SANDEL®

SA4550
Primary Attitude Display

Installation Manual
Revision G

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REVISION HISTORY		
Revision	**Date**	**Comments**
G	28-SEP-2012	Updated Revision History per AR1242. Page 1-1: Add ARINC-429 Attitude and Radar Altimeter interfaces to feature list in section 1.2.1 Page 1-2: Added ARINC 429 key code information. Add ARINC-429 to Installation Planning section 1.3, 1.3.1 and 1.3.2 Page 1-4: Add ARINC-429 option description to section 1.4 Page 2-2: Added Positronics P/N. Page 2-6, -12, -17, -20, -23, -28: Add ARINC-429 AHRS attitude and Radar Altimeter inputs to connector pin definition tables Page 2-31, -32, -33: Add ARINC-429 to Signal Characteristics Tables Page 2-42: Added ARINC 429 label table. Page 4-2, -3, -4: Add section headings 4.3.1 thru 4.3.4 with additional detail for KRA-405(B) Radar Altimeters in section 4.3.3. Added note about strapping for ARINC 429 radar altimeter installations. Page 7-3, -5, -7: Updated images. Updated tables for ARINC 429. Added ARINC 429 key code information. Page 7-13, -14, -15: Add ARINC-429 to ATT/FD Maintenance Page Descriptions Page 7-19, -20, -21: Add ARINC-429 to RADALT Maintenance Pages Appendix E: Added note about ARINC 429 radar altimeter test. Appendix F: Drawing list updated. Added sheet 11 and12 to 82010-10.
F	16-NOV-2008	Updated Revision History per AR1021. Page 1-1: Added export control notice 1.1.1 and 1.2.1 NVIS feature list. Page 1-4: Added 1.4.1 NVIS interface description. Page 2-1: Added NVIS part number. Page 2-5: Changed table reference to 2-5 for required mating connectors. Page 2-16, -26, -30: Revised P3-11 to NVIS control. Page 4-3: Removed reference to SS2 from table 4-2. Page 11-7: Added note for KCI-310 Flight Director Computer flag check on ground test procedure. Page 11-3: Added NVIS control switch to list of test items. Page 11-8: Added NVIS control to ground test. Page 12-1: Updated drawing list.

REVISION HISTORY		
Revision	**Date**	**Comments**
E	15-JUL-2008	Installation Manual updated to add support for Bendix/King models. Page 1-1: Added KCI-310 to introduction Page 1-3: Added King models to Table 1-3 Page 2-1: Added KCI-310 to P/N descriptions Page 2-2: Added USB cable to Bill of Materials Page 2-4: Added KCI-310 to Physical Dimensions description Page 2-5: Added KCI-310 to Table 2-5 Page 2-27: Added pages 2-27 through 2-29 to Connector Summary for KCI-310 models Page2-30: Added power connector P-3 pin definitions. Page 2-33: Added page for Bendix/King models. Page 2-41: Added page for signal scaling and thresholds for Bendix/King models Page 4-1: Note added for radar altimeters Page 4-2: Notes added for radar altimeters. Page 4-2: Corrected RADALT strapping for SA4550 Collins Page 4-2 : Added Table 4-1C for KCI310/310A models. Bendix/King KRA-405/405B radar altimeter compatibility notes added. Updated maintenance page descriptions added: Page 7-5: Maintenance Page 2: added page for Bendix/King models Page 7-7: Maintenance Page 3: added page for Bendix/King models Page 7-10: Maintenance Page 4: added page for Bendix/King models Page 7-13: Maintenance Page 5: added page for Bendix/King models Page 7-16: Maintenance Page 6: added page for Bendix/King models Page 7-19: Maintenance Page 7: added page for Bendix/King models Page 7-22: Maintenance Page 8: added page for Bendix/King models Appendix E, page 11-4: added note about ARINC 429 radar altimeter test. Appendix F: Drawing List updated
D	3-MAR-2008	Installation Manual updated to add support for Collins models Page 1-3: Added Collins Models to Table 1-3 Sections 2 thru 4: Updated for Collins replacement models. Updated maintenance page descriptions added: Page 7-4: Maintenance Page 2: added page for Collins models Page 7-7: Maintenance Page 4: added page for Collins models Page 7-9: Maintenance Page 5: added page for Collins models Page 7-11: Maintenance Page 6: added page for Collins models Page 7-13: Maintenance Page 7: added page for Collins models Page 7-15: Maintenance Page 8: added page for Collins models Added drawing 82010-10 sheet 7
C	12-OCT-2007	Clarified signal types. Added compatible Sperry Model/Part Numbers Added drawings 82010-IM Sheets 5 and 6 Modified drawings 82010-IM sheets 1 and 2. Modified ground test procedure to use maintenance page for RADAR Alt check. Updated Appendix F
B1	30-AUG-2007	Following three pages updated for Revision B1: Page iii, Revision History updated with B1 changes Page 1-4, Table 4-1 Pin labels for SA-4550-1xx corrected Drawing 82010-10 sheet 4, Pin strapping corrected for Collins Alt-50 and ARINC 552.
B	18-JUNE-2007	Additional Maintenance Page descriptions added.

REVISION HISTORY		
Revision	**Date**	**Comments**
A	04-MAY-2007	Initial release

Table of Contents

1 General Information

1.1 Introduction

The Sandel Avionics SA4550 Primary Attitude Display is designed to replace the Sperry AD-500/550, AD-600/650, HZ-454 series, the Collins ADI-84/84A/84C, ADI 329B-7R series, and the Bendix-King KCI 310 and KCI 310A series electromechanical Attitude Director Indicators (ADI). The information contained within this Installation Manual describes the features, functions, technical characteristics, components, approval procedures, installation considerations, setup procedures, checkout procedures, and instructions for continued airworthiness for the SA4550.

1.1.1 EXPORT CONTROL NOTICE

Please be advised that SA4550 models with Night Vision Imaging System (NVIS) support (SA4550-(xxxN)) may be controlled under the International Traffic in Arms Regulations (ITAR) and requires export authorization by the U.S. department of state either by citation of an applicable exemption or by export license. For information on the ITAR, please refer to the U.S. Department of State website: http://pmddtc.state.gov/.

1.2 Equipment Description

1.2.1 Features

The Sandel SA4550 is an advanced microprocessor controlled airborne electronic display which is FAA approved under technical standard orders (TSO) C113, C3d, C4c, C34e, C36e, and C52b. The SA4550 meets the requirements for Category I approach procedures only. The SA4550 features include:

- **Attitude Indicator**
- **Single or Dual Cue Flight Director Display**
- **Localizer Display**
- **Glide Slope Display**
- **Radar Altimeter Display**
- **MIN Altitude Setting**
- **Fast / Slow Indicator**
- **Mode Annunciators**
- **Integrated Slip/Skid Ball Indicator**
- **Optional Class B Night Vision (NVIS) Compatible**
- **ARINC-407 Synchro or Optional ARINC-429 Attitude Input Source Support**
- **Analog or Optional ARINC-429 Radar Altimeter Input Source Support**

The internal software is field loadable through the use of a portable computer equipped with a USB port and Sandel Loader software running under Microsoft Windows.

1.2.2 Special Considerations

The SA4550 is designed to replace specific electromechanical ADIs, however not all features of each replaceable ADI have been included in the SA4550. Therefore the following restrictions and conditions must be considered during the installation phase.

1. The SA4550 use is typically limited to Category I approaches. Localizer deviation is depicted on a standard localizer display scale not an expanded localizer scale.

2. When replacing an ADI that has an integrated “Rate of Turn Indicator”, either another independent “Rate of Turn Indicator’ must be present or a third independent gyro capable of displaying 360 degrees in both pitch and roll attitude. This requirement may be met with a standby attitude gyro display.

3. Each SA4550 installed must be connected to an independent roll and pitch attitude source.

1.3 Installation Planning

When replacing an indicator listed in Table 1-3, no additional wiring is usually necessary except to provide 28vdc power through an additional provided connector. The existing aircraft wiring may be used with one exception for the ADI-500A/B/C or HZ-454 replacement models. Pin strapping on the power connector is required to configure the SA4550 for the exact part number being replaced. Refer to section 4.3 Equipment/Configuration Settings.

Installations have an option to upgrade their Attitude source from ARINC-407 Synchro XYZ to ARINC-429. Purchase of a key code to enable 429 capability is required. When this upgrade option is chosen, the SA4550 can receive Auxiliary ARINC-429 data, such as Radar Altimeter information, as well. The existing Synchro Pitch X and Y harness input pins will need to be re-wired to receive ARINC-429 Attitude Pitch and Roll data. The Roll X and Y harness input pins will be available to receive Auxiliary ARINC-429 inputs.

Replacing an ADI-500A/B/C or HZ-454 is one exception to using the aircraft wiring as is. These models may require re-termination of the MIN annunciator input pin (formerly DH) from connector J1 to J2. See drawings 82010-10 sheet 5 and 6 for details.

To simplify calibration and checkout, maintenance pages have been included to support configuration confirmation and installation diagnosis (see Appendix A).

1.3.1 Installation Planning Cycle

1) The SA4550 requires 28vdc power (protected by a 5 amp circuit breaker).

2) Develop the specific wiring diagrams unique to the aircraft.

3) When not replacing a specific indicator per table 1-3.

- Study the feature list and determine the desired functional characteristics for the installation.

- Verify attitude gyro supports ARINC-407 XYZ or ARINC-429 pitch angle label 324 and roll angle label 325.

- Supported Radar altimeter models are listed in table 4-1. Radar Altimeters outputting ARINC-429 label 164 are supported when the unit is configured to receive Attitude information from ARINC-429.

- Localizer, Glide Slope, Flight director and Speed Command inputs signals meet the scaling parameters defined in section 2.

- Study the installation drawings to determine a basic interconnect scheme and check for conflicts.

1.3.2 Post Installation Summary

1) Prior to power-up, review correct wiring by using standard ohmmeter and voltage checks.

2) Apply power to the SA4550, bring up in maintenance mode and adjust the pitch and slip/skip ball adjustments, radar altimeter calibration, and Flight Director Cue selection. Verify that the Attitude Source is properly identified as ARINC-407 Synchro XYZ or ARINC-429 on the ATT/FD maintenance page.

3) Perform Ground Test procedures.

4) Perform Flight Test procedures.

Table 1- 3: Supported Mechanical Indicators

Sperry Models	Sperry Part Numbers
AD-500A	7000836-901, -902, -909, -910, -923, -924
AD-500B	7000836-903, -904, -911, -912
AD-500C	7000836-905, -906, -913, -914, -921, -922
AD-550A	7001182-901, -902, -909, -910
AD-550B	7001182-903, -904, -911, -912
AD-550C	7001182-905, -906, -913, -914, -916, -917, -918, -919
AD-600	4020547-901, -904
AD-600A	4020547-906, -907
	7000466-903, -904, -953
AD-600B	4020547-905, -908
	7000466-907, -908, -957
AD-600C	7000466-911, -912, -961

AD-650A	7000466-901, -902, -917, -918, -951
AD-650B	7000466-905, -906, -926, -946, -955, -966, -986
AD-650C	7000466-909, -910, -920, -959
HZ-454	4002531-454, -901, -902, -903, -904, -905
Collins Models	**Collins Part Numbers**
ADI 84	787-6173-001, -002, -003, -004, -005, -006, -007, -008, -011, -012, -013, -014, -015, -016, -017, -018, 201, -202, -203, -204, -205, -206, -207, -208, -211, -212, -213, -214, -215, -216, -217, -218
ADI 84A	622-3594-001, -002, -003, -004, -005, -006, -007, -008, -011, -012, -013, -014, -015, -016, -017, -018
ADI 84C	622-4571-001
ADI 329B-7R	792-6355-001, -002, -003, -004
ADI 329B-7R-1	622-0835-001, -002
ADI 329B-7R-2	622-0836-001, -002, -003
ADI 329B-7R-3	622-0837-001, 002, -003
ADI 329B-7R-4	622-0855-001, -002
ADI 329B-7R-5	622-0856-001, -002
King Models	**King Part Numbers**
KCI 310	066-3020-00, -01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11, -12, -13, -14, -15, -16, -17, -18
KCI 310A	066-3082-00, -02, -03, -04, -05, -06, -07, -08, -11, -12, -13, -14, -15, -16, -17, -18

1.4 Interface Planning

Except for required power wiring, the SA4550 is designed to be a functional replacement for the indicators listed in table 1-3. For indicators not listed in the table, pin definition tables and generic installation drawings are provided in this installation manual. Installations have an option to upgrade their Attitude source from ARINC-407 Synchro XYZ to ARINC-429. When this upgrade option is chosen, the SA4550 can receive Auxiliary ARINC-429 data, such as Radar Altitude, as well. The existing Synchro Pitch X and Y harness input pins will need to be re-wired to receive ARINC-429 Attitude Pitch and Roll data. The Roll X and Y harness input pins will be available to receive Auxiliary ARINC-429 inputs.

1.4.1 Night Vision Support Option

For NVIS capable units NVIS mode is enabled by a closure to ground through an external toggle switch or maintained pushbutton switch. NVIS mode is annunciated onscreen so an external annunciator is not required.

The input will always pull up to the de-activated state when disconnected.

1.5 Disclaimer

Sandel Avionics does not assume any risk for nor accept any responsibility for the interface descriptions contained within this Installation Manual. It is the responsibility of the installer to ensure that such equipment is compatible with the SA4550 as described, and to ensure that the installation of the SA4550 is accomplished with such equipment using the specific equipment manufacturer's installation and technical instructions. No other representations are expressed herein.

2 Technical Information

2.1 General

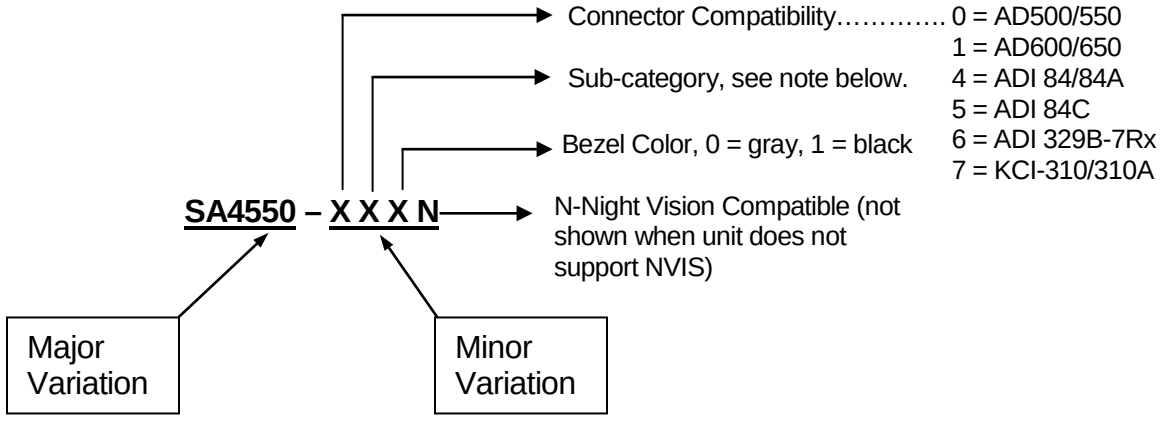
The SA4550 is enclosed in an ARINC 408, 4ATI form factor enclosure and is mounted to an instrument panel using a standard ATI clamp.

The SA4550 operates on an input voltage from 20 to 33 Volts DC, nominal 40 watts. 26 Volts AC 400 Hertz reference excitation inputs with a current requirement of less than 1 milliampere

The following section describes the technical characteristics that include the appliance approval basis, physical and electrical properties, electrical connector pin allocation which details function and gradient or equipment protocol, and ARINC label support. Also included is the description of the SA4550 installation components, other equipment and installation requirements. A review of the installation approval procedures is provided for filing with authorities.

2.2 Part Numbers

The part number for the Sandel SA4550 is:



Sub-Category Notes:

0 = All 1K ohm low level input load resistors are installed.
1 = LOC, GS and FD input load resistors are not installed. Speed input load resistors are installed.
2 = LOC, GS, FD and Speed input load resistors are not installed.
3 = Attitude Bootstrap supported and all input load resistors are installed.
4 = High vibration and all 1K ohm low level input load resistors are installed.
5 = High vibration and LOC, GS and FD input load resistors are not installed. Speed input load resistors are installed.
6 = High vibration and Attitude Bootstrap supported and all input load resistors are installed.

The current version of software is displayed on the power-up screen and the System Info maintenance page.

2.2.1 Installation Kit and Accessories

SPN	Description
90175-IK	SA4550 installation kit
61277	4ATI to 5ATI Adapter Plate Kit
61228	4ATI to 4X5ATI Adapter Plate Kit

2.2.2 Bill of Materials – SA4550 Install Kit

SPN	Description	Qty
32089	Conn., D – 15 with pins (Positronics P/N DD15F10JVL00)	1
61186	4ATI Mounting Clamp	1
82010-IM	Installation Manual, SA4550	1
88114	USB Cable	1

2.3 Approval Summary

2.3.1 License Requirements

None.

2.3.2 Approval Data

Technical Standard Order:

C113: Airborne Multipurpose Electronic Displays

C3d: Turn and Slip Instruments

C4c: Bank and Pitch Instruments

C34e: ILS Glide Slope Receiving Equipment

C36e: Airborne ILS Localizer Receiving Equipment

C52b: Flight Director Equipment

Software Certification: RTCA/DO-178B, Levels A, C

Hardware Certification: RTCA/DO-254, Levels A, C

Environmental Categories: RTCA/DO-160E

(Note: Pitch and Roll attitude are level A. Guidance and Slip / Skid ball are level C.)

2.3.3 Technical Standard Order Stipulation

The following stipulation as presented is required by the Federal Aviation Administration for articles approved under a Technical Standard Order. This statement does not preclude multiple installation and operational approvals in regard to specific aircraft make, model, or type:

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

2.3.4 Installation and Operational Approval Procedures

For the purpose of seeking installation approval, declarations should be made in the "Description of Work Accomplished" section of a Federal Aviation Administration (FAA) Form 337 or other field approval, or other limited supplemented type certification form. A sample Form 337 is included in Appendix. The basis of approval is for use as a "Primary Attitude Display" for the functions of basic pitch and roll information, flight director command cues, localizer and glide slope deviation, speed command indicator, Slip/Skid indicator, Radar Altimeter display, minimums setting/annunciation, and mode annunciators. Applicable Federal Aviation Regulations (FAR) must be adhered to.

The Environmental Qualification Form for the SA4550 is included in the Appendix, and should be referenced to the categories appropriate to the aircraft type and environment into which the SA4550 is to be installed. The SA4550 was environmentally tested for use in a non-composite aircraft small or large transport aircraft without shielded wiring. The environmental category for the SA4550 should be stipulated on the FAA Form 337, or other approval form.

A "Functional Ground Test Procedures/Report" and an "Operational Flight Check Procedures/Report" is also included in the appendix, and should be used as a basis for validating the SA4550 equipment configuration and for verifying proper installation and functional performance. A copy of this form should be submitted along with the FAA Form 337, or other approval or certification form. A permanent copy must be filed and maintained by the installing agency. Another copy must be presented to the aircraft owner for entry into the aircraft maintenance records, as well as a copy forwarded to Sandel Avionics along with the Warranty Registration Form, Part Number 82010-0137, to be filed after completion and installation acceptance. If any difficulty is experienced with the functionality or operational performance of the SA4550, contact Sandel Avionics for assistance.

2.4 Physical, and Electrical Properties

2.4.1 Physical Dimensions

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SA4550-(0, 4, 5, 6, 7)XX

For detailed dimensional information reference Sandel Drawing 82010-07 "Envelope, SA4550 (AD550)" Reference same drawing for Collins AD 84/84A/84C, 329B-7Rx, and King KCI 310/310A

Form Factor:	4ATI (ARINC 408)
Width:	3.975 in. (10.1 cm.)
Height:	3.975 in. (10.1 cm.)
Length:	8.15 in. (20.68 cm.) overall flush to bezel; 7.82 in (19.86 cm) measured from rear of bezel.
Weight:	3.4 lbs. (1.54 Kg.)
CG:	4.3 in. from rear of bezel.
ATI Clamp:	Sandel Avionics P/N 61186 or equivalent.
Cooling Requirements:	Internal fan requiring ambient air at fan input.

SA4550-1XX

For detailed dimensional information reference Sandel Drawing 82031-07 "Envelope, SA4550 (AD650)"

Form Factor:	4ATI (ARINC 408)
Width:	3.975 in. (10.1 cm.)
Height:	3.975 in. (10.1 cm.)
Length:	7.84 in. (19.91 cm.) overall flush to bezel; 7.57 in (19.23 cm) measured from rear of bezel.
Weight:	3.4 lbs. (1.54 Kg.)
CG:	4.3 in. from rear of bezel.
ATI Clamp:	Sandel Avionics P/N 61186 or equivalent.
Cooling Requirements:	Internal fan requiring ambient air at fan input.

2.4.2 Summary Operational Characteristics

Temperature Altitude:	-20° C to +70° C - up to 55,000 feet
Power Inputs:	28 Vdc @ 1.4A nominal (40 watts)

2.5 Connector Summary

The SA4550 is designed to be a compatible replacement for the electromechanical ADIs listed in table 1-3. It is compatible with ARINC-407 standard synchro signals, as well as industry standard discrete input and output voltages. The SA4550 design and operation is optimized for efficient adaptability to both new and existing avionics equipment and systems.

For new installations not using the existing aircraft wiring, Table 2-5 defines the required mating connectors for interface to the SA4550.

Table: 2- 5 SA4550 Connector Compatibility Part Number

	J1	J2
SA4550-0XX (Sperry AD-550)	MS3126F22-55SW	MS3126F16-26SW
SA4550-1XX (Sperry AD-600/650)	MS24266R18-B31-S	MS24266R22-B55-S8
SA4550-(4,5,6)XX (Collins ADI-84/84A/84C, 329B-7Rx)	MS3126F24-61S	N/A
SA4550-7XX Bendix/King KCI 310/310A	MS3116F22-55S	N/A

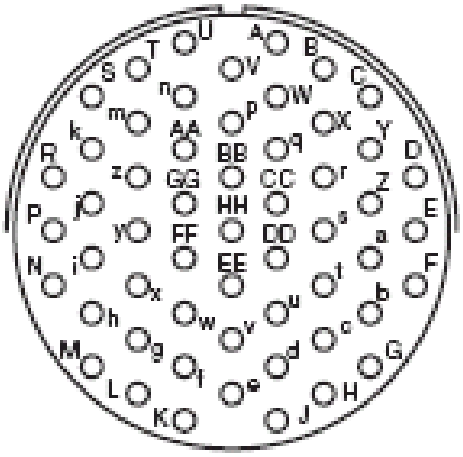
The lists on the following pages reflect the supported input and output signal types for each of the SA4550 variants.

2.5.1 SA4550-0XX Connector J1 – Sperry AD – 500/550, HZ-454

SA4550 – 0XX Connector J1 (AD- 500/550, HZ-454)		
Pin	**Name**	**Signal Type**
A	ATT Power Input (H)	In AC Reference (400 Hz)
B	ATT Power Input (C)	In AC Reference Common
C	Chassis Ground	In Case Ground
D	Fast/Slow -	In Low Level Analog (Diff)
E	Roll Data Input (Y) / AUX A429 (B)	In ARINC-407 or ARINC-429
F	SPARE	
G	Roll Data Input (Z) / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
H	TEST DISABLE GND	In Discrete (High Range)
J	RESERVED	
K	RESERVED	
L	Roll Data Input (X) / AUX A429 (A)	In ARINC-407 or ARINC-429
M	ATT Valid Input (+)	In Discrete (High Range)
N	Pitch Input Data (X) / ATT A429 (A)	In ARINC-407 or ARINC-429
P	DC GND	In Power
R	RESERVED	
S	Fast/Slow (+)	In Low Level Analog (Diff)
T	Pitch Input Data (Z) / ATT A429 SHLD GND	In ARINC-407 or ARINC-429
U	Pitch Input Data (Y) / ATT A429 (B)	In ARINC-407 or ARINC-429
V	RESERVED	

SA4550 – 0XX Connector J1 (AD- 500/550, HZ-454)		
Pin	**Name**	**Signal Type**
W	SPARE	
X	SPARE	
Y	SPARE	
Z	GA Annunciator (+)	In High Level Analog (Diff)
a	Pitch Comp Monitor (COS)	I/O ARINC-407
b	Pitch Comp Monitor (Common	I/O ARINC-407
c	Pitch Comp Monitor (SIN)	I/O ARINC-407
d	Pitch Comp Monitor (X)	I/O ARINC-407
e	Pitch Comp Monitor (Y)	I/O ARINC-407
f	Pitch Comp Monitor (Z)	I/O ARINC-407
g	Roll Comp Monitor (X)	I/O ARINC-407
h	Roll Comp Monitor (Y)	I/O ARINC-407
i	Roll Comp Monitor (Z)	I/O ARINC-407
j	Roll Comp Monitor (Common)	I/O ARINC-407
k	Roll Comp Monitor (COS)	I/O ARINC-407
m	Roll Comp Monitor (SIN)	I/O ARINC-407
n	Radar Alt Valid	In Discrete (High Range)
p	FD Pitch CMD (+)	In Low Level Analog (Diff)
q	FD Pitch CMD (-)	In Low Level Analog (Diff)
r	LOC Back Course	In Discrete (High Range)
s	FD Roll CMD (+)	In Low Level Analog (Diff)
t	FD Roll CMD (-)	In Low Level Analog (Diff)

SA4550 – 0XX Connector J1 (AD- 500/550, HZ-454)		
Pin	**Name**	**Signal Type**
u	GA Annunciator (-)	In High Level Analog (Diff)
v	GS Valid (+)	In Discrete (High Range)
w	Speed CMD Valid	In Discrete (High Range)
x	Back Course GND	In Discrete (Low Range)
y	LOC Valid	In Discrete (High Range)
z	Tuned To LOC	In Discrete (Low Range)
AA	GS Deviation (+)	In Low Level Analog (Diff)
BB	GS Deviation (-)	In Low Level Analog (Diff)
CC	LOC Deviation (+)	In Low Level Analog (Diff)
DD	LOC Deviation (-)	In Low Level Analog (Diff)
EE	SPARE	SPARE
FF	SPARE	SPARE
GG	FD Flag(+)	In Discrete (High Range)
HH	FD Flag (-)	In Discrete (Low Range)

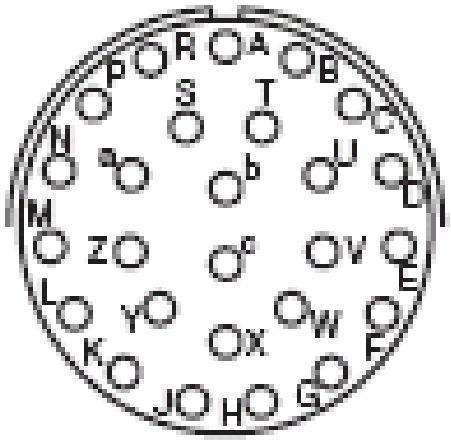


Outside View
(Mating Connector)
MS3126F22-55SW

2.5.2 SA4550-0XX Connector J2 – Sperry AD – 500/550, HZ-454

SA4550 – 0XX Connector J2 (AD- 500/550, HZ-454)		
Pin	**Name**	**Signal Type**
A	RESERVED	
B	RESERVED	
C	Radar Alt Test GND	Out Discrete (Low)
D	MIN GND Output	Out Discrete (Low)
E	SPARE	
F	Radar Alt Test Inhibit	In Discrete (RADALT_Test_INH)
G	Radar Alt Data (H)	In High Level Analog (Diff)
H	Radar Alt Data (C)	In High Level Analog (Diff)
J	Radar Alt Data Input Select (J)	In Discrete (RADALT_SEL)
K	Radar Alt Data Input Select (K)	In Discrete (RADALT_SEL)
L	Radar Alt Data Input Select (L)	In Discrete (RADALT_SEL)
M	MIN Annunciator Input	In Discrete (High Range)
N	RESERVED	
P	RESERVED	
R	SPARE	
S	SPARE	
T	SPARE	
U	SPARE	
V	SPARE	
W	SPARE	

SA4550 – 0XX Connector J2 (AD- 500/550, HZ-454)		
Pin	**Name**	**Signal Type**
X	SPARE	
Y	SPARE	
Z	SPARE	
a	SPARE	
b	SPARE	
c	SPARE	

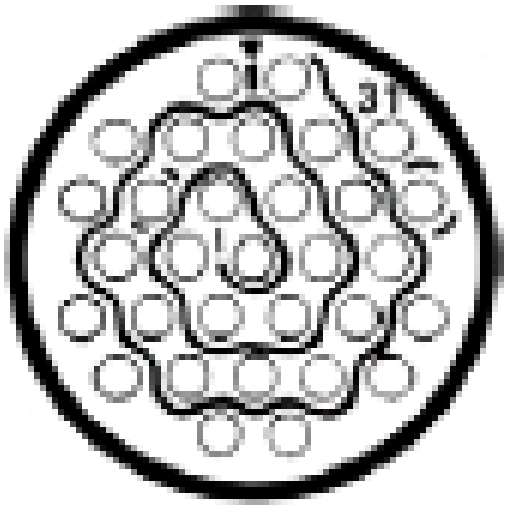


Outside View
(Mating Connector)
MS3126F16-26SW

2.5.3 SA4550-1XX Connector J1 – Sperry AD – 600/ 650

SA4550 – 1XX Connector J1 (600/650)		
Pin	**Name**	**Signal Type**
1	Pitch Comp Monitor X	In ARINC-407
2	Pitch Comp Monitor Y	In ARINC-407
3	Pitch Comp Monitor Z	In ARINC-407
4	Pitch Comp Monitor COS H	Out ARINC-407
5	Pitch Comp Monitor COS C	Out ARINC-407
6	Pitch Comp Monitor SIN H	Out ARINC-407
7	Pitch Comp Monitor SIN C	Out ARINC-407
8	Spare	
9	Spare	
10	Attitude Valid Input	In Discrete (High Range)
11	Tuned To LOC GROUND	In Discrete (Low Range)
12	Roll Comp Monitor COS H	Out ARINC-407
13	Roll Comp Monitor COS C	Out ARINC-407
14	Roll Comp Monitor SIN H	Out ARINC-407
15	Roll Comp Monitor SIN C	Out ARINC-407
16	Roll Comp Monitor X	In ARINC-407
17	Roll Comp Monitor Y	In ARINC-407
18	Roll Comp Monitor Z	In ARINC-407
19	Spare	

SA4550 – 1XX Connector J1 (600/650)		
Pin	**Name**	**Signal Type**
20	Primary Power Input 26VAC 400Hz H	In AC Reference (400 Hz)
21	Primary Power Input 26VAC 400Hz C	In AC Reference Common
22	Attitude Test Inhibit	In Discrete (Low Range)
23	RESERVED	
24	RESERVED	
25	Attitude Test Ground	Out Discrete (Low)
26	Roll Data Input X / AUX A429 (A)	In ARINC-407 or ARINC-429
27	Roll Data Input Y / AUX A429 (B)	In ARINC-407 or ARINC-429
28	Roll Data Input Z / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
29	Pitch Data Input X / ATT A429 (A)	In ARINC-407 or ARINC-429
30	Pitch Data Input Y / ATT A429 (B)	In ARINC-407 or ARINC-429
31	Pitch Data Input Z / ATT A429 SHLD GND	In ARINC-407 or ARINC-429



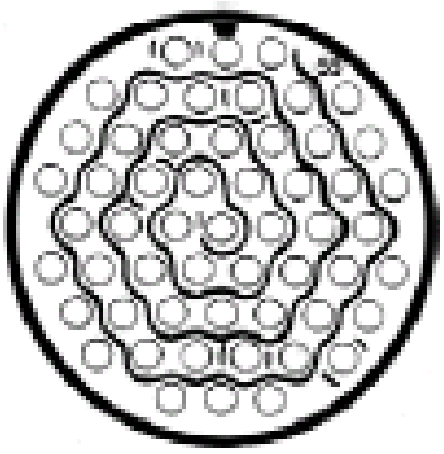
J-1 Outside View
(Mating Connector)
MS24266R18B31S

2.5.4 SA4550-1XX Connector J2 – Sperry AD-600/ 650

SA4550 – 1XX Connector J2 (600/650)		
Pin	**Name**	**Signal Type**
1	Radar Alt Select Common	In Ground
2	FD Flag Valid +	In High Level Analog (Diff)
3	FD Flag Valid -	In High Level Analog (Diff)
4	Spare	
5	Radar Alt Valid +	In Discrete (High Range)
6	Radar Alt ARINC Select	In Discrete (RADALT_SEL)
7	LOC Valid	In Discrete (High Range)
8	Radar Alt Aux Select	In Discrete (RADALT_SEL)
9	SPD Annunciator	In Discrete (FPGA)
10	VRT Annunciator	In Discrete (FPGA)
11	VN Annunciator	In Discrete (FPGA)
12	Radar Alt Test	Out Discrete (Low)
13	RESERVED	
14	RESERVED	
15	Speed Cmd +Up	In Low Level Analog (Diff)
16	Speed Cmd +Down	In Low Level Analog (Diff)
17	RESERVED	
18	GS Deviation +Up	In Low Level Analog (Diff)
19	GS Deviation +Down	In Low Level Analog (Diff)
20	GS Flag Valid +	In High Level Analog (Diff)
21	GS Flag Valid -	In High Level Analog (Diff)

SA4550 – 1XX Connector J2 (600/650)		
Pin	**Name**	**Signal Type**
22	RESERVED	
23	FD Pitch +Up	In Low Level Analog (Diff)
24	FD Pitch +Down	In Low Level Analog (Diff)
25	FD Roll +CW	In Low Level Analog (Diff)
26	FD Roll +CCW	In Low Level Analog (Diff)
27	RESERVED	
28	Alt Annunciator	In Discrete (FPGA)
29	HDG Annunciator	In Discrete (FPGA)
30	NAV Annunciator	In Discrete (FPGA)
31	MIN Ground	Out Discrete (Low)
32	RESERVED	
33	RESERVED	
34	LOC +LT	In Low Level Analog (Diff)
35	LOC +RT	In Low Level Analog (Diff)
36	Chassis Ground	In Ground
37	RESERVED	
38	RESERVED	
39	VRT Annunciator	In Discrete (FPGA)
40	Speed Flag Valid +	In High Level Analog (Diff)
41	Speed Flag Valid -	In High Level Analog (Diff)
42	Radar Alt Data +	In High Level Analog (Diff)
43	Radar Alt Data -	In High Level Analog (Diff)
44	Back Course	In Discrete (High Range)
45	RESERVED	

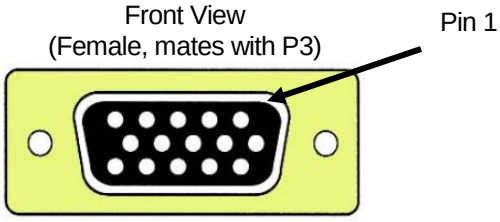
SA4550 – 1XX Connector J2 (600/650)		
Pin	**Name**	**Signal Type**
46	LOC & APR Annunciator	In Discrete (FPGA)
47	APR Annunciator	In Discrete (FPGA)
48	GS Annunciator	In Discrete (FPGA)
49	RESERVED	
50	RESERVED	
51	RESERVED	
52	RESERVED	
53	BC Annunciator	In Discrete (Low Range)
54	MIN Annunciator	In Discrete (Low Range)
55	GA Annunciator	In Discrete (Low Range)



J-2 Outside View
(Mating Connector)
MS24266R22B55S8

2.5.5 Power Connector P3 (Sperry AD-500/550, AD-600/650, HZ-454)

SA4550 Power Connector P3 Pin Definitions (Sperry AD-500/550, AD-600/650, HZ-454)			
Pin			Signal Description
	6		Scale Factor Selection 0, (SS0)
1			Scale Factor Selection 1, (SS1)
		11	NVIS Control
	7		Annunciator Group Selection 0, (AG0)
2			Annunciator Group Selection 1, (AG1)
		12	Rad/Alt Display Inhibit, (RI)
	8		Speed Indicator Inhibit, (SI)
3			Parity Bit, (P)
		13	Signal Ground
	9		DC Ground
4			DC Ground
		14	Signal Ground
	10		Signal Ground
5			DC Power
		15	DC Power

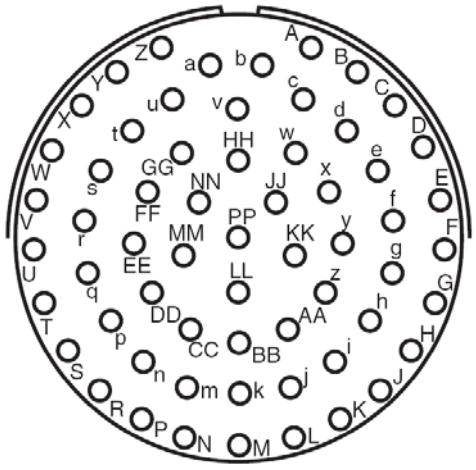


2.5.6 SA4550-4XX Connector J1 – Collins ADI-84/84A

SA4550 – 4XX Connector J1 (ADI 84/84A)		
Pin	**Name**	**Signal Type**
A	Pitch Input Data (X) / ATT A429 (A)	In ARINC-407 or ARINC-429
B	Pitch Input Data (Y) / ATT A429 (B)	In ARINC-407 or ARINC-429
C	Pitch Input Data (Z) / ATT A429 SHLD GND	In ARINC-407 or ARINC-429
D	Pitch Comp Monitor (X)	I/O ARINC-407
E	Pitch Comp Monitor (Y)	I/O ARINC-407
F	Pitch Comp Monitor (Z)	I/O ARINC-407
G	Pitch Comp Monitor (SIN)	I/O ARINC-407
H	Pitch Comp Monitor (Common)	I/O ARINC-407
J	Pitch Comp Monitor (COS)	I/O ARINC-407
K	Pitch Comp Monitor (Common)	I/O ARINC-407
L	Roll Data Input (X) / AUX A429 (A)	In ARINC-407 or ARINC-429
M	Roll Data Input (Y) / AUX A429 (B)	In ARINC-407 or ARINC-429
N	Roll Data Input (Z) / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
P	Roll Comp Monitor (X)	I/O ARINC-407
R	Roll Comp Monitor (Y)	I/O ARINC-407
S	Roll Comp Monitor (Z)	I/O ARINC-407
T	Roll Comp Monitor (SIN)	I/O ARINC-407
U	Roll Comp Monitor (Common)	I/O ARINC-407
V	Roll Comp Monitor (COS)	I/O ARINC-407
W	Roll Comp Monitor (Common)	I/O ARINC-407

SA4550 – 4XX Connector J1 (ADI 84/84A)		
Pin	**Name**	**Signal Type**
X	ATT Valid Input (+)	In Discrete (High Range)
Y	ATT Power Input (H)	In AC Reference (400 Hz)
Z	ATT Power Input (C)	In AC Reference Common
a	SPARE	
b	FD Roll CMD	In Low Level Analog (Single-ended)
c	Ground	
d	FD Pitch CMD	In Low Level Analog (Single-ended)
e	Ground	
f	FD Valid	In Discrete (High Range)
g	Ground	
h	LOC Valid	In Discrete (High Range)
i	RESERVED	
j	RESERVED	
k	LOC Tuned	In Discrete (Low Range)
m	LOC Deviation (+)	In Low Level Analog (Diff)
n	LOC Deviation (-)	In Low Level Analog (Diff)
p	GS Valid (+)	In Low Level Analog (Diff)
q	GS Valid (-)	In Low Level Analog (Diff)
r	GS Deviation (+)	In Low Level Analog (Diff)
s	GS Deviation (-)	In Low Level Analog (Diff)
t	FD Roll CMD (+)	In Low Level Analog (Diff)
u	FD Roll CMD (-)	In Low Level Analog (Diff)
v	FD Pitch CMD (+)	In Low Level Analog (Diff)
w	FD Pitch CMD (-)	In Low Level Analog (Diff)

SA4550 – 4XX Connector J1 (ADI 84/84A)		
Pin	**Name**	**Signal Type**
x	RADALT VALID (+)	In High Level Analog (Diff)
y	RADALT VALID (-)	In High Level Analog (Diff)
z	Radar Alt Data (H)	In High Level Analog (Diff)
AA	Radar Alt Data (C)	In High Level Analog (Diff)
BB	FD Bars In-View	In Discrete (High Range)
CC	FD Bars Out of View	In Discrete (High Range)
DD	RESERVED	
EE	RESERVED	
FF	FD Pitch CMD output	Out Analog
GG	SPARE	
HH	SPARE	
JJ	FD Roll CMD output	Out Analog
KK	FD Roll CMD	In Low Level Analog (Single-ended)
LL	FD Pitch CMD	In Low Level Analog (Single-ended)
MM	Annunciator Excitation	In Discrete (Low Range)
NN	DH Annunciator	In Discrete (Low Range)
PP	SPARE	



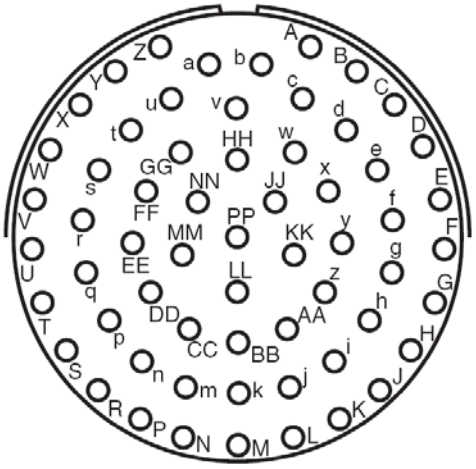
Outside View
(Mating Connector)
MS3126F24-61S

2.5.7 SA4550-5XX Connector J1 – Collins ADI-84C

SA4550 – 5XX Connector J1 (ADI 84C)		
Pin	**Name**	**Signal Type**
A	Pitch Input Data (X) / ATT A429 (A)	In ARINC-407 or ARINC-429
B	Pitch Input Data (Y) / ATT A429 (B)	In ARINC-407 or ARINC-429
C	Pitch Input Data (Z) / ATT A429 SHLD GND	In ARINC-407 or ARINC-429
D	RESERVED	
E	RESERVED	
F	RESERVED	
G	RESERVED	
H	RESERVED	
J	RESERVED	
K	RESERVED	
L	Roll Data Input (X) / AUX A429 (A)	In ARINC-407 or ARINC-429
M	Roll Data Input (Y) / AUX A429 (B)	In ARINC-407 or ARINC-429
N	Roll Data Input (Z) / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
P	RESERVED	
R	RESERVED	
S	RESERVED	
T	RESERVED	
U	RESERVED	
V	RESERVED	
W	RESERVED	
X	ATT Valid Input (+)	In Discrete (High Range)
Y	ATT Power Input (H)	In AC Reference (400 Hz)
Z	ATT Power Input (C)	In AC Reference Common
a	SPARE	
b	FD Roll CMD (+)	In Low Level Analog (Diff)
c	Ground	

SA4550 – 5XX Connector J1 (ADI 84C)		
Pin	**Name**	**Signal Type**
d	FD Pitch CMD (+)	In Low Level Analog (Diff)
e	Ground	
f	FD Valid	In Discrete (High Range)
g	Ground	
h	LOC Valid	In Discrete (High Range)
i	RESERVED	
j	RESERVED	
k	LOC Tuned	In Discrete (Low Range)
m	LOC Deviation (+)	In Low Level Analog (Diff)
n	LOC Deviation (-)	In Low Level Analog (Diff)
p	GS Valid (+)	In Low Level Analog (Diff)
q	GS Valid (-)	In Low Level Analog (Diff)
r	GS Deviation (+)	In Low Level Analog (Diff)
s	GS Deviation (-)	In Low Level Analog (Diff)
t	RESERVED	
u	RESERVED	
v	RESERVED	
w	RESERVED	
x	RADALT VALID (+)	In High Level Analog (Diff)
y	RADALT VALID (-)	In High Level Analog (Diff)
z	Radar Alt Data (H)	In High Level Analog (Diff)
AA	Radar Alt Data (C)	In High Level Analog (Diff)
BB	FD Bars In-View	In Discrete (High Range)
CC	FD Bars Out of View	In Discrete (High Range)

SA4550 – 5XX Connector J1 (ADI 84C)		
Pin	**Name**	**Signal Type**
DD	FD Pitch CMD (-)	In Low Level Analog (Diff)
EE	FD Roll CMD (-)	In Low Level Analog (Diff)
FF	RESERVED	
GG	SPARE	
HH	SPARE	
JJ	RESERVED	
KK	RESERVED	
LL	RESERVED	
MM	Annunciator Excitation	In Discrete (Low Range)
NN	GA Annunciator	In Discrete (Low Range)
PP	SPARE	



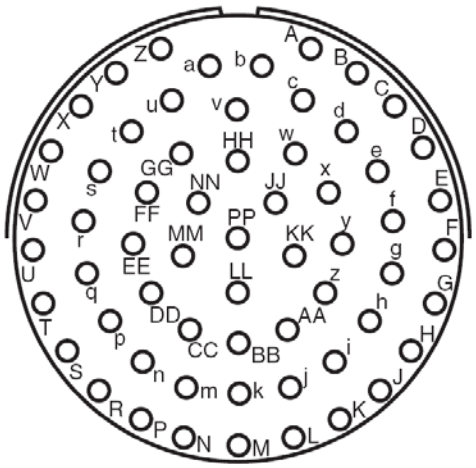
Outside View
(Mating Connector)
MS3126F24-61S

2.5.8 SA4550-6XX Connector J1 – Collins ADI 329B-7Rx

SA4550 – 6XX Connector J1 (ADI 329B-7Rx)		
Pin	**Name**	**Signal Type**
A	Pitch Input Data (X) / ATT A429 (A)	In ARINC-407 or ARINC-429
B	Pitch Input Data (Y) / ATT A429 (B)	In ARINC-407 or ARINC-429
C	Pitch Input Data (Z) / ATT A429 SHLD GND	In ARINC-407 or ARINC-429
D	Pitch Comp Monitor (X)	I/O ARINC-407
E	Pitch Comp Monitor (Y)	I/O ARINC-407
F	Pitch Comp Monitor (Z)	I/O ARINC-407
G	Pitch Comp Monitor (SIN)	I/O ARINC-407
H	Pitch Comp Monitor (Common)	I/O ARINC-407
J	Pitch Comp Monitor (COS)	I/O ARINC-407
K	Pitch Comp Monitor (Common)	I/O ARINC-407
L	Roll Data Input (X) / AUX A429 (A)	In ARINC-407 or ARINC-429
M	Roll Data Input (Y) / AUX A429 (B)	In ARINC-407 or ARINC-429
N	Roll Data Input (Z) / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
P	Roll Comp Monitor (X)	I/O ARINC-407
R	Roll Comp Monitor (Y)	I/O ARINC-407
S	Roll Comp Monitor (Z)	I/O ARINC-407
T	Roll Comp Monitor (SIN)	I/O ARINC-407
U	Roll Comp Monitor (Common)	I/O ARINC-407
V	Roll Comp Monitor (COS)	I/O ARINC-407
W	Roll Comp Monitor (Common)	I/O ARINC-407

SA4550 – 6XX Connector J1 (ADI 329B-7Rx)		
Pin	**Name**	**Signal Type**
X	ATT Valid Input (+)	In Discrete (High Range)
Y	ATT Power Input (H)	In AC Reference (400 Hz)
Z	ATT Power Input (C)	In AC Reference Common
a	SPARE	
b	FD Roll CMD	In Low Level Analog (Single-ended)
c	Ground	
d	FD Pitch CMD	In Low Level Analog (Single-ended)
e	Ground	
f	FD Valid	In Discrete (High Range)
g	Ground	
h	LOC Valid	In Discrete (High Range)
i	Speed Flag Low Level (+)	In Low Level Analog (Diff)
j	Speed CMD Low Level (+)	In Low Level Analog (Diff)
k	LOC Tuned	In Discrete (Low Range)
m	LOC Deviation (+)	In Low Level Analog (Diff)
n	LOC Deviation (-)	In Low Level Analog (Diff)
p	GS Valid (+)	In Low Level Analog (Diff)
q	GS Valid (-)	In Low Level Analog (Diff)
r	GS Deviation (+)	In Low Level Analog (Diff)
s	GS Deviation (-)	In Low Level Analog (Diff)
t	Speed Flag High Level (+)	In Low Level Analog (Diff)
u	Speed Flag (-)	In Low Level Analog (Diff)

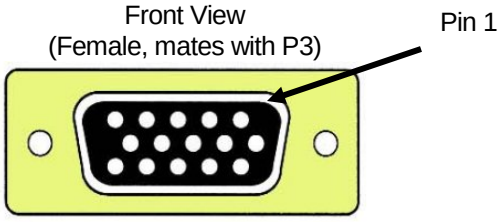
SA4550 – 6XX Connector J1 (ADI 329B-7Rx)		
Pin	**Name**	**Signal Type**
v	Speed CMD High Level (+)	In Low Level Analog (Diff)
w	Speed CMD (-)	In Low Level Analog (Diff)
x	RADALT VALID (+)	In High Level Analog (Diff)
y	RADALT VALID (-)	In High Level Analog (Diff)
z	Radar Alt Data (H)	In High Level Analog (Diff)
AA	Radar Alt Data (C)	In High Level Analog (Diff)
BB	FD Bars In-View	In Discrete (High Range)
CC	FD Bars Out of View	In Discrete (High Range)
DD	RESERVED	
EE	RESERVED	
FF	RESERVED	
GG	SPARE	
HH	SPARE	
JJ	RESERVED	
KK	FD Roll CMD	In Low Level Analog (Single-ended)
LL	FD Pitch CMD	In Low Level Analog (Single-ended)
MM	Annunciator Excitation	In Discrete (Low Range)
NN	MDA Annunciator	In Discrete (Low Range)
PP	SPARE	



Outside View
(Mating Connector)
MS3126F24-61S

2.5.9 Power Connector P3 (Collins ADI 84/84A/84C, 329B-7Rx)

SA4550 Power Connector P3 Pin Definitions (Collins ADI 84/84A/84C, 329B-7Rx)			
Pin			Signal Description
	6		RESERVED
1			RESERVED
		11	NVIS Control
	7		RADALT SEL 0, (RS0)
2			RADALT SEL 1, (RS1)
		12	Rad/Alt Display Inhibit, (RI)
	8		Speed Indicator Inhibit, (SI)
3			Parity Bit, (P)
		13	Signal Ground
	9		DC Ground
4			DC Ground
		14	Signal Ground
	10		Signal Ground
5			DC Power
		15	DC Power

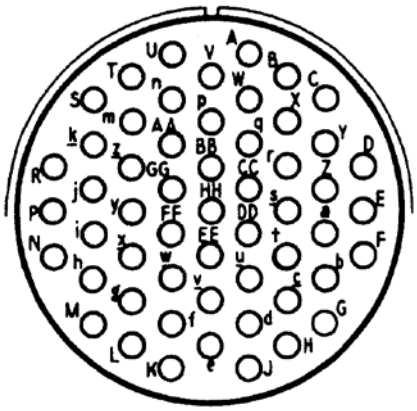


2.5.10 SA4550-7XX Connector J1 (King KCI 310/310A)

SA4550 – 7XX Connector J1 (KCI310/310A)		
Pin	**Name**	**Signal Type**
A	DH Discrete Output (-)	Out Discrete (Low)
B	Lighting Common	In High Level Analog (Diff)
C	5V DC/AC Lighting Input	In High Level Analog (Diff-5V_Lighting)
D	DH Annunciator Input (-)	In Discrete (High Range)
E	28VDC Lighting Input	In High Level Analog (Diff-28V_Lighting)
F	MDA Annunciator Input (-)	In Discrete (High Range)
G	ANG Annunciator Input (-)	In Discrete (High Range)
H	RADALT Test-Aid (-) (B/K KRA-405/405B)	Out Discrete (RA_Test-Aid)
J	Radar Altitude Valid Input (+)	In Discrete (High Range)
K	Glideslope Shutter (-)	In Low Level Analog (Diff)
L	Glideslope Shutter (+)	In Low Level Analog (Diff)
M	Localizer Energized Input (-)	In Discrete (High Range)
N	Annunciator Excitation Input	In Discrete (Low Range)
P	FD Pitch Steering Command Input	In High Level Analog (Diff-FD)
R	Command Bar Retract Input (-)	In Discrete Digital (Active Low)
S	Flight Comp (-) 21V Input	In Discrete (High Range)
T	FD Roll Steering Input	In High Level Analog (Diff-FD)
U	Chassis Ground	
V	Flight Computer (+) 21V Input	In Discrete (High Range)

SA4550 – 7XX Connector J1 (KCI310/310A)		
Pin	**Name**	**Signal Type**
W	FD Common	In High Level Analog (Diff-FD)
X	Glideslope Deviation Input (+)	In Low Level Analog (Diff)
Y	Glideslope Deviation Input (-)	In Low Level Analog (Diff)
Z	Aircraft Power Ground	
a	Radar Altitude Input (+)	In High Level Analog (Diff-RA)
b	Radar Altitude Input (-)	In High Level Analog (Diff-RA)
c	Attitude Power 400Hz Hot Input	In AC Reference (400Hz)
d	Pitch Attitude X Input / ATT A429 (A)	In ARINC-407 or ARINC-429
e	Pitch Attitude Y Input / ATT A429 (B)	In ARINC-407 or ARINC-429
f	Pitch Attitude Z Input / ATT A429 SHLD GND	In ARINC-407 or ARINC-429
g	Roll Attitude X Input / AUX A429 (A)	In ARINC-407 or ARINC-429
h	Roll Attitude Y Input/ AUX A429 (B)	In ARINC-407 or ARINC-429
i	Roll Attitude Z Input / AUX A429 SHLD GND	In ARINC-407 or ARINC-429
j	Localizer Shutter (-)	In Low Level Analog (Diff)
k	Localizer Shutter (+)	In Low Level Analog (Diff)
m	Localizer Deviation Input (+)	In Low Level Analog (Diff)
n	Localizer Deviation Input (-)	In Low Level Analog (Diff)
p	Attitude Valid Input (+)	In Discrete (Low Range)
q	FD Valid	In Discrete Digital (Active High)
r	Pitch Comparator X Output	Out ARINC-407
s	VNAV Deviation Input (-)	In Low Level Analog (Diff)
t	Pitch Comparator Y Output	Out ARINC-407

SA4550 – 7XX Connector J1 (KCI310/310A)		
Pin	**Name**	**Signal Type**
u	VNAV Deviation Input (+)	In Low Level Analog (Diff)
v	Pre-Flight Test Output (+)	Out Discrete (High)
w	Radar Altitude Test Discrete Output (-)	Out Discrete (Low)
x	Pre-Flight Test Output (+)	Out Discrete (High)
y	Reverse Localizer Input (-)	In Discrete (High Range)
z	Pre-Flight Test Discrete Output (+)	Out Discrete (High)
AA	VNAV Shutter Input (+)	In Low Level Analog (Diff)
BB	VNAV Shutter Input (-)	In Low Level Analog (Diff)
CC	Roll Comparator X Output	Out ARINC-407
DD	Roll Comparator Y Output	Out ARINC-407
EE	RNV Annunciator Input (-)	In Discrete (High Range)
FF	RNV Annunciator Input (-)	In Discrete (High Range)
GG	SPARE	
HH	Power Ground	



Outside View
(Mating Connector)
MS3116F22-55S

2.5.11 Power Connector P3 (KCI310/310A)

SA4550 Power Connector P3 Pin Definitions (KCI310/310A)			
Pin			Signal Description
	6		RESERVED
1			RESERVED
		11	NVIS Control
	7		RADALT SEL 0, (RS0)
2			RADALT SEL 1, (RS1)
		12	Rad/Alt Display Inhibit, (RI)
	8		RESERVED
3			Parity Bit, (P)
		13	Signal Ground
	9		DC Ground
4			DC Ground
		14	Signal Ground
	10		Signal Ground
5			DC Power
		15	DC Power

2.5.12 Signal Characteristics Tables

Inputs Sperry			
Signal Type	**Nom Range**	**Absolute Max** [Note 2]	**Z (Ω – Power Off)**
ARINC-407 (Comparator Monitor, reserved for future use)	+/- 20V	+/- 40V	>15K
ARINC-407 (Attitude X&Y)	+/- 20V	+/- 40V	100K
ARINC-429 (A & B) (Attitude and Auxiliary Data)	+/- 5V	+/-6.5V	100K
Discrete (High Range)	0-28V	+/- 60V	30K
Discrete (Low Range)	0-28V	-26V to +60V	450K
Low Level Analog (Diff)	+/-7.5	+/- 10V	1K
High Level Analog (Diff)	+/-28V	+/- 50V	30K
Discrete (RADALT_SEL)	0-3.3V	-10V to +16V	>100K
Discrete (RADALT_Test_INH)	0-28V	-10V to +100V	>100K
Discrete (FPGA)	<28V	-20V to +50V	40K
Power [Note 1]	+20 to +33Vdc	7Adc	
AC Reference	26Vac RMS	35Vac RMS	250K

Outputs Sperry			
Signal Type	**Nom Range**	**Absolute Max** [Note 2]	**Z (Ω – Power Off)**
ARINC-407	11.8Vac RMS	+/- 20V	>100K
Discrete (Low)	0-60mA	300mA	>500K

Notes:
1. At +28Vdc, nominal current is 1.4Adc, 1 minute after start up.
2. Outputs are protected against shorts to ground. Shorts to power supply may cause damage to components.

Inputs Collins			
Signal Type	**Nom Range**	**Absolute Max** [Note 2]	**Z (Ω – Power Off)**
ARINC-407 (Comparator Monitor, reserved for future use)	+/- 20V	+/- 40V	>15K
ARINC-407 (Attitude X&Y)	+/- 20V	+/- 40V	100K
ARINC-429 (A & B) (Attitude and Auxiliary Data)	+/- 5V	+/-6.5V	100K
Discrete (High Range)	0-28V	+/- 60V	30K
Discrete (Low Range)	0-28V	-26V to +60V	450K
Low Level Analog (Diff)	+/-7.5	+/- 10V	1K
Diff Analog – ADI 84A FD	+/-27V	+/- 44V	20K
Diff Analog – ADI 84C FD Pitch	+/-2.6V	+/- 44V	6.7K
Diff Analog – ADI 84C FD Roll	+/-4.3V	+/- 44V	7.3K
High Level Analog (Diff) – Valid	0-28V	+/- 60V	47.5K
High Level Analog (Diff) – Data	+/-28V	+/- 47V	22K
High Level Analog (Diff) – Speed Flag	0-33V	+/- 60V	91.9K
Power [Note 1]	+20 to +33Vdc	7Adc	
AC Reference	26Vac RMS	35Vac RMS	250K

Outputs Collins			
Signal Type	**Nom Range**	**Absolute Max** [Note 2]	**Z (Ω – Power Off)**
ARINC-407	11.8Vac RMS	+/- 20V	>100K
Discrete (Low)	0-60mA	300mA	>500K

Notes:
1. At +28Vdc, nominal current is 1.4Adc, 1 minute after start up.
2. Outputs are protected against shorts to ground. Shorts to power supply may cause damage to components.

Inputs Bendix/King			
Signal Type	**Nom Range**	**Absolute Max**	**Z (Ω – Power Off)**
ARINC-407 (Attitude X&Y)	+/-20V	+/-40V	100K
ARINC-429 (A & B) (Attitude and Auxiliary Data)	+/- 5V	+/-6.5V	100K
Discrete (High Range)	0-28V	+/- 60V	30K
Discrete (Low Range)	0-28V	-26V to +60V	450K
Discrete Digital (Active Low)	0-28V	+/-40V	40K
Discrete Digital (Active High)	0-28V	+/-40V	24K
Low Level Analog (Diff)	+/- 7.5V	+/- 10V	1K
High Level Analog (Diff-RA)	+/-28V	+/-50V	30K
High Level Analog (Diff-5V_Lighting)	5 Vac RMS	+/-30V	9K
High Level Analog (Diff-28V_Lighting)	0-28V	+/-50V	28K
High Level Analog (Diff-FD)	+/-15V	+/- 60V	85K
Power	+20V to +33Vdc	7Adc	
AC Reference	26Vac RMS	35Vac RMS	250K

Outputs Bendix/King			
Signal Type	**Nom Range**	**Absolute Max**	**Z (Ω – Power Off)**
ARINC-407 (Output)	11.8Vac RMS	+/- 20V	>100K
Output Discrete (Low)	0-60mA	300mA	>500K
Output Discrete (RA_Test-Aid)	0-2mA	30mA	>100K
Output Discrete (High)	0-5mA	300mA	>500K

Notes:
3. At +28Vdc, nominal current is 1.4Adc, 1 minute after start up.
4. Outputs are protected against shorts to ground. Shorts to power supply may cause damage to components.

2.5.13 SA4550 – 0XX Signal Scaling and Thresholds (AD- 500/550, HZ - 454)

2.5.13.1 Flags

SA4550- 0XX Flag Signals (AD-500/550, HZ-454)				
Signal	**Connector - Pin**	**Condition**		**Threshold Volts**
		Flagged	**Data Valid**	
Attitude	J1-M	Lo	Hi	9.0
Flight Director	J1-GG(+) , J1-HH(-)	Lo	Hi	1.6
Speed	J1-w	Lo	Hi	9.0
Localizer	J1-y	Lo	Hi	9.0
Glide slope	J1-v	Lo	Hi	9.0
Localizer Tuned	J1-z	Hi (Not Tuned)	Lo (Tuned)	3.0
Radar Valid	J1-n	Lo	Hi	9.0

2.5.13.2 Localizer and Glide Slope

SA4550 – 0XX Localizer and Glide Slope (AD–500/550, HZ- 454)			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
Glide Slope	J1-AA positive respect to J1-BB	0	Centered
		150	Second scale mark up
		-150	Second scale mark down
		350	110% full scale up
		500	Out of view
Localizer	J1-CC positive respect to J1-DD	0.0	Centered
		150	Right most scale mark
		-150	Left most scale mark
Localizer Back Course	J1-x = Ground J1-CC positive respect to J1-DD	0.0	Centered
		150	Left most scale mark
		-150	Right most scale mark

2.5.13.3 Flight Directors

SA4550 – 0XX Flight Director Single Cue (AD-500/550 and HZ-454)			
Sperry Part Numbers: 7000836-901, -902, -903, -904, 909, -910- -911, -912, -923, -924 **7001182-901, -902, -903, -904, -909, -910, -911, -912** **4002531-454, -901, -902, -903, -904, -905**			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
FD Pitch Command	J1-p positive respect to J1-q	0.0	0 pitch command.
		240	10 degree climb.
		-240	10 degree dive.
		1600	Out of view.
FD Roll Command	J1-s positive respect to J1-t	0.0	0 roll.
		225	30 degrees right roll.
		-225	30 degrees left roll.
		-1600	Out of view

SA4550 – 0XX Flight Director Dual Cue (AD-500/550)			
Part Numbers: 7000836-905, -906, -913, -914, -921, -922 **7001182-905, -906, -913, -914, -916, -917, -918, -919**			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
FD Horizontal Command	J1-p positive respect to J1-q	0	Centered
		235	10 degree climb.
		-235	10 degree dive.
		1500	Out of view
FD Vertical Command	J1-s positive respect to J1-t	0	Centered
		530	Full right command
		-530	Full left command
		-1500	Out of view

2.5.13.4 Speed Command Indicator

SA4550 – 0XX Speed Command (AD-550)		
Input Pin Pair	**Nominal Input Volts**	**Indication**
J1-S positive respect to J1-D	0	Centered
	2.0	Second scale mark up
	-2.0	Second scale mark down

2.5.14 SA4550 – 1XX Signal Scaling and Thresholds (AD-600/650)

2.5.14.1 Flags

SA4550- 1XX Flag Signals (AD-600/650)				
Signal	**Connector - Pin**	**Condition**		**Threshold Volts**
		Flagged	**Data Valid**	
Attitude	J1-10	Lo	Hi	9.0
Flight Director	J2-2(+) , J2-3(-)	Lo	Hi	9.0
Speed	J2-40(+) , J2-41(-)	Lo	Hi	9.0
Localizer	J2-7	Lo	Hi	9.0
Glide slope	J2-20(+) , J2-21(-)	Lo	Hi	9.0
Localizer Tuned	J1-11	Hi (Not Tuned)	Lo (Tuned)	3.0
Radar Valid	J2-5	Lo	Hi	9.0

2.5.14.2 Localizer and Glide Slope

SA4550 – 1XX Localizer and Glide Slope (AD-600/650)			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
Glide Slope	J2-18 positive respect to J2-19	0	Centered
		150	Second scale mark up
		-150	Second scale mark down
		350	110% full scale up
		500	Out of view
Localizer	J2-34 positive respect to J2-35	0.0	Centered
		150	Left most scale mark
		-150	Right most scale mark
Localizer Back Course	J2-44 High (18V or greater) J2-34 positive respect to J2-35. or BC annunciator on.	0.0	Centered
		150	Right most scale mark
		-150	Left most scale mark

2.5.14.3 Flight Directors

SA4550 – 1XX Flight Director Single Cue (AD-600/650)			
Sperry Part Numbers: 4020547-901, -904, -905, -906, -907, -908 7000466-901 thru -908, -916, -926, -936, -946, -951, -953, -955, -957, -966, -966, -986			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
FD Pitch Command	J2-23 positive respect to J2-24	0.0 mv	0 pitch command.
		1.2 V	10 degree climb.
		-1.2 V	10 degree dive.
		7.5 V	Out of view.
FD Roll Command	J2-25 positive respect to J2-26	0.0 mv	0 roll.
		900 mv	30 degrees right roll.
		-900 mv	30 degrees left roll.
		7.5 V	Out of view

SA4550 – 1XX Flight Director Dual Cue (AD-600/650)			
Sperry Part Numbers: 7000466-909 thru -915, -920, -925, -925, -935, -945, -959, -961			
Function	**Input Pin Pair**	**Nominal Input Voltage (volts)**	**Indication**
FD Horizontal Command	J2-23 positive respect to J2-24	0	Centered
		1.1	10 degree climb.
		-1.1	10 degree dive.
		7.0	Out of view
FD Vertical Command	□ J2-25 positive respect to J2-26	0	Centered
		2.5	Full right command
		-2.5	Full left command
		7.0	Out of view

SA4550 – 1XX Flight Director Single Cue (AD-600/650)			
Sperry Part Numbers: 7000466-917, -918			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
FD Pitch Command	J2-23 positive respect to J2-24	0	0 pitch command.
		296	10 degree climb.
		-296	10 degree dive.
		7500V	Out of view.
FD Roll Command	J2-25 positive respect to J2-26	0	0 roll.
		300	30 degrees right roll.
		-300	30 degrees left roll.
		7500	Out of view

2.5.14.4 Speed Command Indicator

SA4550 – 1XX Speed Command (AD-600/650)		
Input Pin Pair	**Nominal Input Volts**	**Indication**
J2-15 positive respect to J2-16	0	Centered
	2.2	Second scale mark up.
	-2.2	Second scale mark down
	5.2	Out of View

2.5.15 SA4550–(4,5,6)XX Signal Scaling and Thresholds (ADI 84/84A/84C, 329B-7Rx)

2.5.15.1 Flags

SA4550- (4,5,6)XX Flag Signals (ADI 84/84A/84C, 329B-7Rx)				
Signal	**Connector - Pin**	**Condition**		**Threshold Volts**
		Flagged	**Data Valid**	
Attitude	J1-X	Lo	Hi	9.0
Flight Director Flag	J1-f	Lo	Hi	9.0
Flight Director In View	J1-BB	Lo	Hi	9.0
Flight Director Out of View	J1-CC	Lo	Hi	9.0
Localizer	J1-h	Lo	Hi	9.0
Localizer Tuned	J1-k	Hi (Not Tuned)	Lo (Tuned)	3.0
Glide Slope	J1-p(+) , J1-q(-)	Lo	Hi	0.215
Speed (High Level)*	J1-t(+) , J1-u(-)	Lo	Hi	22.5
Speed (Low Level)*	J1-i(+) , J1-u(-)	Lo	Hi	0.250

* Only applicable to SA4550-6xx, not applicable to SA4550-4xx or -5xx.

2.5.15.2 Localizer and Glide Slope

SA4550- (4,5,6)XX Localizer and Glide Slope (ADI 84/84A/84C, 329B-7Rx)			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
Glide Slope	J1-r positive respect to J1-s	0	Centered
		150	Second scale mark up
		-150	Second scale mark down
		350	110% full scale up
		500	Out of view
Localizer	J1-m positive respect to J1-n	0.0	Centered
		-150	Left most scale mark
		150	Right most scale mark

2.5.15.3 Flight Directors

SA4550 – 4XX Flight Director (ADI 84/84A)			
Function	**Input Pin Pair**	**Nominal Input Voltage**	**Indication**
Pitch Command High Level Diff	J1-v positive respect to J1-w	0.0 mv	0 pitch command
		1.5 V	10 degree climb
		-1.5 V	10 degree dive
Pitch Command Low Level Diff	J1-v positive respect to J1-w	0.0 mv	0 pitch command
		1.2 V	10 degree climb
		-1.2 V	10 degree dive
Pitch Command High Level Single	J1-LL	0.0 mv	0 pitch command
		-1.5 V	10 degree climb
		1.5 V	10 degree dive
Pitch Command Low Level Single	J1-d	0.0 mv	0 pitch command
		-1.2 V	10 degree climb
		1.2 V	10 degree dive
Roll Command High Level Diff	J1-t positive respect to J1-u	0.0 mv	0 roll
		-1.5 V	10 degrees right roll
		1.5 V	10 degrees left roll
Roll Command Low Level Diff	J1-t positive respect to J1-u	0.0 mv	0 roll
		-660 mv	10 degrees right roll
		660 mv	10 degrees left roll
Roll Command High Level Single	J1-KK	0.0 mv	0 roll
		1.5 V	10 degrees right roll
		-1.5 V	10 degrees left roll
Roll Command Low Level Single	J1-b	0.0 mv	0 roll
		660 mv	10 degrees right roll
		-660 mv	10 degrees left roll

SA4550 – 5XX Flight Director (ADI 84C)			
Function	**Input Pin Pair**	**Nominal Input Voltage**	**Indication**
Pitch Command Low Level Diff	J1-d positive respect to J1-DD	0.0 mv	0 pitch command
		-283 mv	10 degree climb
		283 mv	10 degree dive
Roll Command Low Level Diff	J1-b positive respect to J1-EE	0.0 mv	0 roll
		235 mv	10 degrees right roll
		-235 mv	10 degrees left roll

SA4550 – 6XX Flight Director (ADI 329B-7Rx)			
Function	**Input Pin Pair**	**Nominal Input Voltage**	**Indication**
Pitch Command High Level Single	J1-LL	0.0 mv	0 pitch command
		-.5 V	10 degree climb
		1.5 V	10 degree dive
Pitch Command Low Level Single	J1-d	0.0 mv	0 pitch command
		-1.2 V	10 degree climb
		1.2 V	10 degree dive
Roll Command High Level Single	J1-KK	0.0 mv	0 roll
		1.5 V	10 degrees right roll
		-1.5 V	10 degrees left roll
Roll Command Low Level Single	J1-b	0.0 mv	0 roll
		660 mv	10 degrees right roll
		-660 mv	10 degrees left roll

2.5.15.4 Speed Command Indicator

SA4550 – 6XX Speed Indicator (ADI 321B-7Rx)			
Function	**Input Pin Pair**	**Nominal Input Voltage**	**Indication**
High Level Diff	J1-v positive respect to J1-w	0.0 mv	Centered
		1.9 V	Second scale mark up.
		-1.9 V	Second scale mark down
		15.5 V	Out of View
Low Level Diff	J1-j positive respect to J1-w	0.0 mv	Centered
		135 mv	Second scale mark up.
		-135 mv	Second scale mark down
		1.0 V	Out of View

2.5.16 SA4550–7XX Signal Scaling and Thresholds (KCI 310/310A)

2.5.16.1 Flags

SA4550- 7XX Flag Signals (KCI 310/310A)				
Signal	**Connector - Pin**	**Condition**		**Threshold Volts**
		Flagged	**Data Valid**	
Attitude	J1-p	Lo	Hi	>9.0 Vdc
Flight Director	J1-q	Lo	Hi	>6.0Vdc
Flight Computer Power (+)	J1-V	Lo	Hi	>11.0Vdc
Flight Computer Power (-)	J1-S	Lo	Hi	<-11.0Vdc
Flight Director Out of View	J1-R	Lo	Hi	>6.0Vdc
Localizer	J1-j(+), J1-k(-)	Lo	Hi	>215mv
Localizer Tuned	J1-M	Hi	Lo	<3.5Vdc
LOC BC	J1-y	Hi	Lo	<3.5Vdc
Glide Slope	J1-K(+), J1-L(-)	Lo	Hi	>215mv

2.5.16.2 Localizer and Glide Slope

SA4550- 7XX Localizer and Glide Slope (KCI 310/310A)			
Function	**Input Pin Pair**	**Nominal Input Voltage (mv)**	**Indication**
Glide Slope	J1-X(+), J1-Y(-)	0	Centered
		150	Second scale mark up
		-150	Second scale mark down
		>500mv	Out of view
Localizer	J1-m(+), J1-n(-)	0	Centered
		150	Left most scale mark
		-150	Right most scale mark

2.5.16.3 Flight Directors

SA4550 – 7XX Flight Director (KCI 310/310A)			
Function	**Input Pin Pair**	**Nominal Input Voltage**	**Indication**
Pitch Command	J1-P(+), J1-W(-)	0	0 pitch command
		10V	10 degree climb
		-10V	10 degree dive
Roll Command	J1-T(+), J1-W(-)	0	0 roll
		7.5V	10 degree roll right
		-7.5V	10 degree roll left

2.6 ARINC 429

2.6.1 ARINC 429 Serial Data Receivers Interfaces

The ARINC 419/429 serial data bus interface provides an information link between the SN4550 and peripheral avionics equipment. The bus conforms to 419/429 specifications for electrical characteristics, receiving, and transmission interval.

The SA4550 is capable of receiving the following low or high speed ARINC 419/429 pitch, roll, and radar altimeter inputs for processing and display as follows:

LABEL	DESCRIPTION
Gyro/ AHRS/ Radar Altimeter	
164	RadAlt
324	ATT Pitch
325	ATT Roll

3 Installation

3.1 General

This section provides general suggestions and information to consider before installing the SA4550 including interconnect diagrams, mounting dimensions and information pertaining to installation. Close adherence to these suggestions will assure optimum performance.

3.1.1 Unpacking and Inspecting Equipment

Exercise extreme care when unpacking the equipment. Make a visual inspection of the unit for evidence of damage incurred during shipment. If a claim for damage is to be made, save the shipping container to substantiate the claim. The claim should be promptly filed with the carrier. It would be advisable to retain the container and packaging material after all equipment has been removed in the event that equipment storage or reshipment should become necessary.

3.2 Installation Considerations

3.2.1 General Considerations

The SA4550 should be installed in accordance with standards established by the customer's installing agency, and existing conditions as to unit location and type of installation. However, the following considerations should be heeded before installing the SA4550. Close adherence to these considerations will assure a more satisfactory performance from the equipment. The installing agency will supply and fabricate all external cables. The required connectors and associated hardware are supplied by Sandel Avionics.

3.2.2 Cooling Considerations

The SA4550 contains its own ventilation fan for internal component cooling and therefore, does not require a forced air cooling system. Any questions concerning cooling can be verified in the post-installation checkout by monitoring the SA4550 Internal temperature on the Power maintenance page.

3.2.3 Mechanical Installation Considerations

The SA4550 installation should conform to customer requirements and airworthiness standards affecting the location and type of installation. §25.1321(a) stipulates that: "Each flight, navigation, and power plant instrument for use by any pilot must be plainly visible to him from his station with the minimum practicable deviation from his normal position and line of vision when he is looking forward along the flight path."

§ 25.1321(b) stipulates: "The flight instruments required by §25.1303 must be grouped on the instrument panel and centered as nearly as practicable about the vertical plane of the pilot's forward vision." In addition - §25.1321(b)(4) states: "The instrument that most effectively indicates direction of flight must be adjacent to and directly below the

instrument in the top center position." Similar regulations apply to Part 23 Small Airplanes.

Refer to Sandel Avionics, Drawing No. 82010-05 titled, "Layout, SA4550 Installation" for specific assembly and mounting instructions.

3.2.4 Electrical Installation Considerations

The SA4550 has been designed environmentally tested to make use of the original aircraft wiring when replacing an electromechanical indicator listed in table 1-3.

All new wiring required by the installation must adhere to the following conditions. Connections and functions of the SA4550 are described in this section. Refer to the SA4550 Interconnect Wiring Diagrams for detailed wiring information and appropriate notes. Refer to the Connector Summary section for an explanation of pin functions.

A. The installing agency will supply and fabricate all wiring harnesses. The length and routing of wires must be carefully measured and planned before the actual installation is attempted. Avoid sharp bends in the harness or locating the harness near aircraft controls. Observe all recommended wire sizes and types and subscribe to appropriate FAR Parts 23, 25, 27, and 29, as well as AC 43.13-1( ) and -2( ).

B. The use of MIL-C-27500 shielded wire and MIL-W-22759 single conductor wire is recommended. The use of ferrules or grounding blocks for signal ground and digital ground returns is satisfactory; however, each ground return must be electrically separated.

C. In order to ensure optimum performance the SA4550 and associated wiring must be kept at least a minimum of three feet from high noise sources and not routed with cables from high power sources.

E. Prior to installing the SA4550, a point-to-point continuity check of the wiring harness should be accomplished to verify proper wiring. See functional ground test procedures in the appendix for verification of this step and other checks.

F. The Functional Pinout Descriptions on the following pages will assist you in determining installation requirements. Adhere to all notes within these descriptions and on installation wiring diagrams.

G. **Ground Bonding.** For new wiring ensure that two ground wires of at least the recommended size are installed in accordance with the installation drawings and these wires are connected to a bonded aircraft ground. Shielded wiring should be used for all new installation wiring.

I. **Power Wiring.** To assure that the SA4550 will operate properly down to its rated minimum input voltage of 20Vdc, ensure that two power wires of at least the recommended size are connected from the ADI circuit breaker to the SA4550 in accordance with the installation drawings.

4 Setup Procedures

4.1 General

Setup procedures for the SA4550 are described along with the Maintenance Menu below. The Maintenance Menu is accessed and addressed through the use of pushbuttons and the Selected Heading knob.

4.2 Accessing the Maintenance Menus

To access the Maintenance Menus perform the following operations:

A. Prior to applying power to the SA4550, press both the [M} button and the [ATT TEST] Button, then apply power to the unit. Continue to hold until the first maintenance menu appears. This protocol insures that maintenance menus cannot be called up accidentally during flight.

B. Once the Maintenance Menu is entered, rotate the rotary knob to cycle the through the page selections on the INDEX page. Press [M] to select desired page. On some menus additional soft key legends will appear as prompts. Pull the [MINS] knob out and rotate it to adjust any editable field.

C. Escape the maintenance menus by pressing and holding the [MINS] knob. This will allow normal operation of the unit to test the effects of settings. Re-enter the maintenance pages pressing and holding the [MINS] knob.

D. To disable maintenance menu operation, power down and restart normally. All configured items are stored in non-volatile memory.

4.3 Equipment/Configuration Selections

4.3.1 Radar Altimeter Configuration for Sperry Indicators

Table 4-1A defines the supported Radar altimeters and rear connector configuration settings for SA4550 dash numbers replacing Sperry indicators.

Table 4-1A: Radar Altimeter Configuration[1]

Type*	SA4550-0XX J2-K	SA4550-0XX J2-L	SA4550-1XX J2-8	SA4550-1XX J2-6
Sperry AA-215/236/300 or ARINC-429	Open	Open	Open	Open
ARINC 552	Open	Connect to J2-J	Open	Connect to J2-1
Collins ALT-50	Connect to J2-J	Open	Connect to J2-1	Open
Collins ALT-55	Connect to J2-J	Connect to J2-J	Connect to J2-1	Connect to J2-1

*For radar altimeters not listed, contact Sandel Avionics technical support to determine the appropriate rear connector configuration
[1]Sperry Indicators may be configured to utilize Bendix/King KRA-405/405B Radar Altimeters. See section 4.3.3 below for compatibility information.

4.3.2 Radar Altimeter Configuration for Collins Indicators

Table 4-1B defines the supported Radar altimeters and rear connector configuration settings for SA4550 dash numbers replacing Collins indicators (ADI 84/84A/84C 329B-7Rx).

Table 4-1B: Radar Altimeter Configuration[1]

Type*	P3-7	P3-2	P3-12
Sperry AA-215/236/300 or ARINC-429	Open	Open	Open
ARINC 552	Open	Connect to P3-10	Open
Collins ALT-50	Connect to P3-13	Open	Open
Collins ALT-55	Connect to P3-13	Connect to P3-10	Open

*For radar altimeters not listed, contact Sandel Avionics technical support to determine the appropriate rear connector configuration.
[1]Collins Indicators may be configured to utilize Bendix/King KRA-405/405B Radar Altimeters. See section 4.3.3 below for compatibility information.

4.3.3 Radar Altimeter Configuration for King KCI-310/310A Indicators

Table 4-1C defines the supported Radar altimeters and rear connector configuration settings for SA4550 dash numbers replacing King KCI 310/310A indicators.

Bendix/King KRA-405/405B radar altimeters may be used with the SA4550-7XX (KCI310/310A variant). When using auxiliary output 1 of the radar altimeter, use the rear

connector configuration for a Collins ALT-55. When using auxiliary output #2 of the radar altimeter (on -0101 models), use the rear connector configuration for a Sperry AA-215/236/300. When using auxiliary output #2 of the radar altimeter (on -0202 models), use the rear connector configuration for ARINC 552. The RADALT maintenance page will indicate the radar altimeter type of the rear connector configuration used.
Note: The Bendix/King KRA-405B optionally provides an ARINC-429 output.

Table 4-1C: Radar Altimeter Configuration

Type*	P3-7	P3-2	P3-12
Sperry AA-215/236/300 or ARINC-429	Open	Open	Open
ARINC 552	Open	Connect to P3-10	Open
Collins ALT-50	Connect to P3-13	Open	Open
Collins ALT-55	Connect to P3-13	Connect to P3-10	Open

* For radar altimeters not listed, contact Sandel Avionics technical support to determine the appropriate jumper configuration.

4.3.4 Sperry Indicators P3 Pin Configuration Strapping

Table 4-2 defines the supported functional replacement Sperry attitude indicators and their corresponding strapping configuration settings.

Table 4- 2: Connector P3 Pin Configuration Strapping

Model	Part Number	P	SI	RI	AG1	AG0	SS1	SS0
		P3-3	P3-8	P3-12	P3-2	P3-7	P3-1	P3-6
AD-500A	7000836-901, -902, -909, -910, -923, -924	OPEN	GND	GND	OPEN	OPEN	OPEN	OPEN
AD-500B	7000836-903, -904, -911, -912	OPEN	GND	GND	OPEN	OPEN	OPEN	OPEN
AD-500C	7000836-905, -906, -913, -914, -921, -922	GND	GND	GND	OPEN	OPEN	OPEN	GND
AD-550A	7001182-901, -902	GND	GND	OPEN	OPEN	OPEN	OPEN	OPEN
	7001182-909, -910	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
AD-550B	7001182-903, -904	GND	GND	OPEN	OPEN	OPEN	OPEN	OPEN
	7001182-911, -912	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
AD-550C	7001182-905, -906	OPEN	GND	OPEN	OPEN	OPEN	OPEN	GND
	7001182-913, -914, -916, -917, -918, -919	GND	OPEN	OPEN	OPEN	OPEN	OPEN	GND
AD-600	4020547-901, -904	OPEN	OPEN	GND	OPEN	GND	OPEN	OPEN
AD-600A	7000466-903, -904, -953	OPEN	OPEN	GND	OPEN	GND	OPEN	OPEN
	4020547-906, -907	OPEN	OPEN	GND	OPEN	GND	OPEN	OPEN

Table 4- 2: Connector P3 Pin Configuration Strapping								
Model	**Part Number**	**P**	**SI**	**RI**	**AG1**	**AG0**	**SS1**	**SS0**
		P3-3	**P3-8**	**P3-12**	**P3-2**	**P3-7**	**P3-1**	**P3-6**
AD-600B	7000466-907, -908, -957	OPEN	OPEN	GND	OPEN	GND	OPEN	OPEN
	4020547-905, -908	OPEN	OPEN	GND	OPEN	GND	OPEN	OPEN
AD-600C	7000466-911, -912, -961	GND	OPEN	GND	OPEN	GND	OPEN	GND
AD-650A	7000466-901, -902, -951	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
	7000466-917, -918	OPEN	OPEN	OPEN	GND	OPEN	GND	OPEN
AD-650B	7000466-905, -906, -926, -955	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
	7000466-946, -966, -986	GND	GND	OPEN	OPEN	OPEN	OPEN	OPEN
AD-650C	7000466-909, -910, -920, -959	GND	OPEN	OPEN	OPEN	OPEN	OPEN	GND
HZ-454	4002531-454, -901, -902, -903, -904, -905	OPEN	GND	GND	OPEN	OPEN	OPEN	OPEN

Strapping pin column Definitions for Table 4-2

SS0: Scale Selection 0
SS1: Scale Selection 1
AG0: Annunciator Group 0
AG1: Annunciator Group 1
RI: Rad/Alt Display Inhibit
SI: Speed Indicator Inhibit
P: Parity

The SA4550 may also be installed without replacing one of the units listed in Table 1-3. In this case, signals are wired to the SA4550 connector pins per the installation diagrams. Pin strapping on the power connector P3 and/or signal wiring is used to configure the features of the SA4550.

When the Parity pin (P3-3) is strapped, it must be uniquely connected to an available signal ground pin on connector J3. This pin cannot share a signal ground pin with another configuration strapping connection.

Other configuration strapping connections that require sharing must not share a signal ground pin on P3 with an even number of connections. Only an odd number of configuration pins may share a common signal ground pin.

For ARINC 429 radar altimeter installations, strapping is not necessary.

5 Operating Details

For an explanation of the operating controls of the SA4550, reference Sandel document 82010-PG, “SA4550 Primary Attitude Display Pilots Guide”.

6 Instructions for Continued Airworthiness

Reference Sandel document ST12361LA-T-05, “SA4550 Primary Attitude Display Instructions for Continued Airworthiness”.

7 Appendix A: Post-Installation Procedures

After all wiring has been verified and the SA4550 has been installed into the panel, the maintenance pages may be accessed for calibration of the pitch attitude, slip/skid ball centering and RAD/ALT display. Prior to applying power to the SA4550, depress and hold the [M] button and [ATT TEST] buttons, and then apply power to the unit. Continue to press the buttons until the first maintenance menu appears. This protocol insures than maintenance menus cannot be called up accidentally during flight. If a calibration is required, momentarily press the [MINS] button to enter the edit mode.

Once the Maintenance Menu is entered, rotate the rotary knob to move the cursor to the desired maintenance page and press the SELECT soft key to enter the selected page. Rotate the knob to move the cursor up and down the maintenance page.

Escape the maintenance menus by pressing and holding the [MINS] knob. This will allow normal operation of the unit to test the effects of any changes made. Re-enter the maintenance pages by pressing and holding the [MINS] knob.

To disable maintenance menu operation, power down and restart normally. All calibration values will be stored in non-volatile memory.

7.1 Page 1: INDEX – All Models

Applicable to all models

The Maintenance Index page is a multiple-choice list that provides an index of all other maintenance pages and allows the operator to jump to a particular page. First scroll the Cursor to point to the desired maintenance page listing using the rotary knob. The [SELECT] Soft key is then pressed to jump to this page. Once in the maintenance pages, press the [M] button to return to the Maintenance Index page.

Momentarily pushing the [MODE] soft key (the [MINS] knob) enables the installer to toggle the SA4550 between READ and EDIT mode. Note: The SA4550 must be in EDIT mode to make calibration adjustments on the INSTALLATION or RADALT/DISC maintenance pages.

7.2 Page 2: INSTALLATION – Sperry Models

Applicable to Sperry Models: AD550/AD650

The INSTALLATION page provides configuration fields to adjust the pitch, slip/skid displays to correct for equipment installation errors and the ability to enable optional ARINC-429 Attitude and Auxiliary inputs.

Configuration Field	Options	Comment
PTCH CAL		Adjustable from +3.00° to -3.00°
PTCH		Displays current aircraft pitch angle
BALL CAL		Adjustable from +5.0°to -5.0°
FD STYLE	SINGLE ONLY DUAL ONLY SINGLE/DUAL	For single cue display only For dual cue display only For pilot selectable single cue / dual cue display
A429 KEY		Enter purchased 11 – char activation key for A429 ATT/RA functionality.
ATT SRC	XYZ 429 429H	Set to XYZ for Synchro XYZ attitude inputs. Set to 429 or 429H to receive ARINC-429 Pitch and Roll data on input pins Pitch X & Y.
AUX 429	NONE 429 429H	AUX 429 (Radar Alt) input mode is only available if ATT SRC = 429 or 429H.
DATA	NONE RA	Selection not available if AUX 429 is set to NONE.
Rear Board		Sperry AD550 or Sperry AD650
Master Scale		Determined by strapping configuration

Configuration Field	Options	Comment
Annun Selection		Determined by strapping configuration
RA/MIN		Determined by strapping configuration
Speed		Determined by strapping configuration

7.3 Page 2: INSTALLATION – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 / ADI84 / ADI84A / ADI84C

The INSTALLATION page provides configuration fields to adjust the pitch, slip/skid displays to correct for equipment installation errors and the ability to enable optional ARINC-429 Attitude and Auxiliary inputs.

Configuration Field	Options	Comment
PTCH CAL		Adjustable from +3.00° to -3.00°
PTCH		Displays current aircraft pitch angle
BALL CAL		Adjustable from +5.0°to -5.0°
FD STYLE	SINGLE ONLY DUAL ONLY SINGLE/DUAL	For single cue display only For dual cue display only For pilot selectable single cue / dual cue display
A429 KEY		Enter purchased 11 – char activation key for A429 ATT/RA functionality.
ATT SRC	XYZ 429 429H	Set to XYZ for Synchro XYZ attitude inputs. Set to 429 or 429H to receive ARINC-429 Pitch and Roll data on input pins Pitch X & Y.
AUX 429	NONE 429 429H	AUX 429 (Radar Alt) input mode is only available if ATT SRC = 429 or 429H.
DATA	NONE RA	Selection not shown if AUX 429 is set to NONE.
Rear Board		Collins 84

Configuration Field	Options	Comment
Master Scale		Determined by plug in module.
Annun Selection		Determined by plug in module.
RA/MIN		Determined by strapping configuration
Speed		Determined by strapping configuration

7.4 Page 2: INSTALLATION – Bendix/King Models

Applicable to Bendix / King Models: KCI 310/310A

The INSTALLATION page provides configuration fields to adjust the pitch, slip/skid displays to correct for equipment installation errors and the ability to enable optional ARINC-429 Attitude and Auxiliary inputs..

Configuration Field	Options	Comment
PTCH CAL		Adjustable from +3.00° to -3.00°
PTCH		Displays current aircraft pitch angle
BALL CAL		Adjustable from +5.0°to -5.0°
FD STYLE	SINGLE ONLY DUAL ONLY SINGLE/DUAL	For single cue display only For dual cue display only For pilot selectable single cue / dual cue display
A429 KEY		Enter purchased 11 – char activation key for A429 ATT/RA functionality.
ATT SRC	XYZ 429 429H	Set to XYZ for Synchro XYZ attitude inputs. Set to 429 or 429H to receive ARINC-429 Pitch and Roll data on input pins Pitch X & Y.
AUX 429	NONE 429 429H	AUX 429 (Radar Alt) input mode is only available if ATT SRC = 429 or 429H.
DATA	NONE RA	Selection not shown if AUX 429 is set to NONE.
Rear Board		King KCI310
RA/MIN		Determined by strapping configuration

7.5 Page 3: SUMMARY – Sperry and Collins Models

Applicable to Sperry and Collins models

The SUMMARY page provides a means to quickly check the status of all sensors interfaced to the SA4550. Page is for informational use only. There are no editable fields. Use the rotary knob to move the cursor next to the specific item to be selected. The value will be displayed at the top of the screen on the value line. The line below the value line is used to indicate whether the data is valid, timed out or in error. If line is displayed green, the data is valid, yellow text indicates the data is non-valid, timed out or in error.

Function	Sensor
AC PTCH	Vertical Gyro – Aircraft Pitch
AC ROLL	Vertical Gyro – Aircraft Roll
FD PTCH	Flight Director Computer – Flight Director Pitch
FD ROLL	Flight Director Computer – Flight Director Roll
FST/SLO	Angle of Attack Sensor – Fast/Slow Indications
ENRGZ	NAV Receiver – ILS Energize
LOC DV	NAV Receiver – Localizer Deviation
GS DV	NAV Receiver - Glideslope Deviation
RADALT	Radar Altimeter – Radar Altitude

7.6 Page 3: SUMMARY – Bendix/King Models

Applicable to Bendix/King models

The SUMMARY page provides a means to quickly check the status of all sensors interfaced to the SA4550. Page is for informational use only. There are no editable fields. Use the rotary knob to move the cursor next to the specific item to be selected. The value will be displayed at the top of the screen on the value line. The line below the value line is used to indicate whether the data is valid, timed out or in error. If line is displayed green, the data is valid, yellow text indicates the data is non-valid, timed out or in error.

Function	Sensor
AC PTCH	Vertical Gyro – Aircraft Pitch
AC ROLL	Vertical Gyro – Aircraft Roll
FD PTCH	Flight Director Computer – Flight Director Pitch
FD ROLL	Flight Director Computer – Flight Director Roll
ENRGZ	NAV Receiver – ILS Energize
LOC DV	NAV Receiver – Localizer Deviation
GS DV	NAV Receiver - Glideslope Deviation
RADALT	Radar Altimeter – Radar Altitude

7.7 Page 4: SYSTEM INFO – Sperry Models

Applicable to Sperry Models: AD550/AD650

The SYSTEM INFO page displays information about the software and physical configuration of the unit. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
Serial Number	Displays the unit serial number
Software Rev	Revision Information
Boot Rev	Revision Information
Rear Board ID	Sperry AD550 or Sperry AD650
Master Scale	Determined by strapping configuration
Annun Selection	Determined by strapping configuration
RA/MIN	Determined by strapping configuration
Speed	Determined by strapping configuration

7.8 Page 4: SYSTEM INFO – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 /ADI84/ADI84A/ADI84C

The SYSTEM INFO page displays information about the software and physical configuration of the unit. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
Serial Number	Displays the unit serial number
Software Rev	Revision Information
Boot Rev	Revision Information
Rear Board ID	Collins 84
Master Scale	Determined by plug in module.
Annun Selection	Determined by plug in module.
RA/MIN	Determined by strapping configuration
Speed	Determined by strapping configuration

7.9 Page 4: SYSTEM INFO – Bendix/King Models

Applicable to Bendix/King Models: KCI 310/310A

The SYSTEM INFO page displays information about the software and physical configuration of the unit. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
Serial Number	Displays the unit serial number
Software Rev	Revision Information
Boot Rev	Revision Information
Rear Board ID	KCI310
RA/MIN	Determined by strapping configuration

7.10 Page 5: ATT/FD – Sperry Models

Applicable to Sperry Models: AD550/AD650

The ATT/FD page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
AC ROLL	XYZ or A429 (Indicates Aircraft Roll). A429 input mode is enabled on the Installation Page
AC PITCH	XYZ or A429 (Indicates Aircraft Pitch)
VALID	HIGH or A429 (Indicates ATT valid status source)
FD ROLL	550 SF_A or 650 SF_A (A,B, or C depending on strapping configuration)
FD PTCH	550 SF_A or 650 SF_A (A,B, or C depending on strapping configuration)
VALID	HIGH (Indicates FD valid status)
FST/SLO	550 FS or 650 FS (depending on strapping configuration)
VALID	HIGH (Indicates Fast/Slow valid status)
ATT TEST	ACTIVE L (Indicates status of ATT TEST Inhibit)

7.11 Page 5: ATT/FD – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 /ADI84/ADI84A/ADI84C

The ATT/FD page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
AC ROLL	XYZ or A429 (Indicates Aircraft Roll). A429 input mode is enabled on the Installation Page
AC PITCH	XYZ or A429 (Indicates Aircraft Pitch)
VALID	HIGH or A429 (Indicates ATT valid status source)
FD ROLL	ADI84 SFA, ADI84 SFB, ADI84 SFC, or Not AVAIL (depending on plug in module)
FD PTCH	ADI84 SFA, ADI84 SFB, ADI84 SFC, or Not AVAIL (depending on plug in module)
VALID	HIGH (Indicates FD Status)
FST/SLO	Only 329B7R as determined by strapping configuration. ADI-84/84A/84C: “NOT AVAIL”.
VALID	329B7R (Indicates Fast/Slow valid status) This field is not displayed when FST/SLO “NOT AVAIL”.
INVIEW	ACTIVE H
OUTVIEW	ACTIVE H

7.12 Page 5: ATT/FD – Bendix/King Models

Applicable to Bendix/King Models: KCI-310/KCI-310-A

The ATT/FD page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
AC ROLL	XYZ or A429 (Indicates Aircraft Roll). A429 input mode is enabled on the Installation Page
AC PITCH	XYZ or A429 (Indicates Aircraft Pitch)
VALID	HIGH or A429 (Indicates ATT valid status source)
FD ROLL	KCI-310/KCI-310A
FD PTCH	KCI-310
VALID	ACTIVE H (Indicates FD Status)
21V-	ACTIVE L
21V+	ACTIVE H
OUTVIEW	ACTIVE L

7.13 Page 6: LOC/GS – Sperry Models

Applicable to Sperry Models: AD550/AD650

The LOC/GS page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
ENRGZ	ACTIVE L
LOC DV	ANALOG
VALID	HIGH
GS DV	ANALOG
VALID	HIGH
LOC BC	ACTIVE H

7.14 Page 6: LOC/GS – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 /ADI84/ADI84A/ADI84C

The LOC/GS page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
ENRGZ	ACTIVE L
LOC DV	ANALOG
VALID	HIGH
GS DV	ANALOG
VALID	LOWLEVEL

7.15 Page 6: LOC/GS – Bendix/King Models

Applicable to Bendix/King Models: KCI-310/KCI-310A

The LOC/GS page displays information about the Attitude and Flight Director input signals. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
ENRGZ	ACTIVE L
LOC DV	ANALOG
VALID	LOWLEVEL
GS DV	ANALOG
VALID	LOWLEVEL
LOC BC	ACTIVE L

7.16 Page 7: RADALT – Sperry Models

Applicable to Sperry Models: AD550/AD650

Displays information associated with radar altimeter installation. This page allows for calibration of radar altimeter display.

Configuration Field	Comment
RALT	Shows the model of radar altimeter installed. (Determined by strapping configuration). Non-editable field. “NOT AVAILABLE” when radar altimeter not configured. “A429” when AUX ARINC-429 RA input is enabled on the Installation Page. See table 4-1A for a list of supported radar altimeters.
VALID	HIGH or A429. Not shown when no radar altimeter configured.
CAL	Displays below the RALT function when radar altimeter is installed. Adjustable from +25.0 to -25.0 feet. Does not display when RALT “NOT AVAILABLE”
RA TST	“NONE” or “AVAILABLE”
BUTTON	“ENABLE” or “DISABLE” (when configured as available).

7.17 Page 7: RADALT – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 /ADI84/ADI84A/ADI84C

Displays information associated with radar altimeter installation. This page allows for calibration of radar altimeter display.

Configuration Field	Comment
RALT	Shows the model of radar altimeter installed. (Determined by strapping configuration). Non-editable field. "NOT AVAILABLE" when radar altimeter not configured. "A429" when AUX ARINC-429 RA input is enabled on the Installation Page. See table 4-1B for a list of supported radar altimeters.
VALID	HIGH or A429. Not shown when no radar altimeter configured.
CAL	Displays below the RALT function when radar altimeter is installed. Adjustable from +25.0 to -25.0 feet. Does not display when RALT "NOT AVAILABLE"
RA TST	NONE

7.18 Page 7: RADALT – Bendix/King Models

Applicable to Bendix/King Models: KCI-310/KCI-310A

Displays information associated with radar altimeter installation. This page allows for calibration of radar altimeter display.

Configuration Field	Comment
RALT	Shows the model of radar altimeter installed. (Determined by strapping configuration). Non-editable field. “NOT AVAILABLE” when radar altimeter not configured. “A429” when AUX ARINC-429 RA input is enabled on the Installation Page See table 4-1C for a list of supported radar altimeters.
VALID	HIGH or A429. Not shown when no radar altimeter configured.
CAL	Displays below the RALT function when radar altimeter is installed. Adjustable from +25.0 to -25.0 feet. Does not display when RALT “NOT AVAILABLE”
RA TST	NONE or AVAILABLE
BUTTON	“ENABLE” or “DISABLE” (when configured as available).

7.19 Page 8: ANNUNCIATORS – Sperry Models

Applicable to Sperry Models: AD550/AD650

Displays information associated with annunciator configuration. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
BC	ACTIVE H (SA4550-0XX) or ACTIVE L (SA4550-1XX)
GA	ACTIVE H (SA4550-0XX) or ACTIVE L (SA4550-1XX)
Additional Annunciators SA4550-1XX (Sperry 600/650 Series)	
ALT	Annunciator On or OFF, availability determined by strapping configuration
SPD	Annunciator On or OFF, availability determined by strapping configuration
NAV	Annunciator On or OFF, availability determined by strapping configuration
HDG	Annunciator On or OFF, availability determined by strapping configuration
LOC	Annunciator On or OFF, availability determined by strapping configuration
APR	Annunciator On or OFF, availability determined by strapping configuration
GS	Annunciator On or OFF, availability determined by strapping configuration
VN	Annunciator On or OFF, availability determined by strapping configuration
VS	Annunciator On or OFF, availability determined by strapping configuration
APS	Annunciator On or OFF, availability determined by strapping configuration

7.20 Page 8: ANNUNCIATORS – Collins Models

Applicable to Collins Models: 329B-7R, 7R-1, 2,3,4,5 /ADI84/ADI84A/ADI84C

Displays information associated with annunciator configuration. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
GA or MIN	Determined by plug in module.

7.21 Page 8: ANNUNCIATORS – Bendix/King Models

Applicable to Bendix/King Models: KCI-310/KCI-310A

Displays information associated with annunciator configuration. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
MDA	ACTIVE L
RNAV	ACTIVE L
MINS	ACTIVE L

7.22 Page 9: BACKLIGHT – All Models

Applicable to Sperry, Collins, and Bendix/King models

Displays information associated with display colors and brightness. Page is for informational use only. There are no editable fields.

Configuration Field	Comment
BACKLIGHT Led Current Red Temp Grn Temp Blu Temp SwTemp	 LED current draw RED LED Temperature Green LED Temperature Blue LED Temperature Reserved for future use.
BUTTON BRIGHTNESS Input Mode	Indicates button brightness control mode. Manual (Internal) dimming control is currently the only dimming control method supported.
Auto Display Brightness	Reserved for future use.

7.23 Page 10: POWER – All Models

Applicable to Sperry, Collins, and Bendix/King models

Monitors aircraft power input to the SA4550 and internal power supplies. Contact Sandel if there are any power readout faults or any readout shows in red. This page also monitors total operating time (HHHHH:MM), internal temperature, and fan RPM.

7.24 Page 11: SFTWR CRC – All Models

Applicable to Sperry, Collins, and Bendix/King models

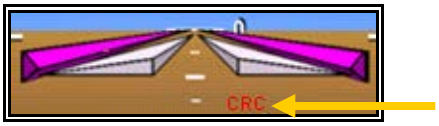
Displays software CRC values. Press the update soft key to recalculate. Contact Sandel if “FAIL” is annunciated for any of the values.

7.25 ERROR MESSAGES – All Models

Applicable to Sperry and Collins models

This error indication will appear during start up only. If the problem cannot be corrected, contact Sandel Customer Support for assistance.

Message	Corrective Action
Rear Conn Parity – NOT VALID	Check jumper wire settings on P-3 connector
Rear Board - UNKNOWN	Contact Sandel Customer Support for assistance.



If a CRC error occurs, contact Sandel Customer Support for assistance.

8 Appendix B: Environmental Qualification

NAMEPLATE NOMENCLATURE: [A2F1Z]BBB[HR]XXXXXXZZAB[ZW][WW]M[A3G33]XXAX			
MODEL/PART NO: SA4550-XXX		**TSO NUMBERS:** C113, C36e, C34e, C4c, C3d, C52b	
MANUFACTURER'S SPECIFICATION AND/OR OTHER APPLICABLE SPECIFICATION:			
MANUFACTURER: Sandel Avionics, Inc.			
ADDRESS: 2401 Dogwood Way			
Vista, CA 92081			
REVISION & CHANGE NOS. OF DO-160: Revision E			**DATE TESTED:** From: 2/02/07 To: 4/23/07
ENVIRONMENTAL TESTS	**RTCA DO-160E SECTION**	**Equipment Test Category**	**Notes**
Temperature & Altitude	4.0	A2F1	PASS
1 In-Flight Loss of Cooling	4.5.5	Z	PASS: Duration >300 min. w/o cooling @ 40C
2 Altitude	4.6.1	F1	PASS
3 -Decompression	4.6.2	A2	PASS
4 -Overpressure	4.6.3	A2	PASS
Temperature Variation	5.0	B	PASS:
Humidity	6.3.1	B	PASS
Operational Shock and Crash Safety	7.0	B	PASS
Vibration	8.0	[H R]	PASS: Section 8.5.1: Standard Vib. Cat. S Curve M Section 8.6: HLSD, Test Curve R Section 8.7.2: Robust Vib, Test Curves B, B1 Section 8.8.1.3: Helo SoR Vib, Test Curve G RESONANT FREQUENCIES: Section 8.5.1: Pre-Scan: X: 225Hz, Y: >500Hz, Z: 225Hz Post-Scan: X: 225Hz, Y: >500Hz, Z: 225Hz Section 8.7.2, Step a. and d.: Pre-Scan: X: 245Hz, Y: 575Hz, Z: 245Hz Post-Scan: X: 245Hz, Y: 575Hz, Z: 245Hz Section 8.8.1.3, Steps a. and e.: Pre-Scan: X: 275Hz, Y: 700Hz, Z: 245Hz Post-Scan: X: 245Hz, Y: 700Hz, Z: 245Hz Section 8.8.1.3, Steps b. and d.: Pre-Scan: X: 310Hz, Y: 800Hz, Z: 275Hz Post-Scan: X: 310Hz, Y: 800Hz, Z: 240Hz
Explosion	9.0	X	n/a
Water-proofness	10.0	X	n/a
Fluids Susceptibility	11.0	X	n/a
Sand and Dust	12.0	X	n/a
Fungus	13.0	X	n/a
Salt Spray	14.0	X	n/a
Magnetic Effect	15.0	Z	PASS
Power Input	16.0	Z	PASS
Voltage Spike	17.0	A	PASS
Audio Frequency Susceptibility	18.0	B	PASS
Induced Signal Susceptibility	19.0	ZW	PASS
Radio Frequency Susceptibility	20.0	[WW]	PASS
Radio Frequency Emission	21.0	M	PASS
Lightning Induced Transient Susceptibility	22.0	[A3G33]	PASS: Connector P1/P2 – Test Category G33 Connector P3 – Test Category J33
Lightning Direct Effects	23.0	X	n/a
Icing	24.0	X	n/a
Electrostatic Discharge	25.0	A	PASS
Fire, Flammability	26.0	X	n/a

9 Appendix C: Sample FAA Form 337

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

   (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

   A. Installed the following equipment and components:

      1. Sandel Avionics, Inc., SA4550 Primary Attitude Display *(or as appropriate)*, Part Number SA4550-(XXX) *(or as appropriate)*
      2. Sandel Avionics, Inc., Clamp Fixture 4ATI, Part Number 61186.

   B. The Sandel Avionics SA4550 is interfaced to the following equipment:

      1. *(List as appropriate)*

(By example state the following functional interface properties)...

   C. Interference and functional tests and inspections were accomplished with reference to Advisory Circular 2X.1311. *(or as appropriate)*.

   D. A system design and analysis was conducted with reference to Advisory Circular 2X.1309-1( ). *(or as appropriate)*.

   E. The pertinent Federal Aviation Regulations for the installation performed, 2X.1301, 2X.1309, 23.1311, 2X.1321, 2X.1322, 25.1329, 2X.1331, 23.1335, 2X1351, 2X.1357, 23.1365, 2X.1381, 2X.1529, and 2X.1581 *(or as appropriate)*, were the basis of compliance.

   F. The aircraft equipment list, and weight and balance were revised and recorded within the aircraft maintenance records.

   G. All pertinent records of this alteration are on file at *(State your repair station name and number)*.

---------- End ----------

10 Appendix D: Airplane Flight Manual Supplement

Reference Sandel document ST12361LA-T-10, “SA4550 Primary Attitude Display Aircraft Flight Manual Supplement”.

11 Appendix E: Checkout Procedures

11.1 Functional Ground Test Procedures/Report

The "Functional Ground Test Procedures/Report" below is for the purpose of simplifying ground tests of the SA4550. A copy of this report (and the "Operational Flight Check Procedures/ Report") must be retained by the installing agency and a copy must be installed in the aircraft maintenance records. A copy must also be forwarded to Sandel Avionics, Inc. along with the Warranty Registration Form, Part Number 82010-0137, which should be mailed after operational acceptance.

Date Performed: _____

Repair Station Name _____

Number _____

Address or Location _____

City _____ ST _____ ZIP _____

A/C Make: _____ A/C Model: _____ A/C Serial No:_____

Work Order No. _____ Technician: _____

COMPANY NAME
COMPANY ADDRESS
TELEPHONE/FAX

Ground Test Procedures/Report
for
Sandel Avionics SA4550 Primary Attitude Display

Installed in
{*Aircraft make and model*}

Registration No. _____ Serial No. _____

Document No. _____ Rev. _____ Date _____

11.1.1 Introduction

The following ground test procedures are to be performed after the SA4550 has been properly configured in the "Post-Installation Procedures", but prior to performing flight test procedures. Successful completion of both the Ground Test and Flight Test procedures is necessary to support the claim that the SA4550, as installed, performs its intended function and is compatible with all aircraft systems. The ground test procedures contained herein will include testing of interfaces to other systems. Therefore, this ground test must be conducted in conjunction with, or subsequent to ground testing of other systems.

The following external system interfaces will be tested as installed:

- Attitude input from vertical gyro
- Flight Director
- Localizer and Glide Slope inputs.
- Rad/Alt display and Min annunciator input from a radar altimeter.
- GA annunciator input from a go around button.
- Angle of attack.
- Mode Annunciators.
- External NVIS control switch (if installed)

Record the following information:

SA4550 Serial Number(s): _____

Software Version: _____

11.1.2 Physical Installation

Verify that the SA4550 clamp has been properly installed in accordance with the manufacturer's instructions, that any external switches affecting SA4550 operation have been clearly labeled, and that a trip-free re-settable circuit breaker labeled "ADI" is clearly visible. Ensure that cooling air intake is not obstructed.

Completed _____ **Comment** _____

11.1.3 Wiring Verification and Initial Power-Up

Perform a 100% continuity check of all aircraft wiring to verify in accordance with installation wiring diagrams.

Completed _____ **Comment** _____

Power check all wiring to ensure that 28 Vdc is applied to the proper pins and nowhere else.

Completed _____ **Comment** _____

Install the SA4550 into the clamp tray and verify full connector mating and that the unit installs without obstruction.

Completed _____ **Comment** _____

11.1.4 System Functions

Activate the aircraft master switch. Verify that the SA4550 display illuminates within 30 seconds. Do not activate the AC power switch.

Completed _____ **Comment** _____

Verify that the SA4550 does not display attitude information and displays an attitude flag.

Completed _____ **Comment** _____

Activate the AC power switch. Verify that the position of the horizon is proper for the attitude of the aircraft. Allow 5 minutes for the aircraft vertical gyro to initialize.

Completed _____ **Comment** _____

Verify that the ball of the Slip/Skid indicator on the SA4550 is proper for the attitude of the aircraft.

Completed _____ **Comment** _____

Verify that the radar altimeter indication on the SA4550 is 50 feet (or appropriate indication for the Radar altimeter installed) when the radar altimeter test is activated. Depending on equipment installed (some installations will cause the normal display to flag when under test) it may be necessary to use the RADALT maintenance page 7 to verify the RADALT value. For ARINC 429 radar altimeter installations, verify that the text “RADALT” in the radar altimeter window is replaced with the text “RA TEST” in amber while the system is under test.

Completed _____ **Comment** _____

Using a radar altimeter ground test set, verify full altitude range (IAW installed equipment) with the radar altimeter indication on the SA4550. If a test set is not available verify the radar altimeter display during the first flight. See flight test procedures.

Completed _____ Comment _____

Press the ATT test button and verify that the pitch and roll change by 10 degrees, the slip skid ball deflects full right and that the text “RED GREEN BLUE” appear in their respective colors. Continue pressing the ATT test button and verify that the display blanks and after releasing the test button the display illuminates again.

Completed _____ Comment _____

Verify that the MIN indication on the SA4550 changes when the MIN knob is rotated.

Completed _____ Comment _____

Determine that all associated equipment such as ILS receivers initialize and function normally.

Completed _____ Comment _____

Verify that the SA4550 internal brightness control can control the brightness of the SA4550 and that a satisfactory brightness level can be attained.

Completed _____ Comment _____

Evaluate the display of the SA4550 for readability.

Completed _____ Comment _____

Evaluate the intensity properties of the SA4550 display under both direct and indirect sunlight conditions, and in nighttime operation conditions.

Completed _____ Comment _____

11.1.5 Attitude Check Pitch & Roll

Tilt the aircraft attitude gyro slowly about the pitch axis. Confirm that the pitch attitude displayed on the SA4550 matches the direction of the gyro movement.

Completed _____ Comment _____

Tilt the aircraft attitude gyro slowly about the roll axis. Confirm that the roll attitude displayed on the SA4550 matches the direction of the gyro movement.

Completed _____ Comment _____

11.1.6 Flight Computer Interface

If equipped, engage the “Go Around” (GA) mode and verify the Flight director indicates a positive pitch up and the GA annunciator on the SA4550 is displayed.

Completed _____ Comment _____

If equipped place the FD mode selector in heading (HDG) mode with the flight director ON and autopilot OFF. Move the heading bug to the lubber line and verify the flight director command cue the SA4550 is level. Verify that the SA4550 flight director cue indicates a left bank when the heading bug is moved to the left of the lubber line, and that the SA4550 flight director cue indicates a right bank when the heading bug is moved to the right of the lubber line.

Completed _____ Comment _____

If equipped, disengage the RADAR Altimeter (RA) circuit breaker (CB). With the Flight Computer on, place the FD mode selector in APPR mode. The autopilot should be OFF. Using a ground test set, provide a centered Localizer (LOC) and Glide Slope (GS) signal and allow the Flight Computer to capture. Verify that changing the LOC deviation left and right causes the Flight Director cue to correctly indicate a left and right bank command and that changing the GS deviation up and down causes the Flight Director cue to correctly indicate a positive and negative pitch angle.

Completed _____ Comment _____

Detune the ILS frequency for the NAV receiver interfaced to the SA4550 and verify the LOC and GS scales are removed from the SA4550.

Completed _____ Comment _____

Tune an ILS frequency on NAV receiver interfaced to the SA4550 and verify the LOC and GS scales are displayed on the SA4550.

Completed _____ Comment _____

Using a ground test set, invalidate the LOC signal. Verify the LOC flag is displayed on the SA4550.

Completed _____ Comment _____

Using a ground test set, invalidate the (GS) signal. Verify the GS flag is displayed on the SA4550.

Completed _____ Comment _____

If equipped disengage the Flight Computer CB and verify the COMPUTER flag is displayed on the SA4550.

> Note: For KCI-310 replacements, when pulling the Flight Computer CB, the COMPUTER flag may only briefly come into view. This is normal behavior and will cause the FD bars and flag to be cleared from the display. Other installations may exhibit similar behaviour. Flag inputs with high level validity input requirements will not be able to sustain the flag when the circuit breaker is pulled since the driving unit no longer has power. In these cases, alternative methods will be necessary to force the flagged state.

Completed _____ Comment _____

Re-engage the Flight Computer CB and verify the COMPUTER flag is removed on the SA4550.

Completed _____ Comment _____

If equipped disengage the RA circuit breaker and verify the SA4550 RA display is flagged. A dashed line should appear on the SA4550 RA display.

Completed _____ Comment _____

Re-engage the RA CB and verify the flag is removed on the SA4550 RA display.

Completed _____ Comment _____

11.1.7 Mode Annunciators

If mode annunciators are supported and installed, configure the aircraft system to enable the pertinent SA4550 annunciators. Verify correct annunciator display.

Completed _____ Comment _____

List all SA4550 annunciators configured in this installation.

_____

_____

_____

11.1.8 Angle of Attack Indicator

If equipped center the Fast/Slow indicator on the SA4550 by rotating the angle-of-attack transmitter (ICAW the aircraft maintenance procedures).

Completed _____ Comment _____

Rotate the angle-of-attack transmitter in a clockwise direction (in accordance with the aircraft maintenance procedures) as viewed from the outside of the airplane. Verify the Fast/Slow indicator on the SA4550 moves downward to indicate a slow condition.

Completed _____ Comment _____

Rotate the angle-of-attack transmitter in a counterclockwise direction (ICAW the aircraft maintenance procedures) as viewed from the outside of the airplane. Verify the Fast/Slow indicator on the SA4550 moves upward to indicate a fast condition.

Completed _____ Comment _____

Disengage the angle-of-attack CB. Verify the speed flag appears on the SA4550.

Completed _____ Comment _____

Engage the angle-of-attack CB. Verify the speed flag disappears on the SA4550.

Completed _____ Comment _____

Reset the angle-of-attack transmitter to its original position (IAW the aircraft maintenance procedures).

Completed _____ Comment _____

11.1.9 NVIS Control

If the SA4550 supports NVIS compatibility, (SA4550-XXXN).

Activate the external NVIS control switch and verify “NVIS” is annunciated on the lower right of the screen.

Completed _____ Comment _____

11.1.10 Additional Testing

Perform any additional tests deemed necessary.

Completed _____ Comment _____

11.2 EMI/RFI Test Procedures

11.2.1 NAV/COM Testing

Apply power to the avionics bus and ensure that all electrical equipment, including the SA4550, is operating normally. Open the squelch on the primary communications radio and tune the radio to each whole megahertz frequency sequentially. Attempt to discern any interference caused by the SA4550. Pull the SA4550 breaker if interference is noted, to verify that the SA4550 is the source.

Completed _____ **Comment** _____

Repeat for the secondary communications radio.

Completed _____ **Comment** _____

Tune the primary navigation radio to 112 MHz and enable the audio output. Attempt to discern any audible interference cause by the SA4550.

Completed _____ **Comment** _____

Repeat for the secondary navigation radio.

Completed _____ **Comment** _____

Transmit on the frequencies 118.000 MHz, 126.975 MHz, and 135.975 MHz on the primary communications radio and attempt to discern any changes in the SA4550 display.

Completed _____ **Comment** _____

Repeat for the secondary communications radio.

Completed _____ **Comment** _____

11.2.2 General Testing

Observe any unusual interaction between the transponder, DME, ADF or Marker Beacon receivers, and the SA4550 when switching power to any equipment.

Completed _____ **Comment** _____

11.2.3 Additional Testing

Perform any additional EMI/RFI-related tests deemed necessary.

Completed _____ **Comment** _____

11.3 Operational Flight Test Procedures/Report

The following “Operational Flight Check Procedures/Report” is for the purpose of simplifying the in-flight operational check of the SA4550. A copy of this report (and the “Functional Ground Test Procedures/ Report”) must be retained by the installing agency and a copy must be installed in the aircraft maintenance records. A copy must also be forwarded to Sandel Avionics along with the Warranty Registration Form, Part Number 82010-0137, which should be mailed after operational acceptance.

COMPANY NAME
COMPANY ADDRESS
TELEPHONE/FAX

Flight Test Procedures/Report
for
Sandel Avionics SA4550 Primary Attitude Display

Installed in
{*Aircraft make and model*}

Registration No. _____ Serial No. _____

Document No. _____ Rev. _____ Date _____

11.4 Introduction

The Flight Test Procedures described below are to be performed after both the Post-Install Procedures and the Ground Test Procedures are performed. Successful completion of the Flight Test Procedures will then satisfy the criteria for operational acceptance of the SA4550 installation.

Specific procedures are not provided for many of the tests herein, due to differences in installed options and aircraft configurations. Refer to the SA4550 Pilot's Guide and the proposed Airplane Flight Manual Supplement for operational details of the equipment.

Each test item is followed by a space for the initials of the person performing the procedure, and a space for a description of any observations or anomalies. Determination of a successful flight test is made after analysis of these observations.

11.5 Test Procedures

Record the following information:

SA4550 Serial Number(s): _____

Software Version: _____

11.5.1 Pre - Departure Operations

Apply power to the SA4550 and all associated equipment. Determine that all equipment initializes and functions normally.

Completed _____ **Comment** _____

Prior to the Attitude Gyro initialization has been completed, verify the SA4550 does not indicate an attitude and the SA4550 attitude is flagged.

Completed _____ **Comment** _____

After the Attitude Gyro has completed initialization, verify the SA4550 indicates the correct attitude.

Completed _____ **Comment** _____

Verify that the SA4550 internal brightness control can control the brightness of the SA4550 and that a satisfactory brightness level can be achieved.

Completed _____ **Comment** _____

Evaluate the display of the SA4550 for readability.

Completed _____ **Comment** _____

Evaluate the intensity properties of the SA4550 display under both direct and indirect sunlight conditions, and in nighttime operation conditions.

Completed _____ **Comment** _____

Check the function of all buttons and knobs, and confirm that all controls are operational.

Completed _____ **Comment** _____

Verify that all mode annunciators for the installation operated correctly.
List the installation supported mode annunciators.

Completed _____ **Comment** _____

11.5.2 Enroute Operations

Cycle various aircraft electrical equipment items such as NAV/COM radios, lights, landing gear, radar, windscreen heat, and anti-icing boots. Verify that none causes interference on the SA4550 display.

Completed _____ **Comment** _____

In straight and level flight, verify that the SA4550 display indicates correctly.

Completed _____ **Comment** _____

Bank left and right 45 degrees while pitching the aircraft +/- 10 degrees. Verify the SA4550 indicates correctly.

Completed _____ **Comment** _____

In straight and level flight, if equipped enable the Flight Director. Verify that the Flight Dirctor Command Dual or Single Cue comes into view on the SA4550.

Completed _____ **Comment** _____

With the Aircraft Heading Select knob, command turns to the left and to the right. Verify the Flight Director Commands on the SA4550 indicate correctly.

Completed _____ **Comment** _____

In straight and level flight, if equipped set the Flight Computer to hold an altitude. Change the aircraft pitch attitude up and down. Verify that the flight director commands indicate correctly.

Completed _____ **Comment** _____

11.5.3 ILS Approach Operations

Configure the aircraft for a suitable ILS approach. Set the correct MIN height on the MIN height window. Fly the approach with the Flight Director on and the Autopilot off. Verify that as the localizer is intercepted, the flight director command indicates correctly.

Completed _____ **Comment** _____

Verify that as the glide slope is intercepted, the flight director command indicates correctly.

Completed _____ **Comment** _____

When established on the approach, to the extent practical, fly to the left and right, above and below the final approach course. Verify that the flight director command indicates correctly to turn back on course.

Completed _____ **Comment** _____

Verify the Localizer Deviation Indicator is indicating correctly.

Completed _____ **Comment** _____

Verify the Glide Slope Deviation Indicator is displayed.

Completed _____ **Comment** _____

After the aircraft has descended below 2500 feet AGL (or 2000 feet for ALT-50) and periodically as practical during the approach descent, verify correct operation of the SA4550 RA display by comparison to altimeter accounting for terrain.

Completed _____ **Comment** _____

Verify that the fast-slow indicator on the SA4550 operates correctly for the flight profile being flown.

Completed _____ **Comment** _____

Verify that when the Rad/Alt display if equipped, drops below the MIN height setting the MIN annunciator on the SA4550 illuminates.

Completed _____ **Comment** _____

11.5.4 Additional Testing

Perform any additional flight testing deemed necessary.

Completed _____ **Comment** _____

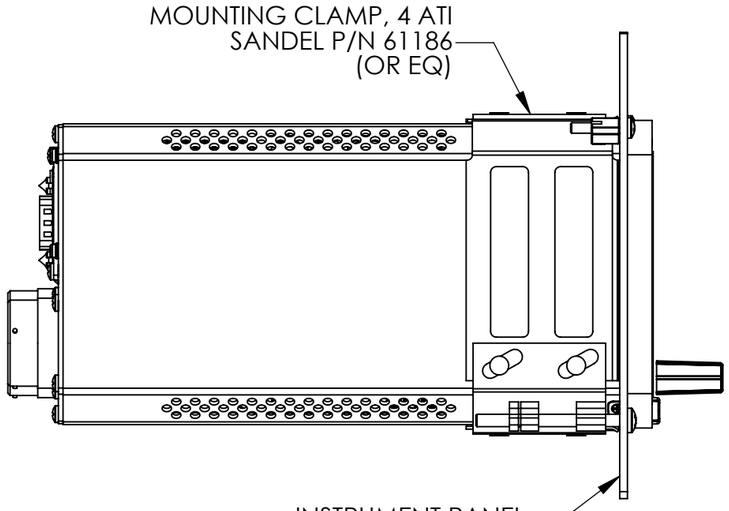
12 Appendix F: List of Effective Drawings and Attachments

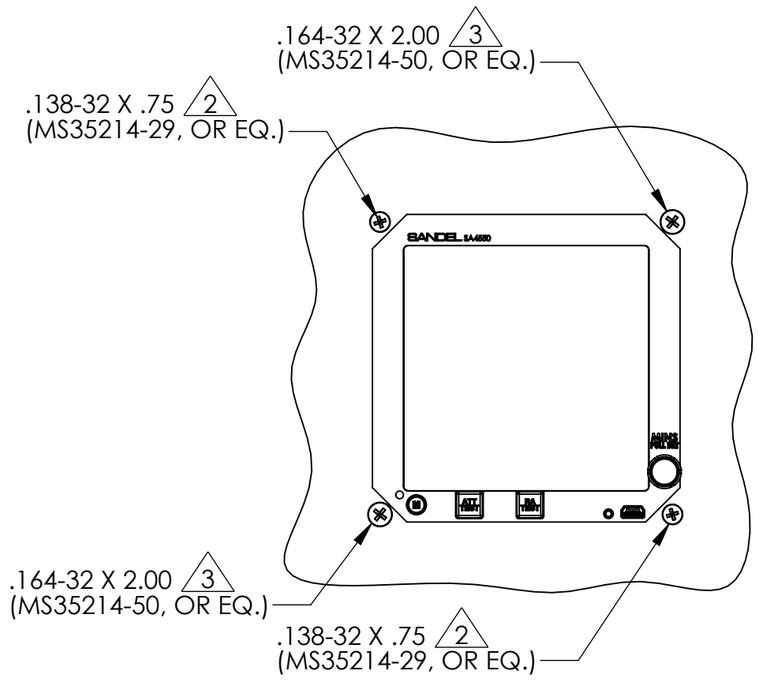
DRAWING	REV	TITLE
82010-05, sht 1	A1	LAYOUT, SA4550 INSTALLATION
82010-05, sht 2	A	LAYOUT, SA4550 INSTALLATION
82010-05, sht 3	A1	LAYOUT, SA4550 INSTALLATION
82010-05, sht 4	A1	LAYOUT, SA4550 INSTALLATION
82010-07, sht 1	A	ENVELOPE, SA4550 (AD550)
82031-07, sht 1	A	ENVELOPE, SA4550 (AD650)
82010-10, sht 1	E	PWR & CONFIG SA4550-(0xx) SPERRY AD-550
82010-10, sht 2	E	PWR & CONFIG SA4550-(1xx) SPERRY AD-600/650
82010-10, sht 3	C	RADAR ALT. CFG SA4550-(0xx) SPERRY AD-550
82010-10, sht 4	C	RADAR ALT. CFG SA4550-(1xx) SPERRY AD-650
82010-10, sht 5	B	PWR & OPTIONAL CONFIG SA4550-(0xx) SPERRY HZ-454
82010-10, sht 6	B	PWR & OPTIONAL CONFIG SA4550-(0xx) SPERRY AD-500
82010-10, sht 7	C	PWR & CONFIG SA4550-((4,5,6)XX) COLLINS ADI 84/84A/84C & 329B-7R/7R1/7R2/7R3/7R4/7R5
82010-10, sht 8	B	PWR & OPTIONAL CONFIG SA4550-(7xx) King KCI 310/310A
82010-10, sht 9	A	NVIS Control (Dual Installation SN4500 & SA4550)
82010-10, sht 10	A	NVIS Control (Single SA4550)
82010-10, sht 11	A	ARINC-429 Connections SA4550-(0,1xx)
82010-10, sht 12	A	ARINC-429 Connections SA4550-(4,5,6,7xx)

REVISIONS					
REV.	ZONE	DESCRIPTION	A/R	DATE	APPROVED
A		INITIAL RELEASE	880	04/11/07	G. BLOCK
A1		ADDED VIEWS FOR "5ATI OPTIONAL" INSTALLATION	880	04/24/07	G. BLOCK

NOTES:

1. LOCATE PANEL CUT OUT/4 ATI CLAMP WITH SUFFICIENT CLEARANCE ALL AROUND (REF. ARINC SPECIFICATION 408A)
2. ATTACH CLAMP TO INSTRUMENT PANEL/ADAPTERPLATE USING 2 EA .138-32 X .75 PAN HEAD MACHINE SCREW, CROSS RECESSED (MS35214-29, OR EQ.).
3. INSTALL 2 EA ADJUSTING SCREWS, .164-32 X 2.00 PAN HEAD MACHINE SCREW, CROSS RECESSED.
4. FOR 5 ATI CUTOUT INSTALLATION: ATTACH 4 ATI CLAMP TO ADAPTER PLATE AND POSITION PLATE BEHIND INSTRUMENT PANEL. SECURE ADAPTER PLATE TO PANEL USING 4 EA .164-32 X .38 MACHINE SCREWS.
5. FOR 5 ATI CUTOUT, OPTIONAL INSTALLATION: REMOVE .164-32 MACHINE SCREWS SECURING EXISTING 5ATI CLAMP TO INSTRUMENT PANEL. RETAIN FOR REINSTALLATION. REMOVE THREADED INSERTS FROM ADAPTER PLATE, ATTACH 4ATI CLAMP, AND POSITION BEHIND INSTRUMENT PANEL. ALIGN EXISTING 5ATI CLAMP TO ADAPTER PLATE/INSTRUMENT PANEL AND SECURE USING .164-32 MACHINE SCREWS PREVIOUSLY REMOVED.
6. COMPLETE INSTALLATION PER INSTALLATION MANUAL, SANDEL PART NUMBER 82010-IM (CURRENT REVISION)





4 ATI CUTOUT INSTALLATION

-	SA4550
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS .XX ± .01 .XXX ± .005
ANGLES ±.5°

MATERIAL -

FINISH -

DO NOT SCALE DRAWING

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

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CHECKED M. WILEY	04/11/07
RESP ENG T. MORRISON	04/11/07
MFG ENG	
APPROVAL	

SANDEL® VISTA, CA

LAYOUT, SA4550 INSTALLATION

SIZE	CAGE CODE	DWG. NO.	CATEGORY	REV.
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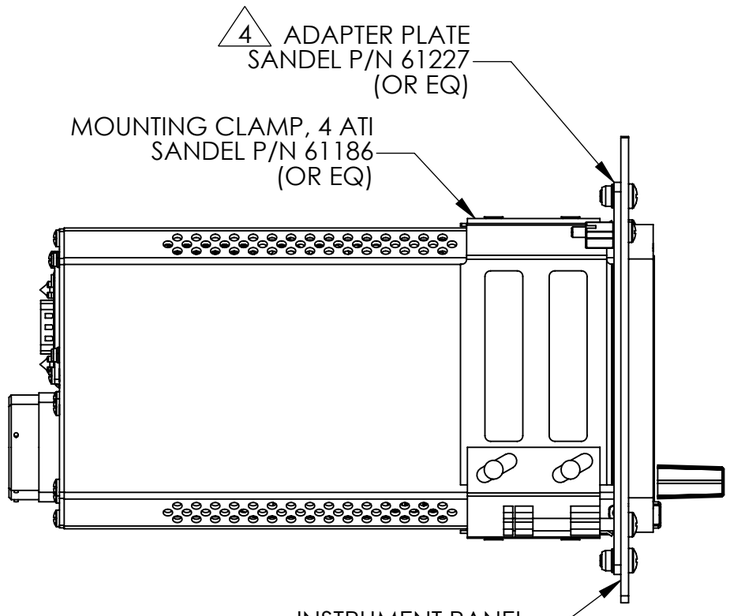
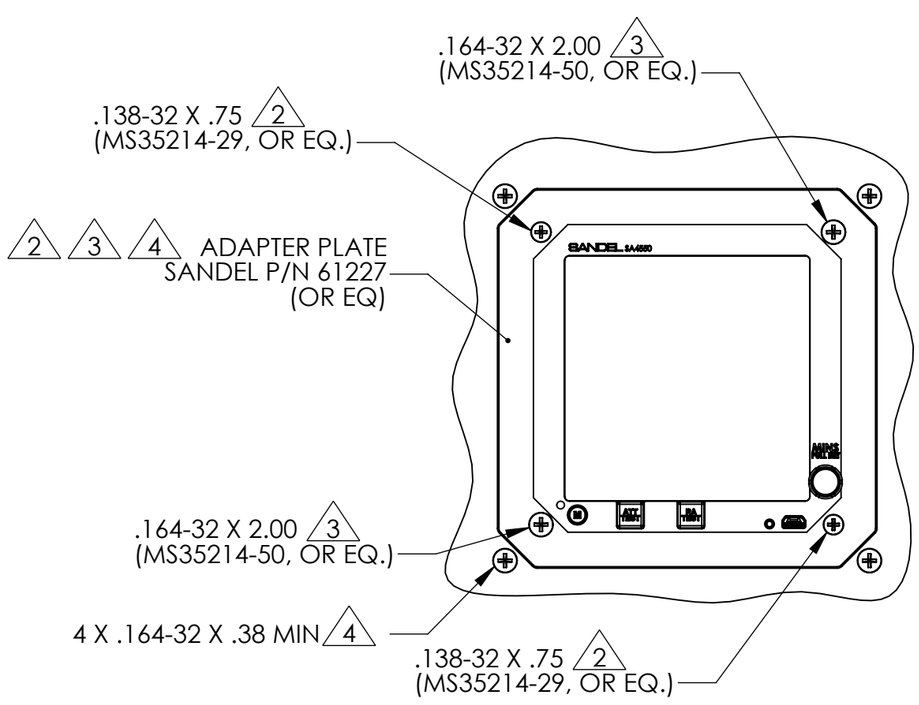
SCALE 1:2 & NOTED | CAD FILE 82010-05 SA4550 INSTALL | SHEET 1 OF 4





5 ATI CUTOUT INSTALLATION

SANDEL® VISTA, CA

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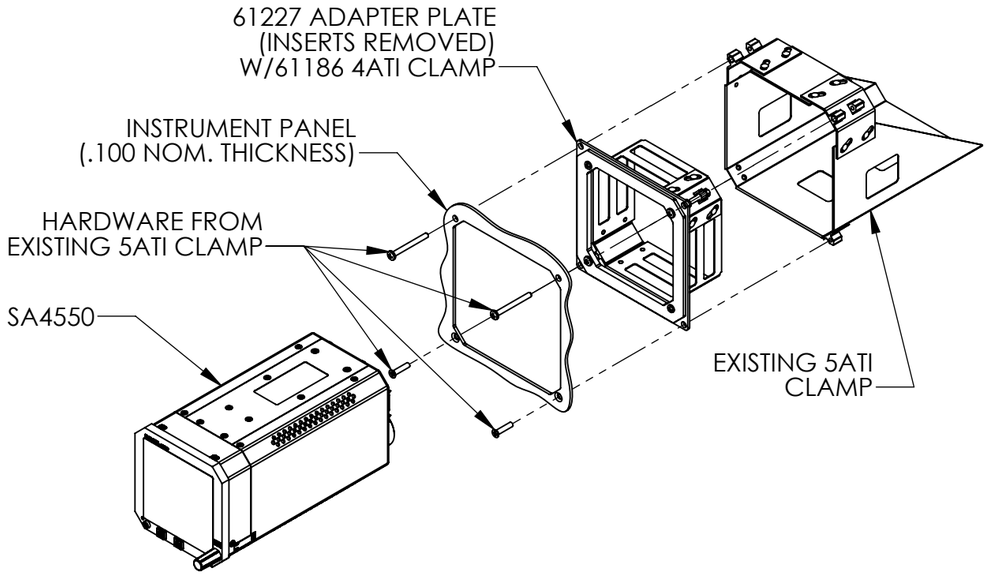
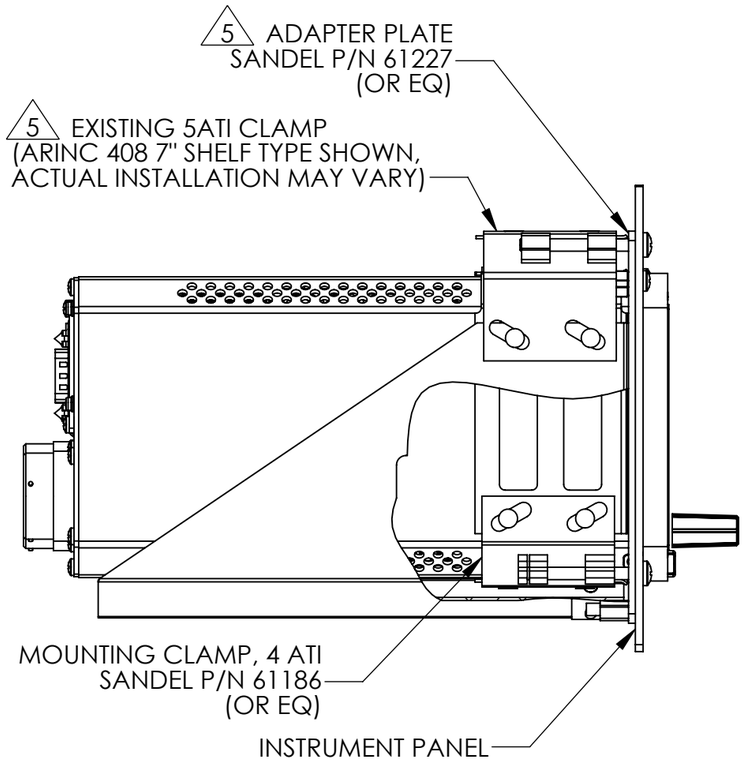
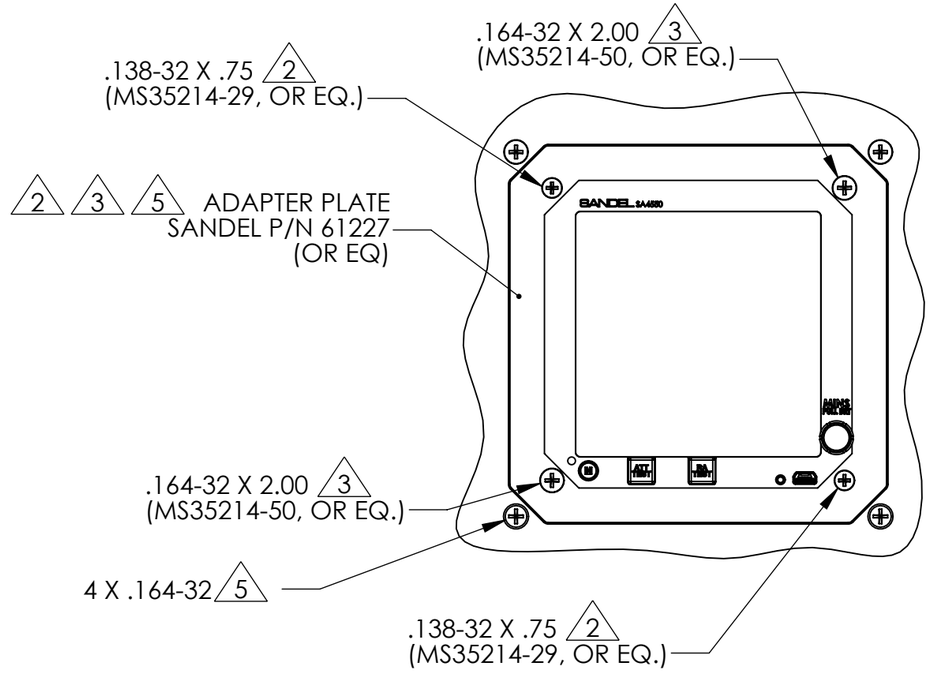
SCALE 1:2 & NOTED	CAD FILE: 82010-05 SA4550 INSTALL		SHEET 2 OF 4	







5 ATI CUTOUT, OPTIONAL INSTALLATION

(RETAINS EXISTING 5ATI CLAMP BEHIND INSTRUMENT PANEL)

SANDEL® VISTA, CA

SIZE	CAGE CODE	DWG. NO.	CATEGORY	REV.
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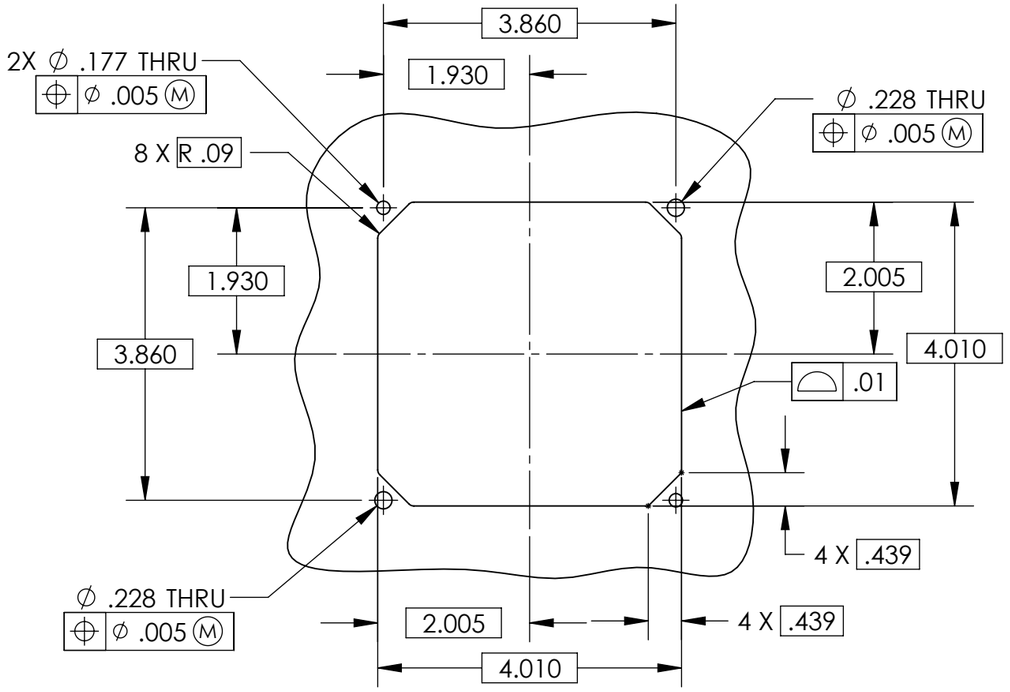
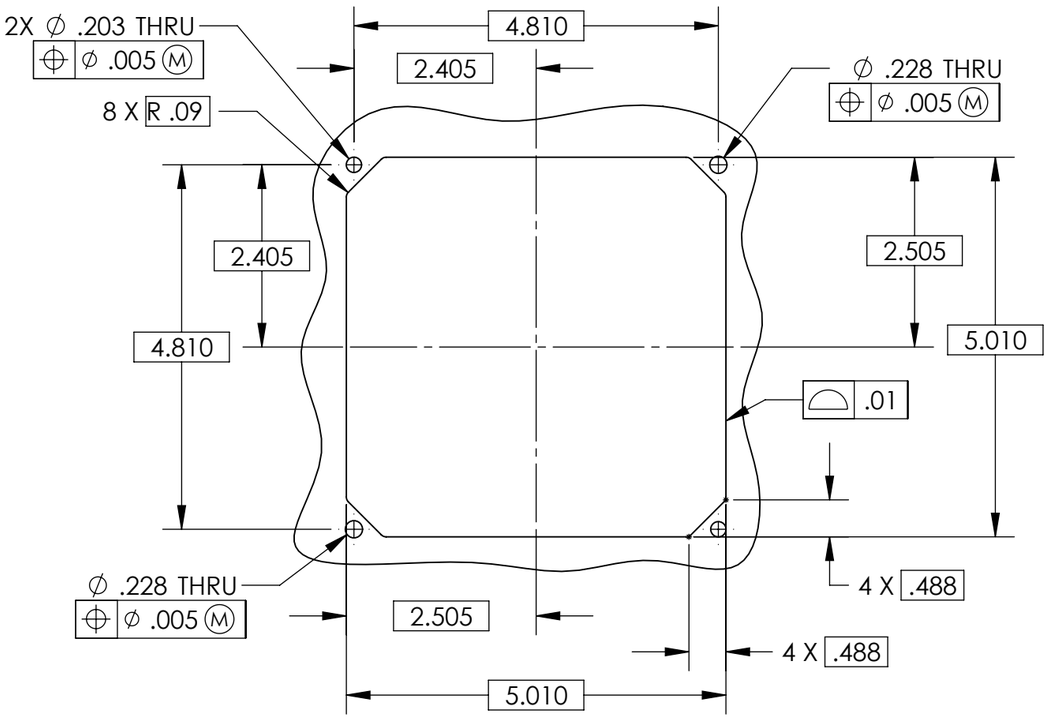
SCALE 1:2 & NOTED | CAD FILE: 82010-05 SA4550 INSTALL | SHEET 3 OF 4



4 ATI PANEL CUT OUT
(REF. ARINC SPECIFICATION 408A)



5 ATI PANEL CUT OUT
(REF. ARINC SPECIFICATION 408A)

SANDEL® VISTA, CA

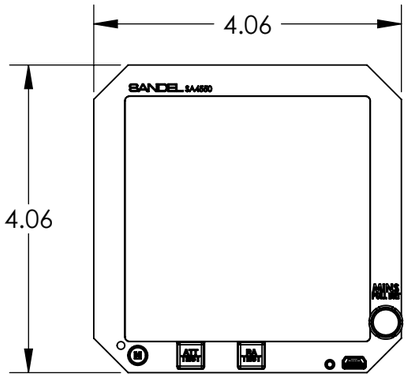
SIZE	CAGE CODE	DWG. NO.	CATEGORY	REV.
B	3T1Z4	82010	05	A1

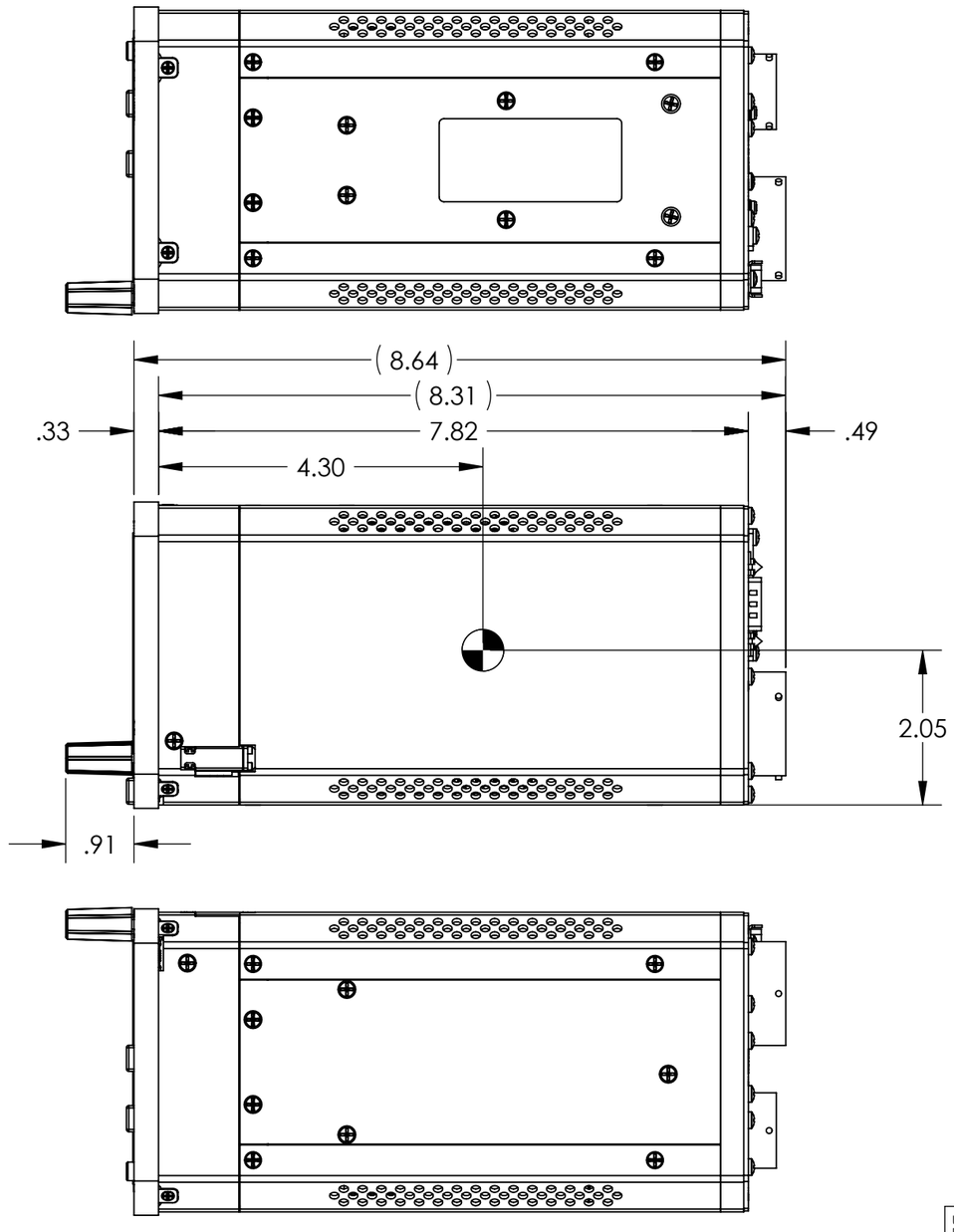
SCALE 1:2 & NOTED | CAD FILE: 82010-05 SA4550 INSTALL | SHEET 4 OF 4

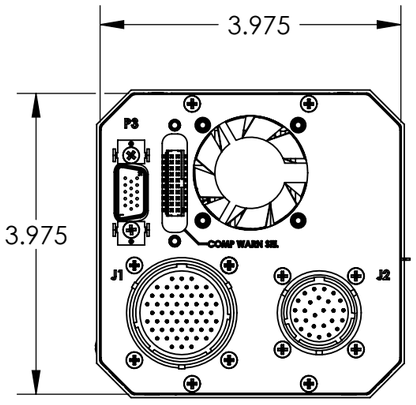
NOTES:

1. ASME Y14.5M - 1994 APPLIES
2. UNIT WEIGHT: 3.4 LBS.

REVISIONS					
REV.	ZONE	DESCRIPTION	A/R	DATE	APPROVED
A		INITIAL RELEASE	880	04/11/07	G. BLOCK







APPLIES TO SPERRY AD550 COMPATIBLE DASH NUMBERS

-	SA4550
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

DECIMALS .XX ± .01 .XXX ± .005 ANGLES ±.5°

MATERIAL -

FINISH -

DO NOT SCALE DRAWING

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

APPROVALS	DATE
DRAWN T. MORRISON	04/09/07
CHECKED M. WILEY	04/09/07
RESP ENG T. MORRISON	04/09/07
MFG ENG	
APPROVAL	

SANDEL® VISTA, CA

ENVELOPE, SA4550 (AD550)

SIZE	CAGE CODE	DWG. NO.	CATEGORY	REV.
B	3T1Z4	82010	07	A

SCALE 1:2 & NOTED | CAD FILE 82010-07 LAYOUT, SA4550 (AD550) | SHEET 1 OF 1

NOTES:

1. ASME Y14.5M - 1994 APPLIES
2. UNIT WEIGHT: 3.4 LBS.

REVISIONS					
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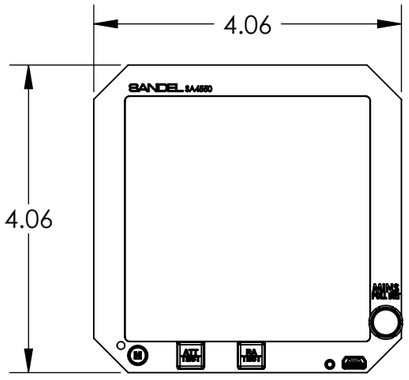

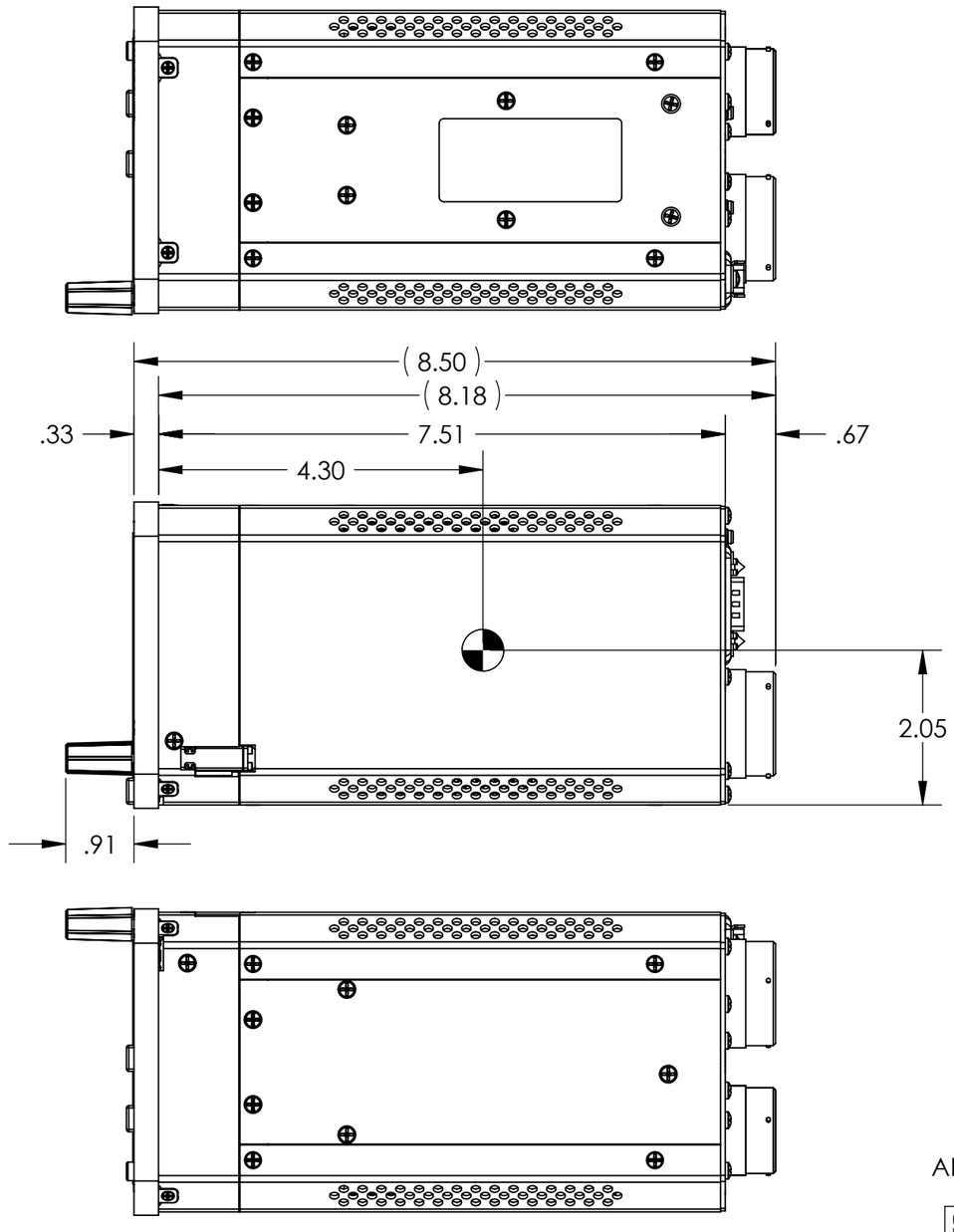

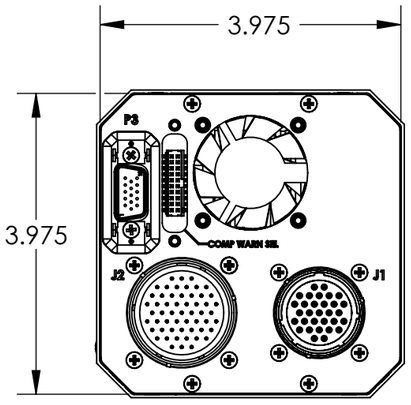

APPLIES TO SPERRY AD600/AD650 COMPATIBLE DASH NUMBERS

-	SA4550
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

DECIMALS .XX ± .01 .XXX ± .005
ANGLES ±.5°

MATERIAL -

FINISH -

DO NOT SCALE DRAWING

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

APPROVALS	DATE
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CHECKED M. WILEY	04/10/07
RESP ENG T. MORRISON	04/10/07
MFG ENG	
APPROVAL	

SANDEL® VISTA, CA

ENVELOPE, SA4550 (AD650)

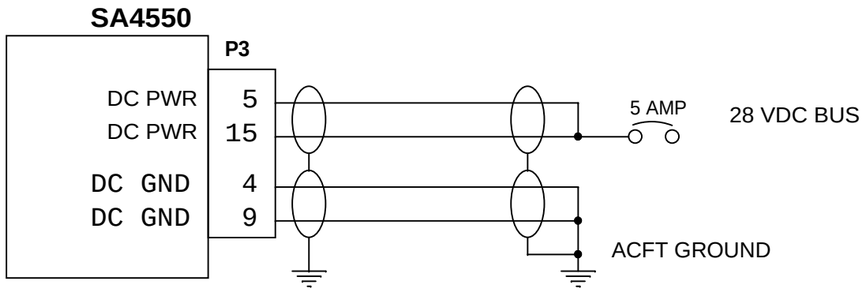
SIZE	CAGE CODE	DWG. NO.	CATEGORY	REV.
B	3T1Z4	82031	07	A

SCALE 1:2 & NOTED | CAD FILE 82031-07 LAYOUT, SA4550 (AD650) | SHEET 1 OF 1

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

DATE	REV	COMMENTS
28-APR-2007	A	INITIAL RELEASE GB
18-JUN-2007	B	REVISED PIN LABELS GB
12-OCT-2007	C	ADDED ADDITIONAL SPERRY PART NUMBERS, AR937
16-NOV-2008	D	Removed P3-11 SS2, AR1021
27-JUN-2012	E	Corrected Note 1 power/ground pin callouts.

SA4550 input power requires 20 to 33 VDC.



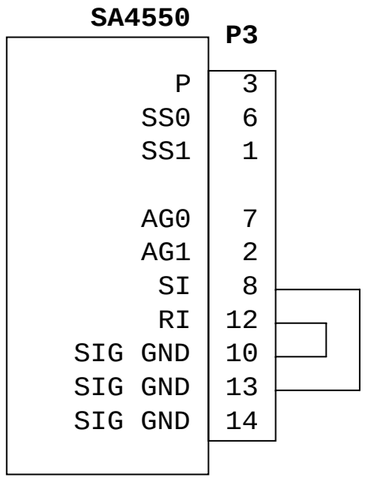
NOTES:

1. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

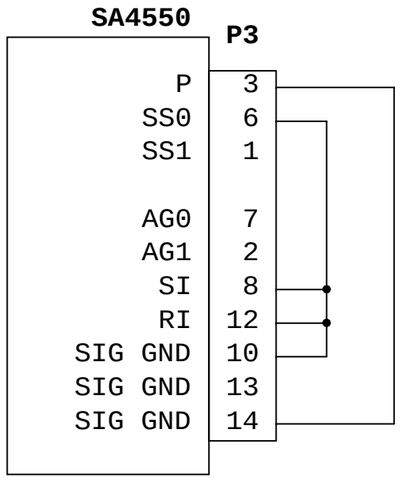
2. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL.

3. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

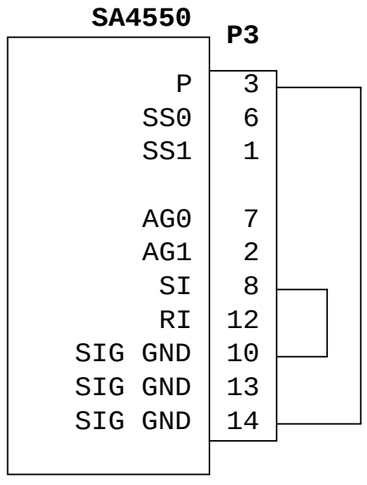
WIRE STRAPPING CONFIGURATIONS
SEE NOTES 2 & 3.



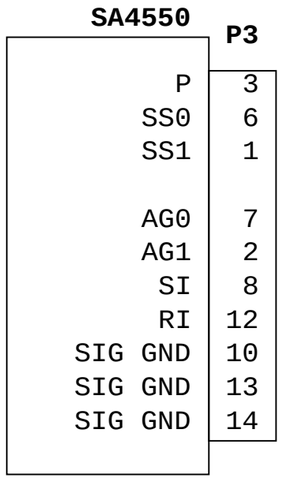
SPERRY PART NUMBERS
4002531-454
4002531-901
4002531-902
4002531-903
4002531-904
4002531-905
7000836-901
7000836-902
7000836-903
7000836-904
7000836-909
7000836-910
7000836-911
7000836-912
7000836-923
7000836-924



SPERRY PART NUMBERS
7000836-905
7000836-906
7000836-913
7000836-914
7000836-921
7000836-922

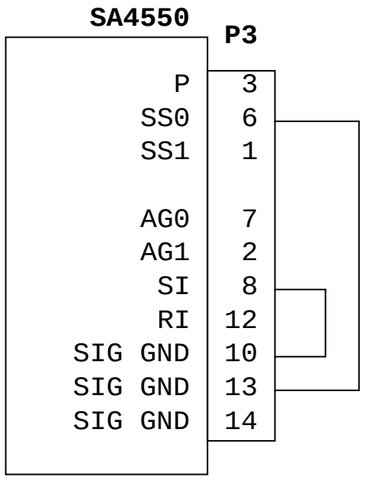


SPERRY PART NUMBERS
7001182-901
7001182-902
7001182-903
7001182-904

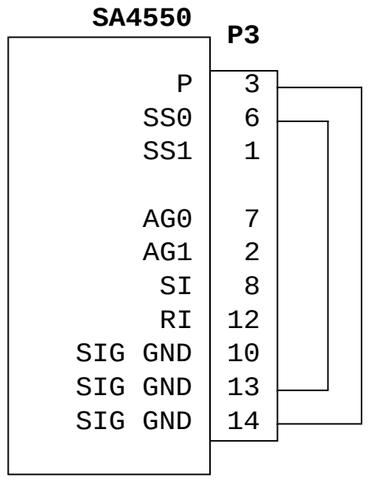


SPERRY PART NUMBERS
7001182-909
7001182-910
7001182-911
7001182-912

NO CONNECTIONS, ALL PINS OPEN



SPERRY PART NUMBERS
7001182-905
7001182-906



SPERRY PART NUMBERS
7001182-913
7001182-914
7001182-916
7001182-917
7001182-918
7001182-919

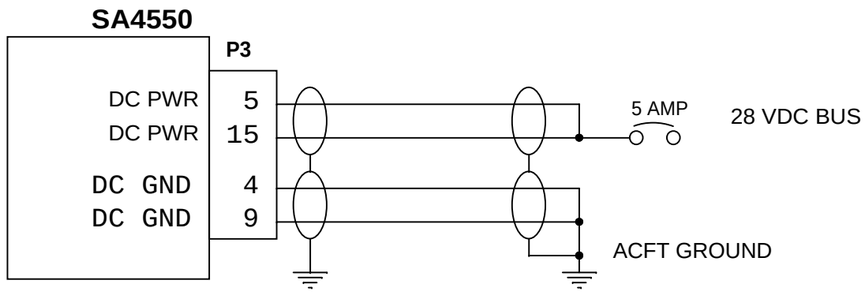
SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING		
Title: PWR & CONFIG SA4550-(0xx) Sperry AD-550		
Size: B	Document Number: **82010-10**	Rev: **E**
Create:	Mod:	Sheet 1

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

DATE	REV	COMMENTS
28-APR-2007	A	INITIAL RELEASE GB
18-JUN-2007	B	REVISED PIN LABELS GB
12-OCT-2007	C	ADDED ADDITIONAL SPERRY PART NUMBERS, AR937
16-NOV-2007	D	Removed P3-11 SS2, AR1021
27-JUN-2012	E	Correct Note 1 power and ground pin callouts.

SA4550 input power requires 20 to 33 VDC.



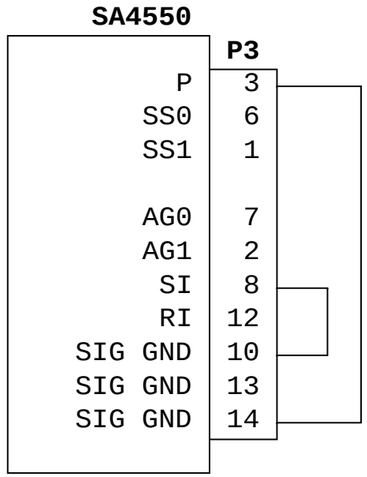
NOTES:

1. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

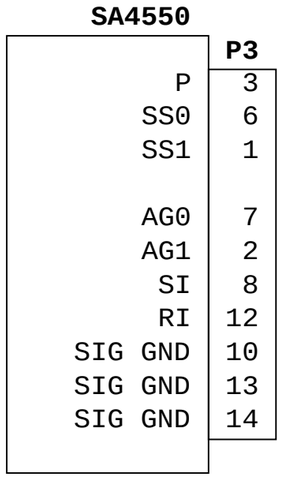
2. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL.

3. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

WIRE STRAPPING CONFIGURATIONS
SEE NOTES 2 & 3.

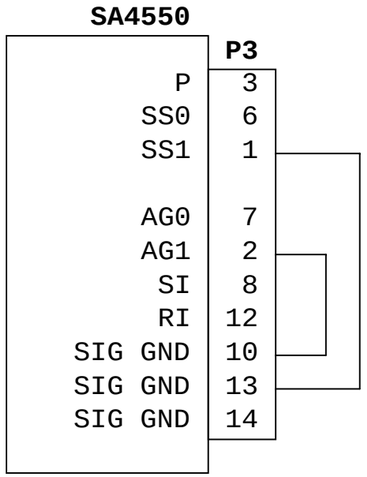


SPERRY PART NUMBERS
7000466-946
7000466-966
7000466-986

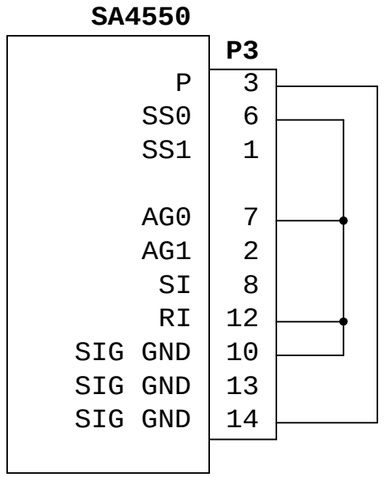


SPERRY PART NUMBERS
7000466-901
7000466-902
7000466-905
7000466-906
7000466-926
7000466-951
7000466-955

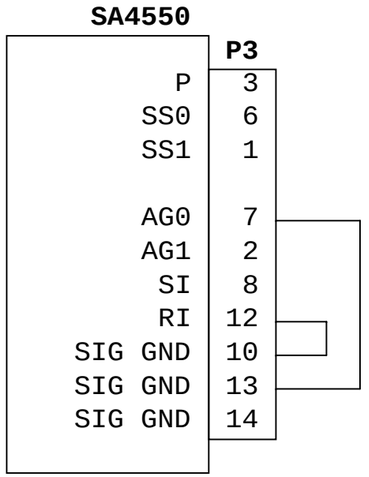
NO CONNECTIONS,
ALL PINS OPEN



SPERRY PART NUMBERS
7000466-917
7000466-918



SPERRY PART NUMBERS
7000466-909
7000466-910
7000466-911
7000466-912
7000466-920
7000466-959
7000466-961



SPERRY PART NUMBERS

7000466-903	**|**	**4020547-901**
7000466-904	**|**	**4020547-904**
7000466-907	**|**	**4020547-905**
7000466-908	**|**	**4020547-906**
7000466-953	**|**	**4020547-907**
7000466-957	**|**	**4020547-908**

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: PWR & CONFIG SA4550-(1xx) Sperry AD-600/650

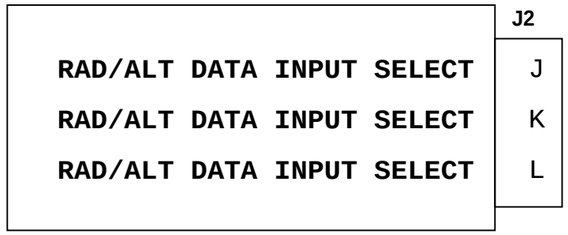
Size B | Document Number: **82010-10** | Rev: **E**

Create: | Mod: | Sheet 2

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

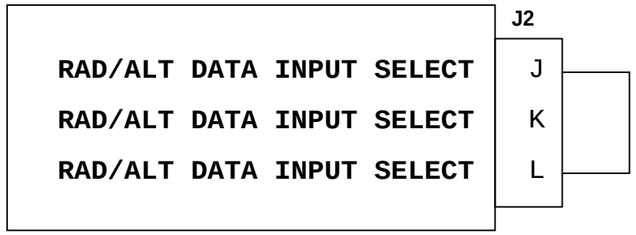
DATE	REV	COMMENTS	
28-APR-2007	A	INITIAL RELEASE	GB
18-JUN-2007	B	SHEET RE-NUMBER, REVISED PIN LABELS	GB
27-JUN-2012	C	ADD SUPPORT FOR ARINC-429 RAD/ALT	RDL

SPERRY AA-215/236/300 OR ARINC-429 RAD/ALT

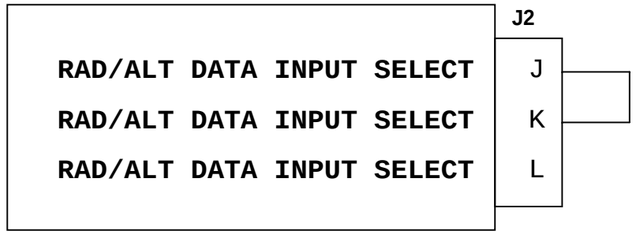


NO CONNECTIONS, ALL PINS OPEN.

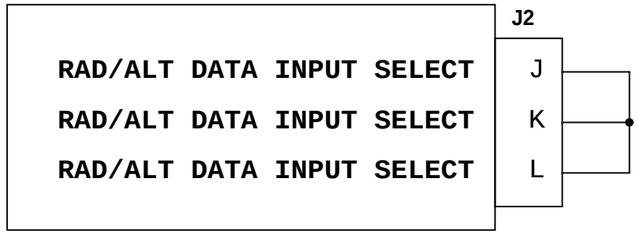
ARINC 552



COLLINS ALT-50



COLLINS ALT-55



NOTES:

1. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL HOUSING.

2. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: RADAR ALT. CFG SA4550-(0xx) SPERRY AD-550

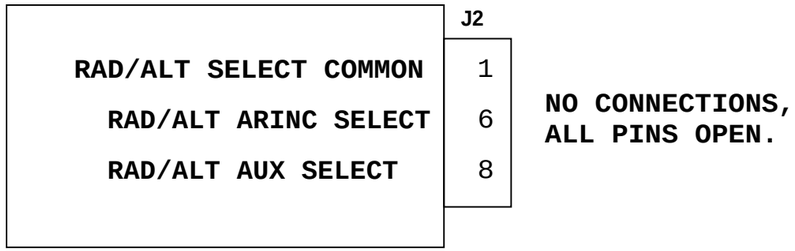
Size: B | Document Number: 82010-10 | Rev: C

Create: | Mod: | Sheet 3

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

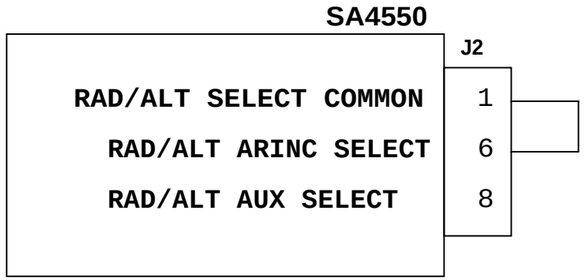
DATE	REV	COMMENTS
28-APR-2007	A	INITIAL RELEASE
31-JUL-2007	B	CORRECTED RAD ALT SELECTION FOR ARINC 552 AND ALT-50
30-AUG-2007	B1	A/R 925 PIN STRAPPING CORRECTED ON COLLINS ALT-50 AND ARINC 552; NOTE NUMBERING UPDATED
27-JUN-2012	C	ADD SUPPORT FOR ARINC-429 RAD/ALT

SPERRY AA-215/236/300 OR ARINC-429 RAD/ALT

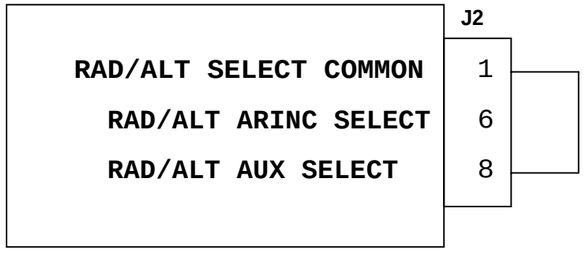


NO CONNECTIONS, ALL PINS OPEN.

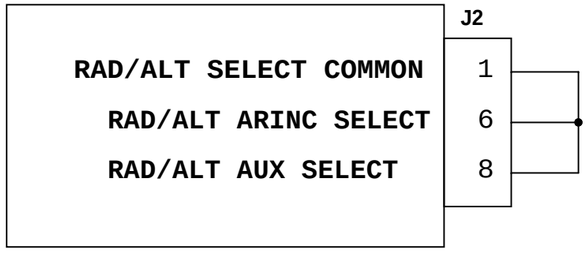
ARINC 552



COLLINS ALT-50



COLLINS ALT-55



NOTES:

1. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL HOUSING.

2. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

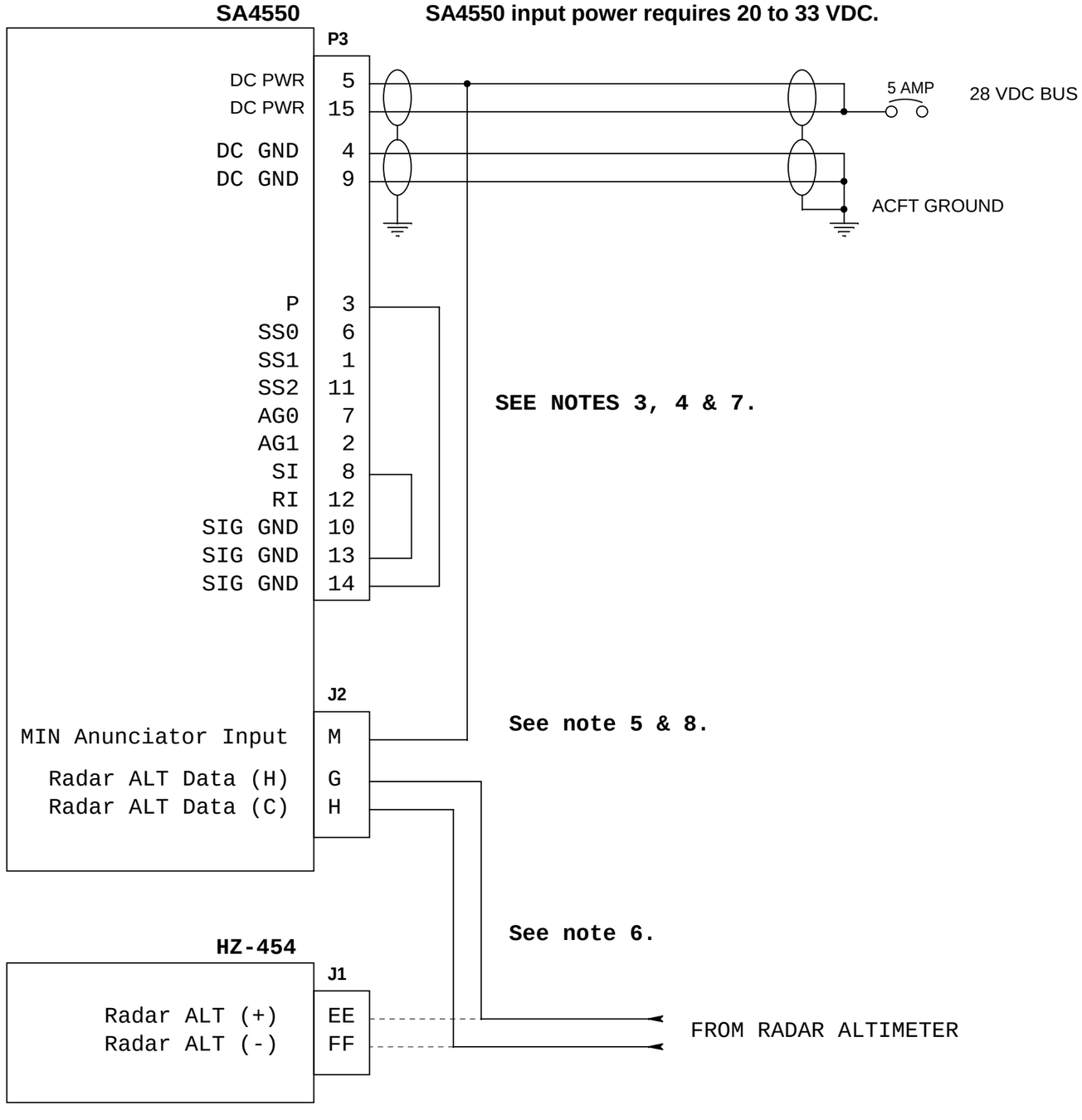
Title: RADAR ALT. CFG SA4550-(1xx) SPERRY AD-650

Size: B | Document Number: 82010-10 | Rev: C

Create: | Mod: | Sheet 4

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

DATE	REV	COMMENTS
12-OCT-2007	A	INITIAL RELEASE, AR937
27-JUN-2012	B	CORRECT POWER AND GROUND PIN CALLOUTS IN NOTE 2.



NOTES:

1. USE EXISTING AIRCRAFT WIRING FOR ALL CONNECTIONS UNLESS OTHERWISE NOTED ON THIS DRAWING.

2. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

3. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL.

4. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

5. FOR SA4550-0xx SERIAL NUMBERS 10-1028 AND BELOW J2-M MUST BE PULLED UP TO AIRCRAFT POWER IF UNUSED. IF CONNECTED EXTERNALLY THEN PULL-UP TO AIRCRAFT POWER USING 10K OHM RESISTOR.

6. OPTIONAL RADAR ALTIMETER CONNECTIONS. RETERMINATE RADAR ALTIMETER DATA FROM HZ-454 J1 PINS EE AND FF TO SA4550 J2 PINS G AND H AS SHOWN.

7. IF RADAR ALTIMETER IS NOT CONNECTED, THEN USE STANDARD CONFIGURATION STRAPPING FOUND ON 82010-IM SHEET 1.

8. ACTIVATION OF THE SA4550 MIN ANNUNCIATOR WILL BE CONTROLLED BY THE SA4550 MIN SETTING.

SPERRY HZ-454 OPTIONAL WIRING
PART NUMBERS
4002531-454
4002531-901
4002531-902
4002531-903
4002531-904
4002531-905

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

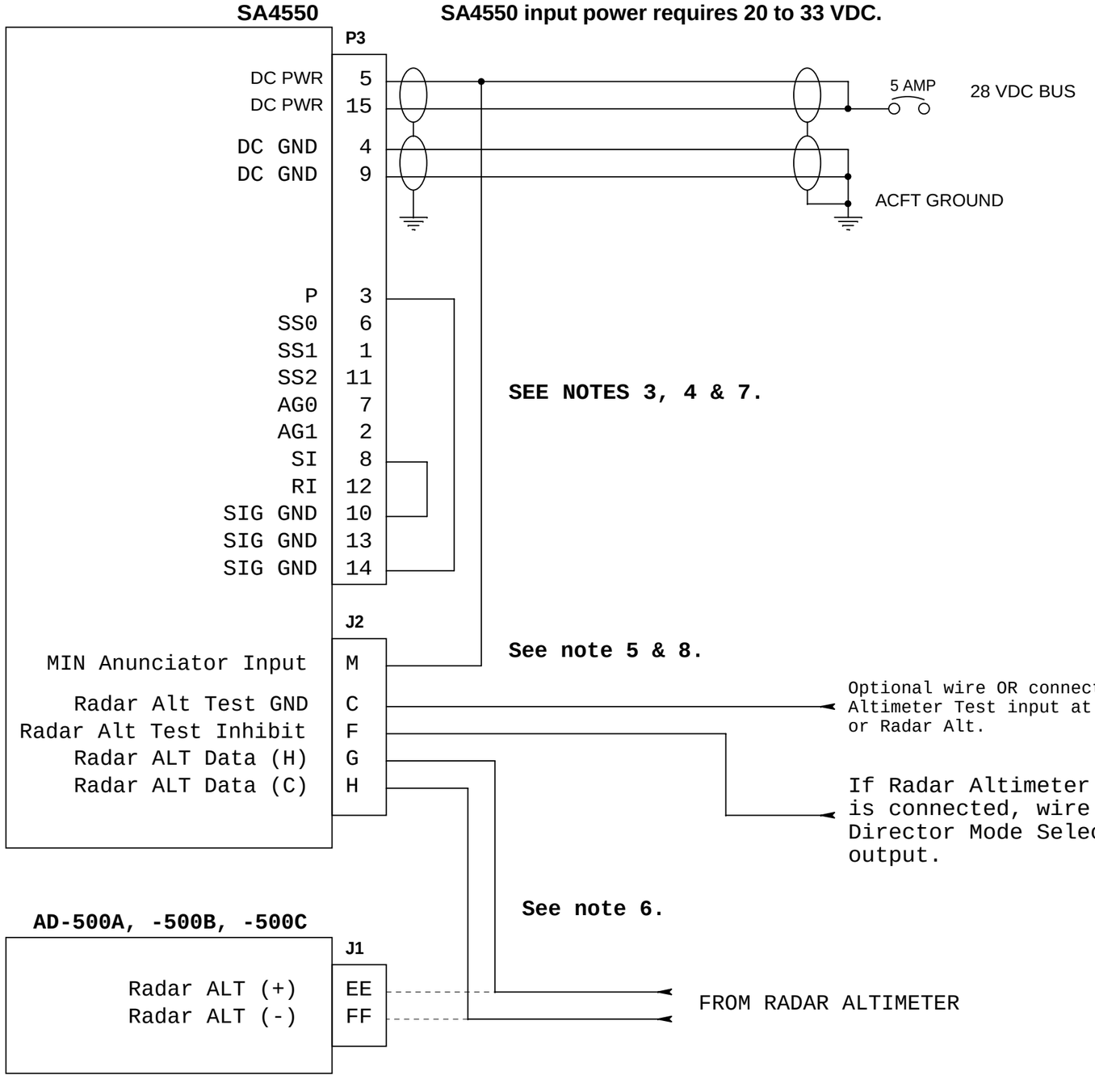
Title: PWR & OPTIONAL CONFIG SA4550-(0xx) Sperry HZ-454

Size B | Document Number 82010-10 | Rev B

Create: | Mod: | Sheet 5

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

DATE	REV	COMMENTS
12-OCT-2007	A	INITIAL RELEASE, AR937
27-JUN-2012	B	CORRECT NOTE 2 POWER PIN CALLOUTS.



NOTES:

1. USE EXISTING AIRCRAFT WIRING FOR ALL CONNECTIONS UNLESS OTHERWISE NOTED ON THIS DRAWING.

2. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

3. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL.

4. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

5. FOR SA4550-0xx SERIAL NUMBERS 10-1028 AND BELOW J2-M MUST BE PULLED UP TO AIRCRAFT POWER IF UNUSED. IF CONNECTED EXTERNALLY THEN PULL-UP TO AIRCRAFT POWER USING 10K OHM RESISTOR.

6. OPTIONAL RADAR ALTIMETER CONNECTIONS. RETERMINATE RADAR ALTIMETER DATA FROM AD-500 J1 PINS EE AND FF TO SA4550 J2 PINS G AND H AS SHOWN.

7. IF RADAR ALTIMETER IS NOT CONNECTED, THEN USE STANDARD CONFIGURATION STRAPPING FOUND ON 82010-IM SHEET 1.

8. ACTIVATION OF THE SA4550 MIN ANNUNCIATOR WILL BE CONTROLLED BY THE SA4550 MIN SETTING.

SPERRY AD-500A, -500B & -500C OPTIONAL WIRING PART NUMBERS

7000836-901	7000836-902
7000836-903	7000836-904
7000836-905	7000836-906
7000836-909	7000836-910
7000836-911	7000836-912
7000836-913	7000836-914
7000836-921	7000836-922
7000836-923	7000836-924

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: PWR & OPTIONAL CONFIG SA4550-(0xx) Sperry AD-500

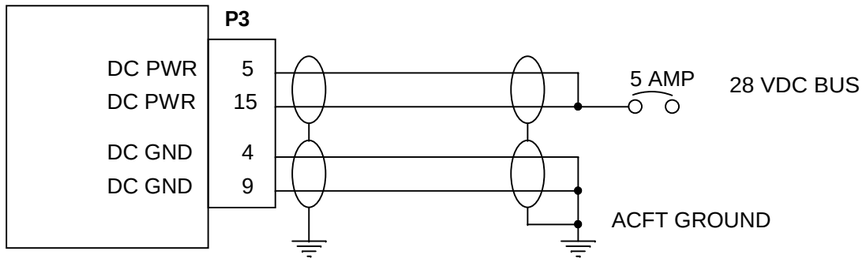
Size B | Document Number 82010-10 | Rev B

Create: | Mod: | Sheet 6

COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

DATE	REV	COMMENTS
28-FEB-2008	A	INITIAL RELEASE
18-JUL-2008	B	Corrected RADALT strapping. AR1021
27-JUN-2012	C	Corrected Note 1 Power and Ground pin callouts. Add ARINC-429 strapping options.

SA4550 input power requires 20 to 33 VDC.



NOTES:

1. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

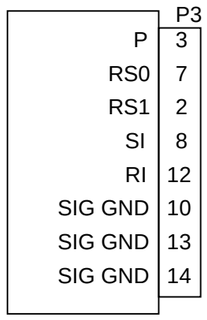
2. CONFIGURATION STRAPPING SHOULD BE CONTAINED WITHIN CONNECTOR BACKSHELL.

3. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

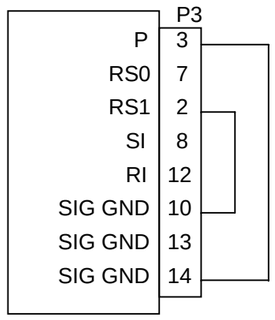
SA4550 CONNECTOR P3 WIRE STRAPPING CONFIGURATIONS

SEE NOTES 2 & 3.

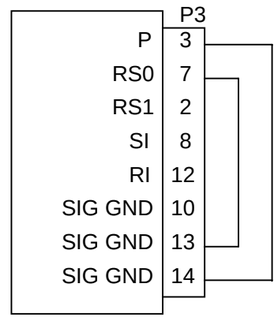
Sperry AA-215/236/300
or ARINC-429 Radar Altitude
Speed Indicator Enabled
Default no strapping



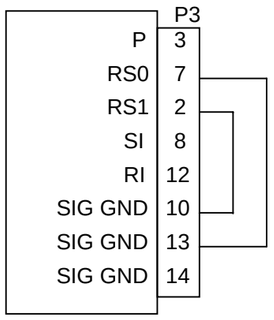
ARINC 552
Speed Indicator Enabled



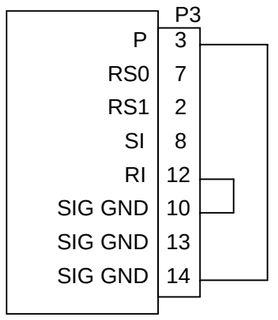
Collins ALT-50
Speed Indicator Enabled



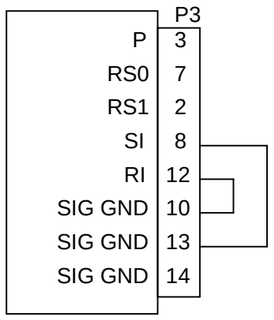
Collins ALT-55
Speed Indicator Enabled



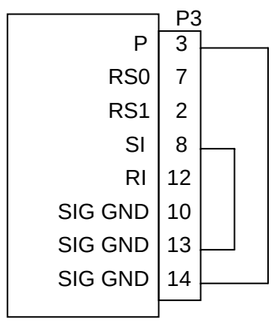
RADAR ALT Display Disabled
Speed Indicator Enabled



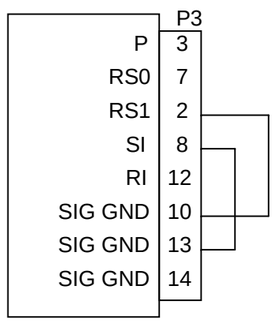
RADAR ALT Display Disable
Speed Indicator Disabled



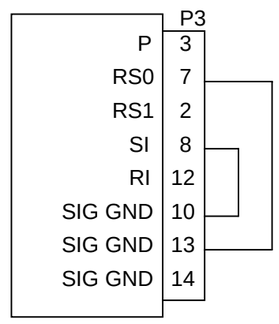
Sperry AA-215/236/300
or ARINC-429 Radar Altitude
Speed Indicator Disabled



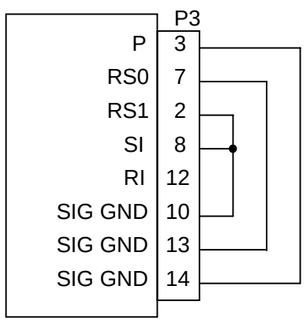
ARINC 552
Speed Indicator Disabled



Collins ALT-50
Speed Indicator Disabled



Collins ALT-55
Speed Indicator Disabled



SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: PWR & CONFIG SA4550-((4,5,6)xx) Collins ADI 84/84A/84C & 329B-7R/7R1/7R2/7R3/7R4/7R5

Size B | Document Number: 82010-10 | Rev C

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COMPUTER CONTROLLED DRAWING
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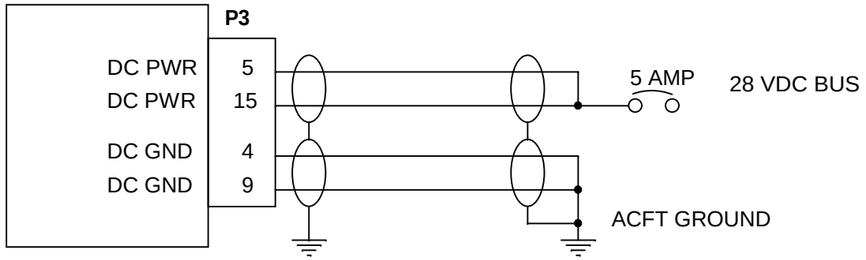
DATE	REV	COMMENTS
28-FEB-2008	A	INITIAL RELEASE AR1021
27-JUN-2012	B	CORRECT NOTE 1 POWER AND GROUND PIN CALLOUTS. ADD ARINC-429 RADAR ALTIMETER STRAPPING.

SA4550 input power requires 20 to 33 VDC.



NOTES:

1. USE 22AWG WIRE FOR AIRCRAFT POWER (P3-5,P3-15) AND GROUND (P3-4, P3-9) CONNECTIONS.

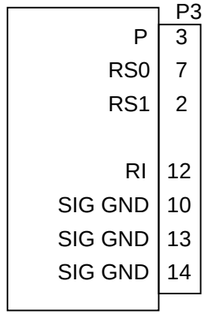
2. CONFIGURATION STRAPPING SHOULD BE CONTAINED IN CONNECTOR BACKSHELL.

3. STRAPPING MUST BE WIRED EXACTLY PER DRAWING. DO NOT INTERCHANGE GND PINS OR COMMON CONNECTING POINTS.

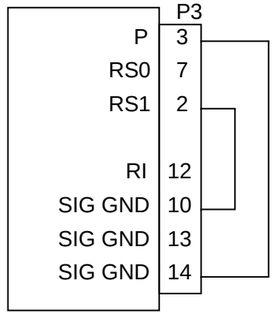
SA4550 CONNECTOR P3 WIRE STRAPPING CONFIGURATIONS

SEE NOTES 2 & 3.

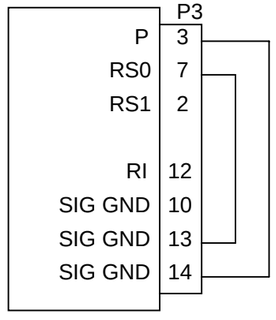
Sperry AA-215/236/300
or ARINC-429 Radar Altimeter
Default no strapping



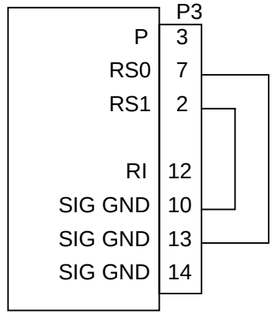
ARINC 552



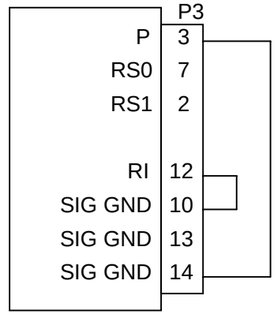
Collins ALT-50



Collins ALT-55



RADAR ALT Display Disabled



SANDEL® Vista, Ca.

Category	SA4550 INSTALLATION DRAWING
Title	PWR & CONFIG SA4550-(7xx) King KCI 310/310A
Size B	Document Number 82010-10 Rev B
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COMPUTER CONTROLLED DRAWING
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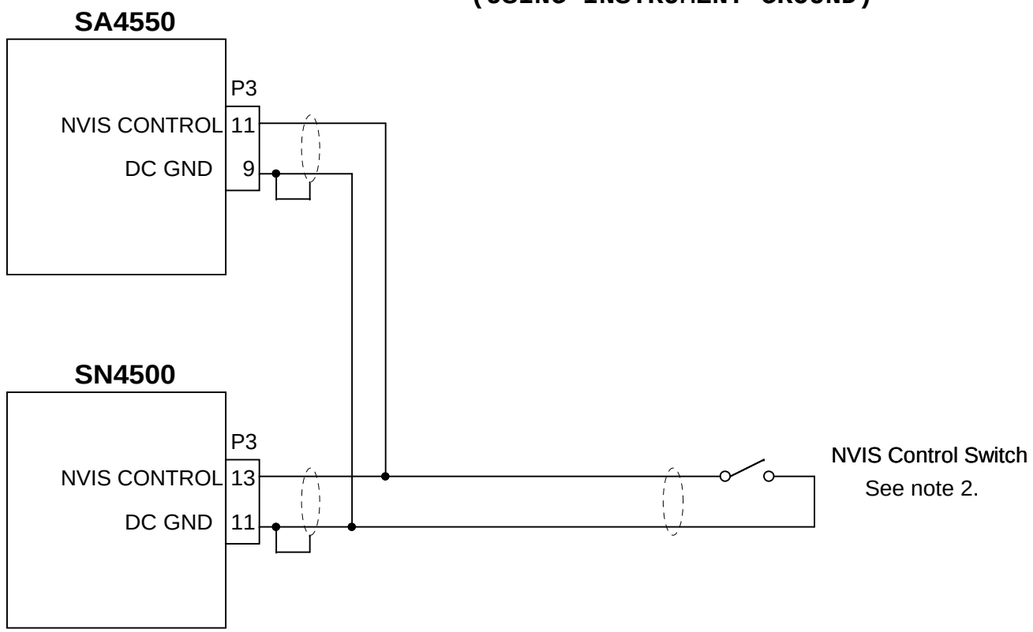
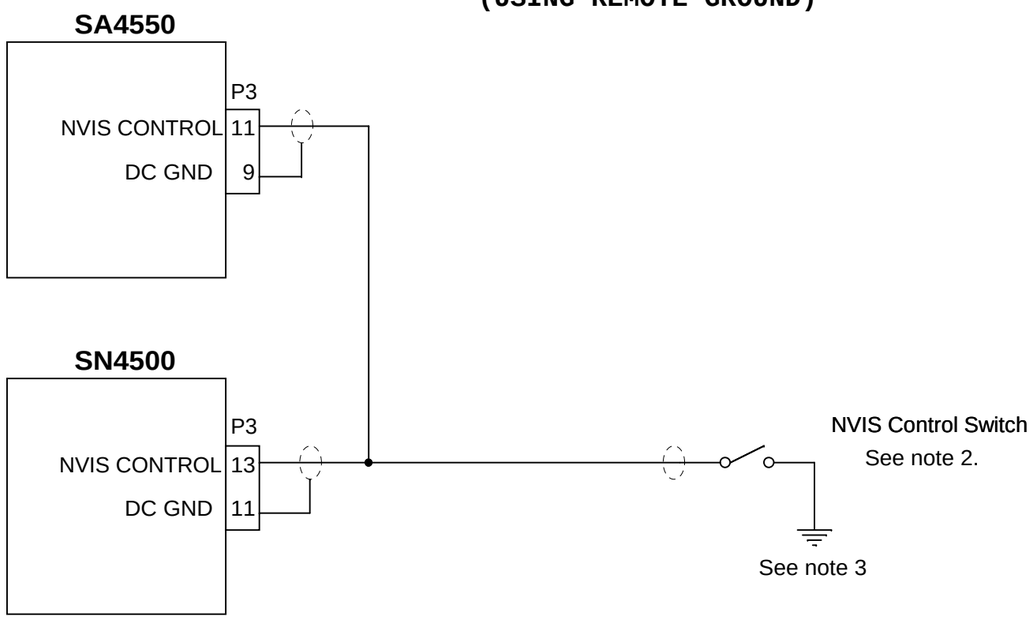
DATE	REV	COMMENTS
16-NOV-2008	A	INITIAL RELEASE AR1021

(USING INSTRUMENT GROUND)



(USING REMOTE GROUND)



NOTES:

1. Use 24 AWG stranded shielded 1 or 2 conductor wire as required.

2. TYCO P/N TT13A9T1/404 toggle switch or equivalent. A push-on/push-off pushbutton switch may be used. Annunciator not required.

3. Use closest available airframe ground.

4. In the event of a broken wire fault the SN4500 and SA4550 will default to daylight (non NVIS) mode.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: NVIS Control (Dual Installation SN4500 and SA4550)

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COMPUTER CONTROLLED DRAWING
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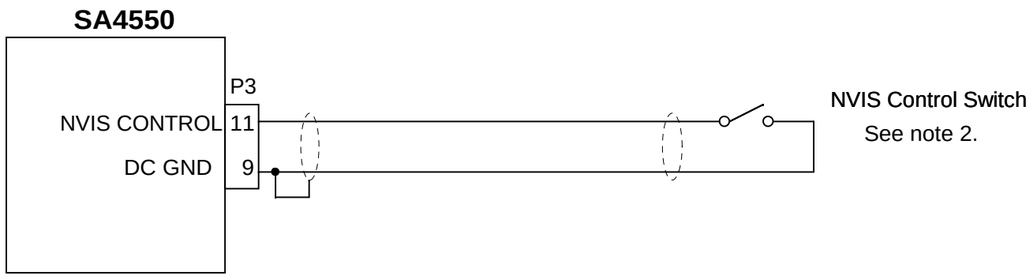
DATE	REV	COMMENTS
16-NOV-2008	A	INITIAL RELEASE AR1021

(USING INSTRUMENT GROUND)



(USING REMOTE GROUND)

NOTES:

1. Use 24 AWG stranded shielded 1 or 2 conductor wire as required.

2. TYCO P/N TT13A9T1/404 toggle switch or equivalent. A push-on/push-off pushbutton switch may be used. Annunciator not required.

3. Use closest available airframe ground.

4. In the event of a broken wire fault the SA4550 will default to daylight (non NVIS) mode.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: NVIS Control (Single SA4550)

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DATE	REV	COMMENTS
02-JUL-2012	A	INITIAL RELEASE RDL

COMPUTER CONTROLLED DRAWING
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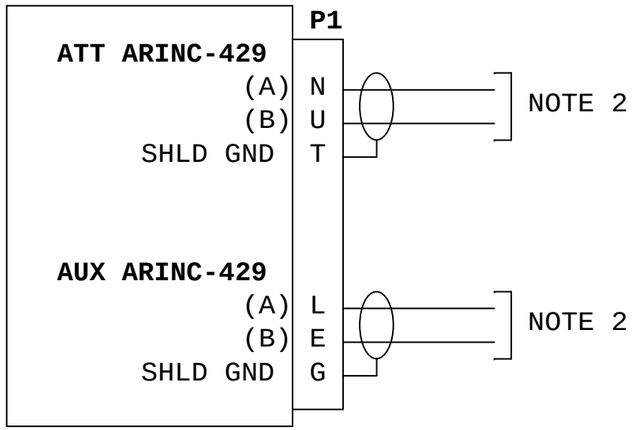
SA4550-0xx



SPERRY PART NUMBERS

4002531-454	7000836-901
4002531-901	7000836-902
4002531-902	7000836-903
4002531-903	7000836-904
4002531-904	7000836-905
4002531-905	7000836-906
	7000836-909
7001182-901	7000836-910
7001182-902	7000836-911
7001182-903	7000836-912
7001182-904	7000836-913
7001182-905	7000836-914
7001182-906	7000836-921
7001182-909	7000836-922
7001182-910	7000836-923
7001182-911	7000836-924
7001182-912	
7001182-913	
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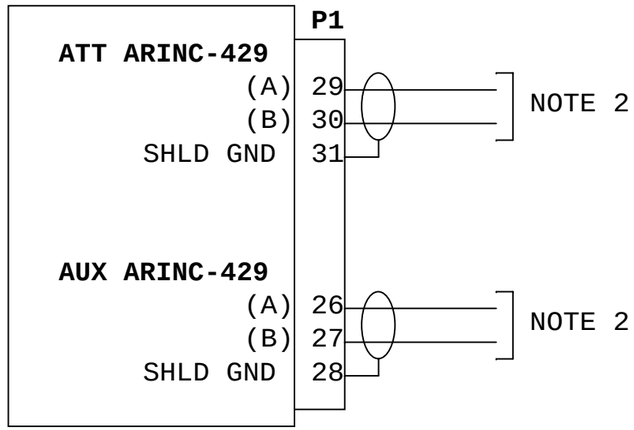
7001182-916	
7001182-917	
7001182-918	
7001182-919	

SA4550-1xx



SPERRY PART NUMBERS

7000466-901	4020547-901
7000466-902	4020547-904
7000466-903	4020547-905
7000466-904	4020547-906
7000466-905	4020547-907
7000466-906	4020547-908
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7000466-918	
7000466-920	
7000466-926	
7000466-946	
7000466-951	
7000466-953	
7000466-955	
7000466-957	
7000466-959	
7000466-961	
7000466-966	
7000466-986	

NOTES:

1. RECOMMENDED WIRE FOR ARINC-429 BUS CONNECTIONS IS MIL-C-27500 COMPLIANT SHIELDED TWISTED-PAIR WIRE WITH 22AWG CENTER CONDUCTORS OR EQUIVALENT.

2. TERMINATE ARINC-429 BUS AT SOURCE EQUIPMENT PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS. ARINC-429 BUS SHIELD WIRES SHOULD TYPICALLY BE CONNECTED TO CHASSIS GROUND OR EQUIVALENT KEEPING BRAIDED SHIELD WIRE AS SHORT AS POSSIBLE WITH MAXIMUM LENGTH OF 3 INCHES. GROUND BOND RESISTANCE FROM SHIELD WIRE TO CHASSIS GROUND SHOULD BE LESS THAN 2.5 MILLIOHMS.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: SPERRY SA4550-((0,1)xx) ARINC-429 CONNECTIONS

Size	Document Number	Rev
B	82010-10	A

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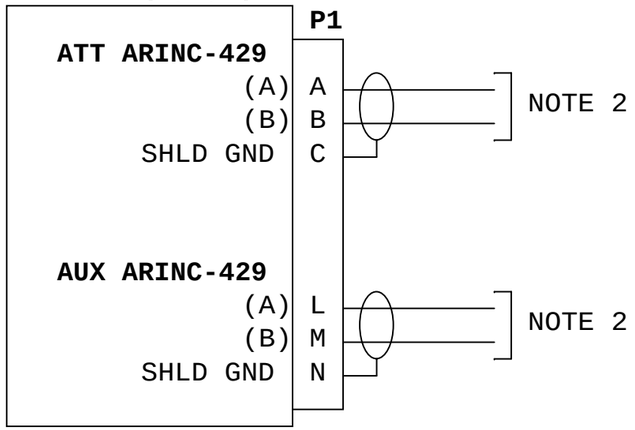
DATE	REV	COMMENTS
02-JUL-2012	A	INITIAL RELEASE RDL

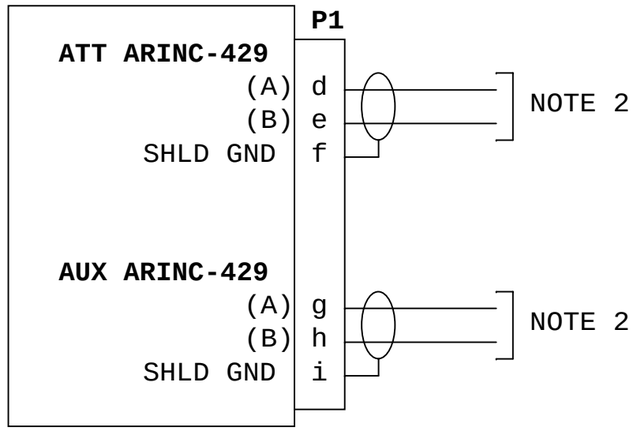
COMPUTER CONTROLLED DRAWING
DO NOT REVISE MANUALLY

SA4550-(4,5,6)xx



COLLINS
ADI-84
ADI-84C
329B-7Rx

SA4550-7xx



BENDIX/KING
KCI-310/310A

NOTES:

1. RECOMMENDED WIRE FOR ARINC-429 BUS CONNECTIONS IS MIL-C-27500 COMPLIANT SHIELDED TWISTED-PAIR WIRE WITH 22AWG CENTER CONDUCTORS OR EQUIVALENT.

2. TERMINATE ARINC-429 BUS AT SOURCE EQUIPMENT PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS. ARINC-429 BUS SHIELD WIRES SHOULD TYPICALLY BE CONNECTED TO CHASSIS GROUND OR EQUIVALENT KEEPING BRAIDED SHIELD WIRE AS SHORT AS POSSIBLE WITH MAXIMUM LENGTH OF 3 INCHES. GROUND BOND RESISTANCE FROM SHIELD WIRE TO CHASSIS GROUND SHOULD BE LESS THAN 2.5 MILLIOHMS.

SANDEL® Vista, Ca.

Category: SA4550 INSTALLATION DRAWING

Title: SA4550-((4,5,6,7)xx) ARINC-429 CONNECTIONS

Size	Document Number	Rev
B	82010-10	A

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