

CHAPTER 23
COMMUNICATIONS SYSTEMS

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COMMUNICATIONS SYSTEMS - DESCRIPTION/OPERATION

1. General

The aircraft is delivered with customer ordered communications equipment installed. It contains one or two VHF communications radios, an optional Emergency Locator Transmitter, and for dual VHF or other navigation system equipped aircraft, an audio integrating system.

2. VHF Communications

Each aircraft is equipped with a VHF - band radio for voice communication. As an option a second radio can be installed. VHF radios operate in the 118.00 to 135.95 MHZ band, with the number of channels available either 360 or 720, depending upon the equipment installed.

3. Audio Integrating System

For those aircraft equipped with either dual VHF communications or various navigation systems, or both, an audio integrating system is necessary. An audio integrating panel permits the pilot to select which communication system to use, and permits the pilot to monitor signals from selected navigation system.

4. Emergency Locator Transmitter (ELT) System

An optional piece of equipment is the Emergency Locator Transmitter (ELT). The purpose of the ELT is to serve as a radio beacon, should the aircraft make an emergency or crash landing. The transmitter has automatic activation provisions should the aircraft strike an object with a force of 5 g's or more along the flight axis. The ELT can be used as a portable beacon should it be desired to leave the vicinity of the aircraft. It has its own antenna, battery pack, and a manual activating switch.

NARCO VHF COM SYSTEM — DESCRIPTION/OPERATION

1. General

The aircraft can be equipped with either a NARCO NAV 10/COM 10, COM 11, or COM 120 transceiver for voice communications. The transceiver operates within the frequency range of 118.00 MHz to 135.95 MHz, with a power output of 5 watts (COM 10 & 11), 8 watts (COM 10A & 11A). The transceiver can operate on any of 360/720 channels with a 50/25 KHz spacing between channels. Operation of the transceiver is controlled and monitored by the controls and indicators on the front panel of the transceiver. The navigation portion of the NAV 10/COM 10 system is discussed in Chapter 34. For a discussion of the switch and indicator functions, see Table 1. For location of transceiver components, see Figure 1.

2. Operation

The NARCO NAV 10/COM 10 transceiver can operate as a VHF radio or as a VHF navigation (OMNI) receiver (1 + 0 system). The mode of operation is controlled by the Mode Select Switch located on the front panel of the transceiver. This section discusses operation of the VHF radio portion, only.

The NARCO COM 11 is essentially the same as the COM 10, less the Mode Select Switch. The COM 11 is designed to be used exclusively as 360/720 channel transceiver. The NARCO COM 11 can be used with a NARCO NAV 11 or 12 to provide navigation, the pair would comprise a 1 + 1 system.

NOTE: NARCO COM 11B/111B has 720 channel (25 KHz spacing) capability.

The NARCO COM 120 operates within the frequency range of 118.000 MHz to 135.975 MHz, with a power output of 8 watts minimum (10 — 12) watts typical. The transceiver can operate on any of 720 independent channels, with 25 KHz between channels. The unit features 6 digit frequency readout, easy frequency tuning, and stable automatic squelch. See Table 2 for description of unit controls and indicators. This equipment available on 1978 model AA-5A and AA-5B.

3. Intercom Switch

An intercom switch is available as an optional item. The switch is installed on the instrument panel. The switch permits speech from the microphone to be heard over the speakers. It is essentially for training, allowing the operator to practice and learn microphone discipline. A yellow warning light is installed above the intercom switch. The light comes on when the switch is placed in the middle position. This is to remind the operator that the transmit function of the transceiver is disabled. The light is out with the switch in Speaker or Phone position. Use of the Intercom Switch requires the transceiver to be modified to the helicopter version. See the NARCO Maintenance Manual for further information.

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TRANSCEIVER UNIT CONTROLS AND INDICATORS

Table 1

Index No. (Fig. 1)	Control or Indicator	Position	Function
1.	Mode Select Switch (NARCO COM 10 () only)	NAV	VHF Navigation mode selected, see Section 34.
		COM	VHF Radio selected.
2.	Squelch Control		Establishes required input signal level to give an audio output from transceiver.
		Clockwise	Required input signal level is decreased.
		Counterclockwise	Required input signal level is increased.
3.	Tenths/Hundreths Megahertz - Frequency Selector		Selects frequency for radio in 50/25 KHZ steps.
4.	Frequency Indicator		Indicates operating frequency of radio.
5.	Megahertz Frequency Selector		Selects frequency in one (1) megahertz steps.
6.	Power (Volume) Control	OFF (detent)	Removes power from system.
		Clockwise	Increases audio volume.
		Counterclockwise	Decreases audio volume.
7.	IDENT (Part of Squelch Control) (NAV 10/COM () only)	Pulled	Allows station identification code to be heard. (Function is for VHF NAV Mode).

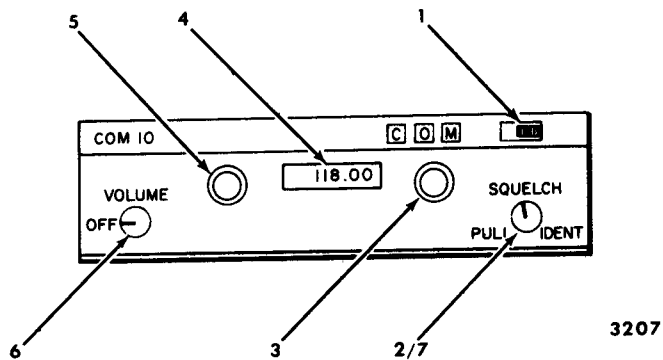
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**NARCO COM 120 TRANSCEIVER UNIT CONTROL AND INDICATORS
(1978 Model, AA-5A and AA-5B)**

TABLE 2

Index No. (Fig. 1)	Control or Indicator	Function
1.	Power ON/OFF/TEST	Applies power to unit. TEST — Automatic squelch disabled.
2.	Volume	Controls audio volume.
3.	Course Frequency Control	Changes transceiver frequency in one megahertz steps.
4.	Fine Frequency Control	Changes transceiver frequency in 25 KHz steps.
5.	Frequency Readout	Indicates operating frequency of transceiver.
6.	Transmit Indicator Light	Illuminates when transceiver is transmitting.

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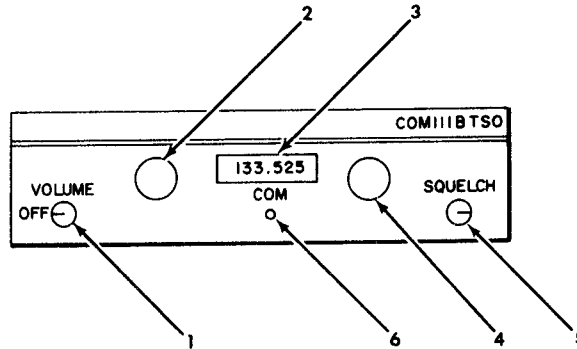


1. Mode Select Switch (NAV 10/COM 10 only)
2. Squelch Control
3. Tenths/Hundredths MHz Frequency Selector
4. Frequency Indicator

5. Megahertz Frequency Selector
6. Power and Volume Control
7. Ident (Squelch Pulled)

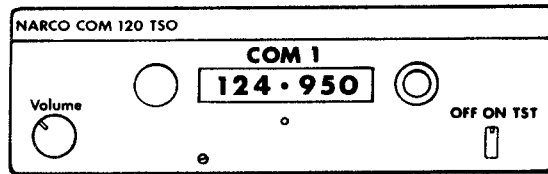
NARCO COM 10 TRANSCEIVER
Figure 1 (Sheet 1 of 2)

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- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Volume Control 2. Megahertz Frequency Selector 3. Frequency Indicator | <ol style="list-style-type: none"> 4. Tenths/Hundredths Frequency Selector 5. Power and Automatic Squelch 6. Transmit Indicator Light |
|--|--|

**NARCO COM 11/111 Transceiver
Figure 2 (Sheet 2 of 2)**



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- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Power ON/OFF/TST
(TST disables automatic squelch) 2. Volume Control 3. Course Frequency | <ol style="list-style-type: none"> 4. Fine Frequency Selector 5. Frequency Readout 6. Transmit Indicator Light |
|--|---|

**NARCO COM 120 Transceiver
(1978 Model, AA-5A and AA-5B)
Figure 3 (Sheet 2 of 2)**

TROUBLESHOOTING OF VHF (NARCO) COMMUNICATION SYSTEMS

1. General

System problems are sometimes caused by a malfunction of the transceiver. When possible replace the transceiver before proceeding with other troubleshooting.

NOTE: On those aircraft with dual systems, check operation of both transceivers. If neither transceiver works, the trouble is probably in the audio integrating system.

TROUBLE	PROBABLE CAUSE	REMEDY
No reception or transmission	Open circuit breaker	Close circuit or breaker.
	Dirty or corroded Antenna	Clean or replace antenna.
	Faulty audio panel (dual system)	Replace audio panel.
	Faulty transceiver	Replace transceiver.
Weak or No transmission	Faulty microphone	Replace microphone. (This may require an adjustment of Mike gain in the transceiver)
	Faulty antenna or antenna lead	Repair or replace antenna or wiring.
	Faulty transceiver	Replace transceiver.
Weak or No reception	Faulty speaker or headset	Replace speaker or headset.
	Faulty transceiver	Replace transceiver.

VHF COMMUNICATION SYSTEM — MAINTENANCE PRACTICES

1. Removal and Installation of VHF Communication Components

NOTE: Figure 201 shows the top antenna as No. 1 VHF COM antenna and the bottom antenna as No. 2. This is true on aircraft equipped with a single COM NAV system. On aircraft with a dual COM NAV system installed, the No. 1 antenna is the bottom antenna and No. 2 is the top antenna.

A. Removal of VHF COM Antenna No. 1 (See Figure 201.)

- (1) Ensure the master switch is OFF.
- (2) Remove the three screws holding the antenna to the aircraft.
- (3) Lift the antenna straight up to gain access to the antenna connector. Disconnect the coax cable from the connector. Secure the cable so it will not slip through the hole and down into the aircraft.
- (4) Remove rubber gasket. If gasket adheres to the aircraft, remove it using a phenolic scraper.

B. Installation of VHF COM Antenna No. 1 (See Figure 201.)

- (1) Ensure the master switch is OFF.
- (2) Place the antenna rubber gasket in the proper position. (See Figure 201.)
- (3) Connect the antenna to the coaxial cable.
- (4) Place the antenna on the rubber gasket and install with three (3) screws.
- (5) Perform an operational check for the associated transceiver.

C. Removal and Installation of VHF COM Antenna No. 2 (External)

NOTE: The No. 2 VHF COM Antenna consists of two assemblies; the external tubular portion (antenna) and the internal impedance box assembly. If only the external part is to be replaced all that is required is to disconnect the tubular section from the outside of the aircraft and attach another. Ensure that the antenna is parallel with the centerline of the aircraft. (See Figure 201.)

D. Removal of Impedance Box for No. 2 VHF COM Antenna (See Figure 201.)

- (1) Ensure the master switch is OFF.
- (2) Obtain access to the impedance box by moving the rear seats and remove the proper portion of the floor.
- (3) Disconnect the coaxial cable from the impedance box.
- (4) On the outside of the aircraft disconnect VHF COM Antenna No. 2. Be careful not to damage.
- (5) With a phenolic scraper, remove as much as possible, the sealant from around the impedance box attaching nut.
- (6) Remove the attaching nut.
- (7) From inside the aircraft remove the impedance box.
- (8) Remove remaining sealant from around the antenna opening. Use aluminum wool.

E. Installation of Impedance Box for No. 2 VHF COM Antenna. (See Figure 201.)

- (1) Assure the master switch is OFF.
- (2) From inside the aircraft slip the impedance box down through the antenna opening.
- (3) From outside the aircraft install the impedance box attaching hardware, in proper sequence, and tighten.
- (4) Apply 3-M Company, EC-1128, sealant around attaching nut. Make sealant flush with the skin.

NOTE: An acceptable alternate is Presstite Engineering Company No. 579.6 sealer.

- (5) Attach No. 2 VHF COM Antenna. Assure that the antenna is parallel to the centerline of the aircraft.
- (6) From inside the aircraft connect the coaxial cable to the impedance box.
- (7) Replace any removed furnishing.
- (8) Perform an operational check for the associated transceiver.

F. Removal of the Transceiver Unit

- (1) Removal of the transceiver unit is straightforward.
- (2) Loosen transceiver from mounting case by turning locking (Allen) screw clockwise. Use 5/64 inch hex (Allen) wrench.
- (3) Slide the unit straight out to avoid bending the connector pins. A slight left to right movement may help in disconnecting unit from connector plug. Do not use the control knobs as handles. This may damage the associated control.

G. Installation of Transceiver Unit

- (1) Slide unit straight in. Be careful not to bend connector pins.
- (2) Secure unit to mounting case by turning locking (Allen) screw counterclockwise. Use 5/64 inch hex (Allen) wrench.

CAUTION: FOR AIRCRAFT WITH AUTOPILOT, MAKE SURE TRANSCEIVER HAS BEEN MODIFIED TO WORK WITH AUTOPILOT. AN UN-MODIFIED TRANSCEIVER WILL CAUSE ERRATIC AUTOPILOT OPERATION. SEE NARCO MANUAL 03088-600, SECTION 2.8.7.

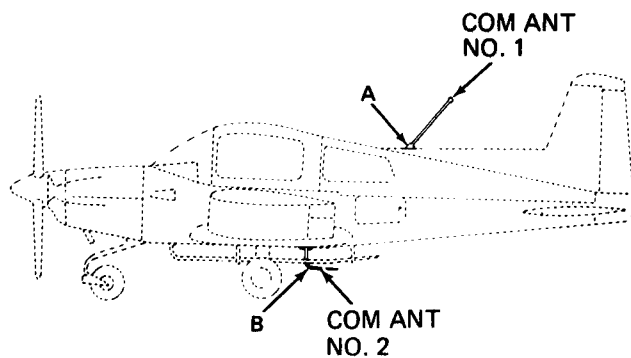
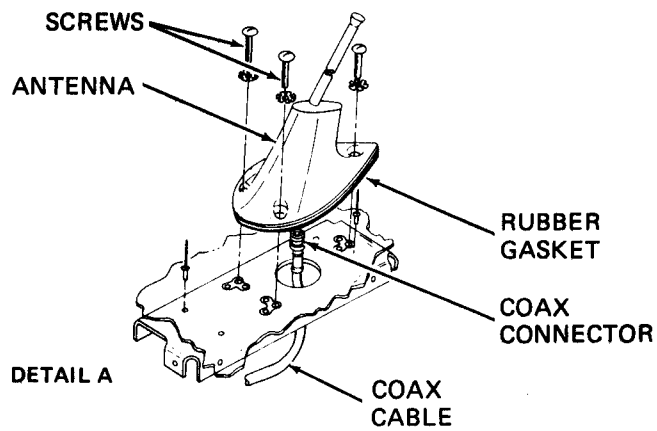
NOTE: The mike gain of the transceiver is normally set for a NARCO low impedance microphone. If another type microphone is used, the mike gain control may require readjustment. See adjustment procedure in this section

2. Adjustment/Test NARCO Communication System

A. Mike Gain Adjustment

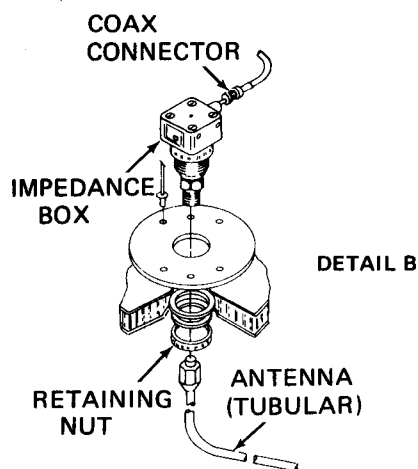
CAUTION: THE MINIMUM OF A 2ND CLASS F. C. C. LICENSE IS REQUIRED TO PERFORM THIS ADJUSTMENT.

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NOTE:
THIS IS NO. 2 COM NAV ANTENNA ON AIRCRAFT EQUIPPED WITH DUAL SYSTEM.

NOTE:
THIS IS NO. 1 COM NAV ANTENNA ON AIRCRAFT EQUIPPED WITH DUAL SYSTEMS.



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**VHF COM Antenna Installation
Figure 201**

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The transceiver is normally shop adjusted for use with a NARCO low impedance microphone. If another type of microphone is used, the MIKE GAIN control may require adjustment. It is necessary to remove the transceiver from the instrument panel to obtain access to the MIKE GAIN adjustment (See Figure 202). See NARCO Manual 03088-600, Section 3.4.2.6 or Section 4.4.5 for adjustment procedure.

After adjustment perform the operational check/test.

B. Test of NARCO COM System

NOTE: This procedure is for test of the communication portion of the set only. For the NAV portion (NAV 10/COM 10 ()), consult Section 34 of this manual.

NOTE: For aircraft with an intercom switch, set it to phone or speaker as desired.

NOTE: For aircraft with an audio control panel installed, assure that the panel is operating properly before proceeding with this checkout. See section 23-5-1. Set audio panel as desired.

NOTE: For aircraft equipped with Audio Amp switch the transceivers are modified so that they are activated when the Master switch is ON. Step 2 of the following procedure can be omitted when Audio Amp switch is installed. Place Audio Amp switch to desired position.

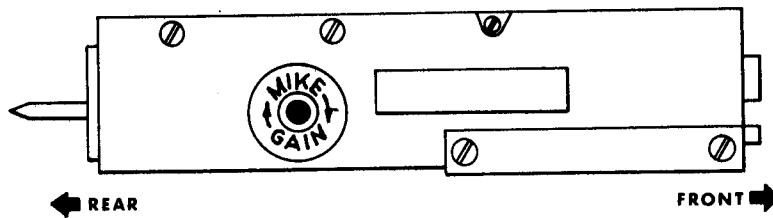
- (1) Assure the aircraft battery is installed and operating.
- (2) Assure the respective radio circuit breaker is closed.
- (3) Place MASTER switch to ON.
- (4) Set the mode select switch to COM. (NAV 10/COM 10 () units only).
- (5) Move the VOLUME control out of detent; turn clockwise to mid-position.
- (6) Rotate the SQUELCH control, in both directions. Assure the hissing noise decreases as the knob is rotated clockwise and increases with knob rotated counterclockwise. Then adjust the squelch as desired.
- (7) Set the frequency selectors to a tower frequency.
- (8) Contact the tower for a radio check. Adjust the volume as required. Contact the tower on several (up to five (5) if available) frequencies.
- (9) Place the ON/OFF volume control to OFF.
- (10) Place the Master switch to OFF.

C. Test of Intercom Switch

- (1) Assure the aircraft battery is installed and operating.
- (2) Place the Master switch to ON.
- (3) Place intercom switch to the "MIDDLE" position. Observe that yellow light, above switch, is illuminated.
- (4) Speak into the microphone. Voice of speaker should be heard over speakers.
- (5) Place intercom switch to "Speaker" position. Observe that the yellow light, above switch, is out.

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- (6) Speak into the microphone. Speaker's voice is not heard over speakers.
- (7) Place intercom switch to "Phone" position. Indications are the same as Steps 5 and 6.
- (8) Place the MASTER switch to OFF.



**Location of MIKE GAIN Adjustment
Figure 202**

KING VHF COMMUNICATION SYSTEM – DESCRIPTION/OPERATION

1. General

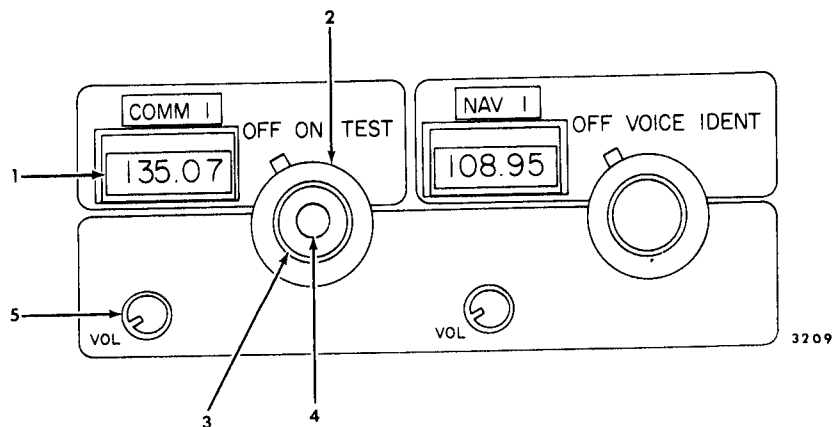
The KING KX-170/KX-175 () VHF radio consists of a panel mounted unit composing one-half of the KX-170/KX-175 () NAV-COM transceiver. This section discusses the COM portion only. The NAV portion is discussed in Chapter 34. The transceiver operates within the frequency range of 118.00 MHz to 135.95 MHz, with a power output of five (5) watts. The transceiver can operate on any of 360 (KX- 170A) or 720 (KX-170B/KX-175) channels with a 50 KHz or 25 KHz, respectively, spacing between channels. Operation is controlled and monitored by the switches and indicators on the front of the transceiver. For a discussion of switch and indicator functions, see Table 1. For location of system components, See Figure 1.

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TRANSCEIVER UNIT CONTROLS AND INDICATORS

Table 1

Index No. (Fig. 1)	Control or Indicator	Position	Function
1.	Frequency Indicator		Indicates operating frequency of VHF radio.
2.	Power Control Switch	OFF	Removes power from radio.
		ON	Energizes the radio.
		TEST	Disables automatic squelch.
3.	Megahertz Frequency Selector		Selects frequency in one (1) megahertz steps.
4.	Tenths-Hundreths Megahertz Frequency Selector		Selects frequency in 25 KHZ or 50 KHZ steps.
5.	Volume Control	CLOCKWISE	Increases audio volume.
		COUNTER-CLOCKWISE	Decreases audio volume.



King KX-170 () Component Locations
Figure 1

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TROUBLESHOOTING OF KING KX-170 () COM SYSTEM

1. General

System problems are sometimes caused by a malfunction of the transceiver. When possible replace the transceiver before proceeding with other troubleshooting.

NOTE: On those aircraft with dual systems, check operation of both transceivers. If neither transceiver works, the trouble is probably in the audio integrating system.

TROUBLE	PROBABLE CAUSE	REMEDY
No reception or transmission	Open circuit breaker	Close circuit breaker.
	Dirty or corroded antenna	Clean or replace antenna.
	Faulty audio panel (dual system)	Replace panel.
	Faulty transceiver	Replace transceiver.
Weak or No transmission	Faulty microphone	Replace microphone. (This may require an adjustment of MIKE GAIN in the transceiver.)
	Faulty antenna or antenna lead	Repair or replace antenna or wiring.
	Faulty transceiver	Replace transceiver.
Weak or No reception	Faulty speaker or headset	Replace speaker or headset.
	Faulty transceiver	Replace transceiver.

KING COMMUNICATION SYSTEM — MAINTENANCE PRACTICES

1. Removal/Installation of KING Communication System Components

A. Antenna Removal and Installation. See Section 23-2-1, Page 201.

B. Removal of Transceiver Unit

- (1) Removal of the transceiver unit is straightforward.
- (2) Loosen transceiver from mounting case by turning locking (Allen) screw clockwise. Use 5/64 inch hex (Allen) wrench.
- (3) Slide the unit straight out. Be extremely careful not to bend connector pins. A slight left to right movement may help in disconnecting unit from connector plug.

NOTE: Do not use the control knobs as handles. This may damage the associated control.

C. Installation of Transceiver Unit

- (1) Slide the unit straight in. Be extremely careful not to bend connector pins.
- (2) Secure transceiver to mounting case by turning locking (Allen) screw counterclockwise. Use 5/64 inch hex (Allen) wrench.

NOTE: The MIKE GAIN of the transceiver is normally set for a KING low impedance microphone. If another type microphone is used, the MIKE GAIN control may require readjustment. See this Section for adjustment procedure.

2. Adjustment/Test KING Communication System

A. Mike Gain Adjustment KX-170/KX-175 () Transceiver

CAUTION: THE MINIMUM OF A 2ND CLASS F.C.C. LICENSE IS REQUIRED TO PERFORM THIS ADJUSTMENT.

The transceiver is normally shop adjusted for use with a King low impedance microphone. If another type of microphone is used, the MIKE GAIN control may require adjustment. It is necessary to remove the transceiver from the instrument panel to obtain access to the MIKE GAIN adjustment. See KING Maintenance Manual for adjustment procedure. After adjustment perform the operational check/test.

B. Test of KING 170/KX-175 () VHF COM System

NOTE: This procedure is for test of the communication portion of the set only. For the NAV portion, consult Section 34 this manual.

NOTE: For aircraft with an audio control panel installed, ensure that the panel is operating properly before proceeding with this checkout. See Section 23-5-2. Set the audio panel to the transceiver under test.

- (1) Ensure that the aircraft battery is installed and operating.
- (2) Ensure the respective radio circuit breaker is closed.
- (3) Place the MASTER switch to ON.
- (4) Rotate the VOLUME control fully clockwise.

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- (5) Place the control switch to TEST. Assure that there is a hissing noise present. Place control switch to ON.
- (6) Set in a tower frequency.
- (7) Rotate the VOLUME control to mid-position. Contact the tower for a radio check.
- (8) Contact the tower on several (up to five (5) (KX-170A) or ten (10) (KX-170B) if available) frequencies from 118.00 to 135.95 MHZ.
- (9) Place the control switch to OFF.
- (10) Place the MASTER switch to OFF.

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COLLINS VHF COMMUNICATION SYSTEM -- DESCRIPTION/OPERATION

1. **General**

The COLLINS VHF-250 and VHF-251 transceivers operate within the frequency range of 118.000 MHz to 135.975 MHz, with a power output of 8 — 12 watts (10 watts nominal). The transceiver can operate on any of 720 independent channels, with 25 KHz spacing between channels. The VHF-251 differs from the VHF-250 in that it has the capability of storing and recalling a frequency without changing the frequency select controls. See Table 1 for description of unit controls and indicators. This equipment available on 1978 Model AA-5A and AA5B.

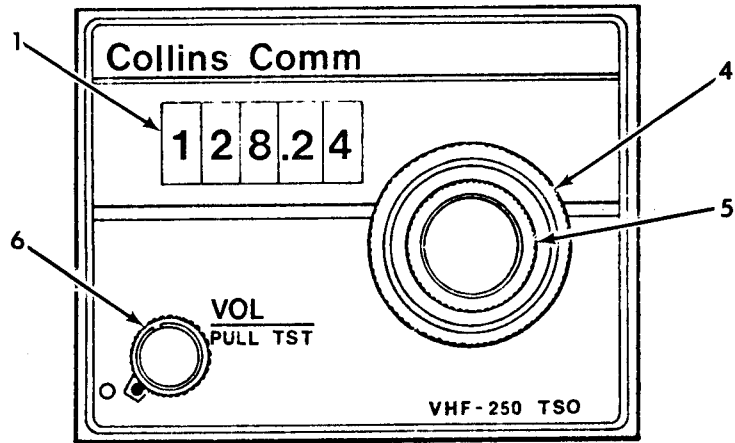
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**COLLINS TRANSCEIVER UNIT CONTROLS AND INDICATORS
(1978 Model, AA-5A and AA-5B)**

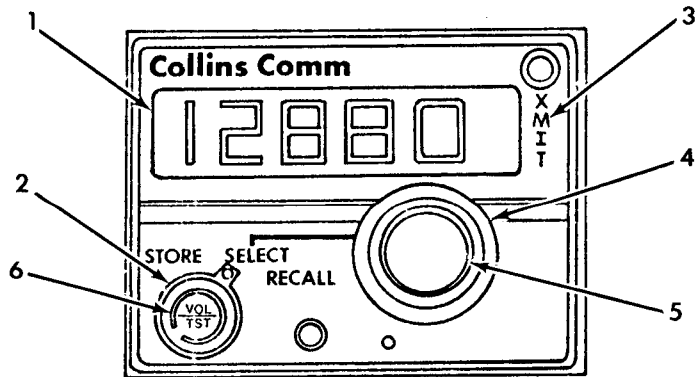
TABLE 1

Index No. Figure 1 & 2	Control or Indicator	Position	Function
1.	Frequency Indicator		Indicates operating frequency of transceiver.
2.	Store/Select/Recall Control (VHF-251 Only)	Select	Allows frequency controls to select operating frequency
		Store	Stores in memory the frequency selected by select control.
		Recall	Recall frequency stored in memory.
3.	Transmit Indicator (VHF-251 Only)		Illuminates when transceiver transmitting.
4.	MHz Frequency Control		Selects frequency in one megahertz steps.
5.	KHz Frequency Control		Selects frequency in 25 KHz steps.
6.	ON/OFF VOL/SQUELCH TEST	ON	Power applied to unit.
		OFF	Power removed from unit.
		VOL Clockwise	Audio level increases.
		VOL Counterclockwise	Audio level decreases.
		Squelch Test (Knob Pulled Out)	Disables automatic squelch

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VHF-250 Transceiver
Figure 1



VHF-251 Transceiver
Figure 2

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**TROUBLESHOOTING OF COLLINS VHF COMMUNICATIONS SYSTEMS
(1978 Model, AA-5A and AA5B)**

1. General

NOTE: On those aircraft with dual transceivers, check operation of both. If neither transceiver works, the trouble is probably in the audio integrating system.

TROUBLE	PROBABLE CAUSE	REMEDY
No reception or transmission.	Open circuit breaker.	Close circuit breaker.
	Dirty or corroded antenna.	Clean or replace antenna.
	Faulty audio panel (dual system).	Replace audio panel.
	Faulty transceiver.	Replace transceiver.
Weak or no transmission.	Faulty microphone.	Replace microphone (This may require an adjustment of mike gain in the transceiver.)
	Faulty antenna or antenna lead.	Repair or replace antenna or Wiring.
	Faulty transceiver.	Replace transceiver.
Weak or no reception	Faulty speaker or headset.	Replace speaker or headset.
	Faulty transceiver.	Replace transceiver.

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COLLINS VHF COMMUNICATION SYSTEM – MAINTENANCE PRACTICES

(1978 MODEL, AA-5A AND AA-5B)

1. Transceiver Removal/Installation

A. Removal of transceiver unit

- (1) Ensure DC power is removed from aircraft.
- (2) Loosen the transceiver from mounting case by turning locking screw counterclockwise. Use 5/64 inch hex wrench.
- (3) Slide the unit straight forward, avoid bending the connector pins. A slight left to right movement might help to release transceiver from connector plug.

NOTE: Do not use the front panel controls as handles. This may damage the associated control.

B. Installation of transceiver unit

- (1) Ensure DC power is removed from aircraft.
- (2) Slide transceiver straight in. Be careful not to bend connector pins.
- (3) Secure transceiver to mounting case by turning locking screw clockwise. Use 5/64 inch hex wrench.
- (4) Perform operational test of transceiver. (See test procedure in this chapter.)

NOTE: The mike gain of the transceiver is normally set for use with the same type (NARCO, KING, COLLINS) of microphone. If a different type microphone is used, the mike gain control may require adjustment.

2. Transceiver Test/adjustment

A. Transceiver operational test

- (1) Ensure the aircraft battery is installed and operational.
- (2) Place master switch to ON.
- (3) Place transceiver power control to ON.
- (4) Rotate volume control clockwise to midposition.
- (5) Disable automatic squelch by pulling VOL. control out. Receiver background noise should be heard.
- (6) Return VOL. control to normal position.
- (7) Tune the transceiver to a control tower frequency.
- (8) Contact the control tower for a radio check. Adjust the volume control as required. Contact the tower on several (up to five if available) frequencies.
- (9) Place transceiver power control to OFF.
- (10) Place master switch to OFF.

**AA-5 SERIES
MAINTENANCE MANUAL**

B. Transceiver microphone gain adjustment

CAUTION: THE MINIMUM OF A 2ND CLASS F.C.C. LICENSE IS REQUIRED TO PERFORM THIS ADJUSTMENT.

(1) Microphone gain adjustment

The transceiver microphone gain is normally shop adjusted for use with the same type microphone (NARCO, KING, COLLINS) as transceiver in use. If the microphone gain requires adjustment, refer to the maintenance manuals supplied by the manufacturer.

(2) Perform transceiver operational test after adjustment. (See Operational Test procedure in this chapter.)

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AUDIO INTEGRATING SYSTEM — DESCRIPTION/OPERATION

1. **General**

The audio integrating system consists of the speakers, microphone, headsets, and an audio control panel. The audio control panel is an optional piece of equipment used on aircraft with dual VHF transceivers and/or multiple navigation systems such as VOR, ADF, or DME. The panel provides a central control point for the operation and monitoring of installed communication and navigation equipment. The speakers are mounted on the deck attached to the glareshield. The microphone is attached to the plugs into the center console. The headset plugs into a jack located in lower left corner of instrument panel. A microphone jack has been added to the instrument panel on 1978 and subsequent models.

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TROUBLESHOOTING THE AUDIO INTEGRATING SYSTEM

NOTE: For those aircraft with an Audio Control panel installed, assure that the panel is operating properly before troubleshooting further.

TROUBLE	PROBABLE CAUSE	REMEDY
Audio not available on speakers	Faulty speaker	Replace speaker.
	Faulty wiring	Repair wiring.
	Faulty transceiver	Replace transceiver.
	Faulty Audio Control Panel	Replace panel.
Audio not available on headset	Faulty headset	Replace headset.
	Faulty jack or wiring	Repair jack or wiring.

AUDIO INTEGRATING SYSTEM - MAINTENANCE PRACTICES

1. Removal and Installation of System Components

A. Removal and installation of the microphone requires no special instructions.

NOTE: The microphone must be balanced to the transceiver installed. If a new microphone is installed the MIKE GAIN of the associated transceiver may require readjustment. See the applicable radio section in this chapter for instructions.

B. Removal of the Speakers

NOTE: Since the wiring is soldered to the speakers, the whole assembly is removed to facilitate maintenance.

- (1) Assure the MASTER switch is OFF.
- (2) Unscrew the seven fasteners attaching the deck to the glare shield.
- (3) Carefully lift up the deck to obtain access to the speakers. Remember the defrosters are attached to the deck.
- (4) Release the splices from the speaker leads to the aircraft wiring, on the pilot's side.
- (5) Unscrew the eight screws holding the speakers to the deck.
- (6) With the speakers away from aircraft, clip the leads from the defective speaker and remove.

C. Installation of the Speakers

- (1) Assure the MASTER switch is OFF.
- (2) Solder speaker to the wiring.
- (3) Attach the speakers to the deck (four screws each speaker) with the speaker leads on the pilot's speaker.
- (4) Attach the speaker leads to the aircraft wiring in accordance with the appropriate wiring diagram.
- (5) Attach the glareshield to the deck with the seven screws.
- (6) Perform a checkout of the speakers.

WARNING: BECAUSE OF THE EFFECT THE SPEAKER MAGNETS HAVE ON THE COMPASS, THE COMPASS WILL HAVE TO BE CALIBRATED. TO ACCOMPLISH THIS, PERFORM A COMPASS SWING.

- (7) Calibrate the compass.

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NARCO CP-125/CP-135 AUDIO CONTROL PANEL -- DESCRIPTION/OPERATION

1. General

The NARCO CP-125/CP-135 audio control panel provides instant pushbutton selection of on-board navigation/communication avionics equipment. The panel is an optional piece of equipment used on aircraft with dual VHF transceivers and/or multiple navigation systems such as VOR, ADF, or DME. The panel provides a central control point for controlling and monitoring of installed communication and navigation equipment. For description and function of front panel controls, see Table 1. Location of controls are shown in Figures 1 and 3. The NARCO CP-135 is available on 1978 Model AA-5A and AA-5B.

NOTE: The CP-125 panel requires modifying if only one VHF Com radio is installed. See NARCO Maintenance Manual for the modification.

2. Audio Amplifier Switch (See Figure 2.)

NOTE: Used with CP-125 only.

An audio amplifier switch (Audio Amp) is installed on the instrument panel for those aircraft with two NARCO VHF transceivers installed. The installation of this switch plus the modification of the transceivers allow the AUDIO AMPLIFIER of the transceiver to function when the Master switch is placed in the "ON" position, regardless of the position of the transceiver ON/OFF control or the position of the selector switches on the CP-125 Audio Control panel. This provides a safety feature in case the audio amplifier fails in one of the transceivers.

AUDIO PANEL CONTROLS

Table 1

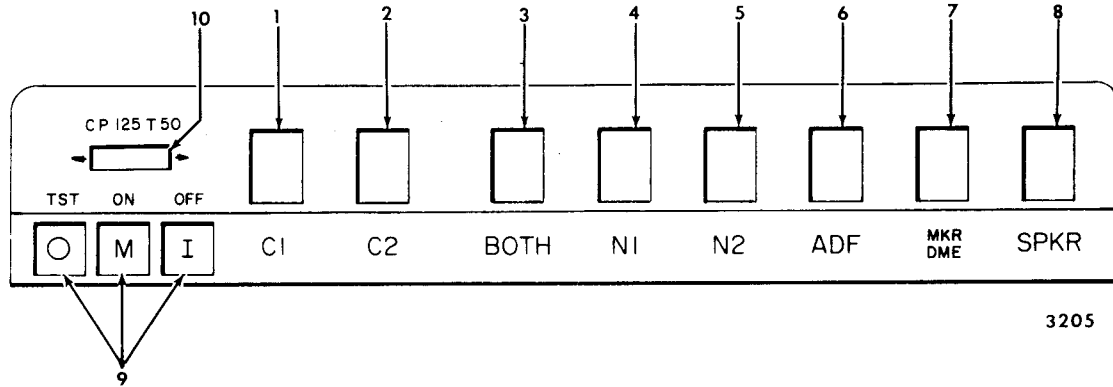
Index No. (Fig. 1)	Control	Position	Function
1.	COM 1 Control	Depressed (in)	Selects No. 1 VHF transmitter and receiver. Deselects No. 2 VHF radio.
		Out	Deselects No. 1 COM.
2.	COM 2 Control	Depressed (in)	Selects No. 2 VHF transmitter and receiver. Deselects No. 1 VHF radio.
		Out	Deselects No. 2 COM.
<p><u>NOTE:</u> COM 1 and COM 2 Controls are interlocked, both cannot be depressed at the same time.</p>			
3.	Both COM Control	Depressed (in)	Permits simultaneous monitoring of audio from both VHF COM receivers.
		Out	Audio monitoring of VHF radios is selected by COM 1 or COM 2 controls.
4.	NAV 1 Control	Depressed (in)	Permits monitoring of audio signals from No. 1 NAV System in headset or speaker.
		Out	Audio monitoring of No. 1 NAV is not available.
5.	NAV 2 Control	Depressed (in)	Permits monitoring of audio signals from No. 2 NAV System in headset or speaker.
		Out	Audio monitoring of No. 2 NAV is not available.

AUDIO PANEL CONTROLS (Continued)

Table 1 (Continued)

Index No. (Fig. 1)	Control	Position	Function
6.	ADF Control	Depressed (in)	Permits monitoring of audio signals from the ADF.
		Out	Audio Monitoring of the ADF is not available.
7.	MKR OR MKR DME Control	Depressed (in)	Permits monitoring of Marker Beacon audio. On those aircraft with DME, audio monitoring of DME is also available.
		Out	Audio monitoring of the Marker Beacon and DME, if installed, is not available.
8.	SPKR Control	Depressed (in)	Audio from selected system or systems is transferred to the speakers and headset.
		Out	Audio monitoring of the selected system is available on the headset only.

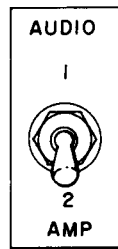
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3205

- | | |
|--------------------------|----------------------------|
| 1. COM 1 Control | 8. Speaker Control |
| 2. COM 2 Control | 9. Marker Beacon Indicator |
| 3. Both COM Control | O-Outer |
| 4. NAV 1 Control | M-Middle |
| 5. NAV 2 Control | I-Inner |
| 6. ADF Control | 10. Power Control |
| 7. Marker or DME Control | |

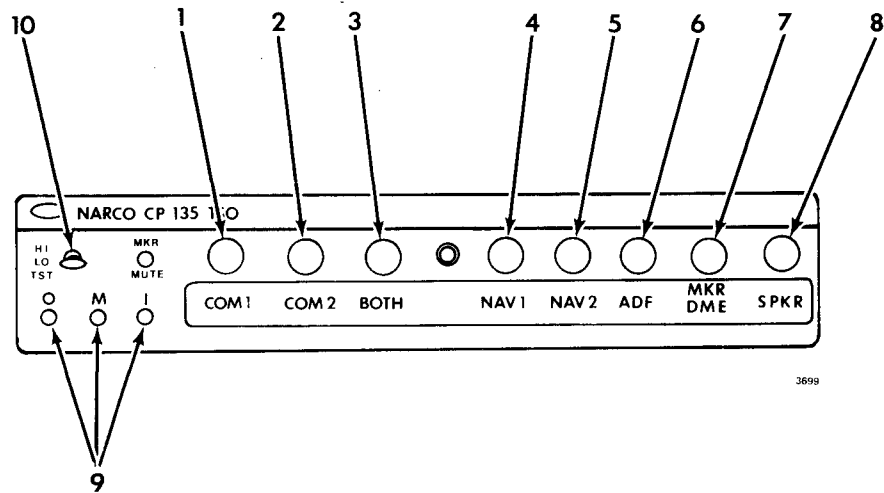
NARCO CP-125 Audio Control Panel
Figure 1



3359

Audio Amplifier Switch
Figure 2

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- | | |
|---------------------|---|
| 1. COM 1 Control | 7. Marker or DME Control |
| 2. COM 2 Control | 8. Speaker Control |
| 3. Both COM Control | 9. Marker Beacon Indicator |
| 4. NAV 1 Control | O - Outer |
| 5. NAV 2 Control | M - Middle |
| 6. ADF Control | I - Inner |
| | 10. Marker Receiver Sensitivity Control |

NARCO CP-135, Audio Panel
(1978 Model, AA-5A and AA-5B)
Figure 3

TROUBLESHOOTING THE AUDIO INTEGRATING SYSTEM

TROUBLE	PROBABLE CAUSE	REMEDY
One Communication or Navigation System appears inoperative.	Faulty audio panel. Faulty System.	Replace panel. Troubleshoot system.
System audio not available on the speakers.	Faulty speaker.	Replace speaker.
	Faulty audio panel.	Replace panel.
	Faulty wiring to speaker.	Repair wiring.
System audio not available at the headset.	Faulty headset.	Replace headset.
	Faulty jack.	Replace jack.
	Faulty audio panel.	Replace panel.
	Faulty wiring to jack.	Repair wiring.
System audio available but no transmission.	Faulty microphone.	Replace microphone. (This may require a readjustment of MIKE GAIN in transceiver.) See transceiver section in this chapter for instructions.
	Faulty microphone jack.	Replace jack.
	Faulty wiring to Mike jack.	Replace wiring.
	Faulty transceiver.	Replace transceiver.
	Faulty audio control panel.	Replace control panel.

NARCO CP-125/CP-135 AUDIO CONTROL PANEL — MAINTENANCE PRACTICES

1. Removal and Installation of CP-125/CP-135 Audio Control Panel

NOTE: CP-135 available on 1978 Model AA-5A and AA-5B.

The removal and installation of the CP-125/CP-135 Audio Control Panel is simple and requires no special instructions. Use 5/64 inch hex wrench to release unit from instrument panel. Slide unit straight out and in. Be careful not to damage connector pins.

2. Test of NARCO CP-125/CP-135 Audio Control Panel

A. Test

NOTE: This procedure assumes normal operation of communication and navigation equipment installed in the aircraft. Ensure that these systems are operating properly before proceeding.

- (1) Ensure the aircraft battery is installed and operating.
- (2) Place the MASTER switch to ON.
- (3) Place Audio Amp switch to 1 (CP-125 only).
- (4) If two communication systems are available, tune each to a different operating frequency. Plug the headset into the jack. Plug the microphone in.
- (5) Ensure that the SPKR button is out.
- (6) For aircraft with Intercom switch, place to phone (CP-125 only).
- (7) Press the COM 1 button. Check that COM 1 audio is available in the headphones. Adjust SQUELCH control on transceiver if necessary.
- (8) Place Intercom switch to Speaker (CP-125 only).
- (9) Press the SPKR button. Check that COM 1 audio is available on the speakers. then push out the SPKR button, and place intercom switch to phone (CP-125 only).
- (10) Press the COM 2 button. Check that COM 2 audio is available in the headphones. Adjust SQUELCH control on transceiver if necessary.
- (11) Place Intercom switch to speaker (CP-125 only). Press the SPKR button. COM 2 audio is available on the speakers.
- (12) Place Intercom switch to phone (CP-125 only).
- (13) Press the BOTH COM button. Both systems are heard on the headphones (rotate SQUELCH control if necessary).
- (14) Place Intercom switch to Speaker (CP-125 only).
- (15) Press the SPKR button. Check that both systems can be heard over the speakers. Push the SPKR button out.
- (16) Place Intercom switch to phone (CP-125 only).
- (17) During the following checks, place the Audio Amp switch to 2 (CP-125 only). There should be little or no difference in audio reception.

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- (18) In turn, test the following as applicable: VHF NAV No. 1, VHF NAV No. 2, ADF, DME Marker Beacon. In each case check both headphone and SPKR operation.

NOTE: In order to check Marker Beacon operation it is necessary to perform a flight test over a beacon. If available, a beacon ramp generator can be used, avoiding a flight check.

- (19) Turn OFF all of the radios and navigation systems.
- (20) Place Master switch to OFF.

KING KMA-20 AUDIO CONTROL PANEL - DESCRIPTION/OPERATION

1. General

The King KMA-20 audio control panel provides instant and central control of all onboard navigation// communication equipment. The audio panel is an optional piece of equipment used on aircraft with dual communication systems and/or multiple navigation systems such as VOR, ADF, DME. The panel permits monitoring of audio signals from the radio navigation systems and also permits selection of the desired communication system on those aircraft with dual systems. The panel also controls the marker beacon system. See Section 34 for a discussion of the system. For a discussion of the functions of the various system switches, see Table 1. Locations of various components are shown in Figure 1.

AUDIO PANEL CONTROLS

Table 1

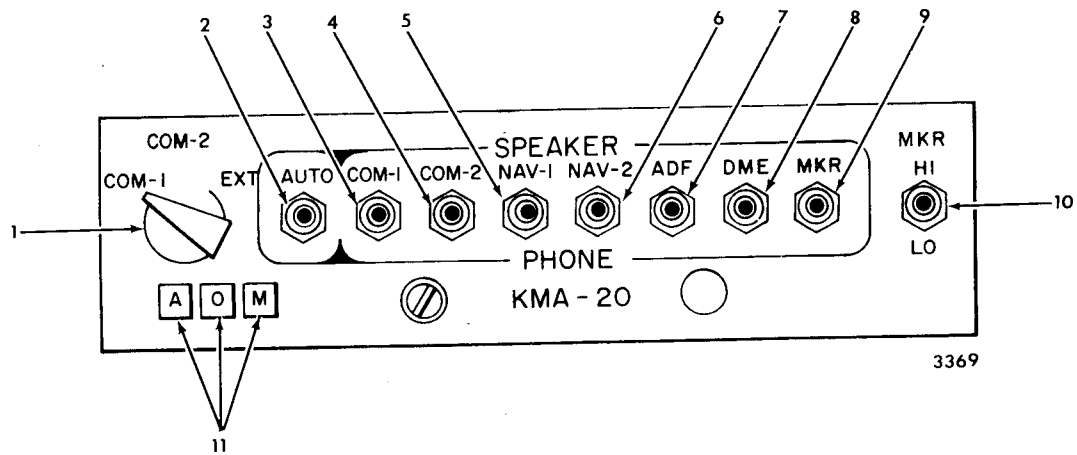
Index No. (Fig. 1)	Control	Position	Function
1.	Microphone selector	COM-1	Selects No. 1 communication system transmission and reception.
		COM-2	Selects No. 2 communication system transmission and reception.
		EXT	(NOT USED)
2.	Auto selector	SPEAKERS	Audio from the system selected by the Microphone selector (1) is routed to the speaker.
		Center (OFF)	Audio is controlled by switches (3) and (4).
		PHONE	Audio is routed to the headphones.
3.	COM-1 Audio selector	SPEAKERS	Audio from the No. 1 communication system is sent to the speakers.
		Center (OFF)	Audio routing is controlled by the AUTO selector.
		PHONE	No. 1 system audio is sent to the headphones.
4.	COM-2 Audio selector	SPEAKERS	Audio from the No. 2 communication system is sent to the speakers.
		Center (OFF)	Audio routing is controlled by the AUTO selector.
		PHONE	No. 2 system audio is sent to the headphones.
5.	NAV-1 Audio selector	SPEAKERS	Audio from the No. 1 NAV is sent to the speakers.
		Center (OFF)	Audio from the No. 1 NAV system is not available.
		PHONE	Audio from the No. 1 NAV is sent to the headphones.
6.	NAV-2 Audio selector	SPEAKERS	Audio from the No. 2 NAV is sent to the speakers.

AUDIO PANEL CONTROLS

Table 1

Index No. (Fig. 1)	Control	Position	Function
		Center (OFF)	Audio from the No. 2 NAV system is not available.
		PHONE	Audio from the No. 2 NAV is sent to the headphones.
7.	ADE Audio Selector	SPEAKERS	Audio from the ADF system is sent to the speakers.
		Center (OFF)	Audio from the ADF is not available.
		PHONE	Audio from the ADF is routed to the headphones.
8.	DME Audio Selector	SPEAKERS	Ident audio from the DME is sent to the speakers.
		Center (OFF)	Audio from the DME is not available.
		PHONE	Audio from the DME is sent to the headphones.
9.	MKR Audio Selector	SPEAKERS	Audio from the Marker Beacon is sent to the speakers.
		Center (OFF)	Audio from the Marker Beacon is not available.
		PHONE	Audio from the Marker Beacon is sent to the headphones.

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- | | |
|------------------------------|--|
| 1. Microphone Input Selector | 8. DME Selector |
| 2. Auto Selector | 9. Marker Beacon Selector |
| 3. COM 1 Selector | 10. Marker Beacon Sensitivity Selector |
| 4. COM 2 Selector | 11. Marker Beacon Indicator |
| 5. NAV 1 Selector | A-Inner |
| 6. NAV 2 Selector | O-Outer |
| 7. ADF Selector | M-Middle |

NOTE: Switches 2-10 are toggle switches.

King KMA-20 Audio Control Panel
Figure 1

TROUBLESHOOTING THE KING KMA-20 AUDIO CONTROL PANEL

TROUBLE	PROBABLE CAUSE	REMEDY
One Communication or Navigation System appears inoperative.	Faulty audio panel	Replace panel.
	Faulty system	Troubleshoot system.
System audio not available on the speakers or headset.	Faulty audio panel	Replace panel.
System audio available but no transmission.	Faulty microphone	Replace microphone. (This may require a re-adjustment of MIKE GAIN in transceiver. See transceiver section in this Chapter for instructions.)
	Faulty Mike jack	Replace jack.
	Faulty wiring to Mike jack	Repair wiring.
	Faulty transceiver	Replace transceiver.
	Faulty Audio Control panel	Replace control panel.

KING KMA-20 AUDIO CONTROL PANEL - MAINTENANCE PRACTICES

1. Removal and Installation of KMA-20 Audio Control Panel

A. The removal and installation of the KMA-20 Audio Control Panel is simple and requires no special instructions. Release and secure unit to mounting case by turning allen screw that locks unit to mounting case. Use 5/64 allen wrench. Slide unit straight out and in. Be careful not to damage connector pins.

B. Test of King KMA-20 Audio Control Panel

NOTE: This procedure assumes normal operation of the communication and navigation equipment installed in the aircraft. Assure that these systems are operating properly before proceeding.

- (1) Assure the aircraft battery is installed and operating.
- (2) Assure all RADIO circuit breakers are closed.
- (3) Place the MASTER switch to ON.
- (4) If two communication systems are installed, tune each to a different operating frequency. Plug the microphone and headset into the appropriate jacks.
- (5) Set all toggle switches to mid-position.
- (6) Set microphone selector to COM-1.
- (7) Set Auto selector to Speaker.
- (8) Contact the tower on the No. 1 VHF communication system. Tower reply should be heard on speaker.
- (9) Place the microphone selector to COM-2. Repeat step (8) using the No. 2 VHF Communication system.
- (10) Repeat steps (6) (8) and (9) with the AUTO switch in Phone. The COM audio is heard on the headphone.
- (11) Return the AUTO switch to OFF. Place COM-1 switch to SPEAKER and then PHONE. Check that the COM-1 audio is in turn available on the speakers and then headphones.
- (12) Test the following: NAV-1, NAV-2, ADF, DME, and MKR (Marker Beacon). In each case, check both SPEAKER and PHONE operation.

NOTE: In order to check Marker Beacon operation it is necessary to perform a flight test over a beacon. If available, a beacon ramp generator can be used, avoiding the check flight.
- (13) Turn off all of the radios and navigation systems.
- (14) Place the MASTER switch to OFF.

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COLLINS AMR-350 AUDIO CONTROL PANEL – DESCRIPTION/OPERATION

1. General

The COLLINS AMR-350 audio control panel provides instant and central control of all onboard navigation/communication equipment. The installation of the audio control is optional and is used on aircraft with dual communication systems and/or multiple navigation systems such as VOR, ADF, or DME. The panel permits monitoring of audio signals from the radio navigation systems and also permits selection of the desired communication system on those aircraft with dual systems. See Table 1 for description of control switches. The COLLINS AMR-350 is available on 1978 Model AA-5A and AA-5B.

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AUDIO PANEL CONTROLS

Table 1

Index No. (Fig. 1)	Control	Position	Function
1.	Communication system selector	COM-1	Selects No. 1 communication system transmission and reception.
		COM-2	Selects No. 2 communication system transmission and reception.
		EXT	(NOT USED)
2.	Auto selector	SPEAKERS	Audio from the system selected by the communication selector (1) is routed to the speaker.
		Center (OFF)	Audio is controlled by switches (3) and (4).
		PHONE	Audio is routed to the headphones.
3.	COM-1 Audio selector	SPEAKERS	Audio from the No. 1 Communication system is sent to the speakers.
		Center (OFF)	Audio routing is controlled by the AUTO selector.
		PHONE	No. 1 system audio is sent to the headphones.
4.	COM-2 Audio selector	SPEAKERS	Audio from the No. 2 communication system is sent to the speakers.
		Center (OFF)	Audio routing is controlled by the AUTO selector.
		PHONE	No. 2 system audio is sent to the headphones.
5.	NAV-1 Audio selector	SPEAKERS	Audio from the No. 1 NAV is sent to the speakers.
		Center (OFF)	Audio from the No. 1 NAV system is not available.
		PHONE	Audio from the No. 1 NAV is sent to the headphones.
6.	NAV-2 Audio selector	SPEAKERS	Audio from the No. 2 NAV is sent to the speakers.

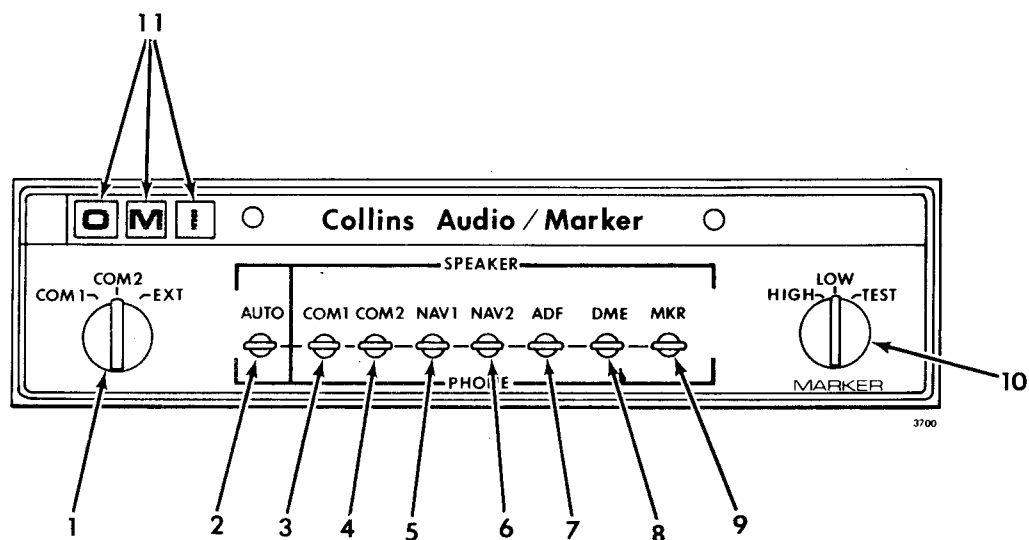
**AA-5 SERIES
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AUDIO PANEL CONTROLS

Table 1

Index No. (Fig. 1)	Control	Position	Function
		Center (OFF)	Audio from the No. 2 NAV system is not available.
		PHONE	Audio from the No. 2 NAV is sent to the headphones.
7.	ADF Audio Selector	SPEAKERS	Audio from the ADF system is sent to the speakers.
		Center (OFF)	Audio from the ADF is not available.
		PHONE	Audio from the ADF is routed to the headphones.
8.	DME Audio Selector	SPEAKERS	Ident audio from the DME is sent to the speakers.
		Center (OFF)	Audio from the DME is not available.
		PHONE	Audio from the DME is sent to the headphones.
9.	MKR Audio Selector	SPEAKERS	Audio from the Marker Beacon is sent to the speakers.
		Center (OFF)	Audio from the MARKER Beacon is not available.
		PHONE	Audio from the Marker Beacon is sent to the headphones.
10.	Marker Receiver Sensitivity	HIGH	High receiver sensitivity.
		LOW	Low receiver sensitivity.
		TEST	Test marker lights.

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- | | |
|----------------------------|---------------------------------|
| 1. COM 1/COM 2/EXT Control | 7. ADF Control |
| 2. AUTO Control | 8. DME Control |
| 3. COM 1 Control | 9. MKR Control |
| 4. COM 2 Control | 10. MARKER HIGH/LOW/TEST Select |
| 5. NAV 1 Control | 11. Marker Light |
| 6. NAV 2 Control | O - Outer |
| | M - Middle |
| | I - Inner |

Collins AMR- 350 Audio/Marker Panel
(1978 Model, AA-5A and AA-5B)
Figure 1

**AA-5 SERIES
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TROUBLESHOOTING THE COLLINS AMR-350 AUDIO CONTROL PANEL

(1978 MODEL, AA-5A AND AA-5B)

TROUBLE	PROBABLE CAUSE	REMEDY
One Communication or Navigation System appears inoperative.	Faulty audio panel.	Replace panel.
	Faulty system.	Troubleshoot system.
System audio not available on the speakers or headset.	Faulty audio panel	Replace panel.
System audio available but no transmission	Faulty microphone.	Replace microphone. (This may require a readjustment of MIKE GAIN in transceiver. See transceiver section in this Chapter for instructions.)
	Faulty Mike jack.	Replace jack.
	Faulty wiring to Mike jack.	Repair wiring.
	Faulty transceiver.	Replace transceiver.
	Faulty Audio Control panel.	Replace control panel.

**AA-5 SERIES
MAINTENANCE MANUAL**

COLLINS AMR-350 AUDIO CONTROL PANEL – MAINTENANCE PRACTICES
(1978 MODEL, AA-5A AND AA-5B)

1. Removal and Installation of AMR- 350 Audio Control Panel

- A. The removal and installation of the AMR-350 Audio Control Panel is simple and requires no special instructions. Release and secure unit to mounting case by turning allen screw that locks unit to mounting case. Use 5/64 allen wrench. Slide unit straight out and in. Be careful not to damage connector pins.
- B. Test of COLLINS AMR-350 Audio Control Panel

NOTE: This procedure assumes normal operation of the communication and navigation equipment installed in the aircraft. Ensure that these systems are operating properly before proceeding.

- (1) Ensure the aircraft battery is installed and operating.
- (2) Ensure all RADIO circuit breakers are closed.
- (3) Place the MASTER switch to ON.
- (4) If two communication systems are installed, tune each to a different operating frequency. Plug the microphone and headset into the appropriate jacks.
- (5) Set all toggle switches to mid-position.
- (6) Set communication selector to COM-1.
- (7) Set Auto selector to Speaker.
- (8) Contact the tower on the No. 1 VHF communication system. Tower reply should be heard on speaker.
- (9) Place the communication selector to COM-2. Repeat Step (8) using the No. 2 VHF Communication system.
- (10) Repeat Steps (5), (8), and (9) with the AUTO switch in Phone. The COM audio is heard on the head-phone.
- (11) Return the AUTO switch to OFF. Place COM-1 switch to SPEAKER and then PHONE. Check that the COM-1 audio is in turn available on the speakers and then headphones.
- (12) Test the following: NAV-1, NAV-2, ADF, DME, and MKR (Marker Beacon). In each case, check both SPEAKER and PHONE operation.

NOTE: In order to check Marker Beacon operation, it is necessary to perform a flight test over a beacon. If available a beacon ramp generator can be used, avoiding the check flight.
- (13) Turn off all of the radios and navigation systems.
- (14) Place the MASTER switch to OFF.

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NARCO ELT-10 EMERGENCY LOCATOR TRANSMITTER (ELT) SYSTEM — DESCRIPTION/OPERATION

1. General

The emergency locator transmitter (ELT) is a self-contained, battery-powered radio transmitter which emits a signal (121.5/243.0 MHz) to assist in locating a downed aircraft. The ELT System consists of a transmitter located in the aft fuselage section under the vertical stabilizer and a transmitting antenna mounted on the turtleback, protruding through the dorsal fin. The ELT is activated automatically by a deceleration of 5g's along the flight axis of the aircraft. It can also be activated manually by removing the left side empennage inspection cover and moving the transmitter control switch to the ON position. For location of controls, see Figure 1. Table 1 contains a list of switch positions and functions. If it is required to leave the area of the aircraft, the ELT unit can be removed and hand carried. In this condition, extend the built-in antenna and place control switch to ON.

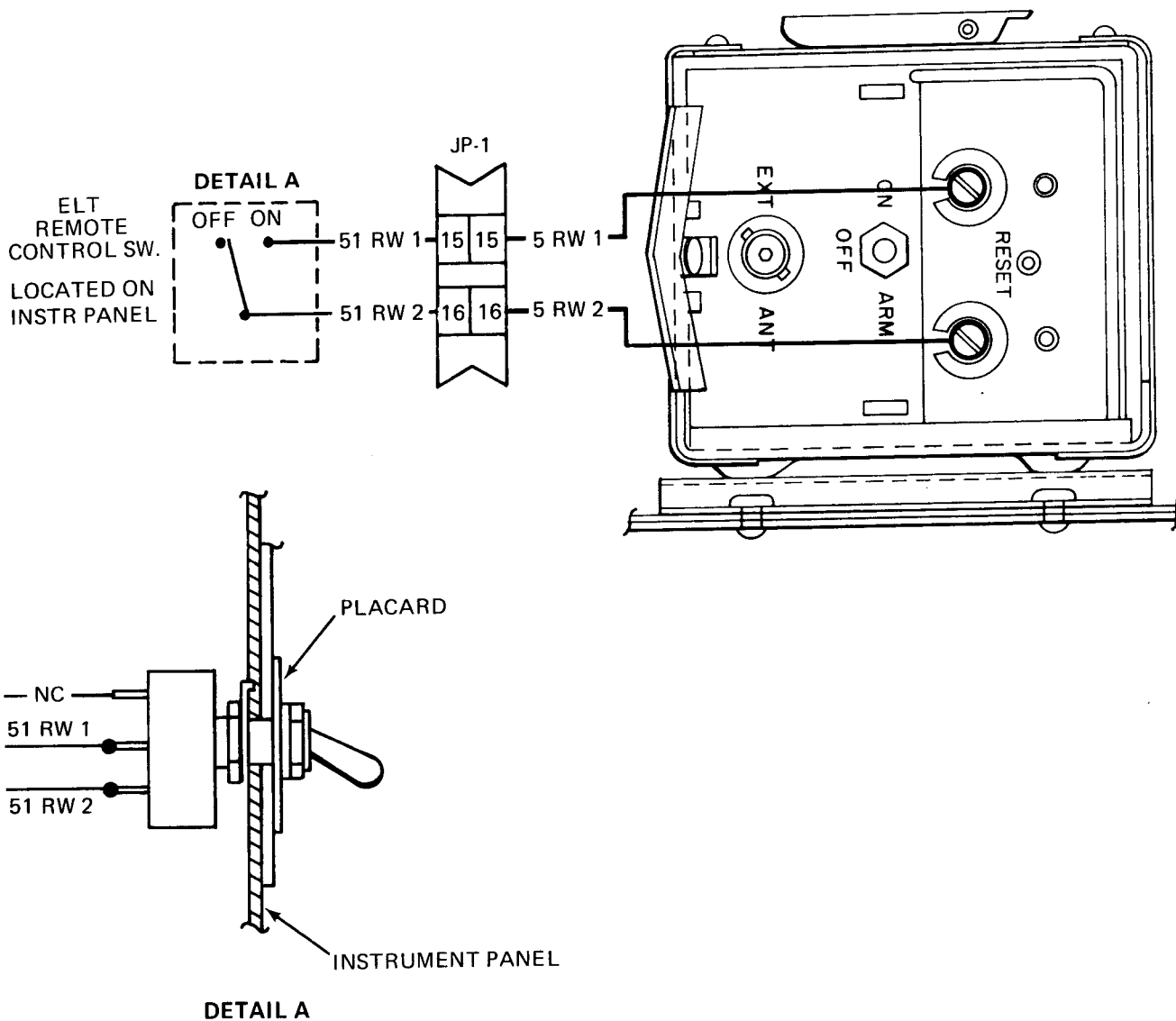
AA5A/AA5B 1978 and subsequent models

ELT can be activated by a remote control switch located on the instrument panel. The remote switch is wired in parallel with the ON-OFF-ARM switch on the ELT unit. (See Figure 101).

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TROUBLESHOOTING OF THE ELT-10 EMERGENCY LOCATOR TRANSMITTER

TROUBLE	PROBABLE CAUSE	REMEDY
No transmission	Faulty transmitter	Replace transmitter.
	Faulty wiring to antenna	Repair wiring.
	Faulty battery	Replace battery pack.
Weak transmission	Faulty antenna or wiring to antenna	Replace antenna assembly. Repair wiring.
	Faulty transmitter	Replace transmitter.
	Faulty battery	Replace battery pack.



Remote ELT Switch, Wiring Diagram
Figure 101

NARCO ELT-10, EMERGENCY LOCATOR TRANSMITTER - MAINTENANCE PRACTICES

1. Servicing the NARCO ELT-10

NOTE: The ELT-10 contains nine (9) dry cell batteries in a separate battery pack. Since the batteries are not kept charged by aircraft power, they must be periodically replaced. See NARCO owner's manual, 03716-0601 for battery replacement schedule.

A. Removal of Battery Pack

- (1) Set the ON-OFF-ARM switch to OFF. Disconnect antenna.
- (2) Remove the ELT unit from the aircraft.
- (3) Extend the built-in antenna.
- (4) Remove the four (4) screws that attach the battery pack to the transmitter.
- (5) Carefully pull the transmitter away from the battery pack. Do not jerk on the wires.

CAUTION: IN DISPOSITION OF THE BATTERY, DO NOT THROW IN FIRE.

- (6) Release the battery pack wires (quick disconnect) from the terminals at the transmitter. Dispose of battery pack.

B. Installation of Battery Pack

- (1) Connect the battery pack wires to the transmitter.
- (2) Insert the transmitter into the battery pack, be careful not to pinch wires.

NOTE: The battery pack is shipped with a sealant on the inside lip so a water tight seal will be retained. DO NOT REMOVE THIS SEALANT!

- (3) Replace the four (4) attaching screws. If the four holes do not line up, rotate the battery pack 180 degrees and insert.
- (4) Slide the built-in antenna into its holding slot.
- (5) Install the ELT unit in the aircraft.
- (6) Attach the antenna lead to the ELT. Make sure the antenna separator prevents contact between the portable antenna finger and the ELT antenna.
- (7) Perform checkout of ELT system. See test section of this chapter.
- (8) Depress the reset button.
- (9) Place the ON-OFF-ARM switch to ARM.

2. Servicing the NARCO ELT-10C

NOTE: The ELT-10C contains a lithium hydroxide battery and must be carefully handled.

A. Removal of Battery Pack

- (1) Gain access to ELT unit by removing inspection cover on left side of empennage.
- (2) Set the ON-OFF-ARM switch to OFF. Disconnect antenna.
- (3) Remove the ELT unit from the aircraft.
- (4) Extend the built-in antenna.
- (5) Remove the four (4) screws that attach battery pack to the transmitter.
- (6) Separate the two sections. If necessary, use knife to assist in release of sealant.
- (7) Unsnap the battery pack from the transmitter. Remove remaining sealant by rubbing with fingers.

B. Installation of Battery Pack

- (1) Snap battery pack to transmitter connector.
- (2) Apply thin bead of RTV sealant around the perimeter of transmitter section.
- (3) Fit the two sections together. Assure that screw holes align properly.
NOTE: Do not press sections together.
- (4) Apply a very small amount of sealant to countersink of each screw hole.
- (5) Replace the four (4) attaching screws. Tighten screws to bring two sections together. **DO NOT OVERTIGHTEN!**
- (6) Wipe away excess sealant.
- (7) Slide the built-in antenna into its holding slot.
- (8) Install the ELT unit in the aircraft. Attach antenna.
- (9) Perform checkout of ELT system. See test section of this chapter.
- (10) Depress the reset button and place ON-OFF-ARM switch to ARM.
- (11) Replace inspection cover.

3. Removal and Installation of ELT-10 () System Components

A. Removal and Installation of ELT-10 () Unit

To gain access to the ELT-10 unit, remove the left side empennage inspection cover. Disconnect antenna lead and remove mounting hardware. Remove ELT-10 unit. Reverse the procedure to install ELT-10 unit.

NOTE: Ensure that the ON-OFF-ARM switch is OFF when removing or installing ELT-10 unit. Depress reset button and place switch in ARM position after installation.

B. Removal of Antenna (See Figure 201)

- (1) Unscrew the 12 fasteners holding the dorsal fin to the vertical stabilizer.
- (2) Slide the dorsal fin forward. The antenna will slip through the grommet. Continue sliding the fin forward until the antenna can be reached.
- (3) Obtain access to the ELT. Disconnect the antenna lead from the ELT.
- (4) Unscrew the nut cap from the antenna. Remove the nut cap and the two washers from the antenna.
- (5) Open the three stick clamps from the aircraft structure.
- (6) Pull the antenna down and through the aircraft structure.

NOTE: The antenna and coaxial lead are furnished as one assembly.

C. Installation of Antenna (See Figure 201)

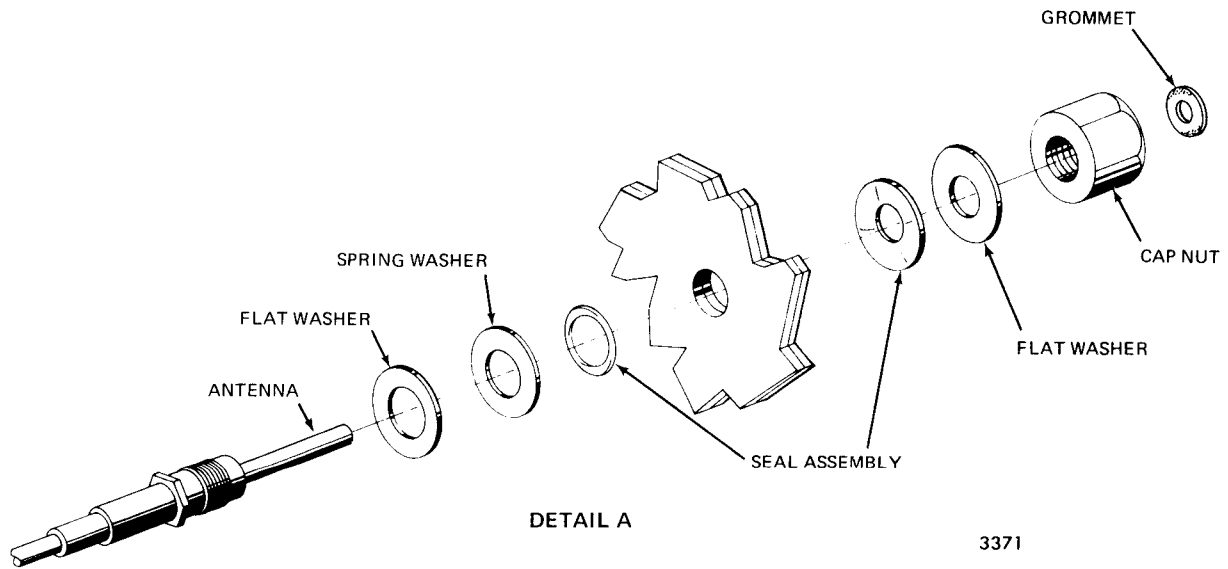
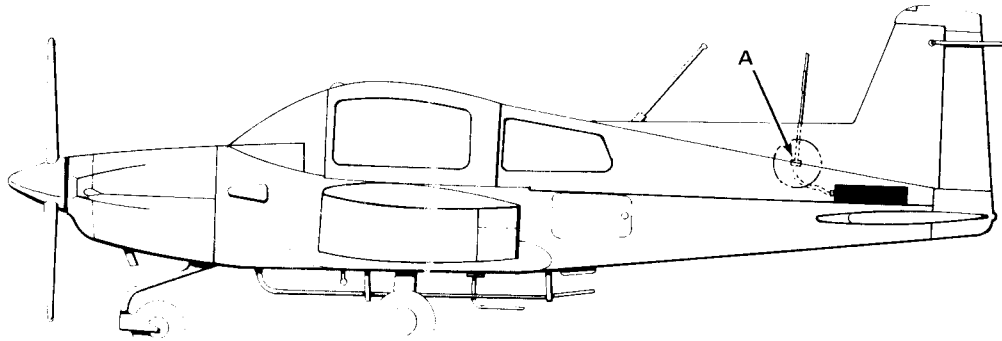
- (1) Place the washers and the "O" ring on the antenna in proper sequence.
- (2) Run the antenna through the structure and out through the skin. Place the spring washer, washer, and nut cap (in correct sequence) on the antenna and tighten.
- (3) Attach the antenna lead to structure using the stick clamps (3 places).
- (4) Slowly slide the dorsal fin rearward while fitting the antenna through the grommet.
- (5) Work the antenna through the grommet. Check that there are no bends in the antenna before fitting the dorsal fin to the vertical stabilizer.
- (6) Using the 12 fasteners, attach the dorsal fin to the vertical stabilizer.
- (7) Attach the antenna lead to the ELT. Assure the antenna separator keeps the portable antenna contact finger from touching the ELT antenna.
- (8) Perform an operational checkout of the ELT.

4. Adjustment/Test of NARCO ELT-10

A. Test of NARCO ELT-10 SYSTEM

WARNING: COORDINATE THIS PROCEDURE WITH LOCAL ATC BEFORE STARTING. THIS PROCEDURE ENTAILS A TEST OF EMERGENCY TRANSMISSIONS, AND A LACK OF COORDINATION MAY LEAD TO AN UNTIMELY DISPERSAL OF EMERGENCY PERSONNEL AND VEHICLES.

- (1) Obtain access to the ELT. See Figure 201.
- (2) After coordination, depress the RESET button, then place the ON-OFF-ARM switch to ON. As soon as ATC acknowledges transmission, place switch to OFF. Depress the RESET button, then place switch to ARM.
- (3) Recheck with ATC to assure there are no transmissions from the ELT.
- (4) Monitor for transmission on COM radio with frequency selector set for 121.5 MHZ.



Removal and Installation of ELT-10 Antenna
Figure 201