VAN'S AIRCRAFT, INC. KLX 135
P.O. BOX 160 • NORTH PLAINS, OREGON 97133 • (503) 647-5117

3/96 file:\vans\avcover.doc

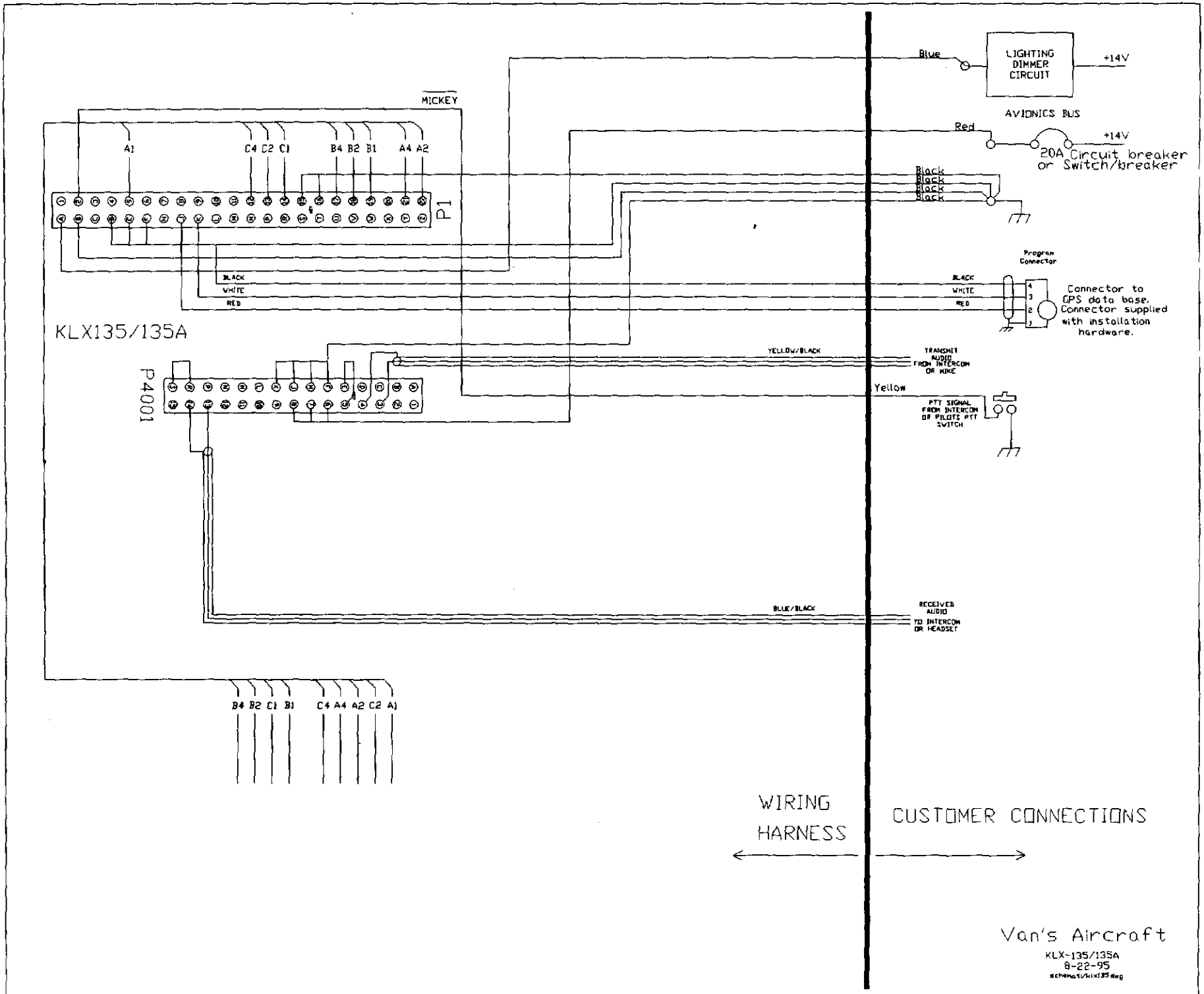
INSTALLING and OPERATING your avionics

Attached is a series of documents relating to the avionics enclosed. The wiring harness has been wired to a standard configuration unless we have been instructed otherwise. To install your avionics, find the page describing the size of the cutout in the instrument panel and mount the tray. The wires are all identified with a colored band indicating where they should be connected.

Red band	Avionics bus (+14 volts).
Black band	Aircraft ground.
Blue band	Interior light intensity control.
Yellow band	PTT (pilot push to talk switch).
Yellow&Yellow band	PTT (passenger push to talk switch).
Black & Yellow band	Transmit audio from intercom or mike.
Black & Blue band	Received audio to intercom or headset.

If you ordered a transponder but did not order an altitude encoder for mode C operation, the wires on the transponder for mode C will be bundled near the connector for connection to your altitude encoder. The schematic attached on the Van's Aircraft title block clearly defines the connections to your aircraft system.

Also attached are more detailed connections from your avionics supplier. The last section will be the OPERATION instructions for your avionics. If you have questions, feel free to call and ask for specifics.


MICKEY
A1
C4 C2 C1
B4 B2 B1
A4 A2
P1
KLX135/135A
P4001
BLACK
WHITE
RED
YELLOW/BLACK
TRANSMIT AUDIO FROM INTERCOM OR MIKE
Yellow
PTT SIGNAL FROM INTERCOM OR PILOTS PTT SWITCH
BLUE/BLACK
RECEIVED AUDIO TO INTERCOM OR HEADSET
B4 B2 C1 B1
C4 A4 A2 C2 A1
Blue
LIGHTING DIMMER CIRCUIT
+14V
AVIONICS BUS
Red
+14V
20A Circuit breaker or Switch/breaker
Black
Black
Black
Black
Program Connector
BLACK
WHITE
RED
4
3
2
1
Connector to GPS data base. Connector supplied with installation hardware.
WIRING HARNESS
CUSTOMER CONNECTIONS
Van's Aircraft
KLX-135/135A
8-22-95
schematic\klx135.dwg

Connector - P 4001

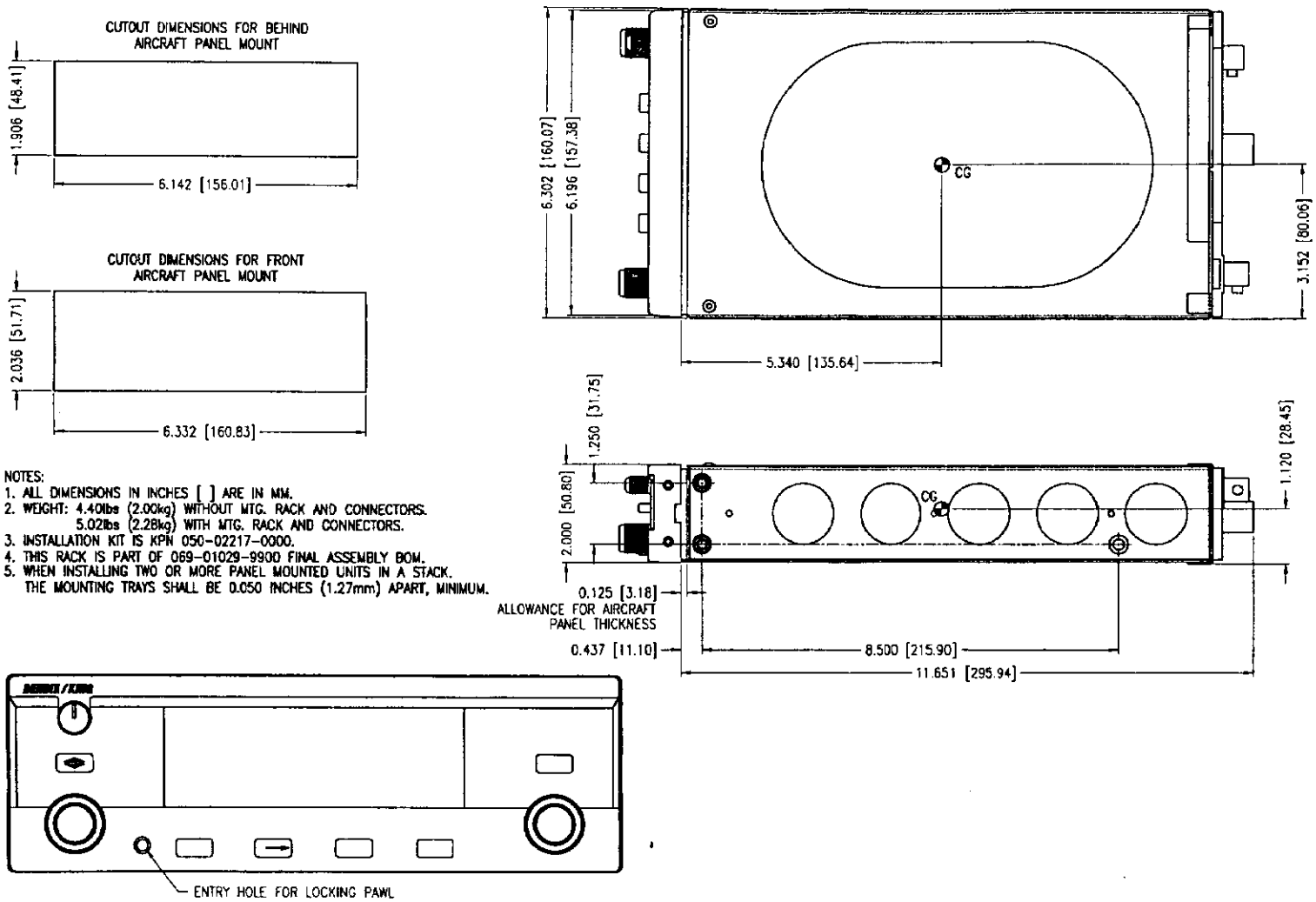
Pin Number		Description
1	.....	SPARE
2	.....→	TX/RX INTERLOCK
3	.....→	COM MIC IN HI
4	.....→	COM MIC IN LO
5 ←	.....	COMM AUDIO/SIDETONE OUT
6	.....→	A/C POWER
7	.....→	A/C POWER
8	.....→	A/C POWER
9	.....	SPARE
10	.....	SPARE
11	.....→	AUX #3 AUDIO IN
12	.....→	AUX #2 AUDIO IN
13 ←	.....	500 OHMS AUDIO OUT HI
14	.....	500 OHMS AUDIO OUT LO
15	.....	4 OHMS AUDIO IN LO
A	.....→	SQUELCH/COMPRESSOR DISABLE
B	.....→	AGC TEST
C ←	.....	DETECT AUDIO OUT
D	.....→	INTERCOM MIC IN
E	.....→	COMM AUDIO/SIDETONE IN
F	.....	A/C GROUND
H	.....	A/C GROUND
J	.....	A/C GROUND
K	.....	A/C GROUND
L	.....	AUX AUDIO IN LO
M	.....→	AUX #1 AUDIO IN
N	.....	4 OHMS AUDIO OUT LO
P ←	.....	4 OHMS AUDIO OUT HI
R ←	.....	AUDIO SUM OUT
S	.....→	4 OHMS AUDIO IN HI

← Output Input →

FIGURE 2-2 KLX 135 CONNECTOR PIN DIAGRAM
(Sheet 3 of 3)

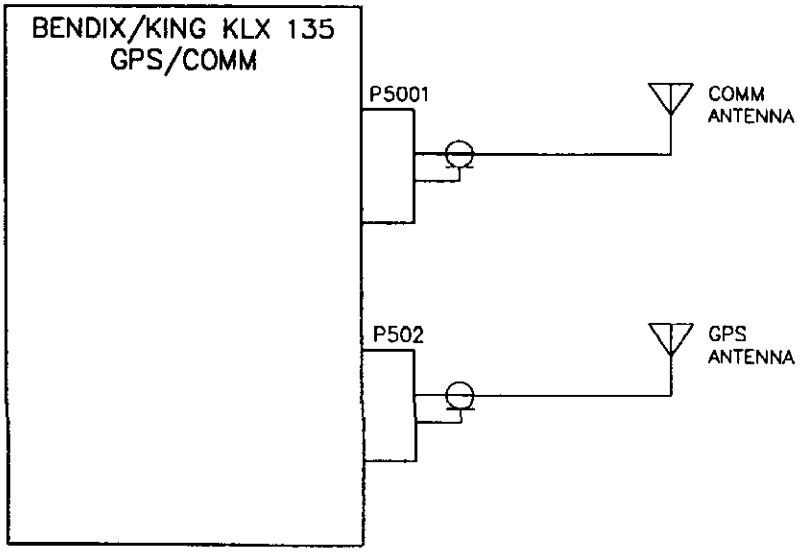
Main Connector - P 1

Pin Number		Description
1	→	REMOTE XFER
2	→	MIC KEY
3		SPARE
4		SPARE
5	→	A1
6	→	D4
7	→	TEST
8	→	TAKE HOME
9	→	RTC 32 KHZ
10	←	ELT OUT (RS-232)
11		SPARE
12	→	C4
13	→	C2
14	→	C1
15		A/C GROUND
16		A/C GROUND
17	→	B4
18	→	B2
19	→	B1
20		SPARE
21	→	A4
22	→	A2
← Output		Input →
A	→	14 V LIGHTING
B	→	28 V LIGHTING/GROUND
C		SPARE
D		A/C GROUND
E		A/C GROUND
F		A/C GROUND
H		SPARE
J	→	DBASE IN (RS-232)
K	←	DBASE OUT (RS-232)
L		LIGHTING LO
M		SPARE
N	←	D-BAR +L
P	←	D-BAR +R
R	←	+ FROM
S	←	+ TO
T	←	NAV FLAG +
U	←	NAV FLAG -
V	←	SPARE ANNUNCIATOR 2
W	←	MSG
X		SPARE
Y	←	WPT ALERT
Z	←	SPARE ANNUNCIATOR 1
← Output		Input →



NOTES:
1. ALL DIMENSIONS IN INCHES [ ] ARE IN MM.
2. WEIGHT: 4.40lbs (2.00kg) WITHOUT MTG. RACK AND CONNECTORS.
   5.02lbs (2.28kg) WITH MTG. RACK AND CONNECTORS.
3. INSTALLATION KIT IS KPN 050-02217-0000.
4. THIS RACK IS PART OF 069-01029-9900 FINAL ASSEMBLY BOM.
5. WHEN INSTALLING TWO OR MORE PANEL MOUNTED UNITS IN A STACK, THE MOUNTING TRAYS SHALL BE 0.050 INCHES (1.27mm) APART, MINIMUM.

FIGURE 2-5 KLX 135 TRANSCEIVER/RECEIVER OUTLINE AND MOUNTING DRAWING
(Dwg No 155-05676-0000 R-1)
(Sheet 1 of 2)



NOTES:

1. ALL WIRES ARE 24 AWG UNLESS OTHERWISE NOTED.
2. ⏚ CONNECT THE SHIELD/PIN TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.
3. AIRCRAFT POWER WIRING SHOULD BE TWO 18 AWG WIRES TO THE CIRCUIT BREAKER. AIRCRAFT GROUND SHOULD BE TWO 18 AWG WIRES TO GROUND.
4. FOR TRACKING OF 28 V LIGHTING BUS, CONNECT 28 V LIGHT/GND (P1-B) TO THE 28 V DIMMER BUS; 14 V LIGHT (P1-A) IS NOT CONNECTED. FOR TRACKING OF THE 14 V LIGHTING BUS, CONNECT 14 V LIGHT (P1-A) TO 14 V DIMMER BUS AND 28 V LIGHT/GND TO GROUND.
5. ANNUNCIATOR DIMMING MAY BE BY PHOTOCELL OR DAY/NIGHT SWITCH. DO NOT USE PANEL LIGHTING RHEOSTAT DIMMING BUS.
6. PART OF 050-03213-0000 INTERFACE KIT.
7. INTERCOM OPERATION:
   A) THE MIC AUDIO MUST BE SWITCHED FROM P4001-3 COMM MIC IN HI TO P4001-D INTERCOM MIC IN AND P1-2 $\overline{\text{MIC KEY}}$ MUST BE OPENED TO PREVENT COMM TRANSMISSION.
   B) CONNECTING TWO MICROPHONES TO THE COMM MIC IN OR INTERCOM MIC IN AT THE SAME TIME MAY RESULT IN WEAK OR DISTORTED AUDIO. VARIATIONS IN MICROPHONES, EVEN WITH IDENTICAL MANUFACTURERS PART NUMBERS, CAN PRODUCE THIS PROBLEM WHEN BOTH ARE CONNECTED AT THE SAME TIME. MIC ISOLATION RELAYS ARE RECOMMENDED SO THAT ONLY ONE MIC IS HOT AT ONE TIME.
8. TERMINATE AUDIO SHIELD AT ONE END ONLY, PREFERABLY AT THE AUDIO PANEL IF ONE IS USED.
9. CONNECT TX/RX INTERLOCK TO $\overline{\text{MIC KEY}}$ OF ANOTHER VHF TRANSCEIVER IF ANY ARE USED.
10. 32 KHZ SAWTOOTH WAVE, V P-P = 1.6 V (FACTORY USE ONLY).
11. FOR REMOTE FREQUENCY TRANSFER, A MOMENTARY GROUND AT P1-1 WILL TRANSFER THE USE AND STBY COMM FREQUENCY.

FIGURE 2-1 KLX 135 (+14 V DC) INTERCONNECT DIAGRAM
(Dwg No 155-05678-0000 R-0)
(Sheet 1 of 5)

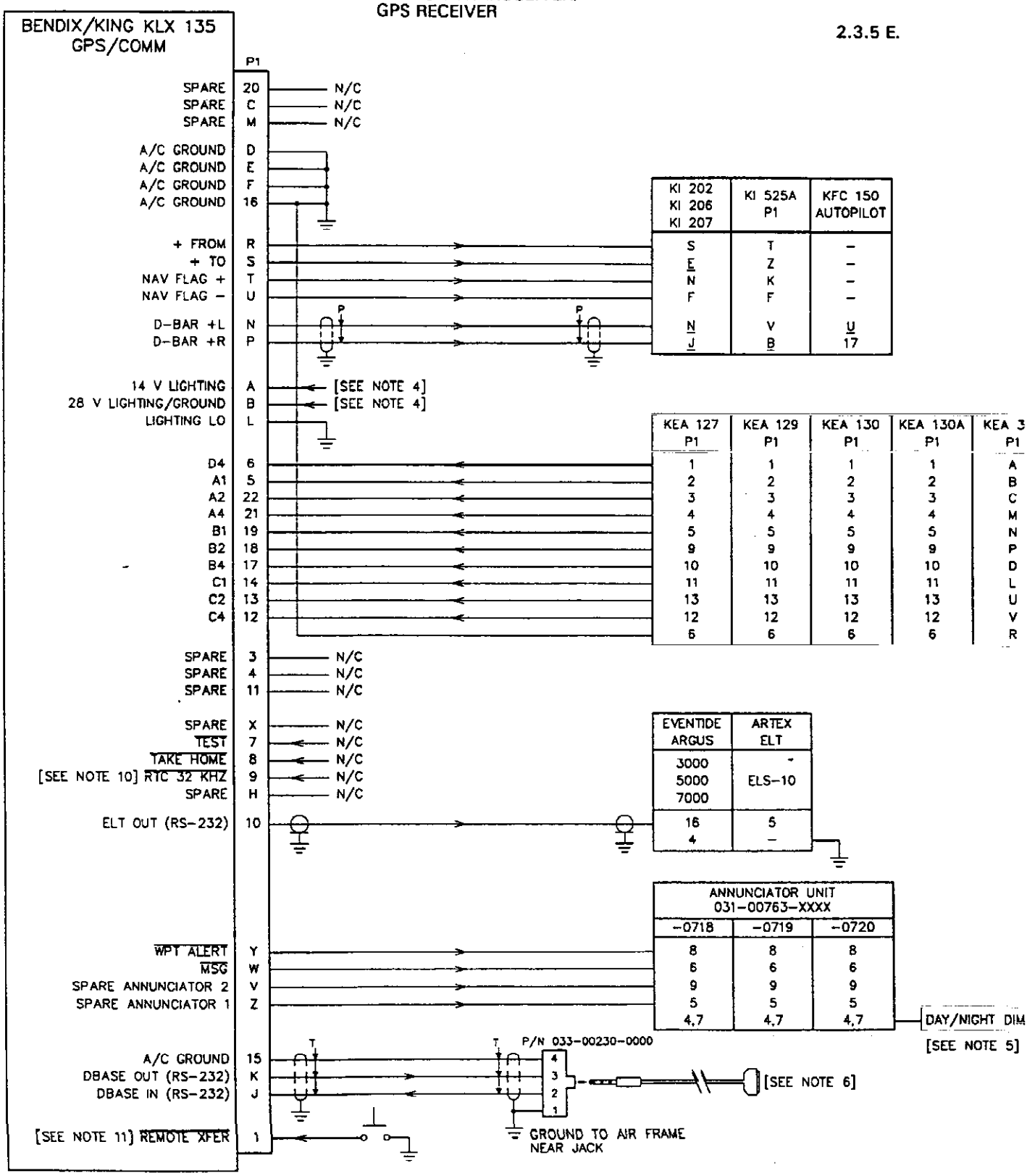


FIGURE 2-1 KLX 135 (+14 V DC) INTERCONNECT DIAGRAM
(Dwg No 155-05678-0000 R-0)
(Sheet 2 of 5)

2.3.5 E.

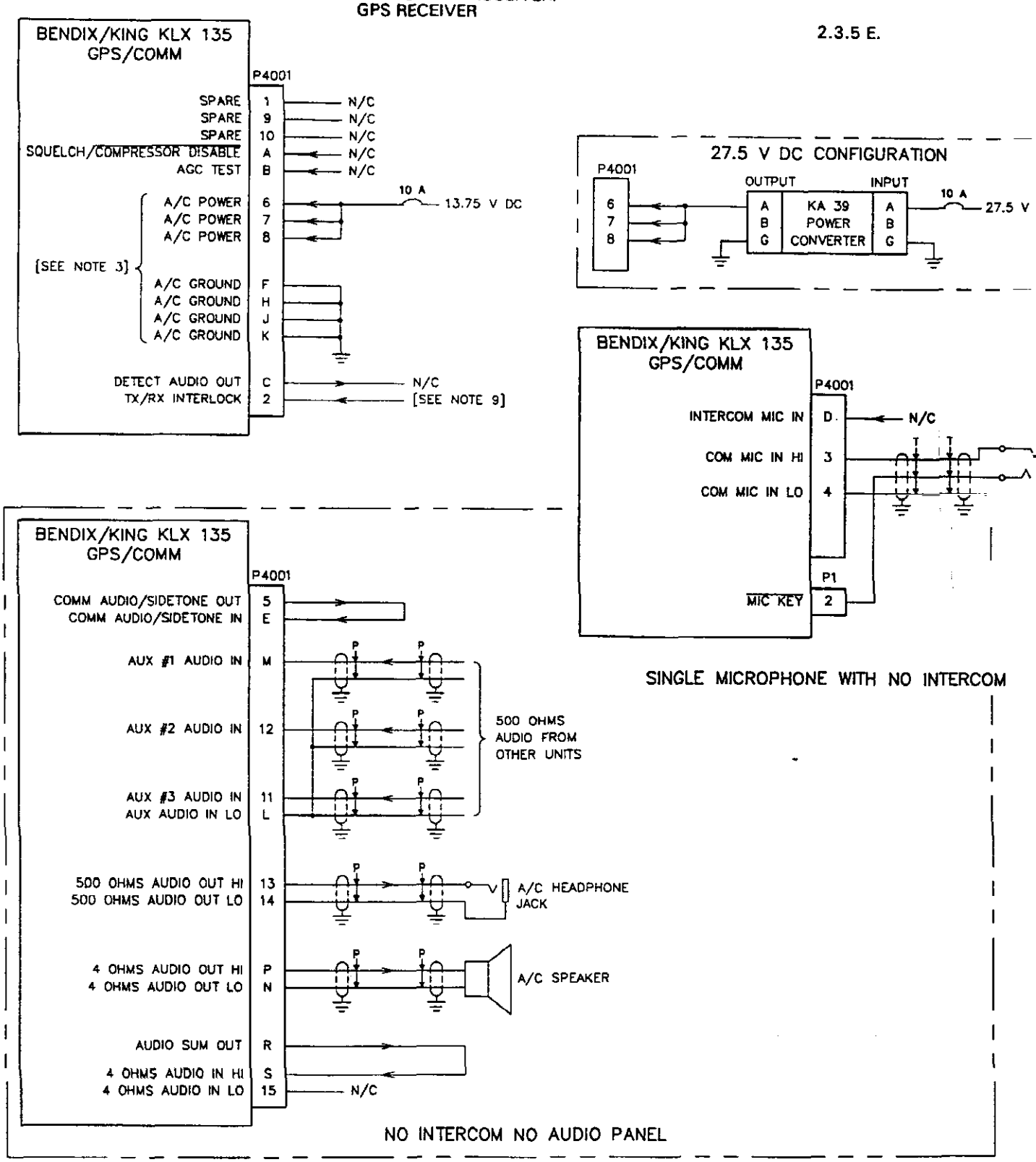


FIGURE 2-1 KLX 135 (+14 V DC) INTERCONNECT DIAGRAM
(Dwg No 155-05678-0000 R-0)
(Sheet 3 of 5)

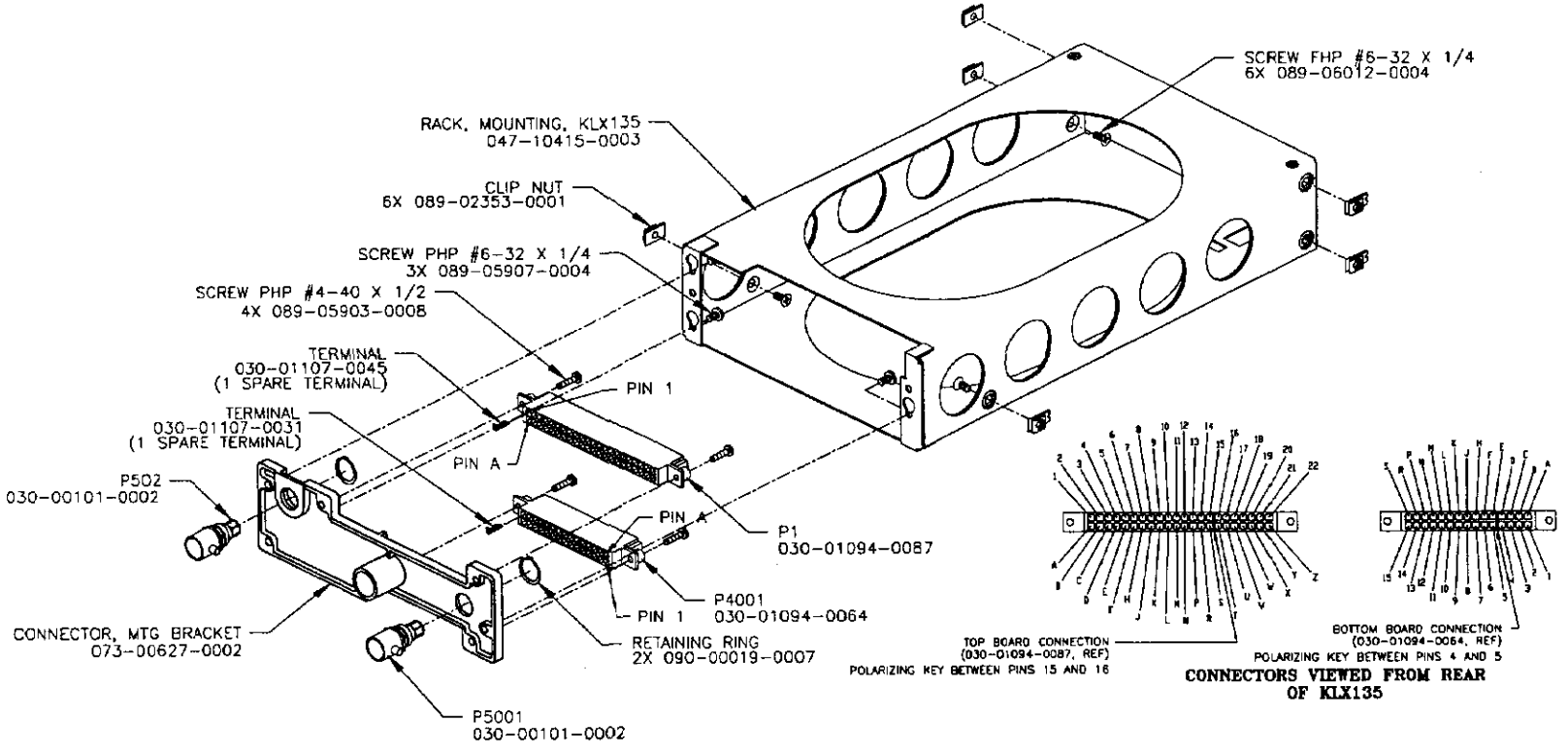
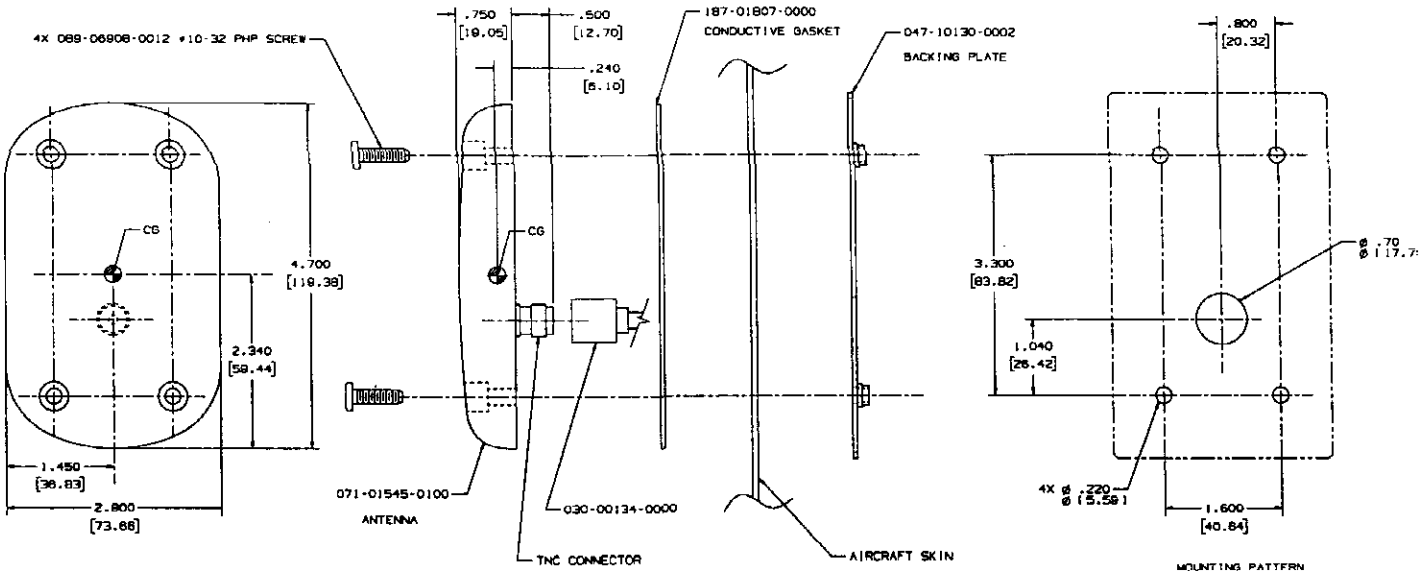
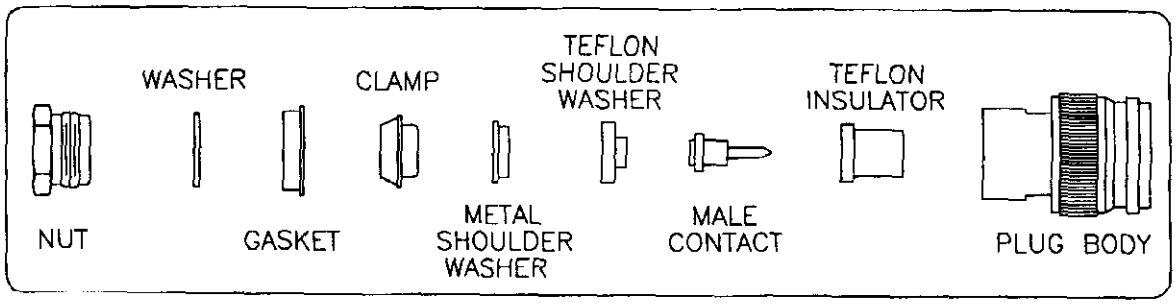


FIGURE 2-5 KLX 135 TRANSCEIVER/RECEIVER OUTLINE AND MOUNTING DRAWING DRAWING
(Dwg No 155-05676-0000 R-1)
(Sheet 2)



NOTES:
1. REMOVE PAINT IN AREA OF ANTENNA INSTALLATION.
2. DIMENSIONS IN INCHES [MILLIMETERS]
3. FOR BEST PERFORMANCE, BOND BETWEEN AIRCRAFT AND ANTENNA TO BE 10 MILLIOHMS RESISTANCE OR LESS.
4. UNIT WEIGHT .5 LBS [.227 KG.]
5. APPLY WHITE RTV SEALANT AROUND BASE OF INSTALLED ANTENNA. KPN 016-01129-0000 OR EQUIVALENT.
6. ANTENNA SHOULD BE MOUNTED ±2° WITH AIRCRAFT AT LEVEL FLIGHT ATTITUDE.
7. DO NOT PAINT ANTENNA
8. AIRSPEED RATING 600 KTS MAX TAS.

FIGURE 2-8 KA 91 INSTALLATION DRAWING
(Dwg. No. 155-05999-0000 Rev 3)



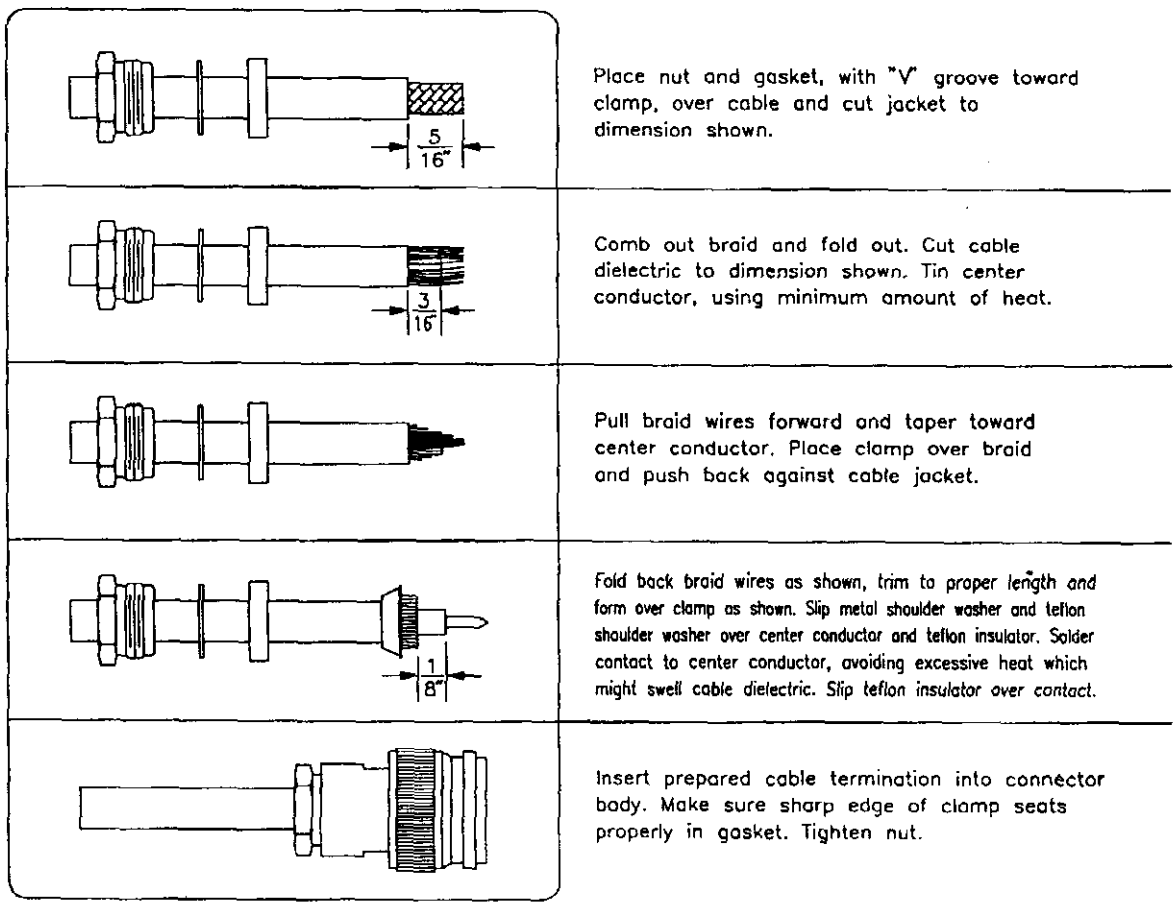
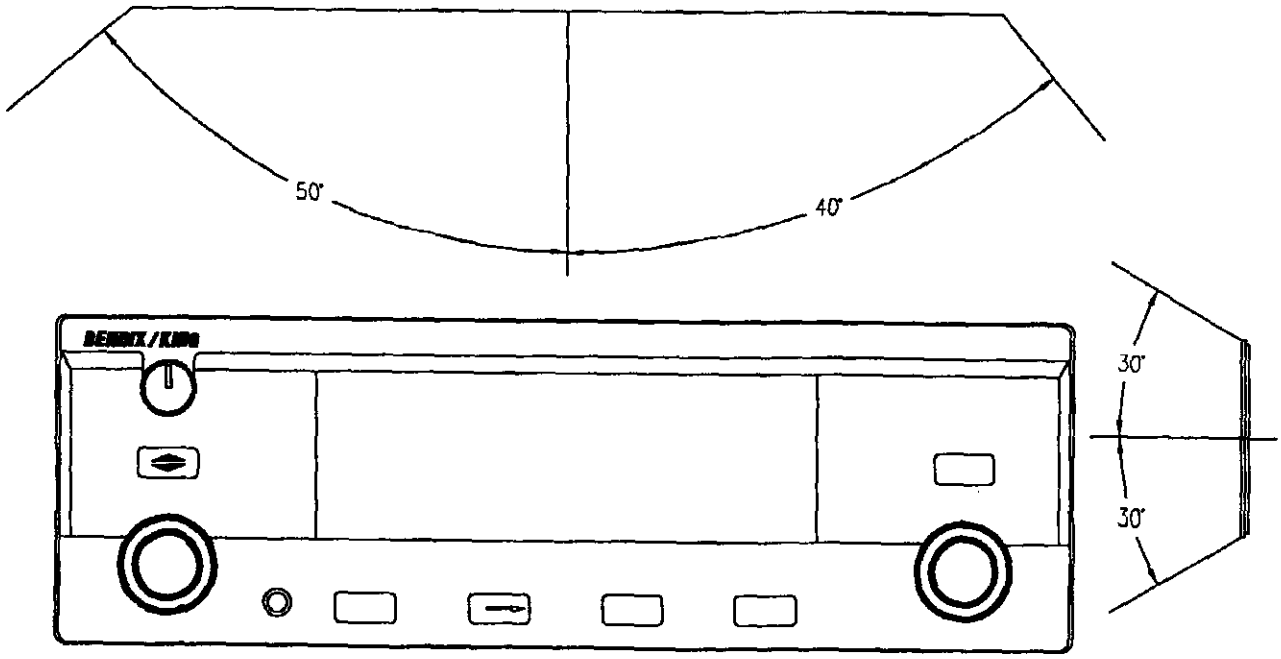


FIGURE 2-9 KA 91 TNC ANTENNA COAX/CONNECTOR ASSEMBLY (RG142B/U 0 to 40 ft.)
(Dwg. No. 030-00134-0000 Rev 3)



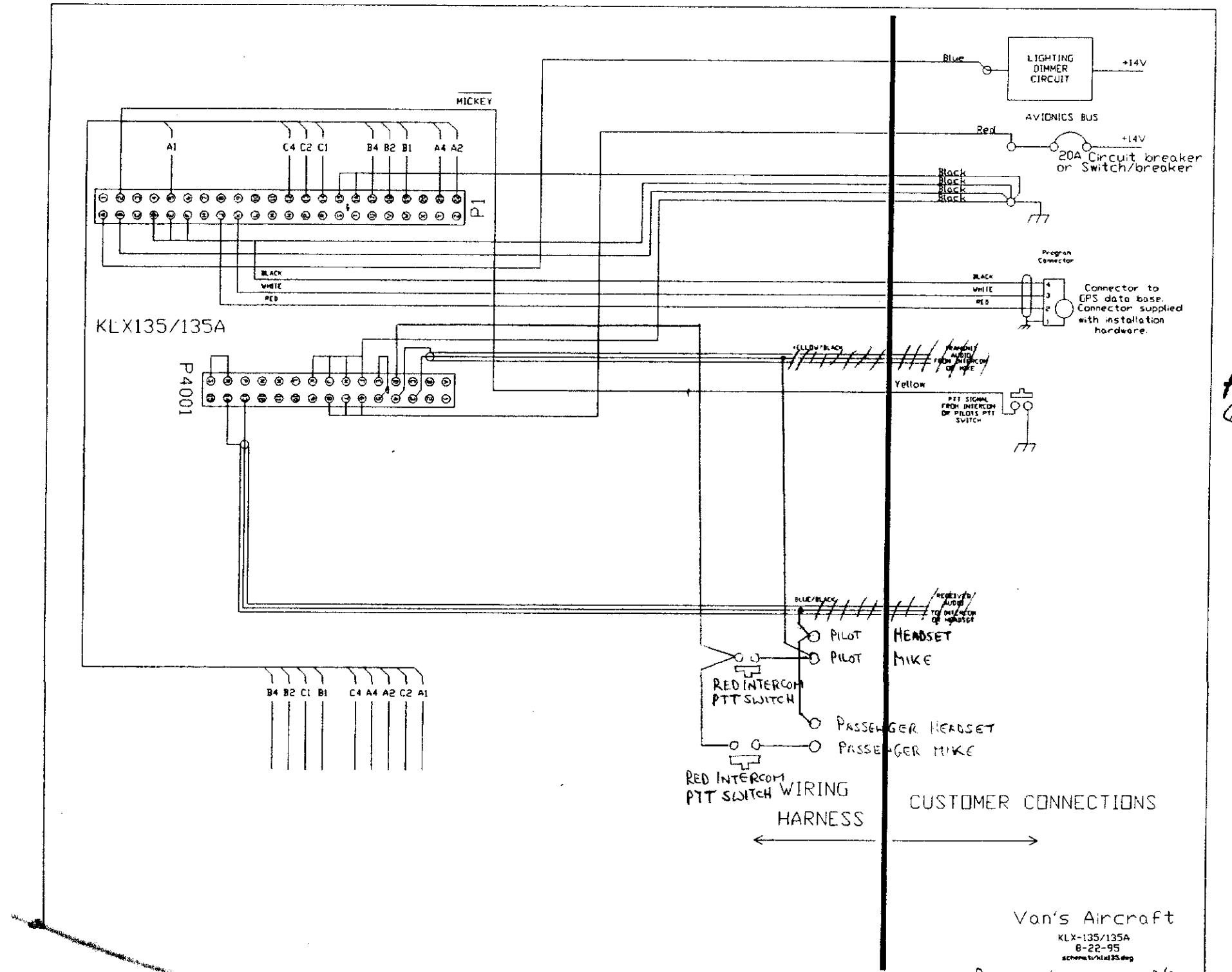
Note

Care should be taken in selecting the optimum location for the KLX 135. Consideration should also be given to proximity of other units, anything, such as knobs etc. that will block the viewing angle of the display.

The LCD, Liquid Crystal Display, has viewing angle limitations. The display is readable at angles up to 50 degrees to the left, 40 degrees to the right, and 30 degrees up and down. The installation of the KLX 135 must not exceed these viewing angles. The viewing angle should be checked with both the pilot's and the copilot's seats in the full forward position.

In some potential mounting locations, glare and reflection from the display may cause the display to be unreadable. Therefore, careful considerations of these effects should be made before choosing the final mounting location. Refer to Figure 2-6.

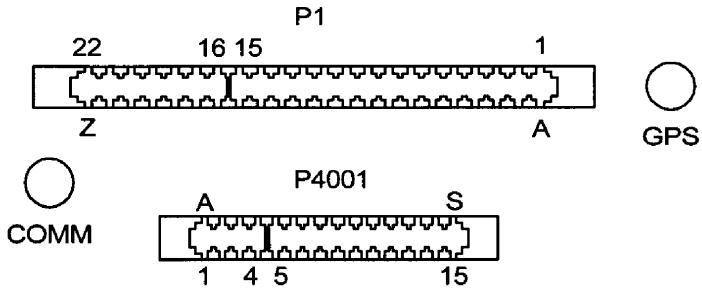
FIGURE 2-6 KLX 135 TRANSCEIVER/RECEIVER VIEWING ANGLE


MICKEY
A1
C4 C2 C1
B4 B2 B1
A4 A2
P1
BLACK
WHITE
RED
KLX135/135A
P4001
Blue
LIGHTING DIMMER CIRCUIT
+14V
AVIONICS BUS
Red
+14V
20A Circuit breaker or Switch/breaker
Black
Black
Black
Black
Program Connector
BLACK
WHITE
RED
Connector to GPS data base. Connector supplied with installation hardware.
YELLOW/BLACK
RANGING AUDIO FROM INTERCOM OR MIKE
Yellow
PTT SIGNAL FROM INTERCOM OR PILOTS PTT SWITCH
BLUE/BLACK
RECEIVED AUDIO TO INTERCOM OR HEADSET
PILOT
HEADSET
PILOT
MIKE
RED INTERCOM PTT SWITCH
PASSENGER HEADSET
PASSENGER MIKE
B4 B2 C1 B1
C4 A4 A2 C2 A1
RED INTERCOM PTT SWITCH WIRING HARNESS
CUSTOMER CONNECTIONS
Van's Aircraft
KLX-135/135A
8-22-95
POOR MAN'S INTERCOM 9/96

Pin 7
Ground

KING
KLX 135/A P1

For Connector, P4001, see K-37



P1

Circuit	Pin #	Notes
- NAV FLAG	U	
+FROM	R	
+LEFT	N	
+NAV FLAG	T	
+RIGHT	P	
+TO	S	
A/C GROUND	15	
A/C GROUND	16	
A/C GROUND	D	
A/C GROUND	E	
A/C GROUND	F	
A1	5	
A2	22	
A4	21	
B1	19	

(Continued)

(KLX 135 P1 Continued)

B2	18	
B4	17	
C1	14	
C2	13	
C4	12	
D4	6	
DBASE IN (RS232)	J	
DBASE OUT (RS232)	K	
DIMMER	A	Note 1
DIMMER	B	Note 1
DIMMER	L	Note 1
ELT OUT (RS232)	10	
MIC KEY	2	
MSG	W	
REMOTE XFR	1	
RTC 32 KHZ	9	Note 2
SPARE ANNUN 1	Z	
SPARE ANNUN 2	V	
SPARE	11	
SPARE	20	
SPARE	3	
SPARE	4	
SPARE	C	
SPARE	H	
SPARE	M	
SPARE	X	
TAKE HOME	8	Note 2
TEST	7	
WPT ALERT	Y	

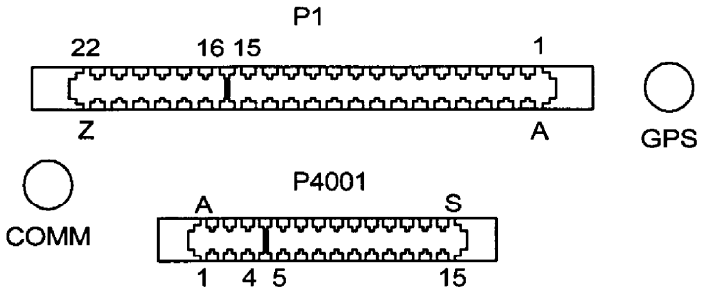
Notes

1. For 14 volts, B & L to ground, A to Dimmer. For 28 volts, L to ground, A open, B to Dimmer.
2. Not used.

NAV / COMM

KING
KLX 135/A P4001

For Connector P1 see K-35



P4001

Circuit	Pin #	Notes
+ 14 VDC IN	6	
+ 14 VDC IN	7	
+ 14 VDC IN	8	
4 OHMS AUDIO IN LO	15	
4 OHMS AUDIO OUT HI	P	
4 OHMS AUDIO OUT LO	N	
4 OHMS AUSIO IN HI	S	
500 OHMS AUDIO OUT HI	13	
500 OHMS AUDIO OUT LO	14	
A/C GROUND	F	
A/C GROUND	H	
A/C GROUND	J	
A/C GROUND	K	
AGC TEST	B	
AUDIO SUM OUT	R	

(Continued)

(KLX 135 P4001 Continued)

AUX #2 AUDIO IN	12	
AUX #3 AUDIO IN	11	
AUX 31 AUDIO IN	M	
AUX AUDIO IN LO	L	
COM MIC IN HI	3	
COM MIC IN LO	4	
COMM AUDIO / SIDETONE OUT	5	
COMM AUDIO/SIDETONE IN	E	
DETECT AUDIO OUT	C	Note 1
INTERCOM MIC IN	D	
SPARE	1	
SPARE	10	
SPARE	9	
SQUELCH/COMPRESSION DISABLE	A	Note 1
TX/RX INTERLOCK	2	

Notes
1. Not used.