GARMIN

GSB 15
USB Database and Charging Hub Installation Manual

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AVIATION LIMITED WARRANTY

GSB 15 warranty information is available at garmin.com/aviationwarranty.

RECORD OF REVISIONS

Revision	Revision Date	Description
2	07/18/19	Added mounting kit info
3	10/13/20	Added Decorative Cover info
4	02/22/21	Added Type-C unit info
5	02/24/21	Added mounting kit applicability to Type-C units
6	03/11/21	Updated output power specs

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CURRENT REVISION DESCRIPTION

Revision	Page Number	Section Number	Description of Change
6	1-7	1.5.2	Updated Output Power Specs

DEFINITIONS OF WARNINGS, CAUTIONS, AND NOTES

WARNING

A warning means injury or death is possible if the instructions are not obeyed.

CAUTION

A caution means that damage to the equipment is possible.

NOTE

A note gives more information.

WARNING

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TABLE OF CONTENTS

PARAGRAPH **PAGE**

Section 1 Declaration of Design and Performance 1-1
1.1 Introduction 1-1
1.2 Description and Identification 1-1
1.3 Certification Statement 1-5
1.4 Interface Summary 1-6
1.5 Performance Technical Specifications 1-7
1.6 Limitations 1-8
1.7 Operating Instructions 1-8
1.8 License Requirements 1-8
1.9 Reference Documents 1-8

Section 2 Installation Overview 2-1
2.1 Introduction 2-1
2.2 Installation Materials Required but not Supplied 2-1
2.3 Installation Configurations 2-1
2.4 Special Tools Required 2-1
2.5 Cabling and Wiring 2-2
2.6 Shielding and Electrical Bonding Considerations 2-2
2.7 Cooling Requirements or Considerations 2-2
2.8 Mounting Requirements 2-3

Section 3 Installation Procedure 3-1
3.1 Wiring Harness Installation 3-1
3.2 Equipment Mounting 3-1
3.3 Decorative Cover Installation 3-2

Section 4 Post Installation Configuration & Checkout 4-1
4.1 Mounting, Wiring, and Power Checks 4-1
4.2 Configuration Setup 4-1
4.3 Diagnostic Information 4-1
4.4 Ground Checks 4-1
4.5 Software Loading Procedure 4-1

Section 5 Continued Airworthiness 5-1

Section 6 Connector Pinout Information 6-1
6.1 Pin Function List 6-1

Appendix A Outline and Installation Drawings A-1

Appendix B Interconnect Drawings B-1

1 DECLARATION OF DESIGN AND PERFORMANCE

1.1 Introduction

The Declaration of Design and Performance section contains the definition and statement of compliance of the GSB 15. The section is written in accordance with European Aviation Safety Agency (EASA) Commission Regulation (EU) No 748/2012 date 3 August 2012.

The full manual is intended to provide mechanical and electrical information for use in the planning and design of an installation of the GSB 15 into an aircraft. This manual is not a substitute for an approved airframe-specific maintenance manual, installation design drawing, or complete installation data package. Attempting to install equipment by reference to this manual alone and without first planning or designing an installation specific to your aircraft may compromise your safety and it is not recommended. The content of this manual assumes use by competent and qualified avionics engineering personnel and/or avionics installation specialist using standard maintenance practices in accordance with Title 14 of the Code of Federal Regulation and other relevant accepted practices. This manual is not intended for use by individuals who do not possess the competencies and abilities set forth above.

NOTE

Garmin recommends installation of the GSB 15 by a Garmin-authorized installer. To the extent allowable by law, Garmin will not be liable for damages resulting from improper or negligent installation of the GSB 15. For questions, please contact Garmin Aviation Product Support at 1-888-606-5482.

NOTE

Except where specifically noted, references to GSB 15 apply equally to all GSB 15 variants.

1.2 Description and Identification

The GSB 15 functions as a USB Database and Charging Hub that provides:

- Two (2) USB charging ports
- Optional software and database loading to compatible Garmin devices via USB
- Halo backlighting to facilitate nighttime usability

There are three variants of the GSB 15:

- GSB 15 Dual Type-A (011-04937-00, -01) units:
  Two (2) USB Type-A connectors for charging and data transfer
- GSB 15 Type-A and Type-C (011-04937-20, -30) units:
  One (1) USB Type-A and one (1) USB Type-C connectors for charging and data transfer
- GSB 15 Dual Type-C (011-04937-40, -50) units:
  Two (2) USB Type-C connectors for charging and data transfer

1.2.1 Unit Identification

The GSB 15 can be identified by the part numbers listed in Table 1-1.

Table 1-1 GSB 15 Unit Identification

API	Marketing Label	Garmin P/N (Unit Only)	Garmin P/N (Shipping Level)
GMN-02201	GSB 15	011-04937-0( ) through 011-04937-1( )	010-02201-0( ) through 010-02201-1( )
GMN-02544	GSB 15	011-04937-2( ) through 011-04937-5( )	010-02544-2( ) through 010-02544-5( )

The GSB 15 is currently available in the following configurations.

Table 1-2 GSB 15 Part Numbers

Model	Unit Only P/N	Unit Only Shipping P/N	Standard P/N [1]
GSB 15, Dual Type-A, Rear	011-04937-00	010-02201-00	010-02201-10
GSB 15, Dual Type-A, Side	011-04937-01	010-02201-01	010-02201-11
GSB 15, Type-A and Type-C, Rear	011-04937-20	010-02544-20	010-02544-21
GSB 15, Type-A and Type-C, Side	011-04937-30	010-02544-30	010-02544-31
GSB 15, Dual Type-C, Rear	011-04937-40	010-02544-40	010-02544-41
GSB 15, Dual Type-C, Side	011-04937-50	010-02544-50	010-02544-51

[1] Includes connector kit (011-05044-00)

1.2.2 Accessories

The following accessories are provided separately from the GSB 15.

Table 1-3 Required Accessories

Item	Garmin P/N
GSB 15 Connector Kit	011-05044-00

Table 1-4 Optional Accessories

Item	Garmin P/N
GSB 15 2.25” Mounting Kit	011-05043-00
GSB 15 3.125” Mounting Kit	011-05043-01
GSB 15 Decorative Cover (unfinished) [1]	011-05291-00
GSB 15 Decorative Cover (black powder coat) [1]	011-05291-01

[1] Accessories are for decorative purposes only and are not TSO qualified. Installation of the Decorative Cover accessories does not affect the TSO functions of the GSB 15.

Table 1-5 Contents of 2.25” Mounting Kit (011-05043-00)

Item	Garmin P/N	Quantity
DCP, Adapter Plate, 2.25”	125-00581-02	1
Screw, 4-40 x .250, FLHP 100, SS/BO	211-63304-08	2

Table 1-6 Contents of 3.125” Mounting Kit (011-05043-01)

Item	Garmin P/N	Quantity
DCP, Adapter Plate, 3.125”	125-00581-12	1
Screw, 4-40 x .250, FLHP 100, SS/BO	211-63304-08	2

Table 1-7 Contents of Connector Kit (011-05044-00)

Item	Garmin P/N	Quantity
Screw, 4-40x.125, PHP, SS/P, w/NYL	211-60234-04	1
Screw, 4-40x.250, PHP-STD, SS/BO	211-60304-08	2
Term, Ring, Ins, #4, 22-26 AWG	235-00117-01	1
Conn, Hsg, Rcpt, 3mm P, Single Row, Locking, 6 CKT, Nylon	330-00771-05	1
Contact, Female, Crimp, 20-24 AWG, 15u Gold	336-00065-05	6

Table 1-8 Contents of Decorative Cover, Unfinished (011-05291-00)

Item	Garmin P/N	Quantity
SMP, Decorative Cover, GSB 15, w/VHB	115-03439-01	1
DCP, Decorative Cover, GSB 15, Unfinished	125-00627-02	1
Screw, 4-40x.312, FLHP100, SS/P	211-63204-09	2

Table 1-9 Contents of Decorative Cover, Black Powder Coat (011-05291-01)

Item	Garmin P/N	Quantity
SMP, Decorative Cover, GSB 15, w/VHB	115-03439-01	1
DCP, Decorative Cover, GSB 15, Black Powder Coat	125-00627-03	1
Screw, 4-40x.312, FLHP100, SS/P	211-63204-09	2

1.2.3 Physical Characteristics

Table 1-10 Unit and Accessory Weights

Model	Part Number	Weight
GSB 15 (all models)	011-04937-00, -01,-20, -30, -40, -50	0.16 lbs (0.07 kg)
GSB 15 2.25” Mounting Kit	011-05043-00	0.11 lbs (0.05 kg)
GSB 15 3.125” Mounting Kit	011-05043-01	0.20 lbs (0.09 kg)
GSB 15 Connector Kit	011-05044-00	0.01 lbs (0.005 kg)
GSB 15 Decorative Cover, Unfinished	011-05291-00	0.03 lbs (0.01 kg)
GSB 15 Decorative Cover, Black Powder Coat	011-05291-01	0.03 lbs (0.01 kg)

1.2.4 Mod Level History

The following tables identify hardware modification (Mod) Levels for the GSB 15. 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.

Table 1-11. MOD Level History

Applicable LRU Part Number	MOD Level	Service Bulletin Number & Date	Purpose of Modification
011-04937-00	N/A	N/A	N/A
011-04937-01	N/A	N/A	N/A
011-04937-20	N/A	N/A	N/A
011-04937-30	N/A	N/A	N/A
011-04937-40	N/A	N/A	N/A
011-04937-50	N/A	N/A	N/A

1.3 Certification Statement

The GSB 15 has been shown to meet compliance with the claimed TSO(s) when interfaced with the equipment defined in this installation manual, and installed in accordance with the requirements and limitations as defined in this installation manual.

The installer must verify that non-Garmin devices to be interfaced meet the installation requirements identified in this manual to assure the installed system will comply with the Garmin TSO Authorization. Garmin installation requirements will usually specify that the interfaced device has appropriate TSO authorization, and in some cases, such as for TSO-C144 antennas, may also require that the non-Garmin device meet additional Garmin specifications.

The conditions and tests required for TSO approval of this article are minimum performance standards. Those installing this article either on or within a specific type or class of aircraft must determine that the aircraft installation conditions are within the TSO standards which include any accepted integrated non-TSO functions. TSO articles and any accepted integrated non-TSO function(s) must have separate approval for installation in an aircraft. The article may be installed only according to 14 CFR part 43 or the applicable airworthiness requirements.

In accordance with the Bilateral Oversight Board, Decision 006, for the Agreement Between the United States of America and the European Union on Cooperation in the Regulation of Civil Aviation Safety, the FAA TSO authorization makes this an approved article within the respective EASA system. This article was tested to additional standards (see section 1.3.4) that may demonstrate additional airworthiness specification performance standards required by the European Aviation Safety Agency (EASA).

The Appliance Project Identifier (API) for the GSB 15 is GMN-02201 and GMN-02544. The API has been used for project identification with the FAA.

1.3.1 GSB 15 TSO Compliance

Table 1-12 GSB 15 (011-04937-00, -01, -20, -30, -40, -50) TSO Compliance

TSO/MOPS*	Function Design	Class/Type	System SW Part Numbers	Boot Block SW Part Numbers	CLD Part Numbers
TSO-C71	Airborne Static (DC to DC) Electrical Power Converter	N/A	N/A	N/A	N/A

*The Minimum Performance Standards in this table are the conditions and tests used to achieve FAA TSO authorization. See Section 1.3.4 for additional standards.

1.3.2 GSB 15 TSO/ETSO Deviations

Table 1-13 GSB 15 (011-04937-00, -01, -20, -30, -40, -50)TSO Standard Deviations

TSO	Deviation
TSO-C71	Garmin was granted a deviation to include only product name, part number, serial number, and this statement on the unit's nameplate label: "TSO-C71 See IM for Add'l Appliance Apprvls".
	Garmin was granted a deviation to use RTCA/DO-160F as the standard for Environmental Qualification and Test Procedures of Airborne Equipment.

1.3.3 Non-TSO Functions

The GSB 15 has no non-TSO functions.

1.3.4 Additional Standards

The GSB 15 has no Additional Standards.

The conditions and tests required for approval of this article are minimum performance standards. Those installing this article either on or within a specific type or class of aircraft must determine that the aircraft installation conditions are within the standards which include any accepted integrated functions not specified by the standard. Articles approved with 14 CFR part 21.8(d) and any accepted integrated function(s) not specified in the standard must have separate approval for installation in an aircraft. The article may be installed only according to 14 CFR part 43 or the applicable airworthiness requirements.

1.3.5 Design Assurance Levels

The GSB 15 Dual Type-A (011-04937-00, -01) contains no software or airborne electronic hardware with related design assurance levels.

GSB 15 Type-A and Type-C (011-04937-20, -30) and GSB 15 Dual Type-C (011-04937-40, -50) have COTS SW in the PD charge controller. Design assurance level D is achieved at the subsystem level through hardware over voltage/current protections and 3rd party lab testing for USB PD functionality.

The GSB 15 COTS module provides no design assurance for pass-through data. Those installing this article with other articles utilizing pass-through data must determine means for detecting misleading or corrupt data.

1.3.6 Database

For information on certification compliance for databases, refer to Garmin Document P/N 190-01999-00 posted at flyGarmin.com.

1.4 Interface Summary

The following list is an interface summary for the GSB 15 units:

- Two (2) USB Type-A and/or Type-C connectors for charging and data transfer
- A USB interface through the rear connector for database/SW loads to Garmin units.

1.5 Performance Technical Specifications

1.5.1 Environmental Qualification Form Reference

It is the responsibility of the installing agency to obtain the latest revision of the GSB 15 Environmental Qualification Form. To obtain a copy of this form, see the dealer/OEM portion of the Garmin web site (www.garmin.com).

This form is available directly from Garmin under the following part number:

GSB 15 Environmental Qualification Form, Garmin part number 005-01380-03

1.5.2 General Specifications

Table 1-14 General Specifications

Characteristic	Specification
Qualcomm® Quick Charge™ Technology	Qualcomm® Quick Charge™ Technology delivers up to 75% faster charging vs. conventional USB charging [1]
Output Voltage 011-04937-00, -01 units	Type-A Ports: 5-12VDC +/-5% (5V nominal)
Output Voltage 011-04937-20, -30, -40, -50 units	Type-A Ports: 3.6-12VDC +/-5% (5V nominal) Type-C Ports: 5-12VDC +/-5% (5V nominal)
Output Power (each port) 011-04937-00, -01 units	Type-A Ports: 18W MAX (7.5W Nominal) 5V/3A, 9V/2A, 12V/1.5A
Output Power (each port) 011-04937-20, -30, -40, -50 units	Type-A Ports:27W MAX (7.5W Nominal) [3] 5V/3A, 9V/3A, 12V/2.25A Type-C Ports:27W MAX (15W Nominal) [4] 5V/3A, 9V/3A, 12V/2.25A
Operating Temperature Range	-20 to 55 C [2]
Altitude	55,000 ft
Humidity	95% non-condensing

[1] Type-A ports only
[2] GSB 15 may reduce output power at high ambient temperatures depending on the installation environment. See Section 1.5.4 for details.
[3] Output power on Type-A ports is reduced to 7.5W maximum when transferring data.
[4] Output power on Type-C ports is reduced to 15W maximum when transferring data.

1.5.3 Power Specifications

Table 1-15 GSB 15 Power Specifications

Specification	Dual Type-A (011-04937-00, -01) Units	Type-A and Type-C (011-04937-20, -30) units and Dual Type-C (011-04937-40, -50) Units
Max Power While Charging Both Ports and Backlight Enabled	40W 14V, 2.86A 28V, 1.43A	68W 14V, 4.86A 28V, 2.43A
Max Power With No Devices Connected	500mW 14V, 0.035A	500mW 14V, 0.035A

1.5.4 Over-Temperature Protection

The GSB 15 Dual Type-A (011-04937-00, -01) unit is equipped with over-temperature detection and may reduce output power to 5V, 1.5A (max) output current. After the device has cooled, normal output power will resume.

The GSB 15 Type-A and Type-C (011-04937-20, -30) and GSB 15 Dual Type-C (011-04937-40, -50) units are equipped with over-temperature detection. Type-A and Type-C ports may reduce output current to 5V, 1.5A (max) and 5V, 3A (max) respectively. After the device has cooled, normal output power will resume.

1.6 Limitations

This article meets the minimum performance and quality control standards required by a technical standard order (TSO). Installation of this article requires separate approval.

1.7 Operating Instructions

All GSB 15 units (011-04937-XX) have a configurable backlight. Grounding pin 5 will de-activate the backlight, allowing pin 5 to float enables the backlight. The backlight brightness is calibrated for night-time use and may not be visible in daylight conditions. The GSB 15 Type-A and Type-C (011-04937-20, -30) and GSB 15 Dual Type-C (011-04937-40, -50) units have additional functionality to connect to dimmer bus between 0 VDC and aircraft pwr to set/dim the backlight

It is acceptable and preferred to install only the pins that are needed.

CAUTION

Do not apply power to the unit until after the rear connector is completely seated. Connecting the unit while power is applied may cause damage to the device, and to other LRUs that are connected to the data lines.

1.8 License Requirements

There are no license requirements applicable to the GSB 15.

1.9 Reference Documents

There are no applicable reference documents for installation of the GSB 15.

2 INSTALLATION OVERVIEW

2.1 Introduction

This section provides the equipment information for installing the GSB 15 and related optional accessories. Installation of the GSB 15 must follow the data detailed in this manual. Cabling is typically fabricated by the installing agency to fit each particular aircraft. Always follow acceptable avionics installation practices per advisory circulars AC 43.13-1B and AC 43.13-2B or later FAA approved revisions.

2.2 Installation Materials Required but not Supplied

- All wiring required for installation
- Circuit breaker
- M81824/1-2 (or equivalent) splices may be required for 14V aircraft installation

2.3 Installation Configurations

The GSB 15 can be installed in either a rear connector or side connector configuration. Refer to the outline and installation drawings in Appendix A.

Optional 2.25” and 3.125” mounting kits are also available (see Table 1-3) to mount the GSB 15 in existing instrument panel holes.

NOTE

At least 2 of the 4 provided mounting holes must be used (diagonally from each other) to mount the GSB 15.

2.4 Special Tools Required

A crimp tool is required for the GSB 15 installation. Recommended and optional crimp tools are as follows:

Recommended Crimp tool:

- Molex Hand Crimp Tool, P/N 638190000

Optional:

- Molex Insertion Tool for Micro-Fit 3.0 and CRC Male and Female Crimp Terminals, 20-30 AWG, P/N 638120800
- Molex Extraction Tool, P/N 11030043

2.5 Cabling and Wiring

Wiring must be installed in accordance with AC 43.13-1B Chapter 11, Sections 8 through 13. The following issues must be addressed:

- Do not expose cabling and wiring to chafing
- Do not route cabling and wiring harnesses near flight cables
- Do not route cabling and wiring near high-energy sources. (e.g. DC motors, high heat sources)
- Wiring indicated as shielded in Appendix B must be shielded
- Pigtail lengths must be less than 2.5 inches.
- Crimp pins must be installed in accordance with Molex Application Tooling Specification Sheet ATS-638190000 to ensure proper insulation crimp and conductor crimp.

CAUTION

See Figure B-1 for power and power ground wire info.

2.6 Shielding and Electrical Bonding Considerations

Electrical equipment, supporting brackets, and racks must be electrically bonded to the aircraft's main structure or a designated aircraft groundplane. Refer to the following documents for applicable bonding techniques:

- AC 43.13-1B CHG 1, "Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair", Chapter 11, "Aircraft Electrical Systems"
- SAE ARP 1870A, "Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety"
- A bonding procedure developed and supplied by the aircraft manufacturer (if available)

The electrical bond must achieve direct current (DC) resistance less than or equal to 2.5 milliohms to local structure where the equipment is mounted. Compliance must be verified by inspection using a calibrated milliohm meter.

2.7 Cooling Requirements or Considerations

The GSB 15 has no cooling requirements or considerations. Forced air cooling will reduce the internal temperature of the unit and prolong the life of the product.

The GSB 15 may reduce output power at high temperatures depending on the installation environment. See Section 1.5.4 for details.

2.8 Mounting Requirements

The small size of the GSB 15 allows it to be installed in many places. It is intended to be installed to the instrument panel or other suitable cabin surface. There are no special requirements for viewing, reach, or proximity. See drawings in Appendix A for details.

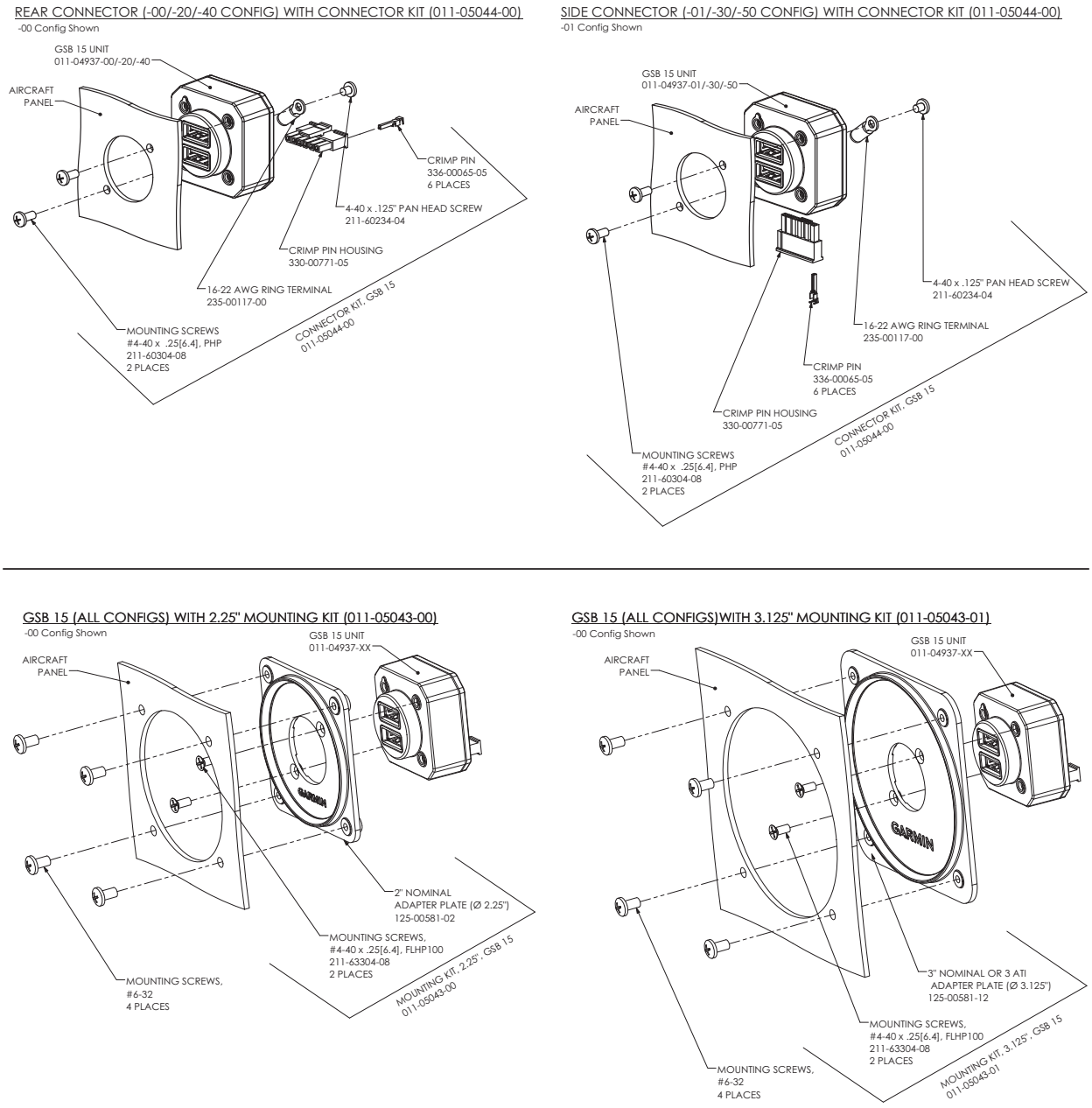


Figure 2-1. GSB 15 Mounting Examples

3 INSTALLATION PROCEDURE

3.1 Wiring Harness Installation

Allow adequate space for installation of cables and connectors. The installer shall supply and fabricate all of the cables. All electrical connections are made through a single connector.

Section 6 defines the electrical characteristics of all input and output signals. Required connectors and associated hardware are provided in the connector kit (Section 1.2.2).

CAUTION

For GSB 15 Type-A and Type-C (011-04937-20, -30) and GSB 15 Dual Type-C (011-04937-40, -50) units, use 7.5A breaker for 14VDC input per Figure B-1.

CAUTION

See Figure B-1 for power and power ground wire info.

CAUTION

Do not apply power to the unit until after the rear connector is completely seated. Connecting the unit while power is applied may cause damage to the device, and to other LRUs that are connected to the data lines.

NOTE

For data transfer installations, the ring terminal is required. If used, torque the ring terminal screw to 4-6 lbf-in.

3.2 Equipment Mounting

For final installation and assembly, refer to the outline and installation drawings shown in Appendix A of this manual.

1. Assemble connector per instructions in Section 2.
2. Install the unit from the back side of the desired installation surface with the circular surface protruding through the hole.
3. Attach the unit to the installation surface using a minimum of two screws (oriented diagonally). Rotational orientation of the unit within the mounting location is at the installer's discretion. The recommended screw torque is 6-8 lbf-in.
4. Attach the cable harness to the connector, paying attention to the keying and latching features of the connector.
5. If using mounting kit 011-05043-00 or 011-05043-01, mount adapter plate to desired mounting surface using specified screws (see Figure A-4) and attach unit to adapter plate using included screws.

CAUTION

Be careful to not damage the unit or connector during installation. Avoid over-torquing mounting screws.

3.2.1 Unit Replacement

Make sure that power is removed before disconnecting the GSB 15.

3.3 Decorative Cover Installation

NOTE

If using the Unfinished version of the Decorative Cover, finishing methods that require less than 120° C are recommended. If the finishing method (such as powder coating) exceeds 120° C, it is recommended to pre-heat the cosmetic piece to 200° C or greater before applying a finish in order to prevent cosmetic defects.

Perform the following steps to install the Decorative Cover Kits listed in Table 1-8 and Table 1-9.

1. Prepare panel for installation. See Appendix A for details.
2. Install the Intermediate Piece using the two provided screws.
3. Peel off the tape liners from the Intermediate Piece.
4. Install the Cosmetic Piece.

NOTE

For best results, install the Decorative Cover as specified below:

- *Recommended installation temperature: 70-100°F (21-38°C)*
- *Minimum installation temperature: 50°F (10°C)*
- *Recommended screw torque: 4-6 lbf-in*
- *After removing the tape liners from the Intermediate Piece (Step 3 above), avoid touching the exposed adhesive.*
- *Before installing (Step 4 above), clean the inside of the Cosmetic Piece with a 50-90% isopropyl alcohol and water mixture. Allow it to fully dry before proceeding.*
- *When installing the Decorative Cover, apply an evenly distributed minimum force of 7 lbf (3 kgf or 30 N).*
- *The adhesive will fully cure within 72 hours (90% strength after 24 hours).*

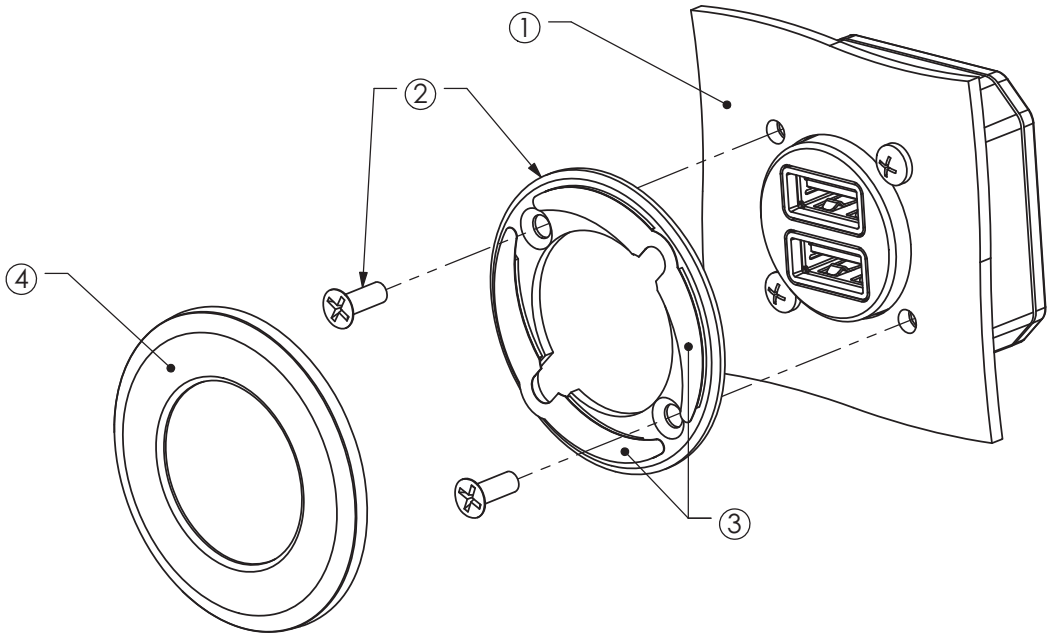


Figure 3-1 GSB 15 Decorative Cover Installation

4 POST INSTALLATION CONFIGURATION & CHECKOUT

4.1 Mounting, Wiring, and Power Checks

Verify all cables are properly secured and shields are connected to the ground lug located on the back of the unit. Check the movement of the flight and engine controls to verify there is no interference between the cabling and control systems. Verify all wiring is installed as described in this manual. Prior to installing and powering up the GSB 15, the wiring harness must be checked for proper connections to the aircraft systems and other avionics equipment. Point to Point continuity must be checked to expose any faults such as shorting to ground or wiring discrepancies. Any faults or discrepancies must be corrected before proceeding. After accomplishing a continuity check, perform power and ground checks to verify proper power distribution to the GSB 15. Any faults or discrepancies must be corrected at this time. The GSB 15 can be installed after completion of the continuity and power checks.

CAUTION

For GSB 15 Type-A and Type-C (011-04937-20, -30) and GSB 15 Dual Type-C (011-04937-40, -50) unit installations in 14V aircraft confirm alternator voltage is 13.75V nominal. If lower, either adjust to 13.75V nominal or use shorter wire length than what is defined in Figure B-1.

4.2 Configuration Setup

Not applicable.

4.3 Diagnostic Information

Not applicable.

4.4 Ground Checks

Not applicable.

4.5 Software Loading Procedure

The GSB 15 does not load its own operating software.

5 CONTINUED AIRWORTHINESS

Maintenance of the GSB 15 is “on condition” only.

6 CONNECTOR PINOUT INFORMATION

6.1 Pin Function List

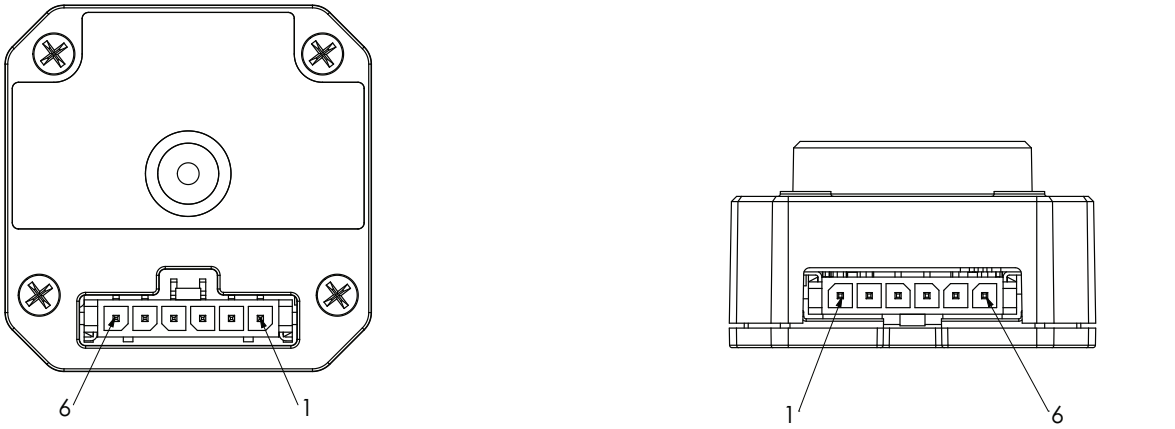
6.1.1 P201/202 Connector

NOTE

P201 is the designation for the rear connector for GSB 15 part number 011-04937-00, -20, -40.

NOTE

P202 is the designation for the side connector for GSB 15 part number 011-04937-01, -30, -50.



P201, GSB 15 Rear (011-04937-00, -20, -40) Unit

P202, GSB 15 Side (011-04937-01, -30, -50) Unit

Figure 6-1. Unit View of P201/P202.

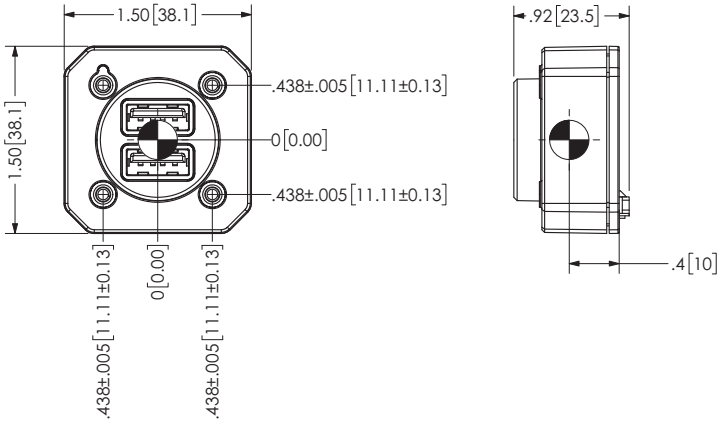
Table 6-1 J201/J202 Connector

Pin	Pin Name	I/O	COMMENTS
1	AIRCRAFT POWER	IN	14V/28V Aircraft Power Input
2	USB DN	I/O	May use shielded CAT-5 ethernet cable.
3	USB DP	I/O	May use shielded CAT-5 ethernet cable.
4	USB GND	--	May use shielded CAT-5 ethernet cable.
5	BACKLIGHT ENABLE	IN	Do not connect for backlight ON (nighttime visibility). Ground connection for backlight OFF. 011-04937-20, -30, -40, -50 only: Dimmable input from GND (backlight OFF) to AIRCRAFT POWER (maximum brightness).
6	POWER GROUND	--	Ground

APPENDIX A OUTLINE AND INSTALLATION DRAWINGS

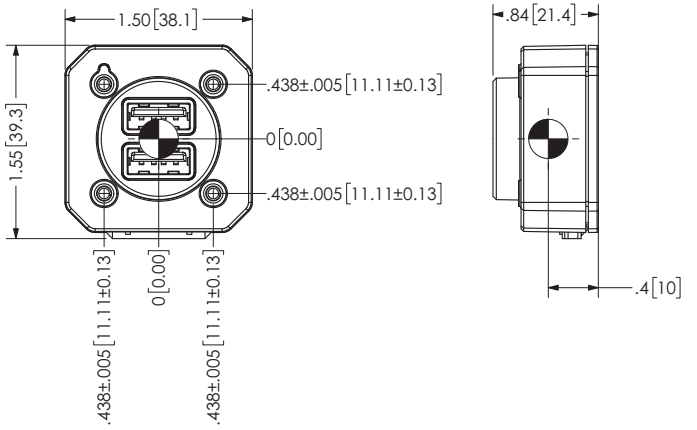
REAR CONNECTOR (-00/-20/-40 CONFIG), UNIT ONLY

(-00 CONFIG SHOWN)



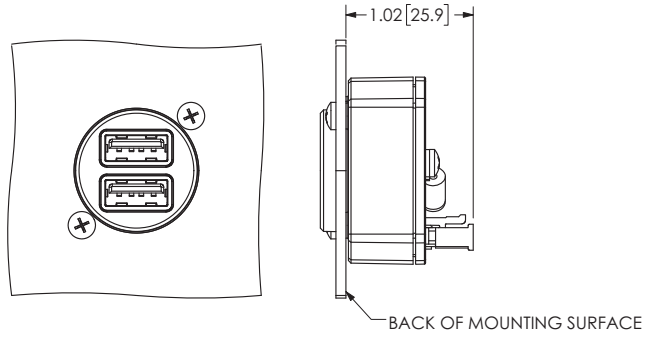
SIDE CONNECTOR (-01/-30/-50 CONFIG), UNIT ONLY

(-01 CONFIG SHOWN)



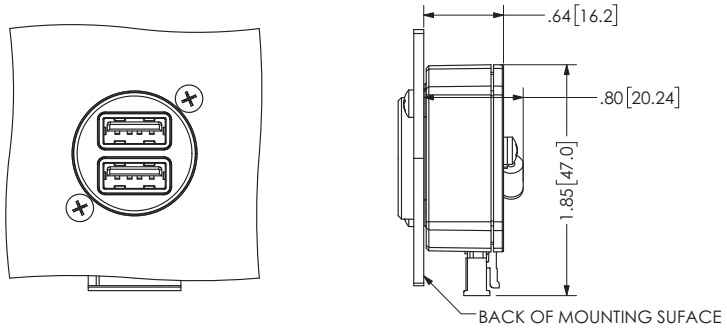
REAR CONNECTOR (-00/-20/-40 CONFIG), WITH CONNECTOR KIT (011-05044-00)

(-00 CONFIG SHOWN)



SIDE CONNECTOR (-01/-30/-50 CONFIG), WITH CONNECTOR KIT (011-05044-00)

(-01 CONFIG SHOWN)

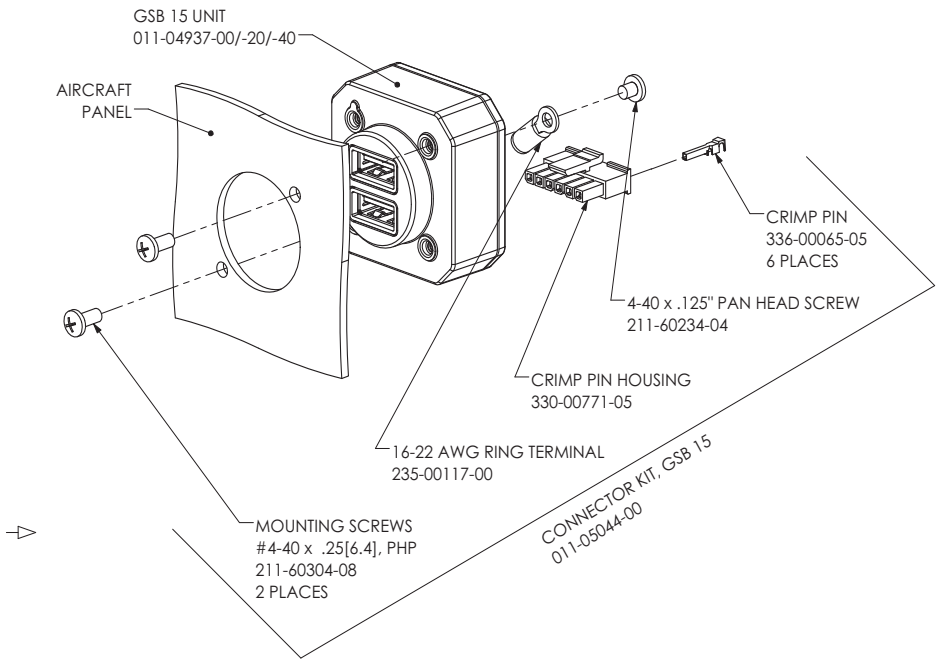


NOTES:
1. DIMENSIONS: INCHES[mm]. METRIC VALUES ARE FOR REFERENCE ONLY.
2. DIMENSIONS ARE NOMINAL AND TOLERANCES ARE NOT IMPLIED UNLESS SPECIFICALLY STATED.

Figure A-1 GSB 15 Outline Drawing

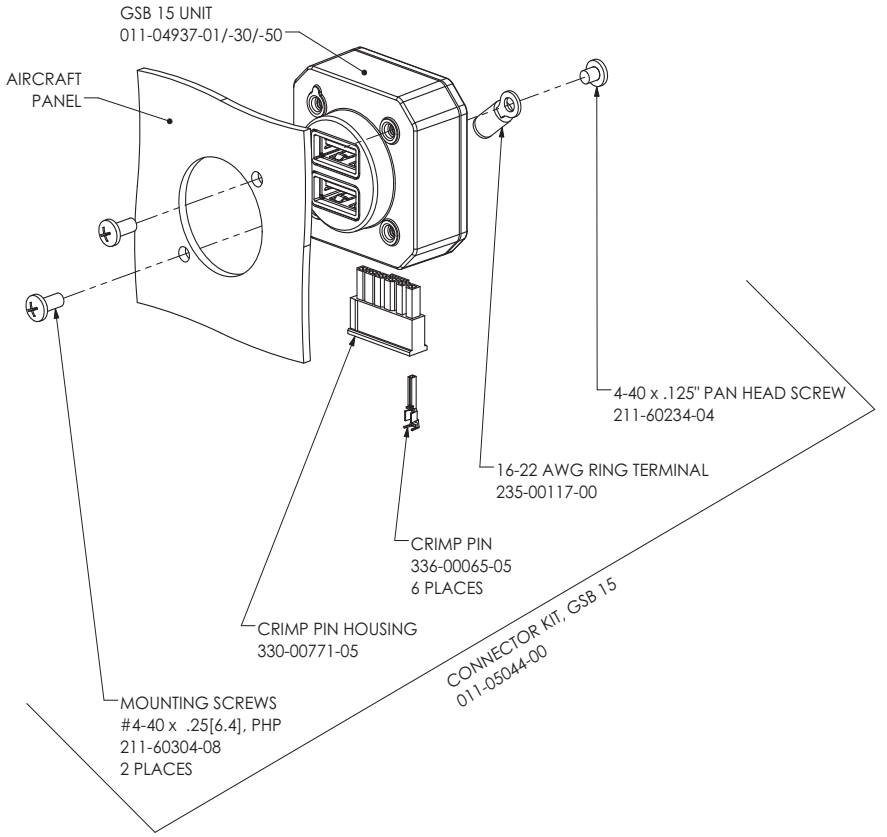
REAR CONNECTOR (-00/-20/-40 CONFIG) WITH CONNECTOR KIT (011-05044-00)

-00 Config Shown



SIDE CONNECTOR (-01/-30/-50 CONFIG) WITH CONNECTOR KIT (011-05044-00)

-01 Config Shown



Panel Thickness	Recommended Screw Length	Included in Connector Kit (011-05044-00)?
.000-.050[0.00-1.27]	.188[4.76]	No
.050-.125[1.27-3.18]	.250[6.35]	Yes, Qty. 2
.125-.188[3.18-4.76]	.313[7.95]	No

Figure A-2 GSB 15 Installation Drawing (011-05044-00 Mounting Kit)

RECOMMENDED PANEL CUTOUT DIMENSIONS FOR UNIT

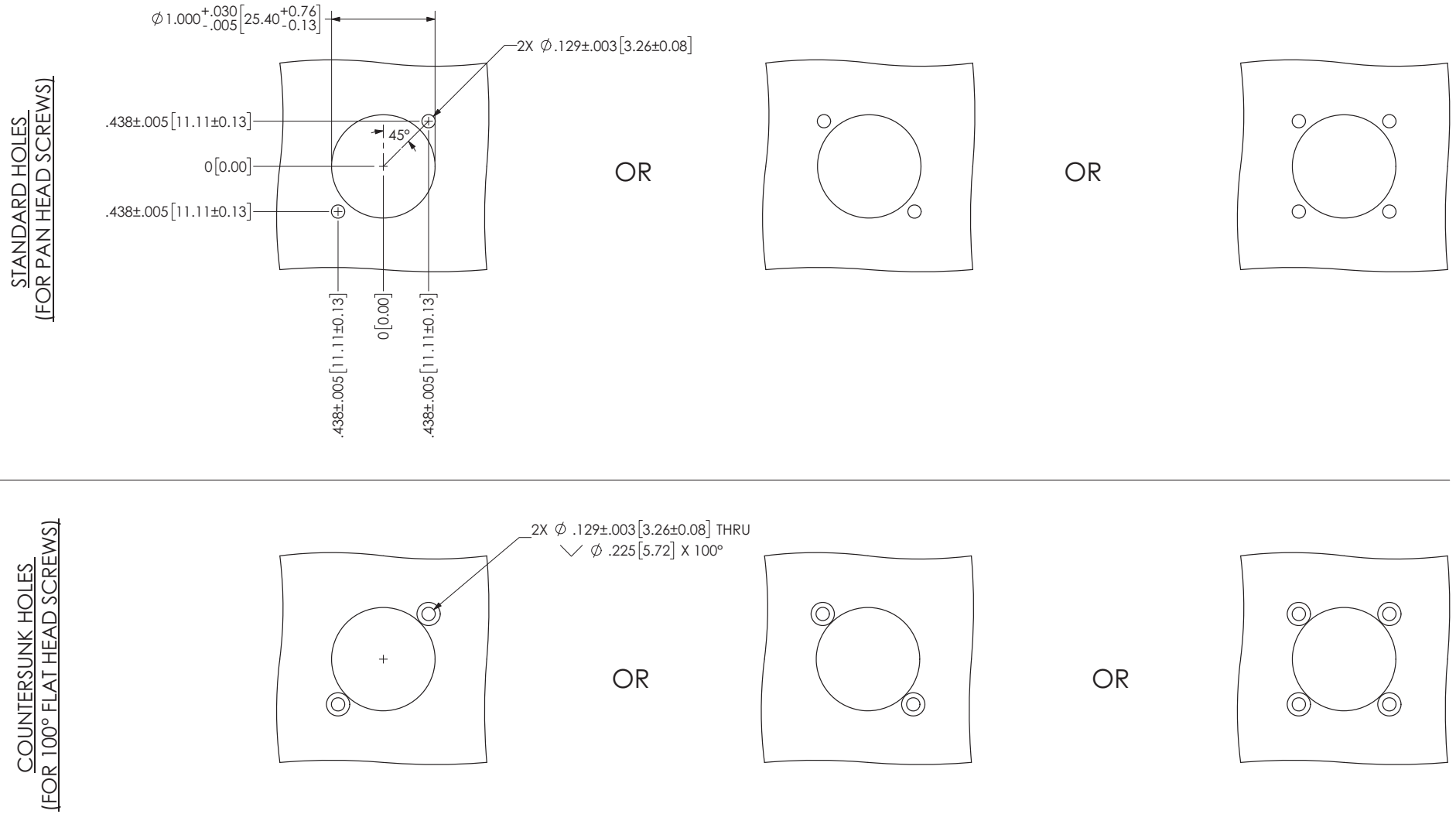
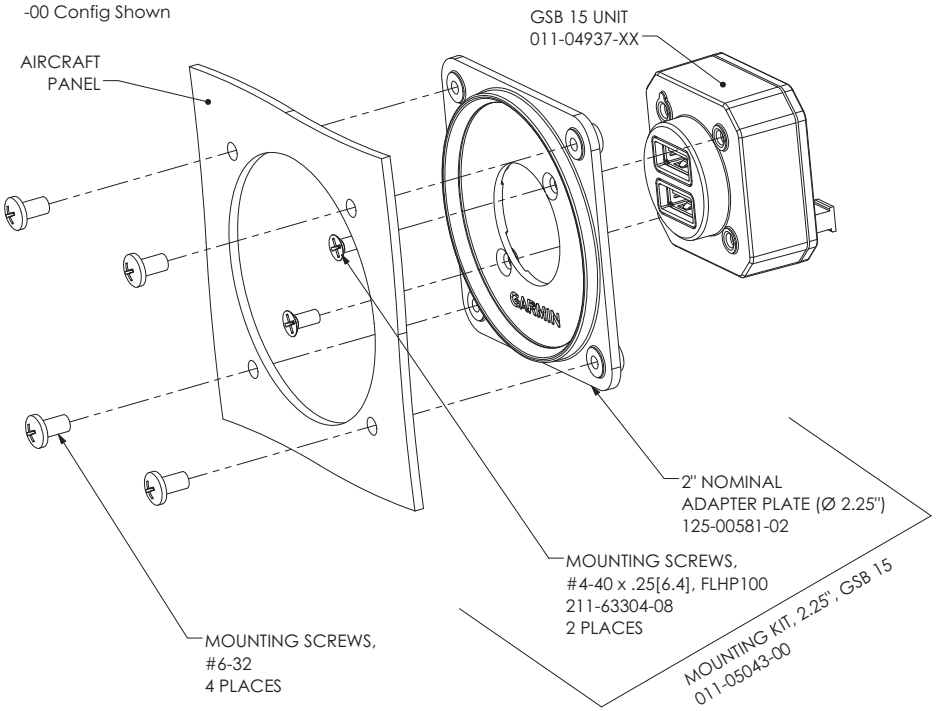


Figure A-3 GSB 15 Panel Cutout Drawing (Pan Head and Flat Head Screws)

GSB 15 (ALL CONFIGS) WITH 2.25" MOUNTING KIT (011-05043-00)

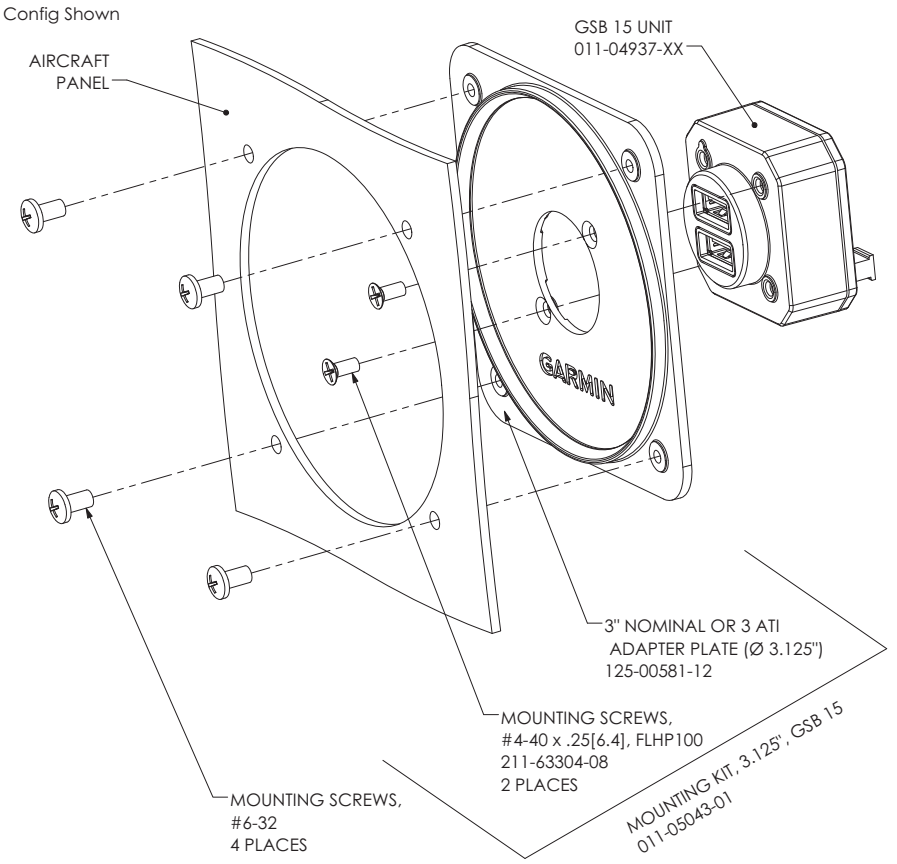
-00 Config Shown



Panel Thickness	Recommended Screw Length
.000-.050[0.00-1.27]	.188[4.76] Minimum
.050-.125[1.27-3.18]	.250[6.35] Minimum
.125-.188[3.18-4.76]	.313[7.95] Minimum

GSB 15 (ALL CONFIGS)WITH 3.125" MOUNTING KIT (011-05043-01)

-00 Config Shown

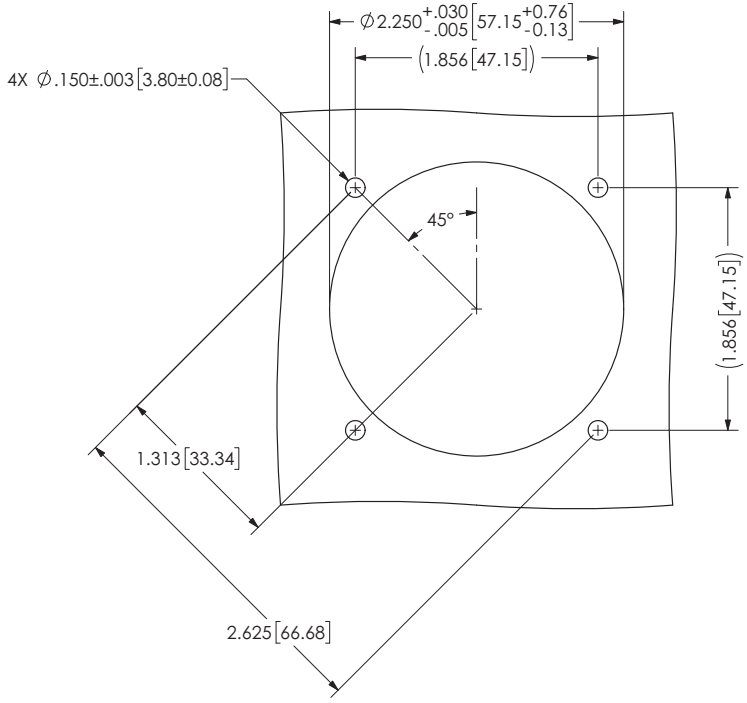


Panel Thickness	Recommended Screw Length
.000-.050[0.00-1.27]	.188[4.76] Minimum
.050-.125[1.27-3.18]	.250[6.35] Minimum
.125-.188[3.18-4.76]	.313[7.95] Minimum

Figure A-4 GSB 15 Assembly Drawing (011-05043-00 and -01 Mounting Kits)

RECOMMENDED PANEL CUTOUT DIMENSIONS FOR UNIT WITH MOUNTING KIT

011-05043-00 STANDARD HOLES (FOR PAN HEAD SCREWS)



011-05043-01 STANDARD HOLES (FOR PAN HEAD SCREWS)

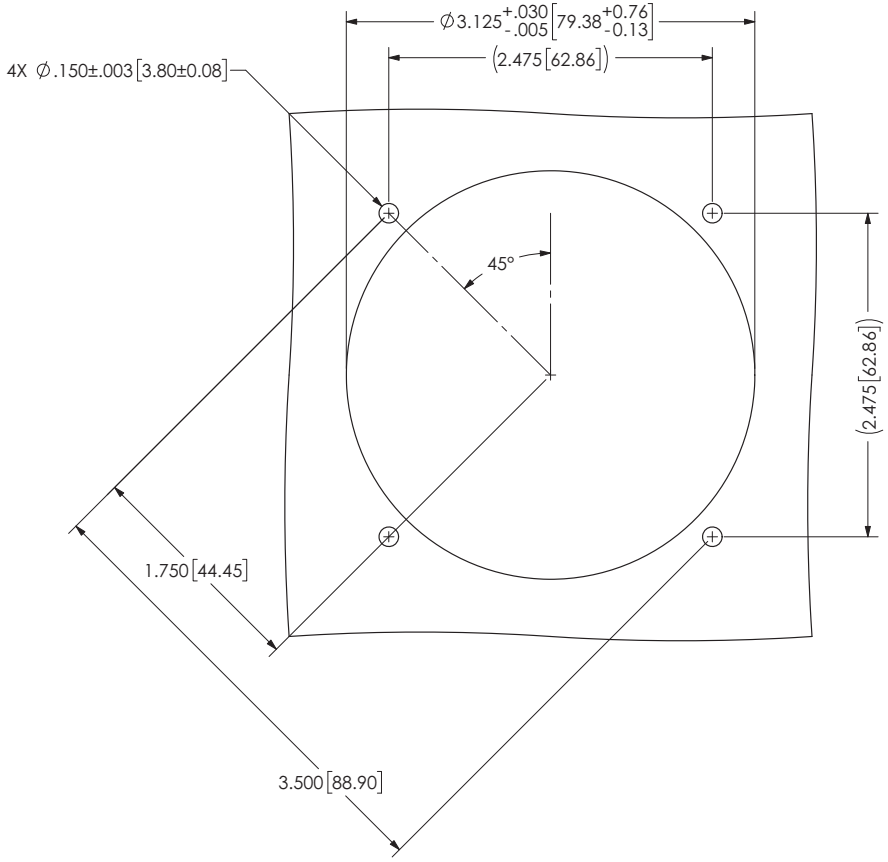
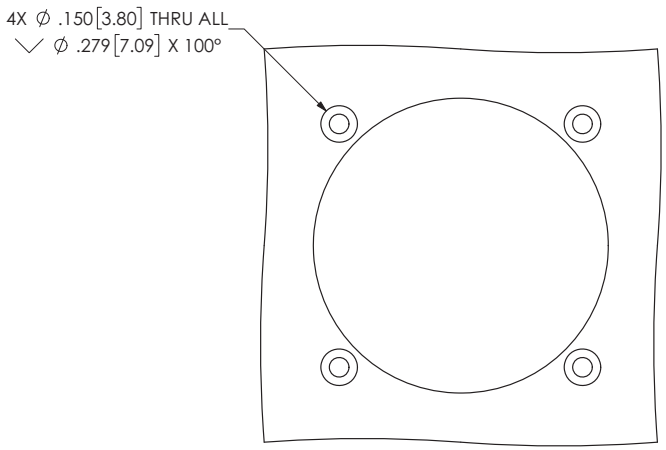


Figure A-5 GSB 15 Panel Cutout Drawing w/Pan Head Screws (011-05043-00 and -01 Mounting Kits)

RECOMMENDED PANEL CUTOUT DIMENSIONS FOR UNIT WITH MOUNTING KIT

011-05043-00 COUNTERSUNK HOLES (FOR 100° FLAT HEAD SCREWS)



011-05043-01 COUNTERSUNK HOLES (FOR 100° FLAT HEAD SCREWS)

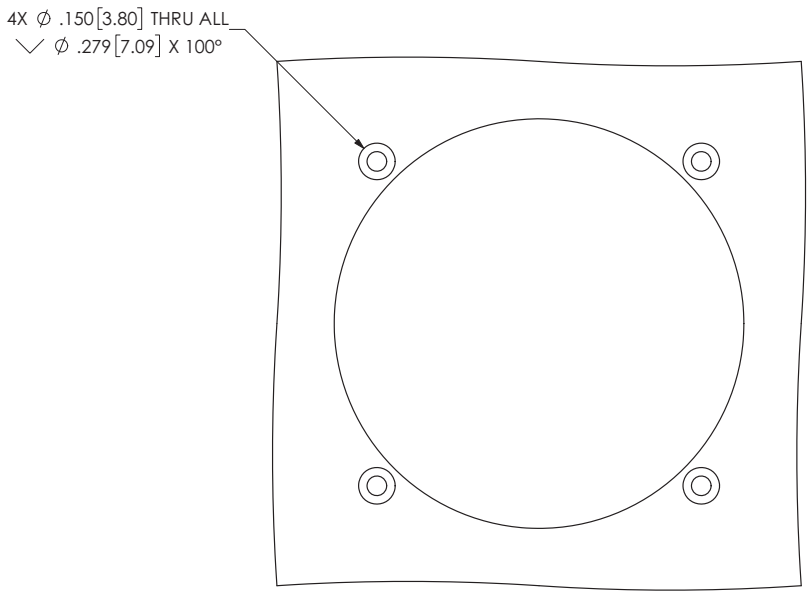
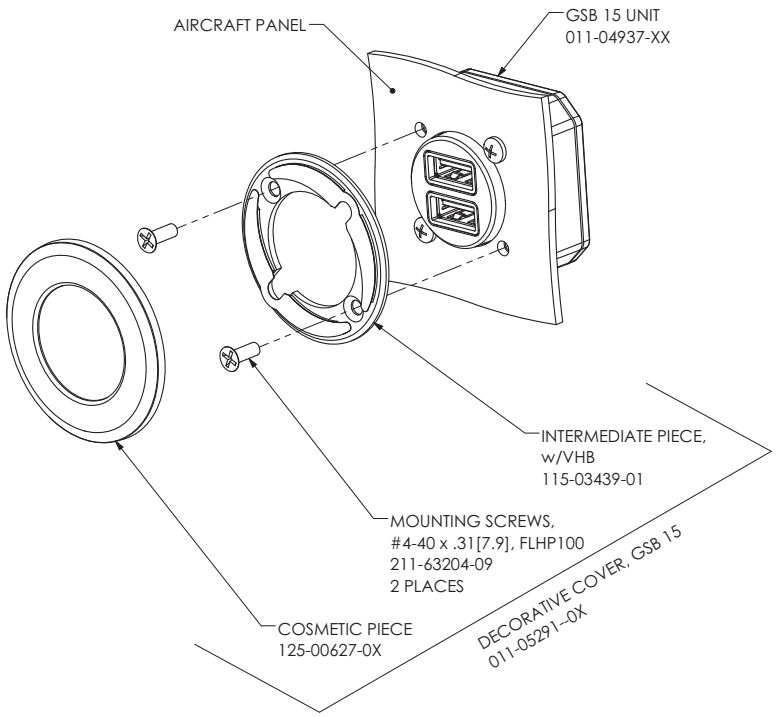


Figure A-6 GSB 15 Panel Cutout Drawing w/Flat Head Screws (011-05043-00 and -01 Mounting Kits)

GSB 15 (ALL CONFIGS) WITH DECORATIVE COVER (011-05291-0X)

-01 Config Shown



COSMETIC PIECE IS AVAILABLE IN TWO FINISHES:

PART NUMBER	FINISH
011-05291-00	CHROMATE CONVERSION COATING ("UNFINISHED")
011-05291-01	BLACK POWDER COAT

COSMETIC PIECE WILL MOUNT FLUSH WITH UNIT ON A .08[2.0] THICK PANEL.

RECOMMENDED PANEL CUTOUT DIMENSIONS FOR UNIT WITH DECORATIVE COVER

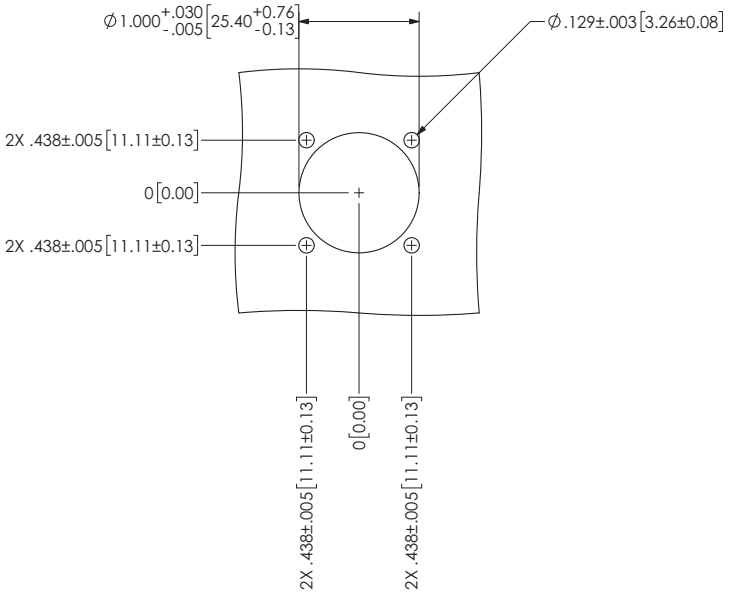
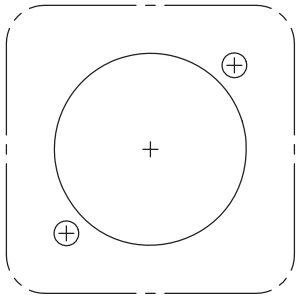


Figure A-7 GSB 15 w/Decorative Cover Assembly and Panel Cutout Drawing

PRINTABLE CUTOUT TEMPLATE FOR GSB 15 INSTALLATION (SCALE 1:1)

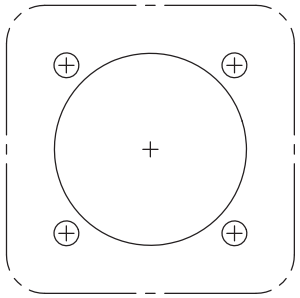
NEW INSTALLATIONS WITH 2 MOUNTING SCREWS



NEW INSTALLATIONS WITH 4 MOUNTING SCREWS

OR

NEW INSTALLATIONS WITH DECORATIVE COVER



IMPORTANT!
Ensure the Page Scaling setting is set to "NONE" when printing this page. Verify dimensions (Page A-3 or A-7) of printed template are accurate before cutting panel.

EXISTING INSTALLATIONS ADDING A DECORATIVE COVER

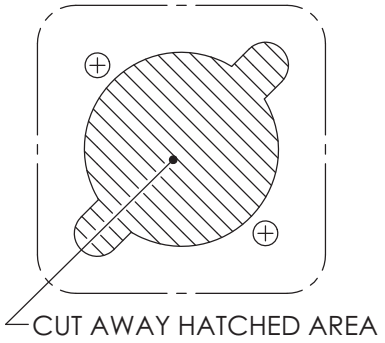
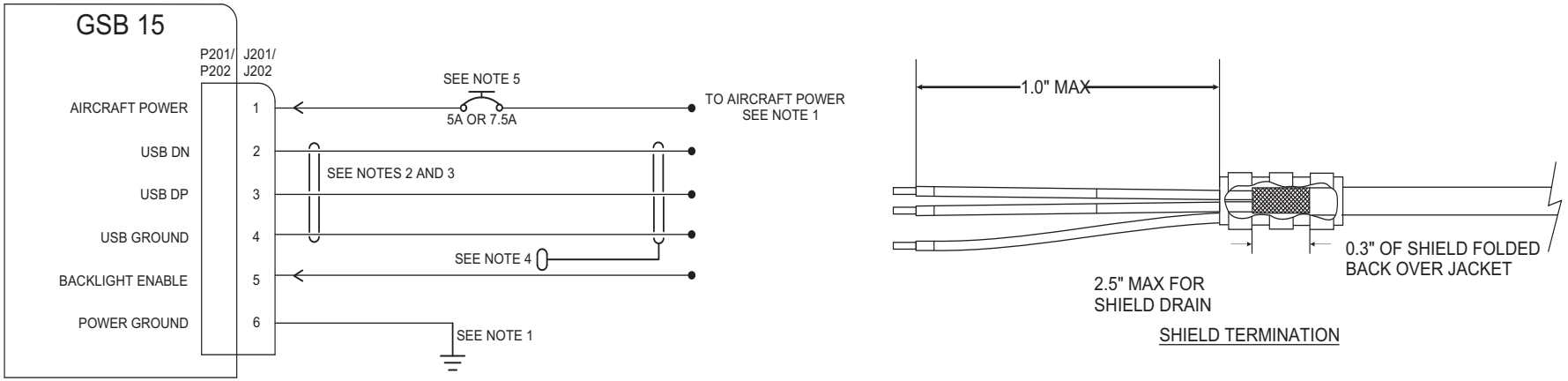


Figure A-8 GSB 15 Panel Cutout Drawings, Actual Size

APPENDIX B INTERCONNECT DRAWINGS



NOTES:

1. CAUTION!:
   A) GSB 15 DUAL TYPE-A (011-04937-00, -01) UNITS USE 20 OR 22 AWG FOR POWER AND POWER GROUND WIRES, 25 FT MAX.

   B) GSB 15 TYPE-A AND TYPE-C (011-04937-20, -30) AND GSB 15 DUAL TYPE-C (011-04937-40, -50) UNITS INSTALLED IN 28V AIRCRAFT, USE 20 OR 22 AWG FOR AIRCRAFT POWER AND POWER GROUND WIRES, 25FT MAX.

   C) GSB 15 TYPE-A AND TYPE-C (011-04937-20, -30) AND GSB 15 DUAL TYPE-C (011-04937-40, -50) UNITS INSTALLED IN 14V AIRCRAFT, USE 20 AWG FOR AIRCRAFT POWER AND POWER GROUND WIRES, 8FT MAX.

   •) IF LONGER WIRE LENGTH IS NEEDED, USE 16 AWG FOR POWER AND POWER GROUND WIRES, 13FT MAX, SPLICED TO 2FT MAX 20 AWG POWER AND POWER GROUND WIRES AT GSB 15 CONNECTOR. USE M81824/1-2 (OR EQUIVALENT) SPLICES.

2. USE CAT 5 SHIELDED TWISTED PAIR WIRING, 10 FT MAX.

3. CONNECT TO CAT 5 SHIELD USING M83519 SOLDER SLEEVE (OR EQUIVALENT) 1" [2.54 cm] MAX FROM CONNECTOR.
   SOLDER SLEEVES WITH PRE-INSTALLED LEADS ARE ACCEPTABLE.

4. TERMINATE CAT 5 SHIELD TO THE BACK OF THE GSB 15 USING THE RING TERMINAL AND RING TERMINAL SCREW (P/N 235-00117-00 AND 211-60234-04).

5. CAUTION! FOR GSB 15 TYPE-A AND TYPE-C (011-04937-20, -30) AND GSB 15 DUAL TYPE-C (011-04937-40, -50) UNITS, USE 7.5A BREAKER FOR 14VDC INPUT. GSB 15 DUAL TYPE-A (011-04937-00, -01) USE 5A BREAKER FOR 14VDC INPUT. ALL GSB 15 MODELS USE 5A BREAKER FOR 28VDC INPUT.

6. SYMBOL DESIGNATIONS:

Figure B-1 GSB 15 Example Interconnect


GARMIN