G500/G600 TXi

Part 23 AML STC
Installation Manual

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RECORD OF REVISIONS

Rev	Revision Date	Change Description
28	06/03/25	Updated for software v3.80.
29	06/23/25	Added Textron Aviation (Cessna) Model 525.
30	07/21/25	Added GDU 1210.

REVISION 30 DESCRIPTION OF CHANGES

Section	Description
All	Updated references of “GDU 700/1060” to “GDU” to include GDU 1210. Added GDU 1210 where applicable.
1	Included “GDU” referencing all TXi GDUs.
1.2.1	Added GDU 1210 to Figure 1-2 G500/G600 TXi PFD Interfaces.
1.2.2	Added GDU 1210 to Figure 1-3 G500/G600 TXi MFD Interfaces.
1.2.3	Added GDU 1210 to Figure 1-4 G500/G600 TXi Reciprocating EIS Interfaces.
1.2.4	Added GDU 1210 to Figure 1-5 G500/600 TXi Turboprop EIS Interfaces.
1.2.9	Updated Figure 1-10 Display Backup Mode Transitions and Figure 1-11 Standby PFD Mode Transitions to include GDU 1210.
1.3.1	Clarified that Integrated ADAHRS is not applicable to GDU 1210. Added GDU 1210 description.
1.4	Added GDU 1210 to Figure 1-37 GDU 1060/1210 PFD/MFD with a GDU 700 EIS Block Diagram.
2.1	Clarified optional installations that may affect instrument panel weight limits.
2.1.19	Added GDU 1210 installation limitation.
3.1.1	Added GDU 1210 part numbers to Table 3-1 G500/G600 TXi Displays.
3.1.2	Clarified recommended HSDB cables.
3.2.2	Included GPS 175, GNX 375, and GNC 355 in Note.
3.2.3	Updated standby requirement for interfacing with previously installed GRS 77 or GDC 74( ) sensors when installing GDU 1210.
3.2.3.2	Added GI 275 requirement for some GDU 1210 installations.
3.5	Corrected GDU 700 and GDU 1060 without Integrated ADAHRS current draw in Table 3-34 LRU Current Draw. Added GDU 1210.
4.4.2	Added GDU 1210 installation section.
4.4.7	Updated Figure 4-50 Flight Stream 510 Install Card Slot to include GDU 1210.
4.5.5	Updated Caution to include weight limitations when installing GEA 110 on back of GDU.
5.4.6	Added GNC 215 to Table 5-6 NAV Interfaces and Configuration Settings and added [1] and [2].

Section	Description
5.5.3	Updated section to include Dimming setting for GDU 1210 only.
5.7.3.2	Clarified strip gauge requirements for MFD/EIS displays.
6.2.3	Updated the procedure for taking screen shots.
6.7	Corrected omission of GDU 700L. Updated to “GDU” to include all variants.
6.9	Added method for powering off GDU 1210 to Display Backup Mode Check.
A.1	Added Figure A-4 GDU 1210 Connectors. Noted pin functions that are not applicable to GDU 1210.
Appendix B	Added GNC 215 and Flag Note 8 to Figure B-7 NAV Interconnect – Single GDU and Figure B-8 NAV Interconnect – Dual GDU. Corrected omission of GDU 700L for Emergency Descent Mode switch and Yaw Trim State in Figure B-40 External Switches and Annunciators. Added Flag Note 18 to clarify EIS display requirements in Figure B-52 Remote Aircraft Status Interconnect.
C.4	Added GNC 215 to Table C-4 Compatible Navigation Receiver.
D.10	Added GDU 1210 installation restrictions as [16] and [17] to Table D-38 Aircraft Model-Specific Data.
G.2.5	Added GDU 1210 to Table G-1 Required Equipment.

REVISION 29 DESCRIPTION OF CHANGES

Section	Description
2.1.15	Included Textron Aviation (Cessna) Model 525 as having RVSM group approval.
Appendix D	Added Textron (Cessna) Model 525 IMA to Table D-1 G500/G600 TXi Installation Manual Addendums.
D.10	Added Textron Aviation (Cessna) Model 525 to Table D-38 Aircraft Model-Specific Data.

REVISION 28 DESCRIPTION OF CHANGES

Section	Description
1.2.7.3	Clarified starter text lamp and starter timer interaction.
1.2.7.6	Added description for the Custom Gauge Readout advanced EIS setting.
1.2.7.7	Added description for the Gauge Scaling advanced EIS setting.
1.2.7.8	Added description for the Torque Target Indicator advanced EIS setting.
1.2.8	Clarified what is an advanced and what is an additional EIS setting.
1.2.8.3	Added description for Engine Power additional EIS setting.
1.2.8.4	Added description for Lean Assist additional EIS setting.
1.2.8.5	Added description for Selectable Fuel Quantity additional EIS setting.

Section	Description
1.2.8.6	Added description for Auto Ignition additional EIS setting.
1.2.8.7	Added description for Auto Start additional EIS setting.
1.2.8.8	Added description for Starter Timer additional EIS setting.
1.3.1	Updated Figure 1-14 GDU 700P Display Configurations and Figure 1-15 GDU 700L Display Configurations for new reciprocating EIS interface.
3.2.6	Clarified EIS alerting behavior. Added [5] prohibiting triangle and dot markings for gauges displayed in the engine temperature graph in Table 3-20 Available EIS Parameters.
3.2.9	Added Section 3.2.9 Stabilized Approach Considerations.
3.4.7	Clarified GAD 43e is required for marker beacon functionality.
3.4.8.1	Clarified Primary EGT/TIT and CHT marking requirements. Clarified J- and K-type thermocouple wire color coding.
3.4.8.7	Clarified requirements for performing the minimum inlet pressure and flow check.
3.4.9.1	Clarified J- and K-type thermocouple wire color coding.
4.7.3	Updated pipe coupling part number in Figure 4-97 Brass Sensor Installation and Figure 4-99 GPT Sensor Installation.
5.2.5.2	Corrected Table 5-1 Display Backup Mode Function to show GDU 700L does not support turboprop EIS.
5.3.2	Added Note for downgrading software from v3.80 or later to software prior to v3.80.
5.3.2.2	Added procedure for updating software from prior to v3.80 to v3.80 or later.
5.4.28	Added Stabilized Approach discretes to Table 5-55 Discrete Input Settings.
5.5.1.4	Added direction for G-Meter Filter Time Constant and Extreme Attitude Declutter settings.
5.5.9	Added new Stabilized Approach settings to Table 5-68 Stabilized Approach Alert Settings and Table 5-69 Alert Zone Settings. Removed visual alerts that are not enabled as part of this STC.
5.7.2.3	Added new Fuel Flow sensors to Table 5-74 Fuel Flow Sensor Selection, Table 5-75 Fuel Flow K-Factor, and Table 5-76 Fuel Flow K-Factor Determination.
5.7.3.1.1	Updated Figure 5-42 EGT/CHT Graph on GDU 700 EIS, Figure 5-43 EGT/CHT Graph on GDU 1060, and Table 5-78 EGT, CHT, and TIT Display Options for Single and Twin Engines to show new graph interface.
5.7.3.3.6	Added Precision Setting for Custom Gauge Readout in EIS Advanced Settings.
5.7.3.3.7	Added description for gauge scaling setting.
5.7.4	Separated Additional Settings into Piston EIS and Turboprop EIS.
5.7.4.1.3	Added Lean Assist setting.
5.7.4.2.6	Added guidance for Minimum Starter Run Time for Cooldown Timer setting for Custom Gauge Readout in EIS Additional Settings.

Section	Description
5.8.7.2	Added Note that the fuel calibration graph can be accessed any time after the first usable fuel calibration point has been calibrated.
	Added Figure 5-66 Fuel Calibration Graph Example.
6.2.5	Added Section 6.2.5 Stabilized Approach Flap/Gear Discrete Check.
6.13.1	Updated references to match latest revision of AFMS.
Appendix B	Added new Manifold Pressure sensor to Figure B-18 GEA 110 Sensor Interconnect, Sheet 1.
	Added Flag Note 27 to Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect, Sheet 1.
	Added new Fuel Flow sensors to Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect, Sheet 8.
	Added new Prop RPM sensor to Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect, Sheet 10.
	Added Figure B-40 External Switches and Annunciators, Sheet 3 and Flag Notes 4 and 5 related to Stabilized Approach flaps and gear switches/sensors.
C.3	Updated GTN Xi minimum software requirement for GDU software v3.80.
C.18	Added note regarding ART 2000 units with software 01/06 and later reporting faults.
C.25	Added new Manifold Pressure and Shunt sensors to Table C-26 GEA 110 EIS Sensor Compatibility.
	Added new sensors and updated sensor versions in Table C-28 GEA 71B Enhanced P/N 011-03682-05 EIS Sensor Compatibility.
D.7.4	Corrected “P1” to “P2”, added Fuel Flow sensors, and added Flag Note 2 in Figure D-10 C441 Model-Specific Interconnect.
D.9	Added Twin Commander 695/695A/695B model-specific section.
D.10	Corrected “Fuel Pressure check” to “Fuel Pressure and Flow check”. Clarified STC does not approve EIS for radial engines and does not approve installation of fuel flow transducers for turbine engines.
	Removed Fuel Check requirement for some models in Table D-38 Aircraft Model-Specific Data.
	Clarified that EIS is not approved for certain engines in Table D-38 Aircraft Model-Specific Data.
Appendix F	Updated section to include gauge style selection.
	Updated figures to include new EGT/CHT Graph.

Manual Layout

The aim of this installation manual is to provide clear and concise guidance in a layout designed to follow the logical order of a typical TXi system installation.

DEFINITIONS

WARNING
A Warning means injury or death is possible.

CAUTION
A Caution means that damage to the equipment is possible.

NOTE
A Note provides additional information.

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. For questions or additional information, refer to www.garmin.com/prop65.

WARNING
Perchlorate Material – special handling may apply. Refer to www.dtsc.ca.gov/hazardouswaste/perchlorate.

WARNING
Failure to properly configure the EIS gauges per the POH/AFM and other approved data could result in serious injury, damage to equipment, or death.

CAUTION
To avoid damage to the GDU, take precautions to prevent electrostatic discharge (ESD) when handling the unit, connectors, and associated wiring. ESD damage can be prevented by touching an object of the same electrical potential as the unit before handling the unit itself.

CAUTION
The GDU has a special anti-reflective coated display that is sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. Clean the display with a clean, lint-free cloth and a cleaner that is safe for anti-reflective coatings.

CAUTION
Do not store any G500/G600TXi component in or near water.

Acronyms

A

AC	Advisory Circular
ADAHRS	Air Data/Attitude and Heading Reference System
ADC	Air Data Computer
ADF	Automatic Direction Finder
ADI	Attitude and Direction Indicator
ADS-B	Automatic Dependent Surveillance - Broadcast
ADS-R	Automatic Dependent Surveillance - Rebroadcast
AFCS	Automatic Flight Control System
AFM	Aircraft Flight Manual
AGL	Above Ground Level
AHRS	Attitude Heading Reference System
ALT	Altitude
ALTC	Altitude Selected Capture
ALTV	Altitude VNAV Target Capture
AOA	Angle of Attack
AOPA	Aircraft Owners and Pilots Association
AP	Autopilot
APT	Automatic Pitch Trim
ASA	Aircraft Surveillance Applications

C

CDI	Course Deviation Indicator
CDT	Compressor Discharge Temperature
CDTI	Cockpit Display of Traffic Information
CDU	Control and Display Unit
CDUI	Control/Display User Interface
CFR	Code of Federal Regulation
CHT	Cylinder Head Temperature
CWS	Control Wheel Steering

D

DC	Direct Current
DME	Distance Measuring Equipment

E

EAR	Export Administration Regulations
EFIS	Electronic Flight Instrument System
EGT	Exhaust Gas Temperature
EIS	Engine Indication System
ESP	Electronic Stability and Protection
ETSO	European Technical Standard Order

F	
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FD	Flight Director
FIS-B	Flight Information Services-Broadcast
FLTA	Forward Looking Terrain Avoidance
FOV	Field of View
FPM	Feet Per Minute
G	
GA	Go Around
GAD	Garmin Adapter
GBB	Garmin Backup Battery
GCU	Garmin Control Unit
GDC	Garmin Air Data Computer
GDL	Garmin Data Link
GDU	Garmin Display Unit
GEA	Garmin Engine and Airframe
GFDS	Garmin Flight Data Services
GLS	GNSS Landing System
GMA	Garmin Marker/Audio
GMU	Garmin Magnetometer Unit
GNS	Garmin Navigation System
GNSS	Global Navigation Satellite System
GP	Glide Path
GPS	Global Positioning System
GPSS	Global Positioning System Steering
GPWS	Ground Proximity Warning System
GRS	Garmin Reference System
GS	Glide Slope
GSR	Garmin Satellite Receiver
GSU	Garmin Sensing Unit
GTN	Garmin Touchscreen Navigator
GTOW	Gross Takeoff Weight
GTP	Garmin Temperature Probe
GTS	Garmin Traffic System
GTX	Garmin Transponder
GWX	Garmin Weather Radar
H	
HSDB	High Speed Data Bus
HSI	Horizontal Situation Indicator

I	
IAF	Initial Approach Fix
IAS	Indicated Airspeed
IAT	Induction Air Temperature
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
IGRF	International Geomagnetic Reference Field
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
K	
KIAS	Knots Indicated Airspeed
KPH	Kilometers Per Hour
Kts	Knots
L	
LCD	Liquid Crystal Display
LOC	Localizer
LRU	Line Replaceable Unit
M	
MAP	Missed Approach Point
MFD	Multi-Function Display
MOPS	Minimum Operational Performance Standard
MPH	Miles Per Hour
MPS	Meters Per Second
MSL	Mean Sea Level
N	
NDB	Non-Directional Beacon
NEXRAD	Next-Generation Radar
NVIS	Night Vision Imaging System
O	
OAT	Outside Air Temperature
OEM	Original Equipment Manufacturer
OSP	Overspeed Protection
P	
PDA	Premature Descent Alert
PED	Personal Electronic Device
PFD	Primary Flight Display
PIT	Pitch Attitude Hold
P/N	Part Number
PVT	Position, Velocity, and Time
R	

RAM	Random Access Memory
RAS	Remote Aircraft Status
RAT	Ram Air Temperature
RP	Reduced Protection
RPM	Revolutions Per Minute
RVSM	Reduced Vertical Separation Minimum
S	
SAE	Society of Automotive Engineers
SAT	Static Air Temperature
SBAS	Satellite-Based Augmentation System
SD	Secure Digital (Card)
SURF	Surface Surveillance Application
SVT	Synthetic Vision Technology
SVS	Synthetic Vision System
T	
TA	Traffic Advisory
TAS	Traffic Advisory System
TAT	Total Air Temperature
TAWS	Terrain Awareness and Warning System
TC	Type Certificate
TCAD	Traffic Collision Avoidance Device
TCAS	Traffic Alert and Collision Avoidance System
TFR	Temporary Flight Restriction
TFT	Thin Film Transistor
TIS-B	Traffic Information Service - Broadcast
TIT	Turbine Inlet Temperature
TNC	Threaded Neill-Concelman
TSO	Technical Standard Order
U	
UTC	Universal Time Coordinated
V	
VDI	Vertical Deviation Indicator
VFR	Visual Flight Rules
VLOC	VOR/Localizer
VOR	Very High Frequency Omni-directional Range
VS	Vertical Speed
W	
WAAS	Wide Area Augmentation System
WATCH	Weather Attenuated Color Highlight

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LIST OF FIGURES

LIST OF TABLES

1 G500/G600 TXi DESCRIPTION

This installation manual is intended for use by those authorized to perform maintenance and/or avionics installations on certified aircraft. It includes installation data and checkout procedures for the G500/G600 TXi system and refers to standards described in Title 14 CFR Part 43. Installation personnel must be familiar with the contents of this manual prior to performing modifications to the aircraft.

Terms frequently used in this manual include:

- G500/G600 TXi: Refers equally to the G500 TXi system and G600 TXi system.
- G500/G600: Refers to the G500 system and the G600 system with a combined PFD and MFD based on the GDU 620 display.
- GDU 700: Refers to both GDU 700P and GDU 700L.
- GDU: Refers to GDU 700P, GDU 700L, GDU 1060, and GDU 1210.
- Integrated Standby Instruments: Refers to system configuration that can replace standby instruments, as described in Section 1.2.10.
- Metal aircraft: Aircraft with an aluminum (metallic) airframe, including exterior skin.
- Non-metal aircraft: Aircraft with an airframe constructed from wood or composite, including exterior skin, or aircraft with metal tubular truss airframe and fabric exterior skin.
- Primary EGT: Exhaust gas temperature that is displayed independently from and in addition to the exhaust gas temperature associated with each cylinder. This is typically a probe installed downstream in the exhaust to detect temperature from multiple cylinders and is used for EGT limitations in some aircraft.
- Use of (): Denotes variations of LRUs. Examples of which are indicated below:
  %æGMU 44(B) - Refers to either the GMU 44 or GMU 44B.
- GEA 110: Unless otherwise specified, refers to both P/N 011-03454-00 and P/N 011-03454-01.
- GEA 71B Enhanced: Unless otherwise specified, refers to both P/N 011-03682-02 and P/N 011-03682-05.
- GTN 6XX/7XX: Refers to GTN 625, GTN 635, GTN 650, GTN 725, and GTN 750.
- GTN Xi: Refers to GTN 625Xi, GTN 635Xi, GTN 650Xi, GTN 725Xi, and GTN 750Xi.
- Settings(): Refers to Settings key relating to the setting/LRU in parentheses (adjacent on-screen).

1.1 STC Applicability

This manual defines aircraft modifications required to install the G500/G600 TXi system under the G500/G600 TXi Part 23 AML STC and is applicable only to airplane models listed on the Approved Model List (AML). Aircraft modifications per this STC involve installation of components specified on the STC Equipment List, which include sensors for common engine parameters. Installation of components not included on the STC Equipment List require a separate airworthiness approval.

The G500 TXi system is approved for Class I & II aircraft (i.e., up to 6,000 lbs. GTOW). The G600 TXi system is approved for Class I, II & III aircraft (i.e., up to 12,500 lbs. GTOW). Installation of the G500/G600 TXi system imposes specific limitations that may affect the operational capabilities of some aircraft, specifically RVSM compliance. Carefully review the limitations in Section 2 prior to installation.

Aircraft makes and models listed on the AML are eligible for the G500/G600 TXi system installation under this STC. Based on the data contained in the manual and applicable addendums, STC applicability to a particular aircraft must be verified before the aircraft is modified. Some aircraft may have been modified or equipped with systems to which the G500/G600 TXi interface is not defined nor approved. The installer must make the final determination if this STC is applicable to a given aircraft. Refer to aircraft model-specific data in Appendix D for additional installation and limitation details.

The installation of the G500/G600 TXi system in accordance with this STC is a major alteration to the aircraft. Following a major alteration, the aircraft must be returned to service in a means acceptable to the cognizant aviation authority. An example would be compliance with 14 CFR 43.9, 14 CFR 91.417, and submission of an FAA Form 337 “Major Repair and Alteration Airframe, Powerplant, Propeller, or Appliance” completed in accordance with advisory circular AC 43.9-1F, Instructions for Completion of FAA Form 337.

Consistent with FAA Order 8110.4B and AC 21-40, a permission letter to use this STC data is available for download from the Garmin Dealer Resource Center.

1.2 System Overview

The G500/G600 TXi system replaces the standard instruments (e.g., external CDIs, ADF indicator, clock) with the GDU 700P, GDU 700L, GDU 1060, or GDU 1210, and is capable of providing the following functionality:

- Primary Flight Display (PFD)
- Multi Function Display (MFD)
- Engine Indicating System (EIS)

The G500/G600 TXi system with EIS uses the GEA 110 or GEA 71B Enhanced adapter along with engine sensors to replace various engine instruments and provide indication of engine parameters.

Standby instruments (e.g., airspeed indicator, altimeter, and artificial horizon indicator) are required, except when noted otherwise.

Typical modification of an aircraft instrument panel capable of installing GDU 700P and GDU 1060 displays is shown in Figure 1-1, which illustrates a twin-engine aircraft before and after the TXi system has been installed.

Figure 1-1 TXi System Installation (Before and After Example)

The GDU provides five configurable airspeed discrete outputs that can be used with external devices to trigger aural airspeed warnings. Aircraft equipped with an airspeed warning system must have it continue to function after the G500/G600 TXi installation. For example, if the original airspeed indicator was part of the airspeed warning system, it must be retained to generate airspeed aural warnings; however, the airspeed indicator can be removed if the G500/G600 TXi configurable airspeed discrete outputs are used to trigger aural airspeed warnings. Additionally, aural callouts for select airspeed bugs defined by the aircraft Type Data (POH/AFM) can be generated by the GDU. Configuration of aural callouts for airspeed bugs is optional.

Under normal operation, no more than two GDUs can display primary flight information.This is the case when a GDU 700P with an external ADAHRS functioning as an MFD or EIS is used as part of the Integrated Standby System. The ADAHRS 1 and 2 information is then received via HSDB by the remote GDU 700P.

The GRS 77, GRS 79, and GSU 75 with a GMU 44(B) are capable of maneuvers through a range of 360° in bank and pitch. The rotation rate capability is ±200° per second, although ARINC 429 angular rate output messages are limited to ±128° per second. These limits may not be adequate for certain types of operations in aerobatic airplanes.

Additional information on the G500/G600 TXi system can be found in Garmin documents listed in Table 1-1. Additional information on Garmin equipment that can be interfaced to the G500/G600 TXi system can be found in Garmin documents listed in Table 1-2. Technical references applicable to the G500/G600 TXi system installation can be found in public documents listed in Table 1-3. Model-specific installation manual addendums can be found in Table D-1.

Table 1-1 Garmin Installation Manuals and References for G500/G600 TXi System

Document Title	Garmin Part Number
G500/G600 TXi Part 23 AML STC Maintenance Manual/ICA	190-01717-B1
GSU 75() ADAHRS Installation Manual	190-01639-00
GDC 72() Installation Manual	190-01855-00
GRS 79 Installation Manual	190-01852-00
GAD 43/43e Installation Manual	190-00899-00
GCU 275/47X/485 Installation Manual	190-00303-75
GEA 71B/C Installation Manual	190-01807-00
GEA 110 TSO Installation Manual	190-01825-00
GBB 54 TSO Installation Manual	190-01717-A0
G500/G600/G700 TXi TSO Installation Manual	190-01717-00
AHRS / Magnetometer Installation Considerations	190-01051-00

Table 1-2 Garmin Installation Manuals for Other Systems

Document Title	Garmin Part Number
GTN 6XX/7XX Part 23 AML STC Installation Manual	190-01007-A3
GTN Xi Part 23 AML STC Installation Manual	190-01007-C0
400W Series Installation Manual	190-00356-02
500W Series Installation Manual	190-00357-02
GNS 480 (CNX80) Color GPS/NAV/COM Installation Manual	560-0982-01
GTX 3XX Part 23 AML STC Installation Manual	190-00734-10
GSR 56 Installation Manual	190-00836-00
GDL 69/69A Installation Manual	190-00355-02
GTS 8XX/GPA 65 Installation Manual	190-00587-00
GTS 8X5 Part 23 AML STC Installation Manual	190-01279-00
Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual	190-01112-10
GDL 60 Part 23 AML STC Installation Manual	190-02525-10

Table 1-3 Technical References

Document Title	Document Number
FAA Advisory Circular,Powerplant Guide for Certification of Part 23 Airplanes and Airships	FAA AC 23-16A
FAA Advisory Circular, Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair	FAA AC 43.13-1B
FAA Advisory Circular, Acceptable Methods, Techniques, and Practices – Aircraft Alterations	FAA AC 43.13-2B
Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety	SAE ARP1870
Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis	ASTM F2490-05

1.2.1 Primary Flight Display

The PFD replaces the traditional analog instruments by displaying attitude, heading, airspeed, altitude, and vertical speed. The G500/G600 TXi PFD requires the following equipment to be installed:

1. GDU 700/1060/1210.
2. ADAHRS (one of the following):
   - GRS 77 AHRS and GDC 74(B) ADC previously installed under the G500/G600 STC
     i. STC SA02015SE-D or STC SA02153LA-D
   - GRS 79 AHRS and GDC 72 ADC
   - GSU 75(B) ADAHRS
   - Integrated ADAHRS (built into select GDU 700 and 1060 units)
3. GMU 44(B) Magnetometer.
4. GTP 59 Temperature Probe.
5. External GPS Navigator (refer to Section 3.2.2 for GPS requirements).

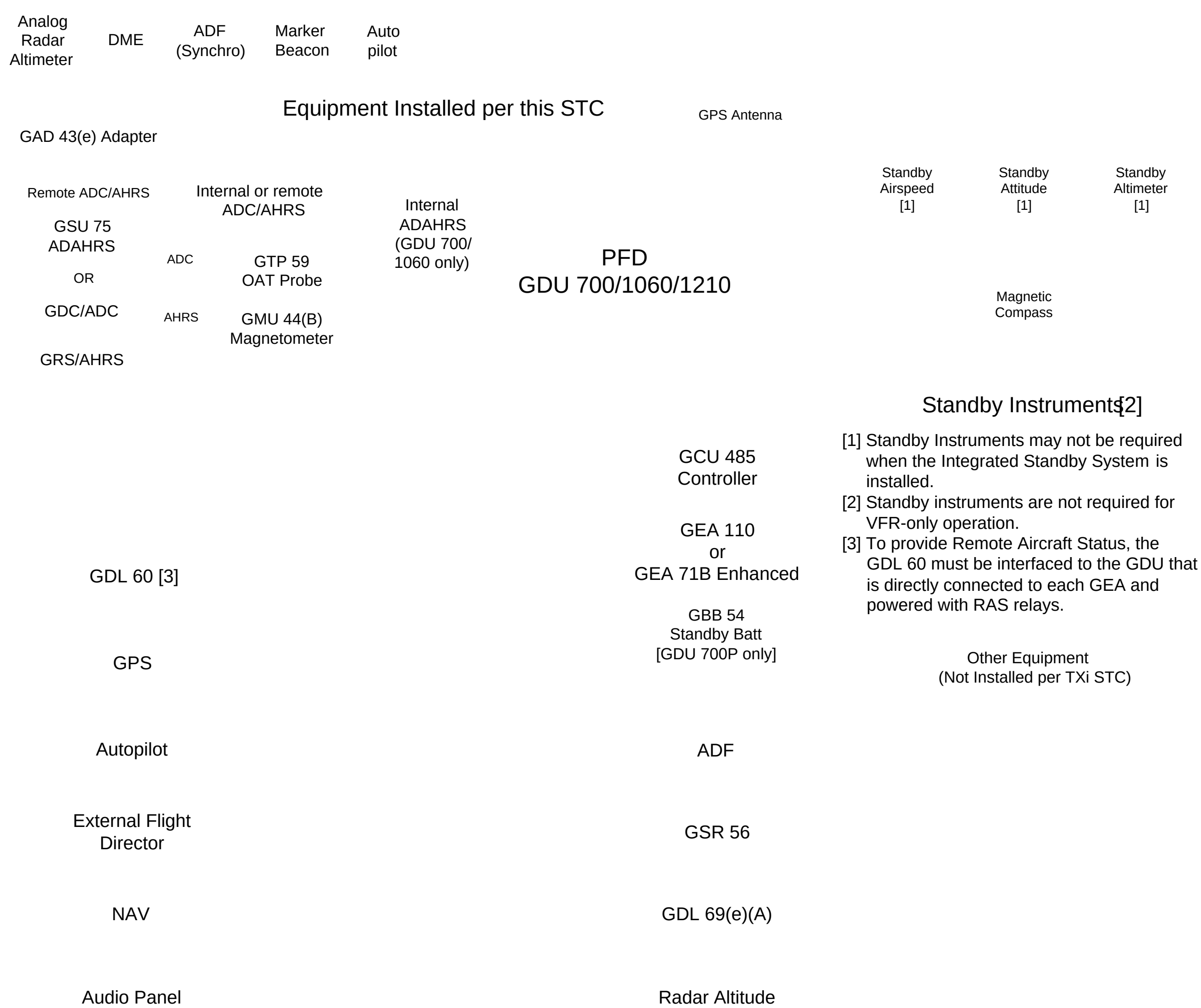
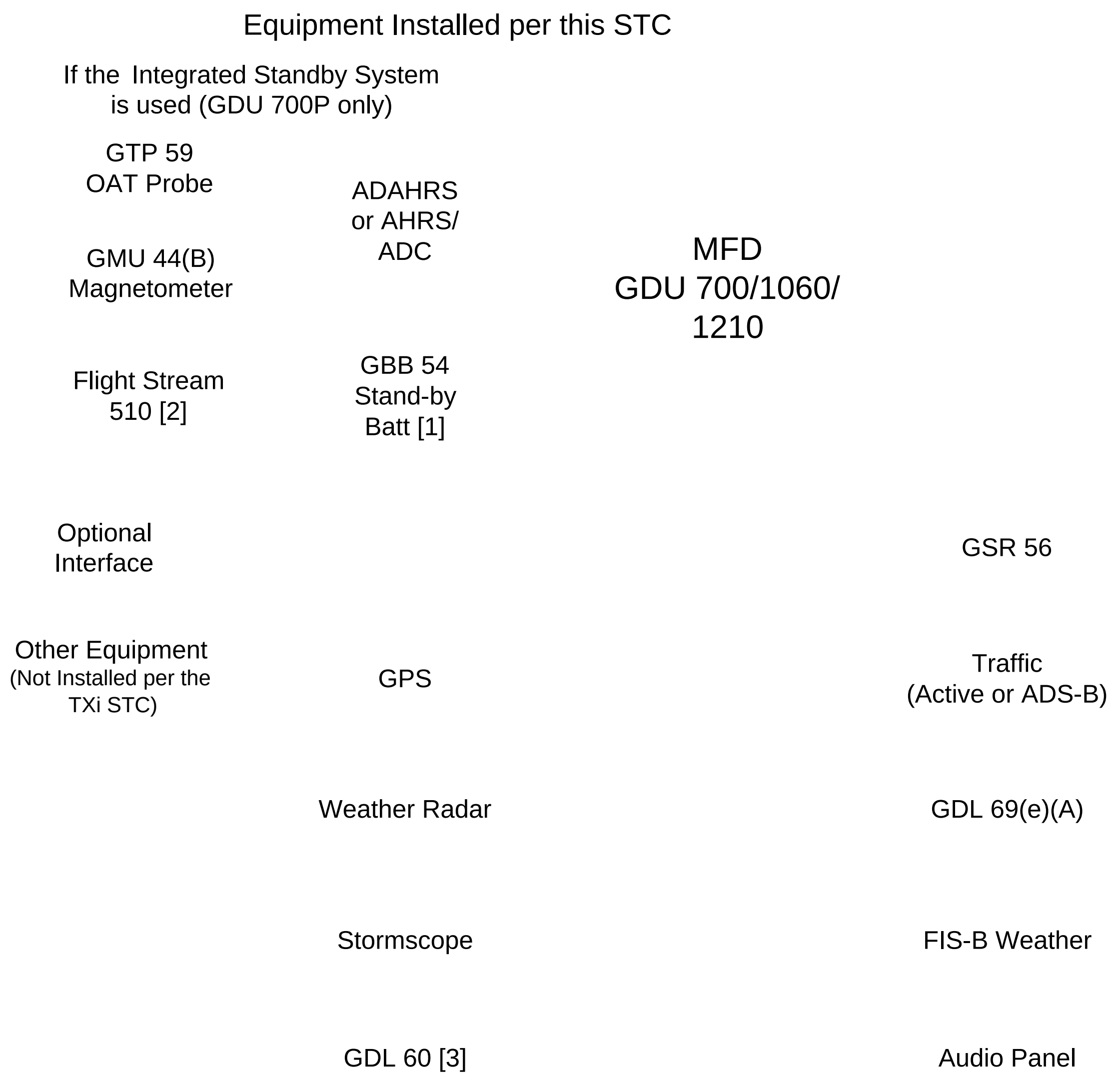


Figure 1-2 G500/G600 TXi PFD Interfaces

1.2.2 Multi-Functional Display

The G500/G600 TXi MFD displays navigation and flight plan data and, depending on other installed equipment, can display traffic, weather, and terrain data. When configured as such, the MFD can also function as a backup PFD (GDU 700L not supported). The MFD requires the following equipment to be installed:

1. GDU 700P, GDU 700L MFD/EIS (version 2.20 or later), GDU 1060, or GDU 1210.
2. External GPS navigator (refer to Section 3.2.2 for GPS requirements).



[1] Used only as an option on GDU 700P displays on metal aircraft.
[2] Requires TXi software v2.20 or later.
[3] To provide Remote Aircraft Status, the GDL 60 must be interfaced to the GDU that is directly connected to each GEA and powered with RAS relays.

Figure 1-3 G500/G600 TXi MFD Interfaces

NOTE
Weather radar supported on GDU 1060, GDU 1210, and GDU 700P MFD only.

1.2.3 Reciprocating Engine Indication System (EIS)

The G500/G600 TXi EIS displays selected engine operating parameters for 4 and 6 cylinder reciprocating engines. The EIS requires the following equipment to be installed:

1. One GDU 700P, GDU 700L, GDU 1060, or GDU 1210.
2. GEA 110 Adapter, one per engine.

   NOTE
   GDU 700 MFD/EIS supports single-engine aircraft only.

3. Sensors for engine parameters.
4. External GPS navigator is optional (refer to Section 3.2.2 for GPS requirements).

In addition to this section, the following sections provide information that must be considered:

- Section 2.1.11 - EIS limitations
- Section 3.2.6 - Minimum EIS requirements and available EIS gauges
- Section 3.4.8 - Sensor selection criteria
- Section 5.7.3.2 - Gauge markings and configuration requirements
- Appendix Section C.25 - Approved sensor interface or installation, including configuration
- Appendix D - Model-specific info to determine if a Fuel Pressure Test is required
- Appendix F - EIS gauge layouts

TXi EIS offers three aircraft timers; Flight Hours, Hobbs, and Tach Timer. Flight Hours accrue in-air, which is determined using airspeed (if available), then GPS speed (if valid), and then finally the engine reaching 1250 RPM. The Hobbs Timer is activated by engine oil pressure (was Engine Time in v3.11 or earlier). Tach Time (v3.12 or later) accrues relative to engine cruise RPM.

Each engine gauge with yellow and red markings in the POH/AFM must have representative yellow and red markings on the EIS gauge. Yellow and red markings will trigger an alert, which means the gauge pointer, value, text, and timer will be shown in yellow or red, respectively, and an “Engine” annunciation on the PFD or illumination of a remote annunciator will occur.

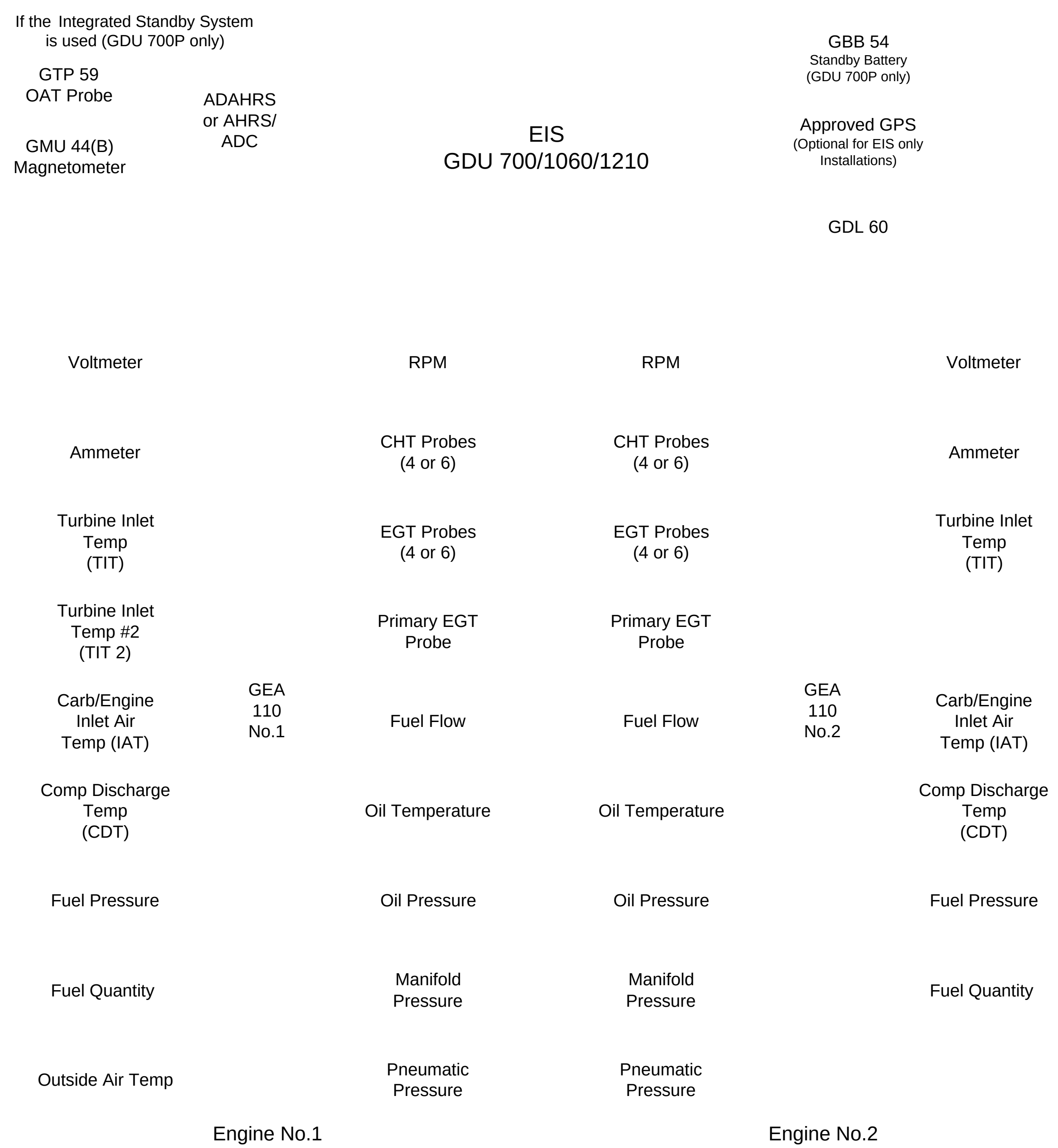


Figure 1-4 G500/G600 TXi Reciprocating EIS Interfaces

1.2.4 Turboprop Engine Indication System (EIS)

G500/G600 TXi EIS displays selected engine operating parameters for turboprop aircraft equipped with Pratt & Whitney PT-6A engines (software v3.22 or later) or Honeywell TPE331-10/-10N engines (software v3.72 or later). Turboprop EIS requires the following equipment to be installed:

1. GDU 700P, GDU 1060, or GDU 1210.
2. GEA 71B Enhanced Adapter (one per engine).
3. Compatible sensors.
4. External GPS navigator is optional if a GDU 700P is used with no other TXi PFDs in the aircraft (refer to Section 3.2.2 for GPS requirements).

In addition to this section, the following section provides information that must be considered:

- Section 2.1.11 – EIS Limitations
- Section 3.2.6 – Minimum EIS requirements and available EIS gauges
- Section 3.4.9 – Sensor selection criteria
- Section 5.7.3.2 – Gauge markings and configuration requirements
- Appendix Section C.26 – Approved sensor interface or installation, including configuration
- Appendix F – EIS gauge layout

TXi EIS offers two aircraft timers; Flight Hours and Hobbs. Flight Hours accrue in-air, which is determined using airspeed (if available), then GPS speed (if valid), and then finally the engine reaching 1250 RPM. The Hobbs Timer is activated by engine oil pressure (was Engine Time in v3.11 or earlier).

Each engine gauge with yellow and red markings in the POH/AFM must have representative yellow and red markings on the EIS gauge. Those yellow and red markings will trigger an alert, which means the gauge pointer, value, text, and timer will be shown in yellow or red, respectively, and an “Engine” annunciation on the PFD or illumination of a remote annunciator will occur, if configured.

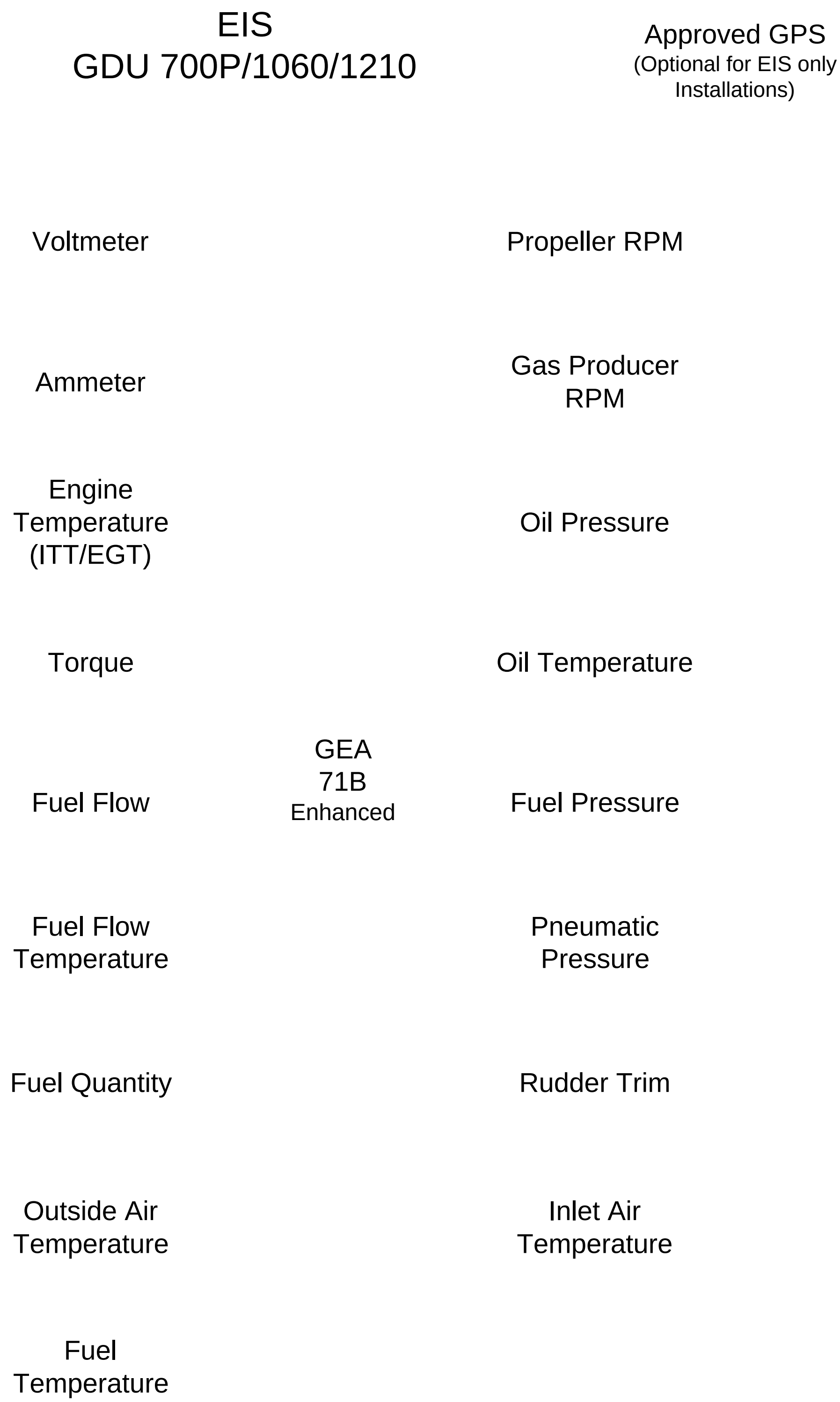


Figure 1-5 G500/600 TXi Turboprop EIS Interfaces

1.2.5 Turbofan Engine Indication System (EIS)

The G500/G600 TXi EIS displays selected engine operating parameters for twin-engine (software v3.62 or later) turbofan aircraft. Turbofan EIS descriptive information was omitted from this manual to prevent confusion with piston engine and turboprop features. Refer to G500/G600 TXi TSO Installation Manual (P/N 190-01717-00, rev. 26 or later). Configuration of Turbofan EIS is limited to Turbofan models listed in Table D-1. Verify make, model, and serial number applicability prior to installation.

1.2.6 Configuration Templates

Select aircraft and engine models have predefined configuration templates to assist installers with initial setup. Templates are only provided for convenience, should not be considered model-specific data, and cannot be used to add markings that do not exist in aircraft AFM/POH. For software versions v3.01 through v3.03, configuration templates are accessed through the Aircraft Info page. For software v3.10 and later, configuration templates must be loaded to an SD card from the Garmin Dealer Resource Center and then loaded to the GDU during configuration. The installer must verify that all template settings match the AFM and aircraft parameters prior to engine start.

Refer to Table D-38 for aircraft models with note [14] to see if a Configuration Template is available or refer to the Dealer Resource Center for a more up-to-date list.

The following options may be configured using the templates:

- PFD Airframe Configuration
- Engine Configuration
- EIS Gauge Range and Markings
- EIS Additional and Advanced Settings
- EIS Gauge Layout Configuration

Refer to Section 5.2.4.1 for configuration template instructions.

> WARNING
> Failure to verify that the template settings match the AFM and aircraft parameters may cause engine damage or failure.

1.2.7 EIS Advanced Settings

The following gauges and features that are labeled “Turboprop Only” must have the Turbine EIS enablement. Refer to Table 3-8.

1.2.7.1 Customize Gauge Title

Some aircraft gauges have several variations of the title that cannot be properly represented by a drop-down list. Custom gauge titles have a four-character limit. Only the following gauges have the option for a custom title:

- Electrical Gauge
- Engine temperature (turboprop only)
- Gas Producer RPM (turboprop only)
- Propeller RPM (turboprop only)
- Torque (turboprop only)
- Vacuum/Pressure (including de-ice boot pressure)
- Fuel Quantity
- Rudder Trim

Customize gauge titles to match the gauge name with the gauge nomenclature used in the AFM/POH. Refer to Section 5.7.3.3.1 for Gauge Title configuration instructions.

1.2.7.2 Dynamic Gauge Markings

NOTE
For twin-engine EIS, Dynamic Gauge Markings are approved only with software v3.22 or later.

Dynamic Gauge Markings are optional and are limited to indicate gauge markings that are specified in the aircraft AFM/POH, model-specific guidance in Appendix D, or appropriate Installation Manual Addendum (if applicable). Do not use Dynamic Gauge Markings if the aircraft does not have previously approved features that change based on other system parameters.

Dynamic Gauge Markings allow EIS gauges to display markings (e.g., arc, lines, radials) that automatically change based on other parameters in the system. The objective of the feature is to reduce workload and aid the pilot by presenting gauge limitations that apply to the current flight conditions. By contrast, analog gauges require the pilot to interpret multiple markings or memorize powerplant limitations.

There are three terms/definitions important for understanding and configuring Dynamic Gauge Markings:

- Dependent Gauge: A gauge with features that change based on other system parameters
- Trigger(s): The system parameter(s) that are used to change the dependent gauge. Triggers can be set At or Above, Below, or Between the trigger value(s). Discrete inputs can also be used.
  - %æReciprocating engines are allowed to use the following triggers:
    - Outside Air Temperature (ISA, TAT, SAT) (Not applicable to standalone EIS)
    - Airborne Status (In Air, On Ground) (Requires approved GPS or ADAHRS in system)
    - Pressure Altitude (Not applicable to standalone EIS)
    - Engine RPM
    - Manifold Pressure
    - Engine Percent Power
    - Fuel Flow

%æTurboprop engines are allowed to use the following triggers:

    - Engine Operating Status (Off, Starting, Running)
    - Outside Air Temperature (ISA, TAT, SAT) (Not applicable to standalone EIS)
    - Airborne Status (In Air, On Ground) (Requires approved GPS or ADAHRS in system)
    - Pressure Altitude (Not applicable to standalone EIS)
    - Gas Producer RPM
    - Prop RPM
    - Engine Temperature
    - Engine Torque
    - Torque Limiter Discrete
    - Reverse Thrust Discrete
    - Inertial Separator Open Discrete
    - ECS Bleed Valve Closed Discrete
    - Condition Lever Discrete (v3.40 or later)
    - Single Red Line Computer (refer to Appendix D for applicability)
    - Engine Oil Pressure
    - Engine Oil Temperature
    - ALT/GEN Volts
    - BAT Volts
- Time Duration: A time delay from Trigger to gauge change (software v3.22 or later)

Standard gauge markings are used when dynamic markings are not configured, are not valid, or the triggers are not met. Refer to Section 5.7.3.3.2 for dynamic gauge markings configuration instructions.

1.2.7.3 Text Lamps (Turboprop Only)

Text lamps appear in the top corner of an engine gauge to indicate that a related system is operating. Text Lamps are triggered by a discrete input to the GDU/GEA. Use Text Lamps to supplement existing indicators in the aircraft or procedures specified in the AFM/POH. Text Lamps are available for the starter (START), igniter (IGN), bleed valve (BLEED), inertial separator (INSEP), reverse thrust (BETA), and single red line computer (SRL). Text Lamps can only be configured for primary gauge slots (i.e., arc gauges).

Figure 1-6 Text Lamp Example

The starter text lamp also has the option for a timer that will appear in the other top corner of the gauge when the START text lamp illuminates, allowing the pilot to track starting cycle time. As shown in Figure 1-7, the start timer has three states: starting (left), waiting for engine (center), and cool down (right). The START text lamp illuminates when the starter discrete is Active or Inactive, depending on configuration (refer to Section 5.7.4.2.6). If the start timer is configured, it will illuminate in tandem with the START text lamp and begin to count up. When the starter discrete is no longer in the condition for illumination of the START text lamp, the timer enters the “waiting for engine phase”, where it will pause and turn gray. During this phase, if the engine reaches the necessary conditions for successful engine start (refer to Section 1.2.8.1), the timer and text lamp will disappear. If the timer and text lamp stay in the waiting phase for more than the configured time, they transition to the cooldown state, where the color changes to light blue and the timer begins counting down from zero to track cooldown time.

Figure 1-7 Starter Text Lamps States

Configure text lamps if the gauge being replaced had a similar function or if specified by model-specific data in Appendix D or appropriate Installation Manual Addendum, if applicable; otherwise, configuration of a text lamp is optional. Refer to Section 5.7.3.3.3 for text lamp configuration instructions.

1.2.7.4 Exceedances (Turboprop Only)

Exceedances are EIS gauge threshold values that can be configured to indicate a time-sensitive operating condition as designated by the aircraft/engine manufacturer. An exceedance is defined by the threshold that a parameter is allowed to exceed and the time it is allowed to exceed the threshold.

When a threshold is exceeded on a primary gauge, a countdown timer is displayed on the right side of the applicable gauge; when a threshold is exceeded on a secondary bar gauge (without Digital Readout enabled), a countdown timer is displayed to the side of the bar. The timer has three behavior states. When the timer value is above 5 seconds, the timer displays white text. When the timer value is between 5 and 0 seconds, the timer will flash between white text and black text. When the timer reaches 0, it causes the gauge indication to alert red and records an exceedance.

An exceedance can be configured for a time of 0 seconds, such that the gauge indication will alert red immediately when the threshold is crossed. Note that in this context, “alert” means the gauge value, text, exceedance timer, and alert acknowledgment button will flash in reverse video to indicate a warning condition and draw attention to the exceedance. Alerting arcs and radials are able to alert yellow for caution and red for warning conditions. Refer to Section 5.7.3.2 for configuration of gauge markings. Exceedance recording is discussed in Section 1.2.7.4.1. If the gauge value is reduced below the threshold before the timer expires, then the timer will disappear and reset.

Exceedances are configured separately for the three engine operating states: Engine Running, Engine Starting, and Engine Off (refer to Section 1.2.8.1 for Engine Operating Condition description). Multiple exceedances at different thresholds and time limits can be configured for the same gauge. If multiple thresholds are exceeded simultaneously, TXi will display the lowest timer value. Exceedances can only be configured for gauge values above the threshold. The system does not support exceedances where the gauge goes below a threshold, such as low oil pressure.

Figure 1-8 Exceedance States

Configure exceedances if the gauge being replaced had a similar function or if specified by model-specific data in Appendix D or appropriate Installation Manual Addendum, if applicable. Configuration of an exceedance is optional if the AFM/POH has a time-specific value that can be represented accurately once configured. Refer to Section 5.7.3.3.4 for exceedance configuration instructions.

1.2.7.4.1 Exceedance Recording/Viewing (Turboprop Only)

After an exceedance timer has expired, the system begins logging an exceedance for that gauge. As with exceedances, an exceedance will only be logged when a gauge value is above a threshold. The system does not support exceedances below a threshold. The exceedance log records the following parameters:

- Gauge name and threshold exceeded
- Duration (in excess of any existing timers)
- Highest value
- Time of the exceedance (Requires approved GPS)
- Date (Requires approved GPS)
- GDU power cycle
- Gauge value when exceedance finished
- If the exceedance was interrupted, such as due to power loss during exceedance

The following gauges can log an exceedance:

- Torque
- Propeller RPM
- Gas Producer RPM
- Engine Temperature (ITT/EGT)
- Fuel Flow
- Oil Temperature
- Oil Pressure
- Fuel Pressure

After an exceedance occurs, the system will generate an advisory message to alert the operator of the occurrence and a new entry in the exceedance log. The message appears 30 seconds after the exceedance ends. With software v3.10 or later, 5 Hz data for key engine parameters is recorded while in an exceedance to assist with analysis. The exceedance log can be accessed in Normal mode by pilots or in Configuration mode by mechanics to view the parameters of the exceedance and determine the proper maintenance action.

1.2.7.5 Gauge Driven Annunciator Light Discrete Output

To support replacing gauges that drive an annunciator, TXi EIS gauges can be configured to drive discrete outputs based on configured ranges/values. Multiple conditions can drive the same discrete output; if any condition is true, the discrete will be active.

This feature is supported for the following gauges:

- Engine Temperature (ITT/EGT)
- Torque
- Propeller RPM
- Gas Producer RPM
- Manifold Pressure
- Fuel Flow
- Oil Pressure
- Oil Temperature
- Vacuum or De-ice Pressure
- ALT/GEN Amps
- ALT/GEN Volts
- BUS Volts

- BAT Amps
- BAT Volts
- Fuel Quantity
- Engine Power
- Rudder Trim Position

Annunciator lights operated by a sensor or switch that is independent of the gauge being replaced must remain operative and independent from the G500/G600 TXi EIS. If the existing installation has an annunciator light operated by a gauge being replaced, refer to Section 3.2.6 to review available options. Refer to Section 5.7.3.3.5 for gauge driven discrete configuration instructions.

1.2.7.6 Custom Gauge Readout

Some gauges may be configured for custom readouts as follows:

- Minimum: Only applicable to Turboprop EIS Propeller RPM. The Minimum setting defines a threshold of propeller RPM below which the gauge value indication will be removed to eliminate distracting indications.
- Gauge Inset: Only applicable to Turboprop EIS primary gauges. The Gauge Inset setting allows for display of estimated shaft horsepower (for aircraft with Pratt & Whitney PT6A engines), percent horsepower (for aircraft with Pratt & Whitney PT6A engines), or outside air temperature (software v3.22 or later) in the lower left corner of the gauge.
- Value Lock: Only applicable if specified in model-specific data provided in Appendix D or appropriate Installation Manual Addendum.
- Bar Gauge Digital Readout: Applicable to bar gauges for single-engine Turbine EIS and single or twin-engine Piston EIS. The Digital Readout setting displays a digital readout adjacent to the bar gauge.
- Merged Style for Fuel Quantity: Applicable to GDU 1060, GDU 1210, GDU 700P MFD/EIS, select GDU 700( ) EIS, and select GDU 700L MFD/EIS. The Merged Style for Fuel Quantity setting can merge two adjacent gauge slots configured for fuel quantity into one large gauge.
- Precision Setting: Applicable to Torque and Fuel Pressure. The Precision Setting sets how precise the digital readout value is for the applicable gauge.

Refer to Section 5.7.3.3.6 for Custom Gauge Readout configuration instructions.

1.2.7.7 Gauge Scaling

The Gauge Scaling setting is only applicable if specified in model-specific data provided in Appendix D or appropriate Installation Manual Addendum.

The Gauge Scaling setting allows configurable gauge ranges to be scaled to a higher or lower percentage of the gauge circumference.

1.2.7.8 Torque Target Indicator (Turboprop Only)

The Torque Target Indicator enables a torque gauge bug so that the pilot can mark a desired torque setting. This feature requires the default bug value, bug minimum, and bug maximum and IAS declutter speed. Refer to Section 5.7.3.3.8 for configuration instructions.

1.2.8 EIS Additional Settings

1.2.8.1 Engine Operating Condition (Turboprop Only)

TXi can evaluate Gas Producer RPM and Engine Temperature to determine the engine operating state. There are three possible engine operating states: OFF, STARTING, or RUNNING. TXi detects a transition from OFF to STARTING by the activation of the starter discrete input, if configured. If a starter discrete input has not been configured, the system will infer the engine is starting when it observes an engine off state followed by rising Gas Producer RPM. The engine is considered RUNNING when Engine Temperature and Gas Producer RPM are above their respective thresholds for starting. The engine is considered OFF when Engine Temperature and Gas Producer RPM are below their respective thresholds for shutdown.

Engine Operating Condition is automatically enabled for turboprop engines. It is used for engine cycles, dynamic gauge markings, and exceedances. Refer to Section 5.7.4 for configuration instructions.

1.2.8.2 Fuel Imbalance Monitor

TXi can optionally compare the fuel quantity in one or two opposing fuel tank pairs to provide fuel imbalance caution and/or provide discrete output(s) to support existing amber annunciator lights. The fuel imbalance alert and annunciator support is optional for all aircraft but limited to tanks of equal size that are laterally opposed. The discrete outputs are limited to aircraft and systems specified in Appendix D. Refer to Figure 1-9 for examples of the alert in different fuel gauge configurations.

Refer to Section 5.4.29 for discrete settings and Section 5.7.4.1.2 (Piston EIS) or Section 5.7.4.2.2 (Turbine EIS) for configuration instructions.

Figure 1-9 Fuel Imbalance Configuration

1.2.8.3 Engine Power

For Piston EIS, Engine Power estimates percent engine power on a pilot-selectable gauge. Cirrus SR20/SR22 models must use Engine Power as a primary engine indication, if applicable. Engine Power requires RPM, Manifold Pressure, and Fuel Flow sensors to be configured, and OAT must be provided from the ADC or a configured OAT EIS sensor. Refer to Section 5.7.4.1.1 for Piston EIS configuration instructions.

For Turbine EIS, Engine Power may only be enabled for aircraft equipped with Pratt & Whitney PT6A engines. Engine Power estimates both Shaft Horsepower and Percent Power to become available parameters for Gauge Insets on primary gauges and available selections on pilot-selectable gauges. Turboprop Engine Power requires Torque and Propeller RPM sensors to be configured. Refer to Section 5.7.4.2.1 for Turbine EIS configuration instructions.

1.2.8.4 Lean Assist (Piston Only)

The Lean Assist setting allows for configuration of Temperature Rise, Temperature Drop, Fuel Flow Hysteresis, and TIT Lean Limit settings. Refer to Section 5.7.4.1.3 for configuration settings.

1.2.8.5 Selectable Fuel Quantity (Piston Only)

The Selectable Fuel Quantity feature is prohibited unless model-specific data is provided in Appendix D. It allows TXi EIS to replicate a gauge that is switched to show more than two aircraft fuel tanks. The selection switches determine which tanks will be displayed on the indicator. Refer to Section 5.7.4.1.4 for configuration settings.

1.2.8.6 Auto Ignition (Turboprop Only)

Auto Ignition interfaces are prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable. Refer to Section 5.7.4.2.3 for configuration settings.

1.2.8.7 Auto Start (Turboprop Only)

Auto Start interfaces are prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable. Refer to Section 5.7.4.2.4 for configuration settings.

1.2.8.8 Starter Time (Turboprop Only)

Aircraft with Turbine EIS enabled and a Starter Discrete configured for each engine may select Active or Inactive as the condition for the discrete. Refer to Section 5.7.4.2.6 for configuration settings.

1.2.9 Display Backup

Display backup can prevent the loss of PFD or EIS information (if available) during a single display failure. Only the GDU 700P/1060/1210 can provide Display Backup mode. The system will preserve the PFD and EIS information (if applicable). Refer to Figure 1-10 for available Display Backup mode transitions.

The GDU will only enter Display Backup mode if the GDU Location is set to Pilot and is directly connected to an ADC and AHRS or ADAHRS. If Backup mode includes EIS, it must have a direct connection to the GEA 110(s) or GEA 71B Enhanced. GDUs meeting this requirement will automatically enter Backup mode if the communication is lost from an EIS or MFD that is configured as Pilot. Backup mode can be manually initiated using the display backup switch or the Power button !’ Display Options !’ Display Backup.

NORMAL MODE		DISPLAY BACKUP MODE		NORMAL MODE		DISPLAY BACKUP MODE	
PFD GDU 700P	EIS GDU 700P	PFD GDU 700P FAILED	PFD GDU 700P EIS	PFD GDU 700L	MFD/EIS GDU 700P	PFD GDU 700L FAILED	PFD GDU 700P EIS
PFD GDU 700P	EIS GDU 700P/ GDU 700L	PFD GDU 700P EIS	EIS GDU 700P/ GDU 700L FAILED	PFD GDU 700P	MFD/EIS GDU 700P	PFD GDU 700P FAILED	PFD GDU 700P EIS
PFD GDU 700P	MFD GDU 700P	PFD GDU 700P FAILED	PFD GDU 700P	PFD GDU 700P	MFD/EIS GDU 700P/ GDU 700L	PFD GDU 700P EIS	MFD/EIS GDU 700P/ GDU 700L FAILED
PFD/MFD GDU 1060/ GDU 1210	MFD GDU 700P	PFD/MFD GDU 1060/ GDU 1210 FAILED	PFD GDU 700P	PFD GDU 700L	EIS GDU 700P	PFD GDU 700L FAILED	PFD GDU 700P EIS
PFD/MFD GDU 1060/ GDU 1210	EIS GDU 700P	PFD/MFD GDU 1060/ GDU 1210 FAILED	PFD GDU 700P EIS	PFD/MFD GDU 1060/ GDU 1210	MFD/EIS GDU 700P	PFD/MFD GDU 1060/ GDU 1210 FAILED	PFD GDU 700P EIS
PFD/MFD GDU 1060/ GDU 1210	EIS GDU 700P/ GDU 700L	PFD/MFD/EIS GDU 1060/ GDU 1210	EIS GDU 700P/ GDU 700L FAILED	PFD/MFD GDU 1060/ GDU 1210	MFD/EIS GDU 700P/ GDU 700L	PFD/MFD/EIS GDU 1060/ GDU 1210	EIS GDU 700P/ GDU 700L FAILED
PFD/MFD/EIS GDU 1060/ GDU 1210	MFD GDU 700P	PFD/MFD/EIS GDU 1060/ GDU 1210 FAILED	PFD GDU 700P EIS	PFD/MFD/EIS GDU 1060/ GDU 1210	MFD/EIS GDU 700P	PFD/MFD/EIS GDU 1060/ GDU 1210 FAILED	PFD GDU 700P EIS
PFD/MFD/EIS GDU 1060/ GDU 1210	MFD/MFD GDU 1060/ GDU 1210	PFD/MFD/EIS GDU 1060/ GDU 1210 FAILED	PFD/MFD/EIS GDU 1060/ GDU 1210	PFD GDU 700P/ GDU 700L	MFD/MFD/EIS GDU 1060/ GDU 1210	PFD GDU 700P/ GDU 700L FAILED	PFD/MFD/EIS GDU 1060/ GDU 1210
PFD/MFD GDU 1060/ GDU 1210	MFD/MFD/EIS GDU 1060/ GDU 1210	PFD/MFD GDU 1060/ GDU 1210 FAILED	PFD/MFD/EIS GDU 1060/ GDU 1210	PFD GDU 700P	MFD/MFD/EIS GDU 1060/ GDU 1210	PFD GDU 700P EIS [1]	MFD/MFD/EIS GDU 1060/ GDU 1210 FAILED
PFD/MFD GDU 1060/ GDU 1210	MFD/MFD/EIS GDU 1060/ GDU 1210	PFD/MFD/EIS GDU 1060/ GDU 1210	MFD/MFD/EIS GDU 1060/ GDU 1210 FAILED				

Notes:

[1] Not applicable for Turboprop EIS.

Figure 1-10 Display Backup Mode Transitions

If the GDU is set as the standby PFD, it will automatically enter Standby PFD mode if the AHRS safety monitor, AHRS No COMP, or ADC No COMP is triggered. The Standby PFD mode will display both ADAHRS sources to allow the pilot to compare ADAHRS 1 and ADAHRS 2 using two displays. Refer to Figure 1-11 for available standby PFD mode transitions.

Display backup configuration is detailed in Section 5.2.5.2.

NORMAL MODE		STANDBY PFD MODE	
PFD GDU 700P	EIS GDU 700P	PFD ADAHRS 1 GDU 700P	PFD ADAHRS 2 GDU 700P EIS
PFD GDU 700P	MFD GDU 700P	PFD ADAHRS 1 GDU 700P	PFD ADAHRS 2 GDU 700P
PFD GDU 700P	MFD/EIS GDU 700P	PFD ADAHRS 1 GDU 700P	PFD ADAHRS 2 GDU 700P EIS
PFD/MFD GDU 1060/ GDU 1210	EIS GDU 700P	PFD/MFD ADAHRS 1 GDU 1060/ GDU 1210	PFD ADAHRS 2 GDU 700P EIS
PFD/MFD GDU 1060/ GDU 1210	MFD GDU 700P	PFD/MFD ADAHRS 1 GDU 1060/ GDU 1210	PFD ADAHRS 2 GDU 700P
PFD/MFD GDU 1060/ GDU 1210	MFD/EIS GDU 700P	PFD/MFD ADAHRS 1 GDU 1060/ GDU 1210	PFD ADAHRS 2 GDU 700P EIS

Figure 1-11 Standby PFD Mode Transitions

1.2.10 Integrated Standby System

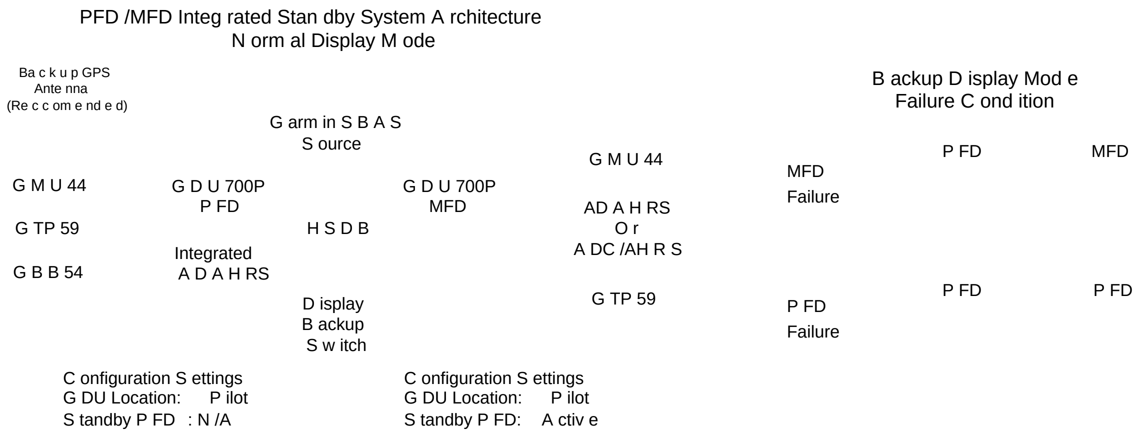
NOTE
The Integrated Standby System is no longer available for new installations.

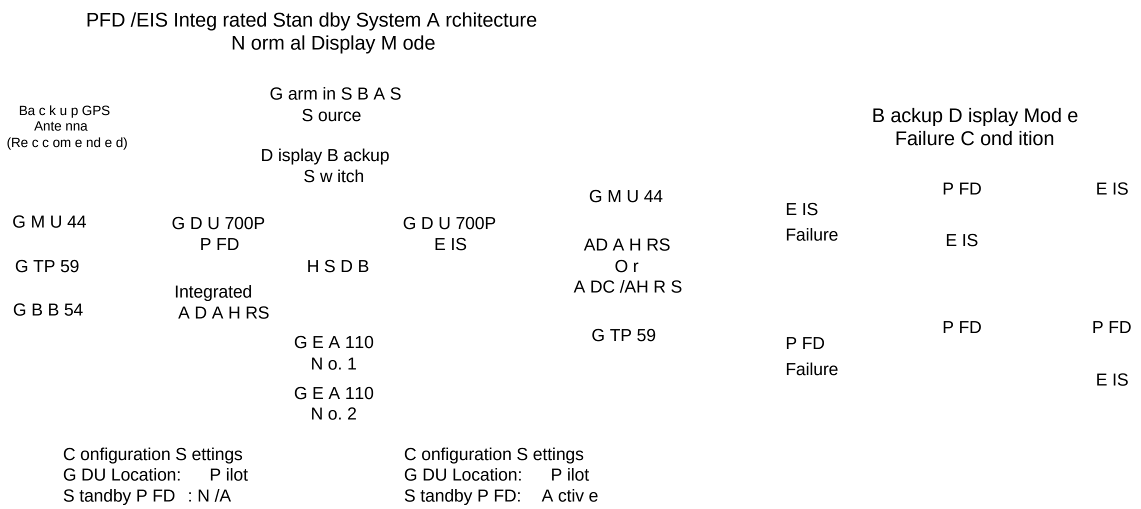
The Integrated Standby System uses the display backup function with additional required hardware to replace the aircraft standby instruments in reciprocating-engine equipped Class I & II metal aircraft. The Integrated Standby System is not approved for Class III or turboprop aircraft. The Integrated Standby System requires the following to be installed:

- One GDU 700P for pilot’s PFD with integrated ADAHRS.
- One GDU 700P for pilot’s MFD, EIS, or MFD/EIS with externally mounted AHRS and ADC or an ADAHRS.
- One GBB 54 Backup Battery (refer to Section 2.1.2 and Section 3.4.6 for installation restrictions).
- Two GMU 44 Magnetometers.
- Two GTP 59 OAT Probes.
- One Display Backup switch (refer to Section 4.4.4 for part numbers).
- One external GPS navigator (refer to Section 3.2.2 for GPS requirements).

The backup GPS antenna is optional, but recommended for the pilot’s PFD.

The Integrated Standby System is structured around the installation of two GDU 700P displays. In certain installations, a third display on the pilot’s side of the instrument panel may be desirable. Refer to Figure 1-12 and Figure 1-13 for examples. A four display system will function similar as the three display system. Refer to Section 5.4 for the configuration details.





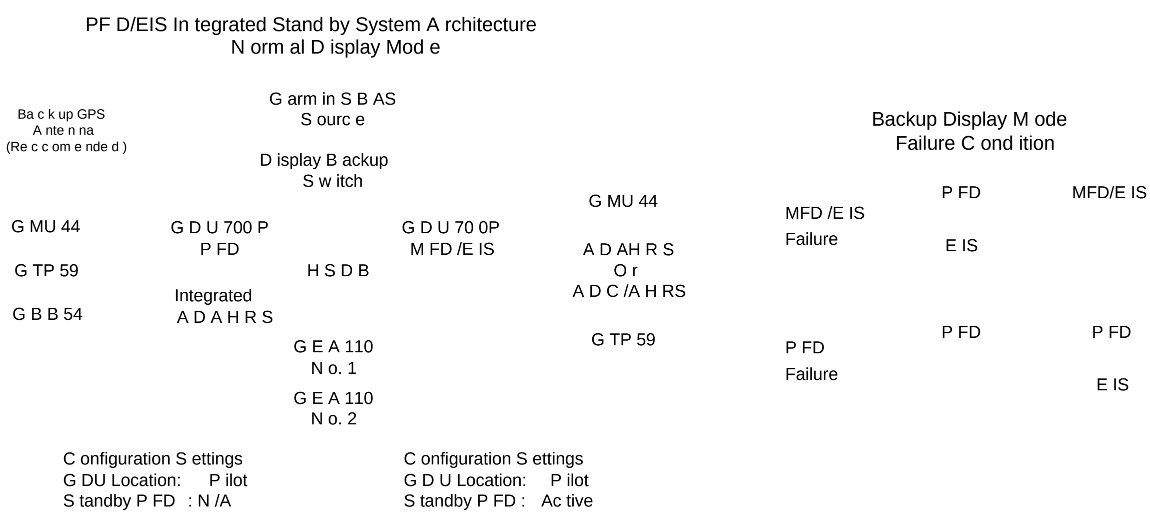
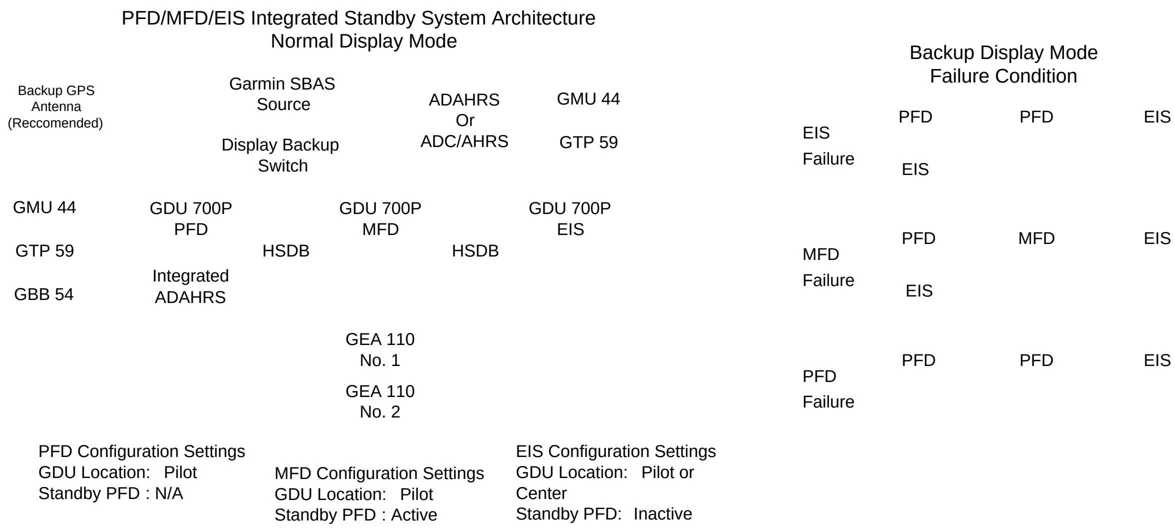


Figure 1-12 Two Display Integrated Standby System



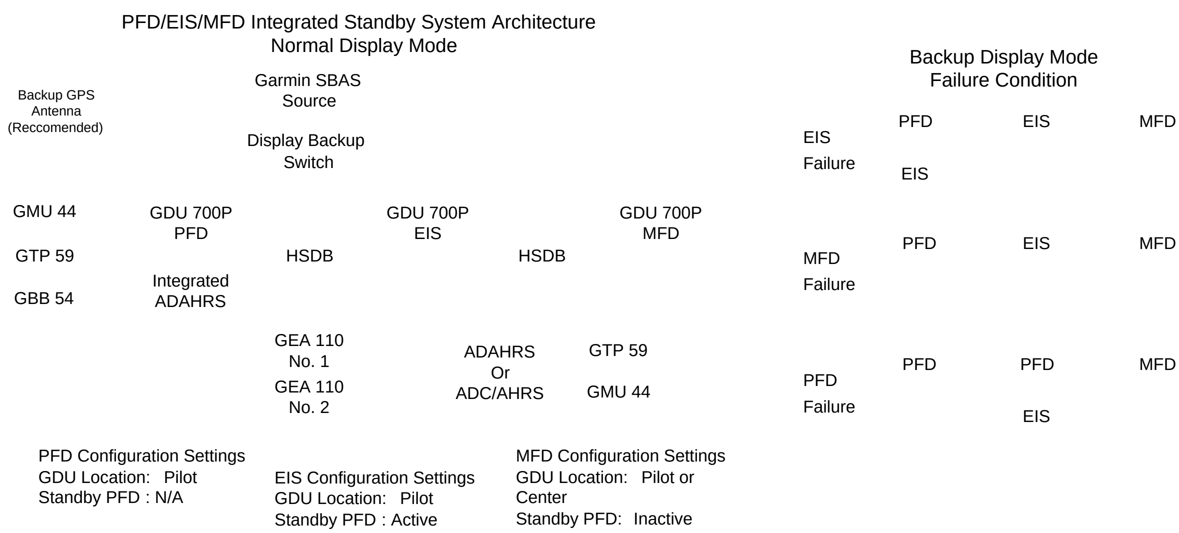


Figure 1-13 Three Display Integrated Standby System

1.3 Equipment

G500/G600 TXi components are modular and designed for quick replacement in any operating location. G500/G600 TXi equipment installed by this STC is grouped into four categories:

- Displays
- Remote LRUs
- Display sensors
- Engine sensors

1.3.1 Displays

There are four display options:

- GDU 700P
- GDU 700L
- GDU 1060
- GDU 1210

All GDUs have fans integrated into the chassis to supply forced-air cooling to the unit. Air intake at the bottom of the display and exhaust at the top of the display must not be restricted when the display is mounted.

The Integrated ADAHRS is an optional unit for the GDU 700/1060 that provides flight altitude, vertical speed, airspeed, attitude, OAT, and heading data for flight instrumentation. Integrated ADAHRS is not applicable to GDU 1210. The AHRS portion is contained internally within the GDU 700/1060. An Integrated ADC module is then plugged into the AHRS board and attached to the back of the GDU 700/1060. This allows for the display to be removed with no disruption to the pitot-static connections. The integrated ADAHRS receives data from the GMU 44(B) and GTP 59 that are connected to the GDU 700/1060. The Integrated ADAHRS utilizes GPS signals sent from the GPS/SBAS navigator. Attitude, heading, and air data can be sent using ARINC 429 digital signals to external LRUs and the GAD 43(e).

The GDU 700P is a 7-inch LCD portrait-oriented panel mount control and display unit. The GDU 700P can be configured as a PFD, MFD, EIS display, or MFD/EIS display (for single-engine reciprocating EIS only). Turboprop EIS is only available on the GDU 700P EIS configuration. The GDU 700P is available with or without an integrated ADAHRS. The GDU 700P requires a compatible GPS/SBAS navigator for MFD and PFD functionality. Refer to Table 3-1 for display part numbers.

NOTE

GDU 700P EIS-only units are exclusive for reciprocating EIS functions, are not capable of performing PFD, MFD, Display Backup, or turboprop EIS functions, and cannot be installed with other TXi PFD/MFD displays.

Figure 1-14 GDU 700P Display Configurations
(Clockwise from top-left: MFD, PFD, MFD/EIS (reciprocating only), reciprocating EIS, and turboprop EIS)

The GDU 700L is a 7-inch LCD landscape-oriented panel mount control and display unit. The GDU 700L can be configured as a PFD (software v2.20 or later), MFD/EIS display (software v2.20 or later), or EIS display. The GDU 700L does not support turboprop EIS. Refer to Table 3-1 for display part numbers.

NOTE
GDU 700L EIS-only units are exclusive for reciprocating EIS functions, are not capable of performing PFD, MFD, Display Backup, or turboprop EIS functions, and cannot be installed with other TXi PFD/MFD displays.

Figure 1-15 GDU 700L Display Configurations
(Clockwise from top left: reciprocating EIS, MFD/EIS (reciprocating only), and PFD)

The GDU 1060 is a 10.6-inch LCD panel mount control and display unit. The GDU 1060 can be configured as a PFD/MFD, PFD/MFD/EIS display, MFD/MFD, or MFD/MFD/EIS display. Refer to Table 3-1 for display part numbers.

Figure 1-16 GDU 1060 Display Configurations
(Clockwise from top left: PFD/MFD, PFD/MFD/EIS, MFD/MFD/EIS, and MFD/MFD)

The GDU 1210 is a 12.1-inch LCD panel mount control and display unit. The GDU 1210 can be configured as a PFD/MFD, PFD/MFD/EIS, MFD/MFD, or MFD/MFD/EIS display. Refer to Table 3-1 for display part numbers.

Figure 1-17 GDU 1210 Display Configurations
(Clockwise from top left: PFD/MFD, PFD/MFD/EIS, MFD/MFD/EIS, and MFD/MFD)

The GCU 485 is a panel mount remote control unit that provides an alternate method of controlling the G500/G600 TXi PFD display parameters. The installation of the GCU 485 is optional.

Figure 1-18 GCU 485 Controller

EIS annunciation can be provided by a single warning (red)/caution (amber) indicator (left) or separate warning and caution lamps (right), which is required for EIS installations when the EIS display is located outside the pilot's primary field-of-view when a TXi PFD is not installed. It is not required for installations with a PFD that will provide EIS annunciations.

Figure 1-19 Engine EIS Annunciators

The Flight Stream™ 510 (FS510) is a WiFi/Bluetooth-capable multi-media (MMC) data card that serves as a gateway between a G500/G600 TXi and various portable electronic devices (PEDs).

Figure 1-20 Flight Stream 510

1.3.2 Remote LRUs

The GSU 75(B) ADAHRS (Air Data/Attitude and Heading Reference System) is a remote-mounted unit that provides altitude, airspeed, attitude, and heading data. Attitude, heading, and air data is provided via ARINC 429. RS-232 is used for maintenance and configuration. The GSU 75(B) contains tilt sensors, accelerometers, rate sensors, and air data sensors. The GSU 75(B) interfaces to the GMU 44(B) Magnetometer and GTP 59 OAT Probe and uses signals from an approved GPS/SBAS navigator.

Figure 1-21 GSU 75 ADAHRS

The GRS 79 AHRS (Attitude and Heading Reference System) is remote-mounted unit that provides aircraft attitude and heading data. Attitude and heading information is provided via ARINC 429. RS-232 is used for maintenance and configuration. The unit contains tilt sensors, accelerometers, and rate sensors. The GRS 79 interfaces with the GDC 72 Air Data Computer and the GMU 44(B) Magnetometer and uses signals from an approved GPS/SBAS navigator.

Figure 1-22 GRS 79 AHRS

The GDC 72 ADC (Air Data Computer) is a remote-mounted unit that provides altitude, airspeed, and vertical speed data. The GDC 72 receives static and total (pitot) air pressure and interfaces to the GTP 59 OAT Probe. Air data is provided via ARINC 429, and RS-232 is used for maintenance and configuration.

Figure 1-23 GDC 72 ADC

The GAD 43(e) is a remotely mounted adapter that provides analog attitude, heading, and yaw inputs for third-party autopilot systems and synchro heading data to be used by other systems. It allows existing ADI/ gyros required for autopilot operation to be replaced by the G500/G600 TXi system.

The GAD 43(e) can provide the following information in analog format:

- Pitch and roll for the autopilot (synchro and other analog formats)
- Pitch and roll for weather radar stabilization (50 and 200 mV/degree)
- Heading (synchro)
- Yaw rate (100, 200, 333, and 600 mV/degree/sec)
- Analog baro-correction like the Honeywell KEA 130/130A and KEA 346 (P/Ns 006-0362-0008 through -0011 only) encoding altimeters

Additionally, the GAD 43e allows the G500/G600 TXi to receive data from marker beacon receivers, synchro (ARINC 407) ADF receivers, DME systems, and analog radar altimeters. It also allows the G500/G600 TXi to provide altitude preselect and vertical speed control when interfaced to approved autopilots, which are listed in Appendix Section C.14.

In Configuration mode, the GAD 43(e) can have analog attitude and heading outputs set to specific values without the need for removing any gyros or using a tilt table.

Figure 1-24 GAD 43 (Left) and GAD 43e (Right)

The GBB 54 is a Lithium-ion battery that is required for the Integrated Standby System, but is optional for other GDU 700P installations. The GBB 54 is no longer available for new installations. The GBB 54 will power a GDU 700P, the essential display sensors, and a single GEA 110 in the event of total electrical power loss for a minimum of 30 minutes. The battery is charged by the aircraft electrical system when not in use.

Figure 1-25 GBB 54 Backup Battery

1.3.3 Display Sensors

The GMU 44 and GMU 44B magnetometers sense magnetic field and provide data to an AHRS to determine aircraft magnetic heading. The GMU receives power directly from the AHRS source and communicates with the AHRS via RS-485 and RS-232.

Figure 1-26 GMU 44 Magnetometer

Figure 1-27 GMU 44B Magnetometer

The GTP 59 Outside Air Temperature (OAT) Probe is a remotely mounted sensor that interfaces to an ADC for OAT display and true airspeed computations. In standalone EIS installations, the GTP 59 can be directly interfaced to the GEA 110/71B Enhanced

Figure 1-28 GTP 59 OAT Probe

The GDUs can interface to an optional backup GPS that can be used in the event of a failure of the primary GPS source. The backup GPS can be used to support the display of time and the ownship on the pilot's PFD or MFD. The backup GPS does not provide navigation functions. Installation of a backup GPS antenna is optional, but recommended for the pilot's PFD if an Integrated Standby System or GBB 54 Backup Battery is installed.

Figure 1-29 Backup GPS Antenna

1.3.4 Engine Sensors

This STC only provides installation approval and/or interface approval for select engine sensors. Refer to Section C.25 for piston aircraft and Section C.26 for turboprop aircraft. The GEA 110 is the engine interface and monitoring module for reciprocating engines that collects signals from the engine sensors and communicates the engine parameters to the GDU. Each engine requires a single GEA 110 adapter. The GEA 110 can be mounted remotely or on the back of the GDU 1060/1210. The GEA 110 communicates via RS-485.

Figure 1-30 GEA 110 Engine Adapter

The GEA 71B Enhanced is a remotely mounted engine interface and monitoring module for turboprop engines that collects signals from the engine sensors and communicates the engine parameters to the GDU 700P/1060/1210 via RS-485 digital interface.

NOTE

GEA 71B Enhanced P/Ns 011-03682-02 and 011-03682-05 are approved for interface. However, P/N 011-03682-02 is no longer approved for new installations, and P/N 011-03682-05 is required for new installations. Additionally, P/N 011-03682-05 supports capacitive fuel quantity interfaces.

Figure 1-31 GEA 71B Enhanced Engine Adapter

The carburetor temperature probe is a K-Type thermocouple.

Figure 1-32 Carburetor Temperature Probe

The oil temperature probe is a K-Type thermocouple. The probe is supplied with a crush washer.

Figure 1-33 Oil Temperature Probe

The fuel flow transducers are installed in-line with the engine fuel delivery system. The display of fuel flow under the TXi STC supports the following engines:

- Fuel-injected engines with and without the fuel servo return line.
- Carbureted engines with a fuel pump, without the carburetor return line, and with the carburetor return line (will require two fuel flow transducers).
- Carbureted engines with gravity feed fuel delivery system.

Figure 1-34 Fuel Flow Transducer

The Garmin GPT and brass pressure sensors have NPT pressure ports and Packard style electrical connectors. They are interchangeable, however the sensor configuration must be updated if they are swapped. The mil-spec style sensors are a durable all-metal design featuring a 37 degree flared fitting and round electrical connector. Refer to Section 3.2.6 and Section 3.4.8 for more information.

Only brass body sensors are available for de-ice pressure applications.

Figure 1-35 Pressure Sensors

Piper Cheyenne PA-31T and PA-31T1 Only

Existing torque sensor will be replaced by Kulite APTE-2B-2250-85D torque transducer.

Figure 1-36 Torque Transducer (Cheyenne PA-31T and PA-31T1 Only)

1.4 System Architecture Examples

The G500/G600 TXi system can be interfaced with other existing aircraft systems. Refer to Appendix C for equipment compatible with the G500/G600 TXi system. Example installation block diagrams are shown in Figure 1-37 through Figure 1-39.

Additionally, Figure 1-38 and Figure 1-39 show example installations of the Integrated Standby System with possible interfaces for the following configurations:

- PFD/MFD with dual GPS and four GDU 700 displays.
- PFD/EIS with a single GPS and three GDU 700 displays.

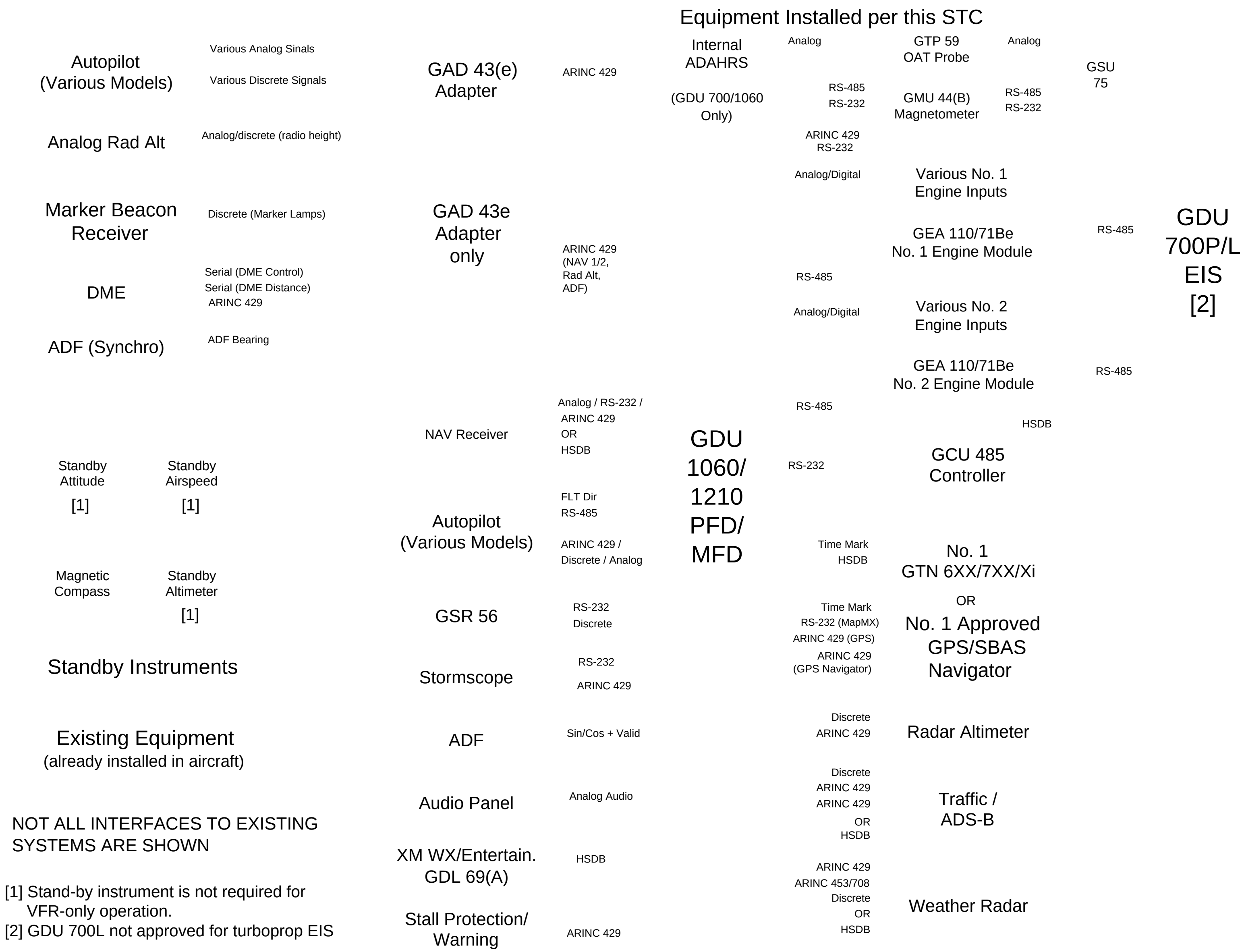
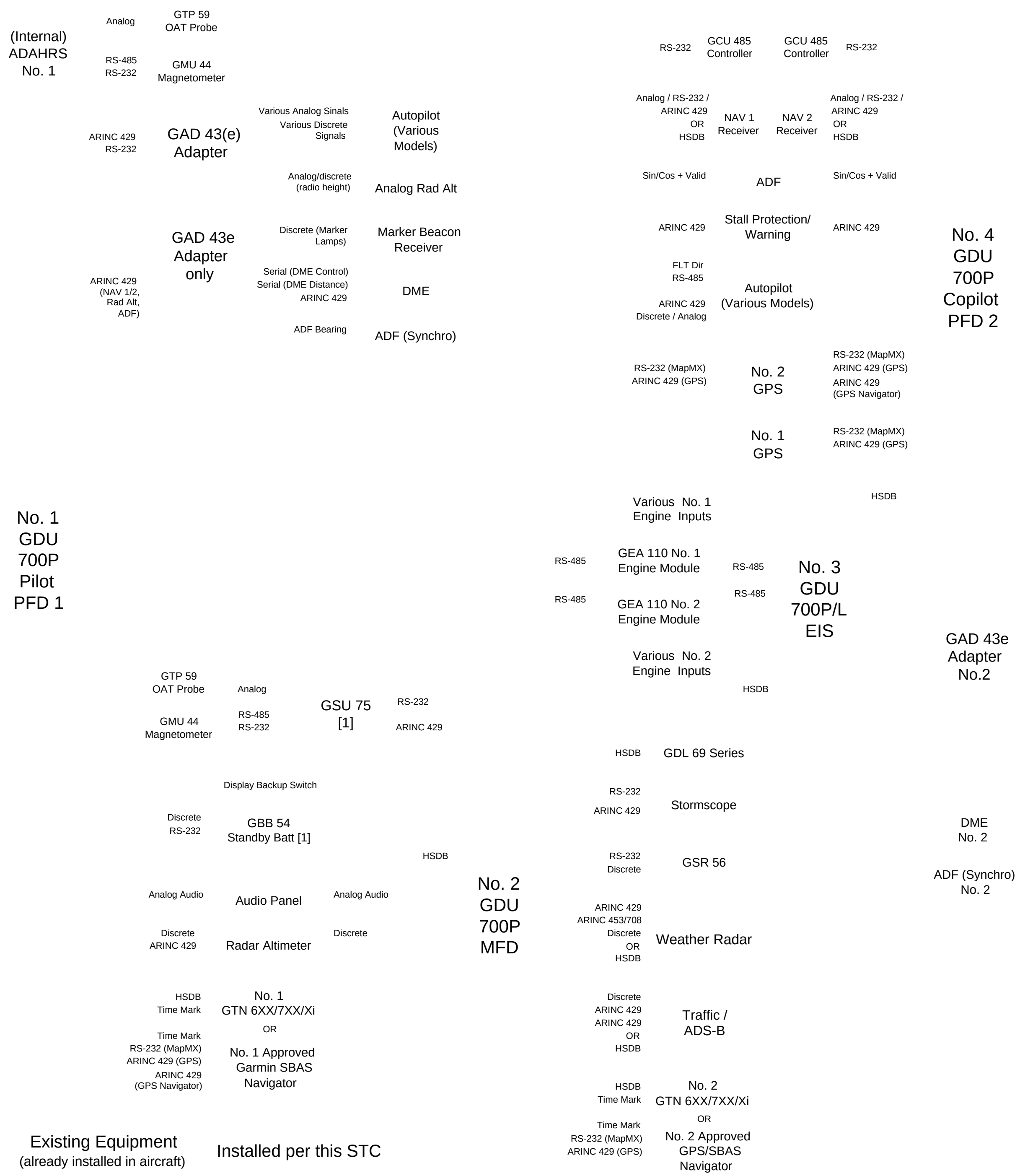


Figure 1-37 GDU 1060/1210 PFD/MFD with a GDU 700 EIS Block Diagram



NOT ALL INTERFACES TO EXISTING
SYSTEMS ARE SHOWN

[1] The Integrated Standby System may use a GSU 75 unit or separate GRS 79 and GDC 72 units to replace standby instruments

Figure 1-38 Integrated Standby System Block Diagram with a MFD in Backup
(Four Displays with Two GPS Navigators)

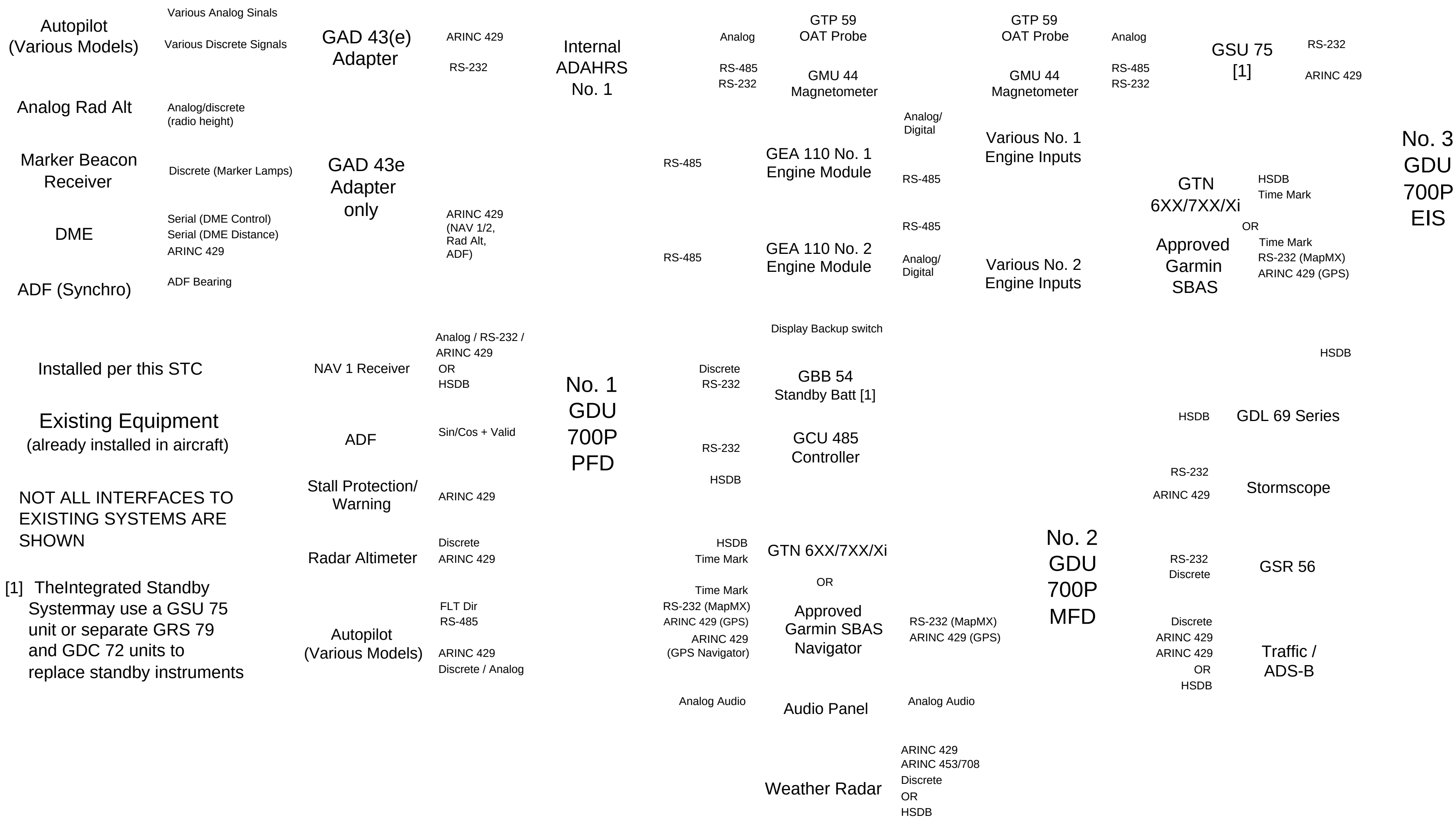


Figure 1-39 Integrated Standby System Block Diagram with EIS in Backup
(Three Displays with Single GPS Navigator)

2 LIMITATIONS

2.1 Installation Limitations

Only the equipment or aircraft systems with interface(s) approved by this STC can be connected to the G500/G600 TXi. Installation of equipment that is not on this STC Equipment List, but is interfaced to the G500/G600 TXi, requires separate airworthiness approval. Refer to the aircraft model-specific matrix in Appendix Section D.10 for additional limitations that apply to each model.

Installation of GDU 700/1060/1210 requires rearrangement of existing aircraft instruments to make room for the display(s). This STC defines the location of standby instruments, but does not include data for installation of the existing instruments that are retained (such as required standby instruments) and need to be relocated. Data used for the installation of those instruments should be based on the equipment or aircraft manufacturer data.

Relocated instruments must use the existing approved lighting system. Instrument panels that use lighting overlay must use manufacturer data to modify the overlay, if required, or replace it with a lighting system approved under the aircraft type design data (TC), applicable STC, or other acceptable means.

Configuration and number of GDUs installed under this STC is limited to a maximum of:

- Four displays total (GDU 700, GDU 1060, and GDU 1210 combined).
- Two full-time PFDs.
- Two full-time EIS displays (GDU 700, GDU 1060, and GDU 1210 combined).

The number of ADAHRS and AHRS/ADC sensors installed under this STC, or interfaced to the G500/G600 TXi system, is limited to a maximum of two, unless authorized by the model-specific data in Appendix D. This limitation does not apply to standby instruments or other attitude and air data sensors that are not interfaced to the G500/G600 TXi system. The G500/G600 TXi STC is not a basis for airworthiness approval of system installations that result in increased weight of the equipment installed in the aircraft instrument panel, unless the weight is within the limits specified by the aircraft manufacturer.

> CAUTION
>
> The total weight of the new equipment planned for installation in the aircraft instrument panel may not exceed the total weight of the equipment that will be removed from the panel unless the total weight of all the equipment installed in the instrument panel is within the weight limit established for the panel by the aircraft manufacturer. Selection of G500/G600 TXi LRUs must take this requirement into account, particularly when considering the optional installation of the GEA 110 unit at the back of the GDU 1060/1210 or the optional installation of the ADC module for GDU 700/1060 Integrated ADAHRS units.

Installations must only include all G500 TXi displays or all G600 TXi displays. A combination of the two is prohibited. Refer to Table 3-1 for display classes.

The GDU must be configured such that its airspeed tape conveys all operating limitations that were previously conveyed to the pilot by the approved type design airspeed indicator and limitations published in the aircraft POH/AFM.

In aircraft with multiple power buses, the GDU on the pilot side and connected AHRS/ADC must be powered from the essential bus. Except as explicitly stated, operation of the pilot’s (primary) system on an avionics bus or secondary bus is prohibited. In aircraft with a single power bus, the (PFD) GDU on the pilot side and connected AHRS/ADC must be powered from the main bus. Some aircraft on the Approved Model List have specific power wiring architecture. Refer to model-specific data in Appendix D.

For G500/G600 TXi system components that are mounted outside the pressure vessel of pressurized aircraft, wires that penetrate the pressure vessel must use aircraft type design provisions, such as spare pins in existing bulkhead connectors or existing sealed wire pass through. Substantiation for additional holes in the aircraft pressure vessel are beyond the scope of the G500/G600 TXi AML STC and require separate airworthiness approval.

2.1.1 Integrated ADAHRS

The integrated ADAHRS is not approved for use with GDU 700/1060 installations in instrument panels supported by shock mounts.

With respect to aircraft level reference, panel tilt cannot exceed ±6° in roll and ±8° in pitch. The panel must be perpendicular to the longitudinal axis of the aircraft.

If the G500/G600 TXi is replacing an autopilot gyro that was not mounted in the instrument panel, the AHRS source for the pilot's PFD must be remotely mounted. The co-pilot's PFD can use either a remotely mounted or integrated AHRS source.

2.1.2 Integrated Standby System

The Integrated Standby System is not approved for installations in non-metal aircraft, Class III aircraft (G600 TXi), or installations that include a GEA 71B Enhanced. Pneumatic or compatible electronic standby instruments are required for non-metal aircraft and Class III aircraft.

2.1.3 Dual PFD Installations

When pilot and co-pilot side PFDs are installed, each PFD must have its own (non-GI 275) ADAHRS or ADC/AHRS source. This STC does not approve installation of dual PFDs driven by a single ADAHRS or ADC/AHRS source during normal operation.

2.1.4 Course Deviation Indicator

A backup CDI that supports GPS or GPS/NAV will not operate properly under all conditions when a G500/G600 TXi PFD is installed. Refer to Table 3-22 for external CDI limitations.

2.1.5 Standby Attitude Indicator with Flight Director

Display of the flight director on the standby attitude indicator is beyond the scope of the G500/G600 TXi AML STC. Multiple flight director displays from an autopilot/flight director computer can affect the amplitude and overall delay of the presentation. Installations that use a standby attitude indicator with a flight director presentation integral to the unit must disable the flight director presentation. Further evaluation is required for parallax flight director view to determine the suitability for relocation of the attitude indicator.

2.1.6 ADI with Mode Annunciation

G500/G600 TXi system installations on aircraft equipped with an ADI that contains an autopilot mode annunciator require alternative means to provide annunciation of the Autopilot mode, which is beyond the scope of the G500/G600 TXi STC.

2.1.7 Altitude Alerter and Preselectors

For autopilot systems that support altitude capture, only a few support external vertical speed and/or pre-selected altitudes. The G500/G600 TXi can function as an altitude preselector for the autopilot systems that are listed in this manual only when the option is enabled in the G500/G600 TXi as a system upgrade.

2.1.8 Traffic Sensor

The G500/G600 TXi system is certified to display data from only one traffic system for a given installation. The display supports multiple types of traffic sensors: TAS, TCAS I, TIS, ADS-B, or composite traffic (e.g., ADS-B and TAS/TCAS correlation). However, only one complete traffic system may be configured for use, which includes composite traffic systems combining ADS-B and active traffic correlation. Interfacing a different traffic sensor to each GDU in dual G500/G600 TXi systems installations is not approved by this STC.

2.1.9 TAWS

Only one TAWS that generates aural and visual annunciations may be installed in the aircraft. If an external TAWS is installed along with SVT on the GDU, the GDU must be configured to disable SVT-Terrain aural and visual annunciations.

The MFD does not provide the necessary annunciations required for a full TAWS capable system. TAWS must be disabled on the MFD in a single MFD installation without an accompanying PFD. MFD-only installations with third-party TAWS annunciators or annunciator panels are possible, but are beyond the scope of this STC and require separate airworthiness approval.

The G500/G600 TXi PFD will only display annunciations from a TAWS system embedded in a GNS 500W series or GTN 6XX/7XX/Xi navigator when they are configured as system #1 (i.e., GPS or GPS 1). TAWS annunciations will not display on the PFD if a GNS 500W series or GTN 6XX/7XX/Xi navigator is configured as system #2.

2.1.10 Airspeed Warning System

The airspeed warning system must continue to function after the installation of the G500/G600 TXi system in aircraft that have a speed warning system.

Certain aircraft are required to have an airspeed warning system in accordance with 14 CFR §23.1303(e). The G500/G600 TXi system does not generate aural airspeed warnings unless specifically wired and configured in accordance with the data in Appendix D; however, the GDU does provide configurable airspeed discrete outputs that can be utilized with external devices to trigger aural airspeed warnings. For example, if the original airspeed indicator was part of the airspeed warning system, it must be retained to generated airspeed aural warnings; however, the airspeed indicator can be removed if the G500/G600 TXi configurable airspeed discrete outputs are used to trigger aural airspeed warnings. The Airspeed Switch discrete output must be limited to support functions that have a failure condition classification of Major or less in accordance with AC 23.1309-1E.

2.1.11 EIS

The existing engine gauges can be replaced by an EIS display only if the functionality, markings, and operational limits of the original gauges are able to be depicted on each full-time EIS display presentation. Only sensors listed in Appendix C are approved unless specified otherwise. The original gauge must not be removed if any operating parameter, marking, or annunciation required by aircraft type design, engine type design, or aircraft POH/AFM (or similar) cannot be displayed on the GDU or an appropriate placard cannot be installed. Review preparation guidance in Section 3.2.6 and Section 3.4.1 prior to aircraft modification.

The G500/G600 TXi EIS does not currently support aircraft with:

- Twin-turboprop aircraft (with software v3.14 and earlier).
- Radial engines.
- Engines that have a coolant temperature gauge (e.g., some Rotax).
- Twin centerline thrust engines (e.g., Cessna Skymaster).
- Engines with FADEC.
- Engines with electronic ignition systems, except with software v3.22 or later. Refer to Table C-26 for compatible RPM input sources.
- CDT, IAT, DIFF engine indications for more than one inter-cooler per engine.
- Indications for more than one alt/amp per engine and one volt meter (e.g., engine with dual alternators) (software v2.30 and earlier). Indications for up to six electrical parameters are allowed with software v3.01 or later.
- Engine turbochargers that have an oil system separate from the engine oil system and have turbocharger oil pressure or temperature gauge(s).
- Dynamic Gauge Markings in twin-engine aircraft, except with software v3.22 or later.

Turboprop EIS on G500/G600 TXi currently has the following limitations:

- Turboprop EIS is limited to installation in aircraft with metal wings and fuselage only.
- EIS installation in turboprop aircraft is limited to aircraft equipped with the following engines:
  - %æPratt & Whitney PT6A
  - %æHoneywell TPE331-10/-10N (software v3.72 and later)
- GDU 700L is not approved for display of turboprop EIS data.
- A GDU 700P can only serve as turboprop EIS when it is configured as a full EIS display.
- The exceedance timer and recorded data are advisory only. The exceedance timer and recording is not to be used to determine the need for maintenance, accept maintenance, or return the aircraft to service.

Turbofan EIS on G500/G600 TXi currently has the following limitation:

- Turbofan EIS is limited to turbofan models listed in Table D-1. Verify make, model, and serial number applicability prior to installation.

Turbojet/Turboshaft EIS is not approved by this STC.

EIS sensors and G500/G600 TXi interfaces are limited to controlling ancillary aircraft systems that are specified in this manual. The aircraft must retain existing sensors or indicators that are used to control aircraft systems that are not supported in this manual.

Standalone EIS installations (i.e., EIS installations without a PFD/MFD in the system) with an approved GPS source connected have the following limitations:

- Exceedance logs (turboprop only) will not have OAT due to the lack of air data computer.
- Airspeed exceedance recording is not available.

Standalone EIS installations without an approved GPS source connected have the above limitations and:

- System date and time is determined via GPS signal. Data logs and exceedance logs (turboprop only) will not have system date and time. Logs will be recorded based on GDU power cycle.
- Fuel computer functions reliant on GPS position and flight plan will be unavailable: Range, Fuel at Destination, Endurance at Destination, and Efficiency.
- Flight Cycles must be configured off. Full cycle counting will be unavailable. Engine cycles and timers will continue to function.

2.1.12 GBB 54

The GBB 54 is not approved for new installations. The GBB 54 is not approved for installation in non-temperature controlled areas of the aircraft if the operational ceiling is greater than 25,000 feet. The GBB 54 is limited to installation in metal aircraft.

2.1.13 Pressure Sensors

Brass body pressure sensors are not approved to interface with the GEA 71B Enhanced or for installation in aircraft that have an operational ceiling greater than 32,000 feet. Refer to Figure 1-35.

Replacement of the existing vacuum and de-ice boot pressure sensors is limited to sensors used for indication only. Aircraft with de-ice boots must retain the existing pressure sensor if the sensor is used to control the system operation.

2.1.14 Part 121/Part 135 Operations

Aircraft requiring a third attitude instrument for operations under 14 CFR Part 121 or 135 must still comply with the G500/G600 TXi standby instrument requirements. Consequently, one additional attitude indicator is required for the copilot's position. Aircraft that require the third attitude source are described in 14 CFR §121.2, 14 CFR §135.2, and 14 CFR §121.305(j).

The third attitude indication may be a traditional gyro or second G500/G600 TXi system. The standby attitude indicator detailed in Section 3.2.3 may be used provided it also complies with requirements of 14 CFR §121.305(k).

Single-engine aircraft operated under 14 CFR Part 135 must have two independent electrical sources or a standby battery or generator/alternator capable of supplying 150% of the electrical loads of all required instruments and equipment necessary for safe emergency operations of the aircraft for 60 minutes in accordance with 135.163(f).

For multi-engine aircraft operated under 14 CFR Part 135, the electrical load of all required instruments and equipment necessary for emergency operations must not be greater than one-half of the total generated power in accordance with 14 CFR 135.163(g). List of required instruments and equipment necessary for safe emergency operations must be expanded to include the pilot's GDU, AHRS, ADC, and standby attitude indicator (if installed) when evaluating aircraft electrical loads.

2.1.15 RVSM

The following models have RVSM group approval when modified in accordance with the RVSM supplements for this STC:

- TBM 700/850
- Textron Aviation (Cessna) Model 525A
- Textron Aviation (Cessna) Model 525

2.1.16 GAD 43(e)

Installation of the GAD 43(e) without a GDU 700(PFD)/1060/1210 is not authorized. The GAD 43(e) Adapter is not capable of providing analog attitude information without external integrity monitoring. In order to ensure the proper error detection rate and safety of the system, a GDU 700(PFD)/1060/1210 is the only device that can be used as an integrity monitor when the GAD 43(e) is used to replace the attitude source for an autopilot.

Installation of a second GAD 43e is only authorized for DME and ADF interfaces. Interfacing two GAD 43e units to a single GDU 700(PFD)/1060/1210 is not authorized.

2.1.17 GDU 700/1060/1210 MFD with GDU 620

In a configuration consisting of a GDU 620 and a GDU 700 MFD or MFD/EIS, a GDU 1060 MFD/MFD or MFD/MFD/EIS, or a GDU 1210 MFD/MFD or MFD/MFD/EIS, traffic or heading will be unavailable on the MFD Map page, and OAT will be unavailable on the Engine page.

A Flight Stream 510 used in a GDU 700 MFD or MFD/EIS, a GDU 1060 MFD/MFD or MFD/MFD/EIS, or a GDU 1210 MFD/MFD or MFD/MFD/EIS that is installed in a configuration that already has a GDU 620 installed in the aircraft will not display the following on a connected PED:

- Active traffic
- Altitude
- Airspeed
- Heading

2.1.18 GDU 700/1060/1210 PFD with GDU 620

Installation of a GDU 700/1060/1210 configured to display primary flight information in an aircraft with a GDU 620 already installed is not approved by this STC at this time.

2.1.19 GDU 1210

Installation of a GDU 1210 is prohibited in some aircraft. Installation of a GI 275 standby may be required for aircraft eligible for installation of a GDU 1210 when it is configured to display primary flight information (i.e., PFD/MFD or PFD/MFD/EIS). Refer to Table D-38 for model-specific restrictions and Section 3.2.3.2 for standby requirements.

2.1.20 Video Display

Functions and operations using the video display must be limited to ensure that aircraft safety is not significantly reduced if the video display stops working or displays incorrect information. The video display may be used as a supplement to provide additional visual perspective to aid operations that do not rely solely on the video image.

2.1.21 Part 33 Engine Equipment

This Part 23 airplane STC does not authorize changes to the Part 33 engine Type Certificate. Changes to Part 33 engine equipment will require additional review or approval. Part 23 approved airplane equipment can be identified by the aircraft manufacturer’s parts list, maintenance manual, or other airplane documents. Part 33 approved engine equipment is identified by engine manufacturer’s parts list or maintenance manual.

2.1.22 G1000-Equipped Aircraft Eligibility

This STC does not support the removal of a G1000 system for installation of a G500/G600 TXi system.

2.2 Operational Limitations

All functions of the G500/G600 TXi system meet the appropriate design assurance qualifications for primary flight displays in aircraft listed on the AML. References listed in Table 1-1 provide a comprehensive list of TSO authorizations by function. The instructions in this manual must be followed in order to ensure an airworthy installation for aircraft operating under Title 14 CFR Parts 91, 121, and 135, with the limitations of those installations listed here.

Data for some aircraft models listed on the AML is currently insufficient to substantiate IFR operations with the G500/G600 TXi. Consequently, these aircraft models are limited to VFR operation only and must be placarded in accordance with Section 4.3. A list of aircraft models limited to VFR when modified with the installation of a G500/G600 TXi system is included in Appendix D.

3 PREPARATION

3.1 Materials and Parts

Equipment sourced from Garmin and commercially available parts are required for installation of the G500/G600 TXi system. This section provides a description of equipment and installation kits available from Garmin and commercially available parts and their requirements.

3.1.1 Garmin

G500/G600 TXi system components and applicable installation kits are supplied by Garmin. Refer to the Aviation Price Catalog on the Garmin Dealer Resource Center for details once the selection for a particular aircraft installation is determined.

Table 3-1 G500/G600 TXi Displays

Display	G600 TXi Only	Part Number	
		Unit	Catalog
GDU 700L EIS Only Black [4]		011-03307-00	010-01219-00
		011-03307-02	010-01219-02
GDU 700L EIS Only Gray [4]		011-03307-10	010-01219-10
		011-03307-12	010-01219-12
GDU 700L Part 23 Class I, II Black		011-03307-20	010-01219-20
		011-03307-22	010-01219-22
GDU 700L Part 23 Class I, II Black, ADAHRS [1]		011-03307-30	010-01219-30
		011-03307-32	010-01219-32
GDU 700L Part 23 Class III Black	X	011-03307-60	010-01219-60
		011-03307-62	010-01219-62
GDU 700L Part 23 Class III Black, ADAHRS [1]	X	011-03307-70	010-01219-70
		011-03307-72	010-01219-72
GDU 700L Part 23 Class III Gray	X	011-03307-80	010-01219-80
		011-03307-82	010-01219-82
GDU 700L Part 23 Class III Gray, ADAHRS [1]		011-03307-A0	010-01219-A0
		011-03307-A2	010-01219-A2
GDU 700P EIS Only Black [4]		011-03306-00	010-01218-00
		011-03306-02	010-01218-02
GDU 700P EIS Only Gray [4]		011-03306-10	010-01218-10
		011-03306-12	010-01218-12
GDU 700P Part 23 Class I, II Black		011-03306-20	010-01218-20
		011-03306-22	010-01218-22
GDU 700P Part 23 Class I, II Black, ADAHRS [1]		011-03306-30	010-01218-30
		011-03306-32	010-01218-32
GDU 700P Part 23 Class III Black	X	011-03306-60	010-01218-60
		011-03306-62	010-01218-62

Display	G600 TXi Only	Part Number	
		Unit	Catalog
GDU 700P Part 23 Class III Black, ADAHRS [1]	X	011-03306-70	010-01218-70
		011-03306-72	010-01218-72
GDU 700P Part 23 Class III Gray	X	011-03306-80	010-01218-80
		011-03306-82	010-01218-82
GDU 700P Part 23 Class III Gray, ADAHRS [1]	X	011-03306-A0	010-01218-A0
		011-03306-A2	010-01218-A2
GDU 1060 Part 23 Class I, II Black		011-03308-20	010-01220-20
		011-03308-22	010-01220-22
GDU 1060 Part 23 Class I, II Black, ADAHRS [1]		011-03308-30	010-01220-30
		011-03308-32	010-01220-32
GDU 1060 Part 23 Class III Black	X	011-03308-60	010-01220-60
		011-03308-62	010-01220-62
GDU 1060 Part 23 Class III Black, ADAHRS [1]	X	011-03308-70	010-01220-70
		011-03308-72	010-01220-72
GDU 1060 Part 23 Class III Gray	X	011-03308-80	010-01220-80
		011-03308-82	010-01220-82
GDU 1060 Part 23 Class III Gray, ADAHRS [1]	X	011-03308-A0	010-01220-A0
		011-03308-A2	010-01220-A2
GDU 1210 Part 23 Class I, II Black [5]		011-06149-20	010-02837-20
GDU 1210 Part 23 Class III Black [5]	X	011-06149-60	010-02837-60
GDU 1210 Part 23 Class III Gray [5]	X	011-06149-80	010-02837-80
GDU 700/1060 ADC Module [1] [2]		011-03457-00	010-01326-00
GDU 700/1060 ADC Module [1] [2]		011-03457-01	010-01326-01
GDU 700/1060 ADC Module [1] [3]		011-03457-50	010-01326-50
GDU 700/1060 ADC Module [1] [3]		011-03457-51	010-01326-51

Notes:

[1] GDU 700/1060 ADAHRS units require an ADC module.
[2] For G500 TXi Class I & II aircraft.
[3] For G600 TXi Class III aircraft.
[4] Standalone EIS display. Do not install with other TXi PFD/MFD displays.
[5] GDU 1210 requires GDU software v3.80 or later.

Table 3-2 Display Connector Kits

Display Connector Kit	Part Number
GDU 1210, 1060, 700P/L Connector kit	011-03527-00
GDU 1210, 1060, 700P/L Config module, potted	011-04038-00
GCU 485 Connector kit	011-01824-00

Table 3-3 G500/G600 TXi LRUs

Unit	Part Number	
	Unit	Catalog
GSU 75	011-03094-00	010-01127-00
	011-03094-01	010-01127-01
GSU 75B [1]	011-03094-40	010-01127-40
	011-03094-41	010-01127-41
GDC 72	011-03734-00	010-01424-00
	011-03734-01	010-01424-01
GRS 79	011-03732-00	010-01423-00
GAD 43	011-01970-00	010-00724-00
GAD 43 [2]	011-01970-01	010-00724-03
GAD 43e	011-02349-00	010-00852-00
GEA 71B Enhanced [3]	011-03682-05	010-01405-05
GEA 110 [3]	011-03454-01	010-01329-01
GBB 54	011-03456-00	010-01331-00
GCU 485 ARM/ENG/GPSS/CDI	011-03582-01	010-01350-01
GCU 485 ARM/GPSS/CDI	011-03582-02	010-01350-02
GCU 485 GPSS/CDI	011-03582-03	010-01350-03
GCU 485 CDI	011-03582-04	010-01350-04
GCU 485 ARM/ENG/CDI	011-03582-05	010-01350-05
GCU 485 XFR/BANK/CDI [5]	011-03582-06	010-01350-06
GCU 485 XFR/BANK/CDI, Gray [5]	011-03582-16	010-01350-16
Flight Stream 510	011-03595-00	010-01322-01
	011-03595-10 [4]	010-01322-11
GCU 485 CDI, Gray	011-03582-14	010-01350-14

Notes:

[1] The GSU 75B is required for the G600 TXi system to be eligible for RVSM in the TBM 700. Additional RVSM parts and certification are required in aircraft other than the TBM 700. Contact Garmin for additional information on RVSM eligibility.

[2] GAD 43 P/N 011-01970-00 cannot be used to provide analog attitude information to Century autopilots. GAD 43 P/N 011-01970-01 or P/N 011-02349-00 must be used with Century autopilots and is backward compatible with P/N 011-01970-00.

[3] GEA 110 P/N 011-03454-00 is not recommended for new installations under this STC. GEA 71B Enhanced P/N 011-03682-02 is not allowed for new installations under this STC.

[4] Requires Flight Stream software v2.80 or later.

[5] Installation of GCU 485 P/Ns 011-03582-06 or 011-03582-16 is only approved for specific aircraft models. Refer to data in appropriate Installation Manual Addendum, if applicable.

Table 3-4 Remote LRU Installation Kits

Remote LRU Connector Kit	Part Number
GSU 75(B) Connector kit	011-03109-00
GSU 75(B) Remote installation rack	117-00608-00
GDC 72 Connector kit	011-03735-00
GDC 72 Remote installation rack	011-04220-00
GRS 79 Connector kit	011-03733-00
GRS 79 Remote installation rack	117-00608-00
GAD 43 Connector kit	011-01990-00
GAD 43e Connector kit	011-02350-00
GEA 71B Connector kit	011-00797-03
GEA 71B Standalone Rack	115-00658-00
GEA 71B Back Plate	011-00796-00
GEA 71 Potted Configuration Module	011-00979-03
GEA 71B Thermocouple Kit	011-00981-00
GEA 110 Connector kit	011-03527-50
GEA 110 Sealed Connector/Configuration Module kit	011-03527-51
GEA 110 Installation Tray	011-03941-00
GBB 54 Connector kit	011-03527-70

Table 3-5 G500/G600 TXi Sensor

Sensor	Part Number	
	Unit	Catalog
GMU 44	011-00870-10	010-00296-10
GMU 44 (Low clearance)	011-00870-20	010-00296-20
GMU 44B	011-04201-00	010-01708-00
GTP 59	011-00978-00	011-00978-00
Backup GPS Antenna	011-04036-00	010-12444-00

Table 3-6 GMU 44(B) Installation Components

Sensor Connector Kit	Part Number
GMU 44 Connector kit	011-00871-00
GMU 44 Install rack	115-00481-00
GMU 44 Install rack (Modified)	115-00481-10
GMU 44 Universal Mount	011-01779-01
GMU 44B Connector Kit	011-04205-00
GMU 44B Install Rack	125-00437-00

Table 3-7 Remote Aircraft Status Relay and Socket

Unit	Garmin P/N	Mil-Spec P/N
Relay (28V) 10A [1]	345-00028-00	M83536/10-024M
Relay (14V) 10A	345-00028-01	M83536/10-015M
Relay Socket 10A	335-00244-00	M12883/41-16

Notes:

[1] Refer to Section 3.1.2 for alternate 28V part numbers.

A single unlock card enables the selected feature for each display. Available enablement/system unlock cards for the G500/G600 TXi system are shown in Table 3-8. The Installer Unlock Card is required to configure the G500/G600 TXi system.

Table 3-8 G500/G600 TXi Unlock/Enablement Cards

SD Card	Part Number	
	G500 TXi	G600 TXi
G500/G600 Installer Unlock [1] [2]	010-00769-60	010-00769-60
GDU 1060, 700P/L FlyGarmin Database	010-03716-32	010-03716-32
G500/G600 TXi, ChartView Enablement	010-01477-40	010-01477-40
G500/G600 TXi, TAWS-B Enablement	010-01477-42	010-01477-42
G500 TXi, Alt. Preselect Enablement (S-TEC SA-200)	010-03716-45	Included
G500 TXi, SVT Enablement	010-03716-46	Included
G500/G600 TXi, Radar Altimeter Enablement (A429)	010-01477-4A	010-01477-4A
G500/G600 TXi, Third Party Radar (A708) Enablement	010-01477-4D	010-01477-4D
G500/G600 TXi, S-TEC DFCS 1500/2100 Enablement	010-01477-4F	010-01477-4F
G600 TXi, RVSM Enablement		010-01477-6( )
G500/G600 TXi, Video Enablement	010-01477-4G	010-01477-4G
G500/G600 TXi, GWX AGCS Enablement	010-01477-4H	010-01477-4H
	010-01477-4T [3]	010-01477-4T [3]
G500/G600 TXi, GWX Turbulence Detection Enablement	010-01477-4K	010-01477-4K
	010-01477-4U [3]	010-01477-4U [3]
G500/G600 TXi, Turbine EIS Enablement	010-01478-4C	010-01478-4C
G500/G600 TXi, DFC 90 Enablement	010-01477-49	010-01477-49
G500/G600 TXi, GWX 8000 Enablement [3]	010-01477-4S	010-01477-4S

Notes:

[1] This is the same unlock card that is used for the GDU 620.

[2] The Installer Unlock Card is required to update software with v3.00 and later.

[3] Requires GDU software v3.62 or later. An enablement card is not required for TXi if the feature is unlocked on a GTN Xi with software v20.41 or later.

Table 3-9 Database Cards

Card Description	Part Number	Notes
Data Card, TXi Database	010-03716-1( )	[1] [2]
Data Card, Blank	010-01431-01	[3]

Notes:

[1] The base number for the G500/G600 TXi Database Card is 010-03716-10.

[2] Other database cards with the prefix 010-03716-1( ) support specific geographic areas.

[3] Can be used when loading databases from flyGarmin.com.

3.1.2 Commercial

The G500/G600 TXi equipment is designed to be installed using standard parts and accessories. The following may be required for the installations:

1. Display Backup switch comprised of MS27719-22-1 miniature toggle switch and Aircraft Spruce P/N 11-00815 red toggle switch cover.
2. MS26574 or MS22073 push-pull manually resettable circuit breakers or other trip-free, push-pull circuit breaker type as specified in the aircraft parts catalog.
3. MIL-W-22759/16 or MIL-W-22759/18 or MIL-W-22759/34 electrical wire.

   NOTE

   MIL-W-22759/18 wire is recommended due to the insulation diameter being more compatible with high-density connectors

4. MIL-C-27500 shielded cable with M22759/16 wire (TE) or M22759/18 wire (TG) and ETFE jacket (14), or M22759/34 (SD) wire and crosslinked modified EFTE jacket (23 or 73).
5. MS25036 or MS20659 ring terminals.
6. M83519/2-X shield terminators.
7. A-A-59163 (MIL-I-46852C) silicone fusion tape.
8. Wire bundle routing, securing, and management supplies, as required.
9. 2024-T3 aluminum per AMS-QQ-A-250/5, or 6061-T6 aluminum per AMS 4025, AMS 4027, or AMS-QQ-A-250/11, varying thickness.
10. Line and fittings, including 1/8-27ANPT male fitting for pitot and static connection. Refer to aircraft-specific parts catalog for approved pitot and static connector part numbers.
11. TSO-C53a Type C or D hose (e.g., Aeroquip 303 hose with AE102 sleeve and 900591B clamps or Aeroquip AE466) for installation of fuel flow transducers and pressure sensors.
12. 22 or 24 AWG stranded thermocouple extension wire to match K-Type or J-Type probe, with a minimum continuous temperature rating of 400°F and ASTM E230 Standard Limits or NIST ITS 90 electrical qualifications (e.g., Watlow SERV-RITE P/Ns K24-3-507 and J24-3-507).
13. Ethernet cable, aircraft grade category 5 (required only for HSDB interfaces). Only Ethernet cables listed in Table 3-10 can be used. 24 AWG is preferred.

Table 3-10 HSDB Cables

Manufacturer	Cable Part Number	Gauge
PIC WIRE AND CABLE	E10422 [1]	22 AWG
	E10424 [1]	24 AWG
	E12424	
EMTEQ	D100-0824-100	
THERMAX	MX100Q-24	
CARLISLE IT	392404	
GIGAFLIGHT	GF100T-24CAT5	

Notes:

[1] E10422 cable is not recommended because of the larger insulation diameter, making it very hard to work with in the high density connectors. E10424 cable is also not recommended due to insulation shrinkage that can occur.

14. For HD video, use MIL-DTL-17 75© coaxial cable (PIC V73263) connector (PIC 190708). For composite video, use MIL-DTL-17/9 83264).
15. Mating connector PT06E-8-4S(SR) is required for stainless steel pressure transducers (P/Ns 494-30030-00, 494-30031-00, 494-30032-00). Refer to Section 4.7.3 for sensor installation.
16. For GAD 43(e) installations in aircraft equipped with the Collins APS-65 autopilot system, the installation of four 6.5 mH inductors in-line with the Pitch Data X and Y and the Roll Data X and Y, as shown in Figure B-33, are required if the existing APC-65 computer has not been converted for use with Digital AHRS (i.e., AHC-1000A/S or 3000A/S).

    For the installation of inductors, refer to Section 4.1. The following are the minimum specifications required:

    - 6.8 mH ±15% inductor.
    - Wire wound copper wire axial construction.
    - 20 AWG axial connections, 0.032 ± 0.002 inches (0.813 ± 0.05 mm) diameter.
    - -67°F to 185°F (-55°C to 85°C) full operating temp range or -67°F to 248°F (-55°C to 120°C) no load temp range.
    - 2000 Vrms encasement dielectric rating.
    - Less than 10© DC resistance.
    - Saturation current greater than 100 mA.
    - MIL-I-23053/5 class 3 flame retardant coating.

    The following supplier part has specifications that meet the requirements of this manual:

    - API Delevan Inc. (P/N 4590R-685K).

    It is the installer's responsibility to ensure that the supplier's part quality system maintains compliance with these specifications.
17. ENGINE annunciator(s) capable of displaying warning (red) and caution (yellow) annunciations.

Table 3-11 EIS Annunciator

Manufacturer	Annunciation	Aircraft System	
		14V	28V
Applied Avionics	Caution/Warning	95-40-17-B4-E1WPN	LED-40-17-BA2-E1WP6 [1]
Mil-Spec (Various)	Caution (Yellow)	MS25041-4-330 Cap	MS25041-4-327 Cap
		MS25237-330 Lamp	MS25237-327 Lamp
	Warning (Red)	MS25041-2-330 Cap	MS25041-2-327 Cap
		MS25237-330 Lamp	MS25237-327 Lamp

Notes:

[1] Requires two 47© 1/4W, -55°C to 125°C, dimming resistors. Refer to F

18. For GDL 60 Remote Aircraft Status installationsUse the following relay part numbers or refer to Table 3-7 for Garmin part numbers.
    - Relay (28V) 5A M83536/2-024M
    - Relay Socket 5A M12883/45-01
    - HFB-R 330-01791-00 fuse holder (or equivalent)

Piper Cheyenne PA-31T Series

Mating connector MS3476W10-6S and relief strain MS85049/52S10W are required for torque transducer (P/N APTE-2B-2250-85D). Refer to Section 4.7.4 for torque sensor installation.

Removal of existing oil temperature gauges requires two relays to be installed to retain operation of the oil temperature annunciators. Use relay P/N M83536/1-020 (Alt. M3835356/2-020). Refer to Appendix Section D.4.2 for relay installation.

For Aerosonic oil pressure and fuel pressure sensor connection, 510 retain power rating at 70°C and qualified to MIL-R-10509 are required. Acceptable resistors include:

- RN60D5100FB14
- RN60C5100DB14

Textron Aviation, Inc. (Cessna) Model 441

Wiring of the Single Redline (SRL) discrete input to the GEA 71B Enhanced requires the following components:

- Resistor, 2.2k© 1/2W, RN65E2201FB14
- Diode, JAN1N4454-1

Refer to Appendix Section D.7 for model-specific interconnects and configuration instructions for the SRL discrete.

3.2 G500/G600 TXi Installation Requirements

This section provides installation requirements for the G500/G600 TXi system.

3.2.1 Power Distribution

G500/G600 TXi LRUs must not share circuit breakers or ground returns with each other or with other equipment.

> NOTE
>
> For the purpose of the G500/G600 TXi system installation, the “essential bus” is a bus that receives power when the battery master is switched on and is not automatically shed with the loss of a generator or alternator. Power distribution requirements are summarized in Table 3-12 below.

Table 3-12 Power Distribution

LRU (Refer to CB Label)		BUS Requirement
PFD	Single	• PFD and ADAHRS on essential bus.
	Dual	• No. 1 PFD and ADAHRS on the essential bus. • No. 2 PFD and ADAHRS on the avionics bus or, if dual essential buses are available, connect to the separate essential bus.
GCU 485		• Same bus as the PFD it controls.
MFD	Single	• Avionics bus or essential bus if the MFD is the backup display for the Integrated Standby System.
	Dual	• Avionics bus.
EIS	Single	• Essential bus.
	Dual	• No. 1 EIS display on essential bus. • No. 2 EIS display on avionics bus. • If dual essential buses are available, connect each EIS display to a separate essential bus.
GEA 71B Enhanced	Single	• Essential bus.
	Dual	• No. 1 GEA 71B Enhanced on essential bus. • No. 2 GEA 71B Enhanced on avionics bus or, if dual essential buses are available, connect to a separate essential bus. • No.1 and No. 2 GEA 71B Enhanced on the single essential bus if it is powered by three sources (i.e. GEN1, GEN2, and BATT).
GEA 110	Single	• EIS Display or essential bus (refer to Figure B-17).
	Dual	• No. 1 GEA 110 on GDU and essential bus (refer to Figure B-17). • No. 2 GEA 110 on GDU and essential bus (refer to Figure B-17). • If dual essential buses are available, connect each GEA 110 to a separate essential bus.
GAD 43(e)	Single	• Same bus as the interfaced third-party equipment.
	Dual (GAD 43e)	• Same bus as the interfaced third-party equipment.
Electronic Standby Instrument	With dedicated battery	• Essential bus. • If dual essential buses are available, connect the electronic standby instrument and No. 1 PFD to separate essential buses.
	Without dedicated battery	• Bus that provides a minimum of 30 minutes of operation after a total failure of all No. 1 PFD power sources. • Bus that includes a means to ensure its availability before flight.

Circuit breakers and switches added as part of G500/G600 TXi system installation must be labeled as shown in Table 3-13 (switch labels), Table 3-14 (single bus), and Table 3-15 (dual essential buses). Labels must be readable in all lighting conditions. Ambient flood lighting is acceptable. The labeling for each LRU denotes the following where applicable:

- Number designation- LRUs of same type/function in the system.
- Letter designation- Differentiates the essential bus.

Table 3-13 Switch Labels

Description	Label
Reversionary mode switch	DISPLAY BACKUP Position 1: ON Position 2: AUTO

Table 3-14 Circuit Breaker Labels - Single Essential Bus

Description	Label		CB Value	
	Single LRU	Dual LRU	14V System	28V System
GDU 1060 configured as a PFD/MFD or PFD/MFD/EIS GDU 700 configured as a PFD	PFD	PFD 1 PFD 2	10A	5A
GDU 1060 configured as a MFD/MFD GDU 700P configured as an MFD	MFD	MFD 1 MFD 2	10A	5A
GDU 1060 configured as an MFD/MFD/EIS GDU 700 configured as an EIS or MFD/EIS	EIS	EIS 1 EIS 2	10A	5A
GDU 1210 configured as a PFD/MFD or PFD/MFD/EIS	PFD	PFD 1 PFD 2	7.5A	5A
GDU 1210 configured as a MFD/MFD	MFD	MFD 1 MFD 2	7.5A	5A
GDU 1210 configured as an MFD/MFD/EIS	EIS	EIS 1 EIS 2	7.5A	5A
GSU 75(B)	ADAHRS	ADAHRS 1 ADAHRS 2	5A	5A
GRS 77	AHRS	AHRS 1 AHRS 2	5A	5A
GDC 72	ADC	ADC 1 ADC 2	5A	5A
GEA 110	ENG SNSR	ENG SNSR L ENG SNSR R	5A	5A
GEA 71B Enhanced	ENG SNSR	ENG SNSR L ENG SNSR R		5A
GAD 43(e)	PFD ADAPTR	PFD ADAPTR 1 PFD ADAPTR 2	5A	5A
GCU 485	PFD CTLR	PFD CTLR 1 PFD CTLR 2	5A	5A

Table 3-15 Circuit Breaker Labels - Dual Essential Busses

Description	Label		CB Value	
	Single LRU	Dual LRU	14V System	28V System
GDU 1060 configured as a PFD/MFD or PFD/MFD/EIS GDU 700 configured as a PFD	PFD A PFD B	PFD 1A PFD 1B PFD 2A PFD 2B	10A	5A
GDU 1060 configured as an MFD/MFD GDU 700P configured as an MFD	MFD A MFD B	MFD 1A MFD 1B MFD 2A MFD 2B	10A	5A
GDU 1060 configured as an MFD/MFD/EIS GDU 700 configured as an EIS or MFD/EIS	EIS A EIS B	EIS 1A EIS 1B EIS 2A EIS 2B	10A	5A
GDU 1210 configured as a PFD/MFD or PFD/MFD/EIS	PFD A PFD B	PFD 1A PFD 1B PFD 2A PFD 2B	7.5A	5A
GDU 1210 configured as an MFD/MFD	MFD A MFD B	MFD 1A MFD 1B MFD 2A MFD 2B	7.5A	5A
GDU 1210 configured as an MFD/MFD/EIS	EIS A EIS B	EIS 1A EIS 1B EIS 2A EIS 2B	7.5A	5A
GSU 75(B)	ADAHRS A ADAHRS B	ADAHRS 1A ADAHRS 1B ADAHRS 2A ADAHRS 2B	5A	5A
GRS 77	AHRS A AHRS B	AHRS 1A AHRS 1B AHRS 2A AHRS 2B	5A	5A
GDC 72	ADC A ADC B	ADC 1A ADC 1B ADC 2A ADC 2B	5A	5A
GEA 110		ENG SNSR L ENG SNSR R	5A	5A
GEA 71B Enhanced	ENG SNSR A ENG SNSR B	ENG SNSR 1A ENG SNSR 1B ENG SNSR 2A ENG SNSR 2B		5A
GAD 43(e)	PFD ADAPTR A PFD ADAPTR B	PFD ADAPTR 1A PFD ADAPTR 1B PFD ADAPTR 2A PFD ADAPTR 2B	5A	5A
GCU 485	PFD CTLR	PFD CTLR 1 PFD CTLR 2	5A	5A

3.2.2 GPS Navigator

The G500/G600 TXi system can be interfaced with up to two independent GPS navigators. GPS information is used by the GDU (PFD/MFD) and is forwarded to the AHRS. The EIS display can use GPS data either directly (for a stand-alone EIS) or from another GDU in order to calculate distance to destination and GPS ground speed. Minimum GPS requirements are based on the configuration and AHRS interface are discussed below.

NOTE

The GDU provides all external annunciations for the GTN 6XX/7XX/Xi, GNS 480, GPS 175, GNX 375, GNC 355, and GNS 400W/500W series navigators, eliminating the need for an external annunciator panel.

CAUTION

If two GTN 6XX/7XX/Xi units are installed, the #2 unit must be connected to the display with the #2 ADC/AHRS or ADAHRS, if installed. If there is only one ADC/AHRS or ADAHRS installed, the #2 GTN 6XX/7XX/Xi may be connected to any display.

A minimum of one approved GPS source is required for all G500/G600 TXi PFD and MFD installations. If there are two GRS 77s installed, each GRS 77 must have an independent approved GPS source. Refer to Appendix Section C.3 for approved GPS sources. A GPS source is optional for standalone EIS installations when no other PFDs or MFDs are installed.

3.2.3 Standby Instruments

The Integrated Standby System is not available for new installations.

Installations of an G500/G600 TXi PFD in aircraft approved for IFR operations require standby attitude, airspeed, and altimeter instruments. The existing pneumatic instruments can be retained for use as standby instruments. However, they must be located next to the pilot's PFD as described in Section 4. Standby instruments are not required for aircraft limited to VFR-only operations.

The existing non-stabilized magnetic compass must be retained. The magnetic compass must be re-calibrated once the G500/G600 TXi system is installed and configured.

The Integrated Standby System can be used to meet the requirements for standby attitude, airspeed, and altitude instruments. Standby instrument requirements by aircraft class are shown in Table 3-16.

Table 3-16 Standby Instrument Requirements by Aircraft Class

Aircraft Class [1]	Construction	Standby Instrument Options		
		External		Integrated Standby System
		Pneumatic	Electronic	
I	Metal	Yes	Yes	Yes
	Non-Metal			No
II	Metal	Yes	Yes	Yes
	Non-Metal			No
III	Metal	Yes	Yes	No
	Non-Metal			

Notes:

[1] See AC 23.1309-1E for aircraft class designations.

If a GDU 700/1060 primary flight display is interfaced to a previously installed GRS 77 or GDC 74( ) sensor, the existing standby instruments and single PFD installation limitation (if applicable) from the existing GRS 77 and GDC 74( ) installation approval must be retained. If a GDU 1210 primary flight display is interfaced to a previously installed GRS 77 or GDC 74( ) sensor, the existing standby instruments must be replaced with a GI 275 standby in accordance with Section 3.2.3.2 unless a GI 275 standby was installed from the existing GRS 77 and GDC 74( ) installation approval. The single PFD installation limitation (if applicable) from the existing GRS 77 and GDC 74( ) installation approval must be retained.

Installation of an electronic standby indicator in lieu of the standby instruments approved by this STC requires separate airworthiness approval and demonstration of compatibility with the G500/G600 TXi system. Electronic standby indicators determined to be compatible (under specific conditions) are listed in Appendix Section C.1.

The markings on the standby airspeed indicator must match the Type Data (POH/AFM) for the specific aircraft and current aircraft airspeed indicator. The units on the standby altimeter (e.g., Hg or millibars) must match those on the current altimeter in the aircraft.

If the original airspeed indicator is part of an aural airspeed warning system, it may have to be retained to continue to generate warnings. It can only be removed when it is possible to configure GDU airspeed discrete outputs to trigger aural airspeed warnings when paired with external devices. Refer to Section 5.4.30 for GDU discrete output configuration.

CAUTION
The airspeed warning system must continue to operate after the installation of the G500/G600 TXi system.

CAUTION
If the original airspeed indicator had variable operating limits that change based on aircraft altitude (such as barber pole type airspeed indicators), the original pneumatic airspeed indicator, or an electronic standby capable of replicating the variable limit, must be used.

The standby airspeed indicator can be one of the following:

- A pneumatic airspeed indicator that is eligible for installation as the primary airspeed indicator.
- A pneumatic airspeed indicator listed in Appendix Section C.2. Not all aircraft models are eligible to use the indicators listed in Appendix Section C.2. See Cautions listed above for eligibility information for particular aircraft models.

The standby attitude indicator can be the following:

- A pneumatic attitude indicator that is eligible for installation as the primary attitude indicator.
- Refer to Appendix Section C.1 for approved indicators.

The standby altimeter must be one of the following:

- A pneumatic altimeter that is eligible for installation as the primary altimeter.
- An altimeter listed in Appendix Section C.2. Not all aircraft models are eligible to use the altimeters listed in Appendix Section C.2. See Cautions above associated with the airspeed indicator a for eligibility information for particular aircraft models.

Electronic standby indicators

- Must be installed per the manufacturer’s requirements in the applicable STC.
- Installers must seek a separate airworthiness approval for the installation and must be an approved indicator listed in Appendix Section C.1.

3.2.3.1 Garmin G5 Standby Instrument

If the Garmin G5 is used as a standby for the G500/G600 TXi system, it must be installed in accordance with the G5 AML STC SA01818WI with some exceptions noted below. If the G5 is installed as a standby to the G500/G600 TXi, the G5 backup battery pack must also be installed. Refer to Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual (P/N 190-01112-10) for details. Additionally, the G5 must be configured as an attitude indicator and display attitude, altitude, and airspeed.

The following changes to the G5 AML STC are approved under this G500/G600 TXi STC when the G5 is installed as a standby instrument:

1. The G5 STC requires that the G5 be installed in the primary ADI location. This STC approves moving the G5 from the primary ADI location to the standby location, as shown in Figure 4-28.
2. The G5 STC requires that the airspeed indicator, altimeter, vertical speed indicator, and rate-of-turn indicator be retained. However, when installed as a standby, this STC allows the existing analog airspeed indicator, altimeter, vertical speed indicator, and rate-of-turn indicator to be removed, as these functions are replaced by the G500/G600 TXi.
3. If the G5 is installed with the optional TXi interface via GAD 29(B), the GMU 11 is not required to be installed with the G5. The GMU 44(B) is sufficient to supply heading data to the G5.

If it is desired to have baro setting, altitude, and heading bugs sync between the G500/G600 TXi and the G5 Standby Instrument, then the GAD 29(B) can optionally be installed. The GAD 29(B) enables this sync functionality when connected and configured as shown in Figure B-50. Refer to Appendix C for configuration details.

3.2.3.2 Garmin GI 275 Standby Instrument

If the Garmin GI 275 is used as a standby for the G500/G600 TXi system, it must be installed in accordance with the GI 275 AML STC SA02658SE. The GI 275 must be installed in the standby location, as shown in Figure 4-28. G500/G600 TXi and GI 275 can sync baro setting, altitude, and heading bugs via HSDB. Refer to Appendix B for interconnects and Appendix C for configuration details.

If the GI 275 is installed as a standby instrument with a G500/G600 TXi PFD, then the GMU 11 is not required to be installed with the GI 275. The GMU 44(B) is sufficient and TXi will forward heading data to the GI 275 via HSDB.

Some installations of a GDU 1210 configured to display primary flight information (i.e., PFD/MFD or PFD/MFD/EIS) require the installation of a GI 275 standby (refer to Table D-38). If required, the GI 275 standby must be configured as a 4-in-1 (i.e., Attitude, Altitude, Airspeed, Heading) ADI Only that cannot display MFD pages. Refer to GI 275 Part 23 AML STC Installation Manual (P/N 190-02246-10).

3.2.4 Display Lighting Control

Lighting on the GDU display/keys can be controlled by a combination of either the lighting bus or the built-in photocell. The photocell can be used for lighting control for all installations.

If there is a significant reduction in lighting bus load due to the G500/G600 TXi system installation, it is recommended that the photocell be used to control the lighting. When the Integrated Standby System is used for standby instrumentation, both GDU 700P displays cannot be controlled by the same lighting bus; therefore, the photocell control is used.

For installations in turboprop aircraft that use the lighting bus, the starter discrete input must be wired and configured. The system reads the status of the Starter On discrete, then uses the photocell to prevent the displays from dimming too much while the battery/main bus is utilized to run the starter.

3.2.5 Considerations for Vacuum System

This STC does not provide approval to remove a vacuum system.

Refer to the aircraft-specific maintenance manual and AC 43.13-2B for guidance when removing the vacuum system. If the vacuum pump is removed, the engine accessory port must be properly covered. Refer to specific engine maintenance and parts manual for guidance.

3.2.6 Engine Indication System (EIS)

Installation of the EIS must maintain compliance with the minimum number of gauges required by 14 CFR 91.205 for the type of flight allowed by the aircraft's Type Certificate. In addition, the aircraft must have the gauges listed in Table 3-17 or Table 3-18 and must retain or replace gauges that have markings, alerts, and/or POH/AFM limitations.

The following must be considered for an EIS installation:

1. Do not install an EIS display in aircraft with aspects that are not supported per Section 2.1.11.
2. Gauges not listed in Table 3-17 or Table 3-18, but that are required, must be displayed either by the gauges shown in Table 3-19 or by retaining the original gauge and location. Optional EIS gauges listed in Table 3-19 that are not currently installed in the aircraft may be added as approved in this STC.
3. If the gauge is displayed on the G500/G600 TXi EIS, the respective previously installed gauge should be removed.
4. Ensure the engine sensors will fit and can be installed.
5. Some turbocharged aircraft use differential pressure sensors for fuel pressure and/or fuel flow. This STC provides electrical interface approval for select differential pressure sensors (refer to Appendix Section C.25); however, installation approval is not provided and must be obtained separately. Fuel flow will require installation of a fuel flow sensor.
6. Do not replace an existing gauge if the GDU 700 or the GDU 1060/1210 EIS strip gauge will not provide the functions and markings required by the POH/AFM, TCDS, or other aircraft model-specific data on each full-time EIS display. Refer to Appendix F for gauge layout, spatial limitations, and fit in the selected display(s). See Section 5.7.3.2 for available EIS gauge markings. If the EIS gauges cannot be configured as noted in the POH/AFM, the installation does not qualify for EIS unless alternate airworthiness approval is obtained.
7. Annunciator lights operated by a sensor or switch that is independent of the gauge that is being replaced must remain operative and independent from the G500/G600 TXi EIS.
8. If an annunciator light is operated by a gauge that is being replaced by the G500/G600 TXi EIS, the annunciation must be retained through one of the options below.
    a. The associated annunciator can be deactivated only if the G500/G600 TXi "ENGINE" alert activates for the same condition and in the same color as the original annunciator. The G500/G600 TXi "ENGINE" alert is provided on the PFD or an independent annunciator. If an annunciator is replaced by the G500/G600 TXi EIS, deactivate the existing annunciator so it does not illuminate and install a placard over the deactivated lens or as close as practical within view of the pilot that states: "XXXX ANNUN DISABLD". Replace "XXXX" with a description of the decommissioned annunciator(s). Modification of the existing annunciator panel is outside the scope of this STC.

   b. If the new G500/G600 TXi EIS gauge does not support an “ENGINE” alert for the same condition, the existing annunciator must remain installed. Existing annunciator lights can be retained provided they can be supported by an Active-High or Active-Low discrete and are the same color as the TXi alert color (if applicable). The G500/G600 TXi can drive a discrete output based on configured ranges. Refer to Section 5.7 for configuration instructions and Section 3.2.8 for discrete voltage and current limits.

   c. If the existing annunciator light cannot be driven by a G500/G600 TXi discrete as described, the existing gauge must also remain installed for continued operation of the annunciator.

9. All placards that were associated with any/all gauges being replaced (non-limitation data) must remain in the proximity of the EIS display.
10. Reused sensors must function through the sensor’s entire range. For example, fuel tank floats may have worn resistive elements that will result in performance issues with the gauge display.
11. If the aircraft POH or AFM has a fuel flow limit (i.e., redline), the installer must verify fuel flow accuracy ±10% of the full scale range and adjust the K-Factor if necessary. Obtain the correct fuel flow value using the engine or aircraft manufacturer manuals. If that data is not available, perform a pre-installation static RPM ground check and document the pre-installation fuel flow using the existing fuel flow indicator. Refer to Section 6.12.3 for post-installation K-Factor adjustment.
12. Verify compatible sensors are installed on the aircraft using Appendix Sections C.25 and C.26. For sensors not installed by this STC, other installation approval must be obtained via aircraft manufacturer service bulletin, other STC, or some other FAA-approved installation method.
13. The ENGINE Annunciator must be installed if the EIS display is installed outside the primary field-of-view (refer to Figure 4-24 and Figure 4-25) and a GDU 700P/1060/1210 PFD is not installed. The ENGINE Annunciator is also required if a GDU 700L PFD is installed and the EIS display is outside the primary field-of-view (refer to Figure 4-26). Refer to Section 4.4.6 for more information.

For cases where the standard gauge marking configuration cannot be used, aircraft-specific solutions for unique gauge markings are provided in Section 5.7.3.2.1.

If any of the following existing engine gauges do not have at least two lines/radials or one arc, they cannot be configured for use on the GDU 700 MFD/EIS or GDU 1060/1210 EIS displays. If the gauge is required, the existing gauge must be retained unless it is configured on a GDU 700 EIS.

- Oil Pressure
- Oil Temperature
- CHT
- IAT
- CDT
- Fuel Pressure
- Vacuum or De-ice Pressure

Figure 3-1 Example GDU 1060 Acceptable Strip Gauge Configurations

Table 3-17 Required Gauges for Reciprocating Engine EIS

Indicator	Notes
Manifold Pressure	If applicable.
RPM	
Fuel Flow	Flow check may be required prior to de-modification; refer to Table D-38.
Oil Pressure	
Oil Temperature	
EGT for each cylinder	
CHT for each cylinder	

Table 3-18 Required Gauges for Turboprop EIS

Indicator	Notes
Oil Pressure	
Oil Temperature	
Engine Temperature	ITT or EGT
Tachometers	Gas Producer RPM, Propeller RPM, or Engine Speed (TPE331 engines only).
Torque	
Fuel Flow	

Table 3-19 Additional Gauges*

Indicator	Notes
Primary EGT	Only required if cowl flaps are installed or existing gauge had colored markings, alerts, and/or associated POH/AFM limitations. Select Primary EGT or TIT, only one can be displayed at a time. Not applicable to turboprop aircraft. TIT is limited to two indications, regardless of single or twin-engine aircraft. Twin engines with dual TIT indicators are not supported (refer to Table 5-78).
Turbo/Turbine Inlet Temp (TIT)	
CHT	
Carburetor Temperature	Only one of the four gauge types can be displayed. If markings are present in the AFM/POH, TCDS, or other aircraft data, only configure the standalone gauges; do not configure the IAT/CDT/Differential gauge.
Inlet Air Temperature (IAT)	
Compressor Discharge Temp (CDT)	
IAT/CDT/Differential	Not applicable to turboprop aircraft.
Fuel Quantity (Main)	Aux fuel quantity can only be displayed when main fuel quantity is also displayed.
Fuel Quantity (Aux)	TXi interface to Fuel Quantity sensors is not approved in certain aircraft models. See Appendix D for model-specific information.
Fuel Pressure	

Indicator	Notes
Amps/Volts • Alternator/Generator Load 1/2 • Battery Charge/Discharge 1/2 • Bus Voltage 1/2 • Battery Voltage 1/2 • Alternator/Generator Voltage 1/2	Any six of the ten parameters can be selected (the same parameter cannot be displayed twice). If there is only one of a certain parameter, select item 1. The six parameter total limit applies to both engines combined in a twin-engine aircraft.
Vacuum or De-ice Pressure	Verify aircraft system is compatible with requirements in Section 4.7.3 and sensors listed in Table C-26.
Rudder Trim [1]	
Outside Air Temperature • OAT (SAT) • OAT (TAT) • OAT (ISA) • OAT (EIS)	Up to three of the four parameters can be selected.

*Required if the existing gauge had colored markings, alerts, and/or associated POH/AFM limitations.

Notes:

[1] Not supported for piston aircraft.

The G500/G600 TXi system includes some sensor options that are not approved in this STC; therefore, ensure each engine and fuel sensor that is installed on the aircraft is approved per Appendix Section C.25 (reciprocating engines) or Appendix Section C.26 (turboprop engines).

Compare the range, markings, and colors in Table 3-20 to the required aircraft engine parameters. Prior to installation, verify each new sensor can support the full operational range of the measured system. An alerting line/radial/arc must be configured when the AFM/POH specifies a red or yellow mark on the gauge, unless otherwise specified by model-specific data. Refer to Section 5.7.3.2 and Appendix D. TXi EIS alerting behavior causes the alerting acknowledgment button to flash in reverse video. In some cases, the gauge title and the digital readout of the gauge (if applicable) will also flash in reverse video.

Each TXi gauge must include all limits specified by the POH/AFM, TCDS, or other aircraft model-specific data. If the installed sensor or TXi gauge cannot support the full operational range and replicate the required markings, the existing aircraft gauge must be retained.

Interface to a GPS source is optional for standalone EIS displays. Standalone EIS displays that do not have a GPS source connected will display dashes (---) for Endurance, Fuel at Destination, Range, and Efficiency.

Table 3-20 Available EIS Parameters

Display	Sensor or Display Range Limits	Available Gauge Markings	Available Marking Colors	Approved Units
Manifold Pressure [1]	0 – 60 in Hg	Arc	R, Y, B, G, W	IN Hg
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
RPM (Tachometer) [1]	0 – 4000 RPM	Arc	R, Y, B, G, W	RPM
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
Fuel Flow	0 – 100 GPH	Arc	R, Y, B, G, W	GAL/HR, LBS/HR
		Line/Radial	R, Y, B, G, W	
		Triangle [4]	R, Y, B, G, W	
		Dot [4]	R, Y, B, G, W	
EGT (1 probe per cyl) [1]	0 – 1800° F	None	N/A	°C, °F
EGT Primary (1 probe per engine) [1] [5]	0 – 1800° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
CHT (1 probe per cyl) [1]	0 – 900° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
TIT #1 [1] [5]	0 – 1800° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
TIT #2 [1] [5]	0 – 1800° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
IAT [1]	-100 – 1800° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
CDT [1]	-100 – 1800° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
IAT, CDT, Diff Temp [1]	-100 – 1800° F	None	N/A	°C, °F
Oil Pressure	0 – 150 PSIG	Arc	R, Y, B, G, W	PSI
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	

Display	Sensor or Display Range Limits	Available Gauge Markings	Available Marking Colors	Approved Units
Oil Temperature	-24 – 300° F	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	
Carb Temperature [1]	-24 – 34° C	Arc	B	°C
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
Fuel Pressure	0 – 100 PSIG	Arc	R, Y, B, G, W	PSI
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	
Main Fuel Quantity	0 – 620 © 0-20 V 0-400 pF [2] 0-30 kHz	Arc	R, Y, B, G, W	GAL, LBS
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	
Aux Fuel Quantity	0 – 620 © 0-20 V 0-30 kHz	Arc	R, Y, B, G, W	GAL, LBS
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	
Load Meter (alternator current)	0 – 150 A	Arc	R, Y, G	AMPS, %
		Min/Max Alert Line (Max of 2 Radials)	R, Y	
Ammeter (battery charge/ discharge)	-150 – 150 A	Arc	R, Y, G	AMPS
		Min/Max Alert Line (Max of 2 Radials)	R, Y	
Battery Voltage/ Bus Voltage/ ALT/GEN Voltage	-80 – 80 VDC	Arc	R, Y, G	Volts
		Min/Max Alert Line (Max of 2 Radials)	R, Y	
Prop Sync	N/A	N/A	N/A	N/A
Gas Producer RPM [2]	0 – 120%	Arc	R, Y, B, G, W	RPM, %
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
Propeller RPM [2]	0 – 2500 RPM	Arc	R, Y, B, G, W	RPM, %
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
Outside Air Temperature	-75 – 75° C	Line	Y	°C, °F
Torque [2]	0 – 135%	Arc	R, Y, B, G, W	%, PSI, FT-LB
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	

Display	Sensor or Display Range Limits	Available Gauge Markings	Available Marking Colors	Approved Units
Engine Temperature [2]	0 – 1200° C	Arc	R, Y, B, G, W	°C, °F
		Line/Radial	R, Y, B, G, W	
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	
Vacuum or De-ice Pressure	0 – 75 PSI	Arc	R, Y, B, G, W	PSI, IN Hg
		Line/Radial	R, Y, B, G, W	
		Triangle [1]	R, Y, B, G, W	
		Dot [1]	R, Y, B, G, W	
Engine Horsepower [3]	0 – 100 %	Arc	R, Y, B, G, W	%
		Triangle	R, Y, B, G, W	
		Dot	R, Y, B, G, W	

Notes:

[1] Applicable for reciprocating EIS only.

[2] Applicable for turboprop EIS only.

[3] Engine Horsepower is applicable as a primary arc gauge only in select Cirrus SR20/SR22 installations. All other installations may configure engine power as a pilot-selectable field. Refer to Section 5.7.4.2.1 for Engine Power configuration instructions.

[4] When configured as a secondary bar gauge for turboprop EIS, triangle and dot markings are not approved.

[5] When configured for display in the Engine Temperature Graph, configuration of triangle and dot markings is prohibited.

Use Advanced Settings to replicate previously approved gauge markings and limitations or add optional capabilities. Refer to Section 1.2.7 for a description of EIS advanced settings.

3.2.7 HSDB Architecture

The HSDB architecture allows for many connection possibilities. The Ethernet architecture limitations/ options shown in this section are used as a guide for common LRU combinations. Block diagrams are illustrated in Figure 3-3 through Figure 3-14. A summary of the Garmin LRUs with HSDB capability and available ports is shown in Table 3-21.

Table 3-21 Garmin LRU HSDB Port Summary

LRU	Number of HSDB Ports
GDU 620	2
GDU 700/1060/1210	4
GTN 6XX/7XX/Xi	4
GTS 8XX	1
GDL 69 Series	4
GWX 68/70	1
GDL 88	2
GTX 345	2
GPS 175/GNX 375/GNC 355	1
GI 275	2
GDL 60	2

The following steps/figures are used as a guide in making HSDB connections (not all possibilities are included):

1. Pilot's PFD and the display with the second ADAHRS (if applicable) must be directly connected.
2. The TXi PFD must be directly connected to its GI 275 standby.
3. When multiple GDUs are installed, they must be connected to each other either directly or through another GDU.
4. Systems with a single display and dual GTN 6XX/7XX/Xi units must connect each GTN 6XX/ 7XX/Xi to the display.
5. Connect other Garmin LRUs via HSDB to the pilot's PFD first, then to the display with a second ADAHRS/AHRS/ADC, if applicable. The next priority is an EIS display, then finally an MFD.
6. LRUs not installed under this STC must still meet the installation requirements that are applicable to those LRUs.
7. Choose the figure that most closely represents the aircraft's equipment and cross out any LRUs not installed. Apply the rules above to complete the HSDB connections, if necessary.
8. For GDL 60 installations that include RAS capability, the GDL 60 must be directly connected to the EIS GDU that is powered on by the RAS relays.
9. A direct HSDB connection is required for 100Mb Ethernet fast sync between two compatible LRUs.

TXi STC

AHR S #2 If a second AHRS is present in the system, connections must be as shown.

PIL OT PFD If a PFD is present in the system, connections must as shown

OTHER STC

1 HSDB port 1
3 HSDB port 3
2 HSDB port 2
4 HSDB port 4

NOTE: The left/right representation of LRUs in the diagrams do not represent the actual orientation of the installation in the aircraft

Figure 3-2 HSDB Architecture: Legend

GTS 8XX
TAS / TCAS I

1 GDU 4
2 PILOT PFD 3

GDL 69
Series

GWX
68/70/75
Weather
Radar

GI 275
Standby

ADS-B In
Source

Figure 3-3 HSDB Architecture: Single Display with No GTN

GI 275
Standby

1 GDU 4
2 PILOT PFD 3

GDL 69
Series

GTS 8XX
TAS / TCAS I

No. 1
GPS/SBAS

GTN 6XX/
7XX/Xi

GWX
68/70/75
Weather
Radar

ADS-B In
Source

Figure 3-4 HSDB Architecture: Single Display with Single GTN

GI 275
Standby

1 GDU 4
2 PILOT PFD 3

GDL 69
Series

GTS 8XX
TAS / TCAS I

No. 1
GPS/SBAS

GTN 6XX/
7XX/Xi

No. 2
GPS/SBAS

GTN 6XX/
7XX/Xi

ADS-B In
Source

GWX
68/70/75
Weather
Radar

Figure 3-5 HSDB Architecture: Single Display with Dual GTN

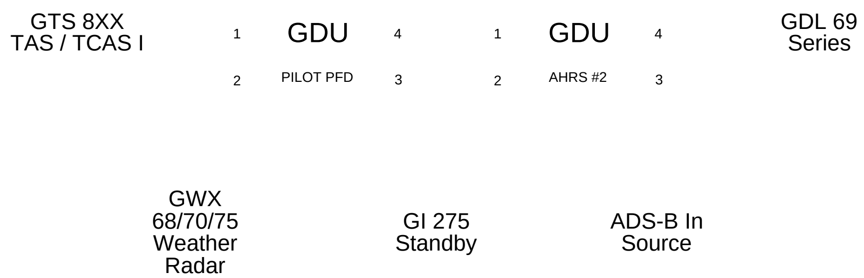


Figure 3-6 HSDB Architecture: Two Displays with No GTN

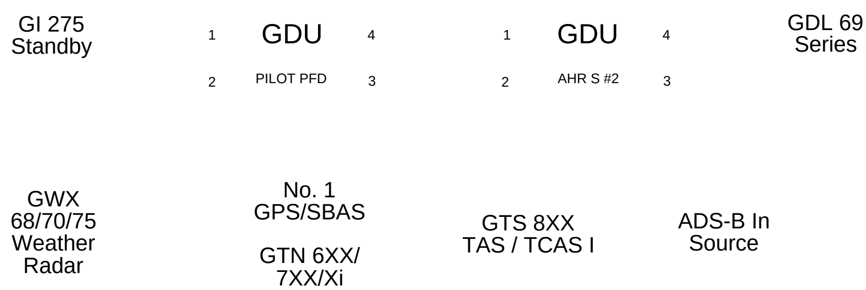


Figure 3-7 HSDB Architecture: Two Displays with Single GTN

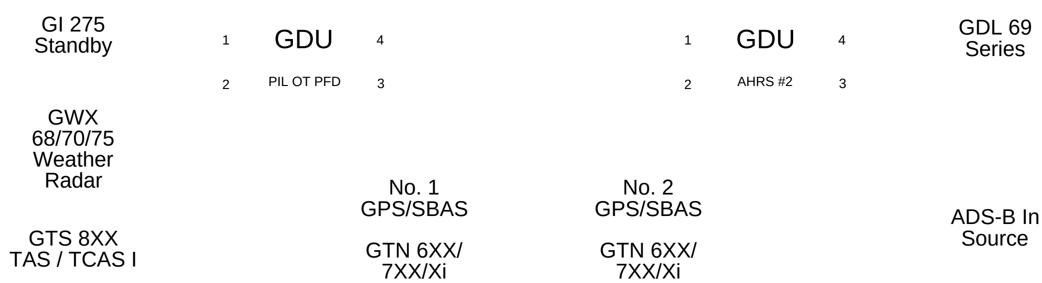


Figure 3-8 HSDB Architecture: Two Displays with Dual GTN

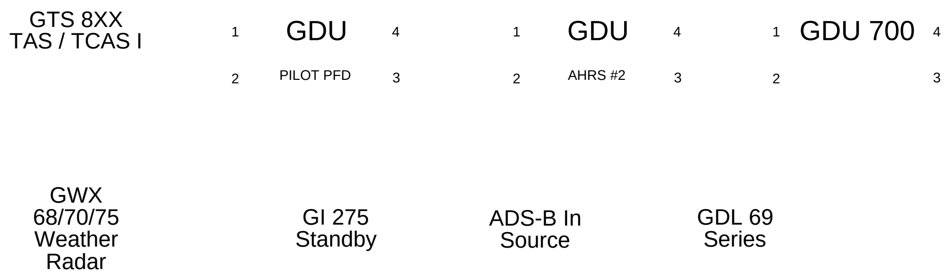


Figure 3-9 HSDB Architecture: Three Displays with No GTN

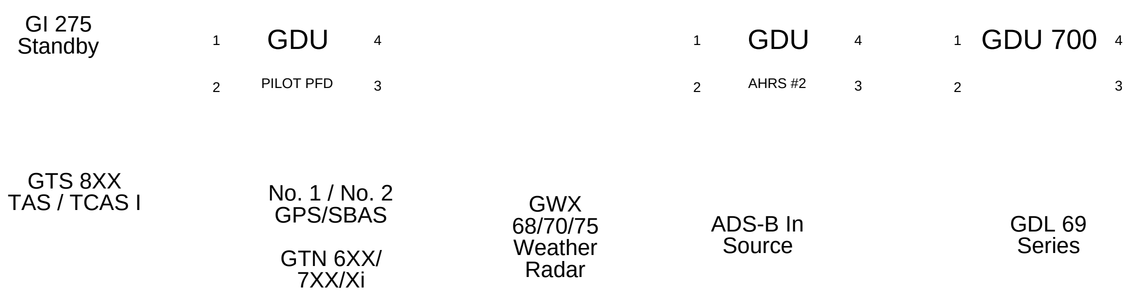


Figure 3-10 HSDB Architecture: Three Displays with Single GTN

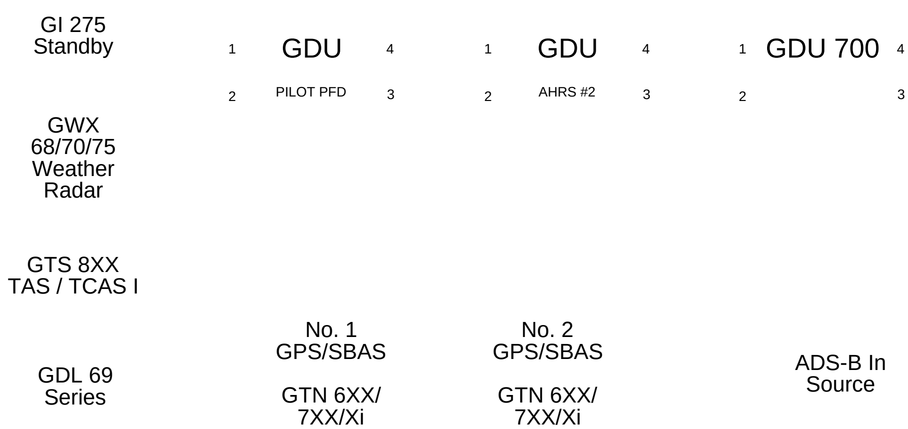


Figure 3-11 HSDB Architecture: Three Displays with Dual GTN

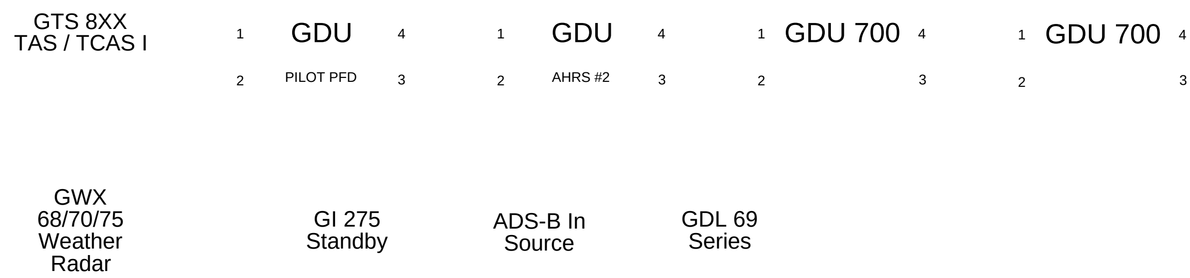


Figure 3-12 HSDB Architecture: Four Displays with No GTN

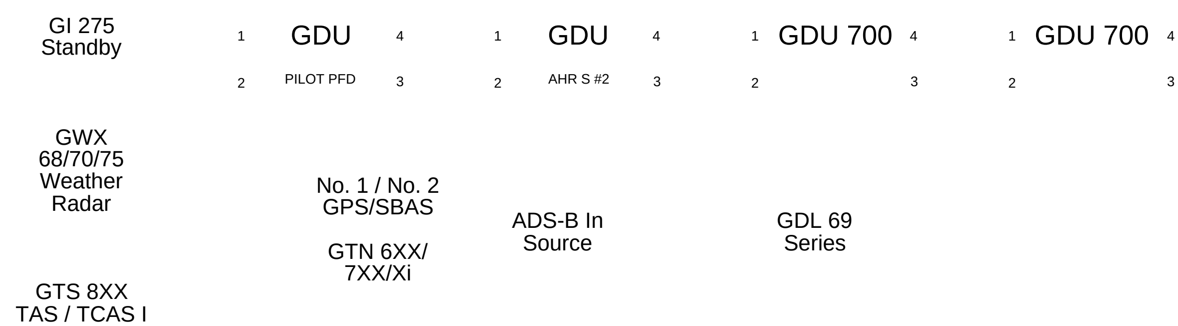


Figure 3-13 HSDB Architecture: Four Displays with Single GTN

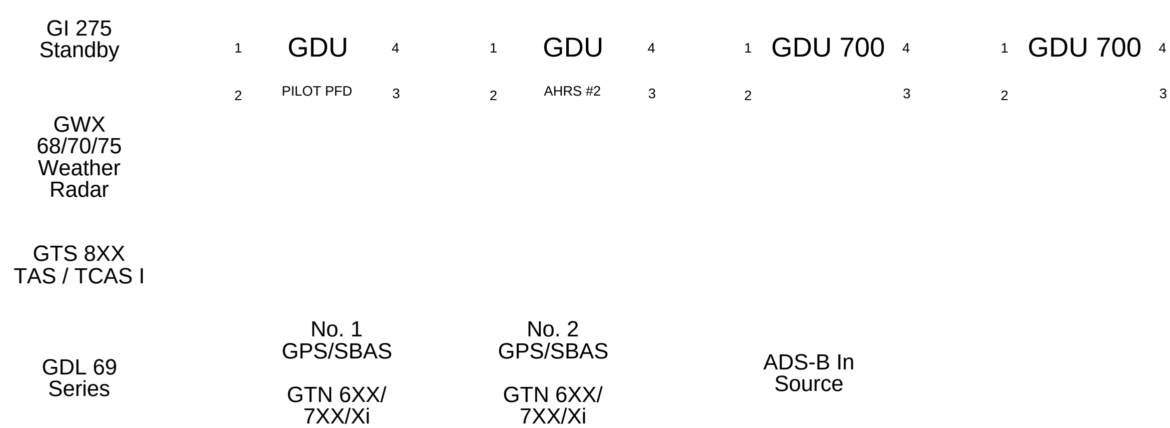


Figure 3-14 HSDB Architecture: Four Displays with Dual GTN

3.2.8 Discrete Inputs and Outputs

GDUs can support up to eight (8) Active-Low inputs and four (4) Active-High inputs. Active-Low inputs trigger when the input signal is less than or equal to 3.5 VDC or resistance to ground is less than or equal to 375 ©. It is inactive (open/high) when the input signal is greater tha
greater than 100 k©. An Active-Low can sink 500 mA or less. Active-
signal is greater than 6.5 VDC. It is inactive (open/low) when the input signal is less than or equal to 3.5 VDC or the resistance to ground is less than or equal to 375 ©. An A

GDUs can support up to thirteen (13) Active-Low outputs and four (4) Active-High outputs. Active-Low outputs trigger when the output signal is less than 1.0 VDC. The inactive output is an open drain with high impedance. An Active-Low can sink 500 mA or less. Active-High output voltage drop will be less than 2V of bus voltage. The inactive output is an open drain with high impedance.

The GEA 110 can support up to four (4) discrete inputs configurable as Active-Low or Active-High and one (1) Active-low discrete input. Active-Low inputs trigger when the input signal is less than or equal to 3.5 VDC or resistance to ground is less than or equal to 375 ©. It is
signal is between 8.0 VDC and 36 VDC or resistance to ground is gre
sink 500 mA or less. Active-High inputs trigger when the input signal is between 8.0 VDC and 36 VDC. It is inactive (open/low) when the input signal is less than or equal to 3.5 VDC. An Active-High can provide 50 mA or less.

The GEA 110 can support up to two (2) Active-low discrete outputs. Active-Low outputs trigger when the resistance to ground is less than 0.6 ©. It is inactive (open/high) wh
than 100 k©. An Active-Low can sink 500 mA or less.

For turboprop EIS installations, the GEA 71B Enhanced can support up to twenty-three (23) Active-Low inputs. Active-Low inputs trigger when the input signal is less than or equal to 3.5 VDC or resistance to ground is less than 375 ©. It is inactive (open/high) when the input s
or resistance to ground is greater than 100 k©. An Active-Low can si
inputs are inactive (open/low) when the resistance to ground is grea
provide 50 mA or less.

The GEA 71B Enhanced can support up to nine (9) Active-Low annunciate outputs. Active-Low outputs trigger when the resistance to ground is less than 0.6 ©. It is inacti
ground is greater than 100 k©. An Active-Low can sink 500 mA or les

Turboprop EIS discrete inputs may include several additional inputs for Dynamic Gauge Markings (Section 1.2.7.2), Gauge Text Lamps (Section 1.2.7.3), driving annunciators that were previously driven by a gauge that was replaced by EIS (Section 1.2.7.5), and Engine Operating Condition (via the Engine Starter input) (Section 1.2.8.1). If using the discrete inputs of the GEA 71B Enhanced, and more than one EIS display is installed, the EIS features supported by the GEA 71B Enhanced discretes will be available on the operational GDU in the event that a GDU fails.

It is recommended to make a list of required discrete input and output connections to ensure the system will support the intended interfaces. Refer to Section 5.4 for applicable autopilot, ADF, radar altimeter, EIS, traffic, weather radar, GSR 56, and TAWS interfaces.

Additional discrete inputs may include:

- Flight Cycle Counter input – uses one of the discrete inputs specified in Section 5.2.4.2.
- Audio Inhibit input – silences the GDU audio output when higher priority audio alerts are active (refer to Section 5.4.28).
- Display Backup input – reverts MFD to PFD in applicable installations (refer to Section 5.4.28 and Figure B-40).
- Day/Night input – selects the night mode (refer to Section 5.4.28).
- Engine Starter input – used in EIS and to limit display dimming in turboprop aircraft (refer to Section 5.4.28).

Additional discrete outputs may include:

- Terrain Audio Active – used to silence lower priority audio outputs (refer to Section 5.4.29).
- Airspeed Switch (up to five outputs) – triggers as set airspeeds (refer to Section 2.1.10 and Section 5.4.30).
- Engine Caution and Engine Warning – used to drive annunciators when a TXi PFD is not installed in the pilot's primary field-of-view (refer to Section 4.4.6).

3.2.9 Stabilized Approach Considerations

3.2.9.1 Flaps

The optional Flap Alert may be enabled if all of the following are true:

1. The POH/AFM prescribes approach and landing flap positions,
2. The aircraft is equipped with switches that provide valid active-low or active-high discrete outputs for Flaps Up and the POH/AFM recommended flap positions.
3. The GDU has Discrete In ports available.

3.2.9.2 Landing Gear

The optional Gear Alert may be enabled if both of the following are true:

1. The aircraft is equipped with switches that provide valid active-low or active-high discrete outputs when the landing gear are down and locked.
2. The GDU has a Discrete In port available.

3.3 Interfaces to Other Equipment

Information in this section provides details for interfacing to equipment not installed by the G500/G600 TXi STC. The information provided must be reviewed when these interfaces are considered.

3.3.1 Navigation Receiver

The G500/G600 TXi PFD uses data from a navigation receiver to display VOR and ILS information on the HSI. Up to two independent navigation receivers can be interfaced to a single PFD. The composite NAV connection must be directly connected to the PFD when present. The composite NAV should only be connected to the pilot's PFD, and it will crossfill to the other PFD in a dual PFD installation.

NOTE

When upgrading from a GDU 620, the composite NAV input to GAD 43(e) must be removed and connected directly to the GDU 700P/1060/1210 (PFD).

3.3.2 Course Deviation Indicators

The G500/G600 TXi PFD displays lateral and vertical deviation from the GPS source(s) and navigation receiver(s). The GDU 700P/1060/1210 can be used as the sole display of all CDI information and the existing CDI removed from all aircraft on the STC AML. Refer to Section 2.1.4 for limitations.

The use of an external CDI in conjunction with the G500/G600 TXi system is not recommended; however, if used, it must be setup as shown in Table 3-22 below.

Table 3-22 External CDI Interface

NAV Source	Interface Details
GTN 6XX/7XX/Xi	The VOR/ILS Indicator Output or VOR/LOC composite output (and ILS/glideslope deviations/flags) from P1004 must be used if an external CDI is installed. This makes both VOR and ILS information available. Resolver type indicator (e.g., Garmin GI 106A) or a composite indicator (e.g., Bendix/King KI 209) are supported.
GNS 430W/ 530W	The VOR/ILS Indicator Output or VOR/LOC composite output (and ILS/glideslope deviations/flags) from P4006/P5006 must be used if an external CDI is installed. This makes both VOR and ILS information available. Resolver type indicator (e.g., Garmin GI 106A) or a composite indicator (e.g., Bendix/King KI 209) are supported.
GNS 480	The Composite output from P7 must be used if an external CDI is installed. CDI will display only VOR and localizer information, not vertical deviation information. VOR/LOC composite indicator (e.g., Bendix/King KI 208) is supported.
SL30/ GNC 255(A)	The CDI (lateral) and glideslope (vertical) deviations and flags may be used to drive external CDI, if installed. Both VOR and ILS information are available. Standard VOR/ILS indicator with resolver output (e.g., Mid-Continent MD200) is supported. Optionally, the Composite output and glideslope deviations/flags may be used to drive external CDI with both VOR and ILS information available. VOR/ILS composite indicator (e.g., Bendix/King KI 209) is supported.

3.3.3 Autopilot

Various autopilot systems can be interfaced to the G500/G600 TXi. Compatibility of the autopilot system with the G500/G600 TXi system must be verified before installation. This STC does not include data for autopilot system installation. The autopilot must be installed per aircraft (or autopilot system) manufacturer data.

The G500/G600 TXi PFD can provide AC or DC heading and course datum (error) outputs based on the HSI heading bug and course pointer setting. When enabled, the G500/G600 TXi PFD can drive the heading datum output based on GPS steering (GPSS) from the selected navigator, acting as a roll steering converter. The GDU will provide analog deviation, associated flags, and ARINC 429 GPSS information based on the navigation source currently selected on the HSI. The GDU also provides ARINC 429 attitude and navigation data to compatible autopilots listed in Table 3-23.

Flight director outputs are not required to be spliced to PFD #2 in dual PFD G500/G600 TXi installations. Flight director outputs are crossfilled between the PFDs via HSDB. For GDU 620 upgrades, this wiring is different from the GDU 620 implementation.

Table 3-23 Compatible Autopilots and Interfaces

Make and Model		PFD HSI	Native GPSS	GPSS HDG Emulation	Flight Director	GYRO	ALT Preselect	VS Control	Mode Annun
AVIDYNE	DFC90	ðü	ðü		ðü	ðü	ðü	ðü	ðü
BENDIX	M4C	ðü		ðü					
	M4D	ðü		ðü	ðü				
CENTURY	II / III	ðü		ðü					
	IV	ðü		ðü	ðü				
	21,31	ðü		ðü		ðü			
	41	ðü		ðü	ðü	ðü			
	2000	ðü		ðü	ðü	ðü			
	400B	ðü		ðü		ðü			
CESSNA	300, 400, 800 IFCS	ðü		ðü					
	300B, 400B, 800B IFCS	ðü		ðü	ðü	ðü	ðü		
	1000 IFCS	ðü		ðü	ðü	ðü	ðü		
COLLINS	APS-65	ðü		ðü	ðü	ðü	ðü		
	AP-106/107	ðü		ðü	ðü				
GARMIN	GFC 500	ðü	ðü		ðü		ðü	ðü	ðü
	GFC 600	ðü	ðü		ðü		ðü	ðü	ðü

Table 3-23 Compatible Autopilots and Interfaces

Make and Model		PFD HSI	Native GPSS	GPSS HDG Emulation	Flight Director	GYRO	ALT Preselect	VS Control	Mode Annun
HONEYWELL (BENDIX/ KING)	KAP 100	ðü		ðü		ðü			
	KAP 140	ðü		ðü					
	KAP 150	ðü		ðü		ðü	ðü	ðü	Partial
	KFC 150	ðü		ðü	ðü	ðü	ðü	ðü	Partial
	KAP 200	ðü		ðü		ðü			
	KFC 200/250	ðü		ðü	ðü	ðü	ðü		
	KFC 225	ðü	ðü		ðü	ðü			ðü
	KFC 275	ðü	ðü	ðü	ðü	ðü	ðü	ðü	ðü
	KFC 300	ðü		ðü	ðü	ðü			
	KFC 325	ðü	ðü	ðü	ðü	ðü	ðü	ðü	ðü
SPERRY	SPZ-200A/500	ðü		ðü	ðü				
S-TEC	20, 30, 40, 50, 60-1	ðü		ðü					
	60-2, 65	ðü		ðü	ðü		ðü	ðü	
	60 PSS						ðü	ðü	
	55X	ðü	ðü		ðü		ðü	ðü	
	55	ðü		ðü	ðü		ðü	ðü	
	1500, 2100	ðü	ðü		ðü	ðü			

Refer to Appendix C for specific autopilot interface capabilities and version-specific limitations.

3.3.3.1 Attitude and Direction Indicator

Equivalent mode annunciations must be provided as part of the G500/G600 TXi installation in aircraft with an ADI that provides autopilot mode annunciations. This STC does not define provisions for such autopilot mode annunciations.

An ADI (or gyro) may be replaced with the GAD 43(e) in attitude-based autopilots that use an existing ADI or a remote gyro to provide attitude information to the autopilot. A pneumatic ADI can be retained and used as a standby instrument provided the flight director presentation is disabled (refer to Section 2.1.5).

If an ADI/flight director needs to be retained for proper autopilot operation (e.g., KI 256), it can be relocated to the co-pilot's side.

The location of an ADI that's relocated to the copilot's instrument panel must be within 2 inches of the copilot's primary view centerline if the flight director representation is still desired, as shown in Figure 3-15.

Figure 3-15 ADI Location in Copilot Instrument Panel

Interface to ADI fast/slow displays is prohibited for the G600 TXi system unless model-specific data is provided in Appendix D. It must be determined if the fast/slow indication is required by the AFM/POH for aircraft equipped with an ADI and a fast/slow indication. Alternate means of providing fast/slow indication must be considered for aircraft with required fast/slow indication and will require separate airworthiness approval. The G500 TXi system does not support the fast/slow display.

An ADI with an electric-driven gyro used by the autopilot must be relocated to the co-pilot's side and a suitable unit installed as a standby on the pilot's side. Any gyro required for proper operation of the ADI (e.g., for a KCI 310 ADI) must be retained. If a GAD 43(e) is not installed, remote gyros, such as the KVG 350, must be retained in order for the autopilot to function properly.

The G500/G600 TXi system does not support angle of attack (AOA) display. When considering installations in aircraft equipped with an ADI that provides AOA indication, it must be determined if the AOA indication is required by the aircraft AFM/POH. For aircraft with required AOA indication, alternate means of providing AOA indication must be retained in the aircraft.

It is recommended that a flight check be conducted prior to any modifications to establish a baseline for the autopilot performance and ensure that the system is operating as designed (refer to Section 6.12). The flight check must be repeated upon aircraft modification to verify that the GAD 43(e) attitude source operates identically to the original mechanical gyro (refer to Figure 6-9).

3.3.3.2 Autopilot Turn Coordinator

A turn coordinator that interfaces to the existing autopilot must be retained. Space constraints may require the turn coordinator to be relocated. The indicator incline must remain the same once relocated; otherwise, the autopilot performance will be incorrect. Refer to the turn coordinator installation manual for details. In some circumstances, the turn coordinator may have to be blind-mounted, which requires separate installation approval.

3.3.3.3 Altitude Preselector and Remote Annunciators

The G500/G600 TXi system can provide altitude preselector functionality to an autopilot. The original altitude preselector must be removed if the G500/G600 TXi system is configured to provide the altitude preselector functions. Refer to Appendix Section C.12 for interface requirements and autopilot models approved for this function.

Altitude preselectors and/or remote annunciators that also provide autopilot annunciation must be retained, unless the required annunciations are supported by the G500/G600 TXi. Refer to manufacturer installation data for relocation of altitude preselector with remote annunciation functions (refer to Table 3-23).

3.3.3.4 GPSS (Roll Steering)

The G500/G600 TXi system can support autopilots using ARINC 429 GPSS or act as a roll steering converter by providing analog GPSS information via its heading datum/error output. When using the GDU as a roll steering converter, the GDU HDG selection is used to switch between HDG and GPSS mode.

ARINC 429 output from the GDU can be connected to autopilots capable of using ARINC 429 GPSS information (e.g., S-TEC 55X and Honeywell/Bendix-King KFC 225). The GDU forwards GPSS information from the navigator (#1 or #2) that is currently selected on the HSI.

The GDU can translate ARINC 429 GPSS information from the selected navigator into a heading error. The HDG button on the GDU is used to control the GPSS (roll steering) function. The HDG button menu provides controls to toggle the display heading datum (error) output between GPSS information and the heading bug. Autopilot must be in HDG mode anytime HDG or GPSS is intended to be flown in installations that use the GDU as a roll steering converter.

3.3.4 ADF

The G500/G600 TXi system can receive data from up to two ADF receivers. ADF relative bearing is displayed by the bearing pointers on the PFD’s HSI, allowing for any existing ADF indicator(s) to be removed. ADFs with DC Sine/Cosine outputs interface directly to a GDU. ADFs with a Synchro (ARINC 407) output interfaces to the TXi system through a GAD 43e.

The G500/G600 TXi system cannot control the ADF receiver(s).

If two ADFs are interfaced to the G500/G600 TXi system, they must be the same make and model.

Refer to Appendix Section C.6 for a list of approved ADF receivers.

3.3.5 Radar Altimeter

The G500/G600 TXi PFD can receive data from a radar altimeter system to provide the display of radar altitude. The PFD can also be configured to allow for the initiation of the radar altimeter self-test for certain radar altimeter models. Radar altimeters must be wired to a discrete output from a GDU PFD to enable self-test initiation. Radar Altimeter Enablement is required for ARINC 429 radar altimeters. Refer to Table 3-8 for part number and Section 5.2.3 for feature enablement instructions.

The GAD 43e Adapter must be installed for the GDU to receive data from an analog radar altimeter. Radar altitude information is sent from the GAD 43e via ARINC 429. It can be forwarded to two GDUs.

3.3.6 Altitude Output

The GDU can provide altitude data to the GTX 32/327 series transponders via the serial interface.

The GDU receives and outputs ARINC 429 altitude data from the GDC 72/74 or GSU 75(B). The GDU also outputs that data as RS-232 serial altitude in the Shadin format (9600 baud).

3.3.7 Weather Radar

In order to avoid recalibration of the weather radar when upgrading from an already calibrated weather radar installation, the Maintenance page of the original indicator must be activated and the value for Roll/ Pitch Trim must be written down before it is removed. This value must be entered in the GDU 700P/1060/ 1210 to maintain the existing calibration.

NOTE
The GDU 700 MFD/EIS layout does not support weather radar.

NOTE
G500/G600 TXi requires the WXR Enablement Card (P/N 010-01477-4D) to enable the display of third-party weather radar on the GDU 700P/1060/1210.

NOTE
A GDU 700P/1060/1210 can only be interfaced to an ARINC 708 weather radar in metal aircraft.

In order to interface an ARINC 708 weather radar to the GDU 700P/1060/1210, the weather radar transceiver must be electrically bonded to the surrounding structure.

Table 3-24 Weather Radar Interface

Radar	Interface Details
GWX 68/70/75	The GDU 700P/1060/1210 MFD can interface to a GWX 68, GWX 70, or GWX 75 to display weather radar data. The GDU 700P/1060/1210 can provide control for tilt, radar gain, range, and stabilization of the GWX 68/70/75. GWX Roll Trim adjustment is not supported by TXi. Use a GTN 7XX or GTN Xi connected to the GWX or the GWX PC Tool, if required. The GWX 68 display and controls are crossfilled between up to two displays. The GWX 70 and 75 display and controls are independent, allowing different weather radar sweeps for each display. The minimum GWX 68 system software required is v2.20 or later. Enhanced weather radar features require a GWX 75 and GWX 8000 Enablement (010-01478-4S).
ARINC 708	The GDU 700P/1060/1210 MFD can interface to a third-party weather radar to display weather radar data via ARINC 708. The GDU 700P/1060/1210 can provide control for tilt, radar gain, range, and stabilization of the ARINC 708 weather radar system. The weather radar connection to any other display is outside the scope of the G500/G600 TXi STC and requires separate airworthiness approval.

3.3.8 Stormscope®

The GDU 700P/1060/1210 can receive data from WX-500 and WX-1000E Stormscope® systems to provide the display of lightning data. The G500/G600 TXi MFD can only be used to control the WX-500 Stormscope® system.

NOTE
WX-500 and WX-1000E Stormscope® systems must be configured to use RS-232 and ARINC 429 (respectively) heading from the G500/G600 TXi system.

3.3.9 GSR 56 Iridium ® Satellite

The GDU can receive data from the GSR 56 Iridium® transceiver to provide the display of Garmin Flight Data Services (GFDS) weather data on a dedicated weather page or overlaid on the moving map. Both SiriusXM and GFDS weather can be installed simultaneously. The texting feature, position reporting, and phone capabilities of the GSR 56 are not supported by the TXi system.

For installations with a GDL 60, the GSR 56 should be wired directly to the GDL 60. Otherwise, the GSR 56 must only be directly wired to a GDU with MFD capability.

3.3.10 Traffic

The GDU can receive data from a TIS/TAS/TCAS I traffic system and can be used to control the traffic system interface. Traffic data can be displayed on a dedicated traffic page or overlaid on the moving map or HSI.

Table 3-25 Traffic Interface

Source	Interface Details
Heading	The heading source for existing traffic systems can be the GDU (via ARINC 429), the GAD 43(e) synchro heading, or from another approved heading source in accordance with the traffic system installation guidance.
Altitude	The Altitude source for existing traffic systems can be the GDU (via ARINC 429) or from another approved altitude source in accordance with the traffic system installation guidance.

For single GDU 700 PFD installations with an external traffic system interfaced, a second approved traffic display must be installed or be classified as a No-Display traffic installation and meet the minimum requirements for an aural-only traffic installation. The PFD does provide a traffic alert annunciation.

3.3.11 External TAWS

Only one TAWS that generates aural and visual annunciations is permitted in the aircraft. If the aircraft has a TAWS installed, and SVT is enabled on the pilot's PFD, the GDU must be configured to prevent conflicting aural and visual annunciations. Combinations of external TAWS sources, G500/G600 TXi settings, and the resulting alert sources are shown in Table 3-26.

If a GNS 500W or GTN 6XX/7XX/Xi unit is providing TAWS, the GDU can provide the required TAWS annunciations, eliminating the need for a TAWS annunciator panel, provided the GNS 500W TAWS series or GTN 6XX/7XX/Xi unit is connected to the pilot's PFD as "GPS" or "GPS 1".

Table 3-26 External TAWS Setup with G500/G600 TXi

Aircraft Setup				LRU Alert Source				
External TAWS System	SVT	Terrain/ TAWS Mode [2]	External TAWS	PFD Annunciation Text Source	PFD SVT Terrain & Obstacle Shading	MFD Map Impact Area/Pop-up Alerts	MFD Terrain Proximity Shading	Aural Callouts from LRU
GTN TAWS [1]	Enabled	External	Installed (HSDB)	GTN TAWS	GTN TAWS	GTN TAWS	TXi Display	GTN TAWS
	Disabled	External	Installed (HSDB)	GTN TAWS	N/A	GTN TAWS	TXi Display	GTN TAWS
GNS TAWS [1]	Enabled	External	Installed (MapMX)	GNS TAWS	None	None	TXi Display	GNS TAWS
	Disabled	External	Installed (MapMX)	GNS TAWS	N/A	None	TXi Display	GNS TAWS
Non-Garmin TAWS	Enabled	External	Installed (Other)	None	None	None	TXi Display	Non-Garmin TAWS
	Disabled	External	Installed (Other)	None	N/A	None	TXi Display	Non-Garmin TAWS

Notes:

[1] If GNS/GTN TAWS becomes unavailable, the display will revert to Terrain Proximity and the PFD will annunciate "TAWS N/A."

[2] The Terrain Mode is automatically configured toExternal when any External TAWS setting is configured to anything other than Not Installed.

3.3.12 Video Input

Various video input devices can be interfaced to the G500/G600 TXi. Video will be displayed on the MFD of any appropriate GDU configuration. Compatibility of the video device must be verified before installation. This STC does not include data for the video device installation, only the interface to the GDU.

The following video formats are supported:

- Standard Definition Formats - Composite Video In 1 & 2 (refer to Table A-3).
  - %æNTSC
  - %æPAL
- High Definition Formats - HD Video In 1 & 2 (refer to Table A-6).

NTSC	PAL
1080i, 60Hz	1080i, 50Hz
1080p, 30Hz	1080p, 25Hz
720p, 60Hz	720p, 50Hz
720p, 30Hz	720p, 25Hz

3.3.13 Flight Stream 510

The Flight Stream 510 may be installed in a GDU. Flight Plan upload is not available when the Flight Stream 510 is installed in a GDU. If the Flight Stream 510 is installed in an EIS only unit, flight logs are limited to available data and database updates are not supported.

If a GTN 6XX/7XX/Xi is installed, the Flight Stream 510 must be installed in the GTN 6XX/7XX/Xi. If a GDL 60 is installed, the Flight Stream 510 must be removed.

It is necessary to have the Garmin Pilot application on a PED to update databases using a Flight Stream 510 wireless card. Download Garmin Pilot for Android or Garmin Pilot for iOS from www.garmin.com for additional information.

Flight Stream installation priority and functions when installed in particular units:

1. GTN 6XX/7XX/Xi - Full functionality
2. TXi MFD – Full functionality (except flight plan transfers) including DB concierge
3. TXi PFD – Full functionality (except flight plan transfers) but database concierge times out shortly after power-up
4. TXi EIS – EIS data logging only, no database concierge
5. GPS 175/GNX 375/GNC 355 – DB concierge only

3.3.14 GDL 60 (Remote Aircraft Status)

Depending on the installation and desired Remote Aircraft Status functionality, additional power connections to the RAS relay(s) may be required (refer to Figure B-52). Table 3-27 lists available RAS functions and equipment that must be powered to populate that data.

Table 3-27 Required Equipment for RAS Functionality

RAS Function	Equipment Required to be Powered	Notes
Oil	GEA 110 [1] GEA 71B Enhanced [2]	
Flight Time	GDU [1]	
Battery	GEA 110 [1] GEA 71B Enhanced [2]	The system prioritizes GEA readings if available, then GDL 60 readings
Tach	GEA 110 [1] GEA 71B Enhanced [2]	
Hobbs	GEA 110 [1] GEA 71B Enhanced [2]	
OAT	GDU [1]	If the GTP 59 is interfaced to the TXi EIS GDU with an integrated ADAHRS
	PFD	If the GTP 59 is interfaced to the TXi PFD GDU with an integrated ADAHRS
	GEA 110 [1] GEA 71B Enhanced [2]	If GTP 59 is interfaced to GEA (i.e., standalone EIS)
	ADC/ADAHRS	If GTP 59 is interfaced to an GDC/GSU
Fuel	GEA 110 [1] GEA 71B Enhanced [2]	If fuel probe is powered by GEA (e.g. Resistive)
	Fuel Probe	If fuel probe is not powered by GEA (e.g. CiES)
	Fuel Signal Conditioner	If fuel probe is interfaced to a fuel signal conditioner

Notes:

[1] The TXi EIS GDU is required to be powered for RAS functionality. The GEA 110 is powered by the GDU, therefore no additional power wires are required.

[2] The GEA 71B Enhanced is required to be powered for RAS functionality. The GEA 71B Enhanced is not powered by the GDU, therefore additional power wires are required. Refer to Figure 3-16.

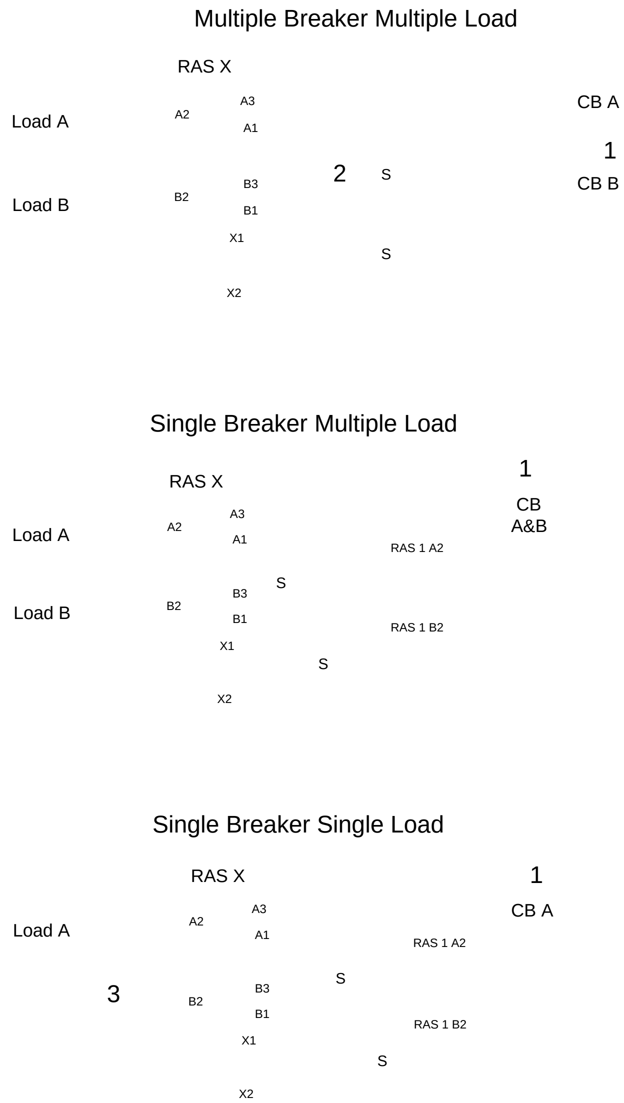
The number of RAS relays required will vary based on the installed equipment and how the power wiring is configured (e.g., additional wiring from the TXi LRU Power Out to a GEA 110 is not required, but it is required to a GEA 71B Enhanced). It is recommended to separate related loads (e.g., Left Fuel Quantity and Right Fuel Quantity) onto different relays when doing so would not require an additional relay; otherwise, individual RAS powered LRUs may use any available relay circuit. Fill available circuits before adding more relays. Figure 3-16 depicts general guidance for powering multiple loads through the required relay(s).

NOTE

In multi GDU without GBB 54 twin-engine installations, it is not required to power TXi EIS GDU #2, but GEA #2 must be powered as it does not receive power from TXi EIS GDU #1.

WARNING

Do not connect RAS wiring or relays to any emergency power systems.



NOTES

1. CB A AND LOAD A (OR B) REPRESENT ANY GIVEN CIRCUIT FROM BREAKER TO THE LOAD DEVICE. THE LOAD CAN BE THE EIS GDU, GEA(S), OR A FUEL QUANTITY SYSTEM/PROBE(S) THAT ARE NOT POWERED DIRECTLY FROM A TXI GDU OR GEA.
2. WHEN REUSING EXISTING LRU WIRING SMALLER THAN 18 AWG (14V) OR 22 AWG (28V) WITH A LARGER FUSE AT RAS 1 THAN IS APPROPRIATE FOR THOSE GAUGES, PLACE AN INLINE FUSE AT THE INPUT TO THE SECOND TIER RELAY FOR THAT SET OF CONTACTS. USE A FUSE WITH THE SAME RATING AS THE ORIGINAL CIRCUIT PROTECTION.
3. WHEN ONLY ONE SET OF CONTACTS IS REQUIRED THROUGH A RELAY, SPLIT THE LOAD OVER BOTH SETS OF CONTACTS.

Figure 3-16 RAS Second Tier Relay Options

3.4 Selection of G500/G600 TXi System Components

3.4.1 Aircraft Eligibility Checklist

The aircraft must meet the requirements for the TXi system installation set forth by this STC. The following checklist is used as a guide to identify if those requirements are satisfied. Complete the checklist before the aircraft is modified.

Table 3-28 Aircraft Eligibility Checklist

Completed	Item	Reference
	GENERAL	
ðq	Verify the aircraft is on the Approved Model List.	Appendix D
ðq	Verify an approved external GPS/navigation data source is installed.	Appendix Section C.4
ðq	Select the G500/G600 TXi system equipment that will be installed.	Section 3.4
ðq	Identify the equipment that will be interfaced, and verify each interface is approved.	Appendix C
ðq	Determine if the STC limitations applicable to the aircraft are acceptable.	Section 2
ðq	Determine if the aircraft electrical system is adequate.	Section 3.5
ðq	Obtain the current aircraft weight and balance data.	POH/AFM
ðq	Complete baseline flight check of the existing autopilot, if autopilot interface is planned.	Section 6.12.4.7
	INSTRUMENT PANEL	
ðq	Select the standby instrument(s) and their location(s), if used.	Section 3.2.3 Section 4.4
ðq	Determine the location of each display.	Section 4.4
ðq	Determine the location of the Display Backup switch, if used.	Section 4.4.4
ðq	Determine the location of the GCU 485 controller, if used.	Section 4.4.5
ðq	Determine the location for each circuit breaker and its placard.	Section 3.2
ðq	Verify the total mass of equipment being installed in the instrument panel is not more than the total mass of the equipment being removed from the panel.	Section 4.4
	EQUIPMENT	
ðq	Determine the ADAHRS location for #1 and #2 unit, if used.	Section 4.5
ðq	Determine the GMU 44(B) location(s), if used, and complete the magnetometer survey.	Section 4.6.1
ðq	Determine the GTP 59 OAT Probe location(s), if used.	Section 4.6.2
ðq	Determine the GBB 54 battery location, if used.	Section 4.5.7
	EIS	
ðq	Determine which parameters will be displayed on the EIS, and verify they can be displayed on each full-time EIS display.	Section 3.2.6 Appendix F
ðq	Determine the location of all gauges that must be retained and verify the operating limits for each.	Section 3.2.6
ðq	Determine the GEA 71B Enhanced or GEA 110 location(s).	Section 4.5.5 Section 4.5.6
ðq	Select engine sensors for parameters determined to be displayed on the EIS.	Section 3.4.8

3.4.2 TXi System Components

Table 3-29 is provided to assist with the selection of G500/G600 TXi system components. Mark the applicable entry based on the criteria given in the section. Review the relevant wiring diagram(s) to determine the system installation.

Table 3-29 TXi System Components

	Equipment Selection				Notes	Location
Standby Instrument	ðq Integrated Standby System					
	ðq External Individual Standbys				[1]	
	ðq External Electronic Standbys				[1]	
Backup Battery	ðq GBB 54					
Display #1	ðq GDU 1210	ðq GDU 1060	ðq GDU 700P	ðq GDU 700L	See Table 3-30	
	Check all that apply:	ðq PFD	ðq MFD	ðq EIS		
Display #2	ðq GDU 1210	ðq GDU 1060	ðq GDU 700P	ðq GDU 700L	See Table 3-30	
	Check all that apply:	ðq PFD	ðq MFD	ðq EIS		
Display #3	ðq GDU 1210	ðq GDU 1060	ðq GDU 700P	ðq GDU 700L	See Table 3-30	
	Check all that apply:	ðq PFD	ðq MFD	ðq EIS		
Display #4	ðq GDU 1210	ðq GDU 1060	ðq GDU 700P	ðq GDU 700L	See Table 3-30	
	Check all that apply:	ðq PFD	ðq MFD	ðq EIS		
Display Backup Switch	ðq For display backup operation (required for integrated standby)					
Control Unit	ðq GCU 485 #1					
	ðq GCU 485 #2					
ADAHRS #1	ðq Integrated (required for Integrated Standby)					
	ðq GSU 75					
	ðq GSU 75B (“B” models is required for RVSM)					
	ðq GRS 79 and GDC 72					
	ðq GRS 77 and GDC 74				[1]	
ADAHRS #2	ðq Integrated (not permitted with Integrated Standby)					
	ðq GSU 75 (B)					
	ðq GRS 79 and GDC 72					
	ðq GRS 77 and GDC 74				[1]	
	ðq GI 275 ADAHRS				[1] [4]	
Backup GPS	ðq Backup GPS antenna					
OAT Probe	ðq GTP 59 #1					
	ðq GTP 59 #2					
Magnetometer	ðq GMU 44(B) #1					
	ðq GMU 44(B) #2					

	Equipment Selection		Notes	Location
Engine Adapter	ðq GEA 110 #1			
	ðq GEA 110 #2 (required for aircraft w/ twin-reciprocating engines)			
	ðq GEA 71B Enhanced #1 (required for turboprop aircraft)			
	ðq GEA 71B Enhanced #2 (required for twin-turboprop aircraft)			
Engine Annun	ðq PFD	ðq Annunciator	See Section 4.4.6	
Engine Sensors [2]	ðq EGT probe for each cylinder		[1]	
	ðq Single EGT probe (aka Primary EGT)		[1]	
	ðq CHT probe for each cylinder		[1]	
	ðq Turbine Inlet Temp Sensor			
	ðq Induction Air Temp Sensor		[1]	
	ðq Compressor Discharge Temp Sensor		[1]	
	ðq Manifold Pressure Sensor			
	ðq Oil Pressure Sensor			
	ðq Oil Temperature Sensor			
	ðq RPM Sensor			
	ðq Carburetor Temperature Sensor			
	ðq Fuel Pressure Sensor			
	ðq Fuel Flow			
	ðq Fuel Quantity		[1]	
	ðq Shunt (Amperage)		[1]	
	ðq Torque Sensor		[1] [3]	
	ðq Tachometer Generator		[1] [3]	
	ðq Engine Temperature Thermocouple		[1] [3]	
	ðq Vacuum or De-ice Pressure Sensor		See Section 4.7.3	
	ðq Rudder Trim Sensor		[1] [3]	
	ðq Outside Air Temperature Sensor			
Adapter Unit(s)	ðq GAD 43 #1			
	ðq GAD 43e #1			
	ðq GAD 43e #2			

Notes:

[1] Not installed under this STC.

[2] Refer to Section C.25 (reciprocating) or Section C.26 (turboprop) for STC compatibility.

[3] Applicable to turboprop aircraft only.

[4] Applicable to single PFD installations only

External data sources intended for use with the G500/G600 TXi system must be checked for compatibility before installation. These checks must be accomplished in accordance with procedures and data furnished by the equipment manufacturer.

3.4.3 Displays

Verify that there is adequate space available in the instrument panel and ensure the GDU display and display control knob(s) do not interfere with the control yoke when operated through its full range of movements or with the installation of any control locking devices.

Evaluate the space required for the GPS unit, standby instruments, and other equipment. A maximum of four displays can be installed. Use Table 3-30 below for reviewing the display options and determining the display configuration. Refer to Section 2.1 for the display limitations.

1. Maximum of four displays total (GDU 700,1060/1210 combined).
2. Maximum of two PFDs total.
3. Maximum of two EIS displays total (GDU 700/1060/1210 combined).

Table 3-30 Display Options

Display Options
GDU 1210 PFD/MFD/EIS
GDU 1210 PFD/MFD
GDU 1210 MFD/MFD/EIS
GDU 1210 MFD/MFD
GDU 1060 PFD/MFD/EIS
GDU 1060 PFD/MFD
GDU 1060 MFD/MFD/EIS
GDU 1060 MFD/MFD
GDU 700P PFD
GDU 700P MFD
GDU 700P EIS
GDU 700P MFD/EIS [1]
GDU 700L PFD
GDU 700L EIS [1]
GDU 700L MFD/EIS [1]

Notes:

[1] Not approved for turboprop EIS.

GDUs with integrated ADAHRS must be rigidly mounted without shock mounts. With respect to aircraft level reference, panel tilt cannot exceed ±6° in roll and ±8° in pitch. The panel must be perpendicular to the longitudinal axis of the aircraft yaw. Unit vibration is checked during the Engine Run-Up Vibration Test.

3.4.4 GCU 485 Controller

The GCU 485 controller is only available for installations that include a PFD. It can be installed if an alternate method of controlling the changing basic PFD settings is desired. There are several variants of the GCU 485 available for installation. Each unit supports different autopilots/autopilot functionality. Table 3 lists the GCU 485 part number and capable application. Table 3-32 lists the recommended GCU 485 variant for the given autopilot based on its assumed functionality (indicated by a checkmark). If certain functions are not enabled, a different variant must be selected based on its capabilities. It is up to the insta determine which GCU 485 variant is compatible for the given installation.

Table 3-31 GCU 485 Variants and Functionality

GCU 485 Part Number	Controller Image	Functions						Intended Application
		ARM	ENG	GPSS	CDI	XFR	BANK	
010-01350-01		X	X	X	X			Preselect altitude capture, vertical rate capture, GPS steering, HDG emulation, CDI selector
010-01350-02		X		X	X			Preselect altitude capture, GPS steering, HDG emulation, CDI selector
010-01350-03				X	X			GPS steering, HDG emulation, CDI selector
010-01350-04					X			CDI selector
010-01350-14					X			CDI selector (gray color)
010-01350-05		X	X		X			Preselect altitude capture, vertical rate capture, CDI selector

GCU 485 Part Number	Controller Image	Functions ARM	ENG	GPSS	CDI	XFR	BANK	Intended Application
010-01350-06					X	X	X	CDI selector, pilot/copilot PFD transfer, Low Bank mode toggle [1]
010-01350-16					X	X	X	CDI selector, pilot/copilot PFD transfer, Low Bank mode toggle [1] (gray color)

Notes:

[1] Installation is prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

Table 3-32 GCU 485 Autopilot Selection

Autopilot Make and Model		Functions ALT-C	VS	GPSS	CDI	XFR	BANK	Recommended Controller P/N	Notes
AVIDYNE	DFC90				ðü			010-01350-04 010-01350-14	
BENDIX	M4C			ðü	ðü			010-01350-03	
	M4D			ðü	ðü			010-01350-03	
	II / III			ðü	ðü			010-01350-03	
	IV			ðü	ðü			010-01350-03	
CENTURY	21 / 31			ðü	ðü			010-01350-03	
	41			ðü	ðü			010-01350-03	
	2000			ðü	ðü			010-01350-03	
	400B			ðü	ðü			010-01350-03	
	300, 400, 800 IFCS			ðü	ðü			010-01350-03	
CESSNA	300B, 400B, 800B IFCS	ðü		ðü	ðü			010-01350-02	
	1000 IFCS	ðü		ðü	ðü			010-01350-02	
COLLINS	APS-65	ðü		ðü	ðü			010-01350-02	
	AP-106/107			ðü	ðü			010-01350-03	

Autopilot Make and Model		Functions ALT-C	VS	GPSS	CDI	XFR	BANK	Recommended Controller P/N	Notes
GARMIN	GFC 500				ðü			010-01350-04 010-01350-14	
	GFC 600				ðü			010-01350-04 010-01350-14	
					ðü	ðü	ðü	010-01350-06 010-01350-16	Installation is prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.
HONEYWELL BENDIX/KING	KAP 100			ðü	ðü			010-01350-03	
	KAP 140			ðü	ðü			010-01350-03	
	KAP 150	ðü	ðü	ðü	ðü			010-01350-01	
	KFC 150	ðü	ðü	ðü	ðü			010-01350-01	
	KAP 200			ðü	ðü			010-01350-03	
	KFC 200/250	ðü		ðü	ðü			010-01350-02	
	KFC 225			ðü	ðü			010-01350-03	
	KFC 275 KCP 220-15 and above	ðü	ðü		ðü			010-01350-05	
	KFC 275 KCP 220-14 and earlier	ðü	ðü	ðü	ðü			010-01350-01	
	KFC 300			ðü	ðü			010-01350-03	
	KFC 325 KCP 220-15 and above	ðü	ðü		ðü			010-01350-05	
	KFC 325 KCP 220-14 and earlier	ðü	ðü	ðü	ðü			010-01350-01	
SPERRY	SPZ-200A/500			ðü	ðü			010-01350-03	
S-TEC	20, 30, 40, 50, 60-1			ðü	ðü			010-01350-03	
	60-2, 65			ðü	ðü			010-01350-03	
	60 PSS				ðü			010-01350-05	
	55X	ðü	ðü		ðü			010-01350-04	
	55			ðü	ðü			010-01350-03	
	1500, 2100				ðü			010-01350-04 010-01350-14	

3.4.5 Attitude and Air Data

An ADAHRS or ADC/AHRS is required for the pilot's PFD. If dual PFDs are installed, each PFD must have its own ADC/AHRS source. This STC does not approve installation of dual PFDs with a single ADAHRS or ADC/AHRS. Single PFD installations may configure a GI 275 ADAHRS unit as a second ADC/AHRS source if the GI 275 is installed as a Primary ADI and maintains its own heading source.

If installing an Integrated Standby System, the pilot's PFD must use an integrated ADAHRS, and the backup display (700P EIS, MFD, or MFD/EIS) must use a remote-mounted ADAHRS, GRS/GDC, or AHRS/ADC. The co-pilot PFD, if installed, will use the data from the backup display via HSDB.

The GRS 77 with existing GMU 44(B) and the GDC 74 can be reused if upgrading from a legacy G500/G600 system. If desired, the GDC 74 can be replaced with a GDC 72. Additionally, the GRS 77 can be replaced with a GRS 79. The GDC 74(B) and GRS 77 can be replaced by a GSU 75(B). If the GRS 77 AHRS is being replaced, the upgrade must include a GMU 44 P/N 011-00870-10 or P/N 011-00870-20 or a GMU 44B P/N 011-04201-00; the GMU 44 P/N 011-00870-00 is not compatible with the GRS 79 or GSU 75(B).

NOTE

If the G500/G600 TXi is replacing an autopilot gyro that was not mounted in the instrument panel, the AHRS source for the pilot's PFD must be remotely mounted. The co-pilot's PFD can use either a remotely mounted or integrated AHRS source.

A separate OAT probe is required for each ADC unit installed. A separate GMU 44(B) Magnetometer is required for each AHRS unit installed.

3.4.6 GBB 54 Battery

The GBB 54 is not approved for new installations.

The GBB 54 Backup Battery is required if the Integrated Standby System is installed. The backup battery is optional for all other GDU 700P installations. The GBB 54 is not approved to interface to the GDU 700L/1060/1210. The GBB 54 is not approved to power the Remote Aircraft Status functionality of a GDL 60.

The GBB 54 is approved for installation on metal aircraft only. It requires venting to the outside of the aircraft and must be installed in a temperature-controlled area if the service ceiling of the aircraft is above 25,000 feet. It is recommended to install the GBB 54 in a convenient location to allow ease of access.

3.4.7 GAD 43(e) Adapter

The GAD 43(e) Adapter will replace certain existing attitude gyros, external CDIs, DME, and ADF indicators. The GAD 43e can provide altitude preselect and vertical speed control when interfaced to select autopilots. Additionally, the system will receive data from marker beacon receivers, synchro (ARINC 407) ADF receivers, DME systems, and analog radar altimeters.

The GAD 43(e) and the autopilot/FD must be connected to the same G500/G600 TXi PFD. A second GAD 43e can be interfaced to the copilot PFD and a second DME and/or ADF. If two GADs are installed, both must be GAD 43e units.

NOTE

If upgrading from a previous GDU 620 installation, the Composite NAV data must be received by the GDU 700/1060/1210 directly, not from the GAD 43e.

NOTE

The GDU 700/1060/1210 prioritizes marker beacon information received from a valid GMA 35/350 (marker beacon) over the GAD 43e. If the GMA 35/350 is invalid, the GDU 700/1060/1210 will use the GAD 43e marker beacon data.

Analog Baro-Correction for Honeywell Autopilots

The GAD 43(e) provides an analog baro-correction output that emulates the baro-correction output from the Honeywell KEA 130/130A and KEA 346 (P/N 006-0362-0008 through -0011 only) encoding altimeters. It is recommended that the GAD 43(e) is used to provide the baro-correction input in lieu of the encoding altimeter. This ensures that altitude captures will be made relative to the altitude used by the G500/G600 TXi system.

NOTE

If removing the encoding altimeter, a suitable blind encoder must be installed to provide uncorrected Gray code altitude to the autopilot (and any other LRUs using Gray code altitude).

3.4.8 GEA 110 Engine Adapter

A GEA 110 is required for each reciprocating engine if EIS is installed (refer to Section 3.4.9 for turboprop aircraft). EIS sensor options and configurations are presented in Appendix Section C.25. Select the sensors required to support the EIS gauges determined in Section 3.2.6. Specific sensors are discussed below.

3.4.8.1 EGT/TIT and CHT

The number of probes required for aircraft installation is shown in Table 3-33. The Primary EGT/TIT and CHT markings must be retained if the POH/AFM and/or TCDS/STC has published operating limitations. The primary EGT/TIT probe can be changed; however, the probe location must remain the same. EIS will display the Primary EGT/TIT next to the individual cylinder EGT and CHT values on the GDU 700 EIS and as an individual gauge on the GDU 700 MFD/EIS or GDU 1060/1210 EIS strip if it has markings, alerts, or has limitations in the POH/AFM.

Table 3-33 EGT and CHT Probe Quantity

Aircraft Engines		Single		Twin	
Cylinders per engine		4	6	4	6
Probe Qty	EGT	4	6	8	12
	CHT	4	6	8	12
	Primary	As Required			

All thermocouple lead wires must match the thermocouple type (K- or J-Type) and color. Do not crimp connector pins to a single-conductor thermocouple wire; only use a multi-strand lead wire for connector pins. Copper wire must never be used for thermocouples.

K-type wires shown in Figure B-18 use the ANSI MC 96.1 color coding of yellow and red. The IEC 584-3 color coding of green and white is equivalent. Match previously installed wire.

J-type wires shown in Figure B-18 use the ANSI MC 96.1 color coding of white and red. The IEC 584-3 color coding of black and white is equivalent. Match previously installed wire.

3.4.8.2 Oil Pressure Sensor

Two sensor options are available depending on the aircraft service ceiling.

3.4.8.3 Oil Temperature Sensor

Use the engine manufacturer’s guidance for probe length/location.

3.4.8.4 Manifold Pressure Sensor

Two sensor options are available depending on aircraft service ceiling.

3.4.8.5 Fuel Pressure Sensor

Various sensor options are available depending on aircraft service ceiling, fuel system pressure ranges, and manifold pressure reference requirements.

Some fuel injected engines use a fuel pressure sensor to indicate fuel flow. This STC requires that when replacing such a sensor, individual EIS sensors for both fuel flow and fuel pressure must be installed.

Some turbocharged aircraft use a differential pressure sensor. Refer to Section 3.2.6 for more information.

3.4.8.6 Fuel Quantity Sensor

The GEA 110 may interface with up to six analog voltage, up to four resistive, or up to four digital fuel probes. Analog voltage fuel quantity sensors must have a voltage range of 0-5 VDC or 0-20 VDC depending on sensor type. Digital fuel quantity sensors must have a frequency range of 64 Hz - 10 kHz. Resistive float sensors must have a resistance range between 0-620 indicator wiring. Extension splices are permissible. This STC does not approve alteration of the fuel tank wiring, fuel tank equipment, or grounding provisions for the fuel system. Figure 3-17 is used to determine the fuel tank sensor compatibility and is used for selecting the appropriate resistive fuel quantity sensor for the G500/G600 TXi EIS.

CiES Inc. CC284022 series fuel quantity senders can be interfaced via the 0-5 VDC and digital frequency output types. Refer to Appendix Section C.25 for compatibility information.

Select signal conditioners can be interfaced for fuel quantity. Refer to Appendix Section C.25 for compatibility and sensor configuration information.

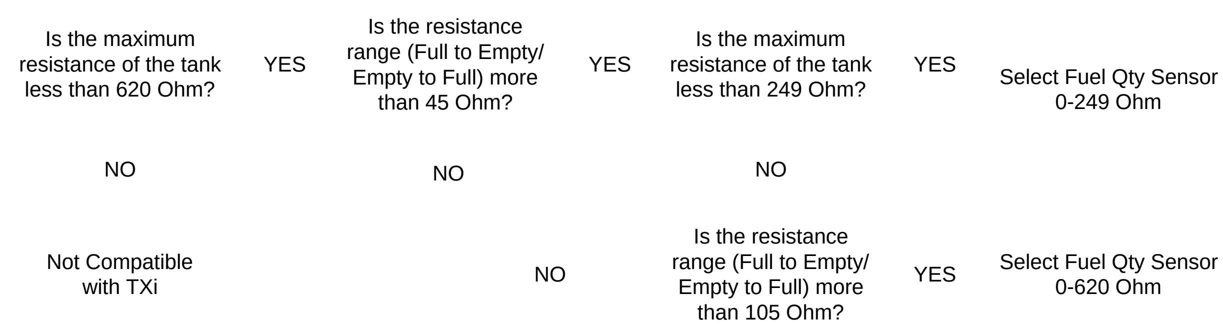


Figure 3-17 GEA 110 (P/N -00) Resistive Fuel Quantity Sensor Selection

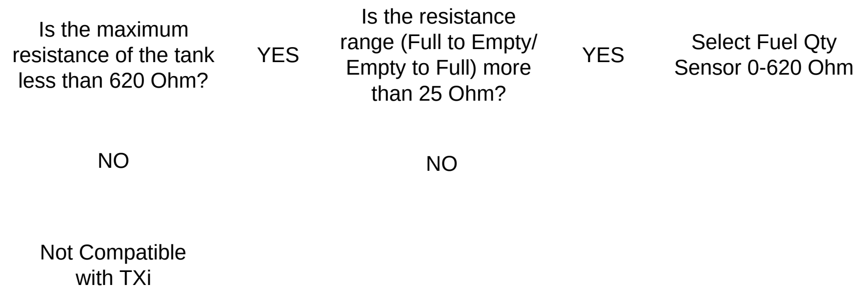


Figure 3-18 GEA 110 (P/N -01) Resistive Fuel Quantity Sensor Selection

3.4.8.7 Fuel Flow Sensor(s)

Select a fuel flow sensor that is approved under this STC listed in Appendix Section C.25 and suitable for the engine horsepower and aircraft fuel supply type:

1. Electronics International FT-60 (Red Cube) - For aircraft with up to 350 HP and an engine driven fuel pump.
2. Electronics International FT-90 (Gold Cube) - For aircraft with 350-550 HP or with gravity fed fuel systems.

The fuel flow sensor will introduce a small pressure drop. Refer to Appendix D to determine if a fuel pressure and flow test is required for a specific aircraft model. If required by Appendix D, the installer must perform the minimum inlet pressure and flow check as documented in AC 23-16A, paragraph 23.955. If the AFM/POH has an operating limitation based only on fuel flow, the fuel flow must be accurate within 10% to ensure the limitation is maintained. Refer to Section 6.12.3 for the fuel flow accuracy check procedure, if it is required.

3.4.8.8 RPM Sensor

Methods for RPM sensing appropriate to the engine should be selected as follows:

1. P-lead sensor - One per magneto or two per dual magneto. Resistors must be installed in accordance with Figure B-18.
2. Magneto vent mounted sensor - Not compatible with geared engines. One sensor for each engine on non-pressurized magnetos (e.g., Bendix -20, -21, -200, 1200 series, and Slick 6000, 4000 series).
3. Electronic ignition - One tachometer input from an electronic ignition source listed in Appendix C. The other RPM input must be a P-Lead input from a supported magneto.

3.4.8.9 Shunt

Compatible shunts are listed in Appendix Section C.25. The EIS configuration setting must match the shunt rating and type. The shunt rating is the maximum current and is typically marked on the shunt. The type is the voltage between the shunt posts at maximum current rating. The shunt rating and type may also be found in the aircraft data.

If the shunt rating cannot be determined by part markings or the aircraft data, the following procedure may be used for 50mV shunts:

1. With the aircraft power ON, no ground-power applied, and a minimal electrical load ON, measure the millivolts between the shunt terminals using a calibrated voltmeter. Record the millivolt measurement (V1).
2. Apply an electrical load (L1) as follows:
   a. If an alternator load meter is installed, the shunt will measure the charging current from the alternator to the main bus. With the engine running, apply an electrical load and measure the current (L1) from the alternator using a calibrated ammeter. Measure and record the new shunt millivolt value (V2).
   b. If a battery ammeter is installed, the shunt will measure the current from the battery to the main bus. Without the engine running, apply an electrical load and measure the current (L1) from the battery using a calibrated ammeter. Measure and record the new shunt millivolt value (V2).
3. Record the millivolt change (V_{change}) between step 1 and 2. V_{change} = V2 - V1.
4. Determine the shunt rating using the following calculation

$$\text{Shunt Rating (Amps)} = \frac{\text{L1 (Amps)} \times 50\text{mV}}{V_{change}\ (\text{mV})}$$

If the shunt value cannot be determined, retain the existing gauge(s) or install an appropriately rated compatible 50 mV shunt. Shunt installation is outside the scope of this STC and must be approved using other means.

3.4.8.10 Vacuum or De-Ice Boot Pressure

Refer to Appendix Section C.25 for a list of compatible sensors. Two sensors are available for installation depending on system pressure ranges. Ensure the sensor has compatibility with the aircraft system architecture and all markings can be preserved if removing an exiting pressure gauge. Refer to Section 4.7.3 for installation guidance.

3.4.8.11 Outside Air Temperature (OAT)

For standalone EIS installations that display horsepower but do not have an air data computer in the system, an OAT probe can be connected to the GEA 110 as an EIS sensor. Refer to Appendix Section C.25 for sensor compatibility.

3.4.9 GEA 71B Enhanced Engine Adapter

A GEA 71B Enhanced is required for turboprop EIS. EIS sensor options and configurations are presented in Appendix Section C.26. Select the sensors required to support the EIS gauges as determined in Section 3.2.6. Specific parameters are discussed below. For sensors not installed by this STC, outside installation approval must be obtained via aircraft manufacturer service bulletin, other STC, or some other FAA-approved installation method.

3.4.9.1 ITT/EGT

ITT and EGT indication is provided via K-type thermocouples. All thermocouple lead wires must match the thermocouple type. Only alumel and chromel environmental splices should be used for splicing K-type thermocouple wires. Do not crimp connector pins to a single-conductor thermocouple wire; only use a multi-strand lead wire for connector pins. Copper wire must never be used for thermocouples.

K-type wires shown in Figure B-20 and Figure B-22 use the ANSI MC 96.1 color coding of yellow and red. The IEC 584-3 color coding of green and white is equivalent. Match previously installed wire.Select aircraft with TPE331 engines may require an Single Red Line (SRL) discrete input for EGT indication if model-specific data is provided in Appendix D.

3.4.9.2 Tachometer

Gas producer speed and propeller speed are measured by tachometer generators conforming to MIL-PRF-26611 or MIL-DTL-9398, though specific part numbers vary by manufacturer. Various sensor configurations are listed in Appendix Section C.26 because each aircraft manufacturer/engine model has different ratios between the tachometer generator and the engine rotor or propeller speed. Select the sensor configuration that is appropriate for the aircraft.

3.4.9.3 Oil Pressure Sensor

Various sensor options are available depending on the aircraft requirements and the sensor that was originally installed on the aircraft.

3.4.9.4 Oil Temperature Sensor

MS28034 RTDs are approved for oil temperature measurement. Use the engine or aircraft manufacturer’s guidance for probe length.

3.4.9.5 Fuel Pressure Sensor

Various sensor options are available depending on the aircraft requirements.

3.4.9.6 Fuel Quantity Sensor (P/N 011-03682-05 Only)

The GEA 71B Enhanced can interface to various sensors via digital, analog voltage, analog resistive, or capacitive signal types.

Up to four resistive float sensors with a resistance range between 0-
71B Enhanced. Re-use the existing fuel quantity indicator wiring. Extension splices are permissible. This STC does not approve alteration of the fuel tank wiring, fuel tank equipment, or grounding provisions for the fuel system. Figure 3-19 is used to determine the fuel tank sensor compatibility and is used for selecting the appropriate resistive fuel quantity sensor.

Up to six CiES Inc. CC284022 series fuel quantity senders can be interfaced via the 0-5 VDC and digital frequency output types.

Up to two capacitive or eight rectified capacitive fuel inputs are approved for direct connection. A single input supports multiple probes wired in parallel. Re-use the existing fuel quantity indicator wiring. This STC does not approve for alteration of the fuel tank wiring, fuel tank equipment, or grounding provisions of the fuel system.

Refer to Appendix Section C.26 for compatibility information for all fuel quantity sensor types.

Is the maximum resistance of the tank less than 620 Ohm?

YES

Is the resistance range (Full to Empty/ Empty to Full) more than 25 Ohm?

YES

Select Fuel Qty Sensor 0-620 Ohm

NO

NO

Not Compatible with TXi

Figure 3-19 GEA 71B Enhanced (P/N -05) Resistive Fuel Quantity Sensor Selection

3.4.9.7 Fuel Flow Sensor

Various sensor options are available depending on the aircraft requirements.

3.4.9.8 Torque Sensor

Various sensor options are available depending on the aircraft requirements.

3.4.9.9 Shunt

Compatible shunts are listed in Appendix Section C.26. The EIS configuration setting must match the shunt rating and type. The shunt rating is the maximum current and is typically marked on the shunt. The type is the voltage between the shunt posts at maximum current rating. The shunt rating and type may also be found in the aircraft data.

If the shunt rating cannot be determined by part markings or the aircraft data, the following procedure may be used for 50 mV shunts:

1. With the aircraft power ON, no ground-power applied, and minimal electrical load ON, measure the millivolts between the shunt terminals using a calibrated voltmeter. Record the millivolt measurement (V1).
2. Apply an electrical load (L1) as follows:
    a. If an alternator load meter is installed, the shunt will measure the charging current from the alternator to the main bus. With the engine running, apply an electrical load and measure the current (L1) from the alternator using a calibrated ammeter. Measure and record the new shunt millivolt value (V2).
    b. If a battery ammeter is installed, the shunt will measure the current from the battery to the main bus. Without the engine running, apply an electrical load and measure the current (L1) from the battery using a calibrated ammeter. Measure and record the new shunt millivolt value (V2).
3. Record the millivolt change (V_{change}) between step 1 and 2. V_{change} = V2 - V1.
4. Determine the shunt rating using the following calculation.

$$\text{Shunt Rating (Amps)} = \frac{\text{L1 (Amps)} \times 50\text{mV}}{V_{change}\ \text{(mV)}}$$

If the shunt value cannot be determined, retain the existing gauge(s) or install an appropriately rated compatible 50 mV shunt. Shunt installation is outside the scope of this STC and must be approved using other means.

3.4.9.10 Vacuum or De-ice Boot Pressure

Refer to Appendix Section C.26 for a list of compatible sensors. Ensure the sensor and the vacuum/ pressure gauge are compatible and all markings can be preserved if removing an exiting pressure gauge. Refer to Section 4.7.3 for installation guidance.

3.4.9.11 Outside Air Temperature (OAT)

For standalone EIS installations that display horsepower but do not have an air data computer in the system, an OAT probe can be connected to the GEA 71B as an EIS sensor. Refer to Appendix Section C.26 for sensor compatibility.

3.4.9.12 Rudder (Yaw) Trim

Two sensor options are available to interface to the GEA 71B Enhanced. Refer to Table C-28.

3.5 Electrical Load Analysis

An Electrical Load Analysis (ELA) must be completed before G500/G600 TXi system is installed to verify that the aircraft electrical system is adequate. The purpose of the ELA is to show compliance with 14 CFR 23.1351 and 23.1353(h) by demonstrating that the maximum electrical system demand does not exceed 80% of the alternator data plate rating and the aircraft battery is capable of providing electrical power to equipment essential for continued safe flight and landing in the event of a complete loss of the primary electrical system. Satisfactory completion of the ELA must be recorded on FAA Form 337.

> NOTE
> Certain operating requirements (e.g., 14 CFR Part 135) may impose additional requirements in the event of electrical power loss. It is the installer's responsibility to ensure that the aircraft meets the additional requirements if used for these operations.

Typical current draw of all G500/G600 TXi system components is summarized in Table 3-34.

Table 3-34 LRU Current Draw

LRU	Current Draw			
	14V System		28V System	
	Typical	Maximum	Typical	Maximum
GDU 620	3.9 A	5.4 A	1.9 A	2.7 A
GDU 700 without Integrated ADAHRS	2.5 A	5.5 A [1]	1.3.0 A	2.8 A [1]
GDU 700 with Integrated ADAHRS	3.0 A	6.0 A [1]	1.5 A	3.0 A [1]
GDU 1060 without Integrated ADAHRS	4.5 A	7.5 A [1]	2.3.0 A	3.8 A [1]
GDU 1060 with Integrated ADAHRS	5.0 A	8.0 A [1]	2.5 A	4.0 A [1]
GDU 1210	4.0 A	5.0 A [1]	2.0 A	2.5 A [1]
GRS 79/GMU 44(B)	480 mA	958 mA	240 mA	479 mA
GRS 77/GMU 44(B)	0.60 A	1.0 A	0.30 A	1.0 A
GSU 75(B)/GMU 44(B)/OAT [2]	760 mA	958 mA	380 mA	479 mA
GDC 72/GTP 59	420 mA	958 mA	210 mA	479 mA
GDC 74( )/GTP 59	0.41 A	0.48 A	0.20 A	0.24 A
GAD 43	0.41 A	0.72 A	0.21 A	0.35 A
GAD 43e	0.79 A	1.22 A	0.39 A	0.59 A
GCU 485	120 mA	357 mA	64 mA	179 mA
GEA 110	0.30 A	0.60 A	0.15 A	0.30 A
GEA 71B Enhanced (-02)			0.15 A	0.54 A
GEA 71B Enhanced (-05)			0.27 A	0.66 A

Notes:

[1] The Flight Stream 510 adds 0.1 A to the maximum current draw at both 14V and 28V.

[2] OAT selection does not affect current draw values.

Net change to the electrical load with the G500/G600 TXi system installed must be determined. Net decrease in electrical load requires no further analysis, assuming that the electrical system is within limits. This is likely to occur when existing equipment is removed or older systems are replaced with newer equipment that requires less power to operate. The amended electrical load calculation documenting load reduction should be filed with other aircraft permanent records.

A sample net electrical load calculation is shown for a 28V aircraft in Table 3-35.

Table 3-35 Net Electrical Load Change Calculation Example

Equipment Removed		Equipment Added	
Item	Load [A]	Item	Load [A]
KI 227 ADF Indicator [1]	0.00	Garmin GDU 1060	4.00
KI 525A Pictorial NAV Indicator (HSI)	0.36	Garmin GEA 110	0.30
KA 51B Slaving Accessory [2]	0.00	Garmin GSU 75(B)/GMU 44/GTP 59	0.33
KI 256 Horizon Indicator (ADI)	0.76	Garmin GAD 43e	0.59
Mid-Continent MD 200-206 VOR/LOC/GS Indicator	0.30		
KG 102A Directional Gyro	3.00		
Shadin ADC 200	1.30		
SUBTOTAL	5.72	SUBTOTAL	5.22
		NET CHANGE	-0.50

Notes:

[1] Received power from ADF receiver, which was left in the aircraft.

[2] Received power from KG 102A, which was also removed. The load for the KA 51B is included as part of the KG 102A load.

A complete Electrical Load Analysis must be performed to show adequate capacity of the alternator/generator if the electrical load is increased with G500/G600 TXi system installed. ASTM F 2490-05, Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis offers guidance on preparing an ELA. Alternatively, electrical loads under different operating conditions can be measured, as discussed in the next section.

3.5.1 Measurement of Electrical Loads

It must be shown that the maximum electrical demand for each alternator does not exceed 80% of the alternator data plate rating. Discussed in this section is the ELA for a single alternator/single battery electrical system determined by load measurement. It must be modified accordingly for aircraft with multiple batteries or alternators. During measurement, applied electrical system loads must account for combinations and durations for probable aircraft operations.

> NOTE
> Circuits must be protected and LRU circuit breaker ratings must meet specifications in Section 3.2. Additionally, follow guidelines in AC 43.13-1B, Chapter 11, Section 4.

> CAUTION
> To avoid damage to equipment, the ammeter must be capable of handling the anticipated load.

The current measurement is best accomplished with an in-circuit or clamp-on calibrated ammeter with 0.5 A or better precision. Continuous rate, as indicated on the alternator and the battery data plate/nameplate, must be noted.

1. The tabulated form provided in Figure 3-21 can be used to compile a list of electrical loads on the aircraft. Typically, the list is comprised of existing circuit breakers and circuit breaker switches as shown by the example in Figure 3-22. Continuous (e.g., GPS) or intermittent (e.g., stall warning horn, landing gear) loads must be identified.
2. Use the worst-case flight condition and identify which phase of flight each particular load is used in for normal flight operation. Certain loads are mutually exclusive and will not be turned on at the same time (e.g., pitot heat and air conditioning). Use only the worst-case load conditions for each phase of flight.

   > NOTE
   > Normal operation is when the primary electrical power generating system is operating normally. Emergency operation is when the primary electrical power generating system is inoperative.

3. Use the worst-case flight condition and identify which phase of flight each load is used in for emergency flight operation. At a minimum, the list of equipment must include:
   a. PFD/MFD #1 (GDU 700/1060/1210) [1]
   b. ADAHRS #1 (GSU 75 (B)) [1]
   c. AHRS #1 (GRS 79/77) (includes GMU 44(B) Magnetometer) [1]
   d. ADC #1 (GDC 72/74 (B)) [1]
   e. COM radio #1 [1]
   f. GPS #1 [1]
   g. Audio panel [2]
   h. Stall warning system (if applicable)
   i. Pitot heat
   j. Landing light (switched on during landing only)
   k. Instrument panel lighting
   l. Landing gear indication lights
   m. Navigation lights
   n. Strobe lights

Notes:

[1] For dual PFD installations, the #2 system is not essential for continued safe flight and landing.

[2] If the landing gear warning or stall warning audio requires the audio panel, then the audio panel must be included; otherwise, the audio panel is not essential for continued safe flight/landing and may be omitted.

CAUTION

The pitot heat must be switched on long enough to take the current measurement and then switched off. Since the pitot probe may get hot, ensure the probe cover is removed. Care must be taken to avoid burns or damage to the unit.

4. The ammeter must be connected in line between the external power source and the master relay circuit, as shown in Figure 3-20. This will eliminate errors due to the charging current drawn by the battery.

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Figure 3-20 Ammeter Placement for Current Measurement

5. With all circuit breakers closed, external power must be applied to the aircraft and voltage set to the nominal alternator voltage (usually 13.8 VDC or 27.5 VDC).
6. The battery master switch must be turned on. Do not measure intermittent electrical loads. It is assumed if any additional current is required beyond the alternator capability, this short-duration demand will be supplied by the battery.
7. The following lighting settings must applied during the entire electrical load measurement:
   a. All instrument panel and flood lights set to maximum brightness.
   b. The GDU backlight set to 50% brightness.
   c. All other backlit displays, including GPS navigator, set to 50% brightness.
8. Switch on all continuous electrical loads that are used for the taxiing phase of flight and record the current that is measured by the ammeter (tabulated ELA form in column 1, Figure 3-21). The autopilot circuit breaker must be closed, but the autopilot must not be engaged during the measurement.
9. Switch on all continuous electrical loads that are used for the normal takeoff/landing phase of flight and record the current that is measured by the ammeter (tabulated ELA form in column 2, Figure 3-21). Measurements must be taken with the landing lights ON and OFF. The autopilot circuit breaker must be closed and the autopilot must be engaged.
10. Switch on all continuous electrical loads that are used for the normal cruise phase of flight and record the current that is measured by the ammeter (tabulated ELA form column 3, Figure 3-21). The autopilot circuit breaker must be closed and the autopilot must be engaged.

11. Switch on all continuous electrical loads that are used for the emergency cruise phase of flight and record the current that is measured by the ammeter (tabulated ELA form column 4, Figure 3-21). Measurements must be taken with the landing lights ON and OFF.
12. Switch on all continuous electrical loads that are used for the emergency landing phase of flight and record the current that is measured by the ammeter (tabulated ELA form column 5, Figure 3-21). Measurements must be taken with the landing lights ON and OFF.

The aircraft electrical system is capable of supporting the G500/G600 TXi system if the maximum electrical system demand, as documented on the tabulated ELA form, does not exceed 80% of the alternator capacity. It is permissible for the electrical load to exceed 80% of the alternator capacity when the pitot heat and landing light are both switched on during the takeoff/landing phase of flight. In this case, the electrical load must not exceed 95% of the alternator capacity. If the pitot heat is on and the landing light is off, the electrical load may not exceed 80% of the alternator capacity.

NOTE

The Electrical Load Analysis for this installation is only valid for modifications performed under this STC. Subsequent changes to the aircraft electrical system will require a new load analysis.

Date: Tail Number:

Circuit/System	Circuit Breaker Number	Operating Time	Phase(s) of flight during which circuit/system is used				
			Normal Operation			Emergency Operation	
			Taxiing 10 min	TO/Land 10 min	Cruise 60 min	Cruise (Calculated)	Land 10 min

Figure 3-21 Tabulated Electrical Load Form
Sheet 1 of 2

Date:	Tail Number:		Phase(s) of flight during which circuit/system is used				
			Normal Operation			Emergency Operation	
Circuit/System	Circuit Breaker Number	Operating Time	Taxiing 10 min	TO/Land 10 min	Cruise 60 min	Cruise (Calculated)	Land 10 min
	Total current used (amps):		(a)	Ldg Lt ON (b1) Ldg Lt OFF (b2)	(c)	(d)	(e)
	÷ Alternator rating (amps):						
	x 100% = Percent of alternator capacity used:		% (< 80%)	% Ldg Lt ON (< 95%) % Ldg Lt OFF (< 80%)	% (< 80%)	N/A	N/A
		Pass/Fail:					

Notes:

Figure 3-21 Tabulated Electrical Load Form
Sheet 2 of 2

Date: / /201 Tail Number: N5272K

Circuit/System	Circuit Breaker Number	Operating Time	Phase(s) of flight during which circuit/system is used: Normal Operation — Taxiing 10 min	Normal Operation — TO/Land 10 min	Normal Operation — Cruise 60 min	Emergency Operation — Cruise (Calculated)	Emergency Operation — Land 10 min
Alternator Field	A1	Continuous					
Annunciator Panel	C1	Continuous					
Vacuum Warning	C2	Intermittent					
Stall Warning	C3	Intermittent					
Gear Warning	C4	Intermittent					
Gear Actuator	C5	Intermittent					
Cluster Gauge	D1	Continuous					
Ignition	D2	intermittent					
PFD	D3	Continuous					
Turn Coordinator	D4	Continuous					
Gear Relay	D5	Intermittent					
ADC	E1	Continuous					
Panel Lights	E2	Continuous					
Glareshield Lights	E3	Continuous					
AHRS	E4	Continuous					
Flap Actuator	E5	Intermittent					
COM 1	F1	Continuous					
GPS/NAV 1	F2	Continuous					
COM 2	F3	Continuous					
GPS/NAV 2	F4	Continuous					
Autopilot [1]	F5	Continuous					
Audio Panel	G1	Continuous					
Radio Blower	G2	Continuous					
ADF	G3	Continuous					
Transponder	G4	Continuous					
GDL 69	H1	Continuous					
TCAD	H2	Continuous					
JPI Engine Monitor	H3	Continuous					
Bose Headsets	H5	Continuous					
Altitude Encoder	J1	Continuous					
Strobe Light	SW1	Continuous					
Nav Lights	SW2	Continuous					
Pitot Heat	SW5	Continuous					
Elevator Trim	SW6	Intermittent					
Boost Pump	SW7	Intermittent					

Figure 3-22 Example of Completed Tabulated Electrical Load Form
Sheet 1 of 2

Date: / /201	Tail Number: N5272K		Phase(s) of flight during which circuit/system is used				
			Normal Operation			Emergency Operation	
Circuit/System	Circuit Breaker Number	Operating Time	Taxiing 10 min	TO/Land 10 min	Cruise 60 min	Cruise (Calculated)	Land 10 min
Total current used (amps):			45.7 (a)	60.0 Ldg Lt ON (b1) 44.7 Ldg Lt OFF (b2)	43.5 (c)	34 (d)	48.1 (e)
÷ Alternator rating (amps):		70					
x 100% = Percent of alternator capacity used:			68 % (< 80%)	86 % Ldg Lt ON (< 95%) 64 % Ldg Lt OFF (< 80%)	62 % (< 80%)	N/A	N/A
		Pass/Fail:	PASS	PASS	PASS		

Notes:

[1] During taxi phase, Autopilot circuit breaker is closed but autopilot is not engaged.

Figure 3-22 Example of Completed Tabulated Electrical Load Form
Sheet 2 of 2

3.5.2 Battery Capacity Analysis

The capacity of the aircraft battery must be verified if the G500/G600 TXi installation increases the electrical load on the system. The capacity of the existing battery is adequate if it supports loads essential to the continued safe flight and landing for a minimum of 30 minutes. For aircraft with a maximum service ceiling greater than 25,000feet and certified with FAR 23.1353(h) at amendment 23.62, the battery must support 60 minutes of continued safe flight. Otherwise, the battery must be replaced with a battery that has sufficient capacity.

Refer to ASTM F 2490-05, *Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis* for more information.

Verification of the battery capacity can be accomplished following these steps:

1. Battery Capacity (de-rated). 75% of the battery capacity (as indicated on battery nameplate) is assumed available (this value has units of Amp Hrs). Ensure the value is converted to Amp Mins.
2. Normal Operation Load. Worst-case cruise condition (cruise at night) during normal operation is assumed with 5 minutes given to the pilot to shed non-essential loads. Any automatic load shedding can be considered immediate and does not need to be considered in the calculations. Multiply the normal operation load (Amps) by (t_1 mins) [t_1 = 5 min].
3. Emergency Landing Load Electric load during the approach and landing with failed generator/ alternator. This load is assumed to drain the battery for 10 minutes and needs to be determined. Multiply the emergency landing operation load (Amps) by (t_2 mins) [t_2 = 10 min].
4. Emergency Cruise Load Minimum load necessary to maintain flight in cruise after the generator/alternator has failed needs to be determined.

The following equation determines the battery capacity for emergency cruise expressed as time (t_3):

$$t_3 = \frac{\text{Battery Capacity - Normal Operation - Emergency Landing}}{\text{Emergency Cruise Load}} = \frac{(1) - (2) - (3)}{(4)}$$

The duration of the entire emergency flight on battery power is:

$t = t_1 + t_2 + t_3$

$t = 5\text{ min} + 10\text{ min} + t_3$

$t = 15\text{ min} + t_3$

EMERGENCY POWER OPERATION CALCULATION EXAMPLE

Date: 08/04/2017 Registration No.: N5272K

POWER SOURCE	QTY. INSTALLED	VOLTAGE	MANUFACTURER	MODEL
ALTERNATOR	1	13.75 VDC	PRESTOLITE	AL 12-P70
BATTERY	1	12.00 VDC	GILL	G-35

Assumptions:

1. Most severe operating condition is considered to be night IFR with the pitot heat operating.
2. Load demands are shown for steady state operation and do not include inrush current draw.
3. Load shedding is accomplished manually by the pilot within five minutes of warning annunciation.
4. Loads measured using a calibrated Extech DC ammeter clamped on the cable between battery terminal and master relay.

Analysis:

(1) Battery Capacity

0.75×35 Amp hrs = 26.25Ah $\times$ 60 min = 1575 A-min

(2) Normal Operation Load [t_1 = 5 minutes duration]

Current drawn in normal cruise 43.5 A

Load 5 min $\times$ 43.5 A = 217.5 A-min

(3) Emergency Landing Load [t_2 = 10 minutes duration]

Current drawn in emergency landing 48.1 A

Load 10 min $\times$ 48.1 A = 481 A-min

(4) Emergency Cruise Load.

Current drawn in emergency cruise 34.0 A

(5) Battery capacity for emergency cruise

$$t_3 = \frac{(1) - (2) - (3)}{(4)} = \frac{1575 - 217.5 - 481}{34} = 25.8 \text{ minutes}$$

(6) Total duration of flight on emergency (battery) power

$t = t_1 + t_2 + t_3$

t = 5 min + 10 min + 25.8 min = 40.8 min

Results:

The total required flight duration on emergency power is 30 minutes. The existing battery capacity provides 40.8 minutes for emergency flight duration. The battery is adequate.

4 INSTALLATION

4.1 Wire Routing and Installation

G500/G600 TXi system LRU's connector definitions and pin functions are defined in Appendix A. System installation requires fabrication of electrical wire harnesses. When fabricating and installing each harness:

- Reference the aircraft manufacturer (electrical) standard practices manual and equipment manufacturer documentation for guidance on wire type, gauge, routing, and wire identification. Methods, techniques, and practices defined in AC 43.13-1B Chapter 11, Aircraft Electrical Systems are acceptable.
- Refer to the equipment manufacturer for any specific shield requirements, or follow general practices and guidance in this manual if none exist.
- For all existing wiring that is overbraided, the overbraid must be maintained and include the new wire added between the TXi system and the existing system. It is acceptable to install new overbraid containing the new wire provided the existing wire and overbraid routing is maintained. The overbraid should be terminated in the same or better manner at each connector. If pigtails are used, then they should be kept as short as possible and no longer than the original overbraid.
- Ensure the wiring does not contact sources of heat or RF/EMI interference (power sources) and is not routed near moving components of aircraft controls or other systems. Wire routing must preclude accidental impact or damage.
- Provide adequate space for the LRU or sensor connector(s). Include additional wire length to create a service loop for maintenance, where appropriate.
- Shield terminations must be as short as possible and not to exceed 3.0 inches unless otherwise specified. Shields may be connected to the metal connector backshell when the backshell is grounded to the airframe chassis ground, unless otherwise specified by equipment manufacturer. Alternately, the shield termination may be directly connected to the airframe ground.
- Wiring from the #1 G500/G600 TXi system and the electronic standby instruments must be routed independently and ideally independent from the #2 G500/G600 TXi system.
- The GEA 110/71B Enhanced wiring must be routed on the lower part of the instrument panel area, away from any windows. The #1 and #2 G500/G600 TXi systems must not share any circuit breakers or ground returns. The standby instruments must not share any circuit breakers or ground returns with either G500/G600 TXi system.
- Intermediate connections must be minimized to maintain certified electromagnetic compatibility. All shields must have continuity at intermediate connections (e.g., bulkhead connectors, terminal blocks, splices, etc.). If intermediate connectors are installed, unless otherwise specified, the shield must be terminated at both sides of the intermediate connector backshells (if metal connector) or to airframe ground on both sides of the intermediate connectors.
- GDU connectors P2, P3, and P4 and GAD 43e connectors P432 and P433 must meet the following additional shield installation requirements:
  a. Each connector that contains four or more wires must have a minimum of three shields.
  b. Each connector with three wires or fewer must have a minimum of one shield.
  c. For the purposes of determining a wire count, a single conductor wire, shielded single conductor cable, twisted shielded pair cable, twisted shielded triple cable, or Ethernet cable shall be counted as one wire.
  d. A shield can be counted only if both ends of the shield have electrical continuity to airframe ground (i.e., both ends of shield are terminated to metal connector backshell of LRU that is electrically bonded to airframe ground or terminated directly to airframe ground). If intermediate connectors are installed, the shield must be terminated to both sides of the intermediate connector backshells (if metal connector) or to airframe ground on both sides of the intermediate connectors.

e. Single conductor cable, twisted shielded pair cable, twisted shielded triple cable, Ethernet cable, or any combination thereof may be added to meet the above requirements. Added shields must be bundled with TXi harness wires between the connector needing more shields and any TXi harness remote end. Unused core wires in the added shielded cables must be capped and stowed.

f. GDU connector P2, LRU POWER OUT 1, and connector P3, LRU POWER OUT 2, connections to the GEA 110 may use shielded single conductor cable in lieu of single conductor wire as needed to meet the above shield requirements.

g. For non-metal aircraft, where the GMU 44(B)/GTP 59 is required to be installed electrically isolated, the three GMU 44(B)/GTP 59 wires on connector P2 do not count as shielded wires; however, if these are the only wires on connector P2, no additional shields are required. If there are other wires on connector P2, connector P2 must meet the above shielding requirements.

- Inline components near the connector are installed as shown in Figure 4-1.

NOTE
The GDU connector P2 audio wires do not count as a shielded wire. This is a result of the audio line having one end of the shield floating.

NOTE
Shielding requirements for other LRU connectors are met by their specific interconnect drawings.

NOTE
Interconnect diagrams in this manual only show end-to-end connections and do not show intermediate connections that may be present in an aircraft.

0$;

SOLDER SLEEVE

0.35" MAX.

SHIELD DRAIN
(MAX. 3.0")

0.17"

TRIM COMPONENT LEAD TO .25±.063" AND SOLDER TO 22AWG WIRE. COVER WITH HEAT SHRINK TUBING AS SHOWN, TYPICAL.

Figure 4-1 Inline Component Installation

4.1.1 Shielded Cable Preparation

Prepare all of the shielded cables as shown in Figure 4-2. When terminating shield drains, a maximum of two shields can be daisy-chained together. The daisy-chaining method may only be used if the six tapped holes in the shield block are insufficient to ground all shields. Refer to Figure 4-2.

1. At the end of the shielded cable, strip back a 2.5-inch maximum length of the jacket to expose the braid.
2. Remove this exposed braid.
3. Carefully score the jacket 1/4 to 5/16 inches 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.

4. Connect a 20 or 22 AWG wire to the exposed shield of the prepared cable assembly. Refer to Figure 4-2. Refer to AC 43.13 for termination techniques.

   NOTE

   Solder Sleeves with pre-installed lead: A preferred solder sleeve is the Raychem S03 Series with the thermochromic temperature indicator. These solder sleeves come with a pre-installed lead. For detailed instructions on product use, refer to Raychem installation procedure.

5. Slide a shield terminator onto the prepared cable assembly.
6. Connect the shield wire 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 shield wire to be attached.
7. Crimp contacts onto the cable wires.
8. Repeat steps 1 through 7 as needed for the remaining shielded cables.
9. Wrap the cable bundle with silicone fusion tape (5 or a similar version) at the point where the backshell strain relief and cast housing will contact the cable bundle.
10. Install a ring terminal onto the cable shield termination wires, grouping wires as applicable for the connector.

2.5" MAX

3

0.17"

0.31" OF EXPOSED SHIELD

2

SHIELD DRAINS AS SHORT AS PRACTICAL
(NO LONGER THAN 3")

PREFERRED METHOD

2.5" MAX

3

2

0.17"

0.31" OF EXPOSED SHIELD

SHIELD DRAINS AS SHORT AS PRACTICAL
(NO LONGER THAN 3")

ALTERNATE METHOD

SHIELD DRAIN COMPONENTS AS SHORT
AS PRACTICAL (3" MAX COMBINED)

2

3

2.5" MAX

2

0.17"

0.31" MAX OF EXPOSED SHIELD

ALTERNATE METHOD 2 (DAISY CHAIN)

Figure 4-2 Shield Termination Methods

4.1.2 Backshell Assembly for D-Sub Connectors

Connector kits are listed in Table 3-2, Table 3-4, and Table 3-6, which include Garmin backshell and ground adapter assemblies. Ground adapter assemblies are not required for all Garmin LRUs and are not included in all LRU connector kits. Backshell connectors allow the installer to terminate shield grounds at the backshell housing using the shield block ground kit.

4.1.2.1 Backshell with Slidelock Assembly

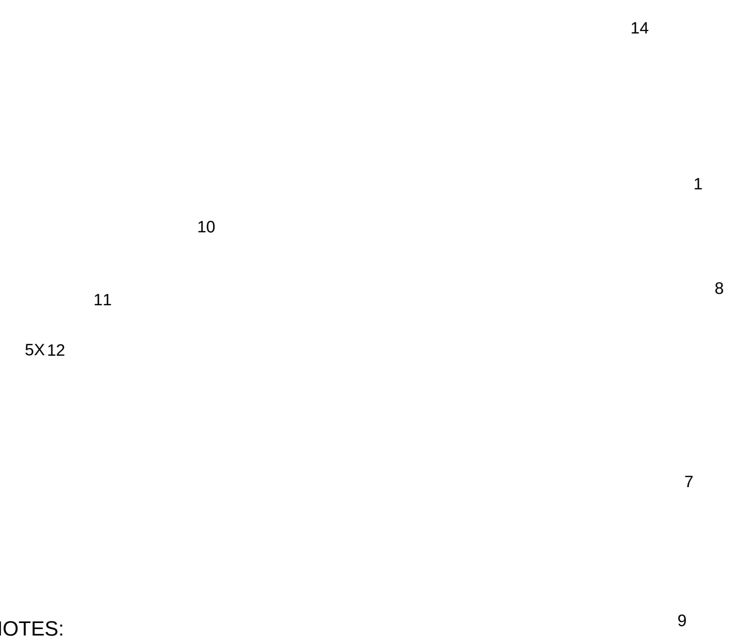
Assemble the backshell D-sub connector and shield block. Refer to Figure 4-3.

1. Attach the shield block (7) to the backshell (8) by inserting the 4-40 x 0.250 pan head screws (9) through the holes on the shield block and threading into the tapped holes on the backshell (8).

   CAUTION

   When attaching the Slidelock lever (10) and D-sub connector (11) to the backshell (8), use only the specified 4-40 x 0.375 pan head screws (12). Do not attempt to use the self-tapping screws supplied in the slidelock kit, as these will damage the backshell housing.

2. Place the slidelock lever (10) over the D-sub connector (11).
3. Attach the slidelock lever (10) and D-sub connector (11) to the backshell (8) by inserting two 4-40 x 0.375 pan head screws (12) through the holes on the connector and threading into the tapped holes on the backshell (8).



NOTES:

1 PLACE SMOOTH SIDE OF STRAIN RELIEF CLAMP ACROSS CABLE BUNDLE. DO NOT PLACE GROOVED SIDE ACROSS CABLE BUNDLE.

Figure 4-3 Slidelock Backshell and Shield Block Assembly

4.1.2.1.1 Shield Termination on Slidelock Backshell Assembly

Refer to Figure 4-3 and Figure 4-4 while completing the following assembly procedure:

1. Terminate the cable bundle contacts (4) in the D-sub connector (11) in accordance with the aircraft wiring drawings.
2. Place the convex side of the backshell strain relief clamp (13) across the cable bundle and secure using three 4-40 x 0.375 pan head screws (12).

   CAUTION

   Place smooth side of strain relief (13) across cable bundle. DO NOT place grooved side across cable bundle. Placing the grooved side of the strain relief across the cable bundle may damage wires.

3. Insert the slidelock spring (14) into the backshell (8) (refer to Figure 4-3).
4. Attach the backshell cover (15) to the backshell using two 4-40 x 0.187 countersunk screws (16).
5. Terminate the ring terminals (6) to the shield block (7) by placing items on the 8-32 x 0.312 pan head shield terminal screw (17) in the following order before finally inserting the screw into the tapped holes on the shield block:
   a. split washer (18)
   b. flat washer (19)
   c. first ring terminal (6)
   d. second ring terminal (6) (if needed)

   NOTE

   Each tapped hole on the shield block (7) may accommodate only two ring terminals (6). It is preferred that a maximum of two wires (2) 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 (2) is left or if only a single wire is needed for this connector a ring terminal, #8, insulated, 18-22 AWG (MS25036-149) can accommodate this single wire (2). If more wires exist for the connector than two per ring terminal (6), it is permissible to terminate three wires (2) per ring terminal (6).

1 1

4

11

3 A/R

8 2

1 A/R

5

6 2

9 A/R

A/R

7 A/R

NOTES

1 PLACE SMOOTH SIDE OF STRAIN RELIEF ACROSS CABLE BUNDLE. DO NOT PLACE GROOVED SIDE ACROSS CABLE BUNDLE.

2 PREFERRED SHIELD TERMINATION METHOD SHOWN.

Figure 4-4 Shield Termination on Slidelock Backshell Assembly

4.1.3 Backshell with Jackscrew Assembly

Prepare the shielded cables to be connected to the LRU in accordance with Section 4.1.1, then terminate the cables to the LRU Jackscrew backshell assembly using the following procedure:

1. Terminate the crimped pin/socket contacts (4) in the D-sub connector (7) in accordance with the aircraft wiring drawings.
2. Place the smooth side of the backshell strain relief clamp (9) across the cable bundle and secure using three 4-40 x 0.375 pan head screws (10).

   CAUTION

   Place smooth side of strain relief (9) across cable bundle. DO NOT place grooved side across cable bundle. Placing the grooved side of the strain relief across the cable bundle may damage wires.

3. Terminate the ring terminals (6) to the tapped holes on the backshell (8) by placing items on the 8-32 x 0.312 pan head shield terminal screw (13) in the following order before finally inserting the screw into the tapped holes on the shield block:
   a. split washer (14)
   b. flat washer (15)
   c. first ring terminal (6)
   d. second ring terminal (6) (if needed)

   NOTE

   Each tapped hole on the backshell (8) may accommodate only two ring terminals (6). It is preferred that a maximum of two wires (3) 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 needed 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 permissible to terminate three wires per ring terminal.

12 [

11

PLACE SMOOTH SIDE OF STRAIN RELIEF ACROSS CABLE BUNDLE. DO NOT PLACE GROOVED SIDE ACROSS CABLE BUNDLE.

10 [

9

8

7

Figure 4-5 Jackscrew Backshell and Shield Block Assembly

NOTES

1 PLACE SMOOTH SIDE OF STRAIN RELIEF ACROSS CABLE BUNDLE. DO NOT PLACE GROOVED SIDE ACROSS CABLE BUNDLE.

2 PREFERRED SHIELD TERMINATION METHOD SHOWN.

Figure 4-6 Shield Block Termination on Jackscrew Backshell Assembly

4.1.4 Configuration Module Installation

G500/G600 TXi LRU connector assemblies serve as housing for configuration modules. This section lists configuration module assemblies and installation procedures for new and existing G500/G600 installations.

> NOTE
> The socket contacts supplied with the configuration module are specifically made to accommodate 28 AWG wire. Ensure the crimp tool is set to the proper crimp tension when crimping these contacts to the configuration module harness.

Slidelock Backshell Configuration Module Installation

Refer to Figure 4-7 for details and item numbers referenced in the following procedure:

1. Strip 0.17 inches of insulation from each wire prior to crimping.
2. Crimp the contacts (3) onto each wire of the 4-conductor wire harness (2).
3. Insert the newly crimped contacts and wires (2, 3) into the applicable connector housing (4) location, as specified by the interconnect drawings.
4. Plug the 4-conductor wire harness (2) into the connector on the PCB (1).
5. Insert the PCB (1) into the backshell (5) recess.
6. Attach cover (6) to backshell (5) using screws (7).

2x

1

Figure 4-7 Backshell Assembly (Potted Configuration Module)

Jackscrew Backshell Configuration Module Installation

Refer to Figure 4-8 for details and item numbers referenced in the following procedure.

1. Strip back approximately 0.17 inches of insulation from each wire of the 4-conductor wire harness (3). It is the responsibility of the installer to determine the proper length of insulation to be removed.
2. Crimp a pin (4) to each conductor.
3. Ensure that the wire is visible in the inspection hole, and that the insulation is 1/64 to 1/32 inches from the end of the contact.
4. Insert newly crimped pins and wires (3, 4) into the connector housing (5) location. For details, refer to the applicable interconnect drawings.
5. Attach the module (1) to the backshell (6) using a pan head screw (10).
6. Plug the 4-conductor wire harness (3) into the connector on the module (1).
7. Point the connector housing (5) so that the 4-conductor wire harness (3) is on the same side of the backshell (6) as the module (1).
8. Attach the cover (7) to the backshell (6) using two screws (8).

Figure 4-8 Jackscrew Backshell Assembly
(Potted Configuration Module)

Backshell Configuration Module with Spacer Installation

Refer to Figure 4-9 for details and item numbers referenced in the following procedure:

1. Strip 0.17 inches of insulation from each wire prior to crimping.
2. Crimp socket contacts (4) onto each wire of the 4-conductor wire harness (3).
3. Insert newly crimped socket contacts and wires (3, 4) into the applicable connector housing location, as shown in Figure 4-9.
4. 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.
5. Plug the 4-conductor wire harness (3) into the connector on the PCB board (1).
6. With pad (2) in position, insert PCB board (1) into the backshell recess.
7. Orient the connector housing so that the inserted 4-conductor wire harness (3) is on the same side of the backshell as the inserted PCB board (1).

1

2

3

4

Figure 4-9 Backshell Assembly (Configuration Module with Spacer)

BACK EDGE OF
DSUB CONNECTOR

WIRE LENGTH
2.5 INCHES MAX

END OF EXP OSED SHIE LD

0.31"

BEGINNING OF EXPOSED
SHIELD

CENTER
CO NDUCTO R

S HRINKABLE TUBING
AROUND EXPOSED SHIELD
AND SOLDERED PIGTAIL

Composite Video Cable Assem bly
SO LDER PIG TAIL
TO SHIELD

Figure 4-10 Composite Video Cable Assembly

4.1.5 Backshell Thermocouple Installation

The GEA 71B Enhanced backshell assembly also houses a thermocouple reference junction, which is only required if the GEA 71B Enhanced is used to monitor temperatures using thermocouple sensors (i.e., ITT). The thermocouple kit is available under Garmin part number 011-00981-00. Refer to Figure 4-11 or Figure 4-12, whichever is appropriate, for details and item numbers.

To install:

1. Strip 0.17 inches of insulation from each wire prior to crimping.
2. Crimp the contacts (2) to each lead. Verify the wire is visible in the inspection hole after crimping and that the insulation is 1/64–1/32 inches from the end of the contact.
3. Insert the newly crimped contacts and wires (1, 2) into the appropriate connector housing (4) location as specified by the wiring diagram.
4. Place the thermocouple body (1) onto the backshell boss. Orient the thermocouple (1) such that the wires exit downward.
5. Attach the thermocouple (1) tightly to the backshell (5) using the screw (3).
6. Attach the cover (6) to the backshell (5) using the screws (7).

Figure 4-11 Shield Block Backshell Thermocouple Installation

Figure 4-12 Jackscrew Backshell Thermocouple Installation

4.1.6 GMU 44B Connector Assembly and Shield Termination

The parts listed in Table 4-1 are required for the GMU 44B connector harness. Some parts for this installation are included in the GMU 44B connector kit and some are to be provided by the installer.

Table 4-1 GMU 44B Connector Assembly

Figure Reference	Description	Conn Kit Qty [1]	Part Number
1	Shield Termination (method optional)	0	Parts used depend on method chosen
2	Shield Extension Wire, 1.9 inch length	0	M22759/16-22
3	Shield Extension Wire, 2.0 inch length	0	M22759/16-22
4	Contact, Socket, Mil Crimp, Size 22	6	336-00055-00
5	Connector, Receptacle, WTW, D369 Series, 6 Position, Socket Insert, Key N	1	330-01430-01
6	Strain relief, D369 Series, 6 Position	1	330-90056-06
7	3-conductor cable	0	M27500-22TE3T14
8	2-conductor cable	0	M27500-22TE2T14
9	Self-Clinching Plastic Cable Tie Strap	0	AS33671 or similar

Notes:

[1] Quantity included in GMU 44B Connector Kit (P/N 011-04205-00).

5
6
2
2X 1
9
ITEM 6 CABLE TIE SLOT
0.112 MIN X 0.041 MIN INCHES
8
3
7

Figure 4-13 GMU 44B Connector Harness

1. On one end of each shielded cable (7 and 8), strip back approximately 1.6 inches of jacket to expose the shield. Use caution when cutting the jacket to avoid damaging the individual braids of the shield.
2. Trim away approximately 1.3 inches of shield, leaving approximately 0.3 inches of shield. Fold this remaining shield back over the jacket.
3. Cut one 22 AWG shield extension wire (2) approximately 1.9 inches long so the end of the shield extension wire lines up with the end of the previously prepared shielded cable (7) from step 1.

4. Strip back approximately 0.25 inches of insulation from one end of the shield extension wire (2).
5. Cut a second 22 AWG shield extension wire (3) approximately 2.0 inches long.
6. Strip back approximately 0.25 inches of insulation from both ends of this shield extension wire (3) to daisy chain the prepared shielded cables (7 and 8).
7. Connect the shield extension wire to the previously prepared shields using an approved shield termination technique. Refer to AC 43-13 for termination techniques.

   Preferred Method:

   a. Slide a solder sleeve (1) onto the prepared cable assembly and shrink using a heat gun. The chosen size of solder sleeve must accommodate the number of conductors present in the cable assembly. Reference the following MIL-Specs for 2-conductor and 3-conductor solder sleeves (M83519/1-2, M83519/1-3, respectively).

   Secondary Method:

   a. Solder the prepared cable assembly. Ensure a solid electrical connection through the use of acceptable soldering practices.
   b. Slide a piece of shrink tube (1) onto the prepared wire assembly and shrink using a heat gun. The chosen size of shrink tube must accommodate the number of conductors present in the cable.

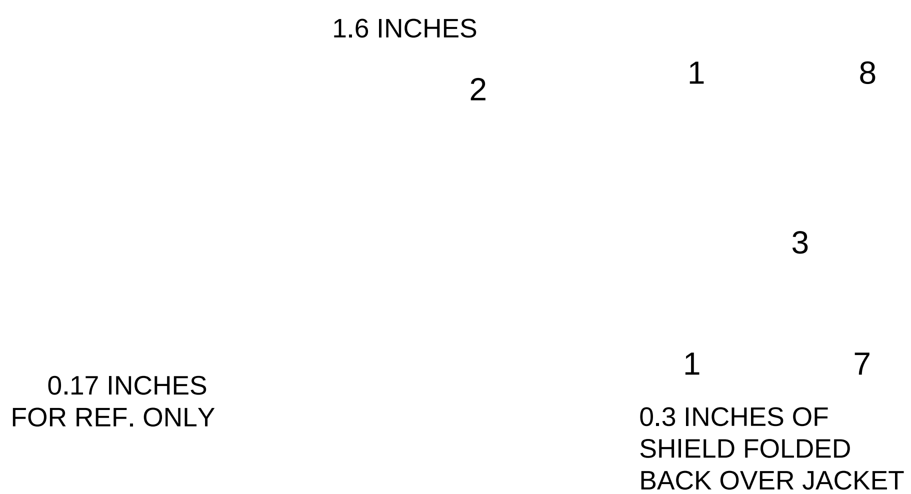


Figure 4-14 GMU 44B Shield Termination

8. Strip back approximately 0.17 inches of insulation from each wire of the shielded cables (7 and 8) and shield extension wire (2).

9. Crimp a socket (4) to each conductor of the shielded cables and shield extension wire. It is the responsibility of the installer to find the proper length of insulation to be removed. Wire must be visible in the inspection hole after crimping and the insulation must be 1/64 to 1/32 inches from the end of the contact as shown in Figure 4-15.

INSPECTION HOLE
WIRE MUST BE VISIBLE AFTER CRIMPING

4

1/64 to 1/32 INCH

2, 7, 8

Figure 4-15 GMU 44B Connector Insulation/Socket Clearance

10. The 6-pin plastic connector is comprised of a connector (5) and strain relief (6). Insert each crimp socket (4) into the appropriate location inside of the receptacle. Refer to Appendix Section A.12 for correct pinout of connector.
11. (Optional) It is recommended to wrap the cable bundle with Silicone Fusion Tape (Garmin P/N 249-00114-00, or a similar version). Using this tape is at the discretion of the installer.
12. Snap the strain relief (6) on the connector body (5).
13. Use a cable tie (9) to secure the cables to the strain relief.

4.2 Pitot-Static Routing

Selected LRUs, pneumatic standby instruments, and the ADC module, if present, must be connected to the aircraft pitot-static system using lines and fittings, as specified in the model-specific aircraft parts manual. Lines must be labeled next to each LRU or instrument. When installing pneumatic lines and fittings:

> NOTE
>
> Check connections for errors before operating the equipment. An incorrect connection can result in equipment damage.

- Reference the aircraft manufacturer standard practices manual or equipment manufacturer documentation for guidance. Methods, techniques, and practices defined in AC 43.13-1B Chapter 12, Section 4 Pitot/Static Systems are acceptable.
- Do not route lines near moving components of the aircraft control systems, other systems with moving components, or sources of heat including high temperature lines.
- Connected equipment must not be at the lowest point in the system to prevent moisture or debris collection.
- Adequate positive drainage of moisture must be maintained for the installation of the pitot and static lines, so that moisture cannot accumulate resulting in a blockage of the system. Ensure lines are free from fluids and other contaminants. For existing systems, a review of the system and lines must be conducted to ensure positive drainage.
- The performance of existing drains must remain unaffected by connected equipment.
- Pitot and static ports mounted on the aircraft surface must not be changed or relocated. The aircraft surface where these ports are located must remain undeformed and free from defects.

When making pitot-static system connections:

- The primary (#1) ADAHRS/ADC must be connected to pitot-static lines that were previously connected to the pilot's instruments (primary source).
- In aircraft with a single pitot-static system:
  - %æThe standby instruments can be connected to the same pitot-static source as the pilot's instruments.
  - %æThe secondary (#2) ADAHRS/ADC associated with a second PFD (if equipped) can be connected to the same pitot-static source as the pilot’s instruments.
- For aircraft equipped with a dual pitot-static system:
  - %æThe standby instruments must be connected to the pitot-static source that is independent from the pilot’s instruments.
  - %æThe secondary (#2) ADAHRS/ADC associated with a second PFD (if equipped) must be connected to the pitot-static source that is independent from the pilot’s instruments.

> NOTE
>
> Aircraft must retain the alternate static source selector switch, if it was previously equipped.

> NOTE
>
> For aircraft with a dual pitot-static system and a GTOW of less than 6,000 lbs, the requirement of separating the standby instruments’ pitot-static source from the #1 ADAHRS/ADC is optional.

Figure 4-16 Pitot-Static Connections for Single ADAHRS/ADC Installation
(Aircraft with a Single Pitot-Static System and/or Less than 6,000 lbs MTOW)

Figure 4-17 Pitot-Static Connections for Single ADAHRS/ADC Installation
(Aircraft with a Dual Pitot-Static System)

Figure 4-18 Pitot-Static Connections for Dual ADAHRS/ADC Installation
(Aircraft with a Single Pitot-Static System, Omit Standby Instruments if the Integrated Standby System is Installed)

Figure 4-19 Pitot-Static Connections for Dual ADAHRS/ADC Installation
(Aircraft with Dual Pitot-Static System, Omit Standby Instruments if the Integrated Standby System is Installed)

4.3 Equipment Bonding

All installed items listed in Table 4-2 must be electrically bonded to the same airframe ground plane and meet the milliohm requirement listed in Table 4-2. The GMU 44(B) and GTP 59 are either electrically bonded to an airframe ground plane or electrically isolated per aircraft model-specific requirements in Appendix D.

The resistance must be verified with a calibrated milliohm meter with ±0.1 milliohm (or better) accuracy and all connector(s) disconnected from the LRU.

All existing third-party remote equipment interfaced to a G500/G600 TXi LRU must be electrically bonded to the airframe ground. It is not acceptable to interface the TXi equipment to existing third-party equipment that relies only on power ground return wires as an electrical ground.

Electrical bonding can be achieved with mounting hardware (e.g., rivets, bolts, nuts, washers, etc.) or via bond straps. Bonding surfaces must be clean of any primer, grease, or dirt. If mounting hardware is used to create the electrical bond, the area under the head of the bolt or washer must be free of primer and a spot face prepared that is at least 0.125 inches wider than the head of the bolt or the washer. Any exposed area still visible after the bond is completed must be primed and finished with the original coating or other suitable film. Rivets used to mechanically attach brackets and shelves provide an inherent electrical bond through the rivets and require no additional bond preparation. The top or bottom side of the Garmin racks or equipment flanges do not need any special bond preparations. Reference the aircraft manufacturer (electrical) standard practices manual for procedures on electrical bond preparation, or follow SAE ARP 1870Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety Section 5Detail Requirements.

Table 4-2 Bonding Requirements

UNIT	VALUE [1]
GDU 700/1060/1210	10 Milliohm
GCU 485	10 Milliohm
Engine Annunciator	10 Milliohm
GSU 75/75B	2.5 Milliohm
GDC 72	2.5 Milliohm
GRS 79	2.5 Milliohm
GAD 43(e)	2.5 Milliohm
GEA 110	2.5 Milliohm N/A if mounted on the back of the GDU
GEA 71B Enhanced	2.5 Milliohm
GBB 54	2.5 Milliohm
GTP 59	2.5 Milliohm or electrically isolated per Appendix D
GMU 44(B)	2.5 Milliohm or electrically isolated per Appendix D
Kulite APTE-2B-2250-85D torque transducer	2.5 Milliohm

Notes:

[1] For remote LRUs installed on an aluminum foil ground plane, bonding measurements must be taken between the remote LRU and the instrument panel.

The instrument panel must be metal construction allowing a ground path for instrument panel installations. For metal and tube-and-fabric aircraft, the ground path is inherently achieved through the metallic airframe structure. For composite aircraft, a ground plane (or reference) must be used to achieve a comparable ground.

The face sheet on honeycomb shelves must be metal when equipment is mounted to the shelf. The honeycomb material between the face sheets is not conductive, therefore care must be taken to ensure proper bonding of the equipment. The top and bottom face sheets must be grounded to each other and at least one of face sheets must be grounded to the airframe.

4.3.1 Vibration Mounts

For instrument panels with vibration mounts, verify the mounts are grounded to the metallic airframe structure with a bonding jumper. Ensure the jumper meets the following specifications:

- The cross-sectional area of the strap is greater than 0.016 square inches (approximately 20,800 circular mils).
- The braid is a 7/16” or wider tubular braid (P/N QQB575R30T437, 24,120 circular mils) or a 3/4” or wider flat braid (P/N QQB575F36T781, 20,800 circular mils).
- The braid contains a terminal lug (mil-spec MS20659-130) at each end.
- The strap length is as short as possible, not exceeding 6 inches.

Ensure each terminal lug is secured to its respective mating surface with a #10 steel bolt and one flat washer (P/N AN970-3). Lugs and washers should be center-aligned and flush on all outside edges. These components should be in full contact with the mating surface.

4.3.2 Aluminum Surface Preparation

In order to prepare the aluminum surface for proper bonding, the following general steps should be followed. For a detailed procedure, reference SAE ARP1870, Sections 5.1 and 5.5.

1. Clean grounding location with solvent.
2. Remove non-conductive films or coatings from the grounding location. When area is cleaned around fastener heads or washers, the area cleaned should be 0.125 inches wider than the foot print of the washer or the bolt head.
3. Apply a chemical conversion coat, such as Alodine 1200, to the bare metal.
4. Once the chemical conversion coat is dry, clean the area.
5. Install bonding aluminum tape or equipment at grounding location.

After the bond is complete, if any coatings were removed from the surface, re-apply a suitable coating to the surrounding area.

4.4 Display

The GDU is designed to mount in the aircraft instrument panel and replace the existing primary instruments. For all G500/G600 TXi installations, the instrument panel must be constructed from aluminum. Refer to Section 3.4.3 for instrument panel requirements for units with integrated ADAHRS.

The GDU must be electrically bonded to the aircraft instrument panel with a direct current (DC) resistance specified in Table 4-2. Electrical bond is accomplished through the display fasteners.

The GDU must be located such that the screen is entirely viewable and within reach of the pilot. It is preferable for the display to be located as far up the instrument panel as practical. The position of the GDU must not interfere with the installation of flight control items or control lock devices.

The location of the GDU on the instrument panel in relation to the centerline of pilot's primary field-of-view depends on display size and configuration. When measured from the centerline of pilot's primary field-of-view, the display centerline must be located as defined in Figure 4-20 through Figure 4-26.

> NOTE
> Location of the display centerline is based on a distance of 30 inches from the pilot eye reference point to the aircraft instrument panel and must be reduced proportionally if the pilot's eye reference point is significantly less than 30 inches from the instrument panel.

> NOTE
> If intended for use by the co-pilot, the distance from the GDU 700P MFD centerline to the centerline of co-pilot's primary field-of-view can be greater than 18 inches.

> NOTE
> GDU location must not affect the readability of any existing or added switches under all lighting conditions, including switches that may be blocked from the instrument flood lights.

FAA AC 23.1311-1C defines the primary field-of-view with the normal line-of-sight established at 15° below the horizontal plane, the values for the vertical and horizontal are ±15°. The primary maximum field-of-view values are ±35° horizontal, +40° up, and -20° down vertically from the pilot eye reference point.

For example, if the distance from pilot eye to the instrument panel is 30 inches, the entire display must be no further than 8 inches to the side from the pilot eye reference point to be within primary field-of-view, or no further than 21 inches to the side from the pilot eye reference point to be within primary maximum field-of-view. Centerline of primary field-of-view is coincident with:

1. A projection of the centerline of the pilot's seat onto the instrument panel; or
2. The center of control yoke or stick in neutral position, if the control yoke or stick are offset from the centerline of the pilot's seat.

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Figure 4-20 GDU 1060/1210 PFD Display Location
(GDU 1060 Shown, GDU 1210 Similar)

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Figure 4-21 GDU 1060/1210 MFD/EIS Display Location
(GDU 1060 Shown, GDU 1210 Similar)

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Figure 4-22 GDU 1060/1210 MFD Display Location
(GDU 1060 Shown, GDU 1210 Similar)

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Figure 4-23 GDU 700P PFD and MFD Display Locations

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Figure 4-24 GDU 700P MFD/EIS and EIS Display Location

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'8 / (,6 ',63/$< &(17(5/,1(0867 %(:,7+,1 ,1&+(6 /()7 25 5,+7 2) 7+(&(17(5/,1(2) 7+(35,0$5<),(/' 2) 9,(: /2&$7,216 2876,'(,1&+(6 2) 7+(&(17(5/,1(2) 7+(35,0$5<),(/' 2) 9,(: $5($&&(37$%/(%87 5(48,5((,6 $1181&,$7,21 7+((,6 $1181&,$725 0867 %(/2&$7(' :,7+,1 ,1&+(6 /()7 25 5,*+7 2) 7+(&(17(5/,1(2) 7+(35,0$5<),(/' 2) 9,(:

Figure 4-25 GDU 700L EIS Display Location

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Figure 4-26 GDU 700L PFD, EIS, and MFD/EIS Display Locations

The previously installed pneumatic ADI/attitude indicator, airspeed indicator, and altimeter can be used as standby instruments. Either two-inch or three-inch instruments are acceptable.

If a previously installed electric ADI/attitude indicator is replaced by the G500/G600 TXi, it may be reused as a standby indicator, if it is listed in Appendix C. This STC does not approve the installation or airworthiness approval for electric/electronic standby indicators.

CAUTION
If the original pneumatic airspeed indicator displays aircraft operating limits that vary with altitude (e.g., barber pole type airspeed indicators), the original pneumatic airspeed indicator or an electronic standby listed in Appendix C that is capable of replicating the variable limit must be used as the standby instrument.

CAUTION
It must be verified that the original airspeed indicator is not part of an existing airspeed warning system when considering instrument removal or replacement. If it is part of the airspeed warning system, this system must continue to operate following the installation of the TXi system.

When a PFD and an Electronic Standby Instrument System are installed, the electronic standby magnetometer and wiring must be separated from the GMU 44(B) as much as practical. Standby instruments must be located within 2 inches of the GDU PFD. Positions above, below, or on either side of the display are acceptable. In dual PFD installations, the standby instruments are required to be installed next to the pilot's PFD only.

Standby instruments can be arranged in any order. Preferred order, from top to bottom when positioned vertically, or from left to right when positioned horizontally, is:

- Attitude Indicator (top or left)
- Airspeed Indicator (middle or center)
- Altimeter (bottom or right)

Figure 4-27 Location of Standby Instruments

If the Garmin G5 is installed as a standby, it must be installed in accordance with the G5 AML STC SA01818WI, with the exception of the installed location. This STC approves moving the G5 from the primary ADI location to the standby location, adjacent to the GDU PFD, as shown in Figure 4-28. Appendix Section D.3 contains guidance for installing G5 or GI 275 in the instrument panel bolster of select aircraft. If the Garmin GI 275 is installed as a standby, it must be installed in accordance with the GI 275 AML STC SA02658SE.

Figure 4-28 Location of Standby Instrument
(G5 shown, GI 275 similar)

Installation of the GDU requires modification to the existing instrument panel. The extent of this modification depends on the selected G500/G600 TXi system configuration, choice of standby instrument(s), standby instrument placement, and any other instruments that must be retained. In some cases, it is more effective to purchase a blank instrument panel from the aircraft or equipment manufacturer (TC or STC/PMA holder) if the scope of the required changes makes it impractical to modify the existing panel. Table 4-3 lists examples of approved instrument panel modifications for popular aircraft models, including the basis for airworthiness approval.

NOTE

New instrument panel(s) may be fabricated if the existing instrument panel(s) is/are not part of the aircraft primary structure.

NOTE

The GDU cutout, GCU 485 controller cutout, and location of standby instruments must be the only differences between the new and the old (replaced) instrument panel assembly. This STC is not the basis for airworthiness approval of instrument panel modifications other than those, or changes to instrument lighting.

When fabricating a new instrument panel, it must:

1. Use the same material type, thickness (not less than 0.090 inches), and corrosion protection as the original instrument panel.
    - %æIf existing instrument panel material isn't known, 2024-T3 aluminum per AMS-QQ-A-250/5, 6061-T6 aluminum per AMS 4025, AMS 4027, or AMS-QQ-A-250/11 must be used.
    - %æCorrosion protection must be in accordance with aircraft model-specific standard practices manual, or alternatively chemical conversion coating per MIL-DTL-5541 Type II, or MIL-DTL-81706 Type II, and high-solids chemical and solvent resistant epoxy primer per MIL-PRF-23377, Class N.
2. Be manufactured using methods and procedures defined in an aircraft standard practices manual, maintenance manual, or structural repair manual. Methods, techniques, and practices defined in AC 43.13-1B Chapter 4, Section 4 Metal Repair Procedures are acceptable.
3. Maintain the form of the existing instrument panel, including the location of fasteners, and retain all elements of the instrument panel structure (if comprised of multiple parts assembled together), such that every feature of the instrument panel is preserved or duplicated.
    - %æMultiple individual pieces of instrument panel assembly must not be combined.
    - %æSingle pieces must not be split into smaller components.
4. Remain at the location where it was originally installed in the aircraft, use the same type of fasteners as specified in the aircraft model-specific parts catalog, and retain the same instrument panel installation method as defined by aircraft type design.
5. Retain the lighting for all previously installed instrument(s) that will be re-installed.

NOTE

The panel cutout required for installation of GDU in aircraft instrument panel, as detailed in Figure 4-37 and Figure 4-41, is intentionally designed for a tight fit.

Table 4-3 Instrument Panel Modification Examples

Make	Model	Reference	Notes
Cessna	172M [1]	STC SA170CH	Instrument panel may need to be replaced and control yoke modified to install GDU.
	180A-180J	STC SA0023SE	
	185A-185E, A185E	STC SA0023SE	
	182A-182D	STC SA1347GL	
Beechcraft	35, A35, B35, C35, D35, E35, F35, G35, 35-33, 35-A33, 35-B33, 35-C33	Various STCs D'Shannon Aviation	Instrument panel may need to be replaced to install GDU.
American Champion	7ECA, 7GCAA, 7KCAB, 7GCBC, 8GCBC, 8KCAB	ACAC Drawing 7-1618	Instrument panel may need to be replaced to install GDU.

Notes:

[1] STC SA170CH does not apply to Cessna F172/F172M models. F172 series models have instrument panels similar to 172 series models and STC SA170CH design data may be used for airworthiness approval of required modifications. Refer to the Cessna IPC (P529-12-RAND-1600-1/75) for similarities of instrument panel and yoke installations between Cessna 172 and F172 series.

Installation and placement of the required placards and limitations must be in accordance with the applicable aircraft data and aircraft type TCDS.

If any placards were relocated as a result of a display installation, verify the following:

- The font size of the new placard is the same as the old placard it is replacing.
- The color of the new placard is identical to the color of the placard it is replacing.
- The text on the new placard is identical to the text on the placard that it is replacing (it can be arranged differently as required by space constraints, but the wording must be the same).
- The placard must be legible and not obscured to the pilot by the glareshield, in all flight control positions, or by any other component in the flight deck.

If the new switch labels were added as a result of the TXi installation, verify the following:

- The font size and label is legible from the pilot's seat.
- The labels are legible in all ambient light conditions. In particular, the labels are legible with ambient flood lighting in darkness.
- The switch label must be legible and not obscured to the pilot by the glareshield, in all flight control positions, or by any other component to include the switch position.

G500/G600 TXi installation interfaced to a KFC 275 or KFC 325 flight control system requires the following placard:

- The text on the placard must read, "DISENGAGE SOFT RIDE DURING ALTITUDE CAPTURE (ALTC)".
- The font size must be a minimum of 0.17-inches high (minimum 12 point font).
- The placard must be located near the autopilot mode controller.

Refer to Appendix Section C.12 for additional details.

Some aircraft models listed on the AML currently have insufficient data to substantiate IFR operations, therefore the G500/G600 TXi installations in these models are limited to VFR operation only. The following may apply for such installations:

- Standby instruments are not required.
- Electrical bonding and wire routing must be considered for aircraft with non-metallic airframes.

No additional placard is required if the aircraft is already limited to VFR operation prior to installation of the G500/G600 TXi; otherwise, the installation of the G500/G600 TXi limited to VFR operation must include the following placarded:

- The text on the placard must read, "AIRCRAFT LIMITED TO VFR".
- The font size must be a minimum of 0.25-inches high (minimum 18 point font).
- The placard must be located in plain view near the pilot PFD (pilot side instrument panel).

Refer to Appendix D for aircraft models limited to VFR operations with the G500/G600 TXi system that previously did not have this limitation.

Figure 4-29 VFR Placard Installation
(GDU 1060 Example, GDU 700/1210 Similar)

4.4.1 ADC Module

The GDU 700 and GDU 1060 are designed to include optional integrated ADAHRS. Displays with integrated ADAHRS include a removable ADC module that mounts to the back of the display with a built-in electrical connector. The ADC module is retained with four thumb screws that are part of the module assembly, torqued to 10 in-lbf ±1 in-lbf.

The ADC module has two identical bulkhead fittings with 1/8-27 ANPT pipe thread for connection to the aircraft pitot and static systems.

Figure 4-30 ADC Module Installation

4.4.2 GDU 1210

The GDU 1210 can be configured to display a combination of PFD, MFD, and EIS data in separate, distinct sections on the display. The EIS data can be configured to be displayed on either the left or right side of the screen.

Configurations with PFD and MFD displays can be arranged with the PFD to the right or left of the MFD. When EIS is not displayed, the PFD/MFD display proportions can be 60/40 or 40/60, respectively. If the MFD Resize setting is disabled, the setting is fixed. If set to Pilot Control, it can be toggled with a button on the MFD.

The GDU 1210 can also be configured with dual MFD and an EIS display where the MFD/MFD/EIS display proportions are 40/40/20, respectively. Select MFD pages, such as the Moving Map, can be displayed over a full 80/20 MFD/EIS configuration. If both the EIS sidebar and PFD are absent, dual MFD windows (MFD/MFD) may be configured with 40/60 display proportions.

Figure 4-31 GDU 1210 Screen Configuration Options

Table 4-4 GDU 1210 Weight and Size

LRU	Weight	Dimensions in. (mm)		
	lb. (kg)	Height	Width	Depth
GDU 1210	7.19 (3.26)	8.86 (225.0)	11.40 (289.6)	3.07 (78.0)
Connector kit	0.70 (0.32)			

CAUTION

An optional GEA 110 engine airframe unit can be installed on the back of the GDU 1210. The total weight of the new equipment installed in the instrument panel (GDU 1210 and optional GEA 110) must not exceed the total weight of the equipment that was removed from the panel, unless the total weight of all the equipment installed in the instrument panel is within the weight limits established by the aircraft manufacturer.

Figure 4-32 GDU 1210 Dimensions

Figure 4-33 Instrument Panel Cutout for GDU 1210

Figure 4-34 GDU 1210 Installation

4.4.3 GDU 1060

The GDU 1060 can be configured to display a combination of PFD, MFD, and EIS data in separate, distinct sections on the display. The EIS data can be configured to be displayed on either the left or right side of the screen. Configurations with PFD and MFD displays can be arranged with the PFD to the right or left of the MFD. When EIS is not displayed, the PFD/MFD display proportions can be 60/40 or 40/60, respectively. If the MFD Resize setting is disabled, the setting is fixed. If set to Pilot Control, it can be toggled with a button on the MFD. With software v3.10 and later, the GDU 1060 can also be configured with dual MFD and an EIS display where the MFD/MFD/EIS display proportions are 40/40/20, respectively. Select MFD pages, such as the Moving Map, can be displayed over a full 80/20 MFD/EIS configuration. If both the EIS sidebar and PFD are absent, dual MFD windows (MFD/MFD) may be configured with 40/60 display proportions.

Figure 4-35 GDU 1060 Screen Configuration Options

Table 4-5 GDU 1060 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm) Height	Width	Depth
GDU 1060	6.57 (2.98)	7.25 (184.2)	11.40 (289.6)	2.86 (72.6)
GDU 1060 w/ADAHRS	7.25 (3.29)			3.50 (88.9)

CAUTION

An optional GEA 110 engine airframe unit can be installed on the back of the GDU 1060. The total weight of the new equipment installed in the instrument panel (GDU 1060, optional integrated ADAHRS, and optional GEA 110) must not exceed the total weight of the equipment that was removed from the panel, unless the total weight of all the equipment installed in the instrument panel is within the weight limits established by the aircraft manufacturer.

LQ PP
LQ PP
LQ PP

Figure 4-36 GDU 1060 Dimensions

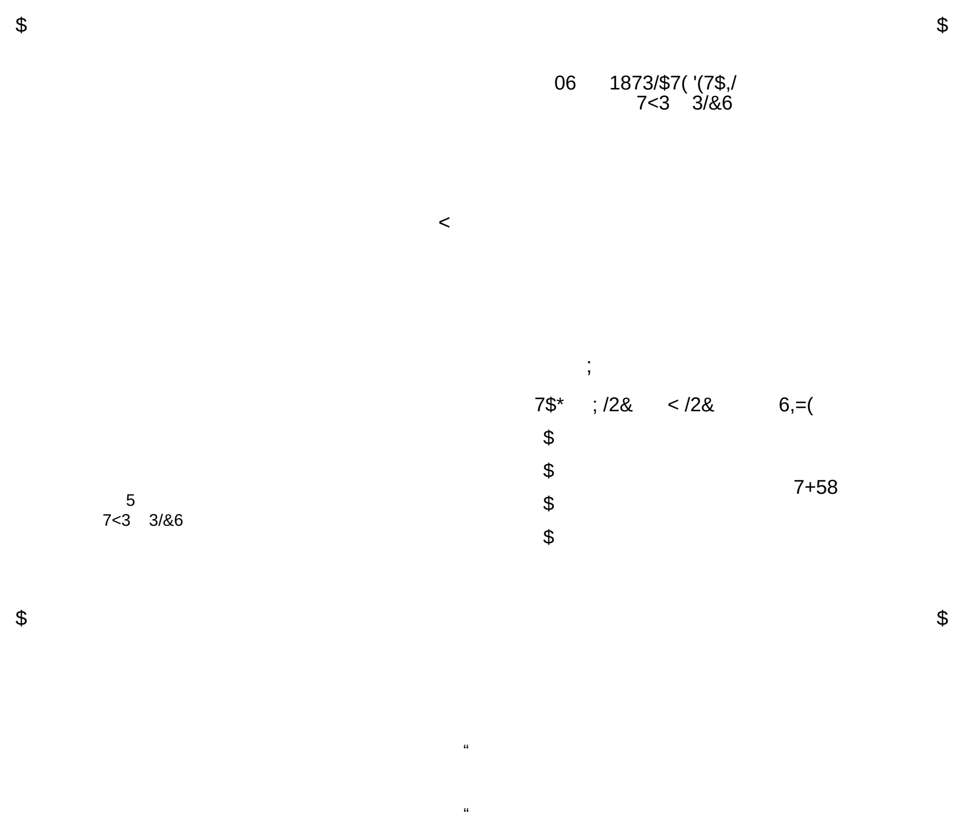

Figure 4-37 Instrument Panel Cutout for GDU 1060

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72548(81& $ 6&5(:6 /%) ,1

Figure 4-38 GDU 1060 Installation

4.4.4 GDU 700

The GDU 700 is a 7-inch display available in a portrait (GDU 700P) or landscape (GDU 700L) orientation. The GDU 700P display can be installed as a PFD, MFD, EIS display, or MFD/EIS display (with version 2.20 or later). It can be installed to replace traditional standby instruments. The co-pilot's PFD must be located within the pilot's primary maximum field-of-view in order to be used as a reversionary display. The GDU 700L can be installed as an EIS display, PFD (version 2.20 or later), or MFD/EIS display (version 2.20 or later).

The MS27719-22-1 miniature toggle switch (e.g., OTTO P/N T3-11221) is required for Integrated Standby Instrument installations. The switch allows for the control of reversion between the two displays and must be located adjacent to the primary display.

Table 4-6 GDU 700 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GDU 700P	3.77 (1.71)	7.25 (184.2)	5.50 (139.7)	3.03 (77.7)
GDU 700L		5.50 (139.7)	7.25 (184.2)	
GDU 700P w/ADAHRS	4.45 (2.02)	7.25 (184.2)	5.50 (139.7)	3.70 (94.0)
GDU 700L w/ADAHRS		5.50 (139.7)	7.25 (184.2)	

LQ PP LQ PP

LQ PP LQ PP

LQ PP LQ PP

Figure 4-39 GDU 700P Dimensions

6.890in 175mm 3.030in 77mm

7.250in 184.2mm 1.545in 39.3mm

Figure 4-40 GDU 700L Dimensions

Figure 4-41 Instrument Panel Cutout for GDU 700

Figure 4-42 Instrument Panel Cutout for Dual GDU 700P

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QTY	ITEM	PART NUMBER	DESCRIPTION
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		06 $'	5,9(7 62/,' &2817(5681. '(* 35(&,6,21 +($' ,1 2' ,1 /21*
		06 %	6&5(: &$3 62&.(7 +($' +(;$*21 &25526,21 5(6,67$17 67((/ 81& $,1 /21*

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72548(81& $ 6&5(:6 /%) ,1

Figure 4-43 GDU 700P Installation

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QTY	ITEM	PART NUMBER	DESCRIPTION
	06	/	187 6(/) /2&.,1* 3/$7(&251(5 5('8&(' 5,9(7 63$&,1* 67((/ 81-& %
	06	/	187 6(/) /2&.,1* 3/$7(7:2 /8* 5('8&(' 5,9(7 63$&,1* /2: +(,*+7 67((/ 81-& %
	06	$'	5,9(7 62/,' &2817(5681. '(* 35(&,6,21 +($' ,1 2' ,1 /21*
	06	%	6&5(: &$3 62&.(7 +($' +(;$*21 &25526,21 5(6,67$17 67((/ 81& $,1 /21*

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5,9(76 $5(,167$//(' 3(5 0,/ 5 1$60 5,9(7 %8&. 7<3(35(3$5$7,21)25 $1' ,167$//$7,21 25 3(5 0,/ 67' 35(3$5$7,21)25 $1' ,167$//$7,21 2) 5,9(76 $1' 6&5(:6 52&.(7 0,66,/($1' $,5)5$0(6758&785(6

72548(81& $ 6&5(:6 /%) ,1

Figure 4-44 Dual GDU 700P Installation

4.4.5 GCU 485

The GCU 485 can be installed in an aircraft instrument panel or avionic console in a location where similarly sized equipment has been removed. The selected location must allow the pilot to reach and view the controller without obstruction and not interfere with aircraft engine or flight control systems.

The GCU 485 unit includes a pair of pawl latches designed for installation in panels with thicknesses varying from 0.075 to 0.140 inches and requires no additional fasteners. When placing the unit in the panel, the pawl latches must be fully retracted and in the horizontal position. Once the unit is placed in the panel, the pawl latches are tightened with 3/32” hex drive tool inserted through the hole in the GCU 485 face plate. Recommended latch torque is 20 ± 2 in-lbf. Latches are in the vertical position when tightened.

Electrical bond between the airframe and the GCU 485 is accomplished through direct metal-to-metal contact between pawl latches and the back side of the panel. Areas as indicated in Figure 4-46 must be free of any surface coatings.

Table 4-7 GCU 485 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GCU 485 w/o Connector Kit	0.6 (0.27)	2.12 (53.8)	5.50 (139.7)	1.74 (44.2)
GCU 485 w/ Connector Kit	0.7 (0.32)			3.80 (96.5)

Figure 4-45 GCU 485 Dimensions

Figure 4-46 Panel Cutout for GCU 485

Figure 4-47 GCU 485 Installation

4.4.6 EIS Annunciator

EIS annunciation is required if a GDU 700P/1060/1210 PFD is not installed and the EIS display is more than 18 inches from the centerline of the primary field-of-view (refer to Figure 4-26). The GDU 700L PFD does not satisfy the EIS annunciation requirements and requires an external EIS annunciator if an EIS display is installed outside the primary field-of-view. The EIS annunciator(s) must be located within 8 inches of the centerline of the primary field-of-view. Refer to Section 4.4. There are two types of annunciators approved for installation.

4.4.6.1 EIS Annunciator

The EIS annunciator provides a red “ENGINE” warning or yellow “ENGINE” caution. Refer to Figure 4-25 for installation requirements.

Figure 4-48 EIS Caution and Warning Annunciator Installation

4.4.6.2 Separate EIS Annunciators

Mil-Spec annunciators can be used instead of the annunciators described in Section 4.4.6.1. Mil-Spec annunciators must be installed side-by-side with the caution (yellow) annunciator on the left and the warning (red) annunciator on the right. Install using the following procedure:

1. Drill the cutouts for the dimensions in Figure 4-49.
2. Insert MS25041 assembly without the lens holder from the forward side of the panel and secure.
3. Install lamp on the lens holder.
4. Install and secure lens holder on the indicator.
5. Install a placard or label as outlined in Section 6.10.

1 2 FOR 28V AIRCRAFT

3 4 FOR 14V AIRCRAFT

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,7(0	47<	3$57 180%(5	'(6&5,37,21
1	1	MS25041-4-327	ANNUNCIATOR, YELLOW, PRESS TO 7(67 FOR 28V AIRCRAFT
2	1	MS25041-2-327	ANNUNCIATOR, RED, PRESS TO 7(67 FOR 28V AIRCRAFT
3	1	MS25041-4-330	ANNUNCIATOR, YELLOW, PRESS TO 7(67 FOR 14V AIRCRAFT
4	1	MS25041-2-330	ANNUNCIATOR, RED, PRESS TO 7(67 FOR 14V AIRCRAFT

Figure 4-49 EIS Caution and Warning Annunciators Installation

4.4.7 Flight Stream 510 Installation

The Flight Stream 510 is inserted with the label facing the screen into the bottom card slot for the GDU 1060 and GDU 700P and the right card slot for the GDU 700L and GDU 1210.

Figure 4-50 Flight Stream 510 Install Card Slot

4.5 Remote LRUs

The existing aircraft avionics shelf is the preferable location for remote mounted LRUs. In some cases, existing avionics shelves may not be sufficient for mounting the GSU 75 and GRS 77 AHRS. Refer to Section 4.5.2 for installation requirements. The selected location must allow access for inspection and service and must not expose the unit to rapid thermal transients. Exposed mounting locations in the cabin are discouraged, as they may result in accidental damage (by occupants or baggage). For pressurized aircraft, locations outside the pressure vessel are adequate.

Protection of the G500/G600 TXi equipment from High-Intensity Radiated Fields (HIRF) and Indirect Effects of Lightning (IEL) in aircraft with airframes constructed from non-metallic materials (e.g., fabric, glass fiber or carbon fiber, and reinforced plastics) requires special precautions. Specific details are included in the Appendix H.

System installations with dual LRUs must separate unit #1 from unit # 2 as far as practical to reduce the chance of simultaneous accidental damage. For dual AHRS installations (including AHRS/ADAHRS combinations), it is recommended for both units to be mounted on the same support structure, as this will ensure a consistent environment that helps to prevent nuisance “Check Attitude” alerts and nuisance autopilot disconnects.

There are no restrictions on the orientation that other LRUs are mounted, except the GSU 75 and GRS 79). The GSU 75 or GRS 79 must be installed such that its axis is parallel or perpendicular to the aircraft longitudinal axis; otherwise, the AHRS won’t function correctly.

AHRS/ADAHRS LRUs should not be located within 1 inch of magnetically mounted antennas, speaker magnets, or other emitters of a strong magnetic field. AHRS/ADAHRS performance is not affected by a metallic support structure that has become magnetized. Non-magnetic tools are preferred (but not required) for installation of the AHRS/ADAHRS fasteners.

Remote AHRS/ADAHRS LRUs, including GDU w/AHRS must be rigidly mounted without shock mounts. Unit vibration is checked during the Engine Run-Up Vibration Test.

Remote LRUs are best mounted on an existing shelf designated by the aircraft manufacturer for equipment installation. These shelves are typically found in proximity to the cargo hold in single engine airplanes or forward of the cabin in the nose section of multi-engine aircraft.

Remote LRUs should be placed as far away as practical from sources of flammable fluids.

For composite airframes, unless otherwise provisioned for by the aircraft structural repair manual or standard practices manual, remote LRUs must be installed on an existing shelf designated by the aircraft manufacturer for equipment installation.

When installing remote LRUs:

1. The combined weight of all added LRUs (including racks and connectors) and the weight of the existing equipment already installed on the shelf must remain within the established weight limit for equipment installed on the existing shelf (as referenced by a placard or in the aircraft records).
2. The base of the unit rack must not be deformed as a result of installing any LRUs.
3. When drilling fastener holes in the existing shelf, the added holes must maintain a minimum of 2d edge distance (d is fastener diameter) from the shelf edges and 3d edge distance from existing holes. If added holes do not meet this criteria, a new shelf needs to be procured from the aircraft manufacturer or fabricated in accordance with the model-specific standard practices manual or structural repair manual, if allowed. Alternatively, the replacement shelf shall:

a. Use the same material and have the same thickness as the existing shelf. If the material used in the construction of the existing shelf is not known, 2024-T3 aluminum per AMS-QQ-A-250/5 can be used.

b. If corrosion protection methods are not specified by the model-specific aircraft standard practices manual, the shelf must be conversion coated per MIL-DTL-5541 Type II or MIL-DTL-81706 Type II and primed with high-solids chemical and solvent resistant epoxy primer per MIL-PRF-23377, Class N.

4. The connection of the existing metallic equipment shelf to the airframe ground may require installation of a bonding strap. Strap installation details are shown in Figure 4-53.

For composite aircraft, LRUs must be electrically bonded to the metallic instrument panel either directly through unit mounting rack or by providing electrical path with heavy-duty dead soft aluminum tape, such as 3M Heavy Duty Aluminum Foil Tape 436. Aluminum tape installation is illustrated in Figure 4-53.

NOTE

Carbon reinforced composite (with or without mesh) or fiberglass with mesh is considered to be conductive. Wood, Kevlar, and fiberglass without mesh is considered to be non-conductive.

Proper location and electrical bonding of remote LRU(s) installed on equipment shelf made from non-metallic/non-conductive materials requires:

1. Identification of a path between the LRU location and the instrument panel ground that will accommodate a strip of aluminum tape at least 4 inches wide. The tape must extend from the LRU mount to the grounding location for the instrument panel and maintain 7:1 length-to-width ratio. If required, multiple tape strips can be overlapped to maintain the 7:1 length-to-width ratio. Tape ends must, in this case, fold over twice and be overlapped with a 3-inch wide tape strip over the seam, as illustrated in Figure 4-51. Tears in the tape or tape joint degrade the bonding performance and must be avoided.

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Figure 4-51 Aluminum Tape Joint

2. The ground must be a bare metal surface on the instrument panel or grounding structure for the instrument panel. Any new (or existing) ground stud must be prepared for electrical bonding.

3. If it is impractical to reach a ground with aluminum tape, then the bond strap must be used. The bond strap must be minimum 5/8 inches wide and no longer than 6 inches. Bond strap fasteners are shown in Figure 4-53 and Figure 4-54. Additionally:

a. The aluminum tape may have a 5:1 length-to-width ratio.

b. Tape end must fold over itself a minimum of twice and be clamped to the shelf with a strip of 0.063-inch thick aluminum, as shown in Figure 4-54.

4. The resistance between tape and the local grounding location must be verified and not exceed 2.5 m©. Practices defined in SAE ARP1870 Section 5.1 Aluminum Surface Preparation and Section 5.5 Refinishing should be followed when preparing the electrical bond for aluminum-to-aluminum interfaces.

For conventional metallic airframes:

1. Support structure required for the installation of remote LRUs, if not present, can be fabricated and installed as provisioned by the aircraft structural repair manual or standard practices manual. Methods, techniques, and practices defined in Chapter 2, Communication, Navigation, And Emergency Locator Transmitter System Installations of advisory circular AC 43.13-2B, Aircraft Alterations, are acceptable.
2. The fabricated support structure must have construction details as defined in Figure 4-52 or Figure 4-53, including length of bend flanges, maximum bracket spacing, and minimum material thickness.
3. Existing floor panel(s), fuselage bulkheads, frames, longerons, and stringers can be used to support a new equipment shelf. Added new equipment shelf must not obstruct or impede the existing equipment installation(s).

Regardless of construction, the fabricated structure used for mounting remote LRUs must be able to support the inertia loads as defined in Table 4-8 for a minimum of 3 seconds before installing in the aircraft.

Table 4-8 Support Structure Unit Inertia Loads

Direction	Load Factor	Unit Load (lbf) [1]
Downward	6.6 (9.0) [2]	6.6 (9.0)
Upward	3.0 (4.5) [2]	3.0 (4.5)
Side-ward	4.5	4.5
Forward [3]	18.0	18.0

Notes:

[1] Based on 1.0 lbs of mass installed. The actual load is determined by multiplying the unit load by total mass of all LRUs installed on a single support structure. For example, the structure in non-aerobatic aircraft must be able to support 6.6×15.0 = 99.0 lbf downward load if combined mass of all installed equipment is 15.0 lbs.

[2] Load factor shown in parentheses is applicable to aerobatic category airplanes only.

[3] Applicable only to equipment that could injure an occupant if loose.

Figure 4-52 Remote LRU Support Structure (Sheet Metal Example)

Figure 4-53 Remote LRU Support Structure
(Sandwich Panel with Conductive Face Sheet Example)

Figure 4-54 Remote LRU Support Structure
(Sandwich Panel with Non-Conductive Face Sheet Example)

4.5.1 GDC 72

The GDC 72 mounts directly to the unit remote rack (P/N 117-00834-00) using a single fastener built into an end-plate mount (P/N 011-03108-00) and a mechanical lock between the unit base and remote rack. The end plate mount can be installed on the connector side of the unit, or the opposite side, allowing for two GDC 72 orientation options. Both options are shown in Figure 4-56.

The GDC 72 ADC has two 1/8-27 ANPT female thread pressure ports and requires matching male fittings to connect to the aircraft pitot and static pressure sources. For practical reasons, it is recommended to locate these units in proximity to existing aircraft pitot and static lines to reduce the length of added lines.

The GDC 72 can be installed in the aircraft's fuselage or the forward equipment bay for multi-engine aircraft. When installed in nonmetallic aircraft, the GDC 72 must be grounded to the instrument panel. This requires the GDC 72 be located near the instrument panel. For additional bonding information, refer to Section 4.3.

Table 4-9 GDC 72 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GDC 72 unit	1.26 (0.57)	2.87 (73.0)	3.00 (76.2)	5.44 (138.3) [1]
GDC 72 with Rack and Connector	1.71 (0.78)			7.25 (184.1)

Notes:

[1] Depth listed includes rack shown in Figure 4-55.

Figure 4-55 GDC 72 Dimensions

Figure 4-56 GDC 72 Installation (Sheet Metal Shelf Example)

Figure 4-57 GDC 72 Installation (Sandwich Shelf Example)

4.5.2 GSU 75

The GSU 75 mounts directly to the unit remote rack (P/N 117-00608-00). The GSU 75 is retained with a mechanical lock between the unit base and the remote rack and two screws built into the unit. Retention screws should be tightened simultaneously or in small increments to mitigate skewed installation.

The existing GRS 77 Universal Mount (P/N 011-01780-00) can be modified to include AHRS/ADAHRS fastener holes. Added fastener holes must be centered about the longitudinal axis of the GRS 77 Universal Mount and be a minimum of 0.5 inches from the edge of the mount. Refer to Figure 4-56 or Figure 4-57 for fastener details.

The GSU 75 ADAHRS has two 1/8-27 ANPT female thread pressure ports and requires matching male fittings to connect to the aircraft pitot and static pressure sources. For practical reasons, it is recommended to locate these units in proximity to existing aircraft pitot and static lines to reduce length of added lines.

The GSU 75 can be installed in the aircraft's fuselage or the forward equipment bay for multi-engine aircraft. The GSU 75 must be installed such that its axis is parallel or perpendicular to the aircraft longitudinal axis; otherwise, the AHRS won't function correctly. Once an orientation has been determined, the AHRS must be configured for this orientation. The location of AHRS/ADAHRS must be no more than 13 feet longitudinally and 6.5 feet laterally from the aircraft center of gravity. To minimize the effects of vibration due to propeller noise, installations in multi-engine airplanes may not have AHRS/ADAHRS mounted closer than 18 inches from the propeller, as measured along aircraft longitudinal axis (forward or aft).

With respect to aircraft heading and level, AHRS/ADAHRS orientation must be such that:

- With the rack on the bottom, the unit axis is orthogonal to the direction of flight within 1.0° (this allows the four azimuth orientations with the unit connector forward, aft, left, or right). Unit orientation is stored in the configuration module.
- Unit is level within 8° in aircraft longitudinal direction (i.e., pitch) and 4° in aircraft lateral direction (i.e., roll).

When installed in nonmetallic aircraft, the GSU 75 must be grounded to the instrument panel. This requires the GSU 75 be located near the instrument panel. For additional bonding information, refer to Section 4.3.

Table 4-10 GSU 75 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GSU 75 unit	1.36 (0.62)	2.76 (70.0)	3.00 (76.0)	5.16 (131.2) [1]
GSU 75 with Rack and Connector	1.72 (0.78)			6.56 (166.6)

Notes:

[1] Depth listed includes rack shown in Figure 4-58.

Figure 4-58 GSU 75 Dimensions

Figure 4-59 GSU 75 Installation (Sheet Metal Shelf Example)

Figure 4-60 GSU 75 Installation (Sandwich Shelf Example)

4.5.3 GRS 79

The GRS 79 mounts directly to the unit remote rack (P/N 117-00608-00), which is the same part used with the installation of the GSU 75. The GRS 79 is retained with a mechanical lock between the unit base and the remote rack and two screws built into the unit. Retention screws should be tightened simultaneously or in small increments to mitigate skewed installation of the unit.

The existing GRS 77 Universal Mount (P/N 011-01780-00) can be modified to include AHRS/ADAHRS fastener holes. Added fastener holes must be centered about the longitudinal axis of the GRS 77 Universal Mount and be a minimum of 0.5 inches from the edge of the mount. Refer to Figure 4-56 or Figure 4-57 for fastener details.

The GRS 79 can be installed in the aircraft's fuselage or the forward equipment bay for multi-engine aircraft. The GRS 79 must be installed such that its axis is parallel or perpendicular to the aircraft longitudinal axis; otherwise, the AHRS won't function correctly. Once an orientation has been determined, the AHRS must be configured for this orientation. The location of AHRS/ADAHRS must be no more than 13 feet longitudinally and 6.5 feet laterally from the aircraft center of gravity. To minimize the effects of vibration due to propeller noise, installations in multi-engine airplanes may not have AHRS/ADAHRS mounted closer than 18 inches from the propeller, as measured along aircraft longitudinal axis (forward or aft).

With respect to aircraft heading and level, AHRS/ADAHRS orientation must be such that:

- With the rack on the bottom, the unit axis is orthogonal to the direction of flight within 1.0° (this allows the four azimuth orientations with the unit connector forward, aft, left, or right). Unit orientation is stored in the configuration module.
- Unit is level within 8° in aircraft longitudinal direction (i.e., pitch) and 4° in aircraft lateral direction (i.e., roll).

When installed in nonmetallic aircraft, the GRS 79 must be grounded to the instrument panel. This requires the GRS 79 be located near the instrument panel. For additional bonding information, refer to Section 4.3.

Table 4-11 GRS 79 Weight and Size

<table>
<tr><th rowspan="2">LRU</th><th rowspan="2">Weight lb. (kg)</th><th colspan="3">Dimensions in. (mm)</th></tr>
<tr><th>Height</th><th>Width</th><th>Depth</th></tr>
<tr><td>GRS 79 unit</td><td>1.08 (0.49)</td><td rowspan="2">2.76 (70.0)</td><td rowspan="2">3.00 (76.0)</td><td>5.16 (131.2) [1]</td></tr>
<tr><td>GRS 79 with Rack and Connector</td><td>1.45 (0.66)</td><td>6.56 (166.6)</td></tr>
</table>

Notes:

[1] Depth listed includes rack shown in Figure 4-61.

Figure 4-61 GRS 79 Dimensions

Figure 4-62 GRS 79 Installation (Sheet Metal Shelf Example)

Figure 4-63 GRS 79 Installation (Sandwich Shelf Example)

4.5.4 GAD 43(e)

The GAD 43(e) can be installed in the aircraft's fuselage or the forward equipment bay for multi-engine aircraft. When installed in nonmetallic aircraft, the GAD 43(e) must be grounded to the instrument panel. This requires the GAD 43(e) be located near the instrument panel. For additional bonding information, refer to Section 4.3.

Installation of the GAD 43 and GAD 43e adapters is identical. There are no restrictions on unit orientation. GAD 43(e) can be mounted vertical or horizontal using the flanges that are part of the unit. A minimum of two fasteners per flange are required.

Table 4-12 GAD 43(e) Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GAD 43 unit	1.90 (0.86)	5.31 (135)	2.11 (54)	9.00 (229)
GAD 43 with Connector Kit	2.00 (0.91)			10.50 (267)
GAD 43e unit	2.26 (1.03)			9.00 (229)
GAD 43e with Connector Kit	2.84 (1.29)			10.50 (267)

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LQ PP LQ PP
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LQ PP

Figure 4-64 GAD 43 Dimensions

LQ PP
LQ PP
LQ PP

LQ PP LQ PP LQ PP
LQ PP LQ PP
7<3 3/&6

LQ PP

Figure 4-65 GAD 43e Dimensions

Figure 4-66 GAD 43 Installation (Sheet Metal Shelf Example)

Figure 4-67 GAD 43e Installation (Sandwich Shelf Example)

4.5.5 GEA 110

The GEA 110 can be mounted on the back of the GDU 1060/1210, or mounted directly to the airframe in the aircraft fuselage or the engine compartment with or without an optional installation tray.

> CAUTION
>
> The total weight of the new equipment installed in the instrument panel (GDU 1060/1210, optional integrated ADAHRS, and optional GEA 110) must not exceed the total weight of the equipment that was removed from the panel, unless the total weight of all the equipment installed in the instrument panel is within the weight limits established by the aircraft manufacturer.

Installing the GEA 110 in the fuselage or engine compartment offers the convenience of reduced wire length when connecting engine sensors. The GEA 110 can be mounted at any orientation, but a vertical orientation with connectors pointing down is preferred in locations exposed to moisture or fluids. Sealed connector kit (P/N 011-03527-51) must be used if the GEA 110 can come into contact with fluids or when mounted in the engine compartment.

The GEA 110 must not be placed directly below fluid lines (e.g., fuel, oil, hydraulic). If mounted close to the aircraft powerplant, the GEA 110 must not block or alter the flow of air required for engine cooling. It must be installed as far away as practical from heat sources.

If provisioned by the aircraft structural repair manual or standard practices manual, the GEA 110 can be mounted on the engine side of the firewall in the engine compartment or on a bulkhead that is supporting the powerplant installation. The GEA 110 wiring must be routed through existing pass-through holes in the firewall or use existing bulkhead connectors: otherwise, separate airworthiness approval is required for added holes in engine firewall.

GEA 110 electrical connector screws must be torqued 5 in-lbf ±0.5 in-lbf when the GEA 110 is installed in the engine compartment; otherwise, the torque is recommended.

Table 4-13 GEA 110 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GEA 110 unit	1.21 (0.55)	7.75 (196.8) [1]	4.81 (122.2) [2]	1.63 (41.4)
GEA 110 with Tray and Connector	2.11 (0.96)			2.13 (54.1)

Notes:

[1] Height listed includes tray.

[2] Width listed includes tray.

Figure 4-68 GEA 110 Dimensions

Figure 4-69 GEA 110 Installation (Mounted Directly to Airframe Example)

Figure 4-70 GEA 110 Installation (Mounted on a Tray Example)

Figure 4-71 GEA 110 Installation Mounted on Back of GDU
(GDU 1060 Shown, GDU 1210 Similar)

4.5.6 GEA 71B Enhanced

The GEA 71B Enhanced can be installed in the fuselage or in the forward equipment bay for single-engine and twin-engine turboprop aircraft. The preferred location for the GEA 71B Enhanced is where a minimum wire length is required to connect the unit to the engine sensors.

There are no restrictions on the unit orientation. The GEA 71B Enhanced can be mounted vertically or horizontally.

NOTE
The GEA 71B Enhanced cannot be mounted on the engine side of the firewall in the engine compartment.

The GEA 71B Enhanced wiring must be routed through existing pass-through holes or cutouts in the firewall or pressure bulkhead; otherwise, separate airworthiness approval is required for added holes or cutouts in the engine firewall and pressure bulkhead.

Table 4-14 GEA 71B Enhanced Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GEA 71B Enhanced with rack and connector	3.08 (1.40)	6.91 (175.6)	1.47 (37.3)	9.13 (231.9)

7.91 200.9

1.47 37.3

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2X 1.13 28.6

2X 4.500 114.30

4X SEE NOTE 3

4X NOTE 3

2X 1.63 41.3

2X 4.500 114.30

J702

J701

.16 4.0

8.71 221.2

2X 9.13 231.9

4.0 102

2X .37 9.4

4X NOTE 4

2X .728 18.49

2X 1.60 40.5

2X 4.458 113.22

NOTES:

1. DIMENSIONS: INCHES [mm]. METRIC VALUES ARE FOR REFERENCE ONLY.
2. DIMENSIONS ARE NOMINAL AND TOLERANCES ARE NOT IMPLIED UNLESS SPECIFICALLY STATED.
3. MOUNTING HOLE FOR #6 FLAT HEAD 100 DEGREE CSK SCREW (8 PLACES).
4. MOUNTING HOLE FOR #8 PAN HEAD SCREW (4 PLACES).

Figure 4-72 GEA 71B Enhanced Dimensions

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Figure 4-73 GEA 71B Enhanced Installation (Metallic Panel)

Figure 4-74 GEA 71B Enhanced Installation (Sandwich Panel)

4.5.7 GBB 54

NOTE
The GBB 54 is not approved for new installations.

CAUTION
The GBB 54 must not be used to power RAS functionality.

The GBB 54 can be installed only in an aircraft with metallic structure and cannot be installed in a location where flammable mixtures are present.

The GBB 54 battery housing is vented. In the unlikely event of a battery failure, the resulting gases will be exhausted outside the aircraft through a vent tube. The vent tube must be checked for obstructions annually, so it is recommended that the tube location is easily accessible. Locating the GBB 54 in environmentally controlled areas of the fuselage will reduce battery charging times in cold climates.

GBB 54 battery must not be installed in the engine compartment or nacelle. For pressurized aircraft, the GBB 54 must not be installed inside the pressure vessel. Refer to Section 2.1.12 for additional GBB 54 installation limitations.

The GBB 54 can be installed on an equipment shelf near the bottom skin in a metallic section of the fuselage or behind the instrument panel near the firewall. The vent tube must be routed through the bottom of the metallic fuselage skin in Lightning Zone 2A or 3 (see Appendix D for details) or an existing passage in the engine firewall. The wiring length between the GDU 700P and the GBB54 must not exceed 40 feet.

The outside diameter of the vent tube must be Ø0.375 inches. The tube material must be metallic (6061-T6 aluminum alloy per AMS-WW-T-700/6 or AMS-T-7081 is a preferred choice). The end of the vent tube must be electrically bonded to existing aircraft metallic structure, as shown in Figure 4-78.

The vent tube length must be as short as practical and not exceed 10 feet. Minimize vent tube bends and exit the exterior straight down. Tube lengths in excess of 12 inches must use intermediate supports, such as clamps or brackets. Install the flared vent tube fitting and tube supports as provisioned by the aircraft structural repair manual or standard practices manual. Methods, techniques, and practices defined in Section 8-31, Fuel Systems of AC 43.13-1B, Aircraft Inspection and Repair, are acceptable.

For aircraft skin penetrations, the tip of the vent tube must pass through a rubber grommet, as shown in Figure 4-76 and Figure 4-77. Refer to the aircraft structural repair manual and standard practices manual for maximum hole size in the fuselage skin and the required method of local reinforcement. For reference, the diameter of the opening for a Ø0.375 vent tube grommet is Ø0.50 inches. The tip of the vent tube is cut square such that the tube end is flush with the grommet, or protruding a maximum 0.125 inches.

If venting through the engine compartment, the end of the tube must be flush with or inside the fuselage or engine cowling. The vent must have unobstructed access to the exterior atmosphere and be clear of exhaust pipes or other sources of ignition.

Table 4-15 GBB 54 Weight and Size

LRU	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Width	Depth
GBB 54 Unit	2.94 (1.33)	3.20 (81.4)	4.09 (104.0)	4.83 (122.6)
GBB 54 with Connector	3.05 (1.38)			6.67 (169.4)

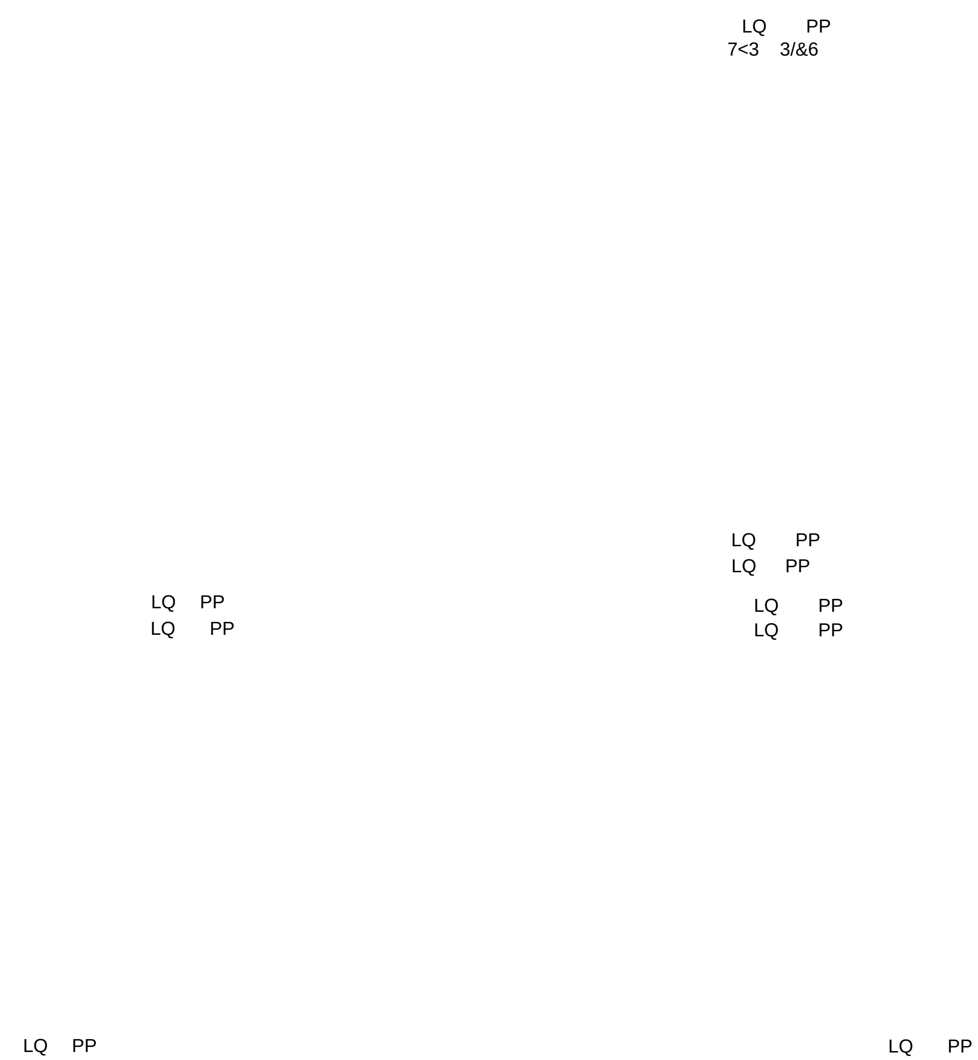

Figure 4-75 GBB 54 Dimensions

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Figure 4-76 GBB 54 Installation (Sheet Metal Shelf Example)

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Figure 4-77 GBB 54 Installation (Sandwich Shelf Example)

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Figure 4-78 Battery Vent Bonding Strap

4.6 Display Sensors

Sensors must be installed in locations that allow access for service and inspection. Locations outside the pressure vessel in pressurized aircraft are acceptable. If installed in the aircraft fuselage, the GMU 44(B) Magnetometer and GTP 59 OAT Probe must not be mounted within 20 inches (0.5 meters) of the rear-most point of aft fuselage.

Sensors (GMU 44(B) or GTP 59) must be electrically bonded to a nearby metallic structure in aircraft with electrically conductive airframes. Resistance must be in accordance with Section 4.3 with the connector disconnected. Sensors must be electrically isolated in aircraft with non-conductive airframes (i.e., composite) and separated from any electrically conductive components by a minimum of 0.5-inches of clearance. Non-conductive doublers may be required to isolate the sensor.

> NOTE
> Carbon fiber reinforced plastic (with or without mesh) and fiberglass reinforced plastic with metallic mesh on the outside are considered conductive. Wood, Kevlar, and glass fiber reinforced plastics without mesh are considered non-conductive.

The installation of fasteners in airplanes with non-conductive (composite) airframes must be done as provisioned in the aircraft model specific maintenance manual, structural repair manual, or standard practices manual.

4.6.1 GMU 44(B)

The GMU 44(B) is a very sensitive magnetic sensor. Before the GMU 44(B) is installed, the sensor location must be surveyed to verify it passes a magnetic interference test. The survey is accomplished by following the procedure detailed in Section 2 of Garmin document P/N 190-01051-00, AHRS/ Magnetometer Installation Considerations. The GMU 44(B) separation guidelines presented in Table 4-16 help in selecting an acceptable location.

The GDU, GDC 72, GRS 79, GSU 75, or GCU 485 may affect performance of the magnetic compass or flux gate if separation between the compass (or flux gate) and the LRU is less than 12 inches, and less than 36 inches of separation for the GBB 54.

For aircraft model-specific GMU 44(B) installation requirements, refer to Appendix D.

> NOTE
> For metal and tube-and-fabric aircraft, the GMU 44(B) must be electrically bonded to the aircraft metallic structure that forms the ground plane.

> NOTE
> For composite aircraft, the GMU 44(B) must not be electrically bonded to the aircraft ground plane. If the structure is conductive at the mounting location, provisions must be made to electrically isolate the GMU 44(B) from the conductive structure per instructions in this section.

> CAUTION
> A Magnetic Interference Survey must be successfully accomplished for locations in which a flux valve or flux gate was previously installed, as it may not be adequate for the GMU 44(B).

Table 4-16 GMU 44(B) Recommended Distance from Sources of Magnetic Interference

	Source of Magnetic Interference In Order of Importance	Min. Distance feet [meters]
1.	Electric relays and motors, including servo motors	10.0 [3.0]
2.	Ferromagnetic (i.e., iron, steel, or cobalt materials) mass heavier than 1 kg (e.g. landing gear)	8.2 [2.5]
3.	Ferromagnetic mass less than 1 kg total (e.g., control cables)	3.0 [1.0]
4.	Electrical devices that draw a current of more than 100 mA	3.0 [1.0]
5.	Electrical conductors that pass a current of more than 100 mA	3.0 [1.0]
6.	Electrical devices that draw a current of less than 100 mA	2.0 [0.6]
7.	Magnetic measuring device other than another GMU 44(B) (e.g., existing flux gate, even if not powered)	2.0 [0.6]
8.	Electrical conductors passing less than 100 mA current	1.3 [0.4]

Aircraft must be leveled for installation of the GMU 44(B). This is accomplished by following procedures typically detailed in Chapter 8 of the aircraft maintenance manual. When installed, the GMU 44(B) must be:

1. Horizontal within 3.0° of the aircraft level reference in pitch and roll.
2. Pointing forward within 0.5° of the aircraft longitudinal axis (butt line). Alignment within 2.5° is acceptable, but requires the post-installation heading compensation.

NOTE

Proper alignment of the GMU 44(B) install rack assures the sensor points forward as required.

GMU 44(B) sensitivity requires that:

1. Electrical conductors within 3 feet of the GMU 44(B) are installed as a twisted shielded pair, not a single-wire conductor, and grounded at each end, if possible.
2. Magnetic fasteners within 20 inches of the GMU 44(B) are to be replaced with nonmagnetic (i.e., stainless steel) fasteners. Fastener replacement is outside the scope of this STC; reference the aircraft structural repair manual or the standard practices manual.
3. The GMU 44(B) is mounted using a support constructed from nonmagnetic materials.

When installed, the bend radius of the GMU 44(B) pigtail harness must be at least 1.5 inches. When installed, there must be at least 3 inches of space above the GMU 44(B) for sensor removal. The GMU 44(B) Magnetometer must not be mounted on an access panel or inspection cover.

Table 4-17 GMU 44(B) Weight and Size

Item	Weight lb. (kg)	Dimensions in. (mm)		
		Height	Diameter	Flange
GMU 44 unit only (P/N 011-00870-10)	0.35 (0.16)	2.10 (53.3)	Ø2.38 (60.3)	Ø3.35 (85.1)
GMU 44 unit only (P/N 011-00870-20)	0.37 (0.17)			
GMU 44 Install Rack and Connector	0.15 (0.07)	0.13 (3.2)	Ø3.37 (85.6)	
GMU 44B unit only (P/N 011-04201-00)	0.30 (0.14)	1.49 (37.8)	Ø2.27 (57.6)	Ø3.30 (83.8)
GMU 44B w/ install rack and connector	0.39 (0.18)			

Figure 4-79 GMU 44 Dimensions (P/N 011-00870-10)

Figure 4-80 GMU 44 Dimensions (P/N 011-00870-20)

Figure 4-81 GMU 44B Dimensions (011-04201-00)

The GMU 44 Universal Mount offers flexibility in installation for all variants of the GMU 44(B). Combined with the GMU 44 Install Rack or GMU 44B Install Rack, it allows for convenient heading and level alignments. Refer to Section 1.4 of Garmin document P/N 190-01051-00, AHRS/Magnetometer Installation Considerations, for details on GMU 44 Universal Mount assembly and installation.

Figure 4-82 GMU 44 Mounting Options with Universal Mount

A custom bracket can be fabricated in lieu of using the GMU 44 Universal Mount. The bracket must be fabricated in accordance with the requirements applicable to the replacement equipment shelf detailed in Section 4.5 of this document and be a minimum of 0.032 inches thick. The respective install racks must be installed regardless of whether the GMU 44 Universal Mount or custom bracket is used.

Figure 4-83 GMU 44 Installation (Universal Mount Example)

Figure 4-84 GMU 44 Installation (Fabricated Bracket Example)

Figure 4-85 GMU 44B Installation (Universal Mount Example)

Figure 4-86 GMU 44B Installation (Fabricated Bracket Example)

GMU 44(B) installations in a non-conductive (i.e., composite) airframe must maintain a minimum of 0.5 inches of clearance from any conductive structure or component. If the conductive structure in composite airplanes is the only option for the GMU 44(B) installation, it must be electrically isolated. This can be accomplished using the clickbond fixtures.

Refer to the aircraft model-specific maintenance manual, structural repair manual, or standard practices manual for the selection of materials and processing.

The GMU 44(B) can be mounted using composite base aluminum threaded studs bonded to the aircraft structure. CB4000 or CB4017 bonded composite base studs manufactured by Click Bond, Inc. (2151 Lockheed Way, Carson City, NV 89706-0713) are examples of parts that can be used to install the GMU 44(B) bracket in airplanes with composite airframes. Bond gap must be 0.020 inches minimum.

> NOTE
> Ensure enough epoxy material is used to assure a minimum puck thickness of 0.02 inches.

The GMU 44(B) Magnetometer must not be mounted on an access panel or inspection cover. The tail section of the fuselage is a good location for the GMU 44(B), but it must maintain a minimum of 2 feet of separation from the cabin or cargo compartments. Truss-type steel fuselage frames are a significant source of magnetic interference and, therefore, are not recommended for GMU 44(B) location.

Generally, the location inside the wing is most suitable for GMU 44(B) installation. To reduce the effect of electric current in the wing skin:

1. The GMU 44(B) wiring must have a dedicated power ground return as a twisted pair with the power source going back into the fuselage; and

The wing tip lights must not have a power ground connected to the airframe ground through the light chassis. Electrically isolated light assembly can only be used if demonstrated to have adequate protection against direct effects of lightning.The design of an aircraft wing may include tip tanks or removable fairings. A GMU 44(B) installed in the wing must be separated by at least a single intermediate rib from the main fuel tank or tip tank, and the tip tank must be of metallic construction.

The tip of the wing is often a practical location for the GMU 44(B). If the wingtip fairing is non-metallic, additional requirements apply:

1. The section of the GMU 44(B) wiring between the sensor and the entry into the conductive part of the wing must be protected with metallic overbraid, as shown in Figure 4-87. The aircraft must have wingtip navigation lights installed. The preferred method for connecting the overbraid terminal to the nearest conductive aircraft structure is to use an existing fastener or a hole. The resistance between the overbraid and that structure must be 2.5
2. Adequate electrical bond requires that the GMU 44(B) bracket, as depicted in Figure 4-83 or in Figure 4-84, must use a minimum of five fasteners to attach to metallic (conductive) part of the wing.

Figure 4-87 GMU 44(B) Connector Wire Overbraid Installation

4.6.2 GTP 59

An effective location for the GTP 59 OAT Probe is on or near an access panel on the bottom of the wing, or in areas where it would mostly be shaded in straight and level flight. For composite aircraft, the probe must be mounted on an access panel or inspection cover. A typical installation example is shown in Figure 4-90. If the access panel or inspection cover is conductive, a non-conductive doubler must be used and a minimum 0.5 inches of clearance maintained between the GTP 59 probe/terminal lug and any conductive element of aircraft structure. A typical installation example is shown in Figure 4-91.

For metal and tube-and-fabric aircraft, the electrical bond between GTP 59 and nearby aircraft metallic structure must achieve a direct current (DC) resistance less than or disconnected. It may be necessary to use a bonding strap to electrically bond the probe. The bonding strap must:

1. Have the cross-sectional area greater than 0.016 square inches (approx 20,800 circular mils). QQB575R30T437 7/16” tubular braid (24,120 circular mils) or QQB575F36T781 3/4” flat braid (20,800 circular mils) meet this requirement.
2. Be as short as possible, not to exceed 6 inches. When installed, the strap must not loop back on itself.
3. Use MS20659-130 lug and #10 stud (or larger) attached to local aircraft metallic structure with minimum thickness of 0.032 inches.
4. Use a 5/16 stud size terminal lug connected directly to GTP 59 probe.

Figure 4-88 GTP 59 OAT Probe Dimensions

For metal and tube-and-fabric aircraft, if the GTP 59 is installed in an access panel in Lightning Zone 2A, the access panel must be at least 0.032-inch thick aluminum, if the access panel is less than 0.032-inch thick aluminum, a doubler that is at least 0.032-inch thick aluminum (per Figure 4-89) must be installed.

For aircraft with metallic airframes, a doubler is required when the GTP 59 probe is installed in the skin. The doubler must be a minimum of 2 inches and at least one gauge thicker than the skin with a minimum doubler thickness of 0.032 inches. The doubler material and installation must be provisioned by the aircraft structural repair manual or standard practices manual, or alternatively:

1. Use the same material as the aircraft skin. If the material used in the construction of the aircraft skin is not known, 2024-T3 aluminum per AMS-QQ-A-250/5 can be used.
2. If corrosion protection methods are not specified by the model-specific aircraft standard practices manual, the doubler material must be chemical conversion coated per MIL-DTL-5541 Type II or MIL-DTL-81706 Type II and primed with a high-solids chemical and solvent resistant epoxy primer per MIL-PRF-23377, Class N.

The GTP 59 probe must not be mounted in a fuel tank area (wet or dry). An air scoop or a ducted inlet are an adequate location for the GTP 59 probe. The probe must be located no closer to the inlet edge than the width of its narrowest opening.

The probe has no icing protection. Temperature measurements may be incorrect if ice accumulates on the probe, which in turn may affect computations of true airspeed, delta-ISA, or other data that depend on the measurement of air temperature.

It is recommended the GTP 59 probe is installed in Lightning Zone 3, although Zone 2A may be an acceptable location for certain aircraft.

Figure 4-89 GTP 59 Installation (Aircraft with Metallic Skin Example)

For composite aircraft, the GTP 59 probe must be installed in Lightning Zone 3 and installed such that it is electrically isolated. For aircraft model-specific information regarding acceptable lightning zones for the GTP 59, refer to Table D-38 of Appendix D. Refer to Appendix H for lightning zone details. Regardless of its location, the probe must protrude into the air flow when the aircraft is in flight and be kept away from direct sources of heat (e.g., engine exhaust, direct sunlight, cabin exhaust, etc.) to provide an accurate air temperature measurement.

Figure 4-90 GTP 59 Installation Composite Aircraft (Non-conductive Access Panel)

Figure 4-91 GTP 59 Installation Composite Aircraft (Conductive Access Panel)

4.6.3 Backup GPS Antenna

The backup GPS antenna is designed for installation on top of an existing instrument panel glareshield. The selected location must offer good visibility of the sky through the windshield.

Installation of the backup GPS antenna is optional, but when installed, the antenna cannot obstruct or limit the pilot's vision (even though the antenna has a low profile). The optimal antenna position is horizontal, or as close to horizontal as practical given the shape of the glareshield.

Fastener holes for non-removable antenna installation, as depicted in Figure 4-93, must not penetrate through the ventilation or defrost channels built into the glareshield, if present. If the glareshield is part of the instrument panel structure, fastener holes may only be drilled if provisioned by the aircraft maintenance manual or structural repair manual.

Table 4-18 Backup GPS Antenna Weight and Size

LRU	Weight lb. (gm)	Dimensions in. (mm)		
		Height	Width	Depth
Backup GPS Antenna	0.20(92.0)	0.60 (15.1)	2.88 (730)	2.22 (56.3)

Figure 4-92 Backup GPS Antenna Dimensions

Figure 4-93 Backup GPS Antenna Installation (Non-removable Installation Example)

Figure 4-94 Backup GPS Antenna Installation (Removable Installation Example)

4.7 EIS Sensors

The aircraft must retain all engine indications for engine and aircraft operations within the limits defined in the pilot's operating handbook or other approved manual.

Only the TXi EIS sensors specified in this section are approved for installation as part of the TXi STC. Installation of other sensors requires separate airworthiness approval from the cognizant authority. The following sections contain information applicable to EIS sensor installation:

- List of compatible sensor interfaces - Appendix Section C.25 (reciprocating) or Appendix Section C.26 (turboprop).
- Sensor configuration - Section 5.7.2 and Appendix Section C.25 (reciprocating) or Appendix Section C.26 (turboprop).
- Interconnect diagrams of sensor connections to the GEA 110 or GEA 71B Enhanced - Appendix B.

NOTE
This STC does not approve any modifications to the engine firewall.

In addition to the data in this manual, the installation of each probe/sensor and wire must be accomplished in accordance with the sensor manufacturer's instructions or as recommended by the engine manufacturer. Wire routing and clamping must follow procedures defined in the aircraft maintenance manual or standard practices manual. Practices defined in Chapter 11, Electrical Systems, of advisory circular AC 43.13-1B, Aircraft Inspection and Repair, are acceptable.

Sensors must be connected using hoses and fittings approved as part of the aircraft or engine type certificated design or standard aircraft parts (AN/MS).

Sensors must not be mounted directly to the engine or engine baffle unless otherwise instructed in this manual.

CAUTION
Check hose routing for sharp bends. Check sensors and fittings for leaks during engine run-up; correct any leaks prior to flight.

4.7.1 Carburetor Air Temperature

The sensor location will vary for different carburetors. This STC provides the basis for airworthiness approval only for the temperature sensor installed in the existing port with 0.2500-28UNF-2A thread.

Refer to the engine or carburetor manufacturer data for temperature sensor location, if required.

Figure 4-95 Carburetor Temperature Sensor Installation Example

CAUTION

Fuel and air passages must remain free of contaminants during work near and around the carburetor.

4.7.2 Oil Temperature

When installing the oil temperature sensor, use the engine manufacturer's guidance for probe length/ location. The unbroken side of the crush washer must face the sensor flange. The sensor is torqued finger tight plus one-half turn and safety wired in accordance with practices defined in Section 7, Safetying, of Chapter 7, Aircraft Hardware, Control Cables and Turnbuckles, of AC 43.13-1B, Aircraft Inspection and Repair. Replacement sensors must use the same port as the original sensor.

Figure 4-96 Oil Temperature Sensor Installation on Engine Mount Example

4.7.3 Pressure

The manifold pressure, oil pressure, and fuel pressure sensors all have similar installation requirements and processes. Mating connector PT06E-8-4S(SR) is required for use with stainless steel pressure sensors and must be ordered separately. Refer to Section 3.1.2 for commercially available parts required for installation.

The de-ice boot pressure sensors that are approved for installation only sense positive pressure. Ensure the sensor is compatible with the aircraft system. Verify that the installation of the sensor does not interfere with the existing pneumatic system. Install the pneumatic sensors as follows, except use pneumatic hoses and fittings approved by the aircraft manufacturer (as detailed in aircraft Illustrated Parts Catalog or Standard Practices Manual), equipment manufacturer documentation, or other acceptable data.

When replacing existing sensors/instruments:

- Do not remove fittings with small orifices that are installed in existing hoses or plumbing. It may limit fluid loss and fire damage in the event of a hose failure.
- If the sensors/instruments were installed on the cold side of the firewall, reuse the lines and fittings. This STC does not approve the routing of new fuel or oil lines into the cockpit.
- Do not remove previously installed devices designed to absorb pressure shock/surge (snubber).
- Reuse manifold tubing if it has a vent hole, and install the manifold pressure sensor so that it is not at the low point in the line.
- Inspect the condition of all existing tubes, hoses, and fittings that are being reused and replace as necessary.
- Replace the fuel and oil hoses with new hoses if they are used by the sensors installed under this STC and located in the engine compartment.
- Replacement sensors must measure the same engine pressure port as the original sensor.
- Install oil and fuel pressure sensors in the same compartment as the sensor being replaced. This ensures the same ambient reference pressure is used and the indication is consistent with the previous gauge.
- Existing de-ice boot pressure sensor must be retained if used to control de-ice boot system operation. Only sensors used for de-ice boot pressure indication may be replaced. Sensor location and sensor retention method should remain unchanged.
- Verify that the supply voltage and sensor configuration are correct if a different sensor is installed (e.g., if a brass sensor is replaced by a GPT sensor).

When installing pressure sensors:

- Install sensors in accordance with the applicable installation example. Refer to Figure 4-97 (brass), Figure 4-98 (mil-spec), and Figure 4-99 (GPT).
- Fuel and oil hoses installed in the engine compartment must meet TSO-C53a Type C or D (fire resistant). Only use approved aircraft fittings (e.g., AN/AS-spec or Mil-spec) and hoses (e.g., Aeroquip 303 or Aeroquip AE 466). All hoses must be rated for the pressure, temperature, and be compatible with the fuel or oil.
- Do not install sensors directly below fittings or components that may leak flammable fluid.
- Thread sealant must be used for the NPT threads. To reduce the risk of system contamination, a minimal amount of sealant should be applied leaving at least two threads at the end of the fitting clear of sealant.
- Sensors and sensor hoses must be installed and routed as far away from the aircraft exhaust system as practical and no closer than 6 inches.
- Line fittings, routing, alignment, bonding, and support spacing must be installed as defined in the aircraft maintenance manual or Section 8-31 of AC 43.13-1B, Aircraft Inspection and Repair

WARNING

Ensure the pressure sensor installation does not introduce thread sealant or debris into the aircraft system.

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Figure 4-97 Brass Sensor Installation
(Coupling Mount Example)

Figure 4-98 Mil-Spec Style Sensor Installation
(Housing Mount Example)

R	R		FI#) R R1;R='R
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R	R	;!D + ?R	M!D/)B R+6!F RDF))6 R%!'R?6!F)' R R1' R R=' R R1;%/RF/1%5R
R	R	8D R	D%B)M R8!%/1;) R?!;R/)!' R%B=DDRB)%)DD)'R I;+ ! R R1;%/R6=;-R
R	R	8D M'- R	%6!8? R6==?RFQ?) R%ID/1=;)' R RFI#)R
R		8D M'- R	%6!8? R6==?RFQ?) R%ID/1=;)' R RFI#)R
R	R	8D 6 R	;IF RD)6+ 6=%51;- RB)'I%)'R/)O!-=; RB)'I%)'R/)1-/F RB1;-R#!D)R I;4+ #R
R	R	!; 'R	%=I?61;- R?1?) R R!;?FR D))R;=F)R R
R	R	!; R	;IF RFI#)R%=I?61;- RD/=BF R RFI#)R='R I;4+ #R
		!; R	!'!?F)B R)6#=MR R')- R?1?)RF=RFI#) R R;?FRF=R RI;4+ !R
R	R	!; R	!'!?F)B R)6#=MR R')- R?1?)RF=RFI#) R R;?FRF=R RI;4+ !R
		!; R	!'!?F)B RDFB!1-/F R?1?)RF=RFI#) R R;?FRF=R RI;4+ !R
R	R	OO	?B)DDIB)RFB!;D'I%)B R-?FR

H>R@C*L*<GR,7J2(R*<HC"@9*<GR>C2*<HRG0*RE*<E>CRE>R3GR2ER<>GREGC"2.0GRJ@ R

@C*EEJC*RE*<E>CR0"ER R<@GR@2@*RG0C*"(RE**R"((3G2><"7R2<,>C:"G2><R2<RG02ERE*&G2><RC*7"H*(R H>RE*<E>CR7>&"G2><R"<(R2<EH"77"G2>< R

H>R&><<*&HRE*<E>CRG>R@C*L2>JE7PR2<EH"77*(R0>E*R>CRHJ$3<.RJE*R"(*AJ"G*REH"<("C(R"C9PR<"LP "< R>CR:273G"CPRE@*&3,2&"G2><R 9E R,2HG2<.E R

"< (R E ^h ^d/dhd z "< N

"7H*C<"G2L*R:*G0>(RG>RC*G"3<RH0*RE*<E>CR2ER&7"9@3<.RG0*R E*<E>CR$>(P

Figure 4-99 GPT Sensor Installation
(Housing Mount Example)

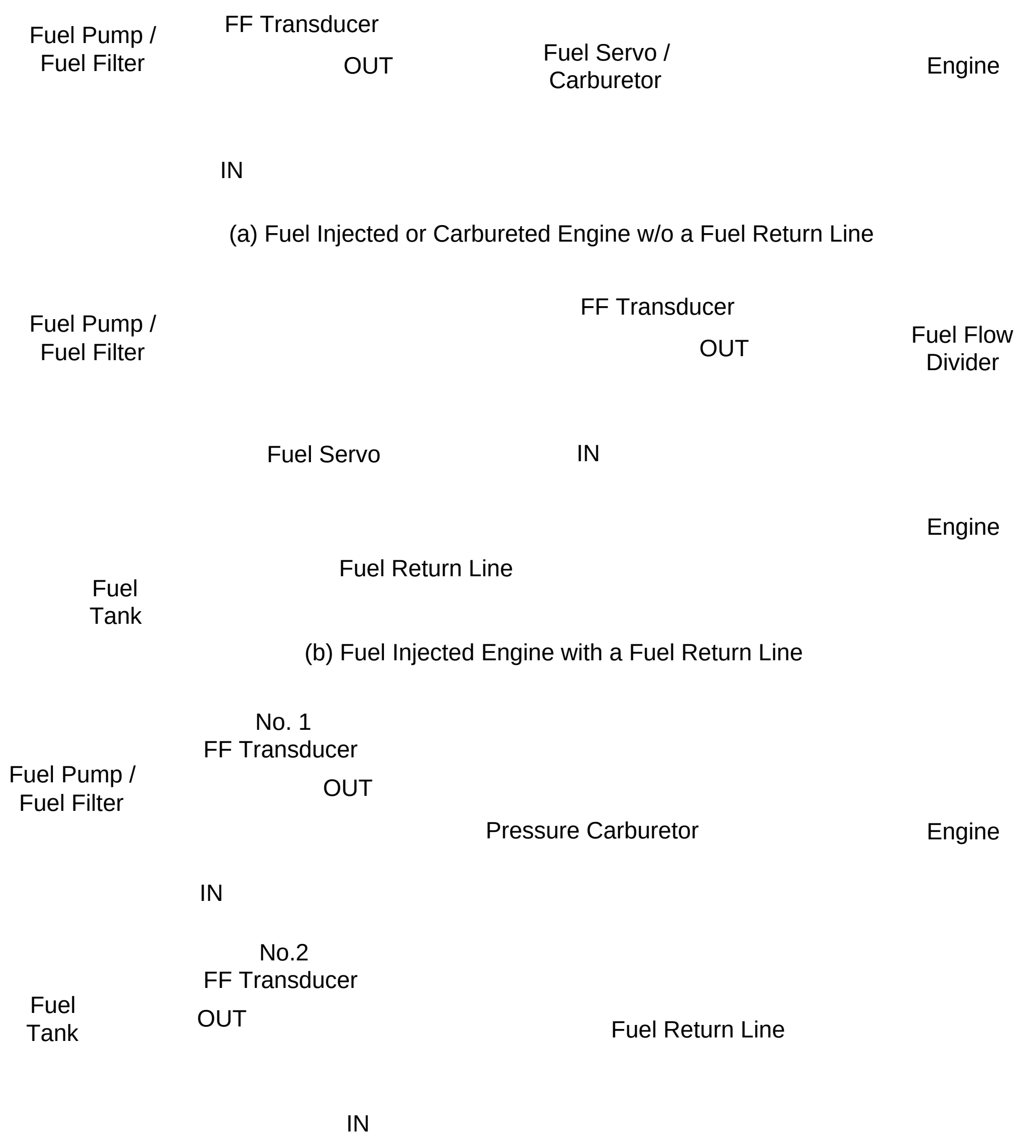
4.7.4 Torque Sensor (Piper Cheyenne PA-31T and PA-31T1)

Piper Cheyenne PA-31T and PA-31T1 aircraft equipped with torque transmitter 489 410 (Bendix 3567749-6001) or 489 442 (Bendix 3567411-6003) are required to replace the existing transmitters with torque sensor APTE-2B-2250-85D. Torque transmitters 489 410 and 489 442 are not compatible with the GEA 71B Enhanced.

For installation of torque sensor APTE-2B-2250-85D, refer to Appendix Section D.4.

4.7.5 Fuel Flow

Refer to Figure 4-100 to determine the fuel flow transducer installation for the specific aircraft fuel system. Fuel flow sensor installation in turboprop aircraft is not approved by this STC.



(a) Fuel Injected or Carbureted Engine w/o a Fuel Return Line

(b) Fuel Injected Engine with a Fuel Return Line

(c) Pressure Carburated Engine with a Fuel Return Line

Figure 4-100 Fuel Flow Installation Configurations

NOTE

The fuel flow sensor will introduce a small pressure drop. Refer to Appendix D to determine if a fuel pressure test is required for the aircraft model.

The fuel flow transducer can be mounted using a bracket or clamping the hoses connected to the transducer. If mounting with clamps, the unit placement must be no further than 6 inches from the clamp to the nearest face of the transducer.

- The transducer can be installed in the following orientations:
  - %æ With the wires pointing up.
  - %æ The cap with five bolts pointing up.
  - %æ The output port pointing up.
  - %æ Or any combination thereof.
- The flow must follow the direction marked on the ports.
- The hose connected to the IN port should be straight for a minimum of 4 inches.
- The length of hose connected to the OUT port should be level or slope up. It must not slope down more than 4 inches per foot.

If mounting transducer with a bracket, bracket must be fabricated. The bracket can be fastened at the top of the engine using the existing engine block fasteners. The amount of available space between the top of the engine and the engine cowling needs to be considered in the design of the bracket. The location of the bracket and position of the fuel flow transducer must result in as few bends in the fuel lines as possible.

The bracket must be fabricated from 300 series austenitic stainless steel (annealed per AMS 5901 or ¼ hard per AMS 5517), sheet thickness 19 gauge minimum (0.044 inches) and installed as provisioned by the aircraft structural repair manual or standard practices manual. Methods, techniques, and practices defined in Chapter 4, Metal Structure, Welding and Brazing, of advisory circular AC 43.13-1B, Aircraft Inspection and Repair, are acceptable.

Hoses and fittings connected to fuel flow transducer must meet the following:

1. The fuel flow transducer must be connected with new hoses and the hoses must not be subject to movement that could loosen the fittings.
2. The hoses must have the same internal diameter as the hose being replaced and meet TSO-C53a Type C or D (fire resistant) specifications.
3. Fuel compatible thread sealant must be used for the NPT threads. To reduce the risk of fuel system contamination, a minimal amount of sealant should be applied, leaving at least two threads at the end of the fitting clear of sealant.
4. Fitting torque must not exceed 15 ft-lb or two full turns past finger tight, whichever occurs first.
5. The transducer and fuel hoses must be routed as far away from the aircraft exhaust system as practical. The transducer must be protected with Aeroquip AE102-( ) fire-sleeve, if within 6.0 inches of any exhaust component.
6. Line fittings, routing, alignment, bonding, and support spacing must be installed as defined in the aircraft maintenance manual or Section 8-31 of AC 43.13-1B, Aircraft Inspection and Repair

WARNING

Ensure the fuel flow transducer installation does not introduce thread sealant or debris into the fuel system.

CAUTION

Do not blow pressurized air through the flow transducer.

Figure 4-101 Example Fuel Flow Transducer Installation

4.7.5.1 Fuel Flow EMI

NOTE
The installation of EI FT-60/90 fuel flow sensors must be checked for EMI in accordance with the procedure defined in Section 6.11

If the fuel flow gauge fluctuates during the EMI checkout procedure (refer to Section 6.11), EI FT-60 or EI FT-90 fuel flow sensor must be installed with shield bracket and wire overbraid. Refer to Figure 4-101 for the installation that illustrates how the fuel flow sensor cover plates are shielded by the bracket (7). The overbraid must cover the unshielded portion of the sensor wiring and must be terminated such that the overbraid is connected to the fuel flow sensor and the shielding of the wire. Refer to Figure 4-102 for overbraid installation.

GEA 110

Total Length <6"

P2

~ +12V 1 EXCT 69
FUEL FLOW 1 15
GROUND 74

s

RED
WHT
BLK

EI
FT-60/90

Orientation optional

Terminate overbraid to Bracket

Figure 4-102 Fuel Flow Overbraid

4.7.6 RPM

The TXi system can use the electrical signal generated by the primary magneto coils or “P-Lead” to display RPM. Both magneto P-Lead signals, left and right, must be connected to the GEA 110. The connection is made at the ignition switch if the magneto does not have a ring terminal stud; otherwise, the connection can be made at the magneto or at the ignition switch, whichever minimizes the length of wire required to connect the GEA 110. The wire length between the P-Lead connection and the resistors must not exceed 6 inches. Shielded wires must be used, as shown in Appendix B.

If the P-Lead on TCM/Bendix magnetos was used, torque the P-Lead nut between 15 and 17 in-lbf. If the P-Lead on Slick magnetos was used, torque P-Lead nut between 13 and 15 in-lbf.

> NOTE
>
> This STC provides interface approval for magnetic pickup and Electroair RPM inputs, but does not provide installation approval.

For TCM/Bendix magnetos, the magnetic pickup must be installed in the vent hole furthest from the distributor cap. Refer to Figure 4-103.

Figure 4-103 TCM/Bendix Magneto Vent Hole

For Slick magnetos, the magnetic pickup must be installed in the vent hole furthest from the distributor cap. Refer to Figure 4-104.

Figure 4-104 Slick Magneto Vent Hole

Following the installation of the P-Lead signal wires, verify the continuity of each magneto P-Lead to ground while the ignition key is OFF. If there is evidence of discontinuity in the magneto P-Lead grounding circuit, it must be corrected before further engine maintenance or checks. Continuity can only be measured if the magneto points are open or the wire is disconnected from the magneto. Use a magneto timing light to ensure the ohmmeter will not measure false continuity through the points or coil windings.

> CAUTION
>
> Do not turn the propeller and stay clear of the propeller arc when installing the P-Lead signal wires.

> WARNING
>
> The P-Lead sensor wiring must include the resistors as shown in Appendix B. The resistors prevent magneto shut-off in the event of a shorted RPM P-Lead wire. The resistors must be installed as close as practical to the P-lead connection, near either the magneto or the ignition switch.

4.7.7 CHT, EGT, and TIT Probes

Garmin stocks certain probes to simplify the EIS sensor ordering process. Sensor part numbers are cross-referenced with Alcor STC SA522SW part numbers. The G500/G600 TXi STC does not provide installation approval for CHT, EGT, and TIT probes; however, the data in STC SA522SW is adequate for many installations.

4.8 Remote Aircraft Status Relay Installation

Relays are required if a GDL 60 is installed and the Remote Aircraft Status (RAS) feature is desired. The quantity of relays required depends on the aircraft electrical system architectures, as shown in Figure B-52.

RAS 1 relay must be installed adjacent to the battery or master solenoid. For other relays (RAS 2 and on), it is recommended install them at the circuit breaker panel or in vicinity of the circuit breaker panel. Installation in a location which exposes the relays directly to outside environment is not permitted.

When drilling new fastener holes for the relay bracket, do not drill new fastener holes on fatigue-critical structures (e.g., wing and empennage structures) or pressurized fuselage (i.e. pressurized bulkheads, frames and skin).

When drilling new fastener holes on an existing platform for the relay bracket, the new holes must maintain 2D edge distance (D is the fastener diameter) and 3D distance from existing holes.

Before installing the relay bracket, apply a chemical conversion coating per aircraft structure repair manual or SAE ARP 1870 Section 5.1. Priming of the relay bracket is optional. If primer is applied, prime the relay bracket per aircraft structural repair manual.

The relay bracket shall be electrically bonded. The electrical bond shall achieve direct current (DC) resistance of 2.5 milliohms or less between bracket faying surface and aircraft structure. Electrical bonding is achieved through the fasteners as follows;

- If using screw/nuts/washers, use cadmium plated steel hardware and ensure the area underneath each hardware is burnished a minimum of 1/4 inch greater than the hardware diameter. The surface preparation shall be per SAE ARP 1870, Section 5.
- If using rivets, a minimum of three rivets shall be installed per aircraft structural repair manual.

Relays/sockets approved for installation are listed in Section 3.1.2.

4.8.1 Relay Installation Examples

Example 10A relay brackets are shown in Figure 4-105. Example 5A relay brackets are shown in Figure 4-106. The bracket can be either flat or L-angle. The bracket can be fabricated from 6061-T6 or 2024-T3 aluminum, min 0.032 inch thick. Fabrication methods, techniques, and practices provided by aircraft structural repair manual or standard practices defined in advisory circular AC43.13-1B, Aircraft Inspection and Repair, are acceptable.

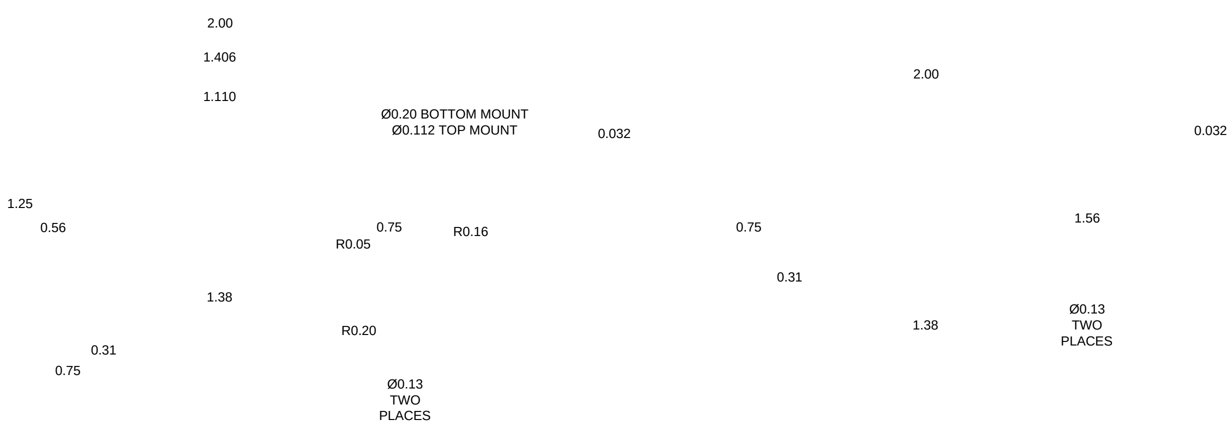


Figure 4-105 10A Relay Bracket Examples

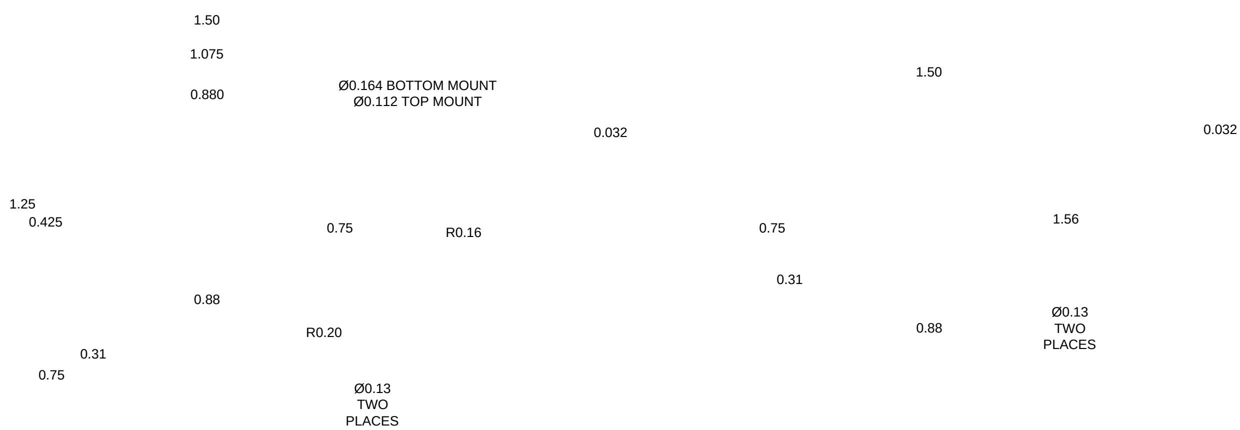


Figure 4-106 5A Relay Bracket Examples

If more than one relay is required, the relay bracket can be extended to house multiple relays. Examples of multiple relay brackets are shown in Figure 4-107.

Figure 4-107 Multiple Relay Bracket Examples

4.9 Weight and Balance

The aircraft weight and balance record must be updated after the TXi system is installed by following the procedures typically detailed in Chapter 8 of the aircraft maintenance manual. Practices defined in Chapter 10, Section 2, Weighing Procedures, of AC 43.13-1B, Aircraft Inspection and Repair, are acceptable.

The aircraft Equipment List must be updated to include items that are added, removed, or relocated. The updated list must be dated, include the name (and certificate number) of the person that updated the list, and be retained with aircraft records. A sample calculation is shown in Table 4-19 below.

Table 4-19 Weight & Balance Calculation Example

Aircraft Weight and Balance Calculated: 01/06/2017	Empty Weight [lb]	CG [in]	Moment [lb-in]	Useful Load [lb]
	2306.70	138.83	320233.96	1093.30
ITEMS REMOVED	Weight [lb]	Arm [in]	Moment [lb-in]	
VSI	0.85	116.90	99.37	
CDI	1.30	116.60	151.58	
Clock and OAT	0.30	117.40	35.22	
Sandel HSI	3.60	114.10	410.76	
HSI gyro remote	4.90	181.00	886.90	
Magnetometer (Old)	0.40	151.00	60.40	
Attitude Indicator	2.20	114.50	251.90	
Altimeter	1.10	116.10	127.71	
Total removed	14.65		2023.84	
ITEMS ADDED	Weight [lb]	Arm [in]	Moment [lb-in]	
GDU 1060	6.57	114.10	749.64	
GEA 110 (mounted to back of GDU 1060)	1.21	112.30	135.89	
GRS 79, mounting rack, and connector	1.45	181.00	262.45	
GDC 72 and mounting rack	1.26	113.30	142.76	
GMU 44, install rack, and universal mount	0.50	146.00	73.00	
Standby attitude indicator	3.70	121.00	447.70	
Standby altimeter	1.10	121.00	133.10	
Total added	15.79		1944.54	
Change	+1.14		-79.30	
Updated Aircraft Weight and Balance Calculated: 01/06/2017	Empty Weight [lb]	CG [in]	Moment [lb-in]	Useful Load [lb]
	2307.84	138.73	320154.66	1092.16

5 SYSTEM CONFIGURATION

NOTE

This layout for this section is based on the layout of the GDU in Configuration mode. Section headings and page navigation are based on the most current software version. Some settings and/or pages may appear different with other software versions.

5.1 System Configuration Preparation

Once all G500/G600 TXi system components are installed on the aircraft, the system must be configured.

> NOTE
> In order to access all of the configuration pages, an Installer Unlock Card (P/N 010-00769-60) must be inserted into the GDU, in either slot, before or while the GDU is in Configuration mode. One unlock card can be used for all installed GDUs.

Due to the many different layout options of the G500/G600 TXi system, information contained in this section may not be applicable to every installation. A summary of the steps for system configuration and calibration follows:

1. Verify the GDU software level is current with this STC.
2. Configure the G500/G600 TXi system for the particular installation. Follow the configuration flow shown in Figure 5-1, as specified in Section 5.2 through Section 5.8. This includes:
   a. Enabling optional features.
   b. Setting the airframe-specific parameters.
   c. Enabling interfaces to external systems.
3. Perform necessary system calibrations, as specified in Section 5.8.
4. Load required and optional databases, as specified in Section 5.9.
5. Perform the ground checks applicable to the installation, beginning in Section 6.3.
6. Verify all placards have been relocated, as specified in Section 6.10.
7. Perform the flight checks specified in Section 6.12.
8. Update the aircraft documentation, as specified in Section 6.13.

> NOTE
> Devices online may display a green icon without proper configuration. This indication may not represent a proper configuration; verify each LRU is properly set up during the configuration procedure.

Figure 5-1 System Configuration Flow

5.1.1 SD Card Location Options

The GDU has two SD card slots that can be used for various tasks. The following list describes what tasks can be performed from which SD card slot:

- Either slot:
  - %æInstaller Unlock
  - %æFeature Enablement
  - %æScreen shots (writes to top card if present) (refer to Section 6.2.3)
  - %æUpdate databases (bottom or right slot provides a faster load time)
- Top or left slot:
  - %æSoftware updates
  - %æGSU/GRS log downloads
  - %æFlight log download (refer to Section 6.12.5)
  - %æSave configuration to SD card
  - %æSave error log to SD card
  - %æLoad configuration from SD card

5.1.2 Entering Configuration Mode

The Configuration mode of the GDU can be accessed by holding down the inner knob located at the bottom right of the unit, as shown in Figure 5-2, upon initial power-up. The knob must be held in until the Garmin logo with “CONFIGURATION MODE” appears, as shown in Figure 5-2.

NOTE

When making configuration selections on the GDU, in many cases, there is no dedicated Enter selection. The selections made are confirmed when exiting the particular screen/ page.

Hold Down the inner knob until configuration menu appears (approx. 5 sec)

Figure 5-2 Entering the Configuration Menu

5.1.3 SD Save

TXi supports a SD card up to 32 GB for saving configuration data. An Installer Unlock card is not required. Saving a configuration to an SD allows the following information to be loaded into a different airframe:

- Airframe-specific GDU configuration (e.g., airspeed markings).
- EIS setup preferences (i.e., sensor types, gauge markings, and layout).
- Calibration information and white point adjustment.

Saving to an SD card also allows the following information to be display on a PC, emailed, or printed:

- Interfacing systems information such as port configuration.
- Printable summary of all interfacing systems.
- Maintenance log.
- Error log (GDU, GRS, GDC, GSU, and GEA).
- Data logs (Date and Time fields require approved GPS interface).

To save configuration data to an SD card, insert an SD card into the top or left SD card slot of one GDU in the system and tap SD Save on the Configuration mode home page. Filenames cannot exceed 32 characters in length.

Configuration Summary

The configuration summary is saved to the SD card as an HTML file. Copy the configuration summary to a computer folder or print and keep it with the aircraft records. To view the configuration summary, use a computer to locate the “summary” folder on the SD card used for the SD Save. Open the downloaded configuration summary using Google Chrome, Internet Explorer, or Safari. Configuration errors are highlighted with a yellow box and red “Check configuration!”. The configuration summary also includes:

- List of all configured interfacing LRUs
- GDU ports used for each configured LRU
- Configuration settings associated with each LRU
- System ID, S/N, software version, etc
- EIS sensors configured (if applicable)

Maintenance Log

The maintenance log is saved to the SD card as an HTML file. To view the maintenance log, use a computer to locate the “maintenance_logs” folder on the SD card used for the SD save. Open the maintenance log file using Google Chrome, Internet Explorer, or Safari. Maintenance log errors display the alter (pilot advisory), maintenance info, time/date of first and last occurrence, and the number of occurrence for each log.

5.1.4 SD Load

Previously saved configurations can be loaded from an SD card. Saved configurations can be loaded from one GDU to all GDUs of the same unit type in the system. Configuration files are incompatible if the SD load file was created on a newer GDU software version. Additionally, the GDU Model, Type, and ID of the GDU loading the configuration must match that of the saved configuration file. The following items can be loaded individually or all at once:

- GDU type configuration
- GDU setup configuration
- PFD aircraft configuration
- Interfacing systems configuration
- EIS setup configuration
- EIS sensor configuration (K-Factor is reset to default value)
- EIS gauge configuration
- Fuel quantity calibration (GDU System ID and SD card SYS ID must match)
- Trim calibration (GDU System ID and SD card SYS ID must match)
- Lighting configuration
- White point adjustment calibration (requires NVIS feature enablement)

> NOTE
> EIS must be configured and communicating with the GEA to load EIS sensor configuration.

To load a configuration from an SD card:

1. Power on the GDU in Configuration mode.
2. Configure System Setup (per Section 5.2) for each GDU in the system before loading configuration from an SD card.

   The GDU must match the GDU Model, Type, ID, and software version of the unit saved to the card.
3. Insert the SD card into the top (GDU 700P/1060) or left (GDU 700L/1210) slot.
4. TouchSD Load.
5. TouchAircraft Configuration File to select the correct file to load.
6. Select which GDU(s) to load the configuration file.
7. Select the configuration items that will be loaded from the configuration file.
8. TouchSD Load.
9. When prompted, restart all GDUs.
10. Verify all settings loaded properly.

5.1.4.1 Configuration Template Loading (Software v3.10 or Later)

For software versions 3.10 or later, configuration templates can be downloaded from the Garmin Dealer Resource Center and loaded via an SD load. Configuration templates are available for select models; refer to Appendix D notes for applicability. The Updates/System Info configuration (Section 5.3) must be configured before templates can be loaded. To load a configuration template:

1. Verify the software version, system info, feature enablements, and aircraft info are configured appropriately for the installation. Refer to Section 5.2 and Section 5.3.
2. Download the desired configuration template from the Dealer Resource Center and load it onto the root of an SD card.
3. Insert the SD card into the top (GDU 700P/1060) or left (GDU 700L/1210) slot.
4. Power on each GDU into Configuration mode.
5. TouchSD Load.
6. Select the desired aircraft configuration file to select the template to load.
7. TouchLoad Predefined Settings
8. Select the configuration items that will be loaded from the template.
9. TouchLoad.
10. When prompted, restart all GDUs.
11. Verify that the loaded template data is correct.

WARNING

Template files are for reference only and must be verified by the installer. Compare the loaded parameters (e.g., each color, limit, dynamic marking, layout, etc.) to the AFM/POH, Appendix F, or other approved aircraft data to ensure the markings accurately represent the aircraft/powerplant limitations.

5.2 System Setup

This configuration page contains settings that determine the primary function(s) of the specific display. Selections available will vary between the GDU 1210, GDU 1060, GDU 700P, and GDU 700L.

5.2.1 GDU ID

CAUTION

Failure to follow the procedure to set GDU ID before performing any other configuration steps may result in configuration errors or configuration settings being overwritten by another display.

Assign a unique value between 1 and 4 to each installed display. GDU ID is set to a blank default at the factory and must be manually set. For a single GDU installation, set the value to GDU 1. For multiple display systems, the pilot's PFD must be set to GDU ID 1. Each GDU ID must be unique and set using the following procedure:

1. Ensure all GDUs are powered off.
2. Power on a single GDU in Configuration mode, as described in Section 5.1.2.
3. Touch System Setup → GDU ID and select GDU 1 through 4 (generally the left-most display is assigned number 1, the second-to-the-left display is assigned number 2, etc.).
4. Power off the display (do not power back on at this time).
5. Follow steps 2 through 4 for the remaining installed GDUs.
6. When all GDU ID assignments have been made, power on all displays in Configuration mode before moving to the next configuration steps. The GDU ID assigned to each display is shown on the Devices Online page on the Home screen, as shown in Figure 5-3.

CAUTION

For installations with more than one GDU , all configuration settings made after the steps in Section 5.2.1 must be done with all displays powered on and in Configuration mode.

CAUTION

Once all GDUs have been configured, the GDU ID should not be changed. Doing so may result in a loss of configuration settings.

Figure 5-3 GDU ID Assignment

5.2.2 SYS ID Source

Select which GDU configuration module will be used to determine the System ID. One display must be designated as the Master for generating the System ID (generally, GDU 1 is designated as the Master).

Figure 5-4 Setting the System ID Source

CAUTION

Changing the designated Master display will change the G500/G600 TXi System ID number. This will cause any previously unlocked features and installed databases to become unavailable. New feature unlock cards will be required for the new System ID. Databases will also have to be re-installed; a new subscription may be required for particular databases.

NOTE

Feature unlocks and databases will not become unavailable until the system is rebooted after the Master designation is changed.

5.2.3 Feature Enablement

The G500/G600 TXi system capabilities can be further enhanced by feature enablement options. To do so, a feature unlock SD card must be inserted into the appropriate slot of the GDU that is designated as Master, as specified in Section 5.2.2. To enable features, use the following procedure:

1. Power on all GDUs in Configuration mode, as specified in Section 5.1.2.
2. On the display designated as Master, touch System Setup → Feature Enablement.
3. Touch Disabled on the feature to toggle it to enabled.
4. Follow any on-screen instructions.
5. For each feature enablement, a GDU power cycle is required.

CAUTION

Once features are enabled on the Master, changing the GDU ID or System ID will result in removing the previously enabled feature(s). Additional feature enablement card(s) must be applied if either the GDU ID or System ID is changed.

NOTE

For all approved features, once they are enabled on the Master, they will automatically be enabled on all GDUs in the system.

5.2.4 Aircraft Info

The Aircraft Info page allows the installer to input data about the aircraft. The Aircraft Information fields must be entered before continuing the configuration process.

The Aircraft Make/Model and Engine Make/Model entries are populated with data from the TXi STC AML. The installer also has the option to enter the data via keyboard by selecting Other.

NOTE
Aircraft models are grouped by TCDS holder, which may be listed under a different name than the common manufacturer name. For example, selecting “Cessna” as the manufacturer will return a different list of models than selecting “Cessna (Textron)”.

Set the Engine Type to match the aircraft. The options are Piston, Turboprop, Turbofan, Turbojet, Turboshaft, and Other. Turbojet and Turboshaft configurations are not approved by this STC. Set the Engine Configuration to match the aircraft. The options are Single Engine or Multi Engine.

NOTE
Changing Engine Type or Engine Configuration will affect existing configuration settings related to EIS. Ensure these settings are correct before configuring EIS further.

5.2.4.1 Loading Configuration Templates

NOTE
This section applies to units with software versions 3.01 through 3.03. For units with software v3.10 or later, refer to Section 5.1.4.1 for configuration template loading.

Entering the aircraft and engine information also allows access to configuration templates for select aircraft and engine model combinations. To load a configuration template:

1. Ensure Turbine EIS is enabled, if applicable (refer to Section 5.2.3).
2. Select the aircraft make and model.
3. Select the engine make and model.
4. If a template is available, a confirmation box will appear. Touch Yes.
   OR Touch Load Predefined Engine Settings.
5. Select the item(s) to be loaded and touch Load.
6. Verify that the loaded template data is correct.

WARNING
Template files are for reference only and must be verified by the installer. Compare the loaded parameters to the AFM/POH or other approved aircraft data to ensure the markings accurately represent the aircraft/powerplant limitations.

Template settings must be verified by comparing the configuration summary against the AFM/POH. Refer to Section 6.5.2 for instructions on obtaining the configuration summary. Refer to Section 5.7 for EIS configuration if any changes are necessary.

5.2.4.2 Flight Cycles

The G500/G600 TXi can record takeoffs and landings completed by the aircraft. For the flight cycle counter to function, the system must be configured with at least one of the following interfaces:

- GPS source (Section 5.4.5)
- ADC input (Section 5.4.2)
- Weight on Wheels discrete input (Section 5.4.28)

To configure Flight Cycles:

1. Touch Flight Cycles to toggle it on (i.e., illuminated green).
2. Touch Takeoffs, enter the number of takeoffs currently on the airframe, and then touch Enter.
3. Touch Landings, enter the number of landings currently on the airframe, and then touch Enter.

5.2.5 GDU Type

5.2.5.1 Settings Common to GDU 700P, GDU 700L, GDU 1060, and GDU 1210

GDU Location

Each GDU must be configured to a location in the cockpit. The GDU Location configuration can be set by touching System Setup → GDU Type → GDU Location and selecting Pilot, Co-Pilot, or Center. The display must be configured corresponding to the intended user. The display location is used in logic circuits during reversion to display backup modes. Below are guidelines for configuring the GDU location:

- A PFD cannot be configured as Center.
- Only one PFD can be configured as Pilot.
- For EIS installations, at least one full-time EIS display must be configured as Pilot or Center.
- Displays with an AHRS/ADC or ADAHRS directly connected must be configured as either Pilot or Co-Pilot.

5.2.5.2 Display Backup Configuration

A GDU 700P/1060/1210 configured as pilot-side can be used as a backup display in the event of a dedicated display failure. The reversion to backup mode and the displayed information is dependent on the interfaced equipment and display configuration. Refer to Section 1.2.9 and Section 1.2.10 for a description of the Backup Display, Standby PFD, and the Integrated Standby System.

Configure the backup display (EIS or MFD) as follows:

1. Configure GDU Location as Pilot per Section 5.2.5.1.
2. Configure ADC/AHRS or ADAHRS source per Section 5.4.2 and Section 5.4.3.
3. For GDU 700P units, touch Standby PFD to enable it.

   NOTE

   For a display to show EIS information in display backup mode, configure a dedicated RS-485 connection to a GEA 110 or GEA 71B Enhanced (refer to Section 5.4.4).

4. Co-Pilot side displays do not affect the display backup mode.
5. If two Pilot side displays are directly interfaced to separate ADC/AHRS or ADAHRS sources, the non-PFD display must be configured as Standby PFD.

Figure 5-5 shows a GDU 700P in display backup mode with reciprocating EIS. Table 5-1 lists the approved display backup mode functions and the required interface configurations.

Table 5-1 Display Backup Mode Function

GDU Model	Normal Mode Display	Configured Interfaces	Display Backup Available	Backup Mode Display
1060/1210	PFD/MFD	ADC & AHRS, EIS	Yes	PFD / MFD / EIS
	PFD/MFD	ADC & AHRS	No	
	PFD/MFD/EIS	ADC & AHRS, EIS	N/A	
	MFD/MFD/EIS	EIS	No	
		ADC & AHRS, EIS	Yes	PFD / MFD / EIS
	MFD/MFD	None	No	
		ADC & AHRS	Yes	PFD / MFD
		ADC & AHRS, EIS	Yes	PFD / MFD / EIS
700P	PFD	ADC & AHRS, EIS	Yes	PFD / EIS
		ADC & AHRS	No	
	MFD	None	No	
		ADC & AHRS	Yes	PFD
		ADC & AHRS, EIS	Yes	PFD / EIS
	EIS	ADC & AHRS, EIS	Yes	PFD / EIS
		EIS	No	
	MFD/EIS [1]	EIS	Yes	PFD / EIS
		ADC & AHRS, EIS	Yes	PFD / EIS
700L	PFD	ADC & AHRS	No	
	MFD/EIS [1]	EIS		
	EIS [1]	EIS		

Notes:

[1] Not applicable for Turboprop EIS.

Figure 5-5 Example GDU 700P Composite PFD/Reciprocating EIS Backup Mode

5.2.5.3 GDU 1060/1210 Specific Settings

The settings for the display must take into account the PFD/ADI location requirements in Section 4.4.3.

Unit Configuration

When EIS is available (because a GEA is interfaced and configured), but opted not to be displayed on a GDU 1060/1210, the display can function as a backup EIS display in the event of the dedicated EIS display failure. Refer to display backup configuration in Section 5.2.5.2 to configure the required interfaces for the backup function. The Unit Configuration settings include a preview of the display based on the settings that are selected and the interfaces that have been configured, as shown in Figure 5-6. When the unit is configured as a PFD/MFD or an MFD/MFD, touch Press to Enlarge to resize that window from 40% to 60% of the display.

- PFD – Select the placement (Right Side or Left Side) of the PFD within the GDU 1060/1210 screen.
- MFD Resize – Select the option (Pilot Control or Disabled) to allow or disallow the pilot to resize the MFD in Normal mode. Automatically configured as Pilot Control when configured as MFD/MFD and as Disabled when configured as PFD/MFD/EIS.
- EIS – Select the placement of the EIS strip (Right Side or Left Side) for either normal or display backup mode within the GDU 1060/1210 screen.

Figure 5-6 GDU 1060 Unit Configuration Settings
(GDU 1210 Similar)

5.2.5.4 GDU 700P Specific Settings

Unit Configuration

Assign the GDU 700P to function as either PFD, MFD, EIS, or MFD/EIS (single-engine piston only). This determines the function of the display in the primary mode

Standby PFD

Make this selection only if the GDU 700P will be functioning as a backup PFD. The Standby PFD selection is only available if the GDU Location is set to Pilot and the Unit Configuration is set to MFD, EIS, or MFD/EIS. A GDU 700P configured for twin-engine turboprop EIS cannot be configured as a Standby PFD. Refer to the display backup configuration in Section 5.2.5.2 for the required interfaces for the backup function.

Figure 5-7 GDU 700P Unit Configuration

5.2.5.5 GDU 700L Specific Settings

Unit Configuration

Assign the GDU 700L to function as either PFD, EIS, or MFD/EIS (single-engine piston only). This determines the function of the display in Normal mode.

Figure 5-8 GDU 700L Unit Configuration Options

5.3 Updates/System Info

The Updates/System Info page allows access to the selections shown in Figure 5-9.

Figure 5-9 Updates/System Info Page

5.3.1 System Info

This provides the option to review a configured device’s detailed information, such as serial number, part number, and software versions. LRUs must be configured in order for their data to be displayed.

5.3.2 Software Upload

The GDU ID must be properly configured prior to loading software to the GDU. After loading software to the GDU, configure all interfaced LRUs. New software cannot be loaded to any interfaced LRU until all system configuration and calibration items have been completed for that specific LRU.

The Software Upload page is used to update the software for the GDU and any LRUs directly interfaced to the GDU. The approved software version and part numbers can be found in the most recent revision of Equipment List, G500/G600 TXi Part 23 AML STC (P/N 005-00795-D1).

> NOTE
> When downgrading a GDU with current software v3.80 or later to a software version prior to 3.80, refer to G500/G600 TXi Part 23 AML STC Maintenance Manual with ICA (P/N 190-01717-B1) for procedure to avoid loss of configuration and calibration data.

5.3.2.1 Updating Software for Units with Software v3.80 or Later

Software updates must be accomplished using the following procedure:

1. Create a Software Update SD card using approved software and instructions available on the Dealer Resource Center.

   > NOTE
   > All software updates must be contained in a region file named “file.rgn” on the root directory of the Software Update SD card.

2. Insert the Software Update SD card into the top (GDU 700P/1060) or left (GDU 700L/1210) slot.
3. Insert an Installer Unlock card into the other slot of the GDU (software v3.00 or later).
4. Power on the display in Configuration mode.
5. Touch Updates/System Info !’ Software Upload

6. Select the LRUs to upload software to from the list of available LRUs. Alternatively, touch Select All to select all listed LRUs.

   NOTE
   Only LRUs that are configured in the system and currently online will be selectable for software updates.

7. Touch Update.
8. Follow the on-screen display instructions.
9. Once complete, save the configuration per Section 5.1.3.

5.3.2.2 Updating Software to v3.80 or Later for Units with Software Prior to v3.80

When updating a GDU with a current software version prior to 3.80 to software v3.80 or later, the software updates must be accomplished using the following procedure:

1. Create a Software Update SD card using approved software and instructions available on the Dealer Resource Center.

   NOTE
   All software updates must be contained in a region file named “file.rgn” on the root directory of the Software Update SD card.

2. Insert a Software Update SD card into the top (GDU 700P/1060) or left (GDU 700L/1210) slot.
3. Power on the display in Configuration mode.
4. Follow the on-screen prompts to update the configuration module format. Once complete, restart the GDU in Configuration mode.
5. Touch Updates / System Info !’ Software Upload
6. Select the LRUs to upload software to from the list of available LRUs.

   NOTE
   Only LRUs that are configured in the system and currently online will be selectable for software updates.

7. Touch Update.
8. Follow the on-screen display instructions.
9. Once complete, save the configuration per Section 5.1.3.

5.4 Interfaces

This section specifies the configuration and setup of the G500/G600 TXi system in order to interface to all required and optional equipment allowed by this AML STC. Each display must be individually configured to match all applicable interconnects (refer to Appendix B) that defines each display as either a PFD, MFD, EIS, or a combination display.

The Interfaces page allows the GDU to be configured to interface LRUs installed as part of the G500/G600 TXi system, as well as previously installed equipment approved under this STC. The configuration for a particular display will vary based on the following:

- GDU Type and Unit Configuration (i.e., PFD, MFD, EIS, or combination).
- Feature enablement options selected.
- Database options selected.

Each installed display must be individually configured based on the equipment that is interfaced. Configuration is done by selecting the Interface type (default is set to None) and making the appropriate selections.

Depending on the Interface that is selected, further actions may be required in the Ports/Config column by touching Settings. If further action is required for an interface, a yellow triangle with an exclamation point will appear next to the interface, as shown in Figure 5-10 for the GPS 2 interface. The yellow triangle can represent a non-standard configuration or an error in the configuration. Verify the configuration settings are properly set. A silver check-mark will appear next to an interface for configuration items that are accepted, unless a non-standard configuration has been selected, in which case the yellow triangle will remain displayed.

Figure 5-10 Interface and Ports/Config Selections

For interfaces that configure an ARINC 429 output, the GDU automatically sets speed to high or low for the applicable LRU. This does not apply to the General Purpose ARINC 429 outputs. For interfaces that configure an ARINC 429 input, the GDU automatically detects and configures speed to high or low.

When two ADC/AHRS (or ADAHRS), GPS, NAV, or LRUs are interfaced, the #1 LRU must be configured as #1 for all GDUs and the #2 LRU must be configured as #2 for all GDUs.

If a G500/G600 TXi system includes two GDUs and two AHRS units, configure the units as follows (refer to Figure 5-11 as an example):

- Interface Pilot location PFD directly to AHRS #1 and AHRS #2 configured as Other via HSDB.
- PFD #2, or the backup PFD, would be configured to AHRS #1 as Other via HSDB and configured to AHRS #2 directly.

Pilot PFD PFD #2

Figure 5-11 Dual AHRS / Dual PFD Config Example

The configuration tables in this section show available interface options as well as available ports. The port assignments must be made to match the aircraft wiring.

> NOTE
> The port availability at each LRU configuration will vary depending on previous configuration actions. If a port was previously configured for another LRU, it will be grayed out and not available for selection.

5.4.1 GDUs Installed

The GDUs Installed section on the Interfaces page is used to uniquely identify which GDU 700/1060/1210 units are installed in the G500/G600 TXi system when multiple GDUs are installed, allowing data to be shared between displays via HSDB.

Verify the following for each installed display:

- A GDU ID must have been assigned to each installed display, as described in Section 5.2.
- The GDUs Installed section will denote the current assigned GDU ID for each display with a grayed out selection. Examples are outlined with a red square in Figure 5-12.

Verify that all GDUs in the system are powered up in Configuration mode prior to performing the following steps:

1. Touch Interfaces.
2. In the GDUs Installed section, select all of the GDU IDs that are present in the system.
3. Repeat steps 1 and 2 on each display installed in the system.

Figure 5-12 shows an example of a system with three displays, where the selections are as follows:

%æGDU 2 and GDU 3 are selected on GDU 1.
%æGDU 1 and GDU 3 are selected on GDU 2 (the GDU 2 will be auto selected).
%æGDU 1 and GDU 2 are selected on GDU 3 (the GDU 3 will be auto selected).

Figure 5-12 Example System with Three Displays

Each GDU that is properly configured and online will be indicated by a green-filled box on the Configuration mode home page, as shown in Figure 5-13.

Figure 5-13 Devices Online

5.4.2 ADC

Configure each GDU displaying PFD information in either primary or reversionary backup mode for ADC 1 and ADC 2 (if equipped) per the settings in Table 5-2.

Table 5-2 ADC Interfaces and Configuration Settings

ADC	Interface	Ports/Config - Settings	Port Numbers	Notes
GDU 7XX ADC Module	Integrated ADC	Self-Detect		
Air Data from other GDU	Other GDU via HSDB			
GI 275 ADAHRS	GI 275 via HSDB			[4]
GSU 75( )	GSU 75	ARINC 429 IN	1 Thru 11	[1] [3]
		RS-232 RX/TX	1 Thru 8	
GDC 72	GDC 72	ARINC 429 IN	1 Thru 11	
		RS-232 RX/TX	1 Thru 8	
GDC 74( )	GDC 74	ARINC 429 IN	1 Thru 11	
		RS-232 RX/TX	1 Thru 8	
		OAT Probe		Must show as Valid
AM-250	Third-Party ADC	ARINC 429 IN	1 Thru 11	[2]

Notes:

[1] The ARINC 429 IN is shared with the AHRS portion of the GSU 75.

[2] Refer to Appendix G for TBM aircraft RVSM considerations.

[3] For GSU 75B units, perform step 2a in the next paragraph and verify the configuration on the ADC now says, “GSU75 Socata TBM 850 G600 2”.

[4] For single PFD installations only, a secondary GI 275 ADI (co-pilot's ADI) may be configured as a second ADC source, if it maintains its own heading source.

The configuration data on the GDU and the Garmin ADC unit must match. If the configuration data does not match, or is missing from one of the units, use the following procedure:

1. Touch Interfaces ➔ Settings (ADC).
2. In the Manage Configuration Data section, perform **one** of the following actions:
   a. If the display has a valid configuration and the ADC is missing configuration data, touch Copy GDU to ADC.
   b. If the ADC has a valid configuration and the display is missing configuration data, touch Copy ADC to GDU.

ASI Type

The ASI Type setting allows the GDU to apply a calibration used by a replaced airspeed indicator. Cessna 190/195 aircraft replacing a Kollsman 586CK-0187 indicator must set the ASI Type to Kollsman (586CK-0187). All other aircraft must set the ASI Type to Standard.

Filtering Time Constants

Air Data Filtering Constants must be set to their default values per this STC. If necessary to verify default values, complete the following procedure:

1. Touch Interfaces → Settings (ADC) → Filtering Time Constants.
2. Verify the following values:

- Airspeed Lo - 0.15 SEC
- Airspeed Hi - 0.15 SEC
- Airspeed Transition to Lo -
- Airspeed Transition to Hi - 999 KT
- Vertical Speed - 1.300 SEC
- Airspeed Trend - 3.050 SEC
- Airspeed Trend DR - 0.900

Inertial Airspeed Trend

The Inertial Airspeed Trend is an optional setting that enables inertial-aided airspeed trend data from the air data computer. This allows the airspeed trend to be more responsive by incorporating acceleration from the AHRS.

5.4.3 AHRS

Configure each GDU displaying PFD information in either primary or reversionary backup mode for AHRS 1 and AHRS 2 (if equipped) per Table 5-3.

Table 5-3 AHRS Interfaces and Configuration Settings

AHRS	Interface	Ports/Config - Settings	Ports	Notes
Integrated AHRS	Integrated AHRS	GMU RS-485	1	[1] [3] [5]
		GMU RS-232 TX	1	
AHRS from other GDU	Other GDU via HSDB			
GI 275 ADAHRS	GI 275 via HSDB			[6]
GSU 75( )	GSU 75	ARINC 429 IN	1 Thru 11	[2] [4] [5]
		RS-232 RX/TX	1 Thru 8	[4] [5]
GRS 77( )	GRS 77	ARINC 429 IN	1 Thru 11	
		RS-232 RX/TX	1 Thru 8	
GRS 79( )	GRS 79	ARINC 429 IN	1 Thru 11	[4] [5]
		RS-232 RX/TX	1 Thru 8	[4] [5]

Notes:

[1] Need to be configured prior to configuring the GAD ARINC 429 OUT.

[2] The ARINC 429 IN is shared with the ADC portion of the GSU 75 (if set previously, button will be grayed out).

[3] Must be configured for Port 1 if used.

[4] The orientation of the GSU 75 and GRS 79 must be configured.

[5] Leave Advanced Settings AHRS, GPS Antenna, and Center or Gravity locations set to their default value.

[6] For single PFD installations only, a secondary GI 275 ADI (co-pilot's ADI) may be configured as a second AHRS source, if it maintains its own heading source.

The configuration data on the GDU and the Garmin AHRS unit must match. If the configuration data does not match, or is missing from one of the units, use the following procedure:

1. Touch Interfaces → Settings (AHRS).
2. Perform one of the following actions:
   a. If the display has a valid configuration and the AHRS is missing configuration data, touch Copy GDU to AHRS.
   b. If the AHRS has a valid configuration and the display is missing configuration data, touch Copy AHRS to GDU.

Instantaneous Vertical Speed

Instantaneous Vertical Speed is an optional setting that enables the PFD’s use of inertially-aided vertical speed when available. This allows for a smoothed depiction of the VSI.

Heading Preset Mode

Heading Preset Mode must be configured as Disabled per this STC.

Extended Z Acceleration

Extended Z Acceleration must be configured off per this STC.

5.4.4 EIS

Configure the EIS per the settings in Table 5-4.

Table 5-4 EIS/GEA Configuration Settings

EIS	Interface	Ports/Config - Settings	Port Numbers
GEA 110	GEA 110	RS-485 RX/TX	2 or 3
	Other GDU via HSDB		
GEA 71B Enhanced [1]	GEA 71B Enhanced	RS-485 RX/TX	2 or 3
	Other GDU via HSDB		

Notes:

[1] Turbine EIS must be enabled for GEA 71B Enhanced to appear as an interface option. Refer to Section 5.2.3 for feature enablement.

5.4.5 GPS

Configure the GPS interfaces per the settings in Table 5-5.

Table 5-5 GPS Interfaces and Configuration Settings

GPS	Interface	Ports/Config - Settings	Port Numbers	Notes
Garmin GTN 625/635/650 Garmin GTN 625Xi/635Xi/650Xi	GTN 6XX			
Garmin GTN 725/750 Garmin GTN 725Xi/750Xi	GTN 7XX			
Garmin GPS 175	GPS 175			
Garmin GNC 355	GNC 355			
Garmin GNX 375	GNX 375			
Garmin GPS 400W GNC 420W GNS 430W	GNS 4XXW	ARINC 429 IN	1 Thru 11	[1] [2]
		ARINC 429 OUT	1 Thru 5	
		RS-232 RX	1 Thru 8	
Garmin GPS 500W GNS 530W	GNS 5XXW	ARINC 429 IN	1 Thru 11	
		ARINC 429 OUT	1 Thru 5	
		RS-232 RX	1 Thru 8	
Garmin GNS 480	GNS 480	ARINC 429 IN	1 Thru 11	
		ARINC 429 OUT	1 Thru 5	
		RS-232 RX	1 and 2	

Notes:

[1] Standalone EIS - Set GPS 1 (if interfaced) to match installed aircraft wiring.

[2] Non-standalone EIS - On the EIS display, set GPS 1 and GPS 2 to None (default setting).

TAWS Installations

If a single TAWS-equipped GTN 6XX/7XX/Xi or GNS 500W Series unit is installed, it must be configured as GPS 1. All TAWS-equipped units must be connected to the audio panel.

GNS 400W/500W Series and GNS 480 Installations

In dual PFD/dual GNS installations, the ARINC 429 OUT port cannot be set from GPS #2; the ARINC 429 OUT button is disabled. This port is automatically set based on the ARINC 429 OUT port selection made on GPS #1.

Set the remaining ports for both GDUs per the associated aircraft wiring diagram.

5.4.6 NAV

Configure each GDU for a NAV source per the settings in Table 5-6.

Table 5-6 NAV Interfaces and Configuration Settings

NAV	Interface	Ports/Config - Settings	Port Numbers
Garmin GTN 650 Garmin GTN 650Xi	GTN 650		
Garmin GTN 750 Garmin GTN 750Xi	GTN 750		
GNC 215 [1]	GNC 215 (HSDB)		
	GNC 215 (RS-232)	RS-232 RX/TX	1 Thru 8
	ARINC 429 NAV	ARINC 429 IN	1 Thru 11
NAV data from other GDU	Other GDU via HSDB		
Garmin GNS 430W/530W	GNS 430/530	ARINC 429 IN	1 Thru 11
Garmin GNS 480	GNS 480	ARINC 429 IN	1 Thru 11
Garmin GNC 255 [2]	GNC 255	RS-232 RX/TX	1 Thru 8
	ARINC 429 NAV	ARINC 429 IN	1 Thru 11
Garmin SL 30	SL 30	RS-232 RX/TX	1 Thru 8
Collins VIR-32/33 Honeywell KN-53/KX-155/KX-155A/ KX-165/KX-165A	Composite NAV	ILS Energize 1	Discrete In Lo 1 Thru 8

Notes:

[1] Configure as either HSDB, RS-232, or ARINC 429, not more than one. HSDB is the preferred connection. If not connected via HSDB, then Rs-232 is preferred. Use the ARINC 429 connection in aircraft that have the GNC 215 RS-232 connected to a GPS source.

[2] Configure as either RS-232 or ARINC 429, not both. RS-232 is the preferred connection. Use the ARINC 429 connection in aircraft that have the GNC 215 RS-232 connected to a GPS source.

5.4.7 Adapter

The GAD 43(e) must be configured on the PFD before certain autopilot and DME settings are available for configuration. In a single GAD 43(e) installation, configuration is accomplished on the pilot PFD. In a dual GAD 43e installation, each GAD 43e is configured on the GDU to which it is interfaced. Configure the adapter interface(s) per the settings in Table 5-7.

Table 5-7 Adapter Interfaces and Configuration Settings

Adapter	Interface	Ports/Config - Settings	Port Numbers	Notes
GAD 43	GAD 43	RS-232 RX/TX	1 Thru 8	
		ARINC 429 OUT	1 Thru 5	[1]
		Anticipator Algorithm	On (Default)	
		GAD Update		[2]
GAD 43e	GAD 43e	RS-232 RX/TX	1 Thru 8	
		ARINC 429 OUT	1 Thru 5	[1]
		ARINC 429 IN	1 Thru 11	
		Anticipator Algorithm	On (Default)	
		GAD Update		[2]
GAD 43e from other GDU	Other GDU via HSDB			[3]

Notes:

[1] Only approved when PFD is configured for Integrated ADAHRS.

[2] Select GAD Update to configure the GAD for the selected port numbers.

[3] Select Other GDU via HSDB when there are dual PFDs in the TXi system and the GAD 43e is interfaced to the cross-side GDU.

5.4.8 ADF

If configuring for a King KR 85, the GAD 43e configuration must be accomplished in accordance with Section 5.4.7 before configuring the ADF interface(s). Configure the ADF interface(s) per the settings in Table 5-8.

Table 5-8 ADF Interfaces and Configuration Settings

ADF	Interface	Ports/Config - Settings	Port Numbers		Notes
Honeywell KR 87, KDF 806 Collins ADF-60A/B	DC SIN/COS	ADF Valid	GDU Discrete In Hi	1 Thru 4	
King KR 85	Synchro (GAD 43e)				
ADF data from Other GDU	Other GDU via HSDB				[1]

Notes:

[1] Select Other GDU via HSDB when there are dual PFDs in the TXi system and the ADF is interfaced to the cross-side GDU.

5.4.9 DME

The GAD 43e configuration must be accomplished in accordance with Section 5.4.7 before configuring the DME interface. Configure the DME interface(s) per the settings in Table 5-9.

Table 5-9 DME Interfaces and Configuration Settings

DME	Interface	Ports/Config - Settings		Notes
Collins DME-42	DME-40/42	Tuning Format	CSDB	[1]
			Parallel	
		Tuning Source	NAV 1	[2]
			NAV 2	[3]
			NAV 1 and NAV 2	[4] [5] [6]
Collins DME-442/4000	DME-442/4000	Tuning Source	NAV 1	[2]
			NAV 2	[3]
			NAV 1 and NAV 2	[4] [5]
		GAD Update		[7]
Honeywell KN62/64	KN62/64	GAD Update		[7] [8]
Honeywell KDM 706 KN 63	KN 63	Tuning Format	Serial	[9]
			2X5	
			BCD	
			SLIP	
		Tuning Source	NAV 1	[2]
			NAV 2	[3]
			NAV 1 and NAV 2	[4] [5]
DME data from other GDU	Other GDU via HSDB			[10]

Notes:

[1] Set the tuning format (CSDB or Parallel) to match the NAV radio interconnect.

[2] Select NAV 1 if VHF NAV Radio #1 is able to channel the DME.

[3] Select TNAV 2 if VHF NAV Radio #2 is able to channel the DME.

[4] Select NAV 1 and NAV 2 if both VHF NAV Radios are able to channel the DME.

[5] Selection is only available when one DME is installed in the TXi system.

[6] Selection is only available when Tuning Format is set to Parallel.

[7] Select GAD Update to configure GAD for the selected DME.

[8] Only a single KN 62/64 may be interfaced to the TXi system.

[9] Set the tuning format (Serial, 2x5, BCD, or SLIP) to match the tuning method used by the NAV radios to channel the DME.

[10] Select Other GDU via HSDB when there are dual PFDs in the TXi system and the DME is interfaced to the cross-side GDU.

5.4.10 Radar Altimeter

Configure the RAD ALT per the settings in Table 5-10.

Table 5-10 RAD ALT Interfaces and Configuration Settings

Radar Altimeter	Interface	Ports/Config - Settings	Port Numbers		Notes
Garmin GRA 55/5500	GRA 55/5500	ARINC 429 IN	1 Thru 11		[1] [2] [4]
Collins RAC 870	RAC 870	ARINC 429 IN	1 Thru 11		[1] [2] [4]
		RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2]
Free Flight RA-4500	RA 4500	ARINC 429 IN	1 Thru 11		[1] [2] [4]
Honeywell KRA 405B	KRA 405B	ARINC 429 IN	1 Thru 11		[1] [2] [4]
		RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2]
Collins ALT-4000	ALT-4000	ARINC 429 IN	1 Thru 11		[1] [2] [4]
		RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2]
Rad Alt from other GDU	Other GDU via HSDB				[1] [2] [3]
Honeywell KRA 405					[1] [2] [3]
Collins ALT-50A ALT-55B	KRA 405/ALT-55	RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2]
Honeywell KRA10/10A	King KRA 10/10A	RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2] [3]
Sperry AA-100 (RT-100)	Sperry AA-100	RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2] [3]
AA-100A (RT-100A)	Sperry AA-100A	RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2] [3]
AA-200	Sperry AA-200	RAD ALT Test	Discrete Out Lo	1 Thru 13	[1] [2] [3]

Notes:

[1] If dual GDU PFDs are installed, the RAD ALT must be enabled on both PFDs.

[2] A RAD ALT can be connected to both GDUs or to a single GDU (either pilot or co-pilot). Control of and data from a RAD ALT can be crossfilled to the another GDU via HSDB. Discrete wires cannot be crossfilled over HSDB; in order for a GDU to initiate the 'push-to-test' function, the GDU must have a discrete pin wired and configured.

[3] Radar altitude information is sent from the GAD 43e to the GDU over an ARINC 429 interface. This data may be provided to one or both GDUs in a dual GDU installation.

[4] Requires Radar Altimeter (ARINC 429) enablement. Refer to Table 3-8 for part number and Section 5.2.3 for feature enablement instructions.

5.4.11 Autopilot

All of the autopilots approved for installation per the G500/G600 TXi STC have a dedicated selection/setting on the GDU. Make the applicable selections for autopilots listed in this section (organized in the order of display presentation). During the G500/G600 TXi system configuration, leave the GPSS Scaler to HDG set to the default value. If unsure whether the Scaler to HDG is set to the default setting, all the settings can be reset to default by selecting any other autopilot and then re-selecting the installed autopilot.

NOTE
Changing the Autopilot Interface setting will reset all autopilot settings to default.

5.4.11.1 Avidyne DFC90

The Avidyne DFC90 is only compatible with Cirrus SR20/SR22/SR22T aircraft. The autopilot interfaces with the GDU using dual RS-232 connections. The Avidyne DFC90 feature enablement must be enabled per Section 5.2.3 in order to be selected as an autopilot interface option. The DFC90 configuration settings are automatically defaulted according to the configured Cirrus aircraft model. Refer to Avidyne DFC Series Autopilot Installation Manual to verify settings are configured correctly.

Table 5-11 Avidyne DFC90 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings		Value / Port Numbers
Avidyne DFC90	Avidyne DFC90	Flight Director	Avidyne DFC90 Other GDU via HSDB	
		Mode Annunciation	Present Other GDU via HSDB	
		RS-232 RX/TX (PFD/Navigation)		1 Thru 8
		RS-23 TX (ADC/AHRS)		1 Thru 8
		Pitch Servo	Not Installed Installed Not Applicable	
		Pitch Linkage		
		Pitch Trim Servo		
		Pitch Trim Linkage		
		Roll Servo		
		Roll Linkage		
		Buzzer Volume	0 Thru 11	
		50% Flaps Extended Speed	[1]	

Notes:

[1] Refer to POH for 50% Flaps Extended Speed setting.

5.4.11.2 Bendix

The autopilot computer must be configured for a Collins PN-101 (FD-112C/V) HSI in order to have the correct heading and course error (datum) signals; otherwise, additional adjustments will be required. Refer to Bendix I.B. 20004 M-4D AFCS Installation Manual, Section II, paragraph 7, Flight Check and Calibration, for adjustments that can be made in the 5487G or 5485A flight controller. Refer to Bendix I.B. 20004 Section II, paragraph 5, Post Installation Check-Out, for additional information.

Table 5-12 Bendix M-4C/M-4D Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Bendix M-4C/M-4D	Bendix M-4C/M-4D	HSI Type	Collins PN 101			
		Flight Director	Bendix DH-841	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

5.4.11.3 Century

When interfacing with Century autopilots, the GAD 43e P/N 011-02349-00 or GAD 43 P/N 011-01970-01 must be used. Do not use GAD 43 P/N 011-01970-00. Configuration values for all Century autopilots connected with radio couplers will vary based on which radio coupler is used.

Table 5-13 Century 2000 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century 2000	Century 2000	HSI Type	Century NSD 360 DC		
		Flight Director	Century FD		
			Other GDU via HSDB		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		Gyro Emulation	Century/M(2000)		
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Table 5-14 Century 21/31 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century 21/31	Century 21/31	HSI Type	Century NSD 360 DC		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		Gyro Emulation	Century/M(2000)		
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Table 5-15 Century 41 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century 41	Century 41	HSI Type	Century NSD 360 DC		
		Flight Director	Century FD		
			Other GDU via HSDB		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		Gyro Emulation	Century/M(2000)		
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Table 5-16 Century II/III Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century II / III	Century II / III	HSI Type [1]	Century 1C388C/MC		
			Century 1C388/M		
			Century 1C388-2		
			Century 1C388-3		
		GPSS	PFD Button	Scaler to HDG Value	1.0

Notes:

[1] Select the HSI Type based on the corresponding installed radio coupler.

Table 5-17 Century IV (AC) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century IV (AC)	Century IV (AC)	HSI Type	Narco HSI 100		
			Collins PN 101 [1]		
		Flight Director	Century FD		
			Other GDU via HSDB		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Notes:

[1] Select this HSI Type if a Collins PN 101 was previously installed; otherwise, select the Narco HSI 100.

Table 5-18 Century IV (DC) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Century IV (DC)	Century IV (DC)	HSI Type	Century IV		
			Century NSD 360 DC [1]		
		Flight Director	Century FD		
			Other GDU via HSDB		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Notes:

[1] Select this HSI Type if a Century NSD 360 DC was previously installed; otherwise, select the Century IV.

5.4.11.4 Cessna

Select Cessna AC or Cessna DC based upon whether the autopilot is strapped for AC or DC course/heading error inputs.

The NAV 1/NAV 2 lighted switch legend must be obliterated from view so that any NAV source indication on the autopilot mode controller is not seen.

Table 5-19 Cessna AC Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Cessna 300 IFCS 400 IFCS 400B 800 IFCS	Cessna AC	HSI Type	Cessna G-502A/B		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13

Table 5-20 Cessna DC Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Cessna 300B IFCS 400B IFCS 800B IFCS 1000 IFCS	Cessna DC	HSI Type	Cessna G-504A			
		Flight Director	Cessna 400B/800B IFCS [3]	FD Enable	Discrete In Hi	1 Thru 4
		Flight Director	Cessna 1000 IFCS [4]	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect	AA-801			
		Gyro Emulation	Cessna/ARC G519 [1]			
			Sperry VG-14A [2]			
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

Notes:

[1] For Gyro Emulation on 400B, 300B/400B/800B IFCS, and 1000 IFCS with 1000A Series Computer Amplifier P/Ns 46210-0001, -0002, and -0102 (i.e., installations that previously utilized a panel mount gyro such as G-895B, G-1050A, G-550A, or G-518B).

[2] For Gyro Emulation on 1000 IFCS with 1000A Series Computer Amplifier P/Ns 46210-0004, -0005, and -0105 (i.e., installations that previously utilized a remote mount gyro such as a VG-14(A)).

[3] For Cessna 300B/400B/800B IFCS.

[4] For Cessna 1000 IFCS.

5.4.11.5 Collins

Table 5-21 Collins APS-65 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Collins APS-65	Collins APS-65	HSI Type	Collins HSI-84			
		Flight Director	Collins FD-109	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect [1] [2]	UI 5506L-S			
		Gyro Emulation	Collins 332D-11T			
		Yaw/Baro Corrections	Yaw Rate (mV/deg/sec)		200	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

Notes:

[1] The GAD 43e cannot be used to provide the Altitude Preselector function with any APS-65 computer that currently uses the PRE-80 Altitude Preselector.

[2] The autopilot must use the UI 5506L-S Altitude Preselector in order to support the Altitude Preselect function.

Table 5-22 Collins APS-106/107 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Collins AP-106/107	Collins AP-106/107	HSI Type	Collins PN 101			
		Flight Director	Collins FD-106	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Gyro Emulation	Collins 332D-11T			
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

5.4.11.6 Garmin

Table 5-23 Garmin GFC 500 (with G5/G3X) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value/Port Numbers
Garmin GFC 500	GFC 500	Flight Director	ARINC 429 RX	ARINC 429 IN	1 Thru 5 [1]
		Mode Annunciation	Present	ARINC 429 IN	1 Thru 5 [1]
		ARINC 429 TX (PFD)			1 Thru 5
		ARINC 429 TX (Navigation)			1 Thru 5

Notes:

[1] ARINC 429 IN port numbers for flight director and mode annunciation are configured to be the same. Choosing a port number on one of them will automatically update the other.

Table 5-24 Garmin GFC 500 (with GI 275) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings		Value/Port Numbers
Garmin GFC 500	GFC 500	Flight Director	GI 275 via HSDB	
		Mode Annunciation	Present	

Table 5-25 Garmin GFC 600 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings		Value/Port Numbers
Garmin GFC 600	GFC 600	Mode Annunciation	Present [1]	
		Yaw Trim State [2]	Discrete Out Lo	1 Thru 13

Notes:

[1] The GDU displaying the pilot's PFD must have its GDU ID set to GDU 1.

[2] Configure for select aircraft models only. Refer to the GFC 600 STC SA01844WI for additional information.

5.4.11.7 Honeywell (Bendix/King)

Table 5-26 Honeywell (Bendix/King) KAP 150/KFC 150 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Honeywell (Bendix/King) KAP 150 KFC 150	King KAP 150/ KFC 150	HSI Type	King KI 525			
		Flight Director	King KI 256	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect	King KAS 297B		Gain Strap	#1 Thru #4 [1]
		Gyro Emulation	King KI-256			
			Heading Only			
		Yaw or Baro Corrections	Baro Corrections [2]			
			Yaw Rate (mV/deg/sec)		200	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13	

Notes:

[1] KAS 297B Gain Straps #1 through #4 selections must correspond to the grounded gain straps (P297B1-16/17/34/22) of the KAS 297B being replaced. If a KAS 297B was not previously installed, refer to manufacturer's data for KAS 297B strapping for the specific aircraft model.

[2] The Gyro Emulation Type must be set to King KI-256 in order to use the Baro Corrections.

Table 5-27 Honeywell (Bendix/King) KAP 100/200 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Honeywell (Bendix/King) KAP 100/200	King KAP100/ KAP 200	HSI Type	King KI 525		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		Altitude Preselect	None [1]		
		Gyro Emulation	King KI-256		
		Yaw/Baro Corrections	None [2]		
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13

Notes:

[1] The Altitude Preselect is not available for the KAP 100/200 system; the default setting of None must be selected.

[2] The Yaw/Baro Corrections is not available for the KAP 100/200 system; the default setting of None must be selected.

Table 5-28 Honeywell (Bendix/King) KAP 140 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
Honeywell (Bendix/King) KAP 140	King KAP 140	HSI Type	King KI 525		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		Yaw/Baro Corrections	Baro Corrections		
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13
		GPS Select	Discrete Out Lo		1 Thru 13

Table 5-29 Honeywell (Bendix/King) KFC 225 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Port Numbers	
Honeywell (Bendix/King) KFC 225	King KFC 225	HSI Type	King KI 525			
		Flight Director	King KFC 225	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		Mode Annunciation	Present		ARINC 429 IN	1 Thru 11
			Other GDU via HSDB			
		Gyro Emulation	King KI-256			
		Yaw/Baro Corrections	Baro Corrections			
		ARINC 429 TX			1 Thru 5	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13	
		GPS Select	Discrete Out Lo		1 Thru 13	

Table 5-30 Honeywell (Bendix/King) KFC 250-4” HSI Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Honeywell (Bendix/King) KFC 250 w/065-5015-XX Adapter Card (4" inst.)	King KFC 250-4” HSI	HSI Type [1]	King KI 525			
			King KPI 552			
		Flight Director	King KCI 310	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect	King KAS 297 [2]			
		Gyro Emulation	King KVG 350			
		Yaw/Baro Corrections	Yaw Rate (mV/deg/sec)		200	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13	

Notes:

[1] If the King autopilot is installed with a KA 52 or KA 57 autopilot adapter, the TYPE must be set to King KI 525; otherwise, set to King KPI 552.

[2] In order to support Alt Preselect, the KC 295 flight control computer must be serial number 4460 or higher. Alt Preselect is not available for 14VDC aircraft.

Table 5-31 Honeywell (Bendix/King) KFC 200/250-3” HSI Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Honeywell (Bendix/King) KFC 200 KFC 250 w/065-5016-XX Adapter Card (3" inst.)	King KFC 200/250 -3” HSI	HSI Type	King KI 525			
		Flight Director	King KI 256 [1]	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect	King KAS 297 [2]			
		Gyro Emulation	King KI-256 [3]			
			King KVG 350 [4]			
		Yaw/Baro Corrections	Yaw Rate (mV/deg/sec)		200	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13	

Notes:

[1] If the KI 255/256/258 ADI was previously installed, the King KI 256 must be selected.

[2] In order to support Alt Preselect, the KC 295 flight control computer must be serial number 4460 or higher. Alt preselect is not available for 14VDC aircraft.

[3] For KFC 200 and KCP 299 computers with the 065-5016-XX Adapter card (i.e., for installations that previously utilized the KI 255/256/KG 258 ADI).

[4] For KCP 299 computers with the 065-5015-XX Adapter card (i.e., for installations that previously utilized the KVG 350 remote gyro).

Table 5-32 Honeywell (Bendix/King) KFC 275/325 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Honeywell (Bendix/King) KFC 275/325 (KCP 220 computers with -12 & below or -15 & above)	King KFC 275/ 325	HSI Type [1]	King KI 525			
			King KPI 552			
		Flight Director	King KCI 310 [2]	FD Enable	Discrete In Hi	1 Thru 4
			King KI 256 [3]	FD Enable	Discrete In Hi	1 Thru 4
			ARINC 429 RX [4]		1 Thru 11	
			Other GDU via HSDB			
		GPSS	PFD Button [6]	Scaler to HDG Value	1.0	
		Altitude Preselect	King KAS 297C #1 [8] [9]			
			King KAS 297C #2 [7]			
		Mode Annunciation	Present		ARINC 429 IN	1 Thru 11
			Other GDU via HSDB			
		Gyro Emulation [11]	King KI-256			
			King KVG 350			
		Yaw/Baro Corrections	Baro Corrections [10]			
			Yaw Rate (mV/deg/sec)		200	
		ARINC 429 TX [5]			1 Thru 5	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		HDG/CRS Datum Valid	Discrete Out Lo		1 Thru 13	

Notes:

[1] If the King autopilot is installed with a KA 52 or KA 57 Autopilot Adapter, the HSI Type must be set to King KI 525; otherwise, set to King KPI 552.

[2] For KFC 325 AP with KCP 220 computers -12 and earlier, set Flight Director to King KCI 310.

[3] For KFC 275 AP with KCP 220 computers -12 and earlier, set Flight Director to King KI 256.

[4] For KFC 275 and 325 Autopilots with KCP 220 computers -15 and later, set Flight Director to ARINC 429.

[5] The ARINC 429 TX is only supported by KCP 220 computers that are -15 and later, where the GPSS selection must be set to None.

[6] For KCP 220 computers -12 and earlier, set GPSS selection to PFD button.

[7] For KCP 220 computers with P/N 065-00064-0008 (TBM 700) and the KAS 297C being replaced with GAIN STRAP #1 (P297C1-16) being not grounded and GAIN STRAP #2 through #4 (P297C1-17/34/22) being grounded.

[8] For KFC 325 AP with KCP 220 computers with P/N 065-00064-0015 (PC-12).

[9] For KCP 220 computers with P/N 065-00064-0008 (TBM 700), and the KAS 297C being replaced with GAIN STRAP #1 through #4 (P297C1-16/17/34/22) being not grounded.

[10] Baro Corrections approved for KFC 275 installations only.

[11] For KFC 275 installations, select King KI-256. For KFC 325 installations, select KVG 350.

Table 5-33 Honeywell (Bendix/King) KFC 300 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Honeywell (Bendix/King) KFC 300	King KFC 300	HSI Type	Collins PN 101			
			King KPI 552 [1]			
		Flight Director	King KCI 310	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Gyro Emulation	King KVG 350			
		Yaw/Baro Corrections	Yaw Rate (mV/deg/sec)		200	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		AP Backcourse	Discrete Out Hi		1 Thru 4	

Notes:

[1] Select this HSI Type if a King KPI 552 was previously installed; otherwise, select Collins PN 101.

5.4.11.8 Sperry

Table 5-34 Sperry SPZ-200A/500 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
Sperry SPZ-200A/ 500	Sperry SPZ-200A/ 500	HSI Type	Sperry RD-550			
		Flight Director	Sperry SPZ-200A/500	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Gyro Emulation	None [1]			
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

Notes:

[1] The Gyro Emulation setting on the GDU is default set to Sperry VG-14A and must be changed to None.

5.4.11.9 S-TEC

If the autopilot has been previously configured to operate with the NSD-360, the HSI Type must be set to Century NSD 360 DC and not King KI-525. If the autopilot is configured to operate with any other heading system, it must be configured to either NSD-360 or KI-525 (KCS-55) in order to be compatible with G500/G600 TXi.

The S-TEC 1500/2100 requires a dual PFD installation and for the feature enablement to be enabled per Section 5.2.3. The flight director must not be displayed on an ADI on the copilot’s side.

Table 5-35 S-TEC 20/30/40/50/60-1 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers
S-TEC 20/30/40/50/60-1	S-TEC 20/30/40/50/60-1	HSI Type [1]	King KI 525		
			Century NSD 360 DC		
		GPSS	PFD Button	Scaler to HDG Value	1.0
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13
		GPS Select	Discrete Out Lo		1 Thru 13

Notes:

[1] If the autopilot was previously configured with “NSD-360,” the HSI Type must be set to Century NSD 360 DC.

Table 5-36 S-TEC 60-2/65/60 PSS Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings				Value / Port Numbers
S-TEC 60-2/65/60 PSS	S-TEC 60-2/65/60 PSS	HSI Type [1]	King KI 525			
			Century NSD 360 DC			
		Flight Director [2]	S-TEC ST-670	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS [2]	PFD Button	Scaler to HDG Value		1.0
		Altitude Preselect	S-TEC ST-360			
		ILS/GPS Approach	Discrete Out Lo			1 Thru 13

Notes:

[1] If the autopilot was previously configured with “NSD-360,” the HSI Type must be set to Century NSD 360 DC.

[2] Flight Director and GPSS functionality is not supported by the 60 PSS.

Table 5-37 S-TEC 55X Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Port Numbers	
S-TEC 55X	S-TEC 55X	HSI Type [1]	King KI 525			
			Century NSD 360 DC			
		Flight Director	S-TEC 55X	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		Altitude Preselect	S-TEC ST-360			
			S-TEC SA-200 [2]		RS-485 RX/TX	2 Thru 5
		ARINC 429 TX			1 Thru 5	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		GPS Annunciate	Discrete Out Lo		1 Thru 13	
		GPS Select	Discrete Out Lo		1 Thru 13	

Notes:

[1] If the autopilot was previously configured with “NSD-360,” the HSI Type must be set to Century NSD 360 DC.

[2] Requires purchased enablement and feature enabled in Configuration mode when emulating an S-TEC SA-200 Altitude Selector/Alerter (P/N 01282) over RS-485.

Table 5-38 S-TEC 55 Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Value / Port Numbers	
S-TEC 55	S-TEC 55	HSI Type [1]	King KI 525			
			Century NSD 360 DC			
		Flight Director	S-TEC 55X	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		GPSS	PFD Button	Scaler to HDG Value	1.0	
		Altitude Preselect	S-TEC ST-360			
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	
		GPS Select	Discrete Out Lo		1 Thru 13	

Notes:

[1] If the autopilot was previously configured with “NSD-360,” the HSI Type must be set to Century NSD 360 DC.

Table 5-39 S-TEC 1500/2100 (AC) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Port Numbers	
S-TEC 1500/2100 AC [1]	S-TEC 1500/2100 AC	HSI Type	Magic EFIS			
		Flight Director	S-TEC 1500/2100	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		ARINC 429 TX			1 Thru 5	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

Notes:

[1] S-TEC 1500/2100 Computers with P/Ns 01304-01 or 01304-03 are AC computers.

Table 5-40 S-TEC 1500/2100 (DC) Autopilot Configuration

Autopilot	Interface	Ports/Config - Settings			Port Numbers	
S-TEC 1500/2100 DC [1]	S-TEC 1500/2100 DC	HSI Type	Avidyne EFIS			
		Flight Director	S-TEC 1500/2100	FD Enable	Discrete In Hi	1 Thru 4
			Other GDU via HSDB			
		ARINC 429 TX			1 Thru 5	
		ILS/GPS Approach	Discrete Out Lo		1 Thru 13	

Notes:

[1] S-TEC 1500/2100 Computers with P/Ns 01304-02, 01304-04, and 01304-07 are DC computers.

5.4.12 Backup Battery (GDU 700P Only)

Configure the Backup Battery Interface per the settings in Table 5-41.

Table 5-41 Backup Battery Configuration Settings

Backup Battery	Interface
GBB 54	GBB 54

5.4.13 Standby Instrument

Configure the standby instrument per the settings in Table 5-42. If a GAD 29(B) is not installed as part of the G5 installation, then there is no interface between the G5 and TXi, and these settings are not required.

Table 5-42 G5 Interfaces and Configuration Settings

Standby Instrument	Interface	Ports/Config - Settings	Port Numbers	Notes
Garmin G5	G5	ARINC 429 IN	1 Thru 11	[1]
		ARINC 429 OUT (PFD)	1 Thru 5	[1]
		ARINC 429 OUT (Navigation)	1 Thru 5	[1]
Garmin GI 275	GI 275			

Notes:

[1] Configure the correct port number based on which ARINC 429 port is connected to the GAD 29(B).

5.4.14 ADS-B

Configure the available ADS-B In source per the settings in Table 5-43.

Table 5-43 ADS-B In Configuration Settings

ADS-B Device	Interface
GDL 88	GDL 88
GTX 345	GTX 345
GTS 8XX	GTS ADS-B
GNX 375	GNX 375

5.4.15 Traffic

Configure the available Traffic interface to match the particular installation per Table 5-44. The Traffic interface button will not be selectable if an ADS-B interface is configured. Refer to the appropriate Garmin ADS-B STC installation manual for more information on installation and configuration requirements for systems with multiple traffic systems.

Table 5-44 Traffic System Configuration Settings

Traffic	Interface	Ports/Config - Settings				Port Numbers	Notes
GTS 8XX TAS/TCAS (ARINC)	GTS TAS/ TCAS (ARINC)	ARINC 429 IN				1 Thru 11	
		Control Traffic	De-select				
			Select	TAS STBY/ON	Discrete Out Lo	1 Thru 13	[1]
				TAS TEST	Discrete Out Lo	1 Thru 13	
Traffic from other GDU	Other GDU via HSDB						
L-3 Avionics SKY497	Skywatch	ARINC 429 IN				1 Thru 11	
		Control Traffic	De-select				
			Select	TAS STBY/ON	Discrete Out Lo	1 Thru 13	[1]
				TAS TEST	Discrete Out Lo	1 Thru 13	
L-3 Avionics SKY899	Skywatch HP	ARINC 429 IN				1 Thru 11	
		Control Traffic	De-select				
			Select	TAS STBY/ON	Discrete Out Lo	1 Thru 13	[1]
				TAS TEST	Discrete Out Lo	1 Thru 13	
Bendix-King Honeywell KTA 870 KMH 880	KTA 870/ KMH 820	ARINC 429 IN				1 Thru 11	
		Control Traffic	De-select				
			Select	TAS STBY/ON	Discrete Out Lo	1 Thru 13	[1]
				TAS TEST	Discrete Out Lo	1 Thru 13	
Bendix-King Honeywell KTA 970 KMH 980	KTA 970/ KMH 920	ARINC 429 IN				1 Thru 11	
		Control Traffic	De-select				
			Select	TAS STBY/ON	Discrete Out Lo	1 Thru 13	[1]
				TAS TEST	Discrete Out Lo	1 Thru 13	
Garmin GTX 33/330/335	GTX 33/330/ 335	ARINC 429 IN				1 Thru 11	
		TAS STBY/ON			Discrete Out Lo	1 Thru 13	[1]

Traffic	Interface	Ports/Config - Settings	Port Numbers	Notes
Avidyne (Ryan) TAS 600/610/620 (9900BX)	Avidyne TAS/Ryan TCAD	ARINC 429 IN	1 Thru 11	[1]

Notes:

[1] Refer to Section 5.4.26 to configure the ARINC 429 OUT port to provide data to the traffic system, if applicable.

5.4.16 GDL 60

Configure the GDL 60 interface per the settings in Table 5-45.

Table 5-45 GDL 60 Configuration Settings

Data Link	Interface	Ports/Config - Settings	Port Numbers	Notes
GDL 60	GDL 60	HSDB Port	1 Thru 4	
		Other LRU		

5.4.17 GDL 69

Configure the GDL 69( ) interface per the settings in Table 5-46.

Table 5-46 GDL 69 Configuration Settings

Data Link	Interface	Ports/Config - Settings	Port Numbers	Notes
GDL 69/69A/69E	GDL 69	Self-Detect		[1] [2] [4]
	GDL 69A	Self-Detect		[1] [2] [3] [4]

Notes:

[1] Enter the Antenna Gain value and Cable Loss values per GDL 69/69A Installation Manual Section 3.4.5.3 (P/N 190-00355-02).

[2] If a GDL 69 is connected to the GDU, the audio output will become muted whenever the airspeed is below the Mute Speed value. If this setting is de-selected, the GDL 69 will never be muted based upon airspeed.

[3] If a GDL 69A is installed, it is permissible to configure it as a GDL 69. In this case, the XM weather from the GDL 69A will be displayed on the GDU 700P/1060/1210, but no audio control will be available on the GDU.

[4] Touch the Update GDL 69 Config any time changes are made to the GDL 69 configuration on the TXi.

5.4.18 GSR 56

Configure the GSR 56 interface per the settings in Table 5-47.

Table 5-47 GSR 56 Configuration Settings

Data Link	Interface	Ports/Config - Settings	Port Numbers	
GSR 56	GSR 56	RS-232 RX/TX	1 Thru 8	
		Status In	Discrete In Lo	1 Thru 8
		Remote Power	Discrete Out Lo	1 Thru 13
		Connext Weather	De-select Select	
GSR data from other GDU	Other GDU via HSDB			
GSR data from other LRU via HSDB	GTN via HSDB	Connext Weather	De-select Select	
	GDL 60 via HSDB	Connext Weather	De-select Select	

5.4.19 WX Radar

Verify the weather radar feature is enabled per Section 5.2.3 before attempting to configure the Weather Radar interface per the settings in Table 5-48. The Weather Radar interface can only be configured on the MFD.

Table 5-48 Weather Radar Configuration Settings

WX Radar	Interface	Ports/Config - Settings	Port Numbers	Notes
Garmin GWX 68	GWX 68			[3]
Garmin GWX 70	GWX 70			[3]
Garmin GWX 75	GWX 75			[3]
Garmin GWX 8000	GWX 8000			[1] [3]
Collins RTA 800	RTA 800	ARINC 429 TX	1 Thru 5	[2] [3]
		Discrete Out Lo	1 Thru 13	
Bendix/King ART 2000/2100	ART 2000/ ART 2100	ARINC 429 TX	1 Thru 5	[2] [3] [4]
		Discrete Out Lo	1 Thru 13	
Honeywell (Bendix/King) RDS 82/RS 181A RDS 81/RS 811A	RS 181A	ARINC 429 TX	1 Thru 5	[2] [3]
		Discrete Out Lo	1 Thru 13	
	RS 811A	ARINC 429 TX	1 Thru 5	[2] [3]
		Discrete Out Lo	1 Thru 13	

Notes:

[1] Requires the GWX 8000 Enablement. Refer to Table 3-8 for part number and Section 5.2.3 for enablement instructions.

[2] Requires the Third Party Radar (A708) Enablement. Refer to Table 3-8 for part number and Section 5.2.3 for enablement instructions.

[3] Refer to Appendix C for information on configuring the weather radar system and what weather radar functions are supported by the GDU 700P/1060/1210.

[4] Refer to Section 5.4.26 to configure the ARINC 429 OUT port to provide data to the weather radar if using ARINC 429 stabilization with integrated ADAHRS.

5.4.20 Stormscope

Configure the Stormscope interface per the settings in Table 5-49.

Table 5-49 Stormscope Configuration Settings

Stormscope	Interface	Ports/Config - Settings		Port Numbers		Notes
WX-500	WX-500	Control Stormscope	De-select	RS-232 RX	1 Thru 8	
			Select	RS-232 RX/TX	1 Thru 8	
WX-1000E	WX-1000			ARINC 429 TX	1 Thru 11	[1]
Wired to other GDU	Other GDU via HSDB					

Notes:

[1] Refer to Section 5.4.26 to configure the ARINC 429 OUT port to provide heading data to the Stormscope.

5.4.21 TAWS Annunciator

Configure the TAWS Annunciator (if applicable) per Table 5-50.

Table 5-50 TAWS Annunciator Settings

TAWS Annunciator	Interface	Ports/Config - Settings		Port Numbers
Various	Present	TAWS Caution	Discrete Out Lo	1 Thru 13
			Discrete Out Hi	1 Thru 4
		TAWS Warning	Discrete Out Lo	1 Thru 13
			Discrete Out Hi	1 Thru 4
		TAWS Inhibit	Discrete Out Lo	1 Thru 13
			Discrete Out Hi	1 Thru 4
		TAWS N/A	Discrete Out Lo	1 Thru 13
			Discrete Out Hi	1 Thru 4

5.4.22 Video Input

Requires the Video Enablement. Refer to Table 3-8 for part number and Section 5.2.3 for enablement instructions.

Table 5-51 Video Input Configuration Settings

Video	Interface	Ports/Config - Settings		Notes
Video 1 Video 2 Video 3 Video 4	Composite Video 1 Composite Video 2 HD Video 1 HD Video 2	Brightness 0-100%		[1]
		Contrast 0-100%		
		Saturation 0-100%		
		Rotation	0, 90, 180, 270	[2]
		Format	NTSC or PAL	[3]

Notes:

[1] These will be the default settings. Set as applicable for desired image quality.

[2] Set rotation for desired video display orientation based on device installation.

[3] Set to correct output format of video device.

5.4.23 PFD Controller

Configure the PFD Controller interface per the settings in Table 5-52.

Table 5-52 PFD Controller Configuration Settings

PFD Controller	Interface	Ports/Config - Settings	Port Numbers
GCU 485	GCU 485	RS-232 RX/TX	1 Thru 8

5.4.24 AOA

Refer to model-specific data in Appendix D or appropriate Installation Manual Addendum, if applicable.

5.4.25 Fast/Slow Control

Refer to model-specific data in Appendix D or appropriate Installation Manual Addendum, if applicable.

5.4.26 General Purpose ARINC 429 (A429) Out

Configure the General Purpose A429 port(s) and speeds per the settings in Table 5-53. The A429 Out from the GDU may be provided to the following LRUs. Refer to Appendix C for required information on each LRU settings.

Table 5-53 General Purpose A429 Output Settings

General Purpose A429 Out	Interface	Ports/Config - Settings	Port Numbers	
A429 Out	Present	General Purpose 1 #1	1 Thru 5	Low
				High
		General Purpose 1 #2	1 Thru 5	Low
				High
		General Purpose 2 #1	1 Thru 5	Low
				High
		General Purpose 2 #2	1 Thru 5	Low
				High
		General Purpose AHRS	1 Thru 5	High
		General Purpose ADC	1 Thru 5	Low
		General Purpose ADAHRS	1 Thru 5	High

Notes:

- GTX 33/330/335/345 - GP 1 A429 Low Speed OR GP 2 A429 Low Speed.
- GTS 8XX - GP 1 A429 Low Speed or High Speed.
- TAS 6XX/9900BX - GP 1 A429 Low Speed or High Speed.
- TRC 497/899 - GP 1 A429 Low Speed OR GP 2 A429 Low Speed.
- KTA 810/910, KMH 820/920 - GP 2 A429 Low Speed AND Integrated AHRS/ADAHRS High Speed OR GP2 A429 High Speed.
- ART 2000/2100 - GP 2 A429 High Speed OR Integrated AHRS/ADAHRS High Speed.
- Meggitt (S-TEC/Cobham) Engine Instrumentation Display System - GP 1, DFCS 1, or DFCS 4 High Speed.
- Meggitt (Cobham) EIDS - GP1 A429 High Speed OR GP2 A429 High Speed.
- WX-1000E - GP 1 A429 Low Speed OR GP 2 A429 Low Speed.

5.4.27 General Purpose RS-232 Out

Configure the General Purpose serial port per the settings in Table 5-54.

Table 5-54 General Purpose Serial Port Setting

General Purpose RS-232 Out	Interface	Ports/Config - Settings	Port Numbers
Garmin GTX 32/327	Present	GTX 32/327 TX (RS-232 TX)	1 Thru 8

5.4.28 Discrete In

Configure the Discrete Input interfaces to match the particular aircraft installation per Table 5-55. Each discrete can be given a custom name that will be referenced throughout configuration. In addition to the commonly used discretes that appear on each settings page, custom engine discretes may be configured to assign a discrete port to various features.

Table 5-55 Discrete Input Settings

Interface	Configuration				
	Type	Discrete	Ports/Settings [10]		Notes
Present	Avionics	Audio Inhibit [7] Display Backup [8] Day/Night Terrain Inhibit EDM Activate	GDU Discrete In Lo	1 Thru 8	
			GDU Discrete In Hi	1 Thru 4	
	Airframe [11]	Flap Up Flap Position 1 [12] Gear Not Down and Locked	GDU Discrete In Lo	1 Thru 8	[5]
			GDU Discrete In Hi	1 Thru 4	
	Engine [1]	Engine Discrete In ( ) [6] Left Fuel Tank Right Fuel Tank	GDU Discrete In Lo	1 Thru 8	
			GDU Discrete In Hi	1 Thru 4	
			GEA Discrete In	1 Thru 5	[3] [5]
				1A Thru 20A	[4] [5]
	Engine [2]	Inertial Separator Open ECS Bleed Valve Closed Ignition On Starter On [9] Torque Limiter Reverse Thrust	GDU Discrete In Lo	1 Thru 8	
			GDU Discrete In Hi	1 Thru 4	
			GEA Discrete In	1A Thru 20A	[4] [5]

Notes:

[1] Requires a GEA 110 or a GEA 71B Enhanced with Turbine EIS enabled and Engine Type set to Turboprop.

[2] Requires a GEA 71B Enhanced with Turbine EIS enabled and Engine Type set to Turboprop.

[3] GEA 110 ports.

[4] GEA 71B Enhanced ports.

[5] Select Discrete Hi or Lo in accordance with the interfaced system in the aircraft.

[6] An additional Engine Discrete In/Out settings row is created each time the previous row has been configured.

[7] Audio Inhibit discrete input inhibits GDU 700P/1060/1210 aural alerts when a higher priority system is playing audio messages.

[8] Display Backup discrete input only required when a display backup switch is used to control Normal mode and Display Backup mode.

[9] Starter On discrete input required for advanced lighting bus configuration.

[10] With software v3.22 or later, separate discretes are available for each engine, if applicable.

[11] Discrete configuration required for Stabilized Approach feature. Refer to Section 5.5.9.

[12] Configuring a Flap Position discrete will make the next position available for configuration.

5.4.29 Discrete Out

Configure the Discrete Output interfaces to match the particular aircraft installation per Table 5-56.

Each discrete can be given a custom name that will be referenced throughout configuration. In addition to the commonly used discretes that appear on each settings page, custom discretes may be configured to assign a discrete port to various features.

If Gauge Driven Discretes are being configured for an output that is not explicitly included in Table 5-56, the corresponding discrete must be configured by touching Engine Discrete Out ( ) and naming it according to the function that the discrete is serving. Refer to Section 5.7.3.3.5 for configuration instructions. Refer to Section 1.2.7.5 for a list of gauges that support Gauge Driven Discretes.

Configuring the Fuel Imbalance Monitor also requires configuring additional discrete outputs. Touch Engine Discrete Out ( ) and name it according to the desired fuel imbalance condition. Refer to Section 5.7.4.2.2 for Fuel Imbalance Monitor configuration instructions. The discrete outputs are limited to aircraft and systems specified in Appendix D.

Table 5-56 Discrete Output Settings

Interface	Configuration				
	Type	Discrete	Ports/Settings		Notes
Present	Avionics	Terrain Audio Actv	GDU Discrete Out Lo	1 Thru 13	
			GDU Discrete Out Hi	1 Thru 4	
	Engine [1]	Engine Discrete Out ( ) [6] Engine Caution [7] Engine Warning [7]	GDU Discrete Out Lo	1 Thru 13	
			GDU Discrete Out Hi	1 Thru 4	
			GEA Annunciate Lo	1 Thru 2	[3] [5]
				1A Thru 9A	[4] [5]
	Engine [2]	ITT Torque	GDU Discrete Out Lo	1 Thru 4	
			GDU Discrete Out Hi	1 Thru 13	
			GEA Discrete Out	1A Thru 9A	[4] [5]

Notes:

[1] Requires a GEA 110 or a GEA 71B Enhanced with Turbine EIS enabled and Engine Type set to Turboprop.

[2] Requires a GEA 71B Enhanced with Turbine EIS enabled and Engine Type set to Turboprop.

[3] GEA 110 ports.

[4] GEA 71B Enhanced ports.

[5] Select Discrete Hi or Lo in accordance with the interfaced system in the aircraft.

[6] An additional Engine Discrete In/Out settings row is created each time the previous row has been configured.

[7] “Blink Rate” must be configured as Stay On.

5.4.30 Airspeed Switch

Configure the Airspeed Switch #1, #2, #3, #4, or #5 to match the particular aircraft installation per Table 5-57.

Table 5-57 Airspeed Switch Settings

Airspeed Switch	Interface	Ports/Config - Settings	Port Numbers/Selections		Notes
Airspeed Switch	Present	Discrete Port	Discrete Out Lo	1 Thru 13	[1]
			Discrete Out Hi	1 Thru 4	
		Active Condition	Less than		
			Greater than		
		Airspeed Threshold	[2]		
		No Data State	Inactive		
			Active		
		Airspeed Value	0-999 kts		
		Test Discrete	Discrete Out Lo	1 Thru 13	
			Discrete Out Hi	1 Thru 4	
		Airspeed Offset	0-4 kts		

Notes:

[1] Set Discrete Lo or Hi in accordance with the interfaced aural alert system manufacturer's data.

[2] Selections are Manual Entry, Vne/Vmo/Mmo, Vs0, Vs1, Vfe, Vno, Glide/Vref, Vr, Vx/V1, Vy/V2, Vle, Vmca, Vyse.

5.4.31 Miscellaneous

5.4.31.1 Meggitt (Cobham) EIDS

Table 5-58 Meggitt (Cobham) EIDS Configuration Settings

Interface	Ports/Config - Settings			Speed/Port Numbers	
General Purpose A429 Out [2]	Present	General Purpose [1]		High	1 Thru 5
Autopilot [2]	Other Autopilot	ARINC 429 TX	DFCS 1		1 Thru 5
Discrete Out	Present	Avionics	GPS 1/2 Source	GDU Discrete Out Lo	1 Thru 13

Notes:

[1] Only one of the General Purpose ports needs to be configured for the Meggitt EIDS.

[2] General Purpose configuration is recommended. However, if all General Purpose ports are already used, and no autopilot is using DFCS 1, then DFCS 1 may be configured for Meggitt EIDS use.

5.4.32 Flight Stream 510

Refer to Section 3.3.13 for Flight Stream description and limitations. Flight Stream 510 setup is performed with the GDU in Normal mode.

Figure 5-14 Flight Stream Setup Page

Bluetooth Setup

1. Insert the Flight Stream 510 into the unit.
2. Ensure the GDU is in Normal mode.
3. TouchSystem!’   Flight Stream to enable Pairing mode for the Flight Stream 510.
4. Enable Bluetooth connectivity on the PED. Once enabled, the Flight Stream will be viewable in the list of available devices. The default Flight Stream Bluetooth name is “Flight Stream” followed by the three-digit model number (i.e., 510) and then the last four digits of the MAC address (e.g., Flight Stream 510 4000). To change the Bluetooth name:
   %æKeypad entry is available for displays with an MFD.
   %æPFD only displays: Use control knobs to enter the Bluetooth names. Keypad entry is not available.
   %æEIS only displays: Bluetooth name is set up using the Garmin Pilot application. Manual data entry is not required.
5. Select the Flight Stream from the list of available Bluetooth devices on the PED. A pop-up window will appear on the Units screen to confirm the new Bluetooth pairing.
6. TouchYesto finish pairing the device.

NOTE

If unable to make a Bluetooth connection, restart the GDU and repeat steps 3 through 7. Bluetooth setup only needs to be performed when pairing with a device for the first time. Once a connection is established with a Bluetooth device, the Flight Stream automatically connects to the Bluetooth device upon power-up.

7. On the GDU, verify the PED displays as a paired device.
8. On the Garmin Pilot application, touch Connext.
9. Touch Flight Stream 510 under the Devices tab.
10. Verify that the Flight Stream 510 is connected.

Managing Paired Devices

The Flight Stream can connect to up to two Bluetooth devices simultaneously. The Flight Stream saves up to 13 Bluetooth device pairings. Auto Reconnect enables automatic connection between the GDU and paired device when the units are within range of each other.

Figure 5-15 Flight Stream 510 Bluetooth Pairing

Wi-Fi Setup

Connect to the Flight Stream 510 Wi-Fi network:

1. Enter the required SSID and password using the setup keys.
2. PFD only displays: Use control knobs for SSID and password entry. Keypad entry is not available.

Figure 5-16 Flight Stream 510 Wi-Fi Setup

5.5 GDU Setup

The following subsections address the configuration of a G500/G600 TXi system with PFD, MFD, and EIS capability. Sections not applicable to a specific installation may be skipped (e.g., EIS section may be skipped if no EIS is installed).

Screen shots in this section are provided for reference only and may vary depending on installed hardware and software versions. Configure the following to match the specific G500/G600 TXi system installation. Figure 5-17 shows the GDU ( ) Setup page. Certain selections on this page will vary depending on the configuration settings that have been made based on the instructions in the preceding sections.

Figure 5-17 GDU ( ) Setup Page

5.5.1 PFD Configuration

(Home!’ GDU Setup !’ PFD Configuration)

The vertical speed, altitude, and airspeed units must be configured to match the instruments currently installed in the airplane and designated in the POH/AFM.

Figure 5-18 shows the related configuration settings/selections on the GDU( ) PFD Configuration page on a GDU 1060 unit (GDU 1210 similar). Figure 5-19 shows the related configuration settings/selections on the GDU( ) PFD Configuration page on a GDU 700P unit. Figure 5-20 shows the related configuration settings/selections on the GDU( ) PFD Configuration page on a GDU 700L unit.

Figure 5-18 GDU 1060 PFD Configuration Page

Figure 5-19 GDU 700P PFD Configuration Page

Figure 5-20 GDU 700L PFD Configuration Page

5.5.1.1 Vertical Speed Settings

The VS Range must be set to match the range on the VS indicator that was previously installed. The VS Range can be configured for ±2000 FPM, ±3000 FPM, ±4000 FPM, or ±6000 FPM. If a VS indicator was not previously installed, and a VS Range is not specified in the POH/AFM, set the VS Range to ±2000 FPM.

5.5.1.2 Altitude Settings

Set ALT Units and ALT Range to match the instruments currently installed in the aircraft and designated in the POH/AFM. The ALT Bug setting displays the altitude bug on the altitude tape. The ALT Bug must be enabled for the altitude preselect function to be available.

5.5.1.3 Airspeed Settings

Airspeeds used to configure the IAS tape must be taken from the AFM/POH, aircraft TCDS, or other approved STC applicable to the specific aircraft being modified.

Information and settings available on the Airspeed Configuration page (shown in Figure 5-21) for a GDU 700P will vary depending on whether the Configuration Type field on the GDU ( ) PFD Configuration page is set to Basic or Advanced.

Figure 5-21 Basic and Advanced Airspeed Configuration Type Settings

The Basic setting values are generally found in the AFM/POH for each aircraft. Refer to Table 5-59 for detailed information on obtaining Basic setting airspeed values. Refer to Appendix E for information on obtaining Advanced setting airspeed values.

CAUTION

The Configuration Type setting on the GDU ( ) PFD Configuration page must be set to "Advanced" for aircraft that have an altitude-variable maximum airspeed limitation.

If the AFM or POH lists both indicated airspeed (IAS) and calibrated airspeed (CAS), use IAS values.

Table 5-59 Airframe Specific Configuration Data - Configuration Type Basic Setting

Item	Description	AFM/POH Ref. Section	Note
Vs0	Stall speed in landing configuration	2 - Limitations	Bottom of white arc on ASI.
Vs1	Stall speed in a specific flight configuration	2 - Limitations	Bottom of green arc on ASI.
Vfe	Maximum flap extended speed	2 - Limitations	Top of white arc on ASI; if more than one flap speed is given, use the lowest speed.
Vno	Normal operating speed	2 - Limitations	Top of green arc/bottom of yellow arc on ASI; if the aircraft has no yellow arc but has a green arc that extends to the red radial, set Vno to the same value as Vne.
Vne	Never exceed speed	2 - Limitations	Red radial on ASI.
GLIDE	Glide speed	3 - Emergency Procedures	Optional. Set to 0 kt (off) if not listed in the AFM/POH.
Vr	Rotation speed	4 - Normal Procedures	Optional. Typically set to rotation speed. Set to 0 kt (off) if not listed in the AFM/POH.
Vx	Best angle of climb speed	4 - Normal Procedures	Optional. There are two speeds listed for gear up/gear down; use the speed listed for gear down. Set to 0 kt (off) if not listed in AFM/POH.
Vy	Best rate of climb speed	4 - Normal Procedures	Optional. There are two speeds listed for gear up/gear down; use the speed listed for gear up. Set to 0 kt (off) if not listed in the AFM/POH.
Vle	Maximum landing gear extended speed	2 - Limitations	Set to 0 kt (off) for fixed gear aircraft.
Vmca	Minimum controllable airspeed for twin-engine aircraft with only one engine operational	2 - Limitations	Lower red radial on ASI of light twins. Set to 0 kt (off) for single engine aircraft.
Vyse	Single engine best rate of climb speed for a twin-engine aircraft	3 - Emergency Procedures OR 4 - Normal Procedures	Blue radial on ASI of light twins. Set to 0 kt (off) for single engine aircraft.
Vne (Power Off)	Applicable to rotary wing aircraft only	N/A	Set to OFF.

5.5.1.4 General PFD Settings

Roll Pointer

The Roll Pointer setting must be configured to match the standby ADI. The attitude indicator on the PFD includes two pointers (on the Roll Pointer). When banking, one pointer indicates the aircraft bank angle and the other pointer remains stationary. The pointer that indicates bank angle can either point up (sky pointer) or down (fixed pointer).

Heading Miscompare

The Heading Miscompare setting must be enabled to monitor the heading value on the PFD in installations with dual AHRS.

G-Meter Settings

Configure the optional G-Meter range and markings to match the removed indicator and/or the airframe limitations designated in the POH/AFM.

The G-Meter Filter Time Constant adjusts the smoothing of the G-Meter display. The filter time constant must be set between 0.05 and 1.00. A larger number results in more smoothing but more lag. A smaller number will give a more responsive but less smooth reading. The default setting of 1.00 is recommended for normal category aircraft. For aerobatic aircraft, a setting in the range of 0.05 to 0.30 is recommended.

MAG Anomaly Indication

The MAG Anomaly Indication setting sets the color of the “MAG ANOM” annunciation. Set per the POH/AFM. If no direction exists, leave as default (i.e., Yellow).

ACFT Symbol

The ACFT Symbol settings sets the type of symbol displayed on the ADI during Normal mode. The options are Chevron, Standard, or Pilot Control. If Pilot Control is selected, the style can be changed in Normal mode. This setting is replaced by the Flight Director setting if an autopilot is interfaced to the system.

Flight Director

Set to Single Cue, Dual Cue, or Pilot Control. Configuration of Dual Cue is limited to installations of Garmin GFC 500 and non-Garmin autopilots that support and approve dual cue flight director under the third-party autopilot STC. Configuration of Dual Cue with Garmin GFC 600 requires approval from GFC 600 STC SA01844WI.

BARO Side SYNC

The BARO Side SYNC setting synchronizes barometric altitude correction between displays. May be set to either Always On or Pilot Control.

CDI Side SYNC

The CDI Side SYNC setting synchronizes CDI source selection between multiple displays. May be set to either Always On or Pilot Control.

> NOTE
> CDI Side SYNC must be set to Always On if an interfaced GTN 6XX/7XX/Xi has CDI Key enabled.

Altitude Alerter

NOTE
The Altitude Alerter must be set to “Off” if another altitude alerter system is to be retained in the aircraft.

The Altitude Alerter setting is dependent upon the climb performance of the aircraft and whether or not a separate altitude alerting system is already installed. It enables visual and aural altitude alerting functions of the GDU 700P/1060/1210 and will provide alerts when approaching the selected altitude. The optional settings are:

- Off: This selection disables all visual and aural altitude alerting functions of the GDU 700P/1060/1210.
- 200 FT Chime: This selection must be used for aircraft with a VS Range set to 2,000 FPM. The aural chime will sound when approaching within 200 feet of the selected altitude.
- 1000 FT Chime: This selection must be used for aircraft with a VS Range set to 3,000 FPM or 4,000 FPM. The aural chime will sound when approaching within 1000 feet of the selected altitude.

Airspeed Trend Time

The Airspeed Trend Time setting determines the length of the magenta trend vector on the PFD airspeed tape. Must be configured to 6 SEC.

ALT Knob Coarse/Fine

Set to Disabled, Always On, or Pilot Control. When set to Always On, the selected altitude knob provides coarse and fine (when rotated and pressed) increments. When set to Pilot Control, the pilot can enable Push Sync or Coarse/Fine functionality for the selected altitude knob in Normal mode.

NOTE
When interfaced to a GCU 485 (P/N 011-03582-06 or -16), this setting is automatically set to Always On and is not configurable. When interfaced to any other GCU 485 model, this setting must be set to “Disabled”.

PFD Knob Default

Sets the default data field for the PFD knob on power on and after 10 seconds of inactivity. Must be configured to Heading.

Auto ADC/AHRS Source Switching

Allows the PFD(s) to automatically switch ADC/AHRS sources in case of an abnormality or failure.

Extreme Attitude Declutter

Removes non-essential PFD elements when the aircraft is in extreme attitudes (+30°/-20° pitch angle or >65° bank angle). Set to Always On. Selections of Pilot Select or Disabled are not approved per this STC.

5.5.2 Aircraft Icon

(Home → GDU Setup → Aircraft Icon)

- Icon Color – Select White as the display option.
- Ownship Icon – Select one of the following appropriate icon to match the aircraft type:
  - Low Wing Prop, High Wing Prop, Turboprop, Twin Engine Prop, High Visibility Arrow, Basic Aircraft.

5.5.3 Lighting

(Home → GDU Setup → Lighting)

This section outlines the preferred method for configuring the GDU lighting in the aircraft.

The G500/G600 TXi STC allows display/key lighting control with or without the Enhanced Lighting mode selection. The Enhanced Lighting mode allows a more customized lighting curve.

Configure Day Mode Curve is the only setting available for configuration when Enhanced Lighting mode is selected. Figure 5-22 shows the GDU( ) Lighting Configuration page.

> NOTE
>
> All lighting conditions must be considered when configuring the display for photocell only. If the aircraft is equipped with an instrument panel flood or wash lighting, the installation must be evaluated to verify the flood/wash lighting does not affect the GDU lighting level. If the GDU lighting level is adversely affected by the flood/wash lighting, then the GDU must be connected to a lighting bus to control the display brightness.

> NOTE
>
> For installations in turboprop aircraft that use the lighting bus, the starter discrete input must be wired and configured. Refer to Section 5.4.28 for details on configuring the starter discrete.

Figure 5-22 GDU 700/1060 Lighting Configuration Page

Figure 5-23 GDU 1210 Lighting Configuration Page

To accurately configure the lighting, the ability to adjust ambient light conditions is required. The installer must have the means to simulate complete darkness in the cockpit. Simply covering the photocells may not allow the installer's eye to properly judge whether the display brightness is too bright or too dim for night use. The following tables must be used for lighting configuration:

- Table 5-60 - Photocell for display/keys (Enhanced Lighting mode de-selected).
- Table 5-61 - Lighting bus for display/keys (Enhanced Lighting mode de-selected).
- Table 5-62 - Photocell for display/keys (Enhanced Lighting mode selected).
- Table 5-63 - Lighting Bus for display (Enhanced Lighting mode selected).
- Table 5-64 - Lighting Bus for keys (Enhanced Lighting mode selected).

Photocell Configuration - Enhanced Lighting De-selected

The Display Lighting and the Keys Lighting curves must be set individually as noted per Table 5-60.

Table 5-60 Photocell Configuration Procedure

Step	Photocell Curve - Display	Photocell Curve - Keys
1	Under Source Selection, choose Photocell as the source for Display Source.	Under Source Selection, choose Photocell as the source for Keys Source.
2	Under Source Configuration, set the Photocell Response Time - Brightening to a low level (e.g., 2 sec) to allow the display to adjust more quickly to light conditions. For GDU 1210 only: Under Source Configuration, set the Photocell Response Time - Dimming to a low level (e.g., 2 sec) to allow the display to adjust more quickly to light conditions.	
3	Select Configure Curve in Display Lighting. It is recommended to start configuration with a Slope of 50%. This can be done by either manually moving the curve or by selecting Slope and entering the value (refer to Figure 5-24).	Select Configure Curve in Keys Lighting. It is recommended to start configuration with a Slope of 50%. This can be done by either manually moving the curve or by selecting Slope and entering the value (similar to Figure 5-24 for display lighting).
4	Turn on all instrument panel and cockpit lighting.	
5	Minimize photocell input levels by simulating night conditions in the cockpit. Complete steps 6 - 11 with the goal of achieving consistency between all cockpit lighting.	
6	If the display is too bright, lower the Min Level and/or adjust the lighting Slope to achieve the desired brightness.	If the keys are too bright, lower the Min Level and/or adjust the lighting Slope to achieve the desired brightness.
7	If the display is not bright enough, raise the Min Level to the desired brightness.	If the keys are not bright enough, raise the Min Level to the desired brightness.
8	Simulate direct maximum sunlight in the cockpit.	
9	Verify that the display produces maximum brightness on the backlight output level. Adjust Max Level if needed.	Adjust the Keys Lighting - Cutoff percentage as shown in Figure 5-25, such that the key backlighting is switched off in bright light.
10	Simulate average sunlight conditions/average input conditions in the cockpit (average Source Input Level%).	
11	If the display is too bright or too dim, vary the Slope and/or Offset to achieve desired brightness at mid-range lighting input levels.	If the key is too bright or too dim, vary the Slope and/or Offset to achieve desired brightness at mid-range lighting input levels.
12	Verify that the lighting Slope, Offset, and Min Level still maintain the low-light visibility requirements achieved in previous steps. Repeat any steps necessary to re-adjust night lighting settings.	
13	Adjust the Photocell Response Time - Brightening to smooth changes to brightness, as required. For GDU 1210 only: Adjust the Photocell Response Time - Dimming to smooth changes to dimness, as required to prevent unintentional dimming of display when using the display knobs or touchscreen.	
14	Verify that adjustments made in the preceding steps are appropriate for all expected lighting conditions.	

Figure 5-24 Lighting Curve Slope Configuration

Figure 5-25 Cutoff Percentage Configuration

Lighting Bus Configuration - Enhanced Lighting De-selected

The Display Lighting and the Keys Lighting curves must be set individually as noted in Table 5-61.

Table 5-61 Lighting Bus Configuration procedure

Step	Lighting Bus Curve	
	Display	Keys
1	Under Source Selection, choose Lighting Bus as the source for Display Source.	Under Source Selection, choose Lighting Bus as the source for Keys Source.
2	Under Source Configuration, set the Lighting Bus - Input Type to match the aircraft lighting bus voltage and the Response Time to a low level (e.g., 2 sec) to allow the display to adjust more quickly to dimmer bus input changes.	
3	Follow steps 4 - 12 to achieve consistency between all cockpit lighting. Figure 5-26 shows the primary settings on both the display lighting and the keys lighting curves.	
4	Simulate night conditions in the cockpit.	
5	Set the Transition to 5%. Below this source input value, the photocell will override the dimmer bus for display backlighting control. Note: This also allows the photocell to function as a backup in the event of a lighting bus failure.	
6	Turn the dimmer bus knob to its minimum setting or below the transition % value. NOTE: Steps 7 - 9 and 11 will set the photocell functionality when the lighting bus is below the transition % value.	Turn the dimmer bus knob to its minimum setting.
7	If the display is too bright, lower the Min Level and/or adjust the Slope to achieve the desired brightness. This can be done by either manually moving the curve or by selecting Slope and entering the value (similar to Figure 5-24).	If the key is too bright, lower the Min Level and/or adjust the Slope to achieve the desired brightness. This can be done by either manually moving the curve or by selecting Slope and entering the value (similar to Figure 5-24).
8	If the display is too dim, increase the Min Level to achieve desired levels.	If the key is too dim, increase the Min Level to achieve desired levels.
9	With the dimmer bus still off or below the transition % value, adjust the Offset such that the display remains readable.	With the dimmer bus still off, adjust the Offset such that the bezel key remains visible.
10	Slowly move the dimmer bus knob towards its maximum setting. Observe the rate of change between the display lighting, bezel key lighting, and any other cockpit illuminated information over the full range above transition % value of the dimmer bus. Adjust the Slope and/or Offset to obtain consistency.	Slowly move the dimmer bus knob towards its maximum setting. Observe the rate of change between the display lighting, bezel key lighting, and any other cockpit illuminated information over the full range of the dimmer bus. Adjust the Slope and/or Offset to obtain consistency.
11	With the dimmer bus off, simulate direct sunlight conditions in the cockpit. If the brightness is below the desired level, adjust the Slope setting to achieve maximum desired brightness.	
12	Adjust the Response Time to smooth changes to brightness, as required.	
13	Verify that adjustments made in the preceding steps are appropriate and functional for all expected lighting conditions.	

Figure 5-26 Display Lighting (left) and Keys Lighting (right) Curves

Enhanced Lighting Mode Configuration

The Enhanced Lighting mode can be used to better control the display and key lighting to match varying lighting conditions. When the lighting bus is selected as the source for the display lighting control, a backup photocell curve will be configured in the event of lighting bus failure. Configure the Enhanced Lighting function per the instructions in Table 5-62, Table 5-63, and Table 5-64.

Table 5-62 Photocell Configuration Procedure - Enhanced Lighting

	Display	Keys
1	Select Photocell as the input source for both the Display Source and/or Keys Source.	
2	Under Source Configuration, set the Photocell Response Time - Brightening to a level between 2 - 7 seconds. For GDU 1210 only: Under Source Configuration, set the Photocell Response Time - Dimming to a level between 2 - 7 seconds.	
3	Select the Enhanced Lighting Mode .	
4		Select the Configure Day Mode Curve and adjust the Cutoff percentage. This allows for the key backlighting to be switched off in bright light.
5	Simulate night conditions in the cockpit by using blankets or a similar method, such that the cockpit can be made progressively brighter for steps 6 and 7.	
6	Set the Min Level and Vertex 1 while the panel is experiencing night conditions. The level adjustments can be made by either dragging the vertices to the desired value manually or by selecting Vertex ( ) and changing the values (see Figure 5-31). Seek consistency between all cockpit lighting. NOTE: A vertex represents a specific output value based on a given input value, where the goal is to customize the lighting curve by manipulating the vertices	
7	Set the remainder of the vertices while progressively introducing light to the interior of the aircraft. Set the Max Level as desired. It is recommended to configure the curve to such that the display reaches the desired max output level (%) prior to 100% input. A linear curve for the photocell typically works well (refer to Figure 5-27).	

Figure 5-27 Enhanced Lighting Mode Example Photocell

Table 5-63 Lighting Bus Configuration Procedure - Enhanced (Display)

Step	Lighting Bus Day Mode Curve - Display
1	Set the Source Selection to Lighting Bus for the Display Source.
2	Set the Lighting Bus - Input Type to match the aircraft lighting bus voltage, and set the Response Time to a value between 2 - 7 seconds.
3	Select Enhanced Lighting Mode .
4	Select the Display Lighting - Configure Day Mode Curve and set the photocell Transition point to 5% (refer to Figure 5-28). Below this set value, the display brightness will be controlled by the photocell.
5	Set the dimmer knob to the off position. The Source Input level (%) must be below the transition point set previously.
6	Select the Curve icon and then select the Photocell Backup Curve option (refer to Figure 5-29). NOTE: The Max Level and the Min Level set in the next steps will also set the max and min levels for the dimmer mode operation curve.
7	Simulate night conditions in the cockpit by using blankets or a similar method, such that the cockpit can be made progressively brighter for steps 8 and 9.
8	Set the Min Level and Vertex 1 while the panel is experiencing night conditions. The level adjustments can be made by either dragging the vertices to the desired value manually or by selecting Vertex ( ) and changing the values (refer to Figure 5-31). Seek consistency between all cockpit lighting. NOTE: A vertex represents a specific output value based on a given input value, where the goal is to customize the lighting curve by manipulating the vertices.
9	Set the remainder of the vertices while progressively introducing light to the interior of the aircraft. Set the Max Level as desired. It is recommended to configure this curve to make sure the display reaches the desired max output level (%) prior to 100% input. A linear curve for the photocell typically works well.
10	Now select the Curve icon and then select Light Bus (refer to Figure 5-28). This sets the curve for the dimmer bus functionality.
11	Drag the vertices to match the (gray) photocell backup curve set previously in the background. NOTE: If preferred, this curve between the Transition Value and Max Level can also be set to have an independent profile by following steps 7 through 9.
12	Verify functionality of dimmer knob. Re-adjust Transition point if/as required.

Photocell
Transition
value at 5%

Lighting Bus
Curve
(grayed out)

Lighting Bus
Curve

Lighting Bus Curve
adjusted to match the
Photocell Curve

Photocell
Backup
Curve

Photocell
Backup Curve
(grayed out)

Figure 5-28 Enhanced Lighting Mode Example Lighting Bus - Display

Figure 5-29 Selection Between Lighting Bus and Photocell Backup Curves

Table 5-64 Lighting Bus Configuration Procedure - Enhanced (Keys)

Step	Lighting Bus Day Mode Curve - Keys
1	Set the Source Selection to Lighting Bus for Keys Source.
2	Set the Lighting Bus - Input Type to match the aircraft lighting bus voltage, and set the Response Time to a value between 2 - 7 seconds.
3	Select Enhanced Lighting Mode .
4	Select the Keys Lighting and Configure Day Mode Curve .
5	Simulate night conditions in the cockpit by using blankets or a similar method, such that the cockpit can be made progressively brighter for steps 6 and 8.
6	Set the Min Level and Vertex 1 while the panel is experiencing night conditions. The level adjustments can be made by either dragging the vertices to the desired value manually or by selecting Vertex ( ) and changing the values (refer to Figure 5-31). Seek consistency between all cockpit lighting. NOTE: A vertex represents a specific output value based on a given input value, where the goal is to customize the lighting curve by manipulating the vertices.
7	Set the remainder of the vertices while progressively introducing light to the interior of the aircraft. Set the Max Level as desired. It is recommended to configure this curve to make sure the display reaches the desired max output level (%) prior to 100% input. A linear curve for the photocell typically works well (refer to Figure 5-31).
8	Verify functionality of dimmer knob. Re-adjust Transition point if/as required.

Figure 5-30 Enhanced Lighting Mode Example Lighting Bus - Key

Figure 5-31 Vertex Adjustment Dialog Box

CAUTION

The display must be viewable under all anticipated lighting conditions, including:

- When the display is in direct sunlight.
- When the cockpit is bright but the photocell is in heavy shadow (such as flight into a setting sun).
- When the cockpit is very dim, the display must not be excessively bright.

5.5.4 Audio Alert Configuration

(Home!’ GDU Setup !’ Audio Alert)Configuration

Make the following selections as desired:

- Voice Type – Make the selection between Male and Female.
- Alert Volume – Make the level adjustment as desired. Audio alerts must be loud, attention-getting, and clearly intelligible under all cockpit noise conditions. Audio alerts should be set slightly louder than the normal volume of COM and intercom transmissions.

- Audio Test – Select the icon on any/all annunciator(s) to verify volume audibility set in the previous step. Adjust Alert Volume as desired to match audio levels of other systems installed in the aircraft.

5.5.5 Terrain/TAWS

(Home → GDU Setup → Terrain/TAWS)

If the G500/G600 TXi system does not have TAWS B enabled, then configure the Terrain/TAWS for one of the following options (Terrain-FLTA is automatically set if SVT is enabled):

Table 5-65 Terrain/TAWS Setting

External TAWS	Terrain Mode
Not Installed	Terrain-FLTA Terrain-Proximity (Off)
Installed (MapMX) Installed (Other) Installed (HSDB TAWS-A) Installed (HSDB TAWS-B)	External

If TAWS B has been enabled per the feature enablement instructions in Section 5.2.3, then configure the following options for Standard:

- FLTA Warning Clip
- FLTA Caution Clip
- NCR Caution Clip

The GDU is capable of producing aural and visual TAWS alerts. The alerting algorithm relaxes the terrain alerting criteria at nearby airports. An airport is considered to be a “nearby airport” if the runway(s) at the airport meet certain criteria. Select the runway Surface Type and Minimum Length for the aircraft, as described in Table 5-66.

Table 5-66 TAWS Airframe Specific Configuration Data

Selection	Description	Notes
Surface Type	Required runway surface type	Set the type of runway surface for which the aircraft is authorized.
Minimum Length	Minimum runway length for TAWS/Terrain Alerting	Set the shortest distance required for takeoff and landing (typically the distance given for sea level using the coldest temperature given in the POH/AFM).

Figure 5-32 shows the selection flow with examples of Surface Type and Minimum Length values.

Figure 5-32 Selection Flow for External TAWS Not Installed Selection

5.5.6 Miscellaneous Settings

(Home!’ GDU Setup !’ Miscellaneous Settings)

Database SYNC

NOTE

For TXi software v3.50 or later, Database Sync with GTN 6XX/7XX units is not supported. However, Database Sync with GTN Xi units is supported.

GDU 700P/1060/1210 and GTN 6XX/7XX/Xi units synchronize databases using the Database Sync in order to minimize user effort when loading/updating databases. The user only has to insert an SD card with databases to be loaded and the databases will be updated on all connected LRUs for all displays with the Database Sync enabled, rather than having to update each unit individually. The G500/G600 TXi system and GTN will have different System IDs. The databases being synchronized must be enabled for both System IDs in order to allow the Database Sync to take place. Refer to Section 5.9 for more information on acquiring and loading databases.

When a GDL 60 is installed, Database Sync is automated and does not require an SD card. Database Sync via a GDL 60 supports 100Mb Ethernet.

The following databases are synchronized:

- Airport directory
- Aviation
- FliteCharts
- Obstacle
- SafeTaxi
- Basemap
- ChartView

The following databases are not synchronized:

- Terrain

Make the desired selection between Pilot Control and Disabled for Database Sync functionality; Selecting Pilot Control enables Database Sync functionality.

Traffic Color

Must be set to White. This color designates the base color for traffic targets.

MFD Charts

Enable to display charts on the MFD. Additional databases may be necessary.

100Mb Ethernet

Provides increased speeds for Database Sync between GTN Xi and G500/G600 TXi. GTN Xi software v20.30 or later and TXi software v3.50 or later are required.

5.5.7 Connext

(Home!’ G D U S e t u p !’ C)o n n e x t

Connext provides the ability to download flight data logs to flyGarmin.com. Logs download via Bluetooth through a PED and attach to the user’s Pilot Logbook.

Streaming Active Flight

This setting automatically streams active flight data logs. Enabled by default.

Transfer Past Flight Data Logs

This setting transfers all past flight data logs not already downloaded by the PED. Enabled by default.

5.5.8 Maintenance Timers

Maintenance Timer interfaces are prohibited unless model-specific data is provided in Appendix D.

5.5.9 Stabilized Approach

(Home!’ GDU Setup !’ Stabilized Approach)

Stabilized Approach is intended for aircraft that primarily fly IFR approaches. Approach alerts can be disabled by the pilot using the PFD menu.

Stabilized Approach is an optional set of alerts that are issued while the aircraft is vertically situated within alerting zones defined by the minimum and maximum altitudes for the current approach type. Alerting Zones 1 and 2 are configured as either an Advisory Zone, Caution Zone, Warning Zone, or None.

Aural alerts issued for Zone 1 are played once while aural alerts issued for Zone 2 are played twice. Visual annunciations are displayed in white for Advisory Zones, yellow for Caution Zones, and red for Warning Zones.

If enabled, Stabilized Approach must be configured in accordance with Table 5-67 and Table 5-68. Individual alerts may be disabled.

Table 5-67 Alerting Zone Settings

Alerting Zone		Selection	Value
VFR Approach			
Zone 1	None	Min Altitude	N/A
		Max Altitude	N/A
Zone 2	Caution Zone	Min Altitude	100 FT
		Max Altitude	600 FT
IFR Approach			
Zone 1	Caution Zone	Min Altitude	600 FT
		Max Altitude	1000 FT
Zone 2	Caution Zone	Min Altitude	100 FT
		Max Altitude	600 FT

Figure 5-33 Stabilized Approach Page

Figure 5-34 Stabilized Approach Alert Settings Page

Table 5-68 Stabilized Approach Alert Settings

Alert	Setting		Value
Approach Speed [1]	Zone 1	Audio Alert	Enabled
		Visual Alert	Enabled
		Lower Threshold	3
		Upper Threshold	20
	Zone 2	Audio Alert	Enabled
		Visual Alert	Enabled
		Lower Threshold	3
		Upper Threshold	20
BARO/GPS Mismatch	Zone 1	Audio Alert	Enabled
		Visual Alert	Enabled
	Zone 2	Audio Alert	Enabled
		Visual Alert	Enabled
	Tolerance		50 FT
Crosswind [2]	Zone 1	Audio Alert	Enabled
		Visual Alert	Disabled [3]
	Zone 2	Audio Alert	Enabled
		Visual Alert	Disabled [3]
	Tolerance		[2]
Tailwind	Zone 1	Audio Alert	Enabled
		Visual Alert	Disabled [5]
	Zone 2	Audio Alert	Enabled
		Visual Alert	Disabled [5]
	Tolerance		10 KTS [4]
Lateral Deviation	Zone 1	Audio Alert	Enabled
		Visual Alert	Disabled
	Zone 2	Audio Alert	Enabled
		Visual Alert	Disabled
	Tolerance		0.50
Vertical Deviation [6]	Zone 1	Audio Alert	Enabled
		Visual Alert	Disabled
	Zone 2	Audio Alert	Enabled
		Visual Alert	Disabled
	Tolerance		0.50
Descent Speed [7]			

Alert		Setting	Value
Flaps [8]	Caution (Zone 1)	Audio Alert	Enabled
		Visual Alert	Disabled
	Caution (Zone 2)	Audio Alert	Enabled
		Visual Alert	Disabled
	Flaps Landing Position	Discrete Name	[9]
		Discrete State	Active/Inactive [10]
Gear [11]	Caution (Zone 1)	Audio Alert	Enabled
		Visual Alert	Disabled
	Caution (Zone 2)	Audio Alert	Enabled
		Visual Alert	Disabled

Notes:

[1] The Approach Speed alert is only available if the V_{REF} bug or the approach speed cue is enabled by configuration and set to a valid value.

[2] Enablement of the Crosswind alert is limited to aircraft that have a crosswind limitation or maximum demonstrated crosswind defined by the Type Data (AFM/POH). If defined, this value must be set as the Crosswind Tolerance.

[3] Aircraft that have a crosswind limitation defined in the Type Data (AFM/POH) may enable the Visual Alert. If the Type Data defines only a maximum demonstrated crosswind, the Visual Alert must be disabled.

[4] This value may be set to a tailwind limitation or maximum demonstrated tailwind defined by the Type Data (AFM/POH) for the aircraft being modified. If no such value is defined, the default 10 KTs value must be used.

[5] Aircraft that have a tailwind limitation defined in the Type Data (AFM/POH) may enable the Visual Alert. If the Type Data defines only a maximum demonstrated tailwind, or if the default value is used, the Visual Alert must be disabled.

[6] This alert must be disabled if TAWS-A is enabled by an installed GTN 6XX/7XX/Xi navigator.

[7] Not approved per this STC.

[8] Flap Up and/or Flap Positions discretes must be configured per Section 5.4.28.

[9] Configure the Discrete Name for “Flap Up” and/or any Flap Positions. Refer to Figure B-40. If multiple discrete flap positions are configured, all discrete flap positions must be in the listed state to be considered in landing position.

[10] Configure the Discrete State to match the state when the flaps are in the landing position.

[11] Gear Not Down and Locked discrete must be configured per Section 5.4.28.

Table 5-69 Alert Zone Settings

Alert Type	Aural Alert [1]	Visual Annunciation	Description
Approach Speed	"SPEED"	SPEED	The approach speed has deviated from the V_{REF} speed by more than the configured thresholds.
BARO/GPS Mismatch	"BARO"	BARO	The barometric and GPS altitudes differ by more than the configured amount.
Crosswind	"CROSSWIND"	XWIND	The magnitude of the crosswind at the landing runway exceeds the configured max amount.
Tailwind	"TAILWIND"	TWIND	The magnitude of the tailwind at the landing runway exceeds the configured max amount.
Lateral Deviation	"COURSE"	(Not Enabled)	The magnitude of the lateral deviation is greater than the configured tolerance.
Vertical Deviation	"GLIDEPATH" [2] "GLIDESLOPE" [3]	(Not Enabled)	The magnitude of the vertical deviation is greater than the configured tolerance.
Flaps	"FLAPS"	(Not Enabled)	The Flaps Position discrete(s) has been triggered.
Gear	"GEAR"	(Not Enabled)	The Gear Not Down and Locked discrete has been triggered.

Notes:

[1] Aural alerts are played twice in Zone 2.

[2] GPS approaches.

[3] Non-GPS approaches.

5.5.10 Emergency Descent Mode

(Home!’ GDU Setup !’ Emergency Descent)

Emergency Descent mode may only be enabled when the GFC 600 autopilot is approved for Emergency Descent mode. If Emergency Descent is desired, configure as shown in Table 5-70.

Table 5-70 Emergency Descent Mode Settings

Description	Setting
Emergency Descent Mode	Enabled
Activation Delay	45 SEC
Cabin Altitude Threshold (optional)	Enabled [1]
Altitude Threshold	[2]
EDM Activate switch (optional)	Discrete In Lo 1 thru 8 [3]

Notes:

[1] Requires a Garmin Air Data Module (ADM) to be installed on the GMC 605(C) as a cabin pressure sensor per STC SA01844W.

[2] Automatically configured via GMC 605(C) gains (GMC 605 software v2.70 or later).

[3] Refer to Section 5.4.28 for discrete input configuration.

5.6 External Systems

This section provides instructions for the configuration/calibration of the listed interfaces.

5.6.1 A708 Radar

The A708 Radar page is only selectable on a GDU 700P/1060/1210 that meets the following criteria:

- Configured as an MFD.
- ARINC 708 Weather Radar feature enabled per Section 5.2.3.
- WX Radar interface configured as a non-Garmin weather radar per Section 5.4.19.

5.6.1.1 Bendix/King ART 2000/2100 Weather Radars

This section describes the system configuration and calibration of the Bendix/King ART 2000/2100 weather radar systems using the GDU 700P/1060/1210. Configure the following settings:

- Display Head - Select whether the MFD is wired to the “Control #1” or “Control #2” ARINC 429 port on the weather radar. If there is only one MFD, the GDU 700P/1060/1210 must be wired to “Control 1” and be configured as Display Head 1.
- Once the Display Head setting is configured, the weather radar can be calibrated using the applicable calibration procedure below:
  1. Touch Home → Diagnostics → AHRS/ADC & Time Mark → AHRS/ADC D
     a. Record the Pitch & Roll degree to the nearest 0.5°:
        i. Pitch: _______ Roll: _______
  2. Touch Home → External Systems → A708 Radar.
  3. Touch Radar Mode and select Test.
     a. Wait approximately 15 seconds for status boxes to annunciate green.
  4. Verify Calibration button is active; if not, touch Calibration to enable Calibration mode.

Antenna Clearance Check:

1. Touch Calibration Function → Antenna Clearance
2. Touch Start (Active).
   a. The antenna will move to each of the extreme positions to determine there is no interference with the antenna movement and all scan motors are working properly.
3. Touch Stop (Inactive) to complete the antenna clearance check.

Roll Offset Calibration:

1. Touch Calibration Function → AHRS ARINC 429 Roll Offset.
2. Adjust the Roll setting:
   a. Momentarily touch an Adjustment (Tilt) arrow to change the Roll setting. A single touch will begin to drive the roll angle; touch Stop to stop the movement. Match the recorded roll angle from the previous step to the nearest 0.1°.
3. Touch Calibration Function → Save Configuration → Save.

Pitch Offset Calibration:

1. Touch Calibration Function !’ AHRS ARINC 429 Pitch Offset.
2. Adjust the Pitch setting:
    a. Momentarily touch an Adjustment (Tilt) arrow to change the Pitch setting. A single touch will begin to drive the pitch angle; touch Stop to stop the movement. Match the recorded pitch angle from the previous step to the nearest 0.1°.
3. Touch Calibration Function !’ Save Configuration !’ Save.
4. Exit calibration by touching Calibration.
5. Wait approximately 8 seconds, then touch Radar Mode and select Standby.

5.6.1.2 Honeywell (Bendix/King) RDS 8X Series Weather Radars

This section describes system configuration and calibration for the Bendix/King RDS -81 (RS 811A) and RDS-82 (RS 181A) weather radar systems using the GDU 700P/1060/1210. Configure the following settings:

- Display Head - Select whether the MFD is wired to the “Control #1” or “Control #2” ARINC 429 port on the weather radar. If there is only one MFD, the GDU 700P/1060/1210 must be wired to “Control 1” and be configured as Display Head 1.
- Once the Display Head setting is configured, the weather radar can be calibrated using the applicable calibration procedure below:

NOTE

The GAD 43(e) can be used to provide stabilization to the WXR. The Pitch and Roll fields in the GAD 43(e) Output window on the A708 Radar page are used to adjust the attitude being supplied to the WXR. A tilt table to achieve the pitch/roll values specified in the manufacturer’s calibration procedure is not needed; the GAD 43(e) can be used.

NOTE

If using the Heading Only gyro emulation, temporarily set the GAD 43(e) to “KVG 350” to enable the pitch and roll settings. Once calibration is complete, set the GAD 43(e) back to “Heading Only”.

1. Touch External Systems !’ A708 Radar.
2. Touch Radar Mode and select Test.
3. Verify the Calibration button is active; if not, touch Calibration to enable Calibration mode.

NOTE

If the Calibration button does not become active, temporarily exit the Weather Radar page, then go back to the Weather Radar page and touch Calibration.

    a. Wait approximately 10 seconds for the status boxes to annunciate green.
    b. Allow approximately 45 seconds for the GAD43(e) to enter Configuration mode and provide Pitch/Roll outputs for calibration.
4. touch Stop under Adjustment (Tilt) to set the tilt to 0.0°.
    a. Wait until the Antenna Elevation indicates 0.0° (may take up to 30 seconds).

L: 0.0° ± 1.0°   C: 0.0° ± 1.0°   R: 0.0° ± 1.0°

5. Turn the 400 Hz reference signal off.
   a. The Honeywell installation manuals require performing the mechanical alignment check with stabilization off. It is not possible to remotely turn the stabilization system off through the GDU 700P/1060/1210. Remove power from the 400Hz reference signal in order to perform the mechanical check per the procedures specified in Honeywell installation manuals.
6. Verify the mechanical alignment of the antenna in accordance with step J or K in Section 2.3.6.2 of RDS 81 Installation Manual (Honeywell P/N 006-00954-0001) or RDS 82 Installation Manual (Honeywell P/N 006-00955-0006), respectively.
7. Verify the Calibration Function is set to None.
8. Turn the 400 Hz reference source power on.
9. Adjust the 400 Hz Ref pot on the weather radar until the 400 Hz Ref display on the GDU 700P/1060/1210 reads 0.0° ± 1.0°. Allow up to 60 seconds to stabilize.

NOTE

Re-check the 400Hz Ref setting frequently during the remaining steps to ensure it stays within the specification.

10. For units with a 3-pot configuration, skip to step 11. For units with a 5-pot configuration, complete the additional following:
    a. Adjust the Pitch Null pot and the Roll Null pot on the weather radar until the Pitch Angle and Roll Angle on the GDU 700P/1060/1210 both read 0.0° ± 0.5°.
11. Adjust the GAD 43(e) Output Roll Angle to 20° LT.
12. Adjust the Roll Gain pot on the weather radar until the Roll Angle on the GDU 700P/1060/1210 reads -20.0° ± 1.0°.
13. Verify the Antenna Elevation is:

    L: 14.0° ± 1.0°   C: 0.0° ± 1.0°   R: -14.0° ± 1.0°

14. Adjust the GAD 43(e) Output Roll Angle to 20° RT.
15. If the Roll Angle on the GDU 700P/1060/1210 reads 20° ± 1.0°, skip to step 16. If the Roll Angle reads outside of the specifications, balance the outputs using the following procedure:
    a. For units with a 3-pot configuration, adjust the Roll Gain pot to obtain a balance between the left and right readings and continue the calibration.
    b. For units with a 5-pot configuration, subtract the difference between the numbers, divide by 2, and add if the Roll Angle is less than 20.0° or subtract if the Roll Angle is more than 20.0°.

    Example A (Roll Angle > 20.0°)

    (24-20) / 2 = 2: 24 - 2 = 22.0°

    Adjust the Roll Null pot for 22.0° left roll and adjust the Roll Gain pot for 20.0°.

    Example B (Roll Angle < 20.0°)

    (18-20) / 2 = -1: 20 + (-1) = 19.0°

    Adjust the Roll Null pot for 19.0° left roll and adjust the Roll Gain pot for 20.0°.

16. Verify the Antenna Elevation is:

    L: -14.0° ± 1.0°   C: 0.0° ± 1.0°   R: 14.0° ± 1.0°

17. Repeat steps until the left and right roll values are balanced.
18. Set the GAD 43(e) Output Roll Angle to 0.0° RT and verify the Roll Angle display reads 0.0°± 0.5°.
19. Adjust the GAD 43(e) Output Pitch Angle to 20° UP.
20. Adjust the Pitch Gain pot on the weather radar until the Pitch Angle on the GDU 700P/1060/1210 reads 20.0° ± 1.0°.
21. Verify the Antenna Elevation is:

    L: -14.0° ± 1.0°   C: -20.0° ± 1.0°   R: -14.0° ± 1.0°

22. Adjust the GAD 43(e) Output Pitch Angle to 20° DN.
23. If the Pitch Angle on the GDU 700P/1060/1210 reads -20° ± 1.0°, skip to step 24. If the Pitch Angle reads outside of the specifications, balance the outputs using the following sub-step procedures:

    a. For units with a 3-pot configuration, adjust the Pitch Gain pot to obtain a balance between the left and right readings and continue the calibration.

    b. For units with a 5-pot configuration, subtract the difference between the numbers, divide by 2, and add if the Pitch Angle is less than 20.0° or subtract if the Pitch Angle is more than 20.0°.

    Example A (Pitch Angle > 20.0°)

    (24-20) / 2 = 2: 24 - 2 = 22.0°

    Adjust the Pitch Null pot for 22.0° left roll and adjust the Pitch Gain pot for 20.0°.

    Example B (Pitch Angle < 20.0°)

    (18-20) / 2 = - 1: 20 + (-1) = 19.0°

    Adjust the Pitch Null pot for 19.0° left roll and adjust the Pitch Gain pot for 20.0°.

24. Verify the Antenna Elevation is:

    L: 14.0° ± 1.0°   C: 20.0° ± 1.0°   R: 14.0° ± 1.0°

25. Repeat steps until the up and down pitch values are balanced.
26. Set the GAD 43(e) Output Pitch Angle to 0.0° RT and verify the Pitch Angle display reads 0.0°± 0.5°.
27. Adjust the GAD 43(e) Output Roll Angle to 10° LT.
28. Adjust the Roll Gain pot on the weather radar until the Roll Angle on the GDU 700P/1060/1210 reads -10.0° ± 1.0°.
29. Verify the Antenna Elevation is:

    L: 7.0° ± 1.0°   C: 0.0° ± 1.0°   R: -7.0° ± 1.0°

30. Adjust the GAD 43(e) Output Roll Angle to 10° RT.
31. If the Roll Angle on the GDU 700P/1060/1210 reads 10° ± 1.0° RT, skip to step 32. If the Roll Angle reads outside of the specifications, balance the outputs using the following procedure:

    a. For units with a 3-pot configuration, adjust the Roll Gain pot to obtain a balance between the left and right readings and continue the calibration.

b. For units with a 5-pot configuration, subtract the difference between the numbers, divide by 2, and add if the Roll Angle is less than 20.0° or subtract if the Roll Angle is more than 10.0°.

Example A (Roll Angle > 10.0°)

(14-10) / 2 = 2: 14 - 2 = 12.0°

Adjust the Roll Null pot for 12.0° left roll and adjust the Roll Gain pot for 10.0°.

Example B (Roll Angle < 10.0°)R

(8-10) / 2 = -1: 10 + (-1) = 9.0°

Adjust the Roll Null pot for 9.0° left roll and adjust the Roll Gain pot for 10.0°.

32. Verify the Antenna Elevation is:

L: -7.0° ± 1.0°   C: 0.0° ± 1.0°   R: 7.0° ± 1.0°

33. Repeat steps until the left and right roll values are balanced.
34. Set the GAD 43(e) Output Roll Angle to 0.0° RT and verify the Roll Angle display reads 0.0° ± 0.5°.
35. Adjust the Gad 43(e) Output Pitch Angle to 10° UP.
36. Adjust the Pitch Gain pot on the weather radar until the Pitch Angle on the GDU 700P/1060/1210 reads 10.0° ± 1.0°.
37. Verify the Antenna Elevation is:

L: -7.0° ± 1.0°   C: -10.0° ± 1.0°   R: -7.0° ± 1.0°

38. Adjust the GAD 43(e) Output Pitch Angle to 10° DN.
39. If the Pitch Angle on the GDU 700P/1060/1210 reads -10° ± 1.0°, skip to step 40. If the Pitch Angle reads outside of the specifications, balance the outputs using the following sub-step procedures.

a. For units with a 3-pot configuration, adjust the Pitch Gain pot to obtain a balance between the left and right readings and continue the calibration.

b. For units with a 5-pot configuration, subtract the difference between the numbers, divide by 2, and add if the Pitch Angle is less than 10.0° or subtract if the Pitch Angle is more than 10.0°.

Example A (Pitch Angle > 10.0°)

(14-10) / 2 = 2: 14 - 2 = 12.0°

Adjust the Pitch Null pot for 12.0° left roll and adjust the Pitch Gain pot for 10.0°.

Example B (Pitch Angle < 10.0°)

(8-10) / 2 = -1: 10 + (-1) = 9.0°

Adjust the Pitch Null pot for 9.0° left roll and adjust the Pitch Gain pot for 10.0°.

40. Verify the Antenna Elevation is:

L: 7.0° ± 1.0°   C: 10.0° ± 1.0°   R: 7.0° ± 1.0°

41. Repeat steps until the up and down pitch values are balanced.
42. Set the GAD 43(e) Output Pitch Angle to 0.0° RT and verify the Pitch Angle display reads 0.0° ± 0.5°.
43. Touch **Calibration** to exit the calibration function.

44. Touch Radar Mode and select Standby.

CAUTION

Failure to return either the GAD 43(e) Pitch/Roll Outputs to 0.0° and return the radar mode to Standby before exiting the A708 page will cause the radar system to remain in Test mode after exiting the calibration process.

5.6.1.3 Collins RTA 800 Weather Radar

This section describes the system configuration of the Collins RTA 800 weather radar system using the GDU 700P/1060/1210. Configure the following settings:

- Display Head - Select whether the MFD is wired to the “Control #1” or “Control #2” ARINC 429 port on the weather radar. If there is only one MFD, the GDU 700P/1060/1210 must be wired to “Control 1” and be configured as Display Head 1

5.6.2 GEA 110/GEA 71

The GDU ( ) GEA Status page displays the status of interfaced GEA 110 or GEA 71B Enhanced units. Ensure the GEA interface is properly configured per Section 5.4.4.

To view the status of the GEA:

1. Touch External Systems!’ GEA 110 or GEA 71!’ GEA Status.
2. Touch Up or Down to view the status of the different aspects of the GEA, including:
   - Environmental (AC power and temperatures)
   - Internal power
   - Excitation
   - Internal and external COM
   - ADC
   - Image (system, region list, configuration, calibration, and rigging)
   - Sensor

Figure 5-35 GDU ( ) GEA Status Page

5.6.3 Stormscope

The Stormscope page provides a means to check the system status, test the system (WX-500 only), and download system information (WX-500 only). Refer to Section 5.4.20 for Stormscope interface configuration instructions.

5.7 EIS

This section provides data for configuration of the EIS portions of a GDU. Prior to beginning EIS configuration, an EIS data source (GEA 110 or GEA 71B Enhanced) must be configured via the Interfaces page per Section 5.4. If an EIS data source has not been configured, the EIS button will not be selectable. Toggling Turboprop EIS enablement will clear all EIS configuration settings.

Figure 5-36 EIS Page

There are five subsections of the EIS Configuration. The subsections must be completed in the following order:

1. Setup - Enter the engine number/type and airframe/engine time (Section 5.7.1).
2. Sensor - Enter the sensors that are installed in the aircraft (Section 5.7.2).
3. Gauge - Configure the gauge appearance and layout (Section 5.7.3).
4. Additional Settings - Define engine operating conditions, engine power, and fuel imbalance monitor (Section 5.7.4).
5. Fuel - Calibrate the fuel system (Section 5.8.7).

The sections below outline the data required and the data entry procedure for the first four subsections. Fuel calibration is outlined in Section 5.8.7. Procedures begin assuming the GDU is powered on and displaying the Configuration mode home page.

NOTE

Entering the Setup page refreshes the gauge layout and may be required on each GDU that is being configured for EIS.

5.7.1 Setup

(Home → EIS → Setup)

An Installer Unlock Card is required to enter flight and engine hours. Refer to the aircraft time meter(s), tachometer, and the aircraft records to ensure the times are entered in the correct field and are accurate.

Flight Hours accumulate when the aircraft is airborne. For piston engines, Hobbs Hours accumulate when the engine is running and the oil pressure exceeds 5 PSI. Tach Hours increment at a normal rate when the RPM is equal to cruise RPM, slower when RPM is less than cruise RPM, and faster when RPM is above cruise RPM.

For turbine engines, TXi can track engine startups, shutdowns, and full cycles. Engine cycle counting requires Engine Operating Condition to be configured. Refer to Section 5.7.4 for configuration instructions. The system records a startup when the engine transitions from OFF to RUNNING. The system records a shutdown when the engine transitions from RUNNING to OFF. The system records a Full Cycle when the engine transitions from OFF/STARTING to RUNNING, a takeoff is recorded, and the engine transitions from RUNNING to OFF. To enable Full Cycle tracking, the Flight Cycle counter must be enabled (refer to Section 5.2.4.2).

Table 5-71 EIS Setup - Piston EIS

Engine	Engine Configuration [1]	Engine Type [1]	Piston Type	Number of Cylinders
	Single Engine	Piston	Normally-Aspirated	4 Cylinder
	Multi Engine		Turbocharged	6 Cylinder
Acft/Eng Time	Hobbs Hours	Flight Hours	(L/R) Tach Hours	Cruise RPM [2]

Notes:

[1] Configured on Aircraft Info page. Refer to Section 5.2.4.

[2] Set Cruise RPM based on the removed tachometer, refer to Table 5-73.

Table 5-72 EIS Setup - Turbine EIS

Engine	Engine Configuration [1]		Engine Type [1]
	Single Engine		Turboprop
	Multi Engine		
Acft/Eng Time	Hobbs Hours	Flight Hours	(L/R) Engine Hours
Engine Cycles	(L/R) Start Ups	(L/R) Shutdowns	(L/R) Full Cycles [2]

Notes:

[1] Configured on Aircraft Info page. Refer to Section 5.2.4.

[2] Available when Flight Cycles is enabled. Refer to Section 5.2.4.2.

Obtain the required information for the Setup subsection using Table 5-71, and populate all fields under the Engine, Acft/Eng Time, and Engine Cycles (if applicable) tabs shown in Figure 5-37 and Figure 5-38. For Piston aircraft, set Cruise RPM based on the removed tachometer (refer to Table 5-73).

Figure 5-37 EIS Configuration 'Setup' Tabs (Multi-Engine Piston Example)

Figure 5-38 EIS Configuration 'Setup' Tabs (Multi-Engine Turbine Example)

Table 5-73 Cruise RPM Setting

TXi Config		Removed Tachometer			
Cruise Setting	IFR	Mitchell	Stewart Warner	AC Type	Example Aircraft, Reference Only
2300	55-35-7	D1-112-5023	P-551-AZ	RT-7	Commander 112, 114; Grumman/American AA-1, AA-1A; Beech C35, D35, E35, F35; Bellanca/Champion 7EC, 7FC, 7GC, 7HC,7GCB, 7ECA, 7GCAA, 7GCBC, 7KCAB, 8KCAB, 14-19; Cessna 120, 140, 170, 180, 182, 185 (with IO-470 eng); Lake Aircraft C-1, C-2, L-4; Mooney M20, M20A, M20D; Piper PA-12, PA-18, PA-20, PA-22, PA-23, PA-24, PA-28, PA-30, PA-32, PA-39
2050	55-35-8	D1-112-5122	P-551-AYZ	RT-8	Beech 35, A35, B35, 35R
2300	55-35-9	D1-112-5030	P-551-AZH	RT-9	Aeronca Champion, Chief (early models); Piper PA18 (w/TCM eng)
2050	55-35-10	D1-112-5124	P-551-AZJ	RT-10	Aeronca Champion, Chief (late models), 7AC, 11AC; Beech Musketeer
2566	55-35-11	D1-112-5025	P-551-TA	RT-11	Bonanza: G35, H35, J35, K35, M35, N35, P35, S35, V35, 36, A36, 95, B95, B95A, D95A; Cessna 150, 152, 172, 177, 185, 188 (with IO-520 eng), 206, 207, 210, 310, 320; Helio H250, H391, H395; Navion E, F, G
2566	55-35-12	D1-112-5032	P-551-AZK	RT-12	Bellanca Champion: 7AC
1800	55-35-14	D1-112-5028	P-551-AZA	RT-14	
3000	55-35-15	D1-112-5034	P-551-AZB	RT-15	Cessna 175
1800	55-35-16	D1-112-5029	P-551-AZL	RT-16	
2400	55-35-17	D1-112-5024	N/A	RT-17	Maule M5/6/MX7-180, M5/6/7/MX7-235

If the Cruise RPM cannot be determined from Table 5-73 or from markings on the original tachometer, use the POH or AFM to find the cruise RPM for 65% 6000 ft PA, Standard Temperature, at 21 in. Hg (if applicable). Verify the Cruise RPM value type matches the display RPM type (i.e. engine RPM or propelle RPM).

5.7.2 Sensor

(Home → EIS → Sensor)

Configure each connected EIS sensor as shown in Appendix Section C.25 or Appendix Section C.26. The following steps are required for the Sensor subsection:

1. List all installed EIS sensors that interface to the TXi system.
2. Verify that the Devices Online page shows EIS 1 (and EIS 2, if applicable) with a green icon.
3. Configure each applicable sensor as shown in Appendix Section C.25 or Appendix Section C.26. Repeat this step for multi-engine aircraft.

NOTE

The TXi Sensor Loading list includes sensor models that are not approved by this STC. Only configure sensors listed in Appendix Section C.25 or Appendix Section C.26.

a. A menu similar to that shown in Figure 5-39 will appear. Ensure From GDU is selected for each sensor type.

Figure 5-39 Sensor Menu with GDU Selection Active

b. Touch Port Selection and select the wired GEA port, if applicable.

c. Touch Model and select the interfaced sensor model.

d. Touch Enter to confirm the sensor selection.

A silver check mark will appear next to the configured sensor if it has been configured successfully.

CAUTION

To change a previously configured sensor configuration, select the sensor and then touch Clear prior to selecting the new sensor configuration. Failure to clear the old configuration could result in sensors not functioning correctly.

An example configuration of a TIT sensor is shown in Figure 5-40. The selection sequence is highlighted in red.

Figure 5-40 TIT Sensor Configuration Example

Additional specific sensor configurations are as follows:

5.7.2.1 Oil Pressure

Select the sensor type, port, and then select **Enter**.

Optional oil pressure sensor calibration will eliminate small errors. If 4 psi or less is shown without oil pressure, perform the following calibration. If the indication is higher, it may indicate an incorrect sensor selection, sensor malfunction, or the presence of actual oil pressure. Resolve the discrepancy before proceeding with calibration.

1. Verify engine is shutdown.
2. Re-select the Oil Pressure sensor and touch **Calibration**.

5.7.2.2 Manifold Pressure (Piston EIS Only)

1. Configure the sensor as normal.
2. For Garmin P/Ns 011-04202-00 and 011-05783-00 and JPI P/N 159937 sensor configurations, if the displayed manifold pressure value is incorrect, perform the calibration. Refer to Figure 5-41.
   a. Re-select the Manifold PRESS sensor, and then touch **Calibration**.
   b. Touch **Current BARO** and enter the local Barometric Pressure
   c. Touch **Field Elevation** and Enter the local field elevation.
   d. Touch **Calibrate**.

Figure 5-41 Manifold Configuration and Calibration

5.7.2.3 Fuel Flow

For the GEA 110, select the sensor model and then Enter.

For the GEA 71B Enhanced, select the correct Sensor Type, Port Selection, and Model as depicted in Table 5-74. Enter the same sensor part number for the Fuel Flow Temperature. Refer to Appendix Section C.26 for a complete list of approved sensors and cross-references to the aircraft manufacturer's part numbers.

Table 5-74 Fuel Flow Sensor Selection

Sensor Type	Port Selection	Model
Analog	General Purpose 1 - 14	Beech 90-380009-7
		Ragen 3268011-0101
Digital	Fuel Flow Standard (J702-74)	Shadin 660526AS
	Fuel Flow Differential (J702-22/21)	Meggitt TFF2905-13
		Meggitt TFF2905-27
		Meggitt TFF2905-11 [2]
		Gull 151-906-001 [3]
	Fuel Flow Filtered (P701-53/52) [1]	Meggitt TFF2905-6
		Meggitt TFF 2905-13
		Meggitt TFF 2905-27
		SAK X-1-81-302
		SAK X-2-81-301
		SAK X-2-81-306
		Meggit TFF2905-11 [2]
		Gull 151-906-001 [3]

Notes:

[1] Applicable only to the GEA 71B Enhanced P/N 011-02682-05.

[2] Rockwell Part Number 850590-515.

[3] Rockwell Part Number 850590-513.

Most aircraft will use Low for less filtering with a more responsive gauge. Select High if the fuel flow gauge is unsettled (e.g., to smooth carburetor float surges). Enter the nominal fuel flow sensor K-Factor.

For all aircraft with an existing fuel flow limitation, the EIS fuel flow must be within 10% of actual; refer to the fuel flow accuracy check in Section 6.12.3. The pilot can make adjustments in Normal mode, which is limited to 15%.

Refer to Table 5-75 for the nominal K-factor values.

CAUTION

K-Factor must be in units of pulses per gallon. Different units will result in inaccurate fuel flow and fuel computer results.

Table 5-75 Fuel Flow K-Factor

EIS	Sensor	K-Factor
Piston	EI FT-60 (Red Cube)	68,000
	EI FT-90 (Gold Cube)	33,800
	Beech 102-389012-11	84,949
	Floscan 201B-6	[1]
	Floscan 231	[1]
	JPI 700900-1 (201)	[1]
	JPI 700900-2 (231)	[1]
	Shadin 680501	[1]
	Shadin 680501-1	[1]
	Shadin 680501A/B/D/F	[1]
	Shadin 660526A( )	[1]
Turbine	Meggitt TFF2905-13	25,339
	Meggitt TFF2905-27	27,074
	Meggitt TFF2905-6	[2]
	Meggitt TFF2905-11	[2]
	SAK 1/2-2-81-306	33,800
	SAK 1/2-2-81-301	33,800
	SAK 1/2-1-81-302	10,240
	Gull 151-906-001	[2]

Notes:

[1] Use the labeled K-Factor value. Data must be entered as XX,XXX. For example if the value is XX.XX, multiply the K-factor value from the tag by 1000 and enter XX,XXX.

[2] Enter the K-Factor determined in the Fuel Flow K-Factor Determination section below.

Fuel Flow K-Factor Determination

For internally compensated fuel flow transducers, use the following procedure to determine K-Factor.

1. Power off all GDUs and GEAs.
2. Open the engine cowling.
3. Disconnect the electrical connector from the fuel flow transmitter.
4. Measure and record the value of the internal compensator resistance (R_{comp}) across pins E and of the fuel flow transmitter.

   NOTE

   The resistance value (R_{comp}) must be between the upper and lower bounds given in Table 5-76.

5. Re-connect the electrical connector to the fuel flow transmitter.
6. Close the engine cowling.

7. Power on the GDUs into Configuration mode.
8. Use the recorded resistance value (R_{comp} ©) and Table 5-76 to determine the K-Fac

NOTE
If the resistance value (R_{comp} ©) is in between values in Table 5-76, then rou closest value in the table.

9. Enter the K-Factor into the fuel flow sensor file configuration page.
10. Repeat Steps 1 through 9 for the opposite engine fuel flow transmitter, if applicable.

Table 5-76 Fuel Flow K-Factor Determination

Meggitt TFF2905-6		Gull 151-906-001		Meggitt TFF2905-11	
R_{comp} ©	K-Factor	R_{comp} ©	K-Factor	R_{comp} ©	K-Factor
1100	36973	800	52998	1100	37116
1150	35393	850	49859	1150	35485
1200	33913	900	47022	1200	33998
1250	32666	950	44466	1250	32643
1300	31355	1000	42167	1300	31408
1350	30323	1050	40104	1350	30282
1400	29349	1100	38253	1400	29252
1450	28306	1150	36594	1450	28307
1500	27516	1200	35104	1500	27434
1550	26556	1250	33760	1550	26622
1600	27512	1300	32541	1600	25859
1650	25014	1350	31423	1650	25133
1700	24314	1400	30386	1700	24431
1750	23623	1450	29406	1750	23743
1800	22867	1500	28462	1800	23055
1850	22324	1550	27531	1850	22357
1900	21747	1600	26591	1900	21636

5.7.2.4 RPM

The RPM must display the originally intended RPM units and markings published in the aircraft AFM/POH. For turboprop engines, select the installed sensor model and touch Enter. For piston engines, select installed sensor type. Only the P-Lead can be used for geared engines.

- Select the RPM sensor type:
  - %æMag Vent Pickup.
  - %æP-Lead - select configuration to match the engine magneto type: two single magnetos, one dual-magneto, or Electronic Ignition System. Select the engine reduction gear ratio (if applicable) to replicate the AFM/POH value. The propeller gear reduction ratio can be found in the engine TCDS or Operator’s Manual.

5.7.2.5 Shunt - Alternator Load and Battery Charge/Discharge

1. Configure the sensor as normal.
2. The shunt can be calibrated only if it is out of tolerance.
   a. For Alternator Load calibration:
      i. With the aircraft alternator OFF, re-select the Shunt - Alternator Load.For Battery Charge/Discharge calibration:
      i. With the aircraft connected to ground power, disconnect the battery so that no current is running through the battery shunt.
      ii. Re-select the Shunt - Batt Charge/Discharge.
   b. Touch Calibrate to zero the indication.

The displayed shunt value is a static value captured upon entering the Shunt page; if the electrical load changes, the page must be reloaded to display the new value.

5.7.2.6 Fuel Quantity

Select the correct Sensor Type (Resistive, Analog, Digital, Capacitive, or Capacitive Rectified), the correct Port Selection, and the correct Tank Location. Select the correct sensor range (voltage/resistance range for analog, frequency range for digital, capacitive range for capacitive, or aircraft model and tank location for capacitive rectified). Refer to Section 3.4.8 for GEA 110 sensor selection and Section 3.4.9 for GEA 71B Enhanced sensor selection. Refer to Section 5.8.7 for the calibration procedure.

> NOTE
> The capacitance value displayed for fuel probes in the EIS Diagnostics page is not accurate. Use the aircraft maintenance manual procedures for maintenance and troubleshooting of capacitive fuel quantity probe(s) and wiring.

Table 5-77 Fuel Quantity Port Selection

LRU	Sensor Type	Allowed Ports
GEA 110 P/N 011-03454-00 [1]	Analog - Resistive	General Purpose 3-6 (Fuel Quantity 1-4)
	Analog - Voltage	N/A
	Digital	N/A
GEA 110 P/N 011-03454-01	Analog -Resistive	General Purpose 3-6 (Fuel Quantity 1-4)
	Analog -Voltage	General Purpose 1-6)
	Digital	Digital Fuel 1-4 (General Purpose 3-6)
GEA 71B Enhanced P/N 011-02682-05	Voltage	General Purpose 1-14
	Digital	Digital Fuel 1-4
	Resistive	Resistive Fuel Quantity 1-3
	Capacitive	Capacitive Fuel 1 and 3
	Capacitive Rectified	Capacitive Fuel 5 and 6

Notes:

[1] GEA 110 P/N 011-03454-00 is not recommended for new installations under this STC.

5.7.2.7 Torque (Turboprop EIS Only)

Select the Sensor Type, Port Selection, and Model. Then touch Enter.

For Torque sensor configuration, if the displayed torque value is incorrect (non-zero with the engine shutdown), perform the following calibration:

1. Verify engine is shutdown.
2. Re-select the Torque sensor and touch Calibration.

5.7.3 Gauge

(Home !’ EIS !’ Gauge)

5.7.3.1 Gauge Layout

Use Appendix F for each EIS display to modify the default gauge layout. The EIS gauge layout(s) must be configured prior to configuring gauge markings and ranges in Section 5.7.3.2. Gauge marking support can vary based on gauge location in the EIS display.

> NOTE
> When a GDU 1060/1210 is configured as a PFD/MFD, the MFD Gauges configuration page will display the layout as if the PFD was configured for the left side of the display and the MFD portion was enlarged (refer to Section 5.2.5.3). If the PFD is configured for the right side, then the gauges will be mirrored from their configuration page layout while in Normal mode.

5.7.3.1.1 EGT/TIT and CHT

When configured for reciprocating engines, the GDU 700 MFD/EIS and GDU 1060/1210 display all EGT/TIT/CHT information on the MFD Engine page (see Figure 5-43). As such, the Primary EGT/TIT (when available) and CHT must be displayed on the EIS strip on a GDU 700 MFD/EIS or GDU 1060/1210 unless they are not required. Refer to Section 3.2.6 to determine if the Primary EGT/TIT or CHT is required.

> NOTE
> The GDU 700 MFD/EIS or GDU 1060/1210 EIS strip will display the hottest individual cylinder head temperature on the EIS strip.

Figure 5-42 EGT/CHT Graph on GDU 700 EIS

Figure 5-43 EGT/CHT Graph on GDU 1060
(GDU 1210 Similar)

The engine temperature graph is configurable from the base EGT/CHT format and can include single TIT, dual TIT, or Primary EGT. The EGT/TIT and CHT display options are laid out in Table 5-78. The selections available for each EIS installation will vary based on the sensors selected and configured.

Table 5-78 EGT, CHT, and TIT Display Options for Single and Twin Engines

Gauge	Cyl.	Single Engine	Twin Engine
EGT/CHT	4		
	6		
EGT/CHT/TIT	4		
	6		

Gauge	Cyl.	Single Engine	Twin Engine
EGT/CHT/ Primary EGT	4		
	6		
EGT/CHT/ Dual TIT	4		N/A
	6		N/A

5.7.3.1.2 6-Value Electrical Gauge

The six values are broken into three rows of two, with each row having a common title (e.g., ALT). Options for data rows will vary depending on configured sensors. Each row should be grouped by data type (i.e., battery, bus, or ALT/GEN) or by sensor units (i.e., amperage or volts). Row configuration items ALT and GEN refer to the same sensor and are only a difference in title.

Figure 5-44 shows an example configured for two alternator shunts, two bus voltages, one battery shunt, and one battery voltage.

Touch Custom Titles to change the title of each row. Custom titles should match the removed equipment labels. To restore the original title, select the custom title, touch Backspace to delete, and then touch Enter.

Touch Markings to configure the markings on the electrical gauges per the AFM/POH and Section 5.7.3.2.

Figure 5-44 6-Value Electrical Gauge Configuration Example

5.7.3.2 Gauge Markings and Ranges

Obtain the AFM/POH or other approved data to set the gauge markings and ranges. If the existing aircraft gauges that are being replaced do not match the AFM/POH or other approved data, the installer must resolve the discrepancy. Prior modifications may have altered the aircraft limitations and operating parameters. The EIS gauges must be configured with alerting yellow and red markings to replicate all yellow and red markings in the AFM/POH, Appendix D, or other approved data unless otherwise stated below.

> WARNING
> Gauge markings, limitations, and units present in the AFM/POH, this manual, or other approved data must be represented on the EIS gauge. No additional yellow or red markings are permitted on required gauges.

> NOTE
> Only red or yellow color bands are capable of alerting.

The TXi EIS gauge configuration features gauge markings that are tied to alerting behavior (as defined in Section 3.2.6). Alert Minimum Lines and Alert Maximum Lines trigger alerting behavior when the indication goes below or above the line, respectively. Piston EIS arcs and Turbine EIS alert arcs trigger alerting behavior when the indication is within the bounds of the arc.

> NOTE
> Alerting behavior is suppressed on Piston EIS Manifold Pressure, RPM, and Fuel Flow gauges, and on Oil Pressure yellow arcs/alerting radials.

Red or yellow markings color must be configured as an alerting line/radial arc with the following exceptions:

- Mooney M20K TIT gauge can be configured for a second non-alerting red line as the first upper limit and the second upper red line as an alerting maximum line (red triangle).
- Piper PA-31T Torque gauges can be configured for a second non-alerting red line as the first upper limit and the second upper red line as an alerting maximum line (red diamond).
- Piper PA-31T2 Torque gauges can be configured for a second non-alerting red line as the first upper limit (red diamond) and the second upper red line as an alerting maximum line.
- Model-specific data provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

For reciprocating engine EIS installations, gauge markings are not available for IAT/CDT/Diff and EGT.

For GDUs configured as both an MFD and an EIS display, each horizontal strip gauges listed below must have at least two lines or one arc so that the pilot can determine the relative value of the indication. If two lines or an arc cannot be configured on the EIS gauge, and the gauge is required, the existing gauge must be retained unless it is configured on a dedicated GDU 700 EIS.

- Oil Pressure
- Oil Temperature
- CHT
- IAT
- CDT
- Fuel Pressure

If replacing an existing gauge, the markings on the EIS gauge must be replicated. Complete Table 5-79 to gather the marking and range information for each gauge specified in the AFM/POH or other approved data.

For a new EIS gauge, only configure the Units and the Gauge Range. All units must match the AFM/POH, if applicable, and values selected must be appropriate for the gauge function.

Table 5-79 Gauge Settings

Gauge Type:						
Units:						
Gauge Range:	Minimum (lowest value):					
	Maximum (highest value):					
Minimum Line: (minimum safe operating limit)	Color:					
	Value:					
Maximum Line: (maximum safe operating limit)	Color:					
	Value:					
	Arc 1		Arc 2		Arc 3	
Arc(s):	Color:		Color:		Color:	
	Min:		Min:		Min:	
	Max:		Max:		Max:	
Other Marking(s):						

Include the settings in Table 5-80 for each installed gauge. If the markings in Table 5-80 conflict with AFM/POH or other approved data, use the AFM/POH or other approved data.

Table 5-80 Additional Gauge Settings

Gauge	Marking
Carb Temp	Blue Arc from -15°C to 5°C
Fuel Quantity	Red Line at 0 or at the Low Fuel Warning level specified by the POH (usable fuel)

The Fuel Quantity gauge can additionally be configured to display Total Fuel on Board in one of the three tank assignment slots (software v3.22 or later).

As an example only, the configuration of a pressure gauge is shown in Figure 5-45, steps a through e.

a.

b.

c.

d.

e.

a. Select the gauge that is to be configured

b. Select the Gauge Type from the Gauge Settings page

c. Select the desired gauge from the Select Gauge Type page

d. Configure the gauge range markings and units as applicable

e. Verify the final gauge presentation

Figure 5-45 Gauge Configuration Example

Use the following procedure for gauge configuration:

1. Complete Table 5-79 for each gauge specified in the AFM/POH or other approved data, and refer to Table 5-80 for additional settings.
2. Using the information gathered in step 1, configure each gauge as shown in the example in Figure 5-45. The EIS gauge settings must accurately convey the limitations in the AFM/POH or other approved data.
3. Use Table 5-81 as an additional guide to set the gauge ranges. When setting the gauge range, verify the minimum and maximum values are captured within the physical markings of the gauge. It may be necessary to adjust the minimum and maximum gauge range so that the gauge needle has a value represented; refer to Figure 5-46 for an example.

4. When configuring the gauge ranges that include redline markings, the total gauge range must be configured so that the pilot can identify an exceeded value if the gauge passes the redline marking.

a. The range markings of 5 PSI and 110 PSI are not captured within gauge presentation

b. To capture the range between 5 PSI and 110 PSI it may be necessary to extend the range markings as shown

Figure 5-46 Gauge Range Marking Example

If a gauge range is not specified by the AFM/POH or other approved data, an appropriate range must be defined based on the gauge function, as specified in Table 5-81.

Table 5-81 Gauge Ranges

Gauge	Guidelines
General	If a new gauge is being added, configure the gauge range for the functional range of the parameter (refer to Figure 5-46). It is required to use an Alert Minimum or Maximum Line. Unless noted below, the gauge range must include all markings and it must be configured to properly fit the EIS gauge format.
Tachometer	Configure the gauge range minimum and maximum based on the range of the tachometer being replaced.
Fuel Flow	Use 0 as the minimum value. Use +10% of the highest marking as the maximum value or +10% of the highest takeoff fuel flow at sea level as the max value.
Manifold Press	The minimum value must be the lower of the following: 10” Hg or 1” below the lowest range marking. Use +1” above the highest marking as the maximum value.
Oil Temp	Use 0°F as the minimum value. Use 10°F above the redline as the maximum value.
Oil Press	Use 0 psi as the minimum value. Use 5-10 psi above the highest marking as the maximum value.
CHT	Use 200°F or 25°F below the lowest marking as the minimum value. Use 25°F above the highest marking as the maximum value. If no markings are present, use a range of 200°F-500°F.
Primary EGT	Use 1000°F as the minimum value. Use 50°F above the redline as the maximum value. If no markings are present, use a range of 1000°F-1700°F.
Carb Temp	The range must be set to -24°C to 34°C.
Fuel Press	Use 0 psi as the minimum value. Use +10% above the highest marking as the maximum value.
Fuel Qty	Use 0 as the minimum value. Use the same maximum range as the fuel indicator being replaced. It is common for the fuel tank to hold more fuel than the system can measure.
De-ice Boot Press	Use 0 psi as the minimum value. Use 10% over maximum pressure, and add a marking (range) for normal operation pressure.

5.7.3.2.1 Unique Gauge Markings

5.7.3.2.1.1 Range Markings Not Visible on EIS

In some cases, the range marking on the EIS gauge may not be visible when configured per the aircraft POH/AFM. This is generally due to the range being too fine. Figure 5-47 provides general guidelines to determine when a certain range may be considered too fine to be visible.

Does the Arc cross any gauge tick marks?

NO

YES

Is the Arc width less than 4% of the gauge range?

Does the Arc start/end coincide with a Radial Line?

YES

NO

Is the Arc width less than 2% of the gauge range?

YES

Configure normal Arc AND configure a Line / Radial of matching color.

NO

NO

Configure normal Arc.

Figure 5-47 Gauge Range Marking Flow Chart

The example in Figure 5-48 shows the tachometer markings on a Cessna 421C. The green arc between 2185 to 2235 RPM is not visible on the EIS display. To avoid this, the range is configured on the tachometer as a Green Line No Alert and placed it at the lower limit of the arc range. General guidelines to follow with gauge displays:

- If possible, adjust the gauge maximum and minimum range to make arc visible.
- Red and Yellow Line/Radials are required to be minimum or maximum alert lines.
- If the narrow arc is near the gauge maximum, configure the line/radial at the lower limit of the arc range.
- If the narrow arc is near the gauge minimum, configure the line/radial at the upper limit of the arc range.

(A) The range between 2185 -2235 RPM configured as a Green Arc per the POH/AFM is not visible on the EIS gauge

(B) The range is made visible by configuring a Green Line No Alert at the center of the range

Figure 5-48 Cessna 421C Tachometer Example

5.7.3.2.1.2 Gauge Range Minimum and Maximum

The minimum and maximum limits of the gauge range may be adjusted to optimize pilot interpretation of the gauge; however, all limitations in the POH/AFM or other approved aircraft data must be displayed on the gauge.

5.7.3.2.1.3 Gauge with Varying Arc Width

The G500/G600 EIS display does not provide varying gauge arc width configuration options, as seen in Figure 5-49. For a gauge being replaced that contains a varying arc width, the gauge must be configured so that the arc length is continuous for the intended length of the colored arc. Refer to Figure 5-49 as an example.

Varying Gauge Arc Width Example

Continuous Gauge Arc Width Example

Figure 5-49 Varying Gauge Arc

5.7.3.3 Advanced Settings

The advanced settings for each gauge can be configured by touching EIS Gauges, selecting the desired gauge, and then touching Advanced Settings at the bottom of the screen. The left column toggles the feature on (i.e., illuminated green) and off. Touch the appropriate Settings button to access the configuration settings for that feature.

Figure 5-50 Advanced Settings Example

Some advanced settings are not available to all gauges.

- The Text Lamps feature applies to primary gauges only (not bar gauges).
- The Customize Gauge Title feature applies to primary gauges, Vacuum (De-ice boot) Pressure gauges, and Rudder Trim gauges.
- The Dynamic Markings and Exceedances features apply to all gauges except Fuel Quantity, EGT/CHT, Vacuum (De-ice boot) Pressure, and Rudder Trim.
- Additionally, configuration of advanced settings for aircraft with reciprocating engines is limited to Dynamic Markings, Gauge Driven Discrete, and electrical gauge Custom Gauge Title.

Refer to Section 1.2.7 for descriptions of each advanced setting.

5.7.3.3.1 Customize Gauge Title

To configure a custom gauge title to match the POH/AFM:

1. From the Configuration mode home screen, touch **EIS → Gauge**.
2. Select the gauge that will have the custom title applied.
3. Touch **Advanced Settings → Customize Gauge Title** to enable it, then touch **Settings**. Alternatively, some gauges may have a **Custom Titles** button in place of the **Advanced Settings** button.
4. Touch **Title** and enter the desired gauge title. Touch **Enter** when finished.

To delete a custom gauge title

1. From the Customize Gauge Title settings page, touch **Title** to bring up keyboard.
2. Touch **Backspace** to clear the custom title.
3. Touch **Enter** to restore the default title.

NOTE

Gauge titles must match the gauge being removed, the AFM/POH, or other approved aircraft data.

NOTE

For twin-engine aircraft, Custom Gauge Titles may be configured on either the left or right gauge; gauge titles are shared between left and right gauges in twin-engine EIS.

5.7.3.3.2 Dynamic Markings

NOTE
For twin-engine aircraft, Dynamic Gauge Markings are approved only with software v3.22 or later.

NOTE
For twin-engine aircraft, Dynamic Markings may be configured on either the left or right gauge; Dynamic Markings are shared between left and right gauges in twin-engine EIS.

For supported airframes, configuration templates can be used to automatically configure dynamic markings. Refer to Section 5.2.4.1 for more information. Template files are for reference only and must be verified by the installer. If configuration templates do not exist for the aircraft, or if parameters need to be adjusted to match approved data, dynamic markings must be configured using the steps below. An example is shown for configuring dynamic markings on a torque gauge based on propeller RPM.

1. Set Up Standard Markings: The standard markings and gauge range must be configured before configuring dynamic markings. This step is unchanged from previous EIS marking configuration. Refer to Section 5.7.3.2 for instructions.

Figure 5-51 Standard Markings

2. Navigate to the Dynamic Markings Page: Dynamic markings are specific to each gauge. To enable dynamic markings, touch EIS Gauge, select the desired gauge, touch Advanced Settings, and toggle Dynamic Markings on (i.e., illuminated green). Touch Settings to access the Dynamic Markings page.

Figure 5-52 Dynamic Markings Toggle

3. Turning Triggers On and Off: The numbered toggle buttons on the left of the page turn the triggers on and off. The system evaluates the triggers in numerical order. When a trigger is satisfied, the system displays the associated set of dynamic markings.

Figure 5-53 Dynamic Markings Settings

4. Setting Trigger Conditions: Each trigger must be configured with a data type, condition type, and duration. For data types that use numerical values, additional fields are available to enter the needed value. Data types and condition types are listed in Section 1.2.7.2. Set the duration per the AFM/POH or other approved aircraft data.

Figure 5-54 Trigger Conditions

The Add Condition button is used to create complex triggers that utilize multiple conditions. The trigger is only satisfied when all conditions are true. Complex triggers are used in situations where the limitations of the dependent gauge are affected by more than one parameter. For example, engine torque markings (which convey limitations) can depend on propeller RPM and a torque limiter discrete.

NOTE

For standalone EIS installations with GPS: Do not configure Outside Air Temp or Pressure Altitude as a trigger condition for dynamic markings.

For standalone EIS installations without GPS: Do not configure Outside Air Temp, Pressure Altitude, or Airborne Status as trigger conditions for dynamic markings.

5. The Settings button on each trigger row provides access to configure the associated trigger.

Figure 5-55 Dynamic Markings

CAUTION

Do not adjust the standard gauge range unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

Repeat steps 3 through 5 until all required dynamic markings are configured.

6. Reordering the Trigger List: Triggers are evaluated in numerical order and the system will display the markings corresponding to the first trigger satisfied. There may be overlap between the conditions where multiple triggers are satisfied simultaneously, depending on powerplant limitations presented in the AFM/POH. Thus, it is important to consider the order of triggers being configured when one set of dynamic markings should precede another. Triggers can be easily reordered by selecting the Reorder button at the bottom of the screen. To reorder, tap and hold the blue icon to the left of the trigger description until the blue position indicator bar appears, then drag the trigger into the appropriate location. When all triggers are in the correct order, tap the Confirm button at the bottom of the screen to return to the default screen.
7. Previewing the Dynamic Gauge: To assist with configuring dynamic markings and ensuring the triggers are in the proper order, a graphical preview is available. Select the Preview icon at the bottom of the screen to display the triggers and dynamic markings in a flowchart format for ease of interpretation.

Figure 5-56 Dynamic Markings Preview

5.7.3.3.3 Text Lamps

Text lamps may be configured to replicate an indicator from the previous gauge, if applicable. Text lamps are optional otherwise.

> NOTE
> Before text lamps can be configured, the corresponding discrete input must be configured. For details on configuring engine discrete inputs, refer to Section 5.4.28.

Text lamp configuration is accessed via the Advanced Settings menu of the supported gauge. To configure a text lamp:

1. From the Configuration mode home screen, touch EIS – Gauge.
2. Select the gauge that will have the text lamp applied.
3. Touch Advanced Settings
4. Touch Text Lamps to enable it, then touch Settings
5. Touch Text Lamp and select the text lamp associated with the gauge.
6. Touch Color and select White (unless specified by model-specific data in Appendix D).

> NOTE
> Do not enable Flashing Alert.

7. If the Starter text lamp is selected, the Text Lamp Timer may be enabled and the associated starter discrete condition for display of the text lamp (and timer, if enabled) may be configured.

> NOTE
> Do not enable Suppress Timer when Running unless model-specific guidance is provided in Appendix D.

5.7.3.3.4 Exceedances

> NOTE
> For twin-engine aircraft, Exceedances may be configured on either the left or right gauge; exceedance configurations are shared between left and right gauges in twin-engine EIS. Exceedance Timers will operate on the appropriate data source and engine operating conditions for that engine.

For supported airframes, configuration templates can be used to automatically configure exceedance timers; however, all timers must be verified to match the AFM/POH values. Refer to Section 5.2.4.1 for instructions on loading configuration templates. If parameters need to be adjusted to match approved data, exceedance timers must be configured using the following steps:

1. From the Configuration mode home screen, touch EIS – Gauge.
2. Select the gauge that is to be configured.
3. Touch Advanced Settings
4. Touch Exceedance Timers to enable it, then touch Settings.
5. For each engine operating condition, add the appropriate timers and set the Timer Duration and Threshold. Use the tabs on the left of the screen to cycle between engine operating conditions and to set the appropriate timers for each.

5.7.3.3.5 Gauge Driven Discrete

Before configuring a Gauge Driven Discrete, the discrete output interface must first be configured present and assigned an output port. Refer to Section 5.4.29 for engine discrete output configuration instructions. Refer to Section 1.2.7.5 for supported gauges.

To configure a Gauge Driven Discrete:

1. From the Configuration mode home screen, touch EIS Gauge.
2. Select the gauge that is to be configured.
3. Touch Advanced Settings.
4. Touch Gauge Driven Discrete to enable it, then touch Settings.
5. Touch the numbered button to enable it.
6. Set the Data type to one of the following:
    a. Value – this will trigger the discrete at a specific value.
    b. Marking Range – this will trigger the discrete any time the gauge is in a selected range, such as Normal (green), Caution (yellow), or Warning (red). This option takes dynamic markings into account, thus providing alerting in more varied situations.
7. Select the desired Condition Type. For a data type of Value, the options are: Between, At or Above, and Below. For a data type of Marking Range, the options are Normal (Green), Caution (Yellow), and Warning (Red).
8. If a data type of Value was selected, enter the numerical value(s) to be evaluated, then touch Enter.
9. Touch Settings, then select the discrete output.

Figure 5-57 Configured Condition Type

Multiple discrete output conditions can be configured for each gauge. The discrete will be activated whenever any one of the conditions is met.

5.7.3.3.6 Custom Gauge Readout

Applicability of the following Custom Gauge Readout configuration settings varies depending on the gauge selected.

To configure a Custom Gauge Readout, perform the following procedure:

1. From the Configuration mode home screen, touch EIS !’ Gauge.
2. Select the Propeller RPM gauge.
3. Touch Advanced Settings.
4. Touch Custom Gauge Readout to enable it, then touch Settings.
5. Configure settings per the following instructions.

Minimum

The Minimum setting is only applicable to Turboprop EIS Propeller RPM. In some cases, propeller RPM may become erratic at very low RPM, such as at the beginning of startup and at the end of shutdown. The Minimum setting defines a threshold of propeller RPM below which the gauge value indication will be removed to eliminate distracting indications. In installations where this setting is not automatically configured, refer to Section 6.12.3 for guidance on determining if the aircraft requires this setting. If necessary to configure Minimum manually, configure the desired threshold (up to 200 RPM).

Gauge Inset

The Gauge Inset setting is only applicable to Turboprop EIS primary gauges. The Gauge Inset setting allows for display of shaft horsepower (for aircraft with Pratt & Whitney PT6A engines), percent horsepower (for aircraft with Pratt & Whitney PT6A engines), or outside air temperature (software v3.22 or later) in the lower left corner of the gauge. Refer to Section 5.7.4.2.1 for horsepower configuration.

If an Outside Air Temperature Gauge Inset is configured, do not configure alerts on the inset except as provided by model-specific data in Appendix D.

Value Lock

Do not configure Value Lock unless specified in model-specific data provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

Bar Gauge Digital Readout

> NOTE
> The Digital Readout setting is not approved for twin-engine turbine aircraft.

> NOTE
> Turboprop aircraft that have bar gauges with Digital Readout enabled will not display exceedance timers visually. Exceedances may still be configured under Advanced Settings.

Bar gauges in both turbine and reciprocating EIS can use the Digital Readout setting to toggle on a digital readout adjacent to the bar gauge. In some cases, toggling on a digital readout will shorten the overall width of the bar, but will present the same data. This setting is optional and can be used at the discretion of the customer/installer.

Merged Style for Fuel Quantity

Available for the GDU 1210, GDU 1060, GDU 700P MFD/EIS, select GDU 700( ) EIS, and select GDU 700L MFD/EIS. The Merged Style for Fuel Quantity setting can merge two adjacent gauge slots configured for fuel quantity into one large gauge. Individual fuel quantity gauges can display up to three tanks, and merged fuel quantity gauges can display up to six tanks. The adjacent gauges must be top and bottom on the GDU 1060/1210 EIS strip or left and right on the GDU 700P EIS/MFD. To merge the fuel quantity gauges, first configure two adjacent gauge slots to be fuel quantity gauges. Next, select the left/top gauge and configure at least one tank assignment. After the first tank is assigned the Advanced Settings menu will appear at the bottom of the page. Select Advanced Settings !’ Custom Gauge Read Settings !’ Merged Style. Select GDU 700( ) EIS and GDU 700L EIS/MFD gauges are incompatible with merging and will indicate as such when attempted. After the merged style is activated, configure the remaining tanks.

NOTE
The merged gauge style cannot be activated from the gauge occupying the bottom/right position.

Figure 5-58 Merged Fuel Quantity Configuration Examples

Precision Setting

The Precision Setting sets how precise the digital readout value is for the Torque gauge (when configured in FT-LBS units) and the Fuel Pressure gauge (for both Piston and Turbine EIS).

Configure the Torque (FT-LBS) Precision Setting to Fives.

Configure the Fuel Pressure Precision Setting to Tenths if either of the following are true:

- The full-scale range of the gauge is less than 67 PSI.
- The AFM/POH contains fuel pressure limitations in tenths precision (i.e. 45.5 PSI).

Otherwise, configure the Fuel Pressure Precision Setting to Whole.

5.7.3.3.7 Gauge Scaling

Do not configure Gauge Scaling unless specified in model-specific data provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

The Gauge Scaling setting allows configurable gauge ranges to be scaled to a higher or lower percentage of the gauge circumference.

5.7.3.3.8 Turboprop Torque Target Indicator

Configure the Target Indicator values to enable pilot activation of the Torque Bug using the following procedure:

1. From the Configuration mode home screen, touch EIS → Gauge.
2. Select the Torque gauge.
3. Touch Advanced Settings → Target Indicator to enable it, then touch Settings.
4. Touch Model and select Other.
5. Configure settings using the following instructions and the AFM/POH.

Default Bug Value

Configure the Default Bug Value to be the Takeoff torque limit listed in the Powerplant Limitations of the AFM/POH (or other approved data).

If there is more than one Takeoff torque limit listed, configure to the Default Bug Value to be the lowest Takeoff torque limit.

Bug Minimum

Unless otherwise specified in model-specific data in Appendix D, configure the Bug Minimum to be 30% of the Bug Maximum value, rounded down to the nearest 5 ft-lbs or 1 PSI or percent.

For example:

Bug Maximum of 1738 ft-lb

1738*0.3 = 521.4

Rounded down to the nearest 5 = 520 Bug Minimum setting.

Bug Maximum

Configure the Bug Maximum to be the Takeoff or Maximum Continuous torque limit (whichever is greater) that is listed in the Powerplant Limitations of the AFM/POH (or other approved data).

If the proposed Bug Maximum value is time-limited to less than 5 minutes per the Powerplant Limitations of the AFM/POH (or other approved data), use the next lowest torque limit value.

IAS Declutter Speed

Configuration of IAS Declutter Speed is prohibited.

5.7.4 Additional Settings

(Home!’ EIS!’ Additional Settings)

5.7.4.1 Piston EIS Additional Settings

5.7.4.1.1 Engine Power

All piston aircraft may enable Engine Power, which allows percent engine power to be indicated as a pilot-selectable gauge. Cirrus SR20/SR22 models may use Engine Power as a primary engine indication. Engine Power requires RPM, Manifold Pressure, and Fuel Flow sensors to be configured. OAT must be provided from the ADC or a configured OAT EIS sensor.

Cirrus Engine Power

To enable Percent Power as a configurable primary engine gauge, the Cirrus aircraft and engine makes and models must first be configured in the Aircraft Info page (Home!’ System Setup!’ Aircraft Info). Supported Cirrus aircraft and engine makes and models are listed in Table 5-82.

Table 5-82 Cirrus Engine Power Approved Models

Aircraft Make	Aircraft Model	Engine Make	Engine Model	Engine Dash Number
Cirrus	SR20	Continental	IO-360	-ES
Cirrus	SR22	Continental	IO-550	-N -N (TAT)

When one of these aircraft and engine make and model are configured on the Aircraft Info page, Percent Power will become a configurable primary gauge, and Engine Power will automatically be enabled on the Additional Settings page.

Generic Piston Engine Power

The following items under Additional Settings !’ Engine Power must be configured for Engine Power to be available:

- Maximum Rated Engine Horsepower
- Maximum Manifold Pressure
  - %æDefaulted to 29.92 in-Hg for normally-aspirated aircraft
- RPM at Maximum Rated Engine Horsepower
  - %æVerify configured RPM value type matches the display RPM type (i.e., engine RPM vs propeller RPM)
- Minimum Brake Specific Fuel Consumption
  - %æDefaulted to 0.39 lb/hr/BHP

NOTE

Minimum BSFC should not be changed from the default value unless an alternate value can be identified in a specific installation's engine operator's manual. Some engine operator's manuals graphically depict minimum BSFC on engine performance curves.

5.7.4.1.2 Fuel Imbalance Monitor

The Fuel Imbalance Monitor alerts the pilot when the fuel quantity difference between left and right tanks is greater than a configurable threshold. Before configuring this setting, at least one pair of fuel quantity sensors and gauges must be configured. This can be both Main Left and Main Right fuel quantity and/or AUX Left and AUX Right fuel quantity. If replacing an existing Fuel Imbalance system, select the same gauges used by the previous aircraft system. Refer to Section 5.7.2 for fuel quantity sensor configuration and Section 5.7.3.1 for gauge configuration.

To enable Fuel Imbalance Monitor, touch EIS !’ Additional Settings !’ Fuel Imbalance Mo (to enable) !’ Settings. Under the Alerting Settings section, again enable Fuel Imbalance Monitor by selecting it and then select Settings. Under the Activation section, configure the following parameters:

- Activation Threshold - The fuel imbalance alert will be set to active when the fuel quantity difference is greater than this value for the configured time. Refer to Figure 5-61 for Activation Threshold configuration instructions.
- Time Delay - The fuel imbalance alert will be set to active when the fuel quantity difference is greater than the activation threshold for this configured time. Set to the default 60 seconds unless model-specific data in Appendix D instructs otherwise.
- Deactivation Threshold - The fuel imbalance alert will be set to inactive when the fuel quantity difference is at or below this value. Set to the Activation Threshold value unless model-specific data in Appendix D instructs otherwise.

Figure 5-59 Activation Threshold Configuration

When the above parameters are configured, enable Record in Maintenance Log to automatically log any fuel imbalance conditions that occur.

The Fuel Imbalance Discrete outputs can activate previously installed fuel imbalance annunciator lamps. They are limited to illumination of yellow/amber fuel imbalance annunciator lamps to ensure the TXi's yellow fuel imbalance annunciation matches the annunciator lamp color. If the existing fuel imbalance annunciator lamp is not yellow/amber, or the output is not compatible with the annunciator's circuit, do not configure the output. Refer to Figure B-23 for annunciator lamp wiring instructions.

Before assigning one or more discrete outputs to the Fuel Imbalance Discrete, first configure the Engine Discrete Out per Section 5.4.29.

> CAUTION
> Do not connect the Fuel Imbalance Discrete output(s) to any other aircraft system unless model-specific instructions exist in Appendix D.

To configure the Fuel Imbalance Discrete, to edit Settings. Assign the imbalance annunciator discrete(s) that were configured in Section 5.4.28 to the L Heavy Discrete and the R Heavy Discrete. The L Heavy Discrete will activate its assigned discrete when the left fuel tank has more fuel than the right and the fuel imbalance activation threshold (configured in Fuel Imbalance Alerting settings) has been met. Similarly, the R Heavy Discrete will activate its assigned discrete when the right fuel tank has more fuel than the left and the fuel imbalance activation threshold has been met. Leave the Optional selections in the Fuel Imbalance Discrete Settings menu unconfigured unless model-specific instructions exist in Appendix D.

5.7.4.1.3 Lean Assist

Table 5-83 Lean Assist Settings

Setting	Configuration
Temperature Rise	Configure the Temperature Rise threshold as 14.0°F.
Temperature Drop	Configure the Temperature Drop threshold as 7.2°F.
Fuel Flow Hysteresis	Configure the Fuel Flow Hysteresis threshold as 0.2 GPH.
TIT Lean Limit	If the TIT gauge(s) are configured with a Red Line Max Alert marking, configure the TIT Lean Limit as TIT Red Line Max Alert; otherwise, configure the TIT Lean Limit as TIT Gauge Maximum.

5.7.4.1.4 Selectable Fuel Quantity Gauge

NOTE
This feature is limited to certain aircraft models. Refer to Appendix Section D.1.

The selectable fuel quantity feature allows TXi to replicate a gauge that is switched to show more than two aircraft fuel tanks. The selection switches determine which tanks will be displayed on the indicator. Perform the following steps to configure selectable fuel quantity:

1. Touch Interfaces.
2. Scroll down to Discrete In and ensure it is set to Present. Touch Settings.
3. Select the Engine tab and configure the Left Fuel Tank and Right Fuel Tank discretes. An active discrete input selects the aux tank, and inactive selects the main tank. Refer to Section 5.4.28 for configuration of engine discrete inputs.
4. Touch Home !’ EIS !’ Sensor
5. Configure the desired fuel quantity input(s). Configure sensor type, port selection, and model as appropriate for the sensor and GEA used as described in Section 5.7.2.
6. Touch Home EIS !’ Gauge.
7. Configure the fuel gauge as desired. Refer to Section 5.7.3.3.6 for merged gauge configuration data.
8. Touch Home EIS !’ Fuel !’ Fuel Quantity Calibration.
9. Calibrate the fuel tanks following the on-screen steps and Section 5.8.7.2.

Interfaces -> Discrete In -> Settings

EIS -> Sensors

EIS -> Gauge Settings (small) OR EIS -> Gauge Settings (merged/large)

Figure 5-60 Selectable Fuel Quantity Configuration

5.7.4.2 Turbine EIS Additional Settings

5.7.4.2.1 Engine Power

Engine Power may only be enabled for aircraft equipped with Pratt & Whitney PT6A engines. Engine Power allows both Shaft Horsepower and Percent Power to become available parameters for Gauge Insets on primary gauges and available selections on pilot-selectable gauges. Turboprop Engine Power requires Torque and Propeller RPM sensors to be configured.

To configure Shaft Horsepower, a conversion from torque PSI to ft-lb is required. This conversion may be configured one of three ways:

- Advanced Settings - From the Configuration mode home screen, touch EIS !’ Additional Settings !’ Settings (Engine Power) !’ Conversion Factor and enter the conversion values.
- Torque Gauge - From the Configuration mode home screen, touch EIS !’ Gauges, select the Torque gauge, and then touch Units !’ Pounds per . A pop-up will allow you to enter the conversion values.
- Gauge Inset - From the Configuration mode home screen, touch EIS !’ Gauges, select the Torque or Prop RPM gauge, and then touch Advanced Settings (Custom Gauges Readout) !’ Gauge Inset !’ Data Source !’ Engine Shaft Horsepower !’ Conversi and enter the conversion values.

Configure Percent Power using the following procedure:

1. Configure the PSI to ft-lb conversion using the above procedure.
2. Configure Horsepower to 100% Power one of two ways:
   a. Advanced Settings - From the Configuration mode home screen, touch EIS !’ Additional Settings !’ Settings (Engine Power) !’ Conversion Factor and enter the conversion values.
   b. Gauge Inset - From the Configuration mode home screen, touch EIS !’ Gauges, select the Torque or Prop RPM gauge, and then touch Advanced Settings (Custom Gauges Readout) !’ Gauge Inset !’ Data Source !’ Engine Percent Power !’ Co and enter the conversion value.

5.7.4.2.2 Fuel Imbalance Monitor

The Fuel Imbalance Monitor alerts the pilot when the fuel quantity difference between left and right tanks is greater than a configurable threshold. Before configuring this setting, at least one pair of fuel quantity sensors and gauges must be configured. This can be both Main Left and Main Right fuel quantity and/or AUX Left and AUX Right fuel quantity. If replacing an existing Fuel Imbalance system, select the same gauges used by the previous aircraft system. Refer to Section 5.7.2 for fuel quantity sensor configuration and Section 5.7.3.1 for gauge configuration.

To enable Fuel Imbalance Monitor, touch EIS !’ Additional Settings !’ Fuel Imbalance Mo (to enable) !’ Settings. Under the Alerting Settings section, again enable Fuel Imbalance Monitor by selecting it and then select Settings. Under the Activation section, configure the following parameters:

- Activation Threshold - The fuel imbalance alert will be set to active when the fuel quantity difference is greater than this value for the configured time. Refer to Figure 5-61 for Activation Threshold configuration instructions.
- Time Delay - The fuel imbalance alert will be set to active when the fuel quantity difference is greater than the activation threshold for this configured time. Set to the default 60 seconds unless model-specific data in Appendix D instructs otherwise.

- Deactivation Threshold- The fuel imbalance alert will be set to inactive when the fuel quantity difference is at or below this value. Set to the Activation Threshold value unless model-specific data in Appendix D instructs otherwise.

Figure 5-61 Activation Threshold Configuration

When the above parameters are configured, enable Record in Maintenance Log to automatically log any fuel imbalance conditions that occur.

The Fuel Imbalance Discrete outputs can activate previously installed fuel imbalance annunciator lamps. They are limited to illumination of yellow/amber fuel imbalance annunciator lamps to ensure the TXi's yellow fuel imbalance annunciation matches the annunciator lamp color. If the existing fuel imbalance annunciator lamp is not yellow/amber, or the output is not compatible with the annunciator's circuit, do not configure the output. Refer to Figure B-23 for annunciator lamp wiring instructions.

Before assigning one or more discrete outputs to the Fuel Imbalance Discrete, first configure the Engine Discrete Out per Section 5.4.29.

CAUTION

Do not connect the Fuel Imbalance Discrete output(s) to any other aircraft system unless model-specific instructions exist in Appendix D.

To configure the Fuel Imbalance Discrete, to Settings Assign the imbalance annunciator discrete(s) that were configured in Section 5.4.28 to the L Heavy Discrete and the R Heavy Discrete The L Heavy Discrete will activate its assigned discrete when the left fuel tank has more fuel than the right and the fuel imbalance activation threshold (configured in Fuel Imbalance Alerting settings) has been met. Similarly, the R Heavy Discrete will activate its assigned discrete when the right fuel tank has more fuel than the left and the fuel imbalance activation threshold has been met. Leave the Optional selections in the Fuel Imbalance Discrete Settings menu unconfigured unless model-specific instructions exist in Appendix D.

5.7.4.2.3 Auto Ignition

Auto Ignition interfaces are prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

5.7.4.2.4 Auto Start

Auto Start interfaces are prohibited unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

5.7.4.2.5 Engine Operating Condition

Engine Operating Condition defines the conditions that allow TXi to determine if the engine is starting, running, or off. For twin-engine turboprop aircraft, each engine has its own monitor for determining engine operating condition, but the configuration parameters apply to both engines.

The Engine Operating Condition can be automatically configured via configuration template files for supported airframes; however, all Engine Operating Conditions must be verified to match the AFM/POH or other approved aircraft data. Refer to Section 5.2.4.1 for configuration template information. If desired, the Engine Operating Condition can be configured manually using the following guidance:

- Engine Starting Condition:
  - Will automatically configure to be the starter discrete if a starter discrete input is configured (refer to Section 5.4.28). Otherwise, the Engine Starting Condition defaults to be RPM Rising (when the engine state is OFF).
- RPM Source:
  - Aircraft with Pratt and Whitney PT6A engine(s), configure RPM Source as N1 / NG (Gas Producer RPM).
  - Aircraft with Honeywell TPE331-10/-10N engine(s), configure RPM Source as NP (Prop RPM).
- Engine Running Condition and Engine Off Condition:
  - Configure the Engine Running Condition and Engine Off Condition parameters using the values given by engine start and shutdown procedures in the AFM/POH or other approved aircraft data for Engine Temperature and Gas Producer/Propeller RPM.

5.7.4.2.6 Starter Timer

Aircraft with Turbine EIS enabled and a Starter Discrete configured for each engine may select Active or Inactive as the condition for the discrete.

Configure Cooldown Timer Display After for 4 Seconds unless model-specific data is provided in Appendix D or appropriate Installation Manual Addendum, if applicable.

Configure Minimum Starter Run Time for Cooldown Timer to 5 Seconds if the starter discrete wired to the GEA 71B Enhanced is connected to an annunciator light that is tested by the pilot prior to engine start. Otherwise, configure Minimum Starter Run Time for Cooldown Timer to 0 seconds.

5.8 Calibration/Checks

This section provides guidance for calibrating the G500/G600 TXi system after the configuration steps have been completed. Calibration procedures for Manifold Pressure and Oil Pressure sensors are accomplished during sensor selection (refer to Section 5.7.2).

5.8.1 Attitude/Heading

The connected AHRS will not provide valid outputs until the calibration procedures in this section are completed. Prior to completing the Pitch/Roll Offset Compensation (refer to Section 5.8.1.1) and Magnetometer Calibration (refer to Section 6.6.1) procedures, the annunciation "CALIBRATE AHRS/ MAG" will be displayed on the PFD, and the attitude and heading will be displayed. Once the aircraft is moved, the attitude and heading display will show a red "X". This condition is normal and will automatically clear when the two succeeding calibration procedures are completed.

> NOTE
> The calibration procedure must be initiated on the display to which the AHRS unit is directly wired. For dual AHRS installations, the following procedures must be performed for each AHRS unit.

5.8.1.1 Pitch/Roll Offset Compensation

This procedure must be completed for each installed AHRS. For dual AHRS installations, this procedure can be conducted for each AHRS simultaneously using two different displays. The aircraft must be leveled to within 0.25° of zero pitch and zero roll using the procedures in the aircraft maintenance manual or AFM/ POH. The following procedures must be completed with the engine OFF:

1. Select *Pitch / Roll Offset* from the Procedures menu (Home → Calibration/Test → Attitude/ Heading).
2. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
3. Complete the Before Calibration steps listed on the display; select each step when complete so that a green check mark appears next to the selection.

> NOTE
> If calibrating two AHRS simultaneously, verify that step 3 is completed on both GDUs prior to pressing the *Calibrate* button. The button must be selected on both GDUs in order to calibrate both AHRS units.

4. Select the *Calibrate* button when it becomes active to start the calibration procedure.
5. Follow the on-screen command prompts.
6. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.

The magnetometer calibration and compass swing are completed after the initial Engine Run-up Test has been completed. Refer to Section 6.6.

5.8.2 Garmin Autopilot Calibration

5.8.2.1 GFC 500 Autopilot

The autopilot interface to a Garmin GFC 500 must be verified. The following calibration procedure is used to ensure autopilot annunciations are correctly displayed on the top section of the GDU PFD.

Complete the following procedure:

1. Power on the aircraft avionics.
2. Engage the autopilot by pressing the AP button on the GMC 507.
3. Verify that the same ROL | AP YD* | PIT ALTS autopilot mode annunciations are displayed on both the G5 and on the GDU PFD.

   NOTE

   “YD” is only displayed if the aircraft has a yaw damper installed and configured.

4. Verify that the magenta flight director bars on the G5 are shown on the GDU.
   a. Move the pitch wheel on the GMC 507 and verify that the flight director bars displayed on the GDU update accordingly and match the flight director bars displayed on the G5.
5. Change NAV modes on the GDU PFD and verify that the CDI bar on the G5 correctly shows a magenta triangle for GPS or a green triangle for LOC*.

   NOTE

   If a LOC fix is not available, the CDI bar on the G5 will not be shown.

6. Verify that the altitude preselect bug displayed on the GDU PFD updates correctly and matches the corresponding altitude preselect bug displayed on the G5 when adjusted with the altitude knob on the GMC 507.
7. Verify that the heading bug displayed on the GDU PFD updates correctly and matches the corresponding heading bug displayed on the G5 when adjusted with the heading knob on the GMC 507.
8. Verify that the altitude preselect and heading bugs displayed on the G5 update correctly and match the corresponding bugs displayed on the GDU when bug values are adjusted using the GDU.
9. Place the GFC 500 in Indicated Airspeed mode by pressing the IAS button on the GMC 507.
10. Verify that the airspeed annunciation value on the GDU updates correctly when changed from the GMC 507 using the pitch wheel.
11. Verify that the airspeed annunciation value on the G5 updates correctly when changed from the GDU.
12. Switch to Vertical Speed mode by pressing the VS button on the GMC 507.
13. Verify that the vertical speed bug displayed on the GDU vertical speed indicator updates correctly and matches the vertical speed bug displayed on the G5 when adjusted using the pitch wheel on the GMC 507.
14. Verify that the vertical speed bug displayed on the G5 vertical speed indicator updates correctly and matches the vertical speed bug displayed on the GDU when the vertical speed reference is changed using controls on the GDU.
15. Adjust the barometric pressure setting on the G5 until it matches the barometric setting displayed on the GDU. Wait at least 5 seconds before proceeding with step 16.

NOTE

The G5 Barometric Pressure setting will be displayed in white text on a black background when the BARO setting matches the value set on the GDU.

16. Change the barometric pressure setting on the GDU PFD and verify that the Barometric Pressure setting on the G5 automatically updates to match the selected value on the GDU.

NOTE

The G5 Barometric Pressure setting will be displayed in black text on a cyan background when the BARO setting is being adjusted from the GDU.

17. Change the Barometric Pressure setting on the G5 and verify that the Barometric Pressure setting on the GDU does not change.

NOTE

The G5 Barometric Pressure setting will be displayed in black text on a yellow background when the BARO settings on the G5 and GDU do not match.

5.8.2.2 GFC 600 Autopilot

The autopilot interface to a Garmin GFC 600 must be verified. The following calibration procedure is used to ensure that autopilot annunciations are correctly displayed on the top section of the GDU PFD.

Complete the following procedure:

1. Power on the aircraft avionics.
2. Engage the autopilot by pressing the AP button on the GMC 605(C).
3. Verify ROL and PIT ALTS are displayed, green lights next to AP, FD, and YD are illuminated on the GMC 605 (not applicable to GMC 605C), and ROL | AP YD* | PIT ALTS are displayed on the GDU.

   NOTE

   “YD” is only displayed if the aircraft has a yaw damper installed and configured.

4. Verify that the magenta flight director bars are displayed on the GDU.
   a. Move the pitch wheel on the GMC 605(C) and verify that the flight director bars displayed on the GDU update accordingly.
5. Adjust the altitude bug on the GDU.
6. Verify that the ALTS value in the armed section on the GMC 605(C) updates to the altitude bug value on the GDU.
7. Place the GFC 600 in either Indicated Airspeed mode by pressing the IAS button on the GMC 605(C) or in Flight Level Change mode by pressing the FLC button on the GMC 605C.
8. Verify that the airspeed annunciation value on the GDU updates correctly when changed from the GMC 605(C) using the pitch wheel.
9. Verify that the airspeed annunciation value on the GMC 605(C) updates correctly when changed from the GDU.
10. Switch to Vertical Speed mode by pressing the VS button on the GMC 605(C).

11. Verify that the vertical speed bug on the GDU updates correctly when changed from the GMC 605(C) using the pitch wheel.
12. Verify that the vertical speed reference value on the GMC 605(C) updates correctly when changed from the GDU.

5.8.3 Honeywell (Bendix/King) Autopilot Calibration

When using the GAD 43(e) to replace the autopilot attitude gyro, it is necessary to perform the Gyro Alignment Procedure to align the autopilot computer to the standardized output generated by the adapter. Failure to align the autopilot computer to the GAD 43(e) outputs can result in:

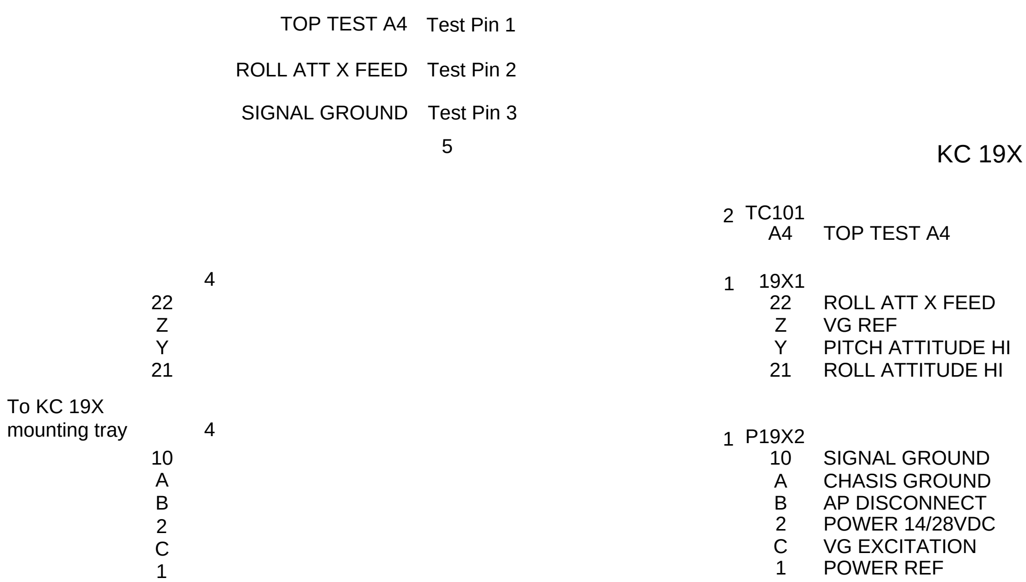
- Shallow or excessive bank angles during turns
- Sluggish or aggressive response to pitch commands
- Poor autopilot performance

5.8.3.1 KFC/KAP 150, KAP 100 Autopilot

NOTE

The following alignment is only required if the GAD 43(e) is used to provide analog attitude to the autopilot.

The following procedure requires a temporary test harness to be installed as shown in Figure 5-62. The parts required for the test harness installation are listed in Table 5-84. A voltmeter accurate to ±1mV at a 5 VDC range is also required.



NOTES

1 THE KC19X CARD EDGE CONNECTORS ARE BOTH ORIENTED SO THE LETTERED SIDE OF THE CONNECTORS FACE UP.

2 A4 IS THE FOURTH CONNECTOR FROM THE LEFT ON THE TOP WHEN VIEWED FROM THE FRONT. TC101 IS NOT APPLICABLE TO THE KC 190/KAP 100.

Figure 5-62 KAP 100 & KAP/KFC 150 Test Harness

Table 5-84 Extension Harness Parts

	Name	Description	Manufacturer	Manufacturer P/N	Qty
1	Main connectors 19X1/19X2 female	Dual edge 44- position	TE Connectivity AMP Connectors	583617-1	2
2	Top side connector TC101 female	Dual edge 20- position	TE Connectivity AMP Connectors	583861-4	1
3	Female crimp connectors	Terminal edge crimp	TE Connectivity AMP Connectors	5-583853-4	Varies
4	Main connectors 19X1/19X2 male	Dual edge 44- position	Sullins Connector Solutions	EBM22MMWD	2
5	Tip jack [1]	Connector tip jack, red	Cinch Connectivity Solutions Johnson	105-0602-001	3

Notes:

[1] It is only required to access the signals on the indicated wires with a voltmeter; therefore, any other equivalent option is acceptable.

Gyro Alignment Procedure

1. Remove the KC 19X computer from the mounting rack.
2. Connect the test harness as shown in Figure 5-62 to allow access to the adjustment pots (one on the front and three on the side) and the three signal test pins.
3. Power the GDU in Configuration mode.
4. Verify the GAD 43(e) is powered on.
5. Go to the GAD 43/43e Test page as shown in Figure 5-63 (Home → Calibration/Test → GAD 43/43e Test)
6. Verify that the GAD 43(e) test values are 0° pitch and 0° roll and are valid.
7. Measure the voltage from test pin 2 (J19x1-22) to test pin 3 (J19x2-10) with a digital voltmeter.
8. Adjust the RN potentiometer to obtain a voltmeter reading of 0.0 VDC.
9. Measure the voltage from test pin 1 (TC101-A4) to test pin 3 (J19x2-10) with a digital voltmeter.
10. Adjust the PDN potentiometer to obtain a voltmeter reading of 0.0 VDC. This step is not applicable to the KC 190/KAP 100. This step is not applicable to the KC 192 (-15).
11. Set the GAD 43(e) Output to 25° right bank using the Roll Angle arrow.
12. Use a digital voltmeter to measure the voltage (+) at test pin 2 (J19x1-22) with reference to test pin 3 (J19x2-10).
13. Adjust the RDG potentiometer to obtain a voltmeter reading of -5 ± 0.1 VDC.
14. Set the GAD 43(e) output to a 25° left bank using the Roll Angle arrow.
15. Verify that the voltmeter reading is now +5 ± 0.1 VDC.
16. Set the GAD 43(e) Output to 10° nose down and Bank to 0° using the Pitch and Roll Angle arrows.
17. Use a digital voltmeter to measure the voltage (+) at test pin 1 (TC101-A4) with reference to test pin 3 (J19x2-10).
18. Adjust the PDG potentiometer to obtain a voltmeter reading of +2 ± 0.1 VDC. This step is not applicable to the KC 190/KAP 100.
19. Set the GAD 43(e) Output to 10° nose up using the Pitch Angle arrow.

20. Verify that the voltmeter reading is now -2 ± 0.1 VDC. This step is not applicable to the KC 190/ KAP 100.
21. When the testing is complete, remove the test harness.

Re-insert and secure the KC 19X computer into the rack.

Figure 5-63 GAD 43/43e Page - KAP 100/KAP 150/KFC 150

5.8.3.2 KFC 200 Autopilot

NOTE
The following alignment is only required if the GAD 43(e) is used to provide analog attitude to the autopilot.

The autopilot interface must be configured for a King KFC 200. The following procedure may be used in place of the KC 295 calibration instructions in Bendix/King KFC 200 IM/MM (P/N 006-05134-0002, Rev 2) when using the GAD 43(e) for gyro emulation. If all prerequisites are not met, or all steps are unable to be completed, then this procedure is not authorized for use. The prerequisites are as follows:

- GAD 43(e) is installed for gyro emulation.
- Flight Director Type setting KI 256 is being used.
- Maintenance test port is installed per Figure 5-64.
- This procedure requires a calibrated voltmeter accurate to 1mV at a 5 VDC range.

Complete the following procedure:

1. Power the GDU in Configuration mode. The GAD 43(e) must be powered on.
2. Power on the KFC 200 system.
3. KC 290 mode controller adjustments:
    a. Using the GAD 43/43e Test page (Home → Calibration/Test → GAD 43/43e Test), verify the GAD 43(e) Pitch/Roll Outputs are zero and valid.

b. Loosen the KC 290 mode controller from its mount to gain access to the pitch/roll adjustment pots on the bottom of the mode controller.

c. Connect the voltmeter to pins 6 and 1 on the maintenance port.

d. Adjust the Pitch Adjust pot on the KC 290 until the voltmeter reads 0.0 ± 0.3 VDC.

e. Connect the voltmeter to pins 5 and 4 on the maintenance port.

f. Adjust the Roll Adjust pot on the KC 290 until the voltmeter reads 0.0 ± 0.3 VDC.

4. Roll gyro calibration:

   a. Remove the dust cover on KC 295 to gain access to adjustment pots.

   b. Verify the GAD 43(e) Roll Output is zero and valid.

   c. Connect the voltmeter to pins 3 and 4 on the maintenance port.

   d. Adjust the Gyro Roll Zero pot on the KC 295 computer until the voltmeter reads 0.0 ± 0.05 VDC.

   e. Set the GAD 43(e) Roll Output to 25° right bank and valid.

   f. Adjust the Gyro Roll Gain pot on the KC 295 computer until the voltmeter reads as close to +5 VDC as possible.

   g. Set the GAD 43(e) Roll Output to 25° left bank and valid.

   h. Verify the voltmeter reads as close to -5 VDC as possible.

5. Pitch gyro calibration:

   a. Connect the voltmeter to pins 2 and 1 on the maintenance port.

   b. Verify that the GAD 43(e) Pitch Output is zero and valid.

   c. Adjust the Gyro Pitch Zero pot on the KC 295 computer until the voltmeter reads 0.0 ± 0.15 VDC.

   d. Set the GAD 43(e) Pitch Output to 10° nose up and valid.

   e. Adjust the Gyro Pitch Gain pot on the KC 295 computer until the voltmeter reads as close to 6 VDC as possible.

6. Flight Director calibration:

   a. Verify that the GAD 43(e) Pitch/roll Outputs are zero and valid.

   b. View the Flight Director Calibration/Test page on the GDU (Home → Calibration/Test → Flight Director).

   c. Disengage all AP/FD modes, then re-engage the FD only by pressing the FD button. The flight director data on the GDU must be valid.

   d. Adjust the Roll Command Bar Zero pot on the KC 295 computer until the FD Roll command on the GDU is as close to 0° as possible.

   e. Adjust the Pitch Command Bar Zero pot on the KC 295 computer until the FD Pitch command on the GDU is as close to 0° as possible.

330-00360-00 CONNECTOR
(Tyco 206485-1)

<4"

PITCH REF	1
VERTICAL GYRO PITCH T.P.	2
GYRO ROLL CROSSFEED	3
LAT REF	4
ROLL ADJ	5
PITCH ADJ	6

KC 295

P2952

L	PITCH REF
P	VERTICAL GYRO PITCH T.P.
X	GYRO ROLL CROSSFEED
f	LAT REF
K	ROLL ADJ
b	PITCH ADJ

IF CONNECTED

KC 296
(YAW COMPUTER)

P2961

GYRO ROLL CROSSFEED	H
LAT REF	F

KC 290
(MODE CONTROLLER)

P2902

ROLL ADJ	F
PITCH ADJ	A

Figure 5-64 KFC 200 Test Port

5.8.3.3 KFC 225 Autopilot

NOTE
The Gyro Alignment Procedure is only required if the GAD 43(e) is used to provide analog attitude to the autopilot.

The autopilot interface must be configured for a KFC 225. A voltmeter, accurate to 1mV at a 5 VDC range, is required for the procedure.

Gyro Alignment Procedure

1. Access the Configuration mode on the GDU.
2. Go to the GAD 43/43e Test page (Home → Calibration/Test → GAD 43/43e Test).
3. Verify that Attitude Valid is selected on the Relays selection.
4. Perform the Attitude Gyro Calibration Procedure using GAD 43(e) KI 256 emulation.
   a. Use an extender harness for the KC 225 to gain access to the PIT/ROL adjustment potentiometers on the side of the KC 225 as specified in Honeywell KFC 225 Flight Control System Installation Manual.
   b. Select the Set Installation Offsets page on the KC 225 Remote Terminal Interface (RTI).
   c. Refer to Honeywell KFC 225 Flight Control System Installation Manual for instructions regarding how to connect and use the KC 225 RTI.
   d. Verify that the GAD 43/43e Test values are 0° pitch, 0° roll, and Attitude Valid.
   e. Record the values for Pitch and Roll attitude that are displayed on the KC 225 RTI. These are the Pitch/Roll Offset values.

Pitch Offset	Roll Offset

   f. Use the GAD 43/43e Test page to select a pitch angle of 10°U.
   g. Adjust the PIT potentiometer on the side of the KC 225 until the Pitch value on the KC 225 RTI is equal to 10° plus the Pitch Offset value (tolerance ±0.5°). Refer to the example pitch adjustment shown below.
   h. Use the GAD 43/43e Test page to select a Pitch Angle of 0°U and a Roll Angle of 20°R.
   i. Adjust the ROL potentiometer on the side of the KC 225 until the Roll value on the KC 225 RTI is equal to 20° plus the Roll Offset value (tolerance ±0.5°). Refer to the example roll adjustment shown below.
   j. Use the GAD 43/43e Test page to select 0° pitch/roll.
   k. Engage the autopilot in the default modes (PIT and ROL).
   l. On the KC 225 RTI, select 3 Pitch Attitude.
   m. To store the pitch attitude calibration, select ENTER.
   n. With the autopilot still engaged in the default modes, adjust the potentiometer on the front of the KC 225 until the Roll value on the KC 225 RTI is equal to 0°.
   o. Disengage the autopilot.
   p. Verify the roll attitude calibration:
      i. Use the GAD 43/43e Test page to select a Pitch Angle of 0°U and a Roll Angle of 20°R.
      ii. Verify that the Roll value on the KC 225 RTI is 20° (±0.5°).
      iii. Use the GAD 43/43e Test page to select a Pitch Angle of 0°U and a Roll Angle of 20°L.

iv. Verify that the Roll value on the KC 225 RTI is -20° (±0.5°).

v. If both Roll attitude values are not within tolerance, adjust the ROL potentiometer on the side of the KC 225 until both Roll attitude values are within tolerance.

q. At the completion of test, remove the KC 225 extender harness.

Example Adjustment:

Pitch Offset: 0.67°	Roll Offset: -0.34°
With 10°U pitch, adjust the PIT potentiometer until the displayed Pitch value is between 10.17° and 11.17°.	With 20°R roll, adjust the ROL potentiometer until the displayed Roll value is between 19.16° and 20.16°.
(This range is equal to [10° + 0.67°] ±0.5°)	(This range is equal to [20° + (-0.34°)] ±0.5°)

Heading and Course Pointer Calibration

1. Go to the Autopilot Test page (Home!’ Calibration/Test!’ Autopilot Test).
2. Activate the HDG/CRS Valid.
3. Set the Heading Datum and Course Datum to 360°.
4. On the KC 225 RTI, select the Installation Offset function.
   a. Select 1. Heading on the Set Installation Offsets page.
   b. Press ENTER.
   c. Select 2. Course on the Set Installation Offsets page.
   d. Press ENTER.

Press ENTER to exit the page.

FD Alignment

1. Verify that the attitude input to the autopilot is level (i.e., zero pitch/roll).
   a. Using the GAD 43(e), verify that the output test values are 0° pitch, 0° roll, and Attitude Valid on the GAD 43/43e Test page (Home!’ Calibration/Test!’ GAD 43/43e Test.)
   b. Using an analog gyro, verify the gyro is operational and level. This may require an extender harness and tilt table.
2. Go to the Flight Director page to view the FD Pitch and FD Roll values (Home!’ Calibration/ Test!’ Flight Director).
3. Align FD Pitch as follows:
   a. Verify the FD is engaged, and that the autopilot is not engaged.
   b. Press and hold CWS.
   c. Adjust the potentiometer on the front of the KC 225 until the FD Pitch value is as close to zero as possible.
4. Align FD Roll as follows:
   a. Verify the autopilot and flight director are disengaged.
   b. Press and hold FD.
   c. Adjust potentiometer on the KC 225 until the FD Roll value is as close to zero as possible.

Flight Director Gain Adjustment Procedure

The following adjustment is required for all KFC 225 installations displaying the flight director on the GDU.

> NOTE
>
> The Honeywell KFC 225 Flight Control System Installation and Maintenance Manual specific to the aircraft being modified must be used whenever making flight director adjustments.

1. Power the GDU in Configuration mode.
2. Verify that the attitude input to the autopilot is level (i.e., zero pitch/roll).
   a. Using the GAD 43(e), verify that the output test values are 0° pitch, 0° roll, and Attitude Valid on the GAD 43/43e Test page (Home !’ Calibration/Test !’ GAD 43/43e Test).
   b. Using an analog gyro, verify that the gyro is operational and level (may require an extender harness and tilt table).
3. Go to the Flight Director page to view the FD Pitch value (Home !’ Calibration/Test !’ Flight Director).
4. Press and hold the GA switch.
5. Adjust potentiometer on the front of the KC 225 until the FD Pitch value matches the pitch value specified in the autopilot installation data for go-around mode (e.g., 6.00°) as closely as possible.
6. Verify the FD Gain adjustment.
   a. Press CWS. The FD Pitch value should be approximately zero.
   b. Make five discrete clicks using the UP keys on the KC 225. The FD Pitch value should be approximately +2.5° Up.

Altimeter Calibration Procedure

The following calibration is required if the GAD 43(e) is used to provide analog baro-correction to the autopilot:

1. Power the GDU in Normal mode and set Baro setting to 29.92 inches.
2. Perform the Altimeter Calibration Procedure as specified in Honeywell KFC 225 Flight Control System Installation Manual, with the following difference:
   a. When instructed to set the barometric setting to 29.92 inches, set the Barometric setting on the GDU to 29.92 inches.

5.8.3.4 KFC 250 Autopilot

The following alignment is only required if the GAD 43(e) is be used to provide analog attitude to the autopilot.

Gyro Alignment Procedure

1. Power the GDU in Configuration mode.
2. Go to the GAD 43/43e Test page (Home → Calibration/Test → GAD 43/43e Test).
3. Set the Relays selection to Attitude Valid.
4. Perform the Alignment Procedure as specified in the King installation manual, with the following difference:
   a. It is not necessary to remove the AHRS from the aircraft. To set pitch and roll as directed in the procedure, use the GAD 43/43e Test page to set the Pitch Angle and Roll Angle to the desired values (refer to Figure 5-63).

5.8.3.5 KFC 325/275 Autopilot

The following alignment is only required if the GAD 43(e) is be used to provide analog attitude to the autopilot.

KFC 275 Only

Flightline Gyro Alignment Procedure is as follows:

1. Power the GDU in Configuration mode.
2. Go to the GAD 43/43e Test page (Home → Calibration/Test → GAD 43/43e Test).
3. Set the Relays selection to Attitude Valid.
4. Perform the Flightline Gyro Alignment Procedure as specified in the King installation manual, with the following difference:
   a. It is not necessary to remove the AHRS from the aircraft. To set pitch and roll as directed in the procedure, use the GAD 43/43e Test page to set the Pitch Angle and Roll Angle to the desired values (refer to Figure 5-63).

KFC 325 Only

Roll Adjustment Procedure is as follows:

1. Power the GDU in Configuration mode.
2. Go to the GAD 43/43e Test page (Home → Calibration/Test → GAD 43/43e Test).
3. Set the Relays selection to Attitude Valid.
4. Set the Pitch Angle and Roll Angle to 0°.
5. Engage the flight director and autopilot. The control wheel should not move. If the control wheel turns, adjust the roll null (RN) potentiometer on the side of the KMC 321 to stop the movement.

In-Flight Adjustments

Perform the in-flight adjustments for roll, lateral acceleration (yaw), and command bar positioning as specified in the Bendix/King installation manual.

5.8.4 Cessna 300B/400B/800B Autopilots

The following steps outline the alignment procedure:

1. Power the GDU in Configuration mode.
2. Go to the GAD 43/43e Test page (Home !’ Calibration/Test !’ GAD 43/43e Test)
3. Set the Relays selection to Attitude Valid.
4. Perform the Roll Error Output Null Adjustment, Roll Gyro Gain Adjustment, Pitch Error Output Null Adjustment, and the Pitch Gyro Gain Adjustment as described in Cessna autopilot system service manual, with the following difference:
   a. It is not necessary to remove the AHRS from the aircraft. To set pitch and roll as directed in the procedure, use the GAD 43/43e Test page to set the Pitch Angle and Roll Angle to the desired values (refer to Figure 5-63).

5.8.5 Cessna 1000A Autopilots

The following steps outline the alignment procedure:

1. Power the GDU in Configuration mode.
2. Go to the GAD 43/43e Test page (Home !’ Calibration/Test !’ GAD 43/43e Test)
3. Set the Relays selection to Attitude Valid.
4. Perform Attitude Gyro System Interface Adjustments as described in the Cessna autopilot system service manual, with the following difference:
   a. It is not necessary to remove the AHRS from the aircraft. To set pitch and roll as directed in the procedure, use the GAD 43/43e Test page to set the Pitch Angle and Roll Angle to the desired values (refer to Figure 5-63).

5.8.6 Analog NAV Calibration

If one or more Composite NAV connections are interfaced to a GDU, the displays must be calibrated to each individual NAV radio using the following procedure:

1. Power the GDU in Configuration mode.
2. Power on NAV1.
3. Navigate to Calibration/Test !’ Analog NAV and then select the NAV 1 tab.
4. Use an appropriate NAV tester to generate a localizer signal with 0.155 DDM left or right, and tune the NAV radio to the test frequency.
5. Press the localizer Calibrate button.
6. Wait for the calibration to complete (approximately 6 seconds).
7. Verify that the DDM readout is 0.155 ± 0.010 DDM.
8. If the DDM readout is not within the specified value, adjust the Gain value manually so that the readout is 0.155 ± 0.010 DDM.
9. Use a NAV radio tester to generate a 0° FROM radial VOR signal, and tune the NAV radio(s) to the test frequency.
10. Press the VOR Calibrate button.
11. If a second Composite NAV input is connected, select the NAV 2 tab and repeat the procedures.

5.8.7 Fuel Quantity Calibration

This procedure is used to calibrate the G500/G600 TXi fuel quantity gauges. It begins with drained fuel tanks, unusable fuel is added, and then fuel is added in specified quantities during the fueling process. Tank calibration takes time and cannot be interrupted once initiated. The Fuel Level Calibration Procedure is not required to be performed immediately following the setup of the fuel quantity gauge; however, it must be completed before flight.

> NOTE
> In a G500/G600 TXi system with more than one display, this calibration only needs to be performed on one GDU in the system.

Fuel calibration is accessed from the Configuration Mode home page by selecting:

- (Home !’ Calibration/Test !’ Fuel)

  OR

- (Home !’ EIS !’ Fuel)

5.8.7.1 Required Information and Equipment

A calibrated/verified fueling system is required to add known quantities. The aircraft manufacturer’s information for aircraft leveling requirements/procedures, the unusable fuel quantity, and the fuel type are required.

Table 5-85 Fuel Quantity Gauge Settings

Setting	Options	Notes
Calibration	5 to 15 points	The accuracy of the fuel quantity indication will increase with more calibration points. It is recommended to use at least the same number of points as graduations on the gauge being replaced.
Procedure	Main L & R (recommended) AUX L & R (recommended) Main Left Main Right Main Center AUX Left AUX Right AUX Center	Main/Aux L & R settings alternate left then right calibration points to keep the aircraft balanced. The available options are dependent on the configured sensors and gauges.
Fuel Gauge Maximum: Main Tanks	Main Gauge Maximum (0-10000)	Set to match the maximum range from the gauge being removed. This is configured under Gauge Settings from EIS configurations.
Fuel Gauge Maximum: Aux Tanks	Aux Gauge Maximum (0-10000)	Set to match the maximum range from the gauge being removed. This is configured under Gauge Settings from EIS configurations.

Ensure resistive style fuel probes have an operational range (i.e., fu accordance with Figure 3-18. The system will reject calibrations with insufficient resistive range to prevent inaccurate fuel quantity gauges. Refer to Appendix D for model-specific capacitive fuel probe system checks enforced by the system.

5.8.7.2 Fuel Quantity Calibration Procedure

NOTE
Certain turbine aircraft have model-specific calibration procedures as detailed in Appendix D.

1. Drain the fuel from the aircraft in accordance with the aircraft manufacturer’s instructions.
2. Level the aircraft in accordance with the aircraft manufacturer’s instructions.
3. Navigate to the pre-calibration page via Calibration/Test → Fuel.
4. Touch the Fuel Type button and select the aircraft’s fuel type.
5. Touch the Fuel Quantity Calibration button.
6. Select the number of calibration points and procedure per Table 5-85.
7. Select the desired units (gallons or liters) that will be used to fill the airplane during the calibration process.
8. Complete the Before Calibration on-screen instructions.
9. Select Begin Calibration when ready.
10. Add the unusable fuel quantity using a calibrated/verified fueling system. This must be the amount defined by the aircraft manufacturer.
11. The first point for each tank is 0.0 GAL of usable fuel.
    a. Check each box on the display once that action is complete.
    b. Manually vibrate the area near the fuel sensor to prevent the float from sticking and to improve the sensor response. Select Calibrate to set the first point with 0.0 gal of usable fuel.
12. Fill the tank to the next specified amount using a calibrated/verified fueling system. When that increment is reached, follow the display instructions.
    a. It is acceptable for the amount to be slightly different than specified. Enter the actual amount that was added as shown in Figure 5-65.
    b. Manually vibrate the area near the fuel sensor to prevent the float from sticking and to improve the sensor response.
    c. The sensor value must stabilize to the tenths place (hundredths place if using a capacitive or capacitive rectified type fuel sensor) prior to accepting the calibration point. It may take up to 2 minutes at each fill point for the fuel to stabilize (refer to Figure 5-65).
    d. Once the sensor value has stabilized, press Calibrate to accept that value.

NOTE
The sensor value of similar left and right tanks (i.e., same quantity, fuel senders, etc.) should be similar for a given calibration point.

NOTE
The Fuel Calibration graph may be accessed at any time during the calibration after the first usable fuel calibration point for each tank has been calibrated.

13. Repeat the above step for each calibration point until reaching the final fill point.
14. Fill the tank to the final fill point. Do not add more fuel than the maximum range. The manual entry field will not allow more fuel than the maximum to be entered.
    a. It is common for fuel tanks to hold more fuel than shown on the fuel indicator; however, the indicator will not show fuel above the maximum gauge range.

b. Some fuel tank designs can hold more fuel when the aircraft is not level, so the maximum gauge range may not be obtainable. Fill the tank as much as possible and enter the actual amount that was added. The final fill point must be within 10% of the gauge range (e.g., if the gauge range is 50 gallons, the final calibration point for that tank must fall between 45 and 50 gallons).

c. Manually vibrate the area near the fuel sensor to prevent the float from sticking and to improve the sensor response.

d. The sensor value must stabilize to the tenths place (hundredths place if using capacitive or capacitive rectified type sensors) prior to accepting the calibration point. It may take up to 2 minutes at each fill point for the fuel to stabilize (refer to step 15).

e. Once the sensor value has stabilized, press Calibrate to accept that value.

15. Repeat the Fuel Quantity Calibration steps for all remaining fuel tanks.

Figure 5-65 Fuel Quantity Calibration Page Example

NOTE

It is recommended that the display configuration be saved to an SD card immediately after the fuel quantity calibration is completed.

Invalid calibration points are depicted with a yellow segment on the G500/G600 TXi fuel calibration graph. Resolve the discrepancy before completing the calibration.

Figure 5-66 Fuel Calibration Graph Example

5.8.8 Rudder Trim Gauge Calibration

A calibration must be performed on the rudder (yaw) trim position gauge/sensor. At a minimum, flight control trims must be calibrated at three points: neutral or center position and maximum deflection in both directions (full right/left). Up to ten additional calibration points may be added to increase the accuracy of the calibration. The calibration must be performed in accordance with the aircraft maintenance manual or other approved information.

The rudder trim gauge must be configured to comply with any range or marking requirements in the aircraft AFM/POH. The trim sensor must be configured and the Rudder Trim gauge range must be defined prior to sensor calibration. Refer to Section 5.7.2 for sensor configuration details.

> NOTE
> In a dual G500/G600 TXi system with more than one display, the calibration only needs to be completed on one display.

> WARNING
> These procedures refer to the direction of movement of the aircraft nose. The manufacturer's maintenance information or other approved maintenance documentation may use other references. For aircraft equipped with trim tabs, rudder trim tab deflection is typically in the opposite direction of movement of the aircraft nose. Ensure that you fully understand and comply with all instructions before carrying out this procedure.

Rudder trim calibration is accessed from the Configuration mode home page by navigating to the calibration page (Home → Calibration/Test → Flight Control Trim Position).

1. Touch each check box to complete each Before Calibration steps and confirm that the aircraft is prepared for calibration.

   NOTE

   If the Rudder Trim Gauge Range values are not correct, navigate to the Gauge page (Home → EIS → Gauge) and select the Rudder Trim gauge to adjust the limits to match the trim limits of the aircraft, then return to the calibration page.

2. Touch the Begin Calibration button.

Figure 5-67 Trim Gauge Calibration Setup Page

3. Follow the on-screen steps to calibrate the sensor, touching each check box when completed.

Figure 5-68 Trim Gauge Calibration Page

a. Move the rudder and rudder trim to the center or neutral position.
b. Measure the angle of the rudder trim tab.
c. Enter the angle.

Figure 5-69 Rudder Trim Tab Angle

d. Touch the Calibrate button.

4. Repeat step 3 for the nose left position and then the nose right position.
5. Optional: Touch Yes to configure additional calibration points by following the on-screen steps.

Figure 5-70 Example Trim Gauge Calibration Additional Points

6. When the calibration is complete, the Calibration Successful dialog will ask whether or not to navigate to the Gauge Settings page. Touch No to view the Trim Gauge Calibration Summary page or touch Yes to go directly to the Gauge Settings page.

Figure 5-71 Trim Gauge Calibration Summary Page

5.8.9 Backup Battery Check

This procedure will analyze the voltage and discharge qualities of the installed backup battery. The procedure is required to be completed when a backup battery is installed in the system. A yellow “X” will be displayed over the battery level indicator and a fault indication message will be displayed in Normal mode until this procedure is completed.

> NOTE
> The battery rundown test may take up to 60 minutes to complete.

> NOTE
> The battery rundown test date is reported in UTC.

To complete the backup battery test, complete the following steps:

1. Power the GDU 700P in Configuration mode.
2. Navigate to Calibration/Test !’ Backup Battery Test.
3. Verify that the Backup Battery status icon is green.
4. Verify that the battery state is not “Discharging”, annunciated under Battery State.
5. Complete the on-screen Before Test instructions. Once all checklist items have a green check mark, the Start selection will become active.
6. Select Start and follow the on-screen commands.
7. The GDU 700P will power off automatically when the test is complete.
8. Power up the unit in Configuration mode and verify a PASS was achieved. To view the Backup Battery Test results, select Test Results !’ Calibration/Test !’ Backup Battery Results or select Diagnostics !’ Backup Battery Status.

5.8.10 Meggitt (Cobham) EIDS

1. Use the CDI button on the GDU PFD to toggle between GPS 1 and GPS 2. Ensure that the EIDS display matches the source selection on the GDU.
2. Verify the DAU records ECTM data correctly. Reference the AMM or EIDS installation for more information.

5.9 Database Loading

The G500/G600 TXi system uses several databases depending on its configuration and optionally enabled features. These databases (and database updates) are available for purchase at flyGarmin.com. Databases are locked to a system ID and cannot be used in more than one system. The system ID is the same for each GDU installed in the system.

Databases are updated by removing the database card from the GDU, updating the database on the card, and re-inserting the card. Databases can also be updated using a Flight Stream 510 wireless data card and a portable device. If a GTN 6XX/7XX/Xi is installed, the Flight Stream 510 must be installed in the GTN. If not, the Flight Stream 510 can be installed in the GDU. Large database updates can exceed 10 minutes if the Flight Stream is installed in a GDU. Keep the PED near the display to minimize update times. When powering on in Normal mode with a Flight Stream 510 inserted into the database card slot, the GDU will provide on-screen instructions on how to transfer databases from a portable device (with a compatible application) over Wi-Fi. Database cards and the Flight Stream 510 should not be swapped between GTNs if multiple units are installed. Database loading is not supported if the Flight Stream 510 is installed in a standalone EIS display.

- If Database SYNC is enabled, databases other than terrain can be installed on one display and will automatically crossfill to all other displays in the system. Terrain databases must be installed on each display directly using an SD card. With TXi software v3.50 or later, this feature is not compatible with GTN 6XX/7XX software v6.71 or earlier.
- If Chart Streaming is enabled, charts can be accessed during the database transfer process.

Table 5-86 Database Summary

Database	Update Rate	Stored Location
Basemap Database	Periodic (when available)	Internal
Navigation Database	28 Days	Internal
FliteCharts Database	28 Days	Internal
ChartView Database	14 Days	Internal
SafeTaxi Database	56 Days	Internal
Terrain Database	Periodic (when available)	Internal
Obstacle Database with Hotlines	56 Days	Internal

6 SYSTEM CHECKOUT

6.1 Checkout Log

Refer to the TXi ICA/MM (P/N 190-01717-B1) for configuration, serial number, and LRU location documentation procedures.

Complete all relevant checks as described in the following sections using the checkout log as a guide. Complete all model-specific checks in Appendix D, if applicable.

G500/G600 TXi Checkout Log

Date:_____________Completed by:______________________

Table 6-1 Checkout Log

Check	Task	Section Reference
	Calibration Checkout	
ðq	A708 Weather Radar Calibration (if applicable)	Section 5.6.1.1 or Section 5.6.1.2
ðq	AHRS / GMU Calibration Pitch / Roll offset	Section 5.8.1
ðq	Autopilot Calibration (if applicable) Honeywell (Bendix/King) Cessna 300B/400B/800B Cessna 1000A	Section 5.8.3 Section 5.8.4 Section 5.8.5
ðq	Analog NAV Calibration (if applicable)	Section 5.8.6
ðq	EIS Fuel Calibration (if applicable)	Section 5.8.7
ðq	Backup Battery Test (if applicable)	Section 5.8.9
	Ground Checkout	
ðq	Configuration Ground Check LRU status check System summary Exceedance Viewer (if applicable)	Section 6.2
ðq	PFD Ground Check (complete all applicable checks) Airspeed tape markings Altimeter (CFR 91.411) OAT probe Radar altimeter GPS receiver Backup GPS NAV receiver Marker beacon display ADF (bearing pointers) DME PFD database SVT	Section 6.3

Check	Task	Section Reference
ðq	MFD Ground Check (complete all applicable checks) MFD database GPS receiver Backup GPS Traffic Weather Radar Stormscope Weather/FIS-B GDL 69 audio	Section 6.4
ðq	EIS Ground Check (complete all applicable checks) EIS gauge layout and markings Temperature sensor Manifold pressure Oil pressure Fuel pressure Tachometer Fuel quantity Fuel flow Shunt / Voltage Torque Rudder trim Vacuum/De-ice Boot pressure EIS discrete EIS engine run-up	Section 6.5
ðq	AHRS Calibration Checks Magnetometer calibration Compass swing Engine run-up vibration Magnetometer interference	Section 6.6
ðq	Autopilot Ground Check (complete all applicable checks) Autopilot engagement Flight director Altitude preselect Heading and Course error VOR /ILS/GS GPS roll steering GAD 43(e) attitude GAD 43(e) altitude ARINC 429 / air data (S-TEC) Mode annunciations (KFC 225/275/325)	Section 6.7
ðq	Integrated Standby System Ground Check (if applicable)	Section 6.8
ðq	Display Backup Mode Check	Section 6.9
ðq	Placards, Switches, and Labels	Section 6.10
ðq	EMI/RFI Checks	Section 6.11

Check	Task	Section Reference
	Flight Checkout	
ðq	PFD flight check (if applicable)	Section 6.12.1
ðq	MFD flight check (if applicable)	Section 6.12.2
ðq	EIS flight check (if applicable)	Section 6.12.3
ðq	Autopilot flight check (if applicable) Autopilot performance checkout log	Section 6.12.4 Figure 6-9
	Documentation	
ðq	AFMS	Section 6.13.1
ðq	ICA	Section 6.13.2

6.2 Configuration Ground Check

The configuration ground check procedures are intended to verify that each LRU and interface in the G500/G600 TXi system has been properly configured. Steps not applicable to a particular installation may be skipped.

> NOTE
> Throughout the configuration ground check section, references are made to particular functions and screens. If a function or screen is not available, ensure that the system has been configured correctly.

The configuration ground checks must be performed on every GDU. Before starting the Configuration mode checkout, the following conditions must be met:

1. All GDUs in the system must be powered on in Configuration mode.
2. All system LRUs must be powered on.
3. All installed LRUs must be configured per Section 5.4.

6.2.1 LRU Status Check

The Home page in the Configuration mode of the GDU shows the Devices Online page, which reports the status of installed LRUs. The icon next to each LRU reports one of three colors to indicate the status of each LRU, as described in Table 6-2. Verify that all LRUs connected or configured to each display have a green indicator.

Table 6-2 LRU Status Indicators

Status Color	LRU Condition
Green	The LRU is online. No faults are detected.
Red	The LRU is online. A fault, warning, and/or error is detected.
Black	The LRU is not online.

6.2.2 System Summary

The Home page in Configuration mode of the GDU contains a Summary button that provides information for each configured LRU as part of the G500/G600 TXi system.

1. Open the system summary (Home → Summary or save and open the configuration summary as described in Section 5.1.3).
2. Verify that all configuration settings listed are consistent with the interfaced systems.
3. Verify that if any LRU sections have a yellow warning triangle present, the configuration is valid.

6.2.3 Capturing and Saving Screen Shots

Screen shots can be captured and saved to an SD card on any GDU in Normal or Configuration mode.

1. Insert an SD card into either slot on the GDU.
2. Navigate to the desired screen image.
3. Do the following:
   a. GDU 700/1060: Hold down the right inner knob and momentarily press the Power button.
   b. GDU 1060/1210: Hold down both inner knobs.
4. A small camera icon will appear on the annunciator bar when in Normal mode, or the upper-left corner when in Configuration mode, indicating an image has been captured.
5. Remove the SD card after all desired images have been captured.
6. Images will be saved to \print file on the SD card.

6.2.4 Exceedance Viewer

After upgrading G500/G600 TXi software from v3.31 or earlier to v3.40 and later, the exceedance log (if applicable) must be synchronized on a single GDU as follows:

1. Ensure all GDUs are powered on in Configuration mode.
2. On GDU 1, open the exceedance log viewer (Home → Diagnostics → Logs → Exceedance Logs).
3. If the exceedance log loads normally or “No Data” is shown without a prior “Resolving Exceedance Data…” message, no additional steps are required.
4. If a “Resolving Exceedance Data…” message is displayed, remain on the page until the exceedance log loads or “No Data” is shown.
   a. Select Back.
   b. Reselect Exceedance Logs.
   c. Confirm the exceedance log loads normally or “No Data” is shown without a prior “Resolving Exceedance Data…” message, else repeat Step 3.

6.2.5 Stabilized Approach Flap/Gear Discrete Check

This check verifies that flap and gear discretes configured per Section 5.4.28 and Section 5.5.9 function correctly. Discretes that are not configured can be skipped.

Flaps

1. Power on the GDU in Configuration mode and to Diagnostics!’ Discrete Inputs,
2. Set aircraft flaps to the Flaps Up setting.
    a. Verify the configured discrete state for “Flaps Up” matches the configured state of Active or Inactive.
3. Set aircraft flaps to a flap setting other than neutral or Flaps Up.
    a. Verify the “Flaps Up” discrete state changes.
4. Set aircraft flaps to the Flap Position 1 setting.
    a. Verify the configured discrete state for “Flap Position 1” matches the configured state of Active or Inactive.
5. Set aircraft flaps to the Flaps Up setting.
    a. Verify the “Flap Position 1” discrete state changes.
6. Repeat steps 4 and 5 for all remaining Flap Positions.

Gear

1. Power on the GDU in Configuration mode, and to Diagnostics!’ Discrete Inputs.
2. Verify the configured discrete state for Gear Not Down and Locked is Active if the aircraft discrete position sensor is active when gear is down and locked or Inactive if aircraft discrete position sensor is inactive when the gear is down and locked.

Table 6-3 Gear Not Down and Locked Discrete State

Discrete Name on GDU	Discrete State on GDU	Description
Gear Not Down and Locked	Active	Aircraft discrete position sensor is active when gear is down and locked.
	Inactive	Aircraft discrete position sensor is not active when gear is down and locked

6.3 PFD Ground Check

The PFD Checkout Procedure, contained in the following subsections, must be conducted on every PFD installed in the G500/G600 TXi system.

6.3.1 Pitot-Static and Airspeed Tape Settings Checks

The following section verifies the correct operation of the GDU altitude and airspeed tapes, standby altimeter, and standby airspeed indicator using a pitot-static ramp tester. When using a pitot-static ramp tester, only simulate normal aircraft operating conditions as defined in the aircraft Type Data (POH/AFM) or other approved STC to avoid component damage.

> NOTE
> The ADC may require a warm-up period of 15 minutes to reach full accuracy; however, 30 minutes may be required if the environmental temperature is below 0º C.

The GDU airspeed tape display and settings must be verified using Section 6.3.1.1 or Section 6.3.1.2 depending on the airspeed tape configuration (Basic or Advanced, respectively). The airspeeds referenced in the following steps must be configured per Section 5.5.1.3.

6.3.1.1 Basic Airspeed Tape Setting

If the airspeed Configuration Type is set to Basic, verify correct operation of the ADC as follows:

Figure 6-1 Airspeed Configuration Type

1. Verify the TXi system is in Normal mode.
2. Verify all self-tests pass on the main start-up screen.

> NOTE
> If the ADC and standby airspeed indicator are on separate pitot-static systems, it is recommended to set up the test set so that both systems can be tested at the same time, or separate tests must be completed for each system.

3. Using a pitot-static test set, increase the airspeed until the PFD airspeed tape pointer is at the bottom of the white band (Vs0).
4. Verify that the bottom of the white arc/band on the standby ASI and PFD airspeed tape are at the same airspeed value.
5. For twin-engine aircraft with a minimum control speed: Increase the airspeed to the lower red radial (Vmca). Verify that the red radial on the standby ASI and PFD airspeed tape are at the same airspeed value.
6. Change the airspeed until the PFD airspeed tape pointer is at the bottom of the green band (Vs1).

7. Verify that the bottom of the green arc/band on the standby ASI and PFD airspeed tape are at the same airspeed value.
8. For twin-engine aircraft only: Increase the airspeed to the blue radial (Vyse). Verify that the blue radial on the standby ASI and PFD airspeed tape are at the same airspeed value.
9. Change the airspeed until the PFD airspeed tape pointer is at the top of the white band (Vfe).
10. Verify that the top of the white arc/band on the standby ASI and PFD airspeed tape are at the same airspeed value.
11. Change the airspeed until the PFD airspeed tape pointer is at the top of the green band/bottom of the yellow band (Vno).
12. Verify that the top of the green arc/band on the standby ASI and PFD airspeed tape are at the same airspeed value.
13. Increase the airspeed to the upper red radial/top of yellow arc (Vne).
14. Verify that the red radial on the standby ASI and PFD airspeed tape are at the same airspeed value.
15. Starting at the current airspeed, decrease the airspeed to zero, stopping at each of the airspeeds listed in Table 6-4 (airspeeds above Vne should not be checked), verifying that the PFD and standby ASI airspeed values are within the tolerances indicated in Table 6-4.

Table 6-4 Airspeed Test Points

Test Set Airspeed (kt)	PFD Allowed Tolerance (kt)	Recommended Standby ASI Tolerance (kt) [1]
50	±5.0	±5
80	±3.5	±4
100	±2.0	±3
120	±2.0	±3
150	±2.0	±3
180	±2.0	±5
210	±2.0	±5
250	±2.0	±5
290	±3.0	±6

Notes:

[1] If available, the aircraft or instrument manufacturer’s data should be referenced for standby tolerances.

6.3.1.2 Advanced Airspeed Tape Setting

If the Configuration Type is set to Advanced, refer to Appendix E. Verify correct operation of the ADC as follows:

1. Verify the TXi system is in Normal mode.
2. Verify all self-tests pass on the main start-up screen.

   NOTE

   If the ADC and standby airspeed indicator are on separate pitot-static systems, it is recommended to set up the test set so that both systems can be tested at the same time, or separate tests must be completed for each system.

3. Using a pitot-static test set, increase the airspeed until the PFD airspeed tape pointer is at the bottom of the white band (Vs0).
4. Verify that the bottom of the white arc/band on the standby ASI and PFD airspeed tape are at the same airspeed value.
5. Increase the IAS throughout the range of the ASI – stop at the limits of all Arc Ranges and at all Marking values configured per the instructions in Table E-1 and Table E-2.
6. Verify that the ranges and markings on the standby ASI and PFD are located at the same airspeed values. The last value verified should be the beginning of the barber pole (Vne/Vmo/Mmo).
7. The following applies to Variable Vne/Vmo/Mmo aircraft only:
   a. Decrease the IAS to 25 kt below the barber pole on the PFD. Increase the indicated altitude to the maximum operating altitude or service ceiling. Verify that the barber pole on the PFD and standby ASI are at the same airspeed (±5 kt). Decrease the airspeed as needed to ensure the IAS does not exceed the barber pole during the simulated climb.
   b. Decrease the indicated altitude (do not exceed vertical speed limitations) back to ambient static pressure.
8. Starting at the current airspeed, decrease the airspeed to zero, stopping at all of the relevant airspeeds listed in Table 6-4 (airspeeds above Vne should not be checked). Verify that the PFD and standby ASI values are within the tolerances indicated in the table.

6.3.1.3 Altimeter Check

The GDU and standby altitude displays must be verified per Title 14 of the CFR 91.411 and Part 43, Appendix E, with the following exception to 14 CFR Part 43 Appendix E, paragraph (b)(1):

- The tests of sub-paragraphs iv (Friction) and vi (Barometric Scale Error) are not applicable to the GDU due to the ADC interface and instrument display being digital.

  NOTE

  Certain aircraft have RVSM-specific procedures detailed in Appendix G.

6.3.2 OAT Check

1. Verify the TXi system is in Normal mode.
2. Navigate to the Air Temp REF (air temperature reference on 1060 MFD page) button by selecting:
   a. GDU 700 (Menu → System → Units)
   b. GDU 1060/1210 (System → Units)
3. Select the desired air temperature reference and temperature units to match the type specified in the AFM or POH of the aircraft.
   a. SAT (static air temperature)
   b. TAT (total air temperature) or RAT (ram air temperature)
   c. ISA (international standard atmosphere)
4. Verify the correct units (Celsius or Fahrenheit) and temperature reference (SAT, TAT/RAT, ISA) are displayed on the PFD.

6.3.3 Radar Altimeter Check- ARINC 429 (to GDU)

If a radar altimeter is installed and connected to the display, check the operation as follows:

NOTE

The GRA 55/5500 and FreeFlight RA4500 radar altimeters provide an automated self-test during power cycles; therefore, no pilot-initiated self- test is required. After the power-up sequence, verify that no faults are detected, “RA FAIL” is not displayed, and the RA value displays “0” after the self-test is complete.

1. Verify the TXi system is in Normal mode.
2. Initiate a radar test from the Test page (Menu → Test → Radar Test).
3. Verify that “RA Test” is annunciated and the radar altitude value displayed is accurate within the tolerance defined in Table 6-5. Table 6-5 contains the radar altitude value that is output by each approved radar altimeter when operating in test mode.

6.3.4 Radar Altimeter Check - Analog (to GAD 43e)

If a radar altimeter is installed and connected to the GAD 43e, and the radar altitude is displayed on the PFD, check the operation as follows:

1. Verify the TXi system is in Normal mode.
2. Verify that radar altitude (“RA”) is displayed on the GDU and indicating approximately 0 ft.

   NOTE

   Honeywell KRA 10/10A and Sperry AA-100/100A radar altimeters do not indicate “RA” on the ground. If one of these models is installed, an RA value will not be displayed on the GDU.

3. Pull the radar altimeter circuit breaker and verify that “RA FAIL” is displayed in yellow.
4. Close the radar altimeter circuit breaker and wait until a valid radar altitude is displayed (except for the Honeywell KRA 10/10A and Sperry AA-100/100A radar altimeters).
5. Initiate a radar test from the Test page (Menu !’ Test !’ Radar Test).
6. Verify the radar altitude value displayed is accurate within the tolerance defined in Table 6-5. Table 6-5 contains the radar altitude value that is output by each approved Radar Altimeter when operating in Test mode.

Table 6-5 Radar Altimeter Self-Test Altitudes

Radar Altimeter	Indicated Altitude during Self-Test (ft)
Collins ALT-50A	50 ± 5
Collins ALT-55B	50 ± 5
Collins ALT-4000	50 ± 5
Honeywell KRA 10/10A	50 ± 10
Honeywell KRA 405	40 ± 15
Sperry AA-100	100 ± 20
Sperry AA-100A	100 ± 20
Sperry AA-200	100 ± 20

6.3.5 GPS Receiver Interface Check

NOTE
GPS satellite reception is required for the following steps.

1. Verify the TXi system is in Normal mode.
2. Select GPS (or GPS1) as the navigation source for the PFD CDI.
3. Verify the external GPS1 navigator is powered on and, if dual GPS navigators are installed, ensure the second GPS navigator (GPS2) is powered off.
    a. For a GNS 4XXW/5XXW series or GTN 6XX/7XX/Xi navigator, while on the Power-up Self-test page, verify that the PFD CDI displays the correct lateral and vertical deviation information.
    b. For a GNS 480 unit, while it is going through its power-up sequence, verify that the PFD CDI displays the correct lateral and vertical deviation information.
4. Continue in Normal mode after the self-test and wait until the navigator acquires a position before proceeding.
5. Review the active alerts on the PFD (if any) and verify that there are no alerts, service soon, or service required alerts associated with the GPS unit.
6. Create/activate a flight plan on the GPS navigation source.
7. Verify that the active waypoint displayed in the PFD WPT field of the GDU is the same as the active waypoint displayed on the navigator.
8. On the GPS navigator, enter OBS mode.
9. Open the CRS menu on the PFD.
10. Adjust the course using the PFD knob.
11. Verify that the course to the active waypoint changes as the PFD course pointer is rotated.
12. Exit OBS mode on the navigator.
13. If dual GPS receivers are installed, power off GPS 1 and power on GPS 2.
14. Select GPS2 on the CDI and repeat the GPS interface check.

6.3.6 Backup GPS Signal Check

NOTE
The following check is only required if a backup GPS system is installed.

1. Ensure the TXi system is in Normal mode and the aircraft has an unobstructed view of the sky (or GPS repeater coverage).
2. Ensure GPS1 and GPS2 (if equipped) are powered on.
3. Wait at least 5 minutes to allow GPS1, GPS2, and the backup GPS to acquire a position.
4. Power off GPS1 and GPS2 (if equipped).
5. Verify “Backup GPS” message is annunciated on PFD.
6. Verify ownship position is depicted on HSI map.

6.3.7 NAV Receiver Check - ARINC 429

1. Verify the external NAV1 receiver is powered on and, if dual NAV receivers are installed, ensure the second NAV receiver (NAV2) is powered off.
2. Select the NAV receiver as the navigation source for the PFD CDI.
3. Tune the NAV receiver to a localizer frequency (it is not necessary that a valid localizer signal is being received).
4. Verify that the CDI on the PFD displays "LOC" (or "LOC1"/"LOC2" for installations with dual navigators).
5. If dual navigation receivers are installed, power off NAV 1 and power on NAV 2.
6. Select navigation receiver 2 on the CDI. Repeat the above steps.

6.3.8 NAV Receiver Check - Analog

Prior to conducting this check, ensure that the GDU has been calibrated to the NAV receiver in accordance with Section 5.8.6.

1. Verify the external NAV receiver is turned on and, if dual NAV receivers are installed, ensure the second NAV receiver (NAV2) is powered off.
2. Ensure that there is a valid attitude and heading display on the PFD.
3. Select the NAV receiver as the navigation source for the PFD CDI.
4. Tune the NAV receiver to a VOR frequency (it is not necessary that a valid VOR signal is being received).
5. Verify that the CDI on the PFD displays "VOR" (or "VOR1"/"VOR2" for installations with dual navigators).
6. Using a VOR/ILS test set, generate a 0° FROM radial VOR signal and tune the NAV receiver to the test frequency.
7. Adjust the course pointer until the deviation is centered and FROM is indicated.
8. Verify that the course pointer setting is 0 ± 4°.
9. Repeat the above steps using VOR FROM signals at 90°, 180°, and 270°. Verify that the course pointer is within 4° of the simulated VOR bearing.
10. Tune the navigation receiver to a localizer frequency (it is not necessary that a valid localizer signal is being received).
11. Verify that the CDI on the PFD displays "LOC" (or "LOC1"/"LOC2" for installations with dual navigators).
12. Set the course pointer to the current heading (i.e., straight up on the PFD CDI).
13. Using a VOR/ILS test set, generate a localizer and glideslope signal as specified in Table 6-6.
14. Verify that the course pointer deviation bar and glideslope indications are as specified in Table 6-6.
15. If dual NAV receivers are installed, power off NAV1 and power on NAV2.
16. Select NAV receiver 2 on the CDI. Repeat the NAV receiver check.

Table 6-6 Localizer/Glideslope Checks

Test Set Setting (DDM)		PFD Indication	
Localizer	Glideslope	Localizer	Glideslope
0.000	0.000	Centered (within fuselage on aircraft symbol)	Centered (covering horizontal white line)
0.078 Right	0.088 Down	Half-scale right (dev bar inside of first dot)	Half-scale down (first dot covered by diamond)
0.155 Right	0.175 Down	Full-scale right (dev bar inside of second dot)	Full-scale down (second dot covered by diamond)
0.078 Left	0.088 Up	Half-scale left (dev bar inside of first dot)	Half-scale up (first dot covered by diamond)
0.155 Left	0.175 Up	Full-scale left (dev bar inside of second dot)	Full-scale up (second dot covered by diamond)

6.3.9 Marker Beacon Display Check

NOTE
Valid attitude and air data are not required for this test.

1. Verify the TXi system is in Normal mode.
2. Verify the GAD 43e and marker beacon receiver are powered on.
3. Use a marker beacon test set to simulate an inner marker.
4. Verify that a white “I” is flashing on each PFD.
5. Use the test set to simulate a middle marker.
6. Verify that an orange “M” is flashing on each PFD.
7. Use the test set to simulate an outer marker.
8. Verify that a cyan “O” is flashing on each PFD.

6.3.10 ADF Interface Check

Perform the check below for each interfaced ADF:

1. Ensure the TXi system is in Normal mode.
2. Ensure the GAD 43e (if applicable) and ADF are in Normal mode.
3. Open the Bearing Pointers page (Menu !’ HSI Setup !’ Bearing Pointers).
4. Enable the applicable ADF bearing pointer.

Figure 6-2 ADF Bearing Pointers

NOTE

The bearing pointers menu will only be available if the HSI Map option is not selected.

5. Verify that a red “X” is not displayed in the ADF field.
6. Using an ADF test set, generate a bearing to a station.
7. Tune the ADF receiver to the same frequency as the test set.
8. Verify that the ADF bearing pointer indicates the correct relative bearing.
9. Verify the ADF bearing pointer indicates the correct relative bearing for three other bearings, at 90° increments.

NOTE

The following steps are only required if the ADF flag is used in the installation.

10. Tune the ADF receiver to an unused frequency and verify that the bearing pointer is removed from the PFD.

6.3.11 DME Interface Check

NOTE
Valid attitude or air data are not required for performing this check.

Perform the appropriate check as follows:

1. Ensure the TXi system is in Normal mode.
2. Ensure the GAD 43e(s), DME(s), and NAV radio(s) are powered on.
3. Enable the appropriate NAV tuning source in the DME information window menu.
4. Enable the appropriate NAV bearing pointer (Menu → HSI Setup → Bearing Pointers).
5. Using a DME test set, select a NAV frequency and simulate a DME distance of 30.0 NM.
6. Tune the NAV radio to the same frequency as the DME test set.
7. Verify that the DME information window and the appropriate NAV bearing pointer window display a DME distance of 30.0 NM.
8. Tune the NAV radio to a different frequency.
9. Verify that the display of DME distance is dashed out in the DME information window and in the appropriate NAV bearing pointer window.
10. Tune the NAV radio to the same frequency as the DME test set.
11. Verify that DME information window and the appropriate NAV bearing pointer window display a DME distance of 30.0 NM.

NOTE
The following steps are only required if the installation is configured to use DME Hold from the PFD.

12. Select DME Hold in the DME information window menu.
13. Verify that the DME information window continues to display a distance of 30.0 NM.
14. Tune the NAV radio to a different frequency.
15. Verify that DME information window continues to display a distance of 30.0 NM.
16. De-select DME Hold.
17. Verify that the display of DME distance is dashed out in the DME information window.
18. Tune the NAV radio to the same frequency as the DME test set.
19. Verify that DME information window displays a DME distance of 30.0 NM.

NOTE
The following steps are required if:

- The DME NAV source is not a Composite NAV or an ARINC 429 NAV or
- The configured DME is a DME-442/4000.

20. Ensure the selected NAV frequency on the DME test set is set to a VHF NAVAID within 200 NM of the aircraft location
21. Ensure the NAV radio is tuned to the same frequency as the DME test set.
22. On the DME test set, enter the station ID of the selected VHF NAVAID.
23. Ensure the tuned frequency and station ID are valid and correct in the DME information window.
24. Ensure the tuned station ID is valid and correct in the appropriate bearing pointer window.

6.3.12 PFD Database Check

This section verifies that all databases are available and up-to-date.

1. Verify the PFD is in Normal mode.
2. Navigate to the database page by selecting:
   a. GDU 700 (Menu !’ System !’ Databases)
   b. GDU 1060/1210 (System !’ System Status)
3. Under the Active tab, verify all installed databases are valid and not expired; update as needed.

> NOTE
> The Basemap and Terrain databases do not have an expiration date.

6.3.13 Alert Audio Check

> NOTE
> The audio panel must be powered on for the audio check.

1. Ensure all GDUs are powered on in Configuration mode.
2. Navigate to the Audio Alert Configuration page (Home !’ GDU Setup !’ Audio Alert Configuration).
3. Initiate audio tests for any/all annunciators, and verify the alerts are sufficiently loud, attention getting, and clearly intelligible for all anticipated cockpit noise conditions. The audio alerts should be slightly louder than the normal volume of COM and intercom transmissions.
4. Adjust the alert volume as necessary to match audio levels of other systems installed in the aircraft.

6.3.14 Synthetic Vision Check

Complete this section if SVT is enabled.

> NOTE
> It may take up to a minute for the synthetic terrain data to be displayed on the PFD. Until SVT is active, the horizon display will be the standard blue over brown.

1. Verify the PFD is in Normal mode. For a dual G500/G600 TXi installation, start both PFDs in Normal mode.
2. Wait for the G500/G600 TXi system to initialize (i.e., attitude, heading, airspeed, altitude, and GPS position become valid).
3. On the PFD, navigate to the synthetic vision options (Menu !’ Terrain SVT).
4. Activate Synthetic Terrain.
5. Verify that there are no SVT alerts.
6. Verify that synthetic terrain data is displayed on the PFD.

6.4 MFD Ground Check

The MFD checkout procedure must be conducted on every MFD installed in the G500/G600 TXi system. The following sections must be completed as part of the MFD checkout process.

6.4.1 MFD Database Check

1. Verify the MFD is in Normal mode.
2. Verify that the Navigation database is not expired.
3. Verify that the Chartview or FliteCharts database, if enabled, is not expired.

NOTE

Databases that have expired will be displayed in yellow text on the MFD start-up screen. Databases will be displayed in yellow text until a valid GPS position has been acquired.

6.4.2 GPS Receiver Interface Check

NOTE

GDU 700P MFDs function as described, with the exception that they only use GPS 1 information.

1. Verify the MFD is in Normal mode.
2. Verify the external GPS Navigator is powered on and, if dual GPS navigators are installed, ensure the second GPS navigation (GPS2) is powered off.
3. Wait until the navigator acquires a position before proceeding.
4. Review the active alerts on the MFD (if any) and verify that the “GPS1 FAIL” alert is not present.
5. Create/activate a flight plan on the GPS navigation source.
6. Wait approximately 1 minute.
7. Verify that the flight plan is displayed on the MFD on the Flight Plan page.
8. Navigate to the Map page.
9. Verify that the “No GPS Position” message is not displayed.
10. Verify the ownship icon is present in the center of the screen.
11. If dual GPS receivers are installed, power off GPS1 and power on GPS2.
12. Repeat the above procedures.

6.4.3 Backup GPS Signal Check

Complete this section if the backup GPS is installed.

1. Verify the MFD is in Normal mode and the aircraft has an unobstructed view of the sky.
2. Verify that GPS1 and GPS2 (if equipped) are powered on.
3. Wait at least 5 minutes to allow GPS1, GPS2, and backup GPS to acquire a position.
4. Power off GPS1 and GPS 2 (if equipped).
5. Verify “Backup GPS” message is annunciated on MFD.
6. Verify ownship position remains depicted on Map page.

6.4.4 TAS/TCAS Traffic Interface Check

NOTE
If the TXi system is configured for an external control (i.e., a display other than the MFD is controlling the traffic system), then the Standby/Operate testing does not have to be completed.

If the interfaced traffic system is any of the following, then verify the interface per the instructions included in this section:

- L3 Communications SKY497/SKY899 SkyWatch®
- Honeywell (Bendix/King) KTA 810 TAS/KMH 820 IHAS/KTA 910 TAS/KMH 920 IHAS
- Avidyne TAS 620 (Ryan 9900BX TCAD)
- GTS 8XX

1. Verify the MFD is in Normal mode.
2. Select the Traffic page on the home screen.
3. Verify that no TAS/TCAS failure annunciations (e.g., “NO DATA”, “TRFC FAIL”, “NO TRFC DATA”, “DATA FAILED”, “FAILED”) are shown on the traffic map.
4. In the upper-left corner of the Traffic Map page, verify that the Traffic Status is either “TAS/TCAS: OPER” or “TAS/TCAS: STBY” (i.e., “TIS: FAIL” or “TAS/TCAS: FAIL” must not be displayed).
5. Select the Traffic Status button and change the mode between Operate and Standby.
6. Verify that the mode of the traffic system is updated accordingly.
7. Put the traffic system in Standby mode.
8. Initiate a traffic system self-test by selecting the Test button at the bottom of the page.

NOTE
The Self-Test button will not be selectable if the traffic system is not powered on or is in a failed status.

9. Verify that the traffic system runs a self-test and the self-test traffic pattern is displayed.

6.4.5 ADS-B In Interface Check

If the installed system is configured to receive ADS-B In data through an interface with an ADS-B In capable unit (e.g., GTX 345 or GDL 88), the interface is verified as follows:

> NOTE
>
> The following steps may be performed as a ground check as long as the aircraft is within range of an FAA ground station with available targets of opportunity. If this is not the case, it is recommended that these checks be performed in-flight within range of an FAA ground station.

1. Verify the MFD is in Normal mode.
2. Select the Traffic page on the home screen.
3. Turn on the interfacing ADS-B In capable equipment.
   a. If the installation includes TAS/TCAS correlated traffic, turn on the TAS/TCAS source.
4. Make sure an amber “NO DATA” message is not displayed over the ownship icon.
5. Make sure there are no “FAIL” annunciations in the upper-left corner of the traffic status window.
   a. If the installation includes TAS/TCAS correlated traffic, verify that the TAS/TCAS status is either “OPER” or “STBY”.
6. Observe targets of opportunity from ADS-B equipped aircraft or an FAA ground station.

6.4.6 TIS-A Traffic Interface Check

If a Garmin GTX 33( )/330( )/335 Transponder is connected to the TXi system, and no other traffic systems covered in Section 6.4.4 or Section 6.4.5 are installed, the traffic interface is verified as follows:

1. Verify the MFD is in Normal mode.
2. Select the Traffic page on the home screen.
3. Turn on the GTX 33( )/330( )/335 by pressing ALT on the GTX 33( )/330( )/335.
4. Verify that the Traffic Status is not “TIS Fail”.
5. Verify that the amber “NO DATA” is not displayed over the ownship symbol.
6. Verify that the Traffic Status is in Standby mode (i.e., “TAS” should not be displayed).
7. Attempt to place the system in Operate mode. If the aircraft is within TIS-A coverage, the system will display “Operate”. If the aircraft is not within TIS-A coverage, the unit will display “Unavailable”.

6.4.7 GWX 68/70(R)/75 Weather Radar Interface Check

1. Verify the MFD is in Normal mode.

NOTE

If no other weather source is configured, the Radar button will be present instead of the Weather button.

2. Select the Weather button.
3. Select the Radar button.
4. Verify the amber “Radar Fail” message is not displayed in the middle of the screen.
5. Select the Mode button and place the radar into Standby, then allow the warm-up to complete.
6. Select the Mode button and place the radar into Test.
7. Verify that the GWX 68/70(R)/75 begins sweeping and the test pattern is shown.
8. Verify that “STAB On” is displayed in the upper-right corner of the MFD.
9. For multiple displays, verify the radar sweep is available on each configured display and consistent with the selected mode.
10. For multiple displays, verify the radar control is available on each configured display.
11. Select the Mode button and then Off.

6.4.8 ARINC 708 Weather Radar Interface Check

1. Verify the MFD is in Normal mode. For a dual MFD installation, verify the pilot MFD is in Normal mode and the co-pilot MFD is powered off.

CAUTION

Aircraft should be outdoors and personnel should not be in front of the weather radar when it is radiating (i.e., when Weather mode or Ground mode is selected on the MFD).

NOTE

If no other weather source is configured, the Radar button will be present instead of the Weather button.

2. On each MFD, select the Weather button and then select the Radar button.
3. On one MFD, press Mode.
4. Select Standby and wait for the warm-up to complete, if applicable.
5. Select Mode and then Test.
6. Verify that the radar begins sweeping and the test pattern is shown.
7. Verify that an amber “Radar Fail” message is not displayed in the middle of the MFD.
8. Verify that there are no WXR alerts in the Advisory screen.
9. If stabilization is supplied to the radar, turn the radar to Weather mode (except for Collins RTA 800) and turn stabilization ON using the Menu button.
10. Verify that “STAB On” is displayed in the upper-right corner of the MFD. If “STAB: INOP” is displayed, verify that stabilization is being supplied to the weather radar R/T.
11. Select the Mode button and then Off.

NOTE

If only one MFD is installed, the following steps do not have to be carried out.

12. Repeat the above steps for MFD #2.
13. On each MFD, select **Mode** and then **Standby**, and then wait for the warm-up to complete, if applicable.
14. On each MFD, select **Mode** and then **Test**
15. On MFD #1, increase the range of the radar display.
16. Verify that the range on MFD #1 changes and the range on MFD #2 does not change.
17. On MFD #2, increase the range of the radar display.
18. Select a different range than MFD #1.
19. Verify that the range on MFD #2 changes and the range on MFD #1 does not change.
20. On each MFD, select the **Mode** button and then **Off**.

6.4.9 Stormscope Interface Check

1. Verify the MFD is in Normal mode. For a dual MFD installation, verify both MFDs are in Normal mode.

NOTE

If no other weather source is configured, the **Stormscope** button will be present instead of the **Weather** button.

2. On each MFD, select the **Weather** button and then select the **Stormscope** button.
3. Verify there are no warnings displayed.
4. On one MFD, press **Menu**. Toggle between 360° and Arc views and verify the image switches between a 360° view surrounding the aircraft icon to an arc placed in front of the aircraft icon.

NOTE

Perform the following step only if a WX-500 is the configured.

Toggle between Cell and Strike modes and verify that the corresponding mode is displayed in the bottom-right corner of the MFD.

6.4.10 FIS-B Weather (ADS-B In)

NOTE

The following steps may be performed as a ground check as long as the aircraft is within range of an FAA ground station. If this is not the case, it is recommended that these checks be performed in-flight within range of an FAA ground station.

1. Verify the TXi system is in Normal mode.
2. Verify the GPS and FIS-B source are in Normal mode.
3. Allow up to 5 minutes for the GPS navigator to obtain a position.

NOTE

If no other weather source is configured, the FIS-B Weather button will be present instead of the Weather button.

4. On each MFD, select the Weather button and then select the FIS-B Weather button.
5. Verify there are no warnings displayed.
6. Select the Menu button and then select several FIS-B weather products to display.

NOTE

It may take up to 10 minutes after power-on for the system to begin receiving FIS-B weather products.

7. Verify at least one of the selected products displays a valid time stamp.
8. Verify there are no status fail messages regarding FIS-B weather.

6.4.11 GDL 69 Series Weather

This procedure does not activate the GDL 69 series XM data link radio. The instructions for activating the GDL 69 series XM data link radio can be found in GDL 69 Series SiriusXM Satellite Radio Activation Instructions (P/N 190-00355-04).

1. Position the aircraft where there is a clear view of the southeastern or southwestern sky (XM Satellite Radio satellites are located above the equator over the eastern and western coasts of the continental United States).
2. Verify the TXi system is in Normal mode.
3. Verify the GPS navigator and GDL 69 are in Normal mode.
4. Allow up to 5 minutes for the GPS navigator to obtain a position and the GDL 69 to obtain data.

   NOTE

   If no other weather source is configured, the SiriusXM Weather button will be present instead of the Weather button.

5. On each MFD, select the Weather button and then select the SiriusXM Weather button.
6. Verify there are no warnings displayed.
7. Select the Menu button and then select the Datalink Status button.
8. Verify the Data ID field has a valid value and is not blank.
9. Verify the Data and Audio signal bars are in the green and that the displayed subscription level is accurate.

6.4.12 GDL 69 Series Audio Interface Check

This procedure only verifies correct installation and activation of G500/G600 TXi functions. It does not activate the GDL 69 series XM data link radio. The instructions for activating the GDL 69 series XM data link radio can be found in GDL 69 Series SiriusXM Satellite Radio Activation Instructions (P/N 190-00355-04).

1. Position the aircraft where there is a clear view of the southeastern or southwestern sky (XM Satellite Radio satellites are located above the equator over the eastern and western coasts of the continental United States).
2. Verify the TXi system is in Normal mode.
3. Verify the GPS navigator and GDL 69 are in Normal mode.
4. Allow up to 5 minutes for the GPS navigator to obtain a position and the GDL 69A to obtain data.
5. On each MFD, select the Music button.
6. Verify that under Artist “XM DATA LINK FAIL” is not displayed.
7. Select the Next or Previous buttons to change the channel.
8. Verify that music plays on multiple channels.
9. Select the Status button.
10. Verify the Audio ID field has a valid value and is not blank.
11. Verify the Data and Audio signal bars are in the green and that the displayed subscription level is accurate.

6.5 EIS Ground Check

This section contains procedures to verify proper installation, operation, and gauge markings of the EIS. Begin with the engine off and at ambient temperature.

This section contains some steps applicable only to turbine or only to reciprocating engines. Follow the steps that pertain to the aircraft installation.

> NOTE
>
> For the purposes of this section, any reference to “GEA” is applicable to the GEA 110 for reciprocating engines and GEA 71B Enhanced for turbine engines.

6.5.1 EIS Gauge Layout and Marking Checks

1. Verify the TXi system is in Normal mode.
2. Verify that no red or amber “X” marks are present on any EIS gauge.
3. Verify the gauges on each EIS display match the appropriate layout using Appendix F or model-specific data in Appendix D.

6.5.2 EIS Gauge Marking Checks

Download and view the configuration summary to verify the EIS is configured in accordance with the aircraft’s POH/AFM and other approved aircraft data (e.g., applied STCs, aircraft TCDS, engine TCDS, etc.).

1. Insert an SD card into the top (GDU 700P/1060) or left (GDU 700L/1210) slot of the GDU.
2. Verify each TXi EIS display is in Configuration mode.
3. From the home page, touch SD Save.
4. Enter an appropriate title and touch Enter.
5. Power off the displays and remove the SD card.
6. Insert the SD card into a computer.
7. Open the SD card folder and navigate to the .zip folder.
8. Unzip and open the folder, then navigate to the “configuration_summary” folder.
9. Open the “main_summary.htm” file in a web browser.
10. Navigate to the “EIS Configuration” section.
11. Verify that the instrument gauge markings and ranges match the aircraft data gathered in Section 5.7.3.2, Table 5-80, and Table 5-81, and are in accordance with the powerplant limitations and original markings as described by the POH/AFM or other approved aircraft data.

> WARNING
>
> Failure to properly configure the EIS gauges per the POH/AFM and other approved aircraft data could result in serious injury, damage to equipment, or death.

6.5.3 Temperature Sensor Checks

This check applies to all temperature sensors interfaced to the EIS.

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch Diagnostics !’ EIS !’ Sensor Status

   NOTE
   Use Appendix Section A.8 to compare the Sensor Status page port names and functional names.

3. Verify the temperatures being displayed are within ± 2°C of the ambient temperature.

   NOTE
   If the engine has not had sufficient time to reach ambient temperature, it is necessary to verify each temperature source independently.

4. CHT, EGT, TIT, TIT2 (if two installed) - Verify each probe is wired to the corresponding cylinder number by applying heat to each sensor and monitoring the temperature rise on the EIS display.

   NOTE
   If the temperature decreases when heat is applied, the wire polarity may be reversed.

5. If connected, verify EIS OAT is displayed within ± 2°C of the ambient temperature.

6.5.4 Manifold Pressure Sensor Check (Reciprocating Only)

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA 110, touch EIS !’ Gauge.
3. Verify that the manifold pressure gauge does not display a red or amber “X”.
4. Verify that the gauge reads ambient pressure ±1 in-Hg.

   NOTE
   Estimate the ambient pressure by subtracting 1 in-Hg for every 1,000 ft of field elevation from the current barometric pressure.

6.5.5 Torque Check (Turboprop Only)

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA 71B Enhanced, touch EIS !’ Gauge.
3. Verify the Torque gauge does not display a red or amber “X”.
4. Verify that the gauge indicates 0 FT-LBS (or configured unit).

6.5.6 Tachometer Check (Reciprocating Only)

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA 110, touch EIS !’ Gauge.
3. Verify that the RPM gauge does not display a red or amber “X”.
4. Verify that the gauge indicates 0 RPM.

6.5.7 RPM Check (Turboprop Only)

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA 71B Enhanced, touch EIS !' Gauge.
3. Verify that the Propeller RPM, Gas Producer RPM, N1, and N2 gauges (as applicable) do not display a red or amber “X”.
4. Verify that the gauges indicate 0 RPM or 0% (as applicable).

6.5.8 Fuel Flow Sensor Check

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch EIS !' Gauge.
3. Verify that the fuel flow gauge (FF) does not display a red or amber “X”.
4. Verify that the gauge reads 0 GPH.
5. If using a Fuel Flow Temperature sensor, touch Back !' EIS Diagnostics !' Sensor Statu
6. Verify Fuel Flow Temperature reports a valid temperature (i.e., not “_ _ _ _”).

6.5.9 Oil Pressure Sensor Check

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch EIS !' Gauge.
3. Verify that the oil pressure gauge does not display a red or amber “X”.
4. Verify that the gauge reads 0 ±1 PSI.

6.5.10 Fuel Pressure Sensor Check

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch EIS !' Gauge.
3. Verify that the fuel pressure gauge does not display a red or amber “X”.
4. Verify that the gauge reads 0 ±1 PSI. It may be necessary to manipulate the throttle/mixture to reduce residual fuel pressure.
5. If installed, turn on fuel boost pump and verify fuel pressure increases. Turn off the boost pump.

6.5.11 Fuel Quantity Check

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch EIS !' Gauge.
3. Verify that the fuel quantity gauge(s) does not display a red or amber “X”.
4. Verify the indicated fuel quantities are accurate for each tank.
5. Verify the indicated fuel quantity is 0 when the aircraft is fueled with the unusable fuel quantity established by the aircraft manufacturer.
6. Verify a red radial is present at zero.

NOTE

The capacitance value displayed for fuel probes in the EIS Diagnostics page is not accurate. Use the aircraft maintenance manual procedures for maintenance and troubleshooting of capacitive fuel quantity probe(s) and wiring.

6.5.12 Shunt and Voltage Sensor Checks

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA, touch EIS → Gauge.
3. Verify that the shunt/voltage gauge(s) does not display a red or amber "X".
4. Verify all intended gauges are available.
5. Verify that the gauge(s) show the correct aircraft voltage and amperage with the engine off.

NOTE
An alternator load meter may indicate a small current if the alternator field is on.

6.5.13 Rudder Trim Check (Turboprop Only)

1. Verify the EIS display is in Configuration mode.
2. On each display wired directly to the GEA 71B Enhanced, touch EIS → Gauge.
3. Verify the rudder trim gauge does not display a red or amber "X".
4. Verify the indicated trim position is accurate.
   a. Actuate the yaw trim to the full nose left position and verify the gauge indicates full nose left.
   b. Actuate the yaw trim to the full nose right position and verify the full nose right position.

6.5.14 Vacuum/De-ice Boot Pressure Check

1. Verify the EIS display is in Configuration mode.
2. On each display wired directly to the GEA, touch EIS → Gauge.
3. Verify the vacuum/de-ice boot pressure gauge does not display a red or amber "X".
4. Verify that the gauge indicates 0 in-Hg (or configured unit).

6.5.15 EIS Discrete Check

If the installation uses EIS discrete inputs (e.g., starter, ignition, etc.):

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA or GDU discrete input, touch EIS → Gauge (or Diagnostics → Discrete Inputs if the starter discrete is only used for lighting).
3. Press the Test button for annunciator panel lights.
4. Verify that no discrete inputs are activated.

If the installation uses the torque limiter discrete input:

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA or GDU discrete input, touch EIS → Gauge.
3. Cycle the torque limiter and verify the torque redline limit moves as configured.

If the installation uses EIS discrete outputs (e.g., ITT, torque, engine caution/warning):

1. Verify the EIS display is in Configuration mode.
2. On each display directly wired to the GEA or GDU discrete input, touch Diagnostics → Discrete Outputs.
3. Cycle the desired discrete between the active and inactive state.
4. Verify the annunciator light turns on and off appropriately.

6.5.16 EIS Engine Run-up Checks

An Engine Run-up Check must be performed to ensure proper installation and configuration of the EIS sensors and gauges. Always follow engine start-up procedures as provided in the aircraft AFM/POH.

> CAUTION
>
> If the engine indications are not within operating specifications shortly after starting, IMMEDIATELY shut down the engine and troubleshoot the problem. Failure to do so may cause engine damage.

1. Obtain an optical tachometer to monitor propeller RPM.
2. Place the aircraft in an open and clear area appropriate for an extended engine run-up.
3. Follow the engine start-up procedure as outlined in the aircraft AFM/POH. Adhere to the required observations immediately following the start, such as oil pressure within 30 seconds.
4. For multi-engine aircraft, verify the appropriate engine gauges respond corresponding to the correct side (left/right).
5. Verify the EIS RPM gauge(s) match the optical tachometer reading ±50 RPM.
6. Allow the engine to warm up and oil temperature to increase to within normal operating range.
7. Verify the engine oil pressure gauge is reading within the green arc.
8. Verify the EIS RPM gauge matches the optical tachometer reading ±50 RPM during all phases of the engine run-up.
9. Verify the alternator load meter (if installed) and battery charge/discharge ammeter (if installed) indicate a positive load.
10. Verify vacuum/de-ice boot pressure gauge is consistent with normal operation.
11. Perform individual magneto checks (if applicable) as specified by the aircraft AFM/POH. If the RPM does not drop as expected when switching from both magnetos to one, then the P-lead, ignition switch wiring, or magneto timing is incorrect. Discontinue the test immediately and repair the ignition system.
12. If applicable, verify that all dynamic engine gauge markings and ranges replicate all yellow and red engine markings described by the AFM/POH, other approved aircraft data, and applicable model-specific settings in Appendix D.
13. Perform the engine pre-takeoff run-up checklist in accordance with the aircraft AFM/POH.
14. Verify all EIS readings are consistent with normal operation performance.
15. Verify all installed sensors and fittings are free of leaks.

6.6 AHRS Calibration Checks

The following section completes the required AHRS calibration and compass swing checks/adjustments.

6.6.1 Magnetometer Calibration

Use the compass rose or a calibrated magnetic sight compass to calibrate the magnetometer. Ensure the aircraft and compass is located away from magnetic buildings, materials, and other structures. The accuracy of the AHRS cannot be guaranteed if the calibration is not performed in an area that is free of metallic structure or objects. Refer to the guidance in the Site Evaluation of Magnetic Disturbances in Section 6.6.5.

> NOTE
>
> The Pitch/Roll Offset Compensation Procedure in Section 5.8.1.1 must be completed prior to performing this procedure.

Performing the magnetometer calibration removes any previously stored heading offset values. For multiple AHRS installations, the calibration can be done simultaneously using multiple displays.

1. Start the aircraft engine per the POH/AFM.
2. Taxi the aircraft to a desired calibration area.
3. Power on the display(s) in Configuration mode.
4. Select Magnetometer from the Procedure menu (Home!’ Calibration/Test!’ Attitude/He
5. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
6. Complete the Before Calibration steps listed on the display; select each step when complete so that a green check mark appears next to the selection.
7. Select the Calibrate button when it becomes active to start the calibration procedure.
8. Follow the on-screen commands to complete the calibration.
9. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.

A successful heading calibration point is a full 18-second countdown followed by instruction to move. Due to the difficulties in executing smooth, accurate turns, the display may incorrectly interpret the approach heading point and instruct to “HOLD POSITION” prior to full completion of a 30° turn. If this condition is encountered, use outside references to complete the approximate 30° turn, instead of using the display instructions of when to complete the turn (use the compass rose radial to make the 30° (±5°) turn increments). Accurately completing each 30° heading point for the required time as instructed will result in a successful calibration.

Due to high winds or excessive airframe vibration, the operator may encounter a condition where the 18-second countdown is restarted without full completion of the previous countdown. If this is experienced more than once for a given heading point, the operator should begin turning to the next station (approximately 30°). A minimum of two successful heading points per quadrant is required. It may sometimes be required to hold at a station after a countdown restart. A maximum of 20 heading points are allowed for the entire calibration procedure. If too many countdown restarts are encountered, the calibration will fail with the message, “TOO MANY STATIONS”.

6.6.2 Compass Swing

After the Magnetometer Calibration Procedure is completed, a compass swing must be performed to verify the AHRS heading accuracy.

1. With all of the aircraft and avionics systems powered and operating normally, position the aircraft on a compass rose at a heading 360° (Magnetic North) or select a level and magnetically clean location and use a calibrated sight compass.
2. With the PFD in Normal mode, navigate to the System Units page.
   a. GDU 700P (Menu !’ System !’ Units)
   b. GDU 1060/1210 (System !’ Units)
3. Select the Magnetic (°) option from the NAV Angle selection.
4. Return to the main screen.
5. Record the HDG value displayed on the PFD (PFD #1 and PFD #2 for a dual installation) as indicated in Table 6-7.
6. Record the heading displayed on the standby compass and non-stabilized compass. Verify or correct the standby compass deviation card.
7. Calculate the heading errors by subtracting the displayed (B) value from the actual (A) value for each of the headings. If each heading displayed on the PFD (or PFD #1 and PFD #2) is at or within ±3° of the actual heading, no further adjustments are necessary. If one or more of the displayed heading values are outside this range, further calibration is needed.
8. If all calculated heading errors are between -5° and +5° inclusive, the heading offset procedure can be used for the Heading Offset Compensation Procedure. Proceed to Section 6.6.2.1.

   NOTE
   If at least one Heading Error (A-B) is greater than 5°/less than –5°, DO NOT perform the Heading Offset Procedure in Section 6.6.2.1 until the GMU 44(B) installation has been physically corrected.

9. If at least one Heading Error (A-B) is greater than 5°/less than -5°, calculate the average error by adding all errors and dividing by 12. This is the angle by which the GMU 44(B) must be physically rotated to correct the installation.
10. Modify the installation to rotate the GMU 44(B) by the amount calculated in the previous step. When looking down at the GMU 44(B), rotate clockwise for positive values and counterclockwise for negative values.
11. After physically correcting the GMU 44(B) installation, repeat the procedures in Section 6.6.1 and Section 6.6.2.

Table 6-7 Heading Verification AHRS (AHRS #1 for dual installations)

Heading (A)	Displayed AHRS or AHRS #1 Heading (B)	Heading Error (A-B)	Standby Compass Heading
360° (North)			
30°			
60°			
90°(East)			
120°			
150°			
180°(South)			
210°			
240°			
270°(West)			
300°			
330°			

AHRS #2 (For dual installations only)

Heading (A)	Displayed AHRS or AHRS #2 Heading (B)	Heading Error (A-B)	Standby Compass Heading
360° (North)			
30°			
60°			
90°(East)			
120°			
150°			
180°(South)			
210°			
240°			
270°(West)			
300°			
330°			

6.6.2.1 Heading Offset Compensation

The Heading Offset Compensation Procedure is not required if it was determined in Section 6.6.2 that all calculated heading errors are between -3° and + 3° inclusive. It is recommended to perform the Heading Offset Compensation Procedure ONLY if the calculated heading errors indicate a constant (i.e., same direction and same approximate magnitude) heading offset at all headings around the compass rose, not exceeding 5° in magnitude. Otherwise, physically correct the GMU 44(B) installation and repeat the Magnetometer Calibration Procedure.

> NOTE
> If the Heading Offset Compensation Procedure must be performed on both AHRS1 and AHRS2, it is permitted to run the procedure below simultaneously on two displays.

The Magnetometer Calibration Procedure must be performed before the Heading Offset Compensation Procedure. Performing the magnetometer calibration removes any stored heading offset values.

1. Start the aircraft engine in accordance with the aircraft AFM/POH.
2. Power the displays on in Configuration mode.
3. Select Heading Offset from the Procedure menu (Home!’ Calibration/Test!’ Attitude/He
4. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
5. Complete the Before Calibration steps listed on the display; select each step when complete so that a green check mark appears next to the selection.
6. Select the Calibrate button when it becomes active to start the calibration procedure.
7. Follow the on-screen commands to complete the calibration.

6.6.3 Engine Run-Up Vibration Check

The calibration procedures in Section 5.8.1.1 through Section 6.6.2.1 do not have to be completed prior to performing this procedure.

For dual AHRS installations, the following procedure must be performed for each AHRS on the display it is wired to. The run-up procedure can be done simultaneously on each display. Follow the prompts on each display. Initiate the Engine Run-Up Check Procedure by performing the following steps:

1. Select Engine Run-Up Test from the Procedure menu (Home!’ Calibration/Test!’ Attitude/ Heading).
2. Select the desired AHRS unit to calibrate via the AHRS Unit selection.
3. Follow the Before Test checklist items on the display and select each as they are completed. When all checklist items have a green check mark, the Test selection will become active.
4. Select Test to begin the procedure.
5. Follow the on-screen commands.

If failures are indicated, the engine run-up check may be repeated up to two more times. If the check does not pass after three attempts, the installation cannot be considered reliable until the source of the vibration problem is identified and fixed. In the event of repeated failures during the engine run-up check, record the values that are reported to be out of range for future reference.

The following are potential causes for a failure of the engine run-up check:

- Vibration motion of AHRS and/or GMU 44(B) caused by neighboring equipment and/or supports.
- Mounting screws and other hardware for AHRS and/or GMU 44(B) are not firmly attached.
- AHRS connector is not firmly attached to unit.

- Wiring connected to the remotely mounted AHRS or GMU 44(B) is not firmly secured to supporting structure.
- An engine/propeller is significantly out of balance.

After the AHRS calibration is complete, the AHRS attitude and heading information displayed will become valid within 1 minute of power-up in Normal mode.

6.6.4 Magnetometer Interference Check

For dual AHRS installations, the following procedure must be performed on each AHRS through the display it is directly wired to. The test can be done simultaneously on each display. Follow the display prompts.

1. Select the Mag Intf. Test option from the Procedure selection (Home !’ Calibration/Test !’ Attitude/Heading)
2. Select WX Radar Mode, if applicable.
3. Select the desired AHRS unit to calibrate from the AHRS Unit selection.
4. Complete the Before Calibration steps listed on the display. When all the steps have a green check mark, the Test selection will become active.

   NOTE

   The second item on the checklist instructs the operator to have the Magnetic Interference Test Procedure for the aircraft available. This sequence is listed in Garmin document AHRS/Magnetometer Installation Considerations (P/N 190-01051-00).

5. Select Test to start the procedure.
6. Follow on-screen commands.
7. Select Test Complete when the test sequence is completed. The results of the test will be displayed.
8. Repeat the procedure for each installed AHRS unit if they were not completed simultaneously.
9. The MFD (if applicable) informs the operator if the installation has passed or failed the magnetometer interference test.
10. If the check passes, no further action is required.

If the check fails, the installation is considered unreliable until the source of magnetic interference is identified and fixed. The Magnetometer Interference Test must be repeated until passed. When the magnetometer interference check fails, record the three magnetometer maximum deviation values and their corresponding timestamps. A maximum deviation value greater than 5.0 mGauss in either the X or Y axes, or greater than 8.0 mGauss in the Z axis, indicates a problem that must be resolved. Compare the corresponding timestamps with the prepared test sequence to identify which action produced the failure. Contact Garmin Support for assistance.

Possible reasons for a failed magnetometer interference check are:

- Equipment, wiring, or ferro-magnetic items are installed too close to the GMU 44(B) Magnetometer.
- An electronic device has become grounded through the aircraft structure instead of the proper ground wire in a twisted shielded pair, especially if the ground return path through the aircraft structure passes near the GMU 44(B).
- The wing of the aircraft may have a poor electrical bond to the fuselage. Check that the original bonding provision exists and has not degraded over time.

6.6.5 Site Evaluation of Magnetic Disturbances

Typically, a compass rose is an acceptable location to perform the Magnetometer Calibration Procedure. However, even an existing compass rose can be evaluated to determine if it is free of magnetic disturbances. If the evaluation of an existing compass rose indicates that magnetic disturbances are present, an alternative location must be found to perform the Magnetometer Calibration Procedure.

A G500/G600 TXi-equipped aircraft can be used to evaluate a candidate site for magnetic disturbances and determine whether it is a suitable location to perform the Magnetometer Calibration Procedure. The Magnetometer Calibration Procedure itself contains the logic to simultaneously survey the location for magnetic cleanliness while it is computing the magnetometer calibration parameters.

The G500/G600 TXi-equipped aircraft used to evaluate the site must have already completed the Pitch/Roll Offset Compensation Procedure (Section 5.8.1.1). The completion of the Magnetometer Calibration Procedure (Section 6.6.1) is not required. In order to evaluate a site, the Magnetometer Calibration Procedure must be performed twice: once turning clockwise around the site and once turning counterclockwise. Both times, the procedure should be conducted as described in Section 6.6.1, with the exception of the direction of turns around the site.

If, upon completion of the Magnetometer Calibration Procedure in each clockwise and counterclockwise direction, the PFD displays the “CALIBRATION SUCCESSFUL/SITE IS CLEAN” message, then the candidate site is sufficiently free of magnetic disturbances and is acceptable for performing the Magnetometer Calibration Procedure. It is important to obtain successful results in both the clockwise and counterclockwise directions.

If, upon completion of the Magnetometer Calibration Procedure in either of the two directions, the PFD displays either the “MAG FIELD AT SITE NOT UNIFORM” or “MAG FIELD AT SITE DIFFERS FROM IGRF MODEL” message, then the site contains magnetic disturbances that are too large, and an alternate site should be used for the AHRS magnetic calibration.

6.7 Autopilot Interface Check

Before proceeding with the autopilot interface tests, verify the PFD has been properly configured for the autopilot (and flight director, if applicable) that is installed. For configuration instructions, see Appendix C. Only those interfaces that are directly affected by the G500/G600 TXi STC are covered by this manual; if any other autopilot modifications have been made, those changes are outside the scope of this STC and must be checked in accordance with the autopilot installation manual.

> WARNING
> It is important that the PFD be properly configured in order to prevent damage to the autopilot computer.

6.7.1 Autopilot Engagement Check

This section verifies that the autopilot can be engaged.

1. Verify the TXi system is in Normal mode. Allow the PFD to obtain a valid heading, attitude, altitude, and GPS location (from the navigator).
2. Verify the GPS navigator is in Normal mode.
3. Engage the autopilot. If the autopilot cannot be engaged, troubleshoot using the instructions in the autopilot installation manual.
4. For installations utilizing the GAD 43(e) to provide attitude information to the autopilot, verify that the autopilot disconnects and the servos disengage (Menu !’ Test !’ AP DISC).
5. For all other installations, disengage the autopilot using regular means.

6.7.2 Flight Director Check

This section verifies that the flight director interface between the autopilot computer and the PFD is functional. This test only needs to be performed if:

%æAn analog/ARINC 429 flight director outputs are being sent to the PFD.
%æThe PFD supports the flight director.

1. Verify the PFD is in Normal mode.
2. Activate the flight director with the autopilot in Pitch/Roll or Heading/Altitude mode (it is not necessary for the servos to be engaged for this test).
3. Verify that the flight director is displayed on each PFD. If the flight director is not displayed, troubleshoot using the guidelines in the G500/G600 TXi maintenance manual.
4. Command the flight director to pitch up.
5. Verify that the command bars move up.
   %æIf the flight director response is opposite (i.e., the command bars move down rather than up), the Pitch Polarity can be changed in Configuration mode (Calibration / Test !’ Flight Director !’ Pitch Polarity).
6. Command the flight director to pitch down.
7. Verify that the command bars move down.
8. Command the flight director to roll right.

9. Verify that the command bars move to the right.
    - If the flight director response is opposite (i.e., the command bars move left rather than right), the Roll Polarity can be changed in Configuration mode (Calibration / Test → Flight Director → Roll Polarity).
10. Command the flight director to roll left.
11. Verify that the command bars move to the left.
12. Select Go Around, if equipped.
13. Verify that the command bars center laterally and move to command a climb.

6.7.3 Altitude Preselector Check

In dual PFD installations that utilize a GAD 43e, the Altitude Preselector and Vertical Speed Controller functions are routed through the GAD 43e from the pilot's PFD. These functions are available on the copilot's PFD using the Other GDU via HSDB configuration. All steps must be conducted on both PFDs for dual PFD installations. Both displays can be verified simultaneously, if applicable.

6.7.3.1 S-TEC 55X Autopilot without GAD 43e

This test is applicable only for S-TEC autopilots that have the RS-485 altitude preselector input connected to the GDU. The display must be configured for the altitude preselector option. This test verifies that the altitude preselector is functional. The altitude preselector input to the autopilot is only connected to the pilot's PFD for dual PFD installations.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. On the GDU, set the selected altitude to match the displayed field elevation plus approximately 1000 feet.
3. Engage the flight director or autopilot in HDG mode. Press ALT and VS simultaneously on the control panel to select Altitude Select mode.
4. Verify that "ALT" and "VS" are displayed on the autopilot. If "ALT" is not displayed, the autopilot is not receiving the RS-485 altitude preselector data from the GDU.
5. Disengage the autopilot.

6.7.3.2 Autopilot Using GAD 43e S-TEC ST-360 Emulation (S-TEC 55/55X/60-2/60 PSS/65)

This test verifies that the Altitude Preselector and Vertical Speed Controller functions provided by the GAD 43e to the autopilot are functional.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. On the GDU, set the selected altitude bug approximately 500 feet above the current altitude.
3. Engage the flight director and autopilot and arm ALT mode by pressing VS and ALT simultaneously on the autopilot controller ("VS" and "ALT" should be displayed on autopilot controller).
4. On the GDU, adjust the vertical speed bug to +1000 fpm.
5. Verify the flight director commands pitch up and/or the control wheel moves aft.
6. On the GDU, adjust the vertical speed bug to -1000 fpm.
7. Verify the flight director commands pitch down and/or the control wheel moves forward.

8. On the GDU0, increase the BARO setting so the displayed altitude increases towards the selected altitude bug.
9. As the selected altitude bug is approached, verify on the GDU that the selected VS bug automatically decreases towards zero.
10. After crossing through the selected altitude bug, verify on the autopilot that “VS” has extinguished and “ALT” remains displayed.
11. Disengage the autopilot.

6.7.3.3 Autopilot Using GAD 43e KAS 297B/C Emulation (King KAP 100/150 or KFC 150/275/325)

This test verifies that the Altitude Preselector and Vertical Speed Controller functions provided by the GAD 43e to the autopilot are functional.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. Press the TEST button on the autopilot to run the self-test, if applicable.
3. On the GDU, set the selected altitude approximately 500 feet above the current altitude.
4. Engage the flight director and autopilot.
5. Engage altitude capture on the GDU from the ALT menu to arm the selected altitude (ALT !’ ALT CAP !’ ARMD).
6. Engage VS mode on the GDU from the VS menu (VS !’ VS ENG !’ ENGD).
7. Verify that “ALTC” is displayed in white and “VS” is displayed in green on each GDU.
8. On the GDU, adjust the vertical speed bug to +1000 fpm.
9. Verify the flight director commands pitch up and/or the control wheel moves aft.
10. On the GDU, adjust the vertical speed bug to -1000 fpm.
11. Verify the flight director commands pitch down and/or the control wheel moves forward.
12. On the GDU, increase the altimeter setting from the BARO menu so the displayed field elevation increases towards and through the selected altitude (BARO !’ BARO).
13. After crossing the selected altitude, verify on the GDU that the green “VS” and white “ALTC” annunciations have extinguished. A green “ALTC” annunciation may appear briefly when crossing through the selected altitude.
14. Verify on the autopilot that “ALT” is displayed.
15. Disengage the autopilot.

6.7.3.4 Autopilot Using GAD 43e AA801A Emulation (Cessna 300B IFCS, 400B IFCS, 800B IFCS, 1000A IFCS)

This test verifies the functionality of the Altitude Preselector provided by the GAD 43e to the autopilot.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. Change the BARO setting to display a current altitude of 500 ft.
3. Attempt to arm a pre-selected altitude by selecting ALT. Enter a target altitude bug of 1700 ft. Verify "ALT CAP" cannot be engaged.
4. Engage the flight director (FD) on the mode select panel or autopilot (AP) on the autopilot control unit.
5. Arm the selected altitude by navigating to the altitude bug and press the ALT CAP key to display "ARMED" on the GDU.
6. Verify that "ARMED" is displayed on the GDU above the altitude tape.
7. Change the selected altitude below the current altitude (300 ft).
8. Verify the "ARMED" annunciation remains.
9. Change the selected altitude to 1700 ft.
10. Adjust the BARO setting so the displayed altitude increases towards the selected altitude.
11. Verify at 700 feet that the 1000 ft offset alerter annunciates.
12. Verify at 1500 feet that the 200 ft offset alerter annunciates.
13. After crossing the selected altitude, verify "ALT" annunciates on the autopilot mode selector panel and "ARMED" extinguishes on the GDU.
14. Disengage the autopilot and the flight director.

6.7.3.5 Autopilot Using GAD 43e United Instruments 5506L-S Emulation (Collins APS -65)

This test verifies that the Altitude Preselector function provided by the GAD 43e to the autopilot is functional.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. On the GDU, set the selected altitude bug approximately 500 feet above the current altitude.
3. Engage the flight director and arm ALT SEL mode. Verify that "ALT SEL" is displayed on the autopilot mode annunciator and is not flashing.
4. On the GDU, adjust the selected altitude bug while observing the autopilot "ALT SEL" annunciator.
5. Verify that the "ALT SEL" annunciator flashes while the selected altitude bug is being adjusted. Return the selected altitude bug to approximately 500 feet above the current altitude.
6. On the GDU, increase the BARO setting so the displayed altitude increases towards the selected altitude bug.
7. After crossing through the selected altitude, verify on the autopilot mode annunciator that "ALT SEL" has extinguished and "ALT" is displayed. The transition from "ALT SEL" to "ALT" may occur before the selected altitude bug is reached.
8. Disengage the autopilot.

6.7.3.6 Autopilot Using GAD 43e KAS 297 Emulation (Bendix/King KFC 200/250)

This test verifies that the Altitude Preselector functions provided by the GAD 43e to the autopilot are functional.

1. Verify the TXi system is in Normal mode (valid air data must be displayed).
2. Engage the flight director by pressing **FD** on the autopilot controller ("FD" should be displayed on autopilot annunciator).
3. Using the autopilot mode controller, operate the vertical trim switch in both directions and verify the flight director command bar moves accordingly.
4. Engage altitude hold mode by pressing **ALT** on the autopilot controller ("ALT" should be displayed on autopilot annunciator).
5. On the GDU, set the selected altitude bug approximately 500 feet above the current altitude.
6. Engage altitude capture on the GDU from the ALT menu to arm the selected altitude (ALT → ALT CAP → ARMD). Verify "ALT" extinguishes on the autopilot annunciator.
7. On the GDU, verify "ALTC" is displayed in white.
8. Press **Preflight Test** on the autopilot mode control panel.
9. On the GDU, verify that the white "ALTC" annunciation is extinguished.
10. Re-arm the selected altitude (repeat step 6).
11. Press the autopilot go around (**GA**) switch. Verify "GA" is displayed on the autopilot annunciator.
12. On the GDU, verify that the white "ALTC" annunciation is extinguished.
13. Re-arm the selected altitude (repeat step 6).
14. On the GDU, increase the BARO setting so the displayed altitude increases towards the selected altitude bug.
15. After crossing through the selected altitude, verify on the GDU that the white "ALTC" annunciation is extinguished and the autopilot has engaged altitude hold mode. "ALT" should be displayed on autopilot annunciator.

    NOTE

    A green "ALTC" annunciation may appear briefly on the GDU when crossing through the selected altitude.

16. Disengage the flight director.

6.7.4 Heading and Course Error Check

This section verifies that the heading and course error interface between the GDU and autopilot computer is functional. For dual PFD G500/G600 TXi installations, only the pilot’s PFD is wired to the autopilot, and the following instructions apply only to the pilot’s PFD.

1. Verify the TXi system is in Configuration mode.
2. Navigate to the Autopilot Test page (Calibration/Test ’ Autopilot Test).
3. On the GDU, engage HDG/CRS Valid.
4. Engage the autopilot in HDG mode.
5. Change HDG Datum to 10°RT.
6. Verify that the control yoke or stick moves to the right.
7. Change HDG Datum to 10°LT.
8. Verify that the control yoke or stick moves to the left.
9. Change HDG Datum to 0°RT.

NOTE

If the control yoke or stick moves in the opposite direction of what is expected, reverse the Left/Right HDG Polarity on the Autopilot Calibration page and continue the checkout process.

10. Put the autopilot in NAV mode.
11. Change CRS Datum to 20°RT.
12. Verify that the control yoke or stick moves to the right.
13. Change CRS Datum to 20°LT.
14. Verify that the control yoke or stick moves to the left.
15. Change CRS Datum to 0°RT.
16. Disengage the autopilot.

NOTE

If the control yoke or stick moves in the opposite direction of what is expected, reverse the Left/Right Course Polarity on the Autopilot Calibration page and continue the checkout process.

Figure 6-3 Autopilot Test Page - HDG/CRS Valid

6.7.5 VOR/Localizer and Glideslope Deviation Checks

This test verifies that the lateral deviation, vertical deviation, lateral flag/superflag, and vertical flag/superflag interfaces between the GDU and autopilot are correct. Throughout this section, set either the flag/superflag status depending on which output from the GDU is connected to the autopilot.

> NOTE
>
> For dual PFD installations, only the pilot's GDU is wired to the GAD 43(e) and the autopilot; the following instructions apply only to the pilot's PFD.

1. Verify the TXi system is in Configuration mode.
2. Navigate to the Autopilot Test page (Calibration/Test → Autopilot Test).
3. On the GDU, engage HDG/CRS Valid.
4. Engage the autopilot in HDG mode.
5. Open the Deviation dialog box and activate the LAT Flag/Superflag (Deviation → Settings → LAT).
6. Put the autopilot into APR mode.
7. Set the Lateral Deviation to 30% RT.
8. Verify that the autopilot moves the control yoke or stick to the right.
9. Set the Lateral Deviation to 30% LT.
10. Verify that the autopilot moves the control yoke or stick to the left.
11. Set the Lateral Deviation to 0%.
12. De-select the LAT in the Deviation Flag/Superflag dialog box.

13. Verify that the autopilot exits APR mode.
14. Select LAT in the Deviation Flag/Superflag dialog box and set the autopilot back in APR mode, if necessary.
15. Go to the Autopilot Test page and activate ILS/GPS Approach (Back → ILS/GPS Approach).
16. Open the Deviation dialog box and activate the VERT Flag/Superflag (Deviation → Settings → VERT).
17. Set the Vertical Deviation to 30% DN.
18. Verify that the autopilot indicates that it is capturing or tracking the glideslope.
19. Verify that the autopilot moves the control yoke or stick forward.
20. Set the Vertical Deviation to 30% UP.
21. Verify that the autopilot moves the control yoke or stick aft.
22. De-select the VERT in the Deviation Flag/Superflag dialog box.
23. Verify that the autopilot indicates that it is no longer capturing or tracking the glideslope.
24. Set the Vertical Deviation to 0% and verify the VERT (Deviation Flag/Superflag) and the LAT (Deviation Flag/Superflag) are de-selected.
25. Disengage the autopilot.

Figure 6-4 Autopilot Test Page - ILS/GPS Approach

6.7.6 GPS Roll Steering Check

GPS roll steering is handled in one of three ways:

1. If the autopilot has an ARINC 429 roll steering input, the GDU can provide ARINC 429 roll steering directly to the autopilot.
2. If an external roll steering converter has been installed, the GDU can provide ARINC 429 roll steering to the converter, which then outputs an analog heading error signal to the autopilot.
3. The GDU 700P/1060 can provide the roll steering via the heading error output, taking the place of a separate roll steering converter. The autopilot is left in Heading mode, and the GDU varies the heading error output to steer the autopilot.

6.7.6.1 ARINC 429 GPS Roll Steering Check

This test verifies that the GPS roll steering interface between the GDU and the autopilot is functional.

> NOTE
> For dual PFD installations, only the pilot’s GDU is wired to the GAD 43(e) and the autopilot; the following instructions apply only to the pilot’s PFD.

1. Verify the TXi system is in Configuration mode.
2. Navigate to the Autopilot Test page (Calibration/Test → Autopilot Test).
3. Engage GPS Annunciate and GPS Select.
4. Engage the autopilot in GPSS Roll Steering mode. If an external roll steering converter is used, engage the autopilot in Heading mode and set the roll steering converter to roll steering.
5. Open the Roll Steering dialog box by pressing the Settings button in the ARINC display of the Autopilot Test page.
6. Set the Roll Steering bank angle to 10°RT.
7. Set GND Speed to 50 KT.
8. Engage GPSS Valid.
9. Verify that the autopilot rolls the control yoke or stick to the right.
10. Set the Bank Angle to 0°RT.
11. Verify that the autopilot rolls the control yoke or stick level.
12. Set the Bank Angle to 10°LT.
13. Verify that the autopilot rolls the control yoke or stick to the left.
14. Set the Bank Angle to 0°RT.
15. Set GND Speed to 0 KT.
16. Disengage GPSS Valid.
17. Disconnect the autopilot.

Figure 6-5 Autopilot Test Page - GPSS Roll Steering

6.7.6.2 Analog GPS Roll Steering Check

This check verifies that the GPSS/HDG Control selection is configured correctly. This check is used to verify the operation of the analog GPS roll steering interface between the GDU and the autopilot; although, if the heading error interface is functional, there is no need to verify this interface.

NOTE
For dual PFD installations, only the pilot’s GDU is wired to the GAD 43(e) and the autopilot; the following instructions apply only to the pilot’s PFD.

NOTE
The heading error check in Section 6.7.4 must be successfully completed prior to checking the operation of the GDU Analog GPS roll steering.

1. Verify the TXi system is in Normal mode.
2. Use the PFD CDI button to select GPS as the navigation source on the HSI.
3. Switch to GPSS (HDG !’ AP HEADING REF !’ GPSS).
4. On PFD #1, verify that “GPSS” is displayed on the PFD.
5. Verify the cyan heading bug is hollowed out on all GDU PFDs, if dual PFDs are installed.
6. Switch to HDG (HDG !’ AP HEADING REF !’ HDG Bug).
7. Verify that “GPSS” on the PFD is removed.

Figure 6-6 HDG - GPSS Selection

The following steps only need to be completed if the Heading Error Test could not be successfully completed.

GNS 4XXW/5XXW Series and GTN 6XX/7XX/Xi Units

Due to the nature of the GNS 4XXW/5XXW and GTN 6XX/7XX/Xi self-test operation, it may be difficult to observe the self-test response. It is recommended that the Heading Error Test be used in place of self-test operation. Perform the following check for the GPS source that is providing navigation data to the HSI:

1. Verify the GPS unit is in Normal mode.
2. Proceed to the Instrument Panel Self-Test page.
3. Ensure that “GPSS” is displayed in yellow text on the PFD.
4. Engage the autopilot in HDG mode. If possible, engage only the flight director and not the autopilot servos.
5. If available, verify that the flight director slowly moves back and forth between a right bank and wings level. If the flight director is not available, verify that the autopilot rolls the control yoke or stick to the right if AP is engaged.

GNS 480 Navigator

For the GPS source that is providing navigation data to the HSI, do the following:

1. Verify the GNS 480 is in Ground Maintenance mode and go to the Autopilot Test page.
2. Ensure that “GPSS” is displayed in yellow text on the PFD.
3. Set the ROLL/STEER to 10°R.
4. Verify that the autopilot rolls the control yoke or stick to the right.
5. Set the ROLL/STEER to 0°.
6. Verify that the autopilot rolls the control yoke or stick level.
7. Set the ROLL/STEER to 10°L.
8. Verify that the autopilot rolls the control yoke or stick to the left.
9. Disconnect the autopilot.

6.7.7 GAD 43(e) Adapter Attitude Check

This section verifies that the attitude interface between the GAD 43(e) and autopilot computer is functional.

NOTE

For dual PFD installations, only the pilot's GDU is wired to the GAD 43(e) and the autopilot; the following instructions apply only to the pilot's PFD.

1. Power the TXi system in Configuration mode.
2. Select Calibration/Test → GAD 43/43e Test page.
3. Verify Attitude Valid is engaged in the Relays selection.
4. Verify Heading Valid is engaged in the Heading Output selection.
5. Engage the autopilot in PIT/ROLL mode (for autopilots without a ROLL mode, PIT/HDG is acceptable).
6. Set the Roll Angle to 5° RT.
7. Verify that the control yoke moves counterclockwise or the stick moves to the left.
8. Set the Roll Angle to 5° LT.
9. Verify that the control yoke moves clockwise or stick moves to the right.
10. Set the Pitch Angle to 5° UP.
11. Verify that the control yoke or stick moves forward.
12. Set the Pitch Angle to 5° DN.
13. Verify that the control yoke or stick moves aft.
14. Disengage Attitude Valid on the Relays selection.
15. Verify that the autopilot disconnects.
16. Attempt to re-engage the autopilot.
17. Verify that the autopilot will not engage while the Attitude Valid is disengaged in the Relays setting.
18. Engage Attitude Valid on the Relays selection.

6.7.8 GAD 43(e) Adapter Barometric Correction Check

Most autopilots do not require barometric correction inputs for altitude preselect/capture purposes. This test must only be performed if the autopilot is installed such that it receives barometric correction information from the GAD 43(e).

> NOTE
> The barometric pressure information from the Actively-Changing field is updated at a once-per-second rate. There may be some lag between the time that the pressure is set and the time it is updated to the autopilot computer.

This section verifies that the barometric correction interface between the autopilot computer and the GDU is functional.

1. Power the TXi system in Normal mode.
2. Wait for the air data and attitude indications to become valid.
3. Adjust the barometric correction so that the altitude displayed on the PFD is a multiple of 100 feet (e.g., 500 ft, 1300 ft).
4. Select an altitude on the autopilot controller that is 1000 feet above the altitude displayed on the PFD, and then engage (ARM) the autopilot in Altitude Capture mode.
5. Slowly decrease the GDU barometric correction so that the altitude displayed on the PFD increases to simulate a capture of the selected altitude.
6. Verify the autopilot computer captures the selected altitude when you reach the selected altitude as displayed on the GDU PFD.
7. Disengage the autopilot.

6.7.9 ARINC 429 Attitude/Air Data (S-TEC 1500/2100 Only)

Interfacing to an S-TEC 1500/2100 autopilot requires a dual PFD installation.

1. Power the TXi system in Normal mode.
2. Verify the S-TEC 1500/2100 autopilot is powered on.
3. Wait for the air data and attitude indications to become valid.
4. Verify that “ATT FAIL” is not annunciated on the autopilot.

6.7.10 Autopilot Mode Annunciations (Garmin GFC 500/600 and KFC 225/275/325 only)

Engage the autopilot and verify that “AP” is displayed in green at the top of the PFD in order to verify that the autopilot annunciations are configured and wired correctly.

6.7.11 Emergency Descent Mode Check

This section applies only to aircraft with Emergency Descent Mode to verify that EDM has been configured properly. When using a pitot-static ramp tester, only simulate normal aircraft operating conditions as defined in the aircraft Type Data (POH/AFM) or other approved STC to avoid component damage. TXi software v3.12 or later is required for Emergency Descent Mode.

NOTE

Ensure the aircraft transponder or other ADS-B transmitting equipment is disabled or isolated before this test to avoid interference with air traffic control.

1. Verify the TXi system is in Normal mode. Allow the PFD to obtain valid heading, attitude, altitude, and GPS location (from the navigator).
2. Connect a pitot-static test set to the aircraft pitot-static system and a handheld vacuum pump (i.e., OMEGA HPP-660) to the air data module pitot and static ports on the back of the GMC 605(C).
3. Engage the autopilot by pressing the AP button on the GMC 605(C).
4. Using the pitot-static test set, simulate an aircraft altitude equal to the maximum operating altitude or service ceiling.
5. Using the vacuum pump, increase the simulated cabin pressure altitude to over 15,000 ft, allowing EDM to activate.
6. Allow the EDM timer on the PFD to countdown.
7. Verify “EDM” is annunciated in red below the autopilot mode control area on the PFD and “EDM ON” is shown on the GMC 605(C) display.
8. Verify the GMC has selected IAS or FLC (GMC 605C only) and HDG modes with a speed of V_{MO}-10 KIAS and a heading 90° left of the current heading.
9. Disengage EDM and disengage the autopilot.
10. Remove the pitot static test set and vacuum pump.

6.8 Integrated Standby Check

This check verifies the configuration of the PFD/MFD/EIS and their interfacing with the main Display Backup switch, as well as automatic reversion and backup battery for G500/G600 TXi systems configured for integrated standby instruments. Aircraft not configured for integrated standby instruments do not need to perform the following check.

WARNING

Failure to configure the intended backup display on the pilot side as STANDBY PFD will prevent the TXi system from entering Reversion mode correctly and could cause misleading information to be displayed to the pilot.

NOTE

Displays configured as a STANDBY PFD will power on initially as a PFD while their corresponding AHRS is aligning and then revert to the function configured for that display in Normal mode.

1. Power the TXi system in Normal mode.
2. Verify no amber or red battery icon is displayed on the PFD.
3. Verify that attitude, heading, altitude, and airspeed are displayed normally on the PFD (i.e., no warning, cautions, or advisories related to these functions).
4. Set the Display Backup switch to the ON position.
    a. Verify that standby PFD information is displayed on the backup display (MFD/EIS becomes a PFD or PFD/EIS composite display).
    b. Power down PFD 1.
    c. Select Power Off in the dialog box that appears.
    d. Ensure that the attitude, heading, altitude, and airspeed are displayed normally on the standby PFD (i.e., no warning, cautions, or advisories related to these functions).
    e. Power PFD 1 back on.
5. Set the Display Backup switch to AUTO.
6. Verify the system returns to Normal mode (may take up to 2 minutes for AHRS to align after restoring power to PFD #1).
7. Turn the Aircraft Master switch OFF.
8. Select Battery Backup on the dialog box that appears on PFD #1.
9. Verify PFD #1 remains powered on and all other displays not equipped with a backup battery have powered off.
10. Ensure that attitude, heading, altitude, and airspeed are displayed on PFD #1 and, if configured, EIS information is presented on PFD #1 in Composite mode (i.e., no warnings, cautions, or advisories related to these functions).
11. Turn the Aircraft Master switch ON.
12. Verify the system returns to Normal mode (may take up to 2 minutes for AHRS to align).

6.9 Display Backup Mode Check

This check verifies the configuration of the displays as it relates to reversion to Backup mode in the event of a display failure. Any aircraft configured such that displays should revert to a Backup mode in the event of a display failure must complete this check.

WARNING

Failure to configure the intended backup display on the pilot side as STANDBY PFD will prevent the TXi system from entering Reversion mode correctly and could cause misleading information to be displayed to the pilot.

NOTE

Displays configured as a STANDBY PFD will power on initially as a PFD while their corresponding AHRS is aligning and then revert to the function configured for that display in Normal mode.

1. Power the TXi system on in Normal mode.
2. Verify all displays are correctly displaying their configured data (engine does not need to be running for aircraft equipped with EIS).
3. Power off the EIS display (GDU 700 only) using the power button, if equipped with EIS.
    a. Verify that remaining pilot side displays revert to Composite mode.
    b. Verify all EIS gauges shown in Composite mode match the configuration of the EIS display.

    WARNING

    Displays in Composite mode should display the EIS gauges of the display that has been powered off. If the display reverts to Composite mode, but EIS display does not match the configuration of the failed display, the TXi system must be factory reset. Save each GDU configuration to SD and reset the system.

    c. Power the EIS display back on and verify the system returns to Normal mode (may take up to 2 minutes).
4. Power off the pilot side MFD (GDU 700P only) using the power button, if equipped with an MFD.
    a. If the MFD is not configured as a standby PFD, verify no displays revert to Backup mode.
    b. If the MFD is configured as a standby PFD, verify the display reverts to Backup mode.
    c. Power the MFD back on.
5. Power off the pilot side PFD (GDU 700P/1060) using the power button or by pulling the circuit breaker (GDU 1210), if equipped with a pilot side PFD.
    a. Verify pilot side MFD or EIS (GDU 700P only) revert to Backup mode and that all flight information shown on the backup display matches the configuration of the powered off display.
    b. Verify EIS information (if equipped) is displayed in Composite mode on the backup display and that all EIS gauges match the configuration of the powered off display.
    c. Power the pilot side PFD back on and allow AHRS to align.
6. Power off co-pilot side display using the power button, if equipped with a co-pilot display.
    a. Verify no displays enter Backup mode.
    b. Power co-pilot display back on.

6.10 Placards and Switch Labeling Check

If any placards were relocated as a result of a display installation, verify the following:

- The font size of the new placard is the same as the old placard it is replacing.
- The color of the new placard is identical to the color of the placard it is replacing.
- The text on the new placard is identical to the text on the placard it is replacing (it can be arranged differently as required by space constraints, but the wording must be the same).
- The placard must be legible and not obscured to the pilot by the glareshield, in all flight control positions, or by any other component in the flight deck.

If the new switch labels were added as a result of the TXi installation, verify the following:

- The font size and label is legible from the pilot's seat.
- The labels are legible in all ambient light conditions. In particular, the labels are legible with ambient flood lighting in darkness.
- The switch label must be legible and not obscured to the pilot by the glareshield, in all flight control positions, or by any other component to include the switch position.

If the TXi installation is limited to VFR operation only, and the criteria in Section 2.2 determined a placard is required, verify the following:

- The text on the placard reads: "AIRCRAFT LIMITED TO VFR".
- The font is at least 0.25 inches high.
- The placard is legible from the pilot's seat.

If separate EIS annunciators were installed, a placard or label is required. Verify the following:

- The text on the placard reads: "ENGINE".
- The font is at least 0.125 inches high and easily readable with sufficient contrast from the surroundings.
- The text must be displayed in a conspicuous place so that it cannot be obscured to the pilot by the glareshield or any other component and remains visible in all flight control positions.
- The text is legible in all ambient light conditions, particularly with ambient floodlighting in darkness.

Aircraft with an existing Operating Airspeed Placard, which includes information such as maneuvering speed, landing gear operating speed, and multi-engine aircraft operating speeds, that was relocated as the result of installation of the TXi system must have the new placard installed as close to the airspeed display on the GDU as practical.

6.11 EMI/RFI Check

An EMC check must be conducted once the G500/G600 TXi system is installed and all interfaces to external equipment are verified to be working correctly. The EMC check verifies that the G500/G600 TXi is not producing unacceptable interference in other avionics systems and other avionics systems are not producing unacceptable interference in the unit.

1. Enter equipment installed in the aircraft into the Source row and Victim column of the form.
2. Apply power to all avionics systems except for the components that are considered to be part of the G500/G600 TXi system.
3. Verify all existing avionics systems are functioning properly.
4. Apply power to the G500/G600 TXi system components.
5. Remove power from all other avionics systems.

Before applying power to the next system, wait for the current system start-up sequence to finish.

6. Apply power and/or operate the systems listed on the fillable form, one system at a time.
7. Verify the G500/G600 TXi system functions properly. Verify there are no related messages displayed.
8. Verify each radio is functioning properly by completing the following:
    a. For each VHF COM radio, monitor one local frequency, one remote (far field) frequency, and one unused frequency.
    b. Verify no unintended squelch breaks or audio tones interfere with communications.
    c. For each VHF NAV radio, monitor one local frequency, one remote (far field) frequency, and one unused frequency.
    d. Verify there are no guidance errors.
    e. Verify no audio tones interfere with the station ID.
9. If an EI FT-60 or an EI FT-90 fuel flow sensor is installed, verify the fuel flow indication is accurate and the indication does not fluctuate or invalidate the display.

    %æTransmit various modulating tones on each COM radio (e.g., whistling).
    %æSee Section 4.7.5.1 for details if the fuel flow indication fluctuates.
10. Verify all other avionic systems are functioning properly.

VICTIM

Attitude Indicator
Airspeed Indicator
Altimeter
Vertical Speed Indicator
Turn and Bank Indicator
Heading Indicator
Magnetic Compass
Clock
OAT Indicator
Power Plant Instruments
Autopilot / SAS
Navigation Radio(s)
Communication Radio(s)
Engine Relight
Fuel Valve
Pitot Heat
Pulse Light
Generator
Pos Lt
Anti Coll Lt
Ldg Lts
Gov RPM Incr / Decr
Eng Deicing
Hyd System
Radar Altimeter
TAS/TCAS
Transponder
Audio Panel
G500/G600 7;L

Figure 6-7 Victim/Source Matrix

6.12 Flight Checks

All checks contained in the previous sections must be completed prior to performing the following flight checks. The flight checks specified herein must be conducted in Visual Meteorological Conditions (VMC) by a qualified pilot for the purpose of conducting a return-to-service flight.

6.12.1 PFD Flight Checks

The following items (applicable to the installation) must be verified during flight:

- Display of attitude, airspeed, altitude, and heading on the GDU while maneuvering.
- Display of attitude, airspeed, altitude, and heading on the standby instruments.
- Navigation using each GPS and VLOC source on the PFD CDI. For navigation receivers, both VOR and ILS must be verified.
- Audibility of the altitude alerter chime.
- Display of OAT.
- Display of traffic from any interfaced traffic system.
- Display of bearing from any interfaced ADF.
- Display of DME distance from any interfaced DME. If applicable, each NAV used to tune the DME should be selected and tested.
- Display of radar altitude. The radar altitude display must be verified at several heights AGL throughout the operating range of the radar altimeter.
- Display of marker beacon information, if suitable markers exist in the flight test area.

6.12.2 MFD Flight Checks

The following items (applicable to the installation) must be verified during flight:

- Display of traffic from any interfaced traffic system.
- Display of weather from the GDL 69/69A or FIS-B source.
- Control of GDL 69A audio functions.
- Display and control of the weather radar.

6.12.3 EIS Flight Checks

The following items (applicable to the installation) must be verified during flight:

- All gauges/markings clearly convey the respective engine parameters.
- All EIS indications are within their normal operating ranges.
- No Caution or Warning indications are present during normal operation.
- Gauge indications, including all dynamic gauge markings (if applicable), are appropriate for all flight regimes.
- Post-flight check of installed sensors and fittings for leaks.

If the AFM/POH has an operating limitation based only on fuel flow, the fuel flow must be accurate within 10% to ensure the limitation is maintained. If the recorded fuel flow and measured fuel flow are out of tolerance, the K-factor must be adjusted in Configuration mode.

Perform the following:

1. Ensure the fuel lines are purged of air.
2. Record the displayed fuel flow and the measured fuel flow at the same engine settings.

%æExample: Displayed value is 20 GPH, measured value is 24 GPH

3. Determine the offset ratio: Measured / Displayed.

    %æExample: Measured/Displayed = 24/20 = 1.2

4. Inverse the ratio.

    %æExample: 1/1.2 = 0.8333

5. Multiply the inverse by the currently used K-factor in Configuration mode.

    %æExample: Current K-factor 68000, adjusted K-factor is 68000*0.8333 = 56667

6. Enter the adjusted K-factor and reload the sensor.

Turboprop aircraft only: If the propeller RPM indication is erratic at low RPM during startup and shutdown, observe and note the peak value of the erratic indications (e.g., 200 RPM). In Configuration mode, configure the propeller RPM Custom Gauge Readout at the peak observed value, up to 200 RPM (refer to Section 5.7.3.3.6). Additionally, configure the minimum value of the gauge range to the same peak observed value (up to 200 RPM).

6.12.4 Autopilot Flight Checks

NOTE
This section applies only to installations in which the G500/G600 TXi system interfaces to the autopilot.

Once the configuration and ground checks are performed, the autopilot system must be flight tested and adjusted for the particular airframe, if necessary. This section provides general guidelines for verifying the autopilot, flight director performance, and any necessary adjustments.

Use the autopilot performance log in Figure 6-9 to document the autopilot performance before and after the installation of the G500/G600 TXi and, if included, the GAD 43(e) installation.

If the autopilot performance does not adhere to the criteria listed in the center column of the autopilot performance log contained in Figure 6-9, the autopilot must be serviced in order to meet these criteria, or customer acknowledgment of the performance must be obtained prior to proceeding with the installation.

6.12.4.1 Flight Director Performance

It is best to evaluate the flight director with the autopilot coupled in order to assess the performance of the flight director with the autopilot. Evaluate the flight director performance in level flight, turns, climbs, and descents. Observe any excessive fluctuations in pitch or roll, as well as how closely the autopilot follows the movements of the flight director.

The flight director performance can be adjusted by changing the settings on the GDU Flight Director Calibration page in the Calibration/Test page group while in Configuration mode. For dual PFD systems, all flight director configuration changes must be made on both displays.

6.12.4.2 Autopilot Performance

NOTE

The GAD 43(e) can provide synchro heading and yaw rate outputs. If the autopilot system is interfaced to the GAD 43(e), verify turns are coordinated and yaw damp operation functions properly.

The autopilot performance can be adjusted by changing the settings on the GDU Autopilot Configuration page in the Calibration/Test page group while in Configuration mode. For dual PFD systems, autopilot configuration changes must be made on the pilot’s PFD.

1. To evaluate the autopilot heading performance, center the heading bug and engage the autopilot in HDG mode. Change the heading bug by at least 45°. The autopilot must follow the heading bug and roll out smoothly, without undershooting or overshooting the selected heading.
2. To evaluate the autopilot course performance, engage the autopilot in NAV mode. Tune to a NAV frequency that is out of range and select the corresponding NAV on the CDI. The GDU will invalidate the lateral deviation signal. Change the course by at least 45°. The autopilot must turn to the new course and roll out smoothly without undershooting or overshooting the selected course.

6.12.4.3 Roll Steering Performance

GPS roll steering is handled in one of three ways:

1. If the autopilot has an ARINC 429 roll steering input, the PFD provides ARINC 429 roll steering directly to the autopilot.
2. If an external roll steering converter has been installed, the PFD provides ARINC 429 roll steering to the converter, which then outputs an analog heading error signal to the autopilot.
3. The PFD can provide the roll steering via its heading error output, taking the place of a separate roll steering converter. In this case, the autopilot is left in Heading mode, and the PFD varies the heading error output to steer the autopilot.

In order to evaluate roll steering performance, perform the following:

1. Set up a GPS flight plan that includes at least two legs with an angle between them.
2. Set the CDI to display the active GPS.
3. Engage the autopilot in GPS Roll Steering mode.
4. If the autopilot uses the heading error input for roll steering, engage the autopilot in HDG mode.
5. Activate GPSS (HDG !’ AP HDG REF !’ GPSS).
6. A “GPSS” annunciation will appear on the PFD, as shown in Figure 6-8.
7. Verify that the autopilot flies the airplane smoothly through the turn between the two legs.

Figure 6-8 GPSS Selection Icon on the PFD

NOTE

If the Analog Roll Steering function is utilized, the scaling of the output can be adjusted using the Analog Roll Steering Scaling setting on the Autopilot Settings page. If the autopilot does not turn sharp enough while in Roll Steering mode, increase the GPSS Scaler to HDG value. If the autopilot turns too sharp while in Roll Steering mode, decrease the GPSS Scaler to HDG value.

6.12.4.4 Altitude Preselector Performance (S-TEC 55X)

NOTE
This test is only applicable for S-TEC autopilots that have the RS-485 altitude preselector input connected to the GDU and have the altitude preselector option enabled on the display.

1. Set the altitude preselector on the PFD to climb for an altitude capture.
2. Engage the autopilot in Altitude Select mode by pressing the VS and ALT keys simultaneously.
3. Set a positive vertical speed on the autopilot.
4. Verify that the autopilot climbs and captures the selected altitude.
5. Set the altitude preselector on the PFD to descend for an altitude capture.
6. Set a negative vertical speed on the autopilot.
7. Verify that the autopilot descends and captures the selected altitude.

6.12.4.5 Altitude Preselector Performance

NOTE
This test is applicable only for autopilots that have an internal Altitude Preselector function and are interfaced to the GAD 43(e) for barometric correction information.

1. Set the selected altitude on the autopilot controller to climb for an altitude capture.
2. Engage the Altitude Capture mode of the autopilot.
3. Set a positive vertical speed on the autopilot, if applicable.
4. Verify that the autopilot climbs and captures the selected altitude.
5. Set the selected altitude on the autopilot controller to descend for an altitude capture.
6. Set a negative vertical speed on the autopilot, if applicable.
7. Verify that the autopilot descends and captures the selected altitude.

6.12.4.6 Yaw Damper Operation

This check is only required if the GDU or GAD 43(e) is used to replace an existing yaw rate sensor to provide yaw rate information to the autopilot. During flight, verify that the yaw damp function operates correctly.

6.12.4.7 G500/G600 TXi Autopilot Performance Checkout Log

Completion of this form is required only for installations interfacing to an autopilot.

Aircraft Make and Model: _____________ Aircraft Registration Number: _____________

Autopilot Make and Model: _____________

Autopilot performance prior to G500/G600 TXi Installation

Date: _____________ By: _____________

Function/Mode	Criteria	Notes
Pitch Attitude Hold	Selected pitch attitude held within ±2°. Pitch attitude should not oscillate continuously.	
Roll Attitude Hold	Selected roll attitude held within ±3°. Roll attitude should not oscillate continuously.	
Heading Bug Coupling	Selected heading held within ±3°. Heading should not oscillate continuously.	
Altitude Hold	Altitude held within ±100 feet. Altitude should not oscillate continuously.	
Selected Altitude Capture (Altitude Preselect)	Overshoot during altitude capture should not exceed 100 feet.	
Vertical Speed Hold	Selected vertical speed held within ±200 FPM. Vertical speed should not oscillate continuously.	
Airspeed Hold	Selected airspeed held within ±5 KIAS. Indicated airspeed should not oscillate continuously.	
VOR Tracking	Lateral deviation from course remain withLQ 25% of full scale deflection once established on course.	
ILS/LPV Approach	Lateral and vertical deviations from course/ glidepath remain withLQ 25% of full scale deflection once established.	
VOR/LOC/GS Capture	925 /2& *6 F apture performance PXVW IXQFWLRQ DV LQWHQGHG EHIRUH DQG DIWHU WKH 7;L installation	
Go-around	Pitch and roll attitude held as specified by WKH autopilot PDQXIDFWXUHV GDWD	
Flight Director	Flight director commands satisfy selected modes and do not display excessive jitter or oscillation.	
Yaw Damp	Yaw dampening performance PXVW IXQFWLRQ DV LQWHQGHG EHIRUH DQG DIWHU WKH 7;L installation	

Figure 6-9 Autopilot Performance Checkout Log
Sheet 1 of 2

6.12.4.8 G500/G600 TXi Autopilot Performance Checkout Log

Completion of this form is required only for installations interfacing to an autopilot.

Autopilot Performance Following G500/G600 TXi and GAD43(e) Installation

Date: _____________ By: _____________

Function/Mode	Criteria	Notes
Pitch Attitude Hold	Selected pitch attitude held within ±2°. Pitch attitude should not oscillate continuously.	
Roll Attitude Hold	Selected roll attitude held within ±3°. Roll attitude should not oscillate continuously.	
Heading Bug Coupling	Selected heading held within ±3°. Heading should not oscillate continuously.	
Altitude Hold	Altitude held within ±100 feet. Altitude should not oscillate continuously.	
Selected Altitude Capture (Altitude Preselect)	Overshoot during altitude capture should not exceed 100 feet.	
Vertical Speed Hold	Selected vertical speed held within ±200 FPM. Vertical speed should not oscillate continuously.	
Airspeed Hold	Selected airspeed held within ±5 KIAS. Indicated airspeed should not oscillate continuously.	
VOR Tracking	Lateral deviation from course remain withLQ 25% of full scale deflection once established on course.	
ILS/LPV Approach	Lateral and vertical deviations from course/ glidepath remain withLQ25% of full scale deflection once established.	
VOR/LOC/GS Capture	925 /2& *6 F apture performance PXVW SHUIRUP DV LQWHQGHG EHIRUH DQG DIWHU WKH 7;L LQVWDOODWLRQ	
Go-around	Pitch and roll attitude held as specified by autopilot PDQXIDFWXUHV.GDWD	
Flight Director	Flight director commands satisfy selected modes and do not display excessive jitter or oscillation.	
Yaw Damp	Yaw dampening performance PXVW IXQFWLRQ DV LQWHQGHG EHIRUH DQG DIWinstallationWKH 7;L	

General Notes

Figure 6-9 Autopilot Performance Checkout Log
Sheet 2 of 2

6.12.5 Flight Log Download

If a GDU is interfaced to a GSU 75, GRS 79, or equipped with and integrated AHRS unit, GSU/GRS Flight Log data will be available for download to an SD card in the top/left slot of the GDU. To download Flight Log data, perform the following steps:

1. Insert an SD card into the top slot (GDU 700P/1060) or left slot (GDU 700L/1210) of the GDU.
2. Start the GDU in Configuration mode.
3. Access the GSU/GRS Flight Log Downloads page (Diagnostics → AHRS & ADC → GSU/GRS Flight Log Downloads).
4. Press Select Unit and choose which AHRS unit data should be retrieved from.
5. Select the flight log parameters that should be downloaded by using one of the following buttons:
    a. The Log Entry button selects entry by power on count, date, and time.
    b. The Log Entry Start button selects log entry start in minutes.
    c. The Duration button selects log entry by duration in minutes.
6. Press Download to SD Card
7. A dialog box will annunciate that the download is complete and the SD card can be removed.

6.13 Documentation Checks

All checks contained in the previous sections must be completed prior to performing the following checks.

6.13.1 Airplane Flight Manual Supplement

Ensure that the AFMS is completed and inserted in the AFM or POH.

1. Fill in the specific airplane information on the AFMS cover sheet.
2. In the AFMS Sections 1.11.1 through 1.11.11, fill in all applicable check boxes. More than one box may be checked, depending upon the installation.

6.13.2 Instructions for Continued Airworthiness

Ensure that the appropriate aircraft information in Appendix A of G500/G600 TXi Part 23 AML STC Maintenance Manual/ICA (P/N 190-01717-B1) is filled in completely and inserted into the aircraft permanent records.

6.13.3 Return to Service

Refer to Table D-38 for model-specific G500/G600 TXi STC service bulletins. Complete the return-to-service in a means acceptable to the cognizant aviation authority. An example would be compliance with 14 CFR 43.9, 14 CFR 91.417 and submission of an FAA Form 337 “Major Repair and Alteration Airframe, Powerplant, Propeller, or Appliance” completed in accordance with advisory circular AC43.9-1F,Instructions for Completion of FAA Form 337

APPENDIX A CONNECTORS AND PIN FUNCTION

This appendix contains connector information and a description of pin functions for all LRUs installed as part of the G500/G600 TXi STC, with exception of the EIS sensors.

Refer to the LRU TSO installation manuals listed in Table 1-1 for more detailed signal information on each LRU and manufacturer documentation for EIS sensor information.

All D-sub connectors follow a similar pin numbering scheme as that shown in Figure A-1.

Figure A-1 62 Pin D-sub Connector Numbering Scheme For Female/Male Contacts
(View is from the front of the connector)

A.1 GDU 700/1060/1210

NOTE

GDU 700 and GDU 1060 displays have identical connectors and pin functions. The GDU 1210 is identical except where noted.

The GDU has seven connectors. The mating designators, part numbers, and associated connector kits are listed in Table A-1.

Table A-1 G500/G600 TXi - GDU Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P1	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 26 Ckt	330-00626-26	011-03527-00
P2	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 44 Ckt	330-00626-44	011-03527-00
P3	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 62 Ckt	330-00626-62	011-03527-00
P4	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 78 Ckt	330-00626-78	011-03527-00
P5	TNC, Male	Refer to Section 3.1.2	
P6	TNC, Male	Refer to Section 3.1.2	
P7	TNC, Male	Supplied with antenna	

*36

+' 9,'(2

+' 9,'(2

Figure A-2 GDU 700 Connectors

*36

+' 9,'(2

+' 9,'(2

Figure A-3 GDU 1060 Connectors

Figure A-4 GDU 1210 Connectors

Table A-2 GDU J1/P1 Connector

Pin	Function	I/O	Pin	Function	I/O
1	AIRCRAFT POWER 2	IN	14	BATTERY CHARGE OUT [1]	OUT
2	AIRCRAFT POWER 2	IN	15	BATTERY GROUND [1]	--
3	AIRCRAFT POWER 2	IN	16	BATTERY RS-232 GROUND [1]	--
4	AIRCRAFT POWER 2	IN	17	USE BATTERY OUT [1]	OUT
5	BATTERY CHARGE OUT [1]	OUT	18	BATTERY POWER IN [1]	IN
6	BATTERY GROUND[1]	--	19	AIRCRAFT POWER 1	IN
7	BATTERY RS-232 IN[1]	I/O	20	AIRCRAFT POWER 1	IN
8	BATTERY GROUND[1]	--	21	AIRCRAFT POWER 1	IN
9	BATTERY POWER IN[1]	IN	22	AIRCRAFT POWER 1	IN
10	AIRCRAFT GROUND	--	23	BATTERY GROUND[1]	--
11	AIRCRAFT GROUND	--	24	BATTERY RS-232 OUT[1]	I/O
12	AIRCRAFT GROUND	--	25	STANDBY POWER IN[1]	IN
13	AIRCRAFT GROUND	--	26	BATTERY POWER IN[1]	IN

Notes:

[1] Not applicable to GDU 1210.

Table A-3 GDU J2/P2 Connector

Pin	Function	I/O	Pin	Function	I/O
1	RS-485 1A	I/O	23	ETHERNET OUT 4A	OUT
2	RS-485 1B	I/O	24	GND	--
3	LIGHTING BUS HI	IN	25	RESERVED	IN
4	LIGHTING BUS LO	IN	26	MAGNETOMETER GND	--
5	OAT POWER	OUT	27	RS-232 IN 2	IN
6	OAT PROBE IN HI	IN	28	RS-232 IN 1	IN
7	OAT PROBE IN LO	IN	29	CONFIG MODULE GND	--
8	COMPOSITE VIDEO IN 2	IN	30	CONFIG MODULE CLOCK	OUT
9	AUDIO OUT LO	OUT	31	ETHERNET IN 1B	IN
10	AUDIO OUT HI	OUT	32	ETHERNET OUT 1B	OUT
11	COMPOSITE VIDEO GROUND 1 (2)	--	33	ETHERNET IN 2B	IN
12	RS-232 GND 2	--	34	ETHERNET OUT 2B	OUT
13	RS-232 GND 1	--	35	ETHERNET IN 3B	IN
14	COMPOSITE VIDEO IN 1	IN	36	ETHERNET OUT 3B	OUT
15	CONFIG MODULE PWR	OUT	37	ETHERNET IN 4B	IN
16	ETHERNET IN 1A	IN	38	ETHERNET OUT 4B	OUT
17	ETHERNET OUT 1A	OUT	39	DEMO MODE SELECT	IN
18	ETHERNET IN 2A	IN	40	LRU POWER OUT 1	OUT
19	ETHERNET OUT 2A	OUT	41	MAGNETOMETER PWR OUT	OUT
20	ETHERNET IN 3A	IN	42	RS-232 OUT 2	OUT
21	ETHERNET OUT 3A	OUT	43	RS-232 OUT 1	OUT
22	ETHERNET IN 4A	IN	44	CONFIG MODULE DATA	I/O

Table A-4 GDU J3/P3 Connector

Pin	Function	I/O	Pin	Function	I/O
1	DISC OUT 3 HI	OUT	32	LATERAL - FLAG OUT	--
2	DISC OUT 4 HI	OUT	33	VERTICAL - FLAG OUT	--
3	RS-232 OUT 3	OUT	34	DISC IN 1 LO	IN
4	RS-232 IN 3	IN	35	DISC IN 2 LO	IN
5	RS-232 OUT 4	OUT	36	DISC IN 3 LO	IN
6	RS-232 IN 4	IN	37	DISC IN 4 LO	IN
7	VERTICAL SUPERFLAG OUT	OUT	38	ANALOG IN 1B	IN
8	LATERAL SUPERFLAG OUT	OUT	39	ANALOG IN 1A	IN
9	LATERAL +LEFT OUT	OUT	40	A/P AC REF LO	IN
10	LATERAL + RIGHT OUT	OUT	41	A/P AC REF HI	IN
11	LATERAL +FLAG OUT	OUT	42	FD PITCH UP	IN
12	VERTICAL +FLAG OUT	OUT	43	DISC OUT 1 LO	OUT
13	VERTICAL +UP OUT	OUT	44	RS-485 2A	I/O
14	VERTICAL +DOWN OUT	OUT	45	RS-485 2B	I/O
15	A/P COURSE ERROR LO	--	46	RS-485 3A	I/O
16	A/P COURSE ERROR HI	OUT	47	RS-485 3B	I/O
17	A/P HEADING ERROR LO	--	48	DISC OUT 7 LO	OUT
18	A/P HEADING ERROR HI	OUT	49	DISC OUT 2 LO	OUT
19	FD ROLL LEFT	IN	50	DISC OUT 5 LO	OUT
20	FD ROLL RIGHT	IN	51	DISC OUT 6 LO	OUT
21	FD PITCH DOWN	IN	52	RESERVED	--
22	LRU POWER OUT 2	OUT	53	DISC OUT 2 HI	OUT
23	GND	--	54	DISC OUT 1 HI	OUT
24	GND	--	55	DISC OUT 3 LO	OUT
25	RS-232 GND 3	--	56	DISC OUT 4 LO	OUT
26	RS-232 GND 4	--	57	DISC IN 1 HI	IN
27	LRU POWER OUT 3	OUT	58	DISC IN 2 HI	IN
28	TIME MARK IN 2A	IN	59	DISC IN 3 HI	IN
29	TIME MARK IN 2B	IN	60	DISC IN 4 HI	IN
30	TIME MARK IN 1A	IN	61	RS-485 4A	I/O
31	TIME MARK IN 1B	IN	62	RS-485 4B	I/O

Table A-5 GDU J4/P4 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ARINC 429 IN 1A	IN	40	GLIDESLOPE #2 +FLAG	IN
2	ARINC 429 IN 2A	IN	41	GLIDESLOPE #2 -FLAG	IN
3	ARINC 429 IN 3A	IN	42	GLIDESLOPE #1 +FLAG	IN
4	ARINC 429 IN 4A	IN	43	GLIDESLOPE #1 -FLAG	IN
5	ARINC 429 IN 5A	IN	44	ANALOG OUT 1B	OUT
6	ARINC 429 IN 6A	IN	45	ANALOG OUT 1A	OUT
7	ARINC 429 IN 7A	IN	46	RS-485 5A	I/O
8	ARINC 429 IN 8A	IN	47	ARINC 708/453 IN 1A	IN
9	ARINC 429 IN 9A	IN	48	ARINC 708/453 IN 1B	IN
10	ARINC 429 IN 10A	IN	49	ARINC 708/453 IN TERM A	--
11	ARINC 429 IN 11A	IN	50	ARINC 708/453 IN TERM B	--
12	RS-232 GND 7	--	51	DISC OUT 9 LO	OUT
13	RS-232 IN 7	IN	52	DISC OUT 10 LO	OUT
14	RS-232 OUT 7	OUT	53	ARINC 429 OUT 1A	OUT
15	RS-232 GND 6	--	54	ARINC 429 OUT 2A	OUT
16	RS-232 IN 6	IN	55	ARINC 429 OUT 3A	OUT
17	RS-232 OUT 6	OUT	56	ARINC 429 OUT 4A	OUT
18	RS-232 GND 5	--	57	COS IN	IN
19	RS-232 IN 5	IN	58	SIN IN	IN
20	RS-232 OUT 5	OUT	59	ADF DC REF IN	IN
21	ARINC 429 IN 1B	IN	60	DISC OUT 13 LO	OUT
22	ARINC 429 IN 2B	IN	61	DISC OUT 8 LO	OUT
23	ARINC 429 IN 3B	IN	62	GLIDESLOPE #2 +UP IN	IN
24	ARINC 429 IN 4B	IN	63	GLIDESLOPE #2 +DN IN	IN
25	ARINC 429 IN 5B	IN	64	GLIDESLOPE #1 +UP IN	IN
26	ARINC 429 IN 6B	IN	65	GLIDESLOPE #1 +DN IN	IN
27	ARINC 429 IN 7B	IN	66	RS-485 5B	I/O
28	ARINC 429 IN 8B	IN	67	VOR/LOC COMPOSITE #1 LO	IN
29	ARINC 429 IN 9B	IN	68	VOR/LOC COMPOSITE #1 HI	IN
30	ARINC 429 IN 10B	IN	69	VOR/LOC COMPOSITE #2 LO	IN
31	ARINC 429 IN 11B	IN	70	VOR/LOC COMPOSITE #2 HI	IN
32	RESERVED	--	71	DISC OUT 11 LO	OUT
33	RS-232 GND 8	--	72	DISC OUT 12 LO	OUT
34	RS-232 IN 8	IN	73	ARINC 429 OUT 1B	OUT
35	RS-232 OUT 8	OUT	74	ARINC 429 OUT 2B	OUT
36	DISC IN 5 LO	IN	75	ARINC 429 OUT 3B	OUT
37	DISC IN 6 LO	IN	76	ARINC 429 OUT 4B	OUT
38	DISC IN 7 LO	IN	77	ARINC 429 OUT 5A	OUT
39	DISC IN 8 LO	IN	78	ARINC 429 OUT 5B	OUT

Table A-6 GDU J5/P5 Connector

Pin	Name	I/O
N/A	HD VIDEO IN 1	--

Table A-7 GDU J6/P6 Connector

Pin	Name	I/O
N/A	HD VIDEO IN 2	--

Table A-8 GDU J7/P7Connector

Pin	Name	I/O
N/A	BACKUP GPS ANT	--

A.2 GCU 485

The GCU 485 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-9.

Table A-9 G500/G600 TXi - GCU 485 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P4851	Conn, Male, HD D-Sub, 15 Ckt	330-00366-15	011-01824-00

Figure A-5 GCU 485 Connector

Table A-10 GCU 485 J4851/P4851 Connector

Pin	Function	I/O
1	RS-232 OUT 1	OUT
2	RS-232 IN 1	IN
3	RS-232 OUT 2	OUT
4	RS-232 IN 2	IN
5	POWER GROUND	--
6	SIGNAL GROUND	--
7	AIRCRAFT POWER 1	IN
8	SIGNAL GROUND	--
9	AIRCRAFT POWER 2	IN
10	CONTROL UNIT REMOTE POWER OFF	IN
11	LIGHTING BUS HI	IN
12	LIGHTING BUS LO	IN
13	RESERVED	--
14	RESERVED	--
15	POWER GROUND	--

A.3 GDC 72

The GDC 72 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-11.

Table A-11 G500/G600 TXi - GDC 72 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P721	Conn, HD D-Sub, Male, Str, Mil Crp, Sealed, w/ GND Indents, 78 Pin	330-00776-78	011-03735-00

Figure A-6 GDC 72 Connector

Table A-12 GDC 72 J721/P721 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ARINC 429 OUT 1A	OUT	40	RESERVED	--
2	ARINC 429 OUT 1B	OUT	41	RESERVED	--
3	ARINC 429 OUT 2A	OUT	42	ARINC 429 IN 1A	IN
4	OAT LO	IN	43	ARINC 429 IN 1B	IN
5	OAT HI	IN	44	ARINC 429 IN 2A	IN
6	OAT PWR	OUT	45	RESERVED	--
7	ARINC 429 OUT 1B	OUT	46	RESERVED	--
8	ARINC 429 OUT 3A	OUT	47	RESERVED	--
9	ARINC 429 OUT 3B	OUT	48	SIGNAL GND	--
10	RESERVED	--	49	ARINC 429 OUT 2A	OUT
11	RESERVED	--	50	ARINC 429 OUT 2B	OUT
12	RESERVED	--	51	RESERVED	--
13	RESERVED	--	52	RESERVED	--
14	AIRCRAFT PWR1	IN	53	CONFIG MODULE PWR	OUT
15	SIGNAL GND	--	54	CONFIG MODULE DATA	I/O
16	AIRCRAFT PWR2	IN	55	CONFIG MODULE CLOCK	OUT
17	RS-232 OUT 2	OUT	56	DISCRETE IN 1*	IN
18	RS-232 IN 2	IN	57	SYS ID 2*	IN
19	RESERVED	I/O	58	RESERVED	--
20	RESERVED	I/O	59	RESERVED	--
21	ARINC 429 OUT 3A	OUT	60	RESERVED	--
22	ARINC 429 OUT 3B	OUT	61	RESERVED	--
23	ARINC 429 OUT 2B	OUT	62	ARINC 429 IN 3A	IN
24	SIGNAL GND	--	63	ARINC 429 IN 3B	IN
25	RESERVED	--	64	ARINC 429 IN 2B	IN
26	SIGNAL GND	--	65	RESERVED	--
27	ARINC 429 OUT 1A	OUT	66	RESERVED	--
28	RESERVED	--	67	RESERVED	--
29	RESERVED	--	68	RS-232 GND 1	--
30	SIGNAL GND	--	69	RS-232 OUT 1	OUT
31	SIGNAL GND	--	70	RS-232 IN 1	IN
32	SIGNAL GND	--	71	RESERVED	--
33	SIGNAL GND	--	72	RESERVED	--
34	AIRCRAFT GND 1	--	73	SIGNAL GND	--
35	SPARE	--	74	CONFIG MODULE GND	--
36	AIRCARFT GND 2	--	75	SYS ID 1*	IN
37	RS-232 GND 2	--	76	DISCRETE IN 3*	IN
38	RESERVED	--	77	DISCRETE IN 4	IN
39	RESERVED	--	78	DISCRETE IN 2*	IN

* Indicates Active-Low

A.4 GSU 75

The GSU 75 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-13.

Table A-13 G500/G600 TXi - GSU 75 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P751	Conn, HD D-Sub, Male, Str, Mil Crp, Sealed, w/ GND Indents, 78 Pin	330-00776-78	011-03109-00

Figure A-7 GSU 75 Connector

Table A-14 GSU 75 J751/P751 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ARINC 429 OUT (ADC) 1A	OUT	40	PPS IN 1 B	IN
2	ARINC 429 OUT (ADC) 1B	OUT	41	PPS IN 2 A	IN
3	ARINC 429 OUT (ADC) 2A	OUT	42	ARINC 429 IN (ADC) 1A	IN
4	OAT LO	IN	43	ARINC 429 IN (ADC) 1B	IN
5	OAT HI	IN	44	ARINC 429 IN (ADC) 2A	IN
6	OAT PWR	OUT	45	ARINC 429 IN (AHRS) 1A	IN
7	ARINC 429 OUT (ADAHRS) 1B	OUT	46	ARINC 429 IN (AHRS) 1B	IN
8	ARINC 429 OUT (ADAHRS) 3A	OUT	47	ARINC 429 IN (AHRS) 3A	IN
9	ARINC 429 OUT (ADAHRS) 3B	OUT	48	SIGNAL GND	--
10	RS-422 IN A	IN	49	ARINC 429 OUT (ADAHRS) 2A	OUT
11	RS-422 IN B	IN	50	ARINC 429 OUT (ADAHRS) 2B	OUT
12	RS-232 OUT (AHRS) 3	OUT	51	RS-232 OUT (AHRS) 1	OUT
13	MAGNETOMETER PWR OUT	OUT	52	RS-232 IN (AHRS) 1	IN
14	AIRCRAFT PWR 1	IN	53	CONFIG MODULE PWR	OUT
15	SIGNAL GND	--	54	CONFIG MODULE DATA	I/O
16	AIRCRAFT PWR 2	IN	55	CONFIG MODULE CLOCK	OUT
17	RS-232 OUT (ADC) 2	OUT	56	DISCRETE IN 1*	IN
18	RS-232 IN (ADC) 2	IN	57	SYS ID 2*	IN
19	RESERVED	I/O	58	RESERVED	IN
20	RESERVED	I/O	59	RESERVED	I/O
21	ARINC 429 OUT (ADC) 3A	OUT	60	PPS IN 1 A	IN
22	ARINC 429 OUT (ADC) 3B	OUT	61	PPS IN 2 B	IN
23	ARINC 429 OUT (ADC) 2B	OUT	62	ARINC 429 IN (ADC) 3A	IN
24	GND	--	63	ARINC 429 IN (ADC) 3B	IN
25	PPS SELECT	IN	64	ARINC 429 IN (ADC) 2B	IN
26	SIGNAL GND	--	65	ARINC 429 IN (AHRS) 2A	IN
27	ARINC 429 OUT (ADAHRS) 1A	OUT	66	ARINC 429 IN (AHRS) 2B	IN
28	ARINC 429 OUT (ADAHRS) 3A	OUT	67	ARINC 429 IN (AHRS) 3B	IN
29	ARINC 429 OUT (ADAHRS) 3B	OUT	68	RS-232 GND (ADC) 1	--
30	SIGNAL GND	--	69	RS-232 OUT (ADC) 1	OUT
31	RS-232 GND (AHRS) 3	--	70	RS-232 IN (ADC) 1	IN
32	RS-232 GND (AHRS) 1	--	71	RS-232 OUT (AHRS) 2	OUT
33	MAGNETOMETER GND	--	72	RS-232 IN (AHRS) 2	IN
34	AIRCARFT GND 1	--	73	RS-232 GND (AHRS) 2	--
35	RESERVED	--	74	CONFIG MODULE GND	--
36	AIRCARFT GND 2	--	75	SYS ID 1*	IN
37	RS-232 GND (ADC) 2	--	76	DISCRETE IN 3*	IN
38	RESERVED	--	77	DISCRETE IN 4	IN
39	RESERVED	I/O	78	DISCRETE IN 2*	IN

* Indicates Active-Low

A.5 GRS 79

The GRS 79 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-15.

Table A-15 G500/G600 TXi - GRS 79 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P791	Conn, HD D-Sub, Male, Str, Mil Crmp, Sealed, w/ GND Indents, 78 Pin	330-00776-78	011-03733-00

Figure A-8 GRS 79 Connector

Table A-16 GRS 79 J791/P791 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ARINC 429 OUT 1A	OUT	40	PPS IN 1 B	IN
2	ARINC 429 OUT 1B	OUT	41	PPS IN 2 A	IN
3	ARINC 429 OUT 2A	OUT	42	RESERVED	--
4	RESERVED	--	43	RESERVED	--
5	RESERVED	--	44	RESERVED	--
6	RESERVED	--	45	ARINC 429 IN 1A	IN
7	ARINC 429 OUT 1B	OUT	46	ARINC 429 IN 1B	IN
8	ARINC 429 OUT 3A	OUT	47	ARINC 429 IN 3A	IN
9	ARINC 429 OUT 3B	OUT	48	SIGNAL GND	--
10	RS-422 IN A	IN	49	ARINC 429 OUT 2A	OUT
11	RS-422 IN B	IN	50	ARINC 429 OUT 2B	OUT
12	RS-232 OUT 3	OUT	51	RS-232 OUT 1	OUT
13	MAGNETOMETER PWR	OUT	52	RS-232 IN 1	IN
14	AIRCRAFT PWR 1	IN	53	CONFIG MODULE PWR	OUT
15	SIGNAL GND	--	54	CONFIG MODULE DATA	I/O
16	AIRCRAFT PWR 2	IN	55	CONFIG MODULE CLOCK	OUT
17	RESERVED	--	56	DISCRETE IN 1*	IN
18	RESERVED	--	57	SYS ID 2*	IN
19	RESERVED	I/O	58	RESERVED	IN
20	RESERVED	I/O	59	RESERVED	I/O
21	ARINC 429 OUT 3A	OUT	60	PPS IN 1 A	IN
22	ARINC 429 OUT 3B	OUT	61	PPS IN 2 B	IN
23	ARINC 429 OUT 2B	OUT	62	RESERVED	--
24	SIGNAL GND	--	63	RESERVED	--
25	PPS SELECT	IN	64	RESERVED	--
26	SIGNAL GND	--	65	ARINC 429 IN 2A	IN
27	ARINC 429 OUT 1A	OUT	66	ARINC 429 IN 2B	IN
28	RESERVED	--	67	ARINC 429 IN 3B	IN
29	RESERVED	--	68	SIGNAL GND	--
30	SIGNAL GND	--	69	RESERVED	--
31	RS-232 GND 3	--	70	RESERVED	--
32	RS-232 GND 1	--	71	RS-232 OUT 2	OUT
33	MAGNETOMETER GND	--	72	RS-232 IN 2	IN
34	POWER GND	--	73	RS-232 GND 2	--
35	RESERVED	--	74	CONFIG MODULE GND	--
36	POWER GND	--	75	SYS ID 1*	IN
37	SIGNAL GND	--	76	DISCRETE IN 3*	IN
38	RESERVED	--	77	DISCRETE IN 4	IN
39	RESERVED	I/O	78	DISCRETE IN 2*	IN

* Indicates Active-Low

A.6 GAD 43

The GAD 43 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-17.

Table A-17 G500/G600 TXi - GAD 43 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P431	Conn, D-Sub, Mil Crimp Socket, 50 Ckt	330-00502-50	011-01990-00

NOTE

The 26 VAC reference input must produce a sinusoidal, low-noise waveform. A square wave is not acceptable. The 26 VAC output from the GAD can source up to 300 milliamps of current.

Figure A-9 GAD 43 Connector

Table A-18 GAD 43 J431/P431 Connector

Pin	Function	I/O	Pin	Function	I/O
1	RESERVED	--	26	WXR ROLL OUT LO (50 mV/deg)	--
2	HEADING VALID OUT*	OUT	27	SPARE DISC IN* 2 / DC REF IN	IN
3	ATTITUDE VALID RELAY NO	--	28	WXR ROLL OUT HI (50 mV/deg)	OUT
4	ATTITUDE VALID RELAY NC	--	29	ROLL DC OUT	OUT
5	AP INTERLOCK RELAY COMMON	--	30	ROLL SYNCHRO OUT X	OUT
6	+26 VDC OUT	OUT	31	PITCH SYNCHRO OUT X	OUT
7	HDG SYNCHRO OUT Y	OUT	32	ARINC 429 IN B	IN
8	HDG SYNCHRO OUT X	OUT	33	RS-232 OUT	OUT
9	10VAC REF IN HI	IN	34	26VAC LO	--
10	10VAC REF IN LO	IN	35	5VAC OUT LO	--
11	SPARE DISC OUT* 2	OUT	36	5VAC OUT HI	OUT
12	WXR PITCH OUT HI	OUT	37	115VAC REF IN LO	IN
13	PITCH DC OUT	OUT	38	115VAC REF IN HI	IN
14	ROLL SYNCHRO OUT Y	OUT	39	26VAC REF IN HI	IN
15	PITCH SYNCHRO OUT Y	OUT	40	YAW RATE / BARO CORRECTION GND	--
16	ARINC 429 IN A	IN	41	HDG SYNCHRO OUT Z	OUT
17	RS-232 IN	IN	42	PITCH AC OUT LO	--
18	26VAC OUT HI	OUT	43	WXR PITCH OUT LO	--
19	YAW RATE / BARO CORRECTION OUT	OUT	44	ROLL SYNCHRO OUT Z	--
20	ATTITUDE VALID RELAY COMMON	--	45	PITCH SYNCHRO OUT Z	OUT
21	AP INTERLOCK RELAY VALID NC	--	46	RS-232 GND	--
22	AP INTERLOCK RELAY VALID NO	--	47	AIRCRAFT GROUND	--
23	ROLL AC OUT HI	OUT	48	AIRCRAFT GROUND	--
24	PITCH AC OUT HI	OUT	49	AIRCRAFT POWER 1	IN
25	ROLL AC OUT LO	--	50	AIRCRAFT POWER 2	IN

* Indicates Active-Low

A.7 GAD 43e

The GAD 43e has three connectors. The mating designators, part numbers, and associated connector kit are listed in Table A-19.

Table A-19 G500/G600 TXi - GAD 43e Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P431	Conn, D-Sub, Mil Crimp Socket, 50 Ckt	330-00502-50	011-02350-00
P432	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 78 Ckt	330-00626-78	011-02350-00
P433	Conn, HD D-Sub, Male, Str, Mil Crmp Pins, 26 Ckt	330-00626-26	011-02350-00

NOTE

The 26 VAC reference input must produce a sinusoidal, low-noise waveform. A square wave is not acceptable. The 26 VAC output from the GAD can source up to 300 milliamp of current.

Figure A-10 GAD 43e Connectors

Table A-20 GAD 43e J431/P431 Connector

Pin	Function	I/O	Pin	Function	I/O
1	RESERVED	--	26	WXR ROLL OUT LO (50 mV/deg)	--
2	HEADING VALID OUT*	OUT	27	SPARE DISC IN* 2 / DC REF IN	IN
3	ATTITUDE VALID RELAY NO	--	28	WXR ROLL OUT HI (50 mV/deg)	OUT
4	ATTITUDE VALID RELAY NC	--	29	ROLL DC OUT	OUT
5	AP INTERLOCK RELAY COMMON	--	30	ROLL SYNCHRO OUT X	OUT
6	+26 VDC OUT	OUT	31	PITCH SYNCHRO OUT X	OUT
7	HDG SYNCHRO OUT Y	OUT	32	ARINC 429 IN B	IN
8	HDG SYNCHRO OUT X	OUT	33	RS-232 OUT	OUT
9	10VAC REF IN HI	IN	34	26VAC LO	--
10	10VAC REF IN LO	IN	35	5VAC OUT LO	--
11	SPARE DISC OUT* 2	OUT	36	5VAC OUT HI	OUT
12	WXR PITCH OUT HI	OUT	37	115VAC REF IN LO	IN
13	PITCH DC OUT	OUT	38	115VAC REF IN HI	IN
14	ROLL SYNCHRO OUT Y	OUT	39	26VAC REF IN HI	IN
15	PITCH SYNCHRO OUT Y	OUT	40	YAW RATE / BARO CORRECTION GND	--
16	ARINC 429 IN A	IN	41	HDG SYNCHRO OUT Z	OUT
17	RS-232 IN	IN	42	PITCH AC OUT LO	--
18	26VAC OUT HI	OUT	43	WXR PITCH OUT LO	--
19	YAW RATE / BARO CORRECTION OUT	OUT	44	ROLL SYNCHRO OUT Z	--
20	ATTITUDE VALID RELAY COMMON	--	45	PITCH SYNCHRO OUT Z	OUT
21	AP INTERLOCK RELAY VALID NC	--	46	RS-232 GND	--
22	AP INTERLOCK RELAY VALID NO	--	47	AIRCRAFT GROUND	--
23	ROLL AC OUT HI	OUT	48	AIRCRAFT GROUND	--
24	PITCH AC OUT HI	OUT	49	AIRCRAFT POWER 1	IN
25	ROLL AC OUT LO	--	50	AIRCRAFT POWER 2	IN

* Indicates Active-Low

Table A-21 GAD 43e J432/P432 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ALTITUDE PRESELECT DATA	I/O	40	DME RQST HI / DME SYNC IN HI	I/O
2	GROUND	--	41	DME RQST LO / DME SYNC IN LO	I/O
3	RS-232 IN 2	IN	42	DME RNAV RQST OUT	OUT
4	RS-232 OUT 2	OUT	43	ARINC 429 OUT 1A	OUT
5	RS-232 GND 2	--	44	ARINC 429 OUT 1B	OUT
6	OUTER MARKER EXT LAMP IN	IN	45	GROUND	--
7	MIDDLE MARKER EXT LAMP IN	IN	46	ILS ENERGIZE #1 IN*	IN
8	INNER MARKER EXT LAMP IN	IN	47	ILS ENERGIZE #2 IN*	IN
9	RADAR ALT VALID IN	IN	48	GLIDESLOPE #1 VALID IN / GA-GS VALID IN [1]	IN
10	GROUND	--	49	GLIDESLOPE #2 VALID IN	IN
11	ALT LIGHT* [2]	IN	50	DME EXT TUNE K50 IN	IN
12	RESERVED	--	51	DME SUPERFLAG IN	IN
13	GS LIGHT* [2]	IN	52	DME HOLD OUT*	OUT
14	GO AROUND SWITCH* [2]	IN	53	ALT HOLD*	OUT
15	GROUND	--	54	GROUND	--
16	RESERVED	--	55	RESERVED	--
17	VS CMD	OUT	56	ALT SWITCH IN [2]	IN
18	GROUND	--	57	ALT SWITCH OUT [2]	OUT
19	ALTITUDE ERROR OUT +	OUT	58	PRESELECT MON+ POWER	IN
20	ALTITUDE ERROR OUT -	OUT	59	PRESELECT MON+ OUT	OUT
21	ALTITUDE PRESELECT CLOCK	I/O	60	DME CLOCK HI	I/O
22	GROUND	--	61	DME CLOCK LO	I/O
23	DME ARINC 429 IN A	IN	62	DME DATA HI	I/O
24	DME ARINC 429 IN B	IN	63	DME DATA LO	I/O
25	GROUND	--	64	AIRCRAFT GROUND	--
26	RESERVED	--	65	DME EXT TUNE M8/MA/M0 IN	IN
27	RESERVED	--	66	DME EXT TUNE M4/ME/M1 IN	IN
28	RESERVED	--	67	DME EXT TUNE M2/MC/M2 IN	IN
29	RESERVED	--	68	DME EXT TUNE M1/MD/M3 IN	IN
30	PRESELECT ADDR 0 / AP DISC SW	IN	69	DME EXT TUNE K800/KA/K0 IN	IN
31	PRESELECT ADDR 1	IN	70	DME EXT TUNE K400/KE/K1 IN	IN
32	GROUND	--	71	DME EXT TUNE K200/KC/K2 IN	IN
33	RESERVED	--	72	DME EXT TUNE K100/KD/K3 IN	IN
34	VS SEL CTRL* / KNOB IN MOTION*	OUT	73	GROUND	--
35	DME COM NAV 1*/CH 1-2 SELECT*	I/O	74	RESERVED	--
36	DME COM NAV 2*	I/O	75	RESERVED	--
37	VERT TRIM SWITCH IN [2]	IN	76	GROUND	--
38	GROUND	--	77	FD SWITCH IN [2]	IN
39	VERT TRIM SWITCH OUT [2]	OUT	78	FD SWITCH OUT [2]	OUT

* Indicates Active-Low

Notes:

[1] GA-GS Valid In is available with expansion board software version 2.30 or later.

[2] Available with expansion board software version 2.20 or later.

Table A-22 GAD 43e J433/P433 Connector

Pin	Function	I/O
1	VOR/LOC COMPOSITE #1 HI	IN
2	VOR/LOC COMPOSITE #1 LO	IN
3	VOR/LOC COMPOSITE #2 HI	IN
4	VOR/LOC COMPOSITE #2 LO	IN
5	GROUND	--
6	GLIDESLOPE #1 +UP IN	IN
7	GLIDESLOPE #1 +DN IN	IN
8	GLIDESLOPE #2 +UP IN	IN
9	GLIDESLOPE #2 +DN IN	IN
10	RESERVED	--
11	GROUND	--
12	ADF BEARING X	IN
13	ADF BEARING Y	IN
14	ADF BEARING Z (GND)	--
15	RADAR ALT IN HI	IN
16	RADAR ALT IN LO	IN
17	GROUND	--
18	GROUND	--
19	FD PITCH UP OUT/GS #2 VALID OUT	OUT
20	FD PITCH DOWN OUT (GND)	--
21	FD ROLL RIGHT OUT/GS #1 VALID OUT	OUT
22	FD ROLL LEFT OUT (GND)	--
23	FD PITCH UP IN/GS #2 +FLAG	IN
24	FD PITCH DOWN IN/GS #2 -FLAG	IN
25	FD ROLL RIGHT IN/GS #1 +FLAG	IN
26	FD ROLL LEFT IN/GS #2 -FLAG	IN

A.8 GEA 110

The GEA 110 has two connectors. The mating designators, part numbers, and associated connector kits are listed in Table A-23.

Table A-23 G500/G600 TXi - GEA 110 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P1101	Conn, Hi Dens, D-Sub, Mil Crmp, 15 Ckt	330-00185-15	011-03527-50
	Conn, HD D-Sub, Male, Str, Mil Crp contacts included, sealed, 15 Pin	330-01384-00	011-03527-51
P1102	Conn, Hi Dens, D-Sub, Mil Crp, 78 Ckt	330-00185-75	011-03527-50
	Conn, HD D-Sub, Male, Str, Mil Crp, Sealed, w/ GND Indents, 78 Pin	330-00776-78	011-03527-51

CAUTION

Ensure the 15 pin HD D-Sub connector is orientated properly; if the connector is installed upside down, it can cause damage to the GEA 110.

Figure A-11 GEA 110 Connectors

Table A-24 GEA 110 J1101/P1101 Connector

Pin	Function	I/O
1	AIRCRAFT PWR 1	IN
2	RESERVED	IN
3	DISCRETE OUT 1	OUT
4	RS-485 2A	I/O
5	RS-485 1A	I/O
6	AIRCRAFT PWR 2	IN
7	RESERVED	OUT
8	DISCRETE OUT 2	OUT
9	RS-485 2B	I/O
10	RS-485 1B	I/O
11	DISCRETE IN 5*	IN
12	SYS ID #1	IN
13	SYS ID #2	IN
14	POWER GND	--
15	POWER GND	--

* Indicates Active-Low

Table A-25 GEA 110 J1102/P1102 Connector

Pin	Function	I/O	Pin	Function	I/O
1	CHT 1 (+)	IN	40	EGT 1 (+)	IN
2	CHT 2 (+)	IN	41	EGT 2 (+)	IN
3	CHT 3 (+)	IN	42	EGT 3 (+)	IN
4	CHT 4 (+)	IN	43	EGT 4 (+)	IN
5	CHT 5 (+)	IN	44	EGT 5 (+)	IN
6	CHT 6 (+)	IN	45	EGT 6 (+)	IN
7	GENERAL PURPOSE 1 (+)	IN	46	CARB TEMP (+)	IN
8	GENERAL PURPOSE 2 (+)	IN	47	OIL TEMP (+)	IN
9	+10 VDC	OUT	48	OIL PRESSURE (+)	IN
10	FUEL PRESSURE (+)	IN	49	SIGNAL GND	--
11	DISCRETE IN 1	IN	50	MANIFOLD PRESSURE (+)	IN
12	FUEL QUANTITY 1/GEN PURP 3 (+)	IN	51	DISCRETE IN 3	IN
13	FUEL QUANTITY 3/GEN PURP 5 (+)	IN	52	FUEL QUANTITY 2/GEN PURP 4 (+)	IN
14	SIGNAL GND	IN	53	FUEL QUANTITY 4/GEN PURP 6 (+)	IN
15	FUEL FLOW 1	IN	54	SIGNAL GND	--
16	FUEL FLOW 2	IN	55	SHUNT 1 (-)	IN
17	+12 VDC	OUT	56	SHUNT 2 (-)	IN
18	RPM IN 1 (+)	IN	57	BUS 1	IN
19	RPM IN 2 (+)	IN	58	BUS 2	IN
20	CONFIG. MODULE PWR	OUT	59	CONFIG MODULE CLOCK	OUT
21	CHT 1 (-)	IN	60	EGT 1 (-)	IN
22	CHT 2 (-)	IN	61	EGT 2 (-)	IN
23	CHT 3 (-)	IN	62	EGT 3 (-)	IN
24	CHT 4 (-)	IN	63	EGT 4 (-)	IN
25	CHT 5 (-)	IN	64	EGT 5 (-)	IN
26	CHT 6 (-)	IN	65	EGT 6 (-)	IN
27	GENERAL PURPOSE 1 (-)	IN	66	CARB TEMP (-)	IN
28	GENERAL PURPOSE 2 (-)	IN	67	OIL TEMP (-)	IN
29	+5 VDC	OUT	68	OIL PRESSURE (-)	IN
30	FUEL PRESSURE (-)	IN	69	+12 VDC	OUT
31	DISCRETE IN 2	IN	70	MANIFOLD PRESSURE (-)	IN
32	FUEL QUANTITY 1 / GENERAL PURPOSE 3 (-)	IN	71	DISCRETE IN 4	IN
33	FUEL QUANTITY 3/GEN PURP 5 (-)	IN	72	FUEL QUANTITY 2/GEN PURP 4 (-)	IN
34	SIGNAL GND	--	73	FUEL QUANTITY 4/GEN PURP 6 (-)	IN
35	SHUNT 1 (+)	IN	74	SIGNAL GND	--
36	SHUNT 2 (+)	IN	75	RESERVED	--
37	RPM IN 1 (-)	IN	76	+5 VDC	OUT
38	RPM IN 2 (-)	IN	77	BUS 3	IN
39	CONFIG MODULE DATA	I/O	78	CONFIG MODULE GND	--

A.9 GEA 71B Enhanced

The GEA 71B Enhanced has two connectors. The mating designators, part numbers, and associated connector kits are listed in Table A-26.

Table A-26 G500/G600 TXi - GEA 71B Enhanced Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P701	Conn, Hi Dens, D-Sub, Mil Crp, 78 Ckt	330-00185-78	011-00797-03
P702	Conn, Hi Dens, D-Sub, Mil Crp, 78 Ckt	330-00185-78	011-00797-03

Figure A-12 GEA 71B Enhanced Connectors

Table A-27 GEA 71B Enhanced J701/P701 Connector

Pin	Function	I/O	Pin	Function	I/O
1	CONFIG MODULE GROUND	--	40	CONFIG MODULE DATA	I/O
2	DIGITAL IN* 1	IN	41	DIGITAL IN*3	IN
3	DIGITAL IN* 2	IN	42	GEN PURP ANALOG IN 3 HI	IN
4	SIGNAL GROUND	--	43	GEN PURP ANALOG IN 3 LO	IN
5	RS-485 1 A	I/O	44	GEN PURP ANALOG IN 4 HI	IN
6	RS-485 1 B	I/O	45	GEN PURP ANALOG IN 4 LO	IN
7	RS-485 2 A	I/O	46	GEN PURP ANALOG IN 5 HI	IN
8	RS-485 2 B	I/O	47	GEN PURP ANALOG IN 5 LO	IN
9	GEA SYS ID PROGRAM* 1 [1] FUEL QTY EXCITATION 1 [2]	IN OUT	48	ENGINE TEMP ANALOG IN 7 HI [1] CAPACITIVE FUEL QTY 5 [2]	IN IN
10	GEA SYS ID PROGRAM* 2 [1] FUEL QTY EXCITATION 2 [2]	IN OUT	49	ENGINE TEMP ANALOG IN 7 LO [1] CAPACITIVE FUEL QTY 6 [2]	IN IN
11	TRANSDUCER PWR OUT LO (GND)	--	50	ENGINE TEMP ANALOG IN 8 HI [1] CAPACITIVE FUEL QTY 7 [2]	IN IN
12	TRANSDUCER PWR OUT LO (GND)	--	51	ENGINE TEMP ANALOG IN 8 LO [1] CAPACITIVE FUEL QTY 8 [2]	IN IN
13	TRANSDUCER PWR OUT LO (GND)	--	52	ENGINE TEMP ANALOG IN 9 HI [1] FILTERED FUEL FLOW HI [2]	IN IN
14	+10 VDC TRANSDUCER PWR OUT	OUT	53	ENGINE TEMP ANALOG IN 9 LO [1] FILTERED FUEL FLOW LO [2]	IN IN
15	+5 VDC TRANSDUCER PWR OUT	OUT	54	TURBINE ENGINE TEMP HI (ENGINE TEMP ANALOG IN 10 HI)	IN
16	+12 VDC TRANSDUCER PWR OUT	OUT	55	TURBINE ENGINE TEMP LO (ENGINE TEMP ANALOG IN 10 LO)	IN
17	ENGINE TEMP ANALOG IN 6 HI [1] CAPACITIVE FUEL QTY 1 [2]	IN IN	56	ENGINE TEMP ANALOG IN 11 HI [1] FILTERED GAS GEN RPM HI [2]	IN IN
18	ENGINE TEMP ANALOG IN 6 LO [1] CAPACITIVE FUEL QTY 2 [2]	IN IN	57	ENGINE TEMP ANALOG IN 11 LO [1] FILTERED GAS GEN RPM LO [2]	IN IN
19	SIGNAL GROUND	--	58	ENGINE TEMP ANALOG IN 12 HI [1] FILTERED PROP RPM HI [2]	IN IN
20	POWER GROUND	--	59	ENGINE TEMP ANALOG IN 12 LO [1] FILTERED PROP RPM LO [2]	IN IN
21	CONFIG MODULE POWER	OUT	60	CONFIG MODULE CLOCK	OUT
22	GEN PURP ANALOG IN 1 HI	IN	61	DIGITAL IN* 4	IN
23	GEN PURP ANALOG IN 1 LO	IN	62	GEN PURP ANALOG IN 6 HI	IN
24	GEN PURP ANALOG IN 2 HI	IN	63	GEN PURP ANALOG IN 6 LO	IN
25	GEN PURP ANALOG IN 2 LO	IN	64	GEN PURP ANALOG IN 7 HI	IN
26	OAT HI (ENG TEMP ANALOG IN 1 HI) RESISTIVE FQ 1 HI [2]	IN IN	65	GEN PURP ANALOG IN 7 LO	IN

Pin	Function	I/O	Pin	Function	I/O
27	OAT LO (ENG TEMP ANALOG IN 1 LO)	IN	66	GEN PURP ANALOG IN 8 HI	IN
	RESISTIVE FQ 1 LO [2]	IN			
28	ENGINE TEMP ANALOG IN 2 HI	IN	67	GEN PURP ANALOG IN 8 LO	IN
29	ENGINE TEMP ANALOG IN 2 LO	IN	68	THERMOCOUPLE REF IN HI	IN
30	ENGINE TEMP ANALOG IN 3 HI [1]	IN	69	THERMOCOUPLE REF IN LO	IN
	CAPACITIVE FUEL QTY 3 [2]	IN			
31	ENGINE TEMP ANALOG IN 3 LO [1]	IN	70	DISCRETE IN* 1	IN
	CAPACITIVE FUEL QTY 4 [2]	IN			
32	SIGNAL GROUND	--	71	DISCRETE IN* 2	IN
33	FUEL FLOW TEMP HI (ENGINE TEMP ANALOG IN 4 HI)	IN	72	GEN PURP ANALOG IN 9 HI	IN
	RESISTIVE FQ 2 HI [2]	IN			
34	FUEL FLOW TEMP LO (ENGINE TEMP ANALOG IN 4 LO)	IN	73	GEN PURP ANALOG IN 9 LO	IN
	RESISTIVE FQ 2 LO [2]	IN			
35	AIRCRAFT POWER 1	IN	74	GEN PURP ANALOG IN 10 HI	IN
36	ENGINE TEMP ANALOG IN 5 HI	IN	75	GEN PURP ANALOG IN 10 LO	IN
	RESISTIVE FQ 3 HI [2]	IN			
37	AIRCRAFT POWER 2	IN	76	DISCRETE IN* 3	IN
38	ENGINE TEMP ANALOG IN 5 LO	IN	77	GEA REMOTE POWER OFF	IN
	RESISTIVE FQ 3 LO [2]	IN			
39	SIGNAL GROUND	--	78	POWER GROUND	--

* Indicates Active-Low

Notes:

[1] GEA 71B Enhanced P/N 011-03682-02 only.

[2] GEA 71B Enhanced P/N 011-03682-05 only.

Table A-28 GEA 71B Enhanced J702/P702 Connector

Pin	Function	I/O	Pin	Function	I/O
1	ANNUNCIATE* 1A	OUT	40	DISCRETE IN* 17A	IN
2	ANNUNCIATE* 2A	OUT	41	DISCRETE IN* 18A	IN
3	ANNUNCIATE* 3A	OUT	42	DISCRETE IN* 19A	IN
4	ANNUNCIATE* 4A	OUT	43	DISCRETE IN* 20A	IN
5	ANNUNCIATE* 5A	OUT	44	ANLG/CURRENT MONITOR IN 1A HI	IN
6	ANNUNCIATE* 6A	OUT	45	ANLG/CURRENT MONITOR IN 1A LO	IN
7	ANNUNCIATE* 7A	OUT	46	ANLG/CURRENT MONITOR IN 2A HI	IN
8	EXTENDED COMMON MODE ANALOG IN 1A HI	IN	47	ANLG/CURRENT MONITOR IN 2A LO	IN
9	EXTENDED COMMON MODE ANALOG IN 1A LO	IN	48	ANLG/CURRENT MONITOR IN 3A HI	IN

Pin	Function	I/O	Pin	Function	I/O
10	ANNUNCIATE* 8A	OUT	49	ANLG/CURRENT MONITOR IN 3A LO	IN
11	TRANSDUCER PWR OUT LO (GND)	--	50	ANLG/CURRENT MONITOR IN 4A HI	IN
12	TRANSDUCER PWR OUT LO (GND)	--	51	ANLG/CURRENT MONITOR IN 4A LO	IN
13	TRANSDUCER PWR OUT LO (GND)	--	52	GEN PURP ANALOG IN 1A HI (GP11)	IN
14	+10 VDC TRANSDUCER PWR OUT A	OUT	53	GEN PURP ANALOG IN 1A LO (GP11)	IN
15	+5 VDC TRANSDUCER PWR OUT A	OUT	54	GEN PURP ANALOG IN 2A HI (GP12)	IN
16	+12 VDC TRANSDUCER PWR OUT A	OUT	55	GEN PURP ANALOG IN 2A LO (GP12)	IN
17	RESERVED	--	56	GEN PURP ANALOG IN 3A HI (GP13)	IN
18	EXTENDED COMMON MODE ANALOG IN 2A HI	IN	57	GEN PURP ANALOG IN 3A LO (GP13)	IN
19	EXTENDED COMMON MODE ANALOG IN 2A LO	IN	58	GEN PURP ANALOG IN 4A HI (GP14)	IN
20	ANNUNCIATE* 9A	OUT	59	GEN PURP ANALOG IN 4A LO (GP14)	IN
21	RESERVED	--	60	DISCRETE IN* 1A	IN
22	RESERVED	--	61	DISCRETE IN* 2A	IN
23	RESERVED	--	62	DISCRETE IN* 3A	IN
24	RESERVED	--	63	DISCRETE IN* 4A	IN
25	DISCRETE IN* 11A	IN	64	DISCRETE IN* 5A	IN
26	DISCRETE IN* 12A	IN	65	DISCRETE IN* 6A	IN
27	DISCRETE IN* 13A	IN	66	DISCRETE IN* 7A	IN
28	DISCRETE IN* 14A	IN	67	DIGITAL IN* 5A	IN
29	DISCRETE IN* 15A	IN	68	DIGITAL IN* 6A	IN
30	DISCRETE IN* 16A	IN	69	DIGITAL IN* 7A	IN
31	SIGNAL GROUND	--	70	DIGITAL IN* 8A	IN
32	SIGNAL GROUND	--	71	DISCRETE IN* 8A	IN
33	SIGNAL GROUND	--	72	DISCRETE IN* 9A	IN
34	SIGNAL GROUND	--	73	DISCRETE IN* 10A	IN
35	SIGNAL GROUND	--	74	FUEL FLOW IN 1 (DIGITAL IN* 1A)	IN
36	SIGNAL GROUND	--	75	FUEL FLOW RETURN (DIGITAL IN* 2A)	IN
37	SIGNAL GROUND	--	76	PROPELLER RPM (DIGITAL IN* 3A)	IN
38	SIGNAL GROUND	--	77	GAS GEN RPM (DIGITAL IN* 4A)	IN
39	SIGNAL GROUND	--	78	SIGNAL GROUND	--

* Indicates Active-Low

A.10 GBB 54

The GBB 54 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-29.

Table A-29 G500/G600 TXi - GBB 54 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P541	Conn, Std D-Sub, Male, Crimp, No Contacts, 15 Pos	330-01437-00	011-03527-70

Figure A-13 GBB 54 Connector

Table A-30 GBB 54 J541/P541 Connector

Pin	Function	I/O
1	POWER IN	IN
2	POWER IN	IN
3	GROUND	--
4	STANDBY	OUT
5	GROUND	--
6	GROUND	--
7	BATTERY POWER	OUT
8	BATTERY POWER	OUT
9	POWER IN	IN
10	GROUND	--
11	RS-232 OUT	OUT
12	RS-232 IN	IN
13	POWER ON REQUEST	IN
14	GROUND	--
15	BATTERY POWER	OUT

A.11 GMU 44

The GMU 44 has one connector. The mating designator, part number, and associated connector kit are listed in Table A-31.

Table A-31 G500/G600 TXi - GMU 44 Connectors

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
P441	Conn, Circular, Female, 9 Ckt	330-00360-00	011-00871-00

VIEW OF P441 CONNECTOR
LOOKING AT FACE OF CONNECTOR PIGTAIL

Figure A-14 GMU 44 Connector (P/N 330-00360-00)

Table A-32 GMU 44 J441/P441 Connector

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

A.12 GMU 44B

The GMU 44B has one connector. The mating designator, part number, and associated connector kit are list in Table A-33.

Table A-33 G500/G600 TXi - GMU 44B Connector

REF. DES.	DESCRIPTION	CONN P/N	KIT P/N
J442	Conn, Rcpt, WTW, D369 Series, 6 position, Socket Insert, Key N	330-01430-01	011-04205-00

Figure A-15 GMU 44B Connector

Table A-34 GMU 44B J442/P441 Connector

Pin	Function	I/O
1	SHIELD GROUND	--
2	RS-422 OUT B	OUT
3	RS-422 OUT A	OUT
4	POWER GROUND	--
5	RS-232 IN	IN
6	MAG POWER INPUT	IN

A.13 GTP 59

The GTP 59 Temperature Probe does not have a connector. Rather, a 3-conductor shielded cable extends from the sensor for interface with a GDU, GDC/GSU, or GEA.

Table A-35 GTP 59 3-Conductor Shielded Cable

Conductor Color	Name	I/O
White	Probe Power Lead	IN
Blue	Resistive Element HI	OUT
Orange	Resistive Element LO	OUT

APPENDIX B INTERCONNECT DIAGRAMS

GENERAL NOTES

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

[2] AT GDU, CONNECT SHIELD GROUNDS TO THE CONNECTOR BACKSHELL. THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. OTHER SHIELD GROUNDS GOING TO AIRCRAFT GROUND MUST BE AS SHORT AS PRACTICAL.

[3] USE APPROVED ETHERNET CABLES LISTED IN SECTION 3 FOR ALL HSDB CONNECTIONS.

[4] PINS OR PORTS THAT ARE MARKED WITH “x” OR “X” INDICATE THERE IS NO SINGLE RECOMMENDED CONNECTION, FIND AN AVAILABLE PORT/PIN TO USE. PIN/PORT CONNECTIONS WILL VARY DEPENDING ON INSTALLATION.

[5] THE UNSHIELDED PORTION OF ALL SHIELDED WIRES AT THE CONNECTORS MUST BE 2.5 INCHES OR LESS IN TOTAL LENGTH, UNLESS OTHERWISE NOTED.

LEGEND

~ REPRESENTS INTERCHANGEABLE PIN OR PORT WITH SIMILAR FUNCTIONING PIN OR PORT. SEE APPENDIX A FOR PIN DESCRIPTION. PINS OR PORTS WITHOUT ~ MUST BE CONNECTED AS SHOWN.

EXAMPLES INCLUDE:

~ DISCRETE IN 7* !’ INDICATES ANY AVAILABLE ‘DISCRETE IN’ CAN BE USED.

~ RS-232 6 !’ INDICATES ANY AVAILABLE RS-232 PORT CAN BE USED.

~ GEN PURP !’ INDICATES ANY AVAILABLE GENERAL PURPOSE PORT CAN BE USED.

* REPRESENTS ACTIVE-LOW PIN.

S SHIELD GROUND BLOCK DESIGNATOR.

AIRFRAME GROUND DESIGNATOR.

OVERBRAID DESIGNATOR

GDU 700/1060/1210

	P2		1		
CONFIG MODULE PWR	15	28 AWG	RED	4	CONFIG MODULE
CONFIG MODULE GND	29	28 AWG	BLK	1	
CONFIG MODULE DATA	44	28 AWG	YEL	3	
CONFIG MODULE CLOCK	30	28 AWG	WHT	2	

LIGHTING BUS HI	3	
LIGHTING BUS LO	4	2

~ETHERNET X	OUT A	X	
	OUT B	X	
	IN A	X	7
	IN B	X	

s

14 VOLT AIRCRAFT

		P1		5		
	AIRCRAFT POWER 1	19	22 AWG		18 AWG	4
	AIRCRAFT POWER 1	20	22 AWG			
6	AIRCRAFT POWER 1	21	22 AWG		18 AWG	
	AIRCRAFT POWER 1	22	22 AWG		3	
	AIRCRAFT GND	10	22 AWG			
	AIRCRAFT GND	11	22 AWG			
	AIRCRAFT GND	12	22 AWG			
	AIRCRAFT GND	13	22 AWG			

28 VOLT AIRCRAFT

		P1		5		
	AIRCRAFT POWER 1	19	22 AWG		20 AWG	4
6	AIRCRAFT POWER 1	20	22 AWG			
					3	
	AIRCRAFT GND	10	22 AWG			
	AIRCRAFT GND	11	22 AWG			
	AIRCRAFT GND	12	22 AWG			
	AIRCRAFT GND	13	22 AWG			

Figure B-1 GDU - Power, Lighting, Configuration Module, HSDB Interconnect
Sheet 1 of 2

NOTES

1 CONFIGURATION MODULE IS MOUNTED IN THE BACKSHELL OF THE P2 CONNECTOR USING 28 AWG WIRES. CONTACTS SUPPLIED WITH THE CONFIGURATION MODULE MUST BE USED FOR CONNECTING CONFIGURATION MODULE HARNESS TO P2.

2 OPTIONAL LIGHTING BUS CONNECTION (28 VDC, 14 VDC, 5 VDC, OR 5 VAC).

3 WIRE GAUGE SHOWN FOR POWER AND GROUND LENGTH LESS THAN 20 FEET. FOR POWER AND GROUNDS GREATER THAN 20 FEET, REFER TO AC 43.13-1B CHAPTER 11 TO DETERMINE THE APPROPRIATE WIRE GAUGE.

4 SEE SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.

5 SPLICES MUST BE WITHIN 6 INCHES OF PIN AT GDU.

6 AIRCRAFT POWER 2 OPTIONALLY WIRED TO DUAL ESSENTIAL POWER BUSSES.

7 REFERENCE SECTION 3.2.7 FOR HSDB ARCHITECTURE.

Figure B-1 GDU - Power, Lighting, Configuration Module, HSDB Interconnect
Sheet 2 of 2

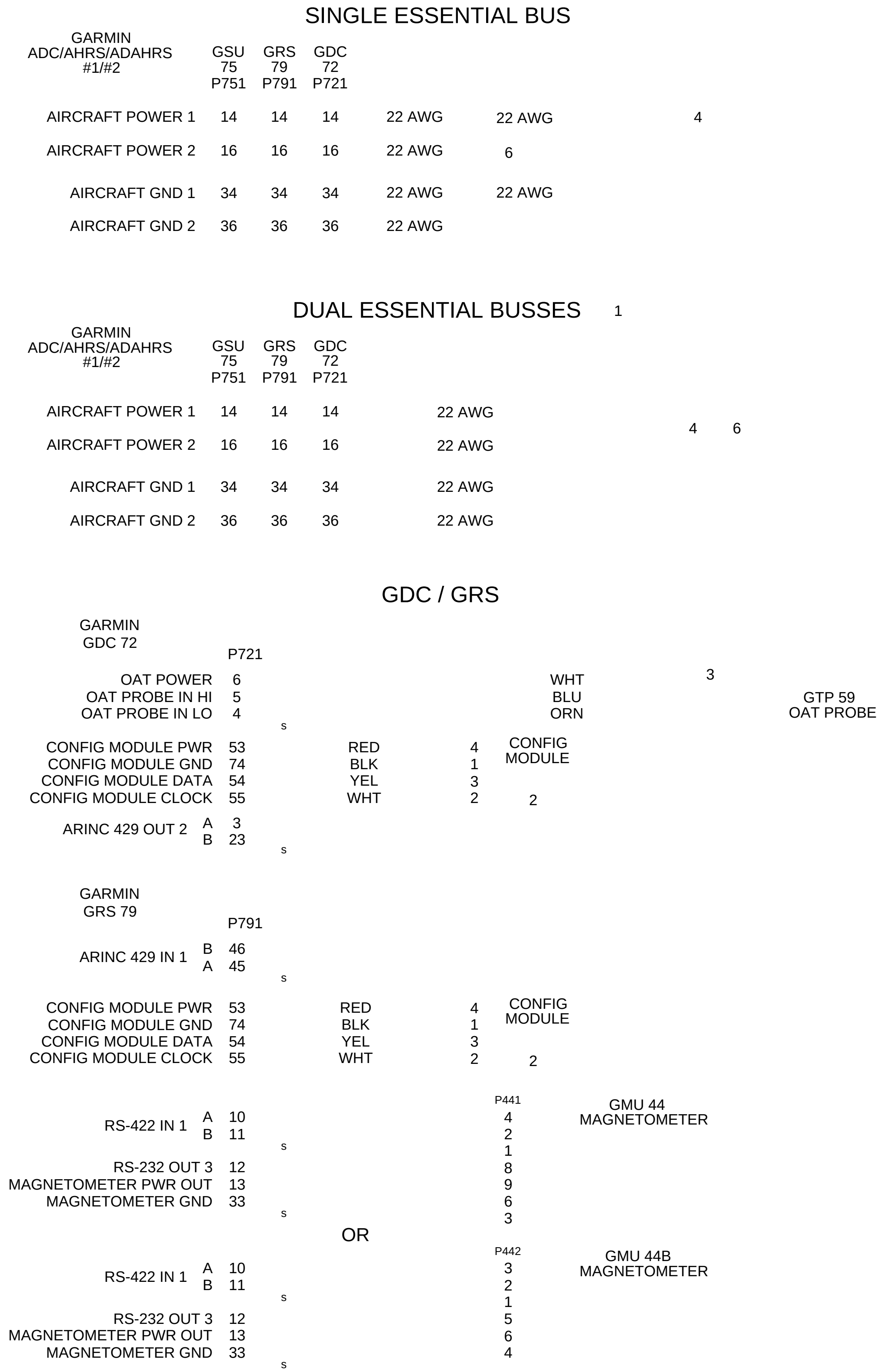


Figure B-2 Attitude and Air Data – Power, Config Module Interconnect
Sheet 1 of 3

GSU

GARMIN
GSU 75 P751

CONFIG MODULE PWR	53	RED	4	CONFIG MODULE
CONFIG MODULE GND	74	BLK	1	
CONFIG MODULE DATA	54	YEL	3	
CONFIG MODULE CLOCK	55	WHT	2	2

P441 GMU 44 MAGNETOMETER 5

RS-422 IN 1 A	10	4
RS-422 IN 1 B	11	2
	s	1
RS-232 OUT 3	12	8
MAGNETOMETER PWR OUT	13	9
MAGNETOMETER GND	33	6
	s	3

OR

P442 GMU 44B MAGNETOMETER

RS-422 IN 1 A	10	3
RS-422 IN 1 B	11	2
	s	1
RS-232 OUT 3	12	5
MAGNETOMETER PWR OUT	13	6
MAGNETOMETER GND	33	4
	s	

3 GTP 59 OAT PROBE

OAT POWER	6	WHT
OAT PROBE IN HI	5	BLU
OAT PROBE IN LO	4	ORN
	s	

GDU INTERNAL ADAHRS

GDU 700/1060
w/ INTERNAL ADAHRS

P2

P441 GMU 44 MAGNETOMETER 5

RS-422 IN 1 A	1	4
RS-422 IN 1 B	2	2
	s	1
RS-232 OUT 1	43	8
MAGNETOMETER PWR OUT	41	9
MAGNETOMETER GROUND	26	6
	s	3

OR

P442 GMU 44B MAGNETOMETER

RS-422 IN 1 A	1	3
RS-422 IN 1 B	2	2
	s	1
RS-232 OUT 1	43	5
MAGNETOMETER PWR OUT	41	6
MAGNETOMETER GROUND	26	4
	s	

3 GTP 59 OAT PROBE

OAT POWER	5	WHT
OAT PROBE IN HI	6	BLU
OAT PROBE IN LO	7	ORN
	s	

Figure B-2 Attitude and Air Data – Power, Config Module Interconnect
Sheet 2 of 3

NOTES

1	THIS CONFIGURATION MAY ONLY BE UTILIZED IN AIRCRAFT THAT MEET THE FOLLOWING CRITERIA: (i) HAVE TWO (2) OR MORE ELECTRICAL GENERATION SOURCES, AND (ii) HAVE AT LEAST TWO (2) ESSENTIAL BUSES THAT CAN BE ELECTRICALLY ISOLATED FROM EACH OTHER.
2	CONFIGURATION MODULE IS MOUNTED IN THE BACKSHELL OF THE CONNECTOR USING 28 AWG WIRES. CONTACTS SUPPLIED WITH CONFIGURATION MODULE MUST BE USED FOR CONNECTING CONFIGURATION MODULE HARNESS TO P751, P791, OR P721.
3	THE WIRING SUPPLIED WITH THE GTP 59 MAY BE EXTENDED IF THE SUPPLIED WIRE LENGTH IS NOT SUFFICIENT FOR A PARTICULAR INSTALLATION.
4	SEE SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.
5	GMU 44 P/N 011-00870-00 CANNOT BE CONNECTED TO THE GSU 75 OR THE INTEGRATED ADAHRS.
6	IF INSTALLING RAS WIRING FOR REMOTE ADC, CAP AND STOW WIRE GOING TO AIRCRAFT POWER 2 PIN FOR SINGLE ESSENTIAL BUS OPTION. WIRE AIRCRAFT POWER 2 DIRECTLY TO RAS RELAY FOR DUAL ESSENTIAL BUS CONFIGURATION. REFER TO FIGURE B-52 FOR RAS INTERCONNECT.

Figure B-2 Attitude and Air Data – Power, Config Module Interconnect
Sheet 3 of 3

GDU 700/1060/1210
PILOT PFD

GARMIN ADC

PILOT PFD		P4	GSU 75 P751	GDC 72 P721	GDC 74 P741	GARMIN ADC	
~ARINC 429 IN 1	A	1	27	27	26	A	ARINC 429 OUT 1
	B	21	7	7	27	B	
~RS-232 5	IN	19	69	69	11	OUT	RS-232 1
	OUT	20	70	70	10	IN	
	GND	18	68	68	12	GND	
		N/C	75	75	6	SYSTEM ID 1*	
		N/C	57	57	71	SYSTEM ID 2*	
		N/C	26	26	7	SIGNAL GROUND	

GARMIN AHRS

PILOT PFD		P4	GSU 75 P751	GRS 79 P791	GRS 77 P771	GARMIN AHRS	
~ARINC 429 IN 3	A	3	-	27	14	A	ARINC 429 OUT 1
	B	23	-	7	29	B	
~RS-232 6	IN	16	51	51	26	OUT	GPS1 RS-232
	OUT	17	52	52	11	IN	
	GND	15	32	32	41	GND	
		N/C	75	75	2	SYSTEM ID 1*	
		N/C	57	57	3	SYSTEM ID 2*	
		N/C	48	48	37	SIGNAL GROUND	

GARMIN
GI 275 ADAHRS 1

PILOT PFD		P2	P2751	GI 275 ADAHRS	
~ETHERNET 4	OUT A	23	65	IN A	~ETHERNET 1
	OUT B	38	66	IN B	
	IN A	22	46	OUT A	
	IN B	37	47	OUT B	

NOTES

1 IF INSTALLED, A GI 275 ADAHRS UNIT MAY BE CONFIGURED AS A SECOND ADC/AHRS SOURCE. A SINGLE GI 275 ADAHRS UNIT CANNOT BE CONFIGURED AS BOTH A SECOND ADC/AHRS SOURCE AND A STANDBY.

Figure B-3 Attitude and Air Data – Single GDU Interconnect

GDU 700/1060/1210
PILOT PFD

GDU Signal		P4	GSU 75 P751	GDC 72 P721	GDC 74 P741		GARMIN ADC #1
~ARINC 429 IN 1	A	1	27	27	26	A	ARINC 429 OUT 1
	B	21	7	7	27	B	
~RS-232 5	IN	19	69	69	11	OUT	RS-232 1
	OUT	20	70	70	10	IN	
	GND	18	68	68	12	GND	
N/C			-	75	6	SYSTEM ID 1*	
			-	57	71	SYSTEM ID 2*	
			-	26	7	SIGNAL GROUND	

GDU Signal		P4	GSU 75 P751	GRS 79 P791	GRS 77 P771		GARMIN AHRS #1
~ARINC 429 IN 3	A	3	-	27	14	A	ARINC 429 OUT 1
	B	23	-	7	29	B	
~RS-232 6	IN	16	51	51	26	OUT	GPS1 RS-232
	OUT	17	52	52	11	IN	
	GND	15	32	32	41	GND	
N/C			75	75	2	SYSTEM ID 1*	
			57	57	3	SYSTEM ID 2*	
			48	48	37	SIGNAL GROUND	

GDU 700/1060/1210
COPILOT PFD/
BACKUP DISPLAY

GDU Signal		P4	GSU 75 P751	GDC 72 P721	GDC 74 P741		GARMIN ADC #2
~ARINC 429 IN 1	A	1	27	27	26	A	ARINC 429 OUT 1
	B	21	7	7	27	B	
~RS-232 5	IN	19	69	69	11	OUT	RS-232 1
	OUT	20	70	70	10	IN	
	GND	18	68	68	12	GND	
N/C			-	75	6	SYSTEM ID 1*	
			-	57	71	SYSTEM ID 2*	
			-	26	7	SIGNAL GROUND	

GDU Signal		P4	GSU 75 P751	GRS 79 P791	GRS 77 P771		GARMIN AHRS #2
~ARINC 429 IN 3	A	3	-	27	14	A	ARINC 429 OUT 1
	B	23	-	7	29	B	
~RS-232 6	IN	16	51	51	26	OUT	GPS1 RS-232
	OUT	17	52	52	11	IN	
	GND	15	32	32	41	GND	
N/C			75	75	2	SYSTEM ID 1*	
			57	57	3	SYSTEM ID 2*	
			48	48	37	SIGNAL GROUND	

Figure B-4 Attitude and Air Data – Dual GDU Interconnect

With AHRS

GDU 700/1060/1210
w/ADC/AHRS #1
OR ADAHRS #1

GPS #1

GARMIN

GDU Signal	GDU Pin	GPS 175 GNC 355 PXX51	GNX 375 P3751	GNX 375 P3752	GTN 6XX/7XX/Xi P1001	GTN 6XX/7XX/Xi P1002	GNS 480 P1	GNS 480 P5	GPS 400W GNC 420W GNS 430W P4001	GPS 500W GNS 530W P5001	GPS Signal
	P2										
~ETHERNET 1 OUT A	17	11	-	4	-	15	-	-	-	-	ETHERNET IN 2A
~ETHERNET 1 OUT B	32	33	-	19	-	16	-	-	-	-	ETHERNET IN 2B
~ETHERNET 1 IN A	16	10	-	3	-	17	-	-	-	-	ETHERNET OUT 2A
~ETHERNET 1 IN B	31	32	-	18	-	18	-	-	-	-	ETHERNET OUT 2B
	P3										
TIME MARK IN 1A	30	4	4	-	3	-	19	-	16	16	TIME MARK OUT +
TIME MARK IN 1B	31	26	26	-	22	-	17	-	-	-	TIME MARK OUT -
6 ~RS-232 3 IN	4	-	-	-	-	-	5	-	56	56	RS232 OUT (MAPMX)
6 ~RS-232 3 GND	25	-	-	-	-	-	23	-	GND	GND	GROUND 2
	P4										
~ARINC 429 IN 5 A	5	-	-	-	-	-	-	4	46	46	GPS 429 OUT A (GAMA 429/
~ARINC 429 IN 5 B	25	-	-	-	-	-	-	24	47	47	GPS 429 OUT B 429 NO FP)
~ARINC 429 OUT 1 A	53	-	-	-	-	-	-	8	48	48	GPS 429 IN A (GARMIN GDU)
~ARINC 429 OUT 1 B	73	-	-	-	-	-	-	28	49	49	GPS 429 IN B

s s 1

GPS #2

GARMIN

GDU Signal	GDU Pin	GPS 175 GNC 355 PXX51	GNX 375 P3751	GNX 375 P3752	GTN 6XX/7XX/Xi P1001	GTN 6XX/7XX/Xi P1002	GNS 480 P1	GNS 480 P5	GPS 400W GNC 420W GNS 430W P4001	GPS 500W GNS 530W P5001	GPS Signal
	P3										
TIME MARK IN 2A	28	4	4	-	3	-	19	-	16	16	TIME MARK OUT +
TIME MARK IN 2B	29	26	26	-	22	-	17	-	-	-	TIME MARK OUT -
6 ~RS-232 4 IN	6	-	-	-	-	-	5	-	56	56	RS232 OUT (MAPMX)
6 ~RS-232 4 GND	26	-	-	-	-	-	23	-	GND	GND	GROUND 2
	P4										
~ARINC 429 IN 6 A	6	-	-	-	-	-	-	4	46	46	GPS 429 OUT A (GAMA 429/
~ARINC 429 IN 6 B	26	-	-	-	-	-	-	24	47	47	GPS 429 OUT B 429 NO FP)
		-	-	-	-	-	-	8	48	48	GPS 429 IN A (GARMIN GDU)
		-	-	-	-	-	-	28	49	49	GPS 429 IN B
	P2										
~ETHERNET 2 OUT A	19	11	-	4	-	15	-	-	-	-	ETHERNET IN 2A
~ETHERNET 2 OUT B	34	33	-	19	-	16	-	-	-	-	ETHERNET IN 2B
~ETHERNET 2 IN A	18	10	-	3	-	17	-	-	-	-	ETHERNET OUT 2A
~ETHERNET 2 IN B	33	32	-	18	-	18	-	-	-	-	ETHERNET OUT 2B
	P7										
BACKUP GPS ANTENNA											

s s 1

BACKUP
GPS ANTENNA

Figure B-5 GPS Interconnect – Single GDU
Sheet 1 of 3

Without AHRS

GDU 700/1060/1210
MFD, EIS, or MFD/EIS

3

GPS #1

GARMIN

GDU 700/1060/1210		Pin	GPS 175 GNC 355	GNX 375	GTN 6XX/7XX/Xi	GNS 480		GPS 400W GNC 420W GNS 430W	GPS 500W GNS 530W	
		P2	PXX51	P3752	P1002	P1	P5	P4001	P5001	
~ETHERNET 1	OUT A	17	11	4	15	-	-	-	-	ETHERNET IN 2A
	OUT B	32	33	19	16	-	-	-	-	ETHERNET IN 2B
	IN A	16	10	3	17	-	-	-	-	ETHERNET OUT 2A
	IN B	31	32	18	18	-	-	-	-	ETHERNET OUT 2B
		P3								
6 ~RS-232 3	IN	4	-	-	-	5	-	56	56	RS232 OUT (MAPMX)
	GND	25	-	-	-	23	-	GND	2 GND	GROUND
		P4								
~ARINC 429 IN 5	A	5	-	-	-	-	4	46	46	GPS 429 OUT A (GAMA 429/
	B	25	-	-	-	-	24	47	47	GPS 429 OUT B 429 NO FP)

4 8 s s s s 5

7

P7

BACKUP GPS ANTENNA

BACKUP
GPS ANTENNA

Figure B-5 GPS Interconnect – Single GDU
Sheet 2 of 3

NOTES

1	THE TIME MARK B CONNECTION MUST BE LEFT UNCONNECTED FOR THE INSTALLATION OF 400W/500W SERIES UNITS. A SINGLE CONDUCTOR SHIELDED WIRE MAY BE USED FOR THE TIME MARK IN THIS CASE.
2	FOR PINS IDENTIFIED WITH “GND,” CONNECT WIRE TO GROUND AT THE REAR OF THE UNIT.
3	DIRECT CONNECTION OF GPS TO EIS ONLY DISPLAY IS OPTIONAL. GPS DATA WILL CROSSFILL AUTOMATICALLY FROM MFD/EIS AND PFD (IF INSTALLED). TXI EIS ONLY DISPLAYS ARE NOT INSTALLED WITH TXI PFD/MFD DISPLAYS (REFER TO TABLE 3-1).
4	REFER TO SECTION 3.2.7 FOR HSDB ARCHITECTURE.
5	SPLICES AT THE NAVIGATOR MAY BE REQUIRED FOR RS-232 AND ARINC 429 LINES.
6	THE GNS 480 CAN ONLY BE CONNECTED TO RS-232 PORTS 1 OR 2 ON THE GDU.
7	BACKUP GPS ANTENNA IS NOT USED ON EIS ONLY DISPLAYS.
8	IF A GDU 700 MFD OR MFD/EIS IS TO BE INSTALLED AND CONNECTED TO A GTN 6XX/7XX/Xi VIA HSDB IN A CONFIGURATION THAT HAS A GDU 620 INSTALLED, THE FOLLOWING STEPS MUST BE PERFORMED: 1. APPLY POWER TO THE GDU 620, GDU 700, AND GTN 6XX/7XX/Xi. ON THE GDU 620: 1. ON THE SYSTEM CONFIGURATION PAGE, ENABLE CROSS-SIDE GDU. 2. NAVIGATE TO THE MANIFEST PAGE AND SELECT MANIFEST. VERIFY THAT TXI GDU P/N AND SOFTWARE VERSION POPULATE. 3. NAVIGATE BACK TO THE SYSTEM CONFIGURATION PAGE AND DISABLE CROSS-SIDE GDU.

Figure B-5 GPS Interconnect – Single GDU
Sheet 3 of 3

GDU 700/1060/1210
w/ADC/AHRS #1
OR ADAHRS #1

Signal		Pin
BACKUP GPS ANTENNA		P7
		P2
~ETHERNET 1	OUT A	17
	OUT B	32
	IN A	16
	IN B	31
		P3
TIME MARK IN 1A		30
TIME MARK IN 1B		31
4 ~RS-232 3	IN	4
	GND	25
		P4
~ARINC 429 IN 5	A	5
	B	25
~ARINC 429 OUT 1	A	53
	B	73
		P3
TIME MARK IN 2A		28
TIME MARK IN 2B		29
4 ~RS-232 4	IN	6
	GND	26
		P4
~ARINC 429 IN 6	A	6
	B	26

BACKUP
GPS ANTENNA 5

1

GPS #1

GARMIN

GPS 175 GNC 355	GNX 375		GTN 6XX/7XX/Xi		GNS 480		GPS 400W GNC 420W GNS 430W	GPS 500W GNS 530W	
PXX51	P3751	P3752	P1001	P1002	P1	P5	P4001	P5001	
11	-	4	-	15	-	-	-	-	ETHERNET IN 2A
33	-	19	-	16	-	-	-	-	ETHERNET IN 2B
10	-	3	-	17	-	-	-	-	ETHERNET OUT 2A
32	-	18	-	18	-	-	-	-	ETHERNET OUT 2B
4	4	-	3	-	19	-	16	16	TIME MARK OUT +
26	26	-	22	-	17	-	-	-	TIME MARK OUT -
-	-	-	-	-	5	-	56	56	RS232 OUT (MAPMX)
-	-	-	-	-	23	-	GND	GND	GROUND 2
-	-	-	-	-	-	4	46	46	GPS 429 OUT A (GAMA 429/
-	-	-	-	-	-	24	47	47	GPS 429 OUT B 429 NO FP)
-	-	-	-	-	-	8	48	48	GPS 429 IN A (GARMIN GDU)
-	-	-	-	-	-	28	49	49	GPS 429 IN B

GDU 700/1060/1210
w/ADC/AHRS #2
OR ADAHRS #2

Signal		Pin
		P3
TIME MARK IN 1A		30
TIME MARK IN 1B		31
4 ~RS-232 3	IN	4
	GND	25
		P4
~ARINC 429 IN 5	A	5
	B	25
		P3
TIME MARK IN 2A		28
TIME MARK IN 2B		29
4 ~RS-232 4	IN	6
	GND	26
		P4
~ARINC 429 IN 6	A	6
	B	26
~ARINC 429 OUT 1	A	53
	B	73
		P2
~ETHERNET 2	OUT A	19
	OUT B	34
	IN A	18
	IN B	33

1

GPS #2

GARMIN

GPS 175 GNC 355	GNX 375		GTN 6XX/7XX/Xi		GNS 480		GPS 400W GNC 420W GNS 430W	GPS 500W GNS 530W	
PXX51	P3751	P3752	P1001	P1002	P1	P5	P4001	P5001	
4	4	-	3	-	19	-	16	16	TIME MARK OUT +
26	26	-	22	-	17	-	-	-	TIME MARK OUT -
-	-	-	-	-	5	-	56	56	RS232 OUT (MAPMX)
-	-	-	-	-	23	-	GND	GND	GROUND 2
-	-	-	-	-	-	4	46	46	GPS 429 OUT A (GAMA 429/
-	-	-	-	-	-	24	47	47	GPS 429 OUT B 429 NO FP)
-	-	-	-	-	-	8	48	48	GPS 429 IN A (GARMIN GDU)
-	-	-	-	-	-	28	49	49	GPS 429 IN B
11	-	4	-	15	-	-	-	-	ETHERNET IN 2A
33	-	19	-	16	-	-	-	-	ETHERNET IN 2B
10	-	3	-	17	-	-	-	-	ETHERNET OUT 2A
32	-	18	-	18	-	-	-	-	ETHERNET OUT 2B

Figure B-6 GPS Interconnect – Dual GDU with AHRS
Sheet 1 of 2

NOTES

1 THE TIME MARK B CONNECTION MUST BE LEFT UNCONNECTED FOR THE INSTALLATION OF 400W/500W SERIES UNITS. A SINGLE CONDUCTOR SHIELDED WIRE MAY BE USED FOR THE TIME MARK IN THIS CASE.

2 FOR PINS IDENTIFIED WITH “GND,” CONNECT WIRE TO GROUND AT THE REAR OF THE UNIT.

3 NOT USED.

4 THE GNS 480 CAN ONLY BE CONNECTED TO RS-232 PORTS 1 OR 2 ON THE GDU.

5 BACKUP GPS ANTENNA IS NOT USED ON EIS ONLY DISPLAYS.

Figure B-6 GPS Interconnect – Dual GDU with AHRS
Sheet 2 of 2

GDU 700/1060/1210
PILOT PFD

NAV #1

GDU 700/1060/1210 Pilot PFD	P4	GARMIN [6]							HONEYWELL (BENDIX/KING)						COLLINS		
		GNS 480	GNS 430W	GNS 530W	GNC 215	GNC 255()		SL30	KN 53	KX 170B KX 175B	KX 155A/165A		KX 155/165		VIR-32/33		
		P5	P4006	P5006	P1	P2001	P2002	37-Pin	P532	P171	P155A1 P165A1	P155A2 P165A2	P401	P901	P1	P2	
~ARINC 429 IN 7 A	7	5	24	24	48	-	24	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT A
~ARINC 429 IN 7 B	27	25	23	23	47	-	23	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT B
~RS-232 X OUT	x	-	-	-	46 [8]	16 [7]	-	4	-	-	-	-	-	-	-	-	RXD1
~RS-232 X IN	x	-	-	-	5	1	-	5	-	-	-	-	-	-	-	-	TXD1
~RS-232 X GND	x	-	-	-	26	31	-	3	-	-	-	-	-	-	-	-	SERIAL GROUND
VOR/LOC COMPOSITE #1 HI	68	-	-	-	-	-	-	-	B	3	H	-	H	-	-	24	VOR/LOC COMPOSITE OUT
VOR/LOC COMPOSITE #1 LO	67	-	-	-	-	-	-	-	15	GND	GND	-	GND	-	-	26	VOR/LOC COMPOSITE OUT LO
[5] GLIDESLOPE #1 +UP	64	-	-	-	-	-	-	-	P	- [2]	- [2]	15 / S	- [2]	15 / S	5	-	GS DEVIATION +UP
GLIDESLOPE #1 +DOWN	65	-	-	-	-	-	-	-	14	-	-	16 / T	-	16 / T	1	-	GS DEVIATION + DOWN
[5] GLIDESLOPE #1 +FLAG	42	-	-	-	-	-	-	-	-	- [3]	-	-	-	17 / U	-	-	GS +FLAG
GLIDESLOPE #1 -FLAG (1 k© 1/4W)	43	-	-	-	-	-	-	-	-	-	-	-	-	14 / R	-	-	GS -FLAG
[5] GLIDESLOPE #1 +FLAG	42	-	-	-	-	-	-	-	13	-	-	17 / U	-	- [4]	17	-	GS +FLAG
GLIDESLOPE #1 -FLAG	43	-	-	-	-	-	-	-	R	-	-	14 / R	-	-	-	-	GS -FLAG
ILS ENERGIZE #1 (~ DISCRETE IN 7*)	38	-	-	-	-	-	-	-	12	4	8	- [4]	8	-	-	40	ILS ENERGIZE
		-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	ILS COMMON
	P2																
~ETHERNET 1 OUT A	17	-	-	-	25 [8]	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1A
~ETHERNET 1 OUT B	32	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1B
~ETHERNET 1 IN A	16	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1A
~ETHERNET 1 IN B	31	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1B

GDU 700/1060/1210
CO-PILOT PFD

NAV #2

GDU 700/1060/1210 Co-Pilot PFD	P4	GARMIN [6]							HONEYWELL (BENDIX/KING)						COLLINS		
		GNS 480	GNS 430W	GNS 530W	GNC 215	GNC 255()		SL30	KN 53	KX 170B KX 175B	KX 155A/165A		KX 155/165		VIR-32/33		
		P5	P4006	P5006	P1	P2001	P2002	37-Pin	P532	P171	P155A1 P165A1	P155A2 P165A2	P401	P901	P1	P2	
~ARINC 429 IN 7 A	7	5	24	24	48	-	24	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT A
~ARINC 429 IN 7 B	27	25	23	23	47	-	23	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT B
~RS-232 X OUT	x	-	-	-	46 [8]	16 [7]	-	4	-	-	-	-	-	-	-	-	RXD1
~RS-232 X IN	x	-	-	-	5	1	-	5	-	-	-	-	-	-	-	-	TXD1
~RS-232 X GND	x	-	-	-	26	31	-	3	-	-	-	-	-	-	-	-	SERIAL GROUND
VOR/LOC COMPOSITE #2 HI	70	-	-	-	-	-	-	-	B	3	H	-	H	-	-	24	VOR/LOC COMPOSITE OUT
VOR/LOC COMPOSITE #2 LO	69	-	-	-	-	-	-	-	15	GND	GND	-	GND	-	-	26	VOR/LOC COMPOSITE OUT LO
[5] GLIDESLOPE #2 +UP	62	-	-	-	-	-	-	-	P	- [2]	- [2]	15 / S	- [2]	15 / S	5	-	GS DEVIATION +UP
GLIDESLOPE #2 +DOWN	63	-	-	-	-	-	-	-	14	-	-	16 / T	-	16 / T	1	-	GS DEVIATION + DOWN
[5] GLIDESLOPE #2 +FLAG	40	-	-	-	-	-	-	-	-	- [3]	-	-	-	17 / U	-	-	GS +FLAG
GLIDESLOPE #2 -FLAG (1 k© 1/4W)	41	-	-	-	-	-	-	-	-	-	-	-	-	14 / R	-	-	GS -FLAG
[5] GLIDESLOPE #2 +FLAG	40	-	-	-	-	-	-	-	13	-	-	17 / U	-	- [4]	17	-	GS +FLAG
GLIDESLOPE #2 -FLAG	41	-	-	-	-	-	-	-	R	-	-	14 / R	-	-	-	-	GS -FLAG
ILS ENERGIZE #2 (~DISCRETE IN 8*)	39	-	-	-	-	-	-	-	12	4	8	- [4]	8	-	-	40	ILS ENERGIZE
		-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	ILS COMMON
	P2																
~ETHERNET 1 OUT A	17	-	-	-	25 [8]	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1A
~ETHERNET 1 OUT B	32	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1B
~ETHERNET 1 IN A	16	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1A
~ETHERNET 1 IN B	31	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1B

Figure B-7 NAV Interconnect – Single GDU
Sheet 1 of 2

NOTES

1 FOR GNC NAVIGATORS, CONNECT ALL SHIELDS TO SHIELD BLOCK GROUND, NOT AIRFRAME GROUND.

2 THE NAV RECEIVER DOES NOT PROVIDE A VLOC COMPOSITE LO PIN. CONNECT THE VLOC COMPOSITE LO WIRE FROM THE GDU TO GROUND AT THE NAV RECEIVER.

3 KX 170B / KX 175B DO NOT HAVE A GLIDESLOPE OUTPUT. USE A SEPARATE GLIDESLOPE RECEIVER TO DRIVE THESE INPUTS ON THE GDU.

4 KX155/165 NAV UNITS HAVE DUAL GLIDESLOPE OUTPUTS. USE “NUMBERED” OR LETTERED PINS, NOT BOTH. WHENEVER POSSIBLE, USE AN UNUSED SET OF PINS.

5 GLIDESLOPE CONNECTIONS ARE ONLY REQUIRED IF THE NAV RECEIVER CONTAINS THE OPTIONAL GLIDESLOPE RECEIVER.

6 THE GTN 6XX/7XX/Xi UTILIZES THE SAME INTERFACE SHOWN IN THE GPS INTERCONNECT, THEREFORE NOT SHOWN IN THE NAV INTERCONNECT.

7 USE EITHER RS-232 OR ARINC 429, NOT BOTH. RS-232 IS THE PREFERRED CONNECTION. USE THE ARINC 429 CONNECTION IN AIRCRAFT THAT HAVE THE GNC 255() RS-232 CONNECTED TO A GPS SOURCE.

8 USE EITHER HSDB, RS-232, OR ARINC 429, NOT MORE THAN ONE. HSDB IS THE PREFERRED CONNECTION. IF NOT CONNECTED VIA HSDB, THEN RS-232 IS PREFERRED. USE THE ARINC 429 CONNECTION IN AIRCRAFT THAT HAVE THE GNC 215 RS-232 CONNECTED TO A GPS SOURCE.

Figure B-7 NAV Interconnect – Single GDU
Sheet 2 of 2

NAV #1

GDU 700/1060/1210
PILOT PFD

GDU signal	GDU pin	GARMIN [6]							HONEYWELL (BENDIX/KING)						COLLINS		NAV #1
		GNS 480	GNS 430W	GNS 530W	GNC 215	GNC 255()		SL30	KN 53	KX 170B KX 175B	KX 155A/165A		KX 155/165		VIR-32/33		
	P4	P5	P4006	P5006	P1	P2001	P2002	37-Pin	P532	P171	P155A1 P165A1	P155A2 P165A2	P401	P901	P1	P2	
~ARINC 429 IN 7 A	7	5	24	24	48	-	24	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT A
~ARINC 429 IN 7 B	27	25	23	23	47	-	23	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT B
					[8]	[7]											
~RS-232 X OUT	x	-	-	-	46	16	-	4	-	-	-	-	-	-	-	-	RXD1
~RS-232 X IN	x	-	-	-	5	1	-	5	-	-	-	-	-	-	-	-	TXD1
~RS-232 X GND	x	-	-	-	26	31	-	3	-	-	-	-	-	-	-	-	SERIAL GROUND
VOR/LOC COMPOSITE #1 HI	68	-	-	-	-	-	-	-	B	3	H	-	H	-	-	24	VOR/LOC COMPOSITE OUT
VOR/LOC COMPOSITE #1 LO	67	-	-	-	-	-	-	-	15	GND	GND	-	GND	-	-	26	VOR/LOC COMPOSITE OUT LO
GLIDESLOPE #1 +UP	64	-	-	-	-	-	-	-	P	[2] -	[2] -	15 / S	[2] -	15 / S	5	-	GS DEVIATION +UP
[5] GLIDESLOPE #1 +DOWN	65	-	-	-	-	-	-	-	14	-	-	16 / T	-	16 / T	1	-	GS DEVIATION + DOWN
GLIDESLOPE #1 +FLAG	42	-	-	-	-	-	-	-	-	[3] -	-	-	-	17 / U	-	-	GS +FLAG
[5] GLIDESLOPE #1 -FLAG (1 k© 1/4W)	43	-	-	-	-	-	-	-	-	-	-	-	-	14 / R	-	-	GS -FLAG
GLIDESLOPE #1 +FLAG	42	-	-	-	-	-	-	-	13	-	-	17 / U	-	[4] -	17	-	GS +FLAG
[5] GLIDESLOPE #1 -FLAG	43	-	-	-	-	-	-	-	R	-	-	14 / R	-	-	-	-	GS -FLAG
ILS ENERGIZE #1 (~ DISCRETE IN 7*)	38	-	-	-	-	-	-	-	12	4	8	[4] -	8	-	-	40	ILS ENERGIZE
		-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	ILS COMMON
	P2				[8]												
~ETHERNET 1 OUT A	17	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1A
~ETHERNET 1 OUT B	32	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1B
~ETHERNET 1 IN A	16	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1A
~ETHERNET 1 IN B	31	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1B

NAV #2

GDU 700/1060/1210
CO-PILOT PFD

GDU signal	GDU pin	GARMIN [6]							HONEYWELL (BENDIX/KING)						COLLINS		NAV #2
		GNS 480	GNS 430W	GNS 530W	GNC 215	GNC 255()		SL30	KN 53	KX 170B KX 175B	KX 155A/165A		KX 155/165		VIR-32/33		
	P4	P5	P4006	P5006	P1	P2001	P2002	37-Pin	P532	P171	P155A1 P165A1	P155A2 P165A2	P401	P901	P1	P2	
~ARINC 429 IN 7 A	7	5	24	24	48	-	24	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT A
~ARINC 429 IN 7 B	27	25	23	23	47	-	23	-	-	-	-	-	-	-	-	-	VOR/ILS 429 OUT B
					[8]	[7]											
~RS-232 X OUT	x	-	-	-	46	16	-	4	-	-	-	-	-	-	-	-	RXD1
~RS-232 X IN	x	-	-	-	5	1	-	5	-	-	-	-	-	-	-	-	TXD1
~RS-232 X GND	x	-	-	-	26	31	-	3	-	-	-	-	-	-	-	-	SERIAL GROUND
VOR/LOC COMPOSITE #2 HI	70	-	-	-	-	-	-	-	B	3	H	-	H	-	-	24	VOR/LOC COMPOSITE OUT
VOR/LOC COMPOSITE #2 LO	69	-	-	-	-	-	-	-	15	GND	GND	-	GND	-	-	26	VOR/LOC COMPOSITE OUT LO
GLIDESLOPE #2 +UP	62	-	-	-	-	-	-	-	P	[2] -	[2] -	15 / S	[2] -	15 / S	5	-	GS DEVIATION +UP
[5] GLIDESLOPE #2 +DOWN	63	-	-	-	-	-	-	-	14	-	-	16 / T	-	16 / T	1	-	GS DEVIATION + DOWN
GLIDESLOPE #2 +FLAG	40	-	-	-	-	-	-	-	-	[3] -	-	-	-	17 / U	-	-	GS +FLAG
[5] GLIDESLOPE #2 -FLAG (1 k© 1/4W)	41	-	-	-	-	-	-	-	-	-	-	-	-	14 / R	-	-	GS -FLAG
GLIDESLOPE #2 +FLAG	40	-	-	-	-	-	-	-	13	-	-	17 / U	-	[4] -	17	-	GS +FLAG
[5] GLIDESLOPE #2 -FLAG	41	-	-	-	-	-	-	-	R	-	-	14 / R	-	-	-	-	GS -FLAG
ILS ENERGIZE #2 (~DISCRETE IN 8*)	39	-	-	-	-	-	-	-	12	4	8	[4] -	8	-	-	40	ILS ENERGIZE
		-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	ILS COMMON
	P2				[8]												
~ETHERNET 1 OUT A	17	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1A
~ETHERNET 1 OUT B	32	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	ETHERNET IN 1B
~ETHERNET 1 IN A	16	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1A
~ETHERNET 1 IN B	31	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	ETHERNET OUT 1B

Figure B-8 NAV Interconnect – Dual GDU
Sheet 1 of 2

NOTES

1	FOR GNC OR GTN NAVIGATORS, CONNECT ALL SHIELDS TO SHIELD BLOCK GROUND, NOT AIRFRAME GROUND.
2	THE NAV RECEIVER DOES NOT PROVIDE A VLOC COMPOSITE LO PIN. CONNECT THE VLOC COMPOSITE LO WIRE FROM THE GDU TO GROUND AT THE NAV RECEIVER.
3	KX 170B / KX 175B DO NOT HAVE A GLIDESLOPE OUTPUT. USE A SEPARATE GLIDESLOPE RECEIVER TO DRIVE THESE INPUTS ON THE GDU.
4	KX155/165 NAV UNITS HAVE DUAL GLIDESLOPE OUTPUTS. USE “NUMBERED” OR LETTERED PINS, NOT BOTH. WHENEVER POSSIBLE, USE AN UNUSED SET OF PINS.
5	GLIDESLOPE CONNECTIONS ARE ONLY REQUIRED IF THE NAV RECEIVER CONTAINS THE OPTIONAL GLIDESLOPE RECEIVER.
6	THE GTN 6XX/7XX/Xi UTILIZES THE SAME INTERFACE SHOWN IN THE GPS INTERCONNECT, THEREFORE NOT SHOWN IN THE NAV INTERCONNECT.
7	USE EITHER RS-232 OR ARINC 429, NOT BOTH. RS-232 IS THE PREFERRED CONNECTION. USE THE ARINC 429 CONNECTION IN AIRCRAFT THAT HAVE THE GNC 255() RS-232 CONNECTED TO A GPS SOURCE.
8	USE EITHER HSDB, RS-232, OR ARINC 429, NOT MORE THAN ONE. HSDB IS THE PREFERRED CONNECTION. IF NOT CONNECTED VIA HSDB, THEN RS-232 IS PREFERRED. USE THE ARINC 429 CONNECTION IN AIRCRAFT THAT HAVE THE GNC 215 RS-232 CONNECTED TO A GPS SOURCE.

Figure B-8 NAV Interconnect – Dual GDU
Sheet 2 of 2

GDU 700P PFD
ADAHRS #1 (INTERNAL)

P1

BATTERY CHARGE OUT 5 — 22 AWG — 1 BATTERY CHARGE IN
BATTERY CHARGE OUT 14 — 22 AWG — 2 BATTERY CHARGE IN
s s
BATTERY GROUND 6 — 22 AWG — 3 GROUND
BATTERY GROUND 8 — 22 AWG — 5 GROUND
BATTERY GROUND 15 — 22 AWG — 6 GROUND
s s
BATTERY POWER IN 18 — 22 AWG — 7 BATTERY POWER
BATTERY POWER IN 9 — 22 AWG — 8 BATTERY POWER
BATTERY POWER IN 26 — 22 AWG — 15 BATTERY POWER
s s
USE BATTERY OUT 17 — 22 AWG — 13 BATTERY ON REQ
STANDBY POWER IN 25 — 22 AWG — 4 +5V STANDBY PWR OUT
s s
BATTERY RS-232 IN 7 — 11 BATTERY RS-232 OUT
BATTERY RS-232 OUT 24 — 12 BATTERY RS-232 IN
BATTERY RS-232 GND 16 — 10 GROUND
s s

BACKUP BATTERY
P101

P2
RS-485 IN 1 A 1 — 44B P442 3 — 44 P441 4
RS-485 IN 1 B 2 — 2 — 2
s
1 — 1
RS-232 OUT 1 43 — 5 — 8
MAGNETOMETER PWR OUT 41 — 6 — 9
MAGNETOMETER GND 26 — 4 — 6
s
3

GMU 44(B)
MAGNETOMETER
5

OAT POWER 5 — WHT
OAT PROBE IN HI 6 — BLU
OAT PROBE IN LO 7 — ORN
s

GTP 59
OAT PROBE

ON

DISPLAY BACKUP
(~DISCRETE IN LO 4) P3 37

GDU 700P MFD/EIS
ADAHRS #2 (REMOTE)

1

DISPLAY BACKUP
(~DISCRETE IN LO 4) P3 37

AUTO

GARMIN ADC

	P4		GSU 75 P751	GDC 72 P721	GDC 74 P741		
~ARINC 429 IN 1 A	1		27	27	26	A	ARINC 429 OUT 1
~ARINC 429 IN 1 B	21		7	7	27	B	ARINC 429 OUT 1
		s / s					
~RS-232 5 IN	19		69	69	11	OUT	RS-232 1
~RS-232 5 OUT	20		70	70	10	IN	RS-232 1
~RS-232 5 GND	18		68	68	12	GND	RS-232 1
		s / s					
		N/C	75	75	6	SYSTEM ID 1*	
			57	57	71	SYSTEM ID 2*	
			26	26	7	SIGNAL GROUND	

GARMIN AHRS

	P4		GSU 75 P751	GRS 79 P791	GRS 77 P771		
~ARINC 429 IN 3 A	3		-	27	14	A	ARINC 429 OUT 1
~ARINC 429 IN 3 B	23		-	7	29	B	ARINC 429 OUT 1
		s / s					
~RS-232 6 IN	16		51	51	26	OUT	GPS1 RS-232
~RS-232 6 OUT	17		52	52	11	IN	GPS1 RS-232
~RS-232 6 GND	15		32	32	41	GND	GPS1 RS-232
		s / s					
		N/C	75	75	2	SYSTEM ID 1*	
			57	57	3	SYSTEM ID 2*	
			48	48	37	SIGNAL GROUND	

NOTES

1 REFER TO SECTION 3.1.2 FOR SWITCH PART NUMBER.

Figure B-9 Integrated Standby System Interconnect

GAD 43(e) ADAPTER

P431

AIRCRAFT POWER 1 49 22 AWG 2

AIRCRAFT GND 47 22 AWG AIRCRAFT GROUND

AIRCRAFT POWER 2 50 22 AWG 2

1

AIRCRAFT GND 48 22 AWG AIRCRAFT GROUND

			4	GDU 700/1060	GSU 75	GRS 79	GRS 77		GARMIN AHRS
				P4	P751	P791	P771		
ARINC 429 IN	A	16		54	8	8	12	A	ARINC 429 OUT
	B	32		74	9	9	27	B	

s s

				P4		GDU 700/1060/1210 PILOT PFD
		IN	17	14	OUT	
5	RS-232	OUT	33	13	IN	RS-232 7~
		GND	46	12	GND	

s s

GAD 43e ONLY

P432

3	ARINC 429 OUT 1	A	43	9	A	ARINC 429 IN 9~
5		B	44	29	B	

s s

NOTES

1 CONNECTING A SECOND POWER INPUT IS OPTIONAL.

2 SEE SECTION 3.2 FOR BREAKER SIZING, LABELING, AND BUSSING.

3 ARINC 429 CONNECTION ONLY REQUIRED IF ANALOG RADAR ALTITUDE OR SYNCHRO ADF IS CONNECTED TO THE GAD 43(e). DO NOT CONNECT IF THESE FUNCTIONS ARE NOT BEING UTILIZED.

4 CONNECTION TO THE GDU 700/1060 ARINC 429 IS ONLY APPROVED IF THE GDU HAS INTEGRATED ADAHRS. OTHERWISE, THE GAD ARINC 429 IN MUST BE CONNECTED DIRECTLY TO THE AHRS.

5 IN A DUAL GAD 43e SYSTEM, WIRE GAD 1 TO THE PILOT PFD AND GAD 2 TO THE COPILOT PFD.

Figure B-10 GAD 43(e) – Power Interconnect

NAV 1

CLOCK BUS
DATA BUS
RNAV CHNL RQST
DME COMMON

NAV 2

CLOCK BUS
DATA BUS
RNAV CHNL RQST
DME COMMON

DME TRANSCEIVER

KDM 706(A) P7061	KN 63 P631	
8	F	CLOCK BUS
9	6	DATA BUS
20	11	POWER ON
12	E	HOLD
24	D	DME REQ

8 GARMIN GAD 43e

	P432
DME CLK HI	60
DME DATA HI	62
DME RNAV RQST	42
DME COM NAV 1*	35
DME COM NAV 2*	36
DME HOLD	52
DME RQST HI	40
DME CLK LO	61
DME DATA LO	63
DME RQST LO	41
GROUND	64

1

s
s
s
s

Figure B-11 GAD 43e – DME Interconnect
Sheet 1 of 5

8 GARMIN
GAD 43e

	P432
DME CLK HI	60
DME DATA HI	62
DME RQST HI	40
DME HOLD	52
DME CLK LO	61
DME DATA LO	63
DME RQST LO	41
GROUND	64

s
s
s

1 DME COM NAV 1* 35

DME EXT TUNE M8/MA/M0	65
DME EXT TUNE M4/ME/M1	66
DME EXT TUNE M2/MC/M2	67
DME EXT TUNE M1/MD/M3	68
DME EXT TUNE K800/KA/K0	69
DME EXT TUNE K400/KE/K1	70
DME EXT TUNE K200/KC/K2	71
DME EXT TUNE K100/KD/K3	72
DME EXT TUNE K50 IN	50

3

1 DME COM NAV 2* 36

DME TRANSCEIVER

KDM 706(A) P7061	KN 63 P631	
20	11	POWER ON
8	F	CLOCK BUS
9	6	DATA BUS
24	D	DME REQ
12	E	HOLD

NAV 1

DME COMMON

2

SHIFTED BCD, 2x5
OR SLIP CODE
TUNING FORMAT

4

NAV 2

2

SHIFTED BCD, 2x5
OR SLIP CODE
TUNING FORMAT

DME COMMON

Figure B-11 GAD 43e – DME Interconnect
Sheet 2 of 5

Honeywell (Bendix/King) KN 62/64

GARMIN
GAD 43e

DME
(KN 62/64)

GARMIN GAD 43e	P432		P621/ P641	DME (KN 62/64)
DME CLK HI	60	s	14	CLOCK BUS
DME DATA HI	62	s	13	DATA BUS
DME RQST HI	40	s	N	DME REQ
DME CLK LO	61			
DME DATA LO	63			
DME RQST LO	41			
GROUND	64			

Collins DME-442/4000

9 GARMIN
GAD 43e

COLLINS

DME
(ARINC 429) 5

GARMIN GAD 43e		P432		DME-442 P1	DME-4000 P1		DME (ARINC 429)
DME ARINC 429	IN A	23		31/39	1/23	A	429 SERIAL DATA 1a/1b B
	IN B	24		30/38	2/24	B	
			s	29/37			

Collins DME-42 (CSDB Tuning)

9 GARMIN
GAD 43e

DME
(DME-42) 6

GARMIN GAD 43e	P432		P1	DME (DME-42)
DME CLK HI	60		23	CLOCK HI
DME CLK LO	61		24	CLOCK LO
		s	21	SHIELD
DME DATA HI	62		31	DATA HI
DME DATA LO	63		30	DATA LO
		s	29	SHIELD
DME SYNC IN HI	40		39	SYNC HI
DME SYNC IN LO	41		38	SYNC LO
		s	37	SHIELD
			9	CH 1/2 ANALOG 6-WIRE SELECT
		7	7	STRAPPING COMMON
			48	SERIAL/PARALLEL TUNE SEL

Figure B-11 GAD 43e – DME Interconnect
Sheet 3 of 5

8 GAD 43e

P432

DME CLK HI 60
DME CLK LO 61
s
DME DATA HI 62
DME DATA LO 63
s
DME SYNC IN HI 40
DME SYNC IN LO 41
s
DME COM NAV 1* 35
1
DME COM NAV 2* 36

DME
(DME-42) 6

P1
23 CLOCK HI
24 CLOCK LO
21 SHIELD
31 DATA HI
30 DATA LO
29 SHIELD
39 SYNC HI
38 SYNC LO
37 SHIELD

4

42 R/T FREQ COMMON
9 CH 1/2 ANALOG 6-WIRE SELECT
7 STRAPPING COMMON
7
48 SERIAL/PARALLEL TUNE SEL
52 10 MHZ-A
51 10 MHZ-E
6 GROUND

NAV 1
DME COMMON

2

2x5
TUNING FORMAT
OUTPUT`

2x5
TUNING FORMAT
INPUT

NAV 2
DME COMMON

2

2x5
TUNING FORMAT
OUTPUT

Figure B-11 GAD 43e – DME Interconnect
Sheet 4 of 5

NOTES

1	"DME COM NAV 1" AND "DME COM NAV 2" REFERS TO THE SYSTEM CONFIGURATION OF THE NAVIGATORS. FOR SINGLE NAVGATOR INSTALLATIONS ENSURE APPROPRIATE DISCRETE IS CONNECTED TO "NAV 1" AND/OR "NAV 2".
2	BOTH NAV RADIOS MUST USE THE SAME PARALLEL TUNING FORMAT.
3	DME EXTERNAL TUNING LABELS ARE ORDERED BCD / 2x5 / SLIP CODE.
4	ALL DIODES TO BE 1N4007. EXTERNAL ISOLATION DIODES SHOWN ARE NOT REQUIRED IF NAV 1 AND NAV 2 HAS INTERNAL ISOLATION DIODES.
5	DME CH 1 MUST BE TUNED BY NAV 1, AND CH 2 MUST BE TUNED BY NAV 2.
6	DME-42 CAN ONLY BE TUNED BY A SINGLE NAV RADIO (NAV 1 OR NAV 2) IF CSDB TUNING IS UTILIZED IN THE INSTALLATION.
7	LEAVE P1-7 AND P1-9 OPEN IF IT IS DESIRED TO DISPLAY INFORMATION FROM DME CHANNEL 1 (NAV 1). CONNECT P1-7 TO P1-9 IF IT IS DESIRED TO DISPLAY INFORMATION FROM DME CHANNEL 2 (NAV 2).
8	IN A DUAL DME SYSTEM, WIRE GAD 1 TO DME 1/NAV 1 AND WIRE GAD 2 TO DME 2/NAV 2.
9	IN A DUAL DME SYSTEM, WIRE GAD 1 TO DME 1 AND GAD 2 TO DME 2.

Figure B-11 GAD 43e – DME Interconnect
Sheet 5 of 5

GAD 43e		COLLINS	GARMIN		1		PS ENGINEERING		HONEYWELL (BENDIX/KING)			MARKER BEACON RECEIVER
		VIR-32/33	GMA 342 GMA 345	GMA 340	GMA 35(c) GMA 350(c)	GMA 347	PMA6000 PMA7000	PMA8000	KMA 30	KMA 24 KMA 28	KMA 26	
	P432	J1	J3401	J1	J3501	J3472	Bottom	J1	J1	Bottom	P261	
INNER MKR EXT LAMP IN	8	16	36	36	36	74	C	36	36	C	31	INNER MKR LAMP OUT
MIDDLE MKR EXT LAMP IN	7	15	38	38	38	75	4	38	38	4	15	MIDDLE MKR LAMP OUT
OUTER MKR EXT LAMP IN	6	12	37	37	37	76	5	37	37	5	14	OUTER MKR LAMP OUT

NOTES

1 IF THE GMA 35/350(c) IS CONNECTED TO A GTN, THEN MARKER BEACON TO THE GAD 43e IS NOT REQUIRED.

Figure B-12 GAD 43e – Marker Beacon Receiver Interconnect

GAD 43e

RADAR ALTIMETER

GAD 43e	Pin	Sperry AA-200	Sperry AA-100A (RT-100A)	Sperry AA-100 (RT-100)	Honeywell (Bendix/King) KRA 405	Honeywell (Bendix/King) KRA 10/ KRA 10A	Collins ALT-50A ALT-55B	Radar Altimeter
	P432	20J1	A4J1	A4J1	P4051	P1001	P1	
RAD ALT VALID IN	9	Y	-	-	S	6	49	RAD ALT VALID
	P433							
RADAR ALTITUDE IN HI	15	N	D	D	B	2	57	ANALOG RADALT HI
RADAR ALTITUDE IN LO	16	W	B	H	g	12	59	ANALOG RADALT LO
	s	1	2					

GDU 700/1060/1210
PILOT PFD 3

GDU 700/1060/1210 PILOT PFD	Pin	Sperry AA-200	Sperry AA-100A (RT-100A)	Sperry AA-100 (RT-100)	Honeywell (Bendix/King) KRA 405	Honeywell (Bendix/King) KRA 10/ KRA 10A	Collins ALT-50A ALT-55B	Radar Altimeter
	P4				4			
RAD ALT SELF TEST OUT (~DISCRETE OUT 8*)	61	T	G	G	U	7	25	SELF TEST IN

NOTES

1 THE HI AND LOW OUTPUTS ARE REVERSED IN ORDER TO ALLOW THE GAD 43e TO CORRECTLY INTERPRET THE ANALOG VOLTAGE BEING OUTPUT BY THE AA-200.

2 A4J1 PIN B IS LOW SIDE OF DH POTENTIOMETER.

3 THE RADAR ALTIMETER SELF TEST OUTPUT MUST BE WIRED FROM THE GDU THAT IS DIRECTLY CONNECTED TO THE GAD 43e.

4 KRA 405 TEST WILL DISPLAY 25-50 FT.

Figure B-13 GAD 43e – Radar Alt Interconnect

2 GAD 43e

P433

ADF BEARING X 12
ADF BEARING Y 13
ADF BEARING Z 14

P431

26 VAC OUT HI 18
26 VAC REF IN HI 39
26 VAC LO 34

1

115 VAC REF IN HI 38
115 VAC REF IN LO 37

ADF RECEIVER

HONEYWELL
KR 85
KI 225

P222

A ADF BEARING X
B ADF BEARING Y
C ADF BEARING Z

E 26 VAC REF IN HI
D 26 VAC LO

NOTES

1 WHENEVER POSSIBLE, UTILIZE EXISTING SOURCES OF 26VAC REFERENCE AS SHOWN BELOW. THE 26VAC SOURCE MUST PRODUCE A SINUSOIDAL, LOW-NOISE WAVEFORM. A SQUARE WAVE IS NOT ACCEPTABLE. IF THE GAD 43e 26VAC REFERENCE OUTPUT IS UTILIZED, CONNECT AS SHOWN IN THE INTERCONNECT. THE 26VAC OUTPUT FROM THE GAD 43e CAN SOURCE UP TO 310 MILLIAMPS OF CURRENT.

GAD 43e

P431

26 VAC OUT HI 18 N/C
26 VAC REF IN HI 39
26 VAC LO 34

s

} TO A/P, GAD, GDU, AND OTHER 26 VAC REF EQUIPMENT

115 VAC REF IN HI 38 N/C
115 VAC REF IN LO 37 N/C

} AIRCRAFT 26 VAC 400 HZ REFERENCE VOLTAGE

-EITHER-

GAD 43e

P431

26 VAC OUT HI 18
26 VAC REF IN HI 39
26 VAC LO 34

s

TO A/P, GAD, GDU, AND OTHER 26 VAC REF EQUIPMENT

115 VAC REF IN HI 38
115 VAC REF IN LO 37

s

AIRCRAFT 115 VAC 400 HZ

2 IN A DUAL ADF SYSTEM, WIRE GAD 1 TO ADF 1 AND WIRE GAD 2 TO ADF 2.

Figure B-14 GAD 43e – Synchro ADF

GDU 700P	P1	1	P101	BACKUP BATTERY
BATTERY CHARGE OUT	5	22 AWG	1	BATTERY CHARGE IN
BATTERY CHARGE OUT	14	22 AWG	2	BATTERY CHARGE IN
	s		s	
BATTERY GROUND	6	22 AWG	3	GROUND
BATTERY GROUND	8	22 AWG	5	GROUND
BATTERY GROUND	15	22 AWG	6	GROUND
	s		s	
BATTERY POWER IN	18	22 AWG	7	BATTERY POWER
BATTERY POWER IN	9	22 AWG	8	BATTERY POWER
BATTERY POWER IN	26	22 AWG	15	BATTERY POWER
	s		s	
USE BATTERY OUT	17	22 AWG	13	BATTERY ON REQ
STANDBY POWER IN	25	22 AWG	4	+5V STANDBY PWR OUT
	s		s	
BATTERY RS-232 IN	7	22 AWG	11	BATTERY RS-232 OUT
BATTERY RS-232 OUT	24	22 AWG	12	BATTERY RS-232 IN
BATTERY RS-232 GND	16	22 AWG	10	GROUND
	s		s	

NOTES

1 MAXIMUM WIRE LENGTH BETWEEN GDU 700P AND THE BACKUP BATTERY IS 40 FEET.

Figure B-15 GBB 54 – Power Interconnect

GDU 700/1060/1210
PFD

GCU 485

P4851

1 22 AWG 7 AIRCRAFT POWER 1

22 AWG 5 POWER GROUND

N/C 9 AIRCRAFT POWER 2

P4

IN 34 1 RS-232 OUT 1
~RS-232 8 OUT 35 2 RS-232 IN 1
GND 33 6 SIGNAL GROUND

s s

NOTES

1 REFER TO SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.

Figure B-16 GCU 485 Interconnect

Config Module

GEA 110

P1102

CONFIG MODULE PWR	20	RED	4	CONFIG MODULE
CONFIG MODULE GND	78	BLK	1	
CONFIG MODULE DATA	39	YEL	3	
CONFIG MODULE CLK	59	WHT	2	

Single GDU Interconnect

GDU 700/1060/1210 P2

3
P1101 GEA 110 #1

LRU POWER OUT 1 40

22 AWG 1 POWER IN 1
22 AWG 14 GND

P3

SINGLE MULTI

N/C GND 12 SYS ID #1
N/C N/C 13 SYS ID #2

RS-485 2 A 44 / B 45

s s

5 A / 10 B RS-485 1

22 AWG 6 POWER IN 2 2

1

3
P1101 GEA 110 #2

LRU POWER OUT 2 22

22 AWG 1 POWER IN 1
22 AWG 14 GND

22 AWG 13 SYS ID #2

RS-485 3 A 46 / B 47

s s

5 A / 10 B RS-485 1

22 AWG 6 POWER IN 2 2

1

Figure B-17 GEA 110 Power, Config Module Interconnect
Sheet 1 of 3

Multiple GDU with GBB

GDU 700P
w/GBB
P2
LRU POWER OUT 1 40
P3
RS-485 2 A 44
B 45
s
LRU POWER OUT 2 22
RS-485 3 A 46
B 47
s

1

3
P1101 GEA 110 #1
22 AWG 1 POWER IN 1
22 AWG 14 GND
22 AWG 12 SYS ID #1
s 5 A RS-485 1
10 B
22 AWG 6 POWER IN 2
s 4 A RS-485 2
9 B

GDU 700/1060/1210
P3
LRU POWER OUT 2 22 N/C
RS-485 2 A 44
B 45
s
RS-485 3 A 46
B 47
s
P2
LRU POWER OUT 1 40 N/C

1

3
P1101 GEA 110 #2
22 AWG 1 POWER IN 1
s 4 A RS-485 2
9 B
s 5 A RS-485 1
10 B
22 AWG 6 POWER IN 2
22 AWG 14 GND
22 AWG 13 SYS ID #2

Multiple GDU without GBB

GDU 700/1060/1210
P2
LRU POWER OUT 1 40
P3
RS-485 2 A 44
B 45
s
LRU POWER OUT 2 22 N/C
RS-485 3 A 46
B 47
s

1

3
P1101 GEA 110 #1
22 AWG 1 POWER IN 1
22 AWG 14 GND
22 AWG 12 SYS ID #1
s 5 A RS-485 1
10 B
22 AWG 6 POWER IN 2
s 4 A RS-485 2
9 B

GDU 700/1060/1210
EIS
P3
LRU POWER OUT 2 22 N/C
RS-485 2 A 44
B 45
s
RS-485 3 A 46
B 47
s
P2
LRU POWER OUT 1 40

1

3
P1101 GEA 110 #2
22 AWG 6 POWER IN 2
s 4 A RS-485 2
9 B
s 5 A RS-485 1
10 B
22 AWG 1 POWER IN 1
22 AWG 14 GND
22 AWG 13 SYS ID #2

Figure B-17 GEA 110 Power, Config Module Interconnect
Sheet 2 of 3

NOTES

1 REFER TO SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.

2 ONLY REQURED IN 28V AIRCRAFT WITHOUT GBB.

3 ENSURE THE 15 PIN D-SUB CONNECTOR IS ORIENTATED PROPERLY, DAMAGE WILL OCCUR IF THE CONNECTOR IS INSTALLED UPSIDE DOWN.

Figure B-17 GEA 110 Power, Config Module Interconnect
Sheet 3 of 3

GEA 110

P1102

		7	12						
1	~ +5V 1 EXCT	29		-	-	RED	RED	-	-
	+10V EXCT	9		2	2	-	-	2	2
	FUEL PRESS (+) (80V)	10		3	3	GRN	GRN	3	3
	GROUND	34	s	1	1	BLK	BLK	1	1

		7	12				
1	~ +5V 2 EXCT	76		-	-	RED	RED
	+10V EXCT	9		2		-	-
	~ +12V 1 EXCT	69		-	2	-	-
	MAN PRESS (+) (80V)	50		3	3	GRN	GRN
	GROUND	54	s	1	1	BLK	BLK

		7	12			
1	~ +5V 2 EXCT	76		-	RED	A
	+10V EXCT	9		2	-	-
	OIL PRESS (+) (5/80V)	48		3	GRN	C
	OIL PRESS (-) (5/80V)	68		-	-	D
	GROUND	34	s	1	BLK	B

			3			
2	EGT 1 (+)	40		YEL	YEL	
	EGT 1 (-)	60		RED	RED	
	EGT 2 (+)	41				
	EGT 2 (-)	61				
	EGT 3 (+)	42				
	EGT 3 (-)	62				
	EGT 4 (+)	43				
	EGT 4 (-)	63				
	EGT 5 (+)	44				
	EGT 5 (-)	64				
	EGT 6 (+)	45				
	EGT 6 (-)	65				
				3	3	4

2	CHT 1 (+)	1	YEL	YEL	WHT
	CHT 1 (-)	21	RED	RED	RED
	CHT 2 (+)	2			
	CHT 2 (-)	22			
	CHT 3 (+)	3			
	CHT 3 (-)	23			
	CHT 4 (+)	4			
	CHT 4 (-)	24			
	CHT 5 (+)	5			
	CHT 5 (-)	25			
	CHT 6 (+)	6			
	CHT 6 (-)	26			

Figure B-18 GEA 110 Sensor Interconnect
Sheet 1 of 8

GEA 110 P1102

3 3

CARB TEMP (+) (5/80V) 46 YEL YEL A
CARB TEMP (-) (5/80V) 66 RED RED B

5

3 3

OIL TEMP (+) (5V) 47 YEL YEL A
OIL TEMP (-) (5V) 67 RED RED B

5

12

1 ~ +12V 1 EXCT 69 RED RED RED RED A RED RED RED
FUEL FLOW 1 15 WHT WHT WHT WHT B WHT WHT WHT
GROUND 74 BLK BLK BLK BLK C BLK BLK BLK
s

12

1 ~ +12V 2 EXCT 17 RED RED RED RED A RED RED RED
FUEL FLOW 2 16 WHT WHT WHT WHT B WHT WHT WHT
GROUND 14 BLK BLK BLK BLK C BLK BLK BLK
s

Figure B-18 GEA 110 Sensor Interconnect
Sheet 2 of 8

GEA 110 P1102

BUS 1 57 5A BUS VOLTS

BUS 2 58 5A BATT. VOLTS

3 3 3 4 3 3 3

TIT IAT CDT PRIMARY EGT

~ GEN PURP 1 (+) 7 YEL YEL YEL WHT YEL YEL YEL
(-) 27 RED RED RED RED RED RED RED

OIL PRESS MAP FUEL PRESSURE VAC/DE-ICE PRESS OAT

18

7 12

1 ~ +5V EXCT 29 - A A A RED RED RED RED RED -
~ GEN PURP 2 (+) 8 HI C C C GRN GRN GRN GRN GRN BLU
(-) 28 LO D D D WHT - - - - ORN
~ GROUND 34 - B B B BLK BLK BLK BLK BLK -

s

11

Figure B-18 GEA 110 Sensor Interconnect
Sheet 3 of 8

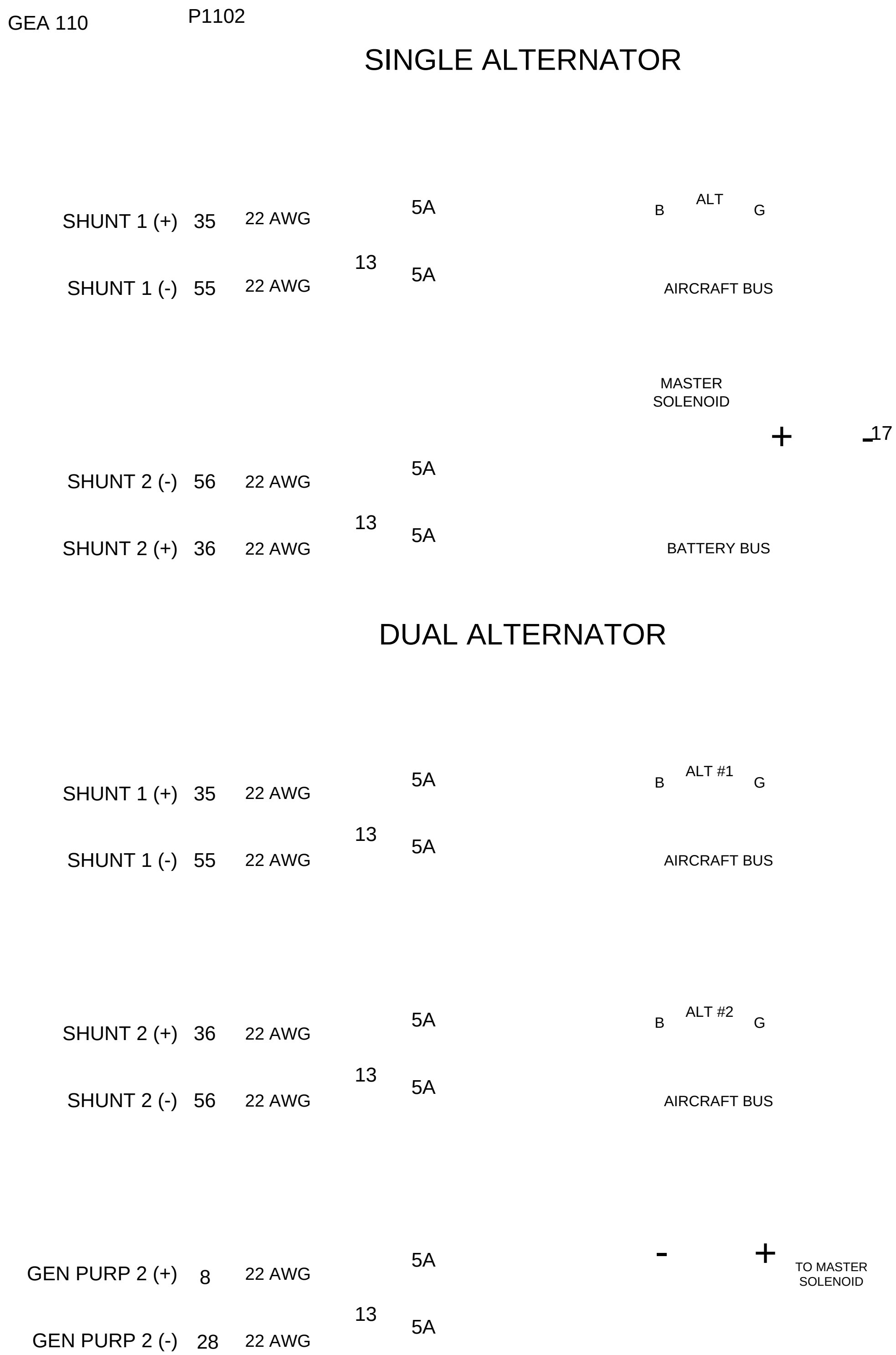


Figure B-18 GEA 110 Sensor Interconnect
Sheet 4 of 8

GEA 110

P1102

ALL TANK
LOCATIONS

2

FUEL QUANTITY 1 (+) 12
(-) 32

HI
LO

FUEL QUANTITY 2 (+) 52
(-) 72

6

FUEL QUANTITY 3 (+) 13
(-) 33

FUEL QUANTITY 4 (+) 53
(-) 73

OR

AT TANK MASTER SENDER 15

2

FUEL QUANTITY 1 /
DIGITAL FUEL 1 (+) 12
(-) 32

S

BLUE GREEN
BLACK BLACK

OR

FUEL SIGNAL
CONDITIONER

14

2

FUEL QUANTITY 1 (+) 12
(-) 32

S

F
G

Figure B-18 GEA 110 Sensor Interconnect
Sheet 5 of 8

GEA 110 P1102

12

1 ~ +12V 2 EXCT 17 ORG/WHT ORG/WHT
RPM 1(+) 18 WHT WHT
GROUND 74 BLU/WHT BLU/WHT
s

OR

9
RPM 1(+) 18 10 (LEFT MAG P-LEAD)
s
8

9
RPM 2(+) 19 10 (RIGHT MAG P-LEAD)
s
8

OR

C1 C1
RPM 1(+) 18 Pin 22 Pin 22 16

9
RPM 2(+) 19 10 (MAG P-LEAD)
s
8

Figure B-18 GEA 110 Sensor Interconnect
Sheet 6 of 8

NOTES

1 THERE ARE LIMITED PINS AVAILABLE FOR +5V, +10V, AND +12V TRANSDUCER EXCITATION. DEPENDING ON HOW MANY SENSORS ARE CONNECTED TO THE GEA, SPLICING SENSORS TO THE SAME EXCITATION VOLTAGE PIN MAY BE REQUIRED. USE ALL IDENTICAL FUNCTIONING PINS BEFORE SPLICING.

2 SINGLE CHANNEL SHOWN. IDENTICAL WIRING FOR REMAINING CHANNELS.

3 USE K-TYPE THERMOCOUPLE WIRE FOR EXTENSIONS.

4 USE J-TYPE THERMOCOUPLE WIRE FOR EXTENSIONS.

5 AIRCRAFT GROUND ON GEA --- PIN ONLY REQUIRED FOR MS28034.

6 USE EXISTING WIRING FOR FUEL PROBE RETURN. GEA --- PIN MUST BE TIED TO AIRCRAFT GROUND FOR ALL INSTALLATIONS. ANY WIRING ADDED TO EXTEND EXISTING FUEL QUANTITY SENSOR WIRING MUST BE SHIELDED AND BOTH SHIELD ENDS OF ADDITIONAL WIRING TERMINATED TO AIRCRAFT GROUND. THE SHIELD DRAIN LENGTH MUST BE NO LONGER THAN 3 INCHES.

7 MATCH SHIELDING AS SHOWN. SELECT WIRE BASED ON CONDUCTORS REQUIRED AT TRANSDCUER.

8 USE TWO 820 K©, 1/4 WATT, -55 C TO +125 C RESISTORS. TWIST PARALLEL RESIST
SPLICE TO WIRES WITH ENVIRONMENTAL SPLICES, AND ENCAPSULATE SPLICES AND RESISTORS WITH ADHESIVE LINED POLYOLEFIN HEAT-SHRINKABLE TUBING.

9 DO NOT EXCEED 6 INCHES LENGTH BETWEEN END OF RESISTOR AND CONNECTION TO MAGNETO OR IGNITION SWITCH.

10 CONNECT TO THE MAGNETO P-LEAD LUG. PERMISSIBLE TO USE IGNITION SWITCH INPUTS IF MAGNETO USES COMPRESSION TYPE CONNECTORS.

11 AIRCRAFT GROUND ON GENERAL PURPOSE -- PIN ONLY REQUIRED FOR BEECH P/N 102-389017-3 AND GARMIN GTP 59.

12 DO NOT EXCEED 6 INCHES LENGTH OF EXPOSED CORE WIRES BETWEEN END OF SHIELD AND TRANSDUCER. THE LENGTH OF NON-METALLIC TRANSDUCER DISCONNECTS, IF INSTALLED, MUST BE INCLUDED IN THIS LENGTH.

13 BOTH FUSES MUST BE THE SAME TYPE AND RATING.

14 USE EXISTING WIRING FOR FUEL QUANTITY. ANY WIRING ADDED TO EXTEND EXISTING FUEL QUANTITY SENSOR WIRING MUST BE SHIELDED AND TERMINATED AS SHOWN. SHIELD DRAIN LENGTH MUST BE NO LONGER THAN 3 INCHES. IF EXISTING WIRING IS SHIELDED, MAINTAIN SHIELD CONTINUITY PER APPENDIX H.

15 IN TANKS WHERE TWO OR MORE SENSORS ARE REQUIRED, THE MOST INBOARD SENSOR IS THE MASTER, AND THE OTHER SENDERS ARE SLAVES. SEE APPLICABLE CIES STC FOR MULTI-PROBE AND PWR/GND WIRING.

Figure B-18 GEA 110 Sensor Interconnect
Sheet 7 of 8

NOTES CONTINUED

16 MAG P-LEAD MUST BE CONNECTED TO RPM 2 REGARDLESS OF INSTALLATION ON LEFT OR RIGHT OF ENGINE. ELECTRONIC IGNITION SYSTEM MUST BE CONNECTED TO RPM 1.

17 FOR BEECHRAFT BARON 58, CONNECT POSITIVE SHUNT INPUT TO POSITIVE TERMINAL ON ANTI-ICE AMMETER AND CONNECT NEGATIVE SHUNT INPUT TO NEGATIVE TERMINAL ON ANTI-ICE AMMETER. RETAIN EXISTING AMMETER. OBSCURE FACE OF INDICATOR WITH SPACER AND COVER PLATE. AN EXAMPLE CAN BE FOUND IN FIGURE D-2.

18 INTERFACE FROM GEA TO GTP 59 IS FOR STANDALONE EIS INSTALLATIONS ONLY.

Figure B-18 GEA 110 Sensor Interconnect
Sheet 8 of 8

Config Module

GEA 71B ENHANCED
(-02)

P701				
CONFIG MODULE PWR	21	RED	4	CONFIG MODULE
CONFIG MODULE GND	1	BLK	1	
CONFIG MODULE DATA	40	YEL	3	
CONFIG MODULE CLK	60	WHT	2	

GDU Interconnect

GEA 71B ENHANCED
(-02)

P701

AIRCRAFT POWER 1 35 1
POWER GROUND 20

P701			P3	GDU 700P/1060/1210
RS-485 1 A	5		44	RS-485 2 A
RS-485 1 B	6	s s	45	RS-485 2 B

P701			P3	GDU 700P/1060/1210
RS-485 2 A	7		44	RS-485 2 A
RS-485 2 B	8	s s	45	RS-485 2 B

3

THERMOCOUPLE REF HI	68	YEL	4
THERMOCOUPLE REF LO	69	RED	

BACKSHELL
THERMOCUPLE

NOTES

1 REFER TO SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.

3 INSTALLATION OF A SECOND GDU IS OPTIONAL.

4 REFER TO SECTION 4.1.5 FOR BACKSHELL THERMOCOUPLE INSTALLATION INSTRUCTIONS.

Figure B-19 GEA 71B Enhanced P/N 011-03682-02 Power/Config Module Interconnect

GEA 71B ENHANCED
(-02)

5

P701

2

TORQUE PRESS (+) 42
TORQUE PRESS (-) 43
s

4	C	3	A	B
5	D	4	B	C
3	-	-	-	-
2	A	1	-	A
1	B	2	-	D
			C	
			D	

+10 VDC TRANS PWR OUT 14
TRNS PWR OUT LO (GND) 11
s

3

5

2

+10 VDC TRANS PWR OUT 14
TRNS PWR OUT LO (GND) 11
OIL PRESS (+) 46
8 OIL PRESS (-) 47
+5 VDC TRANS PWR OUT 15
s

2	-	-	-
1	B	-	-
3	-	-	-
4	C	C	A
5	D	D	B
-	A	-	-
-	-	A	C
-	-	B	D

3

2

OIL TEMP (+) 44
8 OIL TEMP (-) 45
SIGNAL GROUND 32
s

A
B

1

ITT (+) 54
ITT (-) 55

YEL
RED

Figure B-20 GEA 71B Enhanced P/N 011-03682-02 Sensor Interconnect
Sheet 1 of 5

GEA 71B ENHANCED
(-02)

P701

8 FUEL PRESS (+) 62 C C 1
FUEL PRESS (-) 63 D D 3
s
+5 VDC TRANS PWR OUT 15 - A 4
TRNS PWR OUT LO (GND) 11 - B 2
s
A
B

3

9
(RUD TRIM) GEN PURP (+) 24 5
(RUD TRIM) GEN PURP (-) 25 6
+5 VDC TRANS PWR OUT 15 4

10k © (1%)
+10 VDC TRANS PWR OUT 14

(RUD TRIM) GEN PURP (+) 24 5
(RUD TRIM) GEN PURP (-) 25 6
4

3

5

9 7
(VAC PRES) GEN PURP (+) 22 B GRN
(VAC PRES) GEN PURP (-) 23 C WHT
+5 VDC TRANS PWR OUT 15 - RED
TRNS PWR OUT LO (GND) 11 - BLK
s
(VAC PRS2) GEN PURP (+) 74 A
(VAC PRS2) GEN PURP (-) 75 D

3

12
OAT HI 26 BLU
8 OAT LO 27 ORN
s CAP AND WHT
STOW

Figure B-20 GEA 71B Enhanced P/N 011-03682-02 Sensor Interconnect
Sheet 2 of 5

GEA 71B ENHANCED
(-02)
P702
4
2
5A
B ALT 1 G
ALT AMP 1 (+) 48
5A
ALT AMP 1 (-) 49
AIRCRAFT BUS
s
4
2
5A
B ALT 2 G
ALT AMP 2 (+) 44
5A
ALT AMP 2 (-) 45
AIRCRAFT BUS
s
MASTER
SOLENOID 2
4
2
5A
BAT AMP 1 (+) 50
\+ -
5A
BAT AMP 1 (-) 51
BATTERY BUS
s
MASTER
SOLENOID 2
4
2
5A
BAT AMP 2 (+) 46
\+ -
5A
BAT AMP 2 (-) 47
BATTERY BUS
s
5A
BUS VOLTS 1 (+) 56
BUS 1 VOLTS
8 BUS VOLTS 1 (-) 57
5A
BAT VOLTS 1 (+) 58
BATT. 1 VOLTS
8 BAT VOLTS 1 (-) 59
P701
5A
BUS VOLTS 2 (+) 64
BUS 2 VOLTS
8 BUS VOLTS 2 (-) 65
5A
BAT VOLTS 2 (+) 66
BATT. 2 VOLTS
8 BAT VOLTS 2 (-) 67
5A
ALT VOLTS 1 (+) 72
ALT. 1 VOLTS
8 ALT VOLTS 1 (-) 73
5A
ALT VOLTS 2 (+) 74
ALT. 2 VOLTS
8 ALT VOLTS 2 (-) 75

Figure B-20 GEA 71B Enhanced P/N 011-03682-02 Sensor Interconnect
Sheet 3 of 5

GEA 71B ENHANCED
(-02)

PORT SELECTION:
STANDARD OR
DIFFERENTIAL

6

P702
2
+12 VDC TRANS PWR OUT 16 A
STND FF IN (+) 74 B
TRNS PWR OUT LO (GND) 13 C
s s

DIFF FF IN (+) 21 A A
DIFF FF IN (-) 22 B B
s
N/C E E
P701
N/C F F
FUEL FLOW TEMP (+) 33 C C
9 FUEL FLOW TEMP (-) 34 D D

P702
2
GAS GEN RPM IN (+) 77 A A A
SIGNAL GROUND 34 N/C B B B
s s
CASE CASE CASE

2
PROP RPM IN (+) 76 A A A
SIGNAL GROUND 33 N/C B B B
s s
CASE CASE CASE

Figure B-20 GEA 71B Enhanced P/N 011-03682-02 Sensor Interconnect
Sheet 4 of 5

NOTES

1 USE K-TYPE THERMOCOUPLE WIRES FOR EXTENSIONS.

2 DO NOT EXCEED 2.5 INCHES LENGTH OF EXPOSED CORE WIRES BETWEEN END OF SHIELD AND TRANSDUCER. THE LENGTH OF NON-METALLIC TRANSDUCER DISCONNECTS, IF INSTALLED, MUST BE INCLUDED IN THIS LENGTH.

3 CONNECT TO GEA 71B ENHANCED BREAKER. REFER TO SECTION 3.2 FOR BREAKER SIZING.

4 BOTH FUSES MUST BE THE SAME TYPE AND RATING.

5 USE EXISTING 4 WIRE SHIELDED BUNDLE.

6 USE EXISTING 4 WIRE DOUBLE SHIELDED BUNDLE.

7 SINGLE CHANNEL SHOWN. WIRING IDENTICAL FOR ALL CHANNELS. REFER TO TABLE 5-77 FOR FUEL QUANTITY PORT SELECTION.

8 SOFTWARE CONFIGURED “STANDARD” PIN SHOWN. ANY UNUSED GENERAL PURPOSE PIN ON THE SAME GEA CONNECTOR CAN ALSO BE USED. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.

9 USE ANY UNUSED GENERAL PURPOSE PORT ON THE SAME GEA CONNECTOR. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.

10 USE EXISTING WIRING FOR FUEL PROBE RETURN. GEA --- PIN MUST BE TIED TO AIRCRAFT GROUND FOR ALL INSTALLATIONS. ANY WIRING ADDED TO EXTEND EXISTING FUEL QUANTITY SENSOR WIRING MUST BE SHIELDED AND BOTH SHIELD ENDS OF ADDITIONAL WIRING TERMINATED TO AIRCRAFT GROUND. THE SHIELD DRAIN LENGTH MUST BE NO LONGER THAN 3 INCHES.

11 USE EXISTING WIRING. INSTALL GEA 71B ENHANCED AS CLOSE AS PRACTICAL TO THE LOCATION OF THE REMOVED FUEL QUANTITY PROCESSING UNIT. EXTENSION SPLICES ARE PERMISSIBLE WHERE NECESSARY. THE ADDITIONAL INDIVIDUAL PROBE WIRING MUST BE BUNDLED ADJACENT TO EACH OTHER ALONG ITS ROUTE TO THE GEA. MATCH SHIELDING CONFIGURATION TO ORIGINAL WIRING AND ENSURE SHIELD CONTINUITY PER APPENDIX H.

12 INTERFACE FROM GEA TO GTP 59 IS FOR STANDALONE EIS INSTALLATIONS ONLY. SPLICE AS CLOSE AS PRACTICAL TO THE GTP 59.

Figure B-20 GEA 71B Enhanced P/N 011-03682-02 Sensor Interconnect
Sheet 5 of 5

Config Module

GEA 71B ENHANCED
(-05)
P701

CONFIG MODULE PWR	21	RED	4	CONFIG MODULE
CONFIG MODULE GND	1	BLK	1	
CONFIG MODULE DATA	40	YEL	3	
CONFIG MODULE CLK	60	WHT	2	

GDU Interconnect

GEA 71B ENHANCED
(-05)
P701

AIRCRAFT POWER 1 35 1
POWER GROUND 20

AIRCRAFT POWER 2 37 1
2 POWER GROUND 78

P3 GDU 700P/1060/1210

RS-485 1 A	5			44	RS-485 2 A
RS-485 1 B	6	s	s	45	RS-485 2 B

P3 GDU 700P/1060/1210

RS-485 2 A	7			44	RS-485 2 A
RS-485 2 B	8	s	s	45	RS-485 2 B

3

THERMOCOUPLE REF HI 68 YEL
THERMOCOUPLE REF LO 69 RED

4

BACKSHELL
THERMOCUPLE

Figure B-21 GEA 71B Enhanced P/N 011-03682-05 Power/Config Module Interconnect
Sheet 1 of 2

Twin Engine - GDU Interconnect

GEA 71B ENHANCED (-05) #1 P701

AIRCRAFT POWER 1 35 1
POWER GROUND 20

AIRCRAFT POWER 2 37 1
2 POWER GROUND 78

GDU 700P/1060/1210
P3

RS-485 1 A 5 — 44 RS-485 2 A
RS-485 1 B 6 — 45 RS-485 2 B
s s

4

THERMOCOUPLE REF HI 68 YEL
THERMOCOUPLE REF LO 69 RED

BACKSHELL THERMOCUPLE

GEA 71B ENHANCED (-05) #2 P701

AIRCRAFT POWER 1 35 1
POWER GROUND 20

AIRCRAFT POWER 2 37 1
2 POWER GROUND 78

RS-485 1 A 5 — 46 RS-485 3 A
RS-485 1 B 6 — 47 RS-485 3 B
s s

4

THERMOCOUPLE REF HI 68 YEL
THERMOCOUPLE REF LO 69 RED

BACKSHELL THERMOCUPLE

NOTES

1 REFER TO SECTION 3.2 FOR BREAKER SIZING, BUSSING, AND LABELING.

2 AIRCRAFT POWER 2 OPTIONALLY WIRED WITH DUAL ESSENTIAL POWER BUSSES.

3 INSTALLATION OF A SECOND GDU IS OPTIONAL.

4 REFER TO SECTION 4.1.5 FOR BACKSHELL THERMOCOUPLE INSTALLATION INSTRUCTIONS.

Figure B-21 GEA 71B Enhanced P/N 011-03682-05 Power/Config Module Interconnect
Sheet 2 of 2

GEA 71B ENHANCED
(-05)

P702

Kulite
APT51CC-75D

EXT CMN MODE ANALOG IN 1A HI 8 A
EXT CMN MODE ANALOG IN 1A LO 9 B
s

+10 VDC TRANS PWR OUT 14 C
TRNS PWR OUT LO (GND) 11 D
s

13 5

P701

2

TORQUE PRESS (+) 42 4 C 3 B
TORQUE PRESS (-) 43 5 D 4 C
s
3 - - -
2 A 1 A
1 B 2 D

3

BEI / Edcliff
124941-4-930

TORQUE PRESS (+) 42 B
TORQUE PRESS (-) 43 A
s

C
N/C D

3

14

15

Kulite IPTE-51F-
1000-70D

TORQUE PRESS (+) 42 B
TORQUE PRESS (-) 43 C

A
D

3

Kulite APTE-2x-
2250-85D 16

TORQUE PRESS (+) 42 C
TORQUE PRESS (-) 43 D
A
B

3

TAVIS 10028-104
(Honeywell
897331-4)

TORQUE PRESS (+) 42 C
TORQUE PRESS (-) 43 F
s
B
A

3

TAVIS 10028-103
(Honeywell
897331-3)

TORQUE PRESS (+) 42 C
TORQUE PRESS (-) 43 F
B
A

3

27

22 16 23 24

TORQUE PRESS (+) 42 C C
TORQUE PRESS (-) 43 D D
B B
A A

3

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 1 of 12

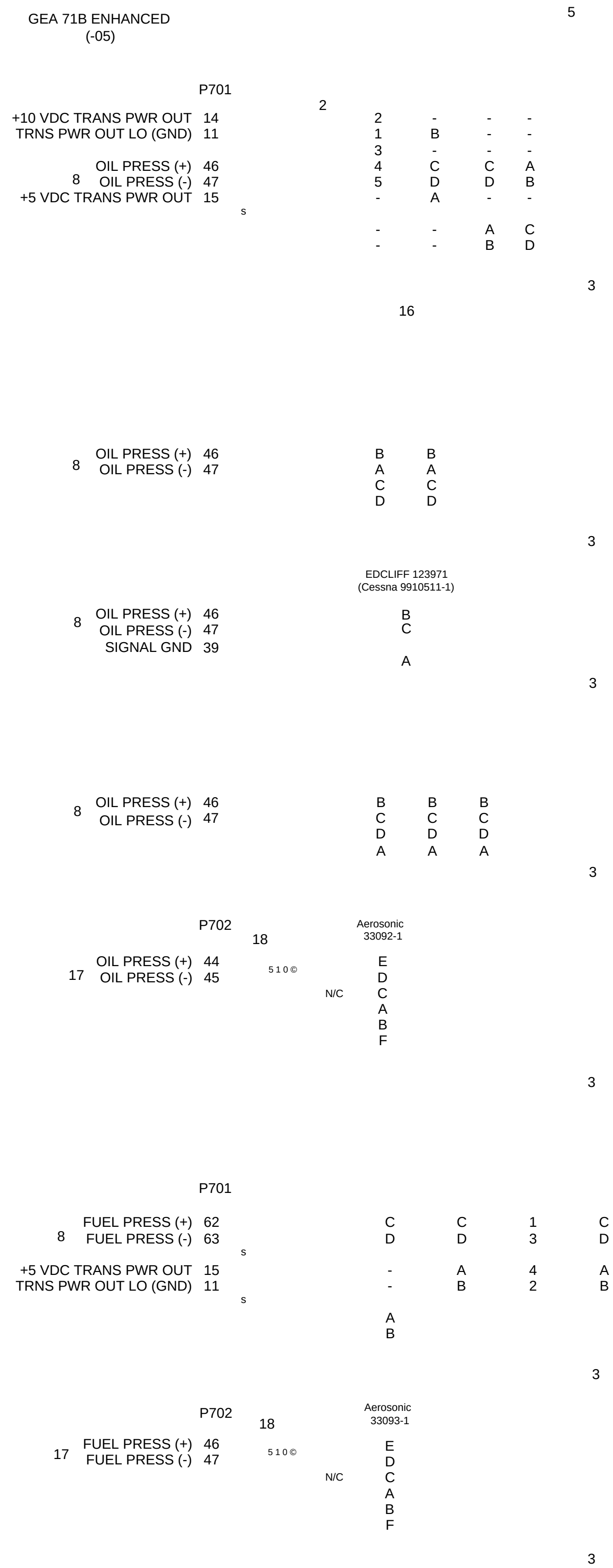


Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 2 of 12

GEA 71B ENHANCED
(-05)

P701
1
ITT (+) 54 YEL
ITT (-) 55 RED

P702
1
(EGT) EXT CMN MODE ANALOG IN 1A HI 8 34 7
(EGT) EXT CMN MODE ANALOG IN 1A LO 9 35 8
s s

OR

P702
25
(EGT) EXT CMN MODE ANALOG IN 1A HI 8 34 7
(EGT) EXT CMN MODE ANALOG IN 1A LO 9 35 8
s s
26

P701

OIL TEMP (+) 44 A
8 OIL TEMP (-) 45 B
SIGNAL GROUND 32

12
OAT HI 26 BLU
8 OAT LO 27 ORN
s CAP AND STOW WHT

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 3 of 12

GEA 71B ENHANCED
(-05)

5

9

P701

(VAC PRES) GEN PURP (+)	22	B	GRN
(VAC PRES) GEN PURP (-)	23	C	WHT
+5 VDC TRANS PWR OUT	15	-	RED
TRNS PWR OUT LO (GND)	11	-	BLK

s

(VAC PRS2) GEN PURP (+)	74	A
(VAC PRS2) GEN PURP (-)	75	D

3

9

+5 VDC TRANS PWR OUT	15	4
(RUD TRIM) GEN PURP (+)	24	5
(RUD TRIM) GEN PURP (-)	25	6

1 0 k © (1 %)

+10 VDC TRANS PWR OUT	14	
(RUD TRIM) GEN PURP (+)	24	5
(RUD TRIM) GEN PURP (-)	25	6
		4

3

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 4 of 12

GEA 71B ENHANCED
(-05)

P702

4
5A
ALT AMP 1 (+) 48
5A
ALT AMP 1 (-) 49

B ALT 1 G
AIRCRAFT BUS

4
5A
ALT AMP 2 (+) 44
5A
ALT AMP 2 (-) 45

B ALT 2 G
AIRCRAFT BUS

MASTER
SOLENOID 2

4
5A
BAT AMP 1 (+) 50
5A
BAT AMP 1 (-) 51

+ -
BATTERY BUS

MASTER
SOLENOID 2

4
5A
BAT AMP 2 (+) 46
5A
BAT AMP 2 (-) 47

+ -
BATTERY BUS

8 BUS VOLTS 1 (+) 56
BUS VOLTS 1 (-) 57
5A BUS 1 VOLTS

8 BAT VOLTS 1 (+) 58
BAT VOLTS 1 (-) 59
5A BATT. 1 VOLTS

P701

8 BUS VOLTS 2 (+) 64
BUS VOLTS 2 (-) 65
5A BUS 2 VOLTS

8 BAT VOLTS 2 (+) 66
BAT VOLTS 2 (-) 67
5A BATT. 2 VOLTS

8 ALT VOLTS 1 (+) 72
ALT VOLTS 1 (-) 73
5A ALT. 1 VOLTS

8 ALT VOLTS 2 (+) 74
ALT VOLTS 2 (-) 75
5A ALT. 2 VOLTS

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 5 of 12

GEA 71B ENHANCED
(-05)

P701

11

GROUND 19
CAP FQ EXCITATION 1 9
CAP FUEL QUANTITY 1 17

2.8mm
5mm
6.3mm

LEFT WING
FUEL QUANTITY

s

GROUND 39
CAP FQ EXCITATION 2 10
CAP FUEL QUANTITY 3 30

2.8mm
5mm
6.3mm

RIGHT WING
FUEL QUANTITY

s

OR

19

FUEL QTY (GEN PURP 1) + 22
FUEL QTY (GEN PURP 1) - 23

s

GRN 4 12 6
BLK - - -

7

OR

19

7

DIGITAL FQ 1 2
DIGITAL FQ 2 3
DIGITAL FQ 3 41
DIGITAL FQ 4 61

s

BLU
BLK

OR

7

RESISTIVE FQ 1(+) 26
RESISTIVE FQ 1 (-) 27
RESISTIVE FQ 2(+) 33
RESISTIVE FQ 2 (-) 34
RESISTIVE FQ 3(+) 36
RESISTIVE FQ 3 (-) 38

HI
LO

10

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 6 of 12

GEA 71B ENHANCED
(-05)

SENSOR TYPE:
DIGITAL
PORT SELECTION:
DIFFERENTIAL

6

P702
DIFF FF IN (+) 21 A A
DIFF FF IN (-) 22 B B
s N/C E E
P701 N/C F F
FUEL FLOW TEMP (+) 33 C C
9 FUEL FLOW TEMP (-) 34 D D

SENSOR TYPE:
DIGITAL
PORT SELECTION:
FILTERED

6

P701 2
FLTRD FF HI 52 A A
FLTRD FF LO 53 B B
s s N/C E E
N/C F F
FUEL FLOW TEMP (+) 33 C C
9 FUEL FLOW TEMP (-) 34 D D

SENSOR TYPE:
ANALOG

Ragen Data
Systems
3268011-0101
20

P702
+12V TRANS PWR OUT 16 C
ANALOG FF IN (+) 58 B
9 ANALOG FF IN (-) 59 A
TRNSDCR PWR OUT LO 13 N/C D
N/C E

Gull Airborne
150-906-002
(90-380009-7,
90-380009-1)
16

ANALOG FF IN (+) 58 D
9 ANALOG FF IN (-) 59 C
N/C E
B
A/F

3

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 7 of 12

GEA 71B ENHANCED
(-05)

SENSOR TYPE:
DIGITAL
PORT SELECTION:
FILTERED

P701

FLTRD FF HI 52
FLTRD FF LO 53

FUEL FLOW TEMP (+) 33
9 FUEL FLOW TEMP (-) 34

A B D F C E
A B D F C E

CAP AND STOW

Ketema 1/2-2-81-306
Ketema 1/2-2-81-301
16

FLTRD FF HI 52
FLTRD FF LO 53
FUEL FLOW TEMP (+) 33
9 FUEL FLOW TEMP (-) 34

A B C D

Ketema
1/2-1-81-302

FLTRD FF HI 52
FLTRD FF LO 53

FUEL FLOW TEMP (+) 33
9 FUEL FLOW TEMP (-) 34

A B C D

SENSOR TYPE:
DIGITAL
PORT SELECTION:
DIFFERENTIAL

P702
DIFF FF IN (+) 21
DIFF FF IN (-) 22

P701
FUEL FLOW TEMP (+) 33
9 FUEL FLOW TEMP (-) 34

CAP AND STOW

A B D F C E

SENSOR TYPE:
DIGITAL
PORT SELECTION:
STANDARD

P702
+12 VDC TRANS PWR OUT 16
STND FF IN (+) 74
TRNS PWR OUT LO (GND) 13

2

A B C

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 8 of 12

GEA 71B ENHANCED
(-05)

PORT SELECTION:
UNFILTERED

DO NOT USE FOR NEW
INSTALLATIONS

P702

2

GAS GEN RPM IN (+) 77
SIGNAL GROUND 34

s s N/C

A B CASE
A B CASE
A B CASE

2

PROP RPM IN (+) 76
SIGNAL GROUND 33

s s N/C

A B CASE
A B CASE
A B CASE

OR

PORT SELECTION:
FILTERED

16

P701

2 k© 1 / 4 W

FLTRD GAS GEN RPM HI 56
FLTRD GAS GEN RPM LO 57

A B CASE
A B CASE
A B CASE

21

16

2 k© 1 / 4 W

FLTRD PROP RPM HI 58
FLTRD PROP RPM LO 59

A B CASE
A B CASE
A B CASE

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 9 of 12

GEA 71B ENHANCED
(-05)

PORT SELECTION:
FILTERED

P701 16

2 k© 1 / 4 W

FLTRD GAS GEN RPM HI 56 A A
FLTRD GAS GEN RPM LO 57 B B

CASE CASE

21

2 k© 1 / 4 W

FLTRD GAS GEN RPM HI 56 A
FLTRD GAS GEN RPM LO 57 B
SIGNAL GROUND 32

CASE

21

16

2 k© 1 / 4 W

FLTRD PROP RPM HI 58 A A A A A
FLTRD PROP RPM LO 59 B B B B B

CASE CASE CASE CASE CASE

2 k© 1 / 4 W

FLTRD PROP RPM HI 58 A
FLTRD PROP RPM LO 59 B
SIGNAL GROUND 39

CASE

PORT SELECTION:
UNFILTERED

22
P702

GAS GEN RPM IN (+) 77 A A
SIGNAL GROUND 34 B B

CASE CASE

PROP RPM IN (+) 76 A A
SIGNAL GROUND 33 B B

CASE CASE

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 10 of 12

NOTES

1	USE K-TYPE THERMOCOUPLE WIRES FOR EXTENSIONS. USE SHIELDED WIRE AND MAINTAIN SHIELD CONTINUITY IF THE ENGINE/AIRCRAFT USED SHIELDED TC WIRE.
2	DO NOT EXCEED 2.5 INCHES LENGTH OF EXPOSED CORE WIRES BETWEEN END OF SHIELD AND TRANSDUCER. THE LENGTH OF NON-METALLIC TRANSDUCER DISCONNECTS, IF INSTALLED, MUST BE INCLUDED IN THIS LENGTH.
3	CONNECT TO GEA 71B ENHANCED BREAKER. REFER TO SECTION 3.2.1 FOR BREAKER SIZING.
4	BOTH FUSES MUST BE THE SAME TYPE AND RATING.
5	USE EXISTING 4 WIRE SHIELDED BUNDLE.
6	USE EXISTING 4 WIRE DOUBLE SHIELDED BUNDLE.
7	SINGLE CHANNEL SHOWN. WIRING IDENTICAL FOR ALL CHANNELS. REFER TO TABLE 5-77 FOR FUEL QUANTITY PORT SELECTION.
8	SOFTWARE CONFIGURED “STANDARD” PIN SHOWN. ANY UNUSED GENERAL PURPOSE PIN ON THE SAME GEA CONNECTOR CAN ALSO BE USED. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.
9	USE ANY UNUSED GENERAL PURPOSE PORT ON THE SAME GEA CONNECTOR. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.
10	USE EXISTING WIRING FOR FUEL PROBE RETURN. GEA --- PIN MUST BE TIED TO AIRCRAFT GROUND FOR ALL INSTALLATIONS. ANY WIRING ADDED TO EXTEND EXISTING FUEL QUANTITY SENSOR WIRING MUST BE SHIELDED AND BOTH SHIELD ENDS OF ADDITIONAL WIRING TERMINATED TO AIRCRAFT GROUND. THE SHIELD DRAIN LENGTH MUST BE NO LONGER THAN 3 INCHES.
11	USE EXISTING WIRING. INSTALL GEA 71B ENHANCED AS CLOSE AS PRACTICAL TO THE LOCATION OF THE REMOVED FUEL QUANTITY PROCESSING UNIT. EXTENSION SPLICES ARE PERMISSIBLE WHERE NECESSARY. THE ADDITIONAL INDIVIDUAL PROBE WIRING MUST BE BUNDLED ADJACENT TO EACH OTHER ALONG ITS ROUTE TO THE GEA. MATCH SHIELDING CONFIGURATION TO ORIGINAL WIRING AND ENSURE SHIELD CONTINUITY PER APPENDIX H.
12	INTERFACE FROM GEA TO GTP 59 IS FOR STANDALONE EIS INSTALLATIONS ONLY. SPLICE AS CLOSE AS PRACTICAL TO THE GTP 59
13	USE EXISTING UNSHIELDED, SINGLE STRANDED WIRE FOR AIRCRAFT MODIFIED WITH BLACKHAWK STC SA01946LA.
14	FOR PIPER PA-31T2 AIRCRAFT, LEAVE EXISTING WIRE CONNECTED TO THE AUTOFEATHER COMPUTER, IF APPLICABLE.

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 11 of 12

NOTES CONTINUED

15 USE EXISTING WIRING. INSTALL GEA 71B ENHANCED AS CLOSE AS PRACTICAL TO THE LOCATION OF THE TORQUE INDICATOR. EXTENSION SPLICES ARE PERMISSIBLE WHERE NECESSARY. MATCH SHIELDING CONFIGURATION TO ORIGINAL WIRING AND ENSURE SHIELD CONTINUITY PER APPENDIX SECTION H.1.

16 USE EXISTING WIRE, MAY BE SHIELDED OR UNSHIELDED AS SHOWN. IF SHIELDED, TERMINATE SHIELDS TO GEA SHIELD BLOCK GROUND PER SECTION 4.1, UNLESS OTHERWISE SPECIFIED BY THE SENSOR INSTALLATION. IF EXTENDING AN EXISTING SHIELDED WIRE, REFER TO APPENDIX SECTION H.1.

17 USE ANY UNUSED ANALOG/CURRENT MONITOR INPUT ON THE SAME GEA CONNECTOR.

18 USE A 510 © 1/4W MIL-R-10509 RESISTOR, P/Ns RN60D5100FB14 OR RN60C5100DB1 INSTALLED WITHIN 2.5 INCHES OF THE GEA PIN.

19 SEE APPLICABLE CIES STC FOR MULTI-PROBE AND PWR/GND WIRING.

20 FOR PA-31T INSTALLATIONS: REMOVE WIRE Q11G. SPLICE FUEL FLOW TRANSMITTER PIN A TO TRANSDUCER POWER LOW.

21 FOR 200 SERIES KING AIR INSTALLATIONS: WHEN REMOVING RH TURBINE TACH INDICATOR, RETAIN SPLICE TO N1 AND ICE VANE SENSOR. IF THE EXISTING GAS PRODUCER SENSOR WIRES WERE SHIELDED, ANY WIRING EXTENSIONS MUST ALSO BE SHIELDED AND SHIELD CONTINUITY MAINTAINED PER APPENDIX H.

22 FOR PIAGGIO P.180 INSTALLATIONS: LEAVE EXISTING WIRES CONNECTED TO THE TERMINAL BOARD VARISTORS.

23 KULITE APTE-23A-1500-61-9D TRANSDUCERS MUST FOLLOW PIAGGIO SERVICE BULLETIN 80-0373.

24 LABEM DA55-95-7-1 TRANSDUCER MUST RETAIN EXISTING JUMPERS, SEE PIAGGIO P.180 AVANTI WIRING MANUAL.

25 IF REQUIRED FOR INSTALLATION, SPLICE K-TYPE EXTENSION WIRE COVERED WITH OVERBRAID AA59569R36T0250 AND TERMINATE WITH APPROPRIATELY SIZED SOLDER SLEEVES. SPLICE AS SHOWN IN FIGURE H-1, EXCEPT OVERBRAID IS USED FOR THE K-TYPE EXTENSION, NOT SHIELDED WIRE.

26 TERMINATE OVERBRAID DRAIN WITH INSULATED 22 AWG STRANDED WIRE AT THE GEA BACKSHELL. USE APPROPRIATELY SIZED SOLDER SLEEVES FOR DRAINS. EXPOSED WIRE LENGTH MUST BE 3 INCHES OR LESS FROM OVERBRAID TO GEA BACKSHELL. GEA PINS TO OVERBRAID MUST BE 2.5 INCHES OR LESS.

27 EXISTING POWER WIRE SPLICED TO 22 AWG SHIELDED POWER WIRE EXTENSION. CUT EXISTING POWER WIRE JUST PRIOR TO EXISTING SHIELD DRAIN (TRANSDUCER SIDE). INSERT NEW SOLDER SLEEVE ONTO EXISTING WIRE AND ONTO WIRE EXTENSION PRIOR TO SPLICE. PERFORM PROCEDURE IN APPENDIX SECTION H.1 FOR MAINTIAINING SHIELD CONTINUITY.

Figure B-22 GEA 71B Enhanced P/N 011-03682-05 Sensor Interconnect
Sheet 12 of 12

GDU 700/1060/1210

PX

8

~DISC IN 1 LO X

1

2 3

ORIGINAL
EQUIP/ANNUN

4 5

PX

6 7

~DISC IN 1 HI X

1 10

ORIGINAL
EQUIP/ANNUN

P3

~DISC OUT 1 LO 43

9 12

11

GEA 110

P110X

~DISC IN 1 LO X

1 8

ORIGINAL
EQUIP/ANNUN

P1102

~DISC IN 1 HI X

1 10

ORIGINAL
EQUIP/ANNUN

P110X

~DISC IN 1 LO X

13

P1101

~DISC OUT 1 LO 3

9 12

11

GEA 71B Enhanced

2 3

P70X

8

4 5 ~DISC IN 1 LO X

1

6 7

ORIGINAL
EQUIP/ANNUN

P702

~ANNUNCIATE * 1A 1

9 12

11

Figure B-23 GDU/GEA EIS Discrete Interconnect
Sheet 1 of 3

NOTES

1 DO NOT EXCEED THE FUNCTIONAL LIMITS OF THE DISCRETE. REFER TO SECTION 3.2.8 FOR ADDITIONAL INFORMATION. ALL VDC VALUES ARE REFERENCE TO SIGNAL GROUND. ALL OHM VALUES ARE RESISTANCE TO SIGNAL GROUND.

LRU	PARAMETER	ACTIVE-LOW INPUT	ACTIVE-HIGH INPUT
GDU 700/1060/1210	ACTIVE STATE	"d3.5 VDC or "d375©	>6.5 VDC
	INACTIVE STATE	>6.5 VDC or >100k©	"d3.5 VDC or "d375©
	PINS	P3-34–37 P4-36–39	P3, 57–60
GEA 110	ACTIVE STATE	"d3.5 VDC or <=375©	8.0 VDC – 36 VDC
	INACTIVE STATE	8.0 VDC – 36 VDC or >100k©	"d3.5 VDC
	PINS	J1101-11 J1102-11, 31, 51, 71	J1102-11, 31, 51, 71
GEA 71B Enhanced	ACTIVE STATE	"d3.5 VDC or <375©	
	INACTIVE STATE	8.0 VDC – 36 VDC or >100k©	>100k©
	PINS	J701-70, 71, 76 J702-60–66, 71–73, 25–30, 40–43	

2 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN STARTER ENGAGED AND INACTIVE WHEN STARTER DISENGAGED (REFER TO NOTE 1).

3 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN BLEED AIR OFF AND INACTIVE WHEN BLEED AIR ON (REFER TO NOTE 1).

4 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN INERTIAL SEPARATOR ENGAGED AND INACTIVE WHEN INERTIAL SEPARATOR DISENGAGED (REFER TO NOTE 1).

5 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN IGNITOR ENGAGED AND INACTIVE WHEN THE IGNITOR DISENGAGED (REFER TO NOTE 1).

6 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN TORQUE LIMITER ENGAGED AND INACTIVE WHEN TORQUE LIMITER DISENGAGED (REFER TO NOTE 1).

7 CONNECT TO SOURCE THAT SATISFIES ACTIVE STATE REQUIREMENTS WHEN THRUST REVERSER ENGAGED AND INACTIVE WHEN THRUST REVERSER DISENGAGED (REFER TO NOTE 1).

8 IF USING ANNUNCIATOR PANEL TO SOURCE DISCRETE SIGNALS, VERIFY ANNUNCIATOR PANEL TEST DOES NOT CAUSE FALSE ANNUNCIATIONS ON GDU. PROTECT WITH DIODE IF NECESSARY. POSITION DIODE ON NON-DRIVING SIDE AWAY FROM GDU/GEA.

9 CONNECT TO ACTIVE-LOW ANNUNCIATOR PANEL. OUTPUT DRIVEN LOW WHEN CONFIGURED EIS SENSOR CONDITION IS MET.

Figure B-23 GDU/GEA EIS Discrete Interconnect
Sheet 2 of 3

NOTES CONTINUED

10 CONNECT TO A SOURCE THAT PROVIDES AN ACTIVE-HIGH WHEN THE ASSOCIATED FUEL SELECTOR IS IN THE AUX POSITION OR THE AUX FUEL GAUGE OVERRIDE SWITCH IS ACTUATED.

11 IF USING ACTIVE-LOW, VERIFY TURNING GDU OFF WILL NOT FALSELY GROUND THE DISCRETE OUT ANNUNCIATORS.

12 ACTIVE-HI AND ACTIVE-LOW DISCRETE OUTPUTS ARE AVAILABLE FOR ANY OUTPUT. ACTIVE-HI DISCRETE OUTPUTS CAN SOURCE 50 mA,

LRU	PARAMETER	ACTIVE-LOW OUTPUT	ACTIVE-HIGH OUTPUT
GDU 700/1060/1210	ACTIVE STATE	<1.0 VDC sink up to 500mA	Active-High output voltage drop will be less than 2V of bus voltage, capable of sourcing up to 30mA under all temperature conditions, 50mA when temp "d50°C.
	INACTIVE STATE	High Impedance, Open Drain	High Impedance, Open Drain
	PINS	P3-43, 48–51, 55, 56 P4-51, 52, 60, 61, 71, 72	P3-1, 2, 53, 54
GEA 110	ACTIVE STATE	<0.6©, sink up to 500mA. Externally limit current to 500mA with inline resistor.	
	INACTIVE STATE	>100k©	
	PINS	J1101-3, 8	
GEA 71B Enhanced	ACTIVE STATE	<0.6©, sink up to 500mA. Externally limit current to 500mA with inline resistor.	
	INACTIVE STATE	Provide impedance to ground of >100k©	
	PINS	J702-1–7, 10, 20	

13 IF INTERFACE TO FUEL SELECTOR REQUIRED PER APPENDIX SECTION D.1, CONFIGURE DISCRETE PER SECTION 5.7.4.1.4.

Figure B-23 GDU/GEA EIS Discrete Interconnect
Sheet 3 of 3

GDU 700/1060/1210

ADF RECEIVER 5

GDU 700/1060/1210			HONEYWELL KR 87	HONEYWELL KDF 806 (KFS 586)	COLLINS ADF-60A/B	
	P4		P872	P8061	P1	
COS IN	57		B	12	28	DC X/COS
SIN IN	58		A	13	1 32	DC Y/SIN OR DC Y/SIN
ADF REF IN	59		D	11	33	DC DC REF
	P3					
ADF VALID IN (~DISCRETE IN 2)	58	2	3 C	4 21	25	SUPERFLAG (ADF LOCK)

NOTES

1. CONNECTIONS ARE SHOWN FOR A BOTTOM-MOUNTED ANTENNA. FOR A TOP-MOUNTED ANTENNA, DISCONNECT WIRE FROM P1-32 AND CONNECT TO P1-24.

2. IF CONNECTING AN ADF RECEIVER THAT DOES NOT PROVIDE SUPERFLAG OUTPUT, LEAVE P3-58 UNCONNECTED.

3. THE SUPERFLAG OUTPUT IS ONLY PROVIDED BY P/Ns 066-1072-04, -05, -06, -07, -14, -15, AND -17 VERSIONS OF THE KR 87 ADF RECEIVER.

4. THE SUPERFLAG OUTPUT IS ONLY PROVIDED BY P/N 066-1077-01 VERSION OF THE KDF 806 ADF RECEIVER.

5. IN A DUAL ADF SYSTEM, WIRE GDU 1 TO ADF 1 AND WIRE GDU 2 TO ADF 2.

Figure B-24 ADF Interconnect

GDU 700/1060/1210
PILOTS PFD 2

AUDIO PANEL

	P4		
AUDIO INHIBIT IN (~DISCRETE IN X*)		x	3
AUDIO ACTIVE OUT (~DISCRETE OUT X*)		x	4
		P2	
AUDIO OUT	HI	10	
	LO	9	

s 5 6

	GARMIN					PS Engineering			Bendix/King				
	GMA 342 GMA 345	GMA 35(c) GMA 350(c)	SL15 SL15M	GMA 340	GMA 347	PAR 200	PMA6000 PMA7000	PMA 8000	KMA 24 KMA 28	KMA 26	KMA 30		
	P3401	P3501	Bottom	J1	J3471	J1	Bottom	J1	Bottom	P261	J1		
UNSWITCHED AUDIO IN 1	31	31	T	31	54	31	T	31	T	14	31	HI	
	32	32	Gnd Lug	32	55	32	Gnd Lug	32	Gnd Lug	31	32	LO	

Figure B-25 Audio Interconnect
Sheet 1 of 2

NOTES

1 IF THE TAWS B FEATURE ON THE GDU IS ENABLED, THE AUDIO INPUT MUST BE UNSWITCHED AND UNMUTED.

2 FOR MULTIPLE GDU INSTALLATIONS, ONLY CONNECT THE AUDIO OUTPUT AND ASSOCIATED DISCRETE FROM PILOT'S PFD. LEAVE THE AUDIO OUTPUT AND DISCRETES FROM OTHER GDUs UNCONNECTED.

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

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

5 IT IS ACCEPTABLE TO USE OTHER AVAILABLE UNSWITCHED, UNMUTED PORTS. IF AUDIO PANEL DOES NOT HAVE AN AVAILABLE UNSWITCHED INPUT, AUDIO FROM GDU MUST BE MIXED WITH AN EXISTING AUDIO SOURCE USING RESISTORS TO ISOLATE THE AUDIO OUTPUT FROM EACH LRU. A TYPICAL VALUE FOR MIXING RESISTORS IS 390© ¼ W. THE AUDIO LEVELS OF EXISTING AUDIO SOU
BE RE-EVALUATED AFTER MIXING RESISTORS ARE INSTALLED.

EXISTING LRU
R
AUDIO PANEL
AUDIO OUT
HI UNSWITCHED
LO AUDIO IN
R
GDU 1060 /700
AUDIO OUT
s

6 SHIELDING BETWEEN THE GDU AND AUDIO PANEL SHOULD ONLY BE GROUNDED AT THE GDU. DO NOT GROUND THE SHIELD AT THE AUDIO PANEL.

Figure B-25 Audio Interconnect
Sheet 2 of 2

GDU 700/1060/1210
PILOT PFD

P4

1 ~RS-232 5 OUT 20
IN 19
~RS-232 6 OUT 17

S 2

DFC90 AUTOPILOT

P2

26 RS232 RX
24 RS232 TX
25 ADAHRS RX
40 SHIELD GND

NOTES

1 ANY AVAILABLE RS-232 PORTS MAY BE USED, AS LONG AS THOSE PORTS ARE LOCATED ON THE P4 CONNECTOR.

2 TERMINATE AND MAINTAIN OVERBRAID CONTINUITY PER EXISTING DFC90 SYSTEM EQUIPMENT INSTALLATION REQUIREMENTS.

Figure B-26 Autopilot/Flight Director Interconnect – Avidyne

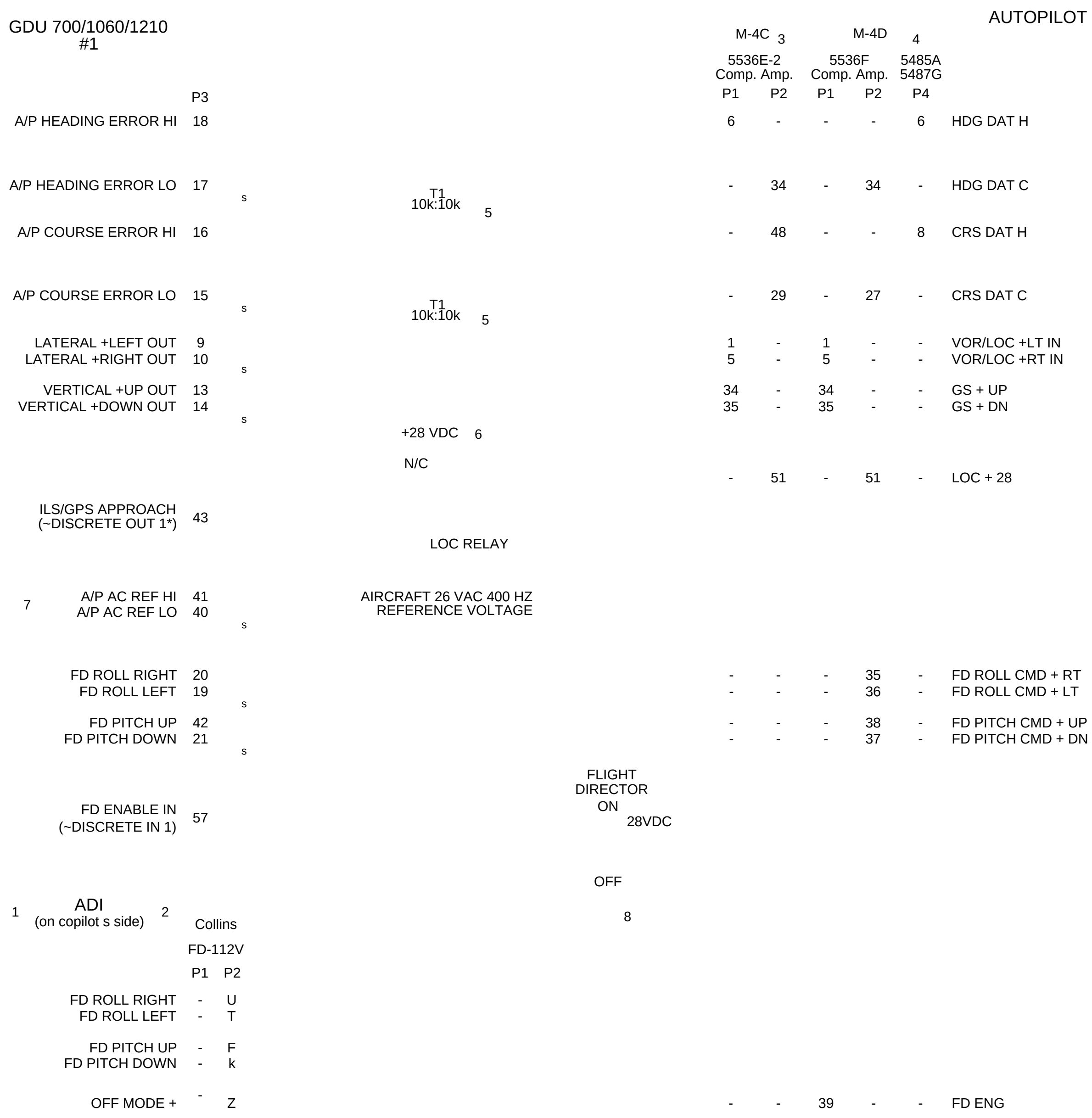


Figure B-27 Autopilot/Flight Director Interconnect – Bendix
Sheet 1 of 2

NOTES

1 FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THIS ADI MUST BE LOCATED IN ACCORDANCE WITH SECTION 4.

2 IF THE FLIGHT DIRECTOR IS BEING DISPLAYED ON THE CO-PILOT'S ADI, THIS FLIGHT DIRECTOR ALIGNMENT MUST BE CORRECTLY ADJUSTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS PRIOR TO MAKING ANY ADJUSTMENTS TO THE GDU.

3 ADDITIONAL DROP DOWN RESISTORS MAY BE REQUIRED TO ENSURE THAT THE HEADING AND COURSE ERROR SIGNALS TO THE 5536E( ) COMPUTER-AMPLIFIER ARE WITHIN THE CORRECT OPERATING RANGE. REFER TO BENDIX I.B. 2004 PART 1 INSTALLATION MANUAL M-4C AFCS PARAGRAPH 2-5 "TROUBLESHOOTING PROCEDURES FOR PREFLIGHT CHECKOUT."

4 THE AUTOPILOT COMPUTER MUST BE CONFIGURED FOR A COLLINS PN-101 (FD-112C/V) HSI IN ORDER TO HAVE THE CORRECT HEADING AND COURSE ERROR (DATUM) SIGNALS; OTHERWISE, ADDITIONAL ADJUSTMENTS WILL BE REQUIRED. REFER TO BENDIX I.B. 20004 M-4D AFCS INSTALLATION MANUAL SECTION II, PARAGRAPH 7 "FLIGHT CHECK AND CALIBRATION" FOR ADJUSTMENTS THAT CAN BE MADE IN THE 5487G OR 5485A FLIGHT CONTROLLER. REFER TO I.B. 20004 PARAGRAPH 5 "POST-INSTALLATION CHECK OUT" FOR ADDITIONAL INFORMATION.

5 USE TRIAD TRANSFORMER P/N TY-141P OR EQUIVALENT. IN SOME INSTALLATIONS, EXISTING TRANSFORMERS (COLLINS P/N 677-9020-00) MAY BE USED.

6 IT IS NECESSARY TO INSTALL A RELAY TO INVERT THE POLARITY OF THE "ILS/GPS APPROACH" SIGNAL FROM ACTIVE-LOW TO ACTIVE-HIGH FOR INPUT INTO THE 5536E/F COMPUTER AMPLIFIER.

7 THE 115VAC 400 HZ EXCITATION FOR THE AUTOPILOT (P2-40), AND THE 26VAC 400 HZ REFERENCE VOLTAGE FOR THE GDU (P3-41), MUST BE IN PHASE WITH EACH OTHER FOR PROPER FEEDBACK OF THE HEADING AND COURSE ERRORS TO THE AUTOPILOT COMPUTER.

8 ORIGINAL SWITCH AND WIRING MUST BE RETAINED.

Figure B-27 Autopilot/Flight Director Interconnect – Bendix
Sheet 2 of 2

GDU 700/1060/1210
PILOT PFD

CENTURY AP

P3		II CD34	III CD34	CD58	
LATERAL +LEFT OUT	9	B	B	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	A	A	-	LAT DEV +RT
VERTICAL +UP OUT	13	-	-	B	GS DEV +UP
VERTICAL +DOWN OUT	14	-	-	A	GS DEV +DOWN

s s

TO CONSOLE/AMPLIFIER/
ARTIFICIAL HORIZON
(EXISTING WIRING RETAINED)

RADIO COUPLER

		1C388 1C388M CD 33 TO AMP	CD 33 TO DG	1C388C 1C388MC CD33 TO DG	
A/P AC REF HI	41	C	-	D	ROLL EXCITATION
A/P AC REF LO	40	F	-	E	ROLL EXCITATION
A/P HEADING ERROR HI	18	-	A	A	HEADING SIGNAL
A/P HEADING ERROR LO	17	-	B	B	ROLL COMMON
A/P COURSE ERROR HI	16 N/C	-	D	-	DG EXCITATION
A/P COURSE ERROR LO	15 N/C	-	E	-	DG EXCITATION

14 10k 14 1 4 1 3 T1 10k:10k 6 1 4 14 13 10k 14 3 T1 20k:800 6 18 mH . 0 4 7 ¼ F s s

OR

RADIO COUPLER

		1C388-2 CD 33 TO AMP	CD 33 TO DG	1C388-3 CD33 TO DG	
A/P AC REF HI	41	-	D	E	ROLL EXCITATION
A/P AC REF LO	40	-	E	D	ROLL EXCITATION
		-	A	A	HEADING SIGNAL
A/P HEADING ERROR HI	18				
A/P HEADING ERROR LO	17	B 12	-	F	ROLL COMMON
		-	B	B	COURSE SIGNAL
A/P COURSE ERROR HI	16				
A/P COURSE ERROR LO	15	B 12	-	C	ROLL COMMON

1 4 14 10k 1 14 3 T1 10k:10k 6 1 4 2 1 10k 14 14 3 T1 10k:10k 6 1 4 2 1 10k 14 14 3 T1 10k:10k 6 s s s

Figure B-28 Autopilot/Flight Director Interconnect – Century
Sheet 1 of 3

GDU 700/1060/1210
PILOT PFD

CENTURY AP

IV — 21 — 5 31 — 5 41 — 16 2000

	P3	CD66	CD194	CD175	CD191	CD175	CD191	CD175	CD184	CD191	CD175	CD220	
A/P HEADING ERROR HI	18	49	-	17	-	17	-	17	-	-	17	-	HDG DATUM HI
A/P HEADING ERROR LO	17	-	-	-	-	-	-	-	-	-	-	-	HDG DATUM LO
A/P COURSE ERROR HI	16	48	-	2	-	2	-	2	-	-	2	-	COURSE DATUM HI
A/P COURSE ERROR LO	15	-	-	-	-	-	-	-	-	-	-	-	COURSE DATUM LO
LATERAL +FLAG OUT	11	-	2	-	7	-	7	-	-	7	-	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	-	3	-	8	-	8	-	-	8	-	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9	32	4	-	6	-	6	-	-	6	-	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	31	5	-	5	-	5	-	-	5	-	-	LAT DEV +RT
VERTICAL +FLAG OUT	12	-	-	-	2	-	2	-	-	2	-	-	GS DEV FLAG +
VERTICAL -FLAG OUT	33	-	-	-	1	-	1	-	-	1	-	-	GS DEV FLAG -
VERTICAL +UP OUT	13	45	-	-	4	-	4	-	-	4	-	-	GS DEV +UP
VERTICAL +DOWN OUT	14	46	-	-	3	-	3	-	-	3	-	-	GS DEV +DOWN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	44	1	-	9	-	9	-	-	9	-	-	LOC SWITCH
A/P AC REF HI	41	39	-	-	-	-	-	-	-	-	-	-	5 kHz EXCITATION
11 A/P AC REF LO	40	40	-	-	-	-	-	-	-	-	-	-	5 kHz EXCITATION
FD ENABLE IN (~DISCRETE IN 1)	57 NC												
FD ROLL RIGHT	20	21	-	-	-	-	-	-	40	-	-	6	ROLL STEERING
FD ROLL LEFT	19	24	-	-	-	-	-	-	28	-	-	7	ROLL COMMON
FD PITCH UP	42	20	-	-	-	-	-	-	29	-	-	5	PITCH STEERING
FD PITCH DOWN	21	17	-	-	-	-	-	-	17	-	-	30	STEERING COMMON
		-	-	-	-	-	-	-	-	-	-	26	ALTITUDE CAPTURE
10		-	-	-	-	-	-	-	-	-	-	24	ENB 1
		-	-	-	-	-	-	-	-	-	-	25	ENB 2

15 1k 10 V 1k 10 V s s s s s s s s s s 20 AWG 20 AWG 20 AWG 20 AWG G 3 6 7 8 9

ADI
52C77/-2/-3/-4
(optional install on copilot s side)

	( )/-2	-3/-4
	CD64	CD144
STEERING COMMON	F	12
PITCH STEERING	J	11
ROLL COMMON	E	28
ROLL STEERING	H	10

2 3 4 20 AWG 20 AWG

Figure B-28 Autopilot/Flight Director Interconnect – Century
Sheet 2 of 3

NOTES

1 USE MIL-T-27 TYPE TF5S21ZZ TRANSFORMER TRIAD MAGNETICS P/N SP-66. TRIAD P/N TY-141P TRANSFORMER MAY ALSO BE USED, BUT IS NOT RECOMMENDED FOR NEW INSTALLATIONS.

2 FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

3 IF THE 52C77/-2/-3/-4 ADI IS CONNECTED WITH THE GDU, THE 18.0 OR 30.0 © RESI INSTALLED.

4 IF THE FLIGHT DIRECTOR IS BEING DISPLAYED ON THE CO-PILOT'S ADI, THIS FLIGHT DIRECTOR ALIGNMENT MUST BE CORRECTLY ADJUSTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS PRIOR TO MAKING ANY ADJUSTMENTS TO THE GDU.

5 ENSURE ANY JUMPERS AT CD185 PINS 8, 9, AND 17 ARE REMOVED TO CONFIGURE COMPUTER FOR NSD 360A.

6 USE RESISTOR P/N RE65G() OR RE65N() (PER MIL-PRF-18546) CHASSIS MOUNT POWER RESISTOR MEETING THE FOLLOWING SPECIFICATIONS:

- 18.0 © FOR CENTURY IV AND 14 VDC SYSTEMS WITH CENTURY 41 AND 2000, O VDC SYSTEMS USING THE CENTURY 41 OR 2000 AUTOPILOTS
- MINIMUM POWER RATING OF 10 WATTS
- MAXIMUM TOLERANCE OF +/- 5%
- LOCATE RESISTOR ON METALLIC SECONDARY STRUCTURE WITHIN INSTRUMENT PANEL AREA NEAR GDU

7 DIODE INSTALLED FOR CENTURY IV SYSTEM ONLY. USE 1N4444 OR EQUIVALENT.

8 MAKE THIS CONNECTION ONLY FOR CENTURY 41 AND 2000 SYSTEMS.

9 MAKE THIS CONNECTION ONLY FOR CENTURY IV SYSTEMS.

10 FOR CENTURY 2000 AUTOPILOTS THAT DO NOT HAVE THE ALTITUDE PRESELECTOR INSTALLED, ROUTE PROVISIONAL WIRES FROM CD189 AND STOW NEAR BACK OF THE PILOT'S GDU.

11 THE 5KHZ SIGNAL IS ONLY REQUIRED FOR AC AUTOPILOTS.

12 SPLICE BOTH WIRES TOGETHER INTO PIN B OF CD33 TO AMP.

13 USE MIL-T-27 TYPE TF5S21ZZ TRANSFORMER TRIAD MAGNETICS P/N SP-13.

14 IF UPGRADING FROM GDU 620 INSTALLATIONS, THESE WIRES MUST BE CHANGED TO TWISTED SHIELDED PAIR AS SHOWN.

15 USE 1K OHM 5% AXIAL, 1 WATT RESISTOR AND 10V 1.3 WATT ZENER DIODE (VISHAY P/N BZX85B10-TAP). FOR CENTURY 41 AND 2000 SYSTEMS ONLY. NOT REQUIRED WITH GDU 700/1060/1210 MOD 2.

16 ENSURE ANY JUMPERS AT CD220 PINS 42, 46 AND 28 ARE REMOVED TO CONFIGURE COMPUTER FOR NSD360A.

Figure B-28 Autopilot/Flight Director Interconnect – Century
Sheet 3 of 3

1 GARMIN
GAD 43(e)

CENTURY AP

P431

PITCH DC OUT 13
ROLL DC OUT 29
DC REF IN 27

s

AP INTERLOCK RELAY
NO 22
NC 21 N/C
COM 5

TRIM CMD
A/P DISC

2

A/P DISC SW
(OPT. EXIST.)

3

4

	21		31		41		2000		
	CD194	CD186	CD189	CD200	CD189	CD184	CD189	CD220	
	-	-	-	22	-	36	-	32	PITCH SIG
	-	11	-	24	-	42	-	44	ROLL SIG
	-	5	-	23	-	27	-	17	ROLL REF
			5		5		5		
	11	-	3	-	3	-	3	-	A/P DISC SW
	12	-	5	-	5	-	11	-	A/P DISC GND

NOTES

1 WHEN INTERFACING WITH CENTURY AUTOPILOTS, GAD 43 P/N 011-01970-00 CANNOT BE USED.

2 FOR CENTURY 31, 41, AND 2000 INSTALLATIONS ONLY. THIS STC DOES NOT AUTHORIZE INSTALLATION OF TRIM CMD SWITCH.

3 FOR CENTURY 21 AUTOPILOT: IF OPTIONAL A/P DISC SWITCH IS INSTALLED, REMOVE THE EXISTING CONDUCTOR FROM CD194 – 11. CONNECT CD194 – 11 TO THE GAD 43(e) INTERLOCK RELAY WIRING AS SHOWN.

4 FOR CENTURY 21 AUTOPILOT: IF OPTIONAL A/P DISC SWITCH IS NOT INSTALLED, REMOVE THE EXISTING CONDUCTOR FROM CD194 PINS 11 AND 12. INSTALL WIRING TO THE GAD 43(e) INTERLOCK RELAY (WITHOUT SWITCHES) AS SHOWN. THIS STC DOES NOT AUTHORIZE INSTALLATION OF AP DISC SWITCH.

5 REMOVE THE EXISTING CONDUCTOR FROM CD189 – 3. CONNECT CD189 – 3 TO THE GAD 43(e) INTERLOCK RELAY AS SHOWN

Figure B-29 Autopilot/Flight Director Interconnect – Century GAD

GDU 700/1060/1210
PILOT PFD

P3

A/P HEADING ERROR HI 18
A/P HEADING ERROR LO 17
s

A/P COURSE ERROR HI 16
A/P COURSE ERROR LO 15
s

3

T1
10k:10k

LATERAL +LEFT OUT 9
LATERAL +RIGHT OUT 10
s

LATERAL +FLAG OUT 11 N/C
LATERAL -FLAG OUT 32 N/C

VERTICAL +UP OUT 13
VERTICAL +DOWN OUT 14
s

VERTICAL +FLAG OUT 12 N/C
VERTICAL -FLAG OUT 33 N/C

AUTOPILOT 28VDC

ILS/GPS APPROACH
(~DISCRETE OUT 1*) 43

A/P AC REF HI 41
A/P AC REF LO 40
s

300/400/800
IFCS

MODE CONTROLER/
COMPUTER AMP

2

S530A J3/P18	CA530FD J1/P5	
E	-	HDG ERROR 1 HI
C	-	HDG ERROR 1 LO
V	-	NAV 1 CRS DATUM HI
k	-	NAV 1 CRS DATUM LO
b	-	NAV 2 CRS DATUM HI
m	-	NAV 2 CRS DATUM LO
T	-	NAV 1 +L
U	-	NAV 1 +R
Z	-	NAV 2 +L
a	-	NAV 2 +R
N	-	NAV 1 G/S +UP
P	-	NAV 1 G/S +DN
d	-	NAV 2 G/S +UP
f	-	NAV 2 G/S +DN
R	-	NAV 1 VOR/LOC RY
X	-	NAV 2 VOR/LOC RY
S	-	NAV 1 VOR/LOC RY RTN*
Y	-	NAV 2 VOR/LOC RY RTN*
-	E	10 VAC 400 HZ
-	F	10 VAC 400 HZ RETURN

1

Figure B-30 Autopilot/Flight Director Interconnect – Cessna
Sheet 1 of 4

GDU 700/1060/1210 PILOT PFD

MODE CONTROLER [2]

				300B/400B/800B IFCS					400B		
				S-550A			CA550A/FD		CA550A/FD		
	P3			J1	J2	J3	J1	J2	J1/P4	J2/P5	
A/P HEADING ERROR HI	18			12	-	-	-	-	24	-	DC HDG GYRO IN
A/P HEADING ERROR LO	17		s	13	-	-	-	-	-	-	#2 DC HDG GYRO IN
A/P COURSE ERROR HI	16			-	-	21	-	-	-	17	DC COURSE DATUM IN
A/P COURSE ERROR LO	15		s	-	-	24	-	-	-	-	#2 DC COURSE SIG IN
				-	-	-	15	-	15	-	AC COURSE DATUM
6				-	-	-	-	20	-	20	AC HDG GYRO IN
LATERAL +LEFT OUT	9			-	-	5	-	-	-	5	VOR/LOC SIGNAL (+LT)
LATERAL +RIGHT OUT	10		s	-	-	22	-	-	-	2	VOR/LOC SIGNAL (+RT)
				-	-	16	-	-	-	-	NAV #2 VOR/LOC (+LT)
LATERAL +FLAG OUT	11	N/C		-	-	4	-	-	-	-	NAV #2 VOR/LOC (+RT)
LATERAL -FLAG OUT	32	N/C									
VERTICAL +UP OUT	13			-	-	1	-	-	18	-	G/S SIGNAL (+UP)
VERTICAL +DOWN OUT	14		s	-	-	6	-	-	17	-	G/S SIGNAL (+DN)
				-	-	15	-	-	-	-	NAV #2 G/S SIG (+UP)
VERTICAL +FLAG OUT	12	N/C		-	-	14	-	-	-	-	NAV #2 G/S SIG (+DN)
VERTICAL -FLAG OUT	33	N/C									
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43			-	-	-	-	-	-	9	VOR/LOC RELAY RTN*
				-	10	-	-	-	-	-	NAV #1 LOC GND
				-	19	-	-	-	-	-	NAV #2 LOC GND 7
FD ENABLE IN (~DISCRETE IN 1)	57		5	19	-	-	-	-	-	-	FD COMPUTER ON
FD ROLL RIGHT	20			-	11	-	-	-	-	-	ADI ROLL BAR
FD ROLL LEFT	19		s	-	1	-	-	-	-	-	SIGNAL COM/ROLL +LT
FD PITCH UP	42			-	22	-	-	-	-	-	ADI PITCH BAR
FD PITCH DOWN	21		s	-	1	-	-	-	-	-	ADI PITCH + DN

ADI

4 (on copilot s side)

	CESSNA	
	G-1050A	G-550A
	P1	J1
CMD BAR N VIEW	24	8
CMD BAR +RT	26	9
CMD BAR +LT/REFERENCE	27	26
CMD BAR +UP	28	10
CMD BAR +DN	29	-

Figure B-30 Autopilot/Flight Director Interconnect – Cessna
Sheet 2 of 4

GDU 700/1060/1210
PILOT PFD

P3			
A/P HEADING ERROR HI	18		
A/P HEADING ERROR LO	17		s
A/P COURSE ERROR HI	16		
A/P COURSE ERROR LO	15		s
LATERAL +LEFT OUT	9		
LATERAL +RIGHT OUT	10		s
VERTICAL SUPERFLAG	7		
LATERAL +FLAG OUT	11	N/C	
LATERAL -FLAG OUT	32	N/C	
VERTICAL +UP OUT	13		
VERTICAL +DOWN OUT	14		s
LATERAL SUPERFLAG	8		
VERTICAL +FLAG OUT	12	N/C	
VERTICAL -FLAG OUT	33	N/C	
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43		
FD ENABLE IN (~DISCRETE IN 1)	57		
FD ROLL RIGHT	20		
FD ROLL LEFT	19		s
FD PITCH UP	42		
FD PITCH DOWN	21		s

5

1000 IFCS 2

CA-1050A

PK41	PK42	PK43	PK44	
-	-	28	-	HDG ERROR 1 HI DC
-	-	30	-	HDG ERROR 2 HI DC
-	-	27	-	NAV 1 CRS DATUM HI DC
-	-	29	-	NAV 2 CRS DATUM HI DC
-	-	2	-	HDG ERROR 1 HI AC
-	-	23	-	HDG ERROR 2 HI AC
-	-	1	-	NAV 1 CRS DATUM HI AC
-	-	24	-	NAV 2 CRS DATUM HI AC
-	-	-	5	NAV 1 +L
-	-	-	3	NAV 1 +R
-	-	-	4	NAV 2 +L
-	-	-	2	NAV 2 +R
16	-	-	-	G/S 1 SUPERFLAG
18	-	-	-	G/S 2 SUPERFLAG
-	-	-	24	NAV 1 G/S +UP
-	-	-	23	NAV 1 G/S +DN
-	-	-	22	NAV 2 G/S +UP
-	-	-	21	NAV 2 G/S +DN
12	-	-	-	NAV 1 SUPERFLAG
14	-	-	-	NAV 2 SUPERFLAG
4	-	-	-	NAV 1 VOR/LOC RY RTN*
3	-	-	-	NAV 2 VOR/LOC RY RTN*
-	37	-	-	FD COMPUTER ON
-	-	22	-	SIGNAL COM/ROLL +LT
-	-	33	-	ADI PITCH BAR

4 ADI
(on copilot s side)

CESSNA

	G-1050A P1	G-550A J1
CMD BAR N VIEW	24	8
CMD BAR +RT	26	9
CMD BAR+LT/REFERENCE	27	26
CMD BAR +UP	28	10
CMD BAR +DN	29	-

Figure B-30 Autopilot/Flight Director Interconnect – Cessna
Sheet 3 of 4

NOTES

1 TUNE RESISTANCE POTS ON HEADING ERROR HI AND COURSE ERROR HI TO END OF TRAVEL IN ORDER NOT TO AFFECT THE HEADING AND COURSE ERROR SIGNALS.

2 THE NAV 1/NAV 2 LIGHTED SWITCH LEGEND MUST BE REMOVED SUCH THAT ANY NAV SOURCE INDICATION ON THE AUTOPILOT MODE CONTROLLER IS HIDDEN FROM VIEW.

3 INSTALL TRANSFORMER P/N TY-141P OR EQUIVALENT.

4 FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. THE DISPLAY OF THE FLIGHT DIRECTOR MUST BE DISABLED IN THIS CASE. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI AND THE FLIGHT DIRECTOR MAY BE ENABLED. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

5 MAINTAIN EXISTING CONNECTION BETWEEN AUTOPILOT COMPUTER AND MODE SELECTOR.

6 JUMPER IS REQUIRED FOR DC HEADING/COURSE ERROR SIGNALS.

7 THE ILS/GPS APPROACH DISCRETE OUTPUT MUST ALSO BE CONNECTED TO THE BACK COURSE RELAY. REFER TO MANUFACTURER'S DOCUMENTATION FOR ADDITIONAL DETAILS.

Figure B-30 Autopilot/Flight Director Interconnect – Cessna
Sheet 4 of 4

GARMIN
GAD 43(e)

AUTOPILOT

1

ATTITUDE TEST SWITCH: NC, C, NO

GARMIN GAD 43(e)	P431	300B/400B/800B IFCS S-550A J1	S-550A J2	S-550A J3	CA550A/FD J1	CA550A/FD J2	400B CA550A/FD J1/P4	CA550A/FD J2/P5	C-530A J1	C-530A J2	AUTOPILOT
PITCH AC OUT HI	24	-	-	-	-	15	-	-	L	-	PITCH IN
		-	-	-	7	-	7	-	-	-	PITCH/ROLL TEST
ROLL AC OUT HI	23	-	-	-	-	4	-	4	-	-	ROLL IN
ROLL AC OUT LO	25										
10 VAC REF H	9	-	-	-	33	-	33	-	-	-	400 HZ REF
10 VAC REF C	10	-	-	-	19	-	19	-	-	-	400 HZ RETURN
ATTITUDE VALID RELAY NO	3	-	3	-	-	-	-	-	-	A	A/P DISABLE IN
ATTITUDE VALID RELAY COM	20										
4 N/C		-	-	-	-	32	-	32	-	-	400 Hz EXT OSC

s s s

7

3

AA-801A REPLACEMENT

GARMIN
GAD 43e ONLY

GARMIN GAD 43e ONLY	P432	S-550A J1	S-550A J2	S-550A J3	CA550A/FD J1	CA550A/FD J2	CA550A/FD J1/P4	CA550A/FD J2/P5	C-530A J1	C-530A J2	AUTOPILOT
2 AP	31	-	-	-	-	34	-	-	-	-	AP ENG
ALT HOLD ENG*	13	24	-	-	23	-	-	-	-	-	ALT HOLD ENG
FD	30	19	-	-	-	33	-	-	-	-	FD ENG
GA+GS*	48	15	-	-	-	-	-	-	-	-	PSA INHIBIT
ALT PRESELECT ENGAGE	34	17	-	-	-	-	-	-	-	-	PSA ENG

7

Figure B-31 Autopilot/Flight Director Interconnect – Cessna GAD
Sheet 1 of 3

GARMIN
GAD 43(e)

1000 IFCS

P431

GAD 43(e) signal	P431 pin	-0001 CA-1050A Computer PK42	-0001 CA-1050A Computer PK43	-0001 PK44	-0001 C-1050A Control Unit PK40	-0001 AC-1050A Air Data PK39	-0002, -0102 PK42	-0002, -0102 CA-1050A Computer PK43	-0002, -0102 PK44	-0002, -0102 C-1050A Control Unit PK40	-0002, -0102 AC-1050A Air Data PK39	-0004 PK42	-0004 CA-1050A Computer PK43	-0004 PK44	-0004 C-1050A Control Unit PK40	-0004 AC-1050A Air Data PK39	-0005, -0105 PK42	-0005, -0105 CA-1050A Computer PK43	-0005, -0105 PK44	-0005, -0105 C-1050A Control Unit PK40	-0005, -0105 AC-1050A Air Data PK39	1000 IFCS
PITCH AC OUT HI	24	-	16	-	-	-	-	-	-	11	-	-	16	-	-	-	-	-	-	11	-	PITCH IN
PITCH AC OUT LO	42	-	GND	-	-	-	-	-	-	GND	-	-	GND	-	-	-	-	-	-	GND	-	
		-	3	-	13	-	-	16	-	12	-	-	3	-	13	-	-	16	-	12	-	PITCH/ROLL TEST**
ROLL AC OUT HI	23	-	-	-	11	-	-	3	-	-	-	-	-	-	11	-	-	3	-	-	-	ROLL IN
ROLL AC OUT LO	25	-	-	-	GND	-	-	GND	-	-	-	-	-	-	GND	-	-	GND	-	-	-	
26 VAC REF IN HI	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	-	-	-	23	26 V, 400 Hz
26 VAC LO	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	25	26 V, 400 Hz RTN
10 VAC REF IN HI	9	-	-	-	-	24	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	10 V, 400 Hz
10 VAC LO	10	-	-	-	-	25	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	10 V, 400 Hz RTN
ATTITUDE NO	3	18	-	-	-	-	18	-	-	-	-	18	-	-	-	-	18	-	-	-	-	ENGAGE INTLK
VALID RELAY COM	20	-	-	37	-	-	-	-	37	-	-	-	-	37	-	-	-	-	37	-	-	GYRO VALID

s s s s

7

5

22 AWG

22 AW G

ACTUATOR
INTERLOCK
CIRCUIT

6

AA-801 REPLACEMENT

GARMIN
GAD 43e ONLY

P432

23.7 k ½ WATT

2

GAD 43e signal	P432 pin	-0001 PK42	-0001 PK43	-0001 PK44	-0001 PK40	-0001 PK39	-0002, -0102 PK42	-0002, -0102 PK43	-0002, -0102 PK44	-0002, -0102 PK40	-0002, -0102 PK39	-0004 PK42	-0004 PK43	-0004 PK44	-0004 PK40	-0004 PK39	-0005, -0105 PK42	-0005, -0105 PK43	-0005, -0105 PK44	-0005, -0105 PK40	-0005, -0105 PK39	1000 IFCS
GA+GS*	48	9	-	-	-	-	9	-	-	-	-	9	-	-	-	-	9	-	-	-	-	PSA INHIBIT
ALT HOLD ENG*	13	24	-	-	-	-	24	-	-	-	-	24	-	-	-	-	24	-	-	-	-	ALT HOLD ENG
FD	30	37	-	-	-	-	37	-	-	-	-	37	-	-	-	-	37	-	-	-	-	FD ENG
AP	31	-	-	-	4	-	-	-	-	4	-	-	-	-	4	-	-	-	-	4	-	AP ENG
ALT PRESELECT ENGAGE	34	29	-	-	-	-	29	-	-	-	-	29	-	-	-	-	29	-	-	-	-	PSA ENG

7

Figure B-31 Autopilot/Flight Director Interconnect – Cessna GAD
Sheet 2 of 3

NOTES

1 ATTITUDE TEST SWITCH NOT USED IN ALL INSTALLATIONS. FOR INSTALLATIONS THAT USE AN ACCELERATION SENSOR TEST SWITCH CIRCUIT, THE GAD “PITCH AC OUT HI” PIN MUST BE DIRECTLY CONNECTED TO THE DEPICTED “PITCH INPUT” PIN ON THE AUTOPILOT.

2 GAD 43(e) REPLACES AA-801.

3 REMOVE EXISTING WIRING FROM THE “A/P DISABLE IN” PIN AND CONNECT THIS REMOVED WIRING TO THE GAD “ATTITUDE VALID RELAY COM” PIN.

4 PIN 32 MUST BE UNCONNECTED FOR ALL INSTALLATIONS. IF A G-895A INDICATOR WAS PREVIOUSLY INSTALLED, VERIFY THAT WIRING ON PIN 32 IS REMOVED.

5 GAD ATTITUDE VALID RELAY BECOMES PART OF EXISTING INTERLOCK CIRCUIT AS DEPICTED. SPLICE INTO EXISTING ACTUATOR INTERLOCK WIRING AS DEPICTED. GAD ATTITUDE VALID RELAY IS REQUIRED FOR ALL INSTALLATIONS, EVEN IF PREVIOUS GYRO DID NOT UTILIZE GYRO VALID CIRCUIT (I.E G-519/550). SEE AIRCRAFT WIRING DIAGRAMS TO ENSURE THAT ACTUATOR INTERLOCK CIRCUIT IS PROPERLY RETAINED.

6 SPLICE TO AIRCRAFT POWER 1 ON GAD 43(e).

7 MAINTAIN EXISTING CONNECTION BETWEEN AUTOPILOT COMPUTER AND AIRCRAFT WIRING.

Figure B-31 Autopilot/Flight Director Interconnect – Cessna GAD
Sheet 3 of 3

GDU 700/1060/1210
PILOT PFD

AP-106/107

AUTOPILOT
COMPUTER

Signal	P3	161H-1 J1	913K-1/1A J1	913K-1/1A J2	Autopilot Signal
A/P HEADING ERROR HI	18	-	24	-	HDG ERROR HI
A/P HEADING ERROR LO	17	-	25	-	HDG ERROR LO
A/P COURSE ERROR HI	16	37	22	-	CRS DATUM HI
A/P COURSE ERROR LO	15	41	21	-	CRS DATUM LO
LATERAL +LEFT OUT	9	42	-	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	38	-	-	LAT DEV +RT
VERTICAL +UP OUT	13	7	-	-	GS DEV +UP
VERTICAL +DOWN OUT	14	11	-	-	GS DEV +DN
LATERAL +FLAG OUT	11	30	-	23	NAV LL FLAG + 6
LATERAL -FLAG OUT	32	34	-	20	NAV LL FLAG -
VERTICAL +FLAG OUT	12	-	1	-	GS HL FLAG +
VERTICAL -FLAG OUT	33	-	2	-	GS HL FLAG -
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	2	27	-	LOC FREQ GND 7
		-	-	-	26 VAC 400 HZ REF I
A/P AC REF HI	41	-	29	-	26 VAC 400 HZ REF II
A/P AC REF LO	40	-	26	-	26 VAC IN LO

8 AIRCRAFT 400 HZ AC
REFERENCE VOLTAGE

4 5 +28 VDC

FD ENABLE IN (~DISCRETE IN 1) 57

N/C

P/N 1N4007 OR
EQUIVALENT

		161H-1 J1	913K-1/1A J1	913K-1/1A J2	Autopilot Signal
		-	-	33	OUT OF VIEW+

OUT OF VIEW+
RELAY

Signal	P3	161H-1 J1	913K-1/1A J1	913K-1/1A J2	Autopilot Signal
FD ROLL RIGHT	20	-	-	28	ROLL STEER +RT
FD ROLL LEFT	19	28	-	-	SIG COM (K-1)
FD PITCH DOWN	21	52	20	-	SIG COM (K-1)
FD PITCH UP	42	-	8	-	PITCH STEER +DN

FD-112 C/V

2 3

(OPTIONAL)

Signal	P2
ROLL CMD +RIGHT	U
ROLL CMD +LEFT	T
PITCH CMD +UP	F
PITCH CMD +DOWN	k
OFF MODE +	Z

Figure B-32 Autopilot/Flight Director Interconnect – Collins
Sheet 1 of 3

GDU 700/1060/1210 PILOT PFD	P3		APC-65A/65G J1	APC-65A/65G J2	APC-65A/65G J3	APC-65/65B/65C/65E/ 65F/65H/65J, FGC-65( ), FYD-65 J1	J2	J3	COLLINS APS 65 AUTOPILOT COMPUTER
A/P HEADING ERROR HI	18		7	-	-	7	-	-	HDG ERROR HI
A/P HEADING ERROR LO	17		6	-	-	6	-	-	HDG ERROR LO
A/P COURSE ERROR HI	16		34	-	-	34	-	-	CRS DATUM HI
A/P COURSE ERROR LO	15		30	-	-	30	-	-	CRS DATUM LO
LATERAL +LEFT OUT	9		-	-	54	-	-	54	LAT DEV +LT
LATERAL +RIGHT OUT	10		-	-	53	-	-	53	LAT DEV +RT
VERTICAL +UP OUT	13		-	-	41	-	-	41	GS DEV +UP
VERTICAL +DOWN OUT	14		-	-	44	-	-	44	GS DEV +DN
LATERAL +FLAG OUT	11		-	-	-	-	-	4	NAV LL FLAG +
LATERAL -FLAG OUT	32		-	-	-	-	-	1	NAV LL FLAG -
VERTICAL +FLAG OUT	12		-	-	-	-	-	12	GS HL FLAG +
VERTICAL -FLAG OUT	33		-	-	-	-	-	9	GS HL FLAG -
LATERAL SUPERFLAG	8	1	-	-	4	-	-	4	NAV LL FLAG +
		N/C	-	-	-	-	-	1	NAV LL FLAG -
VERTICAL SUPERFLAG	7		-	-	12	-	-	12	GS HL FLAG +
		N/C	-	-	-	-	-	9	GS HL FLAG -
ILS/GPS APPROACH (~ DISCRETE OUT 1*)	43		35	-	-	35	-	-	LOC FREQ GND
			-	41	-	-	41	-	26 VAC 400 HZ REF I
A/P AC REF HI	41		26	-	-	26	-	-	26 VAC 400 HZ REF II
A/P AC REF LO	40		-	-	-	-	-	-	26 VAC IN LO
		8 AIRCRAFT 400 HZ AC REFERENCE VOLTAGE							
FD ROLL RIGHT	20		-	-	39	-	-	39	ROLL STEER +RT
FD ROLL LEFT	19		-	-	38	-	-	38	ROLL STEER +LT
FD PITCH DOWN	21		-	-	43	-	-	43	PITCH STEER +DN
FD PITCH UP	42		-	-	42	-	-	42	PITCH STEER +UP
FD ENABLE IN (~DISCRETE IN 1)	57								

ADI-84A

2 (on copilot s side)

ADI-84A		COLLINS FCP-65/65A J1	FLIGHT CONTROL PANEL
ROLL STR + RT	u		
ROLL STR COM	t		
PITCH STR + DN	w		
PITCH STR COM	v		
IN-VIEW BIAS	BB	27	IN-VIEW BIAS

Figure B-32 Autopilot/Flight Director Interconnect – Collins
Sheet 2 of 3

NOTES

1 CONNECT EITHER THE LOW-LEVEL FLAGS OR THE SUPERFLAGS. DO NOT CONNECT BOTH SETS OF FLAGS IN A PARTICULAR INSTALLATION.

2 FOR DUAL PFD INSTALLATIONS, FLIGHT DIRECTOR WIRING MUST BE DISCONNECTED FROM THE EXISTING ADI.

3 FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. THE DISPLAY OF THE FLIGHT DIRECTOR MUST BE DISABLED IN THIS CASE. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI AND THE FLIGHT DIRECTOR MAY BE ENABLED. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

4 IT IS NECESSARY TO INSTALL A RELAY TO INVERT THE POLARITY OF THE "OUT OF VIEW+" SIGNAL FROM ACTIVE-LOW TO ACTIVE-HIGH FOR INPUT INTO THE GDU. USE M39016/6-204M OR 207M OR EQUIVALENT. RELAY COIL MUST NOT DRAW MORE THAN 50 MA.

5 IF THE OPTIONAL CO-PILOT'S ADI IS INSTALLED, THE "OFF MODE+" SIGNAL MUST BE DISCONNECTED FROM THE AUTOPILOT (J2-33) AND ISOLATED USING A RELAY AS SHOWN.

6 CONNECT LATERAL + FLAGS FROM 161H-1 TO 913K-1A FOR 913K-1A SYSTEMS ONLY.

7 SEE STRAPPING INFORMATION IN INSTALLATION BOOK 523-0764806, PAGE 4 (REVISED 27 JUNE 1984 - 913K-1/1A STRAPPING OPTIONS) AND PAGE 11 (REVISED 1 MARCH 1977 - 161H-1 STRAPPING OPTIONS). STRAP FOR NEGATIVE-LOGIC LOCALIZER FREQUENCY SIGNAL INPUT. ALTERNATIVELY, CONNECT A RELAY TO INVERT THE SIGNAL FROM THE GDU FOR ACTIVE-HIGH OUTPUT.

8 26 VAC 400HZ REFERENCE POWER FOR THE GAD 43(e), GDU, AND AUTOPILOT MUST BE FROM THE SAME SOURCE AND IN PHASE.

Figure B-32 Autopilot/Flight Director Interconnect – Collins
Sheet 3 of 3

GARMIN
GAD 43(e)

4

APS 65

APC-65/65E,H,J/
FGC-65(),FYD-65

AUTOPILOT
COMPUTER

P431

7 12
6.8mH
6.8mH

GAD 43(e) signal	P431	J1	J2	Autopilot signal
PITCH DATA X	31	10	-	PITCH DATA II X
PITCH DATA Y	15	38	-	PITCH DATA II Y
PITCH DATA Z	45	59	-	PITCH DATA II Z
		-	45	PITCH DATA I X
		-	49	PITCH DATA I Y
ROLL DATA X	30	2	-	ROLL DATA II X
ROLL DATA Y	14	3	-	ROLL DATA II Y
ROLL DATA Z	44	23	-	ROLL DATA II Z
		-	50	ROLL DATA I X
		-	46	ROLL DATA I Y
YAW RATE OUT +	19	-	48	YAW RATE SIG +
YAW RATE OUT -	40	-	52	YAW RATE SIG -
ATTITUDE VALID OUT	3	13	-	GYRO VALID +
		15	-	COMPASS MONITOR
HEADING VALID	2			
		-	41	26 VAC 400 HZ REF I
26 VAC REF IN HI	39	26	-	26 VAC 400 HZ REF II
26 VAC REF IN LO	34	-	-	26 VAC IN LO
ATTITUDE VALID COM	20			

s

7 12
6.8mH
6.8mH

s

8

s

s

TO GAD
POWER INPUT
22 AWG

TO AIRCRAFT
PWR

N/C

22 AWG

22 AWG

22 AWG

11

9

COMPASS
VALID RELAY 10

TO GDU 700/1060

6

s

AIRCRAFT 26 VAC
400 HZ REF
VOLTAGE

5 6

s

GDU 700/1060/1210
PILOT PFD

P3

GDU signal	Pin	J1	J2	Autopilot signal
LRU POWER OUT 3	27	-	42	AHRS RATE ENABLE

APC-65 P3-3 (28 VDC)

s

P4

20 k©, ¼ WATT

GDU signal	P4	J1	J2	Autopilot signal
ANALOG OUT 1A (PITCH)	45	-	53	PITCH RATE +
		-	57	PITCH RATE -
ANALOG OUT 1B (ROLL)	44	-	58	ROLL RATE +
		-	54	ROLL RATE -

s

20 k©, ¼ WATT

s

Figure B-33 Autopilot/Flight Director Interconnect – Collins – GAD
Sheet 1 of 3

ALTITUDE PRESELECT INTERFACE

GARMIN
GAD 43e Only

P432

3

PRESELECT MON+ PWR 58

1

AIRCRAFT
PWR

APS 65

APC-65A/65B/
65C/65F/65G,
FGC-65( ), FYD-65

APC-65/65E/
65H/65J

AUTOPILOT
COMPUTER

2

GAD 43e	P432	Wire	APC-65A/65B/65C/65F/65G, FGC-65( ), FYD-65 J1	APC-65/65E/65H/65J J1	J2	AUTOPILOT COMPUTER
PRESELECT MON+ OUT	59		57	57	-	ALT PRE MON +
ALTITUDE ERROR OUT +	19	WHT	47	47	-	ALT PRE ERROR +
ALTITUDE ERROR OUT -	20	BLU	22	22	-	ALT PRE ERROR -

S

2

FCP-65/65A
J1

FLIGHT
CONTROL PANEL

DISCRETE OUT #1*
(KNOB IN MOTION) 34

37 KNOB IN MOTION

Figure B-33 Autopilot/Flight Director Interconnect – Collins – GAD
Sheet 2 of 3

NOTES

1 SPLICE AT GAD 43(e) BREAKER.

2 THE GAD 43(e) CANNOT BE USED TO PROVIDE THE ALTITUDE PRESELECTOR FUNCTION WITH ANY APS-65 COMPUTER THAT CURRENTLY USES THE PRE-80 ALTITUDE PRESELECTOR.

3 TO GAD 43e MAIN POWER INPUT (P341-49). REFER TO FIGURE B-10.

4 ONLY SPECIFIC APS-65 MODELS WILL ACCEPT ATTITUDE FROM THE GAD 43(e). REFER TO APPENDIX SECTION C.13 FOR COMPATIBILITY AND EXTERNAL RATE SENSOR INFORMATION.

5 26 VAC 400 Hz REFERENCE POWER FOR THE GAD 43(e), GDU, AND AUTOPILOT MUST BE FROM THE SAME SOURCE AND IN PHASE.

6 WHENEVER POSSIBLE, EXISTING SOURCES OF 26 VAC SHOULD BE UTILIZED FOR THIS REFERENCE INPUT. THE GAD 43 26 VAC OUTPUT IS CAPABLE OF SUPPLYING UP TO 300 MA AT 26 VAC (7.8 VA) TO OTHER EQUIPMENT.

IF THE EXISTING 400 Hz REFERENCE IS BEING REMOVED FROM THE AIRCRAFT, THE GAD 43(e) CAN BE USED AS THE 26 VAC 400 Hz REFERENCE AS FOLLOWS:

7 INDUCTORS ARE NOT REQUIRED IF EXISTING APS-65 AUTOPILOT SYSTEM PREVIOUSLY INTERFACED WITH DIGITAL AHRS (e.g., AHC-1000A/S OR 3000A/S). REFER TO SECTION 3.1.2 FOR INDUCTOR SPECIFICATIONS AND SECTION 4.1 FOR INDUCTOR INSTALLATION.

8 IF THE APS-65 HAS A PULSED YAW RATE INPUT (i.e., FROM THE MCS-65) THEN THIS YAW RATE CONNECTION TO THE GAD 43(e) IS NOT REQUIRED.

9 COLLINS APC-65 REQUIRES A COMPASS VALID INPUT (+18 VDC TO +30 VDC) INTO J1-15 FOR PROPER OPERATION.

10 INSTALL COMPASS VALID RELAY AS SHOWN. USE M39016/6-204M OR -207M. THIS RELAY IS ENERGIZED (ENGAGED) WHEN P431-2 ON THE GAD 43(e) IS ACTIVE-LOW. THIS STATE PROVIDES HI SIGNAL TO THE APC-65 COMPASS MONITOR INPUT.

11 ALL WIRES FROM THE RELAY TO THE AP COMPASS MONITOR INPUT MUST BE OF THE SIZE SPECIFIED IN THE AUTOPILOT INSTALLATION MANUAL TO SUPPORT THE LOAD.

12 RECOMMEND STAGGERING AND INDIVIDUALLY SHIELDING INDUCTORS.

Figure B-33 Autopilot/Flight Director Interconnect – Collins – GAD
Sheet 3 of 3

GDU 700/1060/1210
PILOT PFD

P4

~ARINC 429 OUT 4 (NAV) A 56 / B 76
s

~ARINC 429 OUT 3 (PFD) A 55 / B 75
s

~ARINC 429 IN 2 A 2 / B 22
s

GARMIN
GAD 29(B)

P292

23 A / 11 B ~ARINC 429 IN 1 (NAV)
s

22 A / 10 B ~ARINC 429 IN 2 (DATA)
s

24 A / 12 B ~ARINC 429 OUT 1
s

2 GTN, GPS 1 — 17 A / 5 B ~ARINC 429 IN 3

2 GTN, NAV 1 — 16 A / 4 B ~ARINC 429 IN 4

2 GTN, G5 ALT/HDG — 18 A / 6 B ~ARINC 429 OUT 2

P291

3 1 G5 — 1 CAN - H / 2 CAN - L

Figure B-34 Autopilot/Flight Director Interconnect – Garmin GFC 500/600
Sheet 1 of 2

GDU 700/1060/1210
PILOT PFD

P2

~ETHERNET 3

OUT A	21
OUT B	36
IN A	20
IN B	35

s

GARMIN
GMC 605(C)

P6051

HSDB 2

44	IN A
45	IN B
46	OUT A
47	OUT B

s

NOTES

1 REFER TO FIGURE B-50 FOR STANDBY G5 INSTALLATIONS WITH A GAD 29(B). IN STANDBY G5 INSTALLATIONS WITHOUT A GFC 500 OR GAD 29(B), NO CONNECTION EXISTS BETWEEN THE GDU AND G5.

2 ARINC CONNECTIONS TO GTN FOR REVERSIONARY PURPOSES IN THE UNLIKELY EVENT OF GDU FAILURE. FOR DETAILED INSTALLATION INFORMATION, REFER TO GTN 6XX/7XX PART 23 AML STC INSTALLATION MANUAL (P/N 190-01007-A3) OR GTN Xi PART 23 AML STC INSTALLATION MANUAL(P/N 190-01007-C0).

3 G5 INSTALLED AS STANDBY INDICATOR. FOR DETAILED INSTALLATION INFORMATION, SEE G5 STC INSTALLATION MANUAL (P/N 190-01112-10).

4 SHEET 1 APPLIES TO BOTH GFC 500 AND G5-GAD 29(B) INSTALLATIONS. WIRE IN ACCORDANCE WITH SHEET 1 FOR BOTH GFC 500 AND G5 STANDALONE INSTALLATIONS.

Figure B-34 Autopilot/Flight Director Interconnect – Garmin GFC 500/600
Sheet 2 of 2

GDU 700/1060/1210
PILOT PFD

AUTOPILOT

		KAP 100 / KC 190		KAP 140 / KC 140		KAP 150 [3] / KC 191/192		KFC 150 [3] / KC 191/192		
	P3	P1901	P1902	P1401	P1402	P19X1	P19X2	P19X1	P19X2	
A/P HEADING ERROR HI	18	X	-	2	-	X	-	X	-	HDG DATUM HI
A/P HEADING ERROR LO	17	20	-	27	-	20	-	20	-	HDG DATUM LO
A/P COURSE ERROR HI	16	W	-	-	17	W	-	W	-	CRS DATUM HI
A/P COURSE ERROR LO	15	19	-	27	-	19	-	19	-	CRS DATUM LO
LATERAL +FLAG OUT	11	-	-	22	-	-	-	-	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	-	-	23	-	-	-	-	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9	U	-	24	-	U	-	U	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	17	-	25	-	17	-	17	-	LAT DEV +RT
VERTICAL +FLAG OUT	12	-	-	-	31	-	21	-	21	GS DEV FLAG +
VERTICAL -FLAG OUT	33	-	-	-	12	-	Y	-	Y	GS DEV FLAG -
VERTICAL +UP OUT	13	-	-	-	9	-	V	-	V	GS DEV +UP
VERTICAL +DOWN OUT	14	-	-	-	10	-	19	-	19	GS DEV +DOWN
GPS SELECT (~DISCRETE OUT 5*)	50	-	-	-	26	-	-	-	-	GPS SELECT (GND=GPS)
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	B	-	7	-	B	-	B	-	ILS ENERGIZE (A/P IN)
HDG/CRS DATUM VALID (~DISCRETE OUT 4*)	56	1	-	11	-	1	-	1	-	COMPASS VALID
FD ENABLE IN (~DISCRETE IN 1)	57	-	-	-	-	-	-	16	-	CMD BAR RETRACT
FD ROLL RIGHT	20	-	-	-	-	-	-	C	-	ROLL CMD BAR OUT
FD ROLL LEFT	19									
FD PITCH UP	42	-	-	-	-	-	-	E	-	PITCH CMD BAR OUT
FD PITCH DOWN	21	-	-	-	-	-	-	-	A	CMD BAR REF

KI 256 ADI
(COPILOT SIDE)

1 2

	KI 256
	P2561
CMD BAR RETRACT	P
ROLL CMD BAR IN	M
PITCH CMD BAR IN	L
CMD BAR REF	N

Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 1 of 6

GDU 700/1060/1210
PILOT PFD

AUTOPILOT

GDU 700/1060/1210 PILOT PFD		Pin	KAP 200 KC 295 P2951	KAP 200 KC 295 P2952	KFC 200 KC 295 P2951	KFC 200 KC 295 P2952	KFC 225 KC 225 P2251	KFC 225 KC 225 P2252		AUTOPILOT
		P3								
A/P HEADING ERROR HI		18	-	H	-	H	2	-		HDG DATUM HI
A/P HEADING ERROR LO		17								
A/P COURSE ERROR HI		16	-	W	-	W	-	16		CRS DATUM HI
A/P COURSE ERROR LO		15	-	M	-	M	28	-		CRS/HDG DATUM LO
LATERAL +FLAG OUT		11	-	-	-	-	23	-		LAT DEV FLAG +
LATERAL -FLAG OUT		32	-	-	-	-	24	-		LAT DEV FLAG -
LATERAL +LEFT OUT		9	-	C	-	C	25	-		LAT DEV +LT
LATERAL +RIGHT OUT		10	-	A	-	A	26	-		LAT DEV +RT
VERTICAL +FLAG OUT		12	C	-	C	-	-	14		GS DEV FLAG +
VERTICAL -FLAG OUT		33	D	-	D	-	-	15		GS DEV FLAG -
VERTICAL +UP OUT		13	M	-	M	-	-	12		GS DEV +UP
VERTICAL +DOWN OUT		14	K	-	K	-	-	52		GS DEV +DOWN
GPS SELECT (~DISCRETE OUT 5*)		50	-	-	-	-	-	34		GPS SELECT (GND=GPS)
ILS/GPS APPROACH (~DISCRETE OUT 1*)		43	AA	-	AA	-	7	-		ILS ENERGIZE (A/P IN)
HDG/CRS DATUM VALID (~DISCRETE OUT 4*)		56	c	-	c	-	11	-		COMPASS VALID
		P4								
~ARINC 429 IN10	A	10	-	-	-	-	48	-	A	ARINC 429 OUT
	B	30	-	-	-	-	49	-	B	
~ARINC 429 OUT 3	A	55	-	-	-	-	46	-	A	ARINC 429 IN (GPS)
	B	75	-	-	-	-	47	-	B	
		P3								
FD ENABLE IN (~DISCRETE IN 1)		57	-	-	-	p	-	48		CMD BAR RETRACT
FD ROLL RIGHT		20	-	-	-	EE	-	49		ROLL CMD BAR OUT
FD ROLL LEFT		19								
FD PITCH UP		42	-	-	-	BB	-	50		PITCH CMD BAR OUT
FD PITCH DOWN		21	-	-	F	-	-	51		CMD BAR REF

KI 256 ADI
(COPILOT SIDE)

1 2

KI 256 ADI (COPILOT SIDE)	KI 256 P2561
CMD BAR RETRACT	P
ROLL CMD BAR IN	M
PITCH CMD BAR IN	L
CMD BAR REF	N

Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 2 of 6

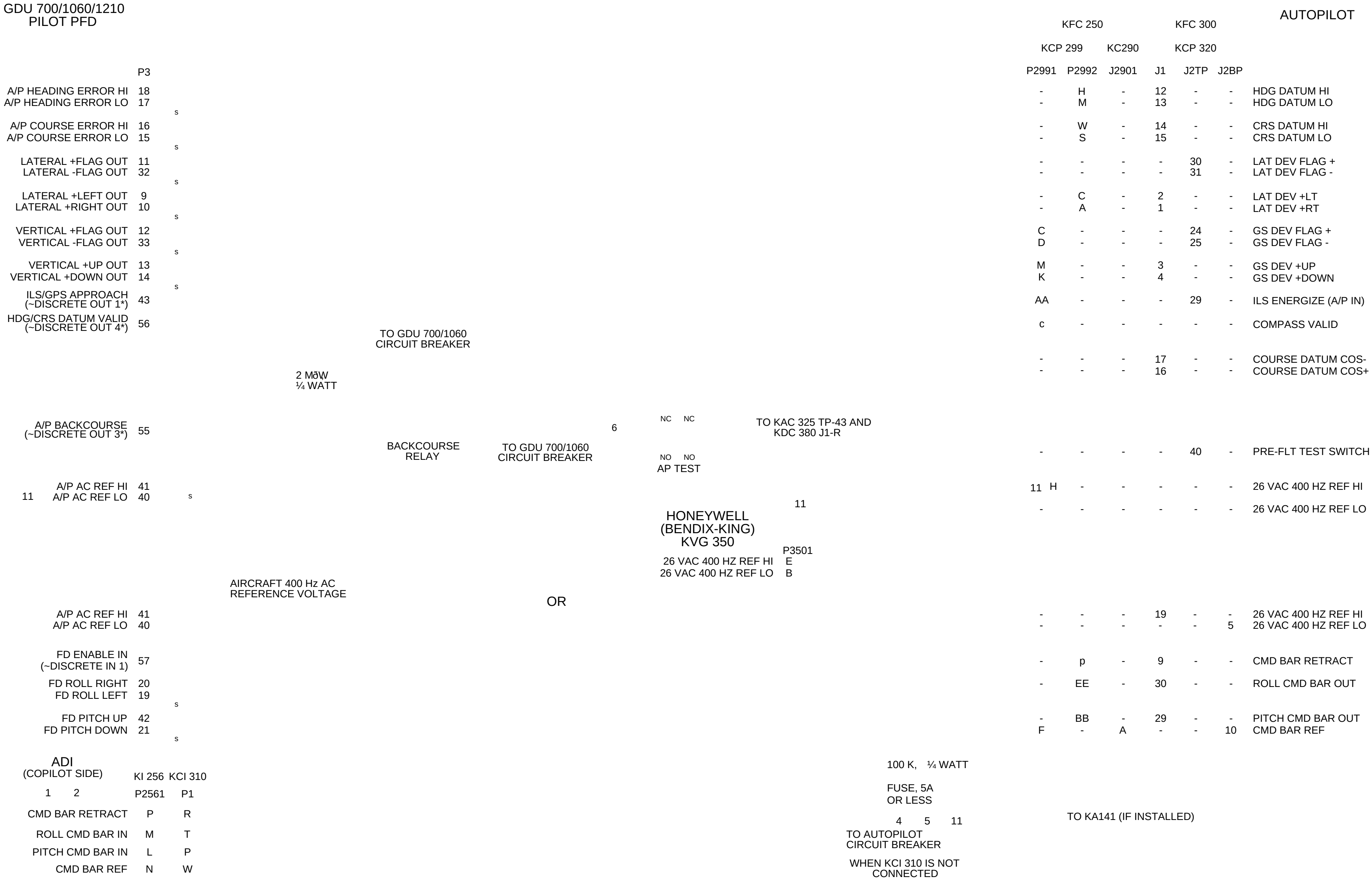


Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 3 of 6

GDU 700/1060/1210
PILOT PFD

AUTOPILOT

GDU 700/1060/1210 PILOT PFD	P3	KFC 275 KCP 220 (-12 and below) P2201	P2202	P2203	KMC 221 or KMC 321 P2211 / P3211	KFC 275 KCP 220 (-15 and above) P2201	P2202	P2203	KFC 325 KCP 220 (-12 and below) P2201	P2202	P2203	KMC 221 or KMC 321 P2211 / P3211	KFC 325 KCP 220 (-15 and above) P2201	P2202	P2203	AUTOPILOT
A/P HEADING ERROR HI	18	16	-	-	-	16	-	-	-	-	34	-	-	-	34	HDG DATUM HI
A/P HEADING ERROR LO	17	17	-	-	-	17	-	-	-	-	35	-	-	-	35	HDG DATUM LO
A/P COURSE ERROR HI	16	32	-	-	-	32	-	-	-	-	10	-	-	-	10	CRS DATUM HI
A/P COURSE ERROR LO	15	33	-	-	-	33	-	-	-	-	9	-	-	-	9	CRS DATUM LO
LATERAL +FLAG OUT	11	-	-	-	12 27	-	-	-	-	-	-	12 27	-	-	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	-	-	-	26	-	-	-	-	-	-	26	-	-	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9	3	-	-	-	3	-	-	3	-	-	-	3	-	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	2	-	-	-	2	-	-	2	-	-	-	2	-	-	LAT DEV +RT
VERTICAL +FLAG OUT	12	-	27	-	-	-	-	-	-	27	-	-	-	-	-	GS DEV FLAG +
VERTICAL -FLAG OUT	33	-	10	-	-	-	-	-	-	10	-	-	-	-	-	GS DEV FLAG -
VERTICAL +UP OUT	13	-	11	-	-	-	11	-	-	11	-	-	-	11	-	GS DEV +UP
VERTICAL +DOWN OUT	14	-	28	-	-	-	28	-	-	28	-	-	-	28	-	GS DEV +DOWN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	22	-	-	-	22	-	-	22	-	-	-	22	-	-	ILS ENERGIZE (A/P IN)
HDG/CRS DATUM VALID (~DISCRETE OUT 4*)	56	38	-	-	7	38	-	-	38	-	-	7	38	-	-	COMPASS VALID 7
					9							9				
A/P AC REF HI	41	-	-	36	-	-	-	36	-	-	36	-	-	-	36	26 VAC 400 HZ REF HI
A/P AC REF LO	40	-	-	GND	-	-	-	GND	-	-	GND	-	-	-	GND	26 VAC 400 HZ REF LO

8 HONEYWELL (BENDIX-KING) KVG 350

HONEYWELL (BENDIX-KING) KVG 350	P3501
26 VAC 400 HZ REF HI	E
26 VAC 400 HZ REF LO	B

GDU 700/1060/1210 PILOT PFD	P4	KFC 275 (-12 and below) P2201	P2202	P2203	KMC P2211 / P3211	KFC 275 (-15 and above) P2201	P2202	P2203	KFC 325 (-12 and below) P2201	P2202	P2203	KMC P2211 / P3211	KFC 325 (-15 and above) P2201	P2202	P2203	AUTOPILOT
~ARINC 429 IN 10 A	10	-	-	26	-	-	-	26	-	-	26	-	-	-	26	429 FLT CNTRL DATA A
~ARINC 429 IN 10 B	30	-	-	27	-	-	-	27	-	-	27	-	-	-	27	429 FLT CNTRL DATA B
~ARINC 429 OUT 3 A	55	-	-	-	-	-	-	18	-	-	-	-	-	-	18	ARINC 429 IN (EFIS) A
~ARINC 429 OUT 3 B	75	-	-	-	-	-	-	20	-	-	-	-	-	-	20	ARINC 429 IN (EFIS) B

GDU 700/1060/1210 PILOT PFD	P3	KFC 275 (-12 and below) P2201	P2202	P2203	KMC P2211 / P3211	KFC 275 (-15 and above) P2201	P2202	P2203	KFC 325 (-12 and below) P2201	P2202	P2203	KMC P2211 / P3211	KFC 325 (-15 and above) P2201	P2202	P2203	AUTOPILOT
FD ENABLE IN (~DISCRETE IN 1)	57	8	-	-	-	-	-	-	15	-	-	-	-	-	-	CMD BAR RETRACT
FD ROLL RIGHT	20	21	-	-	-	-	-	-	39	-	-	-	-	-	-	ROLL CMD BAR OUT
FD ROLL LEFT	19															
FD PITCH UP	42	29	-	-	-	-	-	-	7	-	-	-	-	-	-	PITCH CMD BAR OUT
FD PITCH DOWN	21	-	41	-	-	-	-	-	-	41	-	-	-	-	-	CMD BAR REF

ADI
(COPILOT SIDE)
1 2

	KI 256 P2561	KCI 310 P1
CMD BAR RETRACT	P	R
ROLL CMD BAR IN	M	T
PITCH CMD BAR IN	L	P
CMD BAR REF	N	W

100 k ,¼ WATT

FUSE, 5A
OR LESS

4 5
TO AUTOPILOT
CIRCUIT BREAKER

FOR KFC 325 WHEN KCI
310 IS NOT CONNECTED

Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 4 of 6

GDU 700/1060/1210
PILOT PFD

AUTOPILOT

GDU 700/1060/1210 PILOT PFD	Pin	KFC 275 KCP 220 (-08) P2201	P2202	P2203	KMC 321 (-08 only) P3211	KFC 275 KCP 220 (-08) P2201	P2202	P2203	KFC 325 KCP 220 (-08) P2201	P2202	P2203	KMC 321 (-08 only) P3211	KFC 325 KCP 220 (-08) P2201	P2202	P2203	AUTOPILOT
	P3															
A/P HEADING ERROR HI	18	16	-	-	-	16	-	-	-	-	34	-	-	-	34	HDG DATUM HI
A/P HEADING ERROR LO	17	17	-	-	-	17	-	-	-	-	35	-	-	-	35	HDG DATUM LO
A/P COURSE ERROR HI	16	32	-	-	-	32	-	-	-	-	10	-	-	-	10	CRS DATUM HI
A/P COURSE ERROR LO	15	33	-	-	-	33	-	-	-	-	9	-	-	-	9	CRS DATUM LO
LATERAL +FLAG OUT	11	-	-	-	12 27	-	-	-	-	-	-	12 27	-	-	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	-	-	-	26	-	-	-	-	-	-	26	-	-	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9	3	-	-	-	3	-	-	3	-	-	-	3	-	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	2	-	-	-	2	-	-	2	-	-	-	2	-	-	LAT DEV +RT
VERTICAL +FLAG OUT	12	-	27	-	-	-	-	-	-	27	-	-	-	-	-	GS DEV FLAG +
VERTICAL -FLAG OUT	33	-	10	-	-	-	-	-	-	10	-	-	-	-	-	GS DEV FLAG -
VERTICAL +UP OUT	13	-	11	-	-	-	11	-	-	11	-	-	-	11	-	GS DEV +UP
VERTICAL +DOWN OUT	14	-	28	-	-	-	28	-	-	28	-	-	-	28	-	GS DEV +DOWN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	22	-	-	-	22	-	-	22	-	-	-	22	-	-	ILS ENERGIZE (A/P IN)
HDG/CRS DATUM VALID (~DISCRETE OUT 4*)	56	-	-	-	7	38	-	-	-	-	-	7	38	-	-	COMPASS VALID 7
					9							9				
A/P AC REF HI	41	-	-	36	-	-	-	36	-	-	36	-	-	-	36	26 VAC 400 HZ REF HI
A/P AC REF LO	40	-	-	GND	-	-	-	GND	-	-	GND	-	-	-	GND	26 VAC 400 HZ REF LO
	P4															
~ARINC 429 IN 10 A	10	-	-	26	-	-	-	26	-	-	26	-	-	-	26	429 FLT CNTRL DATA A
~ARINC 429 IN 10 B	30	-	-	27	-	-	-	27	-	-	27	-	-	-	27	429 FLT CNTRL DATA B
~ARINC 429 OUT 3 A	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARINC 429 IN (EFIS) A
~ARINC 429 OUT 3 B	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARINC 429 IN (EFIS) B
	P3															
FD ENABLE IN (~DISCRETE IN 1)	57	8	-	-	-	-	-	-	15	-	-	-	-	-	-	CMD BAR RETRACT
FD ROLL RIGHT	20	21	-	-	-	-	-	-	39	-	-	-	-	-	-	ROLL CMD BAR OUT
FD ROLL LEFT	19															
FD PITCH UP	42	29	-	-	-	-	-	-	7	-	-	-	-	-	-	PITCH CMD BAR OUT
FD PITCH DOWN	21	-	41	-	-	-	-	-	-	41	-	-	-	-	-	CMD BAR REF

8

HONEYWELL
(BENDIX-KING)
KVG 350

	P3501
26 VAC 400 HZ REF HI	E
26 VAC 400 HZ REF LO	B

ADI
(COPILOT SIDE)
1 2

	KI 256 P2561	KCI 310 P1
CMD BAR RETRACT	P	R
ROLL CMD BAR IN	M	T
PITCH CMD BAR IN	L	P
CMD BAR REF	N	W

100 K ,¼ WATT

FUSE, 5A
OR LESS

4 5
TO AUTOPILOT
CIRCUIT BREAKER

FOR KFC 325 WHEN KCI
310 IS NOT CONNECTED

Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 5 of 6

NOTES

1 FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THIS ADI MUST BE LOCATED ON IN ACCORDANCE WITH SECTION 4.

2 IF THE FLIGHT DIRECTOR IS BEING DISPLAYED ON THE CO-PILOT'S ADI, THIS FLIGHT DIRECTOR ALIGNMENT MUST BE CORRECTLY ADJUSTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS PRIOR TO MAKING ANY ADJUSTMENTS TO THE GDU.

3 EFIS-ENABLED KC 19X COMPUTER (P/N 065-0042-16) IS NOT SUPPORTED.

4 GDU FD ENABLE INPUT MUST BE PULLED UP TO THE SAME CIRCUIT BREAKER AS THE AUTOPILOT COMPUTER IN ORDER TO ENSURE THAT THE COMMAND BARS ARE REMOVED WHEN THE AUTOPILOT COMPUTER IS NOT POWERED UP.

5 IF THE RATING OF THE AUTOPILOT CIRCUIT BREAKER IS GREATER THAN 5A, AN IN-LINE FUSE WILL BE REQUIRED TO PROTECT THE WIRING TO THE GDU. THE FUSE MUST BE INSTALLED AT THE POINT THAT POWER IS PICKED OFF FOR THE PULL-UP RESISTOR. IF THE RATING OF THE AUTOPILOT CIRCUIT BREAKER IS 5A OR LESS, NO FUSE IS REQUIRED.

6 THE KCI 310 INDICATOR CONTAINS A TEST KEY THAT IS USED TO INITIATE THE KFC 300 SELF-TEST. IF THE KCI 310 INDICATOR IS REMOVED, AN EXTERNAL MOMENTARY SWITCH MUST BE INSTALLED TO REPLACE THE FUNCTION OF THE KCI 310 TEST SWITCH. THE SWITCH SHOULD BE LABELED "AP TEST."

7 CONNECTION TO KCP 220 NOT REQUIRED IF KMC 321 P/N 065-00086-08 IS INSTALLED.

8 IF THE GAD 43 IS USED TO REPLACE THE KVG 350, THE 26 VAC REFERENCE WILL BE PROVIDED BY THE GAD 43. FOR ADDITIONAL INFORMATION, REFER TO FIGURE B-36.

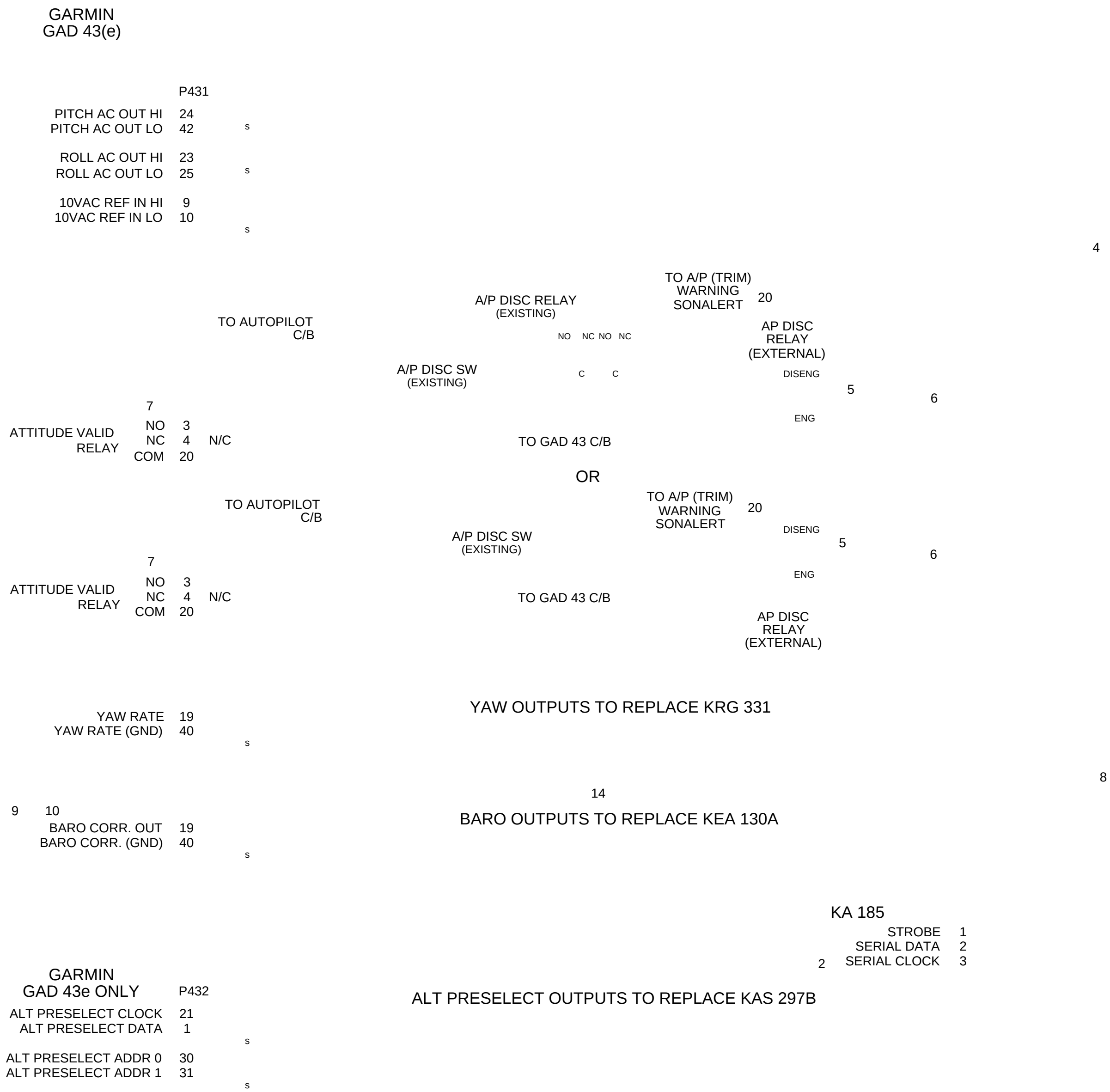
9 IF THE EXISTING INSTALLATION HAD A JUMPER BETWEEN P3211 PINS 7 AND 18 (KMC 321 P/N 065-00086-00) IT MUST BE RETAINED. IF NO JUMPER WAS PRESENT BETWEEN P3211 PINS 7 AND 18 (KMC 321 P/N 065-00086-08), DO NOT INSTALL A JUMPER.

10 ONLY FOR KMC 321 P/N 065-00086-08.

11 ONLY REQUIRED FOR KCP 299 UTILIZING 065-5015-XX ADAPTER CARD FOR 4-INCH INSTRUMENTS.

12 IF THE MODE CONTROL PANEL DOES NOT SUPPORT THE NAV FLAG, THESE OUTPUTS FROM THE GDU MAY BE LEFT UNCONNECTED.

Figure B-35 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King)
Sheet 6 of 6



	KAP 100		KAP 140		KAP 150/KFC 150				KAS 297B	
	KC 190		KC 140		KC 191/192		KC 296			
	P1901	P1902	P1401	P1402	P19X1	P19X2	P2961	P2962	P297B1	
	Y	-	-	-	Y	-	-	-	-	PITCH ATTITUDE HI
	21	-	-	-	21	-	-	-	-	ROLL ATTITUDE HI
	-	C	-	-	-	C	-	-	-	VG EXCITATION
	Z	-	-	-	Z	-	-	-	-	VG REF
	-	1	-	-	-	1	-	-	-	PWR REF
	-	B	-	-	-	B	-	-	-	AP DISC
	-	B	-	-	-	B	-	-	-	AP DISC
	-	-	-	-	-	-	2	-	-	YAW RATE (HIGH)
	-	-	-	-	-	-	C	-	-	YAW RATE (LOW)
	-	-	-	-	-	-	-	7	-	YAW ANNUNCIATE
	-	-	-	-	15	-	-	-	-	YD ANNUNCIATE
N/C	-	-	-	37	-	-	-	-	4	BARO EXCITATION
	-	-	-	16	-	-	-	-	7	BARO SET (IN)
	-	-	-	35	-	-	-	-	3	BARO/XPDR REFERENCE
	-	-	-	-	8	-	-	-	-	STROBE
	-	-	-	-	L	-	-	-	-	SERIAL CLOCK
	-	-	-	-	J	-	-	-	-	SERIAL DATA
	-	-	-	-	K	-	-	-	-	COMM ADR 0
	-	-	-	-	M	-	-	-	-	COMM ADR 1

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 1 of 9

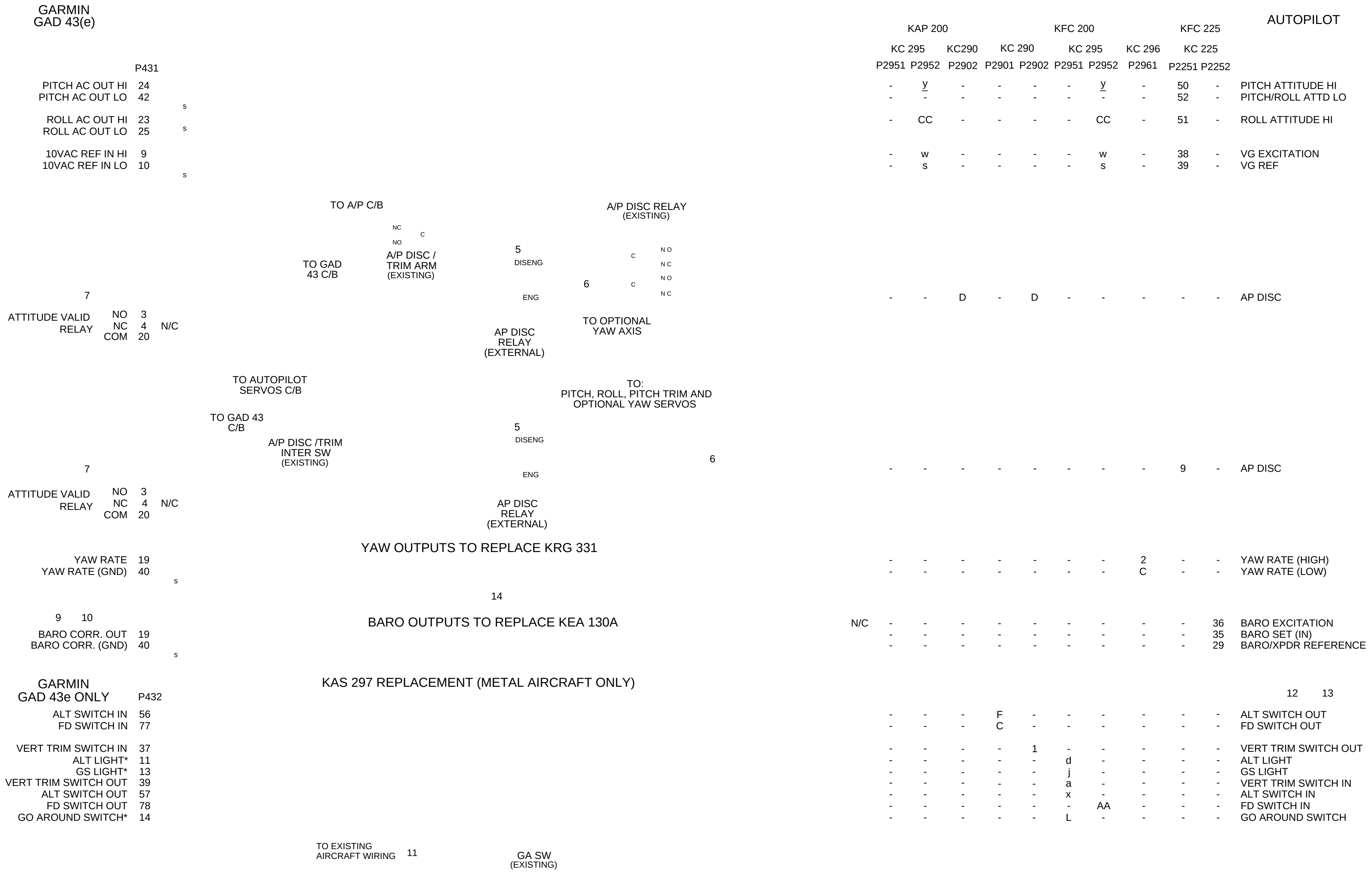


Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 2 of 9

GARMIN
GAD 43(e)

3" ADI Replacement

KFC 250

GAD 43(e) P431 signal	P431	NC	KC 290 P2901	KC 290 P2902	W/ KA 141: KCP 299 W/ 065-5016-XX ADAPTER CARD P2991	W/ KA 141: KCP 299 W/ 065-5016-XX ADAPTER CARD P2992	W/ KA 141: KA 141 P141	W/O KA 141: KCP 299 W/ 065-5016-XX ADAPTER CARD P2991	W/O KA 141: KCP 299 W/ 065-5016-XX ADAPTER CARD P2992	KFC 250 signal
PITCH AC OUT HI	24		-	-	-	-	-	-	y	PITCH ATTITUDE HI
PITCH AC OUT LO	42		-	-	-	-	-	-	s	GYRO COMMON
ROLL AC OUT HI	23		-	-	-	-	-	-	CC	ROLL ATTITUDE HI
ROLL AC OUT LO	25		-	-	-	-	-	-	HH	GRYO COMMON
10VAC REF IN HI	9		-	-	-	-	-	-	w	VG EXCITATION
10VAC REF IN LO	10		-	-	-	-	-	F	-	VG (PWR) REF
PITCH AC OUT HI	24		-	-	-	-	12	-	-	PITCH ATTITUDE HI
PITCH AC OUT LO	42		-	-	-	-	N	-	-	PITCH/ROLL ATTD LO
		NC			-	y	13	-	-	PITCH GRYO (H) RTN
		NC			-	HH	P	-	-	PITCH/ROLL REF
ROLL AC OUT HI	23		-	-	-	-	10	-	-	ROLL ATTITUDE HI
ROLL AC OUT LO	25	NC			-	CC	11	-	-	ROLL GYRO(H) RTN
10VAC REF IN HI	9		-	-	-	w	F	-	-	VG EXCITATION
10VAC REF IN LO	10		-	-	F	-	-	-	-	VG (PWR) REF
16 YAW RATE	19		-	-	-	X	-	-	X	YAW RATE (HIGH)
YAW RATE (GND)	40		-	-	-	Z	-	-	Z	YAW RATE (LOW)

KA 136
TRIM ADAPTER
P1362
6 EMERG AP/YD DISC

A/P DISC
SWITCH(ES)
(EXISTING)

COPILOT

PILOT

5 6
DISENG

ENG

7
ATTITUDE VALID RELAY
NO 3
COM 20

AP DISC
RELAY
(EXTERNAL)

ALTITUDE PRESELECT FOR METAL AIRCRAFT ONLY

GARMIN
GAD 43e ONLY

TO EXISTING
AIRCRAFT WIRING 11

12

GAD 43e P432 signal	P432	P2901	P2902	P2991	P2992	P141	P2991	P2992	KFC 250 signal
ALT SWITCH IN	56	F	-	-	-	-	-	-	ALT SWITCH OUT
FD SWITCH IN	77	C	-	-	-	-	-	-	FD SWITCH OUT
VERT TRIM SWITCH IN	37	-	1	-	-	-	-	-	VERT TRIM SWITCH OUT
ALT LIGHT*	11	-	-	d	-	-	d	-	ALT LIGHT
GS LIGHT*	13	-	-	j	-	-	j	-	GS LIGHT
VERT TRIM SWITCH OUT	39	-	-	a	-	-	a	-	VERT TRIM SWITCH IN
ALT SWITCH OUT	57	-	-	x	-	-	x	-	ALT SWITCH IN
FD SWITCH OUT	78	-	-	-	AA	-	-	AA	FD SWITCH IN
GO AROUND SWITCH*	14	-	-	L	-	-	L	-	GO AROUND SWITCH

KDC 298 ADC
Y VERT TRIM SWITCH IN

GA SW
(EXISTING)

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 3 of 9

GARMIN
GAD 43(e)

4" ADI Replacement

KFC 250

GAD 43(e) signal	P431		KC 290 P2901	KC 290 P2901	W/ KA 141 KCP 299 W/ 065-5015-XX ADAPTER CARD P2991	W/ KA 141 KCP 299 W/ 065-5015-XX ADAPTER CARD P2992	KA 141 P141	W/O KA 141 KCP 299 W/ 065-5015-XX ADAPTER CARD P2991	W/O KA 141 KCP 299 W/ 065-5015-XX ADAPTER CARD P2992	KFC 250 signal
PITCH AC OUT HI	24		-	-	-	-	12	-	y	PITCH AC HI
PITCH AC OUT LO	42		-	-	-	-	R	-	s	PITCH AC LO
		NC	-	-	-	y	13	-	-	PITCH GYRO (H) RTN
		NC	-	-	-	s	S	-	-	PITCH GYRO (C) RTN
ROLL AC OUT HI	23		-	-	-	-	10	-	CC	ROLL AC HI
ROLL AC OUT LO	25		-	-	-	-	N	-	HH	ROLL AC LO
		NC	-	-	-	CC	11	-	-	ROLL GYRO (H) RTN
		NC	-	-	-	HH	P	-	-	ROLL GYRO(C) RTN
26 VAC REF IN HI	39		-	-	-	w	F	-	w	26VAC REF HI
15 26 VAC OUT HI	18									
26 VAC LO	34									
115 VAC REF IN HI	38	TO EXISTING AIRCRAFT WIRING								
115 VAC REF IN LO	37									
7 ATTITUDE VALID RELAY COM	20		-	-	BB	-	-	BB	-	VG VALID
NC	4	NC								
NO	3									
+26 VDC OUT	6									
YAW RATE	19	YAW OUTPUTS TO REPLACE KRG 331	-	-	-	X	-	-	X	YAW RATE (HIGH)
YAW RATE (GND)	40		-	-	-	Z	-	-	Z	YAW RATE (LOW)
7 AP INTERLOCK RELAY NO	22		-	-	-	-	-	-	-	AP INTERLOCK
NC	21	NC								
COM	5									

s s s s s

ALTITUDE PRESELECT FOR METAL AIRCRAFT ONLY

GARMIN
GAD 43e ONLY

TO EXISTING
AIRCRAFT WIRING 11

12

GAD 43e signal	P432	KC 290 P2901	KC 290 P2901	P2991	P2992	P141	P2991	P2992	KFC 250 signal
ALT SWITCH IN	56	F	-	-	-	-	-	-	ALT SWITCH OUT
FD SWITCH IN	77	C	-	-	-	-	-	-	FD SWITCH OUT
VERT TRIM SWITCH IN	37	-	1	-	-	-	-	-	VERT TRIM SWITCH OUT
ALT LIGHT*	11	-	-	d	-	-	d	-	ALT LIGHT
GS LIGHT*	13	-	-	j	-	-	j	-	GS LIGHT
VERT TRIM SWITCH OUT	39	-	-	a	-	-	a	-	VERT TRIM SWITCH IN
ALT SWITCH OUT	57	-	-	x	-	-	x	-	ALT SWITCH IN
FD SWITCH OUT	78	-	-	-	AA	-	-	AA	FD SWITCH IN
GO AROUND SWITCH*	14	-	-	L	-	-	L	-	GO AROUND SWITCH

KDC 298 ADC

Y VERT TRIM SWITCH IN

GA SW
(EXISTING)

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 4 of 9

GARMIN
GAD 43(e)

AUTOPILOT

KFC 275

GAD 43(e) signal	P431	KCP 220 (-12 and below) P2201	KCP 220 (-12 and below) P2202	KCP 220 (-12 and below) P2203	KCP 220 (-15 and above) P2201	KCP 220 (-15 and above) P2202	KCP 220 (-15 and above) P2203	KMC 221 / KMC 321 P2211 / P3211	KAS 297C P297C1	Autopilot signal
PITCH AC OUT HI	24	19	-	-	19	-	-	-	-	PITCH ATTITUDE HI
PITCH AC OUT LO	42	1	-	-	1	-	-	-	-	PITCH/ROLL ATTD LO
ROLL AC OUT HI	23	18	-	-	18	-	-	-	-	ROLL ATTITUDE HI
ROLL AC OUT LO	25									
10VAC REF IN HI	9	43	36	-	43	36	-	-	-	VG EXCITATION
10VAC REF IN LO	10	-	42	-	-	42	-	-	-	VG REF
		-	1	-	-	1	-	-	-	+28V SWITCHED (AP DISC)
ATTITUDE VALID RELAY NO	3									
ATTITUDE VALID RELAY NC	4 (N/C)									
ATTITUDE VALID RELAY COM	20									
AP INTERLOCK RELAY NO	22	-	25	-	-	25	-	-	-	AP INTERLOCK
AP INTERLOCK RELAY NC	21 (N/C)									
AP INTERLOCK RELAY COM	5									
YAW RATE	19	-	-	29	-	-	29	-	-	YAW RATE (HIGH)
YAW RATE (GND)	40	-	-	28	-	-	28	-	-	YAW RATE (LOW)
N/C		-	-	-	-	-	-	-	4	BARO EXCITATION
BARO CORR. OUT	19	-	-	-	-	-	-	-	7	BARO SET (IN)
BARO CORR. (GND)	40	-	-	-	-	-	-	-	3	BARO/XPDR REFERENCE

ALT PRESELECT OUTPUTS TO REPLACE KAS 297C

GARMIN
GAD 43e ONLY

GAD 43e signal	P432	KCP 220 (-12 and below) P2201	KCP 220 (-12 and below) P2202	KCP 220 (-12 and below) P2203	KCP 220 (-15 and above) P2201	KCP 220 (-15 and above) P2202	KCP 220 (-15 and above) P2203	KMC 221 / KMC 321 P2211 / P3211	KAS 297C P297C1	Autopilot signal
		-	-	-	-	-	-	10	-	SERIAL CLOCK
		-	-	-	-	-	-	30	-	SERIAL DATA
ALT PRESELECT CLOCK	21	31	-	-	31	-	-	-	-	SERIAL CLOCK
ALT PRESELECT DATA	1	47	-	-	47	-	-	-	-	SERIAL DATA
ALT PRESELECT ADDR 0	30	45	-	-	45	-	-	-	-	COMM ADR 0
ALT PRESELECT ADDR 1	31	44	-	-	44	-	-	-	-	COMM ADR 1
		-	12	-	-	12	-	-	-	ALT OSC INPUT

TO ELECTRIC TRIM PWR

TO AUTOPILOT / FD C/B

A/P DISC/
TRIM INTRPT
SWITCH
(OPTIONAL)

AP DISC
RELAY
(EXTERNAL)
5 DISENG
6 ENG

A/P DISC/
TRIM INTRPT
SWITCH
(EXISTING)

TO GAD 43 C/B

18 19 7 16 10 9 14 3 17

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 5 of 9

GARMIN
GAD 43(e)

KFC 300

GAD 43(e) signal	P431		KAC 325 TP	KAC 325 BP	W/ KA 141 KCP 320 J1	W/ KA 141 KCP 320 J2TP	KA 141 P141	W/O KA 141 KCP 320 J1	W/O KA 141 KCP 320 J2TP	KFC 300 signal
PITCH AC OUT HI	24		-	-	-	-	12	21	-	PITCH AC HI
PITCH AC OUT LO	42		-	-	-	-	R	20	-	PITCH AC LO
		NC	-	-	21	-	13	-	-	PITCH GYRO (H) RTN**
		NC	-	-	20	-	S	-	-	PITCH GYRO (C) RTN**
ROLL AC OUT HI	23		-	-	-	-	10	23	-	ROLL AC HI
ROLL AC OUT LO	25		-	-	-	-	N	22	-	ROLL AC LO
		NC	-	-	23	-	11	-	-	ROLL GYRO (H) RTN**
		NC	-	-	22	-	P	-	-	ROLL GYRO(C) RTN**
26 VAC OUT HI	18		-	-	24	-	F	24	-	26VAC REF HI
15 26 VAC REF IN HI	39									
26 VAC OUT LO	34									
115 VAC REF IN HI	38	TO EXISTING AIRCRAFT WIRING								
115 VAC REF IN LO	37									
7 ATTITUDE VALID RELAY COM	20		13	-	-	15	-	-	15	VG VALID
NC	4	NC								
NO	3									
+26 VDC OUT	6									

YAW OUTPUTS TO REPLACE KRG 331

GAD 43(e) signal	P431		KAC 325 TP	KAC 325 BP	W/ KA 141 KCP 320 J1	W/ KA 141 KCP 320 J2TP	KA 141 P141	W/O KA 141 KCP 320 J1	W/O KA 141 KCP 320 J2TP	KFC 300 signal
YAW RATE	19		-	43	-	-	-	-	-	YAW RATE (HIGH)
YAW RATE (GND)	40		-	44	-	-	-	-	-	YAW RATE (LOW)
7 AP INTERLOCK RELAY NO	22		10	-	-	-	-	-	-	AP INTERLOCK
NC	21	NC								
COM	5									

SYNCRO HEADING TO REPLACE KSG105

GAD 43(e) signal	P431	KAC 325 TP	KAC 325 BP	W/ KA 141 KCP 320 J1	W/ KA 141 KCP 320 J2TP	KA 141 P141	W/O KA 141 KCP 320 J1	W/O KA 141 KCP 320 J2TP	KFC 300 signal
HDG SYNCHRO OUT X	8	-	-	25	-	-	25	-	HDG SYNCHRO X
HDG SYNCHRO OUT Y	7	-	-	26	-	-	26	-	HDG SYNCHRO Y
HDG SYNCHRO OUT Z	41	-	-	27	-	-	27	-	HDG SYNCHRO Z
HDG VALID OUT*	2	-	-	-	16	-	-	16	HDG VALID

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
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GARMIN
GAD 43(e)

AUTOPILOT

KFC 325

GAD 43(e) signal	P431		KCP 220 (-12 and below) P2201	P2202	P2203	KCP 220 (-15 and above) P2201	P2202	P2203	KMC 221 / KMC 321 P2211 / P3211	Autopilot
PITCH AC OUT HI	24		-	-	43	-	-	43	-	PITCH AC HI
PITCH AC OUT LO	42		-	-	44	-	-	44	-	PITCH AC LO
ROLL AC OUT HI	23		-	-	37	-	-	37	-	ROLL AC HI
ROLL AC OUT LO	25		-	-	38	-	-	38	-	ROLL AC LO
26 VAC OUT HI	18									
15 26 VAC REF IN HI	39		43	-	-	43	-	-	-	26VAC REF HI
26 VAC OUT LO	34									
ATTITUDE VALID RELAY COM	20		-	-	19	-	-	19	-	VG VALID
NC	4									
NO	3									
+26VDC OUT	6									
15 115 VAC REF IN HI	38	TO 115 VAC 400 HZ AIRCRAFT POWER								
115 VAC REF IN LO	37									
AP INTERLOCK RELAY NO	22		-	25	-	-	25	-	-	AP INTERLOCK
NC	21	N/C								
COM	5									
YAW RATE	19		-	-	29	-	-	29	-	YAW RATE (HIGH)
YAW RATE (GND)	40		-	-	28	-	-	28	-	YAW RATE (LOW)

YAW OUTPUTS TO REPLACE KRG 332/331

GARMIN
GAD 43e ONLY

GAD 43e signal	P432		KCP 220 (-12 and below) P2201	P2202	P2203	KCP 220 (-15 and above) P2201	P2202	P2203	KMC 221 / KMC 321 P2211 / P3211	Autopilot
			-	-	-	-	-	-	10	SERIAL CLOCK
			-	-	-	-	-	-	30	SERIAL DATA
ALT PRESELECT CLOCK	21		31	-	-	31	-	-	-	SERIAL CLOCK
ALT PRESELECT DATA	1		47	-	-	47	-	-	-	SERIAL DATA
ALT PRESELECT ADDR 0	30		45	-	-	45	-	-	-	COMM ADR 0
ALT PRESELECT ADDR 1	31		44	-	-	44	-	-	-	COMM ADR 1
		17	-	12	-	-	12	-	-	ALT OSC INPUT

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 7 of 9

NOTES

1 EFIS-ENABLED KC 19X COMPUTER (P/N 065-0042-16) IS NOT SUPPORTED.

2 EXISTING CONNECTIONS TO OPTIONAL KA 185 ANNUNCIATOR MUST BE RETAINED (IF INSTALLED).

3 THE KA 185A/KAP 315A ANNUNCIATOR MUST BE REMOVED WHEN THE GDU IS INSTALLED. THE MODE ANNUNCIATION IS TRANSMITTED TO THE GDU VIA THE ARINC 429 INTERFACE, WHICH REQUIRES THE KCP 220 VIA ARINC 429 BE ENABLED FOR DISPLAY ON THE GDU.

4 IF THE GAD 43(e) IS USED TO REPLACE THE ADI AND THE WIRING TO THE EXISTING ADI IS REMOVED, ENSURE THAT GROUND REFERENCE PINS REMAIN JUMPERED AS SHOWN.

5 INSTALL EXTERNAL AP DISCONNECT RELAY INTO AP DISCONNECT CIRCUIT AS SHOWN. EXTERNAL AP DISC RELAY CONTACTS MUST SUPPORT THE MAXIMUM CURRENT THROUGH THE AP DISCONNECT WIRING.

6 ALL WIRES FROM RELAY TO AP DISC INPUT MUST BE OF THE SIZE SPECIFIED IN THE AUTOPILOT INSTALLATION MANUAL TO SUPPORT THE CURRENT LOAD FROM THE DISCONNECT CIRCUIT.

7 RELAY CONTACTS SUPPORT A MAXIMUM OF 2 AMPERES SWITCHING AND 2 AMPERES CONTINUOUS CURRENT.

8 WHEN THE KRG 331 RATE GYRO IS REMOVED AND REPLACED BY THE GAD 43(e), P2962-7 MUST BE CONNECTED DIRECTLY TO P19X1-15 AS SHOWN.

9 IF THE GAD 43(e) IS USED TO PROVIDE BARO-CORRECTION TO THE AUTOPILOT, THE AUTOPILOT MUST BE RECALIBRATED TO THE ALTITUDE SOURCE. SEE SECTION 5.8.

10 IF THE ENCODING ALTIMETER IS BEING REPLACED, A BLIND ENCODER MUST BE USED TO SUPPLY GRAY CODE ALTITUDE TO THE AUTOPILOT.

11 EXISTING CONNECTIONS TO AIRCRAFT WIRING MUST BE RETAINED. ENSURE MODE ANNUNCIATIONS ARE STILL DRIVEN BY THE AUTOPILOT.

12 INSTALLATIONS WITH THE KNS 660 FLIGHT MANAGEMENT SYSTEM ARE NOT SUPPORTED.

13 KC 295 FLIGHT CONTROL COMPUTER MUST BE SERIAL NUMBER 4460 OR HIGHER.

14 THE GAD 43(e) CAN REPLACE EITHER THE YAW OR BARO INPUTS TO THE AUTOPILOT, BUT NOT BOTH SIMULTANEOUSLY.

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
Sheet 8 of 9

NOTES CONTINUED

15 WHENEVER POSSIBLE, UTILIZE EXISTING SOURCES OF 26VAC REFERENCE AS SHOWN BELOW. THE 26VAC SOURCE MUST PRODUCE A SINUSOIDAL, LOW-NOISE WAVEFORM. A SQUARE WAVE IS NOT ACCEPTABLE. IF THE GAD 43(e) 26VAC REFERENCE OUTPUT IS UTILIZED, CONNECT AS SHOWN IN THE INTERCONNECT. THE 26VAC OUTPUT FROM THE GAD 43(e) CAN SOURCE UP TO 310 MILLIAMPS OF CURRENT.

GAD 43e P431
26 VAC OUT HI 18 N/C
26 VAC REF IN HI 39
26 VAC LO 34
s
} TO A/P, GAD, GDU, AND OTHER 26 VAC REF EQUIPMENT
115 VAC REF IN HI 38 N/C
115 VAC REF IN LO 37 N/C
} AIRCRAFT 26 VAC 400 HZ REFERENCE VOLTAGE

-EITHER-

GAD 43e P431
26 VAC OUT HI 18
26 VAC REF IN HI 39
26 VAC LO 34
s
TO A/P, GAD, GDU, AND OTHER 26 VAC REF EQUIPMENT
115 VAC REF IN HI 38
115 VAC REF IN LO 37
s
AIRCRAFT 115 VAC 400 HZ

16 YAW RATE OUTPUTS REPLACE KRG 331.

17 ALTITUDE OSCILLATOR SIGNAL FROM THE AM-250 OR KDC 222 MUST BE RETAINED.

18 THE GROUND REFERENCE AT P2202-42 IS ALSO USED BY THE KDC 222. THE CONNECTION TO THE KDC 222 MUST BE LEFT INTACT AS PART OF THIS MODIFICATION.

19 IF DUAL AP DISC/TRIM INTRPT SWITCHES ARE INSTALLED, INSTALL THE GAD 43(e) EXTERNAL RELAY BETWEEN THE KCP 220 AND FIRST AP DISC/TRIM INTRPT SWITCH.

20 POWER TO THE SONALERT MUST NOT BE INTERRUPTED BY THE EXTERNAL GAD 43(e) AP DISC RELAY.

Figure B-36 Autopilot/Flight Director Interconnect – Honeywell (Bendix/King) GAD
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GDU 700/1060/1210
PILOT PFD

AUTOPILOT

	P3			S-TEC 20/30 P1	S-TEC 40/50 P1	S-TEC 60-1 RFGC	
A/P HEADING ERROR HI	18			8	31	19	HDG DATUM HI
A/P HEADING ERROR LO	17			7	29	13	HDG DATUM LO
A/P COURSE ERROR HI	16			-	-	20	CRS DATUM HI
A/P COURSE ERROR LO	15			-	-	13	CRS DATUM LO
LATERAL +FLAG OUT	11			-	-	24	LAT DEV FLAG +
LATERAL -FLAG OUT	32			-	-	6	LAT DEV FLAG -
LATERAL +LEFT OUT	9			9	14	23	LAT DEV +LT
LATERAL +RIGHT OUT	10			10	13	21	LAT DEV +RT
GPS SELECT (~DISCRETE OUT 5*)	50			42	26	-	GPS TRACK GAIN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43			-	-	16	LOC SWITCH
		5	N/C	-	-	18	DG GROUND STRAP
			N/C	-	-	34	GROUND
		6	N/C	20	23	-	NO HEADING SYSTEM A
			N/C	21	39	-	NO HEADING SYSTEM B

Figure B-37 Autopilot/Flight Director Interconnect – S-TEC
Sheet 1 of 5

GDU 700/1060/1210 PILOT PFD	P3		S-TEC 55 P1	S-TEC 55 P2	S-TEC 55X P1	S-TEC 55X P2	AUTOPILOT
FD ENABLE IN (~DISCRETE IN 1)	57		-	4	-	4	FD LOGIC OUT 1
FD ROLL RIGHT	20		-	12	-	12	ROLL STEERING SIG
FD ROLL LEFT	19	s	-	29	-	29	SIG REF
FD PITCH UP	42		-	13	-	13	PITCH STEERING SIG
FD PITCH DOWN	21	s	-	30	-	30	SIG REF
		2 N/C	-	10	-	10	10 VDC PARALLAX POT**
		N/C	-	11	-	11	PITCH STR CENTERING**
		N/C	-	44	-	44	FD POT GROUND**
A/P HEADING ERROR HI	18		28	-	28	-	HDG DATUM HI
A/P HEADING ERROR LO	17	s	29	-	29	-	HDG DATUM LO
A/P COURSE ERROR HI	16		11	-	11	-	CRS DATUM HI
A/P COURSE ERROR LO	15	s	12	-	12	-	CRS DATUM LO
LATERAL +FLAG OUT	11		13	-	13	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	s	14	-	14	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9		31	-	31	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	s	30	-	30	-	LAT DEV +RT
VERTICAL +FLAG OUT	12		-	1	-	1	GS DEV FLAG +
VERTICAL -FLAG OUT	33	s	-	2	-	2	GS DEV FLAG -
VERTICAL +UP OUT	13		-	18	-	18	GS DEV +UP
VERTICAL +DOWN OUT	14	s	-	19	-	19	GS DEV +DOWN
GPS ANNUNCIATE (~DISCRETE OUT 2*)	49		-	-	-	38	GPSS STEERING
GPS SELECT (~DISCRETE OUT 5*)	50		-	-	49	-	GPS TRACK GAIN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43		32	-	32	-	LOC SWITCH
3 ~RS-485 4 A	61		-	-	-	21	A ALT SEL/BARO ALT
B	62	s	-	-	-	20	B RS-485
	P4						
~ARINC 429 OUT 3 A	55		-	-	-	36	A 429 GPSS DATA IN
B	75	s	-	-	-	37	B
		4 N/C	-	-	-	23	ALT SEL JUMPER
		N/C	-	-	-	42	GROUND
		5 N/C	9	-	9	-	DG GROUND STRAP
		N/C	10	-	10	-	GROUND

ADI
(on copilot s side)

9

Figure B-37 Autopilot/Flight Director Interconnect – S-TEC
Sheet 2 of 5

GDU 700/1060/1210
PILOT PFD

AUTOPILOT

GDU 700/1060/1210 PILOT PFD	P3	Note		S-TEC 60 PSS PFGC	ST-670	S-TEC 60-2/65 PFGC	RFGC	AUTOPILOT
FD ENABLE IN (~DISCRETE IN 1)	57			-	13	-	-	FD LOGIC OUT 7
FD ROLL RIGHT	20			-	1	-	-	ROLL STEERING SIG
FD ROLL LEFT	19			-	-	-	-	SIG REF
FD PITCH UP	42			-	9	-	-	PITCH STEERING SIG
FD PITCH DOWN	21			-	-	-	-	SIG REF
			N/C	-	-	62	-	10 VDC PARALLAX POT
		2	N/C	-	-	61	-	PITCH STR CENTERING
			N/C	-	-	63	-	FD POT GROUND
A/P HEADING ERROR HI	18			-	-	-	19	HDG DATUM HI
A/P HEADING ERROR LO	17			-	-	-	13	HDG DATUM LO
A/P COURSE ERROR HI	16			-	-	-	20	CRS DATUM HI
A/P COURSE ERROR LO	15			-	-	-	-	CRS DATUM LO
LATERAL +FLAG OUT	11			-	-	-	24	LAT DEV FLAG +
LATERAL -FLAG OUT	32			-	-	-	6	LAT DEV FLAG -
LATERAL +LEFT OUT	9			-	-	-	23	LAT DEV +LT
LATERAL +RIGHT OUT	10			-	-	-	21	LAT DEV +RT
VERTICAL +FLAG OUT	12			77	-	77	-	GS DEV FLAG +
VERTICAL -FLAG OUT	33			58	-	58	-	GS DEV FLAG -
VERTICAL +UP OUT	13			46	-	46	-	GS DEV +UP
VERTICAL +DOWN OUT	14			45	-	45	-	GS DEV +DOWN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43			-	-	-	16	LOC SWITCH
			N/C	-	-	-	18	DG GROUND STRAP
		5	N/C	-	-	-	34	GROUND

Figure B-37 Autopilot/Flight Director Interconnect – S-TEC
Sheet 3 of 5

GDU 700/1060/1210
PILOT PFD

S-TEC 1500/2100 (-01,-03) | S-TEC 1500/2100 (-02,-04,-07) | 8 AUTOPILOT

GDU 700/1060/1210 PILOT PFD	P3			S-TEC 1500/2100 (-01,-03) P1	S-TEC 1500/2100 (-01,-03) P2	S-TEC 1500/2100 (-02,-04,-07) P1	S-TEC 1500/2100 (-02,-04,-07) P2	AUTOPILOT
FD ENABLE IN (~DISCRETE IN 1)	57			-	24	-	24	FD FLAG
FD ROLL RIGHT	20			50	-	50	-	R-STR-OUT
FD ROLL LEFT	19	s		19	-	19	-	VREF
FD PITCH UP	42			51	-	51	-	P-STR-OUT
FD PITCH DOWN	21	s						
A/P HEADING ERROR HI	18			3	-	5	-	HDG DATUM HI
A/P HEADING ERROR LO	17	s		-	-	7	-	HDG DATUM LO
			N/C	47	-	11	-	CRS DATUM HI
			N/C	-	-	12	-	CRS DATUM LO
LATERAL +FLAG OUT	11			37	-	37	-	LAT DEV FLAG +
LATERAL -FLAG OUT	32	s		36	-	36	-	LAT DEV FLAG -
LATERAL +LEFT OUT	9			39	-	39	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	s		38	-	38	-	LAT DEV +RT
VERTICAL +FLAG OUT	12			41	-	41	-	GS DEV FLAG +
VERTICAL -FLAG OUT	33	s		40	-	40	-	GS DEV FLAG -
VERTICAL +UP OUT	13			42	-	42	-	GS DEV +UP
VERTICAL +DOWN OUT	14	s		1	-	1	-	GS DEV +DOWN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43			23	-	23	-	LOC SWITCH
	P4							
~ARINC 429 OUT 3 A	55			-	26	-	26	(ADAHRS 1) ARINC RX1A
~ARINC 429 OUT 3 B	75	s		-	27	-	27	(ADAHRS 1) ARINC RX1B
				-	32	-	32	(PILOT PFD) ARINC RX3A
				-	33	-	33	(PILOT PFD) ARINC RX3A

GDU 700/1060/1210
COPILOT PFD

GDU 700/1060/1210 COPILOT PFD	P4			S-TEC 1500/2100 (-01,-03) P1	S-TEC 1500/2100 (-01,-03) P2	S-TEC 1500/2100 (-02,-04,-07) P1	S-TEC 1500/2100 (-02,-04,-07) P2	AUTOPILOT
~ARINC 429 OUT 3 A	55			-	28	-	28	(ADAHRS 2) ARINC RX1A
~ARINC 429 OUT 3 B	75	s		-	29	-	29	(ADAHRS 2) ARINC RX1B

Figure B-37 Autopilot/Flight Director Interconnect – S-TEC
Sheet 4 of 5

NOTES

1 FLIGHT DIRECTOR LOGIC OUTPUT FROM THE 55/55X (P2-4) MUST NOT BE CONNECTED TO ST-645 REMOTE ANNUNCIATOR (P1-20). IF THE ST-645 WAS PREVIOUSLY INSTALLED, THE WIRE CONNECTING THE 55/55X COMPUTER P2-4 TO ANNUNCIATOR P1-20 MUST BE REMOVED OR CAPPED AND STOWED.

2 TO SUPPORT THE FLIGHT DIRECTOR INTERFACE WITH THE GDU, THE PILOT-ACCESSIBLE PARALLAX POT CONNECTIONS MUST BE REMOVED.

3 RS 485 WIRING IS ONLY REQUIRED WHEN USING THE GDU FOR ALTITUDE PRESELECT. DO NOT WIRE IF USING THE GAD 43(e) FOR ALT/VS PRESELECT.

4 ALT SEL JUMPER MUST NOT BE INSTALLED IF THE GDU IS PROVIDING THE ALTITUDE PRESELECT FUNCTION.

5 IF THE GDU IS REPLACING A DIRECTIONAL GYRO, ENSURE THE “DG GROUND STRAP” JUMPER IS REMOVED.

6 IF THE GDU IS BEING INSTALLED IN AN AIRCRAFT THAT HAD NO HEADING SYSTEM, ENSURE THAT THE “NO HEADING SYSTEM” JUMPER IS REMOVED.

7 THE ST-670 (P/N 01180 FOR THE KI-256) IS REQUIRED TO SUPPORT THE FLIGHT DIRECTOR DISPLAY FROM THE S-TEC 60-2, AND 65 AUTOPILOTS.

8 INTERFACE TO THE S-TEC 1500/2100 IS ONLY SUPPORTED FOR DUAL GDU INSTALLATIONS.

9 THE FLIGHT DIRECTOR CANNOT BE DISPLAYED ON AN ADI ON THE CO-PILOT’S SIDE BECAUSE THERE IS NO WAY TO ADJUST THE FLIGHT DIRECTOR OFFSET FOR THIS ADI AFTER THE PARALLAX POT IS REMOVED.

Figure B-37 Autopilot/Flight Director Interconnect – S-TEC
Sheet 5 of 5

GAD 43e

AUTOPILOT

S-TEC 60 PSS/60-2/65

S-TEC 55/55X

P432		2 OPTION CONNECTOR	PFGC	P2	
VS CMD	17	5	-	22	VS CMD
VS SELECT CTRL*	34	-	54	21	MANUAL / VS SELECT
ALT HOLD*	53	7	-	20	ALT ENGAGE
		-	-	23	ALT. SEL JUMPER
	1	-	-	42	GROUND

A/P DISC
TRIM INTR.
SWITCHES
(EXISTING)

AUTOPILOT

PILOT

AP DISC SW 30

COPILOT

EXISTING
DISC. WIRING

NOTES

1 JUMPER MUST BE INSTALLED TO SELECT S-TEC 0140 / 01279PX ALTITUDE/VERTICAL SPEED SELECTOR. ST-360 EMULATION FROM THE GAD 43e.

2 OPTION CONNECTOR IS PART OF THE S-TEC AUTOPILOT HARNESS.

Figure B-38 Autopilot/Flight Director Interconnect – S-TEC GAD

GDU 700/1060/1210 PILOT PFD	P3	SPZ-200A/-500 [1] FZ-500 J1A	FZ-500 J1B	SP-200 J1B	AUTOPILOT
A/P HEADING ERROR HI	18	36	-	-	HDG ERROR HI
A/P HEADING ERROR LO	17				
A/P COURSE ERROR HI	16	41	-	-	CRS DATUM HI
A/P COURSE ERROR LO	15	37	-	-	HDG/CRS DATUM LO
LATERAL SUPERFLAG	8	16	-	-	LAT SUPERFLAG
LATERAL +LEFT OUT	9	20	-	-	LAT DEV +LT
LATERAL +RIGHT OUT	10	21	-	-	LAT DEV +RT
VERTICAL SUPERFLAG	7	-	7	-	G/S SUPERFLAG
VERTICAL +UP OUT	13	-	16	-	GS DEV +UP
VERTICAL +DOWN OUT	14	-	17	-	GS DEV +DN
ILS/GPS APPROACH (~DISCRETE OUT 1*)	43	22	-	-	LOC FREQ GROUND
A/P AC REF HI	41	-	-	7	26 VAC OUTPUT
A/P AC REF LO	40	-	-	5	AC POWER GROUND
TO OTHER AVIONICS					
FD ENABLE IN (~DISCRETE IN 1)	57	-	47	-	+28 FDC VALID
FD ROLL LEFT	19	29	-	-	ROLL FD COMMAND +
FD ROLL RIGHT	20	30	-	-	ROLL FD COMMAND -
FD PITCH DOWN	21	-	30	-	PITCH FD COMMAND +
FD PITCH UP	42	-	31	-	PITCH FD COMMAND -
		-	48	-	LOW LEVEL FDC VALID
		1	-	-	SIGNAL GROUND

ADI (ON COPILOT SIDE) [2]

SPERRY HZ-444

ADI	P1
ROLL CMD PTR (+)	s
ROLL CMD PTR (-)	t
PITCH CMD PTR (+)	p
PITCH CMD PTR (-)	q
FD WARN FLAG (+)	GG
FD WARN FLAG (-)	HH

	J1A	J1B	J1B	AUTOPILOT	
	2	-	-	+V OUTPUT	
	31	-	-	ROLL BIAS OUT OF VIEW	
	5	-	-	-V OUTPUT	
	-	29	-	PITCH BIAS OUT OF VIEW	
N/C	60	-	-	HI	ROLL PTR GAIN SEL
	61	-	-	LOW	
	62	-	-	COMM	
N/C	-	11	-	HI	PITCH PTR GAIN SEL
	-	12	-	LOW	
	-	13	-	COMM	

NOTES

1. EXISTING ACTIVE-HIGH HDG VALID SIGNAL FROM HSI TO FD COMPUTER MUST BE SUPPLIED DIRECTLY FROM DG ONCE EXISTING HSI IS REMOVED.

2. FLIGHT DIRECTOR WIRING TO EXISTING ADI MUST BE DISCONNECTED IF THIS INDICATOR IS USED AS A STANDBY INSTRUMENT FOR THE GDU. THE DISPLAY OF THE FLIGHT DIRECTOR MUST BE DISABLED IN THIS CASE. IF THIS INDICATOR IS BEING RELOCATED TO THE CO-PILOT'S SIDE, WIRING MAY BE CONNECTED IN PARALLEL TO THIS ADI AND THE FLIGHT DIRECTOR MAY BE ENABLED. THE WIRING TO THIS ADI MUST BE CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

Figure B-39 Autopilot/Flight Director Interconnect – Sperry

DISPLAY BACKUP SWITCH

GDU 700P
ADC/AHRS #1
DISPLAY BACKUP
(~DISCRETE IN LO 4)
P3
37

ON

GDU 700P
ADC/AHRS #2
DISPLAY BACKUP
(~DISCRETE IN LO 4)
P3
37

AUTO

OPTIONAL EMERGENCY DESCENT MODE SWITCH

GDU 700/1060/1210
P3
~ DISC IN 4 LO 37

2

EDM ACTIVE

YAW TRIM STATE

GDU 700/1060/1210
P3
YAW TRIM STATE
(~ DISCRETE OUT 7 LO) 48

3

Figure B-40 External Switches and Annunciators
Sheet 1 of 3

ENGINE ANNUNCIATOR (14 VDC)

GDU 700 EIS

P3

ENGINE WARNING (~DISCRETE OUT LO 1) 43

ENGINE CAUTION (~DISCRETE OUT LO 2) 49

VIVISUN
95-40-17-B4-E1WPN

B ENGINE WARN 1
C ENGINE WARN 1
A ENGINE CAUTION 1
D ENGINE CAUTION 1
G POWER

TO EIS DISPLAY BREAKER

OR

GDU 700 EIS

P3

ENGINE WARNING (~DISCRETE OUT LO 1) 43

TO EIS DISPLAY BREAKER

22 AWG 1
22 AWG 2
22 AWG 3

MS25041-2 (RED)
WITH LAMP
MS25237-330 or -8918

ENGINE CAUTION (~DISCRETE OUT LO 2) 49

TO EIS DISPLAY BREAKER

22 AWG 1
22 AWG 2
22 AWG 3

MS25041-4 (YEL)
WITH LAMP
MS25237-330 or -8918

ENGINE ANNUNCIATOR (28 VDC)

GDU 700 EIS

P3

ENGINE WARNING (~DISCRETE OUT LO 1) 43

ENGINE CAUTION (~DISCRETE OUT LO 2) 49

VIVISUN
LED-40-17-BA2-E1WP6

B ENGINE WARN 1

1

A ENGINE CAUTION 1

G POWER

TO EIS DISPLAY BREAKER

OR

GDU 700 EIS

P3

ENGINE WARNING (~DISCRETE OUT LO 1) 43

TO EIS DISPLAY BREAKER

22 AWG 1
22 AWG 2
22 AWG 3

MS25041-2 (RED)
WITH LAMP
MS25237-327

ENGINE CAUTION (~DISCRETE OUT LO 2) 49

TO EIS DISPLAY BREAKER

22 AWG 1
22 AWG 2
22 AWG 3

MS25041-4 (YEL)
WITH LAMP
MS25237-327

Figure B-40 External Switches and Annunciators
Sheet 2 of 3

OPTIONAL STABILIZED APPROACH DISCRETE INTERFACES – FLAPS AND LANDING GEAR

GDU 700/1060/1210

P4

5 FLAPS UP (~DISCRETE IN) X — AIRCRAFT – FLAPS UP, DISCRETE

4 5 FLAPS POSITION 1 (~DISCRETE IN) X — AIRCRAFT – FLAP POSITION 1, DISCRETE

5 GEAR NOT DOWN AND LOCKED (~ DISCRETE IN) X — AIRCRAFT – GEAR NOT DOWN AND LOCKED, DISCRETE

NOTES

1 USE 47 © 1/4 WATT RESISTOR.

2 INSTALL SWITCH CONFORMING TO MS24523-30 AND SWITCH GUARD CONFORMING TO MS25224-3. PLACARD AS “EMER DESC”. SWITCH INSTALLATION APPROVAL IS NOT APPROVED BY THIS STC.

3 PERMITTED FOR SELECT AIRCRAFT MODELS ONLY. REFER TO THE GFC 600 STC SA01844WI FOR ADDITIONAL INFORMATION.

4 THE NUMBER OF FLAP POSITION DISCRETE INPUTS CONFIGURED IS AIRCRAFT-SPECIFIC. REFER TO SECTION 3.2.9.1 FOR GUIDANCE REGARDING APPROVAL OF THIS DISCRETE INTERFACE. REFER TO SECTION 5.5.9 FOR INSTRUCTIONS ON CONFIGURING MULTIPLE FLAP POSITIONS.

5 MATCH THE AIRCRAFT ACTIVE STATE TO THE GDU INPUT, ACTIVE LO OR HI. FOR EXAMPLE- CONNECT THE FLAP UP DISCRETE INPUT TO ANY GDU DISCRETE IN LO IF THE FLAP SWITCH SIGNAL IS A GND (LO) WHEN THE FLAPS ARE UP.

Figure B-40 External Switches and Annunciators
Sheet 3 of 3

	P691	GDL 69 SERIES	
1	25	OUT A	ETHERNET 1
	24	OUT B	
	23	IN A	
	22	IN B	
s			
1	29	OUT A	ETHERNET 2
	28	OUT B	
	27	IN A	
	26	IN B	
s			
1	33	OUT A	ETHERNET 3
	32	OUT B	
	31	IN A	
	30	IN B	
s			
1	59	OUT A	ETHERNET 4
	58	OUT B	
	57	IN A	
	56	IN B	
s			

NOTES

1 REFERENCE SECTION 3.2.7 FOR HSDB ARCHITECTURE.

Figure B-41 GDL 69 Series Interconnect

GDU 700/1060/1210 MFD	P3	P561	GARMIN GSR 56 1
GSR 56 STATUS IN (~DISCRETE IN 3*)	36	31	STATUS DISCRETE OUT*
GSR 56 REMOTE PWR (~DISCRETE OUT 7*)	48	16	IRIDIUM RMT PWR ON*
	P4		
~RS-232 8 IN	34	12	RS-232 OUT
~RS-232 8 OUT	35	13	RS-232 IN
~RS-232 8 GND	33	14	SIGNAL GROUND

S S

NOTES

1 IF A GDL 60 IS INSTALLED, THE GSR 56 MUST BE CONNECTED TO THE GDL 60. REFER TO GDL 60 PART 23 AML STC INSTALLATION MANUAL.

IF A GTN 6XX/7XX/Xi IS INSTALLED, AND A GDL 60 IS NOT INSTALLED, THE GSR 56 MUST BE CONNECTED TO THE GTN. REFER TO GTN 6XX/7XX PART 23 AML STC INSTALLATION MANUAL OR GTN Xi PART 23 AML STC INSTALLATION MANUAL.

Figure B-42 GSR 56 Iridium Interconnect

GDU 700/1060/1210

EMCA SPWG — STALL PROTECTION WARNING UNIT #1

GDU 700/1060/1210		P4	EMCA SPWG P411		
~ARINC 429 IN 11	A	11	16	A	ARINC 429 OUT (AOA)
	B	31	17	B	

s

GDU 700/1060/1210

1

		P4
~ARINC 429 IN 11	A	11
	B	31

s

GDU 700/1060/1210

MEGGITT DAU — DATA ACQUISITION UNIT

GDU 700/1060/1210		P4	J3	J2		
2 ~ARINC 429 OUT 2	A	54	-	4	A	429 INC
	B	74	-	17	B	
~DISC OUT 6 LO		51	20	-		GPS SOURCE SELECT

s

GDU 700/1060/1210

		P4	J3	J2		
~ARINC 429 OUT 2	A	54	4	-	A	429 IND
	B	74	17	-	B	

s

NOTES

1 GDU CONNECTORS MUST BE OVERBRAIDED IN ACCORDANCE WITH APPENDIX H.

2 IF AN AUTOPILOT IS CONNECTED TO ARINC 429 OUT 2, THE WIRING TO THE MEGGITT EIDS MAY NOT BE SPLICED INTO THE ARINC 429 OUT 2 PORT.

Figure B-43 Miscellaneous Equipment Interfaces

SINGLE RADAR ALTIMETERS

GDU 700/1060/1210
COPILOT PFD

1		P4
RAD ALT SELF TEST OUT (~DISCRETE OUT 8*)		61
~ARINC 429 IN X	A	x
	B	x

s

GDU 700/1060/1210
PILOT PFD

1		P4	GARMIN	FREE FLIGHT	COLLINS		HONEYWELL	RADAR ALTIMETER
			GRA 55/ 5500	RA-4500	RAC 870	ALT-4000	KRA 405B	
			P1	P1	P1	P1	P4051	
RAD ALT SELF TEST OUT (~DISCRETE OUT 8*)		61	-	-	40	25	U	PUSH-TO-TEST IN
~ARINC 429 IN X	A	x	52	12	2	2	B	ARINC 429 OUT A
	B	x	55	11	3	10	C	ARINC 429 OUT B

s

s

DUAL RADAR ALTIMETERS

GDU 700/1060/1210
PILOT PFD

1		P4	GARMIN	FREE FLIGHT	COLLINS		HONEYWELL	RADAR ALTIMETER
			GRA 55/ 5500	RA-4500	RAC 870	ALT-4000	KRA 405B	
			P1	P1	P1	P1	P4051	
RAD ALT SELF TEST OUT (~DISCRETE OUT 8*)		61	-	-	40	25	U	PUSH-TO-TEST IN
~ARINC 429 IN X	A	x	52	12	2	2	B	ARINC 429 OUT A
	B	x	55	11	3	10	C	ARINC 429 OUT B

s

GDU 700/1060/1210
COPILOT PFD

1		P4	GARMIN	FREE FLIGHT	COLLINS		HONEYWELL	RADAR ALTIMETER
			GRA 55/ 5500	RA-4500	RAC 870	ALT-4000	KRA 405B	
			P1	P1	P1	P1	P4051	
RAD ALT SELF TEST OUT (~DISCRETE OUT 8*)		61	-	-	40	25	U	PUSH-TO-TEST IN
~ARINC 429 IN X	A	x	52	12	2	2	B	ARINC 429 OUT A
	B	x	55	11	3	10	C	ARINC 429 OUT B

s

NOTES

1. CONNECTION FROM RADAR ALTIMETER CAN BE MADE TO BOTH GDUs AS SHOWN, OR ONLY CONNECTED TO ONE GDU (EITHER PILOT'S OR CO-PILOT'S) AND RADAR ALTITUDE INFORMATION AND CONTROL CROSSFILLED TO THE OTHER GDU. DISCRETE INFORMATION IS NOT CROSSFILLED OVER HSDB; IN ORDER FOR A GDU TO INITIATE THE 'PUSH-TO-TEST' FUNCTION, IT MUST HAVE A DISCRETE PIN WIRED AND CONFIGURED.

Figure B-44 Radar Altimeter Interconnect

GDU 700/1060/1210

TRANSPONDER

GARMIN
GTX 32
GTX 327

P3

J1

~RS-232 3 OUT 3 — 2 ~RS-232 IN

GND 25 — -

s

Figure B-45 Serial Altitude Output Interconnect

DISPLAY AND CONTROL

GDU 700/1060/1210
MFD
P2

~RS-232 2
GND 12
IN 27
OUT 42

s

WX-500
STORMSCOPE
P2
5 RS-232 GND
P3
20 RS-232 TX
8 RS-232 RX

DISPLAY ONLY

GDU 700/1060/1210
MFD
P2

~RS-232 2
GND 12
IN 27
OUT 42

s

WX-500
STORMSCOPE
P2
5 RS-232 GND
P3
20 RS-232 TX
8 RS-232 RX

TO STORMSCOPE
CONTROL AND DISPLAY

DISPLAY ONLY

GDU 700/1060/1210
MFD
P4

~ARINC 429 OUT 5
A 77
B 78

s

~ARINC 429 IN 8
A 8
B 28

s

WX-1000E
STORMSCOPE
P302
34 429 RX A
35 429 RX B
38 429 TX A
21 429 TX B

NOTES

1 CONNECT WX-500 STORMSCOPE TO GDU THAT WILL CONTROL STORMSCOPE DATA. IF DESIRED TO DISPLAY WX-500 STORMSCOPE DATA ON OTHER DEVICES (E.G., GTN), SPLICE WX-500 RS-232 TX DATA ONLY.

2 STORMSCOPE INFORMATION IS SHARED BETWEEN GDUs OVER HSDB. WX-1000E DATA IS ALSO SHARED WITH GTN XI(s) OVER HSDB.

Figure B-46 Stormscope Interconnect

GDU 700P/1060/1210
PFD/MFD

P4	Signal
52	TAS TEST (~DISCRETE OUT 10*)
51	TIS/TAS STANDBY (~DISCRETE OUT 9*)

2

GDU 700P/1060/1210
PFD/MFD

P4	Signal
52	TAS TEST (~DISCRETE OUT 10*)
51	TIS/TAS STANDBY (~DISCRETE OUT 9*)
A 11 / B 31	~ARINC 429 IN 11
A 53 / B 73	~ARINC 429 OUT 1

2 1 4 17 16 (OPTIONAL) (OPTIONAL)

TRAFFIC SYSTEM

GARMIN GDL88 P881	GARMIN GTX345 P3252	GARMIN GTX 335 P3251	GTX 33 GTX 330 P3301	GARMIN (12) GTS 8XX P8001	GARMIN (19) GTS 8XX P8002	AVIDYNE (12) TAS 6xx 9900BX P1	L3 COMM (13) TRC 497 P1	L3 COMM (12) TRC 899 P1	HONEYWELL (12) KTA 810 KMH 820 J10	HONEYWELL (18) KTA 910 KMH 920 J10	Signal
53	6	-	-	52	-	-	-	-	-	-	ETHERNET OUT A
54	1	-	-	53	-	-	-	-	-	-	ETHERNET OUT B
51	7	-	-	54	-	-	-	-	-	-	ETHERNET IN A
52	2	-	-	55	-	-	-	-	-	-	ETHERNET IN B
-	-	-	-	-	74	-	85	19	2	2	FUNCTIONAL TEST
-	-	15	46	-	75	-	82	21	23	23	STANDBY / OPERATE
-	-	(11) 5	(11) 30	(15) 14	-	8	34	42	54	54	A ARINC 429 OUT
-	-	6	28	15	-	9	33	43	55	55	B
-	-	(9) 27	(9) 32	16	-	(3) 10	45	(7) 54	60	(8) 60	A ARINC 429 IN
-	-	28	35	17	-	11	44	55	61	61	B (ALTITUDE/HEADING)
-	-	-	-	-	-	-	69	-	-	-	STEPPER IN
-	-	-	-	-	-	-	70	-	-	-	SYNCRO IN
-	-	-	-	-	-	-	13	-	-	-	CONFIG GND
-	-	48	-	-	-	-	-	-	62	(8) 62	A ARINC 429 IN
-	-	49	-	-	-	-	-	-	63	63	B (ATTITUDE/HEADING)
-	-	(10) 48	(10) 33	-	-	-	-	-	-	-	A ARINC 429 IN
-	-	49	36	-	-	-	-	-	-	-	B (ALTITUDE)

AHRS Source

5

Signal		GRS 77 P771	GRS 79 P791	GSU 75 P751	GDU 700/1060 INTEGRATED ADAHRS P4
~ ARINC 429 OUT	A	13	49	49	77
	B	28	50	50	78

(OPTIONAL)

14

ADC Source

6

Signal		GDC 74 P771	GDC 72 P791	GSU 75 P751
~ ARINC 429 OUT	A	29	21	21
	B	30	22	22

(OPTIONAL)

Figure B-47 Traffic Advisory System Interconnect
Sheet 1 of 3

NOTES

1 FOR HONEYWELL TRAFFIC SYSTEMS, DO NOT SPLICE “TAS TEST” OR “TIS/TAS STANDBY”.

2 TAS TEST AND TIS/TAS STANDBY DISCRETE CONNECTIONS ARE ONLY REQUIRED IF THE GDU IS CONFIGURED FOR “CONTROL TRAFFIC.”

3 FOR THE TCAD TO ACCEPT ARINC 429 HEADING AND ALTITUDE, PROCESSOR P/N 70-2420-5 OR LATER IS REQUIRED. THE BUS SPEED MUST BE THE SAME FOR ARINC 429 RX 1 AND RX 2.

4 SEE SECTION 3.2.7 FOR HSDB ARCHITECTURE.

5 USE ONLY AHRS OR ADAHRS OUTPUT OF GSU 75.

6 USE ONLY ADC OUTPUT OF THE GSU 75.

7 IF DESIRED, ALTITUDE AND HEADING MAY BE PROVIDED BY THE GDU TO THE SKYWATCH SYSTEM. ANY AVAILABLE ARINC 429 INPUTS ON THE TRAFFIC COMPUTER MAY BE USED IF THOSE SHOWN ARE ALREADY USED. THE TRAFFIC SYSTEM MAY HAVE TO BE CONFIGURED TO ACCEPT ALTITUDE AND HEADING VIA ARINC 429 (LOW-SPEED). REFER TO THE MANUFACTURER’S INSTALLATION MANUAL FOR ADDITIONAL INFORMATION.

8 IF DESIRED, ALTITUDE, ATTITUDE, AND HEADING MAY BE PROVIDED BY THE GDU TO THE HONEYWELL TRAFFIC SYSTEM. THE HONEYWELL TRAFFIC SYSTEM WILL NOT ACCEPT HEADING/ATTITUDE AND ALTITUDE ON A SINGLE ARINC 429 INPUT. CONSEQUENTLY, HEADING/ATTITUDE (HIGH-SPEED) AND ALTITUDE (LOW-SPEED) MUST BE PROVIDED TO SEPARATE INPUTS. THE TRAFFIC SYSTEM MUST BE CONFIGURED TO ACCEPT ARINC 429 ALTITUDE, HEADING, AND ATTITUDE. REFER TO THE MANUFACTURER’S INSTALLATION MANUAL FOR ADDITIONAL INFORMATION.

9 IF DESIRED, ALTITUDE, TEMPERATURE, HEADING, SPEED, AND SELECTED COURSE INFORMATION MAY BE PROVIDED BY THE GDU TO THE TRANSPONDER.

10 IF THE GDU IS THE ONLY ALTITUDE SOURCE FOR THE GTX, IT IS RECOMMENDED THAT THE GTX ALSO BE CONNECTED DIRECTLY TO AN EXTERNAL AIR DATA SOURCE SO THAT THE TRANSPONDER WILL CONTINUE REPORTING ALTITUDE IN THE EVENT OF A GDU FAILURE.

11 IF ANOTHER TRAFFIC SOURCE IS WIRED TO THE GDU, DO NOT WIRE GTX ARINC OUTPUT TO THE GDU.

12 DO NOT WIRE TO GDU IF A GTX 345 OR GDL 88 ARE INSTALLED. THESE TRAFFIC SYSTEMS MUST BE WIRED IN ACCORDANCE WITH THE GTX 345 OR GDL 88 INSTALLATION MANUALS FOR PROPER CORRELATION AND DISPLAY.

13 TRC 497 SOFTWARE V1.6 OR HIGHER IS REQUIRED.

14 SPLICE WITH WEATHER RADAR STABILIZATION OUTPUT (IF INSTALLED) IS ALLOWED.

Figure B-47 Traffic Advisory System Interconnect
Sheet 2 of 3

NOTES CONTINUED

15 ARINC OUT TO THE GDU IS REQUIRED TO RECEIVE TAS/TCAS.

16 THESE STRAPS SET THE HEADING INPUT SOURCE TO ARINC 429. REFER TO THE MANUFACTURER'S INSTALLATION MANUAL FOR ADDITIONAL STRAPPING INFORMATION.

17 SPLICE WITH GPS NAVIGATOR ARINC OUTPUT (IF INSTALLED) IS ALLOWED.

18 WHEN UTILIZING TXi TAWS, THE EGPWS HALF OF THE KMH 820/920 SHOULD BE SUPPRESSED BY CONNECTING 'TERRAIN AWARENESS INHIBIT' P1 PIN 126 TO GROUND.

19 IF HSDB INTERFACE BETWEEN GTS AND TXi IS CONNECTED, DO NOT CONNECT ARINC 429 AND DISCRETE CONNECTIONS.

Figure B-47 Traffic Advisory System Interconnect
Sheet 3 of 3

COMPOSITE VIDEO

GDU 700/1060/1210 MFD	P2	1	ASTRONICS MAX-VIZ 1400 2300	CAMERA SYSTEM 3
COMPOSITE VIDEO IN 1 (2)	14 (8)		Center	VIDEO OUT
COMPOSITE VIDEO GND 1 (2)	11 (11)		Shell	VIDEO RTN

HD VIDEO

GDU 700/1060/1210 MFD	P5 (P6)	2	RUGGED VIDEO HD-19	CAMERA SYSTEM
HD VIDEO 1 (2)	Center		Center	VIDEO OUT
GROUND (2)	Shell		Shell	VIDEO RTN

NOTES

1 FOR COMPOSITE VIDEO, USE CABLE SPECIFIED IN SECTION 3.1.2 AND ASSEMBLE THE CABLE AS SHOWN IN FIGURE 4-10. CAMERA INSTALLATION DATA FOR THE CAMERA CONNECTION.

2 FOR HD VIDEO, USE CABLE AND TNC CONNECTOR SPECIFIED IN SECTION 3.1.2. ASSEMBLE THE CABLE AS SPECIFIED BY THE CONNECTOR MANUFACTURER. REFER TO THE CAMERA INSTALLATION DATA FOR THE CAMERA CONNECTION.

3 FOR MAX-VIZ 2300 CAMERAS, OPTIONALLY CONNECT BOTH VIDEO OUTPUTS TO COMPOSITE VIDEO IN 1 AND 2, RESPECTIVELY.

Figure B-48 Video Interconnect

GDU 700P/1060/1210 MFD

Signal		P4
ARINC 453/708 IN TERM	A	49
	B	50
~ARINC 429 OUT 4	A	56
	B	76
WX RADAR ON (~DISCRETE OUT 11*)		71
ARINC 453/708 IN 1	A	47
	B	48

3 4

GDU 700P/1060/1210 MFD

Signal		P4
ARINC 453/708 IN 1	A	47
	B	48
~ARINC 429 OUT 4	A	56
	B	76
WX RADAR ON (~DISCRETE OUT 11*)		71
ARINC 453/708 IN TERM	A	49
	B	50

3

AHRS Source

6

Signal		GRS 77 P771	GRS 79 P791	GSU 75 P751	GDU 700/1060 INTEGRATED ADAHRS P4
~ ARINC 429 OUT	A	13	49	49	77
	B	28	50	50	78

9 10 GAD 43(e)

Signal	P431
WXR PITCH OUT HI	12
WXR PITCH OUT LO	43
WXR ROLL OUT HI	28
WXR ROLL OUT LO	26
PITCH AC OUT HI	24
PITCH AC OUT LO	42
ROLL AC OUT HI	23
ROLL AC OUT LO	25

8 ALTERNATE INTERFACE

7

11 AIRCRAFT 10/26 VAC 400 HZ REFERENCE VOLTAGE

SPLICE TO AUTOPILOT

WEATHER RADAR R/T

2 13

	GARMIN GWX 68 P400	GARMIN GWX 70 P751	GARMIN GWX 75 P27000	COLLINS RTA-800 RTA-P1	HONEYWELL (BENDIX/KING) RDS 81 / RS 811A P1001 (12)	RDS 82 / RS 181A P1001	RDR 2000 / ART 2000 P5001 (1)	RDR 2100 / ART 2100 P5001	Signal
	-	-	-	26	19	19	2	2	A ARINC 429 IN #1
	-	-	-	27	20	20	3	3	B (CONTROL)
	-	-	-	-	24	24	31	31	RT ON/OFF #1
	-	-	-	13	8	8	42	42	A ARINC 453 OUT
	-	-	-	14	9	9	43	43	B (WEATHER)
	34	4	4	-	-	-	-	-	IN A (ETHERNET)
	35	3	3	-	-	-	-	-	IN B (ETHERNET)
	36	23	23	-	-	-	-	-	OUT A (ETHERNET)
	37	22	22	-	-	-	-	-	OUT B (ETHERNET)
	44	56	56	-	-	-	-	-	RT ON/OFF
	15	8	8	-	-	-	-	-	SIGNAL GROUND
	-	-	-	8	18	18	4	4	A ARINC 429 IN #2
	-	-	-	9	5	5	5	5	B (CONTROL)
	-	-	-	-	12	12	32	32	RT ON/OFF #2
N/C	-	-	-	-	-	-	1	1	STRUT SWITCH IN 5
	-	-	-	-	-	-	8	8	PITCH/ROLL 429 IN A
	-	-	-	-	-	-	9	9	PITCH/ROLL 429 IN B
	-	-	-	-	15	15	-	-	PITCH HI
	-	-	-	-	17	17	-	-	PITCH LO
	-	-	-	-	16	16	-	-	ROLL HI
	-	-	-	-	14	14	-	-	ROLL LO
	-	-	-	-	15	15	-	-	PITCH IN HI
	-	-	-	-	17	17	-	-	PITCH IN LO
	-	-	-	-	16	16	-	-	ROLL IN HI
	-	-	-	-	14	14	-	-	ROLL IN LO
	-	-	-	-	3	3	-	-	10/26 VAC 400HZ IN
	-	-	-	-	21	21	-	-	AC COMMON 400HZ LO

Figure B-49 Weather Radar Interconnect
Sheet 1 of 2

NOTES

1. THE INTERFACE OF THE G500/G600 TXI SYSTEM TO THESE WEATHER RADAR PRODUCTS IS APPROVED FOR METAL AIRCRAFT ONLY.

2. REFERENCE SECTION 3.2.7 FOR HSDB ARCHITECTURE.

3. TO USE THE GDU INTERNAL TERMINATION RESISTOR, INSTALL JUMPER AS SHOWN. JUMPER SHOULD NOT EXCEED 3.0 INCHES. ONLY ONE TERMINATION RESISTOR SHOULD BE UTILIZED, AT THE LAST LRU ON THE ARINC 453/708 BUS.

4. SPLICE MUST BE MADE WITHIN 2.5 INCHES OF GDU CONNECTOR BACKSHELL.

5. DISCONNECT ANY EXISTING STRUT SWITCH INPUT.

6. USE ONLY AHRS OR ADAHRS OUTPUT OF GSU 75.

7. AC PITCH/ROLL OUTPUTS FROM THE GAD 43(e) ARE NOT GROUND ISOLATED. RETAIN ISOLATING TRANSFORMERS IF REQUIRED PER THE WEATHER RADAR INSTALLATION.

8. USE THE ALTERNATE INTERFACE (PITCH/ROLL AC OUT) IF UTILIZING GYRO EMULATION TYPE ”CESSNA/ARC G519” OR “KING KI-256”. OTHERWISE, UTILIZE THE WXR PITCH/ROLL OUTPUTS.

9. ENSURE WEATHER RADAR IS PROPERLY CALIBRATED PER WEATHER RADAR INSTALLATION DATA.

10. THIS INTERFACE IS APPROVED ONLY FOR INSTALLATIONS WITH AN AUTOPILOT SYSTEM INSTALLED AND A GYRO EMULATION TYPE CONFIGURED.

11. THE 400HZ REFERENCE POWER FOR THE GAD 43(e), GDU, AUTOPILOT, AND WEATHER RADAR MUST BE FROM THE SAME SOURCE AND IN PHASE.

12. THE RS811A WEATHER RADAR CANNOT BE INTERFACED TO BOTH THE G500/G600 TXi AND A GTN 6XX/7XX/Xi. THE CONTROL/DISPLAY ON THE GTN FOR THE WEATHER RADAR MUST BE DISABLED IF THE RS811A IS INTERFACED TO THE G500/G600 TXi.

13. SPLICE TO EXISTING GROUND WIRE IF INSTALLED.

Figure B-49 Weather Radar Interconnect
Sheet 2 of 2

GDU 700/1060/1210 PILOT PFD		P4				1 P292		GARMIN GAD 29(B) 2
~ARINC 429 OUT 4	A	56				23	A	~ARINC 429 IN 1
(NAV)	B	76	s		s	11	B	
~ARINC 429 OUT 5	A	77				22	A	~ARINC 429 IN 2 3
(PFD)	B	78	s		s	10	B	
~ARINC 429 IN 2	A	2				24	A	~ARINC 429 OUT 1
	B	22	s		s	12	B	

NOTES

1 CONFIGURE THE TXi PER SECTION 5.4.13.

2 CONFIGURE THE G5 FOR THE FOLLOWING SETTINGS;
- ARINC 429 INPUT 1: GARMIN G500 NAV
- ARINC 429 INPUT 2: GARMIN G500 DATA
- ARINC 429 OUTPUT 1: GARMIN G500
- IF A GMU 11 IS NOT INSTALLED, MAGNETOMETER: DISABLED

3 OTHER ARINC 429 PORTS MAY BE USED IF THOSE SHOWN ARE ALREADY IN USE.

Figure B-50 Garmin G5 Standby Instrument Interconnect

GDU 700/1060/1210
PILOT PFD

P2

~ETHERNET 4

OUT A	23
OUT B	38
IN A	22
IN B	37

S

GARMIN
GI 275

P2751

~ETHERNET 1

65	IN A
66	IN B
46	OUT A
47	OUT B

S

Figure B-51 GI 275 Interconnect

GDU 700/1060/1210
18
P1
AIRCRAFT POWER 2 1
AIRCRAFT POWER 2 2

16 GEA 71B Enhanced

5
22 AWG
22 AWG
2
22 AWG
3
20 AWG
20 AWG
13

2 RAS 2 14
A2 A3 A1
B2 B3 B1
X1
X2
8

5
6
16 AWG

RAS 1 2 4
A2 A3 A1
16
B2 B3 B1
X1
X2

1 Battery

GDL 60
50 Annunciator 3

GEA 71B Enhanced
P701
AIRCRAFT POWER 2 37
POWER GROUND 78

6
3 13

15
2 RAS 3 14
A2 A3 A1
B2 B3 B1
X1
X2

6
Ref L Fuel Qty
12
10

GEA 71B Enhanced #2
P701
AIRCRAFT POWER 2 37
POWER GROUND 78

6
Ref L Fuel Qty
Ref R Fuel Qty
13

2
15 RAS 4 14
A2 A3 A1
20 AWG
B2 B3 B1
X1
X2
13

Ref R Fuel Qty
12
17

P751
P721
GSU 75
GDC 72
AIRCRAFT POWER 2 16
3
22 AWG

Figure B-52 Remote Aircraft Status Interconnect
Sheet 1 of 9

16 GEA 110 (Single GDU)
14 VOLT AIRCRAFT

GDU 700/1060/1210

18

P1

AIRCRAFT POWER 2 1 22 AWG
AIRCRAFT POWER 2 2 22 AWG
AIRCRAFT POWER 2 3 22 AWG
AIRCRAFT POWER 2 4 22 AWG

2 3

18 AWG

2 14
RAS 2
A2 A3 A1
B2 B3 B1
X1
X2

5

16 AWG

Ref L Fuel Qty

12 10

2 4
RAS 1
A2 A3 A1
B2 B3 B1
X1
X2

1 Battery

GDL 60
50 Annunciator 3

Ref L Fuel Qty

GSU 75
GDC 72

P751
P721

Ref R Fuel Qty

13

2 14 15
RAS 3
A2 A3 A1
B2 B3 B1
X1
X2

12

Ref R Fuel Qty

3

AIRCRAFT POWER 2 16 22 AWG

13

17

Figure B-52 Remote Aircraft Status Interconnect
Sheet 2 of 9

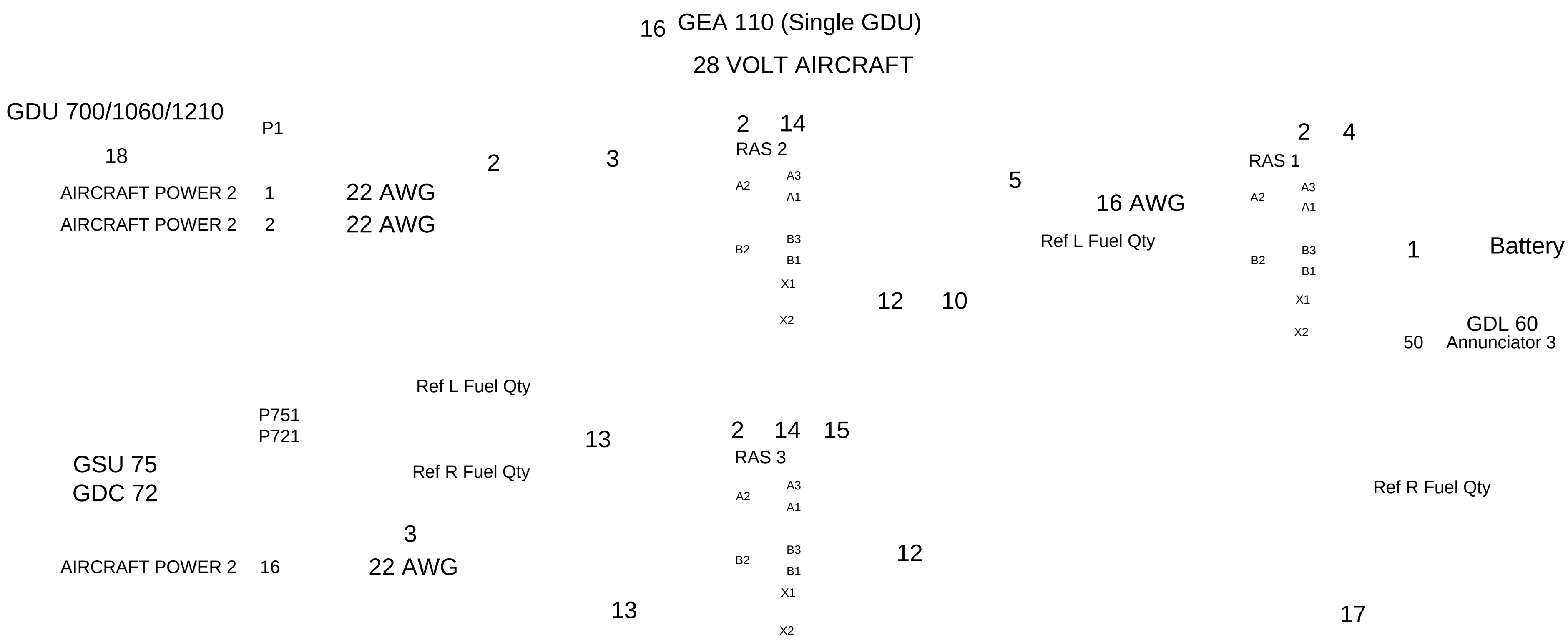


Figure B-52 Remote Aircraft Status Interconnect
Sheet 3 of 9

16 GEA 110 (Multiple GDU without GBB)

14 VOLT AIRCRAFT

GDU 700/1060/1210

18

P1

AIRCRAFT POWER 2 1 22 AWG
AIRCRAFT POWER 2 2 22 AWG
AIRCRAFT POWER 2 3 22 AWG
AIRCRAFT POWER 2 4 22 AWG

2 3
18 AWG
18 AWG

13
Ref L Fuel Qty

2 14
RAS 2
A2 A3 A1
B2 B3 B1
X1
X2

12 11

5 3
16 AWG
Ref L Fuel Qty

RAS 1 4 2
A2 A3 A1
B2 B3 B1
X1
X2

1 Battery

GDL 60
50 Annunciator 3

15 2 14
RAS 3
13 12
A2 A3 A1
B2 B3 B1
X1
X2

GEA 110 #2 P1101
Ref R Fuel Qty
3
AIRCRAFT PWR 2 6 22 AWG

13
9

Ref R Fuel Qty
6

P751
P721
GSU 75
GDC 72

15 2 14
RAS 4
A2 A3 A1
B2 B3 B1
X1
X2

3
AIRCRAFT POWER 2 16 22 AWG
13

17

Figure B-52 Remote Aircraft Status Interconnect
Sheet 4 of 9

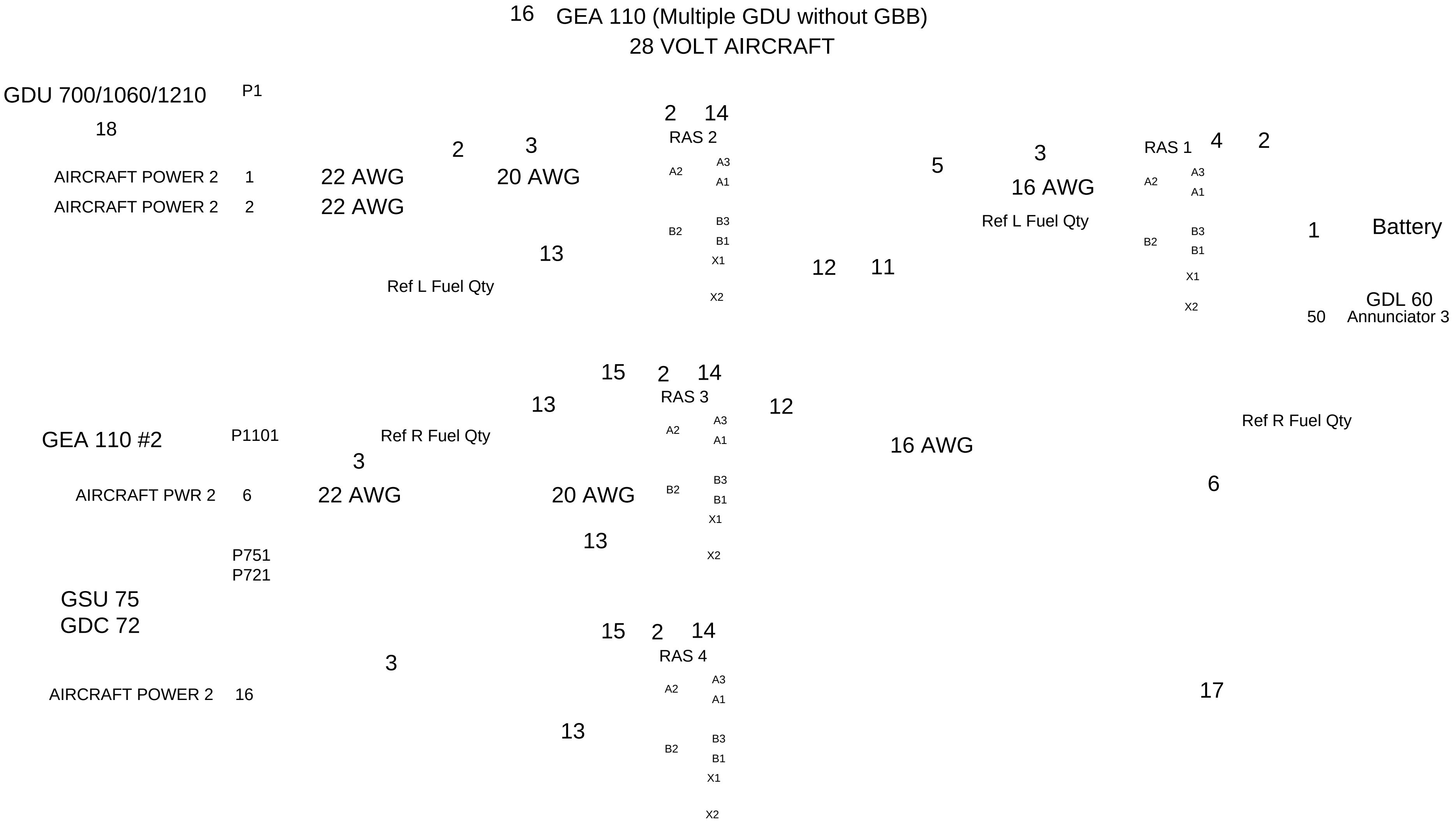


Figure B-52 Remote Aircraft Status Interconnect
Sheet 5 of 9

16 GEA 110 (Multiple GDU with GBB/Integrated Standby)

14 VOLT AIRCRAFT

GDU 700/1060/1210

18

P1

7

AIRCRAFT POWER 2 1 22 AWG

AIRCRAFT POWER 2 2 22 AWG

AIRCRAFT POWER 2 3 22 AWG

AIRCRAFT POWER 2 4 22 AWG

2 3

18 AWG

2 14

RAS 2

A2 A3 A1

B2 B3 B1

X1

X2

5

12 10

16 AWG

Ref L Fuel Qty or
single FQ breaker

2 4

RAS 1

A2 A3 A1

B2 B3 B1

X1

X2

1 Battery

GDL 60

50 Annunciator 3

Ref L Fuel Qty or
single FQ breaker

13

Ref R Fuel Qty

2 14 15

RAS 3

A2 A3 A1

B2 B3 B1

X1

X2

12

Ref R Fuel Qty

Figure B-52 Remote Aircraft Status Interconnect
Sheet 6 of 9

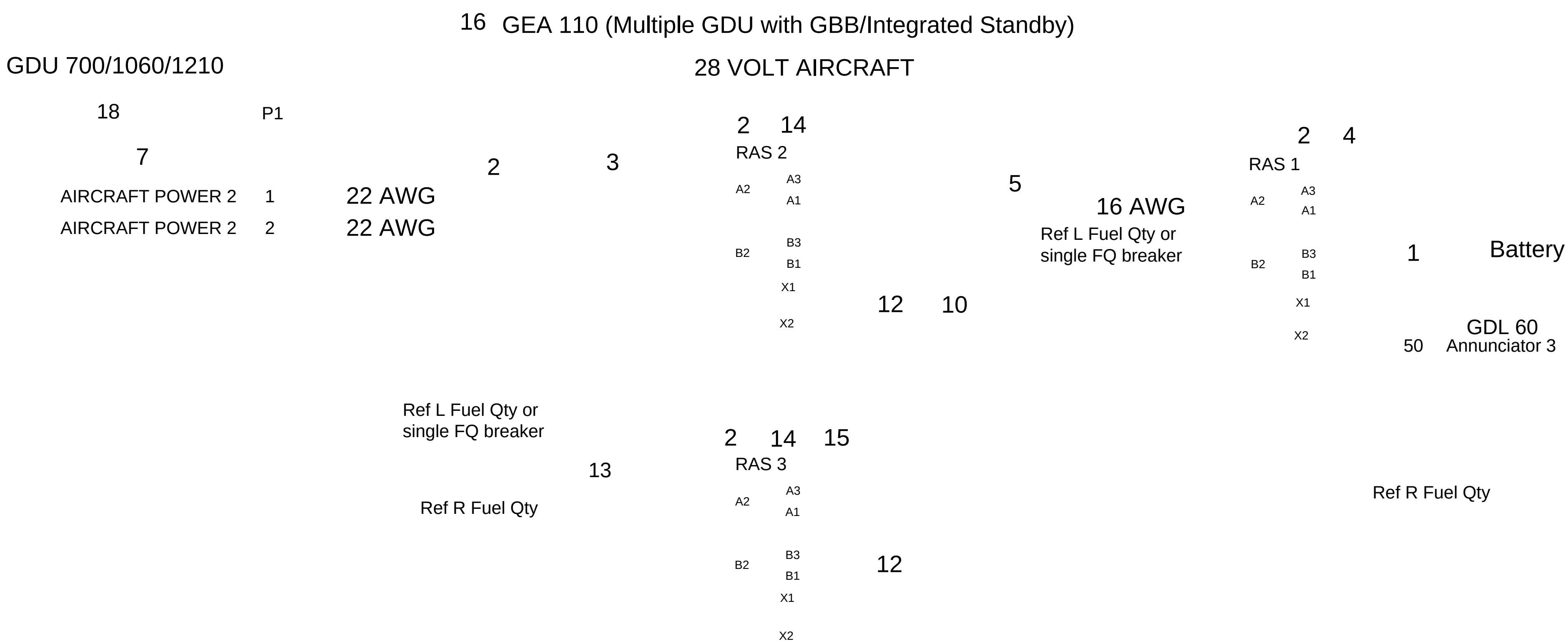


Figure B-52 Remote Aircraft Status Interconnect
Sheet 7 of 9

NOTES

1 REFER TO SECTION 3.2.1 FOR BREAKER SIZING, BUSSING AND LABELING.

2 SPLICES WITHIN 6 INCHES OF GDU/RELAY PIN.

3 CONSERVATIVE WIRE GAUGE FOR TOTAL LENGTH BETWEEN BATTERY AND LRU UNDER 20 FEET. FOR LONGER LENGTHS, REFER TO AC 43.13-1B, CHAPTER 11, TO DETERMINE THE APPROPRIATE WIRE GAUGE.

4 INSTALL RAS 1 RELAY AND FUSE ADJACENT TO THE BATTERY OR MASTER SOLENOID.

5 EXISTING GDU AIRCRAFT POWER IN 2 WIRING. IF NO GDU AIRCRAFT POWER IN 2 WIRING EXISTS, CONNECT TO EXISTING GDU AIRCRAFT POWER IN 1 CIRCUIT BREAKER.

6 EXISTING GEA AIRCRAFT POWER IN 2 WIRING. IF NO GEA AIRCRAFT POWER IN 2 WIRING EXISTS, CONNECT TO EXISTING GEA AIRCRAFT POWER IN 1 CIRCUIT BREAKER.

7 CONNECT WIRING TO GDU WITH GBB 54.

8 SPLICE WITHIN 6 INCHES OF RAS 2 RELAY.

9 IF REUSING EXISTING 22 AWG WIRING TO THE GEA #2 AIRCRAFT POWER IN 2, PLACE A 5A INLINE FUSE AT RAS 3 B1.

10 IF FUEL QUANTITY SYSTEM POWER IS INSTALLED WITH A SINGLE BREAKER, UTILIZE THE B CONTACTS OF RAS 3 AND OMIT RAS 4. IF NO GEA #2 IS INSTALLED, SPLIT THE FQ LOAD ACROSS RAS 3 A AND B CONTACTS.

11 FOR SINGLE ENGINE INSTALLATIONS WITH ONE FUEL QUANTITY CIRCUIT BREAKER, RAS 3 CAN BE OMITTED AND THE B CONTACTS FROM RAS 2 CAN BE USED.

12 INSTALL AN INLINE FUSE OF THE SAME RATING AS THE ORIGINAL FUEL QUANTITY SYSTEM BREAKER IF THE UPSTREAM RAS WIRING/FUSE IS LARGER.

13 IF REUSING EXISTING 22 AWG WIRING, INSTALL A MAXIMUM 6 INCH 20 AWG JUMPER WIRE FOR MINIMUM RELAY PIN WIRE SIZING.

14 RELAY CONTACTS LIMITED TO 10A.

15 IF RAS 3 IS NOT REQUIRED, CONNECT RAS 1 B2 WIRES TO RAS 2 B1.

Figure B-52 Remote Aircraft Status Interconnect
Sheet 8 of 9

NOTES CONTINUED

16	RAS WIRING SHOWN IS IN ADDITION TO FIGURE B-1, FIGURE B-2, AND FIGURE B-17 (GEA 110), FIGURE B-19 (GEA 71B ENHANCED -02), OR FIGURE B-21 (GEA 71B ENHANCED -05). IT IS FOR RAS FUNCTIONALITY AND IS NOT AN ALTERNATE METHOD OF WIRING PRIMARY LRU POWER.
17	CONNECT AS DRAWN FOR EXISTING GSU/GDC POWER WIRING USING DUAL ESSENTIAL BUS OPTION SHOWN IN FIGURE B-2. FOR EXISTING SINGLE BUS WIRING OPTION, INSTALL WIRE TO CONNECT ADAHRS OR ADC BREAKER TO B3 OF RAS RELAY.
18	THE TXi EIS DISPLAY(S) THAT IS POWERED FOR RAS MUST BE CONNECTED VIA HSDB TO THE GDL 60. REFER TO GDL 60 PART 23 AML STC INSTALLATION MANUAL (P/N 190-02525-10) FOR MORE INFORMATION. THE TXi EIS DISPLAY(S) THAT IS POWERED FOR RAS MUST BE DIRECTLY CONNECTED TO THE GEA.

Figure B-52 Remote Aircraft Status Interconnect
Sheet 9 of 9

APPENDIX C EQUIPMENT COMPATIBILITY AND CONFIGURATION

The following equipment listed in this appendix is compatible with the G500/G600 TXi system when configured as described. For G500/G600 TXi configuration information, refer to Section 5.4.

C.1 Electronic Standby Indicator

If an electronic indicator is used, it must be one listed in Table C-1. For electronic and electromechanical instrument requirements, refer to the following sect

- Standby instruments Section 3.2.3
- Power distribution Section 3.2.1, Table 3-12
- Pitot-static plumbing Section 4.2
- Location and mounting Section 4
- Interface limitations Section 2.1.2

Table C-1 Electronic Standby Indicator

Manufacturer	Model	Notes	Interfacing Equipment Configuration Information
L-3 Communications	ESI-1000	[1] [3]	If the aircraft has variable Vne/Vmo, the Vne/Vmo schedule must be programmed into the ESI-1000.
	ESI-2000	[1] [3]	If the aircraft has variable Vne/Vmo, the Vne/Vmo schedule must be programmed into the ESI-2000.
Mid-Continent Instruments	MD302 MOD 1 or later	[2] [3] [4] [5]	If the aircraft has variable Vne/Vmo, the Vne/Vmo schedule must be programmed into the MD302.
Garmin	G5	[3] [6]	Refer to Section 5.4.13 for configuration information when the G5 is installed with a GAD 29(B) for baro and bug sync functionality. Refer to Section 3.2.3.1 for additional information regarding the G5 as a standby attitude, altitude, and airspeed instrument.
	GI 275	[3] [7] [8]	Refer to Section 3.2.3.2 for additional information regarding the GI 275 as a standby attitude, altitude, and airspeed instrument. If the CDI key is enabled on the GTN 6XX/7XX/Xi, then the GFC 600 configuration on GI 275 must be disabled.
Mid-Continent Instruments	4200	2 ¼-inch electric attitude indicator	Must be installed in accordance with the G500/G600 AML STC SA02153LA-D.
	4300-4XX	3 ![-inch electric attitude indicator	Must be installed in accordance with the G500/G600 AML STC SA02153LA-D.

Notes:

[1] Must be installed per the requirements in this installation manual and AML STC SA02738CH, except the circuit breaker must be labeled “STBY ATT” instead of “ATTITUDE”, as specified in the STC. If used, the ESI-1000/2000 Magnetometer must not be co-located with any GMU 44s.

[2] Must be installed per the requirements in this manual and AML STC SA01969SE.

[3] Installation approval for this indicator is not provided by this STC and must be obtained separately. This STC only approves compatibility of the indicator as a standby instrument for the G500/G600 TXi system.

[4] For instructions to determine unit MOD level, refer to Mid-Continent Manual P/N 9017782, Revision J or later.

[5] The ARINC 429 BARO-SYNC interface for the MD 302 is not approved.

[6] Must be installed per the requirements in this manual and G5 AML STC SA0181WI.

[7] Must be installed per GI 275 AML STC SA02658SE.

[8] For GDU software v3.50 or later, GI 275 v2.60 or later is required.

C.2 2 ¼-inch Standby Airspeed Indicators and Altimeter

The 2 ¼-inch airspeed indicators and altimeters listed in Table C-2 are suitable for use as standby instruments for the G500/G600 TXi.

Table C-2 Compatible 2 ¼-inch Airspeed Indicators and Altimeter

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Aerosonic Instruments	25020-0179	N/A	200 knots maximum airspeed	Range markings must be added to match the current airspeed indicator in the aircraft.
	25025-0177		250 knots maximum airspeed	
	25035-0181		350 knots maximum airspeed	
	25040-0180		400 knots maximum airspeed	
	25020-1160		[2]	
	15035-0110x		35,000 ft	Inches or millibars must match the current altimeter in the aircraft.
	16550-11xx		50,000 ft	
	16450-1147		[2]	
Mid-Continent Instruments	MD25-xxx	N/A	-xxx corresponds to the airspeed range [1]	Range markings must be added to match the current airspeed indicator in the aircraft.
	MD15-2xx		20,000 ft [1]	Inches or millibars must match the current altimeter in the aircraft.
	MD15-3xx		35,000 ft [1]	

Notes:

[1] Contact Mid-Continent Instruments for complete part number definition.

[2] Used on PA-46.

C.3 GPS Source

The GPS position sources listed in Table C-3 are compatible with the G500/G600 TXi.

Table C-3 Compatible GPS Position Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GPS 400W GNC 420W/420AW GNS 430W/430AW GPS 500W GNS 530W/530AW	ARINC 429 RS-232	Main software v3.30 or later is required. If a GNS 500W TAWS unit is installed, it must be connected as GPS 1.	Main ARINC 429 Config: IN 1: Low, Garmin GDU OUT: High, GAMA 429 SDI: LNAV 1 (for GPS 1) LNAV 2 (for GPS 2) VNAV: Enable Labels Main RS-232 Config: CHNL 1: Off / MapMX For all PFD Installations Main CDI/OBS Config: Ignore CDI Key (i.e., CDI is GPS only)
	GNS 480	ARINC 429 RS-232	Software v2.30 or later is required. GNS 480 can only be connected to RS-232 ports 1 or 2 on the GDU.	Serial Setup: CH 1 (RX/TX): MapMX / MapMX ARINC 429 Setup: CH 2 IN: Garmin GDU, Low Sys 1 (for GPS 1) Sys 2 (for GPS 2) CH 1 OUT: GAMA 429 For all PFD Installations Misc Setup: CDI SELECT: IGNORE (i.e., CDI is GPS Only)
	GPS 175 GNX 375 GNC 355	HSDB		On the Interfaces page (reached from the Setup page), set GDU to Present.
	GTN 625/635/650/ 725/750	HSDB	Software v6.30 or later is required. For GDU software v2.20 and later, GTN 6XX/7XX v6.50 or later is required.	On the Interfaced Equipment page (reached from the GTN Setup page), set the GDU to “Present” and set the format to “GDU TXi” for each installed GDU. For GTN 6XX/7XX v6.41 and earlier, the format should be set to “Format 2”. For all PFD Installations For GDU software prior to v3.10 Main Indicator (Analog) Config: CDI Key - Disabled (i.e., CDI is GPS Only) For GDU software v3.10 and later Main Indicator (Analog) Config: CDI Key - Enabled is allowed and must be set on both GTNs, if present. (This setting enables localizer autoswitch.)
	GTN 625Xi/635Xi/ 650Xi/725Xi/750Xi	HSDB	For GDU software v3.80 or later, GTN Xi v21.01 or later is required.	

C.4 Navigation Receiver

The navigation receivers listed in Table C-4 are compatible with the G500/G600 TXi. For a list of analog navigation receivers compatible with the GDU, refer Appendix Section C.5.

Table C-4 Compatible Navigation Receiver

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GNC 215	HSDB RS-232 ARINC 429	One or two navigation receivers can be connected. Typically connected via HSDB; refer to Figure B-7 or Figure B-8.	Filtered LOC/GS: Disabled If HSDB: GPS Navigator: Present if a GPS source is present on the HSDB network. GDU: Present. GI 275: Present if a GI 275 is present on the HSDB network. If RS-232: Format: NMEA 1 If ARINC 429: Speed: Low SDI: Use Unit ID
	GNC 255( )	RS-232 ARINC 429	One or two navigation receivers can be connected. Typically connected via RS-232; refer to Figure B-7 or Figure B-8.	If RS-232: Serial Port: IO MODE: NMEA With no external CDI connected to the GNC 255(A): TYPE: SERIAL With standard external CDI connected to the GNC 255(A): TYPE: RESOLVER With composite external CDI connected to the GNC 255(A): TYPE: NONE Filtered LOC/GS (if available): OFF If ARINC 429: NAV: ARINC 429: TX: LO SPEED SDI: VOR/ILS 1 (for NAV 1) or VOR/ILS 2 (for NAV 2)

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GNS 430W GNS 530W	ARINC 429	One or two navigation receivers can be connected.	VOR/LOC/GS ARINC 429 Config: TX: Low SDI: VOR/ILS 1 (for NAV 1) VOR/ILS 2 (for NAV 2)
	GNS 480 (CNX80)	ARINC 429	One or two navigation receivers can be connected.	ARINC 429 Setup: CH 2 OUT VOR/ILS Low Sys 1 (for NAV 1) Sys 2 (for NAV 2)
	GTN 650/750	HSDB	One or two navigation receivers can be connected.	HSDB Config: GDU Format 2
	GTN 650Xi/750Xi	HSDB	One or two navigation receivers can be connected.	
	SL30	RS-232	One or two navigation receivers can be connected.	With no external CDI connected to SL30: Indicator Head Type: Serial With external “standard CDI” connected to SL30: Indicator Head Type: Resolver With external “composite CDI” connected to SL30: Indicator Head Type: Serial

C.5 Analog Navigation Receiver Compatibility

Interface to analog navigation receivers not listed in Table C-5 can still be approved under the G500/G600 TXi if all of the following conditions are met:

- The navigation receiver is approved to TSO C36( ) (Localizer), TSO C40( ) (VOR), and optionally TSO C34( ) (Glideslope) if the glideslope is used.
- If the glideslope is being used, the navigation receiver has a glideslope low-level flag output.
- The installation of the navigation receiver was previously FAA-approved.
- The calibration procedure for the analog navigation receiver described in Section 5.8.6 and the ground check in Section 6.3.8 have successfully been completed.

Table C-5 Compatible Analog Navigation Receiver

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	VIR-32/33	Composite Analog	Can be NAV 1, NAV 2, or both	
Honeywell (Bendix/King)	KX 155/155A/165/165A	Composite Analog	Can be NAV 1, NAV 2, or both	
	KN 53	Composite Analog	Can be NAV 1, NAV 2, or both	
	KX 170B/175B	Composite Analog	Can be NAV 1, NAV 2, or both	

C.6 ADF Receiver

The ADF receivers listed in Table C-6 are compatible with the G500/G600 TXi. For a list of synchro ADF receivers that are compatible with the GAD 43e, re
Appendix Section C.7.

Table C-6 Compatible ADF Receiver

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	ADF-60A/B	Analog	DC SIN/COS	
Honeywell	KR 87 KDF 806	Analog	DC SIN/COS	

C.7 GAD 43e – Synchro ADF Receiver Compatibility

Interface to ADF receivers not listed in Table C-7 can still be approved under the G500/G600 TXi AML STC if the following conditions are met:

- The ADF receiver is approved to TSO-C41( ) (Airborne Automatic Direction Finding (ADF) Equipment).
- The ADF receiver has a synchro bearing TO station output. This output must comply with the ARINC 407 synchro electrical specification.
- The installation of the ADF receiver was previously FAA-approved.
- The interface check for the ADF receiver described in Section 6.3.10 has successfully been completed.

Table C-7 Compatible Synchro ADF Receiver Compatibility

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Honeywell (Bendix/King)	KR 85	Analog	Existing KI 225-04 indicator must be retained	Only KI 225-04 indicator supported.

C.8 GAD 43e – DME Compatibility

Table C-8 Compatible DME

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	DME-42	ARINC 568	[1]	Must be strapped to match tuning source.
	DME-442/4000	ARINC 429		
Honeywell (Bendix/King)	KDM 706(A)	Digital	[2]	GDU or GAD 43e is Master DME Display/Control.
	KN 62/64	Digital	[3]	
	KN 63	Digital	[2]	GDU or GAD 43e is Master DME Display/Control.

Notes:

[1] If the DME-42 uses only CSDB tuning, only one NAV radio can be used to tune the DME.

[2] The GAD 43e can accept either serial or parallel tuning data, which it will forward to the KN 63 or KDM 706(A) DME. Refer to Table C-9 for a list of approved tuning sources.

[3] Only one KN 62/64 may be interfaced to the TXi system.

Acceptable Tuning Source (for use with KN 63 or KDM 706(A) DME)

Tuning sources not listed in Table C-9 can still be approved under the G500/G600 TXi AML STC if the following conditions are met:

- The VHF NAV receiver is approved to TSO C36( ) (Localizer) and TSO C40( ) (VOR).
- The VHF NAV receiver supports King serial tuning or 2x5/Slip Code/Shifted BCD parallel tuning.
- The installation of the VHF nav receiver was previously FAA-approved.
- The interface check for the DME receiver described in Section 6.3.11 has successfully been completed.

Table C-9 Acceptable Tuning Source

Manufacturer	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GNS 400W/500W series	King Serial		
	GTN 6XX/7XX/Xi	King Serial		
Honeywell (Bendix/King)	KX 170B/175B	Parallel	Slip Code Tuning	

C.9 Radar Altimeter

The radar altimeter transceivers listed in Table C-10 are compatible with the G500/G600 TXi.

Table C-10 Compatible Radar Altimeter

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	RAC-870	ARINC 429	This is an analog to digital converter specifically for use with the ALT-55B rad-alt.	
	ALT-4000	ARINC 429		
FreeFlight	RA-4500	ARINC 429		
Garmin	GRA 55/5500	ARINC 429		
Honeywell (Bendix/King)	KRA 405B	ARINC 429		

C.10 GAD 43e – Analog Radar Altimeter Compatibility

Table C-11 Compatible Analog Radar Altimeter

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	ALT-50A	Analog Discrete		
	ALT-55B	Analog Discrete		
Honeywell (Bendix/King)	KRA 10/10A	Analog Discrete		
	KRA 405	Analog Discrete		Auxiliary Output #1 must be used.
Sperry	AA-100	Analog Discrete		Precision Output must be used.
	AA-100A	Analog Discrete		Precision Output must be used.
	AA-200	Analog Discrete		Precision Output must be used.

C.11 GAD 43e – Marker Beacon Receiver Compatibility

Interface to marker receivers not listed in Table C-12 can still be approved under the G500/G600 AML STC if the following conditions are met:

- The marker beacon receiver is approved to TSO-C35( ) (Airborne Radio Marker Receiving Equipment).
- The marker beacon receiver has Active-High discrete outputs for inner, middle, and outer marker lamps.
- The installation of the marker beacon receiver was previously FAA-approved.
- The interface check for the marker beacon receiver described in Section 6.3.9 has successfully been completed.

Table C-12 Compatible Marker Beacon Receiver

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	VIR-32/33	Discrete		
Garmin	GMA 35(c)/340/342/345/ 347/350(c)	Discrete		
Honeywell (Bendix/King)	KMA 24/26/28/30	Discrete		
PS Engineering	PMA 6000/7000/8000	Discrete		

C.12 Autopilot

The autopilots listed in Table C-13 are compatible with the G500/G600 TXi. For a list of which autopilots may use the GAD 43(e) as an attitude source, refer Appendix Section C.13. For a list of autopilots compatible with the Altitude Preselect function of the GAD 43e, refer to Appendix Section C.14.

NOTE
This section includes compatibility with the basic autopilot computer, but does not include compatibility with the flight director interface to the autopilot computer. For compatibility with the autopilot computer flight director outputs, refer to Appendix Section C.15.

Table C-13 Compatible Autopilot

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Avidyne	DFC90	RS-232	Attitude-based autopilot	Interface approved for HW P/N 700-00170-000 with SW P/N 530-00213-000 installed on the Cirrus SR20/SR22 per STC SA00296BO.
Bendix	M4C, M4D	Analog	Attitude-based autopilot [2] [6]	Any variant of the 5536E/F Computer-Amplifier.
Century	II / III	Analog	Attitude-based autopilot [2]	The G500/G600 TXi can interface with radio coupler only.
	IV	Analog	Attitude-based autopilot [2]	
	21 / 31 / 41	Analog	Attitude-based autopilot [2] [9]	
	2000	Analog	Attitude-based autopilot [2]	
	400B	Analog	Attitude-based autopilot [2]	
Cessna	300 IFCS / 400 IFCS / 800 IFCS	Analog	Attitude-based autopilot [2] [11]	For 400 IFCS, the mode control panel must be adjusted NOT to attenuate the heading or course error signal.
	300B / 400B / 800B IFCS	Analog	Attitude-based autopilot [2] [11]	G519( ) attitude gyro may replace G550A or G1050A ADI to provide attitude information to the autopilot system.
	1000A IFCS	Analog	Attitude-based autopilot [2] [7] [11]	
Collins	APS-65 (APC-65/65A/65B/65C/ 65E/65F/65G/65H/65J FGC-65( ), FYD-65)	Analog	Attitude-based autopilot [2]	
	AP-106 / 107	Analog	Attitude-based autopilot [2]	

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GFC 500	ARINC 429	Attitude-based autopilot	Configure the G5 for the following settings: • ARINC 429 Input: Garmin G500 NAV • ARINC 429 Input: Garmin G500 Data • ARINC 429 Output: Garmin G500 Configure the correct port number based on which ARINC 429 port is connected to the GAD 29(B).
		HSDB	Attitude-based autopilot	Refer to Appendix Section C.1 for GI 275 configuration information.
	GFC 600	HSDB	Attitude-based autopilot	
Honeywell (Bendix/King)	KAP 100 / 150 / 200 KFC 150 / 200 / 250	Analog	Attitude-based autopilot [1] [2] [3]	
	KAP 140	Analog	Rate-based autopilot [2] [10]	
	KFC 225	Analog ARINC 429 GPSS	Attitude-based autopilot [2] [3] [10] [15]	
	KFC 275	Analog ARINC 429 GPSS	Attitude-based autopilot [2] [3] [14]	
	KFC 300	Analog	Attitude-based autopilot. Only KFC 300 autopilots without VNAV functionality are supported [2] [3] [4] [8]	
	KFC 325 (KCP 220 computers with -12 suffix or lower)	Analog	Attitude-based autopilot [2] [3] [12] [13] [14]	
	KFC 325 (KCP 220 computers with -15 suffix or higher)	Analog ARINC 429 GPSS	Attitude-based autopilot [2] [3] [12] [14]	
Sperry	SPZ-200A/500	Analog	Attitude-based autopilot [2] [5]	

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
S-TEC	20/30/40/50/55/60-1/60-2/65	Analog Discrete	Rate-based autopilot [2]	Must be configured to operate with either the NSD-360 or KI-525 (KCS-55) heading system.
	60 PSS	Analog	Pitch axis only autopilot [2]	
	55X	Analog Discrete ARINC 429 GPSS RS485	Rate-based autopilot. Altitude preselect/capture is available as an option using the RS-485 interface. This requires an optional enablement. Altitude/VS preselect/capture is available as an option using the GAD 43e (refer to Appendix Section C.14 for additional details) [2]	Must be configured to operate with either the NSD-360 or KI-525 (KCS-55) heading system. If the optional GDU RS-485 Altitude Preselect function is activated: • 55X computer must have mod AC/AC (software/hardware) • 55X computer must be strapped for a 01282 (SA-200) altitude selector/alerter (P2-23 must be OPEN)
	1500 / 2100	Analog Discrete ARINC 429 GPSS Attitude and Air Data	Attitude-based autopilot. Only dual PFD installations are allowed to interface to the 1500/2100 [2]	Must have either 01304-01, 01304-02, -01304-03, -01304-04, or -01304-07 ADC with Mod Level L software or later.

Notes:

[1] For KAP 150/KFC 150, EFIS-enabled KC-19X computer (P/N 065-0042-16) is not supported.

[2] The heading and course signal characteristics are determined by the autopilot that is selected in the Interfaces settings.

[3] An attitude source must be provided to the autopilot in order for it to function properly. The KVG 350 gyro or the KI 255/256 ADI may be retained, or the KG 258 ADI may replace the KI 256 ADI to provide attitude information to the autopilot system. Optionally, the GAD 43(e) Adapter may be used instead of the KI 255/256/KG 258 ADI or the KVG 350 gyro to provide attitude information to the autopilot system.

[4] For the KFC 300 autopilot, a synchro heading input is required. The existing KCS 305 compass system (KSG 105 slaved directional gyro) may be retained, or the GAD 43/(e) Adapter may be used instead of the KSG 105 to provide heading information to the autopilot system.

[5] The original attitude and heading system must remain in the aircraft to provide attitude and heading inputs to the autopilot. The original Altitude Alert Controller must be retained.

[6] The autopilot computer must be configured for a Collins PN-101 (FD-112C/V) HSI. If the autopilot had another HSI prior to the installation of the TXi system, changes to the GDU emulation setting may be required (the installation that was evaluated was an M-4D that had a Collins FD-112 HSI/ADI in the original configuration).

[7] The CA-1050A autopilot computer must be configured for a Century NSD-360 HSI or equivalent (DC Heading and Course Error signals). The GDU can emulate AC Heading and Course Error (Datum) signals; however, this has currently not been evaluated as part of this STC. Installers are encouraged to utilize the NSD-360 DC setting to avoid the burden of additional installation approval efforts.

[8] The KCI 310 indicator contains a Test key that is used to initiate the KFC 300 self-test. If the KCI 310 indicator is removed, an external momentary switch must be installed to replace the function of the KCI 310 Test switch.

[9] For the Century 31/41, ensure any jumpers at CD185 pins 8, 9, and 17 are removed to configure computer for an NSD 360A.

[10] For the KAP 140 and KFC 225, the GPS SELECT discrete configuration setting on the GNS 400W/500W or GTN 6XX/7XX/Xi must be set to "Prompt" in accordance with GNS 400W/500W Series Installation Manual, GTN 6XX/7XX Part 23 AML STC Installation Manual, or GTN Xi Part 23 AML STC Installation Manual.

[11] For Cessna autopilots with NAV 1/NAV 2 source switching on the autopilot mode controller, the NAV 1/NAV 2 source indication (lighted switch caption) on the mode controller must be obliterated (hidden from view). All NAV source switching is accomplished from the GDU.

[12] Installation in an aircraft with a previously installed EFIS is supported.

[13] Autopilot does not support ARINC 429 roll steering.

[14] A placard reading, "DISENGAGE SOFT RIDE DURING ALTITUDE CAPTURE (ALTC)" must be installed near the autopilot mode controller. For details, refer to Section 5.4.

[15] The KFC 225 must be configured for DC analog heading and A429 GPS steering.

C.13 GAD 43(e) – Autopilot Compatibility - Attitude Source

NOTE

Installation of the GAD 43(e) Adapter allows the existing attitude source for the autopilot to be removed, but will not improve autopilot performance. Prior to starting a TXi system installation in which the GAD 43(e) is used to provide attitude to the autopilot, it is recommended that a short flight test be conducted to baseline the autopilot performance. This short flight test is repeated after completion of the aircraft modification to verify that the autopilot performance has not been affected.

The autopilots listed in Table C-14 are compatible with the GAD 43(e) when using the GAD 43(e) as an attitude source.

Table C-14 Compatible Autopilot for GAD 43/43e Attitude Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Century	21/31/41/2000	Analog	GAD 43(e) provides attitude information to autopilot [1] [9]	
Cessna	300B IFCS/400B IFCS/800B IFCS (Type IF-550A) 400B (Type AF-550A) 1000A Series (Types AF/IF-1050A)	Analog	GAD 43(e) provides attitude information to autopilot [1]	
Collins	APS-65 (APC-65/65A/65E/65H/65J)	Analog	GAD 43(e) provides attitude information and yaw rate to autopilot. GDU provides pitch rate and roll rate information.	[10]
Honeywell (Bendix/King)	KAP 100	Analog	GAD 43(e) provides attitude information to autopilot [1] [3]	
	KAP 150/KFC 150	Analog	GAD 43(e) provides attitude information to autopilot [1] [3] GAD 43(e) can also provide baro-correction directly to the KAS 297B Altitude/Vertical Speed Selector [1] [4] [5]	
	KAP 200/KFC 200	Analog	GAD 43(e) provides attitude information to autopilot [1] [3]	
	KFC 225	Analog	GAD 43(e) provides attitude information to autopilot [1] [3] GAD 43(e) can also provide baro-correction directly to the KC 225 computer [1] [4] [5] [6]	
	KFC 250	Analog	GAD 43(e) provides attitude information to the autopilot (or KA 141 if installed) [1] [8]	

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Honeywell (Bendix/King)	KFC 275	Analog	GAD 43(e) provides attitude information to autopilot [1] [3] [7] [8] GAD 43(e) can also provide baro-correction directly to the KAS 297C Altitude/Vertical Speed Selector [1] [4] [5]	
	KFC 300	Analog	GAD 43(e) provides attitude information to autopilot (or KA 141 if installed) [1] [8]	
	KFC 325	Analog	GAD 43(e) provides attitude information to autopilot [1] [8]	

Notes:

[1] Analog signal characteristics for the interfaces from the GAD 43(e) to the autopilot can be found in Section 4 of GAD 43/43e Installation Manual (P/N 190-00899-00).

[2] Reserved.

[3] After installation of the GAD 43(e), perform the Gyro Alignment Procedure or Attitude Gyro Calibration in accordance with the autopilot manufacturer's instructions. There is no need to remove the AHRS where the manufacturer's procedure calls for the attitude gyro/indicator to be removed and mounted on a tilt table. Instead, with the GDU in Configuration mode, use theGAD 43/43e page to set the GAD 43(e) Pitch and Roll values as required by the autopilot check.

[4] If the GAD 43(e) is used to provide baro-correction to the KAS 297B/C, perform the KAS 297B/C checkout procedures (unit alignment and operational check).

[5] If desired, the KEA 130/130A encoding altimeter may be removed and replaced with the GAD 43(e) and a separate blind encoder. The GAD 43(e) will provide the baro-correction and the blind encoder will provide the Gray code altitude.

[6] If the GAD 43(e) is used to provide baro-correction to the KFC 225, perform an Altimeter Calibration and Altitude Selector Checkout Procedure per the autopilot manufacturer's instructions.

[7] Installation of the GAD 43(e) in place of an existing KI-254 attitude source is not supported.

[8] The GAD 43(e) can also be used to replace the KRG 331 rate gyro if desired.

[9] GAD 43 P/N 011-01970-00 cannot be used to provide attitude information. GAD 43 P/N 011-01970-01 must be used to provide attitude to Century autopilots.

[10] Inductors are required if the existing APS-65 autopilot system did not use a digital AHRS (i.e., AHC-1000A/S or 3000A/S). For inductor specifications, refer to Section 3.1.2. If installed, retain the NAC-80 vertical accelerometer and the SSS-65 lateral rate slip/skid sensor(s). If removing the AHC-85 and the NORM ACCEL output (J1 pins 19 and 20) was connected, install and connect a NAC-80 vertical accelerometer. If the AHC-85 LAT ACCEL output (J1 pins 11 and 12) was wired, install and connect an SSS-65 lateral accelerometer. If installing the NAC-80 and SSS-65 sensors in accordance with the Collins APS-65 Autopilot Installation Manual (P/N 523-0771862) and AC 43.13-1b, a separate airworthiness approval for installation of the sensor(s) is required.

C.14 GAD 43e – Autopilot Compatibility – Altitude Preselect/Vertical Speed Select

Table C-15 Compatible Autopilot for Altitude Preselect/Vertical Speed Select

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Cessna	300B IFCS, 400B IFCS, 800B IFCS, 1000A IFCS	Discrete	AA801A	
Collins	APS-65 (APC-65/65A/65B/65C/65E/ 65F/ 65G/65H/65J, FGC-65( ),FYD-65)	Analog Discrete	United Instruments 5506L-S emulation	Autopilot must currently use the UI 5506L-S Altitude Preselector. APS-65 autopilots that currently have the PRE-80 Altitude Preselector cannot use the GAD 43e Altitude Preselect function.
Honeywell (Bendix/King)	KAP 150 KFC 150	Digital	KAS 297B emulation	
	KFC 200/250	Discrete	KAS 297 emulation	The flight director interface from the KFC 200/250 described in Appendix Section C.15 is required. Installations with the KNS 660 Flight Management System are not supported. KC 295 flight control computer must be serial number 4460 or higher.
	KFC 275/325	Digital	KAS 297C emulation	
S-TEC	55/55X, 60-2, 65, 60PSS	Analog Discrete	ST-360 emulation	55/55X computer must be strapped for a 0140 / 01279PX (ST-360) altitude/vertical speed selector altitude (P2-23 must be GROUNDED).

C.15 External Flight Director

The flight directors listed in Table C-16 are compatible with the G500/G600 TXi.

Table C-16 Compatible External Flight Director

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Bendix	M-4D	Analog		5536F computer must have 4007463-0501 Flight Director Board (for Collins 329B7-R, FD-108 and FD112C/V indicators).
Century	IV	Analog		Autopilot computer must be previously compatible with the single cue 52C77( ) series indicator.
	41	Analog		N/A
	2000	Analog		
Cessna	300B IFCS/400B IFCS/800B IFCS	Analog		
	1000A IFCS	Analog		
Collins	APS-65 (APC-65/65A/65B/ 65C/65E/65F/65G/ 65H/65J, FGC-65(), FYD-65)	Analog		
	AP-106/107	Analog	OUT OF VIEW+ signal from autopilot must be inverted to be Active-High for correct operation with the G500/G600 TXi.	
Garmin	GFC 500	ARINC 429 HSDB		Refer to Appendix Section C.12.
	GFC 600	HSDB	Configuration of Dual Cue FD requires approval from GFC 600 STC SA01844WI.	

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Honeywell (Bendix/King)	KFC 150/200/225	Analog		For KFC 150, EFIS-enabled KC-19X computer (P/N 065-0042-16) is not supported.
	KFC 250	Analog		
	KFC 275/325	Analog or ARINC 429		
	KFC 300	Analog		
S-TEC	55, 55X	Analog		ST-645 Remote Annunciator panel must be installed (or retained) if the flight director is displayed on G500/G600 TXi. This will provide the required mode annunciations. Only flight director pitch/roll outputs directly from 55X computer can be used for display on G500/G600 TXi (FD pitch/roll outputs from the Remote Annunciator panel cannot be used). If FD Logic output from 55/55X P2-4 is connected to P1-20 input on ST-645, it must be disconnected.
	60-2/65 (with ST-670)	Analog		ST-670 Single Cue FD Interface Unit for King KI 256 (P/N 01180) must be installed or retained to display flight director information on the G500/G600 TXi.
	1500 / 2100	Analog		
Sperry	SPZ-200A/500	Analog	[1]	

Notes:

[1] FZ-500 flight director computer must be strapped for low gain pitch/roll steering and pitch/roll bias out of view inputs must be connected.

C.16 Miscellaneous Systems

The system listed is compatible with the G500/G600 TXi.

Table C-17 Compatible Miscellaneous System

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Meggitt (Cobham/S-TEC)	MAGIC EIDS	ARINC 429, Discrete	The GDU will not display any information from the EIDS. [1] [2] [3]	

Notes:

[1] For GDU setup items, refer to Section 5.4.31.1.

[2] A dual G500/G600 TXi installation required.

[3] The GDU provides air data for the engine trend monitoring system and a discrete to control whether System 1 or System 2 data is displayed.

C.17 Traffic Source

The traffic sources listed in Table C-18 are compatible with the G500/G600 TXi system.

Table C-18 Compatible Traffic Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GTX 33( )/330( )/335	ARINC 429	TIS-A The GDU can control the TIS state; however, it does not provide control of the GTX 33. [1] For GTX 335, General Purpose 2 should be used	The GTX 33( )/330( ) must be configured as follows: 429 OUTPUT CHANNEL 2: GARMIN w/TIS The GTX 335 must be configured as follows: A429 OUTPUT: FORMAT 8 EFIS AIR DATA, HIGH speed If the GTX 33( )/330( ) will receive ARINC 429 data from the GDU, set the GTX 33( )/330( ) input as follows: EFIS W/ALT, LOW speed
	GTX 345	HSDB	ADS-B/TIS-B The GTX 345 also provides FIS-B weather data with this interface. [3]	HSDB INTERFACE: G500/600 PRESENT: YES
	GNX 375	HSDB	ADS-B/TIS-B The GNX 375 also provides FIS-B weather data with this interface. [3]	GDU: Present
	GDL 88	HSDB	ADS-B data source. [3]	GDL 88 configuration is accomplished using a GTN 6XX/7XX/Xi or the install tool if a GTN 6XX/7XX/Xi is not installed. Refer to the GDL 88 AML STC SA02119SE. GDL 88 software v3.00 or later is required.
	GTS 800/820/825/850/ 855 (GTS 8XX)	ARINC 429 or HSDB	TAS/TCAS I/ADS-B ARINC 429 interface only displays TAS/TCAS targets. [3]	The GTS 8XX can receive heading and altitude from the GDU or directly from the AHRS and ADC.
Honeywell	KTA 810/KMH 820	ARINC 429	TAS [2]	Intruder File Protocol: ARINC 735 Controller Type: Discrete
	KTA 910/KMH 920	ARINC 429	TCAS I [2]	
L3 Communications (Goodrich)	SKY497 / SKY899	ARINC 429	TAS	For SKY 497, ARINC 735 Alternate Display type must be set to “ARINC735 Type 1” (P1-80 must be grounded). SKY 497 units must have software v1.6 or later installed.

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Avidyne (Ryan)	TAS 600/610/620 (9900BX)	ARINC 429	TAS GDU does not provide any control of TCAD and will only display TCAD traffic.	External unit capable of displaying traffic and controlling the TCAD is required in addition to GDU (e.g., GNS 400W/500W or Avidyne display/controller).

Notes:

[1] The GDU provides altitude as part of the data transmitted to the GTX 33( )/330( ); however, it is recommended that a direct connection from the ADC also be provided so that the GTX 33( )/330( ) will still receive altitude in the event of a GDU failure.

[2] Controller type is only required if GDU is used to control the traffic system.

[3] Only one ADS-B In source can be configured at a time.

C.18 Weather Radar Source

The weather radar transceivers listed in Table C-19 are compatible with the G500/G600 TXi.

Table C-19 Compatible Weather Radar Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Collins	RTA 800	ARINC 429, ARINC 708, Discrete		
Garmin	GWX 68	HSDB	[3] [5]	No configuration of the GWX 68 is required to communicate with the GDU. Software v2.12 or later required.
	GWX 70(R)		[3] [4] [5]	GWX 70(R) software v2.20 or later required. For GWX 70(R).
	GWX 75		[5]	GWX 75 software v2.25 or later required.
	GWX 8000		[5] [6]	GWX 8000 software v2.60 or later required.
	GDL 69 series		SiriusXM subscription is required. The GDU will also control GDL 69 series audio functions.	Ethernet port that is connected to GDU must be enabled. GDL 69/69A SXM requires minimum software v5.20. GDL 69/69A requires minimum software v4.01.
	GSR 56	RS-232, Discrete	Iridium satellite transceiver—weather is available for display on the GDU (account required to activate service). Telephone, text, and position reporting are not supported by the GDU.	
Honeywell (Bendix/King)	RDS 81 (RS 811A)	ARINC 429, ARINC 708, Discrete	RS 811A cannot be interfaced to both a G500/G600 TXi and GTN 6XX/7XX/Xi. [1]	
	RDS 82 (RS 181A)		RDS 82VP model with vertical scan is not currently supported. [1]	
	RDR 2000 (ART 2000)		Software version 01/06 and later may report faults that earlier software versions did not. In the case of faults being reported after a software update, the unit will most likely require recalibration. Refer to the manufacturer. [1] [2]	Configured for Desired Antenna Sweep 100°, Map Gain Change Accepted, Target Alert Disabled.

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Honeywell (Bendix/King)	RDR 2100 (ART 2100)	ARINC 429, ARINC 708, Discrete	[1] [2]	Configured for Desired Antenna Sweep 100°, Wx Gain Change Ignored, Map Gain Change Accepted, ARL Disabled, Auto Step Scan Disabled, Autotilt Disabled, Target Alert Disabled.

Notes:

[1] The resistance between the radar and the airframe must be 10 m© or less. Refer to Appendix H.

[2] The AHRS may be used to provide ARINC 429 stabilization data to the weather radar.

[3] No other ARINC 453/708 displays (e.g., GMX 200) may be connected to the GWX 68 or GWX 70(R). This STC does not support the GWX 68 or GWX 70(R) for simultaneous connection of HSDB and ARINC 453/708 display interfaces.

[4] GDU #1 and #2 have individual display and control capabilities.

[5] GWX Roll Trim adjustment is not supported by TXi. Use a GTN 7XX or GTN 7XX Xi connected to the GWX or GWX PC Tool, if required.

[6] Requires GWX 8000 enablement card. Refer to Table 3-8 for enablement card part numbers.

C.19 Data Link

The data link models listed in Table C-20 are compatible with the G500/G600 TXi.

Table C-20 Compatible Data Link Model

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GDL 60	HSDB		Ethernet port must be connected to the port configured for port locking on the GDU 7XX. GDL 60 requires TXi software v3.50 or later.
	GDL 69 series	HSDB	SiriusXM subscription is required. The GDU 700P/1060 will also control GDL 69 series audio functions.	Ethernet port that is connected to GDU must be enabled. GDL 69/69A SXM requires minimum software v5.20. GDL 69/69A requires minimum software v4.01.
	GSR 56	RS-232, Discrete	Iridium satellite transceiver – weather is available for display on the GDU (account required to activate service). Telephone, text, and position reporting are not supported by the GDU.	If a GDL 60 is installed, interface to GSR 56 is required.

C.20 Lightning/Electrical Discharge Source

The lightning/electrical discharge system listed in Table C-21 is compatible with the G500/G600 TXi.

Table C-21 Compatible Lightning/Electrical Discharge Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
L-3 Communications	WX-500	RS-232		
	WX-1000E	ARINC 429		

C.21 External TAWS Source

Refer to Section 3.3.11 for additional details regarding the external TAWS options and configuration.

Table C-22 External TAWS Source

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GTN 6XX/7XX/Xi	HSDB		HSDB Config: Connected Terrain Mode: TAWS B
	GNS 400W/500W	RS-232	[1]	TAWS CONFIG: TAWS RS-232 Setup: Out: MapMX

Notes:

[1] The TXi system provides all required TAWS annunciations, eliminating the need for a separate TAWS annunciator panel. The TXi system does not provide PFD SVT terrain and obstacle shading or MFD map impact or pop-up alerts.

C.22 Audio Panel

The connection of a GDU to an audio panel is recommended but not required unless TAWS B and/or SVT is enabled.

The audio panels listed in Table C-23 are compatible with the GDU. However, interface to audio panels not listed below can still be approved under G500/G AML STC if all of the following conditions are met:

- The installation of the audio panel was previously FAA-approved.
- The GDU audio must be verified as described in Section 5.5.4.

For installations using G500/G600 TXi SVT, the audio panel must have an unswitched audio input that is used for the GDU audio.

NOTE
Audio alerts must be loud, attention-getting, and clearly intelligible under all cockpit noise conditions. Audio alerts should be slightly louder than the normal volume of COM and intercom transmissions.

Table C-23 Compatible Audio Panel

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Honeywell (Bendix/King)	KMA 24 KMA 26 KMA 28 KMA 30	Analog		
Garmin	GMA 340 GMA 342 GMA 345 GMA 347 GMA 35(c) GMA 350(c) SL15 SL15M	Analog	GMA 35(c) requires a control panel, such as a GTN 7XX.	
PS Engineering	PMA 6000 PMA 7000 Series PMA 8000 Series PAR 200	Analog		

C.23 Video Devices

The interface of a video device to a GDU is approved under this STC. The installation of a compatible video device is not approved by this STC and must be so by an FAA-approved method.

The video devices listed in Table C-24 are compatible with the GDU; however, the GDU is capable of receiving the video input formats listed in Section 3.3.1

For more information regarding input pins/connector, refer to Appendix Section A.1.

Table C-24 Compatible Cameras

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Astronics	Max-Viz 1400	SD - NTSC or PAL	[1]	Compatible video format must be configured. Refer to Section 3.3.12.
	Max-Viz 2300	SD - NTSC or PAL	[1]	
Rugged	HD 19	HD - NTSC or PAL	[1]	Compatible video format must be configured. Refer to Section 3.3.12.

Notes:

[1] Camera installation approval is not provided by this STC and must be obtained via separate airworthiness approval. This STC only approves compatibility of these cameras to display video on the GDU.

C.24 GDU Serial Altitude (RS-232)

The G500/G600 TXi can provide RS-232 serial altitude, Shadin altitude format, 9600 baud, to the systems listed in Table C-25.

Table C-25 RS-232 Serial Altitude

Mfr	Model	Data Format	Notes	Interfacing Equipment Configuration Information
Garmin	GTX 32 GTX 327	RS-232		The RS-232 input that is used to provide altitude to the transponder must be set to “SHADIN ALT.”

C.25 GEA 110 EIS Sensors

G500/G600 TXi reciprocating EIS gauges display data from the GEA 110 when approved sensors are configured in accordance with Table C-26. EIS senso
are authorized as Interface Only require a separate installation approval.

Table C-26 GEA 110 EIS Sensor Compatibility

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
CHT	Alcor	494-70008-00	Alcor 86252 (K Type)	Alcor 86252 (v1) or Garmin 494-70008-00 (v1)	Interface only
	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	
		N/A	J Type	NIST ITS-90 J Type (v1)	
EGT	Alcor	494-70001-00	Alcor 86255 (K Type)	Alcor 86255 (v1) or Garmin 494-70001-00 (v1)	Interface only
	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	
Primary EGT	Alcor	494-70001-00	Alcor 86255 (K Type)	Alcor 86255 (v1) [1] or Garmin 494-70001-00 (v1) [1]	Interface only
	Varies	N/A	K Type	NIST ITS-90 K Type (v1) [1]	Interface only
TIT & TIT 2	Alcor	494-70002-00	Alcor 86245 (K Type)	Alcor 86245 (v1) [1] or Garmin 494-70002-00 (v1) [1]	Interface only
	Varies	N/A	K Type	NIST ITS-90 K Type (v1) [1]	
Oil Press	Garmin	011-04202-30	150 PSIG (Brass)	Garmin 011-04202-30 (v1)	Interface and installation
		011-05783-30	GPT 150PSIG (SS)	Garmin 011-05783-30 (v1)	
	Kulite	494-30032-00	APT-20GX-1000-150G (Mil-Spec Style)	APT-20GX-1000-150G (v1) or Garmin 494-30032-00 (v1)	
	Beech	N/A	102-389017-1	Beech 102-389017 (v1) [1]	Interface only
		N/A	102-389017-3	Beech 102-389017 (v1) [1]	
	UMA	N/A	T1EU150G (Gauge)	UMA T1EU150G (v1)	
		N/A	T1EU150G-CS (Gauge)	UMA T1EU150G (v1)	
	JPI	N/A	159936 150PSIG (Brass)	JPI 159936 (v1)	
Oil Temp	UMA	494-70009-00 [5]	T3B3-2.5G (K Type)	UMA T3B3 (v1)	Interface and installation
	UMA	N/A	T3B3	UMA T3B3 (v1)	Interface only
		N/A	T3B3A	UMA T3B3 (v1)	
		N/A	T3B3-2.5	UMA T3B3 (v1)	
	Mil-Spec	N/A	MS28034	MilSpec MS28034 (v1)	
	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	
Carb Temp	UMA	494-70010-00	T3B10-SG (K Type)	UMA T3B10-SG (v1) [1] or Garmin 494-70010-00 (v1) [1]	Interface and installation
	Mil-Spec	N/A	MS28034	Mil-Spec MS28034 (v1)	Interface only
	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	
OAT	Garmin	011-00978-00	GTP 59 OAT Probe	Garmin GTP 59 (v1) [1]	Interface and installation

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Manifold Press	Garmin	011-04202-00	Garmin 30 PSIA (Brass)	Garmin 011-04202-00 (v1) Garmin 011-04202-00 Hi (v2) [11]	Interface and installation
		011-05783-00	GPT 30PSIA (SS)	Garmin 011-05783-00 (v2)	
	Kulite	494-30030-00	APT-20GX-1000-25A (Mil-Spec Style)	Kulite 20GX-1000-25A (v1) [1] or Garmin 494-30030-00 (v1) [1]	
	Kavlico	N/A	50 PSIA (SS)	Kavlico P155-50A-E4B (v1)	Interface only
	UMA	N/A	T1EU50A (Absolute)	UMA T1EU50A (v1)	
		N/A	T1EU50A-CS (Absolute)	UMA T1EU50A (v1)	
		N/A	T1EUMA050A-( )( )	UMA T1EU50A (v1)	
	JPI	N/A	159934 30PSIA (Brass)	JPI 159934 (v1)	
Fuel Press	Garmin	011-04202-20	75 PSIG (Brass)	Garmin 011-04202-20 (v1)	Interface and installation
		011-04202-10	15 PSIG (Brass)	Garmin 011-04202-10 (v1)	
		011-05783-20	GPT 75PSIG (SS)	Garmin 011-05783-20 (v1)	
		011-05783-10	GPT 15PSIG (SS)	Garmin 011-05783-10 (v1)	
	Kulite	494-30031-00	APT-20GX-1000-50G (Mil-Spec Style)	Kulite 20GX-1000-50G (v1) [1] or Garmin 494-30031-00 (v1) [1]	
		494-30029-00	APT-20GX-1000-15G (Mil-Spec Style)	Kulite 20GX-1000-15G (v1) [1] or Garmin 494-30029-00 (v1) [1]	
	UMA	N/A	T1EU70G (Gauge)	UMA T1EU70G (v1)	Interface only
		N/A	T1EU70G-CS (Gauge)	UMA T1EU70G (v1)	
		N/A	T1EU35G (Gauge)	UMA T1EU35G (v1)	
		N/A	T1EU35G-CS (Gauge)	UMA T1EU35G (v1)	
		N/A	T1EU100D (Differential)	UMA T1EU100D (v2)	
		N/A	T1EU35D (Differential)	UMA T1EU35D (v2)	
	JPI	N/A	159935 50PSIG (Brass)	JPI 159935 (v1)	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Fuel Flow & Return Fuel Flow	Electronics Intl	494-10001-00	EI FT-60	EI FT-60 Hi (v1) or Garmin 494-10001-00 Hi (v1) [2] or EI FT-60 Low (v1) or Garmin 494-10001-00 Low (v1) [2]	Interface and installation
		494-10001-01	EI FT-90	EI FT-90 Hi (v1) or Garmin 494-10001-01 Hi (v1) [2] EI FT-90 Low (v1) or Garmin 494-10001-01 Low (v1) [2]	
	Beech	N/A	102-389012-11	Beech 102-389012-11 Low (v1) or Beech 102-389012-11 Hi (v1) [2]	Interface only
	Floscan	N/A	201 B-6	Floscan 201 B-6 Low (v1) or Floscan 201 B-6 Hi (v1) [2]	
		N/A	231	Floscan 231 Low (v1) or Floscan 231 Hi (v1) [2]	
	JPI	N/A	700900-1 (201)	Floscan 201 B-6 Low (v1) or Floscan 201 B-6 Hi (v1) [2]	
		N/A	700900-2 (231)	Floscan 231 Low (v1) or Floscan 231 Hi (v1) [2]	
	Shadin	N/A	680501	Shadin 680501 Low (v1) or Shadin 680501 Hi (v1) [2]	
		N/A	68501-1	Shadin 680501-1 Low (v1) or Shadin 680501-1 Hi (v1) [2]	
		N/A	680501X	Shadin 680501X Low (v1) or Shadin 680501X Hi (v1) [2]	
RPM	N/A (Magnetos)	N/A	P-lead (w/resistors)	Mag P-Lead (v2) or Dual Mag P-Lead (v2) or Geared 0.642:1 P-Lead (v2) or Geared 0.667:1 P-Lead (v2) or Geared 0.750:1 P-Lead (v2) or Geared 16:25 P-Lead (v2) or Geared 77:120 P-Lead (v2) [3] [9]	Interface and installation
	ElectroAir	N/A	Electronic Ignition System	Electroair EIS-41000 (v2) [9]	Interface only
		N/A	Electronic Ignition System	Electroair EIS-61000 (v2) [9]	
	UMA	N/A	T1A9-1	UMA T1A9-1 Slick (v1)	
		N/A	T1A9-2	UMA T1A9-2 Bendix (v1)	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Shunt - Alternator Load & Battery Charge/ Discharge	Varies	N/A	30Amps 50mV	30Amps 50mV (v1)	Interface only
		N/A	50Amps 50mV	50Amps 50mV (v1)	
		N/A	60Amps 50mV	60Amps 50mV (v1)	
		N/A	60Amps 100mV	60Amps 100mV (v1)	
		N/A	75Amps 50mV	75Amps 50mV (v1)	
		N/A	80Amps 50mV	80Amps 50mV (v1)	
		N/A	85Amps 50mV	85Amps 50mV (v1)	
		N/A	100Amps 50mV	100Amps 50mV (v1)	
		N/A	150Amps 50mV	150Amps 50mV (v1)	
		N/A	30Amps 50mV	Prop Heat 30A-50mV (v1) [8]	
		N/A	125Amps 50mV	125Amps 50mV (v1)	
		N/A	300Amps 50mV	300Amps 50mV (v1)	
Bus or Batt Volts	Varies	N/A	Aircraft Bus (80V Max)	Bus Max 80 Volts DC (v1)	Interface only
Fuel Quantity	Resistive float – Varies	N/A	0-249Ohm [7]	Resistive 0-249Ohm (v1) [1] [4]	Interface only
		N/A	0-620Ohm [7]	Resistive 0-620Ohm (v1) [1] [4]	
	CiES Corp	N/A	CiES CC284022-XXXX-105 (0-5V Analog) [7]	Voltage 0-5Volt (v1) [1]	
		N/A	CiES CC284022-XXXX-101 (Digital) [7]	Digital 0-30kHz (v1) [1]	
	Cessna	N/A	Signal Conditioner P/N 9910082-2 [7]	Analog Voltage 0-20Volt (v1) [1] [6]	
		N/A	Signal Conditioner P/N 9910082-32 [7]	Analog Voltage 0-20Volt (v1) [1] [6]	
CDT	Varies	N/A	K Type	NIST ITS-90 K Type (v1) [1]	Interface only
IAT	Varies	N/A	K Type	NIST ITS-90 K Type (v1) [1]	Interface only
		N/A	J Type	NIST ITS-90 J Type (v1) [1]	
Vacuum/De-ice Pressure	Electronics Intl	N/A	PT-05DIFF	EI PT-05DIFF (v1)	Interface only
	Garmin	011-04202-10	15 PSIG (Brass) [10]	Garmin 011-04202-10 (v1)	Interface and installation
		011-04202-20	75 PSIG (Brass) [10]	Garmin 011-04202-20 (v1)	
		011-05783-10	GPT 15PSIG (SS) [10]	Garmin 011-05783-10 (v1)	
		011-05783-20	GPT 75PSIG (SS) [10]	Garmin 011-05783-20 (v1)	

Notes:

[1] Select the connected General Purpose port to access the sensor configuration.

[2] Refer to Section 5.7.2 for fuel flow gauge smoothing filter and K-factor selection.

[3] Refer to Section 5.7.2 for P-lead magneto type and propeller-to-engine gear ratio selection.

[4] Refer to Section 3.4.8 for fuel quantity sensor selection.The GEA 110 -00 has 0-249 and 0-620 ohm configurations while the GEA 110 -01 only has a 0-620 ohm configuration. Resistive fuel probes must be interfaced to General Purpose 3-6 only.

[5] Use the engine manufacturer’s guidance for probe length/location.

[6] Interface to this fuel quantity signal conditioner is only approved in the following Cessna aircraft models: 310R, 310Q, 340, 414, 421B. Turn the Empty Main and Empty Aux adjustment controls full clockwise. The available Sensor Configuration will be (v3).

[7] Applicable to all tank locations.

[8] Select this configuration for Beech Aircraft Corporation 58 only. Prop Heat shunt takes the place of one Batt Charge/Discharge shunt. The existing 'PROP HEAT' indicator must be retained to support the shunt interface to the GEA 110. Obscure the face of the existing indicator with a spacer and cover plate. An example method of obscuring a gauge can be found in Figure D-2.

[9] The v2 sensor files require GEA 110 -01, GEA software v2.21 or later, and TXi software v3.31 or later.

[10] Positive pressure measurement only. Ensure the sensor is compatible with the aircraft system. Refer to Section 4.7.3 for installation guidance.

[11] Optionally use sensor configuration 011-04202-00 Hi (v2) for increased manifold pressure gauge stability.

C.26 GEA 71B Enhanced EIS Sensors

G500/G600 TXi turboprop EIS gauges display data from the GEA 71B Enhanced when approved sensors are configured in accordance with Table C-27 for GEA 71B Enhanced (P/N 011-03682-02) and Table C-28 for GEA 71B Enhanced (P/N 011-03682-05). EIS sensors that are authorized as “Interface only” re separate installation approval.

Table C-27 GEA 71B Enhanced P/N 011-03682-02 EIS Sensor Compatibility

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Oil Press	Kulite	494-30032-00	APT-20GX-1000-150G (SS)	Kulite 20GX-1000-150G (v1) or Garmin 494-30032-00 (v1)	Interface and installation
	Kulite	N/A	APT-369-1000-150G	Kulite 369-1000-150G (v1) [5]	Interface only
		N/A	APTE-6R-1000-150G	Kulite 6R-1000-150G (v1)	
	Meggitt	N/A	1081021-01 Piper P/N 548-919	Meggitt 1081021-01 (v1)	
Oil Temp	Mil-Spec	N/A	MS28034	MilSpec MS28034 (v1)	Interface only
OAT	Garmin	011-00978-00	GTP 59 OAT Probe	Garmin GTP 59 (v1)	Interface and installation
Fuel Pressure	Kulite	494-30031-00	APT-20GX-1000-50G (SS)	Kulite 20GX-1000-50G (v1) or Garmin 494-30031-00 (v1)	Interface and installation
	Kulite	N/A	APTE-6R-1000-50G	Kulite 6R-1000-50G (v1)	Interface only
	Honeywell	N/A	MM100PG1HA	Honeywell MM100PG1HA (v1)	
Fuel Flow	Shadin	N/A	660526A( )	Shadin 660526AS (v1) [1] [6]	Interface only
	Meggitt	N/A	TFF2905-13 P/N 9910338-6	Meggitt TFF2905-13 (v1) [1] [3]	
		N/A	TFF2905-27 Piper P/N 601-217	Meggitt TFF2905-27 (v1)	
Fuel Flow Temp	Meggitt	N/A	TFF2905-13 P/N 9910338-6	Meggitt TFF2905-13 (v1) [3]	Interface only
		N/A	TFF2905-27 Piper P/N 601-217	Meggitt TFF2905-27 (v1)	
Shunt – Alternator Load & Battery Charge/Discharge	Varies	N/A	30Amps 50mV	30Amps 50mV (v1)	Interface only
		N/A	50Amps 50mV	50Amps 50mV (v1)	
		N/A	60Amps 100mV	60Amps 100mV (v1)	
		N/A	75Amps 50mV	75Amps 50mV (v1)	
		N/A	80Amps 50mV	80Amps 50mV (v1)	
		N/A	85Amps 50mV	85Amps 50mV (v1)	
		N/A	100Amps 50mV	100Amps 50mV (v1)	
		N/A	150Amps 50mV	150Amps 50mV (v1)	
		N/A	200Amps 50mV	200Amps 50mV (v1)	
Bus, Battery, Alt/Gen Volts	Varies	N/A	Aircraft Bus (80V Max)	Bus Max 80 Volts DC (v1)	Interface only

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Torque	Kulite	N/A	APTE-438-1000-75D	Kulite 438-1000-75D (v1) [4]	Interface only
		N/A	APTE51CF-70D	Kulite APTE51CF-70D (v1)	
		N/A	APT51CC-75D	APT51CC-75D (v1)	
		N/A	APTE-51R-1000-68.3D	Kulite 51R-1000-68-3D (v1)	
	Meggitt	N/A	1081022-02 Piper P/N 548-918	Meggitt 1081022-02 (v1)	
Engine Temperature (ITT, etc.)	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	Interface only
Prop RPM (NP) [2]	Mil-Spec	N/A	MIL-PRF-26611 P/Ns 6002457220, 6002457221	QPL-TBM MIL-PRF-26611 (v1)	Interface only
		N/A	MIL-PRF-26611 P/Ns 9912034-1, 9910378-1	QPL-208 MIL-PRF-26611 (v1)	
	Globe Motors	N/A	N22A703	QPL-DLX MIL-PRF-26611 (v1)	
	Meggitt	N/A	1081024-01 Piper P/N 601-905	QPL-PA46 MIL-PRF-26611 (v3) [9]	
Gas Gen RPM (N1/NG)	Varies	N/A	MIL-PRF-26611 TBM P/N 6002457220, 6002457221 208 P/N 9912034-1, 9910378-1 208 P/N N22A703	QPL-NG MIL-PRF-26611 (v1)	Interface only
Vacuum (Pneumatic) Pressure [8]	Meggitt	N/A	1081022-01 Piper P/N 548-917	Meggitt 1081022-01 (v1) [7]	Interface only
	Electronics Intl	N/A	PT-05DIFF	EI PT-05DIFF (v1)	
Rudder (Yaw) Trim [8]	Piper	N/A	P/N 102345-004	Voltage 0-5Volt (v1) [7]	Interface only
		N/A	P/N 102345-005	Voltage 0-28Volt (v1) [7]	

Notes:

[1] Refer to Section 5.7.2 for fuel flow gauge K-factor selection.

[2] Select the configuration file appropriate for the aircraft to ensure the correct sensor-to-engine gear ratio is chosen.

[3] Fuel flow and fuel flow temperature sensors are contained within the same part body.

[4] Select this configuration for TBM P/Ns 6007827220, 6007827221, 6053007235, and 7161772403.

[5] Select this configuration for TBM P/Ns 7161789010, 6053007229, and 7161772405.

[6] Select this configuration for TBM P/Ns 6082557246 and 6082557220.

[7] Must use general purpose port.

[8] GDU software v3.11 and later.

[9] Installations using v3.40 and later use v3 sensor file. Installations using v3.14 and earlier use v1 sensor file.

Table C-28 GEA 71B Enhanced P/N 011-03682-05 EIS Sensor Compatibility

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Oil Press	Kulite	494-30032-00	APT-20GX-1000-150G (SS)	Kulite 20GX-1000-150G (v1) or Garmin 494-30032-00 (v1)	Interface and installation
	Kulite	N/A	APT-369-1000-150G	Kulite 369-1000-150G (v1) [5]	Interface only
		N/A	APTE-6R-1000-150G	Kulite 6R-1000-150G (v1)	
		N/A	APTE-7KBS-1500-200G	Kulite 312-1000-200G (v1)	
		N/A	APTE-312-1000-200G Beech P/N 101-389023-( )	Kulite 312-1000-200G (v2)	
		N/A	APTE-431A-1000-135G Patriot P/N SP510-29-150G Systron Donner P/N 125582-1, (-3)	Kulite 431-1000-135G (v1)	
	Meggitt	N/A	1081021-01 Piper P/N 548-919	Meggitt 1081021-01 (v1)	
	Aerosonic	N/A	33092-1 Piper P/N 55818-02	Aerosonic 33092-1 (v1) [21]	
	EDCLIFF	N/A	123971 Cessna P/N 9910511-1	Cessna 9910511-1 (v1)	
Oil Temp	Mil-Spec	N/A	MS28034	MilSpec MS28034 (v1)	Interface only
OAT	Garmin	011-00978-00	GTP 59 OAT Probe	Garmin GTP 59 (v1)	Interface and installation
Fuel Pressure	Kulite	494-30031-00	APT-20GX-1000-50G (SS)	Kulite 20GX-1000-50G (v1) or Garmin 494-30031-00 (v1)	Interface and installation
		494-30032-00	APT-20GX-1000-150G (SS)	Garmin 494-30032-00 (v1)	
	Kulite	N/A	APTE-6R-1000-50G	Kulite 6R-1000-50G (v1)	Interface only
	Honeywell	N/A	MM100PG1HA	Honeywell MM100PG1HA (v1)	
	Aerosonic	N/A	33093-1 Piper P/N 55819-02	Aerosonic 33093-1 (v1) [21]	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Fuel Flow	Shadin	N/A	660526A( )	Shadin 660526AS RevD (v1) [1] [6]	Interface only
	Meggitt	N/A	TFF2905-13 P/N 9910338-6	Meggitt TFF2905-13 (v1) [1] [3] [20]	
		N/A	TFF2905-27 Piper P/N 601-217	Meggitt TFF2905-27 (v1) [20]	
		N/A	TFF2905-6 Cessna P/N 9910338-2	Meggitt TFF2905-6 (v1) [1]	
		N/A	TFF2905-11 Rockwell P/N 850590-515	Rockwell 850590-515 (v2) [1] [20]	
	Senior Aerospace Ketema	N/A	1/2-2-81-306 [15]	SAK X-2-81-306 (v1) [1] [20]	
		N/A	1/2-2-81-301	SAK X-2-81-301 (v1) [1] [20]	
		N/A	1/2-1-81-302	SAK X-1-81-302 (v1) [1]	
	Gull	N/A	150-906-002 Beech P/N 90-380009-7, -1	Beech 90-380009-7 (v2)	
		N/A	151-906-001 Rockwell P/N 850590-513	Rockwell 850590-513 (v2) [1]	
	Ragen	N/A	32668011-0101	Ragen 32668011-0101 (v2) [26]	
Fuel Flow Temp	Meggitt	N/A	TFF2905-13 P/N 9910338-6	Meggitt TFF2905-13 (v1) [3]	Interface only
		N/A	TFF2905-27 Piper P/N 601-217	Meggitt TFF2905-27 (v1)	
		N/A	TFF2905-6 Cessna P/N 9910338-2	Meggitt TFF2905-6 (v1) [3]	
		N/A	TFF2905-11 Rockwell P/N 850590-515	Rockwell 850590-515 (v2) [3]	
	Senior Aerospace Ketema	N/A	1/2-2-81-306 [15]	SAK X-2-81-306 (v1) [3]	
		N/A	1/2-1-81-302	SAK X-1-81-302 (v1) [3]	
		N/A	1/2-2-81-301	SAK X-2-81-301 (v1) [3] [20]	
	Gull	N/A	151-906-001 Rockwell P/N 850590-513	850590-513 (v2) [3]	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Shunt – Alternator Load & Battery Charge/Discharge	Varies	N/A	30Amps 50mV	30Amps 50mV (v1)	Interface only
		N/A	50Amps 50mV	50Amps 50mV (v1)	
		N/A	60Amps 100mV	60Amps 100mV (v1)	
		N/A	75Amps 50mV	75Amps 50mV (v1)	
		N/A	80Amps 50mV	80Amps 50mV (v1)	
		N/A	85Amps 50mV	85Amps 50mV (v1)	
		N/A	100Amps 50mV	100Amps 50mV (v1)	
		N/A	150Amps 50mV	150Amps 50mV (v1)	
		N/A	200Amps 50mV	200Amps 50mV (v1)	
		N/A	250Amps 50mV	250Amps 50mV (v1)	
		N/A	250Amps, 100mV	250Amps, 100mV (v1)	
Bus, Battery, Alt/Gen Volts	Varies	N/A	Aircraft Bus (80V Max)	Bus Max 80 Volts DC (v1)	Interface only
Fuel Quantity 1-6 [8] [10]	Varies	N/A	Resistive float 0-620Ohm	Analog - Resistive 0-620Ohm (v1) [9] [12]	Interface only
	CiES	N/A	CC284022-XXXX-105	Analog - Voltage 0-5Volt (v1)	
		N/A	CC284022-XXXX-101	Digital - Digital 0-30kHz (v1)	
	Vibrometer	N/A	75-190-(1-5) Piper P/N 481-39-(5-9) 762 438-1-0 – 762 441-0	Rectified Capacitive - Meridian Fuel Qty Left (v2) or Meridian Fuel Qty Right (v2)	
	Intertechnique	N/A	TBM P/Ns 6039257236, 6039257238, 6039257221, 6039257222, and 6039257262 – 6039257265	Capacitive - Single Input 0-200pF (v2) [13]	
	Radiant Power Corp (Moritz)	N/A	A1210	Analog - Voltage 0-5Volt (v1) [11]	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Torque	Kulite	N/A	APTE-2B-2250-85D [14][16]	Kulite APTE-2X-2250-85D (v1)	Interface and installation
		N/A	APTE-438-1000-75D	Kulite 438-1000-75D (v1) [4]	
		N/A	APTE51CF-70D	Kulite APTE51CF-70D (v1)	
		N/A	APT51CC-75D	Kulite APT51CC-75D (v2)	
		N/A	APTE-51R-1000-68.3D	Kulite 51R-1000-68-3D (v1)	
	Kulite	N/A	IPTE-51F-1000-70D Piper P/N 489-502	Kulite 51F-1000-70D (v1)	Interface only
		N/A	APTE-2-2000-65D Cessna P/N 9910331-1, (-3)	5-0Volt 0-1669ft-lb (v2)	
		N/A	APTE-23A-1500-61.9D Labem DA55-95-7-1	Kulite 23A-1500-61-9D (v1)	
		N/A	APTE-2A-2250-85D Beech P/N 130-389002-1, (-3)	Kulite APTE-2X-2250-85D (v2)	
	Meggitt	N/A	1081022-02 Piper P/N 548-918	Meggitt 1081022-02 (v1)	
	BEI Sensor/EDCLIFF	N/A	124941-4-930 Cessna P/N 9910498-1	BEI 124941-4-930 (v1)	
	Tavis	N/A	10028-104 Honeywell P/N 897331-4	3p96-0Volt 0-100% (v3)	
		N/A	10028-103 Honeywell P/N 897331-3	4p2Volt 0-100% (v2)	
Engine Temperature (ITT)	Varies	N/A	K Type	NIST ITS-90 K Type (v1)	Interface only
Engine Temperature (EGT)	Honeywell	N/A	Air Data/SRL Computer 2101826-1, (-2), (-3)	NIST ITS-90 K-Type ECM1 (v1)	Interface only
		N/A	Fuel Control Computer Cessna P/Ns 99193-SOCN-897820-1, (-2) Cessna P/Ns 2101322-1, (-4), (-11), (-12), (-13), (-14)	NIST ITS-90 K-Type ECM1 (v1)	
		N/A	SRL/Autostart Computer 2101990-3	NIST ITS-90 K-Type ECM1	
		N/A	Torque and Temperature Limiter Controller Honeywell P/N 949594-6, (-12)	NIST ITS-90 K-Type ECM1	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Prop RPM (NP) [2]	Mil-Spec	N/A	MIL-PRF-26611 P/Ns 6002457220, 6002457221	QPL-TBM MIL-PRF-26611 (v2) [18]	Interface only
		N/A	MIL-PRF-26611 Cessna 208 P/Ns 9912034-1, 9910378-1	QPL-208 MIL-PRF-26611 (v2) [18]	
		N/A	MIL-PRF-26611 Cessna 425 P/Ns 9910378-1, (-2), 9912034-1	QPL-C425 MilSpec (v1) [18] [23]	
		N/A	MIL-PRF-26611 Cessna 441 P/N 9910378-1	TPE331 2000 Prop RPM (v1)	
		N/A	MIL-PRF-26611 Mitsubishi P/Ns AG-34, AG-44A Rockwell P/N 850287-1	TPE331 1591 Prop RPM (v1)	
		N/A	MIL-DTL-9398 Beech P/N 50-389057-1	QPL-C90-135 MilSpec (v1) [18] [24] QPL-C90-21 MilSpec (v1) [18] QPL-C90-28 MilSpec (v1) [18] [27] QPL-B200-41 MilSpec (v1) [18] QPL-B200-42 MilSpec (v1) [18] [28] QPL-B200-52 MilSpec (v1) [18] [29] QPL-B200-61 MilSpec (v1) [18] [30]	
	Globe Motors	N/A	N22A703	QPL-DLX MIL-PRF-26611 (v2) [18]	
		N/A	22A703 Piper P/N 50196-00	QPL-PA31T MilSpec (v1) [18] QPL-PA31T1 MilSpec (v1) [18] QPL-PA31T2 MilSpec (v1) [18] [25]	
	Meggitt	N/A	1081024-01 Piper P/N 601-905	QPL-PA46 MIL-PRF-26611 (v3) [22]	
	Farem	N/A	15TG02TYP1542 Electro Mech P/Ns EM8028-1, (-1A)	QPL-P180 15TG02 TYP1542 (v1)	

Function	Mfr	Garmin P/N	Description	Sensor Configuration	Authorization
Gas Gen RPM (N1/NG)	Varies	N/A	MIL-PRF-26611 TBM P/N 6002457220, 6002457221 208 P/N 9912034-1, 9910378-1 208 P/N N22A703	QPL-NG MIL-PRF-26611 (v2) [19]	Interface only
		N/A	PA-31T P/N 50196-00 425 P/N 9912034-1, 9910378-1, 9910378-2 MIL-DTL-9398 [17] 90 Series P/N 50-389057, 50-389057-1	QPL-NG MIL-PRF-26611 (v2) [19]	
	Farem	N/A	15TG02TYP1542 Electro Mech P/Ns EM8028-1, (-1A)	Farem 15TG02 TYP1542 (v1)	
Vacuum (Pneumatic) Pressure [8]	Meggitt	N/A	1081022-01 Piper P/N 548-917	Meggitt 1081022-01 (v1) [7]	Interface only
	Electronics Intl	N/A	PT-05DIFF	EI PT-05DIFF (v1)	
Rudder (Yaw) Trim [8]	Piper	N/A	P/N 102345-004	Voltage 0-5Volt (v1) [7]	Interface only
		N/A	P/N 102345-005	Voltage 0-28Volt (v1) [7]	

Notes:

[1] Refer to Section 5.7.2 for fuel flow gauge K-factor selection.

[2] Select the configuration file appropriate for the aircraft to ensure the correct sensor-to-engine gear ratio is chosen.

[3] Fuel flow and fuel flow temperature sensors are contained within the same part body.

[4] Select this configuration for TBM P/Ns 6007827220, 6007827221, 6053007235, and 7161772403.

[5] Select this configuration for TBM P/Ns 7161789010, 6053007229, and 7161772405.

[6] Select this configuration for TBM P/Ns 6082557246 and 6082557220.

[7] Must use general purpose port.

[8] GDU software v3.11 and later.

[9] Must interface via Resistive Fuel Quantity ports 1-3.

[10] GEA 71B Enhanced P/N 011-03682-05 only.

[11] Sensor interface is approved only in PA-46-310P and PA-46-350P modified with PT6A family of turbine engine.

[12] Do not connect the GEA to the resistive fuel probes if they are connected to other aircraft systems.

[13] Requires TXi software v3.14 or later. Software updates will require re-calibration of the fuel quantity probes. Replacing a GEA 71B Enhanced P/N 011-03682-05 Mod 0 with a GEA 71B Enhanced 011-03682-05 Mod 1 will require re-calibration of the fuel quantity probes.

[14] Install via Blackhawk Modifications, Inc. STC SA01946LA for King Air C90, C90A, E90 and F90 models with unsupported torque transmitters.

[15] Install via Blackhawk Modifications, Inc. STC SA01946LA for King Air C90, C90A, E90 and F90 models with unsupported fuel flow transmitters.

[16] Install for Piper Cheyenne PA-31T Series aircraft with unsupported torque transmitters. Refer to Appendix Section D.4 for installation guidance. Purchase directly from Blackhawk Aerospace.

[17] MIL-DTL-9398 is equivalent to MIL-PRF-26611 and use the same sensor configuration for Gas Gen RPM.

[18] New installations must use the Prop RPM (Filtered) port, J701-58/59.

[19] New installations must use the Gas Producer RPM (Filtered) port, J701-56/57.

[20] New installations must use the Fuel Flow Filtered J701-53/52 port.

[21] Select Sensor Type: Analog (Current Monitor).

[22] Existing installations with TXi software v3.14 use sensor v1 and wire Prop RPM inputs J702-76/33. New installations with TXi software v3.40 or later use sensor v3 and wire Prop RPM (Filtered) inputs J701-58/59.

[23] This configuration is also applicable to Cessna 425s with Blackhawk PT6A-135, -135A STC SA5786SW.

[24] This configuration is also applicable to 90 Series King Airs with Blackhawk PT6A-135A STC SA10341SC and SA10364SC and the F90/F90-1.

[25] This configuration is also applicable to PA-31T series aircraft with Blackhawk STC SA00863SE.

[26] The v2 sensor file requires TXi software v3.31 or later.

[27] This configuration is applicable to E90 with PT6A-28.

[28] This configuration is applicable to King Air 200s with Blackhawk STC SA0433AT.

[29] This configuration is applicable to King Air 200/B200 with Blackhawk STC SA10824SC.

[30] This configuration is applicable to King Air 200/B200 with Blackhawk STC SA10737SC.

APPENDIX D MODEL-SPECIFIC DATA

Table D-1 G500/G600 TXi Installation Manual Addendums

Document Title	Garmin Document Number
G500/G600 TXi Part 23 AML STC IMA Pilatus PC-12	190-01717-B5
G500/G600 TXi Part 23 AML STC IMA Piper PA-46-500TP	190-01717-B6
G500/G600 TXi Part 23 AML STC Installation Manual Addendum, Textron Aviation Inc. (Cessna), Model 525A, S/N 525A-0001 Thru -0299	190-01717-B7
G500/G600 TXi Part 23 AML STC Installation Manual Addendum, Textron Aviation Inc. (Cessna), Model 525, SN 525-0360 Thru -0599	190-01717-BG

D.1 Textron Aviation Inc. (Cessna Aircraft Company) 310R/310Q/340/414/421B

D.1.1 Selectable Fuel Quantity Gauge

Switches built into the fuel selector and a manual switch near the fuel quantity gauge change fuel quantity outputs from the signal conditioners. The same switches provide discrete inputs into the GEA 110 to activate the corresponding Aux or Main fuel quantity gauges. This feature is limited to the models above and interface to the Cessna fuel quantity signal conditioner part numbers listed in Appendix Section C.25. The wiring architecture is illustrated in Figure D-1.

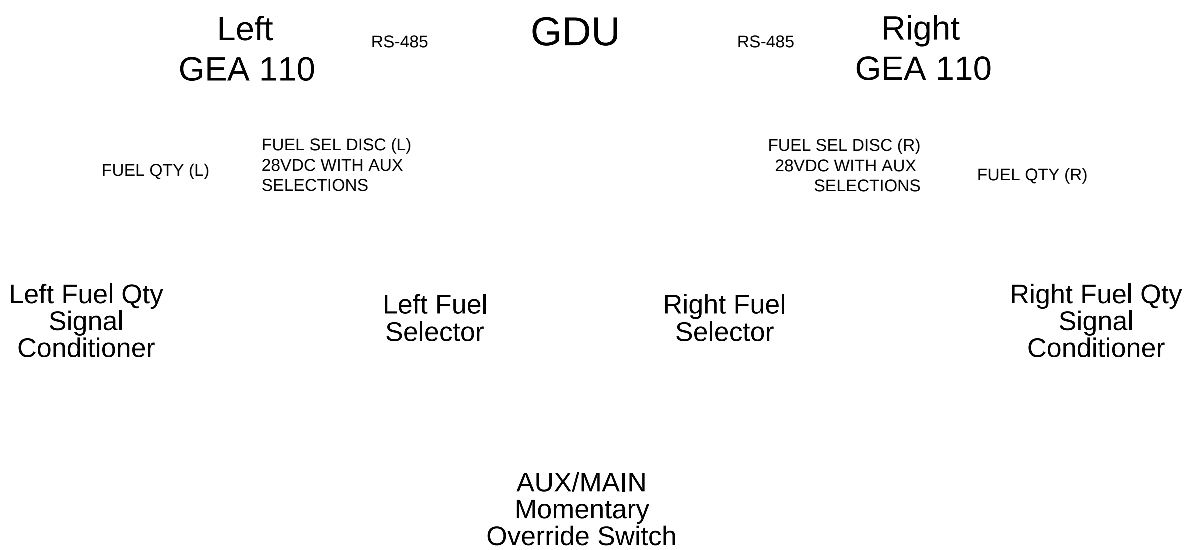


Figure D-1 Selectable Fuel Quantity Block Diagram

Figure B-23 provides GEA 110 interconnect for the Fuel Selector Discrete L and R inputs and Figure B-18 provides the GEA 110 interconnect for the fuel quantity signal conditioner inputs. First,

1. Refer to Section 5.7.4.1.4 and select Active High GDU discrete inputs for the Left Fuel Tank and Right Fuel Tank discrete inputs.
2. Complete the steps in Section 5.7.4.1.4.
3. Complete the system checkout procedures in Section 6.5.11 and include the following steps:
    a. Using the fuel tank selector, cycle through each tank selection and verify the displayed gauge is indicating the actual quantity.
    b. Select main tanks with both fuel selectors and hold the Aux Tank manual switch to verify the Aux Tank fuel gauges are shown.

D.2 Daher Aerospace (Socata) TBM 700

D.2.1 Fuel Quantity and Fuel Low-Level Systems

NOTE

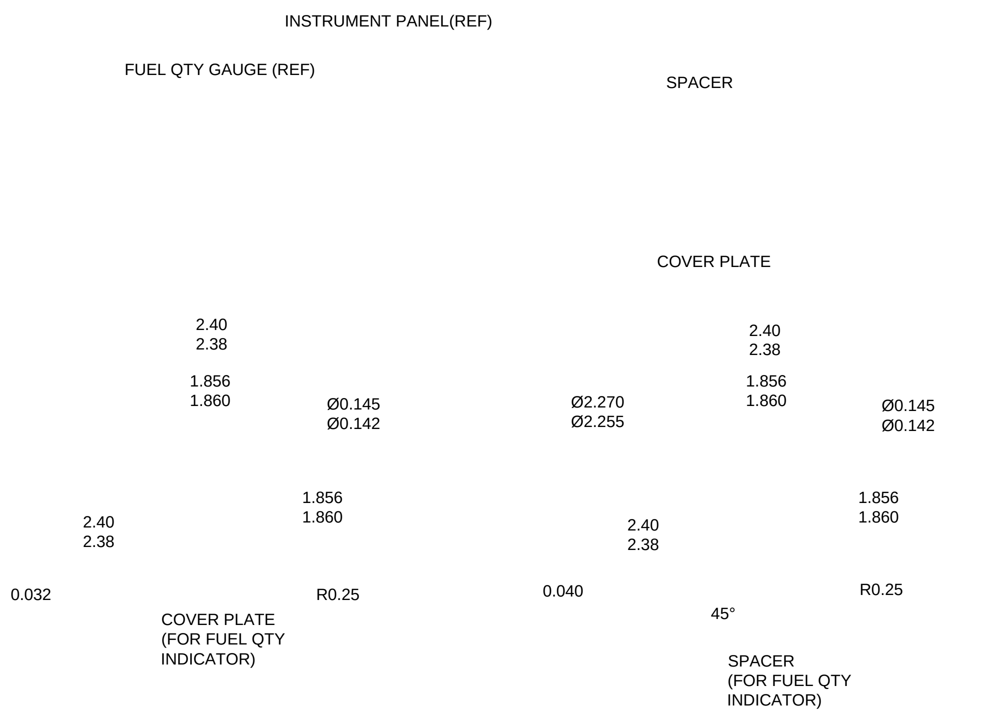
Replacing a GEA 71B Enhanced 011-03682-05 Mod 0 with a GEA 71B Enhanced 011-03682-05 Mod 1 will require re-calibration of the fuel quantity probes.

The TBM 700 fuel quantity indicator supports two independent functions: the fuel quantity system and fuel low-level system. The TXi system can optionally replace the fuel quantity system, but the fuel quantity indicator must be retained to support the fuel low-level system.

The installation of the TXi fuel quantity system will move the fuel level sensor wiring from the existing indicator to the GEA 71B Enhanced per Figure B-22. The fuel level indicator power and ground wires (i.e. +28V L. TANK GAGE, -28V L. TANK GAGE, +28V R. TANK GAGE, and -28V R. TANK GAGE) are also removed from the indicator’s connector (cap and stow each). Additional installation information is provided in, but not limited to, Appendix Section C.26 (configuration), Figure B-22 (interconnect), Section 5.7.2 (configuration), Section 5.8.7 (calibration), and Section 6.5 (EIS ground check).

Obscure the face of the non-functioning quantity indicator. The spacer and cover plate illustrated in Figure D-2 provides an example method of obscuring the non-functional fuel quantity gauge. Alternately, some ready made instrument panel hole covers can also be used to cover the non-functioning fuel gauge

Ensure the fuel quantity indicator connections to the low-level sensors, low-level warning lights, and low-level power and ground pins (i.e. +28V L. TANK LO LEV, -28V L. TANK LO LEV, -28V R. TANK LO LEV, & -28V R. TANK LO LEV) are not impacted and that the fuel low-level annunciators and fuel tank automatic selector remain functional per the manufacturer’s procedures.



NOTE6：

FABRICATE COVER PLATES AND SPACER FROM 6061-T6 ALUMINIUM PER AMS-QQ-A-250/11 OR 2024-T3 ALUMINUM PER AMS-QQ-250/5.
DIMENSIONS ARE IN INCHES.
CORROSION PROTECTION MUST BE IN ACCORDANCE WITH AIRCRAFT MODEL-SPECIFIC STANDARD PRACTICES MANUAL.
PAINT COVER PLATES AND SPACER TO MATCH THE COLOR OF THE INSTRUMENT PANEL.

Figure D-2 Example Cover Plate

D.3 Cirrus Design Corporation SR20/SR22/SR22T

D.3.1 Standby Instrument Installation in Bolster Panel

The G5 or GI 275 standby instruments can be installed in the instrument panel bolster on Cirrus SR2X aircraft instead of the traditional standby instrument location described in Section 4.4. Verify the bolster structure is metal and is bonded to the aircraft ground plane. Refer to the G5 or GI 275 STC installation manuals for instrument panel cutout requirements.

For G5 installations, verify the bonding strap is installed and grounded per Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual (P/N 190-01112-10) Section 4.5.4.

For GI 275 installations, verify equipment bonding per GI 275 Part 23 AML STC Installation Manual (P/N 190-02246-10) Section 4.3. The GI 275 is bonded via surface contact with the backside of the instrument panel. Verify there are no non-conductive covers installed behind the bolster that would prevent the GI 275 bonding to the back of the bolster structure.

D.4 Piper Aircraft, Inc. PA-31T Series (Cheyenne)

The GEA 71B Enhanced P/N 011-03682-05 is required for the following installations.

D.4.1 Torque Sensor APTE-2B-2250-85D (Piper Cheyenne PA-31T and PA-31T1)

Refer to Table D-2 for item numbers called in the sections below.

NOTE

Piper Cheyenne PA-31T Series aircraft with a propeller autofeather system are not eligible for torque sensor installation.

D.4.1.1 Preparation

Table D-2 provides the materials and parts required for the torque sensor installation for two powerplants.

Table D-2 Material and Parts

Item	Qty	Part Number	Description
1	2	AN833-4	ELBOW – FLARED TUBE AND BULKHEAD UNIVERSAL, 90U
2	2	APTE-2B-2250-85D	TORQUE SENSOR
3	2	MS21919WDG36	CLAMP. LOOP TYPE, CUSHIONED, SUPORT Ø2-1/4 TUBE
4	2	MS27039-1-11	SCREW, MACHINE – PAN HEAD, STRUCTURAL, CROSS RECESSED
5	4	NAS1149F0332P	WASHER
6	2	MS21042L3	NUT, SELF-LOCKING, 450ÚF, REDUCED HEXAGON, REDU HEIGHT, RING BASE, NON-CORROSION RESISTANT STEEL
7	2	AN832-4	UNION – FLARED TUBE, 3/8 BULKHEAD AND UNIVERSAL,STEEL
8 [1]	6	MS20470AD5-XX	RIVET, SOLID UNIVERSAL HEAD, ALUMINUM ALLOY
9	2	-	PLATE, ALUMINUM SHEET METAL, 6061-T6, THICKNESS 0.125 IN
10	2	-	L-BRACKET, ALUMINUM SHEET METAL, 6061-T6, MINIMUM THICKNESS 0.063
11 [6]	4	M83248/2-904	O RING
12	2	AN924-4	NUT, TUBE, BULKHEAD AND UNIVERSAL FITTING
13 [3]	2	124F002-4CR0070	HOSE (UPPER) WITH AUTOIGNITION
14 [2]	2	124F002-4CR0120	HOSE (UPPER) WITHOUT AUTOIGNITION
15	2	124F003-4CR0184	HOSE (LOWER)
16	8	MS9518-15	BOLT, MACHINE STEEL AMS 6322, CADMIUM PLATE, HEXAGON HEAD, 0.190-32 UNJF-3A
17	2	AN919-16	REDUCER – EXTERNAL THREAD FLARED TUBE
18 [4]	2	M83248/2-912	O RING
19 [5]	8	3012675	NUT
20	2	AN6289-4	NUT, TUBE
21	2	MS28773-4	RETAINER, PACKING BACKUP, TETRAFLUOROETHYLENE, STRAIGHT THREAD TUBE FITTING BOSS

Notes:

[1] Length as required.
[2] Use on aircraft without auto-ignition.
[3] Use on aircraft with auto-ignition.
[4] Use with AN919-16.
[5] Refer to Pratt & Whitney IPC for alternative nut.

[6] Use with AN832 and AN833.
[7] Use with AN833.

NOTE
The instructions for the sections below are for a single powerplant. Repeat for second powerplant.

D.4.1.2 Fabricate Parts (Items 9 and 10)

1. Fabricate Plate (Item 9) and L-Bracket (Item 10) as shown in Figure D-3 and Figure D-4.
2. Surface Finish:
   a. Prime with MIL-PRF-23377, Type I, Class N Epoxy Primer, or SAE AMS 3095 Chrome Free Epoxy Primer.
   b. Prepare area underneath each screw, nut, washer, bolt, and bulkhead connector (Item 7) for electrical bond per Section 4.3. Ensure rivet holes are free from non-conductive coatings or films.

3.68
0.125
R0.40
2 PLACES
3.33
Ø0.213
5 PLACES
2.330
R5.04
(REF)
1
1.165
4.15
1.165
1.493
1.00
0.23
0.25
3.018
R0.19
2 PLACES
3.278

NOTES:

1 TRIM TO FIT

2 TOLERANCE: .XX ± 0.03
.XXX ± 0.010

Figure D-3 Torque Sensor Plate (Item 9)

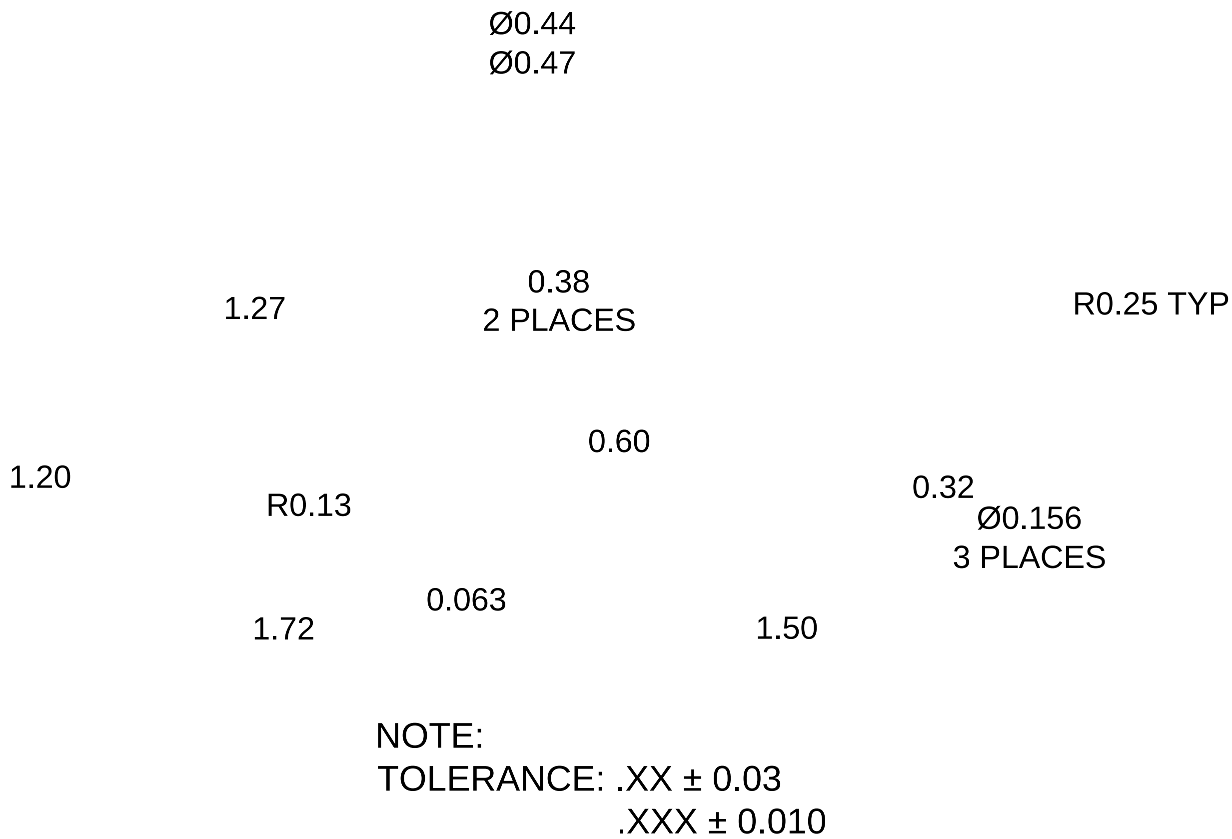


Figure D-4 Torque Sensor L-Bracket (Item 10)

D.4.1.3 Attach L-Bracket (Item 10) on Plate (Item 9)

NOTE
For the following steps, refer to Figure D-5.

1. Install fitting (Item 1) together with O-ring (Item 11), retainer (Item 21), and locknut (Item 20) into the torque sensor (Item 2). Refer to Military Standard MS21344A for proper installation of Nut (Item 20),O-ring (Item 11), and retainer (Item 21) on fitting (Item 1).
2. Install the fitting (Item 7) together with O ring (Item 11) into the torque sensor. Refer to appropriate maintenance manual for proper tightening of fittings to the sensor.
3. With the fittings installed, secure torque sensor onto the Plate (Item 9) using clamp (Item 3) and hardware (Items 4, 5, and 6). Position the sensor so that the clamp (Item 3) is clamping approximately midway on the sensor main body. Temporary tighten the clamp to lock the sensor in position.
4. Position the L-Bracket (Item 10) to ensure it is seated properly against the fitting (Item 7). Temporary secure the L-bracket to the fitting using locknut (Item 12). Secure the L-bracket to the plate using any suitable clamps.

5. Remove the locknut (Item 12) and loosen the clamp (Item 3) to remove the torque sensor. Retain sensor and locknut for re-installation. Match drill the rivet holes on the L-Bracket to the plate.
6. Install rivets (Item 8) to secure the L-Bracket (Item 10) to the Plate (Item 9). The Plate is now ready for installation on the powerplant.

8
12
10
9
7 11
3
2
20 1 11 21
4 5 6

Figure D-5 Torque Sensor Assembly

D.4.1.4 Install Torque Sensor to the Gearbox Assembly

WARNING

Before working on the powerplant, ensure the appropriate safety precautions provided in the Aircraft Maintenance Manual are met.

Gearbox with 489 410 Torque Transmitter

1. On the gearbox assembly, disconnect the flexible hose connecting the existing 489-410 torque transmitter to the gearbox fitting (vent) on the RH side of the gearbox.
2. Remove 489-410 torque transmitter. On aircraft with autoignition, DO NOT remove the manifold.

3. For aircraft without autoignition, install adapter AN919-16 (Item 17) together with new O-ring (Item 18) into the gearbox housing (where the 489-410 torque transmitter was installed). Refer to appropriate maintenance manual for proper tightening of adapter to the gear box housing.
4. Refer to Figure D-6. Install the Plate (Item 10) at approximately the 9 o'clock position (view looking aft) of the gearbox. Remove the corresponding four (4) existing bolts, washers, and nuts that attach the reduction gearbox flange to the exhaust duct flange on each engine. Discard the nuts, bolts, and washers.

REDUCTION GEARBOX
FLANGE

PLATE (ITEM)

VIEW LOOKING AFT

Figure D-6 Location of Torque Sensor Plate (Item 10)

5. Prepare the surface on the aft side of the reduction gearbox flange as described in SAE ARP1870 Section 5.3.
6. Install the Plate (Item 9) on the forward side of the reduction gearbox flange as shown in Figure D-6 using new bolts (Item 16) and the new nuts (Item 19). Torque to 36-40 in lbf.
7. After all brackets are installed, apply MIL-PRF-23377, Type I, Class N Epoxy Primer, SAE AMS 3095 Chrome Free Epoxy Primer, or other suitable film to unprimed areas around all installed fasteners.
8. Re-install the Torque sensor (Item 2) on the Plate (Item 9). Secure the Torque sensor by tightening the fitting locknut (Item 12) and the clamp (Item 3).
9. Refer to Figure D-7. On aircraft without auto-ignition, connect hose (Item 14) to the fitting (Item 7) and the adapter AN919-16 (Item 17). On aircraft with auto-ignition, connect hose (Item 13) to the fitting (Item 7) and to the to the manifold. Refer to appropriate maintenance manual for proper tightening of hose nut.
10. Refer to Figure D-7. Connect hose (Item 15) to the fitting (Item 1) and to the same gearbox fitting (VENT) on the RH side of the engine where the old hose was attached.
11. Using a calibrated milliohm meter with ±0.1 milliohm (or better) accuracy, measure the resistance between the Torque sensor and reduction gearbox flange with torque sensor connector disconnected. The measurement must be less than or equal to 2.5 milliohms.

12. Connect electrical connector to the torque sensor (Item 2).
13. Ensure all the hose and fitting connections are tight and the flange bolts are properly torqued. If required, use cable ties or any suitable clamps to secure dangling hoses to other existing hoses or gearbox structures.
14. Make the proper logbook entry for installation of torque sensor.

13 OR 14

15

Figure D-7 Installation of Hoses (Item 12) and (Item 13)

Gearbox with 489 442 Torque Transmitter

1. Disconnect electrical connector to torque transmitter 489-442. Disconnect the hoses connecting the gearbox to the torque transmitter.
2. Remove and discard torque transmitter 489-442. Remove bolts, nuts, and washers attaching the plate 81813-02 to the reduction gearbox flange. Discard the existing plate, bolts, nuts, and washers.
3. Fabricate plate (Item 9) and L-Bracket (Item 10) as directed in Appendix Section D.4.1.2. Attach the L-Bracket (Item 10) to the plate (Item 9) per Appendix Section D.4.1.3 and install the torque sensor to the gearbox per Appendix Section D.4.1.4.

D.4.2 PA-31T Series Oil Temperature Annunciators

In Piper Cheyenne PA-31T Series aircraft, the existing oil temperature indicating circuits are wired in parallel with the oil temperature annunciators. When removing the existing oil temperature gauges, a discrete output from the GEA must be configured and a relay must be installed to retain the original oil temperature annunciations. The relays should be installed in a location that does not interfere with surrounding equipment.

The engine discrete outputs for Oil Temperature Annunciators should be configured to the settings in Table D-3. Refer to Section 5.4.29.

Table D-3 Oil Temperature Annunciator Configuration Settings

Name	Port	
LEFT OT ANNUN	GEA1 ANNUN Lo	1A Thru 9A
RIGHT OT ANNUN	GEA2 ANNUN Lo	1A Thru 9A

Additionally, the gauge driven discrete outputs should be configured to the settings in Table D-4. Refer to Section 5.7.3.3.5 for general gauge driven discrete configuration instructions.

Table D-4 Oil Temperature Gauge Driven Discrete Output Configuration Settings

Item	Value			Setting
	Data Type	Condition Type	Equals	
1	Oil (L) Marking Range	Warning (Red)	Warning (Red) [1]	LEFT OT ANNUN GEA 1 J702-1
2	Oil (R) Marking Range	Warning (Red)	Warning (Red) [1]	RIGHT OT ANNUN GEA 2 J702-1

Notes:

[1] Field not editable.

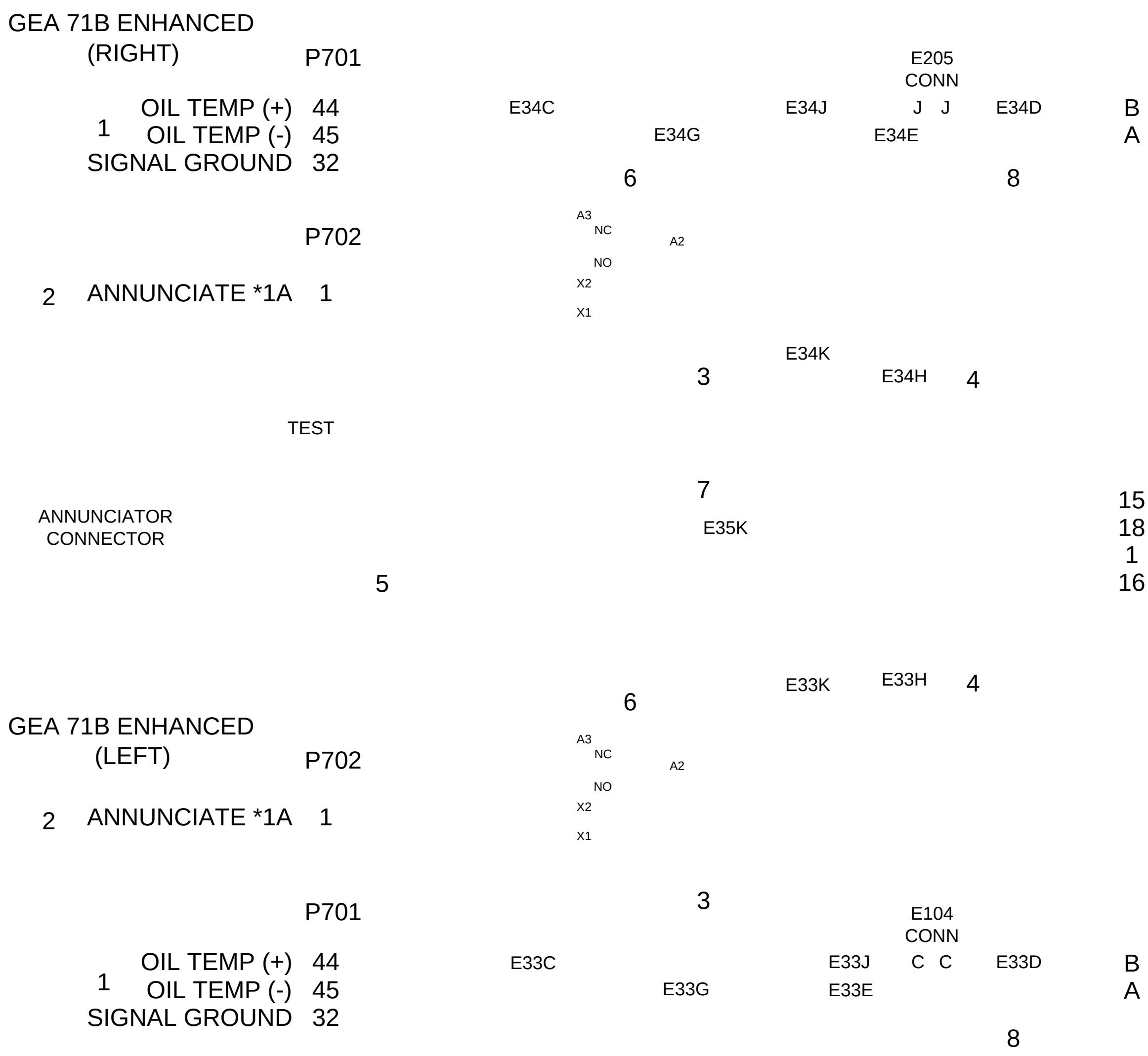
Engine discrete outputs and gauge drive discrete settings for Oil Temperature Annunciators are depicted in Figure D-8.

/^ W ' µP W K]o d u‰ Œ šµŒ W Àv
^ šš]vP• W' µP Œ]À v]• Œ š ^ šš]vP•

Žv(]PµŒ]• Œ š Žµš‰µš šŽ ^> &d Kd E
/vš Œ(• W vP]v]• Œ š Kµš v ^Z/',d Kd EEhE_U Œ •‰ š]À oÇ

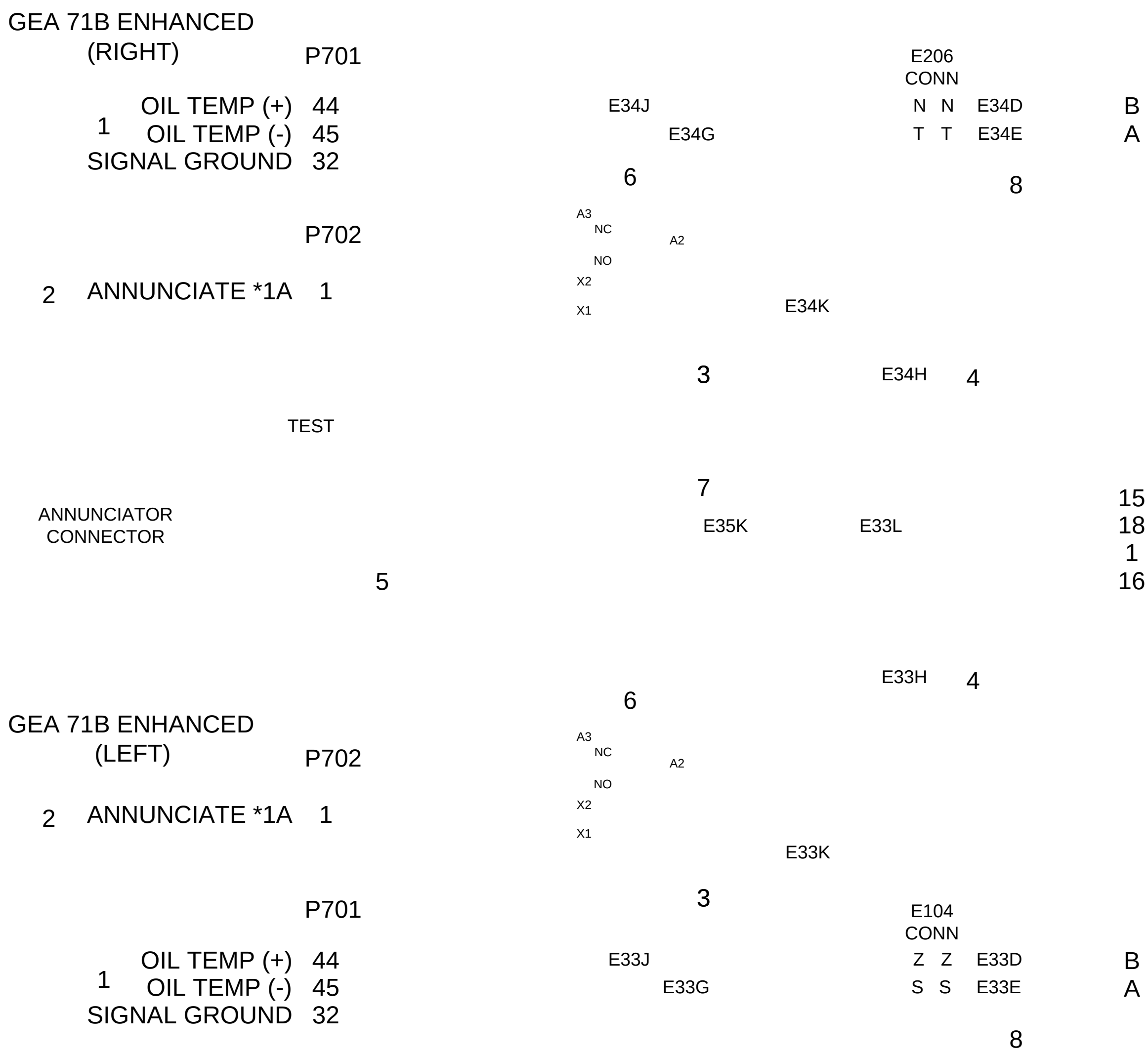
Figure D-8 Oil Temperature Gauge Driven Discrete Output Configuration

Figure D-9 depicts the necessary wiring modification. Where applicable, existing wiring may be reused. Wire numbers and connectors are shown for reference only and may not be correct for all aircraft. Refer to the Piper Cheyenne wiring diagram per the aircraft serial number for correct wire and connector numbers.



PA-31T S/N 31T-7400002 TO 31T-7720069

Figure D-9 Piper Cheyenne Oil Temperature Interconnect
Sheet 1 of 3



PA-31T S/N 31T-7820001 TO 31T-8020092, 31T-812001 AND UP
PA-31T1 S/N 31T-784001 TO 31T-804057, 31T-8104001 AND UP
PA-31T2 ALL S/Ns

Figure D-9 Piper Cheyenne Oil Temperature Interconnect
Sheet 2 of 3

NOTES

1 SOFTWARE CONFIGURED “STANDARD” PIN SHOWN. ANY UNUSED GENERAL PURPOSE PIN ON THE SAME GEA CONNECTOR CAN ALSO BE USED. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR

2 USE ANY AVAILABLE DISCRETE OUTPUT ON THE SAME GEA CONNECTOR

3 CONNECT TO GEA 71B ENHANCED BREAKER. REFER TO SECTION 3.2 FOR BREAKER SIZING

4 REMOVE E33H AND E34H WIRES FROM EXISTING OIL TEMPERATURE CIRCUIT AND CONNECT THEM TO THE RELAYS AS SHOWN

5 INSTALL DIODES, P/N IN1004 IN EXISTING ANNUNCIATOR PANEL TEST CIRCUIT

6 INSTALL RELAYS, P/N M83536/1-020 (ALT. M83536/2-020)

7 REMOVE WIRES E33G, E33K, E34G, AND E34K FROM THE SHARED GROUND. SPLICE TOGETHER WIRE PAIRS E33K/E33G AND E34G/E34K AS SHOWN.

8 SPLICE WIRES E33E AND E34E TO AIRFRAME GROUND AS CLOSE TO RTD PIN A AS PRACTICAL.

Figure D-9 Piper Cheyenne Oil Temperature Interconnect
Sheet 3 of 3

Post-Installation Checkouts

Complete the checkout procedure below following the wiring modifications. This procedure is derived from Section 11-136 of the Piper Cheyenne Service Manual.

1. Remove upper and lower cowlings from both engines.
2. The oil temperature probes are located on the lower, aft, right side of both left and right engines. Locate and remove electrical connector E116 from the left oil temperature probe and connector E217 from the right oil temperature probe.
3. Place a resistive load of 130 © across pin A and B of electrical
4. Apply power to both GEA 71B Enhanced units and the EIS display and verify the EIS display is in Normal mode.
5. Apply power to the annunciator panel by placing the master switch in the ON position. Verify that the needle on both the left and right oil temperature gauges deflect above the red line near the 103°C position on the gauge.
6. Verify that the left and right oil temperature annunciator lights illuminate.
7. Decrease the resistive load on the left oil temperature probe harness connector E116 and E217 to 125 ©. Verify that the needle on both the left and right oil temp line.

8. Verify that the left and right oil temperature annunciator lights extinguish.
9. Place the aircraft master switch in the OFF position and remove the resistive load from both the left and right oil temperature probe electrical harness connectors.
10. Connect electrical connector E116 to the left oil temperature probe and electrical connector E217 to the right oil temperature probe.
11. Re-install the left and right engine cowlings and secure.

D.4.3 Propeller Autofeather System Checkout

If installing TXi EIS in a Piper Cheyenne with a Propeller Autofeather System, the following operational checks must be completed per the Cheyenne Airplane Service Manual, P/N 753-826:

- Autofeather Ground Operational Check, Section 14-142c
- Autofeather Electrical System Ground Checks, Section 14-142d

D.4.4 PA-31T NG Units Configuration

Refer to Table D-5 below for configuring NG gauge units. Select Units !’ Percent, then input the RPM @ 100% appropriate for the airframe and engine.

Table D-5 PA-31T NG Configuration

Aircraft Model Considered	Engine Model	RPM @100%
PA-31T Cheyenne PA-31T Cheyenne II	PT6A-28	4,200
PA-31T1 Cheyenne I/IA	PT6A-11	4,203
PA-31T2 Cheyenne IIXL All PA-31Ts with Blackhawk STC SA00863SE	PT6A-135 PT6A-135A	4,200

D.5 Piper Aircraft, Inc. PA-42 Series (Cheyenne III)

D.5.1 Torque Target Bug

If configuring the optional torque target bug in accordance with Section 5.7.3.3.8 in a Piper PA-42 (Cheyenne III) aircraft, configure the parameters per Table D-6:

Table D-6 Torque Target Indicator

Item	Setting
Model	Other
Default Bug Value	1895 FT-LB
Bug Minimum	600 FT-LB
Bug Maximum	2230 FT-LB
IAS Declutter Speed	--.--

D.6 Textron Aviation Inc. Model 200 Series (Super King Air)

Refer to Table D-7 for configuring NG and Torque gauge units. For NG units, select Units !’ Percent, then input the RPM @100% appropriate for the engine. For Torque units, select Units !’ Foot Pounds, then input the PSI equals FT-LB values appropriate for the engine.

Table D-7 King Air 200 NG and Torque Configuration

Engine Model	RPM @ 100%	PSI equals FT-LB
PT6A-41	4200	72.95 PSI equals 2230 FT-LB
PT6A-42	4200	72.95 PSI equals 2230 FT-LB
PT6A-52	4200	72.95 PSI equals 2230 FT-LB
PT6A-61	4200	72.95 PSI equals 2230 FT-LB

D.7 Textron Aviation Inc. (Cessna Aircraft Company) 441 (Conquest II)

D.7.1 C441 Single Red Line Computer (SRL) Discrete Input

Configure the Single Red Line Computer discrete interface per Table D-8.

Table D-8 C441 Single Red Line Computer Discrete Configuration

Discrete	Name	Port/Settings	
		Single/Left Eng Port	Right Eng Port
Single Red Line Computer	Single Red Line Computer	GEA 1 DISC In 8A Hi	GEA 2 DISC In 8A Hi

D.7.2 C441 Propeller De-Ice Sensor

If interfacing to an external propeller de-ice shunt with an approved rating as listed in Table C-28, configure according to Table D-9.

Table D-9 C441 Prop De-Ice Sensor Configuration

Sensor Row	# Prop De-ice Shunts	EIS # (GEA Connection)		
Current Monitor 2	1	1 (P702 50/51)	OR	2 (P702 46/47)
	2	LH: 1 (P702 50/51)		RH: 2 (P702 46/47)

D.7.3 C441 EIS Gauge Markings and Ranges

This section contains specific EIS gauge markings and ranges configuration guidance for the Textron Aviation, Inc. (Cessna) Model 441 equipped with TPE331-10N-511S thru -515S, -531S thru -535S engines.

D.7.3.1 C441 Engine Temperature Gauge Configuration

Table D-10 C441 Engine Temperature - Standard Markings

Item	Parameter	Setting	
Units		Celsius	
Gauge Markings	Green Arc	Min	100°C
		Max	700°C
	Yellow Alert Arc	Min	700°C
		Max	770°C
	Red Line Max Alert	Value	770°C
Gauge Range		Minimum	100°C
		Maximum	800°C

Table D-11 C441 Engine Temperature - Customize Gauge Title

System Title	Custom Title
ITT	EGT

Table D-12 C441 Engine Temperature - Dynamic Markings

Condition	Parameter	Setting	
1	Data Type	Single Red Line Computer	
	Condition	Type	Active
		Duration	0 sec
	AND		
	Data Type	Engine Propeller RPM	
	Condition	Type	At or Above
		Minimum	80.0%
		Duration	0 sec
	Dynamic Range Settings		
	Green Arc	Min	100°C
		Max	450°C
	Red Line Max Alert	Value	450°C
	Gauge Range	Minimum	100°C
		Maximum	800°C

Table D-13 C441 Engine Temperature - Text Lamps

Item	Setting
Text Lamp	Single Red Line Computer
Color	Yellow
Flashing Alert	Disabled
Invert	Enabled

Table D-14 C441 Engine Temperature - Gauge Scaling

Min	Max	Size
100°C	400°C	36%
400°C	500°C	28%
500°C	800°C	36%

D.7.3.2 C441 Propeller RPM Gauge Configuration

Table D-15 C441 Propeller RPM - Standard Markings

Item	Parameter	Setting	
Units		Percent (2000 RPM @ 100%)	
Gauge Markings	Green Arc	Min	96.0%
		Max	100.0%
	Red Line Max Alert	Value	101.0%
Gauge Range		Minimum	0.0%
		Maximum	104.0%

Table D-16 C441 Propeller RPM - Customize Gauge Title

System Title	Custom Title
Prop	RPM

Table D-17 C441 Propeller RPM - Gauge Scaling

Min	Max	Size
0.0%	96.0%	80%
96.0%	101.0%	15%
101.0%	104.0%	5%

D.7.3.3 C441 Oil Pressure Gauge Configuration

Table D-18 C441 Oil Pressure - Standard Markings

Item	Parameter	Setting	
Units		Pounds per square inch	
Gauge Markings	Red Line Min Alert	Value	40 PSI
	Yellow Alert Arc	Min	40 PSI
		Max	70 PSI
	Green Arc	Min	70 PSI
		Max	120 PSI
	Red Line Max Alert	Value	120 PSI
Gauge Range (Layout Alpha)		Minimum	0 PSI
		Maximum	150 PSI

For standalone EIS installations, do not configure the settings in Table D-19.

Table D-19 C441 Oil Pressure - Dynamic Markings

Condition	Parameter	Setting	
1	Data Type	Pressure Altitude	
	Condition	Type	At or Above
		Minimum	23000.0 FT
		Duration	0 sec
	Dynamic Range Settings		
	Red Line Min Alert	Value	40 PSI
	Yellow Alert Arc	Min	40 PSI
		Max	50 PSI
	Green Arc	Min	50 PSI
		Max	120 PSI
	Red Line Max Alert	Value	120 PSI
	Gauge Range (Layout Alpha)	Minimum	0 PSI
		Maximum	150 PSI

D.7.3.4 C441 Propeller De-Ice Gauge Configuration

If a propeller de-ice shunt interface is configured, configure the Propeller De-Ice gauge according to Table D-20. If other electrical interfaces are configured (i.e. battery voltage, generator amps), the propeller de-ice gauge must be configured below the other electrical gauges. If gauge markings are present, configure according to the guidance in Section 5.7.3.2.

Table D-20 C441 Propeller De-Ice Gauge Configuration

Item	Setting
Gauge Type	Amps / Volts
Row	Current Monitor 2 [1]
	Current MON 2 A/B [2]
Custom Titles	PROP HEAT

Notes:

[1] Single Shunt interface.

[2] Dual Shunt interface.

D.7.4 C441 Interconnects – GEA 71B Enhanced

Modify the existing C441 aircraft wiring per Figure D-10. Refer to Appendix D for interconnect diagrams of sensors not depicted in Figure D-10.

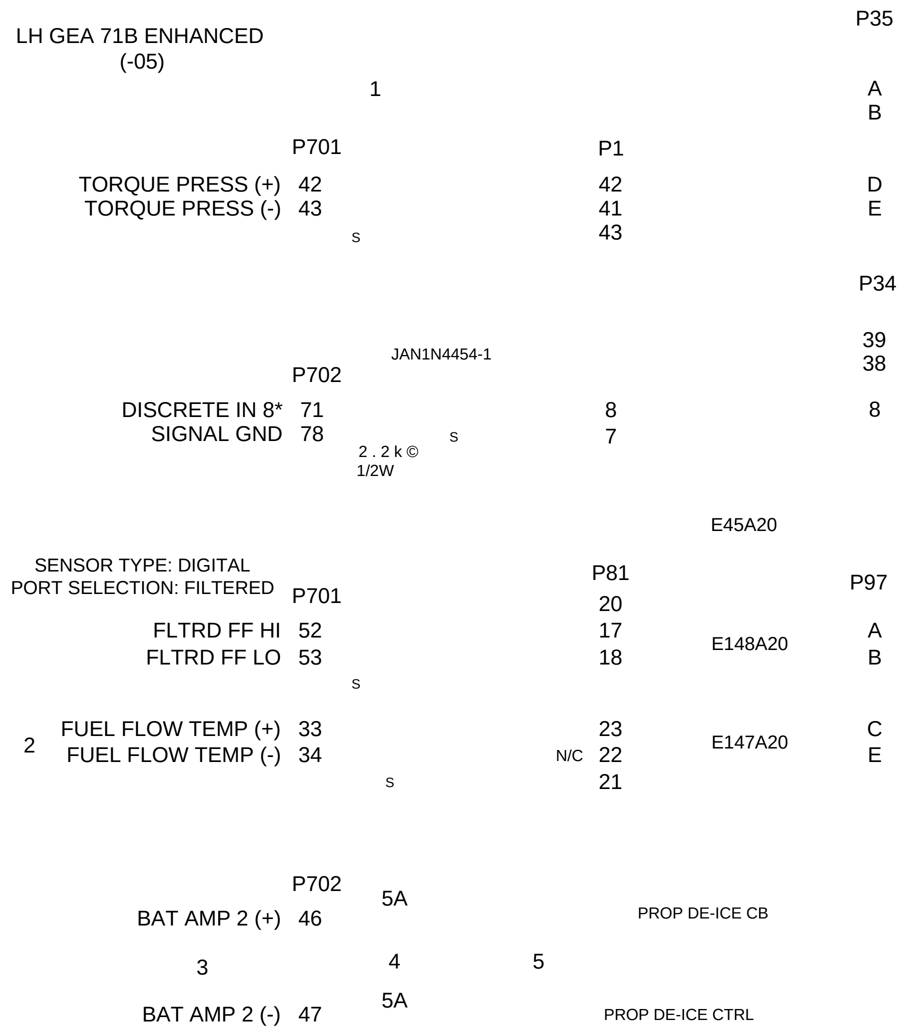


Figure D-10 C441 Model-Specific Interconnect
Sheet 1 of 2

P46

RH GEA 71B ENHANCED
(-05)

1

A
B

P701

P2

TORQUE PRESS (+) 42 44 D
TORQUE PRESS (-) 43 43 E
S
45

P44

39
38

JAN1N4454-1

P702

DISCRETE IN 8* 71 8 8
SIGNAL GND 78 7
2 . 2 k ©
1/2W
S

E67A20

SENSOR TYPE: DIGITAL
PORT SELECTION: FILTERED

P701

P82

P98

20

FLTRD FF HI 52 17 A
FLTRD FF LO 53 18 B
E152A20
S

2 FUEL FLOW TEMP (+) 33 23 C
FUEL FLOW TEMP (-) 34 N/C 22 E
E153A20
S
21

P702

5A

BAT AMP 2 (+) 46

PROP DE-ICE CB

3

4

5

5A

BAT AMP 2 (-) 47

PROP DE-ICE CTRL

NOTES

1 CONNECT TO GEA 71B ENHANCED BREAKER. REFER TO SECTION 3.2.1 FOR BREAKER SIZING.

2 USE ANY UNUSED GENERAL PURPOSE PORT ON THE SAME GEA CONNECTOR. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.

3 CONFIGURE IF REPLACING APPLICABLE SIDE PROP DE-ICE AMMETER WITH TXI EIS.

4 BOTH FUSES MUST BE THE SAME TYPE AND RATING.

5 INTERFACE APPROVED TO EXTERNAL SHUNT ONLY (i.e. NOT INTEGRATED IN THE DE-ICE AMMETER NOR IN THE DE-ICE TIMER).

Figure D-10 C441 Model-Specific Interconnect
Sheet 2 of 2

D.7.5 C441 Post-Installation Checkouts

Do the checkout procedures in the sections below following the wiring modifications.

D.7.5.1 C441 Torque Transducer Calibration

Do the following procedure for each torque transducer:

1. Remove electrical power from the aircraft.
2. Disconnect the Hi and Lo pressure lines from the torque transducer.
3. Procure a calibrated pressure source or “dead weight tester” capable of applying up to 100 psi.
4. Connect the pressure tester to the Hi pressure port of the torque transducer, leaving the Lo pressure port open to ambient pressure.
5. Obtain the engine DSC sheet and note the oil pressure values (PSI) corresponding to:
   a. 250 ft-lb torque
   b. 1669 ft-lb torque
6. Connect power to the aircraft and power on each EIS display.
7. Using the pressure tester, apply pressure to the torque transducer corresponding to 1669 ft-lb torque.
8. Verify that the torque indication reads 1669 ± 10 ft-lbs.
   a. If the torque indication is out of tolerance, remove the adjustment plug on the back of the torque transducer and rotate the “Z” potentiometer until the torque indication reads 1669 ± 10 ft-lbs.
9. Using the pressure tester, apply pressure to the torque transducer corresponding to 250 ft-lb torque.
10. Verify that the torque indication reads 250 ± 10 ft-lbs.
    a. If the torque indication is out of tolerance, remove the adjustment plug on the back of the torque transducer and rotate the “R” potentiometer on the back of the torque transducer until the torque indication reads 250 ± 10 ft-lbs.
11. Repeat Steps 6-9 until no further adjustment of the potentiometers is required.
12. Replace the adjustment plugs and safety wire on the back of the transducer as appropriate.
13. Re-install pressure lines to the torque transducer.
14. Conduct an engine run and leak check according to the Aircraft MM.

D.7.5.2 C441 EGT Check

1. Disengage the L and R COMPENSATOR EGT circuit breakers.
2. Power on each EIS display into Configuration mode.
3. On each display directly wired to the GEA, touch Diagnostics !’ EIS !’ Sensor Status
4. Verify the temperature reading displayed by each Engine Temperature port is within ± 2°C of the ambient temperature.
5. Re-engage the L and R COMPENSATOR EGT circuit breakers.

D.7.5.3 C441 SRL Text Lamp Check

1. Power on each EIS display.
2. Set the L and R Fuel Computer Switches to the OFF position.
3. Verify that the L and R FUEL COMP OFF annunciators illuminate.
4. Verify that the yellow SRL text lamp appears in the left corner of the LH EGT gauge and in the right corner of the RH EGT gauge.
5. Set the L and R Fuel Computer Switches to the ON position (guards down).

D.8 Mitsubishi Heavy Industries, Ltd. MU-2B-40 (Solitaire)/MU-2B-60 (Marquise)

D.8.1 MU-2B-40/-60 EIS Gauge Markings and Ranges

This section contains specific EIS gauge markings and ranges configuration guidance for the Mitsubishi MU-2B-40 Solitaire and MU-2B-60 Marquise equipped with TPE331-10-501M/-511M engines.

D.8.1.1 MU-2B-40/-60 Engine Temperature Gauge Configuration

Table D-21 MU-2B-40/-60 Engine Temperature - Standard Markings

Item	Parameter	Setting	
Units		Celsius	
Gauge Markings	Red Line Max Alert	Value	770°C
Gauge Range		Minimum	0°C
		Maximum	1000°C

Table D-22 MU-2B-40/-60 Engine Temperature - Customize Gauge Title

System Title	Custom Title
ITT	TEMP

Table D-23 MU-2B-40/-60 Engine Temperature - Dynamic Markings

Condition	Parameter	Setting	
1	Data Type	Propeller RPM	
	Condition	Type	At or Above
		Minimum	80%
		Duration	0 sec
	Dynamic Range Settings		
	Green Arc	Min	0°C
		Max	650°C
	Red Line Max Alert	Value	650°C
	Gauge Range	Minimum	0°C
		Maximum	1000°C

D.8.1.2 MU-2B-40/-60 Propeller RPM Gauge Configuration

Table D-24 MU-2B-40/-60 Propeller RPM - Standard Markings

Item	Parameter	Setting	
Units		Percent (1591 RPM @ 100%)	
Gauge Markings	Red Arc	Min	50%
		Max	76.5%
	Yellow Arc	Min	76.5%
		Max	96.0%
	Green Arc	Min	96.0%
		Max	100.0%
	Yellow Arc	Min	100.0%
		Max	101.0%
	Red Line Max Alert	Value	101.0%
Gauge Range		Minimum	0.0%
		Maximum	104.0%

Table D-25 MU-2B-40/-60 Propeller RPM - Customize Gauge Title

System Title	Custom Title
Prop	RPM

Table D-26 MU-2B-40/-60 Propeller RPM - Gauge Scaling

Min	Max	Size
0.0%	96.0%	80%
96.0%	101.0%	15%
101.0%	104.0%	5%

D.8.2 MU-2B-40/-60 Post-Installation Checkouts

Do the checkout procedures in the sections below following the wiring modifications.

D.8.2.1 MU-2B-40/-60 Torque Transducer Calibration

Do the following procedure for each torque transducer.

1. Remove electrical power from the aircraft.
2. Procure a calibrated pressure source or “dead weight tester” capable of applying up to 100 psi.
3. Disconnect the Hi and Lo pressure lines from the torque transducer.
4. Connect a portable pressure tester to the Hi pressure port of the torque transducer, leaving the Lo pressure port open to ambient pressure.
5. Obtain the engine DSC sheet and note the pressure values (PSI) corresponding to:
   a. 11.4% and 100% torque (MU-2B-40)
   b. 10.6% and 100% torque (MU-2B-60)

6. Connect power to the aircraft and power on each EIS display.
7. Using the pressure tester, apply pressure to the torque transducer that corresponds to 100% torque.
8. Verify that the torque indication reads 100 ± 1%.
    a. If the torque indication is out of tolerance, remove the adjustment plug on the back of the torque transducer and rotate the range adjustment screw until the torque indication reads 100 ± 1%.
9. Using the pressure tester, apply pressure to the torque transducer that corresponds to:
    a. 11.4% torque (MU-2B-40)
    b. 10.6% torque (MU-2B-60)
10. Verify that the torque indication reads:
    a. 11.4 ± 3% (MU-2B-40)
        i. If the torque indication is out of tolerance, remove the adjustment plug on the back of the torque transducer and rotate the range adjustment screw until the torque indication reads 11.4 ± 3%.
    b. 10.6% ± 3% (MU-2B-60)
        i. If the torque indication is out of tolerance, remove the adjustment plug on the back of the torque transducer and rotate the range adjustment screw until the torque indication reads 10.6% ± 3%.
11. Repeat steps 6-9 until no further adjustment of the transducer is required.
12. Replace the adjustment plug and safety wire as appropriate.
13. Re-install pressure lines to the torque transducer.
14. Conduct an engine run and leak check according to the Aircraft MM.

D.8.2.2 MU-2B-40/-60 EGT Check

1. Set the RUN-CRANK-STOP switches to the CRANK position.
2. Power on each EIS display into Configuration mode.
3. On each display directly wired to the GEA, touch Diagnostics → EIS → Sensor Status
4. Verify the temperature reading displayed by each Engine Temperature port is within ± 2°C of the ambient temperature.

D.9 Twin Commander Aircraft LLC 695/695A/695B

D.9.1 695/695A/695B Single Red Line Computer (SRL) Discrete Input

Configured the Single Red Line Computer discrete interface per Table D-27.

Table D-27 695/695A/695B Single Red Line Computer Discrete Configuration

Discrete	Name	Port/Settings	
		Single/Left Eng Port	Right Eng Port
Single Red Line Computer	Single Red Line Computer	GEA 1 DISC In 8A Hi	GEA 2 DISC In 8A Hi

D.9.2 695/695A/695B EIS Gauge Markings and Ranges

This section contains specific EIS gauge marking and range configuration guidance for the (Rockwell) Twin Commander 695/695A/695B equipped with TPE331-10-501K or -511K engines.

D.9.2.1 695/695A/695B Engine Temperature Gauge Configuration

Table D-28 695/695A/695B Engine Temperature Standard Markings

Item	Parameter	Setting	
Units		Celsius	
Gauge Markings	Red Line Max Alert	Value	770°C
Gauge Range		Minimum	100°C
		Maximum	800°C

Table D-29 695/695A/695B Engine Temperature Customize Gauge Title

System Title	Custom Title
ITT	EGT

Table D-30 695/695A/695B Engine Temperature Dynamic Markings

Condition	Parameter	Setting	
1	Data Type	Propeller RPM	
	Condition	Type	At or Above
		Minimum	80%
		Duration	0 sec
	Dynamic Range Settings		
	Green Arc	Min	100°C
		Max	650°C
	Red Line Max Alert	Value	650°C
	Gauge Range	Minimum	100°C
		Maximum	800°C

Table D-31 695/695A/695B Engine Temperature Text Lamps

Item	Setting
Text Lamp	Single Red Line Computer
Color	Yellow
Flashing Alert	Disabled
Invert	Disabled

Table D-32 695/695A/695B Engine Temperature Gauge Scaling

Min	Max	Size
100°C	500°C	34%
500°C	800°C	66%

D.9.2.2 695/695A/695B Propeller RPM Gauge Configuration

Table D-33 695/695A/695B Propeller RPM Standard Markings

Item	Parameter	Setting	
Units		Percent (1591 RPM @ 100%)	
Gauge Markings	Green Arc	Min	96.0%
		Max	100.0%
	Red Line Max Alert	Value	101.0%
Gauge Range		Minimum	0.0%
		Maximum	104.0%

Table D-34 695/695A/695B Propeller RPM Customize Gauge Title

System Title	Custom Title
Prop	RPM

Table D-35 695/695A/695B Propeller RPM Gauge Scaling

Min	Max	Size
0.0%	96.0%	80%
96.0%	101.0%	15%
101.0%	104.0%	5%

D.9.2.3 695/695A/695B Oil Pressure Gauge Configuration

Table D-36 695/695A/695B Oil Pressure Standard Markings

Item	Parameter	Setting	
Units		Pounds per square inch	
Gauge Markings	Red Line Min Alert	Value	40 PSI
	Yellow Alert Arc	Min	40 PSI
		Max	50 PSI
	Green Arc	Min	70 PSI
		Max	120 PSI
	Red Line Max Alert	Value	120 PSI
Gauge Range (Layout Alpha)		Minimum	0 PSI
		Maximum	150 PSI

For standalone EIS installations, do not configure the settings in Table D-37.

Table D-37 695/695A/695B Oil Pressure Dynamic Markings

Condition	Parameter	Setting	
1	Data Type	Pressure Altitude	
	Condition	Type	At or Above
		Minimum	23000.0 FT
		Duration	0 sec
	Dynamic Range Settings		
	Red Line Min Alert	Value	40 PSI
	Yellow Alert Arc	Min	40 PSI
		Max	50 PSI
	Green Arc	Min	50 PSI
		Max	120 PSI
	Red Line Max Alert	Value	120 PSI
	Gauge Range (Layout Alpha)	Minimum	0 PSI
		Maximum	150 PSI

D.9.3 695/695A/695B Interconnects – GEA 71B Enhanced

Modify the existing 695/695A/695B aircraft wiring per Figure D-11. Refer to Figure B-22 for interconnect diagram of sensors not depicted.

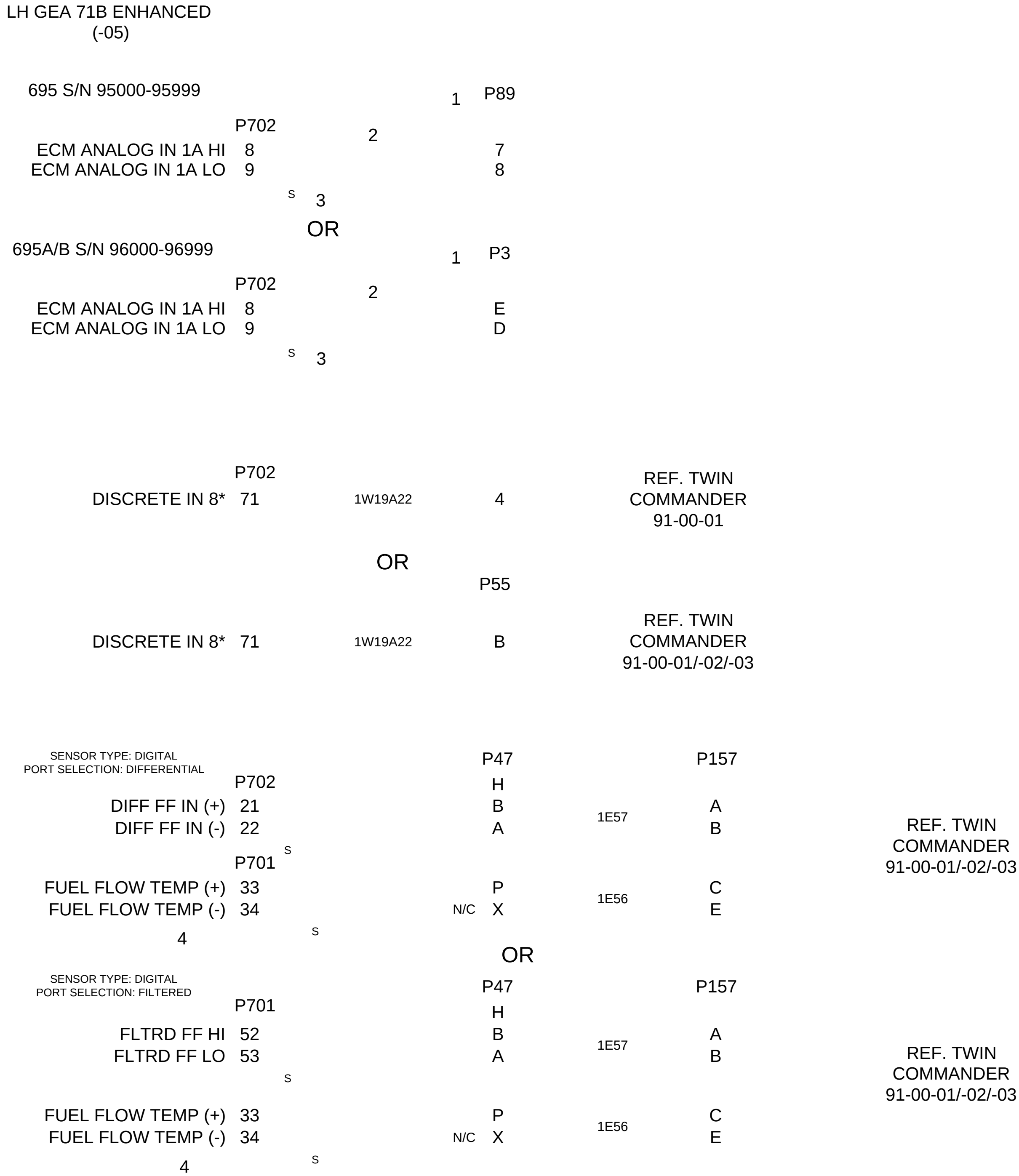


Figure D-11 695/695A/695B Model-Specific Interconnect
Sheet 1 of 3

RH GEA 71B ENHANCED
(-05)

695 S/N 95000-95999

1 P90

P702

2

ECM ANALOG IN 1A HI 8 7
ECM ANALOG IN 1A LO 9 8

S 3

OR

695A/B S/N 96000-96999

1 P4

P702

2

ECM ANALOG IN 1A HI 8 E
ECM ANALOG IN 1A LO 9 D

S 3

P702

DISCRETE IN 8* 71 2W19A22 D

REF. TWIN
COMMANDER
91-00-01

OR

P54

DISCRETE IN 8* 71 2W19A22 B

REF. TWIN
COMMANDER
91-00-01/-02/-03

SENSOR TYPE: DIGITAL
PORT SELECTION: DIFFERENTIAL

P48 P158

P702

H

DIFF FF IN (+) 21 G A
DIFF FF IN (-) 22 F B

2E57

REF. TWIN
COMMANDER
91-00-01/-02/-03

S

P701

FUEL FLOW TEMP (+) 33 R C
FUEL FLOW TEMP (-) 34 N/C Y E

2E56

S

4

OR

SENSOR TYPE: DIGITAL
PORT SELECTION: FILTERED

P48 P158

P701

H

FLTRD FF HI 52 G A
FLTRD FF LO 53 F B

2E57

REF. TWIN
COMMANDER
91-00-01/-02/-03

S

FUEL FLOW TEMP (+) 33 R C
FUEL FLOW TEMP (-) 34 N/C Y E

2E56

S

4

Figure D-11 695/695A/695B Model-Specific Interconnect
Sheet 2 of 3

NOTES

1 EGT INDICATOR ISOLATOR P/N 400266-3 (IF EQUIPPED) MUST BE PERMANENTLY REMOVED.

2 COVER WIRE WITH OVERBRAID AA59569R36T0250. TERMINATE OVERBRAID DRAIN WITH INSULATED 22 AWG STRAINDED WIRE AT THE GEA BACKSHELL. USE APPROPRIATELY SIZED SOLDER SLEEVES FOR DRAINS. EXPOSED WIRE LENGTH MUST BE 3 INCHES OR LESS FROM OVERBRAID TO GEA BACKSHELL. GEA PINS TO OVERBRAID MUST BE 2.5 INCHES OR LESS.

3 USE ANY UNUSED GENERAL PURPOSE PORT ON THE SAME GEA CONNECTOR. IF ALL GENERAL PURPOSE PINS ON THE SAME GEA CONNECTOR HAVE BEEN USED, IT IS PERMISSIBLE TO USE AN UNUSED GENERAL PURPOSE PIN ON THE OTHER GEA CONNECTOR.

Figure D-11 695/695A/695B Model-Specific Interconnect
Sheet 3 of 3

D.9.4 695/695A/695B Post-Installation Checkouts

Perform following checkout procedures after completing the wiring modifications.

D.9.4.1 695/695A/695B Torque Transducer Calibration

Perform the following procedure for each torque transducer:

1. Disconnect the pressure and vent lines from the torque transducer.
2. Connect a portable pressure tester to the torque oil pressure port on the torque transducer, leaving the vent port open to ambient pressure.
3. Obtain the engine DSC sheet.
4. Note the oil pressure values (PSI) corresponding to:
   a. 10.6% and 100% torque (695)
   b. 9.5% and 100% torque (695A/695B)
5. Power on each EIS display.
6. Apply oil pressure to the torque transducer corresponding to 100% torque.
7. Verify the torque indication reads 100 ± 1%.
   a. If the torque indication is out of tolerance, adjust the “Z” screw on the back of the torque transducer until the torque indication reads 100 ± 1%.
8. Apply oil pressure to the torque transducer corresponding to:
   a. 10.6% torque (695)
   b. 9.5% torque (695A/695B)
9. Verify the torque indication reads:
   a. 10.6 ± 3% (695)
      i. If the torque indication is out of tolerance, adjust the transducer range adjust screw until the torque indication reads 10.6 ± 3%.
   b. 9.5% ± 3% (695A/695B)
      i. If the torque indication is out of tolerance, adjust the “R” potentiometer on the back of the torque transducer until the torque indication reads 9.5% ± 3%.
10. Repeat steps 6 through 9 until no further adjustment of the transducer is required.

D.9.4.2 695/695A/695B EGT Check

1. Disengage the LH and RH ENG TEMP circuit breakers.
2. Power on each EIS display into Configuration mode.
3. On each display directly wired to the GEA, touch Diagnostics !’ EIS !’ Sensor Status
4. Verify the temperature reading displayed by each Engine Temperature port is within ± 2°C of the ambient temperature.
5. Re-engage the LH and RH ENG TEMP circuit breakers.

D.9.4.3 695/695A/695B SRL Text Lamp Check

1. Power on each EIS display.
2. Put the L and R SRL/Delta P/P switches to the SRL OFF position.
3. Verify the yellow SRL text lamp appears in the left corner of the LH EGT gauge and in the right corner of the RH EGT gauge.
4. Put the L and R SRL/Delta P/P switches to the NORM position.

D.10 Aircraft Model-Specific Matrix

This section provides the following information (column description and applicability):

- G600 TXi Only: An “X” in this column indicates that only G600 display(s) are approved for this model.
- Fuel Check Required: An “X” in this column requires a fuel pressure and flow check per Section 3.4.8, item 7. The fuel pressure and flow check only applies to aircraft with fuel flow transducers installed per this STC. This STC does not support EIS for radial engines (refer to Section 2.1.11) or approve Fuel Flow transducer installations for turbine engines (refer to Section 4.7.5).
- Lightning Zone Wing, Fuselage, & Empennage: Each column relates the lightning zoning figures from Appendix H to the aircraft model.
- GTP 59 & GMU 44(B) Location: Each column relates the suitable lightning zones for installation of the GTP 59 Temperature Probe and the GMU 44(B) Magnetometer. Additionally, the GBB 54 Vent Tube must be routed through the bottom of the metallic fuselage skin in Lightning Zone 2A or 3 or an existing passage in the engine firewall. Refer to Section 4.6.2 for GTP 59, Section 4.6.1 for GMU 44(B), and Section 4.5.7 for GBB 54 Vent Tube location and mounting.
- Notes: Aircraft notes.

NOTE

Any aircraft model listed in Table D-38 and not explicitly called out as nonmetallic by an end note should be considered an all-metal aircraft.

NOTE

For all aircraft in Table D-38, it is the responsibility of the installer to determine if any modifications have included 14 CFR 23.954 fuel system lightning protection, which may require additional installation requirements beyond the scope of this STC.

Table D-38 Aircraft Model-Specific Data

Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	F.260, F.260B, F.260C, F.260D, F.260E, F.260F		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R, S.205-22/R, S.208, S.208A		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Aero Commander (Dynac Aerospace Corp) [Aero Commander; Volaire]	10, 10A, 100, 100A, 100-180		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Aeronautica Macchi Aerfer (Aeronautica Macchi S.p.A. & Aerfer-Industrie Aerospaziali Meridionali S.p.A.) [LASA]	AM-3	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Aerostar (Aerostar Aircraft Corporation) [Piper/Smith]	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P (Aerostar 700P)		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Ensure compliance with AD 74-25-02 if applicable. [16]
Alexandria Aircraft (Alexandria Aircraft, LLC) [Bellanca Aircraft Corp; Viking Aviation, Inc.; Bellanca, Inc.]	14-19-3, 14-19-3A, 17-30, 17-31, 17-31TC		Not Allowed	Figure H-6	Figure H-17	Zone 2A [1] [3]	Zone 2A [5]	[8]
Alexandria Aircraft (Alexandria Aircraft LLC) [Bellanca Aircraft Corp.; Viking Aviation, Inc.; Bellanca, Inc.]	17-30A, 17-31A, 17-31ATC		Not Allowed	Figure H-6	Figure H-17	Zone 2A [1] [3]	Zone 2A [5]	[8]
American Champion (American Champion Aircraft Corp.) [Aeronca Aircraft; Bellanca Aircraft-Corp]	7ECA, 7GCAA, 7GCB, 7GCBA, 7GCBC, 7KCAB		Figure H-3 [12]	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
American Champion (American Champion Aircraft Corp.) [Bellanca Aircraft-Corp]	8KCAB, 8GCBC		Figure H-3 [12]	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]

Atlantic Coast Seaplanes LLC (Atlantic Coast Seaplanes LLC) [A.G. McKinnon; Viking Air Limited; Aero Planes, Inc; Aero Planes, LLC]	G-21C, G-21E, G-21G	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
	G-21D	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International Inc.; Christen Industries; Aviat, Inc.; White International, LTD.; Pitts]	A-1, A-1A, A-1B, A-1C-180, A-1C-200			Figure H-3	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 [8]
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International Inc.; Christen Industries; Aviat, Inc.; White International, LTD.; Pitts]	S-1S, S-1T, S-2A, S-2S, S-2B, S-2C			Not Allowed	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
B-N Group LTD. (B-N Group Ltd.) [Pilatus Britten-Norman Limited]	BN-2, BN-2A			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
B-N Group LTD. (B-N Group Ltd.) [Pilatus Britten-Norman Limited]	BN-2A-2, BN-2A-3, BN-2A-6, BN-2A-8, BN-2A-9, BN-2A-20, BN-2A-21, BN-2A-26, BN-2A-27, BN-2B-20, BN-2B-21, BN-2B-26, BN-2B-27	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
B-N Group LTD. (B-N Group Ltd.) [Pilatus Britten-Norman Limited]	BN-2T, BN2T-4R, BN2T-4S	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
B-N Group LTD. (B-N Group Ltd.) [Pilatus Britten-Norman Limited; Britten-Norman (Bembridge) Limited]	BN2A MK. III, BN2A MK. III-2, BN2A MK. III-3	X	X	Figure H-3, Figure H-5	Figure H-10 (bottom fuselage only)	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. BN2A-III cannot mount the GTP on the empennage. [17]

Boeing (The Boeing Company) [Rockwell International; North American Aviation]	BC-1A, AT-6, AT-6A, AT-6B, AT-6C, AT-6D, AT-6F, SNJ-7, T-6G			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Boeing (The Boeing Company) [Rockwell International; North American Aviation]	NOMAD NA-260 (T-28A)	X		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Cessna (Cessna Aircraft Company)	T-50 (Army AT-17, and UC-78 series, and Navy JRC-1)			Not Allowed	Figure H-10 (for tube-and-fabric; otherwise, not allowed)	Not Allowed	Zone 2A [1] [3]	Zone 2A [5]	[8] [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, A150K, A150L, A150M, 152, A152			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	F150F, F150G, F150H, F150J, F150K, F150L, F150M, F152, FA150K, FA150L, FA150M, FA152, FRA150L, FRA150M			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	170, 170A, 170B			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	175, 175A, 175B, 175C, P172D, R172E, R172G, R172K, 172RG			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	FR172E, FR172G, FR172K			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, FP172D		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	

Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	177, 177A, 177B	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	177RG	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	F177RG	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, TR182, T182T	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	F182P, F182Q, FR182	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]

Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	190, 195, 195A, 195B		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Aircraft with Cessna Airspeed Indicators P/N 0311015-1 or -3 (Kollsman Type 586CK-0187) must configure the ASI Type to Kollsman (586CK-0187). Refer to Section 5.4.2 for more information. Otherwise, TXi installations are limited to MFD/EIS. Installations can be identified by airspeed indicator marking or long straight harpoon-style pitot probe.
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	206, P206, P206A, P206B, P206C, P206D, P206E, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, TP206A, TP206B, TP206C, TP206D, TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, 206H, T206H		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	207, 207A, T207, T207A		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	208, 208B	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16] [14] for 208B only.

Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, P210N, T210N, 210R, P210R, T210R, 210-5 (205), 210-5A (205A)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	T303 (Crusader)		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	310, 310A, 310B, 310C, 310D, 310E, 310F, 310G, 310H, E310H, 310I, 310J, 310J-1, E310J, 310K, 310L, 310N, 310P, T310P, 310Q, T310Q, 310R, T310R		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	320, 320A, 320B, 320C, 320D, 320E, 320F, 320-1, 335, 340, 340A		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	336		Figure H-3, Figure H-5	Figure H-12	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	337, 337A, 337B, T337B, M337B, 337C, T337C, 337D, T337D, 337E, T337E, 337F, T337F, 337G, T337G, 337H, P337H, T337H, T337H-SP		Figure H-3, Figure H-5	Figure H-12	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS not permitted for these aircraft. [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	F337E, FT337E, F337F, FT337F, F337G, FT337GP, F337H, FT337HP		Figure H-3, Figure H-5	Figure H-12	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS not permitted for these aircraft. [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	401, 401A, 401B, 402, 402A, 402B, 411, 411A, 414, 421, 421A, 421B	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]

Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	402C, 414A, 421C, 425	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 or GEA 71B Enhanced P/N 011-03682-05. [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	404	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 or GEA 71B Enhanced P/N 011-03682-05. [16]
	406	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 or GEA 71B Enhanced P/N 011-03682-05. [17]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	441	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	525 (S/N 525-0360 thru 525-0599, excluding 525-0473)	X	Equipment must be installed per G500/G600 TXi Part 23 AML STC IMA Textron Aviation Inc. (Cessna), Model 525, SN 525-0360 Thru -0599 (P/N 190-01717-BG), G600 TXi Electrical Install, Textron Aviation Inc. (Cessna), Model 525, S/N 525-0360 Thru -0599 (P/N 190-01717-BH), and G600 TXi Mechanical Install, Textron Aviation Inc. Model 525, S/N 525-0360 Thru -0599 Exc. -0473 (P/N 190-01717-BJ).					
Textron Aviation (Textron Aviation Inc.) [Cessna Aircraft Company]	525A (S/N 525A-0001 thru 525A-0299)	X	Equipment must be installed per G500/G600 TXi Part 23 AML STC IMA, Textron Aviation Inc. (Cessna), Model 525A, S/N 525A-0001 Thru -0299 (P/N 190-01717-B7), G600 TXi Electrical Install, Textron Aviation Inc. (Cessna), Model 525A, S/N 525A-0001 Thru -0299 (P/N 190-01717-B8), and G600 TXi Mechanical Install, Textron Aviation Inc. (Cessna), Model 525A, S/N 525A-0001 Thru -0299 (P/N 190-01717-B9).					

Textron Aviation (Textron Aviation inc.) [Cessna Aircraft Company, Columbia Aircraft Manufacturing; The Lancair Company]	LC40-550FG, LC41-550FG, LC42-550FG		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8] [11]
Cirrus Design Corporation (Cirrus Design Corporation)	SR20, SR22, SR22T		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8] [11] [13] [14] for SR20 and SR22 only.
Costruzioni Aeronautiche Tecnam srl (Costruzioni Aeronautiche Tecnam srl)	P2006T	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS is not approved for Rotax engines. [16]
Costruzioni Aeronautiche Tecnam srl (Costruzioni Aeronautiche Tecnam srl)	P2010		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [13]
CPAC, Inc. (CPAC, Inc.) [Commander Aircraft Company; Gulfstream Aerospace Corporation; Gulfstream American Corporation; Rockwell International, Commander Aircraft Division]	112, 112TC, 112B, 112TCA, 114, 114A, 114B, 114TC		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Cub Crafters (Cub Crafters, Inc.)	CC18-180		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8]

Cub Crafters (Cub Crafters, Inc.)	CC18-180A		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8]
Diamond (Diamond Aircraft Industries GmbH)	DA 40, DA 40F VFR Version (with no lightning protection)		Figure H-4, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3, Zone 2A (fuselage only) [6]	Installation approved for VFR operation only if Diamond SB OSB 40-004/3 is not incorporated. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [11]
Diamond (Diamond Aircraft Industries GmbH)	DA 40, DA 40F		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Must have Diamond SB OSB 40-004/3 incorporated. Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8] [11] [13]
Diamond (Diamond Aircraft Industries, Inc.)	DA20-A1, DA20-C1		Figure H-4, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3, Zone 2A (fuselage only) [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [11]
Dornier (Dornier-Werke G.m.b.H.)	Do 28 A-1, Do 28 B-1		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Dornier (Dornier-Werke G.m.b.H.)	Do 27 Q-6		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Dornier Luftfahrt GmbH (Dornier Luftfahrt GmbH)	Do 28 D, Do 28 D-1	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]

Dornier Seastar (Dornier Seastar Gmbh & Co KG) [Dornier Composite Aircraft GmbH & Co. KG]	Seastar CD2	X		Figure H-4, Figure H-5	Figure H-13	Figure H-17	Zone 3 [4]	Zone 3, Zone 2A (fuselage only) [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [11]
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.) [Panstwowe Zaklady Lotnicze]	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA WILGA 2000		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 or GEA 71B Enhanced P/N 011-03682-05.
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.) [Panstwowe Zaklady Lotnicze]	PZL-KOLIBER 150A, PZL-KOLIBER 160A		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Extra (Extra Flugzeugproduktions-und Vertriebs - GmbH) [Extra Flugzeugbau GmbH]	EA-400			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [13]
Extra (Extra Flugzeugproduktions-und Vertriebs - GmbH) [Extra Flugzeugbau GmbH]	EA-300, EA-300/L, EA-300/S, EA-300/200			Not Allowed	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors is not approved in this aircraft. [8]
Extra (Extra Flugzeugproduktions-und Vertriebs - GmbH) [Extra Flugzeugbau GmbH]	EA-300/LC		X	Not Allowed	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors is not approved in this aircraft. [8]
FFT-GmbH (FFT Gesellschaft fur Flugzeug - & Faserverbund-Technologie mbH)	SC01 B-160 Gyroflug Speed Canard		X	Figure H-4, Figure H-5	Figure H-7	Not Allowed	Zone 3 [4]	Zone 3 Zone 2A (fuselage only) [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft.

Found Aircraft Canada, Inc. (Found Aircraft Canada, Inc.)	FBA-2C	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Found Aircraft Canada, Inc. (Found Aircraft Canada, Inc.)	FBA-2C1, FBA-2C2, FBA-2C3	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Found Brothers (Found Brothers Aviation Limited)	FBA Centennial “100”	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
GA8 Airvan (Pty) Ltd (GA 8 Airvan (Pty) Ltd) [Gippsland Aeronautics Pty. Ltd]	GA8, GA8-TC320		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Airvan10 Pty Ltd. (Gippsland Aeronautics Pty. Ltd]	GA10		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS is not approved for Allison 250 engines. [16]
GROB (GROB-WERKE)	G120A	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Installation approved for VFR operation only. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [11] [13]
GROB (GROB-WERKE) [BURKHART GROB Luft- und Raumfahrt GmbH & Co. KG]	G115, G115A, G115B, G115C, G115C2, G115D, G115D2, G115EG		Figure H-3 or Figure H-4 (refer to note column), Figure H-5	Figure H-6	Figure H-17	Zone 3 [4]	Zone 3 [6]	Installation approved for VFR operation only. If aircraft was previously IFR, wing Figure H-3 may be used. If aircraft was previously limited to VFR only, wing Figure H-4 must be used. Interface to resistive fuel quantity sensors is not approved in this aircraft. [8] [11] [13]

Grumman [Gulfstream American Corporation]	Grumman G-21, Grumman G-21A	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Gulfstream American (Gulfstream American Corporation) [Grumman]	G-44, G-44A, SCAN Type 30		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, G36, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC		Figure H-3, Figure H-5	Figure H-6	Figure H-17 (refer to note column)	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	GMU 44(B) installation in empennage not allowed for V-Tail models.
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	D55, D55A, E55, E55A, 56TC, A56TC, G58, 95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, 95-C55A		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
	58, 58A		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[14] [16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	45, A45, D45		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	50, B50, C50		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	D50, D50A, D50B, D50C, D50E, D50E-5990, E50, F50, G50, H50, J50	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Beechcraft Corporation) [Hawker Beechcraft Corporation; Raytheon Aircraft Company]	58P, 58PA, 58TC, 58TCA		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]

Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	60, A60, B60	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	65 (L-23F), A65, A-65-8200, 65-80, 65-A80, 65-A80-8800, 65-88	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Installation is not compatible with aircraft equipped with Rockwell Collins ProLine 21 avionics. [16]
	65-B80	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Installation is not compatible with aircraft equipped with Rockwell Collins ProLine 21 avionics. [17]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	65-90, 65-A90, 65-A90-2 (RU-21B), 65-A90-3 (RU-21C), 70, C90, B90	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Installation is not compatible with aircraft equipped with Rockwell Collins ProLine 21 avionics. [16]
	65-A90-1 (JU-21A, U-21A, RU-21A, RU-21D, U-21G, RU-21H), 65-A90-4 (RU-21E, RU-21H), C90A, C90GT, C90GTi	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Installation is not compatible with aircraft equipped with Rockwell Collins ProLine 21 avionics. [17]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	E90, H90 (T-44A)	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Installation is not compatible with aircraft equipped with Rockwell Collins ProLine 21 avionics. Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]

Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	G17S		Figure H-3, Figure H-5	Figure H-16	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	18A, S18A	X	Figure H-3, Figure H-5	Figure H-10	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	18D, A18A, A18D, S18D, SA18A, SA18D	X	Figure H-3, Figure H-5	Figure H-10	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	3N, 3NM, 3TM, JRB-6, D18C, D18S, E18S, RC-45J, E18S-9700, G18S, H18, C-45G, TC45G, C45H, TC-45H, TC-45J	X	Figure H-3, Figure H-5	Figure H-10	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	19A, B19, M19A, 23, A23, A23A, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	76		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	77		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	F90	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]

Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	99, 99A, 99A (FACH), A99, A99A, B99, C99, 100	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	A100, B100	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [17]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	200, A200C (UC-12B), 200C, B200, B200C, B200C (C-12F) or (UC-12F) or (UC-12M) or (C-12R), A200 (C-12A), A200 (C-12C), A100-1 (U-21J)	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [17]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	D17S (Army UC-43, UC-43B, Navy GB-1, GB-2), SD17S		Figure H-3, Figure H-5	Figure H-16	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	35, A35, B35, C35, D35, E35, F35, G35, 35R		Figure H-3, Figure H-5	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Textron Aviation Inc. (Hawker Beechcraft Corporation) [Beech Aircraft Corporation; Raytheon Aircraft Company]	T-34C (T-34C-1) (34C)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01 or GEA 71B Enhanced P/N 011-03682-05. [16]
Helio (Helio Aircraft, LLC) [Alliance]	H-250, H-295 (USAF U-10D), HT-295, H-391 (USAF YL-24), H-391B, H-395 (USAF L-28A or U-10B), H-395A, H-700, H-800		Figure H-3, Figure H-5 (refer to notes)	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	H-800 only: Neither GMU 44(B) nor GTP 59 can be mounted on aircraft wing.
Helio (Helio Aircraft, LLC) [Alliance]	HST-550, HST-550A		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	

Howard (Howard Aircraft Foundation) [Jobmaster Co]	DGA-15P (Army UC-70, Navy GH-1, GH-2, GH-3, NH-1), DGA-15J (Army UC-70B), DGA-15W			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Interceptor (Interceptor Aircraft Corporation) [Prop-Jets, Inc.; Aero Commander; Meyers]	200, 200A, 200B, 200C, 200D			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Interceptor (Interceptor Aircraft Corporation) [Prop-Jets, Inc.; Aero Commander; Meyers]	400			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
JGS Properties, LLC (JGS Properties, LLC) [Quartz Mountain Aerospace, Inc.; Luscombe Aircraft Corporation; Land-Air & Leasing, Inc.; Richard S. Kettles]	11A, 11E		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Liberty (Liberty Aerospace Incorporated)	XL-2		X	Figure H-3, Figure H-5	Not Allowed	Figure H-17	Zone 3 [4]	Zone 3 [6]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8] [11]
Lockheed (Lockheed Aircraft)	12A (Army UC-40, UC-40A,Navy JO-1, JO-2)	X		Figure H-3, Figure H-5	Figure H-10	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Lovaux Ltd (FLS Aerospace (Lovaux) Ltd.)	OA7 Optica Series 300		X	Figure H-3, Figure H-5	Not Allowed	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
M7 Aerospace LLC (M7 Aerospace LLC) [M7 Aerospace LP, Fairchild Aircraft Incorporated]	SA26-T, SA26-AT, SA226-T	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
	SA226-AT, SA226-T(B)	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]

M7 Aerospace LLC (M7 Aerospace LLC) [M7 Aerospace LP, Fairchild Aircraft Incorporated]	SA227-AT SA227-TT	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Limited to non-SFAR 41 aircraft with gross takeoff weight of 12,500 lbs or less. [17]
Maule (Maule Aerospace Technology, Inc.)	Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-210, M-4-210C, M-4-210S, M-4-210T, M-4-220, M-4-220C, M-4-220S, M-4-220T, M-4-180C, M-4-180S, M-4-180T, M-5-210C, M-5-220C, M-5-235C, M-5-180C, M-5-210TC, M-6-235, M-6-180, M-5-200, M-7-235, MX-7-235, MX-7-180, MXT-7-180, MT-7-235, M-8-235, MX-7-160, MXT-7-160, MX-7-180A, MXT-7-180A, MX-7-180B, M-7-235B, M-7-235A, M-7-235C, MX-7-180C, M-7-260, MT-7-260, M-7-260C, MX-7-160C, MX-7-180AC, M-4-180V, M-9-235			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Maule (Maule Aerospace Technology, Inc.)	MX-7-420, M-7-420AC, M-7-420A, MT-7-420			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8] [16]
MICCO Aircraft Co., Inc. (MICCO Aircraft Company, Inc.) [Meyers Aircraft Company; Interceptor Corporation; Interceptor Corporation; Prop-Jets Incorporated; Nydia Meyers Trust; Ralph Haven; The New Meyers Airplane Company; Estumkeda, Ltd., LanShe Aerospace, LLC; Aero Acquisitions LLC]	MAC-125C, MAC-145		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	

MICCO Aircraft Co., Inc. (MICCO Aircraft Company, Inc.) [Meyers Aircraft Company; Interceptor Corporation; Interceptor Corporation; Prop-Jets Incorporated; Nydia Meyers Trust; Ralph Haven; The New Meyers Airplane Company; Estumkeda, Ltd., LanShe Aerospace, LLC; Aero Acquisitions LLC]	MAC-145A, MAC-145B	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Mitsubishi (Mitsubishi Heavy Industries, Ltd.)	MU-2B, MU-2B-10, MU-2B-15, MU-2B-20, MU-2B-25, MU-2B-26, MU-2B-30, MU-2B-35, MU-2B-36		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Mitsubishi (Mitsubishi Heavy Industries, Ltd.) [Mitsubishi Aircraft International Inc.]	MU-2B-25, MU-2B-26, MU-2B-26A, MU-2B-35, MU-2B-36, MU-2B-36A, MU-2B-40, MU-2B-60		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Mooney (Mooney Aviation Company, Inc.) [Mooney Airplane Company, Inc., Mooney Aircraft Corporation, Aerostar Aircraft Corporation of Texas, Mooney Aircraft Inc.]	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S, M20TN		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Mooney (Mooney Aircraft Corporation) [Mooney Airplane Company, Inc.]	M22		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Morane Saulnier (S.O.C.A.T.A. - Groupe Aerospatiale) [Rallye]	MS 880B (Rallye, Ralley Club), MS 885 (Super Rallye), MS 894A, MS 894E (Rallye Minerva 220), MS 892A-150 (Commodore), MS 892E-150 (Rallye 150GT), MS 893A (Rallye Commodore), MS 893E (Rallye 180 GT), Rallye 100S, Rallye 150 ST, Rallye 150 T, Rallye 235 E, Rallye 235C		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	

Morane-Saulnier (SOCATA - Groupe Aerospatiale)	M.S. 760, M.S. 760 A, M.S. 760 B	X		Figure H-3, Figure H-5	Figure H-14	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Nardi (Nardi S.A.) [Siai Marchetti]	FN-333		X	Figure H-3, Figure H-5	Figure H-8	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Navion (Sierra Hotel Aero, Inc.) [North American Aviation, Inc.; Ryan Aeronautical Company; Navion, Division of Tusco Corporation; Base Industries, Incorporated; Navion Aircraft Corporation; Cedric R. Kotowicz; Navion Rangemaster Corporation; Jimmie Thompson; Charles L. Klinger; Diamond Aero Enterprises, Inc.; Navion Holdings, Inc.; Navion Aircraft Company, Ltd; Navion Aircraft LLC; Sierra Hotel Aero, Inc.]	Navion (L-17A), Navion A (L-17B, L-17C), Navion B, Navion D, Navion E, Navion F, Navion G, Navion H			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Pacific Aerospace Limited (Pacific Aerospace Limited) [Pacific Aerospace Corporation, Ltd.]	750XL	X		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Piaggio (Piaggio & C.)	P.136-L, P.136-L1			Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Piaggio (Piaggio & C.)	P.136-L2	X		Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]

Piaggio (Industrie Aeronautiche e Meccaniche) [Piaggio & Co.]	P.166, P.166B	X	Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
	P.166C	X	Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
Piaggio (Industrie Aeronautiche e Meccaniche) [Piaggio & Co.]	P.166 DL3	X	Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Piaggio (Piaggio Aero Industries S.p.A)	PIAGGIO P-180	X	Figure H-3, Figure H-5	Figure H-15	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Pilatus (Pilatus Aircraft Ltd.)	PC-6, PC-6-H1, PC-6-H2, PC-6/350, PC-6/350-H1, PC-6/350-H2		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Pilatus (Pilatus Aircraft Ltd.)	PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/C-H2, PC-6/C1-H2		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Pilatus (Pilatus Aircraft Ltd.)	PC-6/B2-H4	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]

Pilatus (Pilatus Aircraft Ltd.)	PC-12, PC-12/45, PC-12/47	X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	The GDU connector that is directly connected to the SPWU must be overbraided in accordance with P/N 190-01717-B5. G500/G600 TXi Part 23 AML STC IMA Pilatus PC-12 (P/N 190-01717-B5) is required for installation. [9] [14] [16]
Pilatus (Pilatus Aircraft Ltd.)	PC-7		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-46-310P (Malibu), PA-46-350P (Malibu Mirage) PA-46R-350T (Matrix) (non-G1000 only		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [14]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-46-500TP (Malibu Meridian)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	G500/G600 TXi Part 23 AML STC IMA Piper PA-46-500TP (P/N 190-01717-B6) is required for installation. Refer to Garmin Service Bulletin 2120. [14] [16]
FS2003 Corporation (FS2003 Corp.) (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-12, PA-12S		Not Allowed	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]

Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-18, PA-18S, PA-18 “105” (Special), PA-18S “105” (Special), PA-18A, PA-18 “125” (Army L-21A), PA-18S “125”, PA-18AS “125”, PA-18 “135” (Army L-21B), PA-18A “135”, PA-18S “135”, PA-18 “150”, PA-18A “150”, PA-18S “150”, PA-19 (Army L-18C)	Figure H-3, Figure H-5	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-20, PA-20 “135”	Figure H-3, Figure H-5	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160	Figure H-3, Figure H-5	Figure H-6	Not Allowed	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-24, PA-24-250, PA-24-260, PA-24-400	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-28-160 (Cherokee), PA-28-150 (Cherokee), PA-28-180 (Cherokee), PA-28S-160 (Cherokee), PA-28S-180 (Cherokee), PA-28-235 (Cherokee Pathfinder), PA-28-140 (Cherokee Cruiser), PA-28-140 (Cherokee Cruiser), PA-28R-180 (Arrow), PA-28R-200 (Arrow), PA-28R-200 (Arrow II)	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	

Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-28S-180 (Archer), PA-28-235 (Cherokee Pathfinder), PA-28-151 (Cherokee Warrior), PA-28-181 (Archer II), PA-28-181 (Archer III), PA-28-161 (Warrior II), PA-28-161 (Warrior II), PA-28-161 (Warrior III), PA-28R-201 (Arrow III), PA-28R-201T (Turbo Arrow III)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-28-236 (Dakota), PA-28RT-201 (Arrow IV), PA-28RT-201 (Arrow IV), PA-28RT-201T (Turbo Arrow IV), PA-28-201T (Turbo Dakota)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-38-112 (Tomahawk)		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-44-180 (Seminole), PA-44-180T		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-30, PA-39, PA-40		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-31 (Navajo), PA-31-325 (Navajo C/R), PA-31-350 (Chieftain)	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-31-300 (Navajo)		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]

Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-31P (Pressurized Navajo), PA-31P-350 (Mojave)	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-31T (Cheyenne/ Cheyenne II), PA-31T1 (Cheyenne I/IA), PA-31T2 (Cheyenne IIXL), PA-31T3	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-32-260 (Cherokee Six 260), PA-32-300 (Cherokee Six 300), PA-32S-300 (Cherokee Six Seaplane), PA-32R-300 (Lance), PA-32RT-300 (Lance II), PA-32RT-300T (Turbo Lance II), PA-32R-301 (Saratoga SP), PA-32R-301 (Saratoga II HP), PA-32R-301T (Turbo Saratoga SP), PA-32-301 (Saratoga), PA-32-301T (Turbo Saratoga), PA-32R-301T (Saratoga II TC), PA-32-301FT (Piper 6X), PA-32-301XTC (Piper 6XT)			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-34-200 (Seneca), PA-34-200T (Seneca II), PA-34-220T (Seneca III, IV, V)			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Piper (Piper Aircraft, Inc.) [The New Piper Aircraft, Inc]	PA-42 (Cheyenne III), PA-42-720 (Cheyenne IIIA), PA-42-1000	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Polskie Zaklady Lotnicze Spolka zo.o (Polskie Zaklady Lotnicze Spolka zo.o) [PZL MIELEC]	PZL M26 01		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.

Revo, Inc. (Revo, Incorporated) [Lake] [Global Amphibians LLC] [Colonial Aircraft Company]	Lake LA-4-200, Lake Model 250			Figure H-3	Figure H-9	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Short Brothers & Harland Ltd (Short Brothers & Harland Ltd.)	SC-7 Series 2, SC-7 Series 3	X	X	Figure H-3, Figure H-5	Figure H-10	Not Allowed	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
SOCATA (SOCATA) [EADS SOCATA]	TBM 700 (TBM850)	X		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [10] [14] [15] [16]
SOCATA (SOCATA) [S O C A T A - Groupe Aerospatiale]	TB 9, TB 10, TB 20, TB 21, TB 200			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
SOCATA, S.A. (SOCATA S.A.) [Grumman]	GA-7 (Cougar)			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
STOL (Sky Enterprises, Inc.) [Republic; Sol Amphibian; Seabee; Trident; TwinBee]	RC-3 (Sea-Bee)			Figure H-3, Figure H-5	Figure H-8	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
STOL (STOL Aircraft Corporation) [United Consultants; Republic; Twin-Bee]	UC-1 (Twin-Bee)			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Symphony Aircraft Industries Inc. (Symphony Aircraft Industries Inc.) [OMF]	OMF-100-160, SA 160		X	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8] [11]

TKEF (The King's Engineering Fellowship) (TKEF)	Model 44			Figure H-3, Figure H-5	Figure H-11	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Trident (Viking Air, Ltd)	TR-1		X	Figure H-3, Figure H-5	Figure H-8	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
True Flight Holdings LLC (True Flight Holdings LLC) [American Aviation Corporation; Grumman American Aviation Corporation; Gulfstream American Corporation; Gulfstream Aerospace Corporation; American General Aircraft Corporation; American General Aircraft Holding Company, Inc.; Tiger Aircraft LLC; American General]	AA-1, AA-1A, AA-1B, AA-1C			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
True Flight Holdings LLC (True Flight Holdings LLC) [American Aviation Corporation; Grumman American Aviation Corporation; Gulfstream American Corporation; Gulfstream Aerospace Corporation; American General Aircraft Corporation; American General Aircraft Holding Company, Inc.; Tiger Aircraft LLC; American General]	AA-5, AA-5A, AA-5B, AG-5B			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
Twin Commander (Twin Commander Aircraft LLC)	500, 500-A, 520, 560, 560-A			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Twin Commander (Twin Commander Aircraft LLC)	500-B, 500-U, 500-S, 560-E	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]

Twin Commander (Twin Commander Aircraft LLC)	680, 680-E, 720, 680-F, 560-F, 680-FL, 680-FL(P), 685	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Twin Commander (Twin Commander Aircraft LLC)	680-T, 680-V, 680-W, 681, 690, 690A, 690B, 690C, 695, 695A, 690D, 695B	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Twin Commander (Twin Commander Aircraft LLC)	700	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Univair Aircraft Corporation (Stinson)	108, 108-1, 108-2, 108-3			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
Viking Air Limited (Viking Air Limited) [deHavilland Aircraft of Canada, Limited; Boeing of Canada, Ltd. (de Havilland Div.); deHavilland Inc.; Bombardier Inc.]	DHC-2 Mark I, DHC-2 Mark II			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	
Viking Air Limited (Viking Air Limited) [deHavilland Aircraft of Canada, Limited; Boeing of Canada, Ltd. (de Havilland Div.); deHavilland Inc.; Bombardier Inc.]	DHC-2 Mark III			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Viking Air Limited (Viking Air Limited) [Bombardier Inc.; de Havilland Inc.; Twin Otter]	DHC-6-1, DHC-6-100, DHC-6-200, DHC-6-300, DHC-6-400	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
Viking Air Limited (Viking Air Limited) [Bombardier Inc.; de Havilland Inc.; Twin Otter]	DHC-3	X		Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[17]
Vulcan Air S.p.A. (Vulcanair S.p.A.) [Siai Marcheetti S.r.I.]	SF600, SF600A	X	X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS is not approved for Allison 250 engines. [16]

Vulcanair S.p.A. (Vulcanair S.p.A.) [Partenavia Costruzioni Aeronautiche S.p.A]	P.68, P.68B, P.68C, P.68C-TC, P.68 “Observer”, P.68TC “Observer”, P.68 “Observer 2"			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Vulcanair S.p.A. (Vulcanair S.p.A.) [Partenavia Costruzioni Aeronautiche S.p.A]	AP68TP-300 “Spartacus”		X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	EIS is not approved for Allison 250 engines. [16]
Vulcanair S.p.A. (Vulcanair S.p.A.) [Partenavia Costruzioni Aeronautiche S.p.A]	AP68TP-600 “Viator”	X		Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 71B Enhanced P/N 011-03682-05. [16]
Vulcanair S.p.A. (Vulcanair S.p.A.) [Partenavia Costruzioni Aeronautiche S.p.A]	P.68R			Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [16]
Vulcanair S.p.A. (Vulcanair S.p.A.) [Partenavia Costruzioni Aeronautiche S.p.A]	Vulcanair V1.0			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2] [3]	Zone 3, Zone 2A [5] [7]	[8] For main cabin tube structure, [3] applies; for other areas, [2] applies.
WACO (The WACO Aircraft Company)	YMF			Figure H-3, Figure H-5	Figure H-16	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	[8]
WSK “PZL-MIELEC” OBR (WSK PZL MIELEC and OBR SK MIELEC) [PZL]	PZL M20 03		X	Figure H-3, Figure H-5	Figure H-10	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	[16]
Zenair (Zenair Ltd.)	CH2000			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.
ZLIN Aircraft a.s. (ZLIN Aircraft a.s.) [Moravan National Corporation]	ZLIN 526L			Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [3]	Zone 3, Zone 2A [5]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01. [8]

ZLIN Aircraft a.s. (ZLIN Aircraft a.s.) [Moravan a.s.]	Z-242L, Z-143L	Figure H-3, Figure H-5	Figure H-6	Figure H-17	Zone 3, Zone 2A [1] [2]	Zone 3, Zone 2A [5] [7]	Interface to resistive fuel quantity sensors requires GEA 110 P/N 011-03454-01.

Notes:

[1] The GTP 59 cannot be installed on Zone 2A composite areas.

[2] The GTP 59 must be bonded to the aluminum skin. For details, refer to Section 4.6.2.

[3] The GTP 59 must be bonded to the metallic tube structure. For details, refer to Section 4.6.2.

[4] The GTP 59 must be isolated from the aircraft ground plane. For details, refer to Section 4.6.2.

[5] The GMU 44 must be bonded to the aircraft ground plane. For details, refer to Section 4.6.1.

[6] The GMU 44 must be isolated from the aircraft ground plane. For details, refer to Section 4.6.1.

[7] The GMU 44 may be mounted in the wingtip provided that certain criteria are met. For details, refer to Section 4.6.1.

[8] Nonmetallic aircraft.

[9] Prior to beginning the installation, contact Garmin regarding the availability of the ARINC 429 Fast/Slow Enablement Card.

[10] For RVSM eligibility, refer to Appendix G.

[11] Remote LRUs must be installed on existing structure designated by aircraft manufacturer for avionics installation.

[12] Only for aluminum wings. Not allowed for wooden wings.

[13] With the exception of GTP 59, GMU 44(B), GEA 110, GDU backup GPS antenna wires, and GDU video, all other installed wires must be routed behind metallic substructure (i.e., routed behind instrument panel/pedestal/circuit breaker panel, along lightning ground bar/strip, inside lightning ground tube, or along other airframe ground plane).

[14] Airframe and/or EIS configuration template is available. Interfaces and configurations must be verified. Refer to Section 1.2.6 and Section 5.2.4.1.

[15] TXi system software update to v3.14 or later will require recalibration of fuel quantity probes. Replacing a GEA 71B Enhanced 011-03682-05 Mod 0 with a GEA 71B Enhanced 011-03682-05 Mod 1 will require re-calibration of the fuel quantity probes.

[16] Installation of a GDU 1210 configured to display primary flight information (i.e., PFD/MFD or PFD/MFD/EIS) requires the installation of a GI 275 Standby ADI configured as a 4-in-1 (i.e., Attitude, Altitude, Airspeed, Heading) ADI Only without MFD pages configured per STC SA02658SE. Refer to Section 3.2.3.2.

[17] Installation of the GDU 1210 is prohibited.

APPENDIX E ADVANCED AIRSPEED SETTINGS

E.1 Overview

The Advanced Configuration Type allows the configuration of the Airspeed Tape to match any airspeed indicator. Color bands, markings, and bugs may all be individually configured. As an additional option, Vne and Vno may be configured as Fixed or Variable with up to ten altitude and IAS level pairs entered in Variable mode.

E.2 Configuration Page Layout

Starting from the Home page in Configuration mode, navigate to the Advanced Airspeed Configuration page (GDU Setup → PFD Configuration → Configuration Type → Advanced). Once the configuration type has been set to Advanced, access the advanced airspeed tape settings by pressing the Airspeed Configuration button. The following settings may be changed in the configuration pages:

- Airspeed Tape Ranges (PFD) - Set airspeed ranges.
- GDU ( ) Overspeeds - Enter values (if Variable is selected for the Vne / Vmo / Mmo).
- Airspeed Bugs Set bugs as required.
- Airspeed Markings - Set markings as required.
- Stall Speed - Set the stall speed of the airframe.
- Mach Configuration - Set Mach indication and transition settings.

Figure E-1 Airspeed Configuration Pages

E.3 Arc Ranges

E.3.1 Configuration

The information listed in Table E-1 must be obtained for every installation. Figure E-2 illustrates airspeed tape arc ranges for the GDU. The POH/AFM column lists a suggested location for obtaining this information. Arc ranges are typically shown on the airspeed indicator that is being replaced, but should be checked for accuracy if records indicate it has been replaced. Vne, whether fixed or variable, will be displayed as the beginning of the red/white striped band (barber pole) on the IAS tape.

Figure E-2 shows a visual correlation between arcs defined in POH/AFM Type data and those configured in the GDU.

> NOTE
> These ranges must match the Type Data (POH/AFM or aircraft specifications) for the specific aircraft being modified.

> NOTE
> If the airspeed values are listed in the Type Data (POH/AFM or aircraft specifications) for both IAS and CAS, use the IAS values.

> NOTE
> Do not configure two arc ranges to overlap each other in the configuration page. Gaps are acceptable between ranges, but overlaps are not acceptable.

Table E-1 Advanced Airframe Specific Configuration Data – Arc Ranges

Arc Color	Description	POH/AFM Section	Notes
RED (LOW SPEED)	Low speed awareness	2 - Limitations	If the aircraft has a defined WHITE or GREEN arc, set the RED arc to ON. Set the Max value of the RED arc to the lowest value of the WHITE or GREEN arc (Vs0). A RED low-speed awareness arc will appear below the lowest marked stall speed. If the aircraft does not have a defined WHITE or GREEN arc, set the RED arc to OFF, and enter the lowest stall speed in the Stall Speed setting at the bottom of the page.
WHITE	Full flap operational range	2 - Limitations	Set the Min value to the bottom of the POH/AFM defined range. If WHITE and GREEN arcs overlap, set the Max value to the beginning of the WHITE/GREEN arc. If WHITE and GREEN arcs do not overlap, set the Max value to the top of the POH/AFM or aircraft specification defined range. If a WHITE arc is not defined by the AFM/POH or aircraft specifications, set both the Min and Max values to the aircraft stall speed in the landing configuration (Vs0). This setting will not display WHITE arc, but the system needs it to characterize aircraft performance.

Table E-1 Advanced Airframe Specific Configuration Data – Arc Ranges

Arc Color	Description	POH/AFM Section	Notes
HALF WHITE	Standard operational range	2 - Limitations	If the HALF WHITE arc range is not defined by the AFM/POH or aircraft specification, set to OFF. This may sometimes be called a “narrow WHITE arc.”
WHITE/GREEN	Overlap between standard operational and flaps operational ranges	2 - Limitations	If a WHITE/GREEN arc is not defined by the AFM/POH or aircraft specification, set to OFF. If WHITE and GREEN arcs overlap, configure to the range they overlap within.
GREEN	Standard operational range	2 - Limitations	If the GREEN arc is not defined by the AFM/POH or aircraft specification, set to OFF. If WHITE and GREEN arcs overlap, set Min value to the Max of WHITE/GREEN. If the YELLOW arc is defined, set to the Min of the YELLOW arc (Vno). If the YELLOW arc is not defined, set Max value to Vno/Vne.
YELLOW	Caution / smooth air operational range	2 - Limitations	If the YELLOW arc is defined as Fixed by the AFM/POH or aircraft specification, set to Fixed, with Min value equal to Maximum structural speed (Vno). Max value should be configured to Vne or the highest value of Vne if variable. If variable with altitude, set to Variable and set speeds in accordance with AFM/POH or aircraft specifications. If the YELLOW arc is not defined, set to OFF.
Vne/Vmo/Mmo	Never exceed speed / max operating speed / max operating mach number	2 - Limitations	If defined as a fixed value, set to Fixed, and enter POH/AFM defined Vne/Vmo as the Min value. If variable with altitude, set to Variable and set overspeeds in accordance with Appendix Section E.7.

Figure E-2 Airspeed Tape Arc Range Diagrams

E.3.2 Example

For an example, Section 2 (Limitations) of the Beech Bonanza (A36) POH/AFM defines a white arc (61-124 KIAS), green arc (68-167 KIAS), and a yellow arc (167-205 KIAS). As the white and green arcs overlap, they must be entered in separately.

- Where there is no overlap in the POH/AFM defined white arc range, configure the WHITE field to this range (61-68 KIAS)
- Where there is overlap of the POH/AFM defined white and green arcs, configure the WHITE/GREEN field to this range (68-124 KIAS)
- Where there is no overlap in the POH/AFM defined green arc, configure the GREEN field to this range (124-167 KIAS)
- As the POH/AFM defined yellow arc does not overlap any other arcs, configure the YELLOW field to this range (167-205 KIAS)

E.4 Airspeed Bugs

The information obtained in Table E-2 and Table E-3 must be obtained for each installation. The POH/AFM column lists a suggested location for obtaining this information. If a bug is not defined for the aircraft, then it should be set as OFF.

> NOTE
>
> These bugs must match the Type Data (POH/AFM or aircraft specification) for the specific aircraft being modified.

> NOTE
>
> If the airspeed values are listed in the Type Data (POH/AFM) for both IAS and CAS, use the IAS values.

Table E-2 Advanced Airframe Specific Configuration Data – Basic Bugs

Bug	Description	POH/AFM Section	Notes
GLIDE	Glide speed	3 - Emergency Procedures	Optional. Set to 0 KT if not listed in the POH/AFM.
Vx	Best angle-of-climb speed	4 - Normal Procedures	Optional. Set to 0 KT if not listed in the POH/AFM. If there are two speeds listed (gear up/gear down), use the speed listed for gear down.
Vy	Best rate-of-climb speed	4 - Normal Procedures	Optional. Set to 0 KT if not listed in the POH/AFM. If there are two speeds listed (gear up/gear down), use the speed listed for gear up.
Vr	Rotation speed	4 - Normal Procedures	Optional. Typically set to rotation speed. Set to 0 KT if not listed in the POH/AFM.

Table E-3 Advanced Airframe Specific Configuration Data – Advanced Bugs

Bug	Description	POH/AFM Section	Audio Callout	Notes
V_1	Commit to fly speed	4 - Normal Procedures	Pilot Control or Disabled	[1] [2]
V_R	Rotation speed	4 - Normal Procedures	Pilot Control or Disabled	
V_2	Takeoff safety speed	4 - Normal Procedures	Pilot Control or Disabled	
V_{ENR}	One engine inoperative enroute climb speed	3 - Emergency Procedures	N/A	
V_{APP}	Approach speed	3 - Emergency Procedures	N/A	
V_{REF}	Landing reference speed	4 - Normal Procedures	N/A	

Notes:

[1] These speeds generally apply to only high-performance airplanes and must be calculated before each flight. The recommended default value is 0 KT.

[2] V_{ENR} may be renamed in accordance with the POH/AFM.

Takeoff Speed Declutter

Enable this setting to automatically disable takeoff bugs when airspeed passes the configured speed. The default is150 KT.

Audio Delay Adjustment

Optional setting that allows the audio callout to play ahead of the speed achieved based on the current airspeed trend. This can be used to account for delays in the audio processing of the aircraft installation that leads to delayed audio callout timing. The default is 0.0 SEC

E.5 Airspeed Markings

The information obtained in Table E-4 must be obtained for each installation. The POH/AFM column lists a suggested location for obtaining this information. If a marking is not defined for the aircraft, then it should be set as OFF.

NOTE

These markings must match the Type Data (POH/AFM or aircraft specification) for the specific aircraft being modified.

NOTE

If the airspeed values are listed in the Type Data (POH/AFM) for both IAS and CAS, use the IAS values.

Table E-4 Advanced Airframe Specific Configuration Data – Markings

Marking	Description	POH/AFM Section	Notes
Vle	Maximum landing gear extended speed	2 - Limitations	Set to OFF for fixed gear aircraft.
BLUE BAR	Typically marks the single engine best rate-of-climb speed for a twin-engine aircraft	3 - Emergency Procedures	Blue radial on ASI of light twins. Set to OFF for single-engine aircraft.
RED BAR	Typically marks the minimum controllable airspeed for twin-engine aircraft with only one engine operational (Vmca)	3 - Emergency Procedures	Lower red radial on ASI of light twins. Set to OFF for single-engine aircraft.
RED/WHITE BAR	Varies – sometimes used as a fixed point Vne marking	2 - Limitations	If a fixed Red/White bar (not a barber pole) is shown in the POH/AFM, set to given value. Else, set to OFF.
WHITE TRIANGLE	A small white triangle – meaning varies by airframe	2 - Limitations	If defined in POH/AFM, set to given value. Else, set to OFF.

E.6 Mach Configuration

For aircraft with a configured Mmo, the Mach Indication Threshold may be set in accordance with the AFM/POH. If no value is defined, leave set as the default value of M0.400.

The Mach Selection setting must be disabled unless model-specific data is provided in Appendix D or an appropriate installation manual addendum, if applicable.

E.7 Overspeeds

NOTE

The Overspeeds window does not appear unless Vne/Vmo/Mmo is set to “Variable” in the Airspeed Tape Ranges window.

E.7.1 Configuration

NOTE

If the POH/AFM defines multiple Vne points, and the last point defines Vne at the aircraft operating ceiling, the POH/AFM defined points must be used to configure the GDU.

NOTE

If the Vne is defined as varying with altitude, and the Vne at the operating ceiling is not defined, then the last ALT/IAS point entered must be calculated at the aircraft’s operating ceiling as a linear line from the last ALT/IAS point. In all cases, the last point entered must define Vne/Vmo at the operating ceiling.

If the aircraft has a designated Mmo and Mmo Level, or is specified as having a Vne/Vmo that varies with altitude, set the Vne/Vmo/Mmo selection to Variable and configure the GDU airspeed tape to the aircraft specifications using the Enter Overspeeds selection, shown in Figure E-3. If only the Mmo/Mmo Level or the variable Vne is defined, then those fields that are undefined, respectively, should be set to OFF.

The Mmo and Mmo Level fields define a minimum altitude where Mmo is a limiting factor on performance. Above the Mmo Level, Mmo may define the start of the barber pole. If the Mmo is defined but the Mmo Level is not, set the Mmo Level to 0 FT. The Vne/Vmo altitude and IAS section defines limitations on IAS at specified altitudes. The first ALT/IAS point entered will define Vne/Vmo at all altitudes below the altitude specified.

If Vne/Vmo is only defined once, then this single point should be entered with the ALT field being the aircraft’s operating ceiling.

However, if Vne/Vmo is defined as varying with altitude, then at least two points will be required – the last two of which will define a linear line for all altitudes past the last point entered. As such, the last point entered must define Vne/Vmo at the aircraft’s operating ceiling.

These overspeed configurations must match the Type Data (POH/AFM) for the specific aircraft being modified.

Figure E-3 Enter Overspeeds Configuration

E.7.2 Overspeed Exceedances

Overspeed exceedance settings may be optionally configured by touching Overspeed Exceedance, shown in Figure E-4.

Activation Threshold and Deactivation Threshold define the speed above calculated Vmo where the system begins/stops recording an airspeed exceedance. Exceedance Debounce defines the amount of time the airspeed must exceed the activation threshold for an exceedance recording to begin.

Activation and deactivation thresholds must be set between 0 and 4 kts. If an Airspeed Switch discrete output is configured (refer to Section 5.4.30) and is active when greater than Vne/Vmo/Mmo, it is recommended that the activation threshold match the airspeed switch offset.

The exceedance debounce must be set between 0 and 5 seconds. A 5-second debounce is recommended unless otherwise specified by the aircraft POH/AFM.

Figure E-4 Overspeed Exceedance Configuration

E.7.3 Overspeeds Configuration Examples

Example 1

An example Columbia 400 POH/AFM, in Section 2, Limitations, defines Vne as 230 KIAS and at FL250 as 174 KIAS. As such, the configuration should be entered as follows:

- 12,000FT at 230KT
- 25,000FT at 174KT

Example 2

Hypothetically, if the Vne was not defined at the operating ceiling, the configuration would then rely on the POH/AFM Section 2, Limitations, statement that Vne decreases by 4.4 KT per 1,000 feet of altitude above 12,000 feet. Here the calculation for Vne at the aircraft operating ceiling would be:

Vne= 230 KT – [(25,000FT – 12,000FT) * 4.4 KT / 1,000 FT] = 172.8 KT

As such, the configuration entered would be:

- 12,000FT at 230KT
- 25,000FT at 172KT

E.8 GDU Airspeed Tape Configuration Examples

This section compares two examples of GDU airspeed tape configuration with their respective existing ASI configuration and tape definitions.

> NOTE
> In all cases, the specific aircraft's Type Data (POH/AFM) must be considered the definitive source for Arc Range, Marking, and Bug configuration values.

E.8.1 Beechcraft Bonanza A36 (Example)

AFM Definitions

Marking	Value	AFM Section
White arc Green arc Yellow arc Red line	56-123 KIAS 62-166 KIAS 166-204 KIAS 204 KIAS	2 - Limitations
Vle	153 KIAS	2 - Limitations
Glide	110 KIAS	3 - Emergency Procedures
Vr Vx Vy	70 KIAS 78 KIAS 96 KIAS	4 - Normal Procedures

CURRENT ASI

Figure E-5 Current ASI and Tape Markings

Figure E-6 Equivalent IAS Tape and Airspeed Configuration Page

E.8.2 Columbia 400 (Example)

POH/AFM Definitions

Marking	Value	POH/AFM Section
White arc	60-117 KIAS	2 - Limitations
Green arc	73-181 KIAS	
Yellow arc	181-230 KIAS	
Red line	230 KIAS	
Glide	108 KIAS	3 - Emergency Procedures
Vr	110 KIAS	4 - Normal Procedures
Vx	82 KIAS	
Vy	110 KIAS	
Vne [1]	230 KIAS	2 - Limitations
Vne @ FL250	174 KIAS	

[1] Decrease 4.4 knots for each 1000 feet above 12,000 feet (Press. Alt.)

CURRENT ASI

Figure E-7 Current ASI and Tape Markings

Vne = 230 KT @ FL075

Vne = 213 KT @ FL160

Figure E-8 Equivalent IAS Tape and Airspeed Configuration Page

APPENDIX F EIS GAUGE LAYOUT

This appendix provides the approved EIS gauge layouts for the GDU. Any deviation from these layouts will require the installer to obtain additional approval. The gauge layouts will differ depending on the display type and the number of engines. A default gauge layout is provided for when the Gauge page is initially accessed. Configuration templates are available for select models. Refer to the notes in Table D-38 for applicability and to Section 5.1.4.1 for template loading. These default layouts and configuration must be modified as instructed in this appendix.

The following sections are organized as follows:

1. Engine Type - Reciprocating or Turboprop.
2. GDU Variant - GDU 700P, GDU 700L, or GDU 1060/1210.
3. GDU Configuration - EIS display, MFD/EIS display, etc.
4. Number of engines - Single engine or twin engines.

F.1 Reciprocating Engine EIS Layouts

F.1.1 GDU 700P

F.1.1.1 GDU 700P EIS Displays

Selecting the gauge layout for all GDU 700P EIS displays is accomplished in three steps. First, the dial type gauge style is selected. Next, the dial type gauges are placed on the EIS display. Finally, depending on the placement of the dial type gauges, the remaining gauges are placed on the display for the final layout.

The dial type gauge style is selected by touching Alternate Layouts on the Gauge page. Two gauge styles are available for selection: Round Gauges (default) or Arc Gauges.

Figure F-1 GDU 700P EIS Dial Type Gauge Style Selection

The following example can be used as a guide for gauge placement on a GDU 700P EIS display:

1. Select the dial type gauges that are applicable to the specific EIS installation from Table F-1.
2. Find the column that contains only the gauges selected in step 1.
3. Identify the sub-group (A.3) and then the main-group (A) of the column from step 2. This determines the dial type gauge placement within the GDU 700 EIS.

Table F-1 GDU 700P EIS Example (Steps 1 thru 3)

Y/N	Group		A						B				
	Sub-Group	A.1	A.2	A.3	B.1	B.2	B.3	B.4	B.5	B.6	B.7	B.8	B.9
ðü	Manifold Pressure	x	x	x	x	x	x	x					
ðü	Propeller RPM	x	x	x	x	x	x	x	x	x	x		
ðü	Fuel Flow	x	x	x	x	x	x	x	x	x	x		
ðü	Oil Press	x	x	x	x	x	x	x	x	x			
ðü	Oil Temp	x	x	x	x	x	x	x	x				
ðü	Fuel Press	x	x	x	x								
	IAT	x				x							
	CDT		x										
ðü	Carb Temp			x									

4. Now using only the table associated to the main group (A) identified in step 3, select the remaining gauges that are applicable to the installation.
5. Identify the sub-group (A.7) that only contains the gauges selected in step 4.

Table F-2 GDU 700P EIS Example (Steps 4 and 5)

Y/N	Sub-Group	A.4	A.5	A.6	A.7	A.8
	IAT/CDT Diff					
ðü	Main Fuel Qty	x		x	x	x
	Aux Fuel Qty	x		x		
ðü	Volts Amps	x	x		x	

Y/N	Sub-Group	B.10	B.11	B.12	B.13	B.14
	IAT/CDT Diff	x	x	x	x	
	Main Fuel Qty	x	x	x		
	Aux Fuel Qty	x	x			
	Volts / Amps	x				

6. Figure F-2 shows the final layout.

Figure F-2 GDU 700P EIS Example Gauge Placement

The following notes apply when working through the layouts for the GDU 700P EIS displays in this appendix.

- Unless noted otherwise, any/all gauges that are not a required gauge for EIS per the G500/G600 TXi STC may be replaced by Pilot-Select gauges or empty gauge positions.
- Only a single instance of each engine parameter can be present (e.g., if the dial type IAT gauge is selected then the IAT/CDT Diff gauge cannot also be selected).

F.1.1.1.1 GDU 700P EIS Display for Single Reciprocating Engine

After selecting the dial type gauge style, work through Table F-3 and Table F-4 as described in Appendix Section F.1.1.1. Find the corresponding layout using Figure F-3 through Figure F-5.

Table F-3 GDU 700P EIS Single Engine - Dial Type Gauges

Y/N	Group		A						B						C		
	Sub-Group	A.1	A.2	A.3	B.1	B.2	B.3	B.4	B.5	B.6	B.7	B.8	B.9	C.1	C.2	C.3	C.4
ðq	Manifold Pressure	x	x	x	x	x	x	x						x			
ðqð	Propeller RPM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x	x	x				x	x	x				x		
ðq	IAT	x				x			x			x					
ðq	CDT		x				x			x			x				
ðq	Carb Temp			x				x			x					x	

Table F-4 GDU 700P EIS Single Engine - Remaining Gauges

Y/N	Sub-Group	A.4	A.5	A.6	A.7	A.8
ðq	IAT/CDT Diff					
ðq	Main Fuel Qty	x		x	x	x
ðq	Aux Fuel Qty	x		x		
ðq	Volts Amps	x	x		x	

NOTE

Use the B.XX sub-groups for both Group B and Group C.

Y/N	Sub-Group	B.10	B.11	B.12	B.13	B.14	B.15	B.16	B.17	B.18	B.19	B.20
ðq	IAT/CDT Diff	x	x	x	x	x	x					
ðq	Main Fuel Qty	x	x	x	x			x	x		x	x
ðq	Aux Fuel Qty	x	x					x			x	
ðqð	Volts / Amps	x			x	x		x	x	x		

(A)

(A.4)

(A.1)

(A.5)

AUX / TIP

(A.2)

(A.6)

(A.6)

(A.7)

(A.8)

Figure F-3 GDU 700P EIS Single Engine Group (A)

(B)

(B.1) (B.2) (B.3)

(B.10) (B.11) (B.12) (B.13)

(B.4) (B.5) (B.6)

Gauge Position Left Empty

Gauge Position Left Empty

(B.14) (B.15) (B.16) (B.17) (B.18) (B.19) (B.20)

(B.7) (B.8) (B.9)

Figure F-4 GDU 700P EIS Single Engine Group (B)

(C)

(C.1)

Gauge Position
Left Empty

(C.2)

Gauge Position
Left Empty

Gauge Position
Left Empty

Same as the
(B.XX)
layouts

(C.3)

Gauge Position
Left Empty

Gauge Position
Left Empty

(C.4)

Gauge Position
Left Empty

Figure F-5 GDU 700P EIS Single Engine Group (C)

F.1.1.1.2 GDU 700P EIS Display for Twin Reciprocating Engines

After selecting the dial type gauge style, work through Table F-5 and Table F-6 as described in Appendix Section F.1.1.1. Find the corresponding layout using Figure F-6 through Figure F-8.

Table F-5 GDU 700P EIS Twin Engine - Dial Type Gauges

Y/N	Group	D			E				F
	Sub-Group	D.1	D.2	D.3	E.1	E.2	E.3	E.4	F.1
ðq	Manifold Pressure	x	x	x	x	x	x	x	x
ðqð	Propeller RPM	x	x	x	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x	x	x	x
ðq	Oil Press	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x	x	x				
ðq	IAT	x				x			
ðq	CDT		x				x		
ðq	Carb Temp			x				x	

Table F-6 GDU 700P EIS Twin Engine - Remaining Gauges

Y/N	Sub-Group	D.4	D.5	D.6	D.7
ðq	IAT/CDT Diff				
ðq	Main Fuel Qty	x	x		x
ðq	Aux Fuel Qty				x
ðq	Volts / Amps	x		x	

Y/N	Sub-Group	E.5	E.6	E.7	E.8	E.9	E.10	E.11	E.12	E.13	E.14
ðq	IAT/CDT Diff	x	x	x	x			x			
ðq	Main Fuel Qty	x	x	x		x			x	x	x
ðq	Aux Fuel Qty		x						x		x
ðq	Volts / Amps	x			x		x		x	x	

Y/N	Sub-Group	F.2	F.3	F.4	F.5	F.6	F.7	F.8	F.9	F.10	F.11	F.12
ðq	IAT/CDT Diff	x	x	x	x	x	x					
ðq	Main Fuel Qty	x	x	x	x			x	x	x	x	
ðq	Aux Fuel Qty	x	x					x		x		
ðq	Volts / Amps	x		x		x		x	x			x

(D)

(D.1) (D.2)

(D.3)

(D.4) (D.5) (D.6) (D.7)

Figure F-6 GDU 700P EIS Twin Engine Group (D)

(E)

(E.5) (E.6)

(E.1) (E.2)

(E.7) (E.8)

(E.3) (E.4)

(E.9) (E.10) (E.11) (E.12) (E.13) (E.14)

Figure F-7 GDU 700P EIS Twin Engine Group (E)

(F)

(F.1)

(F.2) (F.3) (F.4) (F.5) (F.6)

(F.7) (F.8) (F.9) (F.10) (F.11) (F.12)

Figure F-8 GDU 700P EIS Twin Engine Group (F)

F.1.1.2 GDU 700P MFD/EIS Display

Selecting the gauge layout for all GDU 700P MFD/EIS displays is accomplished in three steps. First, the dial type gauge style is selected. Next, the dial type gauges and the Fuel Flow strip are positioned within the EIS display. Finally, the strip type gauges are placed within the EIS display for the final layout.

The dial type gauge style is selected by touching Alternate Layouts on the Gauge page. Two gauge styles are available for selection: Round Gauges (default) or Arc Gauges.

Figure F-9 GDU 700P MFD/EIS Dial Type Gauge Style Selection

The following example can be used as a guide for the actual gauge placement:

1. Select the dial type gauges that are applicable to the specific EIS installation from Table F-7—up to three total gauge selections.
2. Find the column that contains only the gauges selected in step 1.
3. Identify the group (W.2) of the column from step 2. This determines the dial type gauges and Fuel Flow gauge placement within the GDU 700P MFD/EIS display.

Table F-7 GDU 700P MFD/EIS Example (Steps 1 thru 3)

Y/N	Group	W.1	W.2	W.3
	Manifold Pressure	x		
ðP	Propeller RPM	x	x	x
ðP	Fuel Flow	x	x	x
ðP	Fuel Press		x	
	Carb Temp			x

4. Now using Table F-8, select the remaining gauges that are applicable to the EIS installation—up to six total gauge selections.
5. Identify the very first column that contains all the gauges selected in step 4 (any additional gauges present in the column will not be configured on the EIS strip).

Table F-8 GDU 700P MFD/EIS Example (Steps 4 and 5)

Y/N	Group	W.6	W.7	W.8
ðP	Primary EGT	x	x	x
	TIT			
ðP	CHT	x	x	x
ðP	Carb Temp	x	x	x
ðP	Oil Press	x	x	x
ðP	Oil Temp	x	x	x
	Fuel Press	x		
	IAT			
	CDT			
	IAT/CDT Diff			
ðP	Main Fuel Qty		x	
	Aux Fuel Qty			
	Volts / Amps			x

In this example, group W.2 and group W.7 (see Figure F-10) determined the final layout of the EIS gauge placement.

(W.2)

(W.7)

Figure F-10 GDU 700P MFD/EIS Gauge Placement

The following notes apply to all GDU 700 MFD/EIS gauge layouts:

- Unless noted otherwise, any/all gauges that are not a required gauge for EIS per the G500/G600 TXi STC may be replaced by empty (no gauge) positions.
- Only a single instance of each engine parameter can be present (e.g., if the IAT gauge is selected, then the IAT/CDT Diff gauge cannot also be selected).
- If no limitation markings are associated with the Fuel Flow gauge, it may be placed on the MFD EIS page (instead of the primary EIS window).

If the Oil Press and Oil Temp gauges are desired to be viewed as a dial style gauge (in addition to being placed on the primary EIS window as a bar gauge), they can be placed on the MFD EIS (Engine) page.

F.1.1.2.1 GDU 700P MFD/EIS Display for Single Reciprocating Engine

After selecting the dial type gauge style, work through Table F-9, Table F-10, Table F-11, and Table F-12 as described in Appendix Section F.1.1.2. Find the corresponding layout using Figure F-11.

Table F-9 GDU 700P MFD/EIS - Dial Type Gauges

Y/N	Group	W.1	W.2	W.3	W.4	W.5
ðq	Manifold Pressure	x				
ðq	Propeller RPM	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x
ðq	Fuel Press		x			
ðq	Carb Temp			x		
ðq	Main Fuel Qty				x [1]	

Notes:

[1] If Main Fuel Qty is configured as a primary dial gauge, use Table F-12 to configure the Aux/Tip Fuel gauge.

Table F-10 GDU 700P MFD/EIS - Remaining Gauges (Sheet 1 of 3)

Y/N	Group	W.6	W.7	W.8	W.9	W.10	W.11	W.12	W.13	W.14	W.15	W.16	W.17	W.18	W.19	W.20	W.21	W.22	W.23	W.24	W.25	W.26	W.27	W.28
ðq	Primary EGT	x	x	x	x	x	x	x	x	x	x													
ðq	TIT/Dual TIT											x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x																				
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x			x			x	x			x			x			x			x	x		
ðq	IAT				x	x	x					x	x	x										
ðq	CDT														x	x	x							
ðq	IAT/CDT Diff																	x	x	x				
ðq	Main Fuel Qty		x			x		x		x	x		x			x			x		x		x	x
ðq	Aux Fuel Qty									x													x	
ðq	Volts /Amps			x			x		x		x			x			x			x		x		x

Figure F-11 GDU 700P MFD/EIS (Group W)
Sheet 1 of 3

Table F-11 GDU 700P MFD/EIS - Remaining Gauges (Sheet 2 of 3)

Y/N	Group	W.29	W.30	W.31	W.32	W.33	W.34	W.35	W.36	W.37	W.38	W.39
ðq	Primary EGT											
ðq	TIT/Dual TIT											
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x	x							
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x			x	x		x	x		
ðq	IAT								x	x	x	x
ðq	CDT											
ðq	IAT/CDT Diff											
ðq	Main Fuel Qty	x		x	x	x	x	x	x		x	x
ðq	Aux Fuel Qty				x	x		x			x	
ðq	Volts /Amps		x	x			x	x		x		x

Figure F-11 GDU 700P MFD/EIS (Group W)
Sheet 2 of 3

Table F-12 GDU 700P MFD/EIS - Remaining Gauges (Sheet 3 of 3) *

Y/N	Group	W.40	W.41	W.42	W.43	W.44	W.45	W.46	W.47	W.48	W.49	W.50	W.51	W.52	W.53
ðq	Primary EGT	x	x	x	x										
ðq	TIT/Dual TIT					x	x	x	x	x					
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x									x	x			
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press			x					x		x		x	x	
ðq	IAT		x			x								x	x
ðq	CDT						x								
ðq	IAT/CDT Diff							x							
ðq	Main Fuel Qty														
ðq	Aux Fuel Qty	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Volts /Amps				x					x		x	x		x

*Only use this table if Main Fuel Qty is configured as shown in Table F-9, W.4.

Figure F-11 GDU 700P MFD/EIS (Group W)
Sheet 3 of 3

F.1.2 GDU 700L

F.1.2.1 GDU 700L EIS Display

Selecting the gauge layout for all GDU 700L EIS displays is accomplished in three steps. First, the dial type gauge style is selected. Next, the dial type gauges are placed on the EIS display. Finally, depending on the placement of the dial type gauges, the remaining gauges are placed on the display for the final layout.

The dial type gauge style is selected by touching Alternate Layouts on the Gauge page. Two gauge styles are available for selection: Round Gauges (default) or Arc Gauges.

Figure F-12 GDU 700P EIS Dial Type Gauge Style Selection

The following example can be used as a guide for gauge placement on GDU 700L EIS display:

1. Select the dial type gauges that are applicable to the specific EIS installation from Table F-13.
2. Find the column that contains only the gauges selected in step 1.
3. Identify the sub-group (G.3) and then the main-group (G) of the column from step 2. This determines the dial type gauge placement within the GDU 700L EIS display.

Table F-13 GDU 700P EIS Example (Steps 1 thru 3)

Y/N	Group	G			H								
	Sub-Group	G.1	G.2	G.3	H.1	H.2	H.3	H.4	H.5	H.6	H.7	H.8	H.9
ðü	Manifold Pressure	x	x	x	x	x	x	x					
ðü	Propeller RPM	x	x	x	x	x	x	x	x	x	x		
ðü	Fuel Flow	x	x	x	x	x	x	x	x	x	x		
ðü	Oil Press	x	x	x	x	x	x	x	x	x			
ðü	Oil Temp	x	x	x	x	x	x	x	x				
ðü	Fuel Press	x	x	x	x								
	IAT	x				x							
	CDT		x										
ðü	Carb Temp			x									

4. Now using only the table associated to the main group (G) identified in step 3, select the remaining gauges that are applicable to the installation.
5. Identify the sub-group (G.7) that only contains the gauges selected in step 4.

Table F-14 GDU 700P EIS Example (Steps 4 and 5)

Y/N	Sub-Group	G.4	G.5	G.6	G.7	G.8
	IAT/CDT Diff					
ðü	Main Fuel Qty	x		x	x	x
	Aux Fuel Qty	x		x		
ðü	Volts Amps	x	x		x	

Y/N	Sub-Group	H.10	H.11	H.12	H.13	H.14
	IAT/CDT Diff	x	x	x	x	
	Main Fuel Qty	x	x	x		
	Aux Fuel Qty	x	x			
	Volts / Amps	x				

6. Figure F-13 shows the final layout.

(G.3)

(G.7)

Figure F-13 GDU 700L EIS Example Gauge Placement

The following notes apply when working through the layouts for the GDU 700L EIS displays in this appendix.

- Unless noted otherwise, any/all gauges that are not a required gauge for EIS per the G500/G600 TXi STC may be replaced by Pilot-Select gauges or empty gauge positions.
- Only a single instance of each engine parameter can be present (e.g., if the dial type IAT gauge is selected then the IAT/CDT Diff gauge cannot also be selected).

F.1.2.1.1 GDU 700L EIS Display for Single Reciprocating Engine

After selecting the dial type gauge style, work through Table F-15 and Table F-16 as described in Appendix Section F.1.2.1. Find the corresponding layout using Figure F-14 through Figure F-16.

Table F-15 GDU 700L EIS Single Engine - Dial Type Gauges

Y/N	Group	G			H									K			
	Sub-Group	G.1	G.2	G.3	H.1	H.2	H.3	H.4	H.5	H.6	H.7	H.8	H.9	K.1	K.2	K.3	K.4
ðq	Manifold Pressure	x	x	x	x	x	x	x						x			
ðqð	Propeller RPM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x	x	x				x	x	x				x		
ðq	IAT	x				x			x			x					
ðq	CDT		x				x			x			x				
ðq	Carb Temp			x				x			x					x	

Table F-16 GDU 700L EIS Single Engine - Remaining Gauges

Y/N	Sub-Group	G.4	G.5	G.6	G.7	G.8
ðq	IAT/CDT Diff					
ðq	Main Fuel Qty	x		x	x	x
ðq	Aux Fuel Qty	x		x		
ðq	Volts / Amps	x	x		x	

Y/N	Sub-Group	H.10	H.11	H.12	H.13	H.14	H.15	H.16	H.17	H.18	H.19	H.20
ðq	IAT/CDT Diff	x	x	x	x	x	x					
ðqð	Main Fuel Qty	x	x	x	x			x	x		x	x
ðq	Aux Fuel Qty	x	x					x			x	
ðq	Volts / Amps	x			x	x		x	x	x		

(G)

(G.1)

(G.4)

(G.5)

(G.2)

(G.6)

(G.7)

(G.3)

(G.8)

Figure F-14 GDU 700L EIS Single Engine Group (G)

(H)

(H.10)

(H.1) (H.2) (H.3)

(H.11) (H.12) (H.13)

(H.4) (H.5) (H.6)

(H.14) (H.15) (H.16)

Gauge Position Left Empty

Gauge Position Left Empty

(H.7) (H.8) (H.9)

(H.17) (H.18) (H.19) (H.20)

Figure F-15 GDU 700L EIS Single Engine Group (H)

(K)

(K.1)

Gauge Position Left Empty

(K.2)

Gauge Position Left Empty

Gauge Position Left Empty

Same as the (H.XX) layouts

(K.3)

Gauge Position Left Empty

Gauge Position Left Empty

(K.4)

Gauge Position Left Empty

Figure F-16 GDU 700L EIS Single Engine Group (K)

F.1.2.1.2 GDU 700L EIS Display for Twin Reciprocating Engines

After selecting the dial type gauge style, work through Table F-17 and Table F-18 as described in Appendix Section F.1.2.1. Find the corresponding layout using Figure F-17 through Figure F-19.

Table F-17 GDU 700L EIS Twin Engine - Dial Type Gauges

Y/N	Group	L			M				N
	Sub-Group	L.1	L.2	L.3	M.1	M.2	M.3	M.4	N.1
ðq	Manifold Pressure	x	x	x	x	x	x	x	x
ðqð	Propeller RPM	x	x	x	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x	x	x	x
ðq	Oil Press	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x	x	x				
ðq	IAT	x				x			
ðq	CDT		x				x		
ðq	Carb Temp			x				x	

Table F-18 GDU 700L EIS Twin Engine - Remaining Gauges

Y/N	Sub-Group	L.4	L.5	L.6	L.7
ðq	IAT/CDT Diff				
ðq	Main Fuel Qty	x		x	x
ðq	Aux Fuel Qty				x
ðq	Volts / Amps	x	x		

Y/N	Sub-Group	M.5	M.6	M.7	M.8	M.9	M.10	M.11	M.12	M.13	M.14
ðq	IAT/CDT Diff	x	x	x	x			x			
ðq	Main Fuel Qty	x	x	x		x			x	x	x
ðq	Aux Fuel Qty		x						x		x
ðq	Volts / Amps	x			x		x		x	x	

Y/N	Sub-Group	N.2	N.3	N.4	N.5	N.6	N.7	N.8	N.9	N.10	N.11	N.12
ðq	IAT/CDT Diff	x	x	x	x	x	x					
ðq	Main Fuel Qty	x	x	x	x			x	x	x	x	
ðq	Aux Fuel Qty	x	x					x		x		
ðq	Volts / Amps	x		x		x		x	x			x

(L)

(L.1)

(L.4) (L.5)

(L.2)

(L.6) (L.7)

(L.3)

Figure F-17 GDU 700L EIS Twin Engine Group (L)

(M)

(M.1)

(M.5) (M.6)

(M.2)

(M.7) (M.8)

(M.9) (M.10)

(M.11) (M.12)

(M.3)

(M.13) (M.14)

(M.4)

Figure F-18 GDU 700L EIS Twin Engine Group (M)

(N)

(N.2)

(N.1)

(N.3)

(N.4) (N.5) (N.6)

(N.7) (N.8) (N.9)

(N.10) (N.11) (N.12)

Figure F-19 GDU 700L EIS Twin Engine Group (N)

F.1.2.2 GDU 700L MFD/EIS

Selecting the gauge layout for all GDU 700L MFD/EIS displays is accomplished in three steps. First, the dial type gauge style is selected. Next, the dial type and the Fuel Flow strip are positioned within the EIS display. Finally, the strip type gauges are placed within the EIS display for the final layout.

The dial type gauge style is selected by touching Alternate Layouts on the Gauge page. Two gauge styles are available for selection: Round Gauges (default) or Arc Gauges.

Figure F-20 GDU 700L MFD/EIS Dial Type Gauge Style Selection

The following example can be used as a guide for the actual gauge placement:

1. Select the dial type gauges that are applicable to the specific EIS installation from Table F-19—up to three total gauge selections.
2. Find the column that contains only the gauges selected in step 1.
3. Identify the group (V.2) of the column from step 2. This determines the dial type gauges and Fuel Flow gauge placement within the GDU 700L MFD/EIS display.

Table F-19 GDU 700L MFD/EIS Example (Steps 1 thru 3)

Y/N	Group	V.1	V.2	V.3
	Manifold Pressure	x		
ðP	Propeller RPM	x	x	x
ðP	Fuel Flow	x	x	x
ðP	Fuel Press		x	
	Carb Temp			x

4. Now using Table F-20, select the remaining gauges that are applicable to the EIS installation—up to six total gauge selections.
5. Identify the very first column that contains all the gauges selected in step 4 (any additional gauges present in the column will not be configured on the EIS strip).

Table F-20 GDU 700L MFD/EIS Example (Steps 4 and 5)

Y/N	Group	V.6	V.7	V.8
ðP	Primary EGT	x	x	x
	TIT			
ðP	CHT	x	x	x
ðP	Carb Temp	x	x	x
ðP	Oil Press	x	x	x
ðP	Oil Temp	x	x	x
	Fuel Press	x		
	IAT			
	CDT			
	IAT/CDT Diff			
ðP	Main Fuel Qty		x	
	Aux Fuel Qty			
	Volts / Amps			x

In this example, group V.2 and group V.7 (see Figure F-21) determined the final layout of the EIS gauge placement.

(V.2) (V.7)

Figure F-21 GDU 700L MFD/EIS Example Gauge Placement

The following notes apply to all GDU 700L MFD/EIS gauge layouts:

- Unless noted otherwise, any/all gauges that are not a required gauge for EIS per the G500/G600 TXi STC may be replaced by empty (no gauge) positions.
- Only a single instance of each engine parameter can be present (e.g., if the IAT gauge is selected, then the IAT/CDT Diff gauge cannot also be selected).
- If no limitation markings are associated with the Fuel Flow gauge, it may be placed on the MFD EIS page (instead of the primary EIS window).

If the Oil Press and Oil Temp gauges are desired to be viewed as a dial style gauge (in addition to being placed on the primary EIS window as a bar gauge), they can be placed on the MFD EIS (Engine) page.

F.1.2.2.1 GDU 700L MFD/EIS Display for Single Reciprocating Engine

After selecting the dial type gauge style, work through Table F-21, Table F-22, Table F-23, and Table F-24 as described in Appendix Section F.1.2.2. Find th corresponding layout using Figure F-22.

Table F-21 GDU 700L MFD/EIS - Dial Type Gauges

Y/N	Group	V.1	V.2	V.3	V.4	V.5
ðq	Manifold Pressure	x				
ðq	Propeller RPM	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x
ðq	Fuel Press		x			
ðq	Carb Temp			x		
ðq	Main Fuel Qty				x [1]	

Notes:

[1] If Main Fuel Qty is configured, use Table F-24 to configure the Aux/Tip Fuel gauge.

Table F-22 GDU 700L MFD/EIS - Remaining Gauges (Sheet 1 of 3)

Y/N	Group	V.6	V.7	V.8	V.9	V.10	V.11	V.12	V.13	V.14	V.15	V.16	V.17	V.18	V.19	V.20	V.21	V.22	V.23	V.24	V.25	V.26	V.27	V.28
ðq	Primary EGT	x	x	x	x	x	x	x	x	x	x													
ðq	TIT/Dual TIT											x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x																				
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x			x			x	x			x			x			x			x	x		
ðq	IAT				x	x	x					x	x	x										
ðq	CDT														x	x	x							
ðq	IAT/CDT Diff																	x	x	x				
ðq	Main Fuel Qty		x			x		x		x	x		x			x			x		x		x	x
ðq	Aux Fuel Qty									x													x	
ðq	Volts /Amps			x			x		x		x			x			x			x		x		x

Figure F-22 GDU 700L MFD/EIS (Group V)
Sheet 1 of 3

Table F-23 GDU 700L MFD/EIS - Remaining Gauges (Sheet 2 of 3)

Y/N	Group	V.29	V.30	V.31	V.32	V.33	V.34	V.35	V.36	V.37	V.38	V.39
ðq	Primary EGT											
ðq	TIT/Dual TIT											
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x	x							
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x			x	x		x	x		
ðq	IAT								x	x	x	x
ðq	CDT											
ðq	IAT/CDT Diff											
ðq	Main Fuel Qty	x		x	x	x	x	x	x		x	x
ðq	Aux Fuel Qty				x	x		x			x	
ðq	Volts /Amps		x	x			x	x		x		x

Figure F-22 GDU 700L MFD/EIS (Group V)
Sheet 2 of 3

Table F-24 GDU 700L MFD/EIS - Remaining Gauges (Sheet 3 of 3) *

Y/N	Group	V.40	V.41	V.42	V.43	V.44	V.45	V.46	V.47	V.48	V.49	V.50	V.51	V.52	V.53
ðq	Primary EGT	x	x	x	x										
ðq	TIT/Dual TIT					x	x	x	x	x					
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x									x	x			
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press			x					x		x		x	x	
ðq	IAT		x			x								x	x
ðq	CDT						x								
ðq	IAT/CDT Diff							x							
ðq	Main Fuel Qty														
ðq	Aux Fuel Qty	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Volts /Amps				x					x		x	x		x

*Only use this table if Main Fuel Qty is configured as shown in Table F-21, V.4.

Figure F-22 GDU 700L MFD/EIS (Group V)
Sheet 3 of 3

F.1.3 GDU 1060/1210

F.1.3.1 GDU 1060/1210 PFD/MFD/EIS and MFD/MFD/EIS Displays

Selecting the gauge layout for all GDU 1060/1210 EIS displays is accomplished in three steps. First, the dial type gauge style is selected. Next, the dial type and the Fuel Flow strip are positioned within the EIS display. Finally, the strip type gauges are placed within the EIS display for the final layout.

The dial type gauge style is selected by touching Alternate Layouts on the Gauge page. Two gauge styles are available for selection: Round Gauges (default) or Arc Gauges.

Figure F-23 GDU 1060/1210 Dial Type Gauge Style Selection

The following example can be used as a guide for the actual gauge placement:

1. Select the dial type gauges that are applicable to the specific EIS installation from Table F-25—up to three total gauge selections.
2. Find the column that contains only the gauges selected in step 1.
3. Identify the group (T.2) of the column from step 2. This determines the dial type gauges and Fuel Flow gauge placement within the GDU 1060/1210 EIS.

Table F-25 GDU 1060/1210 Single Engine Example (Steps 1 thru 3)

Y/N	Group	T.1	T.2	T.3
	Manifold Pressure	x		
ðP	Propeller RPM	x	x	x
ðP	Fuel Flow	x	x	x
ðP	Fuel Press		x	
	Carb Temp			

4. Now using Table F-26, select the remainder of the gauges that are applicable to the EIS installation—up to seven total gauge selections.
5. Identify the very first column that contains all the gauges selected in step 4 (any additional gauges present in the column will not be configured on the EIS strip).

Table F-26 GDU 1060/1210 Single Engine Example (Step 4 and 5)

Y/N	Group	T.5	T.6
ðP	Primary EGT	x	x
	TIT		
ðP	CHT	x	x
ðP	Carb Temp	x	x
ðP	Oil Press	x	x
ðP	Oil Temp	x	x
	Fuel Press	x	x
	IAT		
	CDT		
	IAT/CDT Diff		
ðP	Main Fuel Qty	x	
	Aux Fuel Qty		
	Volts / Amps		x

In this example, group T.2 and group T.5 (see Figure F-24) determined the final layout of the EIS gauge placement. The additional indication of fuel pressure from the strip format is removed from the configuration.

(T)

a. Incorrect Layout (Empty position intermixed with defined gauges)

b. Correct Layout (Empty position placed at the bottom of EIS strip)

Group (T.5)

(T.2)

The additional Fuel Pressure indication is not selected to be displayed

Figure F-24 GDU 1060/1210 Gauge Placement

The following notes apply to all GDU 1060/1210 gauge layouts:

a. Unless noted otherwise, any/all gauges that are not a required gauge for EIS per the G500/G600 TXi STC may be replaced by empty (no gauge) positions.

b. Defined gauges and empty positions should not be intermixed during placement within the EIS strip, as shown in Figure F-24 (example a).

c. Empty gauge positions must occupy the GDU 1060/1210 starting from the bottom and moving upward within the EIS strip, as shown in Figure F-24 (example b).

d. Only a single instance of each engine parameter can be present (e.g., if the dial type IAT gauge is selected, then the IAT/CDT Diff gauge cannot also be selected).

e. If no limitation markings are associated with the Fuel Flow gauge, it may be placed on the MFD EIS page (instead of the main EIS strip), as shown in Figure F-25.

f. If the Oil Press and Oil Temp gauges are desired to be viewed as a dial style gauge (in addition to being placed on the EIS strip), they can be placed on the MFD EIS (Engine) page, as shown in Figure F-25.

Fuel Flow gauge w/o limitation markings
Single Engine

Fuel Flow gauge w/o limitation markings
Twin Engine

Gaug e Position Left Empty

Figure F-25 GDU 1060/1210 MFD Engine Page Dial Style Gauges

F.1.3.1.1 GDU 1060/1210 for Single Reciprocating Engine

Two GDU 1060/1210 EIS Strip gauge layouts are available depending on aircraft requirements. Touch EIS !’ Gauge !’ Alternate Layout to change the layout.

The “Alpha” layout displays two primary dial gauges and seven secondary bar gauges.

The “Bravo” layout displays three primary dial gauges and five secondary bar gauges. Both layouts include the vertical bar gauge.

After selecting the dial type gauge style and the “Alpha” or “Bravo” layout, work through Table F-27 and Table F-28 as described in Appendix Section F.1.3.1. Find the corresponding layout using Figure F-26. Use columns T.XB for Bravo layouts. Configure the gauges in the vertical order they are presented in Table F-27 or in the same arrangement as the original gauges if the original gauges were in a horizontal or vertical arrangement. Fuel Flow will always occupy the vertical bar gauge.

Table F-27 GDU 1060/1210 Single Engine - Dial Type Gauges

Y/N	Group	T.1	T.2	T.3	T.4	T.1B	T.2B	T.3B	T.4B
ðq	Manifold Pressure	x				x	x	x	
ðq	Propeller RPM	x	x	x	x	x	x	x	x
ðq	Fuel Flow	x	x	x	x	x	x	x	x
ðq	Fuel Press		x				x		x
ðq	Carb Temp			x				x	x
ðq	Horsepower [1]					x			

Notes:

[1] Cirrus SR20 and SR22 models only.

For Bravo layouts, select gauges from Table F-28 to display in the secondary gauge slots. The five gauges must include Primary EGT or TIT, CHT, Oil Pres Oil Temp. If Fuel Quantity is included in the system, and the GDU 1060/1210 is the only EIS display within the primary field-of-view, Fuel Quantity must be displayed on the GDU 1060/1210. Configure the gauges in the vertical order they are presented in Table F-28.

Table F-28 GDU 1060/1210 Single Engine - Remaining Gauges

Y/N	Group	T.5	T.6	T.7	T.8	T.9	T.10	T.11	T.12	T.13	T.14	T.15	T.16	T.17	T.18	T.19	T.20	T.21	T.22	T.23	T.24	T.25	T.26	T.27	T.28	T.29	T.30
ðq	Primary EGT	x	x	x	x	x	x	x	x	x	x	x															
ðq	TIT												x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x	x																						
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x			x	x		x	x			x	x			x	x			x	x			x	x	
ðq	IAT								x	x	x	x	x	x	x	x											
ðq	CDT																x	x	x	x							
ðq	IAT/CDT Diff																				x	x	x	x			
ðq	Main Fuel Qty	x		x	x	x	x	x	x		x	x	x		x	x	x		x	x	x		x	x	x	x	x
ðq	Aux Fuel Qty				x	x		x				x				x				x				x	x		x
ðq	Volts / Amps		x	x			x	x		x	x			x	x			x	x			x	x			x	x

(T)

(T.1)

(T.5) (T.6) (T.7) (T.8) (T.9)

(T.2)

(T.10) (T.11) (T.12) (T.13) (T.14)

(T.3)

Gauge Position Left Empty
(T.4)

(T.15) (T.16) (T.17) (T.18) (T.19)

(T.20) (T.21) (T.22) (T.23) (T.24)

(T.25) (T.16) (T.27) (T.28) (T.29) (T.30)

Figure F-26 GDU 1060/1210 Single Engine (Group T)

F.1.3.1.2 GDU 1060/1210 for Twin Reciprocating Engines

After selecting the dial type gauge style, work through Table F-29 and Table F-30 as described in Appendix Section F.1.3.1. Find the corresponding layout u Figure F-27.

Table F-29 GDU 1060/1210 Twin Engine - Dial Type Gauges

Y/N	Group	U.1
ðq	Manifold Pressure	x
ðq	Propeller RPM	x
ðq	Fuel Flow	x
ðq	Fuel Press	
ðq	Carb Temp	

Table F-30 GDU 1060/1210 Twin Engine - Remaining Gauges

Y/N	Group	U.2	U.3	U.4	U.5	U.6	U.7	U.8	U.9	U.10	U.11	U.12	U.13	U.14	U.15	U.16	U.17	U.18	U.19	U.20	U.21	U.22	U.23	U.24	U.25	U.26	U.27
ðq	Primary EGT	x	x	x	x	x	x	x	x	x	x	x															
ðq	TIT												x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	CHT	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Carb Temp	x	x	x	x																						
ðq	Oil Press	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Oil Temp	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ðq	Fuel Press	x	x			x	x		x	x			x	x			x	x			x	x			x	x	
ðq	IAT								x	x	x	x	x	x	x	x											
ðq	CDT																x	x	x	x							
ðq	IAT/CDT Diff																				x	x	x	x			
ðq	Main Fuel Qty	x		x	x	x	x	x	x		x	x	x		x	x	x		x	x	x		x	x	x	x	x
ðq	Aux Fuel Qty				x	x		x				x				x				x				x	x		x
ðq	Volts / Amps		x	x			x	x		x	x			x	x			x	x			x	x			x	x

(U)

(U.1)

(U.2) (U.3) (U.4) (U.5) (U.6)

(U.7) (U.8) (U.9) (U.10) (U.11)

(U.12) (U.13) (U.14) (U.15) (U.16)

(U.17) (U.18) (U.19) (U.20) (U.21)

(U.22) (U.23) (U.24) (U.25) (U.26) (U.27)

Figure F-27 GDU 1060/1210 Twin Engine (Group U)

F.2 Turboprop Engine EIS Layouts

For each installed GDU with an EIS display, update the default EIS gauge layout template to match the POH/AFM and this guidance. Only a single instance of each parameter can be present in each EIS.

From top to bottom, assign gauge slots to the Torque, Propeller RPM, Gas Generator RPM, Engine Temperature, Fuel Flow, Oil Pressure, and Oil Temp gauges such that the gauge order matches what is shown in the POH/AFM, TCDS, or other aircraft model-specific data. Then, assign gauge slots to the remaining fixed gauges, then to any desired Pilot-Select gauges, then assign “No Gauge” to any remaining gauge slots.

The sections below detail specific instructions for layout configuration depending on the GDU EIS display and the number of engines.

F.2.1 GDU 700P

F.2.1.1 GDU 700P EIS Display

F.2.1.1.1 GDU 700P EIS Display for Single Turboprop Engine

Update the automatic layout template to ensure the EIS gauges and layout match the POH/AFM and this guidance. Arrange the Torque, Propeller RPM, Engine RPM, Turbine Temp, Oil Temp, Oil Press, and Fuel Flow gauges, as applicable, in the same order as shown in the POH/AFM, TCDS, or other aircraft model-specific data.

Assign gauge slots beginning on the left-hand side of the EIS display first (top to bottom), then continue assignment on the right-hand side.

If the original engine gauges were oriented horizontally, configure the left-most gauge in the top-left gauge slot, the second-from-the-left gauge in the second-from-the-top gauge slot, and so on for the remaining gauges.

F.2.1.1.2 GDU 700P EIS Display for Twin Turboprop Engines

Update the automatic layout template to ensure the EIS gauges and layout match the POH/AFM and this guidance. For both the left and right engines, arrange the Torque, Propeller RPM, Engine RPM, Turbine Temp, Oil Temp, Oil Press, and Fuel Flow gauges, as applicable, in the same order as shown in the POH/AFM, TCDS, or other aircraft model-specific data.

Configure the remaining fixed gauge followed by the Pilot-Select gauges. Only a single instance of each parameter per engine can be present in each EIS.

Turboprop multi-engine GDU 700P EIS layouts can be configured to display secondary engine gauges (e.g., Fuel Flow, Oil Pressure, Oil Temp, Fuel Pressure, Vacuum/Pressure) in one of two ways. The Alpha layout (default) configures the secondary gauges to be bar gauges, and the Bravo layout configures the secondary gauges to be digital-only. Choose the desired layout by touching Alternate Layouts at the bottom of the page.

The desired secondary gauge layout must be configured on each EIS display individually. The secondary gauge layout on each EIS display must be the same (i.e. all Alpha or all Bravo).

> NOTE
> Changing the secondary gauge layout resets the entire EIS gauge layout. Ensure the gauge slot selection/order matches across each EIS display after selecting a different secondary gauge layout.

Both Alpha and Bravo secondary gauge layouts are able to configure Exceedances; however, only Alpha layout secondary bar gauges display the Exceedance count-down timer (if Custom Gauge Readout Digital Readout is disabled). Refer to Section 1.2.7.4 for Exceedance functionality information and Section 5.7.3.3.4 for Exceedance configuration information.

F.2.2 GDU 1060/1210

F.2.2.1 GDU 1060/1210 PFD/MFD and MFD/MFD

F.2.2.1.1 GDU 1060/1210 PFD/MFD and MFD/MFD for Single Turboprop Engine

Assign gauge slots beginning on the left-hand side of the EIS display first (top to bottom), then continue assignment on the right-hand side.

If the original engine gauges were oriented horizontally, configure the left-most gauge in the top-left gauge slot, the second-from-the-left gauge in the second-from-the-top gauge slot, and so on for the remaining gauges.

F.2.2.1.2 GDU 1060/1210 PFD/MFD and MFD/MFD for Twin Turboprop Engines

Update the automatic layout template to ensure the EIS gauges and layout match the POH/AFM and this guidance. For both the left and right engines, arrange the Torque, Propeller RPM, Engine RPM, Turbine Temp, Oil Temp, Oil Press, and Fuel Flow gauges, as applicable, in the same order as shown in the POH/AFM, TCDS, or other aircraft model-specific data.

Configure the remaining fixed gauge followed by the Pilot-Select gauges. Only a single instance of each parameter per engine can be present in each EIS.

Turboprop multi-engine GDU 1060/1210 MFD/EIS layouts can be configured to display secondary engine gauges (e.g., Fuel Flow, Oil Pressure, Oil Temp, Fuel Pressure, Vacuum/Pressure) in one of two ways. The Alpha layout (default) configures the secondary gauges to be bar gauges, and the Bravo layout configures the secondary gauges to be digital-only. Choose the desired layout by touching Alternate Layouts at the bottom of the page.

The desired secondary gauge layout must be configured on each EIS display individually. The secondary gauge layout on each EIS display must be the same (i.e. all Alpha or all Bravo).

NOTE
Changing the secondary gauge layout resets the entire EIS gauge layout. Ensure the gauge slot selection/order matches across each EIS display after selecting a different secondary gauge layout.

Both Alpha and Bravo secondary gauge layouts are able to configure Exceedances; however, only Alpha layout secondary bar gauges display the Exceedance count-down timer (if Custom Gauge Readout Digital Readout is disabled). Refer to Section 1.2.7.4 for Exceedance functionality information and Section 5.7.3.3.4 for Exceedance configuration information.

F.2.2.2 GDU 1060/1210 PFD/MFD/EIS and MFD/MFD/EIS Displays

F.2.2.2.1 GDU 1060/1210 Full-Time EIS Display for Single Turboprop Engine

Arrange the Torque, Propeller RPM, Engine RPM, Turbine Temp, Oil Temp, Oil Press, and Fuel Flow gauges in the same order as shown in the POH/AFM, TCDS, or other aircraft model-specific data. Configure the remaining fixed gauges at the top, followed by Pilot-Select gauges, and finally the blank gauge slots at the bottom. Only a single instance of each parameter can be present in each EIS.

Two GDU 1060/1210 full-time EIS strip gauge layouts are available depending on the number of fields required. The Alpha layout displays up to eight gauges (four primary and four secondary). The Bravo layout displays up to 11 gauges (four primary, three large secondary, and four small secondary). The four small secondary gauge slots in the Bravo layout have the following limitations:

- The gauge display is digital readout only (i.e. no graphical bar).
- Electrical data (Amps/Volts) is unable to be configured.
- Only two fuel quantity values are capable of being displayed.
- The merged fuel quantity gauge style (refer to Section 5.7.3.3.6) is unable to be configured.

Determine the number of gauge slots required from the POH/AFM (or other approved aircraft data) and the equipment being removed. Then choose the desired layout such that all of the required data can be displayed with the least excess space by touching **Alternate Layouts** at the bottom of the page. If all gauges required by the aircraft POH/AFM cannot be configured, use of the GDU 1060/1210 full-time EIS strip is prohibited.

If the Bravo layout is selected, and electrical data (Amps/Volts) is included in the installation, it is permissible to configure the Fuel Flow gauge in the first (top) small secondary gauge slot and the electrical data (Amps/Volts) in the third (bottom) large secondary gauge slot.

If the original engine gauges were oriented horizontally, configure the left-most gauge in the top-left gauge slot, the second-from-the-left gauge in the second-from-the-top gauge slot, and so on for the remaining gauges.

F.2.2.2.2 GDU 1060/1210 Full-Time EIS Display for Twin Turboprop Engines

Update the automatic layout template to ensure the EIS gauges and layout match the POH/AFM and this guidance. For both the left and right engines, arrange the Torque, Propeller RPM, Engine RPM, Turbine Temp, Oil Temp, Oil Press, and Fuel Flow gauges, as applicable, in the same order as shown in the POH/AFM, TCDS, or other aircraft model-specific data.

Configure the remaining fixed gauge followed by the Pilot-Select gauges. Only a single instance of each parameter per engine can be present in each EIS.

Turboprop multi-engine GDU 1060/1210 full-time EIS strip gauge layouts can be configured to display secondary engine gauges (e.g., Fuel Flow, Oil Pressure, Oil Temp, Fuel Pressure, Vacuum/Pressure) in one of two ways. The Alpha layout (default) configures the secondary gauges to be bar gauges, and the Bravo layout configures the secondary gauges to be digital-only. Choose the desired layout by touching Alternate Layouts at the bottom of the page.

The desired secondary gauge layout must be configured on each EIS display individually. The secondary gauge layout on each EIS display must be the same (i.e. all Alpha or all Bravo).

NOTE

Changing the secondary gauge layout resets the entire EIS gauge layout; ensure the gauge slot selection/order matches across each EIS display after selecting a different secondary gauge layout.

Both Alpha and Bravo secondary gauge layouts are able to configure Exceedances; however, only Alpha layout secondary bar gauges display the Exceedance count-down timer (if Custom Gauge Readout Digital Readout is disabled). Refer to Section 1.2.7.4 for Exceedance functionality information and Section 5.7.3.3.4 for Exceedance configuration information.

APPENDIX G RVSM REQUIREMENTS FOR TBM 700 SERIES

TBM 700 (850) series aircraft that comply with the installation guidance in this appendix are eligible for RVSM Group approval. This section provides details for the RVSM requirements and installation guidance for G600 TXi Only.

G.1 Group Approval

The G600 TXi TBM700 series RVSM Group Approval is applicable to eligible aircraft that are modified in accordance with this manual. Eligible aircraft for the G600 TXi TBM700 series RVSM Group Approval are TBM700A, B, C and N (TBM850) series variants (S/N 014-433). TBM700 series aircraft with G1000 Integrated Flight Decks installed in accordance with Socata Modification Sheet MOD70-0276-00 used for retrofit of A, B, and C series aircraft and MOD70-0176-00 used for N (TBM850) series aircraft are not eligible for G600 TXi RVSM group approval.

G.2 System Description

Three general architectures are approved for installation that make aircraft modified in accordance with the requirements of the STC eligible to operate in RVSM airspace. Each architecture has specific prerequisites and co-requisites that must be met for the aircraft to be eligible for operations in RVSM Airspace.

Aircraft modified in accordance with this STC, which comply with this appendix, qualify for operation in RVSM airspace as a group in accordance with Title 14 of CFR Part 91, Appendix G, Operations in Reduced Vertical Separation Minimum (RVSM) Airspace, and FAA AC 91-85A, Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum Airspace. Data in this appendix takes precedence over other guidance in this manual. Other features or interfaces not specified in this appendix may be installed in accordance with this manual.

G.2.1 Architecture 1: G600 TXi & KFC 275/325

The following equipment must be previously installed.

- KFC 275 or KFC 325 autopilot.
- AM-250 altitude measurement system installed on co-pilot's side.
- A transponder with altitude reporting capability.
- Static ports identified in Table G-1 must be installed and comply with the required surface conditions and alignment tolerances.
- The pitot-static systems must pass the required service checks.

Installation of this equipment is beyond the scope this document, and should be installed in accordance with manufacturer instructions and Socata SB 70-120-34 or other approved data.

The following equipment must be installed per the installation data in this installation manual.

- GDU PFD on the pilot side
- GSU 75B or GDC 74B with SSEC enabled
- GAD 43e

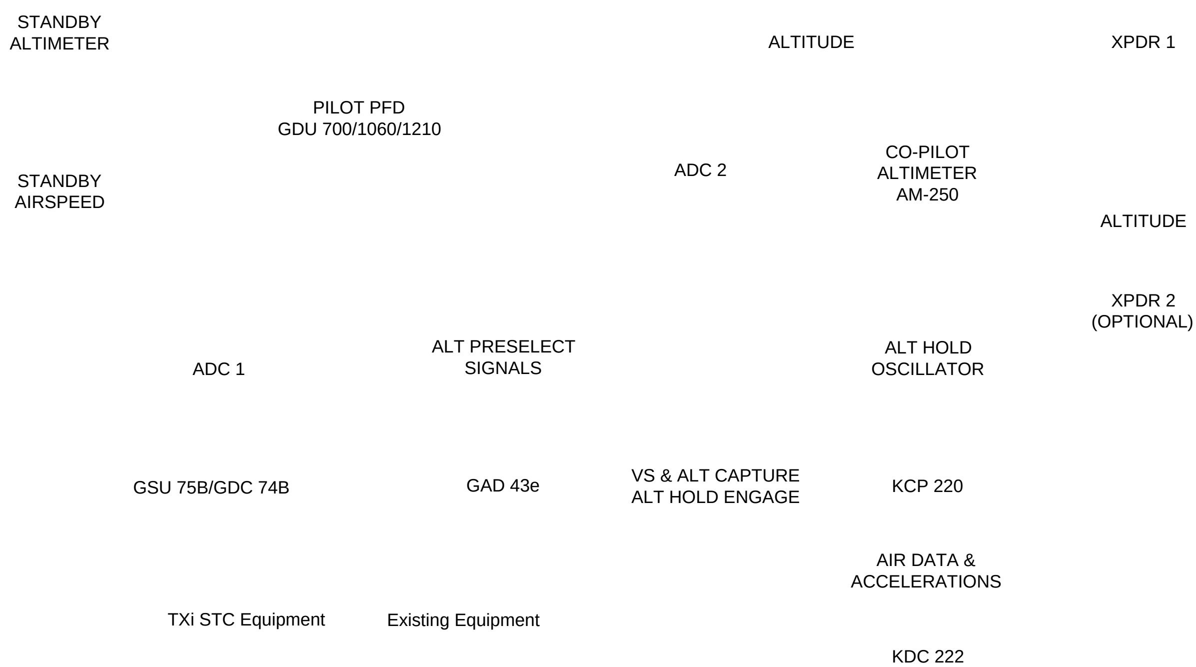


Figure G-1 TBM 700 RVSM System Diagram: Architecture 1

G.2.2 Architecture 2: G600 TXi (Pilot Side Only) & GFC 600

The following equipment must be previously installed.

- GFC 600 AFCS.
- AM-250 altitude measurement system installed on co-pilot's side.
- A transponder with altitude reporting capability.
- Static ports identified in Table G-1 must be installed and comply with the required surface conditions and alignment tolerances.
- The pitot-static systems must pass the required service checks.

Installation of this equipment is beyond the scope this document, and should be installed in accordance with manufacturer instructions and Socata SB 70-120-34 or other approved data.

The following equipment must be installed per the installation data in this installation manual.

- GDU PFD on the pilot side.
- GSU 75B or GDC74B with SSEC enabled.

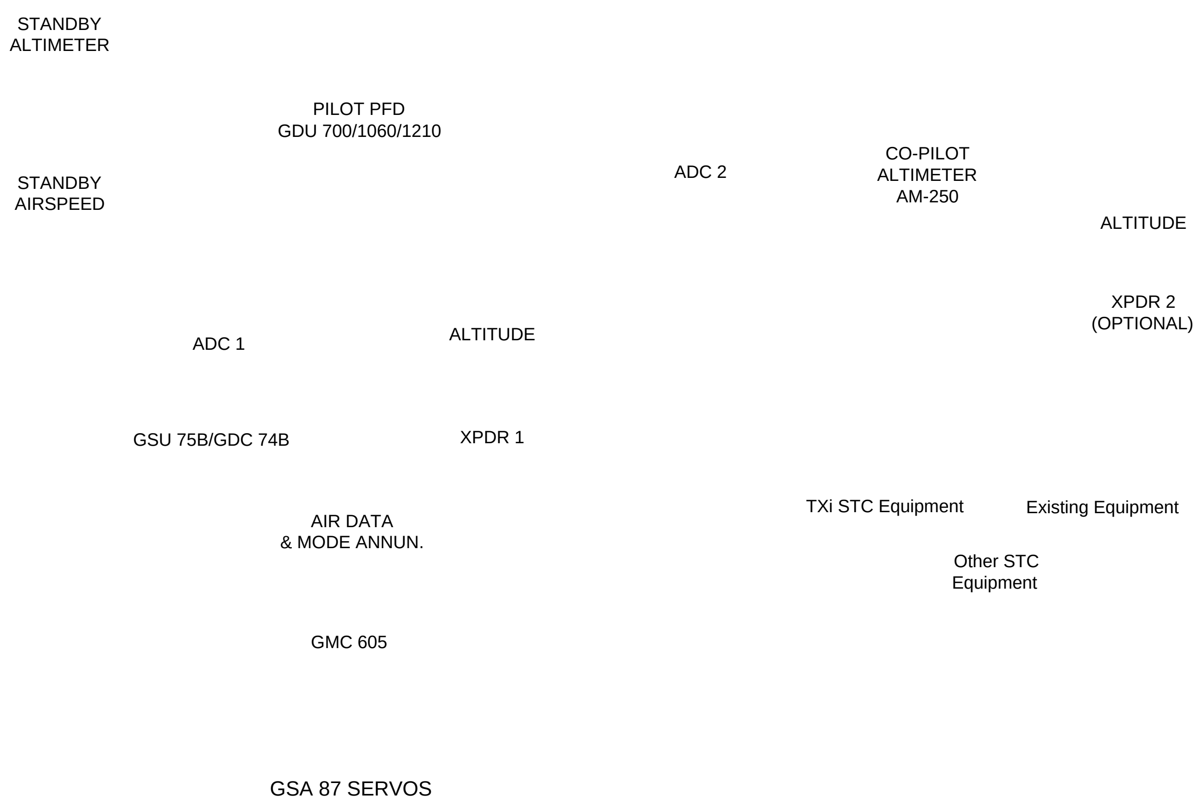


Figure G-2 TBM 700 RVSM System Diagram: Architecture 2

G.2.3 Architecture 3: G600 TXi & GFC 600

The following equipment must be previously installed.

- GFC 600 AFCS.
- A transponder with altitude reporting capability.
- Static ports identified in Table G-1 must be installed and comply with the required surface conditions and alignment tolerances.
- The pitot-static systems must pass the required service checks.

Installation of this equipment is beyond the scope this document, and should be installed in accordance with manufacturer instructions and Socata SB 70-120-34 or other approved data.

The following equipment must be installed per the installation data in this installation manual.

- GDU PFD on the pilot side.
- GDU PFD on the co-pilot side.
- GSU 75B with SSEC enabled as ADC Sensor 1.
- GSU 75B or GDC 74B with SSEC enabled as ADC Sensor 2.

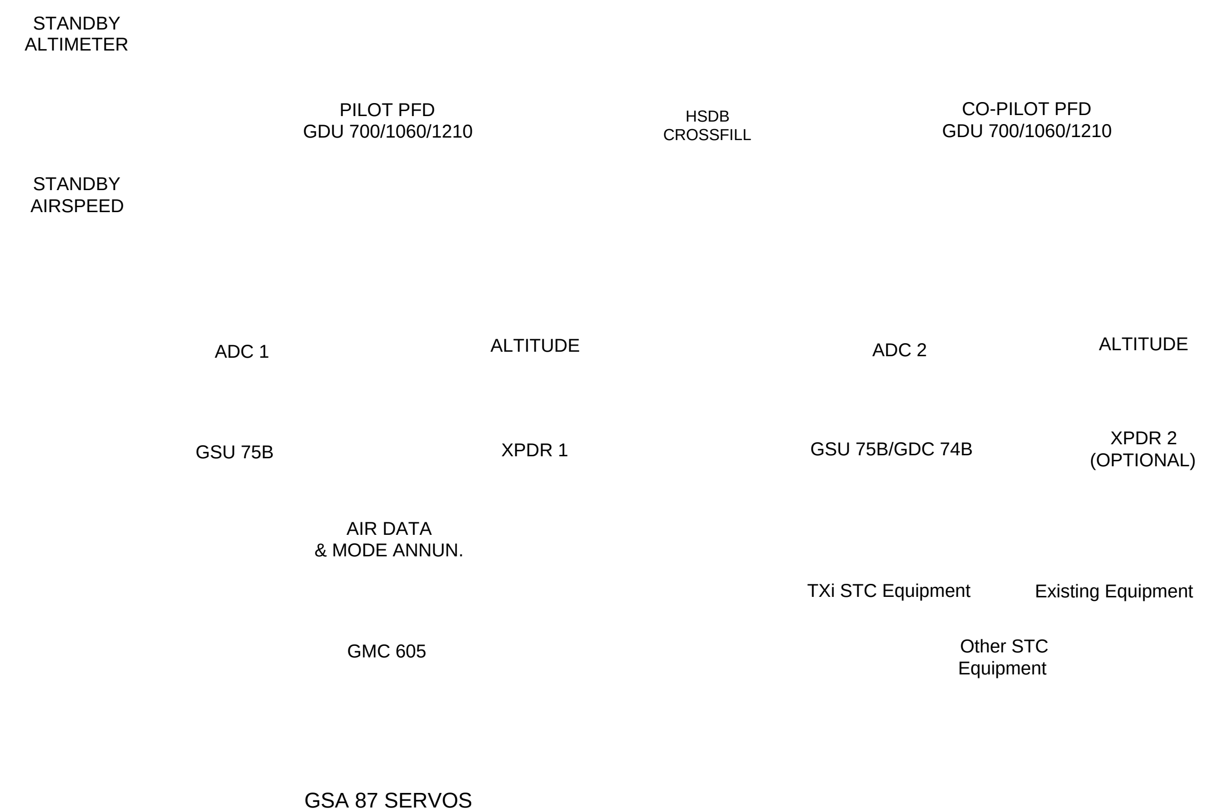


Figure G-3 TBM 700 RVSM System Diagram: Architecture 3

G.2.4 RVSM Feature Enablement

For RVSM operations, Static Source Error Correction (SSEC) must be enabled. To enable SSEC for installations equipped with a GSU 75B, use the following procedure.

1. Insert an RVSM unlock card and restart the GDU in configuration mode.
2. Enable RVSM (System Setup → Feature Enablement → RVSM → Enable)
3. Verify TBM 700/850 is shown and the lock turns green.
4. Copy airframe configuration to the ADC (Home → Interfaces → ADC1 Settings → Copy GDU to ADC → OK).
5. Verify the configuration on the ADC now says "GSU 75 Socata TBM 850 G600."

G.2.4.1 G600 TXi Upgrades

For aircraft that are upgrading to the G600 TXi system, the GDC 74B installed with the legacy G600 may be retained. The enablement procedure for aircraft which have been previously enabled for RVSM and aircraft which are equipped with a GDC 74B which has not been enabled for RVSM operations is the same.

1. Insert an RVSM unlock card and restart the GDU in configuration mode.
2. Enable RVSM (System Setup → Feature Enablement → RVSM → Enable).
3. Select aircraft type as TBM 850 (Home → Interfaces → ADC1 Settings → Aircraft → TBM 850).

CAUTION

For aircraft upgrading from the G600 to the G600 TXi, the ADC1/ADC2 switch must be removed. ADC switching is completed through the PFD.

G.2.5 RVSM Required Avionics Check

The following avionics and equipment are required for RVSM eligibility.

Table G-1 Required Equipment

	Hardware [6]	Minimum Number Installed		
Description	P/N	Architecture 1	Architecture 2	Architecture 3
AM-250	70259N01D01	1	1	0
GAD 43e	011-02349-00	1	0	0
ADC [1]	GSU 75B: 011-03094-40 or 011-03094-41 GDC 74B: 011-01110-00	1	1	2 [7]
AHRS [1]	GSU 75B: 011-03094-40 or 011-03094-41 GRS 77: 011-00868-00	1	1	2 [7]
PFD [1][5]	GDU 700: 011-03306-( ) GDU 1060: 011-03308-( ) GDU 1210: 011-06149-( )	1	1	2
GMU	GMU 44: 011-00870-( ) GMU 44B: 011-04201-00	1	1	2
KCP-220 [2]	065-00064-0008	1	0	0
GMC 605 [3]	011-02967-02	0	1	1
Transponder	[4]	1	1	1
Static Port	T700A3415017101	2	2	2

Notes:

[1] Any of the LRUs shown are acceptable unless otherwise noted.

[2] Installed as part of the KFC 275 or KFC 325 autopilot system.

[3] Installed as part of the GFC 600 system.

[4] Transponder must have altitude reporting capability.

[5] Integrated ADAHRS units are NOT approved for RVSM operation by this STC.

[6] Equipment software versions are defined in Appendix C.

[7] ADC 1 must be a GSU 75B.

G.2.6 Required Interfaces and Functions for RVSM

The G600 TXi must display the flight director, provide altitude preselect/vertical speed functionality, provide altitude altering, and have the RVSM enabled per Table G-3 and Table G-4. This appendix only applies to RVSM specific requirements; other G600 TXi interfaces specified in this manual are optional for the installation.

Table G-2 RVSM Required Functions

G600 TXi Interfaces	Configuration	Notes
Altitude Alerter	Section 5.5.6	200 FT Chime or 1000 FT Chime
Feature Enablement (TBM 700/850)	Section 5.2.3	Enablement Card per Table 3-8

NOTE
The connection of a GDU 700P/1060/1210 to an audio panel is required for Altitude Alert tones. Refer to Appendix Section C.22 for approved audio panels.

G.2.6.1 Architecture 1 Interfaces

NOTE
The KAS 297C is removed and the Altitude Preselect function is provided by the GAD 43e.

Table G-3 RVSM Required Interfaces: Architecture 1

G600 TXi Interfaces	Interconnect Drawing(s)	Configuration
Autopilot Flight Director	Figure B-35 and Figure B-36	Section 5.4.11, Appendix Section C.15
GAD 43e for Altitude Preselect		Section 5.4.7 Appendix Section C.14

G.2.6.2 Architecture 2 & 3 Interfaces

Table G-4 RVSM Required Interfaces: Architecture 2 & 3

G600 TXi Interfaces	Interconnect Drawing(s)	Configuration
Autopilot Flight Director	Figure B-34	Section 5.4.11.6, Appendix Section C.15

G.2.7 AM-250 Implementation

The AM-250 must be retained or installed on the co-pilot’s side for architectures 1 and 2. Installation of the AM-250 is beyond the scope of this document. Refer to the manufacturer’s instruction and Socata SB 70-120-34. The co-pilot’s AM-250 altitude hold oscillator signal must be connected to the KCP-220 flight computer for architecture 1.

To connect the co-pilot’s AM-250 as required, remove and stow the previously installed altitude hold oscillator signal wires from the KCP-220. Connect the co-pilot’s AM-250 Plug 1, Pins 26 and 34 to the autopilot computer KCP-220 Plug 2, Pin 12 (Refer to Socata drawing T700 C 34 16 502).

If retained, the AM-250 must be configured as ADC 2 (Under 3rd Party ADC Interfaces!’ ADC2!’ 3rd Party ADC).

GDU 700/1060/1210
PFD #1
P4
~ARINC 429 IN 1 A 1
B 21
S
~RS-232 5 IN 19
OUT 20
GND 18
S

GARMIN ADC #1
GSU 75B P751 | GDC 74B P741
27 26 A ARINC 429 OUT 1
7 27 B
S
69 11 OUT
70 10 IN RS-232 1
68 12 GND
S
75 6 SYSTEM ID 1*
N/C 57 71 SYSTEM ID 2*
48 7 SIGNAL GROUND

P2501 (P1) AM-250 ADC #2 (M44)
~ARINC 429 IN 3 A 3 — 14 A ARINC 429 OUT
B 23 — 13 B
S S
N/C 23 LEFT/RIGHT

KCP 220 (A82) P2202 (P2)
3
ALT OSCL IN 12 — 26 AUTO PILOT OUT
34 AUTO PILOT RET

1 ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

2 SHIELD LEADS MUST BE LESS THAN 3.0".

3 STOW OR REMOVE ALL OTHER 4.75MHz ALTITUDE OSCILLATOR WIRING PREVIOUSLY CONNECTED TO KDC 222, AM-250#1 (REMOVED), OR KAS 297 (REMOVED). ONLY DEPICTED ALTITUDE OSCILLATOR WIRING MAY REMAIN CONNECTED.

Figure G-4 ADC/AM-250 Interconnect

G.2.8 Pitot-Static Connections

The G600 TXi and standby instruments must be connected per all the relevant sections contained in this manual and the pitot-static systems as shown in Figure G-5 or Figure G-6.

G.2.8.1 Pitot-Static Connections: Architecture 1 & 2

To supply altimeter data for altitude display, altitude alerting, and altitude preselect, the ADC must be connected to Pitot-static System 1. To supply altitude hold oscillator data to the autopilot system (KFC 275/325 only), the AM-250 altimeter must be connected to Pitot-static System 2. The standby instruments must be connected to Pitot-static system 2.

Figure G-5 G600 TXi RVSM Pitot-Static Connections

G.2.8.2 Pitot-Static Connections: Architecture 3

To supply altimeter data for altitude display, altitude alerting, and altitude preselect, ADC 1 (GSU 75B) must be directly connected to Pitot-Static 1, ADC 2 must be connected to Pitot-Static 2. Standby instruments must be connected to Pitot-Static 2.

FORWARD PRESSURE BULKHEAD

OUT

(1)

(2)

(4)

#1

EMG

INSTRUMENT PANEL

(6)

(3)*

(5)*

(1) STANDBY INSTRUMENTS
(2) ALT. DISPLAY #1
(3) AIR DATA SOURCE #1
(4) ALT. DISPLAY #2
(5) AIR DATA SOURCE #2
(6) EMERGENCY STATIC
SOURCE SELECTOR

PITOT 1

* LOCATION MAY VARY

PITOT 2

DRAWING
NOT TO SCALE

STATIC 2

STATIC 1

STATIC 2

STATIC 1

AFT PRESSURE BULKHEAD

EMERGENCY STATIC

Figure G-6 G600 TXi RVSM Pitot-Static Connections

G.2.9 Transponder

If only a single transponder is installed, it should be able to transmit altitude information from either air data source. A means of accomplishing this is to wire the transponder to GDU #1 via RS-232 or ARINC 429. The altitude output from the GDU will follow the sensor source selection on the GDU.

G.3 Checkout

G.3.1 Electrical System

Perform interface and functional check-outs for all relevant G600 TXi electrical loads, interfaces and functions installed per this manual and Table G-3 and Table G-4.

Check the power distribution wiring by selecting EMER using the ESS BUS TIE selector. The primary flight data displayed on the GDU 700P/1060/1210 must remain operational.

> NOTE
> G600 TXi display of ancillary functions (i.e., Rad Alt, MB, ADF, DME) may be lost when EMER is selected.

For aircraft with a single PFD using the AM250 as ADC2, perform the following:

1. Power on the GDU 700P/1060/1210 in Normal mode. Air data and GPS position must be valid.
2. Switch air data to ADC2 (Menu → Sensors → ADC2).
3. Verify OAT and TAS are dashed out on the PFD.
4. Switch air data back to ADC1 (Menu → Sensors → ADC1).
5. Verify OAT and TAS are available on the PFD.

For aircraft equipped with dual PFDs, perform the following on each display:

1. Power on the GDU 700P/1060/1210 in Normal mode. Air data and GPS position must be valid.
2. Switch air data to ADC2 (Menu → Sensors → ADC2).
3. Verify Air Data is available on the PFD.
4. Switch air data back to ADC1 (Menu → Sensors → ADC1).
5. Verify Air Data is available on the PFD.

G.3.2 Pitot-Static Systems

Pitot-static System 1, Pitot-static System 2, and calibration of the AM-250, must meet the criteria in the following sections. The air data tests and surface checks are required following the initial installation. The G600 TXi system must be maintained per G500/G600 TXi Instructions for Continued Airworthiness

G.3.2.1 Air Data Test

The air data systems must be tested and maintained in accordance with Socata Maintenance Manual except as follows.

The following altimeter checks must be used in lieu of the Socata Maintenance Manual 34-11-00, table 503 and Section 6.3.1.3 with the following exceptions:

- For paragraph (b)(1)(i) Scale Error, use of Table G-5 instead of 14 CFR 43, Appendix E, Table I.
- Do not perform paragraph (b)(1)(iv), Friction.
- Do not perform paragraph (b)(1)(vi), Barometric Scale Error

The following Air Data and Altitude Alerter Tests are to be performed in conjunction with any other regulated tests. The Air-Data test must be performed on both pilot and co-pilot systems with a calibrated Pitot-static test set with a combined accuracy/repeatability specification of less than ±20 feet for the test altitude range.

NOTE

The standby altimeter is connected to the co-pilot side static system and it is not SSEC corrected.

1. Connect the Pitot-static tester to the aircraft left and right Pitot and static ports in accordance with Socata Maintenance Manual section 34-11-00.
2. Perform a Pitot-static system leak check of each system as described in Socata Maintenance Manual section 34-11-00.
3. File the results with the aircraft maintenance records.
4. Verify that the altimeter baro-setting is 29.92 in Hg (1013.25 millibar) on both sides.
5. Verify the Altitude Alerter annunciation and alert tones at test level of 29,000 feet during the Air Data test.
    a. To set the altitude alerter to the current altitude navigate to the ALT menu and press the inner PFD knob.
6. Simulate the altitudes and airspeeds for each condition shown in Table G-5.
7. Record the altitude displayed on each GDU 700P/1060/1210 or AM-250 for each condition on Table G-5.
8. Verify that the indicated altitudes are within allowable tolerances.
9. File the results with the aircraft maintenance records.

If either the pilot or co-pilot air data system does not meet the tolerances specified, maintenance checks should be performed on the air data system or the Pitot-static system.

Table G-5 Air Data Test Points

Test Point Altitude (ft)	Test Point Airspeed (kts)	Nominal Altitude (ft)	Air Data 1 GSU 75B	Air Data 1 GDC 74B	Air Data 2 GSU 75B	Air Data 2 GDC 74B	AM 250
0	0	0	-20 to 20	-20 to 20	-20 to 20	-20 to 20	-20 to 20
	150	44*	24 to 64	24 to 64	24 to 64	24 to 64	24 to 64*
1000	40	1000	980 to 1020	980 to 1020	980 to 1020	980 to 1020	980 to 1020
2000	120	2032	2007 to 2057	2007 to 2057	2007 to 2057	2007 to 2057	2007 to 2057
4000	120	4034	4009 to 4059	4009 to 4059	4009 to 4059	4009 to 4059	4009 to 4059
8000	120	8038	8008 to 8068	8008 to 8068	8008 to 8068	8008 to 8068	8013 to 8063
	300	8219	8129 to 8249	8129 to 8249	8129 to 8249	8129 to 8249	8194 to 8244
10000	150	10059*	10029 to 10089	10029 to 10089	10029 to 10089	10029 to 10089	10034 to 10084*
11000	120	11042	11007 to 11077	11007 to 11077	11007 to 11077	11007 to 11077	11012 to 11072
13000	150	13065	13025 to 13105	13025 to 13105	13025 to 13105	13025 to 13105	13035 to 13095
14000	150	14067	14027 to 14107	14027 to 14107	14027 to 14107	14027 to 14107	14037 to 14097
16000	180	16100	16060 to 16140	16055 to 16145	16060 to 16140	16055 to 16145	16070 to 16130
18000	210	18145	18105 to 18185	18100 to 18190	18105 to 18185	18100 to 18190	18115 to 18175
20000	120	20056	20016 to 20096	20009 to 20103	20016 to 20096	20009 to 20103	20026 to 20086
	150	20082*	20042 to 20122	20035 to 20129	20042 to 20122	20035 to 20129	20052 to 20112*
	300	20324	20284 to 20364	20277 to 20371	20284 to 20364	20277 to 20371	20294 to 20354
29000	120	29077	29035 to 29119	29005 to 29149	29035 to 29119	29005 to 29149	29042 to 29112
	150	29113*	29071 to 29155	29041 to 29185	29071 to 29155	29041 to 29185	29078 to 29148*
	300	29447	29405 to 29489	29375 to 29519	29405 to 29489	29375 to 29519	29412 to 29482
33000	120	33090	33041 to 33139	33018 to 33162	33041 to 33139	33018 to 33162	33049 to 33131
	150	33131*	33082 to 33180	33059 to 33203	33082 to 33180	33059 to 33203	33090 to 33172*
	300	33519	33470 to 33568	33447 to 33591	33470 to 33568	33447 to 33591	33478 to 33560

* Test points and tolerances correspond with Socata maintenance manual, 34-11-00, table 503.

G.3.2.2 Surface Checks

The TBM700 series aircraft with RVSM privileges require external checks per Socata Maintenance Manual 05-10-01, ATA 53 for Standard and Progressive inspection intervals. Refer to Socata Maintenance Manual 53-00-00 for fuselage surface check procedures.

G.3.3 RVSM In-Flight Altitude Hold Check

In addition to the autopilot performance checks specified in this manual, RVSM operation requires that the autopilot system accurately maintain the acquired altitude during non-turbulent, non-gust cruise conditions. The autopilot must be shown to meet the performance specification of the following in-flight altitude hold test.

1. Verify the following conditions (normal RVSM cruise flight):
   - %æAltitude FL290 to FL310.
   - %æAltimeter setting 29.92 in Hg (1013 HPA).
   - %æAutopilot altitude hold engaged.
   - %æNon-turbulent, non-gust conditions.
2. Record the data specified in Table G-6 from the primary cockpit displays every 5 minutes for a minimum flight segment of 30 minutes in length. The maximum altitude deviation shown on the display throughout the test should not exceed ±65 feet.

If the aircraft fails to hold altitude to this tolerance, repeat the check ensuring that the airspeed remains constant and the air remains stable during the entire test. If the test still fails, perform maintenance checks on the G600 TXi system, then repeat the test. RVSM operations are prohibited until the autopilot is capable of maintaining altitude within ±65 feet of the selected cruise altitude.

Table G-6 Altitude Hold Check Log

Aircraft S/N: Pilot:

Date: En route to:

Time (hr:min)	Pilot		Co-pilot	
	Altitude (ft)	Airspeed (kt)	Altitude (ft)	Airspeed (kt)
0:00				
0:05				
0:10				
0:15				
0:20				
0:25				
0:30				
0:35				
0:40				
0:45				
0:50				
0:55				
1:00				

G.4 Updating Aircraft Documentation

In the aircraft logbook, make an entry recording installation of the G600 TXi MFD/PFD System per Appendix G of 190-01717-B3 for the Airworthiness Approval of TBM700 Series Aircraft in RVSM Airspace.

Ensure that the correct G600 TXi TBM 700 RVSM Airplane Flight Manual Supplement (P/N 190-01717-B4) revision is inserted in the Airplane Flight Manual (AFM) or Pilot's Operating Handbook (POH).

APPENDIX H HIRF AND LIGHTNING PROTECTION

H.1 Shielded Wire and Harness Overbraiding

When extending existing sensor wiring, it is required to maintain continuity of the wire shield and the existing harness overbraid. The following section outlines a method for maintaining shield and harness overbraid continuity.

Refer to Figure H-1 and Figure H-2 for examples.

For the shielded wire(s), the shield on both sides of the open segment must be reconnected after the splice is complete with a spacing of approximately 3 inches or less in total length.

1. Use solder sleeves with an insulated shield drain to jumper the shield ends together.
2. Protect the open segment of wire with fusion tape.
3. Start the wrap by making a complete turn of the tape around the cable approximately 0.5 inches from the repair area.
4. Overlap the preceding wrap by 50%.
5. Extend the tape over the repair area by approximately 0.5 inches.
6. Use lacing tape to spot tie the end of the fusion tape.

1 /2 " 3 " Seg m ent O p en in g 1 /2 "

In sulated S h ield D rain

Sh ield ed w ire Fu sio n tap e L acin g C o rd Sh ield ed w ire

Figure H-1 Shielded Wire Splice

For harness overbraid extensions, the joining section must maintain a full circular continuity around the cross-sectional area of the overbraid.

NOTE

Approximately 1 inch of fusion tape must be placed on the wire under the frayed end of overbraid that contacts the wire(s) to protect from chaffing.

1. Wrap approximately 1 inch of fusion tape around the wire(s) near the end where the overbraid contacts the wire(s).
2. Spot tie the overbraid with lacing cord at the point where the ovrbraid contacts the fusion tape.
3. Extend the overbraid so that it overlaps the existing overbraid at least 3 inches.
4. Secure the overlapped overbraid with lacing cord approximately 0.5 inches from the end.
5. Apply fusion tape to cover the end of the overbraid.
6. Start the wrap by making a complete turn of the tape around the overbraid approximately 0.5 inches from the repair area.
7. Overlap the preceding wrap by 50%.
8. Extend the tape past the spliced overbraid by approximately 0.5 inches.
9. Use lacing tape to spot tie the end of the fusion tape.

Overbraid
Lacing Cord
Lacing Cord
Overbraid

Fusion tape
1/2"
1/2"

3" minimum of overlap

Figure H-2 Harness Overbraid Splice

H.2 Lightning Zones for GTP 59 and GMU 44(B)

This section provides lightning zoning diagrams for various types of aircraft to facilitate correct placement of the GMU44(B) and GTP59. Additional restrictions related to the placement of the GMU44(B) and GTP59 can be found in Section 4.6.1 and Section 4.6.2, respectively.

The zoning levels correspond to the severity of lightning strikes and probability of occurrence on the aircraft. The order of severity starting with the safest zone is Zone 3, 2A, 2B, 1C, and 1A/1B. The GMU 44(B) and GTP59 cannot be installed in Zones 1A, 1B, 1C, or 2B.

All diagrams in this appendix use the legend shown in Table H-1. The zoning described is split into the following: wings, fuselage, and empennage. For the particular airframe, the applicable wings, fuselage, and empennage zoning should be merged to get a complete zonal definition. The zoning figures applicable to any particular model are found in Table D-38. If there is a region of overlapping zones, the more severe zone should always be applied (i.e., if Zone 2A and 1A overlap in a region, then the overlapping region should be considered Zone 1A). Examples of complete lightning zoning diagrams can be found in Appendix Section H.3.

Table H-1 Lightning Zoning Legend

Shading	Zone	Shading	Zone
	Zone 1A		Zone 2A
	Zone 1B		Zone 2B
	Zone 1C		Zone 3

H.2.1 Wings

The different zoning for wingtips and wings are contained in the following subsections.

H.2.1.1 Wingtips

H.2.1.1.1 Aircraft Not Limited to VFR Operation

> NOTE
>
> This zoning section is applicable to those aircraft models that are not limited to VFR operation only in Table D-38. For zoning of models limited to VFR operation only, refer to Appendix Section H.2.1.1.2.

Zoning of various types of wingtips is shown in Figure H-3. Figure H-3A shows zoning for straight wingtips. Figure H-3B shows zoning for curved wingtips. The zones are similar to those of straight wingtips. The main difference is that Zone 1 extends from the outboard edge of the wing past the tangent point of the chord and 0.5 meters inboard.

Figure H-3C shows zoning for winglets. Note that the winglet figure shows a flattened winglet. Winglet classifications are very similar to those of curved wingtips. The main difference is that Zone 1 extends from the outboard edge of the wing past the tangent point of the winglet and 0.5 meters inboard.

Figure H-3D shows zoning for tip tanks. The rule that applies to tip tanks is very similar to that of the curved wing. The main difference is that Zone 1 extends 0.5 meters past the inboard edge of the tip tank.

0.6 m
0.5 m
Tangent Point
0.15 m

0.6 m
0.5 m
0.15 m

A (STRAIGHT WINGTIP)

B (CURVED WINGTIP)

0.6 m
0.5 m
Tangent Point
0.15 m

0.6 m
0.5 m
Tangent Point
0.15 m

C (WINGLET)

D (TIP TANKS)

Figure H-3 Zoning for Wingtips on Aircraft Not Limited to VFR Operation

H.2.1.1.2 Aircraft Limited to VFR Operation

This zoning section is applicable to those aircraft models that are limited to VFR operation only in Appendix D. For zoning of models that are not limited to VFR operation only, refer to Appendix Section H.2.1.1.1.

NOTE

The aircraft must have a position light in the wing tip area as a prerequisite for this STC.

If there is no position light on the wing, then no Zone 3 exists and the GTP 59 cannot be installed on this particular aircraft. For those aircraft identified as VFR in Appendix D, the following criteria is used to determine the Zone 3 area:

- Zone 1A/1B finishes as shown in Figure H-3 or 0.5 meters inboard from the inboard edge of the position light, whichever is the greater distance from the outboard edge of the wing tip, as shown in Figure H-4
- Zone 2A/2B extends a total of 2.1 meters inboard of Zone 1A/1B
- Zone 3 extends inboard of Zone 2A/2B from the wing tip and stops at another Zone 1A/1B or 2A/2B determined from other areas of Appendix Section H.2.2

2.1 m
0.5 m
Position Light
0.15 m

A (STRAIGHT WINGTIP)

2.1 m
0.5 m
Position Light
Tangent Point
0.15 m

B (CURVED WINGTIP)

2.1 m
0.5 m
Position Light
Tangent Point
0.15 m

C (WINGLET)

2.1 m
0.5 m
Position Light
Tangent Point
0.15 m

D (TIP TANKS)

Figure H-4 Zoning for Wingtips on Aircraft Limited to VFR Operation

H.2.1.2 Landing Gear

The landing gear is considered Zone 1A. The struts that connect the landing gear to the wings are Zone 2A. Each side of landing gear is zoned individually. If there is a single strut connecting the landing gear to the wing, then the inboard and outboard edges of the landing gear should be used for zoning instead of using the connection point of the wing and the strut. In addition to the zoning shown in Figure H-5, the zoning described for the fuselage and wings also applies. The floats for a float-mounted fuselage have not been zoned because they do not influence the zoning of the bottom of the fuselage. Neither the GTP 59 nor the GMU 44(B) can be mounted on landing gear, including floats, or its struts.

Figure H-5 Zoning for Wings Affected by Landing Gear

H.2.2 Fuselage

This section describes the zoning for several different types of fuselages. The empennage is zoned in Appendix Section H.2.3. Aft of every Zone 2A is a 0.15 meter Zone 2B (i.e., Zone 2A is followed by a 0.15 meter Zone 2B). Although Zone 2B areas are marked on the diagrams, sometimes their widths are not defined (0.15 meters should be used in these cases). The horizontal stabilizer of the tail is NOT zoned because neither the GTP 59 nor the GMU 44 can be mounted there. In addition, neither the GTP 59 nor the GMU 44(B) can be mounted within 0.5 meters of the rear-most point of the fuselage. Appendix Section H.2.3 explains the conditions under which the GTP 59 or GMU44(B) can be mounted on the vertical stabilizer. Although all diagrams show low wing aircraft, the same zoning can be applied to high wing aircraft. The values d_1 and d_2 are defined as follows:

d_1 = 1.3m (51.2")

d_2 = 2.6m (102.4")

H.2.2.1 Single-Propeller Aircraft

Zoning of low- or high-wing aircraft with single propellers is shown in Figure H-6. The area of the nose immediately aft of the propeller is Zone 3. The 0.6 meter distance should be measured from the outboard-most edge of the fuselage or the tip of the propeller, whichever is longer. Figure H-8 shows the case of an aircraft with a curved fuselage. The portion of the fuselage that extends 1.3 meters aft of the propeller blades is Zone 1C. However, the bottom centerline is Zone 2A, and it is acceptable to mount the GTP there.

Figure H-6 Zoning for a Single Propeller (Low- or High-Wing)

A

B

Figure H-7 Zoning for a Low- or High-Wing Canard with a Rear-Mounted Propeller

A

B

NOTE

The bottom centerline is Zone 2A, and it is acceptable to mount the GTP 59 there.

Figure H-8 Zoning for a Low- or High-Wing Aircraft with a Curved Lower Fuselage

A

B

Figure H-9 Zoning for a Single, Rear-Mounted Prop above Fuselage

H.2.2.2 Aircraft with Multiple Propellers

Zoning of low- or high-wing aircraft with twin front-mounted propellers is shown in Figure H-10. The text below assumes the aircraft fuselage and wing are constructed of metal. Note that Zone 2A can overlap onto the nacelles if they are within 0.6 meters outboard of the fuselage.

Zoning of low- or high-wing aircraft with rear-mounted twin propellers is shown in Figure H-11. The text below assumes the aircraft fuselage and wing are constructed of metal.

For an empennage with a third engine, the GTP 59 cannot be located in the empennage. Therefore, the zoning for this third engine area has been omitted from the diagrams below. The GTP 59 and GMU 44(B) for this aircraft should be located in Zone 3 or Zone 2A on the bottom of the fuselage and wings.

A

B

Figure H-10 Zoning for Front-Mounted Twin Propellers (Low- or High-Wing)

A

B

NOTE

Although the engine nacelles are shown as Zone 3, they may be Zone 2A if the engine falls within the Zone 2 area of the wing (within 0.6 meters outboard from fuselage edge).

Figure H-11 Zoning for Rear-Mounted Twin Propellers (Low- or High-Wing)

A

B

NOTE

Nothing can be mounted in the tail boom of the aircraft.

Figure H-12 Zoning for Front- and Rear-Mounted Propellers (Low- or High-Wing)

A

B

Figure H-13 Zoning for High-Wing with Front and Rear Propellers Mounted Above Fuselage

A

B

Figure H-14 Zoning for Low- or High-Wing Canard with Twin Jet Engines

0.15m

d_2

d_1

0.5m

0.15m

TOP (VIEW LOOKING DOWN)

BOTTOM (VIEW LOOKING UP)

0.5m

0.15m

0.15m

Figure H-15 Zoning for Low or High Wing Canard with Twin Rear-Facing Props

H.2.2.3 Biplanes

Figure H-16 shows how biplanes can be classified using the figures from above. The top and bottom of both wings will be zoned using Figure H-4, while the fuselage and the mid-sections of the wing can be zoned using Figure H-6.

Figure H-16 Zoning for Single-Propeller Biplane

H.2.3 Empennage

If the GTP 59 and GMU 44(B) cannot be mounted in other areas of the aircraft that are Zone 3 locations, it is acceptable for metal aircraft with one of the three traditional empennages shown in Figure H-17 to mount the GTP 59 or GMU44(B) in the Zone 2A area of the tail. However, the GTP 59 or GMU44(B) cannot be mounted on/under any non-conducting surfaces. If the complete empennage of the aircraft being considered does not match those shown in Figure H-17, then it should be mounted in allowed areas defined for the fuselage and wings. If only portions of the empennage shown below match, then the same rule applies and the GTP 59 or GMU44(B) cannot be installed in the empennage. Note that it is allowable for only the horizontal stabilizer tips to differ from those shown in Figure H-17. The GTP 59 cannot be located in the horizontal stabilizer of the empennage. Neither the GTP 59 nor the GMU 44(B) can be mounted in the tail of a composite empennage.

A B C

D (APPLIES TO A) E (APPLIES TO B AND C)

Figure H-17 Zoning for Empennage

H.3 Example Lightning Zoning Diagrams

This section contains sample lightning zoning diagrams for typical aircraft.

Figure H-18 Example Lightning Zoning for Single-Engine Aircraft

Figure H-19 Example Lightning Zoning for Twin-Engine Aircraft