*function not currently implemented*)	P6201	25	Out
TIA/TAS STANDBY*	P6201	26	Out
TAS TEST*	P6201	27	Out
GPS ANNUNCIATE*	P6203	44	Out
GPS SELECT*	P6203	45	Out
ILS/GPS APPROACH*	P6203	46	Out
WX RADAR ON*(*function not currently implemented*)	P6203	47	Out

An asterisk (*) following a signal name denotes that the signal is Active-Low, producing a low (ground) on the output when active.

All discrete outputs from the GDU 620 are Active-Low. Each is an "open drain" output capable of sinking 250 mA when active.

4.2.8.1   TAWS Audio Active Out* (*function not currently implemented*)

The TAWS Audio Active discrete output may be used to suppress the aurals of a lower priority system. This output is pulled low whenever TAWS audio alerts are active. It is open otherwise.

4.2.8.2   TIS/TAS Standby* and TAS Test*

These discrete outputs are used to control compatible traffic systems.

The operation of these outputs is determined by the type of traffic system that is configured. Refer to section 5.5.1.1.

4.2.8.3   GPS ANNUNCIATE*

The GPS annunciate output is driven low whenever GPS data is selected for display on the HSI. It is open otherwise.

4.2.8.4   GPS SELECT*

The GPS Select Output is driven low when GPS data is being displayed on the CDI/HSI and the ILS/GPS Approach Output is not active. It is intended for use with autopilots having a GPS Select input (such as the Bendix/King KAP 140 and KFC 225), so that the autopilot can capture vertical guidance while GPS data is being displayed on the CDI/HSI.

4.2.8.5 ILS/GPS APPROACH*

The ILS/GPS Approach Output is driven low when:

- GPS navigation is selected on the CDI and the selected GPS receiver is in Approach mode, or

- VLOC navigation is selected on the CDI and the selected navigation receiver has an ILS channel tuned.

This output is open otherwise.

This output may be connected to the ILS Energize input of an autopilot or flight director to provide higher autopilot gain while the selected navigation source is in the ILS or GPS Approach modes of operation.

4.2.8.6   WX Radar On* (*function not currently implemented*)

The WX Radar On Output is driven low when the GDU 620 commands an external ARINC 708 weather radar ON. This output is open otherwise.

4.2.8.7   Altitude Capture* *(function not currently implemented)*

The Altitude Capture discrete output is provided for the autopilot to indicate when to capture the altitude based on the altitude alerter setting. This discrete is momentarily driven low to command the autopilot to capture the current altitude. It is open otherwise.

4.2.8.8   A/P Backcourse* *(function not currently implemented)*

The A/P Backcourse discrete output is provided for the autopilot to indicate when a backcourse is active. This discrete is driven low when a localizer is selected as the navigation source for the CDI and the course pointer is more than 90° from the current aircraft heading. It is open otherwise.

4.2.9 ADF Input

Pin Name	Connector	Pin	I/O
ADF X/COS IN	P6201	17	In
ADF Y/SIN IN	P6201	18	In
ADF DC REF IN	P6201	36	In

The GDU 620 has one interface that allows ADF bearing to be displayed on the HSI as a bearing pointer. This input allows ADFs that provide a DC SIN/COS output to be connected to the GDU 620. No ability to control the ADF is provided in the GDU 620.

The ADF input is automatically configured for proper operation by the type of ADF specified. Refer to section 5.5.1.1.

4.2.10 ARINC 453/708 Inputs

Pin Name	Connector	Pin	I/O
ARINC 708/453 IN 1A	P6203	14	In
ARINC 708/453 IN 1 TERM A	P6203	15	In
ARINC 708/453 IN 2A	P6203	16	In
ARINC 708/453 IN 2 TERM A	P6203	17	In
ARINC 708/453 In 1B	P6203	36	In
ARINC 708/453 IN 1 TERM B	P6203	37	In
ARINC 708/453 In 2B	P6203	38	In
ARINC 708/453 IN 2 TERM B	P6203	39	In

The GDU 620 has two ARINC 453/708 inputs. These inputs are not currently used.

4.2.11 Time Mark Input

Pin Name	Connector	Pin	I/O
TIME MARK IN 1A	P6202	40	In
TIME MARK IN 1B	P6202	41	In
TIME MARK IN 2A	P6202	42	In
TIME MARK IN 2B	P6202	43	In

The GDU 620 has two differential time mark inputs, one provided for each GPS input. These inputs comply with Attachment 8 of ARINC 743A. These are used to accurately determine the time of GPS messages that are sent to the GRS 77 AHRS.

4.2.12 Message Audio Output

Pin Name	Connector	Pin	I/O
AUDIO OUT HI	P6201	28	Out
AUDIO OUT LO	P6201	29	Out

The GDU 620 has one 500 Ω audio output that can be connected to an audio panel to provide audible messages to the pilot. The audible alerts include the altitude alerter chimes.

The message audio also has a discrete output associated with it. This discrete can be used to suppress it or suppress other systems. Refer to Section 4.2.7.1 for additional details.

4.2.13 Composite Video Inputs

Pin Name	Connector	Pin	I/O
COMPOSITE VIDEO IN 1	P6201	1	In
COMPOSITE VIDEO IN 2	P6201	20	In

The GDU 620 has two composite video inputs. These inputs are not currently used.

5. SYSTEM CONFIGURATION AND CHECKOUT

5.1 Post Installation Power Check

Verify that all cables are properly secured and shields are connected to the shield block of the connector. Check the movement of the flight and engine controls to verify that there is no interference. Ensure wiring is installed in accordance with AC 43.13-1B, Chapter 11. Verify that the power and ground leads are correct.

5.2 GDU 620 Software Loading

Prior to using the GDU 620 display, its software should be updated as follows:

1. Pull the GDU circuit breaker.

2. Insert the current GDU 620 Main Loader Card P/N 010-00678-( ) into the top card slot.

3. Insert the Installer Unlock Card P/N 010-00769-60 into the bottom card slot.

4. While holding the ENT key, restore power by closing the GDU circuit breaker.

5. When the words `INITIALIZING SYSTEM` appear in the upper center of the PFD/MFD, release the ENT key.

6. Press the ENT key to acknowledge the following prompt:

   ```
   DO YOU WANT TO UPDATE SYSTEM FILES?
   PRESS ENT KEY FOR YES OR CLR KEY FOR NO.
   NO WILL BE ASSUMED IN 11 SECONDS.
   ```

7. The following item is displayed:

   ```
   UPDATING SYSTEM FILES
   DO NOT TURN OFF THE POWER
   ```

8. New software is loaded to the GDU. When complete, the following screen is displayed:

   ```
   UPDATED 83 FILES SUCCESSFULLY!
   PRESS ANY KEY TO CONTINUE.
   CONTINUING IN 7 SECONDS.
   ```

9. Press any soft key to acknowledge the prompt, and the GDU starts in configuration mode.

5.3 Initial Configuration of the GDU 620

As part of the initial configuration, the GDU 620 functions must be enabled/disabled as desired, external data sources must be configured, and miscellaneous options must be set up. To do this an Installer Unlock Card (P/N 010-00769-60) must be inserted, and the unit must be started in configuration mode by pressing and holding the ENT button while applying power.

When in configuration mode the left display has only one page that is used to display status and product information. The right display has multiple pages that are used to configure and checkout the installation of the GDU 620.

NOTE

To access all of the configuration screens shown herein, an Installer Unlock Card P/N 010-00769-60 must be inserted in the bottom card slot prior to applying power to the GDU 620.

5.4 GDU 620 System Status Page (Left Side)

This page is used as information reference only; it is not configurable.
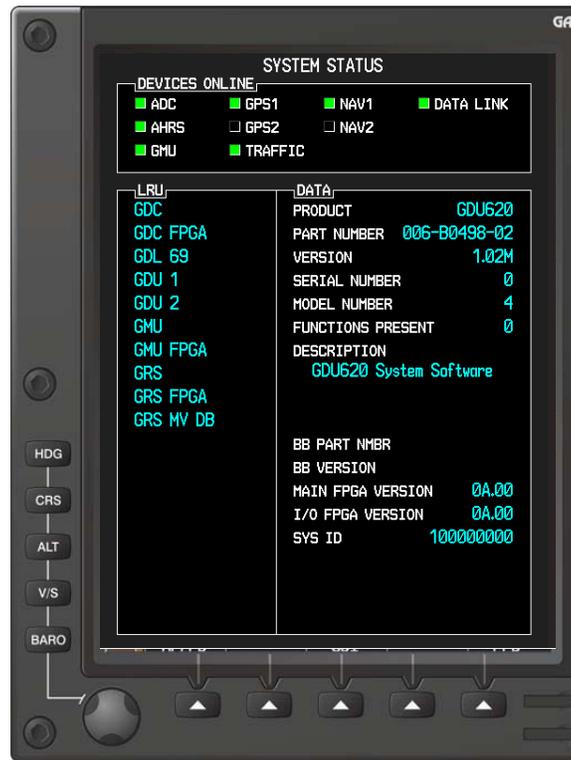
Figure 5-1. PFD Screen of GDU 620

DEVICES ONLINE Window:

1. Green Light: The device is configured as Present and valid data is being received as expected from the device.
2. Red Light: The device is configured as Present and invalid or no data is being received from the device.
3. No Light (Black): The device is configured as Not Present.

LRU and DATA Windows:

To navigate within the LRU window, push the PFD knob (left side knob) to activate the cursor. Turn the PFD knob to select an LRU. Once an LRU is highlighted, information about it will be displayed in the DATA window.

5.5 GDU 620 System Setup and Checkout Pages (Right Side)

The MFD knob (right hand dual concentric knob) is the primary control for the GDU 620 MFD. Operation is similar to the Garmin 400/500 Series units.

- To change page groups and cycle through different configuration screens, rotate the large MFD knob. The small MFD knob will change pages within the group.

- To activate the cursor for a page, press the small MFD knob directly in, as one would push a regular button.

- To cycle the cursor through different data fields, rotate the large MFD knob.

- To change the contents of a highlighted data field, rotate the small MFD knob. This action either brings up a menu with options for a particular field, or in some cases allows the operator to enter data for the field.

- To confirm a selection, press the ENT button.

- To cancel a selection, press the small MFD knob in or press the CLR key. Pressing the small MFD knob in again will deactivate the cursor.

Some configuration pages have commands or selections that are activated by the GDU 620 soft keys. If a soft key is associated with a command, that command will be displayed directly above the key. A grayed-out soft key shows a command that is unavailable. A highlighted soft key shows the current active selection.
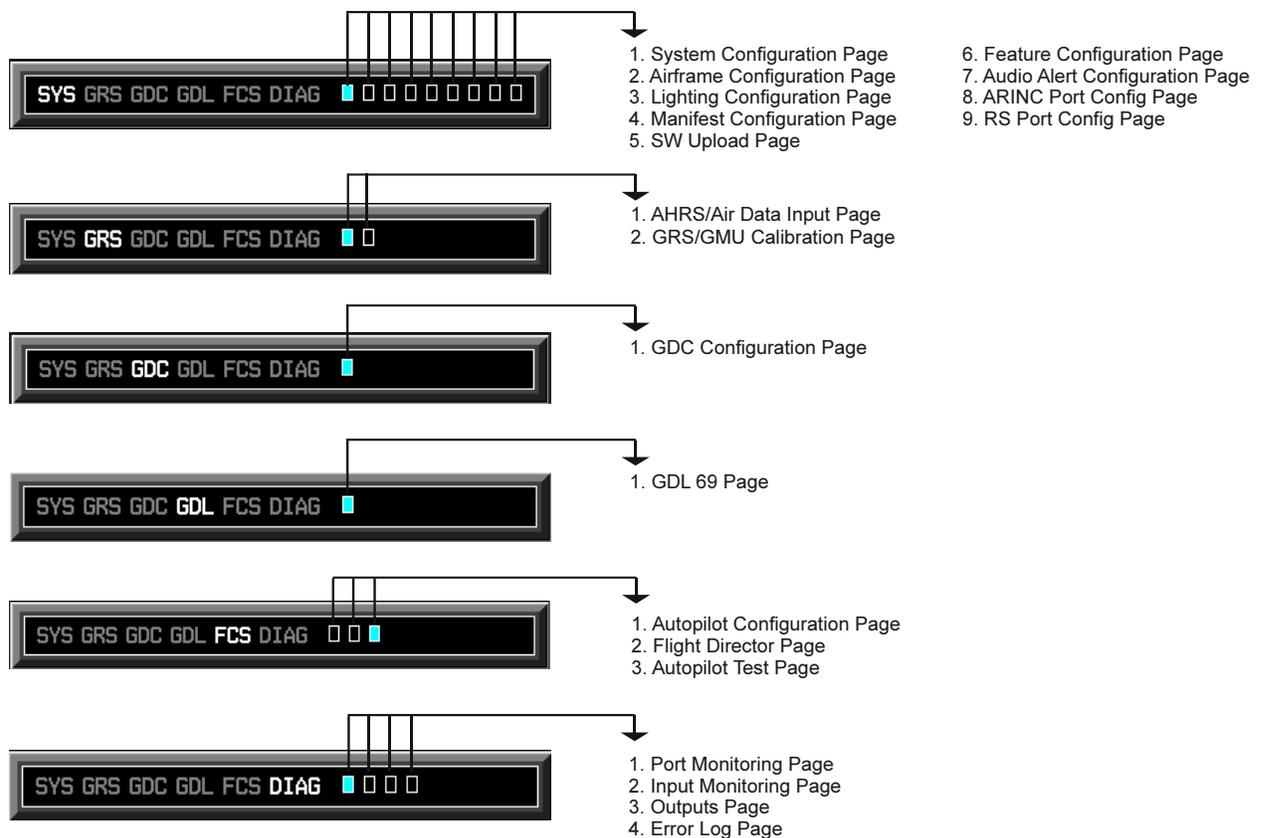
Figure 5-2. Configuration Page Navigation

5.5.1 System Page Group

Navigation of the different pages in the System Page Group is done by rotating the small MFD knob located on the bottom right hand corner of the unit.

5.5.1.1   System Configuration Page

This page allows the installers to select what LRUs are present and not present in a given installation.

```
                SYSTEM CONFIGURATION
      ┌INTERFACING SYSTEMS┐
                   PRESENT      TYPE
      Cross-side GDU    ■        GDU 620
      AHRS             ■        GRS 77
      ADC              ■        GDC 74
      GPS1             ■        GNS 480
      GPS2             ■        GPS 400W
      NAV1             ■        SL30
      NAV2             ■        GNS 480
      ADF              ■        KR 87
       + Superflag     ■
      Traffic          ■        Skywatch
       + External Control ■
      Data Link        ■        GDL 69A



      ┌────────────────────────────────────┐
      │ SYS GRS GDC GDL FCS DIAG ■□□□□□□□□ │
      └────────────────────────────────────┘
```

Activate the cursor, select the system using the large MFD knob, and then press the ENT button. This will activate or deactivate the highlighted system. For activated systems, use the small knob to select the appropriate LRU from the dropdown TYPE menu, and then press enter to select the LRU.

Continue to activate or deactivate each LRU, as required.

A green light means that the LRU is configured as 'present'. No light (black) means that the LRU is configured as 'not present' (the TYPE field will be blank in this case).

INTERFACING SYSTEMS Window:

1. **Cross-side GDU Type,** *Selections: GDU 620 is the only selection.*

2. **AHRS Type**, *Selections: GRS 77 is the only selection.*

3. **ADC Type**, *Selections: GDC 74 is the only selection.*

4. **GPS1 Type**, *Selections: GPS 400W, GNC 420W, GNS 430W, GNS 480, GPS 500W, GNS 530W.*

5. **GPS2 Type**, *Selections: GPS 400W, GNC 420W, GNS 430W, GNS 480, GPS 500W, GNS 530W.*

NOTE

The SL30 can only be configured as NAV1 or NAV2, and not for both NAV receivers simultaneously.

6. **NAV1 Type**, *Selections: GNS 430W, GNS 480, GNS 530W, SL30.*

7. **NAV2 Type**, *Selections: GNS 430W, GNS 480, GNS 530W, SL30. (Only available if NAV1 has been activated.)*

8. **ADF Type,** *Selections: KDB 806/KFS 586, KR 87, RCR-650, ADF-60B.*

   +Superflag, Select superflag if the ADF provides a superflag output indicating that the bearing is valid; otherwise leave this unselected.

9. **Traffic Type,** *Selections: SkyWatch, SkyWatch HP, KTA 870, KTA 970, GTX 330.*

   +External Control, Select external control if there is an external controller for the traffic system. The GDU 620 will not be able to control the traffic system if this item is selected.

10. **Data Link Type,** *Selections: GDL 69, GDL 69A.*

Deactivate the cursor. Use the small knob to move to the next page.

5.5.1.2   Airframe Configuration Page

This page allows the installer to configure the PFD airspeed, altitude and vertical speed tape scales and appearance, MFD display, and GDL69 Audio.

NOTE

All PFD settings must match what is in the aircraft flight manual (AFM) or the pilot's operating handbook (POH).

Activate the cursor and use the MFD knob to select following configurable items.

PFD Window:

1. **DIS. SPD**, changes the units displayed on the airspeed tape. *Selections: Imperial (SM, MPH), Metric (KM, KPH), Nautical (NM, KT).*

2. **ALT. VS**, changes the units displayed on the altitude and vertical speed tapes. *Selections: Feet (FT, FPM) is the only selection.*

3. **VS TAPE RANGE**, changes the range of the vertical speed tape. *Selections: +/- 2000 FPM, +/- 3000 FPM, +/- 4000 FPM.*

Both ALT Tape Range and the IAS Tape Range settings are for information only and are based on the VS Tape Range setting.

4. **ADI Roll Pointer,** changes which pointer moves to indicate bank angle. *Selections: Ground, Sky*

MFD Window:

1. **DIS. SPD**, changes the distance and speed units displayed on the MFD. *Selections: Imperial (SM,MPH), Metric (KM, KPH), Nautical (NM, KT).*

2. **ALT. VS**, changes the altitude and vertical speed units on the MFD. *Selections: Feet (FT, FPM) is the only selection.*

3. **AIRCRAFT ICON**, changes the appearance of the ownship icon on the MFD map. *Selections: Low Wing, High Wing and Jet.*

AIRSPEEDS (PFD) Window: The following settings affect the markings on the airspeed tape. Refer to the AFM or POH to determine the appropriate settings for this installation.

1. **Vs0,** stall speed in landing configuration
2. **Vs1,** stall speed in a specific flight configuration
3. **Vfe,** flap extended speed
4. **Vno,** normal operating speed
5. **Vne,** never exceed speed
6. **GLIDE,** glide speed
7. **Vr,** takeoff rotation speed
8. **Vx,** best angle of climb speed
9. **Vy,** best rate of climb speed
10. **Vle,** landing gear extended speed (set to OFF for fixed gear aircraft)
11. **Vmca,** minimum controllable airspeed for a twin engine aircraft with only one engine operational (set to OFF for single engine aircraft)
12. **Vyse,** single engine best rate of climb speed for a twin engine aircraft (set to OFF for single engine aircraft)

Deactivate the cursor to move to the next page.

5.5.1.3 Lighting Configuration Page

This page allows the installer to set parameters that affect the display backlight and key lighting brightness.

```
              LIGHTING CONFIGURATION
  ┌BRIGHTNESS┐
                         DISPLAY    KEY

   INPUT SOURCE          28V DC     PHOTO
   SOURCE INPUT LEVEL    (PHOTO)    166
   BACKLIGHT OUTPUT LEVEL 166       166


   MINIMUM LEVEL         14         14
   RESPONSE TIME         4          4
   SLOPE                 50         50
   OFFSET                50         50


  ┌PHOTOCELL OVERRIDE┐
   PHOTOCELL LEVEL      166
   KEY BACKLIGHT CUTOFF %  80
   PHOTO TRANSITION %   25         OVERRIDE
   PHOTO SLOPE          50
   PHOTO OFFSET         50




  ┌─────────────────────────────────────┐
  │ SYS GRS GDC GDL FCS DIAG  □ □ ■ □ □ □ □ □ □ │
  └─────────────────────────────────────┘
```
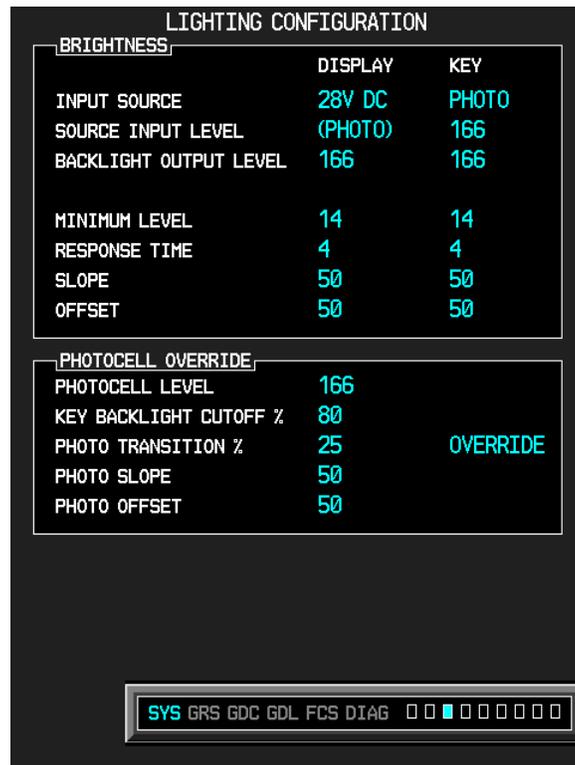
The DISPLAY and KEY lighting characteristics are adjusted separately, each with the following fields:

BRIGHTNESS Window:

1. **INPUT SOURCE**, this selection determines if the display brightness control is controlled by the photo cell or the dimming bus input. *Selections: Photo, 14V DC, 28V DC, 5V DC, 5V AC.*

Source Input Level and Backlight Output Level cannot change the display information about the current GDU620 screen settings.

2. **MINIMUM LEVEL**, sets the minimum brightness of the display. The higher the number, the brighter the minimum brightness. Display Minimum Level has a range of 5 and higher. Key Minimum Level has a range of 14 and higher. It is prudent to verify that display and key lighting characteristics match those of other equipment in the panel under night lighting conditions.

3. **RESPONSE TIME**, sets the speed with which the brightness responds to the input level (bus voltage or ambient light) changes. The higher the number the slower the display responds. This field has a range of 2-7.

4. **SLOPE**, sets the sensitivity of the display brightness in proportion to changes in the input level. The higher the number, the brighter the display is for a given increase in the input level. This field has a range of 0 to 99.

5. **OFFSET,** adjusts the lighting level up or down for any given input level. This field has a range of 0 to 99. This may also be used to match lighting curves with other equipment in the panel.

PHOTOCELL OVERRIDE Window:

1. **PHOTOCELL LEVEL,** the ambient light level that the photo cell is reading. This level cannot be adjusted; it is for informational purposes only.

NOTE

If the key lighting is set to track the photocell (the key input source is set to PHOTO), and the photocell input is above a certain level (daytime) the key backlighting will be switched off using the additional parameter described below.

2. **KEY BACKLIGHT CUTOFF %** - When the photocell input is used to control the lighting of the bezel keys this parameter sets the point on the photocell input above which the key lighting is switched off. This field has a range of 20 to 99.

NOTE

If the display lighting is set to track the lighting bus, (the display input source is set to any selection other than PHOTO) and the lighting bus control is turned to its minimum (daytime) setting, the display brightness tracks the GDU 620 unit's photocell using additional parameters described below.

3. **PHOTO TRANS %** - When a lighting bus is used to control the lighting of the display, this parameter sets the points on the lighting bus below which the display brightness tracks the GDU 620 photocell. This field has a range of 0 to 99.

4. **PHOTO SLOPE & PHOTO OFFSET** – These fields are equivalent to the SLOPE/OFFSET fields described above, with the exception that they only control the display lighting characteristics when the lighting bus control is below the level specified in the PHOTO TRANS % field. Both fields have a range of 0 to 99.

5.5.1.4 Manifest Configuration Page

This page allows the installer to enter or verify the software versions used in a particular installation.

```
              MANIFEST CONFIGURATION
 ┌MANIFEST┐
              PART NUMBER        VERSION
              006-B0261-12       3.02
              006-C0055-00       01.05
              006-B0317-14       3.20.00
              006-B0224-00       2.01
              006-C0048-00       2.00
              006-B0223-06       2.08
              006-C0049-00       02.00
              006-B0498-02       2.00




 ┌MANIFEST┐
```

The "manifest" consists of software part numbers and versions for various G600 LRUs. When the system is powered up in normal mode, the GDU 620 verifies the software part numbers and versions reported by the system LRUs against those listed in the manifest. If they agree, the system operates normally. If they disagree, communication with that LRU is stopped and a MANIFEST alert is set by the system.

NOTE

Upon first use, the manifest is empty and this page has no entries.

NOTE

When using the MANIFEST soft key, ensure that all configured LRUs show up as online in the DEVICES ONLINE window **before** pressing the MANIFEST soft key. The GDU 620 will only write the information for LRUs that have reported information. If an LRU has not reported information when the MANIFEST soft key is pressed, that LRU will automatically be removed from the manifest.

MANIFEST Soft Key: Pressing this soft key causes all LRU-reported software part numbers and versions to be written to the manifest. To edit individual items proceed as described below:

MANIFEST Window:

Activate the cursor and select the part number or version number that you wish to edit. Turn the small knob one click to begin editing the first digit in the part number or version number. Use the large knob to select the digit to be changed, and the small knob to change the value of the selected digit. When done, press ENT to accept the changes. The cursor automatically moves to the next editable field. When finished, press the small knob to deactivate the cursor.

5.5.1.5 Software Upload Page

This page allows the installer to load software to various LRUs in the system.

```
                    SOFTWARE UPLOAD
    ┌FILE LIST┐
     GDC74 BB VER 2.05          006-B0261-BD
    ➡GDC74 VER 3.02             006-B0261-12
     GDL69 VER 3.20.C           006-B0317-13
     GMU44 VER 2.01             006-B0224-00
     GRS77 BB VER 2.10          006-B0223-BJ
     GRS77 VER 2.11             006-B0223-09

    ┌LRU┐
    ➡GDC                            3.02

    ┌SUMMARY┐
    Upload: GMU SYSTEM SW...COMPLETED
    Upload: GMU FPGA...COMPLETED
    Upload: GRS SYSTEM SW...COMPLETED

         SYS GRS GDC GDL FCS DIAG □□□□■□□□□
    ┌UPDT CFG┐  LOAD   ┐  FILE  ┐   LRU  ┐  SUMMARY
```
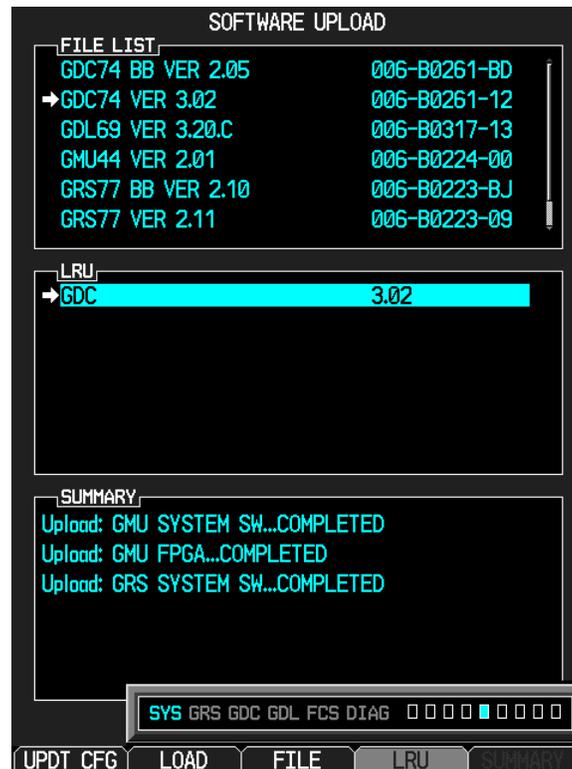
FILE LIST Window:

The FILE LIST window lists the software part numbers and versions that are on the currently installed loader card. This window is selected by pressing the **FILE** soft key. Rotate the large knob to select the software file which is to be loaded.

CAUTION

Pressing the CANCEL soft key to cancel a software load that is in progress can cause the LRU to stop functioning properly.

LRU Window:

Based upon the file selected in the FILE window, the LRU window lists the target LRU and the version of LRU software *on the currently installed loader card*. This window is selected by pressing the **LRU** soft key. Rotate the large knob to select which LRU is to be loaded (generally there will only be one selection). When the correct LRU is selected, press the **LOAD** soft key to begin loading software to that LRU. The **LOAD** soft key will be replaced with a **CANCEL** soft key. Pressing the **CANCEL** soft key will cause the LRU software load to be stopped.

SUMMARY Window:

The SUMMARY window lists the status of each software load initiated. This window is selected by pressing the **SUMMARY** soft key. If there are too many loads to be completely displayed in the SUMMARY window, the large knob may be rotated to scroll through and display the status information for all loads.

UPDATE CFG Soft key:

Pressing the **UPDT CFG** soft key causes all PFD configuration data to be written to the configuration module.

5.5.1.6   Feature Configuration Page

This page allows the installer to enable optional GDU 620 features using an appropriate unlock card.

```
                    FEATURE CONFIGURATION
 ┌FEATURES┐
 │                  SET          ACTIVE
 │ CHARTS           FliteCharts  FliteCharts
 │ Altitude Preselect  Disabled  Disabled
```

```
SYS GRS GDC GDL FCS DIAG  □□□□□■□□□
```
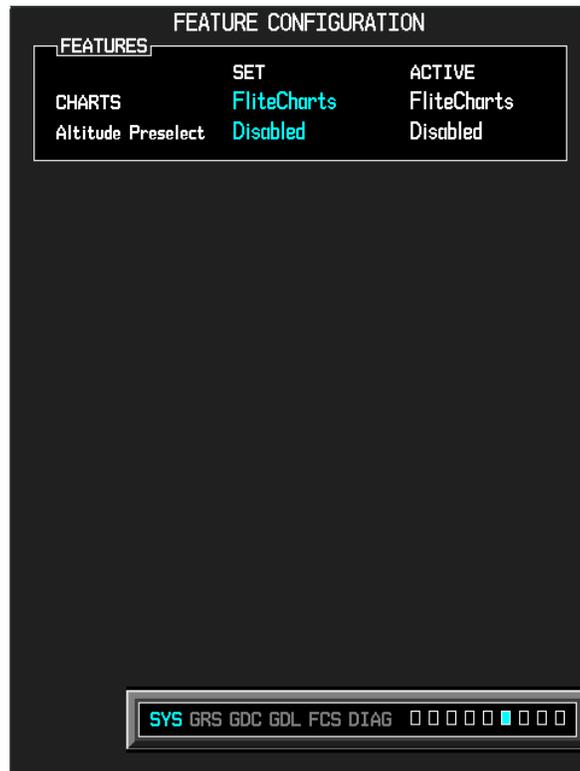
FEATURES Window:

Activate the cursor to select from the following fields:

1. **CHARTS:** determines the type of charts to be displayed. *Selections: None, FliteCharts, ChartView (ChartView requires an unlock card to enable. Refer to section 2.2.3 for information on available activation kits).*

2. **Altitude Preselect:** used to enable autopilot altitude capture based upon the GDU 620 altitude bug. *Selections: Enabled, Disabled. (Altitude Preselect requires and unlock card to enable. Refer to section 2.2.3 for information on available activation kits).*

5.5.1.7   Audio Alert Configuration Page

This page allows the installer to adjust the GDU 620 audio output volume level and play an audio message to evaluate the new volume setting.

```
                 AUDIO ALERT CONFIGURATION
     ┌CONFIG┐
     │ VOLUME ADJUST    0dB                        │
     └──────────────────────────────────────────┘

     ┌TEST┐
     │ AUDIO MSG        Altitude Alert             │
     │                                             │
     │                    │PLAY│                   │
     └──────────────────────────────────────────┘




                  ┌─────────────────────────────┐
                  │ SYS GRS GDC GDL FCS DIAG  □□□□□□■□□ │
                  └─────────────────────────────┘
```
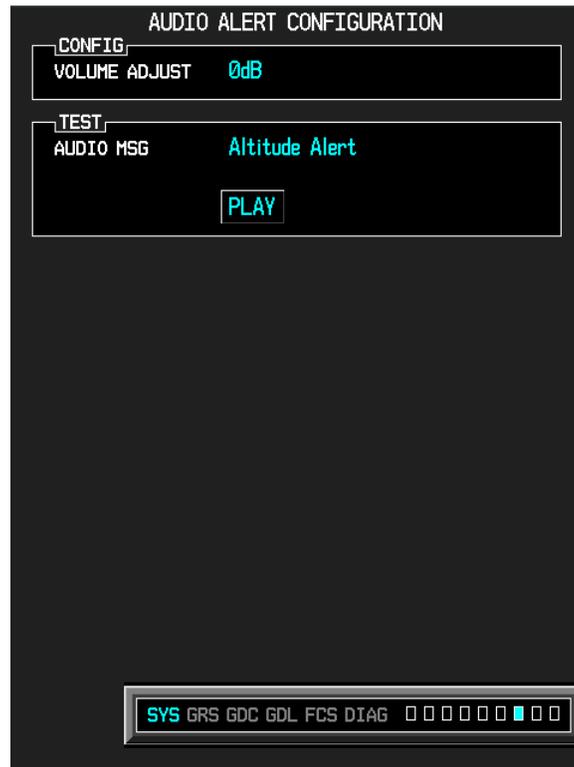
Activate the cursor to select from the following:

CONFIG Window:

1. **VOLUME ADJUST**, selects level of volume. Selections: -40dB to 0dB in 1 dB increments.

TEST Window:

1. **AUDIO MSG**, selects the stored message to be played. *Selections: Altitude alert is the only selection.*

Move the cursor to the **PLAY** box and press ENT button to play the message.

5.5.1.8 ARINC Port Configuration Page

This page is for displaying port setting information only. No configuration is required. Port configuration is automatically set based upon which LRUs are configured as present (refer to section 5.5.1.1).

```
                    ARINC PORT CONFIG
  ┌ARINC 429 INPUT┐
   CHNL  DATA SPEED     INPUT
   IN 1   ☐   High     GRS77 #1
   IN 2   ☐   Low      GDC74 #1
   IN 3   ☐   High     GPS1
   IN 4   ☐   Low      OFF
   IN 5   ☐   High     GPS2
   IN 6   ☐   Low      NAV2
   IN 7   ☐   High     TRAFFIC
   IN 8   ☐   Low      OFF

  ┌ARINC 429 OUTPUT┐
   CHNL      SPEED     OUTPUT
   OUT 1     Low       GPS NAVIGATOR
   OUT 2     Low       AUTOPILOT
   OUT 3     Low       OFF
   OUT 4     Low       OFF




        ┌─────────────────────────────────┐
        │ SYS GRS GDC GDL FCS DIAG  ☐☐☐☐☐☐☐■☐ │
        └─────────────────────────────────┘
```

ARINC 429 INPUT Window:

1. Green Light: The device is configured as 'Present' and data is being received on this input.

2. No Light (Black): The device is configured as 'Not Present' (OFF is set for INPUT), or the device is configured as 'Present' and no data is being received on this input.

5.5.1.9 RS Port Configuration Page

This page is for displaying port setting information only. No configuration is required. Port configuration is automatically set based upon which LRUs are configured as present (refer to section 5.5.1.1).

```
                    RS PORT CONFIG
 ┌RS-232┐
  CHNL  DATA INPUT          OUTPUT
  CHNL 1  □   GRS77          GRS77
  CHNL 2  □   GDC74          GDC74
  CHNL 3  □   GPS1           GPS1
  CHNL 4  □   GPS2           GPS2
  CHNL 5  □   SL30           SL30
  CHNL 6  □   OFF            OFF
  CHNL 7  □   OFF            OFF
  CHNL 8  □   OFF            OFF




                    SYS GRS GDC GDL FCS DIAG  □□□□□□□□■
```

RS-232 Window:

1. Green Light: The device is configured as 'Present' and data is being received on this input.

2. No Light (Black): The device is configured as 'Not Present' (OFF is set for INPUT), or the device is configured as 'Present' and no data is being received on this input.

5.5.2 GRS Page Group

5.5.2.1 AHRS/Air Data Input Page

This page is used to monitor inputs to the GRS 77. There are no selectable items on this page. The parameters are as described below.

AHRS Window:

> **T HDG,** True heading value input from GRS 77, expressed in degrees.
>
> **ROLL,** Roll value input from GRS 77, expressed in degrees.
>
> **PTCH,** Pitch value input from GRS 77, expressed in degrees.
>
> **YAW RATE,** Yaw rate value input from GRS 77, expressed in degrees/sec.
>
> **ROLL RATE,** Roll rate value input from GRS 77, expressed in degrees/sec.
>
> **PITCH RATE,** Pitch rate value input from GRS 77, expressed in degrees/sec.
>
> **X ACC,** X Axis acceleration value, expressed in m/s².
>
> **Y ACC,** Y Axis acceleration value, expressed in m/s².
>
> **Z ACC,** Z Axis acceleration value, expressed in m/s².
>
> **VERT ACC,** Vertical acceleration value, expressed in m/s².

Air Data Window:

> **SAT,** Static Air Temperature measurement input from GDC, expressed in degrees Centigrade.
>
> **TAT,** Total Air Temperature measurement input from GDC, expressed in degrees Centigrade.
>
> **IAS,** Indicated Air Speed measurement input from GDC, expressed in knots.
>
> **TAS,** True Air Speed measurement input from GDC, expressed in knots.
>
> **B ALT,** Barometric corrected altitude input from GDC, expressed in feet.
>
> **D ALT,** Density altitude input from GDC, expressed in feet.
>
> **P ALT,** Pressure altitude input from GDC, expressed in feet.

STATIC PRESS, Static pressure from GDC, expressed in inches.

DIFF PRESS, Differential pressure from GDC, expressed in inches.

MACH, Mach number

VERT SPD, Vertical speed from GDC, expressed in feet per minute.

5.5.2.2   GRS/GMU Calibration

This page allows installers to calibrate and test the GRS 77 installation.

SELECT PROCEDURE Window:

Activate the cursor to select the following procedures:

1. Pitch/Roll Offset
2. Magnetometer
3. Heading Offset
4. Engine Run-Up Test
5. Mag Interference Test

MONITOR Window:

HEADING, shows the magnetic heading from the GRS 77.

COMMUNICATION STATUS Window:

GPS, Shows status of GPS inputs from the GDU to GRS 77.

AIR DATA, Shows status of the air data input from GDC 74 to GRS 77.

MAGNETOMETER, Shows status of communication between GRS 77 and GMU 44.

BEFORE CALIBRATION Window:

This window shows the specific steps an installer needs to take in order to perform each of the calibration procedures. Press the ENT key to confirm that each step has been completed and to begin calibration. The CALIBRATE command cannot be selected UNTIL each step is performed and checked by the installer or technician.

5.5.3 GDC Page Group

5.5.3.1   GDC Configuration Page

This page allows the installers to configure the GDC 74A.

```
                    GDC CONFIGURATION
    ┌CONFIGURATION┐

    OAT
        GTP 59




                   ┌─────────────────────────────┐
                   │ SYS GRS GDC GDL FCS DIAG  ▮  │
                   └─────────────────────────────┘
```
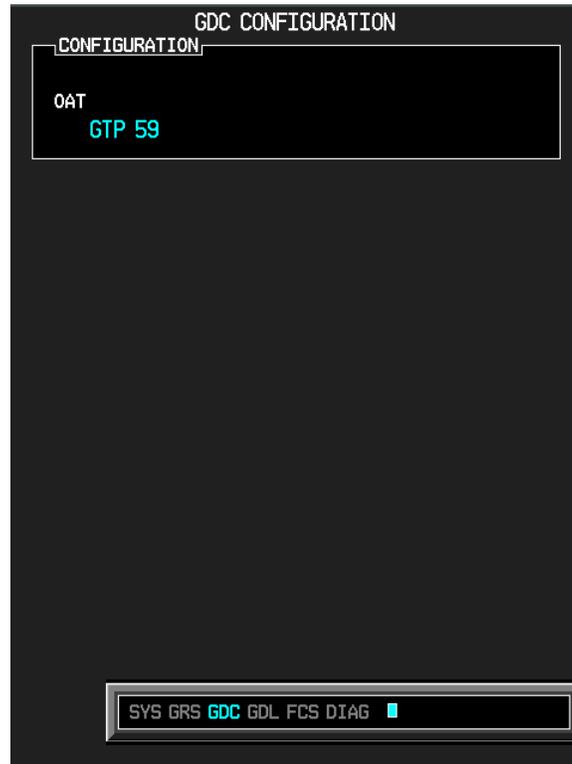
CONFIGURATION Window:

1. **OAT**, specifies the type of OAT probe connected to the GDC 74A. *Selections: None, GTP 59, Goodrich 102AU1AG, Harco 100723-2, ARINC TAT Input.*

5.5.4 GDL Page Group (Available only when GDL 69 Datalink present)

5.5.4.1 GDL 69 Page

This page allows installers to configure the GDL 69/69A.

```
                        GDL 69
    ┌CONFIGURATION┐
                              SET         ACTIVE
    ANTENNA GAIN (LOWER dB)   25.00
    CABLE LOSS (NOMINAL dB)   6.00
    TOTAL ATTENUATION (dB)    __.__       __.__

    ETHERNET PORT 2           DISABLE     DISABLE
    ETHERNET PORT 3           DISABLE     DISABLE
    ETHERNET PORT 4           DISABLE     DISABLE

    ┌DATA┐
                           AUDIO RADIO   DATA RADIO
    ID
    ACTIVE                  NO            NO
    SIGNAL                  0             0

    QUALITY OF SERVICE
    TERRESTRIAL ERROR STATUS
    SATELLITE 1 ERROR
    SATELLITE 2 ERROR
    TUNER STATUS


         SYS GRS GDC GDL FCS DIAG ▮

    SET>ACTV
```

CONFIGURATION Window:

NOTE

Refer to the GDL 69 Installation Manual (190-00322-02) for antenna gains and calculation of cable loss.

1. **ANTENNA GAIN (LOWER dB),** this is used to specify the antenna gain from 22.00 to 40.00 dB in 0.25 dB increments.

2. **CABLE LOSS (NOMINAL dB),** this is used to specify the antenna cable loss from 3.00 to 11.00 dB in 0.1 dB increments .

NOTE

The GDU 620 automatically calculates the total attenuation value that is required by the GDL 69/69A. The GDU 620 prevents the installer from entering antenna gain and cable loss values that result in a total attenuation that is outside the acceptable range of the GDL 69/69A.

3. **TOTAL ATTENUATION (dB)**, this field is automatically calculated based upon the antenna gain and cable loss values.

4. **ETHERNET PORT 2/3/4,** this is used to enable or disable Ethernet ports 2, 3, or 4 on the GDL 69/69A.

DATA Window:

1. **ID,** displays the identification number for the data (GDL 69/69A) and audio (GDL 69A) radios.

2. **ACTIVE,** displays the active status for the data (GDL 69/69A) and audio (GDL 69A) radios.

3. **SIGNAL,** displays the signal strength for the data (GDL 69/69A) and audio (GDL 69A) radios.

4. **QUALITY OF SERVICE,** displays the quality of service for the data (GDL 69/69A) and audio (GDL 69A) radios.

5. **TERRESTRIAL ERROR STATUS,** displays the terrestrial status for the data (GDL 69/69A) and audio (GDL 69A) radios.

6. **SATELLITE 1 ERROR,** displays the error status for satellite 1.

7. **SATELLITE 2 ERROR,** displays the error status for satellite 2.

8. **TUNER STATUS,** displays the tuner status for the data (GDL 69/69A) and audio (GDL 69A) radios.

The SET>ACTV soft key can be used to write the configuration settings that are stored in the GDU 620 configuration module to the GDL 69/69A. In general, this soft key would only be used when replacing a GDL 69/69A.

5.5.5 FCS Page Group (Flight Control System)

5.5.5.1   Autopilot Configuration Page

This page allows the installers to specify whether or not an autopilot is present in the installation. It also allows the installer to configure the type of autopilot and adjust parameters for a particular installation if necessary.

```
                AUTOPILOT CONFIGURATION
  ┌SYSTEM┐
                PRESENT        TYPE
    Autopilot      ■        King KI 525


  ┌CONFIGURATION┐
                        ACTIVE      DEFAULT
    AC/DC                 DC          DC
    HDG +               RIGHT       RIGHT
    CRS +               RIGHT       RIGHT
    HDG V/DEG           0.550       0.550
    CRS V/DEG           0.210       0.210
    V Min             -15.000     -15.000
    V Max              15.000      15.000
    V Ref               0.000       0.000
                       NONDFLT




    ┌─────────────────────────────────────┐
    │ SYS GRS GDC GDL FCS DIAG  ■ □ □     │
    └─────────────────────────────────────┘
```

SYSTEM Window:

1.   **AUTOPILOT,** specifies type of autopilot present. *Selections: Bendix IN-831, Century 2000, Century 21/31/41, Century II or III, Century IV, Century NSD 360 AC, Century NSD 360 DC, Cessna 400B AC, Cessna 400B DC, Collins APS-65, Collins PN 101, King KFC 250, King KFC 325, King KI 525, Sperry SPZ-500*

CONFIGURATION Window:

1.   **AC/DC,** type of error signal. *Selections: AC or DC.*
2.   **HDG +,** positive sense of the heading error signal. *Selections: Left or Right.*
3.   **CRS +,** positive sense of the course error signal. *Selections: Left or Right.*
4.   **HDG V/DEG**, scaling of the heading error signal. *Selections: 0.000 to 1.000.*
5.   **CRS V/DEG,** scaling of the course error signal. *Selections: 0.000 to 1.000.*
6.   **V Min,** minimum voltage output for error signals. *Selections:+18.000 to -18.000.*
7.   **V Max,** maximum voltage output for error signals. *Selections: +18.000 to -18.000.*
8.   **V Ref,** voltage output for 0° heading/course error signal. *Selections: +18.000 to -18.000.*

Once the Autopilot type has been selected the default values will be populated and displayed. If any changes are made to the default values, the message "MODIFIED NONDFLT" will be displayed on the screen.

5.5.5.2   Flight Director Page

This page allows the installers to configure the flight director.

```
                    FLIGHT DIRECTOR
  ┌SYSTEM┐
                PRESENT        TYPE
  Flight Director    ■       S-TEC® 55X


  ┌CONFIGURATION┐
                      ACTIVE        DEFAULT
  PITCH FILTER       ABSOLUTE       ABSOLUTE
  PITCH FILTER TIME    0.6            0.6
  PITCH +             DOWN           DOWN
  PITCH V/DEG         0.217          0.217
  PITCH ANGLE MAX     15.0           15.0
  PITCH ANGLE MIN    -10.0          -10.0
  PITCH V ref         0.000          0.000
  ROLL FILTER        RELATIVE       RELATIVE
  ROLL FILTER TIME     5.1            5.1
  ROLL +              LEFT           LEFT
  ROLL V/DEG          0.056          0.056
  ROLL ANGLE MAX      20.0           20.0
  ROLL V ref          0.000          0.000
                     NONDFLT

  ┌MONITOR┐
                    FD PITCH       FD ROLL
  INVALID           0.00°U         0.18°L
```

SYSTEM Window:

1. **FLIGHT DIRECTOR,** specifies type of flight director present. *Selections: S-TEC® 55X*

CONFIGURATION Window:

1. **PITCH FILTER,** specifies the type of pitch command filtering algorithm to be used. *Selections: Absolute or Relative.*
2. **PITCH FILTER TIME, +,** time constant (sec) for filtering applied to pitch axis of FD. A higher value corresponds to a slower response to the analog inputs. *Selections: 0.0 to 9.9.*
3. **PITCH +,** positive sense of flight director pitch input. *Selections: Up or Down*
4. **PITCH V/DEG,** scaling of flight director pitch input. *Selections: 0.000 to 9.999*
5. **PITCH ANGLE MAX,** maximum allowed pitch command. *Selections: 0 to 90 degrees.*
6. **PITCH ANGLE MIN,** minimum allowed pitch command. *Selections: -90 to 0 degrees.*
7. **PITCH V ref,** specifies voltage for 0° pitch command. *Selections: -15.000 to +15.000 volts.*
8. **ROLL FILTER,** specifies the type of roll command filtering algorithm to be used. *Selections: Absolute or Relative.*
9. **ROLL FILTER TIME,** time constant (sec) for filtering applied to roll axis of FD. A higher value corresponds to a slower response to the analog inputs. *Selections: 0.0 to 9.9.*
10. **ROLL +,** positive sense of flight director roll input, *Selections: Left or Right.*
11. **ROLL V/DEG,** scaling of flight director roll input. *Selections: 0.000 to 9.999*
12. **ROLL V ref,** specifies voltage for 0° pitch command. *Selections: -15.750 to +15.750 volts.*

MONITOR Window:

This window is used to monitor the flight director inputs into the GDU 620. There are no selectable items in this window. The parameters are as defined below:

1. **VALID/INVALID,** state of the FD Enable discrete input.
2. **PITCH,** raw value of the flight director pitch input.
3. **ROLL,** raw value of the flight director roll input.

5.5.5.3   Autopilot Test Page

This page allows the installers to test the autopilot.

HEADING/COURSE DATUM Window:

1. **HDG/CRS Test,** specifies status of heading/course test. *Selections: Inactive, Active*
2. **CURRENT HEADING,** displays if HDG/CRS Test is *Active,* this is used to specify the heading from 0 degrees to 360 degrees in 10 degree increments.
3. **DESIRED HEADING,** displays if HDG/CRS Test is *Active,* this is used to specify the desired heading from 0 degrees to 360 degrees in 10 degree increments.
4. **DESIRED COURSE,** displays if HDG/CRS Test is *Active,* this is used to specify the desired course from 0 degrees to 360 degrees in 10 degree increments.
5. **HDG DATUM,** this field is automatically calculated and indicates the heading datum (error) being sent to the autopilot in degrees left or right.
6. **CRS DATUM,** this field is automatically calculated and indicates the course datum (error) being sent to the autopilot in degrees left or right.

DEVIATIONS Window:

This window allows the installer to drive the GDU 620 lateral and vertical analog deviations being sent to the autopilot.

1. **DEVIATION,** specifies the analog deviation output (lateral / vertical) in percent of full scale deflection (Left/Right / Up/Down), in 1% increments.

2. **FLAG,** specifies the status of the low-level flag output (lateral / vertical). *Selections: Invalid, Valid*

3. **SUPERFLAG,** specifies the status of the superflag output (lateral / vertical). *Selections: Invalid, Valid*

DISCRETES Window:

This window allows the installer to drive the GDU 620 discrete outputs being sent to the autopilot.

1. **GPS ANNUNCIATE,** specifies status of GPS Annunciate discrete output. *Selections: Inactive, Active*

2. **GPS SELECT,** specifies status of GPS Select discrete output. *Selections: Inactive, Active*

3. **ILS/GPS APRCH,** specifies status of ILS/GPS Approach discrete output. *Selections: Inactive, Active*

ROLL STEERING Window:

This window allows testing of the ARINC 429 roll steering interface (if installed) to the autopilot by allowing specific roll steering commands to be set.

1. **BANK ANGLE,** specifies the bank angle output in degrees (Left or Right) in ARINC 429 label 121. This field has a range from 180°L to 179°R, in one degree increments.

2. **GROUND SPEED,** specifies the groundspeed output in knots in ARINC 429 label 312. This field has a range from zero to 1000 knots, in five knot increments.

5.5.6 DIAG Page Group

5.5.6.1   Port Monitoring Page

This window displays the status of the serial input ports. Data being received on a particular port can also be viewed.

```
                    PORT MONITORING
    ┌PORTS┐        ┌LOG┐
    ARINC 429       LBL SSM DATA              SDI
     IN  1          Select a port to display a log of input
     IN  2
     IN  3
     IN  4
     IN  5
     IN  6
     IN  7
     IN  8

    RS-232
     IN  1
     IN  2
     IN  3
     IN  4
     IN  5
     IN  6
     IN  7
     IN  8

    RS-485
     IN  1
     IN  2
     IN  3
     IN  4



                                    ┌ CLR LOG ┐ ┌ PAUSE ┐
```
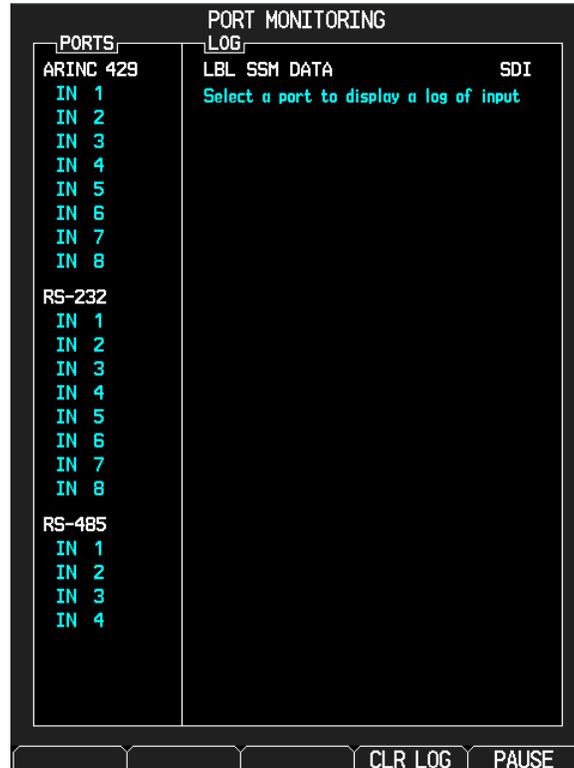
NOTE

Ports are selected by activating the cursor and moving it to the desired port.

PORTS Window:

1. **ARINC 429,** select a port and information received on that port will be displayed on the right.

2. **RS-232,** select a port and information received on that port will be displayed on the right.

3. **RS-485,** select a port and information received on that port will be displayed on the right.

The PAUSE soft key is used to pause the data information for viewing. Pressing PAUSE a second time will resume data streaming.

The CLR LOG soft key is used to clear the information from the log window.

5.5.6.2 Input Monitoring Page

This window displays the status of the time mark, discrete and analog inputs. There are no selectable items on this page. The parameters are as described below.

```
                    INPUT MONITORING
 ┌TIME MARK┐
   ■ GPS1              ■ GPS2


 ┌DISCRETE INPUTS┐
    PIN        FUNCTION              ACTIVE
   P6201-3    AUDIO INHIBIT IN*         ❑
   P6201-4    CDU SYSTEM ID PROGRAM*    ❑
   P6201-5    SPARE DISC IN* 4          ❑
   P6201-6    SPARE DISC IN* 5          ❑
   P6201-7    SPARE DISC IN* 6          ❑
   P6201-8    GPSS ENABLE*              ■
   P6201-9    FD ENABLE IN              ❑
   P6201-10   ADF VALID IN              ❑
   P6202-36   DEMO MODE SELECT*         ❑

 ┌ANALOG INPUTS┐
   FLT DIR    PITCH     0.00 V   ROLL    0.01 V
   ADF        BEARING   39°      DC REF  0.3 VDC
   A/P AC REF AMPLITUDE ---      FREQ    ---
   LIGHTING BUS  NOT CONFIGURED




        ┌──────────────────────────────────┐
        │ SYS GRS GDC GDL FCS DIAG  ❑ ■ ❑ ❑ │
        └──────────────────────────────────┘
```
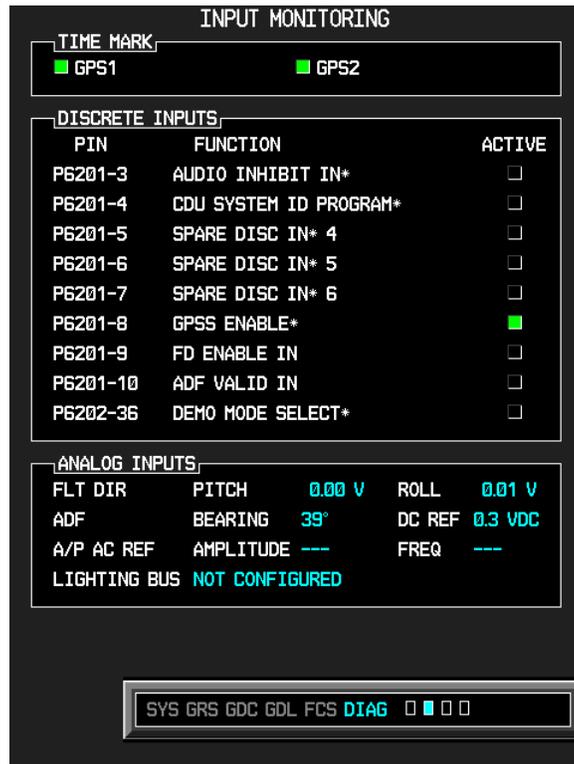
TIME MARK Window:

1. **GPS1/GPS2,** shows the status of each GPS time mark input into the GDU 620, as follows:

    - A green light indicates that the time mark is being correctly received.

    - A red light indicates that the time mark is expected but not being received.

    - No light (black) indicates that the GPS is configured as Not Present (GPS2 only).

DISCRETE INPUTS Window:

This window shows the status of all of the discrete inputs. If the Function name has a '*' following it, it is Active Low; otherwise, it is Active High.

    - A green light indicates that the input is active.

    - No light (black) indicates that the input is inactive (open).

ANALOG INPUTS Window:

1. **FLT DIR PITCH,** shows the voltage being received on the flight director pitch input.

2. **FLT DIR ROLL,** shows the voltage being received on the flight director roll input.

3. **ADF BEARING,** shows the bearing being received on the ADF input.

4. **ADF DC REF,** shows the voltage being received on the ADF DC Reference input.

5. **A/P AC REF AMPLITUDE,** shows the RMS value of the voltage being received on the autopilot AC reference. If no AC voltage is being received, this value is displayed as '---'.

6. **A/P AC REF FREQ,** shows the frequency in Hz of the voltage being received on the autopilot AC reference. If no AC voltage is being received, this value is displayed as '---'.

7. **LIGHTING BUS,** shows the voltage being received on the lighting bus input. The actual value displayed depends upon the type of input configured on the Display Input Source (i.e. 14V DC, 28V DC, 5V DC, or 5V AC). If both the Display and Key input sources are configured to use the photocell, NOT CONFIGURED is displayed.

5.5.6.3   OUTPUTS Page

This window allows the installer to turn the discrete outputs on and off.

DISCRETE OUTPUTS Window:

This window allows the discrete outputs to be turned on or off. If the Function name has a '*' following it, it is Active Low. Use the cursor to select a discrete, and then press ENT to toggle the state of the output.

- A green box indicates that the output is active (low).

- A black box indicates that the output is inactive (open).

6. RESERVED

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7.   LIMITATIONS

7.1   Operation

There are no Part 23 aircraft type limitations. All functions of the GDU 620 meet the appropriate design assurance qualifications for a secondary system for aircraft in Class I, Class II, and Class III in accordance with AC 23.1309-1C, Figure 2. The TSO authorizations with the RTCA/DO178B software levels by function are listed in Section 1.5.

7.2   Installation

The conditions and tests required for TSO authorization of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only if performed under 14 CFR Part 43 or the applicable airworthiness requirements.

7.2.1 Equipment Interfaced to the GDU 620

GDU 620 interfaces to aircraft systems other than those shown in this installation manual are outside the scope of this manual and may require further evaluation and/or certification approval.

7.2.1.1 Traffic Sensor

The GDU 620 supports multiple types of traffic systems (TAS, TCAS I, and TIS), but only one system may be configured for use.

7.2.1.2   GNS 500W Series TAWS Annunciation

Only TAWS alerts from the No. 1 system (i.e., GPS or GPS1) are displayed on the PFD. If the aircraft's TAWS system is embedded in a GNS 500W Series system configured as system No. 2, the remote annunciations will not display on the GDU 620 PFD.

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8. PERIODIC MAINTENANCE

8.1 Continued Airworthiness

Maintenance of the GDU 620 is "on condition" only. For regulatory periodic functional checks, refer to approved aircraft maintenance manuals or manual supplements for actual aircraft maintenance requirements.

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APPENDIX A   ENVIRONMENTAL QUALIFICATION FORM

Go to the Dealers Only site at http://www.garmin.com for the latest Environmental Qualification Form. (Document number 005-00313-20)

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APPENDIX B   OUTLINE AND INSTALLATION DRAWINGS

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Figure B-1. Connector Locations

HORIZONTAL LINE OF SIGHT

INSTRUMENT
PANEL

GDU 620

30° MAXIMUM

VIEW LOOKING OUTBOARD

GDU 620

INSTRUMENT
PANEL

GDU 620

45°
MAXIMUM

45°
MAXIMUM

FORWARD
LINE OF SIGHT

VIEW LOOKING DOWN
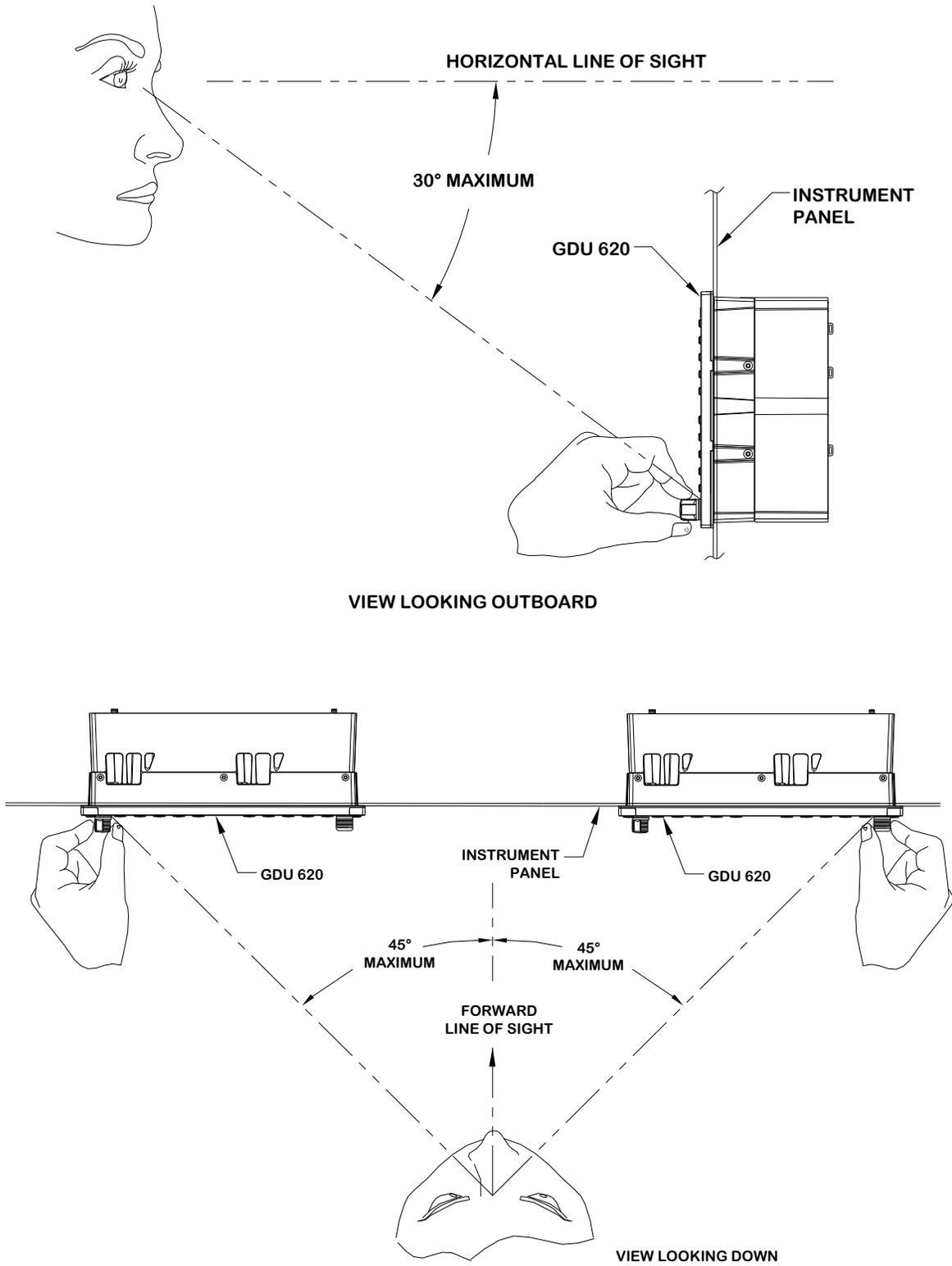
Figure B-2. Maximum Viewing Angle
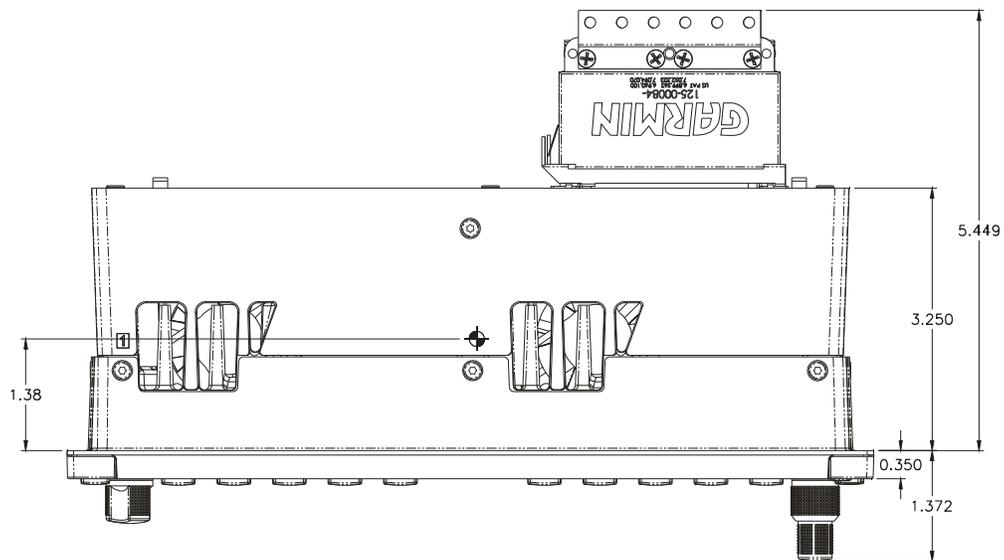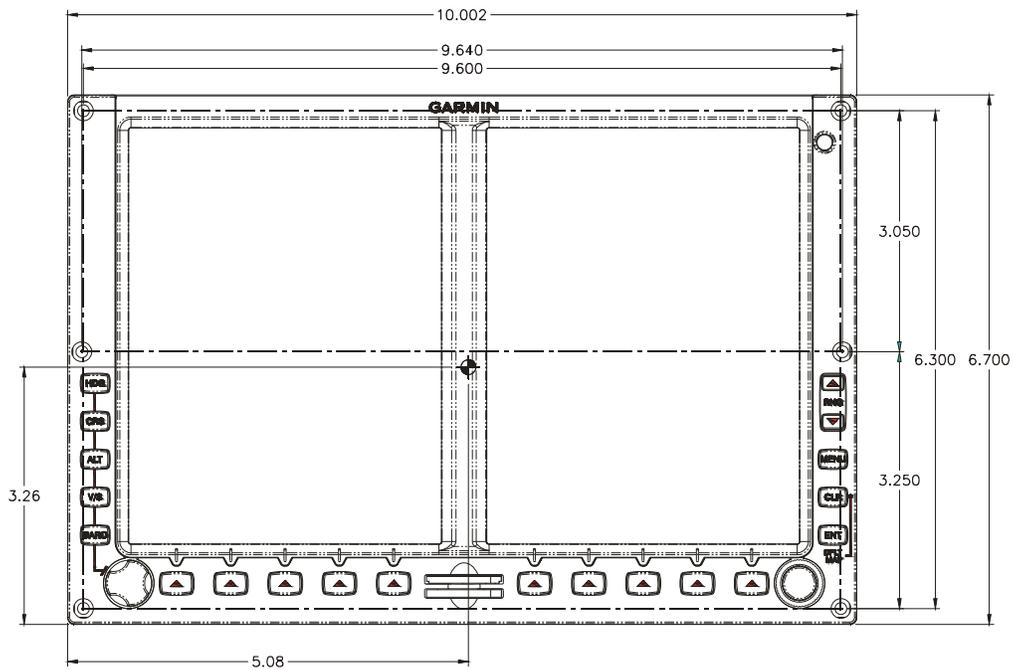
Figure B-3. GDU 620 Dimensions and Center of Gravity
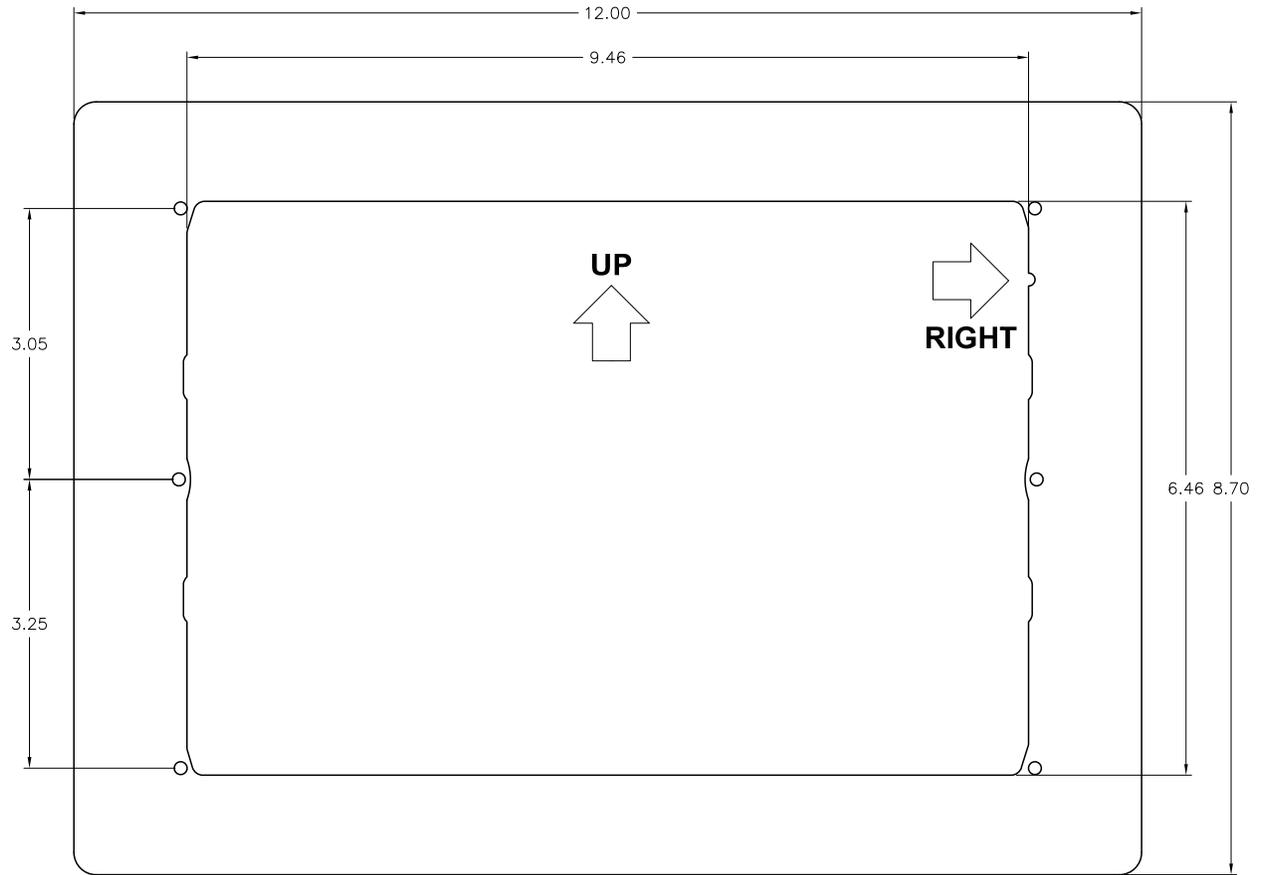
PART NUMBER	DESCRIPTION	THICKNESS (in)
115-01009-00	TRIM PLATE, THIN	0.032
115-01009-10	TRIM PLATE, THICK	0.063

NOTES:
1. TWO TRIM PLATES ARE AVAILABLE. BOTH ARE 2024-T3 ALUMINUM, WITH THICKNESSES OF 0.032" AND 0.063".
2. TRIM PLATE IS CHROMATED. IT MUST BE CUT TO THE CORRECT SIZE AND PAINTED TO MATCH EACH INSTALLATION.

Figure B-4. Trim Plate P/N 115-01009-( )

UP

RIGHT

OUTER PERIMETER OF
TEMPLATE IS SAME SIZE
AS GDU 620 BEZEL

10.00

9.600

GDU 620 TEMPLATE

GARMIN

115-01010-00

6.459

3.050

6.70

3.250

9.459

CUTOUT PERIMETER

CUTOUT REPRESENTS
PFD DISPLAY AREA
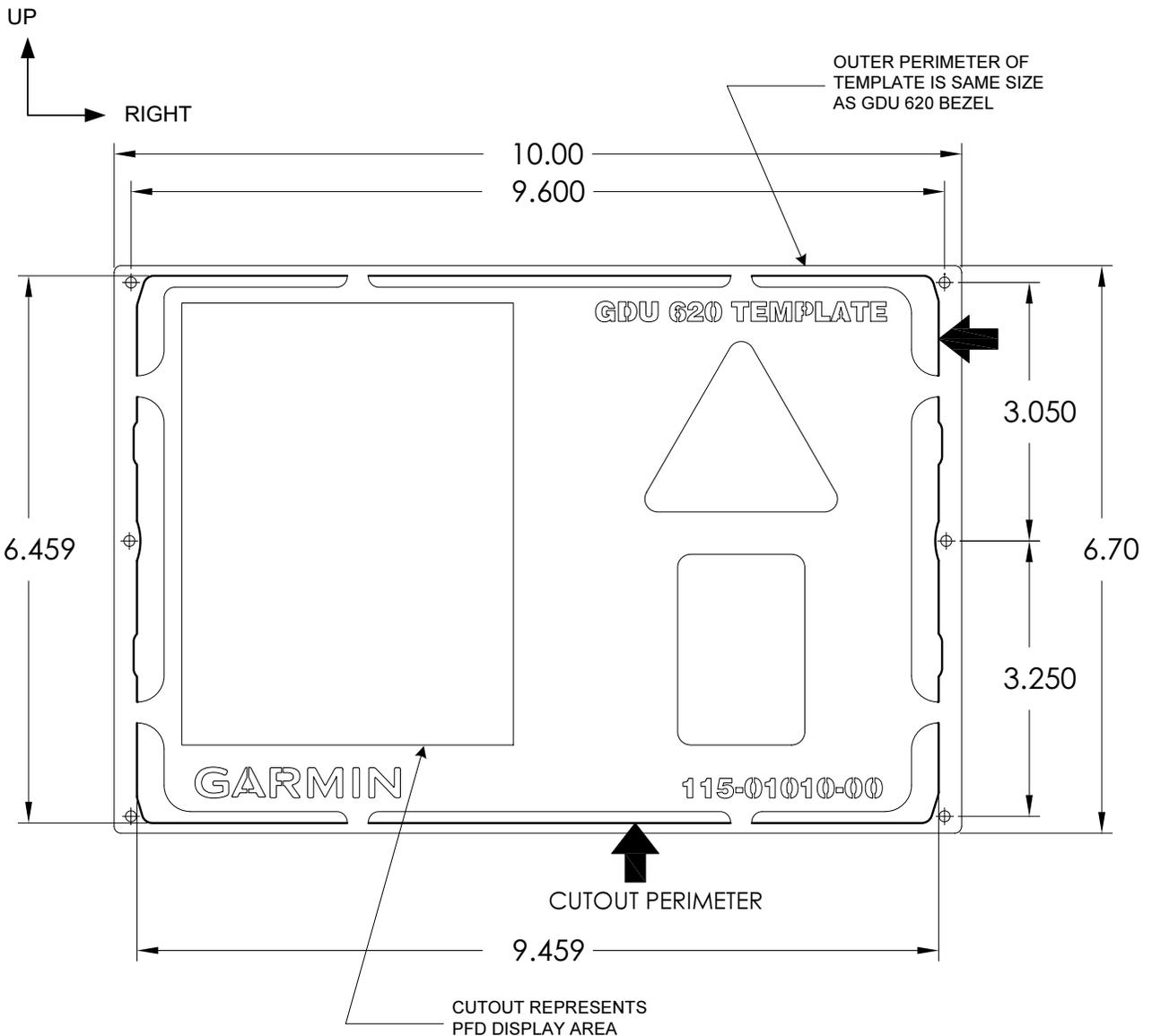
NOTES:

1. CUTOUT TEMPLATE IS MADE FROM STAINLESS STEEL AND CAN BE USED FOR MULTIPLE INSTALLATIONS.

2. CUTOUT TEMPLATE SHOULD BE TEMPORARILY AFFIXED TO INSTRUMENT PANEL IN DESIRED LOCATION PRIOR TO MARKING CUTOUT. **THE OUTSIDE EDGES OF THE CUTOUT PATTERN SHOULD BE USED WHEN MARKING THE CUTOUT ONTO THE INSTRUMENT PANEL.**

3. INSTRUMENT PANEL HOLES FOR GDU MOUNTING NUTPLATES SHOULD BE DRILLED USING A #30 (0.1285") DRILL BIT PRIOR TO REMOVAL OF THE TEMPLATE FROM THE INSTRUMENT PANEL. THE HOLES ARE RESIZED LATER TO THEIR FINAL DIAMETER.

Figure B-5. Cutout Template P/N 115-01010-00
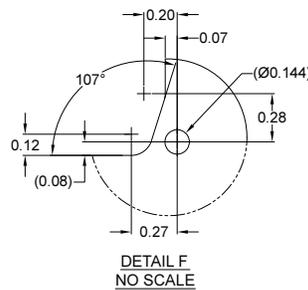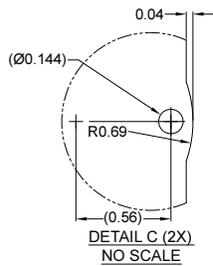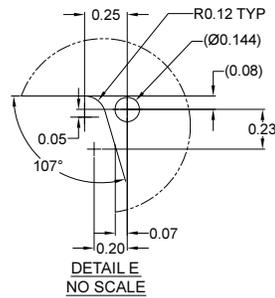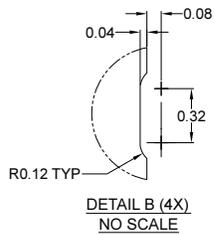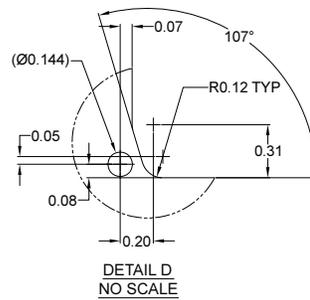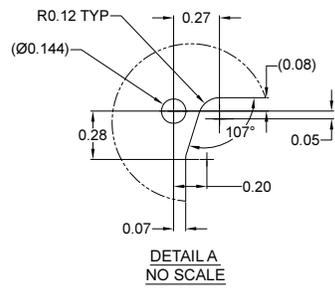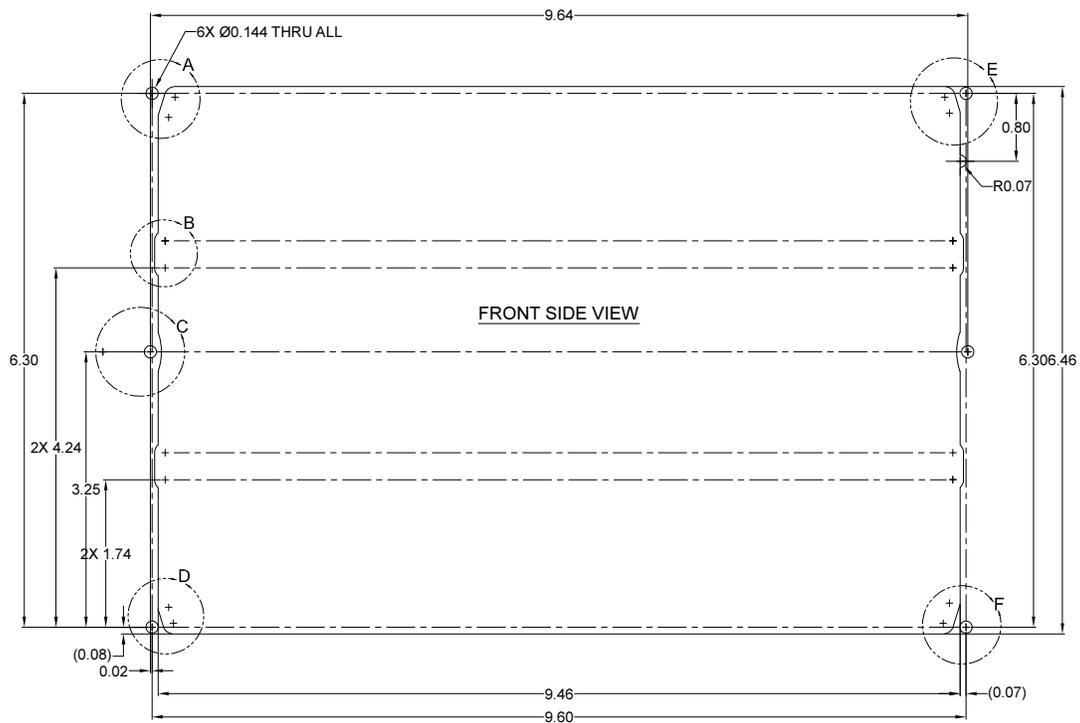
Figure B-6. Instrument Panel Cutout

INSTRUMENT PANEL

**115-01009-00 TRIM PLATE
.032" THICK,
(THIN TRIM PLATE)**

**TO PREVENT AIR GAPS, LAY OUT THE TRIM
PLATE SO PARTIAL INSTRUMENT EDGE CUTOUTS
ON PANEL ARE HIDDEN BENEATH THE PLATE**

**INSTALL ALL NUTPLATES ON
THE INSTRUMENT PANEL
(FARSIDE)**

**EXISTING INSTRUMENT
PANEL CUTOUTS**
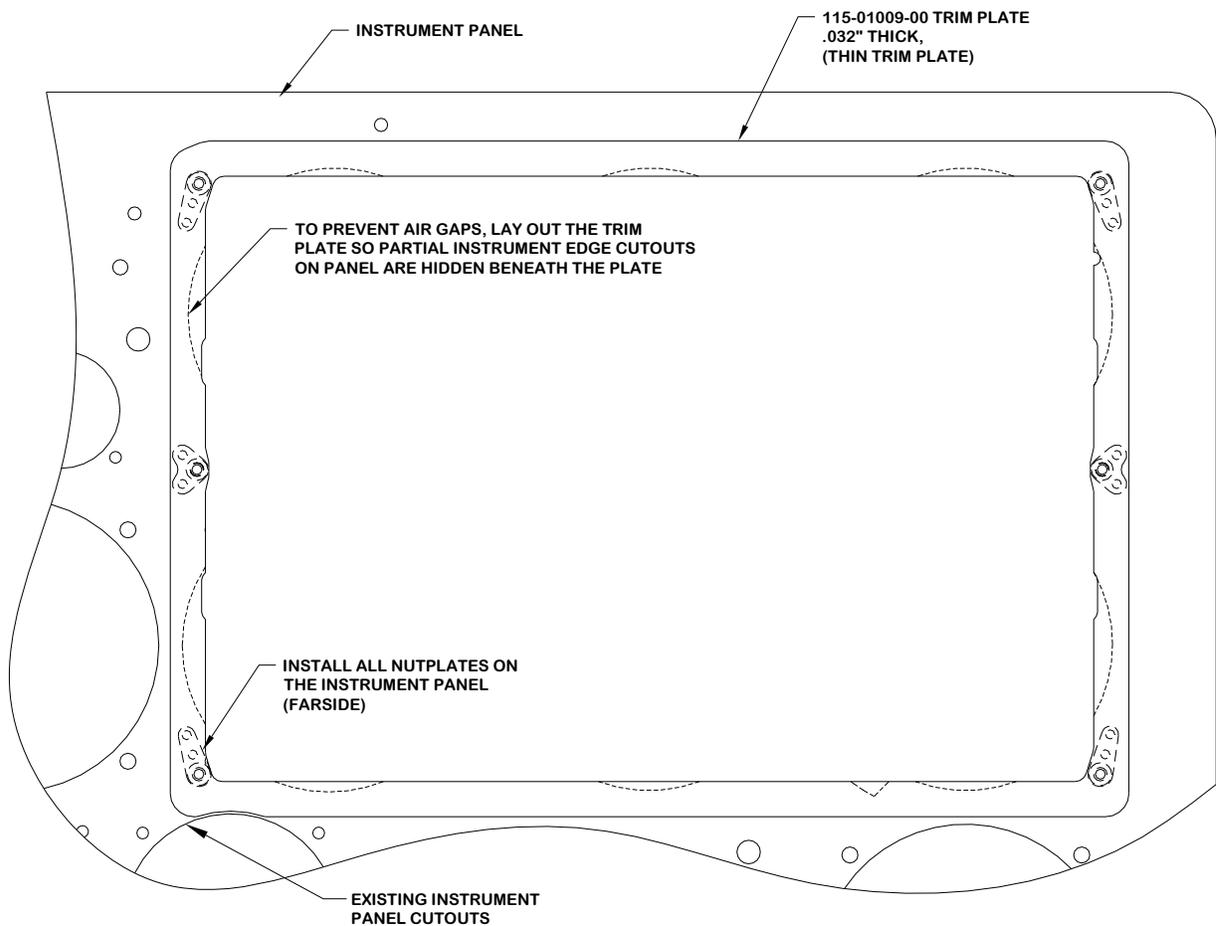
FOR A THIN TRIM PLATE INSTALLATION:

    **-LOCATE AND INSTALL ALL NUTPLATES ON THE INSTRUMENT PANEL SO
     1) RIVET HEADS ARE FLUSH AND HIDDEN BY TRIM PLATE
     2) NUTPLATE BODY DOES NOT INTERFERE WITH ADJACENT INSTRUMENT BODIES
     3) NUTPLATE BODY DOES NOT LIE IN CUTOUT OPENING
     4) ADEQUATE INSTRUMENT PANEL MATERIAL EXISTS.**

    -APPLY A FINISH COAT OF PAINT TO PLATE PRIOR TO FINAL INSTALL.

    -TRIM PLATE OUTSIDE EDGE AS REQUIRED TO CLEAR ADJACENT INSTRUMENTS OR SWITCHES.

    -FINISH CORNERS AT R.25" TYP.

Figure B-7. Typical Installation – Thin Trim Plate

115-01009-10 TRIM PLATE
.06" THK
(THICK TRIM PLATE)

NUTPLATE INSTALLED
ON TO FARSIDE OF
TRIM PLATE

NUTPLATE INSTALLED
ON TO FARSIDE OF
INSTRUMENT PANEL

NUTPLATE INSTALLED
ON TO FARSIDE OF
TRIM PLATE

ORIGINAL PANEL MATERIAL
REMOVED FOR
NUTPLATE CLEARANCE

RIVETS OR SCREWS (NOT MIXED) ARE REQUIRED
3 PLCS EACH LOCATION WHERE NUTPLATE
IS INSTALLED ON TO TRIM PLATE
(SEE FIGURE 3-7 ON REQUIREMENTS)

Figure B-8. Typical Installation – Thick Trim Plate

APPENDIX C INTERCONNECT DRAWINGS

The following drawings are included in this section:

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NOTES:

1. ALL WIRES 24 AWG UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ⊽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

△3. BOTH POWER LEADS AND BOTH GROUND LEADS ARE REQUIRED.

△4. CONFIGURATION MODULE IS MOUNTED IN THE BACKSHELL OF THE P6202 CONNECTOR.

△5. CONFIGURATION MODULE HARNESS USES 28 AWG WIRES. CONTACTS SUPPLIED WITH CONFIGURATION MODULE MUST BE USED FOR CONNECTING CONFIGURATION MODULE HARNESS TO P6202.

△6. THE GDU 620 MUST BE CONFIGURED FOR THE CORRECT LIGHTING BUS VOLTAGE (28 VDC, 14 VDC, 5 VDC OR 5 VAC). NO DAMAGE WILL OCCUR IF THE UNIT IS CONFIGURED INCORRECTLY. A MANUAL LIGHTING CONTROL OPTION IS ALSO AVAILABLE. REFER TO THE POST-INSTALLATION CONFIGURATION PROCEDURE.

△7. OPTIONAL CONNECTION. IF NOT CONNECTED, THE GDU 620 LIGHTING MUST BE CONFIGURED TO AUTOMATICALLY COMPENSATE FOR AMBIENT LIGHTING CONDITIONS USING ITS PHOTOCELL. A MANUAL LIGHTING CONTROL OPTION IS ALSO AVAILABLE. REFER TO THE POST-INSTALLATION CONFIGURATION PROCEDURE.

△8. THE GDU 620 MUST BE ON THE SAME POWER BUS AS THE GRS 77 AND GDC 74A. THE GDU 620 MUST NOT BE ON THE AVIONICS POWER BUS.

△9. CIRCUIT BREAKER SHOULD BE LABELED AS SHOWN.

Figure C-1. Power and Configuration Module Lighting Interconnect – Single GDU
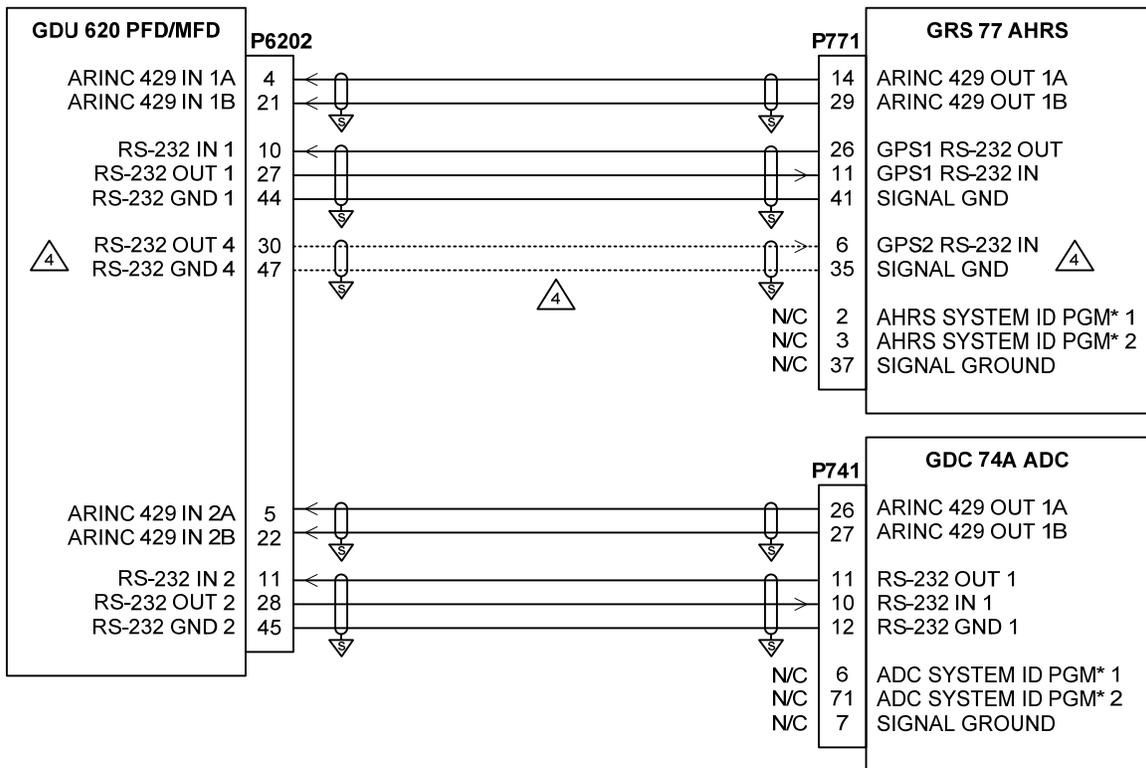
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ⧨ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. AT GDU 620, GRS 77 AND GDC 74A, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL
   -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ".

⚠4. THIS CONNECTION IS ONLY REQUIRED IF GPS #2 IS CONNECTED TO THE GDU 620.

Figure C-2. Attitude – Air Data Interconnect – Single GDU
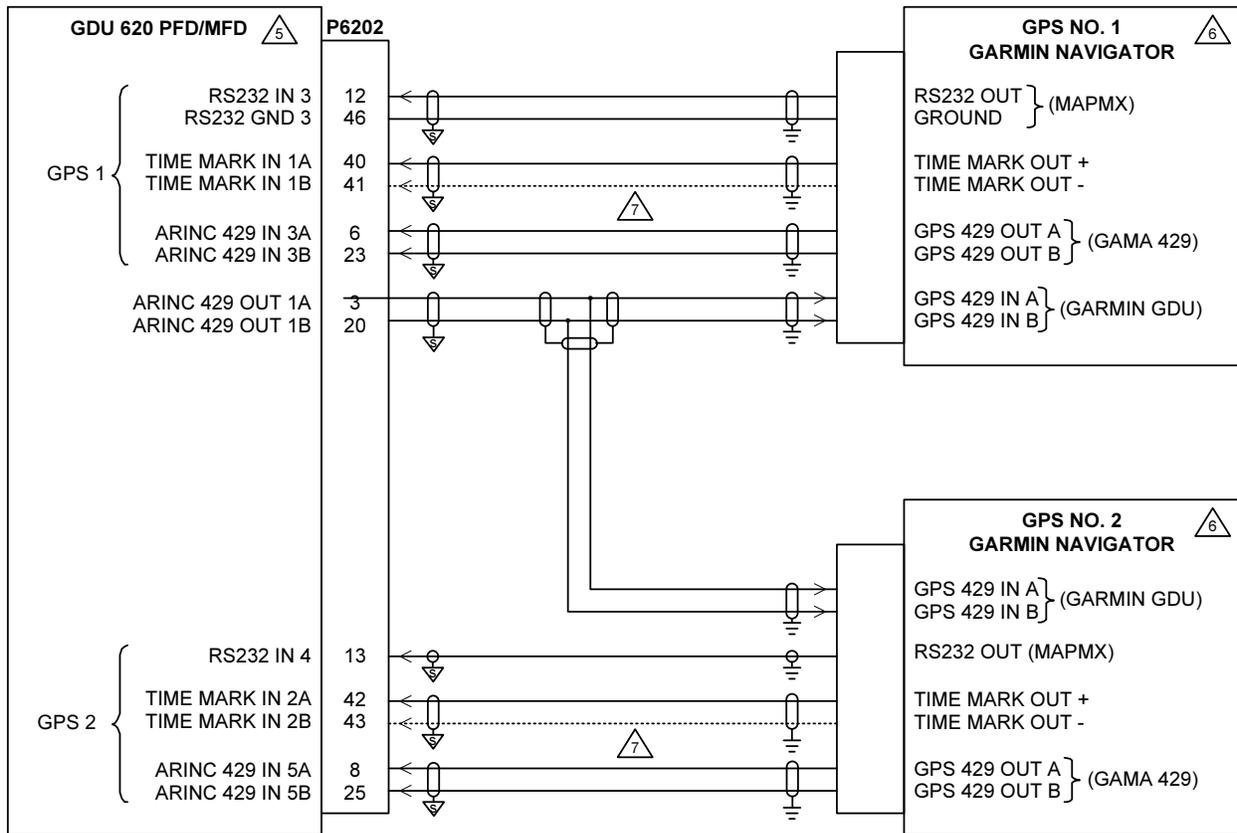
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⊥ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. IF ONLY ONE NAVIGATOR IS INSTALLED, WIRE AS SHOWN FOR GPS 1.

5. FOR GDU 620 SETUP ITEMS REFER TO SECTION 5.5

6. IF A TAWS-EQUIPPED 500W SERIES UNIT IS INSTALLED, IT **MUST** BE CONNECTED AS GPS1 – ONLY TAWS ANNUNCIATIONS FROM GPS1 ARE DISPLAYED ON THE PFD. IF TWO TAWS-EQUIPPED UNITS ARE INSTALLED, THE TAWS-EQUIPPED UNIT THAT IS CONNECTED TO THE AUDIO PANEL **MUST** BE CONNECTED AS GPS1.

7. THE TIME MARK B/- CONNECTION IS NOT REQUIRED FOR THE 400W/500W SERIES UNITS AND SHOULD BE LEFT UNCONNECTED IN THE INSTALLATION.

8. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PIN-OUT AND INTERCONNECT INFORMATION. PIN-OUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

Figure C-3. GPS Interconnect – Single GDU
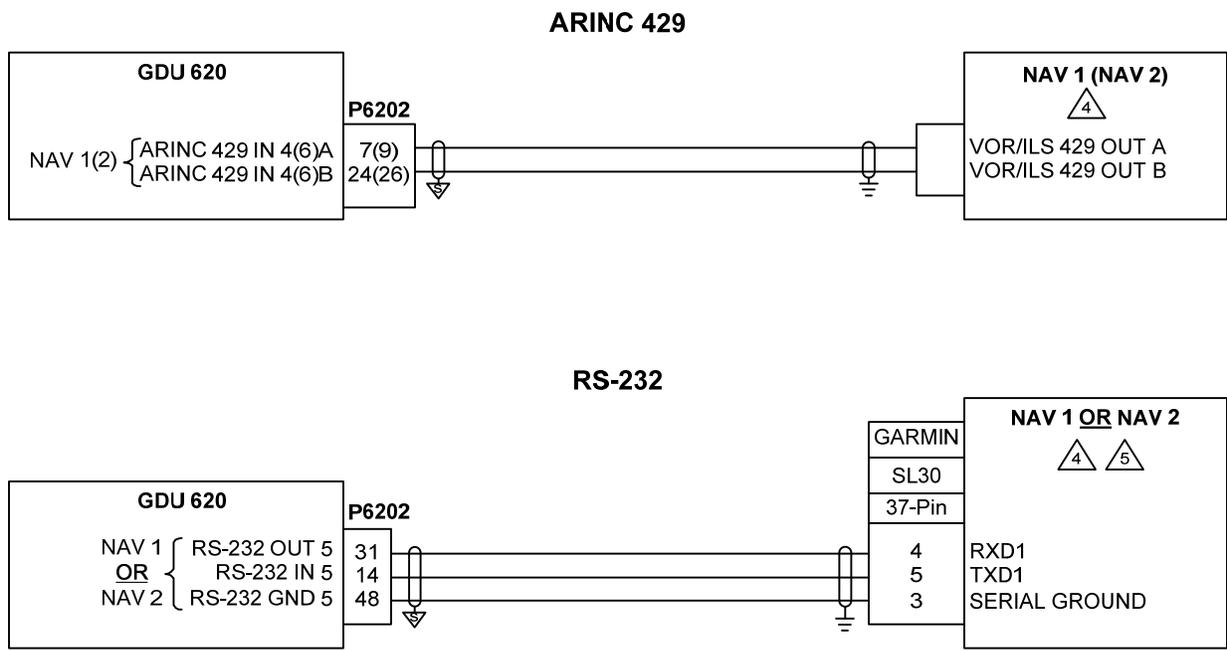
ARINC 429

RS-232

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL, IN ACCORDANCE WITH LRU INSTALLATION INSTRUCTIONS.

△4. IF ONLY ONE NAV RECEIVER IS INSTALLED, WIRE AS SHOWN FOR NAV 1.

△5. ONLY ONE SL30 MAY BE CONNECTED TO THE GDU 620. IT CAN BE CONFIGURED AS NAV 1 OR NAV 2 IF NAV 1 IS CONFIGURED FOR AN ARINC 429 NAV SOURCE.

△6. FOR GDU 620 SETUP ITEMS REFER TO SECTION 5.5.

Figure C-4. NAV Interconnect
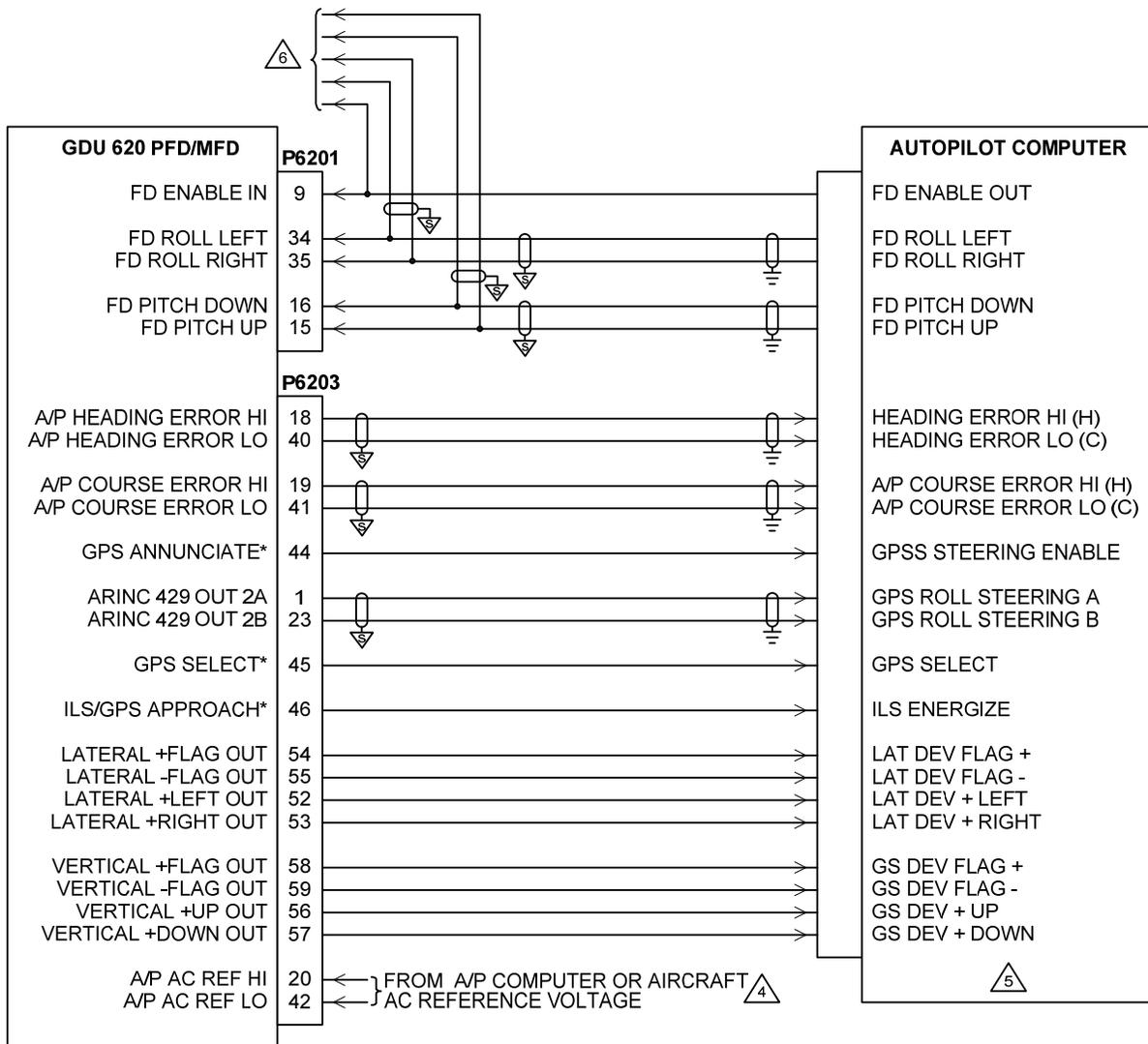
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⊥ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

⚠4. THE A/P AC REF INPUT IS ONLY REQUIRED FOR AUTOPILOTS THAT USE AN AC HEADING AND COURSE ERROR INPUT.

⚠5. CONNECTIONS ARE ONLY REQUIRED FOR THOSE INPUTS THAT THE AUTOPILOT COMPUTER SUPPORTS.

⚠6. FOR DUAL-GDU 620 SYSTEMS, CONNECT THE FD SIGNALS TO THE SAME PINS ON GDU #2 AS WELL. ALL OTHER AUTOPILOT SIGNALS SHOULD BE CONNECTED ONLY TO GDU #1.

Figure C-5. Autopilot/Flight Director
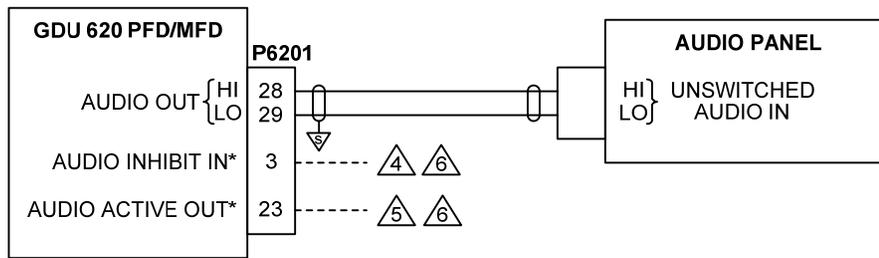
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ".

△4. USE THE AUDIO INHIBIT IN* DISCRETE INPUT TO INHIBIT GDU G20 AURAL ALERTS WHEN A HIGHER PRIORITY SYSTEM IS PLAYING AUDIO MESSAGES.

△5. USE THE AUDIO ACTIVE OUT* DISCRETE OUTPUT TO INHIBIT AURAL ALERTS FROM LOWER PRIORITY SYSTEMS WHENEVER THE GDU 620 IS PLAYING AUDIO MESSAGES.

△6. FUNCTION NOT CURRENTLY IMPLEMENTED.

Figure C-6. Audio Interconnect
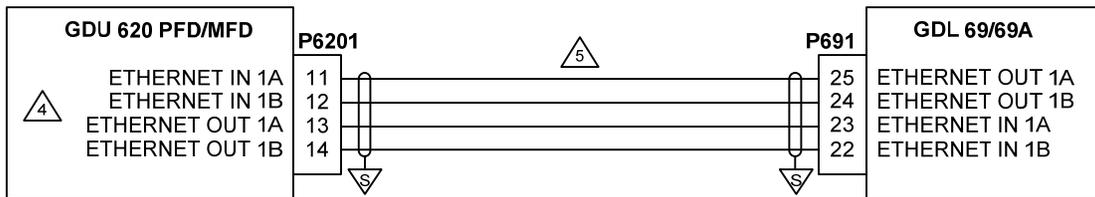
```
┌─────────────────────────┐  ┌──┐                         ┌──┐ ┌──────────────────────┐
│   GDU 620 PFD/MFD       │  │P6201│          /5\          │P691│ │     GDL 69/69A       │
│                         │  │  │                         │  │ │                      │
│         ETHERNET IN 1A  │11│  ├──────────────────────────┤25│ │  ETHERNET OUT 1A     │
│  /4\    ETHERNET IN 1B  │12│  ├──────────────────────────┤24│ │  ETHERNET OUT 1B     │
│         ETHERNET OUT 1A │13│  ├──────────────────────────┤23│ │  ETHERNET IN 1A      │
│         ETHERNET OUT 1B │14│  ├──────────────────────────┤22│ │  ETHERNET IN 1B      │
│                         │  │  S                        S │  │ │                      │
└─────────────────────────┘  └──┘  ▽                    ▽  └──┘ └──────────────────────┘
```

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⊥ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT THE SHIELD GROUNDS AT THE GDL 69/69A TO ITS CONNECTOR BACKSHELL IN ACCORDANCE WITH GDL 69/69A INSTALLATION INSTRUCTIONS.

/4\ ETHERNET PORT 2 MAY BE USED IN LIEU OF ETHERNET PORT 1. IF THERE ARE NO FREE PORTS ON THE GDU 620, THE OTHER LRU (E.G. GWX 68) MUST BE DISCONNECTED AND THE GDL 69/69A MUST BE CONNECTED TO THE GDU 620 IN ITS PLACE. THE DISCONNECTED LRU MUST BE CONNECTED TO ETHERNET PORT 2, 3, OR 4 ON THE GDL 69/69A.

/5\ USE AIRCRAFT GRADE CATEGORY 5 ETHERNET CABLE. THESE INCLUDE THE FOLLOWING:

MANUFACTURER	P/N
PIC WIRE AND CABLE	E10422 (22 AWG)
PIC WIRE AND CABLE	E10424 (24 AWG)
ELECTRONIC CABLE SPECIALIST	392404 (24 AWG)

Figure C-7. GDL 69/69A Interconnect

SINGLE GDU INSTALLATION
GDU DISPLAYS AND CONTROLS STORMSCOPE
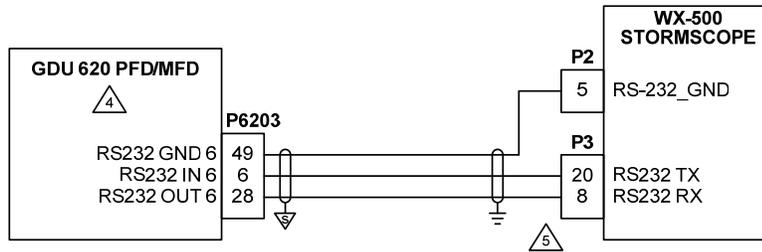
GDU DISPLAYS STORMSCOPE DATA ONLY
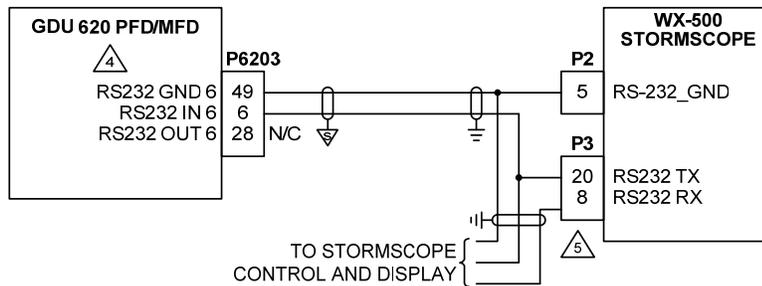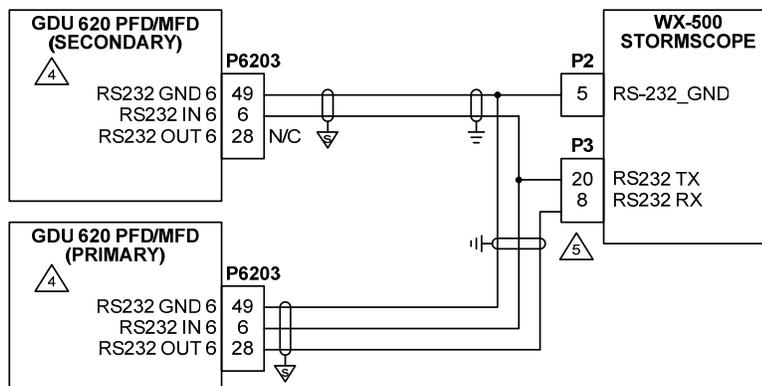
TO STORMSCOPE
CONTROL AND DISPLAY

DUAL GDU INSTALLATION △6

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

△4 STORMSCOPE FUNCTION IS NOT CURRENTLY IMPLEMENTED IN GDU 620.

△5 RECEIVE CHANNEL INTO STORMSCOPE MUST BE LEFT CONNECTED TO THE CURRENT STORMSCOPE DISPLAY IN THE AIRCRAFT. UNTIL THE GDU 620 STORMSCOPE FUNCTION IS IMPLEMENTED, THE GDU 620 WILL NOT PROVIDE CONTROL OF THE STORMSCOPE.

△6 IF DUAL GDUS ARE INSTALLED, ONLY ONE GDU (THE PRIMARY) CAN CONTROL THE STORMSCOPE. BOTH GDUS CAN BE USED TO DISPLAY STORMSCOPE DATA. EITHER GDU #1 OR GDU #2 MAY BE CONNECTED AS THE PRIMARY STORMSCOPE DISPLAY.

NOTE

This feature is currently not implemented. However, provisional wiring for the interface defined above may be installed. If installing provisional wiring, ensure that existing display still controls the Stromscope.

Figure C-8. Stormscope Interconnect
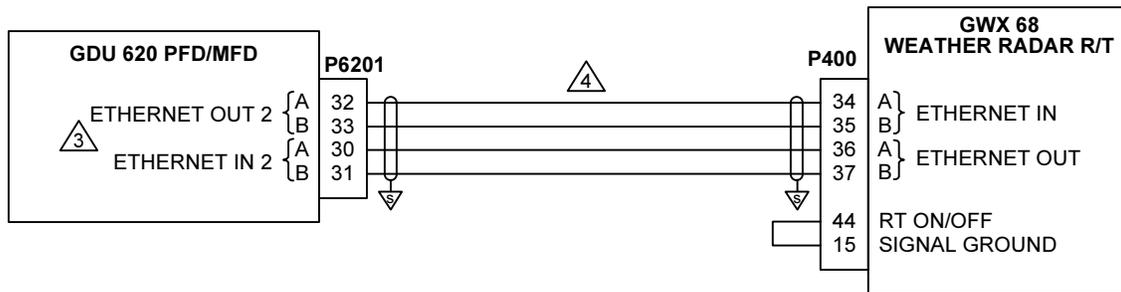
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ⊽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. ETHERNET PORT 1 MAY BE USED INSTEAD OF PORT 2, OR IF THERE ARE NO FREE ETHERNET PORTS THE GWX 68 MAY BE CONNECTED TO AN ETHERNET PORT THE GDL 69.

4. USE AIRCRAFT GRADE CATEGORY 5 ETHERNET CABLE. THESE INCLUDE THE FOLLOWING:

MANUFACTURER	P/N
PIC WIRE AND CABLE	E10422 (22 AWG)
PIC WIRE AND CABLE	E10424 (24 AWG)
ELECTRONIC CABLE SPECIALIST	392404 (24 AWG)

NOTE

This feature is currently not implemented. However, provisional wiring for the interface defined above may be installed.

Figure C-9. WXR Interconnect

TAS SOURCE
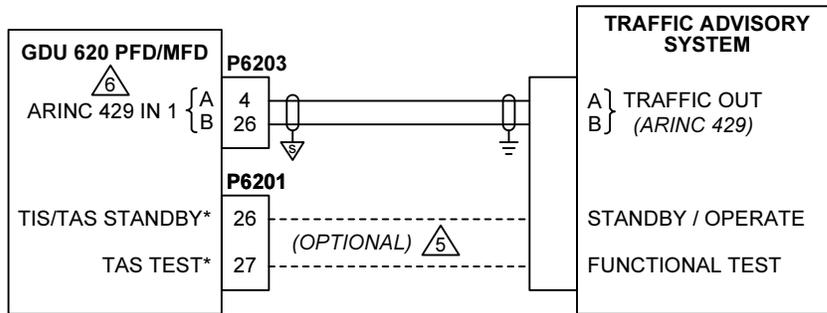
TIS SOURCE
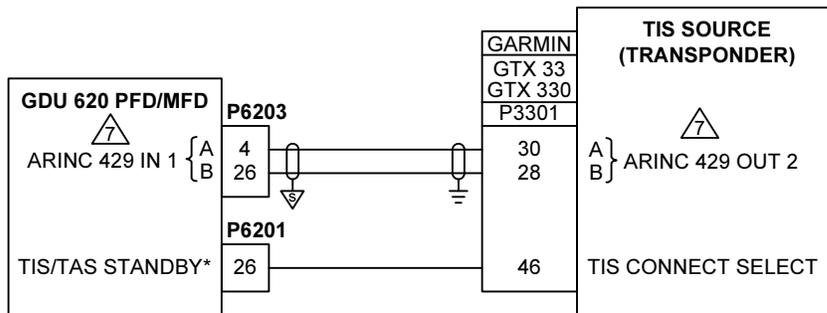
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ⊽ SHIELD BLOCK GROUND ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. **ONLY ONE TRAFFIC SOURCE MAY BE CONNECTED TO THE GDU 620.**

5. THESE OPTIONAL DISCRETE CONNECTIONS ARE NOT REQUIRED IF THE GDU 620 IN IS CONFIGURED FOR 'SKYWATCH+DISP'. IN THIS CASE, THE GDU 620 WILL NOT CONTROL THE TRAFFIC ADVISORY SYSTEM OPERATION.

6. GDU 620 MUST BE CONFIGURED FOR TRAFFIC SYSTEM: RYAN TCAD, SKYWATCH OR SKYWATCH+DISP (SEE NOTE 4).

7. GDU 620 MUST BE CONFIGURED FOR TRAFFIC SYSTEM: GTX 330, AND THE TRAFFIC FUNCTION MUST BE ENABLED. THE ARINC 429 OUTPUT MUST BE SET TO 'GARMIN W/TIS'. THE 'TIS CONNECT SELECT' DISCRETE INPUT MAY BE DRIVEN BY MULTIPLE DISPLAY SOURCES.

Figure C-10. Traffic Interconnect
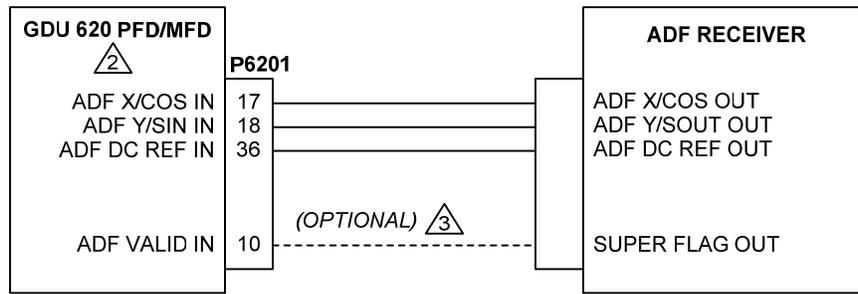
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

⚠2 FOR GDU 620 SETUP ITEMS REFER TO SECTION 5.5

⚠3 THE ADF VALID DISCRETE IS ONLY USED BY SOME ADFS. WHEN THE GDU 620 IS CONFIGURED FOR A PARTICULAR ADF, THE SUPERFLAG BOX SHOULD BE CHECKED OR UNCHECKED AS APPROPRIATE. IF THE SUPERFLAG SIGNAL IS CONNECTED TO THE GDU, THE SUPERFLAG BOX SHOULD BE CHECKED.

Figure C-11. ADF Interconnect

GDU 620 PFD/MFD #1 — P6202

⚠3 AIRCRAFT POWER — 1 — 20 AWG — 5A (28 VDC) 7.5A (14 VDC) — ⚠10 PFD 1 — ESSENTIAL BUS
AIRCRAFT POWER — 34 — 20 AWG

⚠3 AIRCRAFT GND — 2 — 20 AWG — AIRCRAFT GROUND
AIRCRAFT GND — 35 — 20 AWG

CONFIG MODULE PWR — 49 — RED — 4
CONFIG MODULE GND — 50 — BLK — 1 — CONFIG MODULE ⚠4
CONFIG MODULE DATA — 32 — YEL — 3
CONFIG MODULE CLOCK — 33 — WHT — 2
⚠5

⚠6 LIGHTING BUS HI — 15 — TO AIRCRAFT LIGHTING BUS ⚠7
LIGHTING BUS LO — 16

P6201
ETHERNET IN 2A — 30
ETHERNET IN 2B — 31
ETHERNET OUT 2A — 32
ETHERNET OUT 2B — 33

⚠8 ⚠9

GDU 620 PFD/MFD #2 — P6201
ETHERNET IN 2B — 31
ETHERNET IN 2A — 30
ETHERNET OUT 2B — 33
ETHERNET OUT 2A — 32

CDU SYSTEM ID PGM* — 4
GROUND — 22

P6202
⚠3 AIRCRAFT POWER — 1 — 20 AWG — 5A (28 VDC) 7.5A (14 VDC) — ⚠10 PFD 2 — MAIN BUS
AIRCRAFT POWER — 34 — 20 AWG

⚠3 AIRCRAFT GND — 2 — 20 AWG — AIRCRAFT GROUND
AIRCRAFT GND — 35 — 20 AWG

CONFIG MODULE PWR — 49 — RED — 4
CONFIG MODULE GND — 50 — BLK — 1 — CONFIG MODULE ⚠4
CONFIG MODULE DATA — 32 — YEL — 3
CONFIG MODULE CLOCK — 33 — WHT — 2
⚠5

⚠6 LIGHTING BUS HI — 15 — TO AIRCRAFT LIGHTING BUS ⚠7
LIGHTING BUS LO — 16

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

⚠3 BOTH POWER LEADS AND BOTH GROUND LEADS MUST BE CONNECTED.

⚠4 CONFIGURATION MODULE IS MOUNTED IN THE BACKSHELL OF THE P6202 CONNECTOR.

⚠5 CONTACTS SUPPLIED WITH CONFIGURATION MODULE MUST BE USED FOR CONNECTING CONFIGURATION MODULE HARNESS TO P6202.

⚠6 THE GDU 620 MUST BE CONFIGURED FOR THE CORRECT LIGHTING BUS VOLTAGE (28 VDC, 14 VDC, 5 VDC OR 5 VAC). NO DAMAGE WILL OCCUR IF THE UNIT IS CONFIGURED INCORRECTLY. A MANUAL LIGHTING CONTROL OPTION IS ALSO AVAILABLE. REFER TO THE POST-INSTALLATION CONFIGURATION PROCEDURE.

⚠7 OPTIONAL CONNECTION. IF NOT CONNECTED, THE GDU 620 LIGHTING MUST BE CONFIGURED TO AUTOMATICALLY COMPENSATE FOR AMBIENT LIGHTING CONDITIONS USING ITS PHOTOCELL. A MANUAL LIGHTING CONTROL OPTION IS ALSO AVAILABLE. REFER TO THE POST-INSTALLATION CONFIGURATION PROCEDURE.

⚠8 GDU #1 MUST BE CONNECTED DIRECTLY TO GDU #2. IT IS NOT PERMITTED TO CONNECT ANOTHER DEVICE (E.G. GDL 69/69A) BETWEEN BOTH GDU'S.

⚠9 USE AIRCRAFT GRADE CATEGORY 5 ETHERNET CABLE. THESE INCLUDE THE FOLLOWING:

MANUFACTURER	P/N
PIC WIRE AND CABLE	E10422 (22 AWG)
PIC WIRE AND CABLE	E10424 (24 AWG)
ELECTRONIC CABLE SPECIALIST	392404 (24 AWG)

⚠10 CIRCUIT BREAKER SHOULD BE LABELED AS SHOWN.

Figure C-12. Power and Configuration Module/Lighting – Dual GDUs

GDU 620 PFD/MFD #1   P6202   P771   **GRS 77 AHRS #1**

ARINC 429 IN 1A	4	14	ARINC 429 OUT 1A
ARINC 429 IN 1B	21	29	ARINC 429 OUT 1B
RS-232 IN 1	10	26	RS-232 OUT 1
RS-232 OUT 1	27	11	RS-232 IN 1
RS-232 GND 1	44	41	RS-232 GND 1
RS-232 OUT 4	30	6	GPS2 RS-232 IN
RS-232 GND 4	47	35	SIGNAL GND
	N/C	2	AHRS SYSTEM ID PGM* 1
		3	AHRS SYSTEM ID PGM* 2
		37	SIGNAL GROUND

P741   **GDC 74A ADC #1**

ARINC 429 IN 2A	5	26	ARINC 429 OUT 1A
ARINC 429 IN 2B	22	27	ARINC 429 OUT 1B
RS-232 IN 2	11	11	RS-232 OUT 1
RS-232 OUT 2	28	10	RS-232 IN 1
RS-232 GND 2	45	12	RS-232 GND 1
		6	ADC SYSTEM ID PGM* 1
	N/C	71	ADC SYSTEM ID PGM* 2
		7	SIGNAL GROUND

GDU 620 PFD/MFD #2   P6202   P771   **GRS 77 AHRS #2**

ARINC 429 IN 1A	4	14	ARINC 429 OUT 1A
ARINC 429 IN 1B	21	29	ARINC 429 OUT 1B
RS-232 IN 1	10	26	RS-232 OUT 1
RS-232 OUT 1	27	11	RS-232 IN 1
RS-232 GND 1	44	41	RS-232 GND 1
RS-232 OUT 4	30	6	GPS2 RS-232 IN
RS-232 GND 4	47	35	SIGNAL GND
	N/C	2	AHRS SYSTEM ID PGM* 1
		3	AHRS SYSTEM ID PGM* 2
		37	SIGNAL GROUND

P741   **GDC 74A ADC #2**

ARINC 429 IN 2A	5	26	ARINC 429 OUT 1A
ARINC 429 IN 2B	22	27	ARINC 429 OUT 1B
RS-232 IN 2	11	11	RS-232 OUT 1
RS-232 OUT 2	28	10	RS-232 IN 1
RS-232 GND 2	45	12	RS-232 GND 1
	N/C	6	ADC SYSTEM ID PGM* 1
		71	ADC SYSTEM ID PGM* 2
		72	SIGNAL GROUND

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. AT GDU 620, GRS 77 AND GDC 74A, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ".

Figure C-13. Attitude – Air Data Interconnect – Dual GDUs
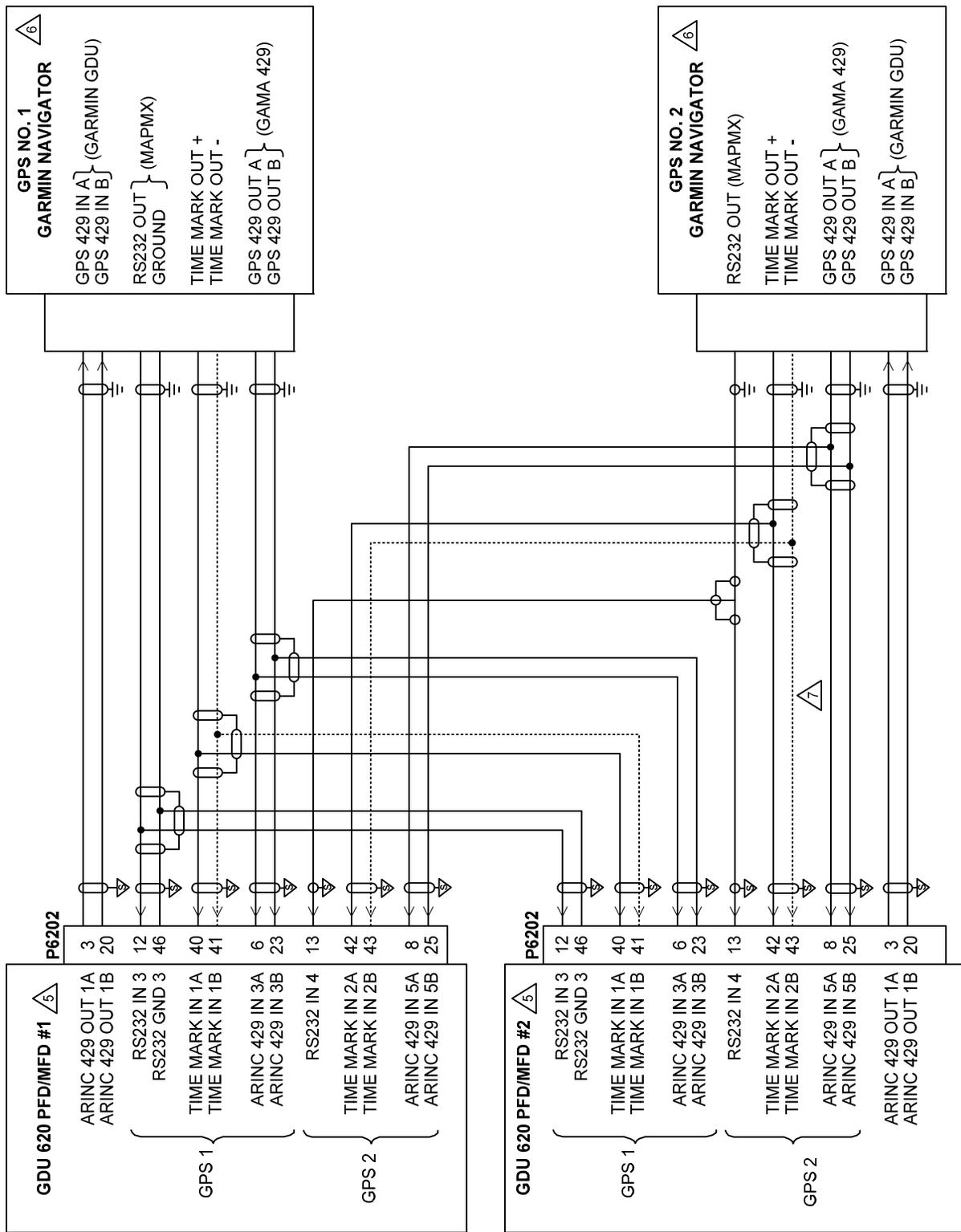
Figure C-14. GPS Interconnect – Dual GDUs
Sheet 1 of 2

NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ⟱ SHIELD BLOCK GROUND   ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL – THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. FOR INSTALLATIONS WITH DUAL GDU'S, TWO SUITABLE GPS SENSORS ARE REQUIRED.

5. FOR GDU 620 SETUP ITEMS REFER TO SECTION 5.5

6. IF A TAWS-EQUIPPED 500W SERIES UNIT IS INSTALLED, IT **MUST** BE CONNECTED AS GPS1 – ONLY TAWS ANNUNCIATIONS FROM GPS1 ARE DISPLAYED ON THE PFD. IF TWO TAWS-EQUIPPED UNITS ARE INSTALLED, THE TAWS-EQUIPPED UNIT THAT IS CONNECTED TO THE AUDIO PANEL **MUST** BE CONNECTED AS GPS1.

7. THE TIME MARK B/- CONNECTION IS NOT REQUIRED FOR THE 400W/500W SERIES UNITS AND SHOULD BE LEFT UNCONNECTED IN THE INSTALLATION.

8. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PIN-OUT AND INTERCONNECT INFORMATION. PIN-OUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

Figure C-14. GPS Interconnect – Dual GDUs
Sheet 2 of 2

ARINC 429
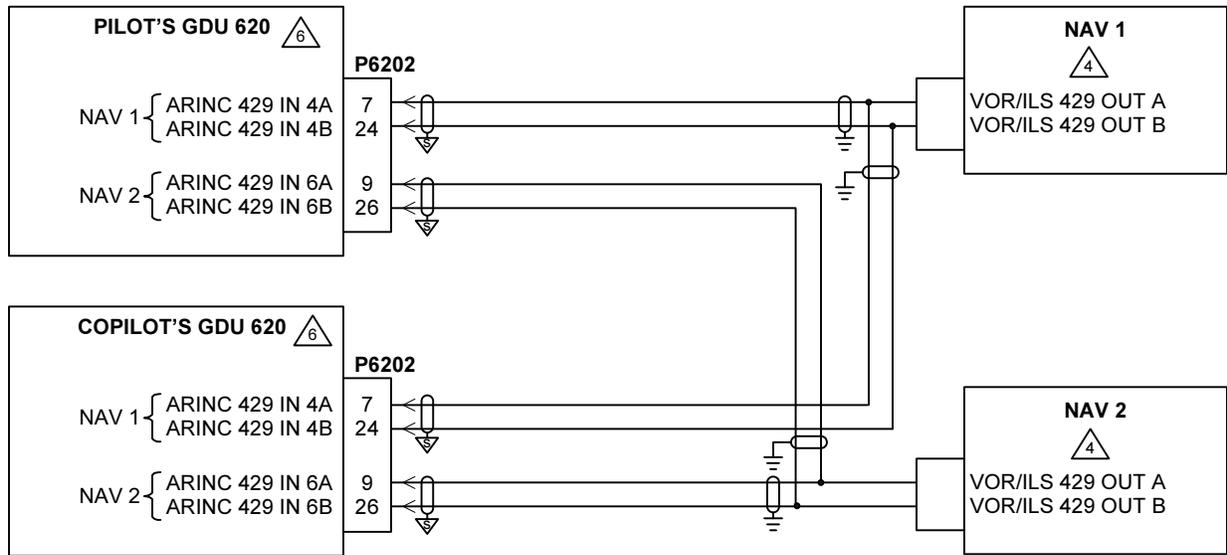
RS-232
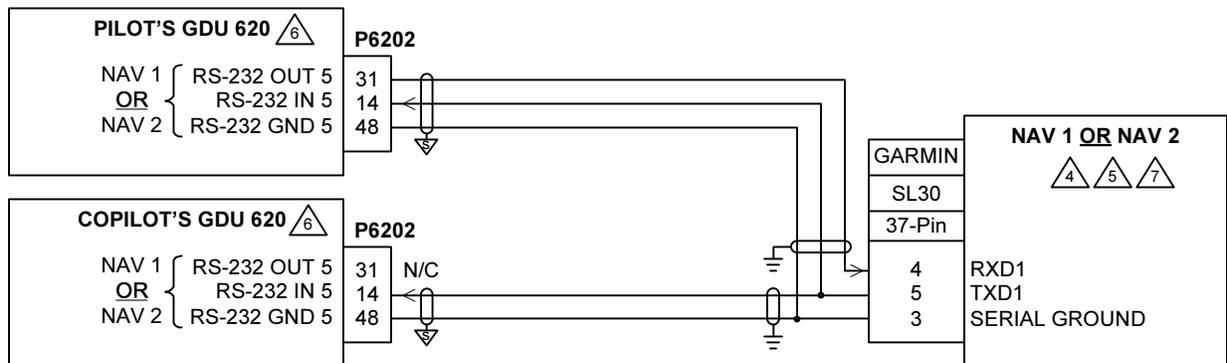
NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2. GROUND DESIGNATIONS: ▽ SHIELD BLOCK GROUND ⏚ AIRFRAME GROUND

3. AT GDU 620, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL -- THE SHIELD LEADS MUST BE LESS THAN 3.0 ". CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL, IN ACCORDANCE WITH LRU INSTALLATION INSTRUCTIONS.

△4 IF ONLY ONE NAV RECEIVER IS INSTALLED, WIRE AS SHOWN FOR NAV 1.

△5 ONLY ONE SL30 MAY BE CONNECTED TO THE GDU 620. IT CAN BE CONFIGURED AS NAV 1, OR AS NAV 2 IF NAV 1 IS CONFIGURED FOR AN ARINC 429 NAV SOURCE.

△6 FOR GDU 620 SETUP ITEMS REFER TO SECTION 5.5.

△7 THE SL30 MUST BE CONNECTED AS THE SAME NAVIGATION SOURCE TO BOTH GDU'S (I.E. AS NAV 1 ON BOTH GDU'S, OR AS NAV 2 ON BOTH GDU'S)

Figure C-15. NAV Interconnect – Dual GDUs

GARMIN™