

ADS600-B™

Installation and User Manual



Business Address:

NavWorx Inc.
3906 Industrial St, Suite 100
Rowlett, TX 75088

Telephone:

(888)-NAVWORX (628-9679)

Facsimile:

888- 628-9679

Email: support@NavWorx.com

Website: www.NavWorx.com

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Revision History

Revision	Date	Comments
01	04/20/2010	Initial release
02	05/11/2010	Revised FCC statement

List of Effective Pages

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Symbology seen throughout this documentation highlight important information. The following table defines how to interpret these symbols:

Symbol	Description
	Hazardous.
	Warning.
	Important.

The ADS600-B is used as an aid to visual acquisition of traffic and weather and it is to be used only for pilot and crew situational awareness.

The ADS600-B does not relieve the flight crew of seeing and avoiding traffic, obstacles and weather. Installation of the ADS600-B does not relieve the pilot of consulting approved data sources prior to and during each flight.

The ADS600-B is not a *collision-avoidance-device*. Any deviation from ATC clearance, given cockpit information derived from the ADS600-B, must be approved by ATC.

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Telephone	(888)-NAVVORX (628-9679)
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- ✓ **Step 2.** Once you have received an RMA number, securely pack the unit and ship it, insured, to the following address:
NavWorx Incorporated
RMA Number: *(insert your RMA number here)*
3906 Industrial St, Suite 100
Rowlett, TX 75088

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Definitions and Acronyms

ADC	Air Data Computer
ADS600-B	Automatic Dependent Surveillance universal access transceiver
ADS-B	Automatic Dependent Surveillance Broadcast
ADS-R	Automatic Dependent Surveillance Rebroadcast
AHRS	Attitude Heading Reference System
ATC	Air Traffic Control
CDTI	Cockpit Display of Traffic Information
FAA	Federal Aviation Administration
FIS-B	Flight Information Services Broadcast
MFD	Multifunction Display
GBT	Ground Based Transceiver (also known as ADS-R)
PC	Personal Computer
SDA	System Design Assurance
SIL	System Integrity Level
STC	Supplemental Type Certificate
TIS-B	Traffic Information Services Broadcast
TSO	Technical Standard Order
UAT	Universal Access Transceiver
WAAS	Wide Area Augmentation System

1 Accessories and Packing List

1.1 Unpacking Equipment

Carefully unpack the equipment from the shipping container. Inspect the ADS600-B unit and the package contents for evidence of shipping damage. Retain the shipping container and packaging material for reshipment if necessary.

1.2 Package Contents

The items included in the ADS600-B package are listed in Tables 1-1 and 1-2.

Table 1-1: Package Contents

Part #	Quantity	Description
210-0004-00-00	1	ADS600 Installation Kit (see Table 1-2 for details)
200-0012-XX-XX	1	ADS600-B UAT Data Link Transceiver
240-0008-00-01	1	ADS600-B UAT Installation and User Manual

Table 1-2: ADS600-B Installation Kit Contents (P/N 210-0004-00-00)

Part #	Quantity	Description
201-205167-1	1	Receptacle Female, DSUB 37-pin
201-205161-1	1	Receptacle Female, DSUB 9-pin
201- DC-24660-33	1	DSUB 37-pin back-shell
201-5745407-1	1	Connector DSUB Latch Slide 37 position
201-16384	8	Cable tie
201-M39029/63-368	20	Crimp contact, DSUB, 20 to 24 AWG wire

2 About this Manual

This manual describes the installation and checkout procedures for the ADS600-B UAT Data Link Transceiver.

The ADS600-B unit is intended to be installed in aircraft that do not require an STC for installation.

2.1 FCC Grant of Equipment Authorization

This equipment has been issued an FCC Grant of Equipment Authorization. The FCC ID is marked on the equipment nameplate.

3 Equipment Description

The ADS600-B UAT Data Link Transceiver contains a GPS/WAAS receiver and a Universal Access receiver and transmitter. This unit transmits a GPS position and aircraft information message once per second. Additionally, this unit receives messages from other UAT equipped aircraft and receives TIS-B/FIS-B messages from GBTs. Data received by the ADS600-B is output to a display device.

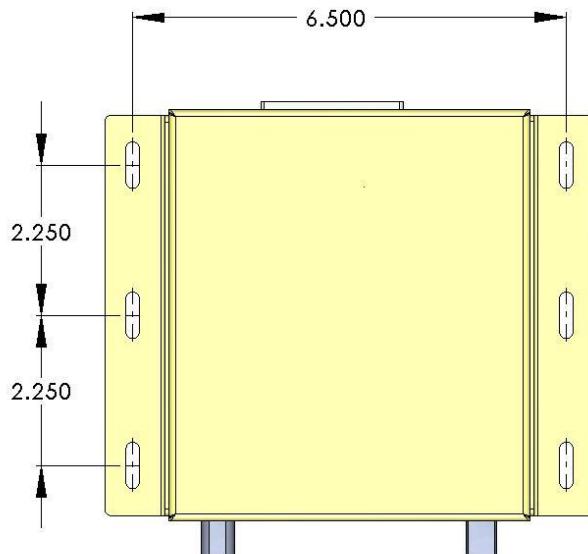


Figure 3-1: Top view of ADS600-B UAT Data Link Transceiver

3.1 Overall Specifications

This section includes the physical, electrical, performance and environmental specifications for the ADS600-B UAT Data Link Transceiver.

❖ Physical

Height:	2.1 inches
Width:	5.4 inches (w/o mounting bracket)
	7.3 inches (w/ mounting bracket)
Depth:	6.2 inches
Weight:	1.5 lbs (w/o mounting bracket, excluding cables)
	1.6 lbs (w/ mounting bracket, excluding cables)

❖ Electrical

Voltage:	9-36VDC
Input Current (10W nominal):	0.7A @ 14VDC, 0.41A @ 24VDC

❖ UAT Performance

Regulatory:	DO-282B
Frequency:	978MHz
Tolerance:	+/- 20ppm
Data Rate:	1.04167 Mbps
Receiver Sensitivity:	Exceeds 90%MSR@-95dBm
Transmit Power:	40W nominal at antenna
Equipment Class:	A1S (single bottom UAT antenna)

❖ GPS/WAAS Receiver Performance

Number of channels:	20
Frequency:	1575.42MHz L1
Sensitivity (Tracking Mode):	-159dBm (Tracking mode)
Sensitivity (Acquisition Mode):	-142dBm (Acquisition mode)
TTFF Hot (valid almanac, position, time and ephemeris):	1 second
TTFF Warm (valid almanac, position and time):	< 35 seconds
TTFF Cold (valid almanac):	< 35 seconds
Reacquisition (<10seconds obstruction):	0.1seconds
Position Update Interval:	5Hz
Velocity:	1,000 Kts maximum @ 60,000 ft MSL
Datum:	WGS-84

❖ Environmental

Operating temperature:	-20°C to +55°C
Storage temperature:	-55°C to +85°C
Temperature variation:	5°C per minute

Humidity:	94% at 65°C
Maximum continuous altitude:	40,000 feet
Decompression:	40,000 feet
External Cooling:	Not required

❖ Avionics Interfaces

Annunciator Outputs:	Capable of sinking 500mA for turning on annunciator lamp
Altitude Encoder:	RS232 asynchronous serial, ARINC429 ADC/AHRS source
Maintenance Port:	RS232 asynchronous serial
External Position Input:	From ARINC743A source
Display:	RS232 asynchronous serial (Pass-through or Traffic interfaces) RS422 asynchronous serial (Pass-through or Traffic interfaces) ARINC735 Traffic interface TIS-A Traffic interface

3.2 Transmitter Specification

The ADS600-B is a non-TSO device that complies with RTCA DO-282B. DO-282B compliant messages transmitted by the ADS600-B unit assign the System Integrity Level (SIL) to unknown (0) and the System Design Assurance (SDA) level to unknown (0).

3.3 System Interfaces

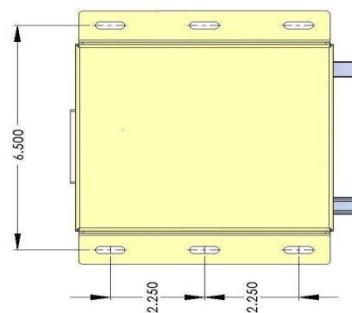
Display (MFD, Portable, etc.)



GPS Antenna

Annunciator (Lamp)

DB37 Connector



ADS600-B

Altitude
Encoder



A/C Power

Maintenance Port

UAT Antenna

Figure 3-2: ADS600-B UAT Data Link Transceiver System Diagram

3.3.1 Display

The ADS600-B outputs to compatible displays both traffic and weather information. The ability to display traffic and/or weather depends on the display device.

3.3.2 Maintenance Port

The ADS600-B provides an RS232 communication port that is used to configure and monitor the status of the ADS600-B system via a computer. The maintenance port is required to be connected.

3.3.3 Annunciator Output

The ADS600-B can drive an external annunciator lamp.

3.4 Antenna Requirements

3.4.1 GPS Antenna

The ADS600-B requires one GPS antenna. GPS antenna performance is critical to the operation of the ADS600-B GPS/WAAS receiver. Table 3-2 contains a list of GPS antennas that are recommended for use with the ADS600-B. Other GPS antennas may meet the installation requirements of the ADS600-B. Contact the factory to ensure antenna compatibility prior to installing your ADS600-B.

3.4.2 UAT Antenna

The ADS600-B requires one UAT antenna meeting the following specification: standard 50Ω vertically polarized antenna with a $VSWR < 1.7:1$ at 978MHz. Table 3-1 contains a list of UAT antennas that are recommended for use with the ADS600-B.

 Some types (1030 and 1090MHz) of transponder antennas use very thin radiator elements. These types of antennas should be closely evaluated to determine their suitability as UAT data link antennas.

 Operating the ADS600-B without RF terminations on the UAT Antenna port can result in equipment damage. Operate the ADS600-B with the UAT antenna port terminated with a VSWR ratio of 3.0:1 or less.

3.5 Installation

This section describes the installation of the ADS600-B including mounting, wiring and connections.

Read this entire section before proceeding with the installation of the ADS600-B.

Follow avionics installation practices per FAA Advisory Circular (AC) 43.13-1B, 43-13-2A, or FAA approved revisions to these documents.

Perform an electrical load analysis in accordance with AC 43.13-1B, Chapter 11, on the aircraft prior to installation to ensure that the aircraft's electrical system is capable of carrying the ADS600-B load. Section 3.1 describes the power consumption of the ADS600-B.

3.5.1 Materials Not Supplied

The following items are required for the ADS600-B installation, but are not supplied:

- UAT Antenna (Table 3-1 provides a list of recommended UAT Antennas)
- GPS Antenna, if installing an external GPS input for ADS600-B (Table 3-2 provides a list of recommended GPS Antennas)
- Wire (MIL-W-22759/16 or equivalent)
- Shielded wire (MIL-C-27500 or equivalent)
- Circuit Breakers
- Ring Terminals (for grounding)

Table 3-1: Acceptable ADS600-B UAT Antennas

Manufacturer	Part Num	Connector	Hole Template
RAMI	AV-74	BNC	http://www.rami.com/files/2/AV-74-Footprint.pdf
RAMI	AV-741	BNC	http://www.rami.com/files/2/AV-741-Footprint.pdf
Comant	CI-105	BNC	
Comant	CI-105-11	TNC	

Table 3-2: Acceptable ADS600-B GPS Antennas

Manufacturer	Part Num	Connector	Hole Template
RAMI	AV-GPS	BNC	http://www.rami.com/files/2/AV-GPS-Footprint.pdf
Comant	CI-2480-400	GPS Uses TNC	
Comant	CI-420-200	TNC	
Comant	CI-429-200	TNC	

3.5.2 Tools Required

The D-Sub connector supplied with the ADS600-B uses crimp contacts. Table 3-3 identifies the crimp tool required to ensure consistent and reliable crimp contact connections for the D-Sub connector.

Table 3-3: Crimp Tools for High Density 22-24 AWG Socket Contact

Type	Hand Crimping Tool	Positioner	Insertion/Extraction Tool
Military P/N	M22520/2-01	M22520/2-09	M81969/1-04
Positronic	9507	9502-3	M81969/1-04
AMP	601966-1	601966-6	91067-1
Daniels	AFM8	K42	M81969/1-04
Astro	615717	615725	M81969/1-04

3.5.3 Equipment Mounting

The ADS600-B may be mounted in either a portable or remote mount configuration.

3.5.3.1 ADS600-B Portable Mount

The ADS600-B may be mounted in a portable configuration. The unit may be placed on a glare shield or any hard surface and affixed in place using Velcro®. The unit may also be portably attached to the aircraft using a RAM® mounting system.

3.5.3.2 ADS600-B Remote Mount

This option is recommended for non-certified, experimental or light sport aircraft to remotely mount the ADS600-B to the aircraft. The ADS600-B may be ordered with optional mounting brackets. Figure 3-3 describes the ADS600-B mounting bracket bolt pattern.

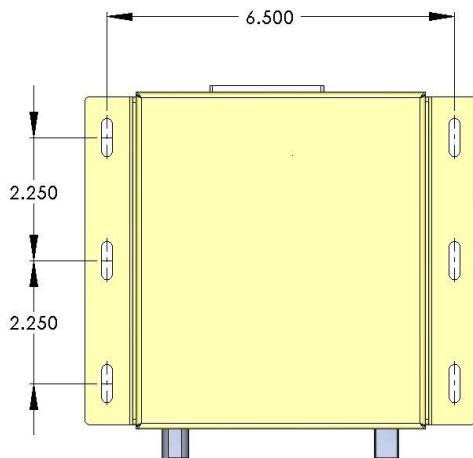


Figure 3-3: ADS600-B Mounting Bracket Pattern

3.5.3.3 Antenna Placement

3.5.3.3.1 GPS Antenna

3.5.3.3.2 UAT Antenna

⚠ The UAT Antenna MUST be installed no less than 5 feet from any Transponder /TCAS/TAS or DME antenna. Failure to adhere to this critical installation note will result in failure of the ADS600-B and void your warranty.

3.5.4 Cabling and Wiring

3.5.5 Air Circulation and Cooling

3.6 Electrical Connections

3.6.1 Connectors

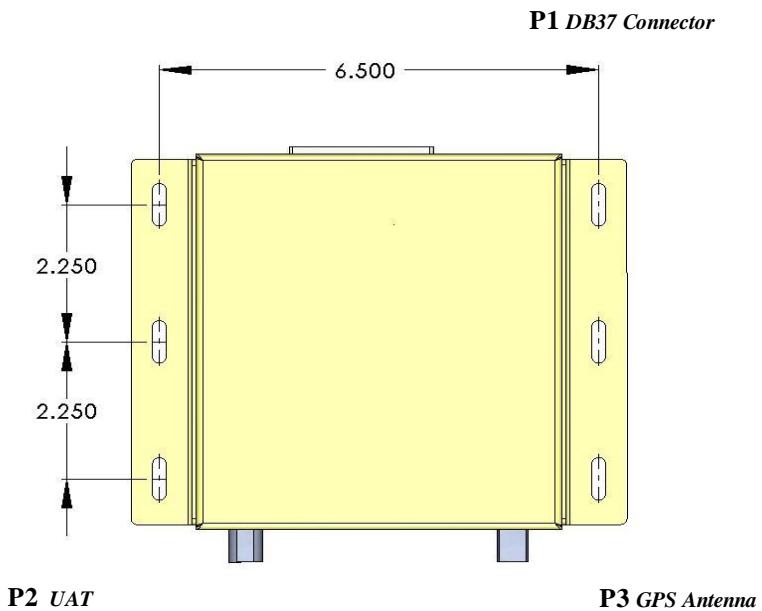
Table 3-4 describes the connectors supplied with the ADS600-B installation kit. The kit also contains crimp contacts for the D-Sub connector. Table 3-3 identifies the crimp tool required to ensure consistent and reliable crimp contact connections.

Table 3-4: Connectors

Ref	Description	Connector Type	Crimp Contact
P1	I/O	37 Pin D-Sub Receptacle	20-24 AWG socket contact
P2	UAT Antenna	TNC connector.	N/A
P3	GPS Antenna	TNC connector.	N/A

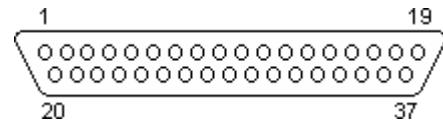
3.6.2 Interface Connector Definition

The following figure shows the side view of the ADS600-B depicting the DSUB and TNC connectors.

**Figure 3-4: ADS600-B DB37, UAT and GPS Connectors**

3.6.3 I/O Connector (P1)

A 37 pin D-Sub connector interfaces to external equipment and aircraft power. This connector can be found at the rear of the ADS600-B unit.



View looking at ADS600-B.

Figure 3-5: 37 Pin D-Sub Male Connector (P1)

The pin-out description for the I/O connector is defined in Table 3-5.

Table 3-5: I/O Connector Pin-Out (P1)

Pin #	I/O	Name	Description
1	--	RESERVED	RESERVED
2	I	Time mark In -	ARINC 743A Time Mark In -
3	--	Ground	RS232 Maintenance Port Ground
4	I	RS232 Maintenance RX	RS232 Maintenance Port Serial Data Input
5	O	RS232 TX	RS232 Display Serial Data Output
6	--	Ground	RS232 Altitude Encoder and TIS Output Ground
7	I	Altitude Encoder RX	RS232 Altitude Encoder Input
8	O	429 OUT 1B	ARINC 429 Output Channel 1B
9	I	429 IN 1A	ARINC 429 Input Channel 1A
10	--	RESERVED	RESERVED
11	I	External PPS TTL In	External PPS TTL In
12	O	RS422 TX -	RS422 Display Channel Data Output -
13	I	RS422 RX +	RS422 Display Channel Data Input +
14	O	UAT Fail Out	UAT Fail Output (active low)
15	I	TCAS RA Active In	TCAS Resolution Advisory Active Discrete In (active low)
16	--	RESERVED	RESERVED
17	--	RESERVED	RESERVED
18	--	Power +	Main Aircraft Power Input (+9 to +36VDC)
19	--	Power +	Main Aircraft Power Input (+9 to +36VDC)
20	--	RESERVED	RESERVED
21	I	Time mark In +	ARINC 743A Time Mark In +
22	O	RS232 Maintenance TX	RS232 Maintenance Port Serial Data Output
23	--	Ground	RS232 Display Ground
24	I	RS232 RX	RS232 Display Serial Data Input
25	O	TIS TX	TIS Serial Data Output
26	--	RESERVED	RESERVED
27	O	429 OUT 1A	ARINC 429 Output Channel 1A
28	I	429 IN 1B	ARINC 429 Input Channel 1B
29	--	RESERVED	RESERVED
30	O	RS422 TX +	RS422 display channel data output +
31	I	RS422 RX -	RS422 display channel data input -
32	--	RESERVED	RESERVED
33	I	TCAS Operational In	TCAS Operational Discrete Input (active low)
34	I	Air/Ground In	Air / Ground Discrete Input (active low)
35	O	Suppression Output	Suppression Output (active high)
36	I	Power Ground	Main Aircraft Power Ground
37	I	Power Ground	Main Aircraft Power Ground

3.7 Functional Descriptions

3.7.1 Power

Aircraft power is provided to the ADS600-B on the P1 I/O connector. The ADS600-B accepts input power from +9 to +36 VDC.

P1-18	Power +
P1-19	Power +
P1-36	Power Ground
P1-37	Power Ground

3.7.2 Discrete Outputs

The ADS600-B provides discrete outputs to provide status and drive annunciation lamps or other equipment. All discrete outputs are active low (i.e. grounded when active) and are of open collector design, capable of sinking up to 500 mA.

3.7.2.1 UAT Fail Indicator

The UAT Fail Out (P1-14) is used to indicate the status of the ADS600-B receiver. UAT Fail Out will be grounded when the ADS600-B has detected a system failure. Otherwise, this output will be open.

3.7.2.2 Suppression Output

The Suppression Output (P1-35) is reserved for future use and is intended to suppress other L-band equipment (such as a transponder) when the UAT transmits. It will provide a high signal ($V_{in} - 1.5V$) whenever the UAT is transmitting and ground otherwise.

3.7.3 Discrete Inputs

The ADS600-B accepts discrete inputs to provide additional status information from the aircraft systems or equipment. All inputs are active low (i.e. grounded when active) and each input presents a load of greater than 100 kΩ.

3.7.3.1 Air/Ground Discrete Input

The Air/Ground In (P1-34) is reserved for future use. It provides air/ground status input to the ADS600-B. The function of this input is configurable via the Maintenance PC (refer to section 3.7). The Air/Ground Input must be configured for one of the following options:

- A grounded Air/Ground In indicates that the aircraft is on the ground. Otherwise, an open indicates that the aircraft is in the air.
- An open Air/Ground In indicates that the aircraft is in the air. Otherwise, a grounded Air/Ground In indicates that the aircraft is on the ground.

- An air/ground switch is not installed. The air/ground state is set automatically based on the GPS ground speed. The air/ground speed threshold is configurable.

3.7.4 PPS Time Mark Input

When used with an external ARINC 743A position source, the time mark signals from the navigation sensor are connected to the ADS600-B time mark input pins (P1-2 and P1-21).

3.7.5 Serial Interfaces

The ADS600-B provides two bi-directional RS-232 serial interfaces, one receive only RS232 interface, one transmit only RS232 interface, one bi-directional RS-422 interface and one ARINC 429 input/output. These serial interfaces can be connected to:

- Display(s)
- Maintenance PC
- Altitude Encoder

The serial port pin-outs are:

P1-13	RS422 Display Serial Data Input +
P1-31	RS422 Display Serial Data Input -
P1-12	RS422 Display Serial Data Output -
P1-30	RS422 Display Serial Data Output +
P1-9	ARINC 429 Input Channel 1A
P1-27	ARINC 429 Output Channel 1A
P1-28	ARINC 429 Input Channel 1B
P1-8	ARINC 429 Output Channel 1B
P1-7	RS232 Altitude Encoder Serial Data Input
P1-25	RS232 TIS Serial Data Output
P1-6	RS232 Altitude Encoder and TIS Output Ground
P1-24	RS232 Display Serial Data Input
P1-5	RS232 Display Serial Data Output
P1-23	RS232 Display Ground
P1-4	RS232 Maintenance Port Serial Data Input
P1-22	RS232 Maintenance Port Serial Data Output
P1-3	RS232 Maintenance PC Ground

3.7.5.1 RS232 Altitude Encoder Input

An altitude encoder input may be provided through a RS232 serial data input (P1-7 and P1-6) to the ADS600-B. The maintenance PC commands (see section 3.7) describe how to enable the serial port for the Altitude Encoder Input. The baud rate for this port is also configurable via a maintenance command.

3.7.5.2 RS232 TIS Output (Garmin portables GPSMAP® x96)

The ADS600-B may be configured to output TIS data via a RS232 serial data output (P1-6 and P1-25) to a portable GPSMAP® display device. The maintenance PC commands (see section 3.7) describe how to enable the serial data port for the TIS Output. The baud rate for this port is also configurable via a maintenance command.

3.7.5.3 RS422 In/Out Display

The ADS600-B may be configured to output to a display device using the RS422 serial interface (P1-12, P1-13, P1-30, and P1-31). The type of display device is configurable. The maintenance PC commands (see section 3.7) allow the installer to select a display device, as well as, a baud rate for the RS422 serial interface.

3.7.5.4 RS232 In/Out Display

The ADS600-B may be configured to output to a display device using the RS232 serial interface (P1-5, P1-23, and P1-24). The type of display device is configurable. The maintenance PC commands (see section 3.7) allow the installer to select a display device, as well as, a baud rate for the RS232 serial interface.

3.7.5.5 RS232 Maintenance PC

The ADS600-B communicates with the maintenance PC using a RS232 serial interface (P1-3, P1-4, and P1-22). This interface is used to view system status and to set the configuration of the ADS600-B. The maintenance PC serial channel is fixed at 38,400 baud, 8 data, no parity, 1 stop.

3.7.5.6 ARINC429

The ADS600-B provides one ARINC 429 input and output (P1-8, P1-9, P1-27, and P1-28) interface.

3.8 Post Installation Check

3.8.1 Maintenance PC

3.8.1.1 Using Maintenance Port with a Windows Terminal Emulator

For configuration and testing of the ADS600-B, a PC running a terminal emulator is required to connect to the maintenance port of the ADS600-B.

With the ADS600-B powered on and the maintenance port connected to the PC terminal emulator software, a test to determine if the emulator program is connected and working is to

press any key – should you see the key appear on the emulator program then the ADS600-B is echoing the character.

Type “Help” to view the list of all ADS600-B commands. See Table 3-6 for the complete list of ADS600-B maintenance commands.

3.8.1.2 Maintenance Commands

Table 3-6: ADS600-B Maintenance Commands

READ Commands

Command	Option	Description
HELP		List maintenance commands.
READ	ALL	Display all pertinent status and configuration for unit.
READ	PORTS	Display mapping of protocol to RS232/RS422 ports.
READ	GPS ALL	Display GPS configuration and status.
READ	GPS SV	Display GPS service vehicle status.
READ	GPS <seconds>	Display GPS statistics at an interval as specified by seconds.
READ	ICAO	Display aircraft 24-bit ICAO address.
READ	OWNSHIP	Display ownship message.
READ	RS232	Display configuration of RS232 interface.
READ	RS422	Display configuration of RS422 interface.
READ	TM <seconds>	Display traffic manager information at an interval as specified by <seconds>.
READ	UM <seconds>	Display uplink manager (FIS-B) information at an interval as specified by <seconds>.

DISPLAY Commands

Command	Option	Description
DISABLE	COMPTIS	Disable Composite-TIS mode.
ENABLE	COMPTIS	Enable Composite-TIS mode.
MAP	<SKY PASS TA A429S> <RS232 RS422>	Map protocols to physical port.
SET	BAUD ARINC429 <LOW HIGH>	Set ARINC429 clock speed.
SET	BAUD RS232 <9600 19200 38400 57600 115200>	Set baud rate for RS232 display port.
SET	BAUD RS422 <9600 19200 38400 57600 115200>	Set baud rate for RS422 display port.
SET	MAXDIST [x.y]	Set maximum distance in 1/10 th s of a nautical mile for traffic targets. Traffic targets that are greater than this distance from the ownship location will not be passed on to the display(s).
SET	MAXALT [feet]	Set maximum vertical distance in feet for traffic targets. Traffic targets that are greater than this distance from the ownship location will not be passed on to the display(s).
SET	PROTOCOL <PASS TA A429 SKY NONE> <TISA A429 A429S>	Enter 1 or 2 protocols.

TRANSMITTER Commands

Command	Option	Description
ENABLE	CSID	Enable call sign identification flag logic.
DISABLE	CSID	Disable call sign identification flag logic.
ENABLE	PALT	Enable pressure altitude input.
DISABLE	PALT	Disable pressure altitude input.
SET	CALLSIGN <8 character callsign>	Assign aircraft call-sign. The call-sign may not exceed 8 characters. Must be Alpha-Numeric characters only. No other characters allowed.
SET	CAT <NOTYPE LIGHT SMALL LARGE VERYLARGE HEAVY MANEUVERABLE ROTORCRAFT GLIDER LIGHTERTHANAIR PARACHUTIST ULTRALIGHT UAV SPACEVEHICLE EMERGENCY SERVICE POINTOBSTACLE CLUSTEROBSTACLE LINEOBSTACLE>	Assign aircraft category.
SET	GPSANT <left right><x.y>	Set GPS antenna lateral axis [left or right of centerline] position in meters.
SET	GPSANT nose <x.y>	Set GPS antenna longitudinal axis [from nose] position in meters.
SET	GS <knots>	Assign speed in knots which determines when aircraft is airborne.
SET	ICAO <hexadecimal>	Assign the aircraft's ICAO address in a hexadecimal format. http://www.smalluas.com/download/ICAO_Annex_10_Volume_III.pdf
SET	LENGTH <x.y>	Set length of aircraft in meters.
SET	WIDTH <x.y>	Set width of aircraft in meters.

TRANSMITTER (Pilot Input) Commands

Command	Option	Description
SET	EMERGENCY <NONE GENERAL MEDICAL MINFUEL NOCOMM HIJACK ACFTDOWN>	Set emergency code.
SET	FLIGHTID O:<octal-number>	Set flight ID as an octal 4 to 6 digit number. E.g. SET FLIGHTID O:1200
IDENT		Start IDENT. Mode status message is transmitted for 20 +/- 4 seconds.
ENABLE	SAA	Enable transmission of the temporary self-assigned address. The self-assigned address will be transmitted instead of the ICAO address.
DISABLE	SAA	Disable transmission of the temporary self-assigned address. The ICAO address will be transmitted instead of the self-assigned address.

UTILITY Commands

Command	Option	Description
RESET		Reset unit.
ENABLE	SIM	Enable simulation mode.
DISABLE	SIM	Disable simulation mode.
SET	LOADER	Used for updating unit software.

3.8.2 Electrical Load Analysis

The ADS600-B is powered via a separate circuit breaker. For aircraft with multiple power buses, this circuit breaker is sourced from the non-essential bus. Circuits should be protected in accordance with guidelines in AC 43.13-1B, Chapter 11.

An electrical load analysis should be completed on each aircraft prior to installation in accordance with AC 43.13-1B, Chapter 11.

Table 3-7: Recommended Circuit Breaker

ADS600-B/ADS600-B-B	14 VDC	28 VDC
Circuit Breaker	3 AMP	2 AMP

The circuit breaker placard should be labeled “UAT.”

3.8.3 Mounting Check

3.8.4 Wiring Check

3.8.5 Functional Test

3.8.6 Weight and Balance

An aircraft weight and balance is required after installation of the ADS600-B. Follow the guidelines in AC 43.13-1B, Chapter 10, Section 2. Update the aircraft equipment list indicating the items relocated, added or removed. Table 3-8 identifies the weight of the ADS600-B equipment.

Table 3-8: ADS600-B Weights

Item	Weight
ADS600-B Only	1.5lbs
ADS600-B (optional) Mounting bracket	0.1lbs

4 Limitations

4.1 Traffic Display

5 Troubleshooting

6 Maintenance

6.1 Altitude Source

The altitude source provide to the ADS600-B must be tested and inspected every 24 months as referenced in FAR 91.411

6.2 Calibration

There are no user-serviceable adjustments. There are no periodic maintenance functions to be performed on the ADS600-B product.

6.3 Tune-Up

The ADS600-B is tuned at the factory. No tune-up procedure or servicing is required by the user.

6.4 Battery Replacement

The internal GPS/WAAS receiver utilizes a lithium cell battery to store the GPS Almanac when the unit is not in operation. The lithium battery has an approximate service life of 7 years. The unit should be sent back to the factory for battery replacement every 7 years.

If the battery is not replaced per this interval, and becomes discharged, the ADS600-B will still remain fully functional and accurate; however the GPS acquisition time (during initial turn-on) will be increased.

6.5 Cleaning

The ADS600-B does not require regular cleaning.

Traffic and Weather Displays

Weather	Traffic	Display
	✓	Advanced Flight Systems™ Inc., http://www.advanced-flight-systems.com/
✓	✓	Chelton FlightLogic Synthetic Vision EFIS, http://www.cheltonflightsystems.com
	✓	GPSMAP® 396/496/495/696/695
	✓	Grand Rapids Technologies, Inc., http://www.grtavionics.com/
✓	✓	MountainScope™, http://www.pcavionics.com/index.jsp

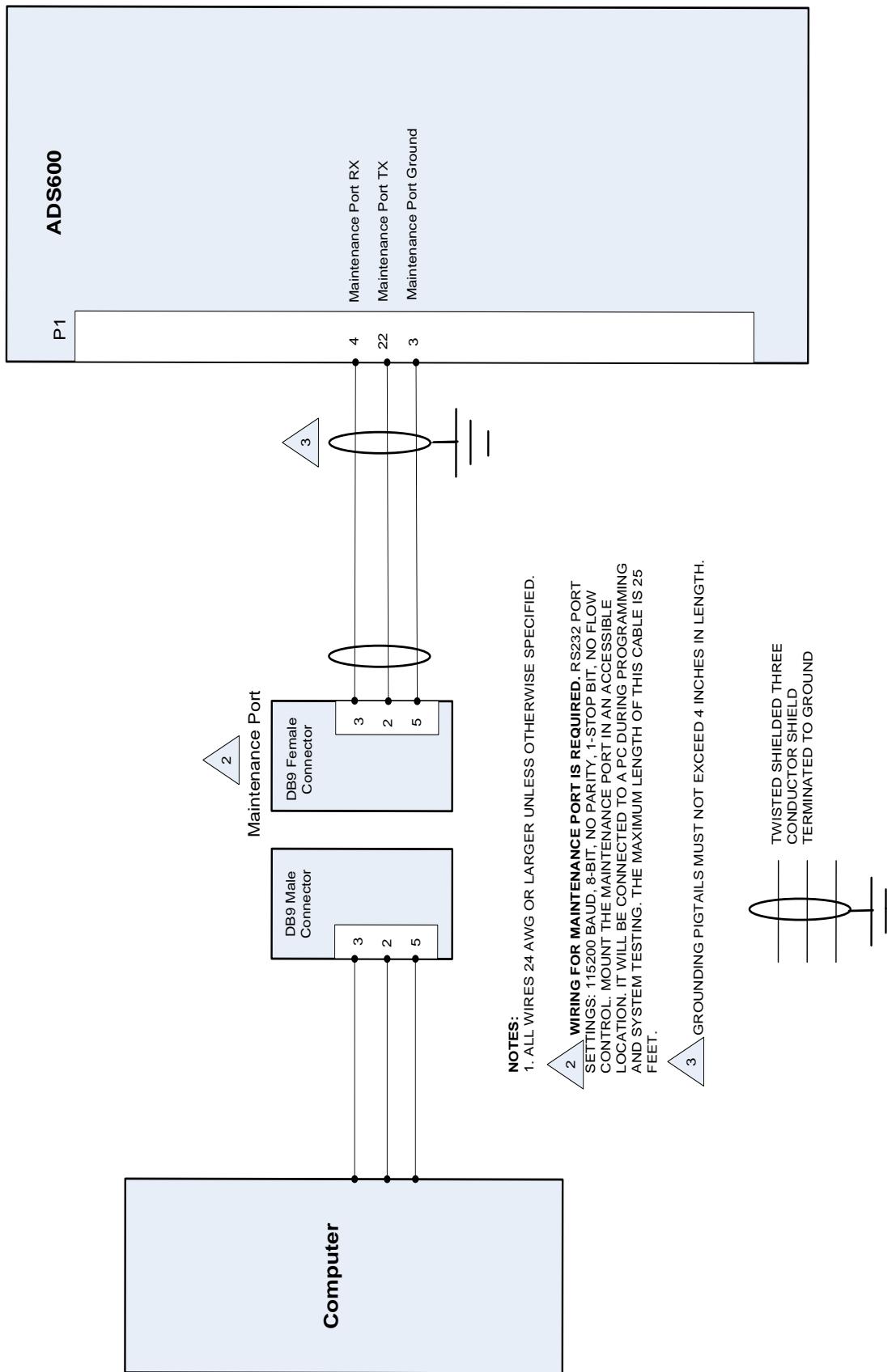
Product Registration

Record the serial number of your unit here: _____

Please help us better support you by connecting to the NavWorx website (www.navworx.com) and completing the online product registration. Select the Product Registration link on the home page. You'll need to provide your product serial number when registering your unit.

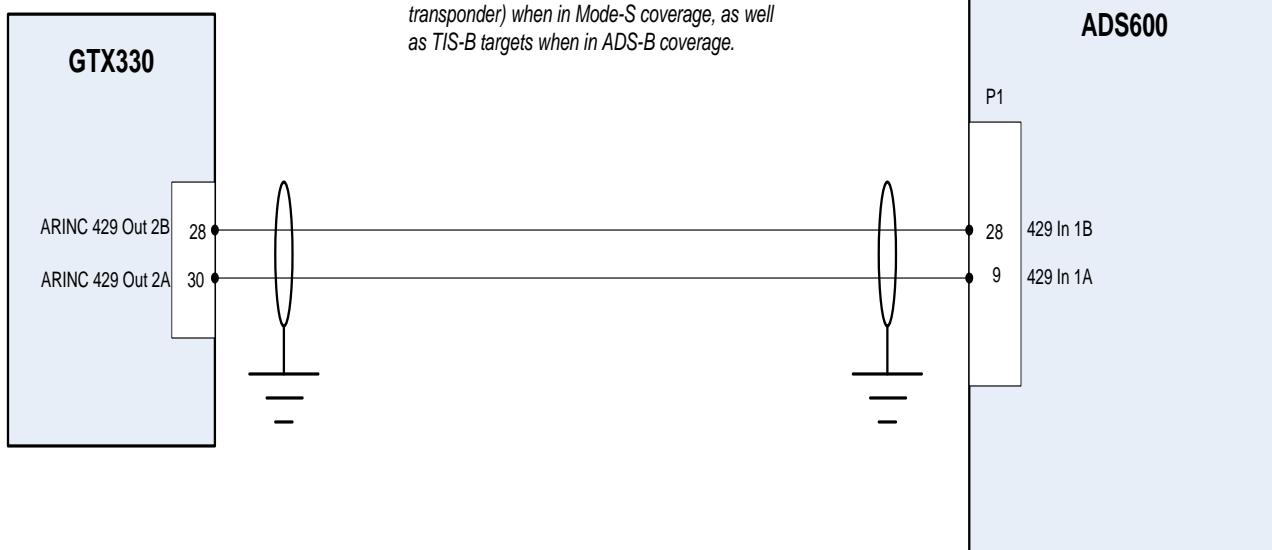
Wiring Diagrams

ADS600 Maintenance (Serial) Port to Computer Interconnect Diagram



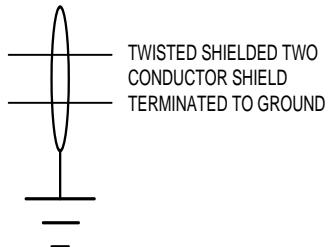
Composite-TIS™ Interconnect Diagram

In addition to receiving and processing ADS-B FIS-B and TIS-B messages, the ADS600 may be configured for Composite-TIS™. In this configuration, the ADS600 outputs both TIS-A and TIS-B traffic to a compatible display: traffic is the combination of TIS-A targets (from a Mode-S transponder) when in Mode-S coverage, as well as TIS-B targets when in ADS-B coverage.

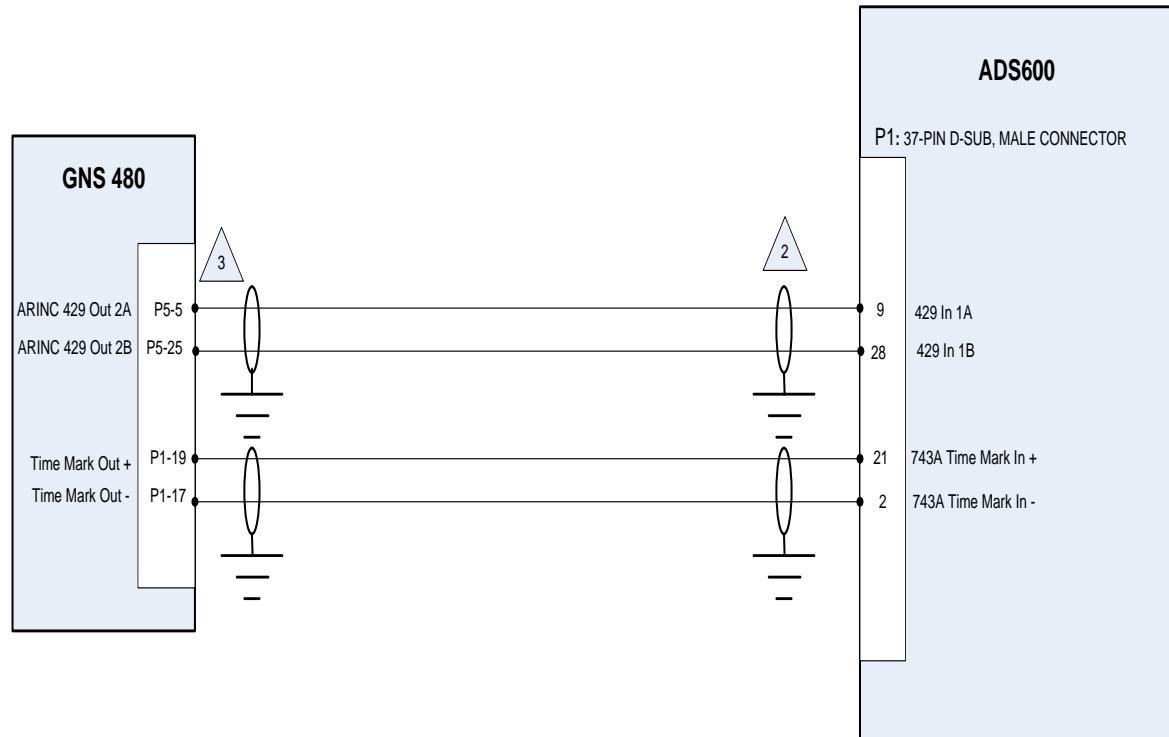


NOTES:

1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.
2. P1: 37-PIN D-SUB, MALE CONNECTOR.



GNS 480 ARINC 743A Position Source

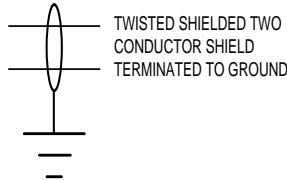


NOTES:

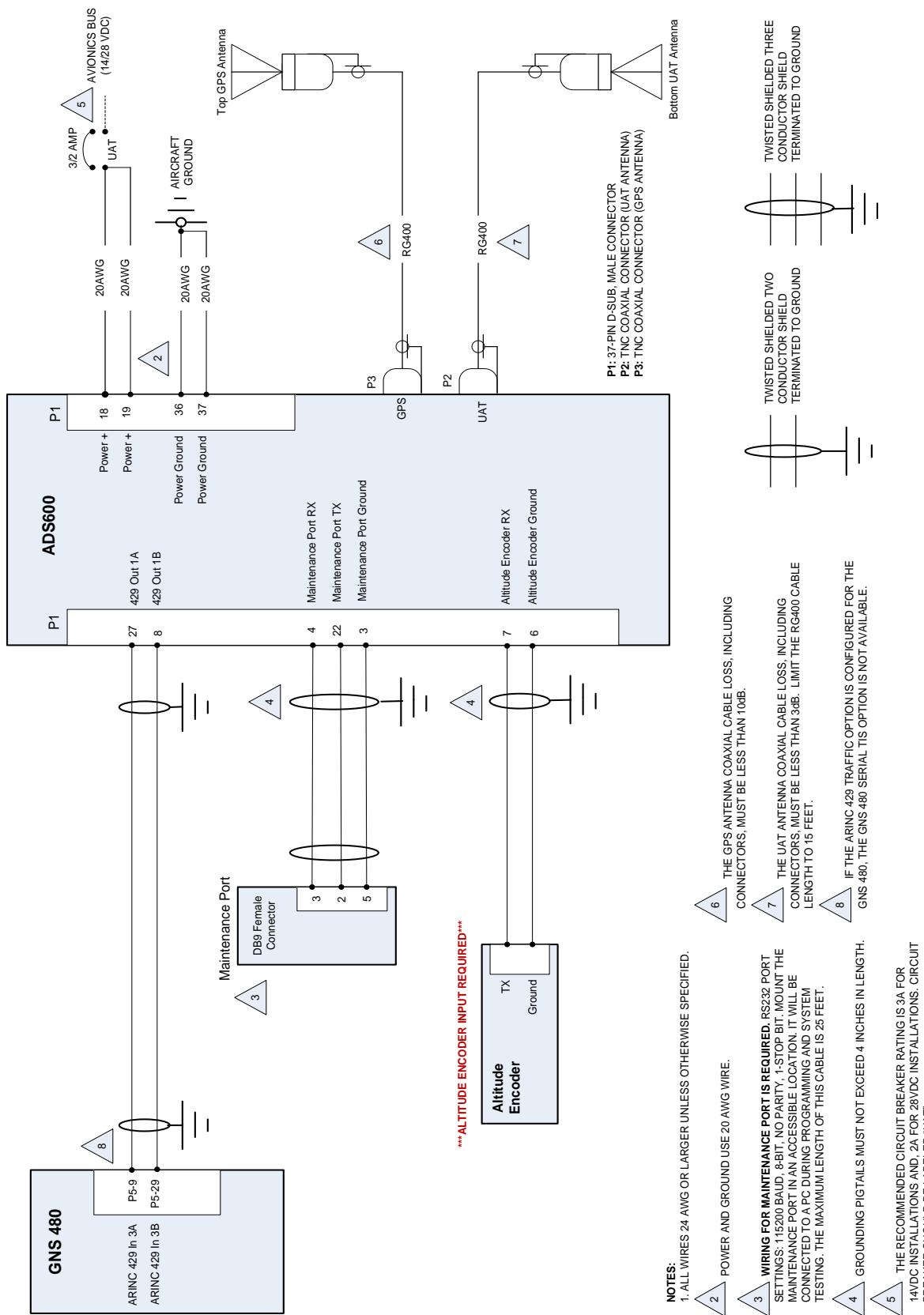
1. ALL WIRES 24 AWG OR LARGER UNLESS OTHERWISE SPECIFIED.

 GROUNDING PIGTAILS MUST NOT EXCEED 4 INCHES IN LENGTH.

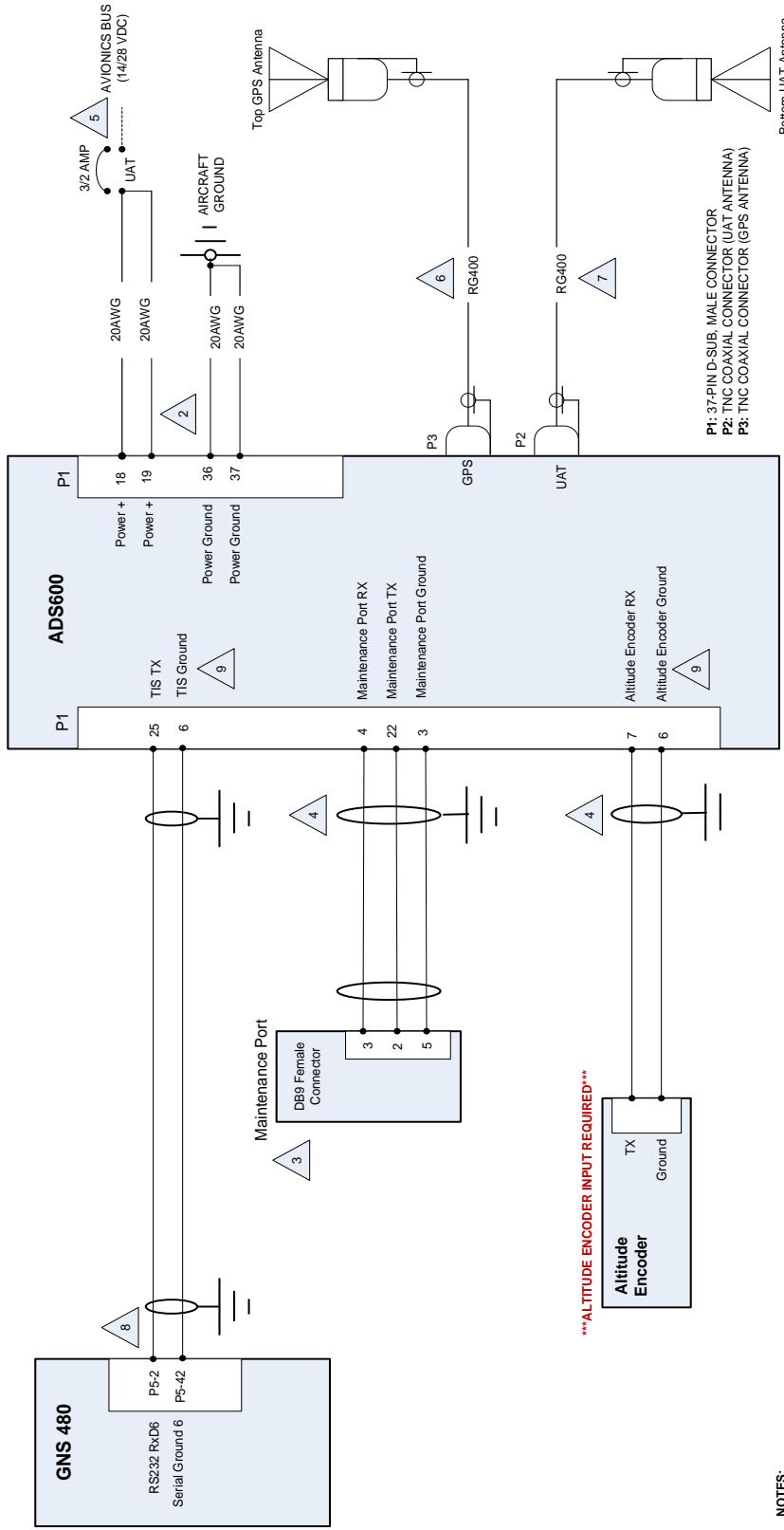
 GNS 480 ARINC 429 #1 OUT (P5-4/24) MAY BE USED INSTEAD OF 429 #2 (P5-5/25) OUT.



GNS 480 Traffic (ARINC 429)



GNS 480 Traffic (RS-232 TIS)



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

2 POWER AND GROUND USE 20 AWG WIRE.

3 WIRING FOR MAINTENANCE PORT IS REQUIRED. RS232 PORT SETTINGS: 115200 BAUD, 8-BIT, NO PARITY, 1-STOP BIT. MOUNT THE MAINTENANCE PORT IN AN ACCESSIBLE LOCATION. IT WILL BE CONNECTED TO A PC DURING PROGRAMMING AND SYSTEM TESTING. THE MAXIMUM LENGTH OF THIS CABLE IS 25 FEET.

4 GROUNDING PIGTAILS MUST NOT EXCEED 4 INCHES IN LENGTH.

5 THE RECOMMENDED CIRCUIT BREAKER RATING IS 3A FOR 14VDC INSTALLATIONS AND 2A FOR 28VDC INSTALLATIONS. CIRCUIT BREAKER SHOULD BE LABELED "UAT".

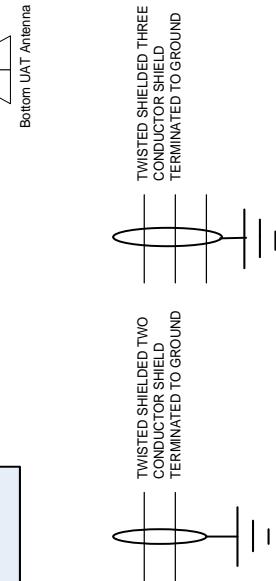
10 REFER TO COMPOSITE-TIS™ DIAGRAM FOR WIRING REQUIRED FOR COMPOSITE-TIS.

6 THE GPS ANTENNA COAXIAL CABLE LOSS, INCLUDING CONNECTORS, MUST BE LESS THAN 10dB.

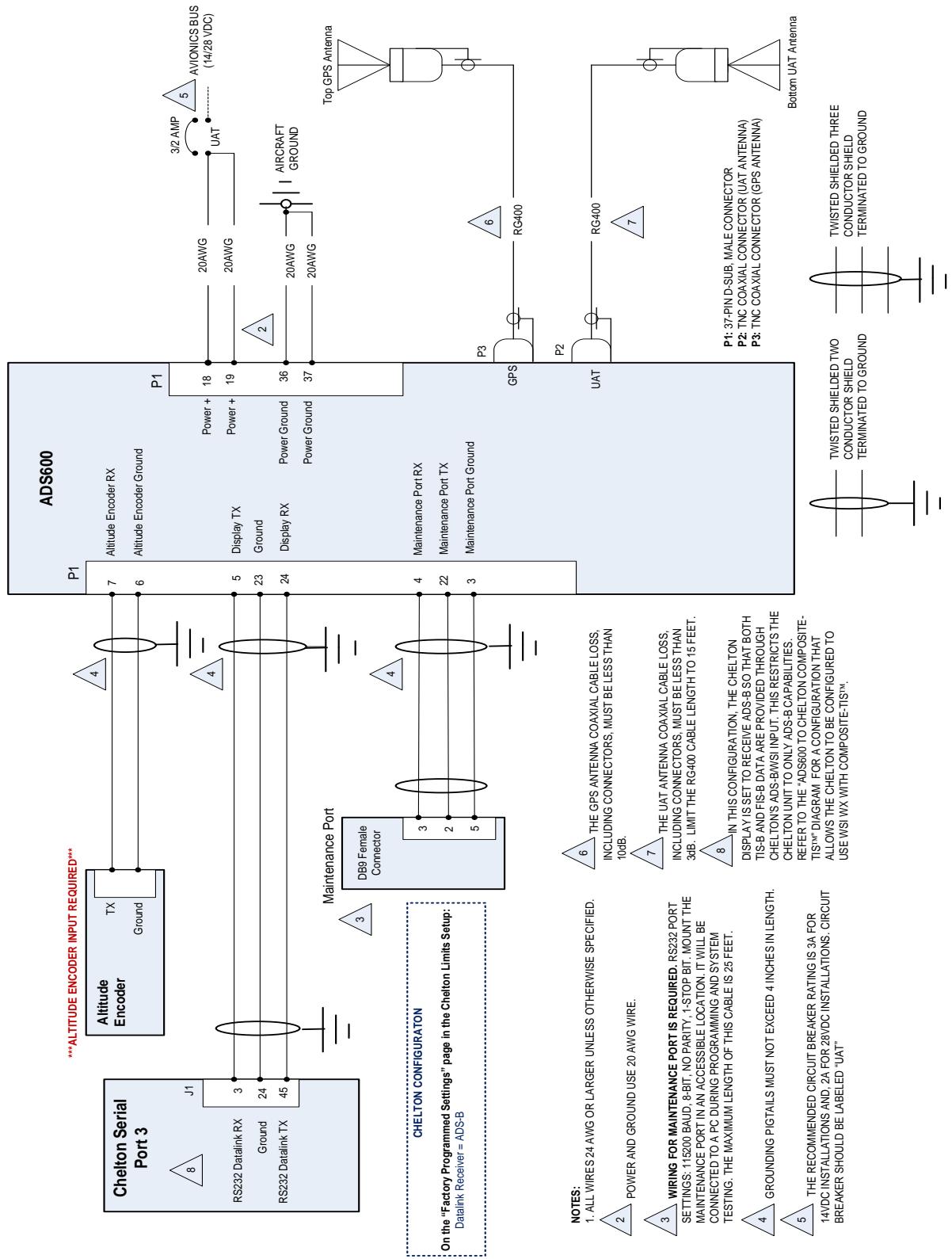
7 THE UAT ANTENNA COAXIAL CABLE LOSS, INCLUDING CONNECTORS, MUST BE LESS THAN 3dB. LIMIT THE RG400 CABLE LENGTH TO 15 FEET.

8 IF THE SERIAL TIS OPTION IS CONFIGURED FOR THE GNS 480, THE GNS 480 ARINC 429 TRAFFIC OPTION IS NOT AVAILABLE.

9 TIS AND ALTITUDE ENCODER INPUT SHARE THE SAME GROUND PIN, P1-6.



ADS600 to Chelton **ADS-B**



ADS600 to Chelton **Composite-TIS™**

