FUEL/AIR DATA COMPUTER

(ADC 2000)

P/NS:
962830A-X-S-4
962830A-1-S-4
962830A-2-S-4
962830A-3-S-4

INSTALLATION MANUAL

REV M

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PAGE CONTROL CHART

11.0 INSTALLATION DRAWINGS AND INSTALL KIT PARTS LISTS

Drawing No.	Description/Part Number	DATE	REV
4028-005	Installation, OAT Probe Assembly Kit P/N 681201-1	02/14/05	C
N/A	Parts List, OAT Probe Assembly Kit P/N 681201-1	04/06/07	H
4028-395	Installation, Mounting Tray, ADC 2000	08/01/05	C
4028-857	Installation, ADC2000 MS Conn, No FF, Quick Start P/N 962830A-X-S-4	03/07/05	B
4028-871	Installation, ADC2000 MS Conn, Digital FF, Quick Start P/N 962830A-1-S-4	03/07/05	A
4028-872	Installation, ADC2000 MS Conn, Sine FF, Quick Start P/N 962830A-2-S-4	03/07/05	A
4028-873	Installation, ADC2000 MS Conn, DC FF, Quick Start P/N 962830A-3-S-4	03/07/05	A
4028-874	Installation Wiring, ADC 2000 to COMM/PWR/BARO/OAT/Heading, Quick Start	03/19/01	B
4028-875	Installation Wiring, ADC 2000 Quick Start Digital, Sine, and DC Fuel Flow	05/02/05	C
4028-A44	Installation Wiring, ADC2000, MS Conn, QS to Altimeter Baro Pot	03/19/01	C
4028-A62	Installation Wiring, Loop Back Harness for F/ADC 200, 2000 MS Connector	09/28/98	–
4028-A80	Label, ADC 200/2000 Access Cover P/N 712801	02/14/05	A
4070-005	Installation, Serial to Argus 5000/7000 Converter P/N 937000-03	02/14/05	B
N/A	Parts List, Install Kit, ADC2000, MS Conn/No OAT P/N IK9630A-1	04/09/07	H
4028-876	Installation Wiring, F/ADC 2000 w/ Analog FF to Beech King Air Indicators	03/26/98	A

11.0 INSTALLATION DRAWINGS AND INSTALL KIT PARTS LISTS (cont.)

AIRCRAFT SPECIFIC

4028-A29	Installation Wiring, F/ADC-200, 2000 or DigiData with DC FF Piper Cheyenne PA31T	01/17/05	C
4028-A31	Installation Wiring, F/ADC 2000, MS Conn, Sine FF to Mitsubishi MU-300 and Model 400 Beechjet	08/14/98	–
4028-A32	Installation Wiring, F/ADC 2000 to Mitsubishi MS Conn Sine FF, MU-2 w/Foxboro PC-620 System	07/19/00	A
4028-A33	Installation Wiring, F/ADC 2000, MS Conn, with DC FF to Cessna Citation 500, 501, 550, S550, 551, 552	08/14/98	–
4028-A34	Installation Wiring, F/ADC 2000 MS Conn with DC FF to Cessna Citation 525 Jet	08/14/98	–
4028-A35	Installation Wiring, F/ADC 2000, MS Conn with Digital FF to Bombardier LearJet 24, 25D	08/14/98	–
4028-A36	Installation Wiring, F/ADC 2000 MS Conn with Sine FF to Rockwell Commander 690 and 695	08/14/98	–
4028-A37	Installation Wiring, F/ADC 2000, MS Conn with DC FF to Raytheon BeechJet 400A Aircraft	08/14/98	–
4028-A38	Installation Wiring, F/ADC 2000, MS Conn, with DC FF to Westwind 1124 Models	08/14/98	–
4028-A39	Installation Wiring, F/ADC 2000, MS Conn to Fairchild SA226 Series Aircraft	08/14/98	–
4028-A40	Installation Wiring, F/ADC 2000, MS Conn to Aerospatiale AS365N2 Dauphin	08/14/98	–
4028-A41	Installation Wiring, F/ADC 2000, MS Conn to Aerospatiale AS332 Super Puma	08/14/98	–
4028-A42	Installation Wiring, F/ADC 2000, MS Conn Shadin FF Indicators to Bendix/King Nav. Receiver	03/19/01	A
4028-A43	Installation Wiring, F/ADC 2000, MS Conn and Shadin Converter to Eventide Argus	03/19/01	B
4028-B98	Installation Wiring, F/ADC2000, MS Conn Shadin FF Indicators to Garmin 430/530	04/29/11	D

REVISION LOG

REV	DATE	APP'D	CHANGE
–	10/17/97	KCL	Baseline release
A	8/20/98	KCL	Format change, update Limitations section, include aircraft specific wiring drawings.
B	12/08/98	KCL	Update section 2.3, 9.9, 9.10, 9.11, and Table 1. Update DWG No. 4070-005, replace DWG No. 4028-A30 with 4028-A62, and include DWG No. 4028-A29 and 4028-A80.
C	1/31/00	EDJ	Added Bendix B & Garmin, Format G, Loran output to page 9-7. Changed page iv due to change on page 11-16. Added one more Ragen Indicator / Transmitter to 4028-A29 installation wiring drawing.
D	9/08/00	EDJ	Page *iii* changed by OAT kit and 4028-874 upgrade. Page *iv* changed by 4028-A43 correction and 4028-A98 new dwg. Page 1-1 and 1-3 changed by Garmin 430/530. Page 2-1 changed by OAT tolerance, IVS change of 10,000 fpm, and lowering PITOT and IAS low end speed to 18 knots per BELL requirements. Page 2-2, 2-3, & 2-4 changed by Labels 234 & 235 and Mk VI & VIII inclusion. Pages 2-9 & 2-10 changed by Raytheon Hawker HS-125-3A page move.. Page 5-2 & 8-1 changed by OAT kit. Page 5-4 changed by adding Sandel hdg source. Pages 9-1, 9-2 & 9-3 changed by software revision. Pages 9-7 changed to correct Bendix descriptions. Altimeter Types heading added to page 9-5, 9-8. Page 9-11 moved to 9-16. Pages 9-11 to 9-15 added for Procedure 3. Page 5-5 changed to add one more AN816 fitting. Page 2-6 changed by adding TSO statement under Section 2.6.
E	10/06/00	BVM	Correct units for IVS Accuracy to 40 ft/min and range to +/- 10,000 ft/Min
F	11/01/00	KCL	Added sections 2.8 and 2.9. Updated sections 5.1, 5.7 and 9.2. Moved section 9.0 to page iii. Moved page 9-16 to 9-21. Updated Dwg # 4028-A44.
G	9/26/02	EDJ	Baseline release Cfg C with software versions 93.04.02 and 71.73.03. Added P/N 681201 OAT probe installation and parts list to page *iv* drawing list. Updated Page 2-4 and 2-5 ARINC Table. Corrected page 10-3 Table 2. Replaced pages 9-11 to 9-16
H	9/26/03	EDJ	Changed Alternate Digital K-Factor table to include 48000 PPG. Removed 681201A-1 install drawing and parts list. Updated Section 2.5.2 & 2.6.1. Deleted Loopback Procedure 1 and renumbered Procedure 2 & 3 to 1 & 2. Updated Section 9.0 & 9.2.
J	3/7/05	ZK	Changed Company Name. Updated pages 9-5, 9-10, and Section 11.0.
K	9/22/05	ZK	Updated 2.2, IK9630A-1, 4028-395, 4028-875, 4028-B98 sections 3-1, 5-1, 8-1 and page 10-5.
L	4/25/07	ZK	Changed Company Name. Updated IK9630A-1 and 681201-1 parts list.
M	5/17/11	ZK	Incorporated 4028-B98 Rev D, 4028-875 RevC, 4028-395 Rev C, 681201-1 Rev H, IK9630A-1 Rev H, changed Sec. 2.2, removed 2.5.2 an 2.5.3 and added 2.5.3

1.0 OVERVIEW

1.1 The Manual

This manual is designed to facilitate the installation of the Shadin Fuel/AIR DATA Computer (ADC 2000).

1.2 Product Information

The Shadin ADC 2000 system is designed to provide a **combined** source of fuel and Air Data. Listed below are the navigational systems that the ADC 2000 has been designed to be compatible with.

Receives Serial Data from:

Magellan
Skynav 5000

ARNAV	Trimble	Bendix King
STAR 5000	2000/2000A	KLN90
FMS 7000	2100/3000	KLN90A
R5000	3100/2101	KLN90B
		KLN89/89B
		KLN900

Garmin	BFGoodrich	IIMorrow
150, 155, 155XL, 165	Pronav LNS 6000	611, 612, 618
230, 230XL		NMS 2001
300, 300XL		800, 820, 360
430, 530		GX50, 55, 60

Transmits Serial Data to:

ARNAV	Magellan	Note: To find out which particular receiver models have AIR DATA receive capability, contact the manufacturers.
Bendix/King	Trimble	
Garmin		

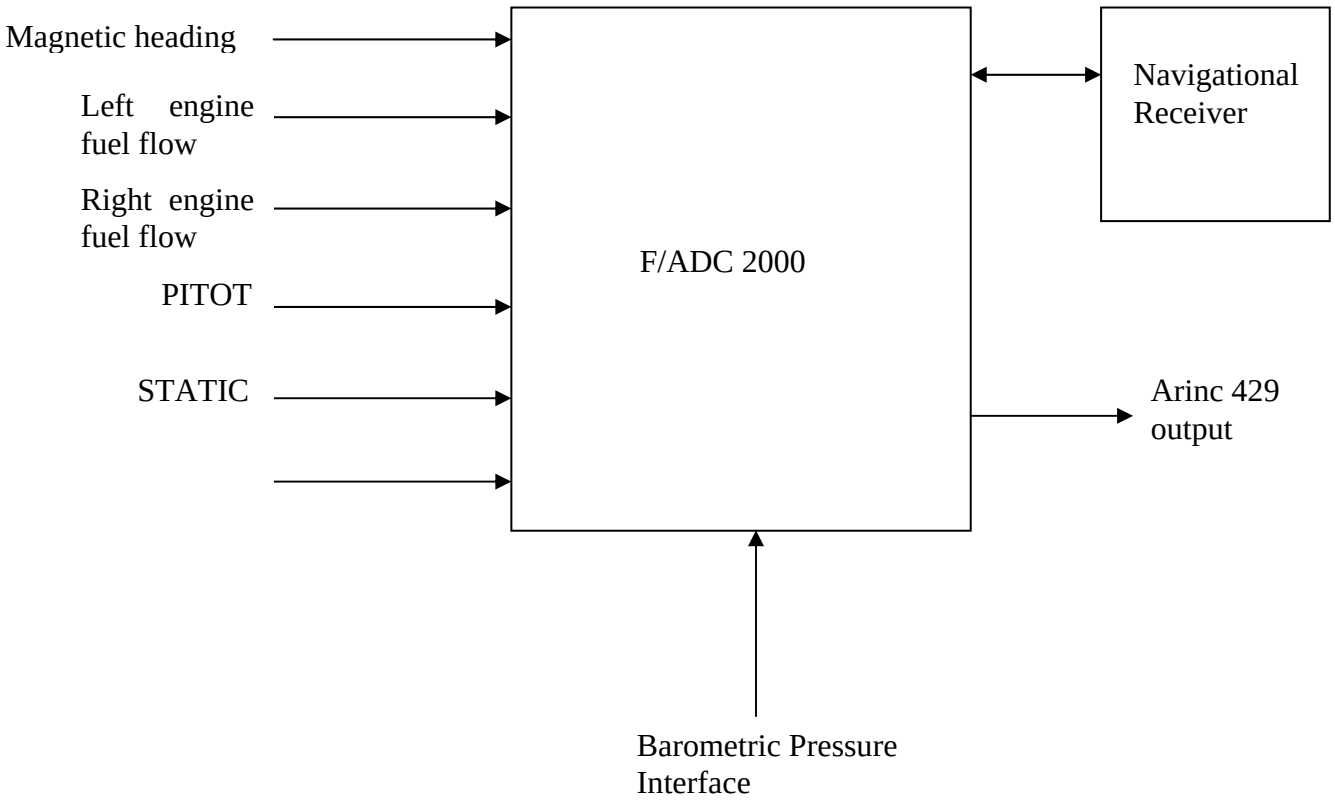
Transmits ARINC Data to:

ASINC	Bendix King	Honeywell	Universal
Airshow	EFIS 40/50	SPZ-5000	UNS-1M
		Data Nav III	

Global	Trimble	IIMorrow
GNSX	TNL8100	2101
GNS-Xls		

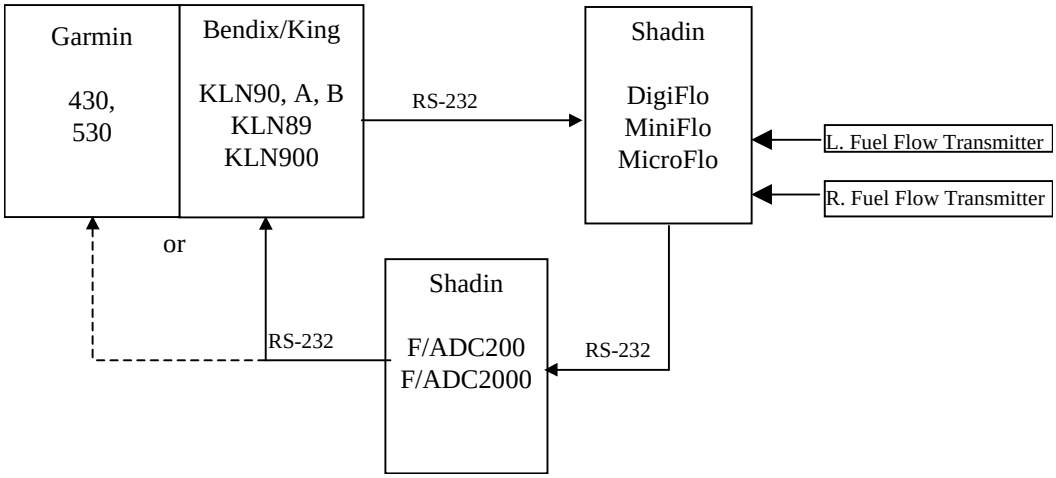
1.3 System Configuration

The Fuel/AIR DATA system is a remote mounted computer, which is connected to the GPS receiver via serial data. It is also connected to the pitot and static line, OAT probe, fuel flow sensors, altimeter barometric pressure potentiometers and the aircraft heading source.



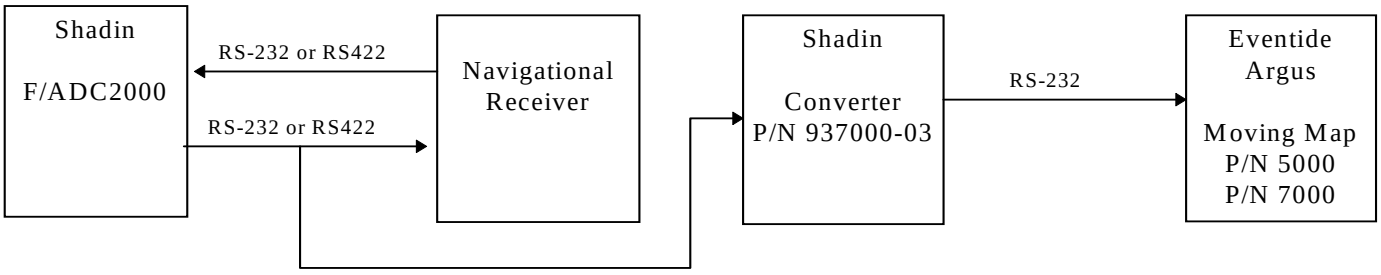
1.4 Fuel Totalizer Configuration

Shown below is an optional system configuration utilizing a Shadin Fuel Flow Indicator. Note that the only navigational receivers supported in this configuration are the Bendix/King KLN series and the Garmin 430/530. Consult Drawing Number 4028-A42 contained in this manual for installation information for the Bendix/King KLN series. Consult Drawing Number 4028-B98 for installation information for the Garmin 430/530.



1.5 F/ADC2000, Argus Moving Map Configurations.

Shown below is the system configuration that supports output to a Eventide Argus moving map using the Shadin serial to serial data converter P/N 937000-03. The fuel and AIR DATA are displayed on the Eventide-Argus moving map. Consult Drawing numbers 4070-005 and 4028-A43 contained in this manual.



2.0 FUEL AND AIR DATA SYSTEM SPECIFICATIONS

2.1 Input Data Range

Pitot	18 to 350 kt.
Static	-1000 to 55,000 ft.
OAT	-60°C to +60°C
Heading	0 - 360°
Fuel Flow	1 to 450 GPH Range Selected
K Factor	500 to 130000 PPG Continuous

2.2 Output Data Range

Parameter	**Accuracy***	**Range**
IAS	**Table 1**	20 to 350 kts.
P.ALT	**Table 2**	–1000 to 50000 ft
OAT	±1.5°C per TSO	–60°C to +60°C
TRUE HEADING	±2°	0 - 360 degrees
MAGNETIC HEADING	±1°	0 - 360 degrees
IVS	**Table 3**	± 10,000 ft./min.
TAS	**Table 1**	20 - 600 kts
MACH	**Table 4**	.2 - .95
WIND SPEED	±5 kts.	5 - 360 kts
WIND DIRECTION	±10°	0 - 360 degrees
FUEL FLOW	±2%	1 - 450 GPH

* Listed accuracy's are at 25°C and after warm-up is complete.

This table is used as the tolerance for both IAS and TAS. For values between table rows, linearly interpolate between the adjacent table points.

AIRSPEED KNOTS	TOLERANCE ± KNOTS
50	5.0
80	3.0
100	2.0
120	2.0
150	2.0
200	2.0
250	2.4
300	2.8
350	3.2
400	3.6
450	4.0

Table 1 - Calibrated Airspeed Tolerance

This table is used as the tolerance for pressure altitude. Note that for an altitude between points in the tables, the tolerance is linearly interpolated between the adjacent table points.

ALTITUDE FEET	TOLERANCE ± FEET
0	25
1000	25
2000	25
3000	25
4000	25
5000	25
8000	30
11000	35
14000	40
17000	45
20000	50
30000	75
40000	100
50000	125

Table 2 -Pressure Altitude Tolerance

This table is used as the tolerance for vertical speed. For values between table rows, linearly interpolate between the adjacent table points.

VERTICAL SPEED FPM	TOLERANCE ± FPM
20000	1000
6000	300
4000	200
2000	100
1000	50
500	45
200	45
100	45
50	45
0	45
-50	45
-100	45
-200	45
-500	45
-1000	50
-2000	100
-4000	200
-6000	300
-20000	1000

Table 3 - Vertical Speed Tolerance

This table is used as the tolerance for MACH Number. For values between table rows, linearly interpolate between the adjacent table points.

ALTITUDE	TOLERANCE	
FEET	**MACH**	**± MACH**
0	.3	.012
	.4	.012
	.5	.010
	.6	.0075
10,000	.4	.012
	.5	.010
	.6	.0075
	.7	.005
20,000	.4	.012
	.5	.010
	.6	.0075
	.7	.005
30,000	.6	.0075
	.7	.005
	.80	.005
	.90	.005
	.95	.0075
40,000	.70	.005
	.80	.005
	.90	.005
	.95	.0075
50,000	.75	.005
	.90	.005
	.95	.0075
	1.00	.015

Table 4 - MACH Tolerance

2.3 Dimensions (including mounting rack)

Size: 7.4" L x 4.3" H x 3.9" W
Weight: 36 oz.

2.4 Power Requirements

System Power required:	28 VDC @ 1300 mA	14 VDC @ 900 mA

2.5 Output Data

1. Electric Format: RS-422 or RS-232
2. ARINC 429 low/high speed GAMA (Has to be configured at the factory)

See paragraph 2.5.3 for ARINC 429 output data capabilities.

2.5.1 Serial Output Data Parameters

Fuel Group	**AIR DATA Group**	
L. ENG. Fuel Flow	Pressure Altitude (PALT)	Rate of Turn
R. ENG. Fuel Flow	Density Altitude	MACH Number
Fuel Used Total	Barometric Corrected Altitude	Wind Direction and Speed
Total Fuel Used	Indicated Air Speed (IAS)	Baro Correction (mb #1)
Fuel Used L. ENG.	True Air Speed (TAS)	Baro Correction (hg")
Fuel Used R. ENG.	Vertical Speed	
Fuel Remaining	True Air Temperature (TAT)	
NM/Fuel Unit (ground)	Outside Air Temperature (OAT)	
Fuel to Destination	Drift Angle	
Fuel at Destination	Magnetic Heading	

Note: Not all parameters will be available to all navigational receivers. Contact the manufacturer for display capabilities.

2.5.2 ARINC 429 (GAMA) Output Labels

In Table 5 – ARINC Label Configuration below, the heading row containing the numbers 1-A indicates the setting of the ARINC rotary switch on the back of the unit. The number in the cell at the intersection of an ARINC switch setting and an ARINC label number is the repeat time in msec for that label. Zero indicates that the label is not generated with that switch setting. Tolerance on the rate is ± 10% averaged over one second.

LABEL	Description	0	1	2	3	4	5	6	7	8	9	A
074G	Flight Plan Header	1000	0	0	0	1000	1000	0	0	0	0	0
075G	Active Waypoint To/From	100	0	0	0	100	100	0	0	0	0	0
100	Selected Course	0	0	0	200	200	200	200	0	0	0	0
113G	Waypoint Group Checksum	100	0	0	0	100	100	0	0	0	0	0
114	Desired Track (True)	50	0	0	50	50	50	50	0	0	0	0
115	Waypoint Bearing (True)	50	0	0	50	50	50	50	0	0	0	0
116	Cross Track Distance	50	0	0	50	50	50	50	0	0	0	0
147G	Magnetic Variation	200	0	0	200	200	200	200	0	0	0	0
203	PALT (1013.25 mB)	0	200	50	200	0	200	200	200	100	50	50
204	PALT (Baro Corrected)	0	200	50	200	0	0	200	200	100	50	50
205	MACH	0	200	50	200	0	200	200	200	0	0	0
206	Indicated Airspeed (IAS)	0	0	50	200	0	0	200	200	100	50	50
210	True Airspeed	100	100	0	100	0	100	100	100	100	50	50
211	OAT	0	200	0	200	0	0	200	200	0	0	0
212	Vertical Speed (IVS)	0	200	50	200	0	0	200	200	0	50	50
213	TAT (Static)	0	200	0	200	0	200	200	200	100	0	50
244	Total Fuel Flow	0	0	0	0	0	0	0	100	0	0	0
251G	Distance To Go	200	0	0	200	200	0	200	0	0	0	0
252	Time To Go	200	0	0	200	200	0	200	0	0	0	0
275G	LRN Status Word	200	200	0	200	200	200	0	0	0	0	0
300	Navigation Aid Info	100	0	0	0	100	100	0	0	0	0	0
303G	Waypoint Group Header	100	0	0	0	100	100	0	0	0	0	0
304G	Message ID Characters 1-3	100	0	0	0	100	100	0	0	0	0	0
305G	Message ID Characters 4-6	100	0	0	0	100	100	0	0	0	0	0
306G	Waypoint Latitude	100	0	0	0	100	100	0	0	0	0	0
307G	Waypoint Longitude	100	0	0	0	100	100	0	0	0	0	0
310	Present Latitude	200	0	0	200	200	200	200	0	0	0	0
311	Present Longitude	200	0	0	200	200	200	200	0	0	0	0
312	Ground Speed	50	0	0	50	50	50	50	0	0	0	0
313	True Track	0	0	0	200	200	200	200	0	0	0	0
314	True Heading	0	0	0	100	100	0	100	0	0	0	0
315	Wind Speed	100	100	0	100	100	100	100	0	0	0	0
316	Wind Direction (True)	100	100	0	100	100	100	100	0	0	0	0
320	Magnetic Heading	0	100	0	100	100	0	100	0	0	0	0
321	Drift Angle	50	50	0	50	50	0	50	0	0	0	0
347	Left/Right Fuel Flow	200	200	0	200	200	0	200	200	200	0	0
351G	Distance to Final Destination	0	0	0	0	0	200	0	0	0	0	0
352G	Time to Final Destination	0	0	0	0	0	200	0	0	0	0	0
371	Equipment ID	0	0	0	0	0	200	0	0	0	0	0

Table 5 – ARINC Label Configuration

2.5.3 ARINC 429 Labels Associated with Switch Settings

0 - Honeywell SPZ-5000 for Cessna
1 - Bendix KLN90B or Global GNSXC(LS)
2 - HUD-Heads Up Display for Flt Visions
3 - UNS1
4 - EFIS40/50
5 - ASINC Airshow Cabin Display
6 - Trimble 8100 (No label 275)
7 - TNL-8100
8 - Collins FMS 800 (100 ms rate)
9 - Mk VII GPWS (50 ms rate)
A – Mk VI & VIII EGPWS (50 ms rate)

Note that 3 and 6 are the same except for label 275.

The following is a list of the different switch settings that the ARINC switch may be set to. The ARINC switch position is shown in section 9.2.

0 - Long Range Nav function of Honeywell SPZ-5000 Flight Guidance/EFIS System installed on the Cessna Citation Jet Aircraft.

1 - Bendix to Global/Cabin Info System installed on the Cessna Citation Jet Aircraft.

2 - Reserved

3 - 8100, UNS1

4 - Bendix/King EFIS 40/50

5 - ASINC Airshow

6 - 8100, UNS1, except no label 275. Use when there is no serial navigation data being received by the ADC2000.

7 - TNL-8100, with total fuel flow label 244

8 - Collins FMS 800 (100 ms rate)

9 - Allied Signal, Mk VII GPWS (50 ms rate)

A - Allied Signal, Mk VI and VIII EGPWS (50 ms rate)

2.5.4 Start-Up Temperature and Times for Output Data Valid

Typical times for Output Data Valid

Start Temperature	Typical Time for Output Data Valid
+23°C	< 1 minute
-20°C	≈ 2.5 minutes
-55°C	≈ 3.5 minutes

In the Serial Output Data, the "Q" record is used to report if the ADC has completed its warm-up period and the Altitude/Airspeed Data is accurate.

"Q" Record	=	0	=	PALT/IAS data valid
	=	1	=	PALT/IAS data not valid

2.6 Limitations

2.6.1 Warm-up time

The Pressure Altitude, Indicated Airspeed, Vertical Speed, and Barometric Altitude are not valid until the "Q" record is valid (i.e. a value of "0"). The installer is responsible to ensure that only valid data is displayed.

2.6.2 Supplemental equipment

All Shadin F/ADC(s) and ADC(s) are not designed to replace factory installed AIR DATA fuel flow systems or other gauges. The are not intended to be used as a primary system to drive altimeters or airspeed indicators. The F/ADC fuel section is not a fuel quantity system and therefore reports only what was manually entered by the operator.

2.6.3 Static Source Error Correction (SSEC),

Pitot Source Error Correction (PSEC)

For certain models of aircraft, the Fuel/AIR DATA System will make corrections to pressure altitude by compensating for static source error. For some of these models, the Fuel/AIR DATA System will make corrections to indicated airspeed by compensating for pitot source error.

The System does not provide true and absolute readings for all circumstances. It makes no altitude corrections when the uncorrected IAS is below 100 knots, and it makes no airspeed corrections when the uncorrected IAS is below 150 knots. It does not account for other factors, such as the current useful weight, that contribute to static source error and pitot source error. Rather, the Fuel/AIR DATA System performs calculations based solely on indicated airspeed and pressure altitude. The SSEC / PSEC corrections were derived from specific aircraft data referred to in section 2.6.4. To configure the Shadin F/ADC for a specific aircraft model refer to section 9.

2.6.4 SSEC/PSEC LISTING

Beechcraft Beechjet-400 (SSEC only)

Airplane Flight Manual, BeechJet 400, Section 6, Performance		Page 6-14
FAA approved 1/86	Altitude Correction	Figure 6-8
Revision A9 14/92	Copilot System	

Boeing 707-321B Advanced

SSEC

Airplane Flight Manual, Boeing 707, Section IV, Performance		Page 19
FAA approved 3/27/69, D6-1588	Altitude Calibration	FLAPS UP
Revision 2/4/69	Pilot & Copilot	

PSEC

Airplane Flight Manual, Boeing 707, Section IV, Performance		Page 18
FAA approved 9/20/66, D6-1588	Airspeed Calibration	FLAPS UP
	Pilot & Copilot	

Cessna 500 (SSEC only)

Airplane Flight Manual, Cessna/Citation Model 500, Section IV, Performance		
FAA approved Aug 7/74	Altitude Correction	Figure 4-7
Revision 53 - Dated 11 Dec 85	Pilot & Copilot system	Page 4-17.1

Cessna 501 (SSEC only)

Airplane Flight Manual, Cessna/Citation I SP Model 501, Section IV, Performance		
FAA approved	Altitude Correction	Figure 4-5
Original	Pilot & Copilot system	Page 4-15

NOTE: Uses same Hardware configuration as Cessna 500

Cessna 525 (SSEC only)

Airplane Flight Manual Model 525		
	Altitude Correction	Rept FT525-4
	Pilot & Copilot system	Page 47

Cessna 550 (SSEC only)

Airplane Flight Manual, Cessna/Citation II Model 550, Section IV, Performance		
FAA approved	Altitude Correction	Figure 4-5
Original	Pilot & Copilot system	Page 4-15

Cessna 560 (SSEC only)

Airplane Flight Manual, Model 560, S/N 259 & Below, Section IV, Performance		
FAA approved	Altitude Correction	Figure 4-5
Original	Pilot & Copilot system	Page 4-17

SSEC/PSEC LISTING (Continued)

Cessna 560 (SSEC only)

Airplane Flight Manual, Model 560 , S/N 260 & Up, Section IV, Performance

FAA approved	Altitude Correction	Figure 4-5
56FMA-00	Pilot & Copilot system	Page 4-19

Cessna Citation S550 (SSEC only)

Airplanes -0115 through -0160 Except Airplanes Incorporating SBS550-32-7 and Airplanes -0001 through-0114 Incorporating SBS550-32-1 but not SBS550-32-7.

Section IV - Performance, Standard Charts		Pages 4-17, 4-18
FAA approved	Altimeter Position Correction	Figure 4-5
Revision 37	Pilot & Copilot	

Douglas DC-8

SSEC

Airplane Manual, Douglas DC-8, Section IV, Performance		Page 20
FAA approved	Altitude Correction	
DAC-33161 10/1/66	Pilot & Copilot system	

PSEC

Airplane Manual, Douglas DC-8, Section IV, Performance		Page 11
FAA approved	Airspeed Correction	
DAC-33161 10/1/66	Pilot & Copilot system	

Falcon 10 (SSEC only)

Airplane Flight Manual, Section 6. Performance, 7 Position Error		Page 6-27
FAA approved 10/17/73	Position Error	
Revision 14, 6/6/78	Pilot & Copilot	

Falcon 20-C, D, E (SSEC only)

Maintenance Instruction Manual, 34-18-03		Page A48
Sept 1/77	Altitude Correction	
CS-143	Copilot system	

Falcon 20-F (SSEC only)

Maintenance Instruction Manual, 34-18-03		Section 5
DTM30528	Altitude Correction	Subsection 20
DGAC Approved	Copilot system	Page 4

SSEC/PSEC LISTING (Continued)

Falcon 50

SSEC

Airplane Flight Manual, Section 5. Performance		Page 5.25.2
DGAC approved	Copilot (for A/C equipped with one ADC)	
Revision 24		

PSEC

Airplane Flight Manual, Section 5. Performance		Page 5.25.2
DGAC approved	Pilot (normal) and Copilot MACH Indicators	
Revision 24		

Lear 24 (SSEC only)

Airplane Manual, LearJet Model 24, Section IV, Performance		
FAA approved 3/17/66	Altitude Correction	Figure 4-10
Revised 7/19/68	Pilot & Copilot system	Page 4-16

Lear 25D (SSEC only)

Airplane Manual, LearJet 25D/F AFM, Performance		
FAA approved 10/14/86	Altitude Correction	Figure 5-10
FM-018 Release A	Copilot system	Page 5-18

Learjet 35 (SSEC only)

Flight Manual, LearJet 35, Normal System, Flaps up, Gear up		Page 5-18
FAA approved, 4/30/76	Altitude Position Correction	Figure 5-10
Reissued 2/25/81	Pilot's Altimeter- STBY & Copilot's Altimeter	

Learjet 55 (SSEC only)

Gates Learjet 55, APM, Performance Data, Flaps up, Gear up		Page 5-20
FAA approved, 3-17-81	Altitude Position Correction	Figure 5-11
Change 13		

Lockheed Jetstar (SSEC only)

Airplane Flight Manual, Performance Data, Weight = 32,000 Lb., Clean Configuration: Leading Edge Flaps up, Trailing Edge Flaps up, Landing Gear up		Page 4-25
FAA approved, 12/14/76	Altimeter Installation Correction	Figure 4-15

SSEC/PSEC LISTING (Continued)

Mitsubishi MU-300 (SSEC only)

Airplane Flight Manual, Diamond IA, Section 6, Performance		
FAA approved Jan 11/84	Altitude Correction	Figure 6-8
	Copilot system	Page 6-20

Raytheon Hawker HS-125-3A (SSEC only)

Airplane Manual,		Section 5
Document No. H.S.1.10	Static Position Error	Figure 5-4
CAA Approved	Correction to Altimeter	Page 13

Raytheon Hawker HS125-700A (SSEC only)

125 Crew Manual, First Officer, Section 2, Flaps Retracted		Page 2-30
	Static Position Correction to Altimeter	Figure 6
Revision :G, 4/77		

Sabreliner 60 (SSEC only)

SabreLiner Pilot's Manual, SR 75-064, Weight = 16,000 Lb.		
9/1/76	Altitude Calibration	Figure 7-2

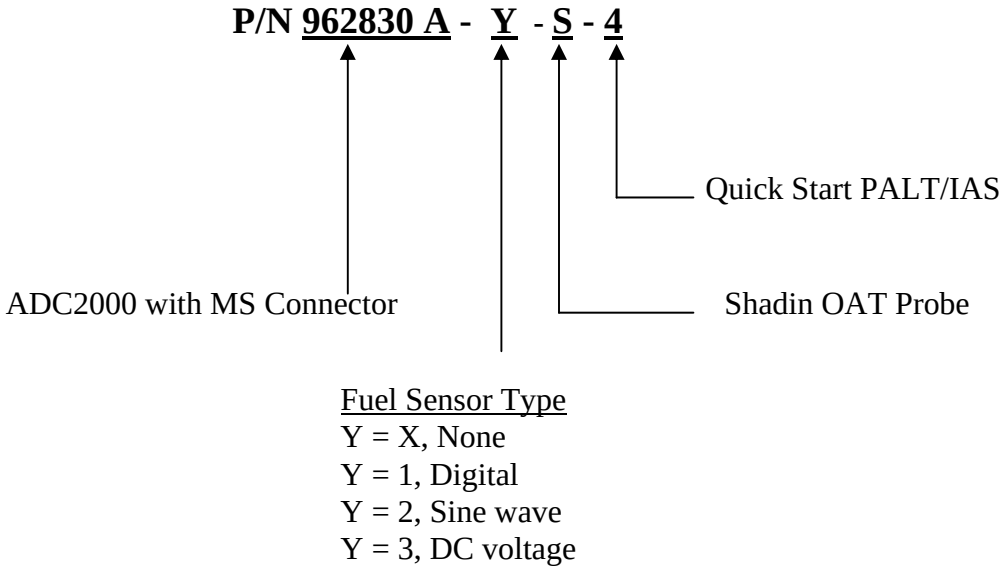
Sabreliner 65 (SSEC only)

Pilots Manual, SR-78-028		
	Altitude Correction	Figures 7-1 through 7-5
	Pilot & Copilot system	265-65-7-31,32A,33

Westwind 1124A (SSEC only)

Airplane Flight Manual, 1124A , Section V, Performance		
CAA approved	Altitude Correction	
Figures 5-13, Flaps 0	Copilot system	Pages V-25
NOTE: Gross Weight averaged at 18,750 lbs.		

2.7 Part Numbering Scheme



2.8 Electrical Interface Specifications

The specifications for the interfaces heading, fuel flow and baro are listed in this section.

2.8.1 Heading Interface

The heading interface follows the ARINC 407 standard (line voltage of 11.8 Vrms).

Synchro Leg	Input Impedance
H	10 kohm
X	17 kohm
Y	17 kohm

2.8.2 Fuel Flow Interfaces

There are three basic types of fuel flow interfaces supported. The interface type is defined in the ADC2000 part number. Refer to section 2.7 for the part numbering scheme.

2.8.2.1 Digital Fuel Flow Interface

The are two possible installations for the digital fuel flow interface, the first is that the ADC is connected to a dedicated fuel flow transmitter, and the second is that the ADC is connected into a fuel flow system.

Dedicated Transmitter

Fuel Flow Interface Input Impedance 47 kohm

Shared Transmitter

Under normal operating conditions the voltage swing (the signal amplitude) can be calculated using $Vs = [R/(R + 47\ k)]*5\ Vdc - 0.5Vdc$, where R is the input impedance of the aircraft fuel flow indicator.

For example with an input impedance R = 1 Mohm, the voltage swing Vs = 4.27 Vdc

With the fuel flow information is encoded in frequency and not amplitude, the loading effects do not produce an error provided the aircraft indicator can detect the signal transitions.

2.8.2.2 Sine Wave Fuel Flow Interface

The interface source signal amplitude varies with frequency. Listed in the table below are the input impedance vs. peak to peak input voltages of the ADC2000 under normal operating conditions.

Input Impedance	Input Voltage
2 Mohm	Input voltage less than or equal to 1.0 Vpp
24.5 kohm	Input voltage greater than 1.0 Vpp

Maximum Input Voltage 10 Vpp

2.8.2.3 DC Voltage Fuel Flow Interface

The DC voltage fuel flow interface has a differential input. The specifications under normal operating conditions are listed below.

Positive input greater than 100 Mohm
Negative input greater than 100 Mohm

Maximum Input Voltage 10.2 Vdc

2.8.3 Baro Interface

The baro interface requires a three-wire connection to the potentiometer housed in the aircraft altimeter[i]. The three connections are the high side, low side and wiper. The specifications under normal operating conditions are listed below.

Input Impedance high side greater than 100 Mohm
Input Impedance low side greater than 100 Mohm
Input Impedance wiper greater than 100 Mohm

Maximum Input Voltage ± 12 Vdc

[i] The altimeters supported are listed in section 9.2 and are dependent upon the ADC2000 software version level.

2.9 Statistical Specifications

2.9.1 Mean Time Between Failures

MTBF: 17,660 hours

3.0 CERTIFICATION

TSO C106, C44a

Environmental Categories RTCA/DO-160B

Temp. ALT	F2
Temp. Variation	B
Humidity	A
Shock & Vibration	P,K,S,M, N, O
Magnetic Effect	B
Power Input	B
Voltage Spike	B
AF Conducted Susceptibility	B
Induced Signal Susceptibility	B
RF Susceptibility	A
RF Emission	B

4.0 PLACING AN ORDER

Please know the aircraft year and model number, its serial number, and the engine make and model number when you call to place orders. Information on the fuel flow system previously installed in the aircraft and any communication interface (RS-232, RS-422 and ARINC 429) information may also prove useful.

We may request a wiring diagram of the aircraft's fuel flow system and transducer and/or K-factors.

When interfacing an altimeter to the Shadin barometric pressure potentiometer option consult the list of supported altimeters contain in this manual or contact the Shadin Technical Support.

5.0 INSTALLATION PROCEDURE

5.1 General

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

All work must conform to AC 43.13-1B

5.2 F/ADC Location Selection

The Fuel AIR DATA Computer should be mounted in a dry, temperature stable location with enough distance from motors, pulse generating equipment, relays and cables carrying high DC or AC current to avoid interference with low level signals of the OAT and fuel flow.

The equipment may be installed in non-pressurized and non-controlled temperature locations.

In considering the location, keep in mind that the F/ADC requires signals from the fuel flow, the OAT probe, heading system and the pitot and static lines. Placement in the front section of the aircraft is favorable, in order to avoid running all of these signals to the tail of the aircraft.

5.3 Mounting the F/ADC

Consult the Drawings 4028-857 or 4028-871 or 4028-872 or 4028-873 and Drawing 4028-395, before mounting the ADC2000. Use the recommended hardware. Any orientation is acceptable. Make sure that the computer is not the lowest point in the pitot and static system, to reduce the chances of collecting moisture or water in it. Form a water trap, if necessary.

5.4 Mounting the OAT Probe

1. Refer to drawing 4028-005 and OAT Probe Assy Kit 681201-1. Use the supplied stiffener to support the probe. Keep the probe away from transmitting antennas and static ports of autopilots to avoid interference.

2. Refer to drawing 4028-874. The OAT probe power is supplied from (red wire) J1:52. The OAT signal is the white wire from J1:33. At least the signal wire to the ADC2000 should be shielded and terminated at the ADC2000 only.

3. The sun shield must be installed for proper indication of OAT.

4. For single engine installation, avoid mounting the OAT probe on the belly of the aircraft to avoid erroneous reading due to the presence of hot exhaust gases.

5. Below is an OAT to ºC to input current conversion chart for use in testing the OAT Probe.

OAT ºC	Input µA		OAT ºC	Input µA		OAT ºC	Input µA		OAT ºC	Input µA
-60	213		-20	253		+20	293		+60	333
-50	223		-10	263		+30	303			
-40	233		0	273		+40	313			
-30	243		+10	283		+50	323			

1°C = 1 µA

5.5 Connection to the Fuel Flow Sensor

1. If the aircraft is not equipped with a fuel flow source, refer to the STC covering the installation of the fuel flow transducer on the engine.

2. When connecting to any fuel transducer, Shadin recommends using a 3 conductor, 22 gauge, shielded wire with the shield terminated at the AIR DATA only.

3. Note that for single engines all fuel flow types should use left side inputs only.

4. *Install the transducers according to the engine STC, using Drawing 4028-875 to connect the fuel flow transducer to the computer.

5. *If the aircraft is equipped with a digital fuel flow system using transducer (P/N 680501), use Drawing 4028-875 **(refer to note 1 on that drawing)** and the STC drawing covering the installation.

6. Before hooking to an existing fuel system in a turbine or jet application, consult all installation drawings contained in this manual.

7. *If the aircraft is equipped with a DC fuel flow system, use Drawing 4028-875 (for P/N 962830A-3-S-4) and the STC covering the installation.

8. *If the aircraft is equipped with a sine wave pickup coil type of fuel flow transducer, use Drawing 4028-875 (for P/N 962830A-2-S-4).

9. Make sure that the system is initialized with the proper transducer K factor for a digital or sine systems and with the proper airframe make and model for the DC fuel flow systems. See the attached tables in section 10.0.

* Consult section 11 for specific aircraft installation wiring drawings.

5.6 Connection to the Heading Source

The system is designed to interface with any ARINC-407 heading system (X,Y,Z) with no effect on the heading system or the bootstrap.

XYZ Heading ARINC 407	FUEL AIR DATA J1	Collins 328A-2A 2P1	Collins HSI331A P1	Collins MCS 65 P1	Collins 328A-5	King KI525A P2	King KSG105 P1	Sperry Gyro-syn Comp. P1	Sigma-Tek DG	Sandel SN3308	
										P1	P2
X	5	11	S	25	32	s	t	L	A		25
Y	4	4	T	40	22	v	p	M	B		6
Z	7	3	U	24	12	t	k	K	D	4	
H	6	26	V	6	53	r	c	H	E		4
C	7	22	W	5	57	u	f	J	H	4	

The C wire (AC common) and the Z wire must be connected together at the source (bootstrap).

5.7 Connection to the Pitot and Static Lines

The pitot static line should be cut and a tee installed, to tap into these lines. Use the appropriate type of fittings to match the type installed in the aircraft. Refer to CFR part 43, appendix E for approved practices in installing and verifying these connections.

PITOT/STATIC adapter helpful hints

To make an adapter for the Shadin ADC2000, the following parts could be used. It is recommended to use all aluminum fittings.

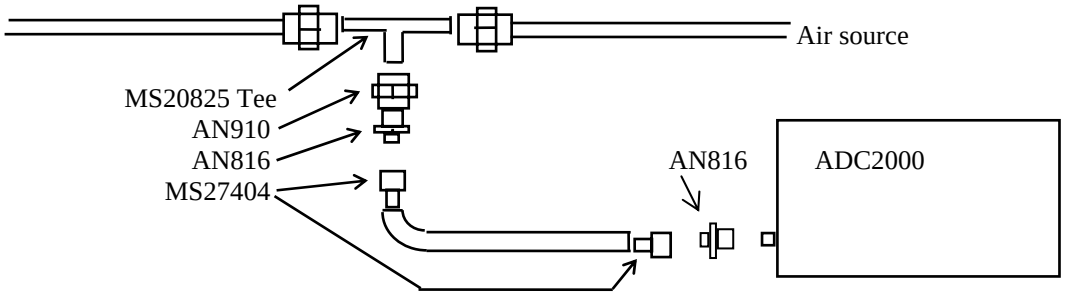
Existing Pitot/Static lines ⟶ AN910-1D ⟶ AN816-2D ⟶ #2 Hose(with female fittings)

AN910 DASH NUMBER		PIPE
BRASS	ALUM. ALLOY	SIZE
-1	-1D	1/8”
-2	-2D	1/4”
-3	-3D	3/8”
-4	-4D	1/2”
-6	-6D	3/4”
-8	-8D	1”

AN816 DASH NUMBER		TUBE	PIPE
STEEL	ALUM. ALLOY	O. D.	THREAD
-2	-2D	1/8”	1/8”
-3	-3D	3/16”	1/8”
-4	-4D	1/4”	1/8”
-5	-5D	5/16”	1/8”
-6	-6D	3/8”	1/4”
-8	-8D	1/2”	3/8”
-10	-10D	5/8”	1/2”
-12	-12D	3/4”	3/4”
-16	-16D	1”	1”

MS20825 TEE		TUBE	PIPE
STEEL	ALUM. ALLOY	O. D.	THREAD
-2	-2D	1/8”	1/8”
-3	-3D	3/16”	1/8”
-4	-4D	1/4”	1/8”
-5	-5D	5/16”	1/8”

HOSE: Stratoflex 193-2 or Aeroquip 306-2 with MS27404 (P/N 311-2D) on each end.



5.8 Connection to the Navigation Management System

1. Use installation wiring diagram 428-874 to connect the Fuel Air Data Computer's Connector J1 to the navigation management system.

2. A 2 amp. circuit breaker should be used for powering the system. Mark the circuit breaker by engraving, painting or other approved method.

3. Keep the cables away from power cables, DME and transponder cables.

4. Refer to the specific Nav Receiver Installation Manuals for details.

5. If the ARINC 429 output is used, refer to the digital EFIS or flight management installation manual and sections 2.5.2 – 2.5.4 in this manual.

5.9 Connection to the Altimeter Baro Pot (optional)

1. Use the Installation wiring diagram 4028-A44 to connect the altimeter to J1 of the Air Data computer.
2. Remember to select the correct altimeter type in the software configuration. See section 9 in this manual.

5.10 Post Installation Checkout

1. The pitot and static system must be checked for leaks.

2. Operate the Navigation Management System; select the altitude and airspeed pages. Use the static and pitot test system to check the accuracy of the readout in the Navigation Management System pages.

3. Select heading page. Slew compass through 360°. The error should be within $\pm$1°.

4. Select the OAT page. Compare to the reported ambient temperature. The error should be ±1°C.

5. Run the engines and select the fuel flow page. Compare the fuel flow readout with the engine manufacturer's fuel flow charts under the ambient temperature and pressure conditions.

6. Set the Barometric pressure to a known value and verify that the reported barometric pressure at the Navigational Receiver is that value $\pm$ 0.01 In.Hg. (if the option is installed)

6.0 OPERATING INSTRUCTIONS

1. Power the avionics DC buss and the Navigation Management System.

2. After the warm-up period density altitude and PALT are available. IAS will be available but will be out of range until actual airspeed is available. Winds aloft will be available if the IAS is greater than 40 Kts and magnetic heading is within 40° of magnetic track.

3. Fuel Flow, Fuel Used, Fuel Remaining, Heading and OAT will be available after power-up.

4. Refer to the specific Nav Receiver Operator's Manual for page selection of various data.

7.0 INITIALIZATION

1. The system requires initialization of K factor for fuel flow transducers or aircraft model for DC fuel flow sensors. Refer to Table 1 **analog** for fuel flow and Table 2 or Table 3 for **digital or sinewave** fuel flow.

2. Refer to the specific Navigational Receiver Operator Manuals for the serial port set up.

8.0 MAJOR COMPONENTS OF THE SYSTEM

1. Nav Receiver Input/Output
2. Fuel/AIR DATA Computer
3. Outside Air Temperature Probe, P/N 681201( )

9.0 CONFIGURING THE AIR DATA

Part number 962830A-YS4 (Y= X, 1, 2 or 3) AIR DATA Computer needs to be configured to program it for the particular installation. The procedure contained in this Installation Manual is for software versions 93.02.67 and 93.04.02 and above. There are two methods to accomplish this task. The first method is to follow the procedures as set forth in the 'ADSETUPF User Manual'. The second method is to manually enter the information by performing a 'Loop-Back' procedure.

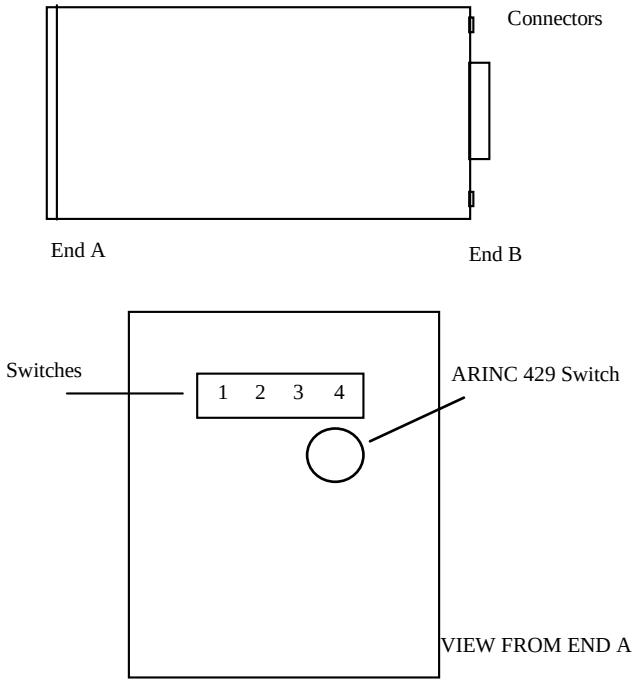
9.1 Configuring with 'ADSETUP User Manual'

The 'ADSETUPF User Manual' is a configuration utility that allows setting the ADC configuration by running a program on a PC. The PC is connected to the AIR DATA via the serial communication port. See the 'ADSETUPF User Manual' for more details.

9.2 Configuring Manually (Loop-Back)

The switches that are available from the back side of the unit need to be set to the appropriate positions as determined by the switch settings listed below. After the correct switch positions have been selected, the unit is powered using the 'Loop-Back' harness (consult drawing number 4028-A62 contained in section 11). The purpose of the 'loop back' harness is to tie the RS-232 transmit and receive ports together. This allows the software, when the unit is powered on, to read the switch positions. Switch 1 is set to different positions to select the separate stages that the loopback is performing. There are 2 different ‘loopback’ procedures. Use ‘loopback’ procedure 1 for Software Version 93.02.67. Use ‘loopback’ procedure 2 for software versions 93.04.02 and above. Note that procedure 1 has 4 stages, and procedure 2 has 5 stages. Remember to cycle power between stages and that the F/ADC is to be powered on for 1 minute for each stage.

The following figure shows the approximate switch positions:



Loopback Procedure 1 for Software Version 93.02.67

Stage 0 Loopback Configuration:

Switch 1 is set to 0 to indicate that the stage 0 loopback is being performed.

SWITCH 2		Fuel Units and Engine Type:	
0	-	Gallons	Single Engine
1	-	Liters	" "
2	-	Lbs 5.8	" "
3	-	Lbs 6.71	" "
4	-	Kilograms	" "
5	-	Lbs 6.5	" "
6	-	Lbs 6.3	" "
7	-	(not used)	" "
8	-	Gallons	Twin Engine
9	-	Liters	" "
A	-	Lbs 5.8	" "
B	-	Lbs 6.71	" "
C	-	Kilograms	" "
D	-	Lbs 6.5	" "
E	-	Lbs 6.3	" "
F	-	(DO NOT USE)	

SWITCH 3		9600 BAUD Loran Input Type:
0	-	Trimble
1	-	ARNAV
2	-	Bendix or IIMorrow NMS2001, 800, 820, GX50/55/60, 9600
3	-	Garmin
4	-	Northstar (1200 or 9600 baud, 1200 is default for Northstar)
5	-	Foster
6	-	IIMorrow 611, 612 and 618 (1200 baud)
7	-	Shadin Flow Meter
8-E	-	(DO NOT USE)
F	-	Use this position to make selection on SWITCH 4

SWITCH 4		Other Loran Input Type:
0	-	Northstar, 1200 BAUD
1	-	Foster, 1200 BAUD
2	-	IIMorrow 611, 612, 618; 1200 BAUD
3-F	-	(DO NOT USE)

Stage 1 Loopback Configuration:

Switch 1 is set to 1 to indicate that the stage 1 loopback is being performed.

SWITCH 2 OAT Probe Type:

- 0 - Shadin OAT Probe
- 1 - ARINC 575 (DO NOT USE)
- 2 - Rosemount 500 Ω (DO NOT USE)
- 3-F - (DO NOT USE)

SWITCH 3 Loran Output Type:

- 0 - Format Z - Trimble and Garmin
- 1 - Format X - ARNAV
- 2 - Generic - DO NOT USE
- 3 - Surveyor
- 4 - Bendix C – Bendix/King and F/ADC without Barometric Interface
- 5 - Bendix D - Bendix/King and F/ADC with Barometric Interface
- 6 - Shadin S - IIMorrow GX50, 55, 60
- 7 - Bendix B – (fuel only)
- 8-F - (DO NOT USE)

SWITCH 4 Altimeter Selection for Baro DC Input:

- 0 - None
- 1 - Type 1
- 2 - Type 2
- 3 - Type 3
- 4 - Type 4
- 5 - Type 5
- 6 - Type 6
- 7 - Type 7
- 8 - (DO NOT USE)
- 9 - Type 9
- A-F - (DO NOT USE)

ALTIMETER TYPES

Type 1: Kollsman PD 44929-935 (done for Cessna 525).

Type 2: Bendix/King KEA 130A, and KEA 346 versions (King P/N 066-3062-XX) XX = 08 through 11, versions 00 though 07 have no Baro Potentiometer.

Type 3: ARINC 575-3 specification for ratio to Altitude Correction calculation.
Kollsman IDC 28007-427, -429,
Kollsman IDC 28704-A1001, -A2001, -A4001, -B4001, -C4001, -D1001, -D2001, -D4001, -D4101, -4E2101, -F2101, and -495.

Type 4: Kollsman IDC 28711-621 thru 624.

Type 5: Kollsman IDC 28007-431, -433,
Honeywell (Sperry) BA-141.

Type 6: Kollsman IDC 28711-500 series and -600 series.

Type 7: Kollsman IDC 28711-065 and -066.

Type 8: Reserved for future use (DO NOT USE).

Type 9: Aerosonic P/N 102220-1188T, 10420-11968E

Stage 2 Loopback configuration:

Switch 1 is set to 2 to indicate that the stage 2 loopback is being performed.

SWITCH 2 Fuel Filter Type:

0 - Injector
1 - Carburetor

SWITCH 3	AND SWITCH 4	CORRECTION For SSEC/PSEC Select:
0	0	- No correction
0	1	- MITSUBISHI MU-300
0	2	- CESSNA CITATION 500/501
0	3	- CESSNA 525
0	4	- CESSNA 550
0	5	- Citation 560 SN <=259
0	6	- Citation 560 SN >=260
0	7	- Citation 650
0	8	- Sabreliner 65
0	9	- WestWind 1124A
0	A	- Lear 24
0	B	- Raytheon Hawker HS 125-3A
0	C	- Falcon 20-F
0	D	- Falcon 20-C, D, E
0	E	- Lear 25D
0	F	- Douglas DC-8
1	0	- Beechjet 400
1	1	- Boeing 707-321B
1	2	- Cessna Citation S550
1	3	- Falcon 10
1	4	- Falcon 50
1	5	- Raytheon Hawker HS125-700A
1	6	- Learjet 35
1	7	- Learjet 55
1	8	- Sabreliner 60 (SSEC Only)
1	9	- Lockheed Jetstar II
1	A-F	- Reserved for future (DO NOT USE)

Stage 3 Loopback configuration:

Switch 1 is set to 3 to indicate that the stage 3 loopback is being performed.

SWITCH 2, K-FACTOR TABLE SELECTION:

For F/ADC 962830A-1-S-4 and 962830A-2-S-4 only.

0	-	Standard K-FACTOR Matrix 0 - (Table 2 in this manual)
1	-	Alternate K-FACTOR Matrix 1- (Table 3 in this manual)
2-F	-	(DO NOT USE)

SWITCH 3, FUEL FLOW DELAY TIME

0	-	No Delay
1	-	5 Second Delay
2	-	10 Second Delay
3	-	15 Second Delay
4	-	20 Second Delay
5	-	25 Second Delay
6	-	30 Second Delay
7	-	35 Second Delay
8	-	40 Second Delay
9	-	45 Second Delay
A-F	-	(DO NOT USE)

SWITCH 4	SPECIAL OPTION DESCRIPTION
0	-ARINC 429 labels 206 (IAS) and 210 (TAS) are not transmitted if the IAS < 20 knots
1	-ARINC 429 labels 206 (IAS) and 210 (TAS) are transmitted as zero knots if the IAS < 20 knots
2-F	Reserved – DO NOT USE

Loopback Procedure 2 for Software Version 93.04.02 and above.

Stage 0 Loopback Configuration:

Switch 1 is set to 0 to indicate that the stage 0 loopback is being performed.

SWITCH 2		Fuel Units and Engine Type:	
0	-	Gallons	Single Engine
1	-	Liters	" "
2	-	Lbs 5.8	" "
3	-	Lbs 6.71	" "
4	-	Kilograms	" "
5	-	Lbs 6.5	" "
6	-	Lbs 6.3	" "
7	-	(not used)	" "
8	-	Gallons	Twin Engine
9	-	Liters	" "
A	-	Lbs 5.8	" "
B	-	Lbs 6.71	" "
C	-	Kilograms	" "
D	-	Lbs 6.5	" "
E	-	Lbs 6.3	" "
F	-	(DO NOT USE)	

SWITCH 3		9600 BAUD Loran Input Type:
0	-	Trimble
1	-	ARNAV
2	-	Bendix or IIMorrow Apollo NMS2001, 800, 820
3	-	Garmin
4	-	Northstar
5	-	Foster
6	-	IIMorrow 611, 612 and 618
7	-	Shadin Flow Meter
8-E	-	(DO NOT USE)
F	-	Use this position to make selection on SWITCH 4

SWITCH 4		Other Loran Input Type:
0	-	Northstar, 1200 BAUD
1	-	Foster, 1200 BAUD
2	-	IIMorrow 611, 612, 618; 1200 BAUD
3-F	-	(DO NOT USE)

Stage 1 Loopback Configuration:

Switch 1 is set to 1 to indicate that the stage 1 loopback is being performed.

SWITCH 2 OAT Probe Type:

- 0 - Shadin OAT Probe
- 1 - ARINC 575 (DO NOT USE)
- 2 - Rosemount 500 Ω (DO NOT USE)
- 3-F - (DO NOT USE)

SWITCH 3 Loran Output Type:

- 0 - Format Z - Trimble and Garmin
- 1 - Format X - ARNAV
- 2 - Generic
- 3 - Surveyor
- 4 - Bendix C - Bendix/King and F/ADC without Baro Interface
- 5 - Bendix D - Bendix/King and F/ADC with Baro Interface
- 6 - Shadin S - IIMorrow GX50, 55, 60
- 7 - Bendix B – (fuel only)
- 8 - Garmin G
- 9-F - (Do Not Use)

SWITCH 4 Altimeter Selection for Baro DC Input:

- 0 - None
- 1 - Type 1
- 2 - Type 2
- 3 - Type 3
- 4 - Type 4
- 5 - Type 5
- 6 - Type 6
- 7 - Type 7
- 8 - (DO NOT USE)
- 9 - Type 9
- A - (DO NOT USE)
- B - Type 11
- C-F - (DO NOT USE)

ALTIMETER TYPES

Type 1: Kollsman PD 44929-935 (done for Cessna 525).

Type 2: Bendix/King KEA 130A, and KEA 346 versions (King P/N 066-3062-XX) XX = 08 through 11, versions 00 though 07 have no Baro Potentiometer.

Type 3: ARINC 575-3 specification for ratio to Altitude Correction calculation.
Kollsman IDC 28007-427, -429,
Kollsman IDC 28704-A1001, -A2001, -A4001, -B4001, -C4001, -D1001, -D2001, -D4001, -D4101, -4E2101, -F2101, and -495.

Type 4: Kollsman IDC 28711-621 thru 624.

Type 5: Kollsman IDC 28007-431, -433,
Honeywell (Sperry) BA-141.

Type 6: Kollsman IDC 28711-500 series and -600 series.

Type 7: Kollsman IDC 28711-065 and -066.

Type 8: Reserved for future use (DO NOT USE).

Type 9: Aerosonic P/N 102220-1188T, 10420-11968E.

Type 10: Reserved for future use (DO NOT USE).

Type 11: IDC P/N KTS B45152 10 410

Stage 2 Loopback configuration:

Switch 1 is set to 2 to indicate that the stage 2 loopback is being performed.

SWITCH 2 Fuel Filter Type:

0 - Injector
1 - Carburetor

SWITCH 3	AND SWITCH 4	CORRECTION For SSEC/PSEC Select:
0	0	- No correction
0	1	- MITSUBISHI MU-300
0	2	- CESSNA CITATION 500/501
0	3	- CESSNA 525
0	4	- CESSNA 500
0	5	- Citation 560 SN <=259
0	6	- Citation 560 SN >=260
0	7	- Citation 650
0	8	- Sabreliner 65
0	9	- WestWind 1124A
0	A	- LearJet 24
0	B	- Raytheon Hawker HS 125-3A
0	C	- Falcon 20-F
0	D	- Falcon 20-C, D, E
0	E	- LearJet 25D
0	F	- Douglas DC-8
1	0	- Beechjet 400
1	1	- Boeing 707-321B
1	2	- Cessna Citation S550
1	3	- Falcon 10
1	4	- Falcon 50
1	5	- Raytheon Hawker HS125-700A
1	6	- LearJet 35
1	7	- LearJet 55
1	8	- Sabreliner 60 (SSEC Only)
1	9	- Lockheed Jetstar II
1	A-F	- Reserved for future (DO NOT USE)

Stage 3 Loopback configuration:

Switch 1 is set to 3 to indicate that the stage 3 loopback is being performed.

SWITCH 2, K-FACTOR TABLE SELECTION:

For F/ADC 962830A-1-S-4 and 962830A-2-S-4 only.

0	-	Standard K-FACTOR Matrix 0 - (Table 2 in this manual)
1	-	Alternate K-FACTOR Matrix 1- (Table 3 in this manual)
2-F	-	(DO NOT USE)

SWITCH 3, FUEL FLOW DELAY TIME

0	-	No Delay
1	-	5 Second Delay
2	-	10 Second Delay
3	-	15 Second Delay
4	-	20 Second Delay
5	-	25 Second Delay
6	-	30 Second Delay
7	-	35 Second Delay
8	-	40 Second Delay
9	-	45 Second Delay
A-F	-	(DO NOT USE)

SWITCH 4	SPECIAL OPTION DESCRIPTION
0	-ARINC 429 labels 206 (IAS) and 210 (TAS) are not transmitted if the IAS < 20 knots
1	-ARINC 429 labels 206 (IAS) and 210 (TAS) are transmitted as zero knots if the IAS < 20 knots
2-F	Reserved – DO NOT USE

Stage 4 Loopback configuration:

Switch 1 is set to 4 to indicate that the stage 4 loopback is being performed. Refer to the OAT probe calibration certificate for the Ta, Tb, Tc calibration code selection.

SWITCH 2, OAT Ta CALIBRATION CODE SELECTION:

0-F - Refer to calibration certificate for "A" code selection 0 to F.

SWITCH 3, OAT Tb CALIBRATION CODE SELECTION

0-F - Refer to calibration certificate for "B" code selection 0 to F.

SWITCH 4, OAT Tc CALIBRATION CODE SELECTION

0-F - Refer to calibration certificate for "C" code selection 0 to F.

Note: Switch 2, 3, and 4 are set to position 0 (zero), if the OAT probe does not have a calibration code marking, (i.e. A=0, B=0, C=0).

SELECT NO DELAY

Only under special circumstances should a fuel flow delay time other than "No Delay" be selected. Read the following paragraphs for a description of these special circumstances.

On a few aircraft installations which have digital fuel flow and use a very low K factor (858 pulses per gallon), there has been a problem with the AIR DATA reporting a large jump in fuel used as well as a corresponding decrease in fuel remaining at engine startup. This is not considered to be a Shadin AIR DATA problem, but rather has been defined as an aircraft problem involving noise on the digital fuel flow signal.

A solution for this problem is to use the AIR DATA fuel flow delay feature. This feature suppresses the fuel flow (and its affect on fuel used and remaining) for a startup delay time each time the engine starts. Fuel flow delay time is selectable in the AIR DATA loopback mode, with selections of 0, 5, 10, 15, 20, 25, 30, 35, 40, and 45 seconds delay available.

If a fuel flow delay is needed, start by reconfiguring the ADC to use a large delay (i.e. 45 seconds). If the large fuel flow mitigated the problem try reducing the delay until the problem returns. Then use the least amount of fuel flow delay that suppresses the problem.

When a fuel flow delay time is selected the AIR DATA checks for fuel flow below 15 pph. If the fuel flow is below 15 pph, the AIR DATA considers the engine to be off and returns a fuel flow of 0. Then as soon as the fuel flow exceeds 15 pph, the AIR DATA continues to return a fuel flow of 0 until the delay time has expired. In a twin engine, the AIR DATA zeroes both fuel flows during the startup delay for each engine.

SPECIAL OPTIONS

Only under special circumstance should SPECIAL OPTION 1 be selected. Read the following paragraphs for a description of the special circumstance.

Because the IAS range on the AIR DATA computer is valid from 20 to 350 knots ARINC 429 labels 206 and 210 are transmitted with NCD status and stop being transmitted almost simultaneously if the IAS is less than 20 knots. In order to interface with certain avionics equipment which exhibit warnings if a valid IAS or TAS label is not received, SPECIAL OPTION 1 was implemented.

When the AIR DATA computer is configured with SPECIAL OPTION 1 the Arinc 429 labels 206 and 210 are transmitted with OK status and a value of zero knots if the actual IAS is less than 20 knots.

10.0 SETTING THE K FACTOR

The process of setting the K Factor is needed to match the F/ADC to the aircraft fuel flow system characteristics. To set the K Factor into the F/ADC you must first determine whether it is an Analog, Digital or Sine Fuel Flow unit.

P/N	FUEL FLOW TYPE
962830A-1-S-4	Digital
962830A-2-S-4	Sine Wave
962830A-3-S-4	Analog

Use the switch settings from the appropriate table to set the K Factor.

For Digital or Sine units (P/N (s) 962830A-1-S-4 and 962830A-2-S-4) use the Digital K Factor Settings Tables.

Switch 1 & 2 selects the left K Factor
Switch 3 & 4 selects the right K Factor

Due to possible fuel flow system peculiarities, switch 1 & 2 and switch 3 & 4 do not necessarily need to be set to the same setting. For a one engine system, use switches 1 & 2.

For Analog units (P/N 962830A-3-S-4) use the Analog K Factor Settings Table.

Switch 1 & 2 selects the main engine K Factor.
Switch 3 & 4 selects the offset.

The offset is simply the value represented by switches 3 & 4 in the Analog K Factor Settings Table below. For example, if you wanted an offset of 0, the switch settings would be 0,0. If you wanted an offset of 416, the switch settings would be 0, 1. If you wanted an offset of 1094, the switch settings would be 0, 4.

Configuration is now complete.

Analog K Factor Settings Table

Standalone AIR DATA MKII Analog Fuel Flow Chart							
Manufacturer	Model	SW1	SW2	SW3	SW4	K-Factor	Offset
Beech	KingAir B200	0	0	0	1	77000	416
Beech	KingAir A100	0	1	0	2	26150	875
Beech	KingAir C90	0	1	0	2	26150	875
Beech	KingAir F90	0	0	0	1	77000	416
Beech	KingAir C90A	0	0	0	1	77000	416
Beech	KingAir 200	0	0	0	1	77000	416
Beech	BeechJet	0	2	0	0	11540	0
Beech	KingAir B100	0	3	0	2	26150	875
Beech	Beech 600	0	4	0	0	38460	0
Beech	Beech 750	0	5	0	0	30770	0
Beech	Beech 800	0	6	0	0	28850	0
Cessna	Citation I, Ametek Gauge VSDL – 0C208E	0	C	0	0	16270	0
Cessna	Citation I, Simmons Gauge 393002-009	1	C	0	0	14300	0
Cessna	Citation II/SII	0	C	0	0	16270	0
Cessna	Citation III	0	D	0	4	9620	1094
Cessna	Model 525	0	E	0	0	21980	0
Piper	Cheyenne III	1	9	0	0	41960	0
Piper	Cheyenne IV	1	1	0	0	46150	0
Lear	Learjet	0	7	0	0	15380	0
Lear	Model 36 (5V)	0	2	0	0	11540	0
Lear	Model 36 (10V)	0	8	0	0	23080	0
Boeing	Boeing-737-300	0	9	0	3	1790	0
British Aero	BAE ATP	0	7	0	0	15380	0
British Aero	BAE-125-800	0	A	0	0	8240	378
British Aero	HS-125	0	B	0	0	10490	0
Canadian	CL600	0	F	0	0	6590	0
Canadian	CL601	1	0	0	0	5130	0
Dornier	DO-228	1	1	0	0	46150	0
Daussault	FALCON 10	1	2	0	0	11540	0
Daussault	FALCON 20	1	2	0	0	7690	0
Daussault	TFE-371	1	2	0	0	7690	0
Swearngen	MERLIN	0	4	0	0	38460	0
Gulfstream	GULFSTREAM II	1	3	0	0	2880	0
Gulfstream	GULFSTREAM III	1	4	0	0	2310	0
Aerospatiale	PUMA	1	5	0	0	76920	0
DHC	DHC DASH 8	1	6	0	0	19230	0
IAI	ASTRA 1125	1	7	0	5	9230	2188
IAI	WESTWIND 1124	1	8	0	0	10490	0
Sikorsky	S-76A	1	1	0	0	46150	0
Sikorsky	S-76B	0	6	0	0	28850	0
Sabre	SABRE 65	1	7	0	5	9230	2188

Table 6 – Analog K Factor Settings Table

Matrix 0 - Digital K Factor Settings

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
860	D	D	8800	5	0	15300	E	F
5000	6	B	9000	5	1	18000	3	0
5050	6	C	9200	5	2	18200	3	1
5100	6	D	9400	5	3	18400	2	2
5150	6	E	9600	5	4	18600	3	3
5200	6	F	9800	5	5	18800	3	4
5250	7	0	10000	5	6	19000	3	5
5300	7	1	10100	5	7	19200	3	6
5600	6	0	10200	5	8	19400	3	7
5650	6	1	10300	5	A	19600	3	8
5700	6	2	10400	5	B	19800	3	9
5750	6	3	10500	5	C	20000	3	A
5800	6	4	10600	5	D	20200	3	B
5850	6	5	10700	5	E	20400	3	C
5900	6	6	10800	5	F	20600	3	D
5950	6	7	10900	D	6	20800	3	E
6000	6	8	11000	D	7	21000	3	F
6380	C	B	11100	D	8	21200	4	0
6400	C	C	11200	D	9	21400	4	1
6420	C	D	11300	D	A	21600	4	2
6440	C	E	11400	D	B	21800	4	3
6460	C	F	11500	D	C	22000	4	4
6480	D	0	14500	D	E	22200	4	5
6500	D	1	14600	D	F	22400	4	6
6520	D	2	14700	E	9	22600	4	7
6540	D	3	14800	E	A	22800	4	8
6560	D	4	14900	E	B	23000	4	9
6580	D	5	15000	E	C	23200	4	A
6660	6	A	15100	E	D	23400	4	B
7640	5	9	15200	E	E	23600	4	C

Table 7 – Digital K Factor Settings

Matrix 0 - Digital K Factor Settings (Continued)

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
23800	4	D	29800	F	B	40000	9	4
24000	4	E	30000	F	C	40200	9	5
24200	4	F	30200	F	D	40400	9	6
24400	B	A	30400	F	E	40600	9	7
24600	B	B	33800	6	9	40800	9	D
24800	B	C	37000	B	9	41000	9	E
25000	B	D	37200	B	8	41200	9	F
25200	B	E	37400	B	7	41400	1	0
25400	B	F	37600	B	6	41600	1	1
25600	C	0	37800	B	5	41800	1	2
25800	C	1	38000	8	0	42000	1	3
26000	C	2	38100	8	1	42200	1	4
26200	C	4	38200	8	2	42400	1	5
26400	C	5	38300	8	3	42600	1	6
26600	C	6	38400	8	4	42800	1	7
26800	C	7	38500	8	5	43000	1	8
27000	C	8	38600	8	6	43200	1	9
27200	C	9	38700	8	7	43400	1	A
27400	C	A	38800	8	8	43600	1	B
27600	F	0	38900	8	9	43800	1	C
27800	F	1	39000	8	A	44000	1	D
28000	F	2	39100	8	B	44200	1	E
28200	F	3	39200	8	C	44400	1	F
28400	F	4	39300	8	D	44600	2	0
28600	F	5	39400	8	E	44800	2	1
28800	F	6	39500	8	F	45000	2	2
29000	F	7	39600	9	0	45200	2	3
29200	F	8	39700	9	1	45400	2	4
29400	F	9	39800	9	2	45600	2	5
29600	F	A	39900	9	3	45800	2	6

Table 7 (Continued) – Digital K Factor Settings

Matrix 0 - Digital K Factor Settings (Continued)

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
46000	2	7	57700	A	7	93000	7	2
46200	2	8	57800	A	8	94000	7	3
46400	2	9	57900	A	9	95000	7	4
46600	2	A	58000	A	A	96000	7	5
46800	2	B	58100	A	B	97000	7	6
47000	2	C	58200	A	C	98000	7	7
47200	2	D	58300	A	D	99000	7	8
47400	2	E	58400	A	E	100000	7	9
47600	2	F	58500	A	F	101000	7	A
49000	9	8	58600	B	0	102000	7	B
49100	9	9	58700	B	1	103000	7	C
49200	9	A	58800	B	2	104000	7	D
49300	9	B	58900	B	3	105000	7	E
49400	9	C	60000	B	4	106000	7	F
49500	E	2	77000	0	0			
49700	E	3	78000	0	1			
50000	E	4	79000	0	2			
50200	E	5	80000	0	3			
50400	E	6	81000	0	4			
50500	E	7	82000	0	5			
50800	E	8	83000	0	6			
55500	C	3	84000	0	7			
55550	F	F	85000	0	8			
57000	A	0	86000	0	9			
57100	A	1	87000	0	A			
57200	A	2	88000	0	B			
57300	A	3	89000	0	C			
57400	A	4	90000	0	D			
57500	A	5	91000	0	E			
57600	A	6	92000	0	F			

Table 7 (Continued) – Digital K Factor Settings

Matrix 1 - Alternate Digital K-Factor Setting Table (software version 93.04.04+)

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
200	1	0	1940	8	0	16100	4	E
400	1	1	2000	3	D	16300	4	F
440	1	2	2200	3	E	16500	5	0
490	1	3	2400	3	F	16600	5	1
510	1	4	2600	4	0	16800	5	2
520	1	5	2800	4	1	17000	5	3
530	1	6	3000	4	2	17200	5	4
540	1	7	3200	4	3	17400	5	5
550	1	8	3400	4	4	17600	5	6
560	1	9	3600	4	5	17800	5	7
570	1	A	3610	0	0	30600	6	3
580	1	B	3650	0	1	30800	6	4
590	1	C	3690	0	2	31000	6	5
600	1	D	3730	0	3	31200	6	6
610	1	E	3760	0	4	31400	6	7
620	1	F	3800	0	5	31600	6	8
630	2	0	3800	4	6	31800	6	9
640	2	1	3840	0	6	32000	6	A
650	2	2	3880	0	7	32200	6	B
660	2	3	3920	0	8	32400	6	C
670	2	4	3960	0	9	32600	6	D
680	2	5	4000	0	A	32800	6	E
690	2	6	4000	4	7	33000	6	F
700	2	7	4040	0	B	33200	7	0
710	2	8	4080	0	C	33400	7	1
720	2	9	4120	0	D	33600	7	2
730	2	A	4160	0	E	34000	7	3
740	2	B	4200	0	F	34200	7	4
750	2	C	4200	4	8	34400	7	5
760	2	D	4400	4	9	34600	7	6
770	2	E	4700	4	A	34800	7	7
780	2	F	11700	5	8	35000	7	8
790	3	0	11900	5	9	35200	7	9
800	3	1	12100	5	A	35400	7	A
810	3	2	12400	5	B	35600	7	B
820	3	3	12600	5	C	35800	7	C
840	3	4	12800	5	D	36000	7	D
850	3	5	13000	5	E	36400	7	E
880	3	6	13500	5	F	36800	7	F
900	3	7	14000	6	0	48000	8	1
1000	3	8	14200	6	1			
1200	3	9	14400	6	2			
1400	3	A	15500	4	B			
1600	3	B	15700	4	C			
1800	3	C	15900	4	D			

Table 8 – Alternate Digital K Factor Settings

INSTALLATION MANUAL

FUEL/AIR DATA COMPUTER
P/N 962830A-X-S-4, 962830A-1-S-4, 962830A-2-S-4, 962830A-3-S-4

SECTION 11.0

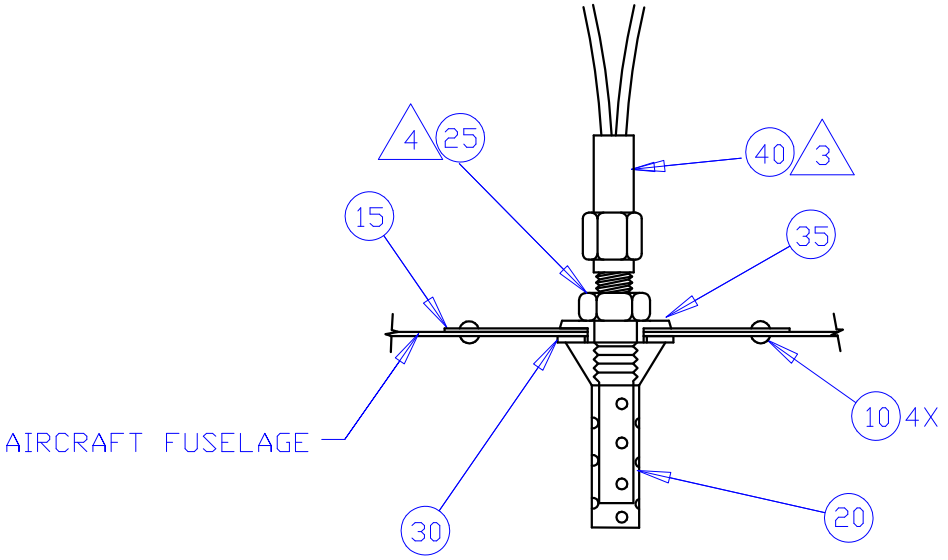
INSTALLATION DRAWINGS AND INSTALL KIT PARTS LISTS

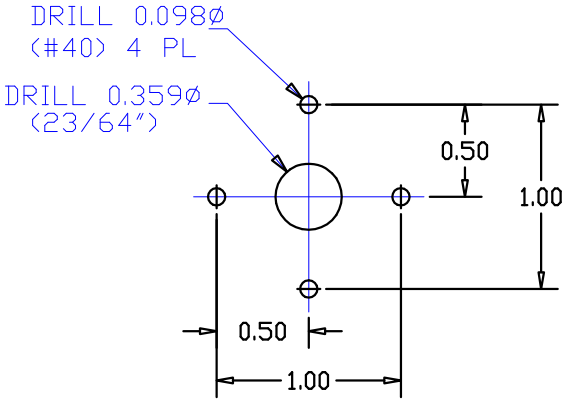
NOTES:

1. REFERENCE P/N 681201-1 OAT PROBE ASSEMBLY KIT
2. AVOID INSTALLING OAT PROBE IN OR NEAR:
   - PROP AIRSTREAM
   - ENGINE EXHAUST FLOW PATH
   - CABIN HEATERS EXHAUST FLOW PATH
   - TRANSMITTING ANTENNAS (DME, TXP, COMM.)
   - DARK PAINTED AREAS

△3 OAT PROBE, P/N 681201

△4 TORQUE NUT, FN 25, TO 1.3 IN-LBS (MAX)





DETAIL A

MOUNTING HOLE DETAIL

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0501/032	C	2/14/05	PAB	WMP	UPDATED TITLE BLOCK & NOTE 4; ADDED "KIT" TO TITLE
0111/001	B	11/14/01	PAB	KCL	STANDARDIZED DWG FORMAT TO MIMIC DWG NO. 4012-177
0002/036	A	3/11/96	WMP	PG	CONVERT TO CAD; ADD NOTES 1 AND 3
N/A	-	4/8/91	DAP	SES	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: ±0.01
FINISH: N/A
MATERIAL: N/A
SCALE: NONE

DRAWING DATE 4/8/91
DRAFTER DAP
APPROVED SES
FILE NAME 681201-1CJ.DWG
DIRECTORY 681201-1
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION, OAT PROBE ASSEMBLY KIT

DRAWING NO. 4028-005 | SIZE A | P/N681201-1 | REV C

PARTS LIST

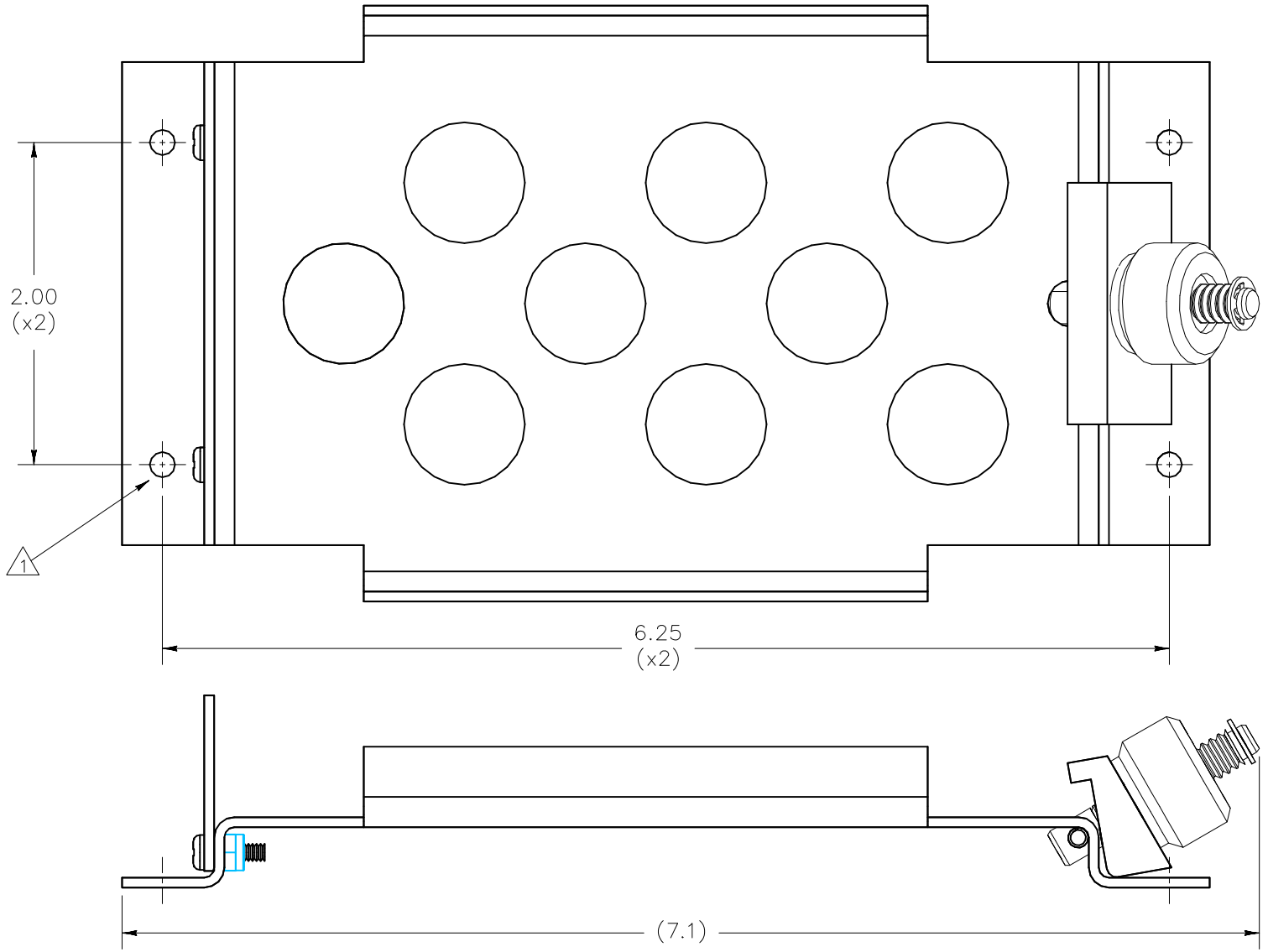
Part #: **681201-1**

Drawing #s: 4028-005 Rev C

Description: **OAT PROBE ASSEMBLY KIT**

FN	P/N	QTY.	DESCRIPTION	MFG.	MFG.#	DESIGNATION	COMMENTS
10	511201	4	RIVET, AN4703-4 or MS20470AD3-4				
15	543216	1	OAT STIFFENER RING	SHA	4032-082		
20	670503	1	SHIELD, Temp Sensor Assy	SHA	4005-265		
25	670504	1	NUT, Temp Sensor	SHA	4005-266		
30	670505	1	WASHER, Flat OAT	SHA	4005-303		
35	670506	1	WASHER, Shoulder OAT	SHA	4005-304		
40	681201	1	OAT PROBE	SHA	4005-794		

10 items



NOTES:

1. USE #6 MOUNTING HARDWARE.
2. (DELETED).
3. USE THIS DRAWING TO INSTALL SHADIN P/N 612826B, 612826A, OR 612826 MOUNTING TRAY.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0507/053	C	8/1/05	PAB	ZK	CH. NOTE 3
0501/032	B	3/3/05	PAB	WMP	DELETED NOTE 2 & 10 DIMENSIONS; ADDED NOTE 3
0211/047	A	2/7/03	PAB	BAL	ADDED DIMENSIONS
9512/017	–	12/13/95	WMP	SES	BASELINE RELEASE

3D CAD FILE AVAIL: YES

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: X.X – ±0.1
X/X ± 1/64 X.XX – ±0.01
∠– ±1° X.XXX – ±0.005

FINISH: N/A

MATERIAL: N/A

SCALE: 1 : 1

DRAWING DATE 9/22/94
DRAFTER PAB
APPROVED SES
FILE NAME 4028-395CJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

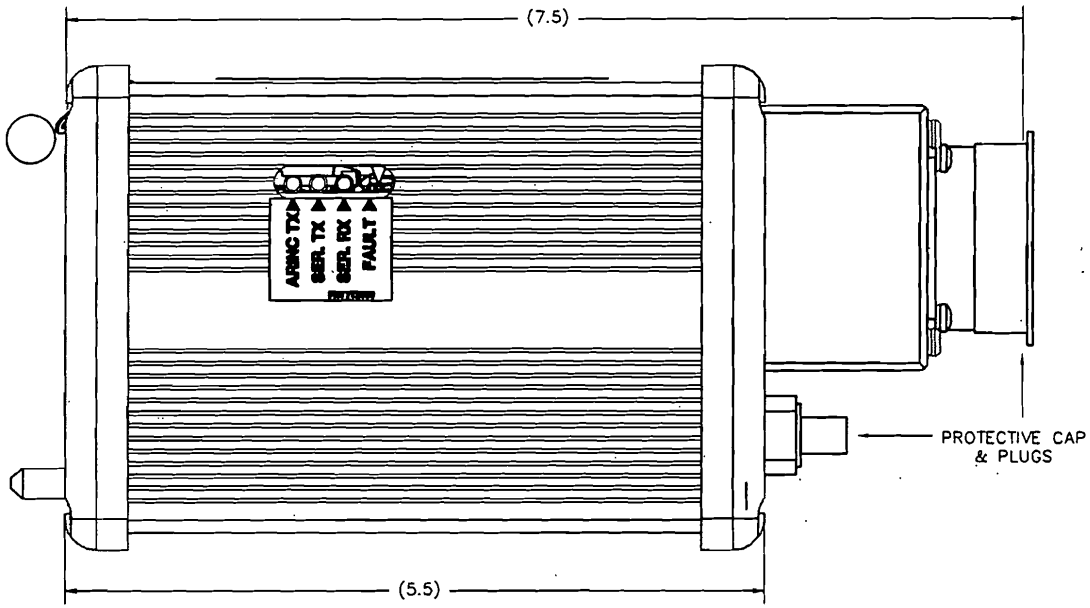
INSTALLATION, MOUNTING TRAY, ADC2000

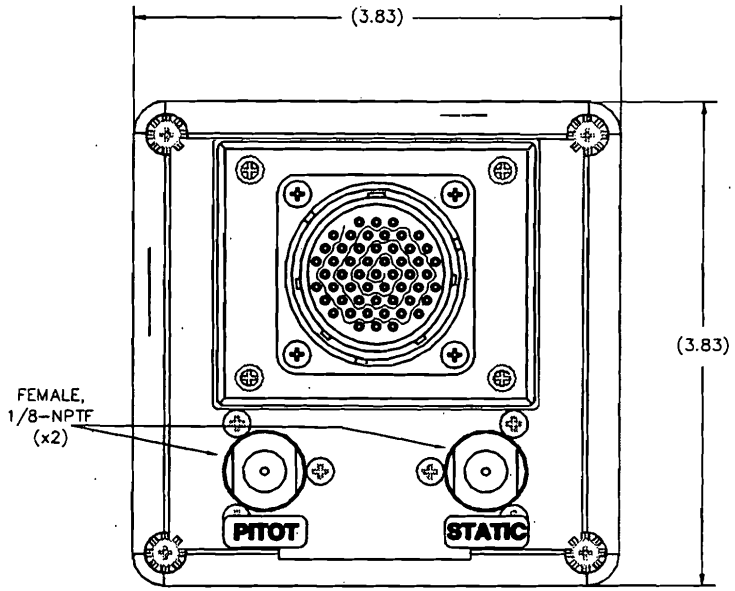
DRAWING NO. 4028-395 | SIZE A | P/N ------ | REV C

NOTES:

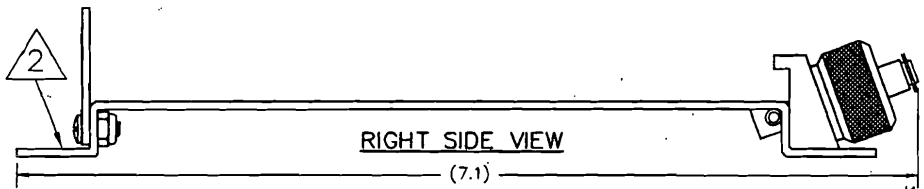
1. INSTALLED WEIGHT = 2.8 LB.
2. USE FOUR #6 MOUNTING SCREWS.
3. FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALL KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



J1 PINOUT
1. N/C
2. HEADING Y-SYNCHRO INPUT
3. N/C
4. SHIELD GND
5. BARO INPUT +
6. N/C
7. HEADING X-SYNCHRO INPUT
8. N/C
9. TX, RS232 (4)
10. SHIELD GND

J1 PINOUT
11. N/C
12. N/C
13. N/C
14. N/C
15. N/C
16. BARO INPUT -
17. N/C
18. HEADING 26 VAC. H
19. TX, RS422 (-) (3)
20. RX, RS422 (-) (3)

J1 PINOUT
21. TX, RS232 (3)
22. ARINC 429 B (-)
23. SHIELD GROUND
24. N/C
25. N/C
26. N/C
27. N/C
28. N/C
29. N/C
30. N/C
31. N/C
32. N/C

J1 PINOUT
33. OAT SIGNAL
34. N/C
35. HEADING 26 VAC C
36. TX, RS422 (+) (3)
37. FLAG (RESERVED)
38. RX, RS422 (+) (3)
39. RX, RS232 (3)
40. ARINC 429 A (+)
41. N/C
42. RX RS232 (4)
43. N/C
44. N/C
45. N/C
46. N/C
47. N/C

J1 PINOUT
48. N/C
49. N/C
50. N/C
51. N/C
52. OAT POWER
53. BARO WIPER
54. POWER GROUND
55. +28V

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0503/001	B	3/7/03	PAB	JAC	REDRAWN; CORRECTED PITOT/STATIC LOCATION
9710/028	A	[illegible]/97	DLR	PG	CORRECTED PINOUTS
9708/032	-	[illegible]/97	BJD	PG	BASELINE RELEASE

DO NOT SCALE DRAWING

DRAWING DATE 8/29/97
DRAFTSMAN BJD
APPROVED PG
FILE NAME 962830AXS4BJ.DWG
DIRECTORY 962830A-X-S-4
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

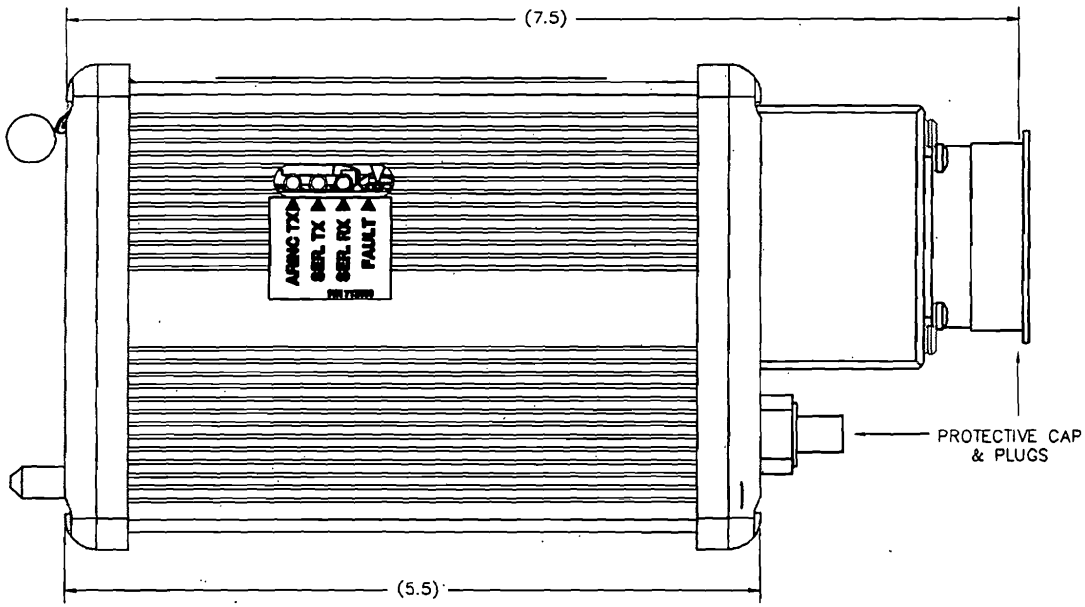
INSTALLATION, ADC2000
MS CONN, NO FF, QUICK START

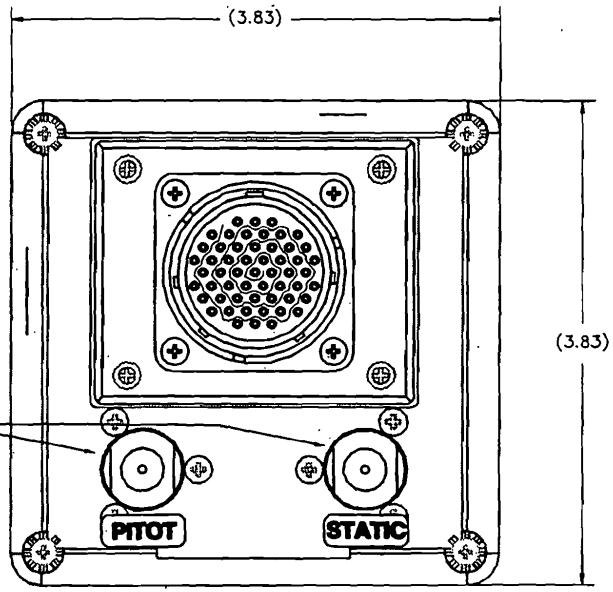
DRAWING NO. 4028-857 | SIZE A | P/N 962830A-X-S-4 | REV. B

NOTES:

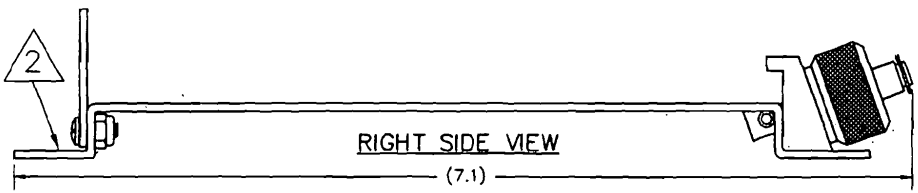
1. INSTALLED WEIGHT = 2.8 LB.
2. USE FOUR #6 MOUNTING SCREWS.
3. FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALL KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT	J1 PINOUT	J1 PINOUT	J1 PINOUT	J1 PINOUT
1. N/C	11. N/C	21. TX, RS232 ⚠3	33. OAT SIGNAL	48. N/C
2. HEADING Y-SYNCHRO INPUT	12. LEFT DIGITAL FF INPUT	22. ARINC 429 B (-)	34. N/C	49. N/C
3. N/C	13. N/C	23. RIGHT FF TXDR GROUND	35. HEADING 26 VAC C	50. N/C
4. SHIELD GROUND	14. N/C	24. RIGHT DIGITAL FF INPUT	36. TX, RS422 (+) ⚠3	51. N/C
5. BARO INPUT +	15. N/C	25. N/C	37. FLAG (RESERVED)	52. OAT POWER
6. N/C	16. BARO INPUT -	26. LEFT TXDR POWER	38. RX, RS422 (+) ⚠3	53. BARO WIPER
7. HEADING X-SYNCHRO INPUT	17. N/C	27. N/C	39. RX, RS232 ⚠3	54. POWER GROUND
8. N/C	18. HEADING 26 VAC H	28. N/C	40. ARINC 429 A (+)	55. +28V
9. TX, RS232 ⚠4	19. TX, RS422 (-) ⚠3	29. N/C	41. N/C	
10. LEFT FF TXDR GROUND	20. RX, RS422 (-) ⚠3	30. N/C	42. RX RS232 ⚠4	
		31. N/C	43. RIGHT TXDR POWER	
		32. N/C	44. N/C	
			45. N/C	
			46. N/C	
			47. N/C	

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0503/001	A	3/7/05	PAB		REDRAWN; CORRECTED PITOT STATIC LOCATION
9710/028	-	10/27/97	DLR	PG	BASELINE RELEASE

DO NOT SCALE DRAWING

DRAWING DATE	8/29/97
DRAFTSMAN	DLR
APPROVED	PG
FILE NAME	962830ATS4A.DWG
DIRECTORY	962830A-X-S-4
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

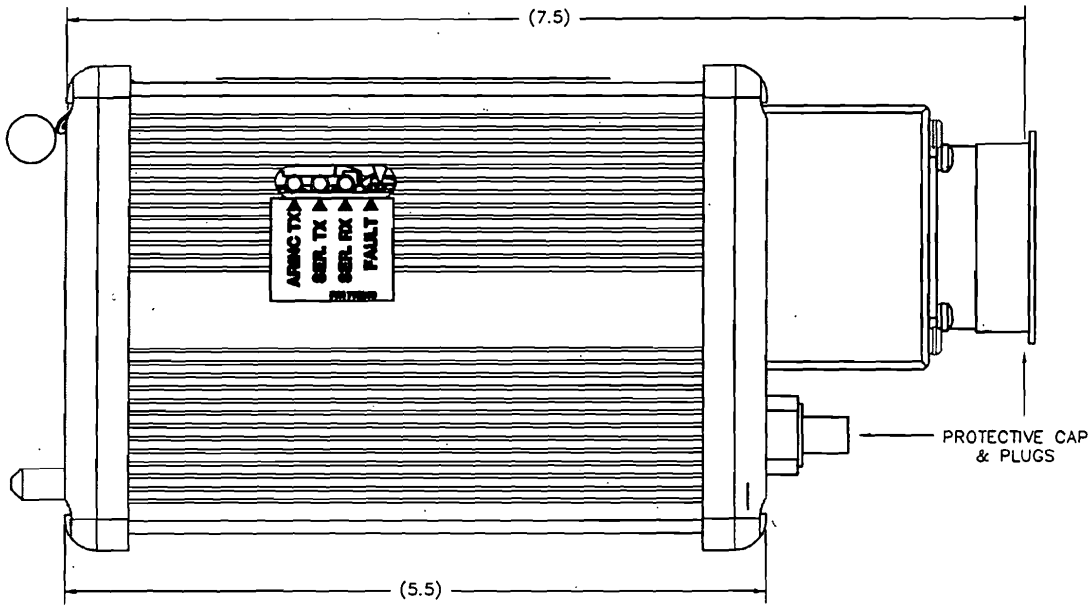
INSTALLATION, ADC2000
MS CONN, DIGITAL FF QUICK START

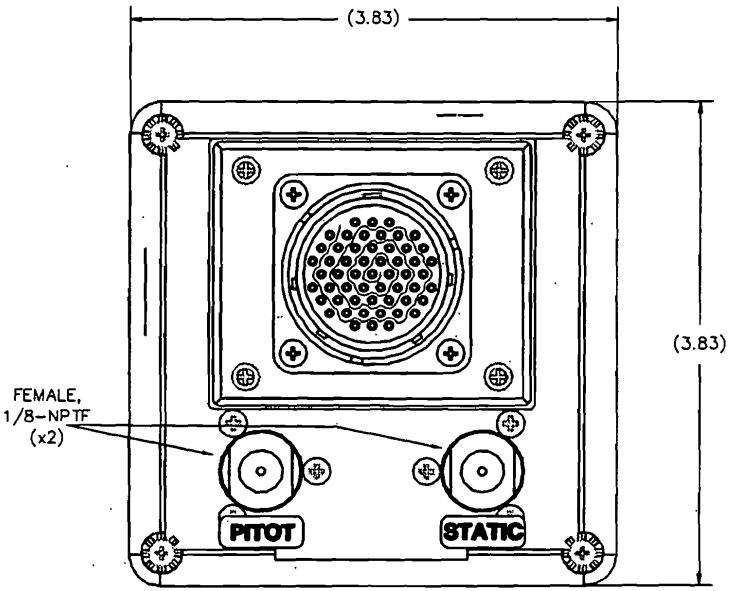
DRAWING NO.	SIZE	P/N	REV.
4028-871	A	962830A-1-S-4	A

NOTES:

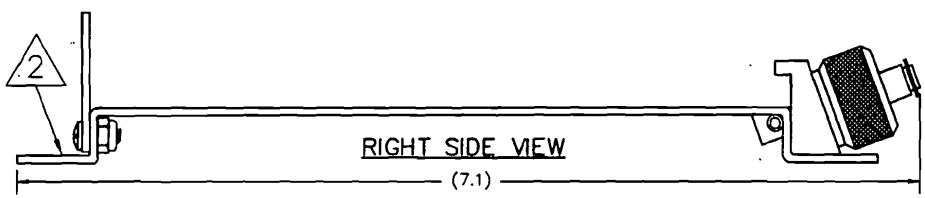
1. INSTALLED WEIGHT = 2.8 LB.
2. USE FOUR #6 MOUNTING SCREWS.
3. FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALL KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT	J1 PINOUT	J1 PINOUT	J1 PINOUT	J1 PINOUT
1. N/C	11. N/C	21. TX, RS232 (3)	33. OAT SIGNAL	48. N/C
2. HEADING Y-SYNCHRO INPUT	12. LEFT SINE FF INPUT +	22. ARINC 429 B (-)	34. N/C	49. N/C
3. N/C	13. N/C	23. SHIELD GROUND	35. HEADING 26 VAC C	50. N/C
4. SHIELD GROUND	14. N/C	24. RIGHT SINE FF INPUT +	36. TX, RS422 (+) (3)	51. N/C
5. BARO INPUT +	15. N/C	25. N/C	37. FLAG (RESERVED)	52. OAT POWER
6. N/C	16. BARO INPUT -	26. LEFT SINE FF INPUT -	38. RX, RS422 (+) (3)	53. BARO WIPER
7. HEADING X-SYNCHRO INPUT	17. N/C	27. N/C	39. RX, RS232 (3)	54. POWER GROUND
8. N/C	18. HEADING 26 VAC H	28. N/C	40. ARINC 429 A (+)	55. +28V
9. TX, RS232 (4)	19. TX, RS422 (-) (3)	29. N/C	41. N/C	
10. SHIELD GROUND	20. RX, RS422 (-) (3)	30. N/C	42. RX RS232 (4)	
		31. N/C	43. RIGHT SINE FF INPUT -	
		32. N/C	44. N/C	
			45. N/C	
			46. N/C	
			47. N/C	

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0503/001	A	5/05	PAB		REDRAWN; CORRECTED PITOT STATIC LOCATION
9710/028	-	7/27/97	DLR	PG	BASELINE RELEASE

DO NOT SCALE DRAWING

DRAWING DATE 8/29/97
DRAFTSMAN DLR
APPROVED PG
FILE NAME 962830A254A.DWG
DIRECTORY 962830A-X-S-4
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

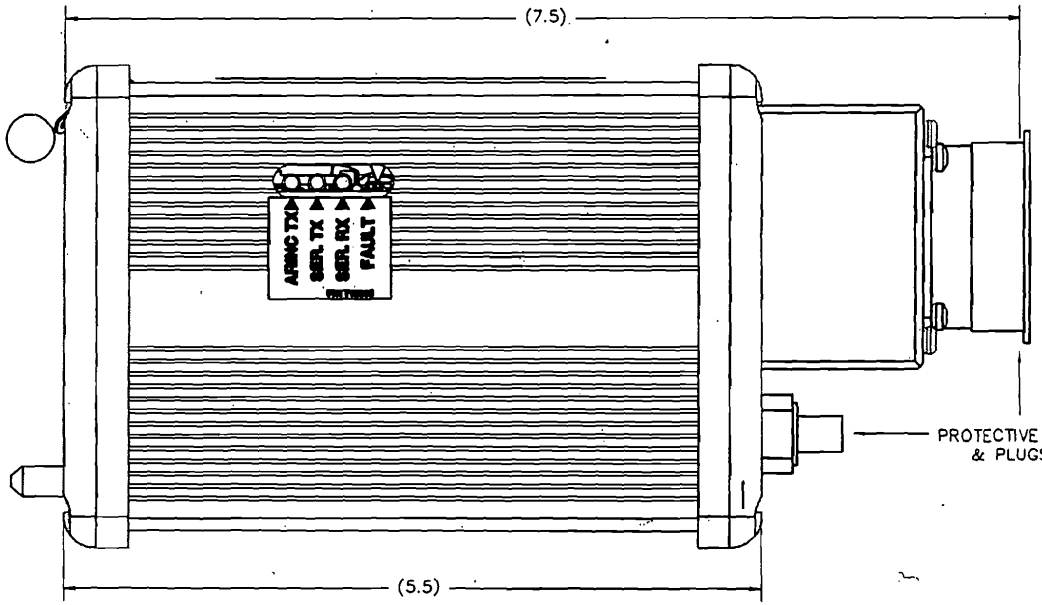
INSTALLATION, ADC2000
MS CONN, SINE FF QUICK START

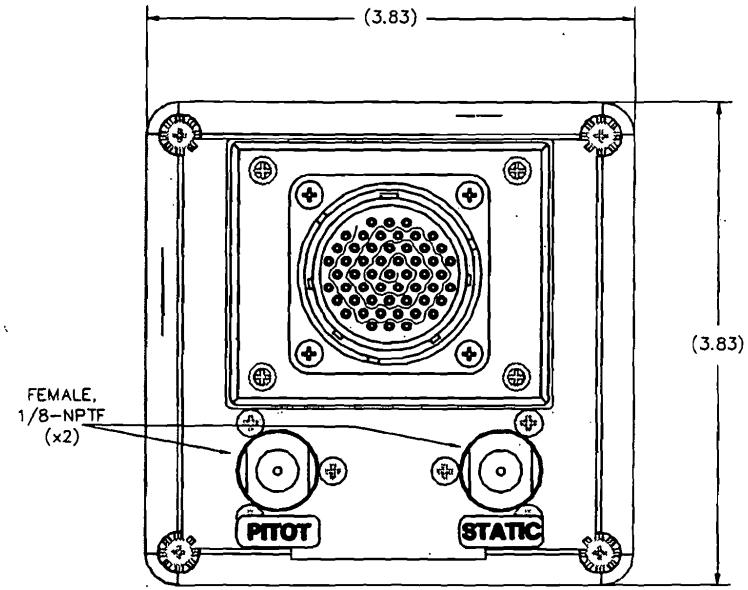
DRAWING NO. 4028-872 | SIZE A | P/N 962830A-2-S-4 | REV. A

NOTES:

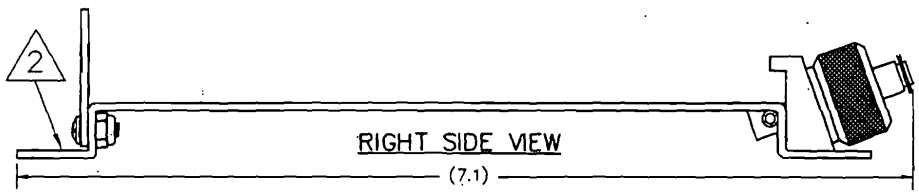
1. INSTALLED WEIGHT = 2.8 LB.
2. USE FOUR #6 MOUNTING SCREWS.
3. FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALL KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT
1. N/C
2. HEADING Y-SYNCHRO INPUT
3. N/C
4. SHIELD GROUND
5. BARO INPUT +
6. N/C
7. HEADING X-SYNCHRO INPUT
8. N/C
9. TX, RS232 (4)
10. SHIELD GROUND

J1 PINOUT
11. N/C
12. LEFT DC FF INPUT +
13. N/C
14. N/C
15. N/C
16. BARO INPUT -
17. N/C
18. HEADING 26 VAC. H
19. TX, RS422 (-) (3)
20. RX, RS422 (-) (3)

J1 PINOUT
21. TX, RS232 (3)
22. ARINC 429 B (-)
23. SHIELD GROUND
24. RIGHT DC FF INPUT +
25. N/C
26. LEFT DC FF INPUT -
27. N/C
28. N/C
29. N/C
30. N/C
31. N/C
32. N/C

J1 PINOUT
33. OAT SIGNAL
34. N/C
35. HEADING 26 VAC C
36. TX, RS422 (+) (3)
37. FLAG (RESERVED)
38. RX, RS422 (+) (3)
39. RX, RS232 (3)
40. ARINC 429 A (+)
41. N/C
42. RX RS232 (4)
43. RIGHT DC FF INPUT -
44. N/C
45. N/C
46. N/C
47. N/C

J1 PINOUT
48. N/C
49. N/C
50. N/C
51. N/C
52. OAT POWER
53. BARO WIPER
54. POWER GROUND
55. +28V

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0503/001	A	3/7/05	PAB	[illegible]	REDRAWN; CORRECTED PITOT STATIC LOCATION
9710/028	-	10/27/97	DLR	PG	BASELINE RELEASE

DO NOT SCALE DRAWING

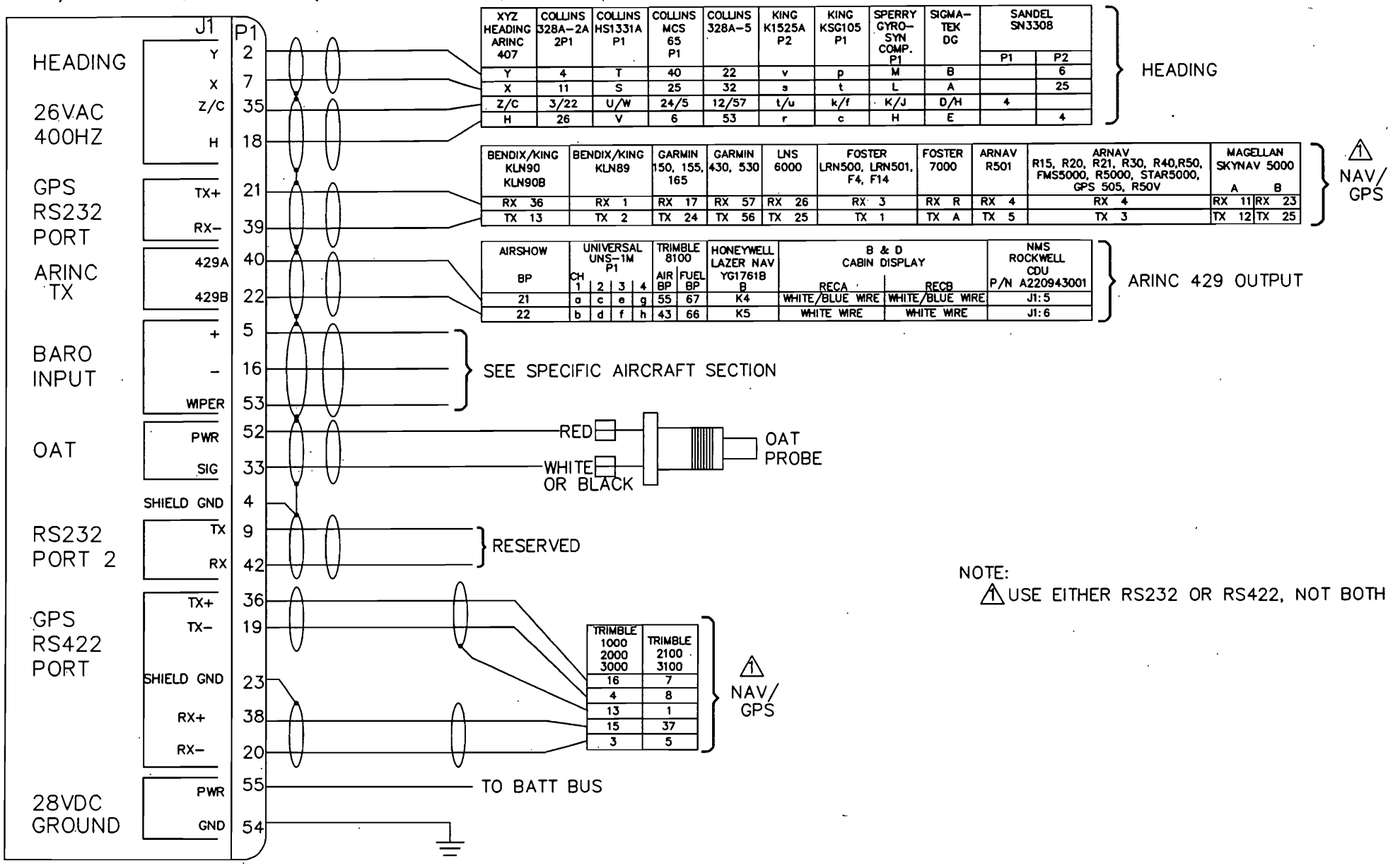
DRAWING DATE	10/21/97
DRAFTSMAN	DLR
APPROVED	PG
FILE NAME	962830A-3-S-4A1.DWG
DIRECTORY	962830A-X-S-4
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION, ADC2000
MS CONN, DC FF QUICK START

DRAWING NO.	SIZE	P/N	REV.
4028-873	A	962830A-3-S-4	A

P/N 962830A-Y-S-4 (Y=X, 1, 2, 3, 4); 962830A-1-S-7



XYZ HEADING ARINC 407	COLLINS 328A-2A 2P1	COLLINS HS1331A P1	COLLINS MCS 65 P1	COLLINS 328A-5	KING K1525A P2	KING KSG105 P1	SPERRY GYRO-SYN COMP. P1	SIGMA-TEK DG	SANDEL SN3308 P1	SANDEL SN3308 P2
Y	4	T	40	22	v	p	M	B		6
X	11	S	25	32	s	t	L	A		25
Z/C	3/22	U/W	24/5	12/57	t/u	k/f	K/J	D/H	4	
H	26	V	6	53	r	c	H	E		4

BENDIX/KING KLN90 KLN90B	BENDIX/KING KLN89	GARMIN 150, 155, 165	GARMIN 430, 530	LNS 6000	FOSTER LRN500, LRN501, F4, F14	FOSTER 7000	ARNAV R501	ARNAV R15, R20, R21, R30, R40,R50, FMS5000, R5000, STAR5000, GPS 505, R50V	MAGELLAN SKYNAV 5000 A	MAGELLAN SKYNAV 5000 B
RX 36	RX 1	RX 17	RX 57	RX 26	RX 3	RX R	RX 4	RX 4	RX 11	RX 23
TX 13	TX 2	TX 24	TX 56	TX 25	TX 1	TX A	TX 5	TX 3	TX 12	TX 25

AIRSHOW BP	UNIVERSAL UNS-1M P1 CH 1	2	3	4	TRIMBLE 8100 AIR BP	TRIMBLE 8100 FUEL BP	HONEYWELL LAZER NAV YG1761B B	B & D CABIN DISPLAY RECA	B & D CABIN DISPLAY RECB	NMS ROCKWELL CDU P/N A220943001
21	a	c	e	g	55	67	K4	WHITE/BLUE WIRE	WHITE/BLUE WIRE	J1:5
22	b	d	f	h	43	66	K5	WHITE WIRE	WHITE WIRE	J1:6

TRIMBLE 1000 2000 3000	TRIMBLE 2100 3100
16	7
4	8
13	1
15	37
3	5

NOTE:
1. USE EITHER RS232 OR RS422, NOT BOTH

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0103/012	B	3/[redacted]	PAB	EDJ	ADDED P/N 962830A-1-S-7
0009/012	A	9/[redacted]	PAB	EDJ	ADD GARMIN 430/530 GPS AND SANDEL HDG SOURCE
9710/028	-	10/[redacted]	DLR	PG	BASELINE RELEASE

DO NOT SCALE DRAWING

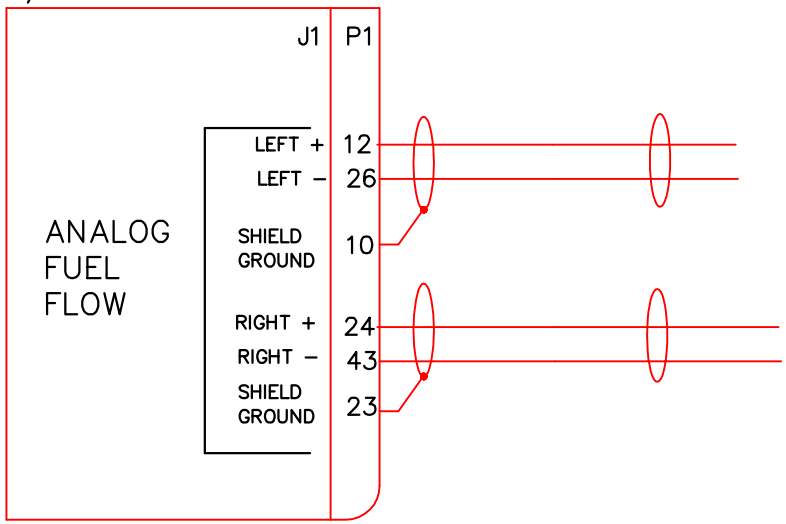
DRAWING DATE 10/21/97
DRAFTSMAN DLR
APPROVED PG
FILE NAME 4028-874BJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

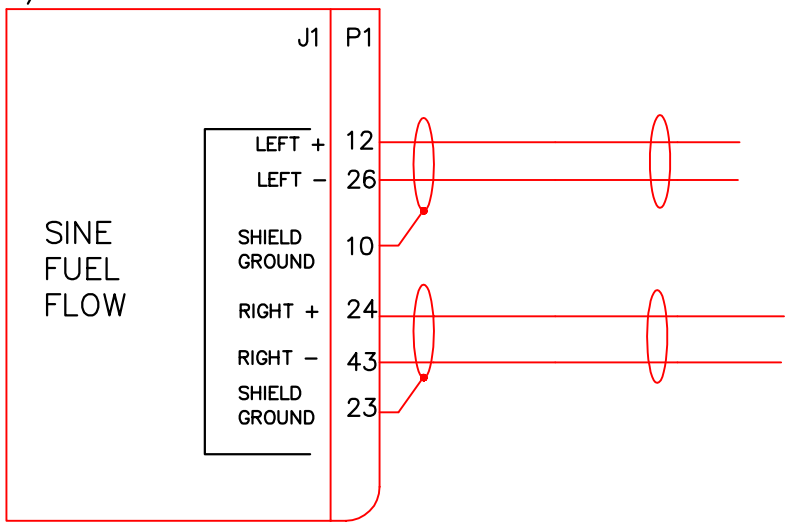
INSTALLATION WIRING, ADC 2000 TO COMM/PWR/BARO/ OAT/HEADING, QUICK START

DRAWING NO. 4028-874 | SIZE A | P/N [redacted] | REV B

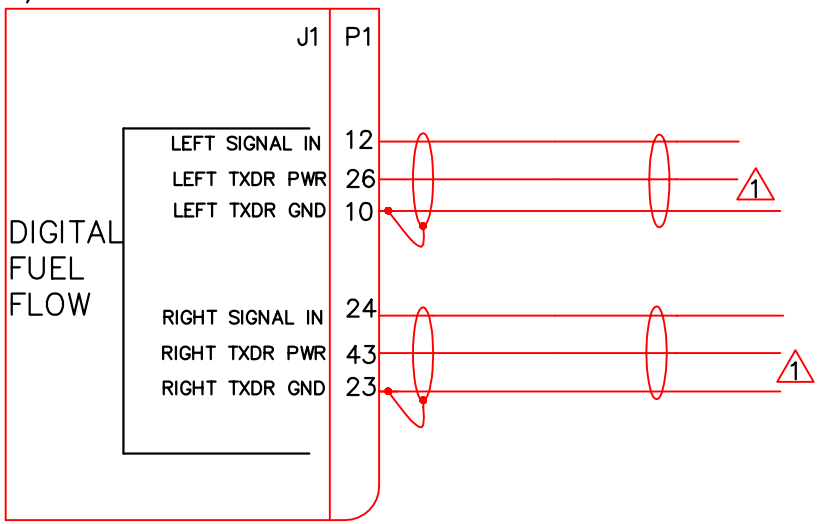
P/N 962831A-3-S-8
P/N 962830A-3-S-8
P/N 962830A-3-S-4



P/N 962831A-2-S-8
P/N 962830A-2-S-8
P/N 962830A-2-S-4



P/N 962831A-1-S-8
P/N 962830A-1-S-8
P/N 962830A-1-S-9
P/N 962830A-1-S-7
P/N 962830A-1-S-4



NOTE

1 DO NOT CONNECT J1/P1:26 OR J1/P1:43 WHEN INTERFACING WITH EXISTING FUEL FLOW SYSTEM.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	C	5/2/05	CB	EDJ	ADDED P/N 962831A-1-S-8, -2-S-8, & -3-S-8
0304/037	B	4/23/03	PAB	EDJ	ADDED P/NS 962830A-1-S-9, 962830A-1-S-8, -2-S-8, & -3-S-8
0103/012	A	3/19/01	PAB	EDJ	ADDED P/N 962830A-1-S-7
9710/028	-	10/22/97	DLR	KCL	BASELINE RELEASE

DO NOT SCALE DRAWING

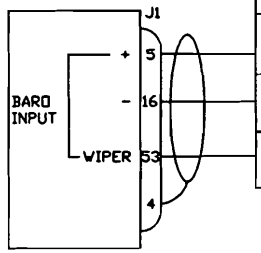
DRAWING DATE 10/21/97
DRAFTSMAN DLR
APPROVED KCL
FILE NAME 4028-875CJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, ADC 2000 QUICKSTART DIGITAL, SINE, AND DC FUEL FLOW

DRAWING NO. 4028-875
SIZE A
P/N
REV C

P/N 962830A-1-S-7
P/N 962830A-Y-S-4
Y = X, 1, 2, 3



IDC ⚠1 44929-935	BENDIX/KING ⚠2 KEA130A, 346 -08 TO -11		IDC ⚠1 28007-429	IDC ⚠1 28704-A1001, -A2001, -A4001, -B4001, -C4001, -D1001, -D2001, -D4001, -E2101, -F2101, -495	IDC ⚠1 28711-621, -622, -623, -624	IDC ⚠1 28711-500, -600 SERIES	IDC ⚠1 28007-433	SPERRY ⚠3 BA141	IDC ⚠1 28711-065, -066	AEROSONIC ⚠1 102220-1188	IDC KTS B45152 10 410
	130A	346									
W	J2:A	S	a	d	T	T	a	X	g	L	V
U	J2:C	Z	c	f	V	V	c	Z	j	$\overline{b}$	U
V	J2:B	Y	b	e	U	U	b	Y	h	J	W

NOTES:

⚠1 EXCITATION VOLTAGE USUALLY SUPPLIED BY AIRCRAFT HARNESS (5-12 VDC), J1:5 TO EXCITATION, J1:16 TO GND.

⚠2 EXCITATION VOLTAGE MAY BE SUPPLIED BY AIRCRAFT HARNESS (5 VDC), J1:5 TO EXCITATION, J1:16 TO GND.

⚠3 EXCITATION VOLTAGE SUPPLIED BY AIRCRAFT HARNESS (-10VDC) J1:16 TO EXCITATION, J1:5 TO GND.

4. J1:52 (+5VDC OAT POWER) MAY BE USED FOR EXCITATION.

5. MAXIMUM DIFFERENTIAL INPUT VOLTAGE BETWEEN BARO (+) AND BARO (-) IS ±12VDC.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0103/012	C	3/19/01	PAB	EDJ	ADDED P/N 962830A-1-S-7
0011/004	B	11/[illegible]	PAB	KCL	KEA 346 WAS "J2:A, J2:C, & J2:B" RESPECTIVELY; ADD IDC P/N "KTS B45152 [illegible]10"
0007/031	A	7/[illegible]	PAB	RH	"Y" IN SPERRY LABEL WAS "V"
9808/034	-	8/[illegible]	PAB	KCL	BASELINE RELEASE

SCALE: NONE

DRAWING DATE 8/20/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A44CJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

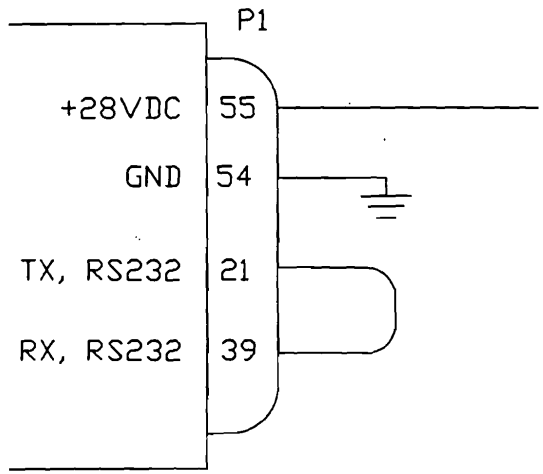
SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, ADC 2000, MS CONN, QS TO ALTIMETER BARO POT

DRAWING NO. 4028-A44 | SIZE A | P/N-[illegible]-- | REV C

NOTE:

1. CONSULT INSTALLATION MANUAL FOR F/ADC PROGRAMMING INSTRUCTIONS.
2. MATING CONNECTOR: MS 24266R22B55S SHADIN PN 233272 OR EQUIVALENT



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9809/022	-	9/28/98	DLR	KCL	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE 9/14/98
DRAFTER DLR
APPROVED KCL
FILE NAME 4028-A62-J.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, LOOP
BACK HARNESS FOR F/ADC 200, 2000,
MS CONNECTOR

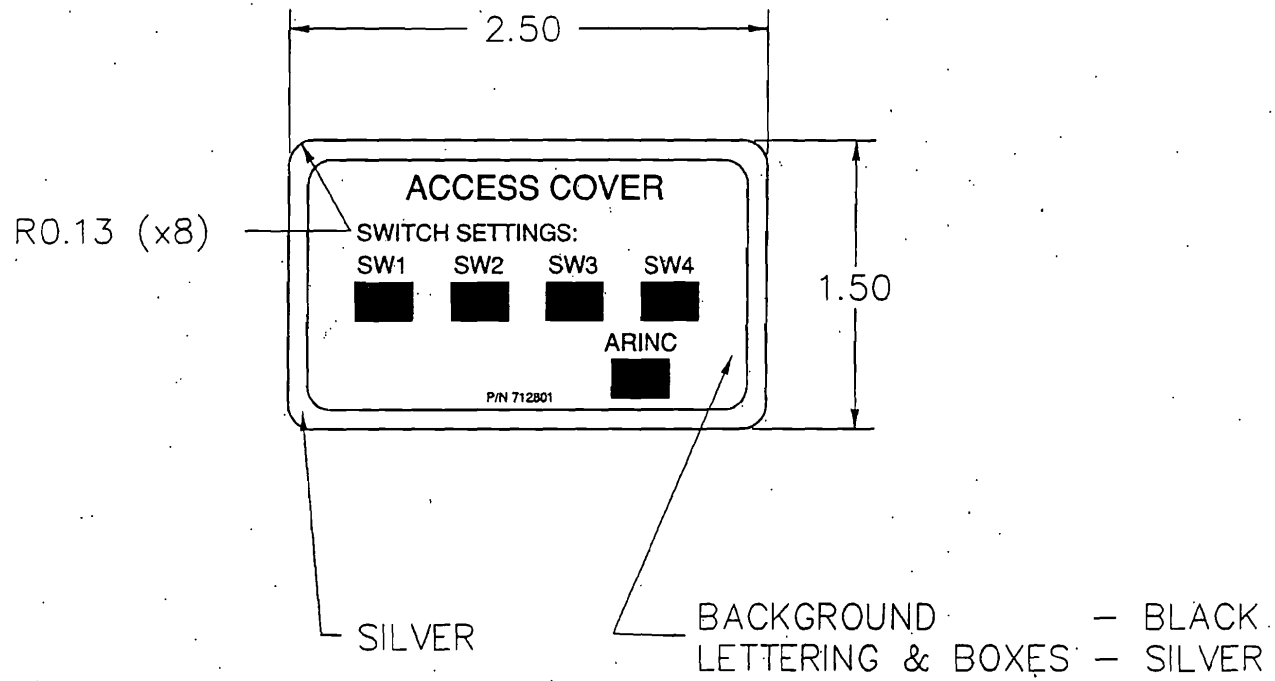
DRAWING NO. 4028-A62 | SIZE A | P/N ——— | REV —

MANUFACTURING NOTES:

1. MATCH FONT STYLE AND SIZES. ALL OTHER DIMENSIONS AS SHOWN.
2. SWITCH SETTING BOX DIMENSIONS ARE AS FOLLOWS:
   WIDTH = .295
   HEIGHT = .200

APPLICATION NOTES:

A. IF CONFIGURATION IS NECESSARY PRINT SWITCH SETTINGS IN SPACE PROVIDED. PRINT "N/A" WHEN SWITCHES ARE NOT USED. (MANUFACTURER IGNORE)



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
01/032	A	[illegible]	PAB	[illegible]	UPDATED TITLE BLOCK
12/002	–	12/3/	PAB	KCL	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: X.X – ±0.1
X.XX – ±0.01
X.XXX – ±0.005

FINISH: N/A

MATERIAL: 3M 7983

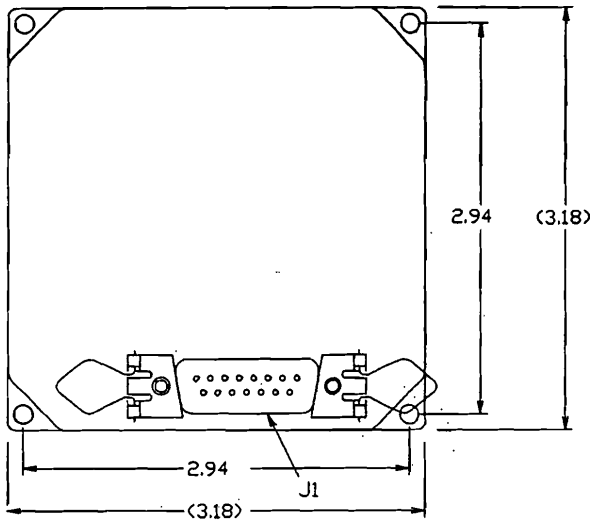
SCALE: FULL

DRAWING DATE 12/2/98
DRAFTER PAB
APPROVED KCL
FILE NAME 712801A.DWG
DIRECTORY 71XXXX
SHEET 1 OF 1

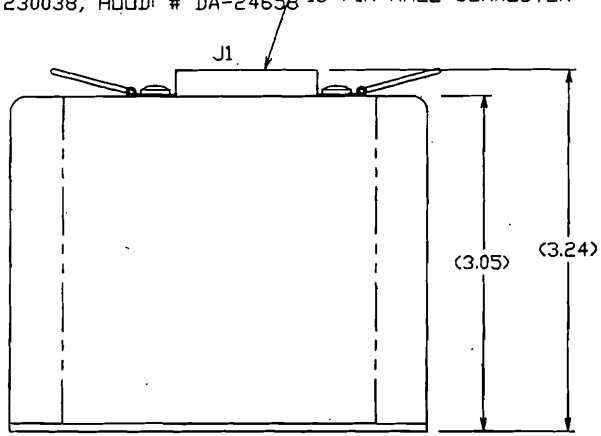
SHADIN MINNEAPOLIS, MN 55428

LABEL, ADC200/2000 ACCESS COVE[illegible]

DRAWING NO. 4028-A80 | SIZE A | P/N712801 | REV A



MATING CONNECTOR:
SHADIN P/N 230036, 17-DA15S
SHADIN P/N 230038, HOOD: # DA-24658



SELECTOR TABLE
RS232 RX : TIE J1:7 TO J1:1
RS422 RX : DEFAULT (NO JUMPER REQ'D)
SINGLE ENGINE : J1:7 TO J1:2
TWIN ENGINE : DEFAULT (NO JUMPER REQ'D)

WEIGHT: 8 oz.
POWER CONSUMPTION:
210 ma. @ 28v DC

1. THE CONVERTER CAN BE MOUNTED IN ANY ORIENTATION
2. 4" SPACING IS REQUIRED ABOVE CONNECTOR
3. NO COOLING IS REQUIRED
4. THE CONVERTER CAN BE INSTALLED IN A PRESSURIZED OR NON-PRESSURIZED AREA, PROVIDING TEMPERATURE DOES NOT DROP BELOW -20°C
5. 1 AMP CIRCUIT BREAKER IS REQUIRED
6. NO SHOCK MOUNT REQUIRED
7. USE HARDWARE PROVIDED IN INSTALL KIT P/N IK9337 TO ASSEMBLE MATING CONNECTOR.

CONNECTOR KEY

PIN	FUNCTION	
1	RS232 OR RS422 SELECT	SEE SELECTOR TABLE
2	TWIN OR SINGLE ENGINE SELECT	
3	N.C.	
4	N.C.	
5	N.C.	
6	N.C.	
7	SELECT POWER (OUTPUT)	
8	+14 TO 28 V DC POWER IN	
9	N.C.	
10	SIGNAL GROUND	
11	RS422 RX+	FROM SHADIN ADC (USE RS-232 OR RS-422, NOT BOTH)
12	RS422 RX-	
13	RS232 RX	
14	RS232 TX, TO ARGUS 5000/7000	
15	POWER GND	

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0501/032	B	5/19/98	PAB	PG	UPDATED TITLE BLOCK; "CONVERTER" WAS "TXMTR"
9801/025	A	10/12/98	DMD	PG	ADDED NOTE 7, CORRECTED HEIGHT, PROVIDED SHADIN P/N FOR MATING CONN.
9707/023	-	7/15/97	PAB	PG	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: X.X = ±0.1, X.XX = ±0.01
FINISH: N/A
MATERIAL: N/A
SCALE: NONE

DRAWING DATE 7/14/97
DRAFTER PAB
APPROVED PG
FILE NAME 937000-03B.DWG
DIRECTORY 937000-03
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION, SERIAL TO ARGUS 5000/7000 CONVERTER

DRAWING NO. 4070-005 | SIZE A | P/N 937000-03 | REV B

PARTS LIST

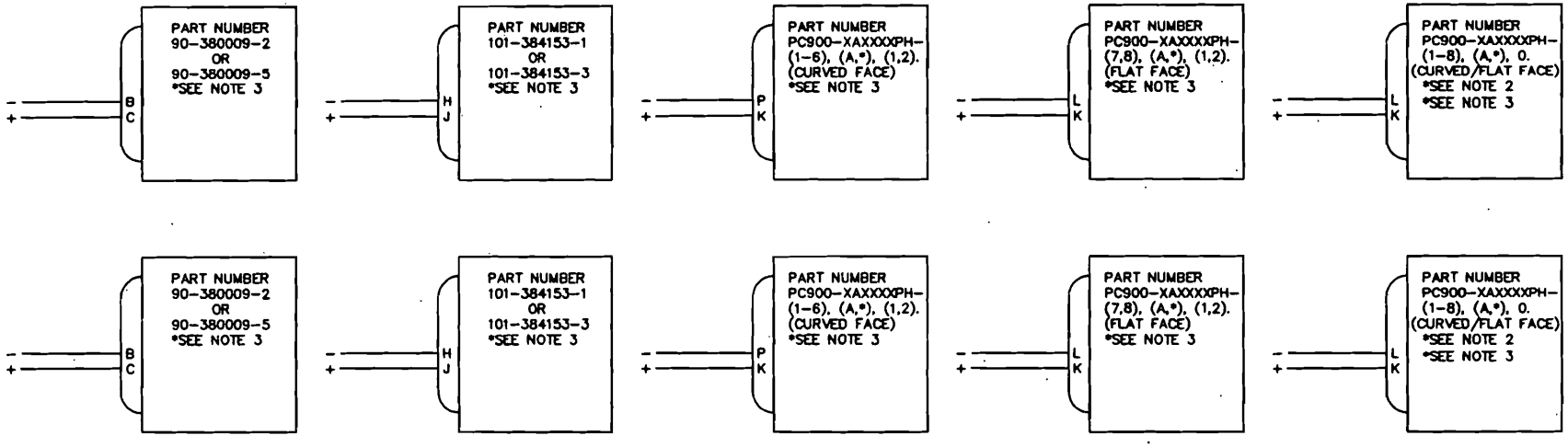
Part #: **IK9630A-1**

Drawing #s: N/A

Description: **INSTALL KIT, ADC2000 MS CONN/NO OAT**

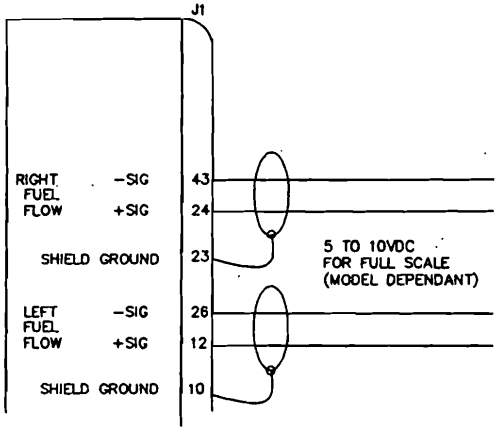
FN	P/N	QTY.	DESCRIPTION	MFG.	MFG.#	DESIGNATION	COMMENTS
5	233272	1	CONN, 55 Pin, St Plug, Socket, Blk	APH	MS24266R22B55SN		
10	233273	1	CONN, Clamp, Straight, #22, Blk	APH	MS27291-6		
15	612826A	1	TRAY, Mounting, ADC-2000	SHA	4028-T54		
15	612826	Alt	MOUNTING TRAY ASSEMBLY	SHA	4028-437		
17	753217	1	Thermal Label, 4"x 1"	ULI	S-8601		

4 items



D.C. FUEL FLOW OPTION

962830A-3-S-4



NOTES:

1. USE THIS DRAWING FOR F/ADC-200, P/N 962830A-3-S-4 ONLY.
2. CONTACT SHADIN CO. IF THIS INDICATOR IS INSTALLED.
3. K-FACTORS BROKEN DOWN BY BEECH INDICATOR PART NO.:

BEECH INDICATOR PART NUMBER	K-FACTOR /OFFSET	SW1	SW2	SW3	SW4
90-380009-2	77,000 / 416	0	0	0	1
90-380009-5	77,000 / 416	0	0	0	1
101-384153-(1,3)	30,770 / 0	0	5	0	0
PC900-1A0600-XXX	38,460 / 0	0	4	0	0
PC900-1A0750-XXX	30,770 / 0	0	5	0	0
PC900-1A0800-XXX	28,850 / 0	0	6	0	0

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9803/022	A	3/26/98	SRB	KCL	FOR P/N 90-380009-5, CHANGED NOTE 3 FROM 26150/875. OLD FILE NAME 4028-876.DWG
9710/028	-	10-22-97	DLR	KCL	BASELINE RELEASE

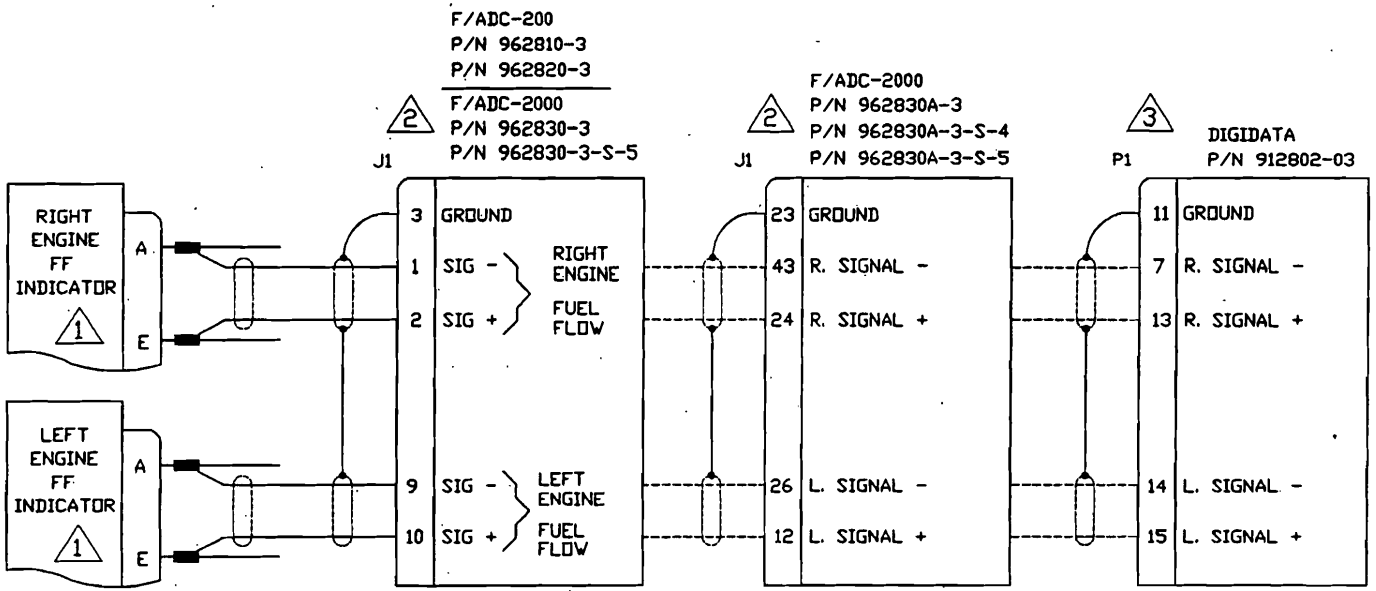
SCALE: NONE

DRAWING DATE 10/21/97
DRAFTSMAN DLR
APPROVED KCL
FILE NAME 4028-876AJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 W/ ANALOG F.F. TO BEECH KING AIR INDICATORS

DRAWING NO. 4028-876 | SIZE A | P/N ——— | REV A



RAGEN P/N 3265013-0601

	J1
FLOW SIGNAL FROM FLOWMETER	E
FLOW SIGNAL TO TOTALIZER	G
INTERNAL TEST POINT	J
+28 VDC INPUT	B
REF SUPPLY TO TOTALIZER	F
REF SUPPLY TO FLOWMETER	C
28 VDC RETURN	A
INTERNAL TEST POINT	D
SIGNAL RETURN TO TOTALIZER	H
CASE GROUND	K

RAGEN P/N 3265013-0801

	J1
FLOW SIGNAL FROM FLOWMETER	E
FLOW SIGNAL TO TOTALIZER	G
ALT FLOW SIGNAL TO TOTALIZER	J
+28 VDC INPUT	B
REF SUPPLY TO TOTALIZER	F
REF SUPPLY TO FLOWMETER	C
28 VDC RETURN	A
SIGNAL RETURN FROM FLOWMETER	D
SIGNAL RETURN TO TOTALIZER	H
CASE GROUND	K

RAGEN P/N 3265013-1201

	J1
FLOW SIGNAL FROM FLOWMETER	E
FLOW SIGNAL TO TOTALIZER	G
ALT FLOW SIGNAL TO TOTALIZER	J
+28 VDC INPUT	B
REF SUPPLY TO TOTALIZER	F
REF SUPPLY TO FLOWMETER	C
28 VDC RETURN	A
SIGNAL RETURN FROM FLOWMETER	D
SIGNAL RETURN TO TOTALIZER	H
CASE GROUND	K

NOTES:

1. FOR AIRCRAFT WITH THE FOLLOWING INDICATOR/TRANSMITTERS; SEE TABLE FOR INDICATOR WIRING.
   INDICATOR PART NO. (RAGEN) 3265013-0601 w/TRANSMITTER PART NO. (RAGEN) 3268011-0101.
   INDICATOR PART NO. (RAGEN) 3265013-0801 + 3265013-1201 w/TRANSMITTER PART NO. (RAGEN) TFF-2905-9 OR PIPER P/N 489-487.
2. SET AIRDATA SWITCHES AS FOLLOWS; SW1 = 1, SW2 = 1, SW3 = 0, SW4 = 0.
3. PROGRAM DIGIDATA FOR LEFT K-FACTOR = RIGHT K-FACTOR = 46,160
   PPG, LEFT OFFSET = RIGHT OFFSET = 0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0501/006	C	1/17/05	PAB	[illegible]	ADD IND 3265013-0801, & RAGEN P/N TABLES
0001/016	B	1/31/00	LJM	EDJ	ADD IND 3265013-1201, XMTR TFF-2905-9 TO NOTE 1.
9901/015	A	1/20[illegible]	DMD	KCL	ADD P/NS 962830A-3-S-5, 962830-3-S-5
9808/012	-	8/7[illegible]	DMD	KCL	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE 8/7/98
DRAFTER DMD
APPROVED KCL
FILE NAME 4028-A29C.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

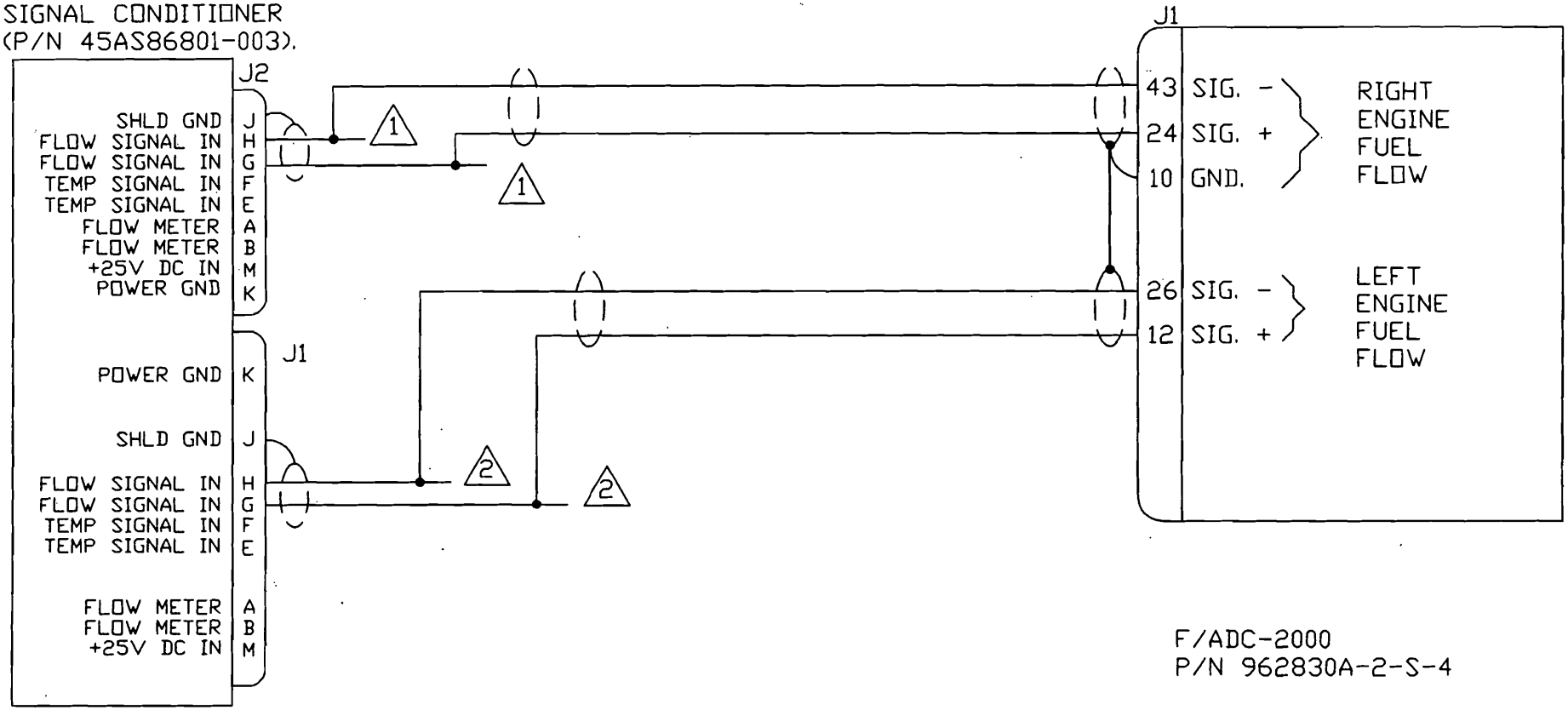
INSTALLATION WIRING, F/ADC-200, 2000 OR DIGIDATA WITH DC FF PIPER CHEYENNE PA31T

DRAWING NO. 4028-A29 | SIZE A | P/N -[illegible] | REV C

NOTES

1. FROM RIGHT ENGINE FF TRANSMITTER.
2. FROM LEFT ENGINE FF TRANSMITTER.
3. F/ADC SWITCH SETTINGS

AIRCRAFT'S FUEL FLOW SIGNAL CONDITIONER (P/N 45AS86801-003).



F/ADC-2000
P/N 962830A-2-S-4

3

SIG COND. P/N	K-FACTOR	SW1	SW2	SW3	SW4
45AS86801-003	5150 PPG	6	E	6	E

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

DO NOT SCALE

DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A31-J.DWG
DIRECTORY 4028
SHEET 1 OF 1

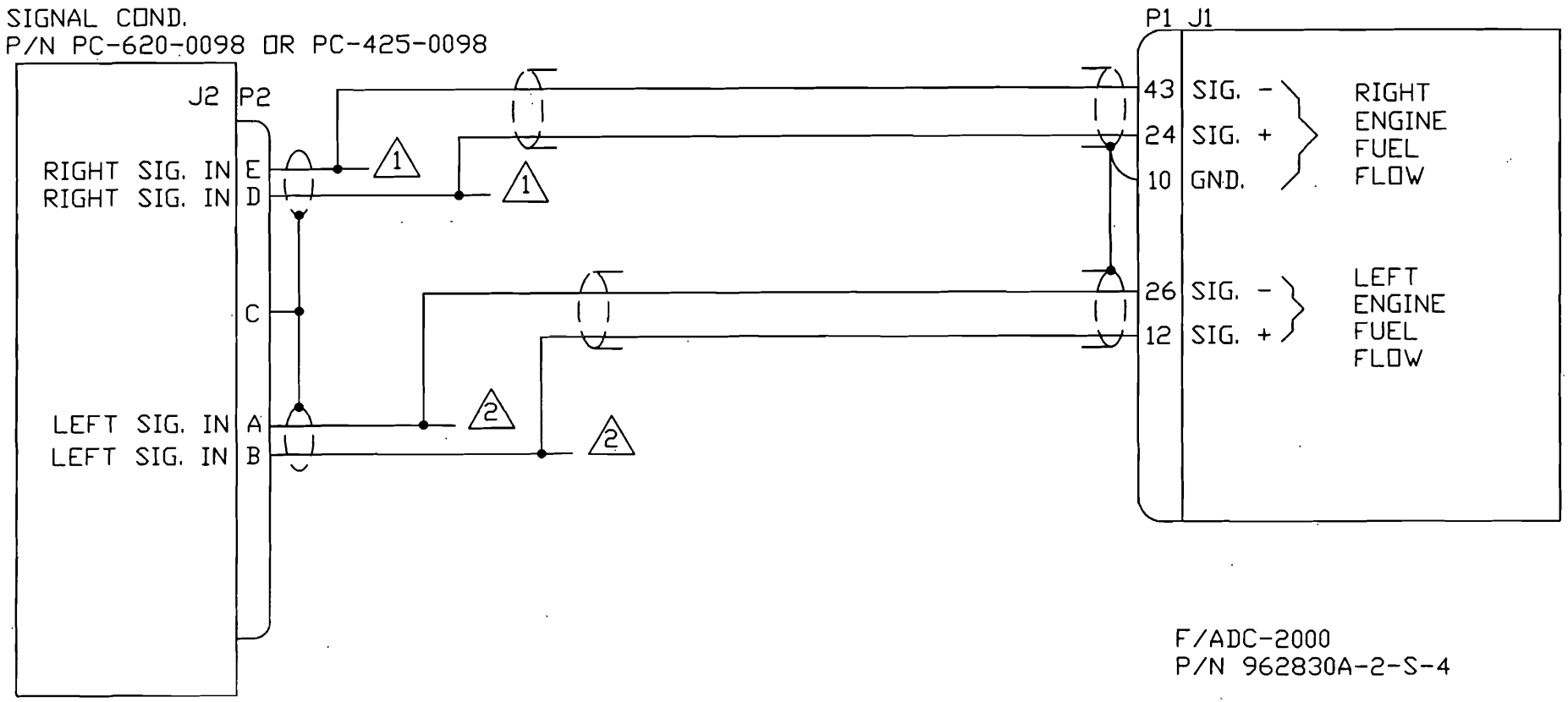
SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN, SINE FF TO MITSUBISHI MU-300 AND MODEL 400 BEECHJET.

DRAWING NO. 4028-A31 | SIZE A | P/N ——— | REV —

NOTES

1. FROM RIGHT ENGINE FF TRANSMITTER.
2. FROM LEFT ENGINE FF TRANSMITTER.



SIG COND. P/N	K-FACTOR	SW1	SW2	SW3	SW4
PC-620-0098	33800	6	9	6	9

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0007/031	A	7/	PAB	RH	ADD "OR PC-425-0098"
9808/016	-	8/	PAB	KCL	BASELINE RELEASE

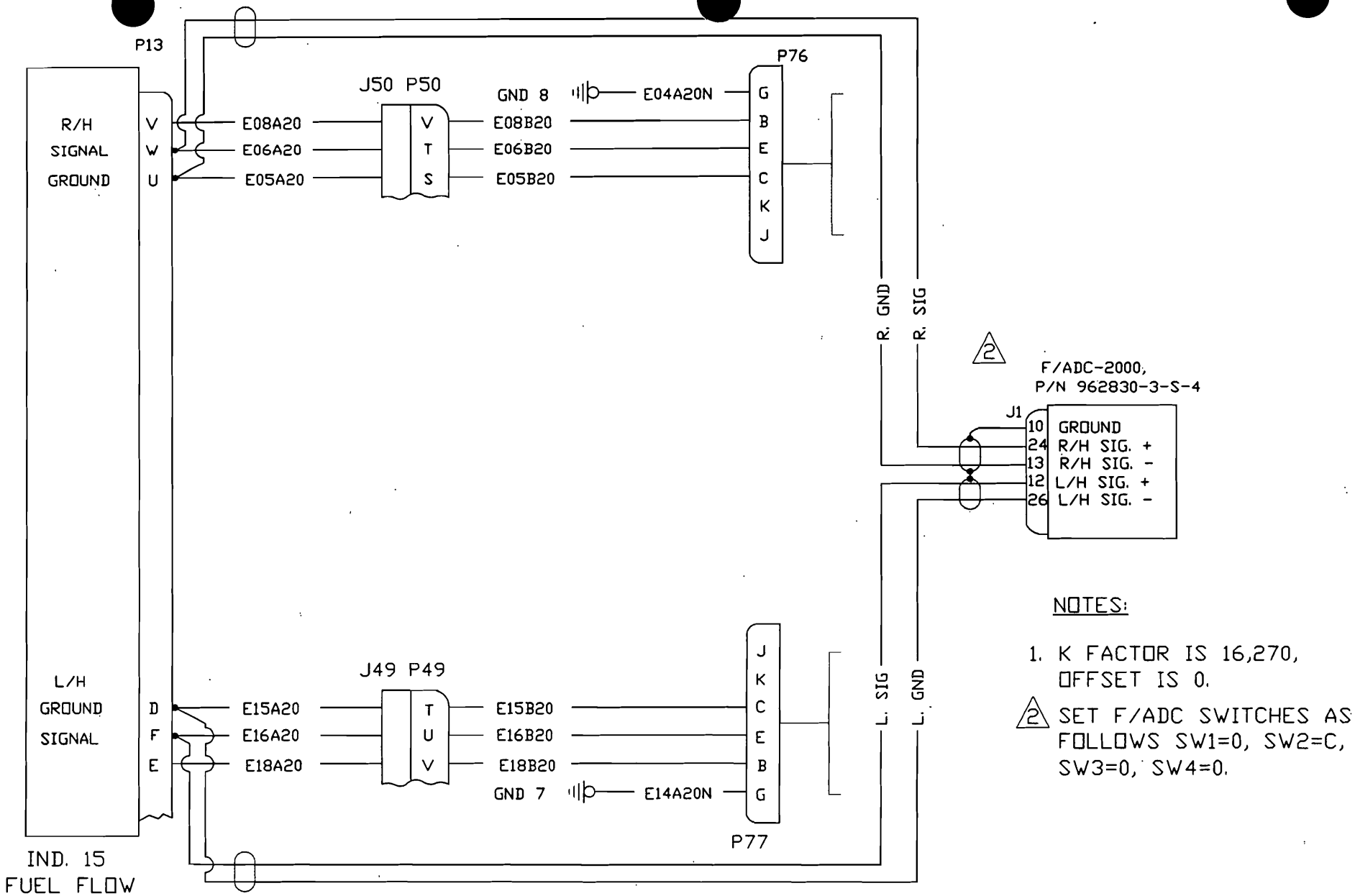
DO NOT SCALE

DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A32AJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING:
F/ADC 2000 TO MITSUBISHI MS CONN SINE FF,
MU-2 W/FOXBORO PC-[redacted]0 SYSTEM

DRAWING NO. 4028-A32 | SIZE A | P/N [redacted] | REV A



NOTES:

1. K FACTOR IS 16,270, OFFSET IS 0.
2. SET F/ADC SWITCHES AS FOLLOWS SW1=0, SW2=C, SW3=0, SW4=0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

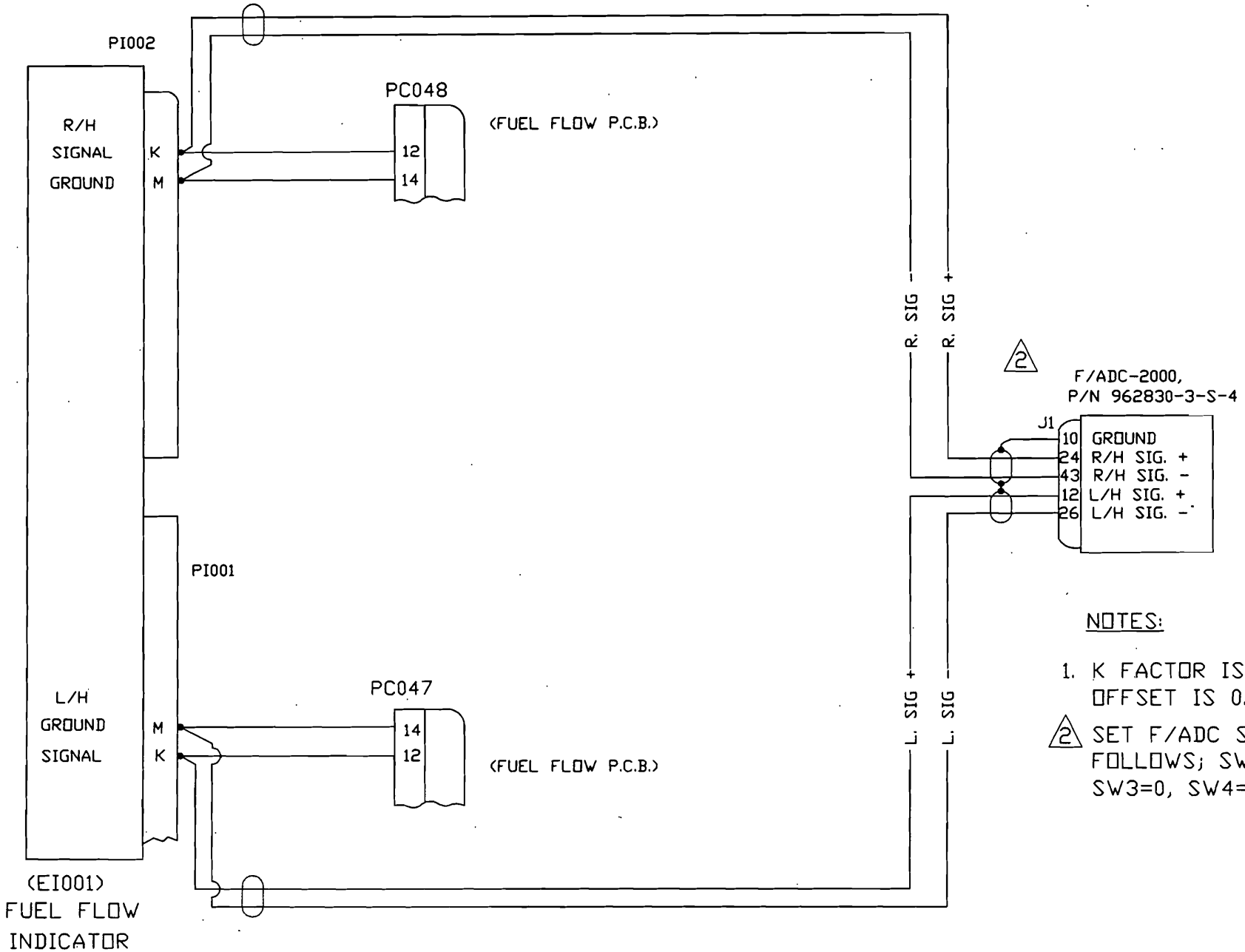
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A33-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000, MS CONN, WITH DC FF TO CESSNA CITATION 500, 501, 550, S550, 551, 552.

DRAWING NO.	SIZE	P/N	REV
4028-A33	A	———	—



NOTES:

1. K FACTOR IS 21,980 OFFSET IS 0.
2. SET F/ADC SWITCHES AS FOLLOWS; SW1=0, SW2=E, SW3=0, SW4=0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/1	PAB	KCL	BASELINE RELEASE

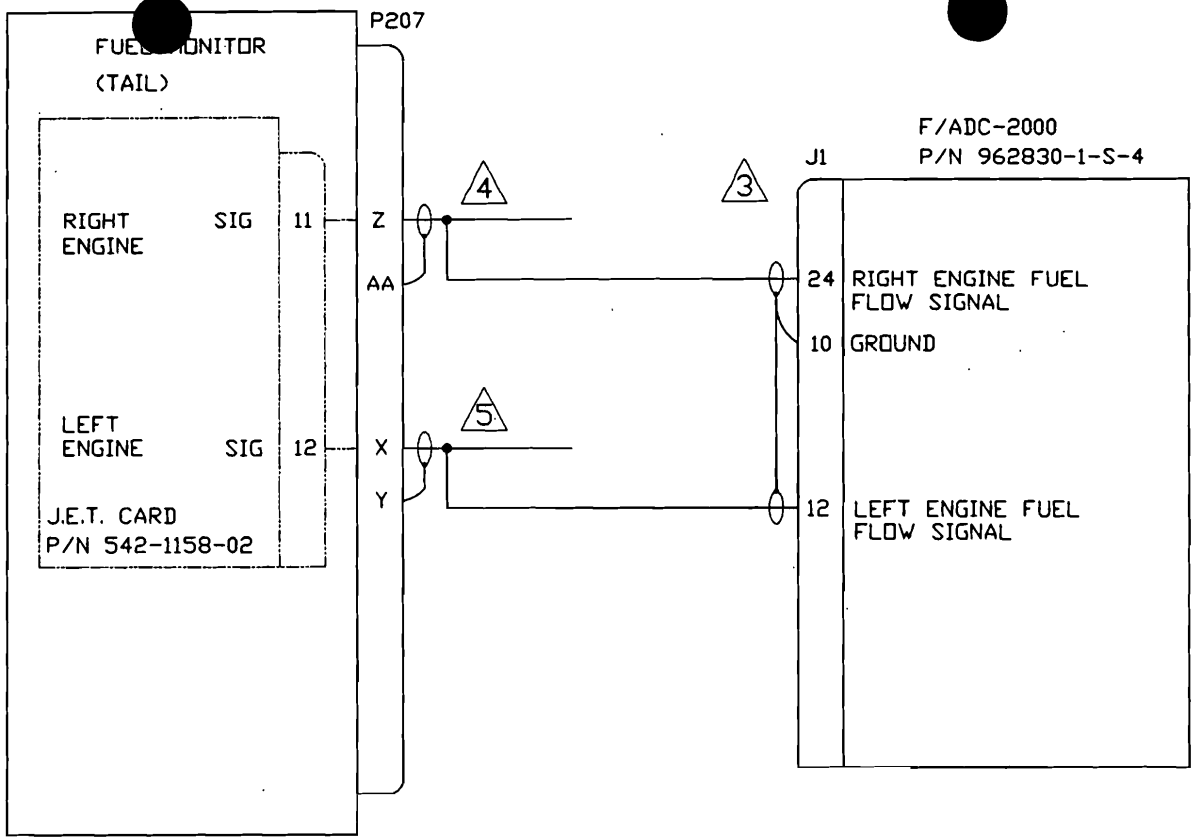
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A34-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN WITH DC FF TO CESSNA CITATION 525 JET

DRAWING NO.	SIZE	P/N	REV
4028-A34	A		-



NOTES:

1. THIS INSTALLATION APPLICABLE TO AIRCRAFT WITH J.E.T. FUEL MODULE PART NUMBER 542-1158-02 ONLY. J.E.T. MODULE NOS. 542-1158-01 MAY BE CHANGED TO 542-1158-02 BY J.E.T. SB542-1158-7A.
2. K-FACTOR IS 860.

△3 SET F/ADC SWITCHES AS FOLLOWS; SW1=D, SW2=D, SW3=D, SW4=D.

△4 J.E.T. CARD PIN 11 CORRESPONDS TO FUEL MONITOR PIN Z.

△5 J.E.T. CARD PIN 12 CORRESPONDS TO FUEL MONITOR PIN X.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

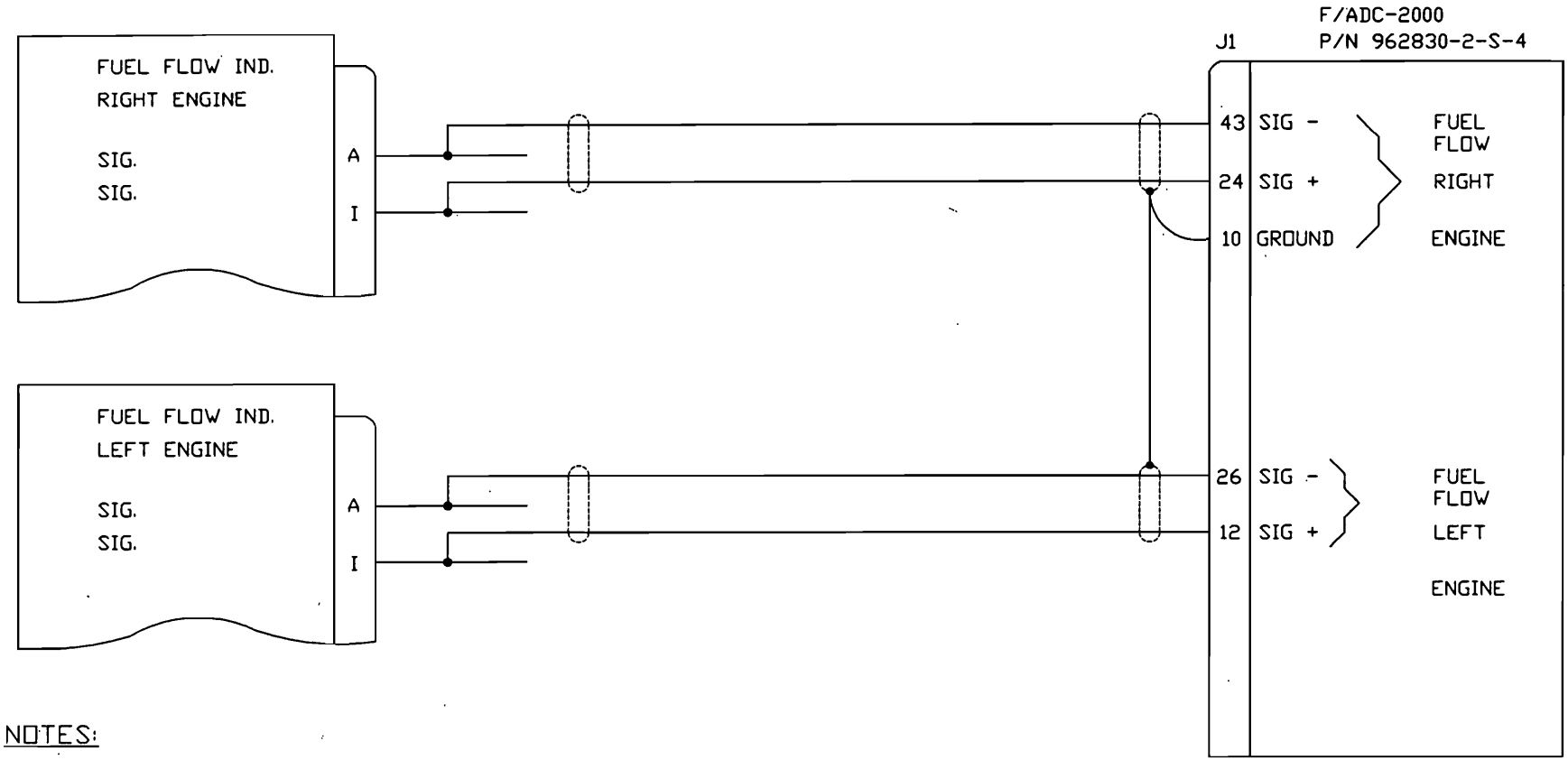
NOT TO SCALE

DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A35-J.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN WITH DIGITAL FF TO BOMBARDIER LEARJET 24, 25D.

DRAWING NO. 4028-A35 | SIZE A | P/N ——— | REV —



NOTES:

1. FOR AIRCRAFT WITH THE FOLLOWING INDICATORS/TRANSMITTERS;
   A. INDICATOR PART NOS. 850590-1, 850590-507, DSF1549 OR D5154-9.
   B. TRANSMITTER PART NOS. 850590-513, 850590-515, TFF2905-11 OR 151906-001.
2. K-FACTOR IS 27.6 (27,600 PPG).
3. SET F/ADC SWITCHES TO: SW1 = F, SW2 = 0, SW3 = F, SW4 = 0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/	PAB	KCL	BASELINE RELEASE

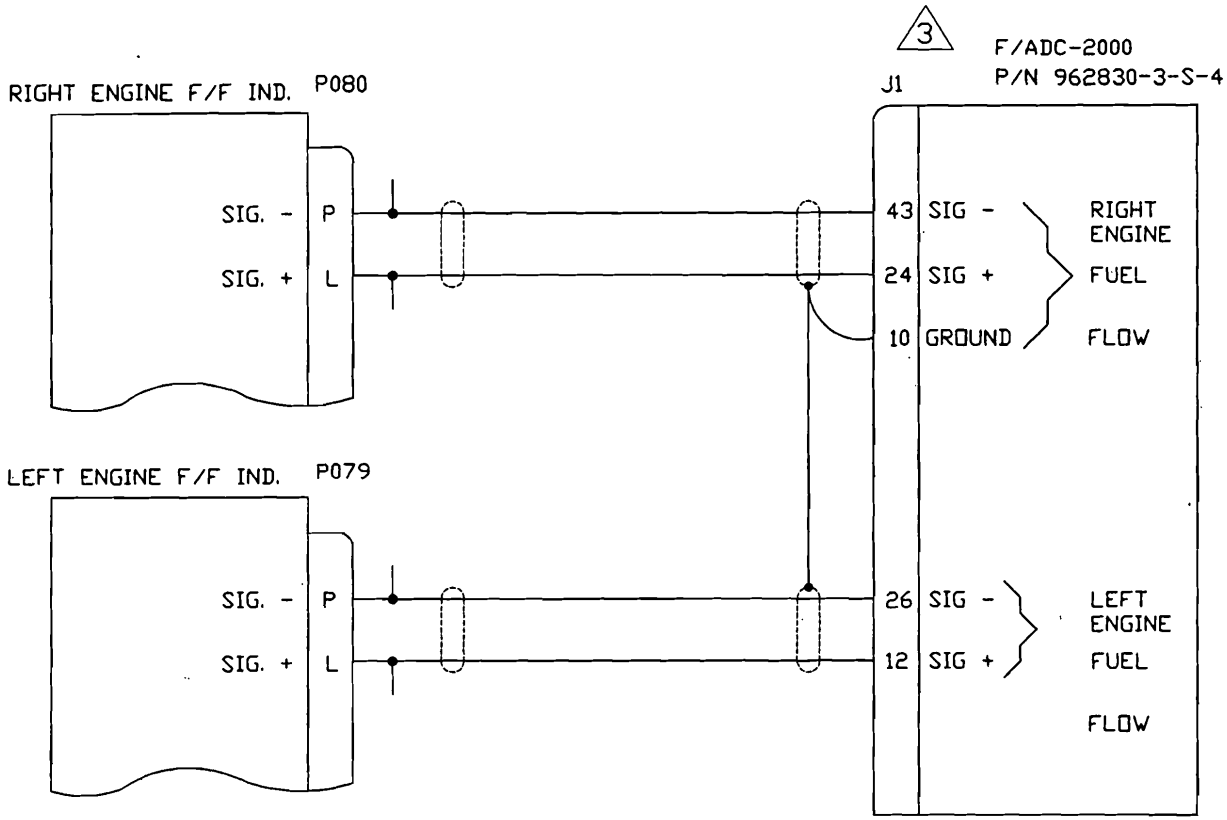
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A36-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN WITH SINE FF TO ROCKWELL COMMANDER 690 AND 695

DRAWING NO.	SIZE	P/N	REV
4028-A36	A	P/N ——	—



NOTES:

1. FOR AIRCRAFT SERIAL NOS. RK-45, RK-49 AND AFTER WITH FUEL INDICATOR PART NO. PC900-3B2000-PH1.
2. K-FACTOR IS 11.54 (11,540 PPG), OFFSET IS 0.
3. SET F/ADC SWITCHES TO: SW1 = 0, SW2 = 2, SW3 = 0, SW4 = 0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

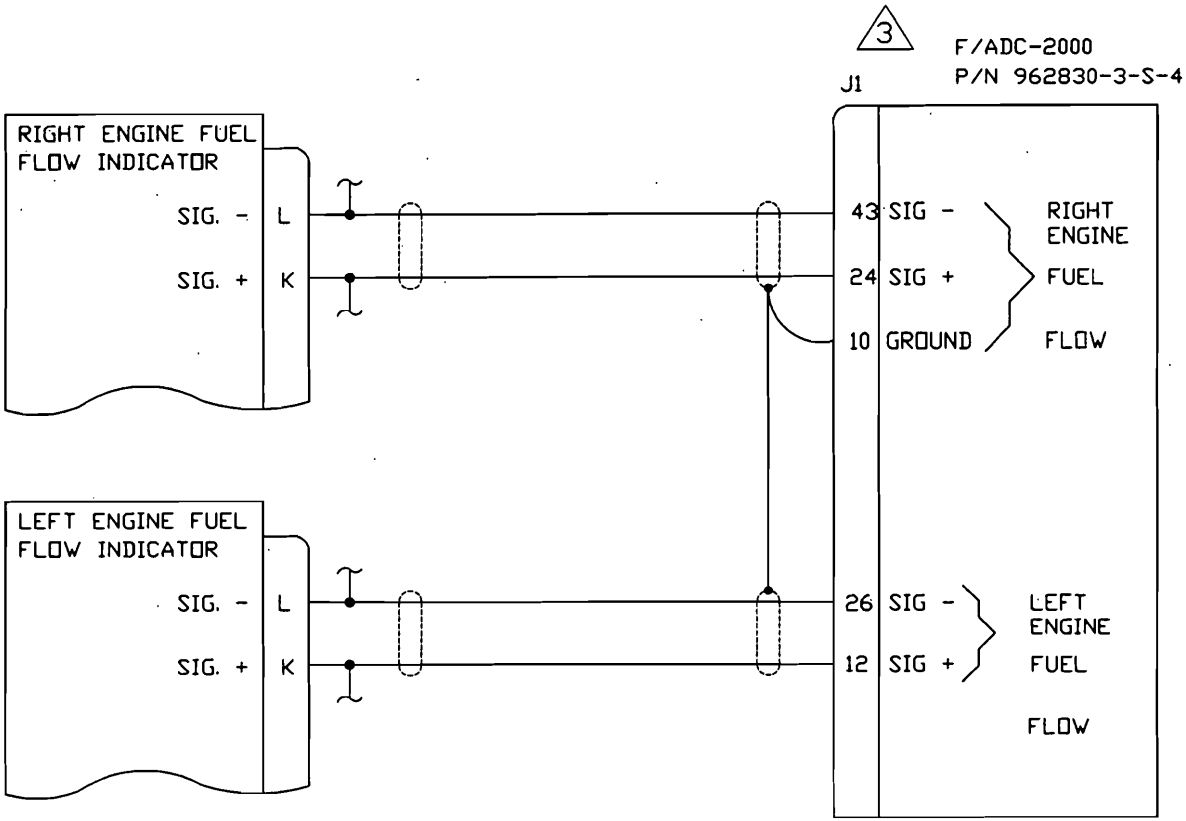
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A37-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN. 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN WITH DC FF TO RAYTHEON BEECHJET 400A AIRCRAFT.

DRAWING NO.	SIZE	P/N	REV
4028-A37	A	———	—



NOTES:

1. FOR AIRCRAFT WITH THE FOLLOWING INDICATOR/TRANSMITTERS;
   A. INDICATOR PART NO. (RAGEN) 1291-2
   B. TRANSMITTER PART NO. (GULL) 151-909-001
2. K-FACTOR IS 10.49 (10,490 PPG), OFFSET IS 0.
3. SET AIRDATA SWITCHES AS FOLLOWS; SW1 = 1, SW2 = 8, SW3 = 0, SW4 = 0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/1[illegible]	PAB	KCL	BASELINE RELEASE

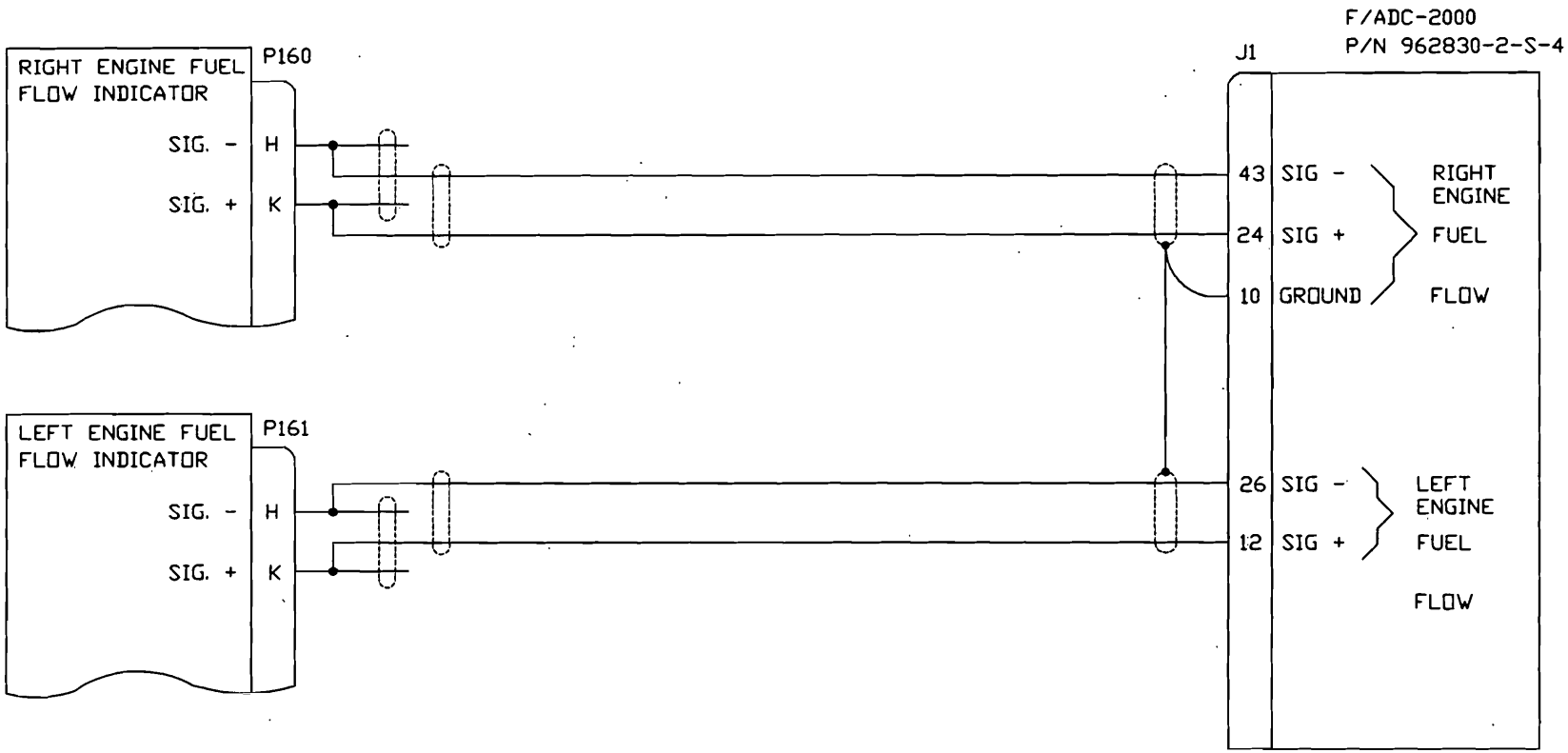
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A38-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN, WITH DC FF TO WESTWIND 1124 MODELS.

DRAWING NO.	SIZE	P/N	REV
4028-A38	A		—



NOTES:

1. FOR AIRCRAFT WITH FUEL FLOW INDICATOR PART NOS. DSF1549-2, -4, -5.
2. K-FACTOR IS 26.8 (26,800 PPG).
3. SET AIRDATA SWITCHES AS FOLLOWS; SW1 = C, SW2 = 7, SW3 = C, SW4 = 7.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

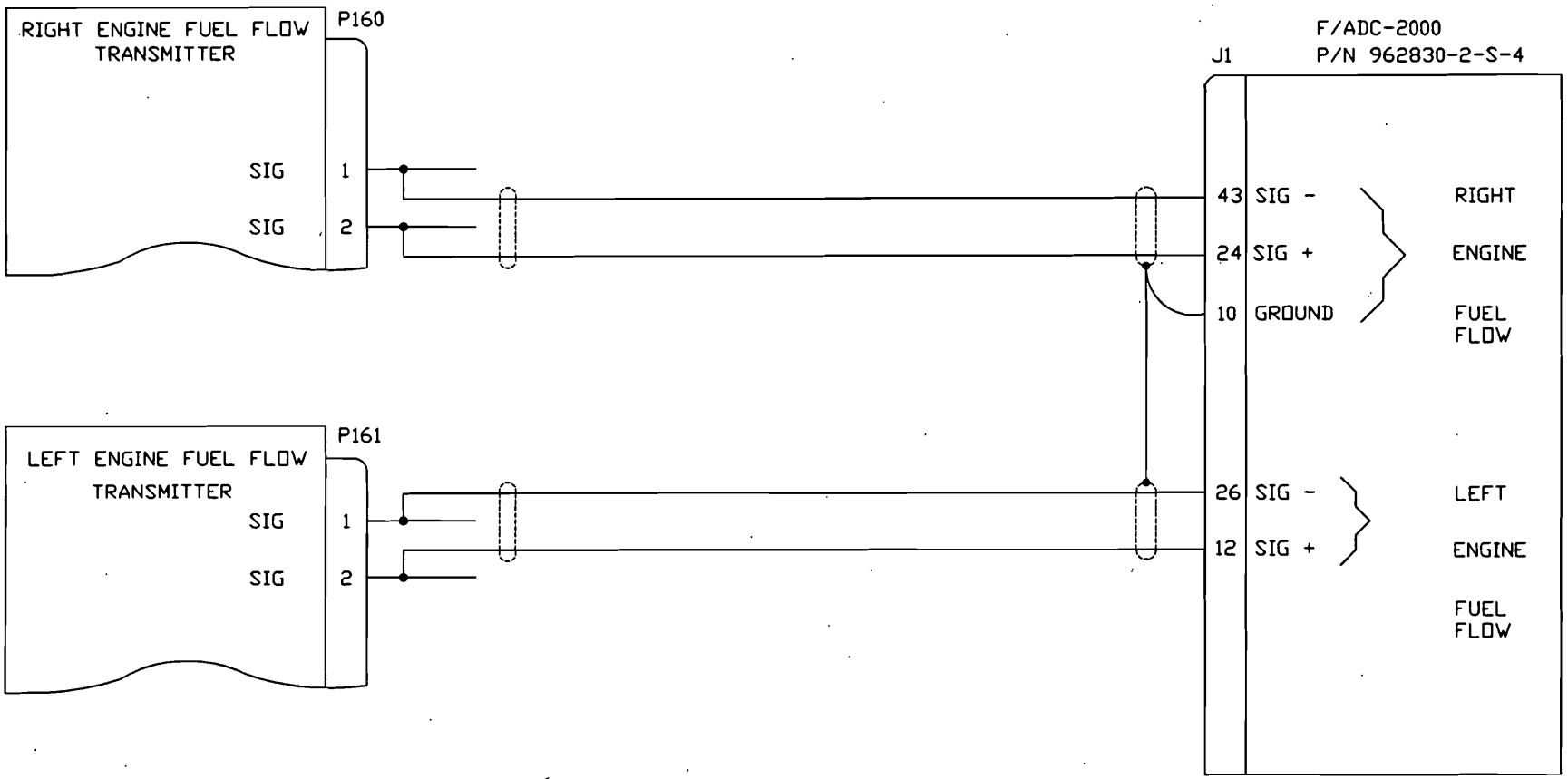
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A39-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN TO FAIRCHILD SA226 SERIES AIRCRAFT.

DRAWING NO.	SIZE	P/N	REV
4028-A39	A	———	—



NOTES:

1. FOR AIRCRAFT WITH FAURE-HERMAN FUEL FLOW TRANSMITTERS, PART NO. TN(A)S-1024-118.
2. CONFIGURE THE F/ADC FOR THE ALTERNATE DIGITAL K-FACTOR TABLE: MATRIX 1. K-FACTOR IS 3.88 (3,880 PPG).
3. SET AIRDATA SWITCHES AS FOLLOWS; SW1 = 0, SW2 = 7, SW3 = 0, SW4 = 7.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/	PAB	KCL	BASELINE RELEASE

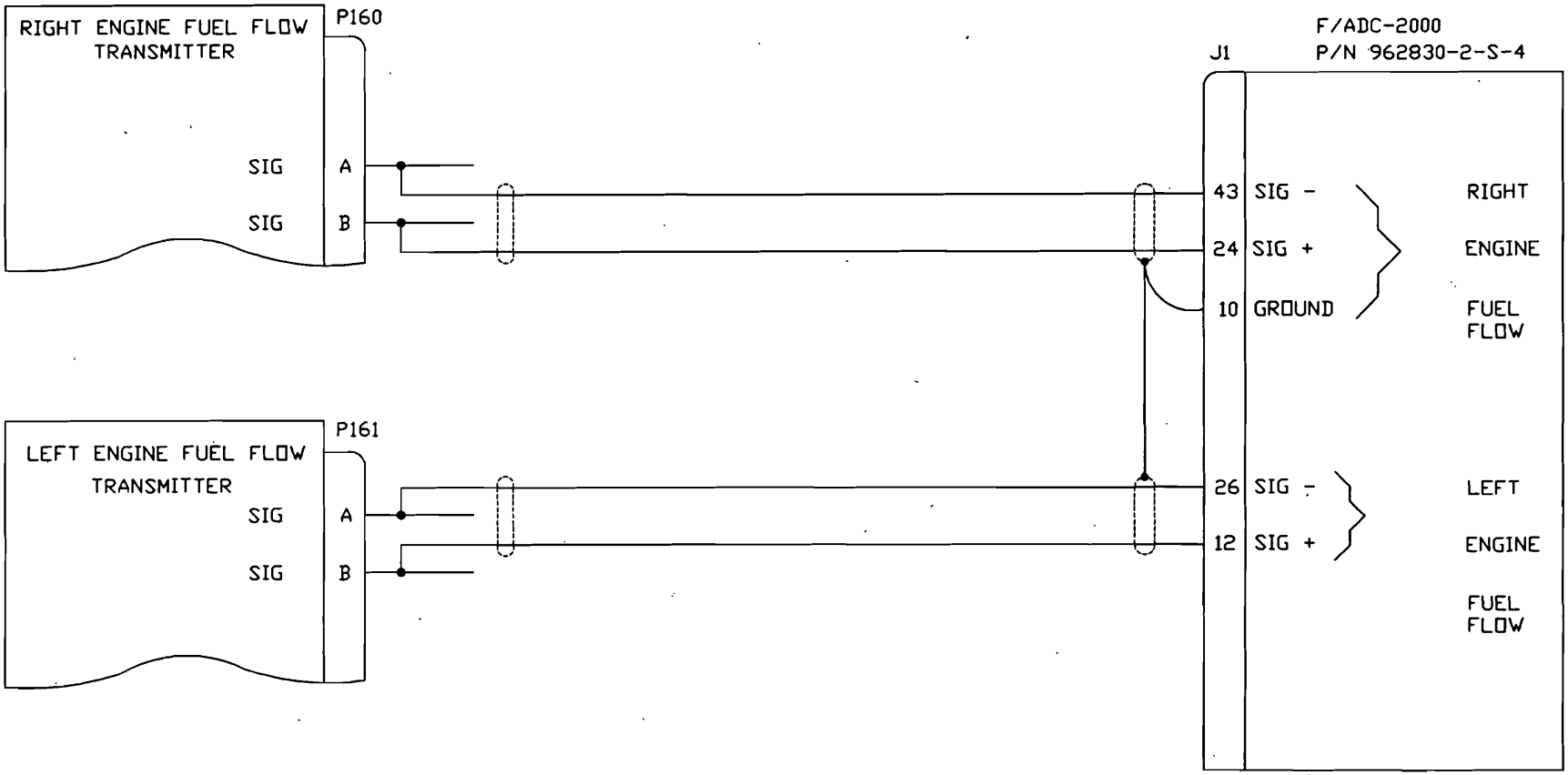
NOT TO SCALE

DRAWING DATE	8/14/98
DRAFTER	PAB
APPROVED	KCL
FILE NAME	4028-A40-J.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN TO AEROSPATIALE AS365N2 DAUPHIN.

DRAWING NO.	SIZE	P/N	REV
4028-A40	A		-



NOTES:

1. FOR AIRCRAFT WITH FAURE-HERMAN FUEL FLOW TRANSMITTERS, PART NO. TN(A)S-512-231-1.
2. CONFIGURE THE F/ADC FOR THE ALTERNATE DIGITAL K-FACTOR TABLE: MATRIX 1. K-FACTOR IS 1.94 (1,940 PPG).
3. SET AIRDATA SWITCHES TO; SW1 = 8, SW2 = 0, SW3 = 8, SW4 = 0.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

NOT TO SCALE

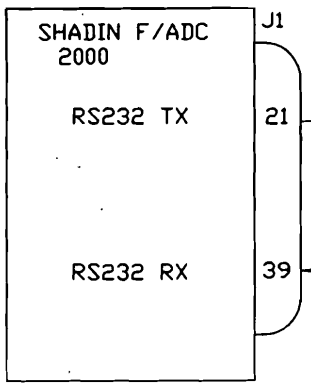
DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A41-J.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN TO AEROSPATIALE AS332 SUPER PUMA.

DRAWING NO. 4028-A41 | SIZE A | P/N ——— | REV —

962830A-Y-S-4 (Y = X, 1, 2, 3)
962830A-1-S-7



BENDIX/KING

KLN90;A,B	KLN89	KLN900
P901	P891	P9002
36	1	38
13	2	6

SHADIN FUEL FLOW METER

DIGIFLO-L P/N 91053XT	DIGIFLO-L P/N 91053XP	MINIFLO-L P/N 91204X	MICROFLO-L 91204XT-38D
J	5	6	6
H	12	9	9

NOTES:

1. CONFIGURE SHADIN F/ADC 2000 I/O FOR FLOWMETER/BENDIX C OR FLOWMETER/BENDIX D IF USING THE BARO-METRIC INTERFACE.
2. CONFIGURE SHADIN FUEL FLOW METER I/O FOR ON/AIRDATA.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0103/012	A	3/	PAB	EDJ	ADDED P/N 962830A-1-S-7
9808/016	-	8/	PAB	KCL	BASELINE RELEASE

NOT TO SCALE

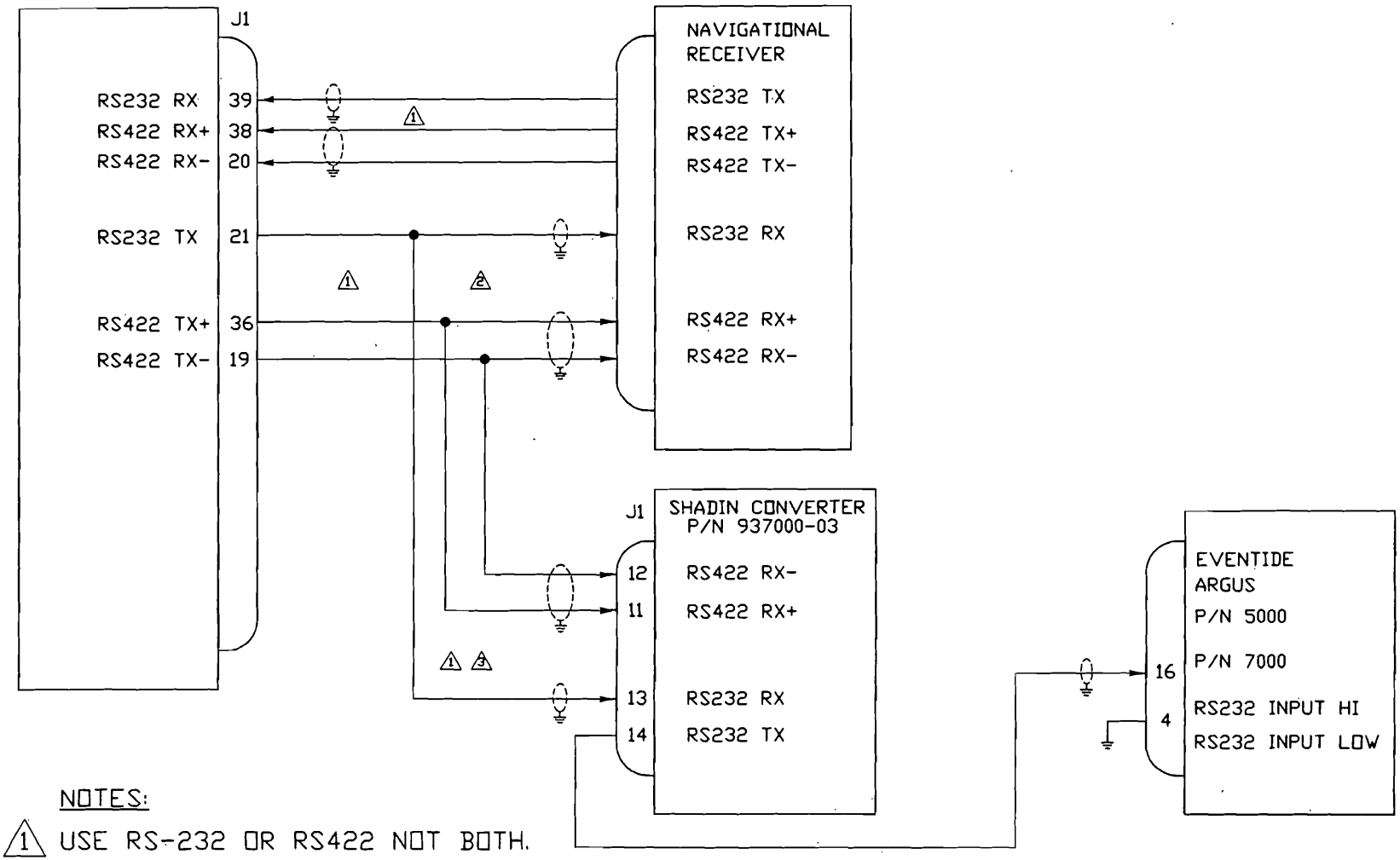
DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A42AJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000, MS CONN SHADIN FUEL FLOW INDICATORS TO BENDIX/KING NAV. RECEIVER

DRAWING NO. 4028-A42 | SIZE A | P/N | REV A

F/ADC 2
P/N 962830A-X-S-4
P/N 962830A-1-S-4
P/N 962830A-2-S-4
P/N 962830A-3-S-4
P/N 962830A-1-S-7



NOTES:

1. USE RS-232 OR RS422 NOT BOTH.
2. CONNECT SHADIN CONVERTER P/N 937000-03 IN PARALLEL WITH NAVIGATIONAL RECEIVERS SERIAL DATA INPUT.
3. CONSULT DRAWING NUMBER 4070-005 FOR WIRING AND STRAPPING INFORMATION.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0103/012	B	3/19/01	PAB	EDJ	ADDED P/N 962830A-1-S-7
0009/012	A	9/8/00	PAB	EDJ	J1 WAS J2, ADD RS232/RS422 TERMS TO NAV RCVR
9808/016	-	8/14/98	PAB	KCL	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE 8/14/98
DRAFTER PAB
APPROVED KCL
FILE NAME 4028-A43BJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC 2000 MS CONN AND SHADIN CONVERTER TO EVENTIDE ARGUS.

DRAWING NO. 4028-A43 | SIZE A | P/N ——— | REV B

GARMIN

GARMIN 430	GARMIN 530
P4001	P5001
57	57
56	56

SHADIN FUEL FLOW METER

DIGIFLO-L P/N 91053XT	DIGIFLO-L P/N 91053XP	MINIFLO-L P/N 91204XT-D	MICROFLO-L 91204XT-38-D
J	5	6	6
H	12	9	9

NOTES:

1. CONFIGURE SHADIN F/ADC 2000 I/O FOR FLOWMETER/GARMIN G.
2. CONFIGURE SHADIN FUEL FLOW METER I/O FOR ON/AIRDATA.
3. CONFIGURE GARMIN 430/530 I/O FOR CHANNEL 1 TO SHADIN FADC/AVIATION.
4. MINIMUM SOFTWARE LEVEL

ADC 2000	93.XX.77
GARMIN 430	2.17
GARMIN 530	2.02
DIGIFLO-L	60.10.84
MINIFLO-L	60.01.83
MICROFLO-L	60.08.86

5. FUEL FLOW TRANSDUCER SIGNAL(S) ARE CONNECTED TO THE SHADIN FUEL FLOW METER. NO FUEL SIGNAL CONNECTED TO THE ADC.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
1104/005	D	4/29/11	HWL	ZK	CHANGED SOFTWARE LEVEL IN NOTE 4
0504/005	C	4/12/05	PAB	ZK	CORRECTED NOTE 4
0211/047	B	3/11/03	PAB	BAL	CONVERTED TABLE TO BECOME NOTE 4; ADDED *-L MODELS TO TABLE; ADDED NOTE 5
0103/012	A	3/19/01	PAB	EDJ	REMOVED SOFTWARE VERSION AND ADDED '-L' TO FF METER BLOCK
0009/002	-	9/5/00	PAB	EDJ	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE 9/4/00
DRAFTER PAB
APPROVED EDJ
FILE NAME 4028-B98DJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN AVIONICS
MINNEAPOLIS, MN 55426

INSTALLATION WIRING, F/ADC2000, MS CONN SHADIN FUEL FLOW INDICATORS TO GARMIN 430/530

DRAWING NO. 4028-B98 | SIZE A | P/N ——— | REV D