Honeywell

INSTALLATION MANUAL

BENDIX/KING®

KY 96A, KY 97A

VHF COMMUNICATION TRANSCEIVER

MANUAL NUMBER 006-00674-0004
Revision 4, April 2003

WARNING

THE ENCLOSED TECHNICAL DATA IS ELIGIBLE FOR EXPORT UNDER LICENSE DESIGNATION NLR AND IS TO BE USED SOLELY BY THE INDIVIDUAL/ ORGANIZATION TO WHOM IT IS ADDRESSED. DIVERSION CONTRARY TO U.S. LAW IS PROHIBITED.

REVISION HISTORY

INSTALLATION MANUAL

BENDIX/KING

KY 96A, KY 97A

VHF Communication Transceiver

PART NUMBER	REV	DATE	DESCRIPTION
006-00674-0004	4	Apr/2003	
006-00674-0003	3	Apr/1994	
006-00674-0002	2	Jan/1994	
006-00674-0001	1	Oct/1989	

THIS PAGE RESERVED

SECTION I
GENERAL INFORMATION

LIST OF TABLES

SECTION II
INSTALLATION

LIST OF TABLES

LIST OF ILLUSTRATIONS

SECTION III
OPERATION

LIST OF ILLUSTRATIONS

APPENDIX E
ENVIRONMENTAL QUALIFICATION FORMS

LIST OF ILLUSTRATIONS

SECTION I
GENERAL INFORMATION

1.1 INTRODUCTION

This manual contains information relative to the physical, mechanical, and electrical characteristics of the Bendix/ King KY 96A and KY 97A VHF Communication Transceivers. Installation and operating procedures are also included. Information relative to the maintenance, alignment, and procurement of replacement parts may be found in the KY 96A, KY 97A Maintenance/ Overhaul Manual.

1.2 DESCRIPTION OF EQUIPMENT

The KY 96A and KY 97A VHF Comm Transceivers consist electrically of five sections: receiver, transmitter, synthesizer, display circuitry, and the microprocessor board. The transceivers are identical except that the KY 96A operates at 28 Vdc and the KY 97A operates at 14 Vdc.

The KY 96A, KY 97A is currently available with 25 kHz receiver selectivity, 100 mW into 500 ohms or 8 W into 4 ohms audio outputs (4 W into 4 ohms in the KY 97A), and operating ranges of 118.000 to 136.975 MHz. See paragraph 1.4 below for descriptions of specific versions.

NOTE: Previous versions were available with 50 kHz receiver selectivity; however, it is not a current configuration.

The KY 96A, KY 97A has the capability of programming up to nine memory channel frequencies for later recall. Channel frequency information is stored in non-volatile memory so that when the radio is turned off and then back on, channel information is retained. Both units also have the capability of remote transfer of Use and Standby frequencies, and remote recall of channel frequency information.

1.3 TECHNICAL CHARACTERISTICS

TABLE 1-1 Technical Characteristics

SPECIFICATION	CHARACTERISTIC
TSO COMPLIANCE:	
Transmitter:	TSO C37c, DO-186 Class 4
Receiver:	
KY96A (versions -10,-30,-50,-60,-70)	TSO C38c, DO-186 Class C + D
KY96A (versions -11,-31,-51,-61)	TSO C38c, DO-186 Class A + B
KY97A (versions -10,-30,-50,-60,-70)	TSO C38c, DO-186 Class C + D
KY97A (versions -11,-31,-51,-61)	TSO C38c, DO-186 Class A + B
ENVIRONMENTAL DATA:	See Environmental Qualification Form in Appendix A.
PHYSICAL DIMENSIONS (Including Weight):	Refer to Figure 2-5, Dwg No 155-05666-0001.
MOUNTING:	Panel mounted, no shock mounting required.
TEMPERATURE RANGE:	-20 deg C to +55 deg C with short time operation at +70 deg C.
POWER REQUIREMENTS:	
KY 96A: 27.5 Vdc	
(Receive)	400 mA Audio squelched LCD Max brightness. 500 mA Audio @ 100 mW LCD Max brightness. 1100 mA Audio @ 8 W LCD Max brightness.
(Transmit)	5 A transmit at 5 W RF output LCD Max brightness.
(Lighting)	138 mA Max @ 28 Vdc.
KY 97A: 13.75 Vdc	
(Receive)	600 mA Audio squelched LCD Max brightness. 700 mA Audio @ 100 mW LCD Max brightness. 1100 mA 4 ohms Audio @ 8 W LCD Max brightness.
(Transmit)	6 A transmit at 5 W RF output LCD Max brightness.
(Lighting)	275 mA Max @ 14 Vdc.
FREQUENCY RANGE: (version dependent, see paragraph 1.4)	118.000 MHz to 136.975 MHz in 25 kHz increments.
FREQUENCY STABILITY:	0.0015% from -20 deg C to +55 deg C.
DESIGN:	All solid state. Printed circuit board and point to point wiring.

TABLE 1-1 Technical Characteristics

SPECIFICATION	CHARACTERISTIC
TRANSMITTER	
EMISSION:	6K 00A3E
OCCUPIED BANDWIDTH:	25 kHz
POWER OUTPUT: KY 96A: KY 97A:	 5 watts minimum 5 watts minimum
MODULATION:	70% modulation capability with 98% limiting. Less than 15% distortion at 70% modulation.
SIDETONE OUTPUT:	Adjustable up to 100 mW into 500 ohms headphones.
MICROPHONE:	Standard carbon or dynamic mic containing transistorized preamp. Must provide 100 mVrms into 100 ohm load.
HARMONIC CONTENT:	Greater than 60 dB down from carrier.
HIGH TEMPERATURE PROTECTION:	If the transmitter or modulator circuits become hot enough to potentially hurt any components in the transceiver, a protection circuit will automatically turn down the transmitter power consumption and output power (1.25 watts minimum).
DUTY CYCLE:	1 minute on, 4 minutes off.
FCC IDENTIFIER:	ASY7BL KY96A,KY97A
RECEIVER	
RECEIVER SENSITIVITY:	2 uV (hard) or less for 6 dB S+N/N with 1 kHz tone modulated 30%.
RECEIVER SELECTIVITY: Class C + D (version dependent, see paragraph 1.4) Class A + B (version dependent, see paragraph 1.4)	 -6 dB at +/- 8 kHz minimum. 40 dB at +/- 17 kHz. 60 dB at +/- 22 kHz. DO-186. -6 dB at +/- 15 kHz minimum. 60 dB at +/- 43 kHz. DO-186.
RECEIVER OUTPUT:	100 mW minimum into 500 ohms or 8 W into 4 ohms (KY 96A) or 4 W into 4 ohms (KY 97A).
AGC CHARACTERISTIC:	From 5 uV to 20,000 uV audio output will not vary more than 3 dB.
SQUELCH:	Automatic squelch (internally adjustable carrier-to-noise setting) with manual disable.

TABLE 1-1 Technical Characteristics

SPECIFICATION	CHARACTERISTIC
SPURIOUS RESPONSES AND CROSS MODULATION PRODUCTS:	At least 80 dB down.
INTERCOM INPUT:	When the mic is connected to the intercom input both the receiver and mic audio appears at the audio output. 100 mVrms of mic audio into 500 ohms is required for 100 mW output.

1.4 UNITS AND ACCESSORIES SUPPLIED

NOTE: Not all configurations listed below are currently available, consult Bendix/ King Equipment Catalog for further information.

1.4.A. KY 96A VHF Comm Transceiver, P/N 064-1052-XX, which is configured in the following versions:

TABLE 1-2 KY 96A Configurations

PART NUMBER	RECEIVER SELECTIVITY	AUDIO OUTPUT	FREQUENCY RANGE
064-1052-10	25 kHz	500 ohm headphone	118.000 to 135.975 MHz
064-1052-11	50 kHz	500 ohm headphone	118.000 to 135.975 MHz
064-1052-30	25 kHz	500 ohm headphone	118.000 to 136.975 MHz
064-1052-31	50 kHz	500 ohm headphone	118.000 to 136.975 MHz
064-1052-50	25 kHz	8 W into 4 ohms	118.000 to 135.975 MHz
064-1052-51	50 kHz	8 W into 4 ohms	118.000 to 135.975 MHz
064-1052-60	25 kHz	8 W into 4 ohms	118.000 to 136.975 MHz
064-1052-61	50 kHz	8 W into 4 ohms	118.000 to 136.975 MHz
064-1052-70*	25 kHz	8 W into 4 ohms	118.000 to 136.975 MHz
*Crown Series Unit			

1.4.B. KY 97A VHF Comm Transceiver, P/N 064-01051-00XX, which is configured in the following versions:

TABLE 1-3 KY 97A Configurations

PART NUMBER	RECEIVER SELECTIVITY	AUDIO OUTPUT	FREQUENCY RANGE
064-1051-10	25 kHz	500 ohm headphone	118.000 to 135.975 MHz
064-1051-11	50 kHz	500 ohm headphone	118.000 to 135.975 MHz
064-1051-30	25 kHz	500 ohm headphone	118.000 to 136.975 MHz
064-1051-31	50 kHz	500 ohm headphone	118.000 to 136.975 MHz
064-1051-50	25 kHz	4 W into 4 ohms	118.000 to 135.975 MHz
064-1051-51	50 kHz	4 W into 4 ohms	118.000 to 135.975 MHz
064-1051-60	25 kHz	4 W into 4 ohms	118.000 to 136.975 MHz
064-1051-61	50 kHz	4 W into 4 ohms	118.000 to 136.975 MHz
064-1051-70*	25 kHz	4 W into 4 ohms	118.000 to 136.975 MHz
*Crown Series Unit			

1.4.C. The KY 96A, KY 97A Installation Kit, P/N 050-02600-0000, which contains the following components:

050-02600-0000 INSTL KIT KY196A REV AA

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
REF1	155-05690-0000		INSTALL ASSY	RF	.00
	030-00101-0002		PANEL MOUNT PLUG	EA	1.00
	030-01094-0080		CONNECTOR KEYED	EA	1.00
	030-01107-0031		CONNECTOR TERM 31T	EA	1.00
	057-02193-0001		DECAL COMM 1	EA	1.00
	057-02193-0002		DECAL COMM 2	EA	1.00
	057-05944-0003		KIT TSO LABEL	EA	1.00
	089-02013-0037		NUT FLAT 6-32	EA	1.00
	089-02051-0024		NUT SPEED U 6-32	EA	4.00
	089-02191-0022		NUT LOCK 6-32	EA	1.00
	089-02353-0001		NUT CLIP 6-32	EA	6.00
	089-05903-0007		SCR PHP 4-40X7/16	EA	2.00
	089-05907-0008		SCR PHP 6-32X1/2	EA	1.00
	089-06012-0008		SCR FHP 6-32X1/2	EA	6.00
	089-08094-0030		WSHR FLT STD .446	EA	1.00
	089-08168-0002		WASHER WAVE	EA	1.00
	090-00019-0007		RING RTNR .438	EA	1.00
	091-00072-0002		CABLE CLAMP 2	EA	1.00

1.5 ACCESSORIES REQUIRED, BUT NOT SUPPLIED

1.5.A. Communications antenna and cables.

1.5.B. Headphones: 500 ohm nominal impedance.

1.5.C. Microphone: Low impedance carbon or dynamic with transistorized preamp.

1.5.D. For 13.75 V operation of the KY 96A a 14-to-28 V convertor such as KGS Electronics Model RB-125 or equivalent may be used. The RB-125 is available from Bendix/ King under P/N 068-01016-0003.

1.6 LICENSE REQUIREMENTS

The transmitter, as installed in the aircraft, requires an Aircraft Radio Station License. This license is obtained by filing FCC Form 404, Aircraft Radio Station License Application, which may be obtained from your local FCC Field Office. The KY 96A, KY 97A may be operated for up to 30 days without a station license after filing Form 404 while awaiting the receipt of the radio license if a copy of FCC Form 404 is kept in the aircraft.

NOTE: This equipment has been type accepted by the FCC and entered on their list of type accepted equipment as AlliedSignal KY 96A/97A, and must be identified as AlliedSignal KY 96A/97A on FCC Form 404.

CAUTION: THE VHF TRANSMITTER IN THIS EQUIPMENT IS GUARANTEED TO MEET FEDERAL COMMUNICATIONS COMMISSION ACCEPTANCE OVER THE OPERATING TEMPERATURE RANGE ONLY WHEN A BENDIX/ KING CRYSTAL IS USED IN THE STABILIZED MASTER OSCILLATOR. USE OF OTHER THAN A BENDIX/ KING CRYSTAL IS CONSIDERED AN UNAUTHORIZED MODIFICATION AND MAY VOID THE WARRANTY.

NOTE: The Federal Communications Commission requires that the operator of the transmitter of this equipment hold a Restricted Radio Telephone Operator Permit (FCC Form 753) or higher class license. A permit may be obtained by a U.S. citizen from the nearest field office of the FCC; no examination is required.

1.7 CONTINUED AIRWORTHINESS

The instructions for continued airworthiness in the TC or STC approvals for this product supplements or supersedes the instructions for continued airworthiness in this manual.

This Bendix/ King product KY 96A, KY 97A is designed and manufactured to allow on-condition maintenance. On-condition maintenance is described as follows. There are no periodic service requirements necessary to maintain continued airworthiness. No maintenance is required until the equipment does not properly perform its intended

function. When service is required, a complete performance test must be accomplished following any repair action. Consult the appropriate section of the Maintenance Manual for complete performance test information.

THIS PAGE RESERVED

SECTION II
INSTALLATION

2.1 GENERAL

This section contains suggestions and factors to consider before installing the KY 96A, KY 97A. Close adherence to these suggestions will assure more satisfactory performance from the equipment.

The conditions and test required for the TSO and MOPS approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or with a specified type or class of aircraft to determine that the aircraft installation conditions are within the TSO and MOPS standards. These articles must have separate approval for installation in an aircraft. Any features in this equipment outside the requirements of this applicable TSO and MOPS must be evaluated and approved as part of the installation approval. The article may be installed only if performed under 14 CFR part 43 or the applicable airworthiness requirements.

2.2 UNPACKING AND INSPECTING EQUIPMENT

Unpack the equipment carefully and inspect each item for evidence of damage incurred during shipment. If a damage claim must be filed, save the shipping container and all packing materials to substantiate your claim. The claim should be filed with the transportation company as soon as possible. The shipping container and packing should be saved in any case in the event that storage or reshipment of the equipment is necessary.

2.3 EQUIPMENT INSTALLATION

The KY 96A, KY 97A installation will conform to standards designated by the customer, installing agency, and existing conditions as to the unit location and type of installation. However, the following suggestions should be considered before installing the KY 96A, KY 97A. The installing agency will supply and fabricate all external cables. The connectors required are supplied by Bendix/ King. Connector pin function diagrams are included in this manual as Figure 2-2, and Figure 2-3. Interconnect diagrams are included in this manual as Figure 2-8 through Figure 2-13. Refer to the table below for compatible installations.

TABLE 2-1 Compatible Installations

	CURRENT INSTALLATION			
	KY196A	KY197A	KY196	KY197
KY96A Compatible	YES*1	NO	NO	NO
KY97A Compatible	NO	YES*1	NO	NO
*1 Will work but backlighting will be too bright and unsuitable, and the audio amplifier will not function because the current installation is not wired for an audio amplifier.				

NOTE: Use good quality stranded wire with at least 600 V insulation that will not support a flame.

2.3.1 Avionics Cooling Requirements for Panel Mounted Equipment

The most important contribution to improved reliability of avionics equipment is to limit the maximum operating temperature of each unit. While modern designs consume less total energy, the heat dissipated per unit volume (watts/cubic inch) remains much the same due to contemporary high density packaging techniques. While each individual unit may or may not require forced air cooling, the combined heat generated by several units operating in a typical panel or rack can significantly degrade the reliability of the equipment if provisions for adequate cooling are not incorporated in the initial installation.

2.3.2 Mounting Rack Installation

2.3.2.A. The KY 96A, KY 97A is mounted rigidly in the aircraft panel. Select a position in the panel that is not too close to any high external heat source. Remember to allow adequate space for installation of cables and connectors. Avoid sharp bends and placing the cables too near the aircraft control cables.

2.3.2.B. When installing two or more panel mounted units in a stack, the mounting trays shall be spaced 0.050 inches (0.127 cm) apart. Current production mounting trays have 0.025 inch (0.064 cm) dimples built in to top and bottom and both sides so that the trays will automatically be spaced properly.

2.3.2.C. Refer to Figure 2-5 for the KY 96A, KY 97A mounting dimensions. Mark and cut the mounting holes.

2.3.2.D. Secure the mounting rack to the instrument panel per Figure 2-5 and Figure 2-6. The rear mounting bosses should be attached to the airframe by means of support brackets.

2.3.3 Antenna Installation

A conventional 50 ohm vertically polarized comm antenna is required with the KY 96A, KY 97A. Vertical bent whip antennas are not recommended. Wideband comm anten-

nas provide efficient operation over the comm band. Antennas should be installed per manufacturer's recommendations. Additional recommendations are as follows:

2.3.3.A. Mount antenna on a flat metal surface or install a ground plane at least 18 inches square.

2.3.3.B. The antenna should be well removed from any projections and the engine(s) and propeller(s). Also, for satisfactory operation, the antenna isolation between a communications transmitter antenna and a nav receiver antenna, as well as between dual comm antennas, should be a minimum of 30 dB. VHF antennas mounted on top and bottom have approximately 30 dB isolation. A horizontally polarized nav antenna and a vertically polarized comm antenna will have practical values from 10 to 30 dB.

2.3.3.C. If both comm antennas must be top mounted or both bottom mounted, antenna isolation between comms may not be adequate to prevent re-radiation. In single audio panel installations, re-radiation can be prevented by use of the XMT-REC interlock. Refer to Installation Bulletin #194. In dual audio panel installations where simultaneous operation of both comms is desired, the XMT-REC interlock is not recommended.

2.3.4 Cable Harness and Connector Assembly

The KY 96A, KY 97A uses a special connector that mates directly with the printed circuit board inside the unit. Assembly of the connector is as follows:

2.3.4.A. Contact Terminal Assembly using Molex Crimper (see Figure 2-4)

2.3.4.A.1 Strip each wire 5/32 inch for contact terminal, P/N 030-01107-00XX. (The last two digits of the part number indicates the number of terminals required).

2.3.4.A.2 Open the Molex HT 1921 hand crimper with the engraved side toward the operator. Place the conductor tab section of a contact terminal on Anvil A with the contact portion facing away from the operator. Close the crimper slightly until the contact tabs touch the female jaw.

2.3.4.A.3 Insert the stripped conductor until the insulation is even with the side of the crimper facing the operator. Crimp the conductor tabs by squeezing the handles together until the jaws are fully closed or a sufficient crimp is obtained.

2.3.4.A.4 Move the lead to Anvil A. Place the insulating tab section on Anvil A. Crimp again until the jaws are fully closed or until a sufficient crimp is obtained.

2.3.4.B. Contact Insertion into Molex Connector Housing

After the contact terminals have been installed on the wiring harness, the contact terminals can be inserted into the proper location in the connector housing (P/N 030-01094-0080). The terminal cannot be inserted upside down. Be sure to push the terminal all the way in until a click can be felt or heard. The self-locking feature can be tested by gently pulling on the wire.

2.3.4.C. Location of Polarizing Key in Housing

Prior to insertion of connector into rear of unit, check polarizing key position between contacts 8 and 9. Refer to Figure 2-6 to check correct position of polarizing key.

2.3.4.D. Extraction of Contact from Molex Connector

2.3.4.D.1 Slip the flat narrow blade of a Molex HT-1884 contact ejector tool, P/N 047-05099-0001, under the contact on the mating side of the connector. By turning the connector upside down one can see the blade slide into the stop.

2.3.4.D.2 When the ejector is slid into place, the retaining tab of the contact is raised, allowing the contact to be removed by pulling moderately on the lead.

2.3.4.D.3 Neither the contact or position is damaged by removing a contact; however, the contact should be visually checked before reinstalling to be certain that retaining tab “A” extends as shown in Figure 2-4 for retention in connector.

2.3.4.E. Coax Connector

Refer to Figure 2-7 for instructions for mounting the right angle coaxial BNC connector to the coax cable. Install the connector into the mounting rack.

2.3.5 KY 96A, KY 97A Installation

2.3.5.A. Looking at the top of the unit, make sure the front lobe of the hold down device is in a vertical position.

2.3.5.B. Slide the unit into the mounting rack until the front lobe touches the mounting rack.

2.3.5.C. Insert a 3/32 inch Allen wrench through the hole in the front panel to engage the locking screw. Turn clockwise until the rear lobe engages the mounting rack. Continue turning until the unit is secure in the mounting rack. DO NOT OVERTIGHTEN.

2.3.5.D. To remove the unit turn the locking screw counterclockwise, using a 3/32 inch Allen wrench, until the unit disengages from the mounting rack. Pull the unit out of the mounting rack by pulling on the metal tabs located behind the front panel on each side of the unit.

2.4 POST INSTALLATION CHECKS

An operational performance flight test is recommended after the installation is completed to insure satisfactory performance of the equipment in its normal environment. Check all aircraft control movements to be sure no electrical cables interfere with their operation. To check the communications transceiver, maintain an appropriate altitude and contact a ground station facility at a range of at least 50 nautical miles. Then contact a ground station close in. Pull the volume control out to defeat the automatic squelch feature and listen for any unusual electrical noise which would reduce the comm receiver sensitivity by increasing the squelch threshold. If possible, verify the communications capability on both the high and low end of the VHF comm band.

CAUTION: BEFORE FLIGHT, CHECK THE ANTENNA VSWR. THIS SHOULD BE CHECKED WITH AN IN-LINE TYPE WATTMETER INSERTED IN THE COAXIAL TRANSMISSION LINE BETWEEN THE TRANSCEIVER AND THE ANTENNA. ANY PROBLEM WITH THE ANTENNA INSTALLATION WILL MOST LIKELY BE SEEN AS A HIGH REFLECTED POWER. VSWR OF 3:1 WILL RESULT IN A 25% LOSS OF POWER.

NOTE: The LCD back lighting can be set for the most pleasing intensity by adjusting the panel lighting. See paragraph 3.6 of this manual for dim select.

2.4.1 Adjustments

The KY 96A, KY 97A are factory adjusted to accommodate typical requirements for most aircraft configurations. However, baseline mic gain, sidetone, carrier/noise squelch, and carrier squelch may be adjusted through the cover for specific aircraft configurations. See Figure 2-1.

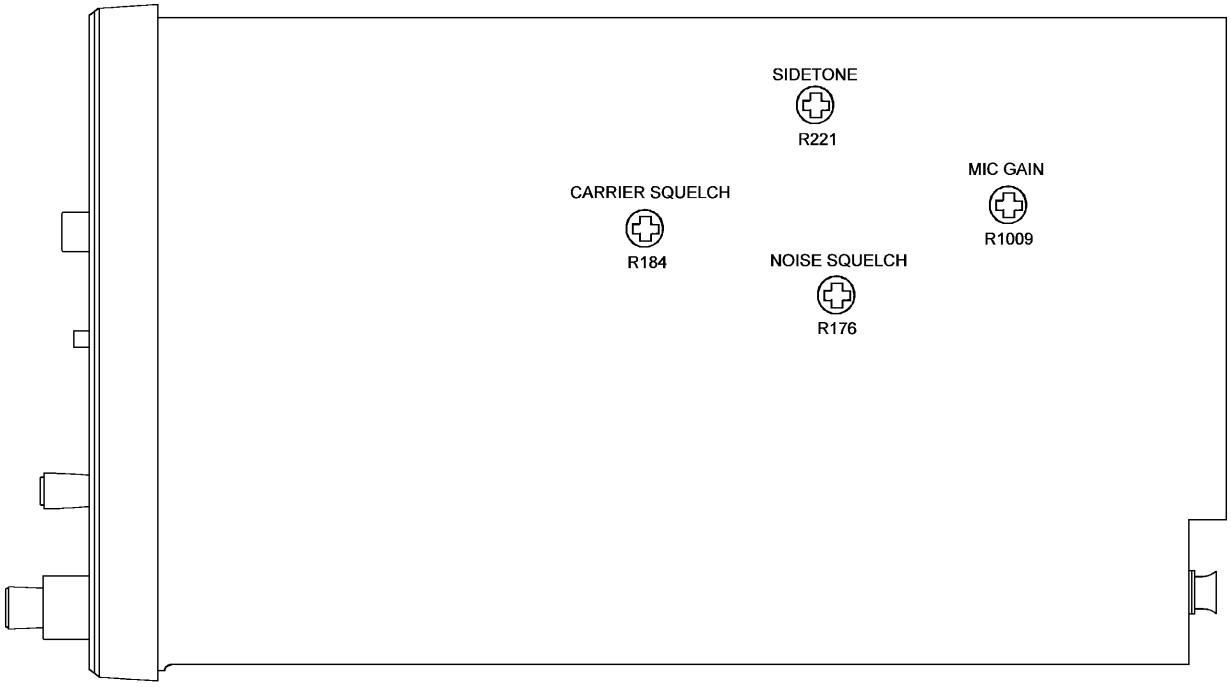
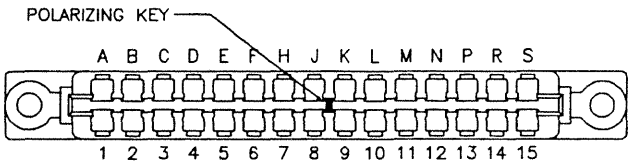


FIGURE 2-1 KY 96A, KY 97A Cover-On Adjustments

J96A

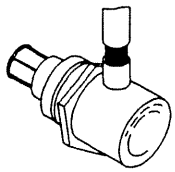


FRONT VIEW – CONNECTOR
(AS SEEN IF VIEWING FROM THE FRONT OF THE RACK)

H	→	500 Ω AUDIO HI
7	→	500 Ω AUDIO LO
J	←	MIC AUDIO HI
K	←	MIC INTERCOM
9	←	MIC KEY
8		MIC AUDIO LO
10	←	SQUELCH AND COMPRESSOR DISABLE
L	←	AGC TEST/REMOTE CHANNEL INC
11	←	REMOTE TRANSFER
R	←	AIRCRAFT POWER +27.5 VDC
14	←	AIRCRAFT POWER +27.5 VDC
P	→	SWITCHED +27.5 VDC
13	→	SWITCHED +27.5 VDC
N	←	+27.5 VDC
12	←	+27.5 VDC
F		AIRCRAFT GROUND
6		AIRCRAFT GROUND
S		AIRCRAFT GROUND
15		AIRCRAFT GROUND
B		N/C
1	←	+28 VDC LIGHTING HI
2	→	DETECTED AUDIO OUT
A	→	DIM SELECT
E	→	4Ω AUDIO OUT
5		4Ω AUDIO LO
D	←	AUX AUDIO IN 1
C	←	AUX AUDIO IN 2
3	←	AUX AUDIO IN 3
4		AUX AUDIO IN LO
M	←	XMIT REC INTERLOCK

← INPUTS OUTPUTS →

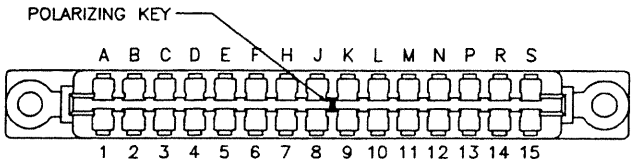
J96A2



E401 ---------- → ANTENNA

FIGURE 2-2 KY 96A Pin Function and Location Diagram

J97A

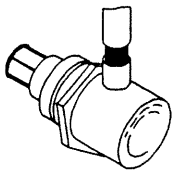


FRONT VIEW – CONNECTOR
(AS SEEN IF VIEWING FROM THE FRONT OF THE RACK)

H	→	500 Ω AUDIO HI
7		500 Ω AUDIO LO
J	←	MIC AUDIO HI
K	←	MIC INTERCOM
9	←	MIC KEY
8		MIC AUDIO LO
10	←	SQUELCH AND COMPRESSOR DISABLE
L	←	AGC TEST/REMOTE CHANNEL INC
11	←	+13.75 VDC POWER
M	←	+13.75 VDC POWER
R	←	AIRCRAFT POWER +13.75 VDC
14	←	AIRCRAFT POWER +13.75 VDC
P	→	SWITCHED AIRCRAFT POWER
13	→	SWITCHED AIRCRAFT POWER
N	←	XMIT REC INTERLOCK
12	←	REMOTE TRANSFER
F		AIRCRAFT GROUND
6		AIRCRAFT GROUND
S		AIRCRAFT GROUND
15		AIRCRAFT GROUND
B	←	+14VDC LIGHTING HI
1		LIGHTING LO
2	→	DETECTED AUDIO OUT
A	→	DIM SELECT
E	→	4Ω AUDIO OUT
5		4Ω AUDIO LO
D	←	AUX AUDIO IN 1
C	←	AUX AUDIO IN 2
3	←	AUX AUDIO IN 3
4		AUX AUDIO IN LO

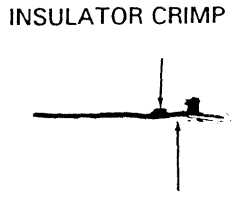
← INPUTS OUTPUTS →

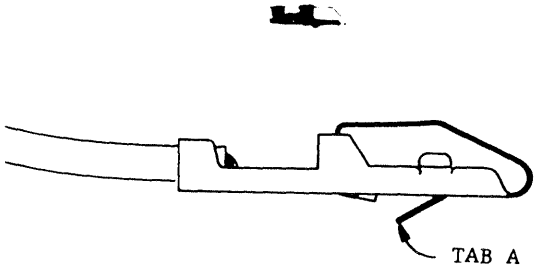
J97A2



E401 ---------- → ANTENNA

FIGURE 2-3 KY 97A Pin Function and Location Diagram



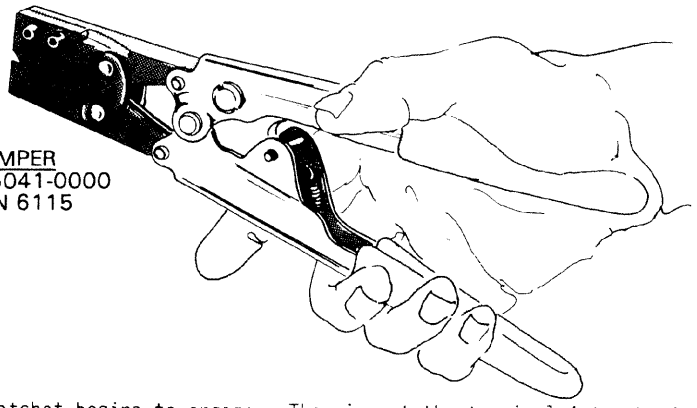


SOLDERLESS CONTACT TERMINAL
P/N 030-01107-0030

HAND EJECTOR
PN 047-05099-0001
MOLEX PN HT-1884

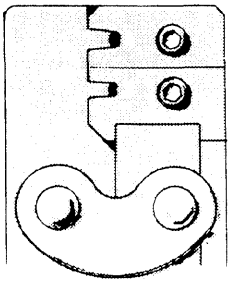
FIGURE 2-4 Molex Terminal and Tools (Sheet 1 of 3)

Holding the hand crimpers as shown, release the crimper's ratchet pawl and open by squeezing tightly on the handles, and then releasing pressure.

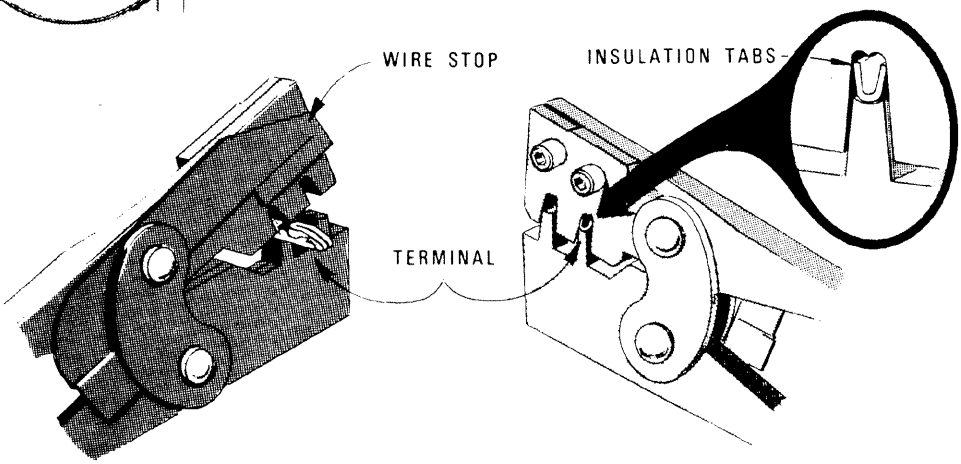


HAND CRIMPER
PN 071-06041-0000
MOLEX P/N 6115

Close crimpers until ratchet begins to engage. Then insert the terminal into the jaws from the back side. (See Figures at bottom of page) For 24 to 30AWG wire, it will be necessary to start the crimp in jaw A and then complete it in jaw B.



JAW	TERMINAL	WIRE SIZE	INSULATION RANGE
A	030-01107-0030	18 TO 24 AWG	.110 TO .055
B	030-01107-0030	24 TO 30 AWG	.055 TO .030

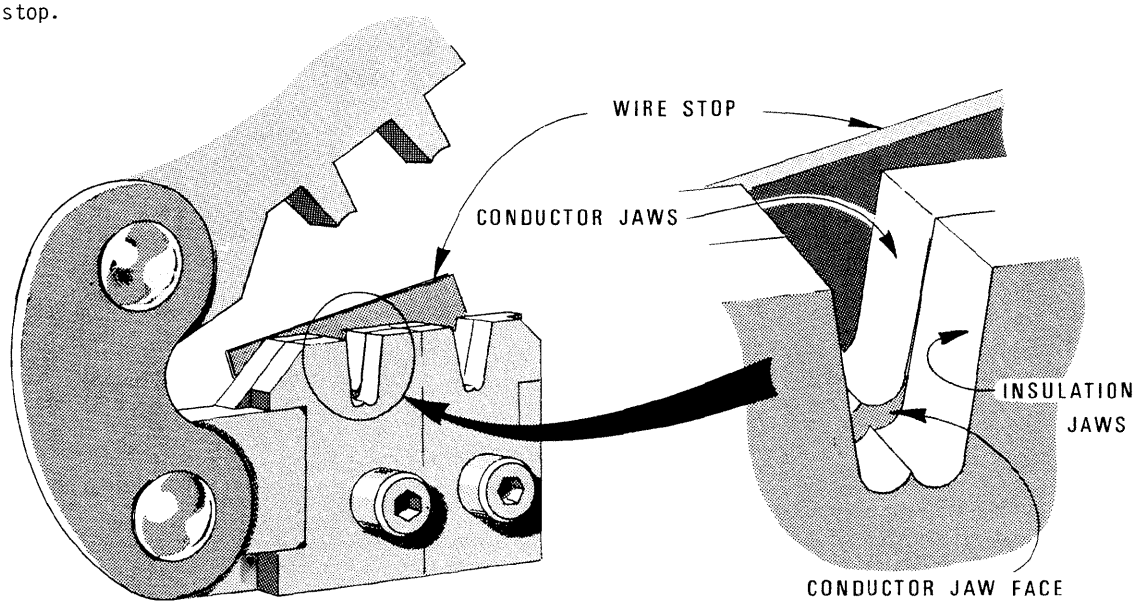


Terminal is in correct position when insulation tabs are flush with outside face of crimp jaws.

FIGURE 2-4 Molex Terminal and Tools (Sheet 2 of 3)

Once the terminal is in the correct position, close the jaws gently until the terminal is held loosely in place. Push wire stop down so that it rests snugly behind the contact portion of the terminal.

Strip the wire insulation back 1/8 inch and insert the wire through the insulation tabs into the conductor tabs until the insulation hits the conductor jaw face or until the conductor touches the wire stop.



Squeeze the handles until the crimp jaws close and the ratchet releases.

Straighten the terminal if necessary, then release the plier grips and remove the crimped terminal.

CRIMPING PRESSURE ADJUSTMENT

If too much or too little pressure is needed to release the crimper's ratchet pawl at the end of the crimp stroke, the ratchet can be easily adjusted. A spanner wrench provided with the tool can be used to loosen the lock nut, and rotate the keyed stud clockwise for increased pressure and counter-clockwise for decreased pressure. Once the desired pressure has been set, the lock nut must be tightened again. Newer models may have a screwdriver adjustment.

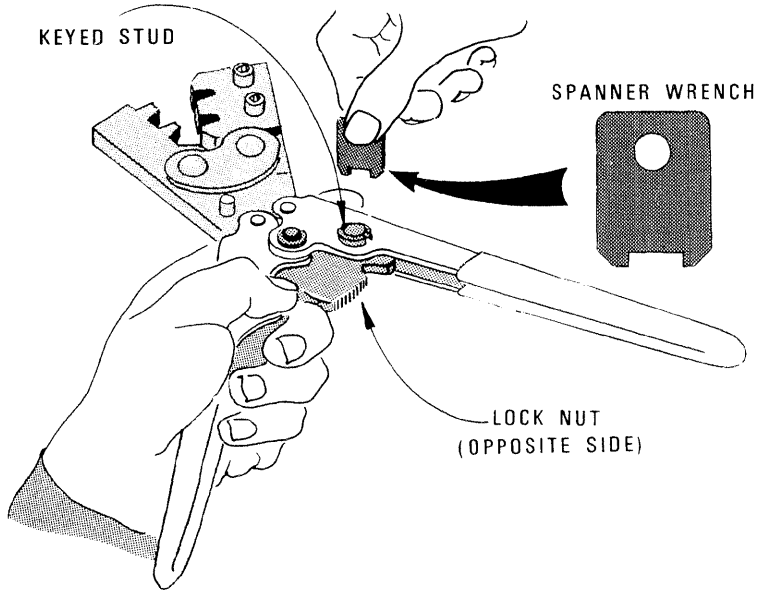
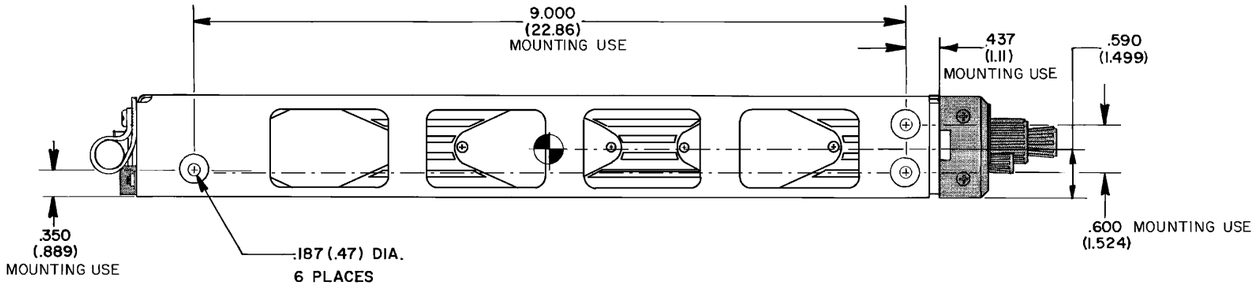
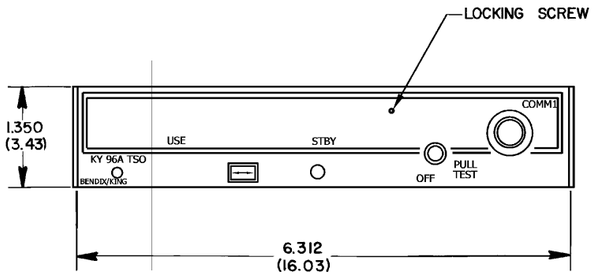
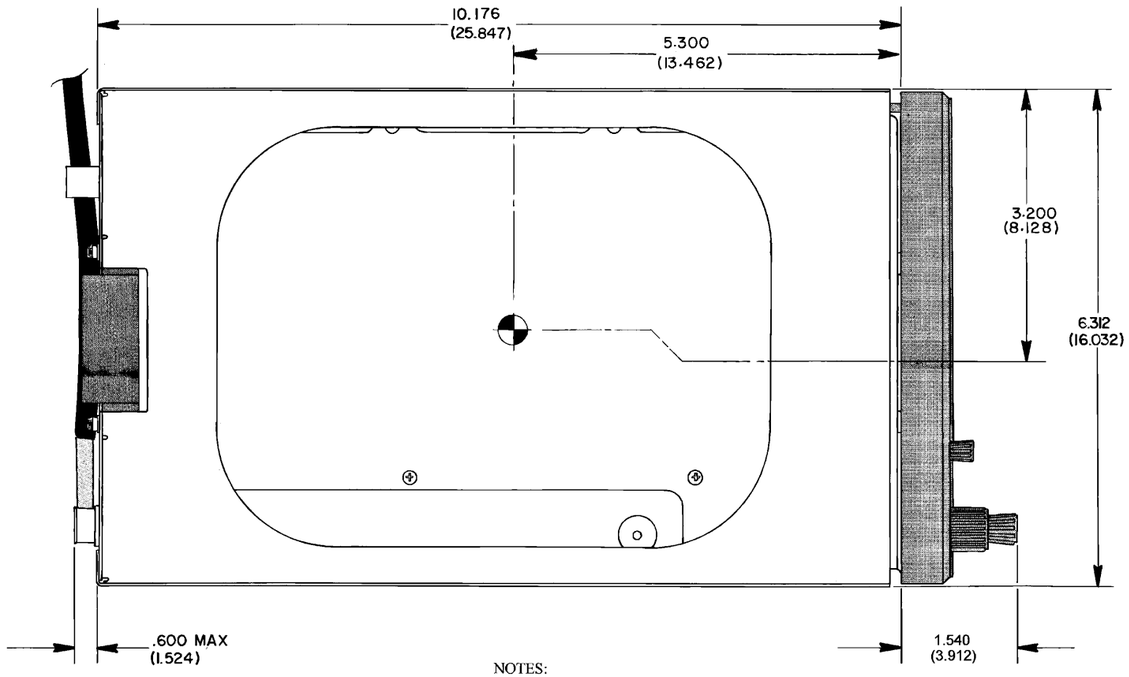
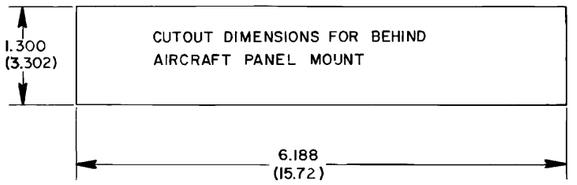


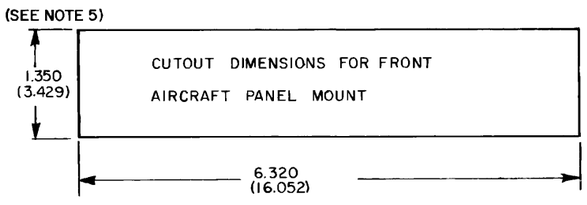
FIGURE 2-4 Molex Terminal and Tools (Sheet 3 of 3)











NOTES:
1. DIMENSIONS IN ( ) ARE IN CENTIMETERS.

2. WEIGHT: WITH RACK 2.8 LBS. (1.27kg) ±0.2 LBS. (0.09kg)
WITHOUT RACK 2.5 LBS. (1.14kg) ±0.2 LBS. (0.09kg)

3. TOLERANCES FOR PANEL CUTOUTS: $^{+.010}_{-.000}$ $(^{+.025}_{-.000})$

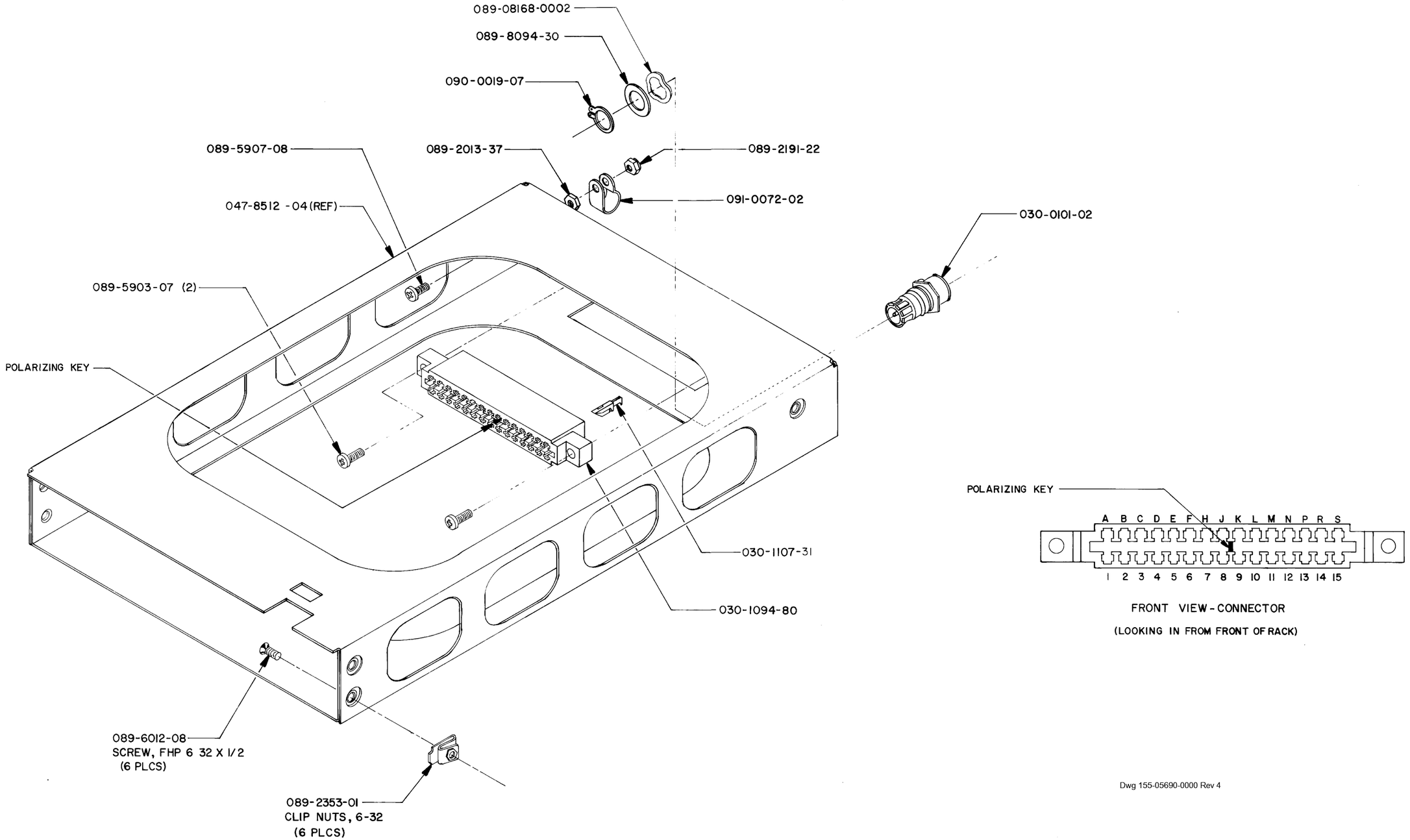
4. WHEN INSTALLING TWO OR MORE PANEL MOUNTED UNITS IN A STACK, THE MOUNTING TRAYS SHALL BE SPACED .050 INCHES (.127 CM.) APART. NEWER STYLE MOUNTING TRAYS HAVE HAD .025 INCH (.063CM) DIMPLES BUILT IN, TOP AND BOTTOM, BOTH SIDES, SO THAT TWO NEW STYLE TRAYS WILL AUTOMATICALLY BE SPACED PROPERLY.

5. TO DETERMINE STACK HEIGHT, USE THE HEIGHT DIMENSION FOR A FRONT AIRCRAFT PANEL MOUNT.

6. DIMENSIONS (EXCEPT PANEL CUTOUT OR MOUNTING USE DIMENSIONS) ARE REFERENCE ONLY. REFERENCE DIMENSIONS MAY BE SLIGHTLY OVERSIZE, TO ASSURE FIT OF UNIT.

Dwg 155-05666-0001 Rev AB

FIGURE 2-5 KY 96A, KY 97A Outline and Mounting Drawing (Dwg No 155-05666-0001 Rev AB)

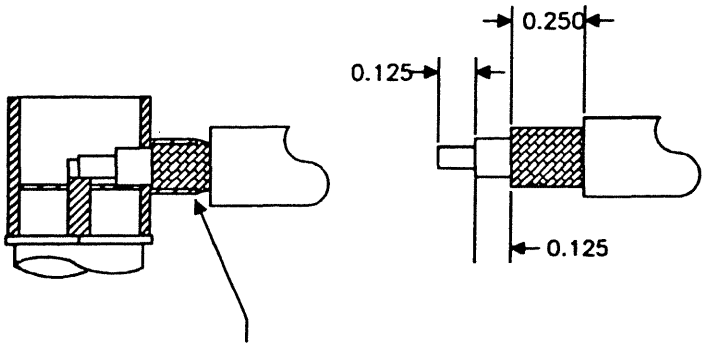


FRONT VIEW - CONNECTOR

(LOOKING IN FROM FRONT OF RACK)

Dwg 155-05690-0000 Rev 4

FIGURE 2-6 KY 96A, KY 97A Installation Assembly Drawing (Dwg No 155-05690-0000 Rev 4)

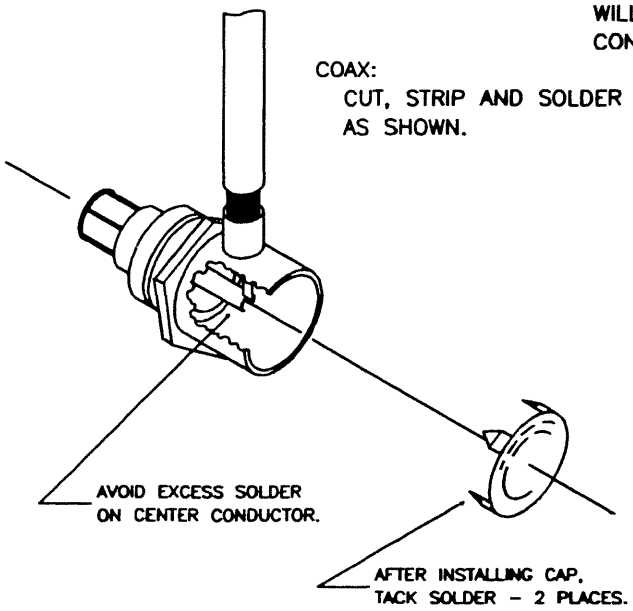


RG-400 P/N 024-00051-0060
USED ON NAV, COM, DME,
XPONDER AND RADIOTELEPHONE.

RG-142B/U P/N 024-00002-0000
DME LOW LOSS AND T5-50 TIMES
AA2413PN P/N 024-00013-0000
TRANSPONDER LOW LOSS.

CAUTION: WHEN SOLDERING SHIELD,
THE USE OF EXCESS HEAT
WILL MELT THE CENTER
CONDUCTOR INSULATOR.

COAX:
CUT, STRIP AND SOLDER
AS SHOWN.



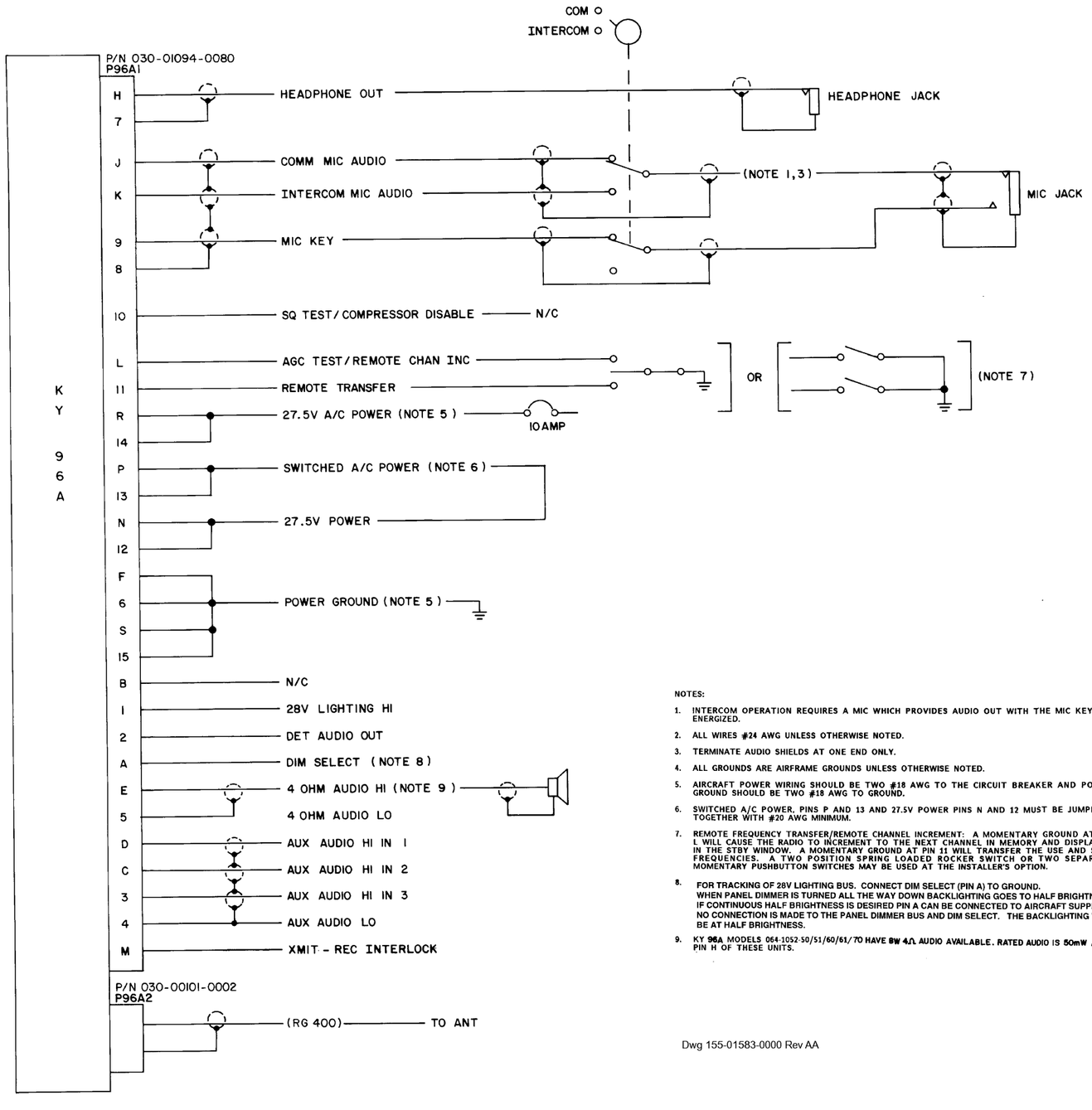
NOTES:

1. WHEN SOLDERING, AVOID APPLYING EXCESS HEAT TO CONNECTOR BODY, HEAT SINK SPRING CONTACTS, AND CENTER CONDUCTOR INSULATOR.

CONNECTOR (P/N 030-00101-0002 R-9) ASSEMBLY

FIGURE 2-7 Connector (P/N 030-00101-0002 R-9) Assembly

THIS PAGE RESERVED

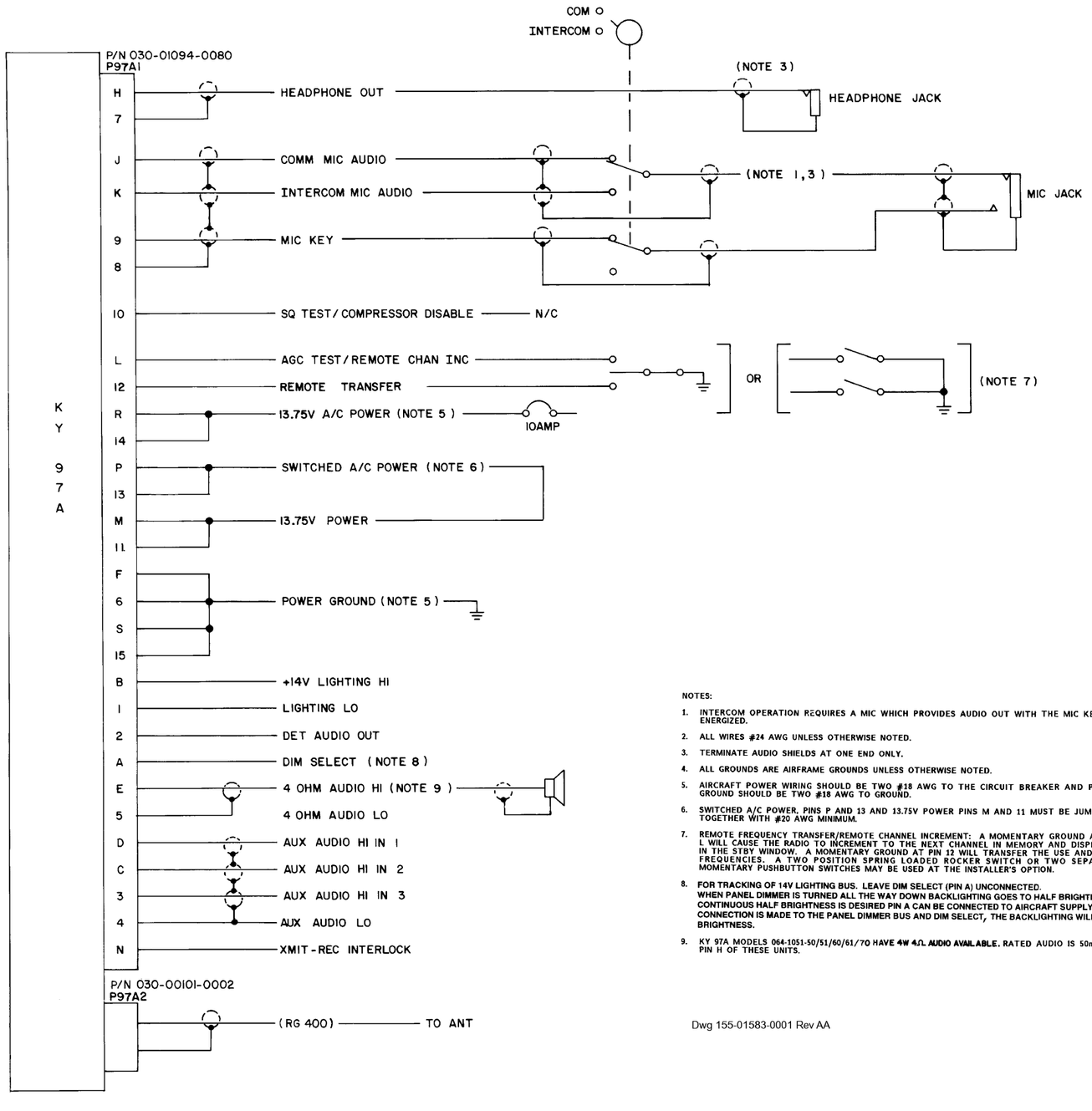


NOTES:

1. INTERCOM OPERATION REQUIRES A MIC WHICH PROVIDES AUDIO OUT WITH THE MIC KEY DE-ENERGIZED.
2. ALL WIRES #24 AWG UNLESS OTHERWISE NOTED.
3. TERMINATE AUDIO SHIELDS AT ONE END ONLY.
4. ALL GROUNDS ARE AIRFRAME GROUNDS UNLESS OTHERWISE NOTED.
5. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
6. SWITCHED A/C POWER, PINS P AND 13 AND 27.5V POWER PINS N AND 12 MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
7. REMOTE FREQUENCY TRANSFER/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 11 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.
8. FOR TRACKING OF 28V LIGHTING BUS, CONNECT DIM SELECT (PIN A) TO GROUND. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT. THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
9. KY 96A MODELS 064-1052-50/51/60/61/70 HAVE 8W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS.

Dwg 155-01583-0000 Rev AA

FIGURE 2-8 KY 96A interconnect (Dwg No 155-01583-0000 Rev AA)

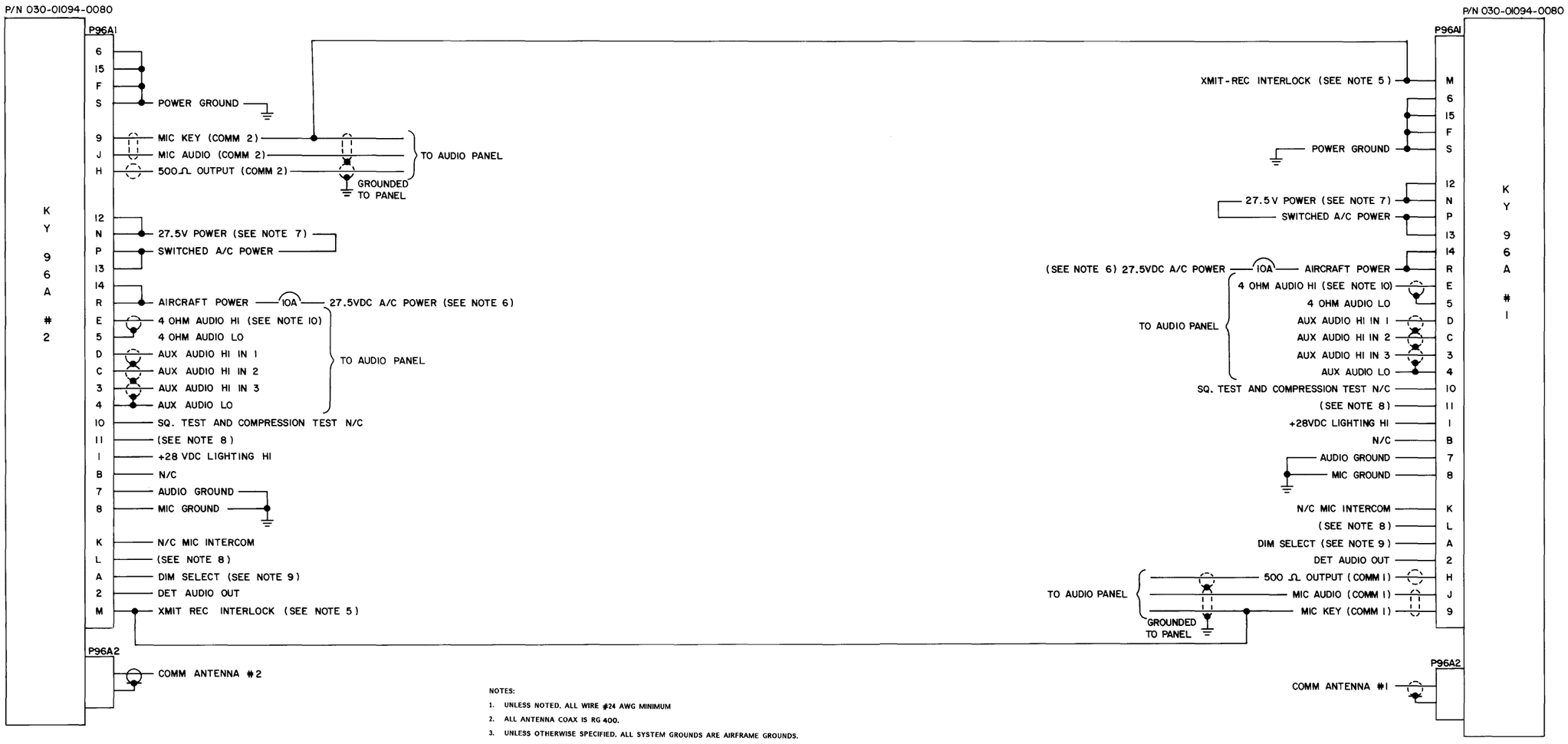


NOTES:

1. INTERCOM OPERATION REQUIRES A MIC WHICH PROVIDES AUDIO OUT WITH THE MIC KEY DE-ENERGIZED.
2. ALL WIRES #24 AWG UNLESS OTHERWISE NOTED.
3. TERMINATE AUDIO SHIELDS AT ONE END ONLY.
4. ALL GROUNDS ARE AIRFRAME GROUNDS UNLESS OTHERWISE NOTED.
5. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
6. SWITCHED A/C POWER, PINS P AND 13 AND 13.75V POWER PINS M AND 11 MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
7. REMOTE FREQUENCY TRANSFER/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 12 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.
8. FOR TRACKING OF 14V LIGHTING BUS. LEAVE DIM SELECT (PIN A) UNCONNECTED. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT, THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
9. KY 97A MODELS 064-1051-50/51/60/61/70 HAVE 4W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS.

Dwg 155-01583-0001 Rev AA

FIGURE 2-9 KY 97A interconnect (Dwg No 155-01583-0001 Rev AA)



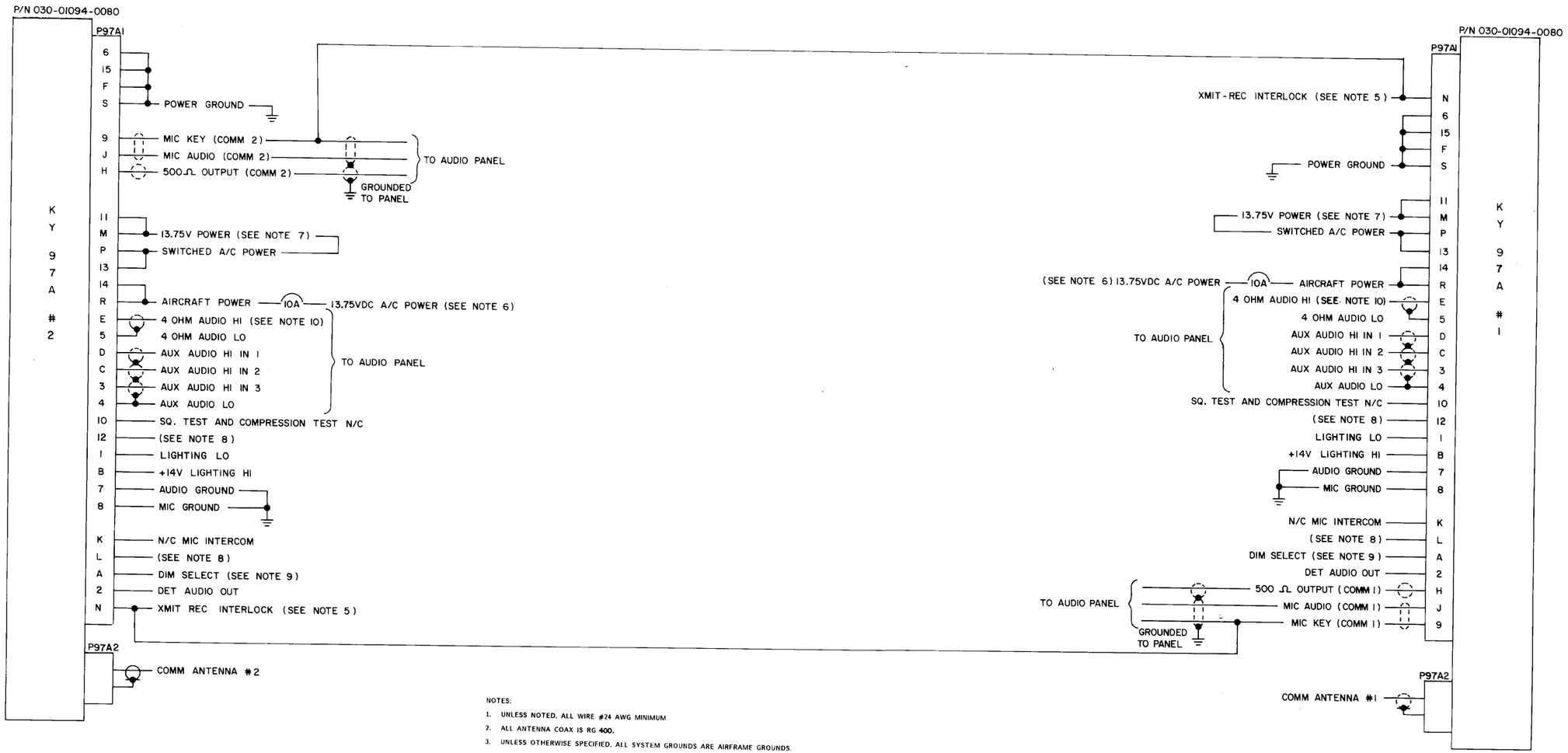
NOTES:

1. UNLESS NOTED, ALL WIRE #24 AWG MINIMUM
2. ALL ANTENNA COAX IS RG 400.
3. UNLESS OTHERWISE SPECIFIED, ALL SYSTEM GROUNDS ARE AIRFRAME GROUNDS.
4. POWER BUSS CIRCUIT BREAKERS ARE TO BE MOUNTED IN THE AIRCRAFT BREAKER PANEL OR INSTRUMENT PANEL SUCH THAT THEY WILL BE ACCESS IN FLIGHT AND SAFE FROM PHYSCIAL DAMAGE.
5. TX-RX INTERLOCK WIRING IS NECESSARY WHEN BOTH COMM ANT ARE TOP MOUNTED, WHEN BOTH COMM ANT ARE BOTTOM MOUNTED, OR IN DUAL COMM INSTALLATIONS IN FABRIC AIRCRAFT. REFER TO ANTENNA INSTALLATION RECOMMENDATIONS.
6. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
7. SWITCHED A/C POWER, PINS P AND 13, AND 27.5V POWER, PINS N AND 12 MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
8. REMOTE FREQUENCY CHANNEL/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 11 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.

9. FOR TRACKING OF 28V LIGHTING BUS. CONNECT DIM SELECT (PIN A) TO GROUND. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT, THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
10. KY 96A MODELS 064-1052-50/51/60/61/70 HAVE 8W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS. IF AUDIO PANEL IS USED LEAVE PIN E OPEN.

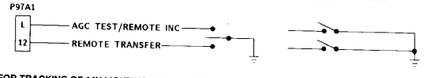
Dwg 155-01584-0000 Rev AA

FIGURE 2-10 Dual KY 96A interconnect (Dwg No 155-01584-0000 Rev AA)



NOTES:

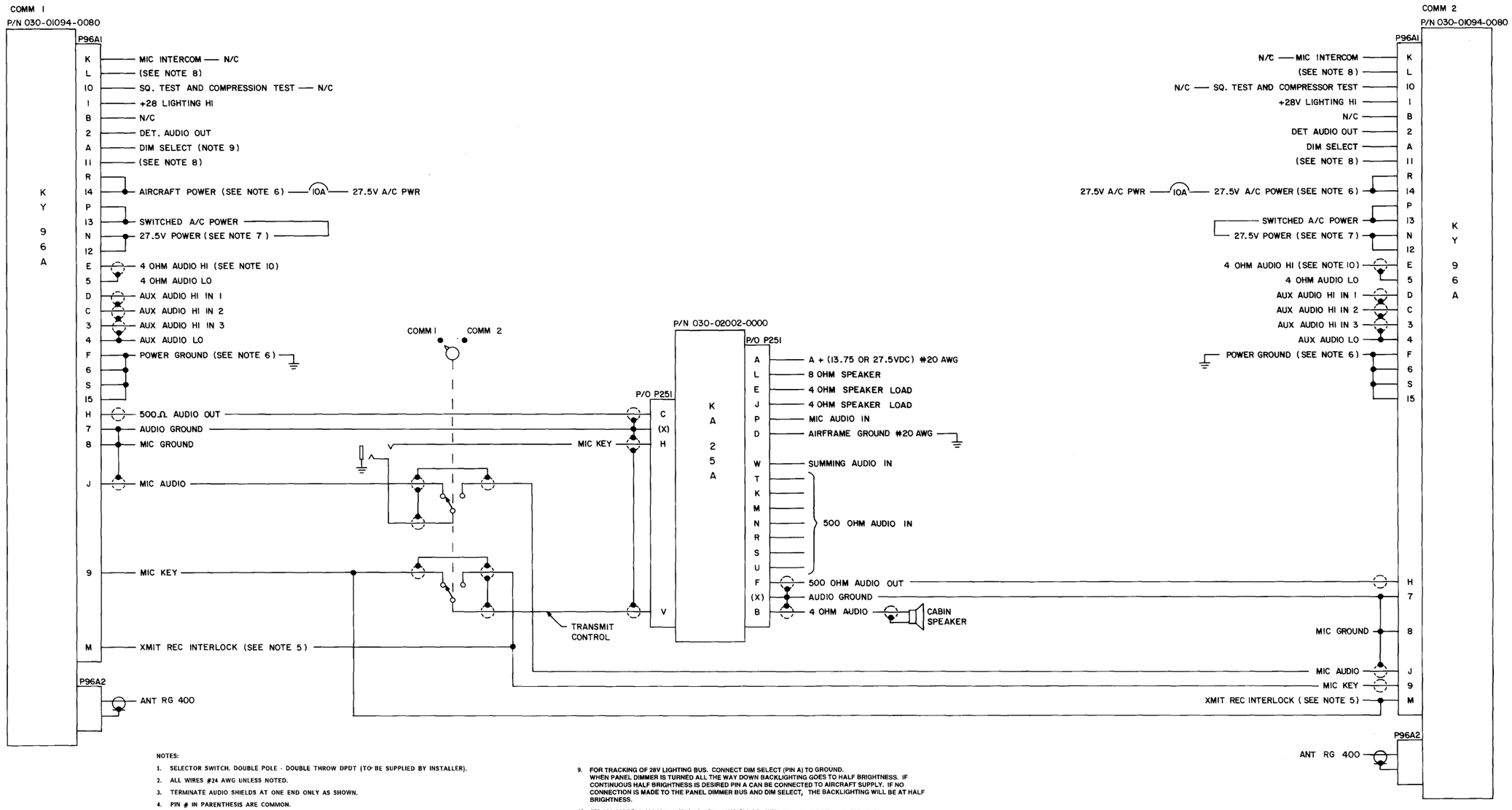
1. UNLESS NOTED, ALL WIRE #24 AWG MINIMUM
2. ALL ANTENNA COAX IS RG 400.
3. UNLESS OTHERWISE SPECIFIED, ALL SYSTEM GROUNDS ARE AIRFRAME GROUNDS.
4. POWER BUSS CIRCUIT BREAKERS ARE TO BE MOUNTED IN THE AIRCRAFT BREAKER PANEL OR INSTRUMENT PANEL SUCH THAT THEY WILL BE ACCESS IN FLIGHT AND SAFE FROM PHYSCIAL DAMAGE.
5. TX-RX INTERLOCK WIRING IS NECESSARY WHEN BOTH COMM ANT ARE TOP MOUNTED, WHEN BOTH COMM ANT ARE BOTTOM MOUNTED, OR IN DUAL COMM INSTALLATIONS IN FABRIC AIRCRAFT. REFER TO ANTENNA INSTALLATION RECOMMENDATIONS.
6. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
7. SWITCHED A/C POWER PINS P AND 13, AND 13.75V POWER, PINS 11 AND M MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
8. REMOTE FREQUENCY CHANNEL/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 12 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.



9. FOR TRACKING OF 14V LIGHTING BUS, LEAVE DIM SELECT (PIN A) UNCONNECTED. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT, THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
10. KY 97A MODELS 064-1051-50/51/60/61/70 HAVE 4W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS. IF AUDIO PANEL IS USED LEAVE PIN E OPEN.

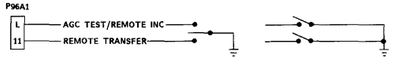
Dwg 155-01584-0001 Rev AA

FIGURE 2-11 Dual KY 97A interconnect (Dwg No 155-01584-0001 Rev AA)



NOTES:

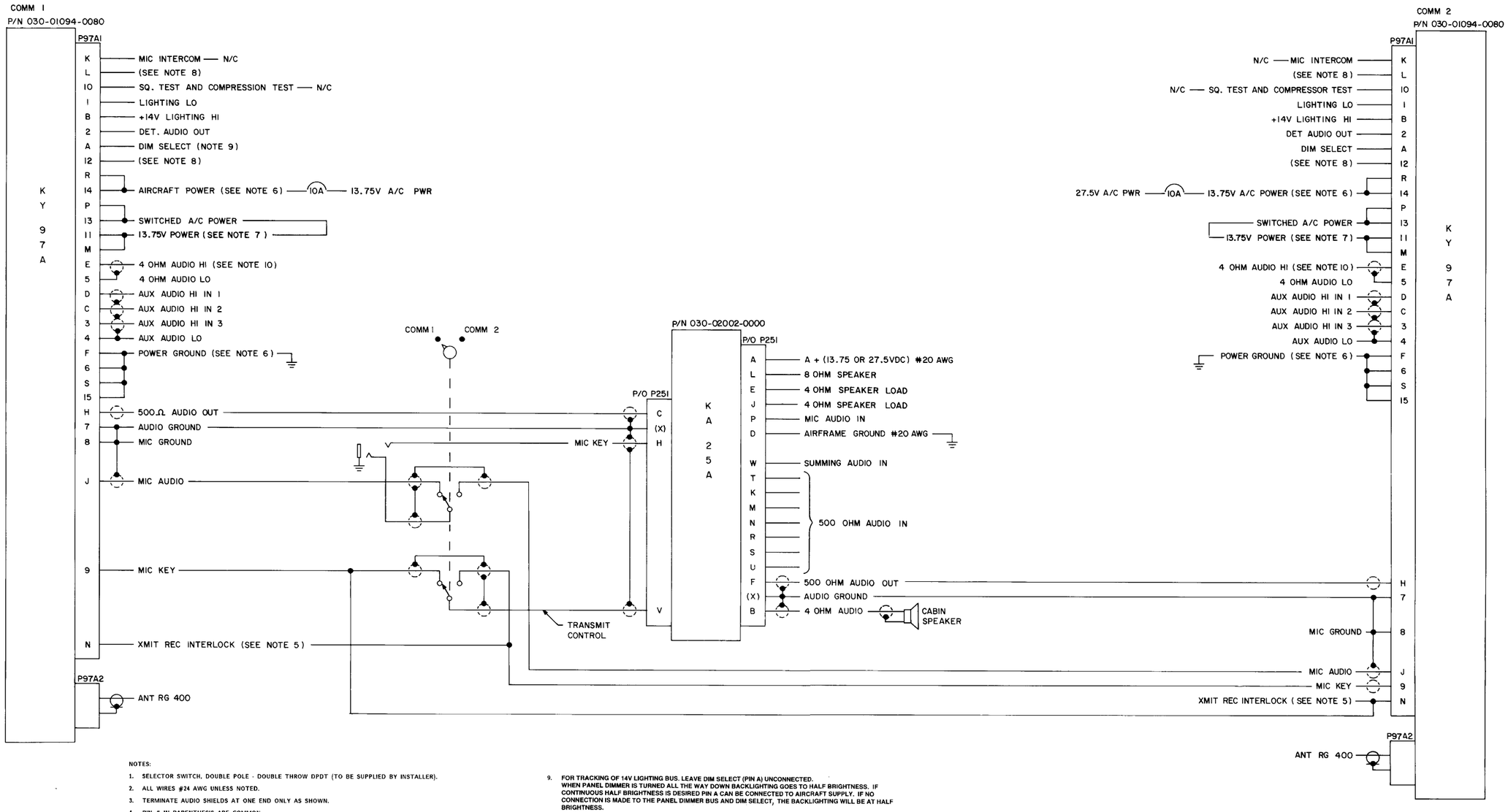
1. SELECTOR SWITCH. DOUBLE POLE - DOUBLE THROW DPDT (TO BE SUPPLIED BY INSTALLER).
2. ALL WIRES #24 AWG UNLESS NOTED.
3. TERMINATE AUDIO SHIELDS AT ONE END ONLY AS SHOWN.
4. PIN # IN PARENTHESIS ARE COMMON.
5. TX-RX INTERLOCK WIRING NECESSARY WHEN BOTH COMM ANTENNAS ARE TOP MOUNTED. WHEN BOTH COMM ANTENNAS ARE BOTTOM MOUNTED, OR IN DUAL COMM INSTALLATIONS IN FABRIC AIRCRAFT. REFER TO ANTENNA INSTALLATION RECOMMENDATIONS.
6. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
7. SWITCHED A/C POWER, PINS P AND 13, AND 27.5V POWER, PINS N AND 12, MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
8. REMOTE FREQUENCY TRANSFER/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 11 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.



9. FOR TRACKING OF 28V LIGHTING BUS. CONNECT DIM SELECT (PIN A) TO GROUND. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT, THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
10. KY 96A MODELS 064-1052-50/51/60/61/70 HAVE 8W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS. IF AUDIO PANEL IS USED LEAVE PIN E OPEN.

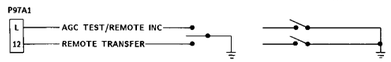
Dwg 155-01585-0000 Rev AA

FIGURE 2-12 Dual KY 96A with KA 25A interconnect (Dwg No 155-01585-0000 Rev AA)



NOTES:

1. SELECTOR SWITCH, DOUBLE POLE - DOUBLE THROW DPDT (TO BE SUPPLIED BY INSTALLER).
2. ALL WIRES #24 AWG UNLESS NOTED.
3. TERMINATE AUDIO SHIELDS AT ONE END ONLY AS SHOWN.
4. PIN # IN PARENTHESIS ARE COMMON.
5. TX-RX INTERLOCK WIRING NECESSARY WHEN BOTH COMM ANTENNAS ARE TOP MOUNTED, WHEN BOTH COMM ANTENNAS ARE BOTTOM MOUNTED, OR IN DUAL COMM INSTALLATIONS IN FABRIC AIRCRAFT. REFER TO ANTENNA INSTALLATION RECOMMENDATIONS.
6. AIRCRAFT POWER WIRING SHOULD BE TWO #18 AWG TO THE CIRCUIT BREAKER AND POWER GROUND SHOULD BE TWO #18 AWG TO GROUND.
7. SWITCHED A/C POWER, PINS P AND 13. AND 13.75V POWER. PINS 11 AND M, MUST BE JUMPERED TOGETHER WITH #20 AWG MINIMUM.
8. REMOTE FREQUENCY TRANSFER/REMOTE CHANNEL INCREMENT: A MOMENTARY GROUND AT PIN L WILL CAUSE THE RADIO TO INCREMENT TO THE NEXT CHANNEL IN MEMORY AND DISPLAY IT IN THE STBY WINDOW. A MOMENTARY GROUND AT PIN 12 WILL TRANSFER THE USE AND STBY FREQUENCIES. A TWO POSITION SPRING LOADED ROCKER SWITCH OR TWO SEPARATE MOMENTARY PUSHBUTTON SWITCHES MAY BE USED AT THE INSTALLER'S OPTION.



9. FOR TRACKING OF 14V LIGHTING BUS. LEAVE DIM SELECT (PIN A) UNCONNECTED. WHEN PANEL DIMMER IS TURNED ALL THE WAY DOWN BACKLIGHTING GOES TO HALF BRIGHTNESS. IF CONTINUOUS HALF BRIGHTNESS IS DESIRED PIN A CAN BE CONNECTED TO AIRCRAFT SUPPLY. IF NO CONNECTION IS MADE TO THE PANEL DIMMER BUS AND DIM SELECT, THE BACKLIGHTING WILL BE AT HALF BRIGHTNESS.
10. KY 97A MODELS 064-1051-50/51/60/61/70 HAVE 4W 4Ω AUDIO AVAILABLE. RATED AUDIO IS 50mW AT PIN H OF THESE UNITS. IF AUDIO PANEL IS USED LEAVE PIN E OPEN.

Dwg 155-01585-0001 Rev AA

FIGURE 2-13 Dual KY 97A with KA 25A interconnect (Dwg No 155-01585-0001 Rev AA)

SECTION III
OPERATION

3.1 POWER ON UNIT

To power on the unit, rotate the Volume (VOL) knob clockwise from the OFF position. When power is activated the Use and Standby (STBY) windows will display the frequencies and/or mode stored in the non-volatile memory before power down. After activating power, pull the VOL knob out to override the automatic squelch and rotate the VOL knob to the desired audio level. Push the VOL knob back in to activate the automatic squelch.

CAUTION: THE KY 96A, KY 97A SHOULD BE POWERED ON ONLY AFTER ENGINE STARTUP. THIS IS A SIMPLE PRECAUTION WHICH HELPS PROTECT THE SOLID STATE CIRCUITRY AND EXTENDS THE OPERATING LIFE OF YOUR AVIONICS EQUIPMENT.

3.2 TRANSMIT INDICATOR

During Comm transmissions, a TX will appear between the USE and STBY windows to indicate that the transceiver is in the Transmit mode of operation.

3.3 MODES OF OPERATION

3.3.A. Frequency Mode

Frequency selection is accomplished in the Standby Entry mode by changing the frequency display in the STBY window of the display with the tuning knobs, and then transferring the selected frequency into the USE window by pressing the Transfer button. The larger tuning knob will increment or decrement the MHz portion of the display in 1 MHz steps with rollover at each band edge (118.000 MHz or 135.975 MHz). The smaller tuning knob will increment or decrement the kHz portion of the display in 50 kHz steps with the knob pushed in or in 25 kHz steps with the knob pulled out. While in the Standby Entry mode, the transceiver remains tuned to the frequency displayed in the USE window at all times.

NOTE: Extended Frequency units will rollover at 118.000 and 136.975 MHz.

3.3.B. Channel Mode

Momentarily pressing the Channel (CHAN) button while in the Frequency mode puts the radio in the Channel mode. The last active frequency remains tuned and displayed in the USE window. The last used channel number is displayed in the channel digit unless no channels have been programmed, in which case the radio defaults to Channel 1 and dashes are displayed in the STBY window. Turning either tuning knob changes the channel number and corresponding frequency in the STBY window. The channels will only increment and decrement to channels that have been programmed. If there has been no activity for five seconds the radio will return to Frequency mode and the channel frequency is placed in the STBY window. Pressing the CHAN button

before the five second delay is completed will return the radio to the Frequency mode and the status of the Frequency mode prior to entering Channel mode remains the same.

When in Channel mode, pressing the Transfer button will return the radio to Frequency mode. The channel frequency will become the new USE frequency and the last USE frequency will become the new STBY frequency. If the radio was in Direct Tune mode (see paragraph 3.3.E below) prior to entering Channel mode, pressing the Transfer button or allowing the radio to time out will bring it back to Standby Entry.

3.3.C. Program Mode

The Program mode is entered by pressing and holding the CHAN button for longer than two seconds. The last active frequency remains tuned and displayed in the USE window. The last used channel is displayed when Program mode is entered. The channel number flashes and turning either tuning knob changes the channel number. Pressing the Transfer button will cause the frequency associated with that channel to flash. The tuning knobs then work as in the Frequency mode, except that between the rollover points (118.XX and 135.XX or 136.XX) dashes are displayed. These dashes are used to de-program channels, and to display a channel that is unprogrammed. When the channel frequency is flashing, pressing the Transfer button will cause the frequency to stop flashing and the channel number to start flashing at which time a new channel may be selected for programming.

3.3.D. Program Secure Mode

Program Secure mode is used to secure or lock the frequency that is assigned to a channel so that the frequency assigned to that channel cannot be changed. All channels or individual channels can be Program Secured. The following list of operations is given to Program Secure or Un-Program Secure a channel:

To Program Secure a Channel

* Hold the CHAN button in for more than 2 seconds (Program mode).
* Momentarily press the Transfer button (flashing frequency).
* Change channel frequency to desired Program Secured frequency.
* Ground the Program Secure pin (TP 701).
* Momentarily press the Transfer button (Flashing channel number).
* Unground the Program Secure pin.

To Un-Program Secure a Channel

* Hold the CHAN button in for more than 2 seconds (Program mode).
* Ground the Program Secure pin (TP 701).
* Momentarily press the Transfer button (flashing frequency).
* Unground the Program Secure pin.
* Momentarily press the Transfer button (Flashing channel number).

3.3.E. Direct Tune Mode

The Direct Tune mode is entered from the Standby Frequency Entry mode or Channel mode by pushing the Transfer button for longer than 2 seconds. The tuning knobs operate as in Standby Frequency Entry, but will change the USE frequency, rather than the STBY frequency. The radio will be tuned to the Active frequency.

Momentarily pushing the Transfer button returns the radio to Standby Frequency Entry. The Standby frequency prior to Active Entry mode remains unchanged.

3.4 REMOTE FREQUENCY TRANSFER (J96A pin 11 or J97A pin 12)

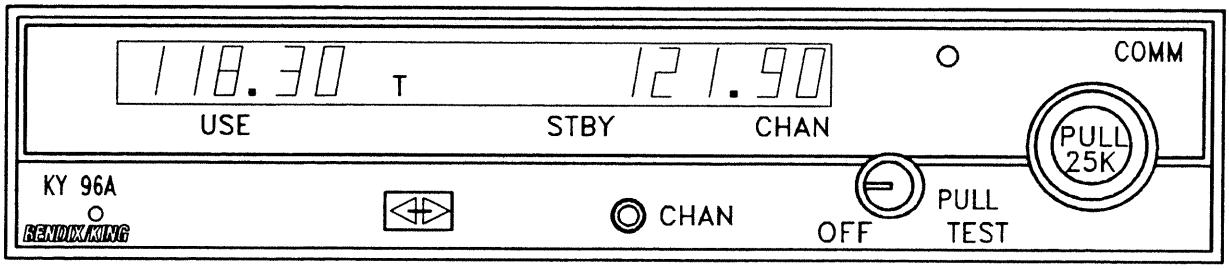
The Remote Frequency Transfer button operates identically to the front panel Transfer button with the exception that holding the Remote Transfer button for two seconds does not place the radio in the Active Entry mode.

3.5 REMOTE CHANNEL INCREMENT (J96A, J97A pin L)

Pressing the Remote Channel button will cause the system to enter the Channel mode of operation and will increment the channel from the previous channel number used.

3.6 DIM SELECT (J96A, J97A pin A)

When Dim Select is in the open position, display backlight dimming will track a 14 V lighting bus. When Dim Select is connected to ground the display backlight brightness tracks or follows a 28 V lighting bus. When Dim Select is connected to the aircraft supply voltage the display backlighting will be at half brightness.



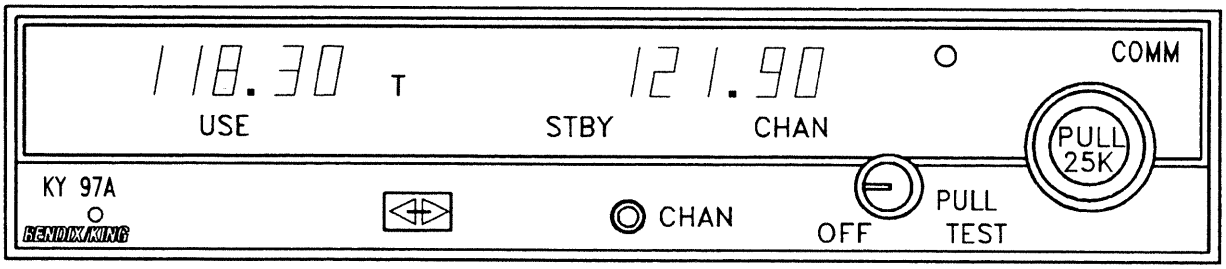


FIGURE 3-1 KY 96A, KY 97A Controls

APPENDIX E
ENVIRONMENTAL QUALIFICATION FORMS

THIS PAGE RESERVED

RTCA/DO-160B

ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE:	KY 96A VHF COMMUNICATIONS TRANSCEIVER
PART NUMBER:	064-1052-10,11,30,31,50,51,60,61,70
TSO NUMBER:	C 37C, C38C
MANUFACTURER'S SPECIFICATION:	MPS 004-00688-0000
MANUFACTURER:	ALLIEDSIGNAL INC.
ADDRESS:	400 N. ROGERS OLATHE, KS 66062-1212 USA

CONDITIONS	PARA	CONDUCTED TESTS
TEMPERATURE AND ALTITUDE	4.0 REV 0	A1, D1
LOW TEMPERATURE	4.5.1	
HIGH SHORT TIME TEMP	4.5.2	
HIGH TEMPERATURE	4.5.3	
ALTITUDE	4.6.1	
DECOMPRESSION	4.6.2	
OVERPRESSURE	4.6.3	
TEMPERATURE VARIATION	5.2	CATEGORY
HUMIDITY	6.2	CATEGORY B, LEVEL I
OPERATION SHOCK	7.0	DO-160B, 7.2.1
CRASH SAFETY	7.3	DO-160B, 7.3.1, 7.3.2
VIBRATION	8.0	DO-160B, FIG 8-1, CAT. P, K, S
EXPLOSION	9.0	"X" NOT REQUIRED
WATERPROOFNESS	10.0	"X" NOT REQUIRED
FLUID SUSCEPTIBILITY	11.0	"X" NOT REQUIRED
SAND AND DUST	12.0	"X" NOT REQUIRED
FUNGUS RESISTANCE	13.0	"X" NOT REQUIRED
SALT SPRAY	14.0	"X" NOT REQUIRED
MAGNETIC EFFECT	15.0	TESTED TO CATEGORY Z
POWER INPUT	16.0	TESTED TO CATEGORY B
VOLTAGE SPIKE CONDITION	17.0	TESTED TO CATEGORY A, B
AUDIO FREQUENCY CONDUCTED SUSCEPTIBILITY	18.0	TESTED TO CATEGORY B, Z
INDUCED SIGNAL SUSCEPTIBILITY	19.0	TESTED TO CATEGORY Z
RADIO FREQUENCY SUSCEPTIBILITY	20.0	TESTED TO CATEGORY A
EMISSION OF RADIO ENERGY	21.0	TESTED TO CATEGORY Z

004-09122-0000
Rev. 0

I FIGURE E-1 KY 96A Environmental Qualification Form

RTCA/DO-160B

ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE:	KY 97A VHF COMMUNICATIONS TRANSCEIVER
PART NUMBER:	064-1051-10,11,30,31,50,51,60,61,70
TSO NUMBER:	C 37C, C38C
MANUFACTURER'S SPECIFICATION:	MPS 004-00688-0000
MANUFACTURER:	ALLIEDSIGNAL INC.
ADDRESS:	400 N. ROGERS OLATHE, KS 66062-1212 USA

CONDITIONS	PARA	CONDUCTED TESTS
TEMPERATURE AND ALTITUDE	4.0 REV 0	A1, D1
LOW TEMPERATURE	4.5.1	
HIGH SHORT TIME TEMP	4.5.2	
HIGH TEMPERATURE	4.5.3	
ALTITUDE	4.6.1	
DECOMPRESSION	4.6.2	
OVERPRESSURE	4.6.3	
TEMPERATURE VARIATION	5.2	CATEGORY
HUMIDITY	6.2	CATEGORY B, LEVEL I
OPERATION SHOCK	7.0	DO-160B, 7.2.1
CRASH SAFETY	7.3	DO-160B, 7.3.1, 7.3.2
VIBRATION	8.0	DO-160B, FIG 8-1, CAT. P, K, S
EXPLOSION	9.0	"X" NOT REQUIRED
WATERPROOFNESS	10.0	"X" NOT REQUIRED
FLUID SUSCEPTIBILITY	11.0	"X" NOT REQUIRED
SAND AND DUST	12.0	"X" NOT REQUIRED
FUNGUS RESISTANCE	13.0	"X" NOT REQUIRED
SALT SPRAY	14.0	"X" NOT REQUIRED
MAGNETIC EFFECT	15.0	TESTED TO CATEGORY Z
POWER INPUT	16.0	TESTED TO CATEGORY B
VOLTAGE SPIKE CONDITION	17.0	TESTED TO CATEGORY A, B
AUDIO FREQUENCY CONDUCTED SUSCEPTIBILITY	18.0	TESTED TO CATEGORY B, Z
INDUCED SIGNAL SUSCEPTIBILITY	19.0	TESTED TO CATEGORY Z
RADIO FREQUENCY SUSCEPTIBILITY	20.0	TESTED TO CATEGORY A
EMISSION OF RADIO ENERGY	21.0	TESTED TO CATEGORY Z

004-09121-0000
Rev. 0

FIGURE E-2 KY 97A Environmental Qualification Form