

Honeywell

INSTALLATION MANUAL

BENDIX/KING[®]

KN 63

***DISTANCE MEASURING
EQUIPMENT***

*MANUAL NUMBER 006-00176-0004
REVISION 4 October, 2004*

WARNING

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**SECTION I
General Information**

1.1 INTRODUCTION

This manual contains information relative to the physical, mechanical, and electrical characteristics and installation procedures for the KN 63 DME, KDI 572/574 Master Indicators, and KDI 573 Slave Indicator.

1.2 DESCRIPTION OF EQUIPMENT

The KN 63 is a remote mounted, 200 channel TSO'd DME employing the latest state of the art solid-state transmitter and large scale integrated circuit (LSI) technology. All tuning is done electronically; using a single crystal, digital, frequency synthesizer. Range, speed, and time-to-station are measured digitally, using two LSI's. Another LSI is employed in the digital frequency synthesizer. The KN 63 can be operated with any DC input from 11 to 33 volts. Power consumption is 17 watts maximum with two indicators at any input voltage.

The KN 63 is designed to operate with the panel mounted KDI 572/574 master indicators (required) and the KDI 573 slave indicator (optional). Both indicators have a gas discharge display that simultaneously indicates range, speed, and time-to-station. An automatic dimming circuit adjusts the brightness of the display to compensate for changes in ambient light level. Both indicators contain an LSI. The KDI 572/574 master indicator accepts channeling data from either of two external NAV control heads. A rotary switch on the KDI 572 selects N1, hold, or N2 channeling and also provides a system power switch. The KDI 572/574 will accept shifted BCD, ARINC 2X5, or slip code tuning. It converts whatever code is received into digital serial data which is sent to the KN 63. Both indicators receive DME range, speed, and time-to-station as digital serial data from the KN 63. The KDI 573 slave indicator has no mode switch and merely provides a duplicate display of the information shown on the KDI 572.

1.3 TECHNICAL CHARACTERISTICS

SPECIFICATION	CHARACTERISTIC
TSO Compliance	(KN 63, KDI 572, KDI 573 & KDI 574) FAA TSO C66a (KA 60 ANTENNA) FAA TSO C66a & TSO C74c (KA 61 Antenna) FAA TSO C66c, C74c, C112, C118, C147
RTCA DO-160 Environmental Categories	KN 63: /A2D2/A/MN/XXXXXXZAAAA KDI 572, KDI 573 & KDI 574: /A1D1/A/KPS/XXXXXXZAAAA KA 60 Antenna: /D2/A/JY/XXXXXXXXXXXX
RTCA DO-160D Environmental Categories	KA 61: [D2X]ACB[SCMYL,RG]XRFXX-SXXXXXXXX[XXXX][2A]AX
Channels	200 channels
Electrical	a. All solid state transmitter b. Electronically tuned by single crystal, digital, frequency synthesizer. c. Range, speed, and time-to-station measured digitally, using large scale integrated circuits d. Gas discharge display

SPECIFICATION	CHARACTERISTIC
Output Power	50 watts peak pulsed power minimum, 100 watts nominal
Maximum Display Range*	389 nautical miles
Aquisition Sensitivity	-82dBm minimum, -87dBm nominal
Range Accuracy*	± 1 nautical miles or $\pm 14\%$, whichever is greater from 0 to 99.9 nautical miles. ± 1 nautical mile from 100 to 389 nautical miles.
Ground Speed Accuracy	± 1 knot or $\pm 1\%$, whichever is greater from 0 to 999 knots.
Time-to-Station Accuracy	± 1 minute from 0 to 99 minutes
Search Time	1.0 second nominal
Memory Time	11 to 15 seconds
Audio Output (Ident)	Level adjustable up to 15mw into 500 ohm load, nominally set for 2mw.
Maximum altitude	50,000 feet
KN 63 Dimensions and Weight (Including mounting rack and connectors)	Length: 11.550 inches (29.34 cm) Width: 1.18 inches (3.00 cm) Height: 6.50 inches (16.51 cm) Weight: 2.8 lbs (1.27kg)
KDI 572, KDI 573 and KDI 574 Dimensions and Weight (Including connector)	Length behind panel: 8.35 inches (21.21cm) Width: 3.50 inches (8.89 cm) Height: 1.35 inches (3.43 cm) Weight: .8 lbs (.363 kg) KDI 572 Weight: .7 lbs (.318 kg) KDI 573
Power Requirements (KN 63)**	11-33VDC at 17 watts maximum with two indicators
Channeling Sources	a. External control head providing shifted BCD code such as KFS 560B. b. External control head providing ARINC 2X5 code such as KX 170 and KFS 560B. c. External control head providing slip code such as KX 170A, KX 170B, KX 175A, and KX 175B.
KDI 572 Lighting	066-1069-00 - .065 amps at 28V or .13 amps at 14V 066-1069-01 - .23 amps at 5V

*The maximum range at which the DME will lock up is determined by altitude and ground station output power and sensitivity.

**The KDI 572 and KDI 573 do not require power from the aircraft power buss.

TABLE 1-1 TECHNICAL CHARACTERISTICS

Frequency MHz	SHIFTED BCD				2 x 5				SLIP			
	M8	M4	M2	M1	MA	ME	MC	MD	M0	M1	M2	M3
108	0	0	0	0	0	1	1	0	1	1	0	1
109	0	0	0	1	0	0	1	1	1	1	1	0
110	0	0	1	0	1	0	1	1	0	1	1	1
111	0	0	1	1	0	1	1	1	0	0	1	1
112	0	1	0	0	0	1	0	1	0	0	0	1
113	0	1	0	1	1	1	0	1	1	0	0	0
114	0	1	1	0	1	1	1	0	0	1	0	0
115	0	1	1	1	1	1	0	0	1	0	1	0
116	1	0	0	0	1	0	0	1	0	1	0	1
117	1	0	0	1	1	0	1	0	0	0	1	0
	K800	K400	K200	K100	KA	KE	KC	KD	K0	K1	K2	K3
.0X	0	0	0	0	1	0	1	1	0	0	1	1
.1X	0	0	0	1	0	1	1	1	0	0	0	1
.2X	0	0	1	0	0	1	0	1	0	0	0	0
.3X	0	0	1	1	1	1	0	1	1	0	0	0
.4X	0	1	0	0	1	1	1	0	1	1	0	0
.5X	0	1	0	1	1	1	0	0	0	1	1	0
.6X	0	1	1	0	1	0	0	1	1	0	1	1
.7X	0	1	1	1	1	0	1	0	1	1	0	1
.8X	1	0	0	0	0	1	1	0	1	1	1	0
.9X	1	0	0	1	0	0	1	1	0	1	1	1
	K50				K50				K50			
.X0			1				1				1	
.X5			0				0				0	

0 = Connected to Remote Control Common
 1 = Open

TABLE 1-2 DME CHANNELING CODES

1.4 UNITS AND ACCESSORIES

A complete DME installation requires a KN 63 DME (066-1070-00/01), a KDI 572 master indicator (066-1069-00 or 01) or KDI 574 Master Indicator (066-1069-04), a KA 60/61 antenna, and one or two external control heads (see [section 1.3, channeling sources](#)). The KDI 572 is available with either 14/28 volt lighting (066-1069-00) or 5 volt lighting (066-1069-01). Use of the KDI 573 slave indicator (066-1069-02) is optional. A KN 63 installation kit (050-01766-0000) and KDI 572 installation kit (050-01740-0000) are required. A KDI 573 installation kit (050-01740-0001) is needed if a KDI 573 is used. A KDI 574 installation kit (050-01740-0002) is needed if a KDI 574 is used.

KN 63 Installation Kit (050-01766-0000)

PART NUMBER	DESCRIPTION	QTY
030-00005-0000	CONN BNC TED 4-10-4	2
030-01094-0056	CONN MOLEX (24P)	1
030-01107-0015	CONN PINS (15)	1
047-04218-0001	HOLD DOWN BAR	2
047-04219-0001	MOUNTING RACK	1
075-00021-0001	HOLD DOWN CLAMP	1
078-00054-0000	COMPRESSION SPRING	1
088-00752-0000	CONN HOOD	1
089-02015-0037	NUT HEX 8-32	4
089-05442-0010	SCR 8-32 FHP	4
089-05529-0032	SCR FHP	1
089-05909-0007	SCR 8-32 PHP	4
089-06541-0000	SCR 4-40 PHP	2
089-08111-0034	WASHER SL #8	5
091-00109-0001	CABLE TIE	1

TABLE 1-3 KN 63 INSTALLATION KIT

KDI 572: Installation Kit (050-01740-0000)

KDI 573: Installation Kit (050-01740-0001)

KDI 574: Installation Kit (050-01740-0002)

QTY.

PART NUMBER	DESCRIPTION	-00	-01	-02
030-02350-0001	CONN 50 PIN KEYED 5	0	0	1
030-02350-0003	CONN 50 PIN KEYED 9	0	1	0
030-02350-0005	CONN 50P KEYED 23	1	0	0
030-02351-0004	HOOD	1	1	1
047-04215-0001	MOUNTING PLATE	1	1	1
089-05111-0004*	SCR 4-40X1/4 BLK	4	4	4
089-05111-0006	SCR 4-40X3/8 BLK	4	4	4

*These items for use in installing KDI 572/573/574 in aircraft panels of 1/16" thickness or less.

1.5 LICENSE REQUIREMENTS

None

SECTION II INSTALLATION

2.1 GENERAL INFORMATION

This section contains information relative to the installation and wiring of the KN 63 DME, the KDI 572, KDI 573 and KDI 574 Indicators, and the KA 60 Antenna. A close adherence to methods and procedures discussed herein is required.

2.2 UNPACKING AND INSPECTING EQUIPMENT

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

2.3 EQUIPMENT INSTALLATION

2.3.1 KN 63 INSTALLATION (FIGURE 2-1)

- A. The KN 63 may be mounted rigid, either horizontally or vertically.
- B. Avoid mounting the KN 63 close to any high external heat source. Allow one inch of free air space around top and sides of unit.
- C. Allow adequate space for installation of cables and connectors.
- D. The KN 63 must be mounted a minimum of three feet (3') from the DME antenna.
- E. In order to function properly, the KN 63 must be well grounded to the aircraft frame. Using fine sandpaper, remove all paint and protective coatings from the areas on the equipment shelf that will contact the unit or its mounting rack. Apply Alumiprep No. 33 (016-01127-0000) following the directions on the container to cleanse the metal of any residue. Then apply Alodine No. 1001 (016-01128-0000) to these areas following the directions on the container. The equipment shelf must also be well grounded to the aircraft frame.
- F. For horizontal mounting, secure the unit in place with four 8-32 pan head phillips screws (089-05909-0007), four 8-32 hex nuts (089-02015-0037), and four #8 lock washers (089-08111-0034). The screws should be inserted through two holes in the front plate tab and through two slots in the rear plate tab. The mounting rack is not used for horizontal mounting.
- G. For vertical mounting, the mounting rack is used. First attach the hold down clamp (075-00021-0001), hold down screw (089-05529-0032), compression spring (078-00054-0000), and #8 lock washer (089-08111-0034) to one of the hold down

bars (047-04218-0001). Secure the mounting rack (047-04219-0001) with the two hold down bars under it using four 8-32 flat head phillips screws (089-05442-0010), four 8-32 hex nuts (089-02015-0037), and four #8 lock washers (089-08111-0034). Install the KN 63 in the mounting rack so the connectors are on the same end as the hold down clamp. Tighten the hold down screw to secure unit in place.

- H. Connect the harness wires to the connector pins (030-01107-0015) and insert the connector pins through the connector hood (088-00752-0000) into the rear of the Molex connector (030-01094-0056). Mount the Molex connector and connector hood to the front of the unit using two 4-40 pan head phillips screws (089-06541-0000). The connector must be turned so the polarizer key aligns with the slot in the printed circuit board. Use a cable tie (091-00109-0001) to bundle the wires at the rear of the connector hood.
- I. Connect the antenna cable to the antenna connector.
- J. The audio output of the KN 63 is set for approximately 2mw into 500 ohms at the factory. If a different level is desired, remove the rear plate and the dust cover. (Each are held in place with three screws.) The audio level adjustment is then accessible through a hole in one of the inner covers.
- K. The KN 63 suppression input/output fully meets ARINC specifications and is compatible with all DME's and transponders meeting ARINC specifications. Some transponders will accept ARINC suppression but do not generate a suppression output for the KN 63. These transponders are compatible with the KN 63. Some DME's generate a suppression output that is incompatible with the KN 63. They will be damaged by the KN 63 and, therefore, are incompatible. The installer must determine the compatibility of the suppression in the transponder and, possible, DME with the KN 63 suppression prior to making the installation. This information will be available in the respective equipment service bulletins or installation manuals.
- L. When operating dual KN 63's, the respective DME's will interfere with each other when the NAV frequencies differ by 5.3 MHz (for example, 108.00 MHz and 113.3 MHz). This interference results in premature flags or loss of "lock-on". Should this occur, one of the KN 63's should be either turned off or tuned to a different NAV frequency so that the 5.3. MHz difference is eliminated.

2.3.2 MOLEX CONNECTOR ASSEMBLY ([Figure 2-2](#))

- A. Solderless Contact Terminal Assembly using Molex Crimper

Refer to instructions in [Figure 2-2](#).

- B. Solderless Contact Terminal Assembly using Pliers

1. Strip each wire 5/32" for contact terminal (030-01107-0015). (The last two digits of the contact terminal part number indicate the number of terminals furnished).
 2. Tin the exposed conductor.
 3. Using needle nose pliers, fold over each conductor tab in turn, onto the exposed conductor. When both tabs have been folded, firmly press the tabs against the conductor.
 4. Repeat step 3 for insulator tabs.
 5. Apply a small amount of solder (using minimum heat) to the conductor/tab connection to assure a good electromechanical joint.
- C. Contact Insertion into Molex Connector Housing
1. 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 (030-01094-0056). 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.
 2. The self-locking feature can be tested by gently pulling on the wire.
- D. Extraction of Contact from Molex Connector
1. Slip the flat narrow blade of a Molex contact ejector tool, HT-1884 (005-02012-0011), 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. When the ejector is slid into place, the locking key of the contact is raised, allowing the contact to be removed by pulling moderately on the lead.
 3. Neither the contact nor position is damaged by removing a contact; however, the contact should be checked visually before reinstalling in connector, to be certain that retaining tab "A" extends as shown (see [Figure 2-2](#)) for retention in connector.

2.3.3 KDI 572/KDI 573/KDI 574 INSTALLATION ([Figure 2-3](#))

- A. Plan a location in the aircraft panel for the KDI 572/574 Master Indicator that is clearly visible and within easy access of the pilot.
- B. Avoid mounting close to heater vents or other high heat sources.
- C. Allow a clearance of 3 inches from back of unit for plug removal.
- D. Compass safe distance is 12 inches for a worst case deflection of 1 degree.
- E. The indicator is secured in place behind the panel since it is rear mount only. Make panel cutout as shown in [Figure 2-3](#).

- F. The mounting plate (047-04215-0001) may be used if the indicator is to be installed in a previous panel opening that is too large.
- G. Secure the indicator in place with four 4-40 flat head phillips screws. If the aircraft panel is 1/16 inch thick or less, use 1/4 inch screws (089-05111-0004). If the aircraft panel is thicker than 1/16 inch, use 3/8 inch screws (089-05111-0006).
- H. Route the harness wires through the connector hood (030-02351-0004) and solder them to the connector pins. Be sure to use the proper mating connector for the indicator being installed (030-02350-0005 for KDI 572, 030-02350-0001 for KDI 574 and 030-02350-0003 for KDI 573). Each one is keyed differently. Make sure locking mechanism engages when connector is installed on rear of unit.
- I. The KDI 572, KDI 573, and KDI 574 all contain a photocell activated dimming circuit that reduces the display brightness in low ambient light levels. The minimum display brightness (which occurs in the dark) is adjustable by means of a pot (R918) accessible through a hole in the side rail. It has been adjusted at the factory to match the brightness of other King products. The maximum display brightness (which occurs in bright light) is not affected by R918.
- J. The KDI 572 is available in two versions: one with 14/28 volt lighting (066-01069-0000) and one with 5 volt lighting (066-01069-0001). The version corresponding to the aircraft lighting voltage must be used.

2.3.4 DME ANTENNA INSTALLATION

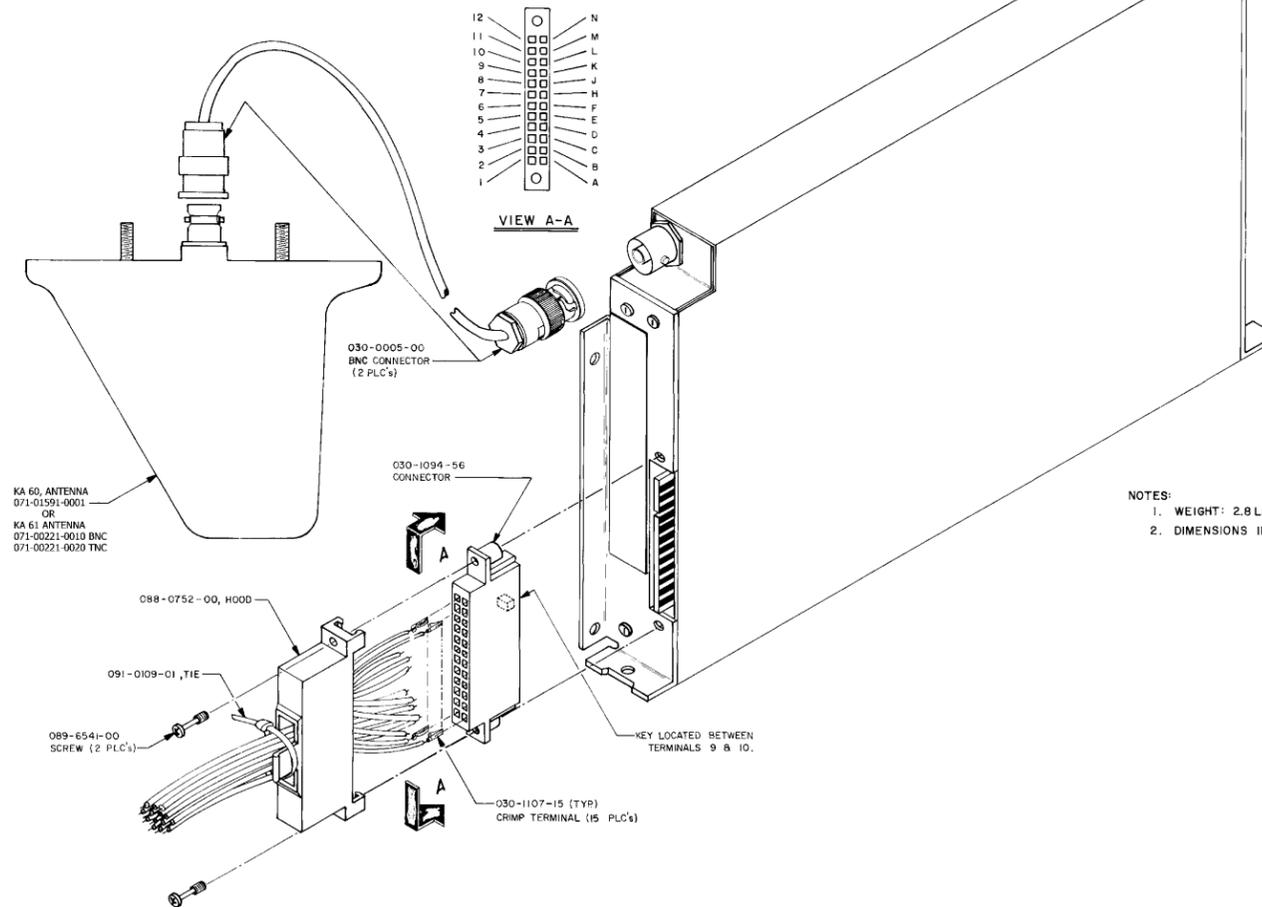
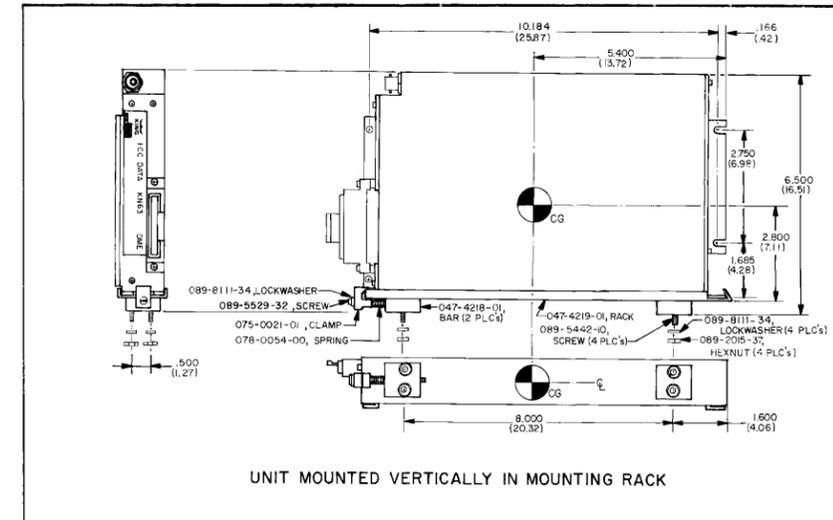
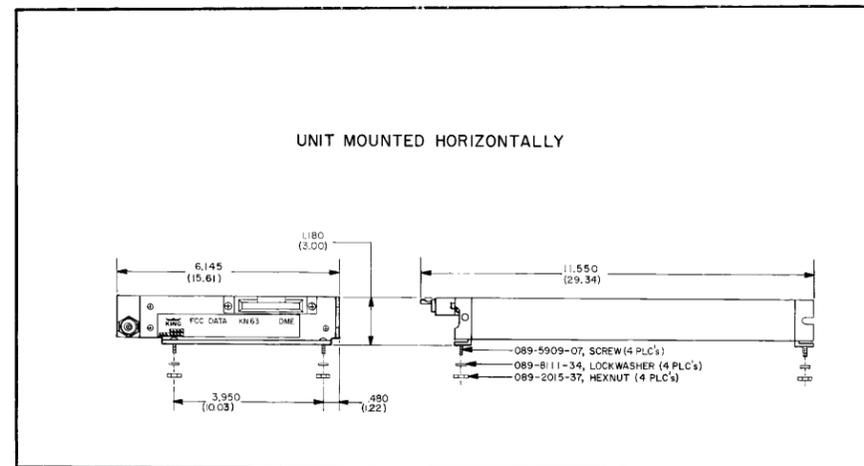
2.3.4.1 General

- A. The antenna should be well removed from any projections, the engine(s), and propeller(s). It should also be well removed from landing gear doors, access doors, or other openings which will break the ground plane for the antenna.
- B. The antenna should be mounted on a bottom surface of aircraft and in a vertical position when the aircraft is in level flight.
- C. Avoid running other cables or wires near the antenna cable.
- D. Avoid mounting the antenna within three (3) feet of the ADF sense antenna.
- E. Where practical, plan the antenna location to keep cable lengths as short as possible and avoid sharp bends in the cable to minimize the VSWR.
- F. To prevent RF interference, the antenna must be physically mounted a minimum distance of three feet from the KN 63.
- G. A back-up plate should be used for added strength on thin-skinned aircraft.

- H. The antenna should be kept clean. If left dirty (oil covered) the range of the DME may be affected.
- I. On pressurized aircraft, the antenna should be sealed using RTV (016-01082-0000) around the connector and mounting hardware.
- J. All antennas should be sealed around the outside for moisture protection using RTV or equivalent.

2.3.4.2 KA 60/61 Installation (Refer to Figure 2-4 and 2-5)

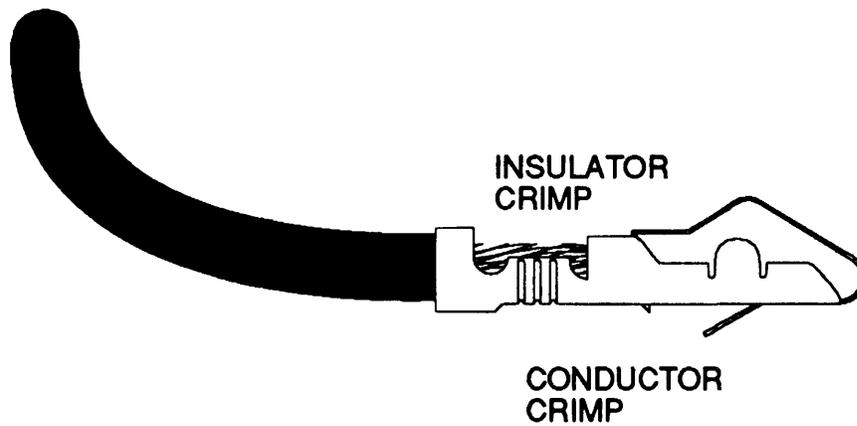
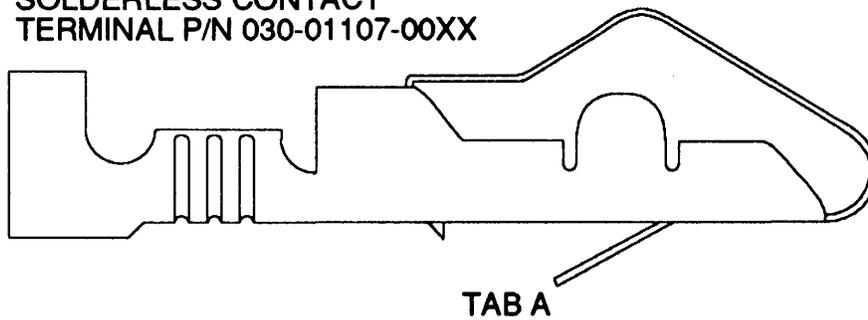
- A. Peel the backing off the antenna template and apply template to the aircraft at the desired mounting location.
- B. Drill or cut the proper size holes for mounting the antenna, then remove the template.
- C. Using the antenna as a stencil, draw a line around the base of the antenna that will come into contact with the aircraft. Then carefully scrape off the paint within the stenciled area. Lightly sand the bare metal with fine sandpaper to insure removal of all paint and protective coatings.
- D. Sand the inside area of the aircraft where the backing plate will be located to remove the chromate or other protective finish.
- E. Apply Alumiprep No. 33 (016-01127-0000) following the directions on the container to cleanse the metal of any residue.
- F. Apply Alodine No. 1001 (016-01128-0000) following the directions on the container.
- G. Rivet the backing plate into place, if required.
- H. Mount the antenna using #8 star washers (089-08017-0037) and 8-32 nuts (089-02148-0032) included with the antenna.
- I. RG-400 or equivalent coaxial cable is normally used on installations having a cable run of ten feet or less. For cable runs from ten to twenty feet, use RG-142B/U cable (024-00002-0000).
- J. Inspect coaxial cable connector for proper center contact, then fasten it securely to the antenna.



- NOTES:
1. WEIGHT: 2.8 LBS; 1.27 Kg.
 2. DIMENSIONS IN PARENTHESIS ARE IN CENTIMETERS.

FIGURE 2-1 KN 63 OUTLINE AND MOUNTING DRAWING
Dwg. No. 155-05315-0000, R-AA

SOLDERLESS CONTACT
TERMINAL P/N 030-01107-00XX



TERMINAL EXTRACTION
TOOL P/N 047-05099-0001
MOLEX P/N HT-1884

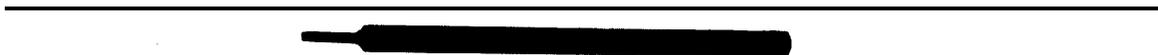
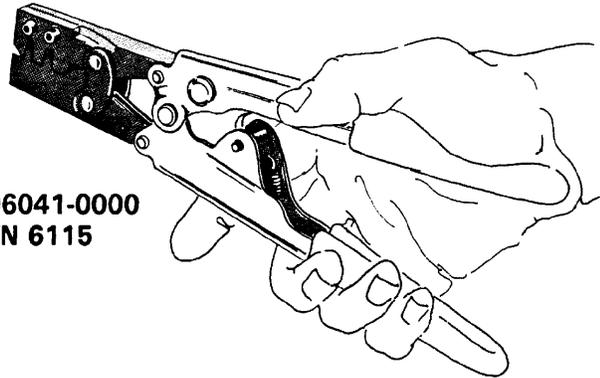


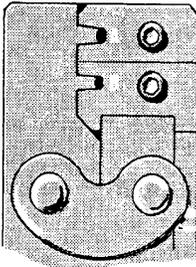
FIGURE 2-2 MOLEX TERMINALS AND TOOLS
(Sheet 1 of 3)

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

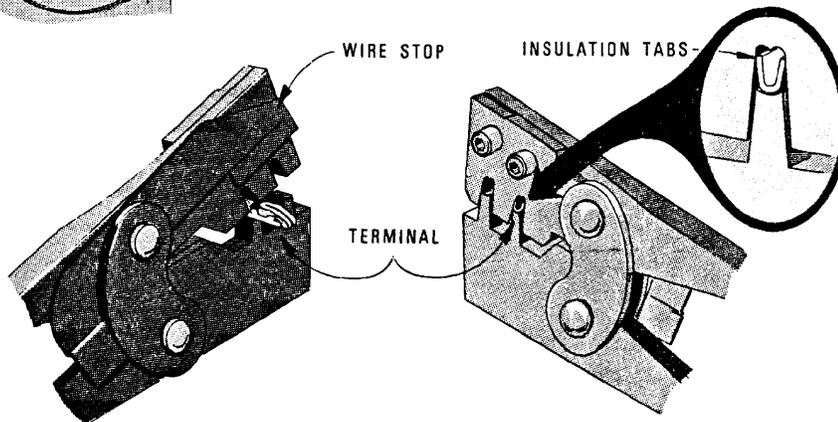
HAND CRIMPER
 P/N 071-06041-0000
 MOLEX P/N 6115



Close crimpers until ratchet begins to engage. Then insert terminal into jaws from the back side. (See the following; Figure 2-1). For 24 to 30 AWG wire, it will be necessary to start the crimp in jaw A and then complete in jaw B.



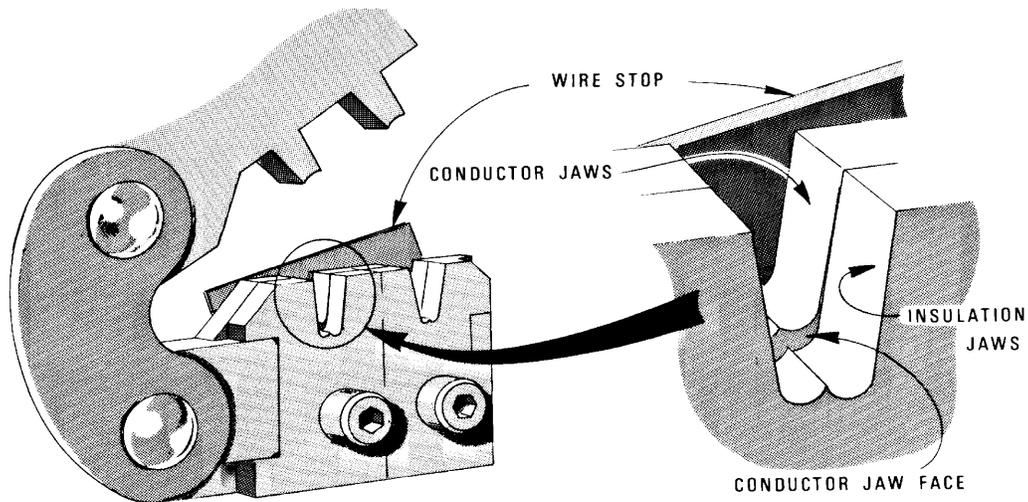
JAW	TERMINAL	WIRE SIZE	INSULATION RANGE
A	030-01107-0030	18 to 24 AWG	.110 TO .055
B	030-01107-0030	24 to 30 AWG	.055 to .030



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

FIGURE 2-2 MOLEX TERMINALS 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 the wire stop down so that it rests snugly behind the contact portion of the terminal. Strip off 1/8 inch of the wire insulation 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.

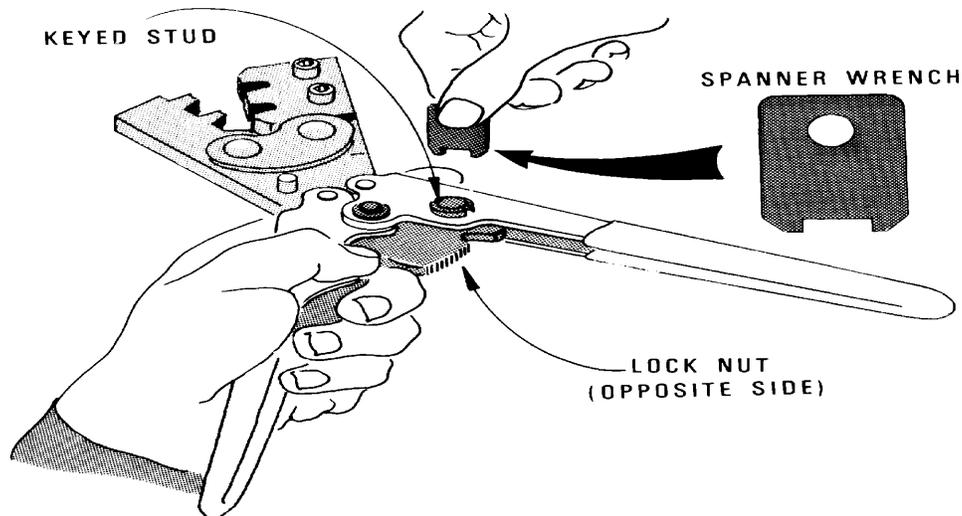
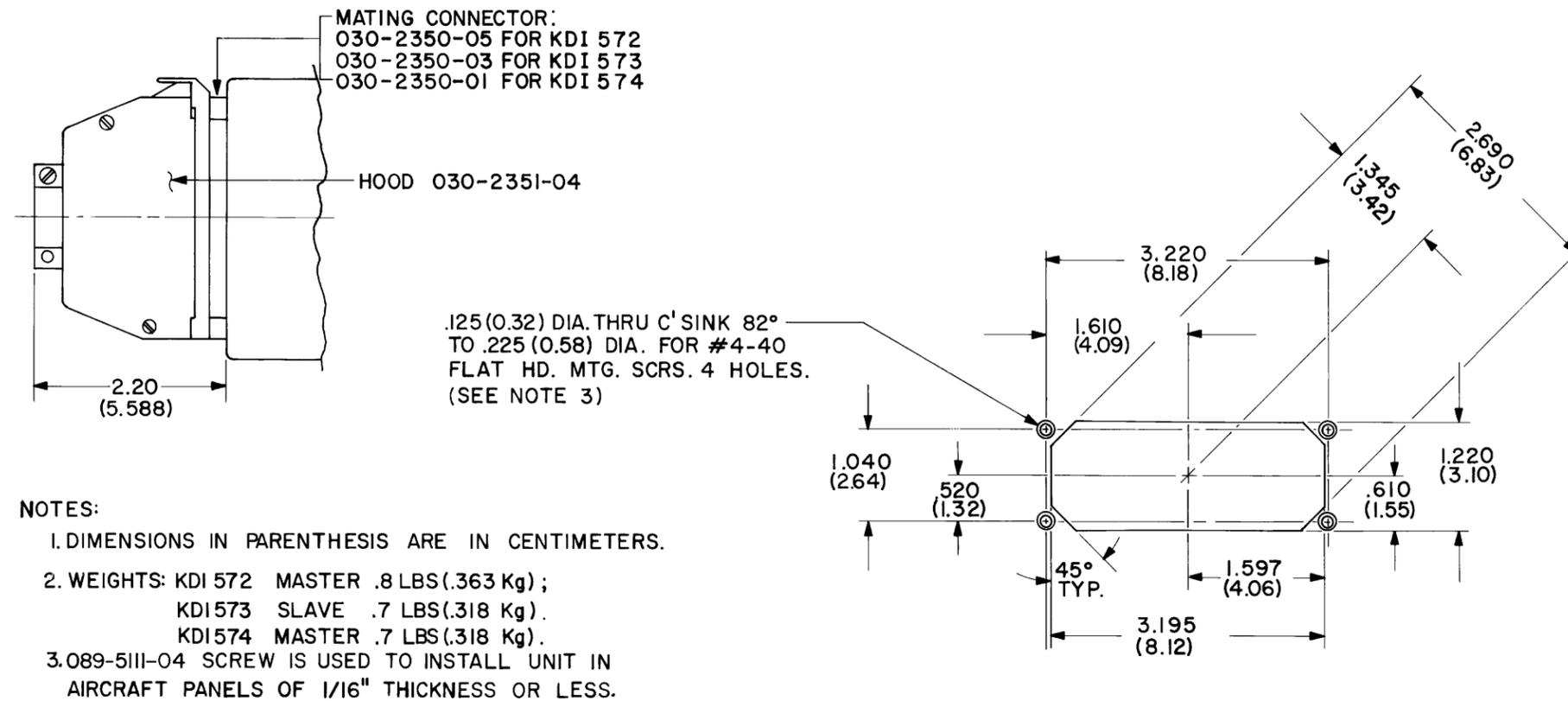


FIGURE 2-2 MOLEX TERMINALS AND TOOLS
(Sheet 3 of 3)



CUTOUT DIMENSIONS FOR PANEL MOUNTING

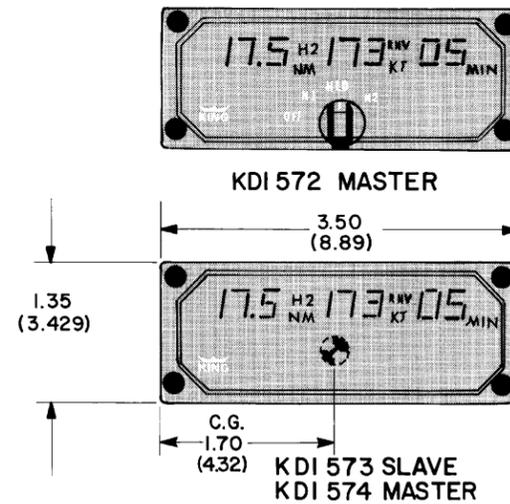
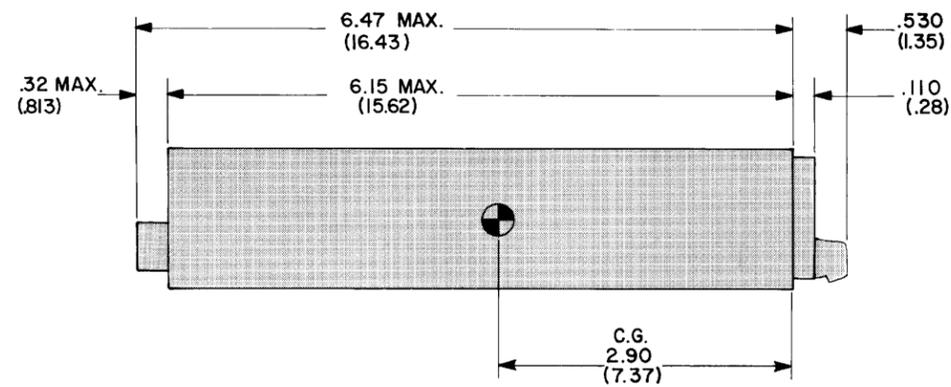
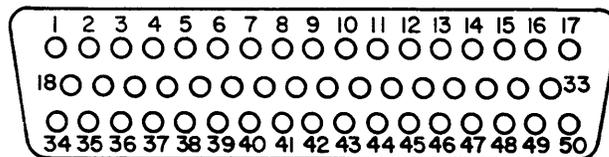
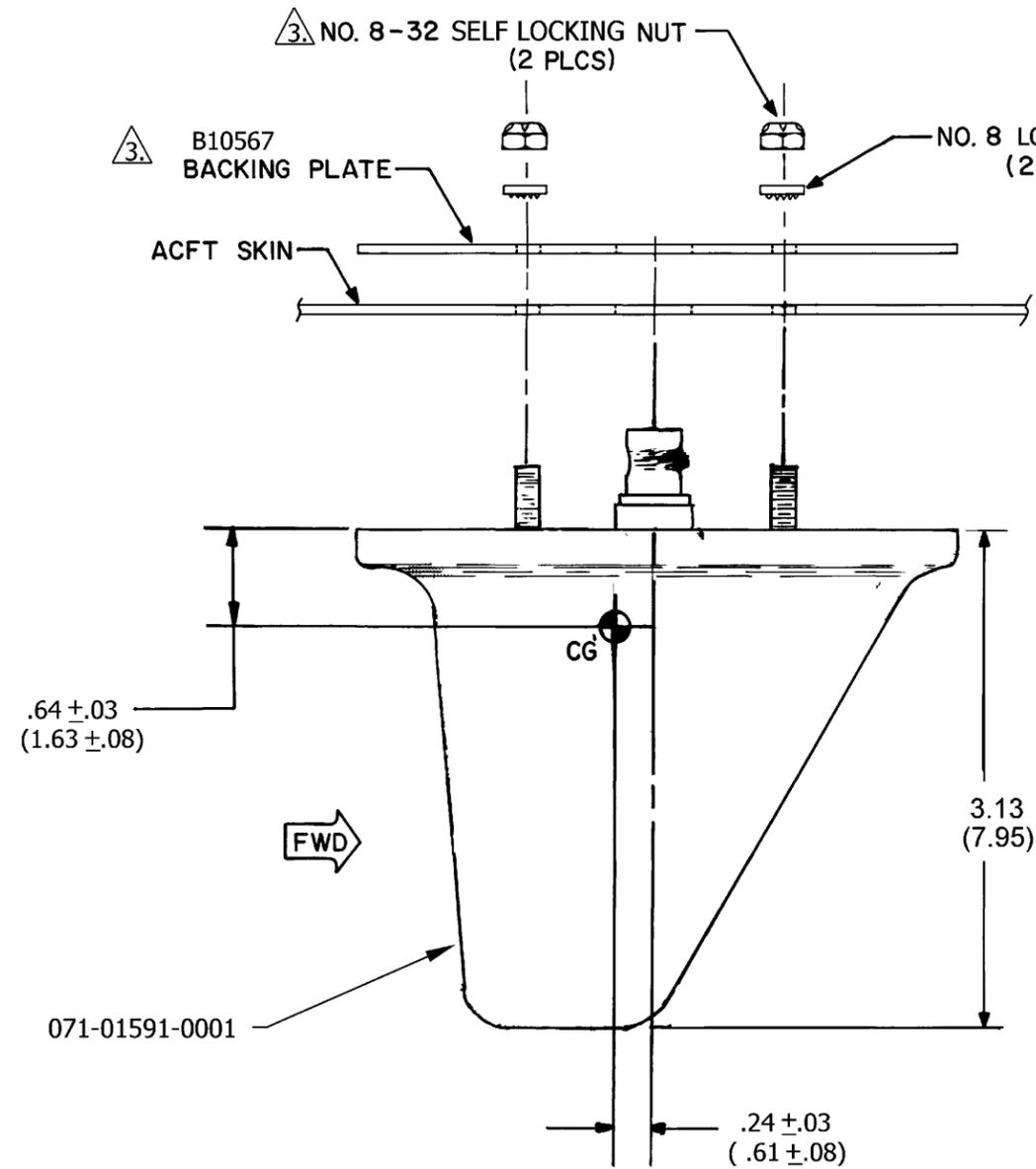


FIGURE 2-3 KDI 572/573/574 INSTALLATION AND MOUNTING DRAWING
 Dwg. No. 155-05311-0000, R-1

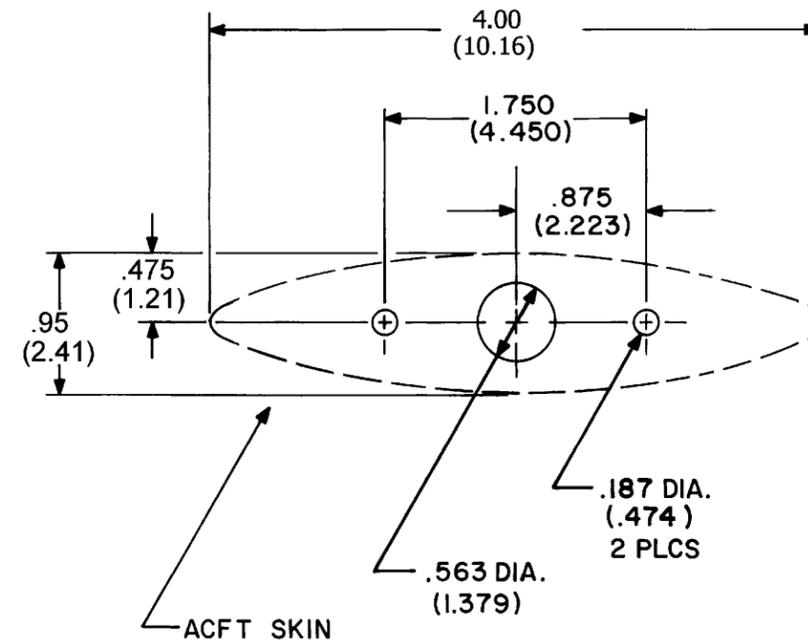


KDI 572 CONNECTOR P5721/J5721 PIN 23 KEYED
KDI 573 CONNECTOR P5731/J5731 PIN 9 KEYED
KDI 574 CONNECTOR P5741/J5741 PIN 5 KEYED
PIN VIEW OF MALE OR SOLDER CUP VIEW
OF FEMALE CONNECTOR.

FIGURE 2-4 CONNECTOR PIN LOCATION GUIDE



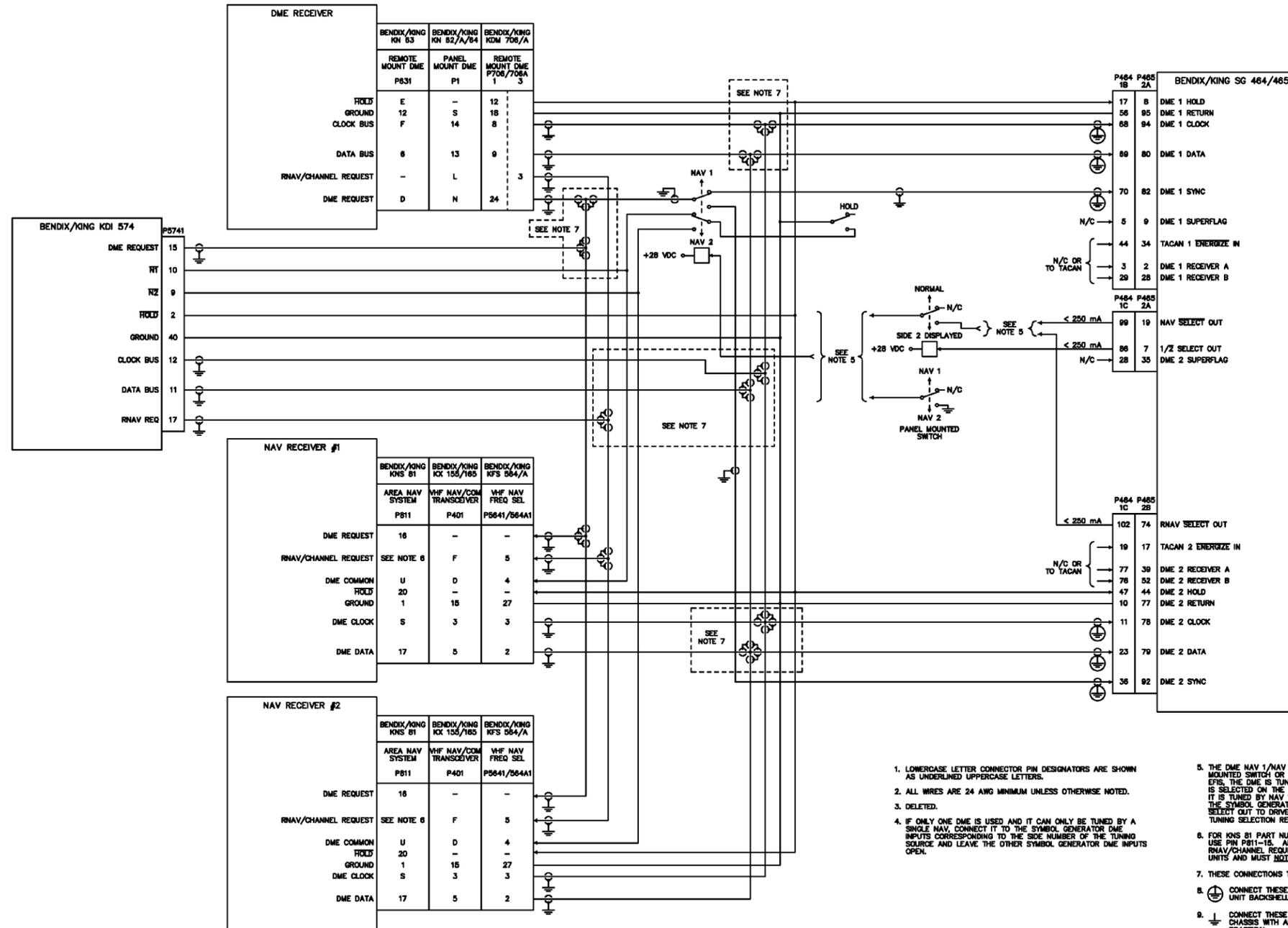
**MOUNTING
HOLE CUTOUT DIAGRAM**



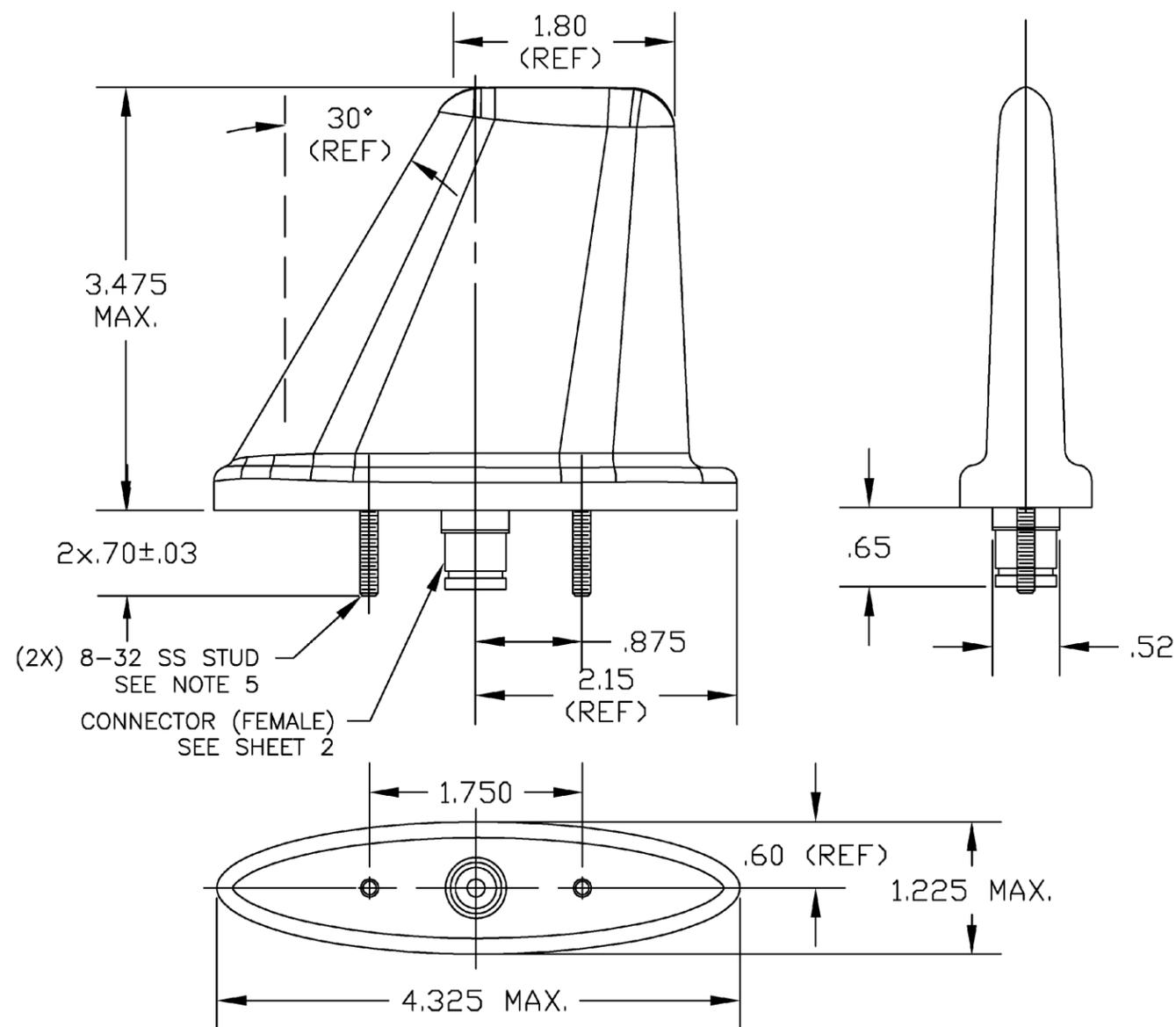
NOTES:

1. DIMENSIONS IN PARENTHESES () ARE IN CENTIMETERS.
2. WEIGHT: .20 LB. (.090 Kg) NOMINAL WITH BACKING PLATE, WASHERS, AND 8-32 NUT.
3. ITEMS SUPPLIED WITH PART 071-01591-0001.

FIGURE 2-5 KA 60 INSTALLATION DRAWING
Dwg. No. 155-05289-0000, R-AB



2-6 EFIS 40/50 _ KDI 574 INTERCONNECT
Dwg. No. 155-01601-0040, R-AB



1. RF Performance Characteristics:

- Frequency: 960 to 1220 MHz.
- VSWR: 1.5:1 Max @ 960 to 1220 MHz.
1.3:1 Max @ 1025 to 1150 MHz.
- Polarization: Vertical
- Radiation Pattern: Equivalent of $\lambda/4$ Stub
- RF Power: 500 Watts pulse power @ 55,000 FT altitude
(30uS pulse width, PRF 125 pulses per second)
- Lightning Protection: DC grounded (< 50mW from RF pin to base plate)

2. Weight:

0.40 LBS (MAX)

3. Construction:

Molded radome filled with an EPOXY resin fill and painted with white enamel.

4. Color:

White Semi-gloss per FED STD 17925

5. Mounting Studs:

8-32 Studs must withstand 9 in-lb (min) torque

6. Rated Air Speed:

350 Knot EAS with 15 Degrees side slip

7. TSO Categories:

C66c, C74c, C112, C118, C147

8. DO160D ENV CAT:

[D2X]ACB[SCMYL,RG]XRFXXSXXXXXXXX[XXXX][2A]AX

9. Item 2: Material:

Aluminum sheet, #2024-T3, .040" THK

Finish:

Clear Iridite, Mil-C-5541

Marking:

Vendor Part No. to be stamped approximately as shown.

10. Item 3: Material:

#60 White paper coated with removable adhesive and paper liner, or equivalent.

Marking:

Vendor part number identification located approximately as shown.

11. Dimensions, Item 1, Antenna:

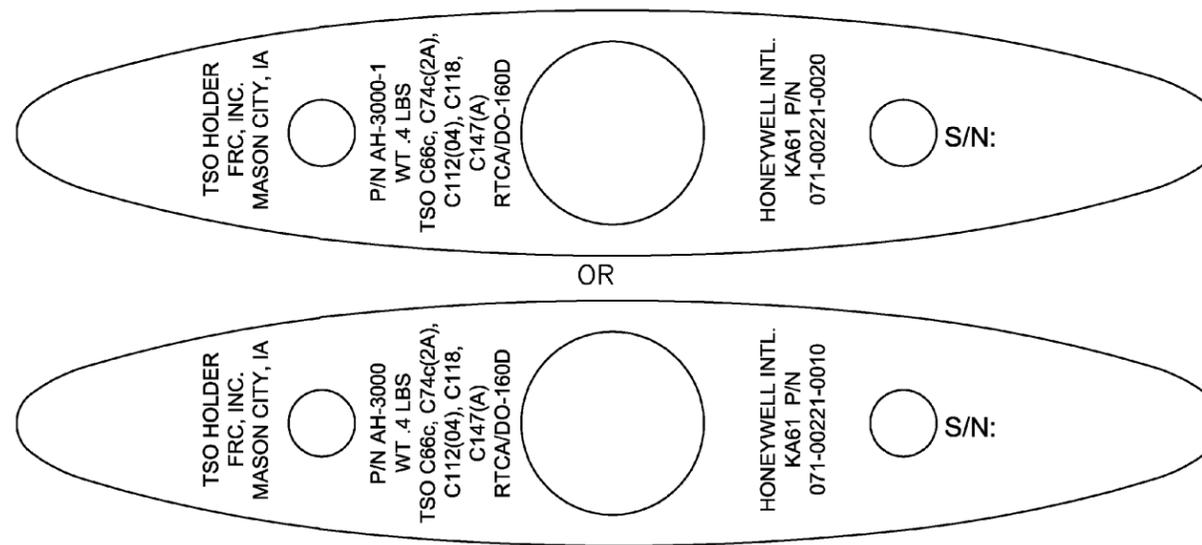


FIGURE 2-7 KA 61 INSTALLATION DRAWING
(Page 1 of 2)

Product List:

Each antenna assembly shall include the following items:

Qty	Item No.	FRC P/N	Description
1	1	071-00221-0010	BNC L-Band Antenna
1	1	071-00221-0020	TNC L-Band Antenna
1	2	AH-3000-030	Backing Plate
1	3	AH-3000-040	Installation Template
2	4	8-32	Self Locking Cadmium Plated Carbon Hex Nut
1	5	Install-AH-3000	Installation Instructions (not shown)

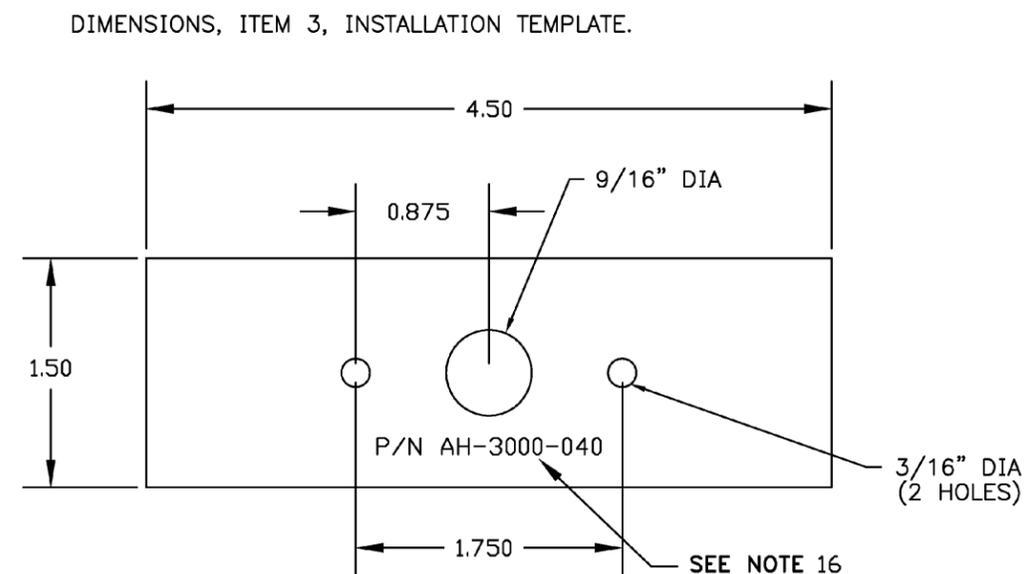
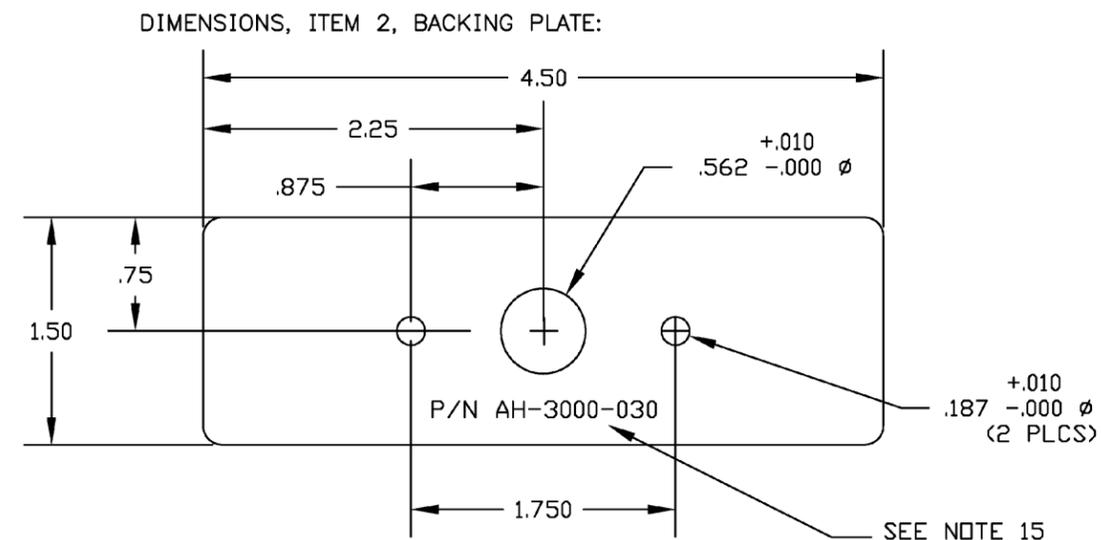
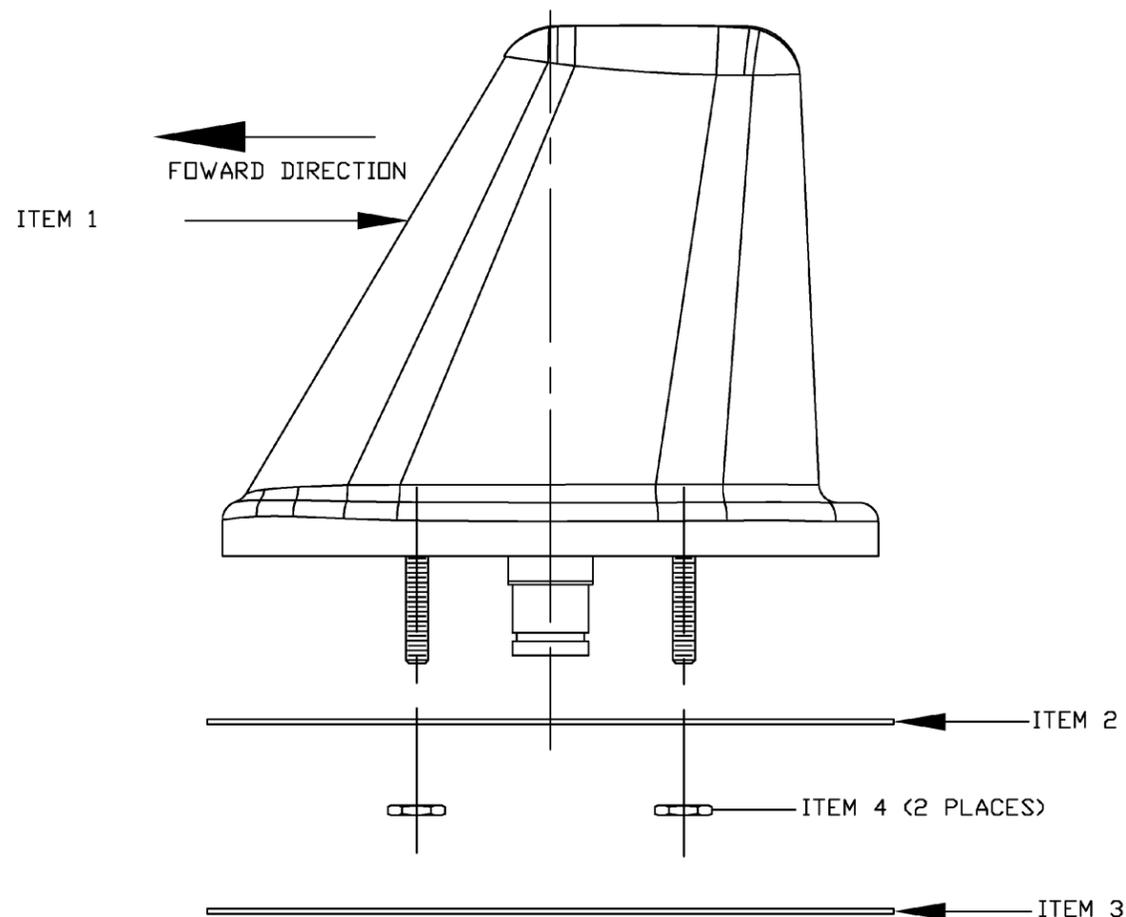


FIGURE 2-7 KA 61 INSTALLATION DRAWING
(Page 2 of 2)

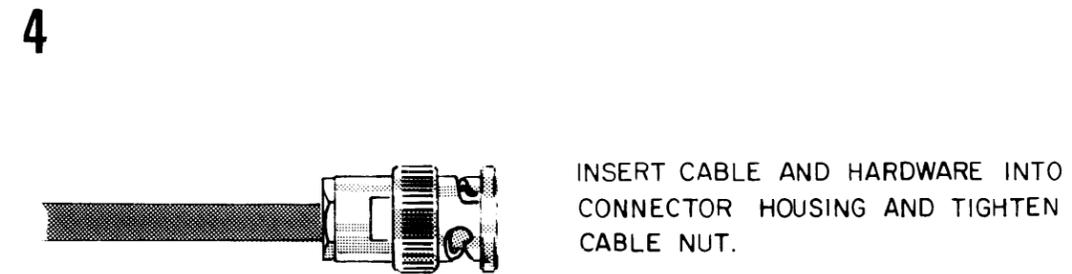
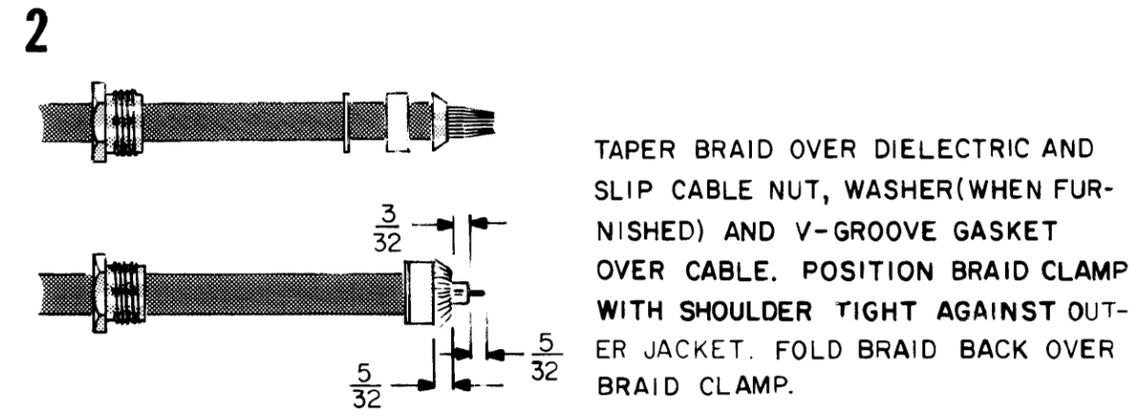
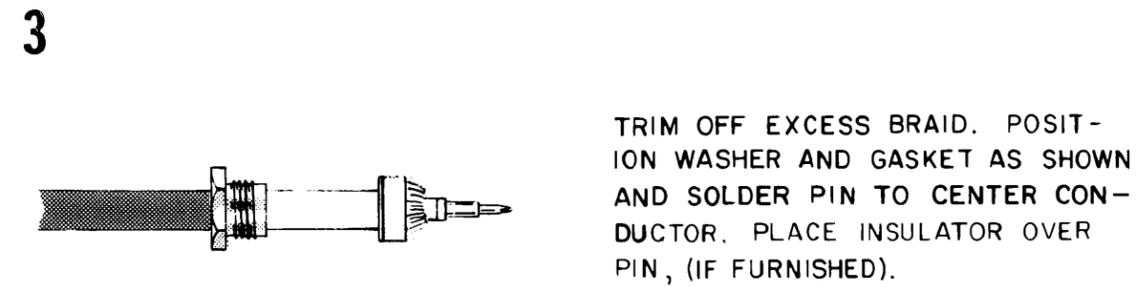
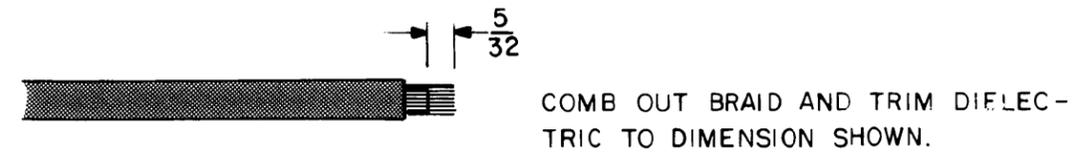


FIGURE 2-8 030-00005-0000 CONNECTOR ASSEMBLY
Dwg. No. 155-05267-0000, R-0

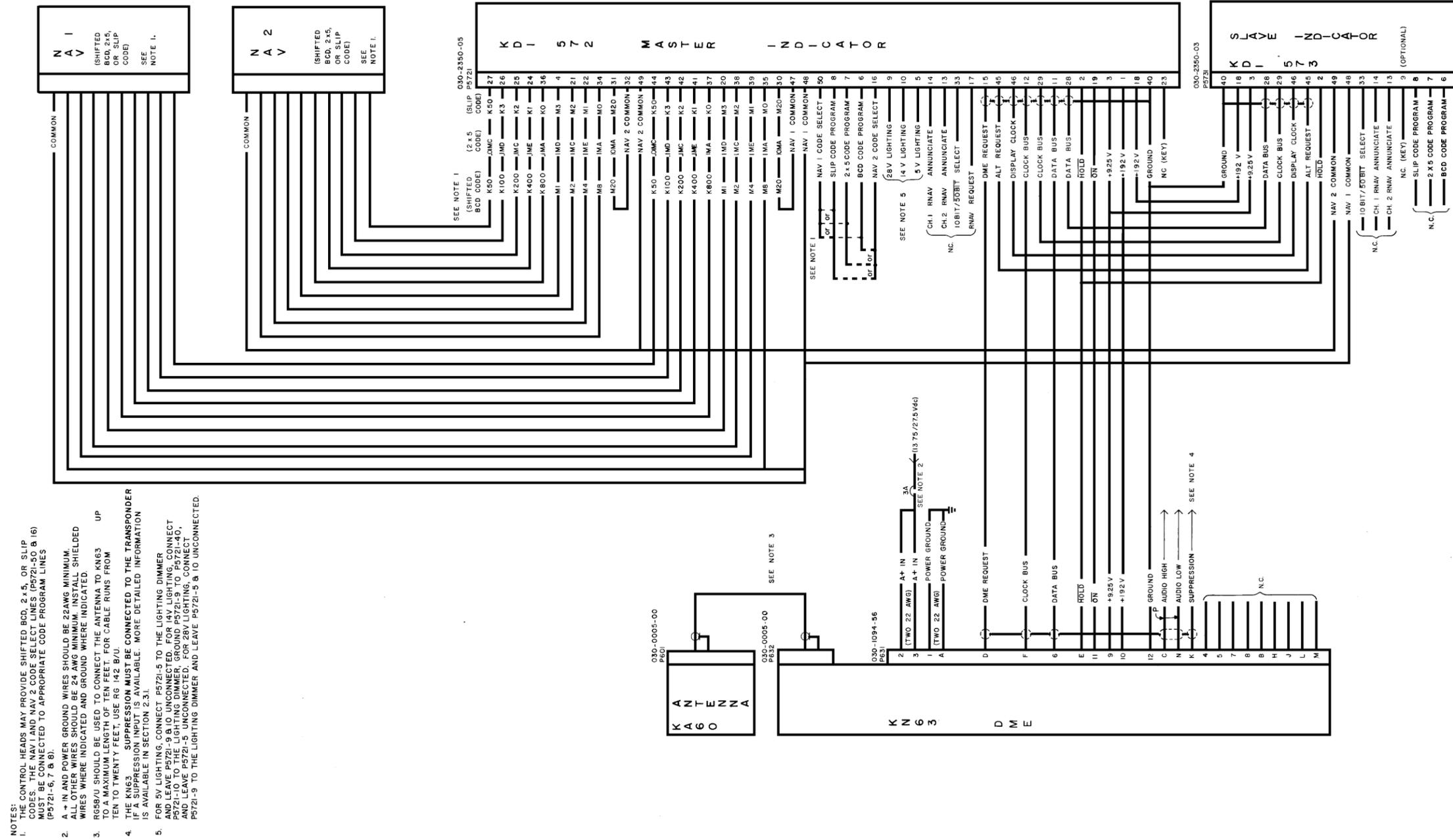


FIGURE 2-9 KN 63/KDI 572/573 INTERCONNECT
Dwg. No. 155-01342-0000, R-5

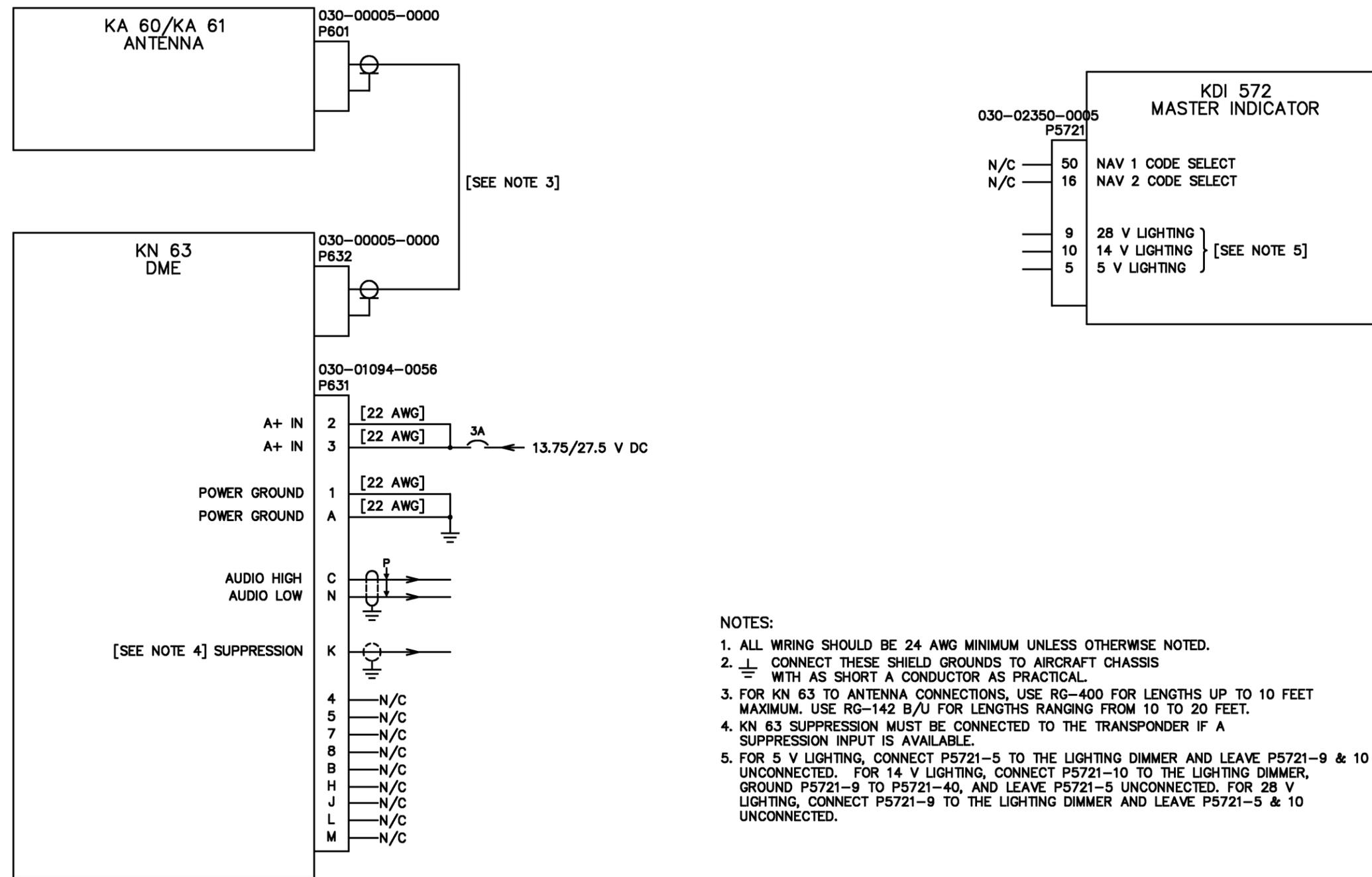


FIGURE 2-10 KN 63/KDI 572/KDI 573/KX 165 Interconnect Drawing (Sheet 1 of 2)
 Dwg. No. 155-01342-0010, R -

I

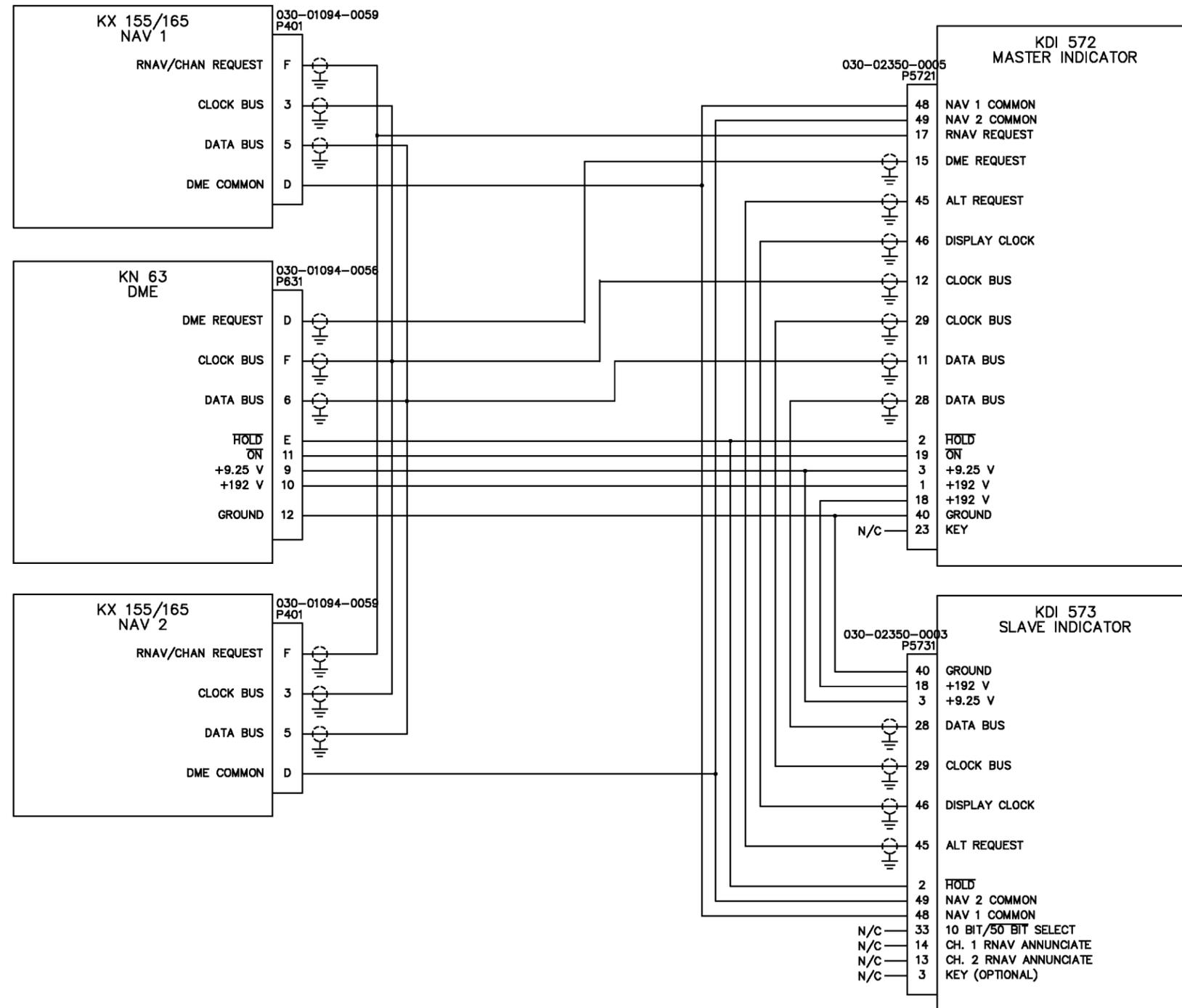


FIGURE 2-10 KN 63/KDI 572/KDI 573/KX 165 Interconnect Drawing (Sheet 2 of 2)
 Dwg. No. 155-01342-0010, R -

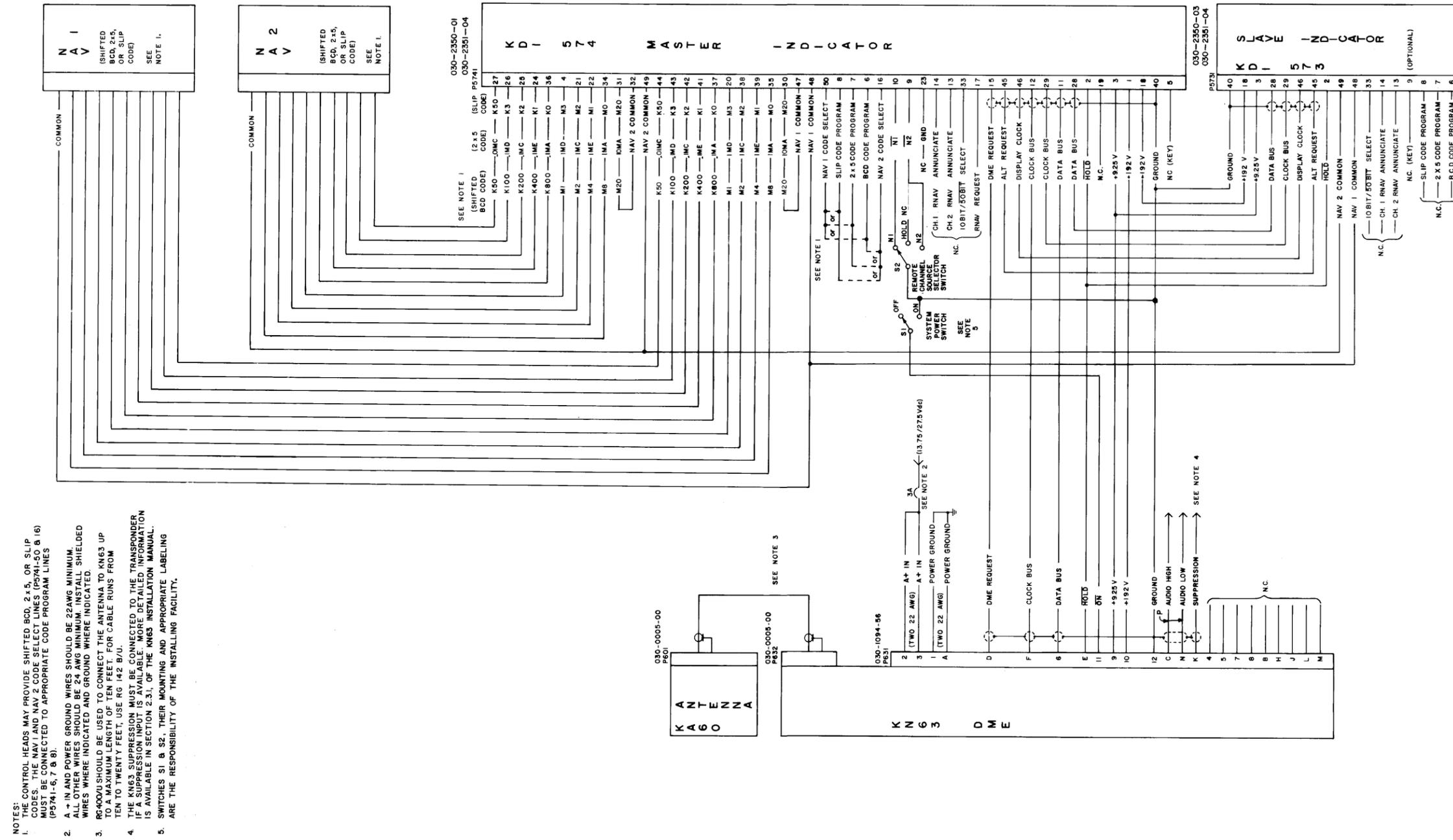
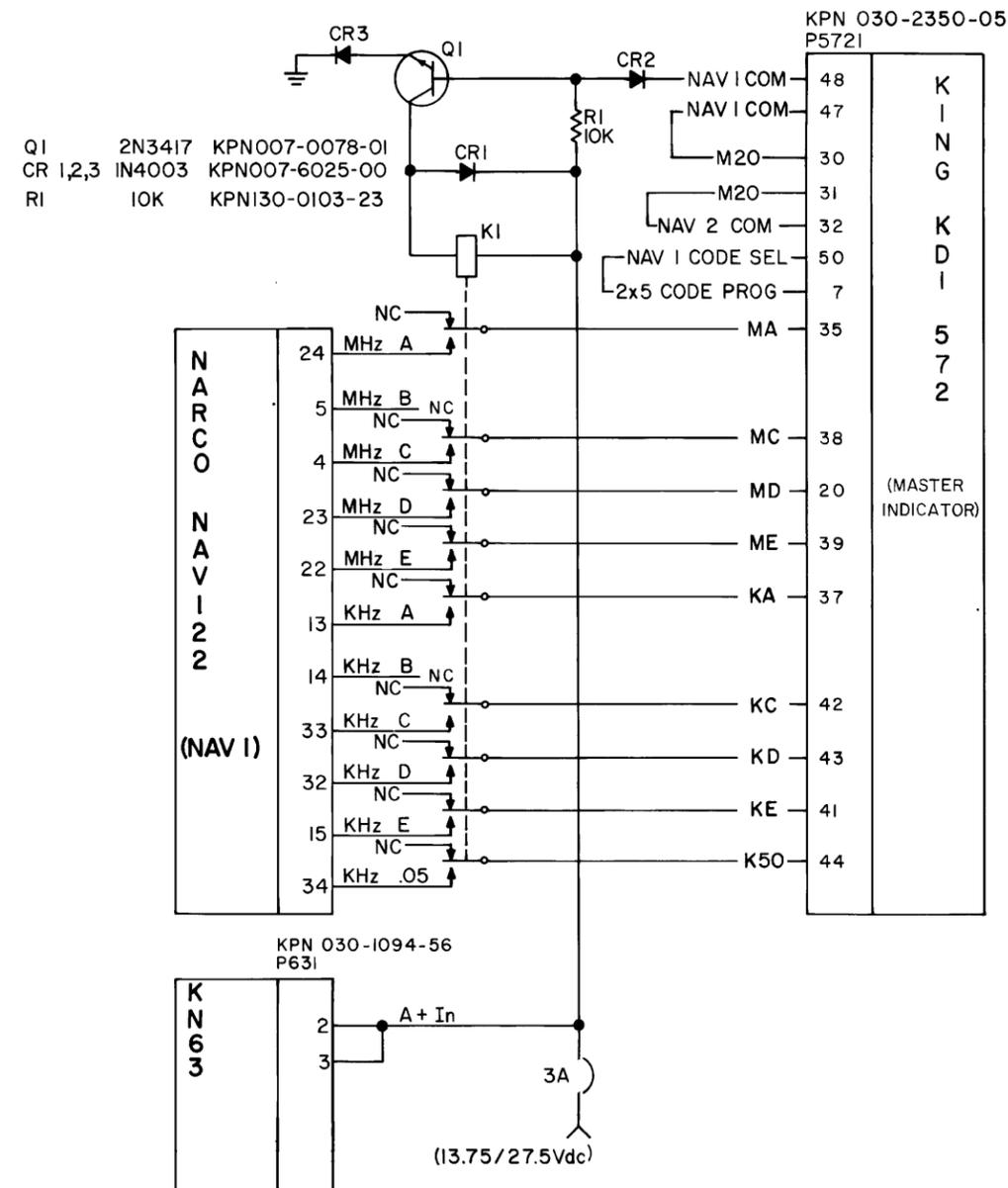


FIGURE 2-11 KN 63/KDI 573/574
Dwg. No. 155-01353-0000, R-4



NOTE:

1. NARCO NAV 122 IS SHOWN AS PART OF AIRCRAFT NAV 1 SYSTEM.
2. IF THE NARCO NAV 122 IS PART OF AIRCRAFT NAV 2 SYSTEM, CHANGE WIRING AS FOLLOWS: (a) CONNECT CATHODE OF CR2 TO NAV 2 COMMON (P5721-49) INSTEAD OF NAV 1 COMMON. (b) CONNECT NAV 2 CODE SELECT LINE (P5721-16) TO 2x5 CODE PROGRAM LINE (P5721-7). (CONNECT NAV 1 CODE SELECT LINE TO CODE PROGRAM LINE CORRESPONDING TO NAV 1 CODE).
3. FOR COMPLETE WIRING INFORMATION, CONSULT KN 63. KDI 572, KDI 573 INTERCONNECT.
4. THE RELAY IS A NORMALLY CLOSED CONTACT RELAY AND IS VIEWED IN AN ENERGIZED CONDITION, (NAV 2 SELECTED ON KDI 572). KPN 032-0051-00(14Vdc) KPN 032-0051-01(28Vdc)

FIGURE 2-12 KDI 572/KN 63 TO NARCO 122 INTERCONNECT
 Dwg. No. 155-01341-0000, R-2

SECTION III OPERATION

3.1 GENERAL

It is recommended that power to the KN 63 be turned on only after engine start-up, as this procedure increases the reliability of the solid state circuitry.

The rotary switch on the front of the KDI 572 has four positions: Off, N1, Hold, and N2. In the Off position, the master and slave indicators and the remote mounted DME are all turned off. In N1 position, the DME is channeled from the NAV 1 control head. In N2 position, the DME is channeled from the NAV 2 control head. In Hold position, the DME is channeled to the last selected NAV 1 or NAV 2 frequency. To prevent the display of false information, the KDI 572 or KDI 574 will display dashes and the KN 63 will stay in "search" whenever power is turned on or momentarily interrupted in frequency Hold mode. Normal operation is re-established by switching to N1 or N2 channeling.

The KDI 573 has no controls and merely provides a duplicate display of the information shown on the KDI 572.

The KDI 574 requires an external panel mounted switch for ON/OFF, NAV 1, Hold, NAV 2 switching.

The KDI 572, KDI 573, and KDI 574 simultaneously display DME range, speed, and time-to-station as shown in [Figure 3-1](#). In addition a "1" is displayed in N1 mode and a "2" is displayed in N2 mode to indicate the selected channeling source on both indicators. In Hold mode, either a "1H" or "H2" is displayed to indicate the channeling source that is being held. "RNV" will be displayed when the displayed distance, speed, and time-to-station are derived from an Area Navigation System.

When the KN 63 is locked to a ground station, range is displayed to the nearest 0.1 nautical mile from 0 to 99.9 nautical miles and to the nearest 1 nautical mile from 100 to 389 nautical miles. Ground speed is displayed to the nearest knot from 0 to 999 knots. Time-to-station is displayed to the nearest minute from 0 to 99 minutes. The indicators also show 99 minutes for any computed time-to-station greater than 99 minutes. When the KN 63 is in search mode, dashes are displayed instead of range, speed, and time-to-station.

Both indicators have an automatic dimming circuit that adjusts the brightness of the display to compensate for changes in ambient light level. Dimming is controlled by a photocell mounted behind the front panel below the display.

The audio output of the KN 63 can be set as high as 15 milliwatts into 500 ohms using the audio level adjustment accessible through a hole in one of the inner covers. It is set for approximately 2mw output at the factory. It is desirable to use the audio to identify the DME ground stations being received.

The effective range of the KN 63 DME depends on many factors; most important being the altitude of the aircraft. When the aircraft is on the ground, the KN 63 usually will not receive DME stations due to line-of-sight signal limitations. Other contributing factors to the DME's effective range are

the location and altitude of the ground transmitter, transmitter power output, and the degree of maintenance of the ground facility. The distance measured by the KN 63 is slant-range distance (measured on a slant from aircraft to ground station) and should not be confused with actual ground distance. The difference between ground distance and slant-range distance is smallest at low altitude and long range. These differences may differ considerably when in close proximity to a VOR/DME facility. However, if the range is three times the altitude or greater, this error is negligible. In order to obtain accurate ground speed and time-to-station, the aircraft must be tracking directly to or from the station.

When operating dual KN 63's, the respective DME's will interfere with each other when the NAV frequencies differ by 5.3 MHz (for example, 108.00 MHz and 113.3 MHz). This interference results in premature flags or loss of "lock-on". Should this occur, one of the KN 63's should be either turned off or tuned to a different NAV frequency so that the 5.3 MHz difference is eliminated.

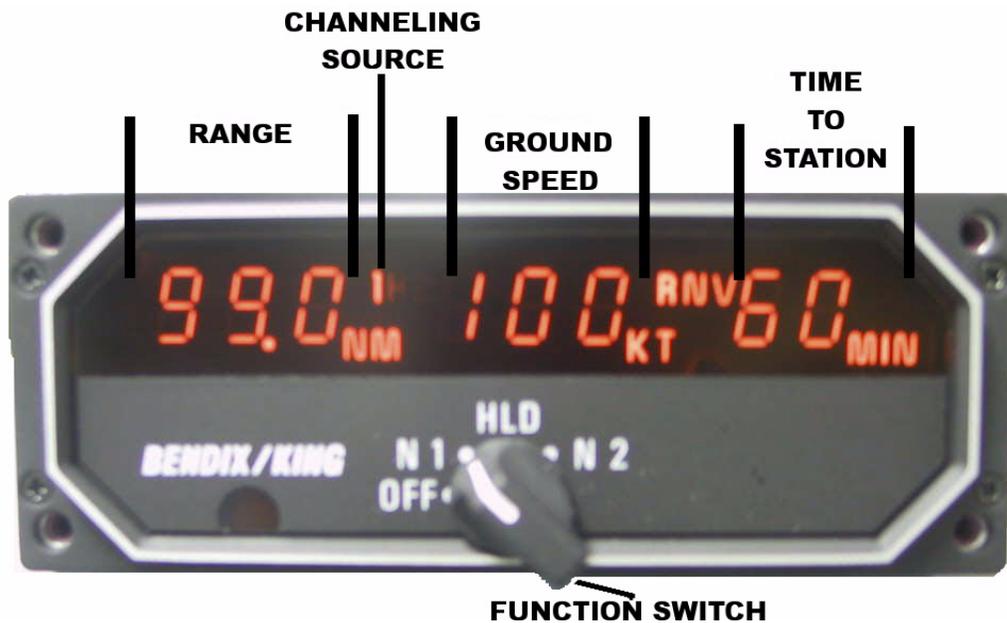


FIGURE 3-1 KDI 572 WITH LABEL

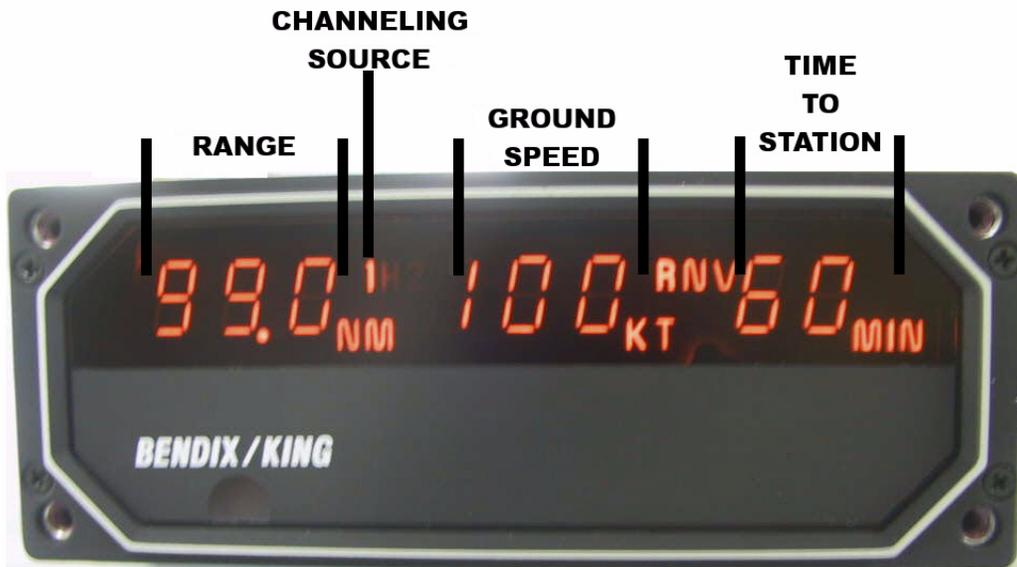


FIGURE 3-2 KDI 573 WITH LABEL

