

INSTALLATION OF 960 MEGAHERTZ MASTR Progress Line DESK MATE

TWO-WAY FM RADIO STATION COMBINATIONS



Style DM: DESK MATE

- Local Control
- Local/Remote Control
- Remote Control
- Repeater Control

The Desk-Mate Station Combination gives you a compact two-way radio right in your own office. The attractive desk-high cabinet can be placed beside your desk to provide additional desk-top work space. By unlocking and removing the side panels, the serviceman can quickly gain access to the transmitter and receiver.

Local Control and Local/Remote Stations include a conveniently placed control panel, a desk-style microphone and a power cable.

Remote Control or Repeater Control Desk-Mate Stations are supplied with a military-style microphone, speaker, and power cable.

PLANNING SPECIFICATIONS

Dimensions (H x W x D)	30 ³ / ₈ " x 14" x 25 ¹ / ₂ "
Weight	Approx 150 lbs.
Shipping Weight	Approx 165 lbs.
Temperature Range	-30° C to +60° C (-22° F to +140° F)
Input Power	1.66 Amps(max), 195 Watts transmit 0.8 Amps(max), 95 Watts receive @ 117 VAC, 50/60 Hz.

9023

UNPACKING AND CHECKING EQUIPMENT

As you unpack the station combination, carefully inspect each item and check it off in the appropriate column below. If any damage has occurred to the equipment during shipment, file a claim with the freight carrier immediately.

EQUIPMENT	LOCAL CONTROL	LOCAL/ REMOTE CONTROL	REMOTE CONTROL	REPEATER CONTROL
Base Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power Cable 7491206-P1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Two-prong Plug Adapter 7160486-P1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna Cable 19B216678-G1 (Two for Repeater Stations without duplexer)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keys LL201	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment Tool 4038831-P2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment Tool 4033530-G2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Desk Microphone Standard Model 4EM28A10 or Channel Guard Model 4EM28B10	<input type="checkbox"/>	<input type="checkbox"/>		
Military Microphone Model 4EM25A10			<input type="checkbox"/>	<input type="checkbox"/>
Microphone Mounting Kit 7141414-G2			<input type="checkbox"/>	<input type="checkbox"/>
Handset Model 4EM26A10 (optional)			<input type="checkbox"/>	<input type="checkbox"/>
Dynamic Boom Microphone Model 4EM13A2 (optional)	<input type="checkbox"/>	<input type="checkbox"/>		
Speaker Model 4EZ16A20 (with VOLUME control)			<input type="checkbox"/>	
Speaker Model 4EZ16A21				<input type="checkbox"/>
Operator's Manual LBI-3516	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The antenna system and transmission line are ordered separately from the Desk Mate Station Combination. The installer will normally provide any miscellaneous hardware as part of his installation "package". The user must provide the 117-VAC power service of adequate capacity and regulation as well as any telephone lines that may be required for "Remote Control" operation.

PLANNING YOUR DESK MATE INSTALLATION



The illustrations in this manual of typical Desk Mate installations should help you in planning your installation. It is suggested that you take advantage of the experience of one of the many authorized General Electric Two-Way Radio Service Stations by having them install your new station combination and make the final adjustments.

Before starting your installation, study this manual carefully. A well planned installation is neat, convenient for the operator to use, easy for the serviceman to service, and offers protection for the equipment and cables.

TYPICAL DESK MATE INSTALLATION

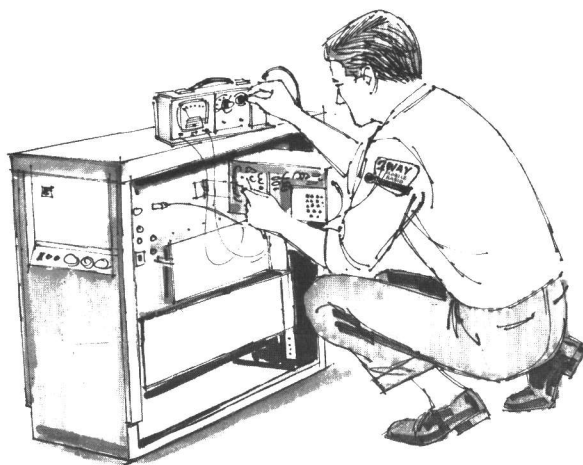
SELECTING A LOCATION FOR YOUR DESK MATE

The Desk Mate Station Combination has been assembled at the factory for installation along the *right* side of a desk. The serviceman can then quickly gain access to the test points and tuning controls on the station by removing the right side panel—without having to move the cabinet.

The Desk Mate Station can also be installed along the left side of a desk. Be sure to allow sufficient room at the left of the station, so the station can be moved away from the desk to allow the technicians to open both station side panel doors for service and maintenance.

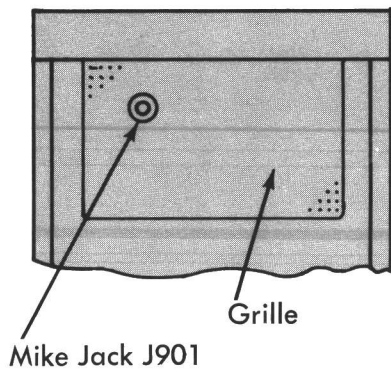
The Desk Mate should be installed within 15 feet of a 117-VAC power receptacle and as close to the antenna tower as possible.

Order the GE Optional 220/117 volt AC Step-down Transformer Kit for locations where the power source is 220 volts AC.

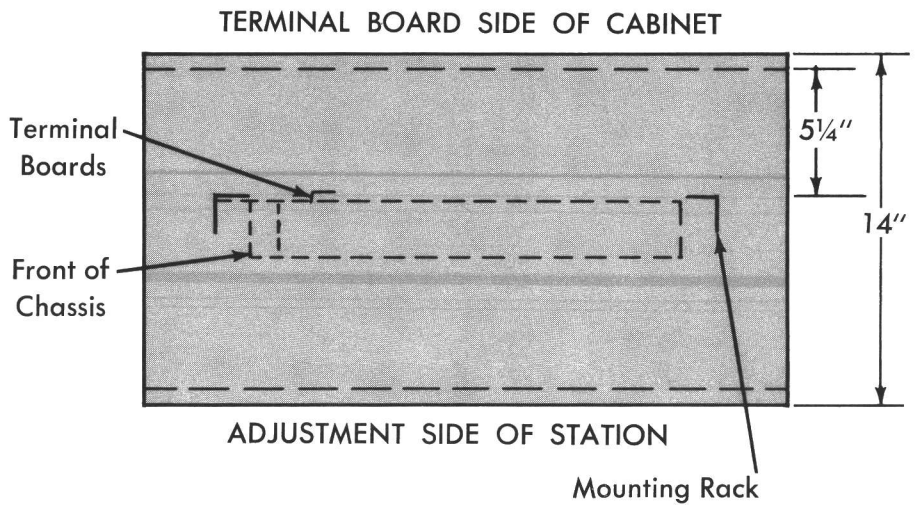


PROVIDE SUFFICIENT ROOM FOR REMOVING THE SIDE PANEL OF THE DESK MATE FOR SERVICING.

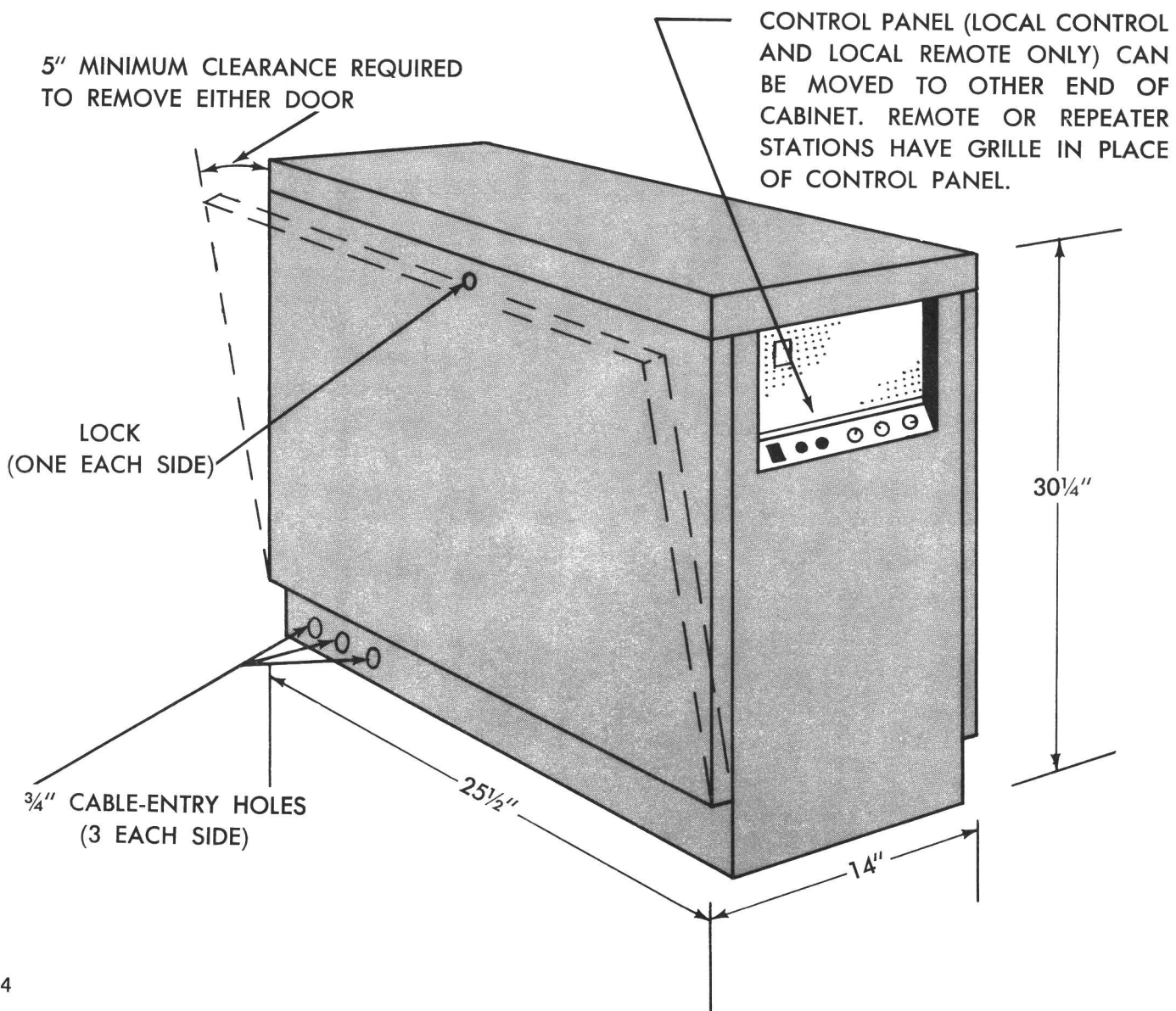
OUTLINE DIAGRAM FOR DESK MATE CABINET



REAR VIEW



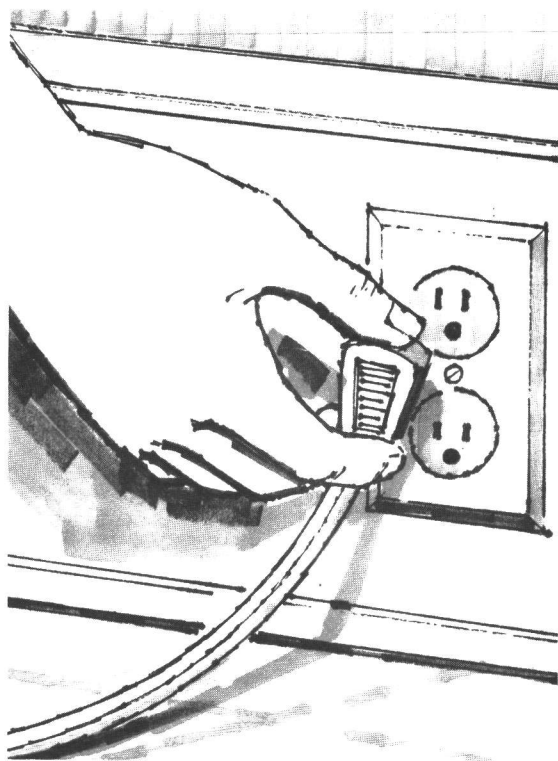
TOP VIEW



POWER AND GROUND REQUIREMENTS

A separate 15- or 20-ampere, 117-VAC 50/60-Hertz electrical circuit should be provided for the Desk Mate Station. A separate line will prevent an interruption of communications if an unexpected failure occurs in other building circuits. The 15-foot power cable from the station is provided with a 3-prong plug. One of the prongs grounds the station to protect personnel. A 2-prong adapter with grounding lug is provided to connect the station to a 2-prong power receptacle—until a 3-prong outlet can be installed. When the 2-prong adapter is used, the attached ground wire must be connected to the building ground. Unscrew one power receptacle front plate screw and attach the ground wire lug under the screw and tighten. Make a continuity check between station equipment rack and a point known to be ground to be sure a good ground connection has been made.

Check your electrical code to be sure that you comply with any local ordinances.



Ask your electrician to install a power receptacle which will accept a 3-prong plug.

ANTENNA REQUIREMENTS

The antenna should be located as close as possible to the Desk Mate Station, so that the antenna transmission line can be kept short. Receiving and transmitting efficiency decrease as the length of the transmission line increases.

A 4-foot RG-8/U cable with Type N fittings on each end is provided for making connections between the equipment and the antenna transmission line (two cables are provided for repeater applications).

The antenna, tower, other antenna supports, and transmission line are ordered separately from the station combination, but proper installation of the antenna is essential for proper operation of the radio system. The system will not perform satisfactorily unless the antenna is installed in accordance with good engineering practice.

Installation instructions are furnished with the antenna.

To supplement the manufacturer's instructions, the following hints will be valuable to you when installing your antenna:

- Antenna should not be located in an area of a strong "electrical noise". It should be located at least several hundred feet from noise caused by: high tension power lines, internal combustion engines, heavy electrical machinery, and other "radio-frequency devices".

- Check transmission line and connectors for opens and shorts before installing.

- Leave some slack between top of the transmission line and antenna.

- Protect in-line fittings from weather by sealing with GE Silicone Rubber Adhesive sealant or by taping.

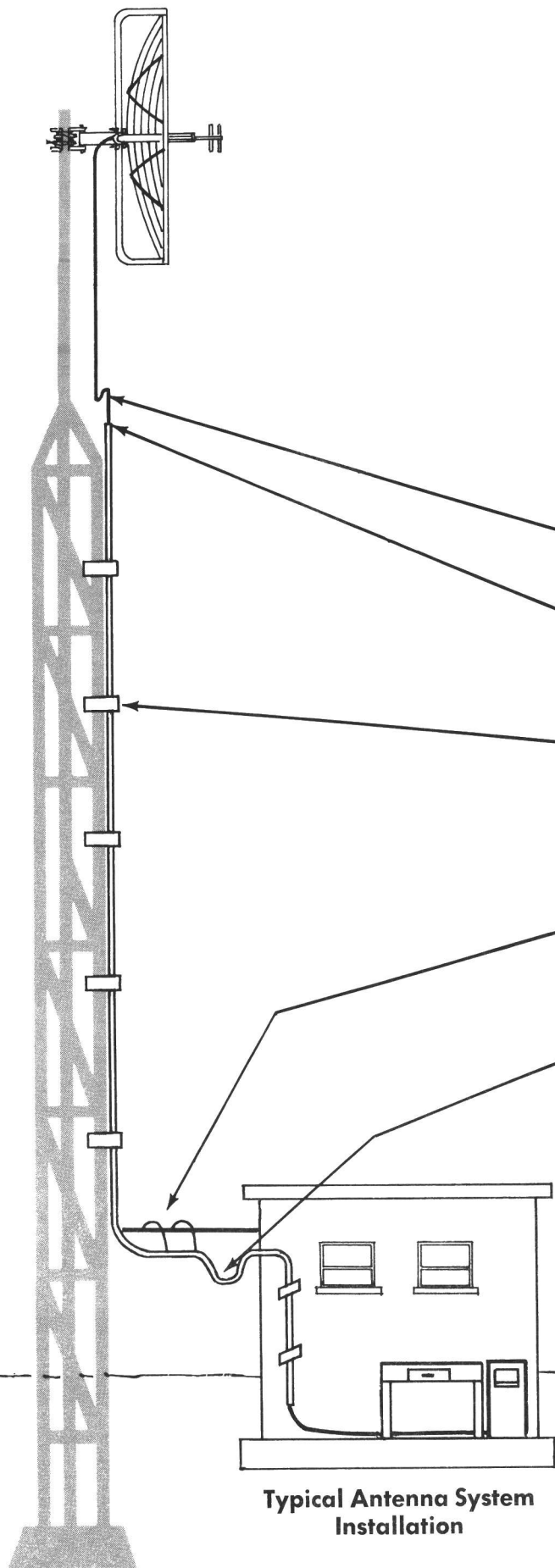
- Clamp the line to the tower every three feet. Use wraplock on jacketed cable. Use wraplock and mounting sleeve on unjacketed cable.

- Use "messenger" cable to support transmission line from tower to radio building, if distance is more than eight feet.

- Make a "drip-loop" in the transmission line just before line enters the building.

- Check continuity between transmission line ground and building ground before transmission line is attached to station. They should be at the same potential.

- Keep transmission line away from all sharp edges. Do not make sharp bends.



**Typical Antenna System
Installation**

TELEPHONE LINE REQUIREMENTS

Remote Control Stations and Local/Remote Stations require the use of telephone lines between the station and the Remote Control Unit. Information for selecting the type of telephone lines to be leased is provided in the instruction manual for the Remote Control Unit.

There are three types of telephone lines in common use for remotely controlling a base station:

Method	Description	Advantages or Disadvantages
1	<i>One metallic pair:</i> for both audio and control voltages with control voltage simplexed from line to line.	Economical; dependable where earth currents may be large; keying clicks will be heard in paralleled Remote Control Units.
2	<i>One metallic pair:</i> for both audio and control voltages with control voltage simplexed from line to ground.	Economical; earth ground currents (encountered near power company sub-stations) may interfere with control functions; keying clicks minimized.
3	<i>Two telephone pairs:</i> one for audio voltage and one for control voltage (metallic pair).	Provides best performance; keying clicks will not be heard; least susceptible to earth ground currents which may interfere with control functions.

In choosing one of these methods, consider *both* cost and performance. One of the methods may be available at a decidedly lower rate. Local telephone companies will sometimes offer no choice of these methods but will provide an audio pair and a control pair (Method 3). Instructions for connecting the Desk Mate Station using any one of the three methods are provided in this installation manual.

BLOWER OPERATION

A blower is mounted under the transmitter to air-cool the transmitter and power amplifier. The blower operates when the transmitter is keyed or when the ambient temperature exceeds the operating level of the thermostat switch.

INSTALLING YOUR DESK MATE STATION

Make the cable connections to the Desk Mate as described for the type of control to be used:

Local Control	Page 8
Local/Remote Control	Page 9
Remote Control	Page 10
Repeater Control	Page 11

LOCAL CONTROL CONNECTIONS

- ① Cut 1-inch hole for antenna cable using circle cutter, holesaw or socket punch. Use location shown or another location that meets system requirements. Insert grommet (supplied by installer) in hole.

- ② Mount strain relief clamps (supplied by installer) in holes.

- ③ Connect antenna jack to transmission line using 4-foot RG-8/U cable provided.

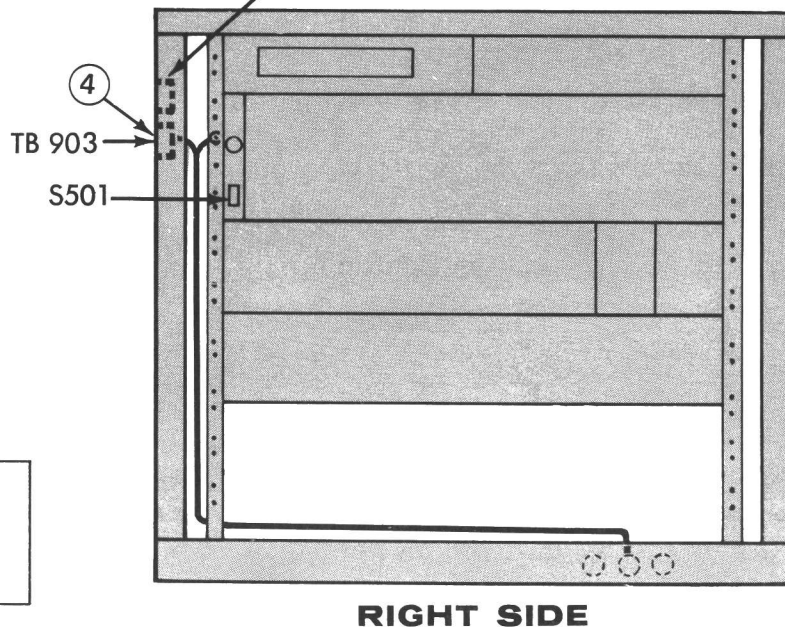
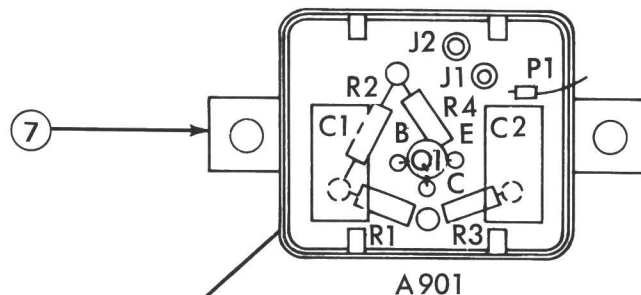
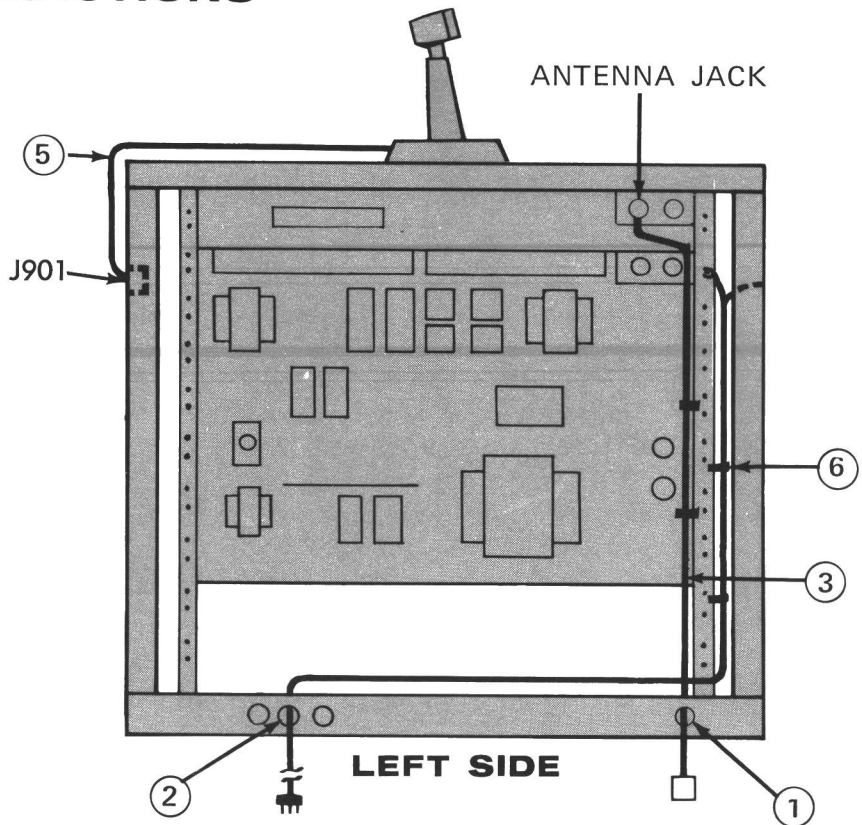
- ④ Make power connections:

117VAC { hot wire to TB903-2.
neutral wire to TB903-1.
green ground wire to chassis mounting rack.

- ⑤ Connect mike cable to J901.

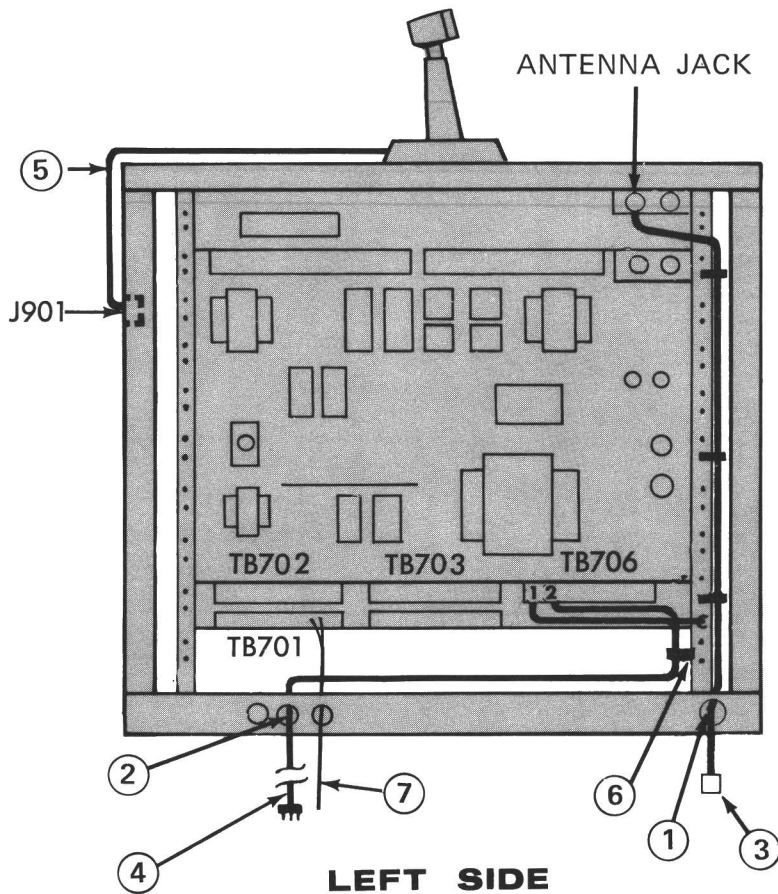
- ⑥ Tighten all cable clamps (supplied by installer).

- ⑦ When military mike or handset is used, disconnect pre-amplifier A901:
 - a—Remove 2-screws or nuts holding pre-amp.
 - b—Turn can over and move P1 from J1 to J2.
 - c—Replace pre-amp.

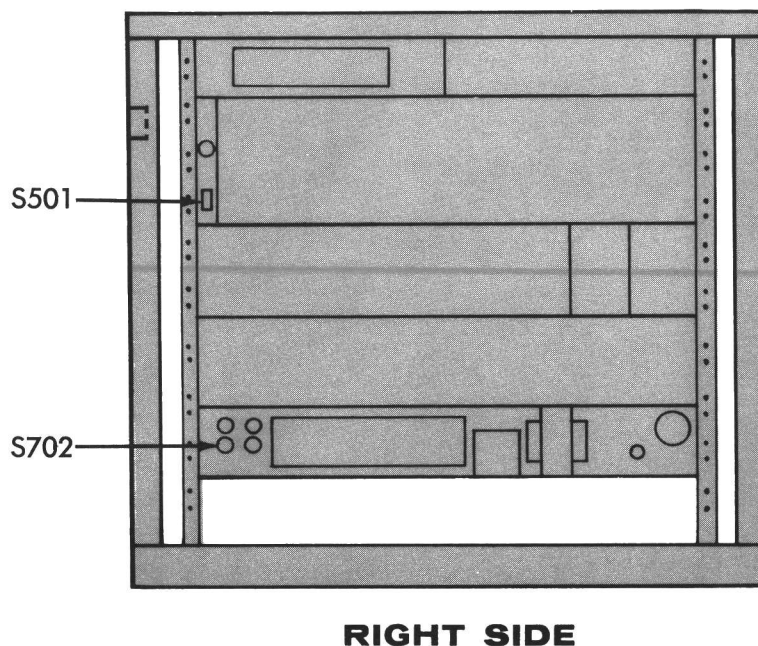


RECHECK ALL CONNECTIONS BEFORE INSERTING POWER PLUG INTO POWER RECEPTACLE.

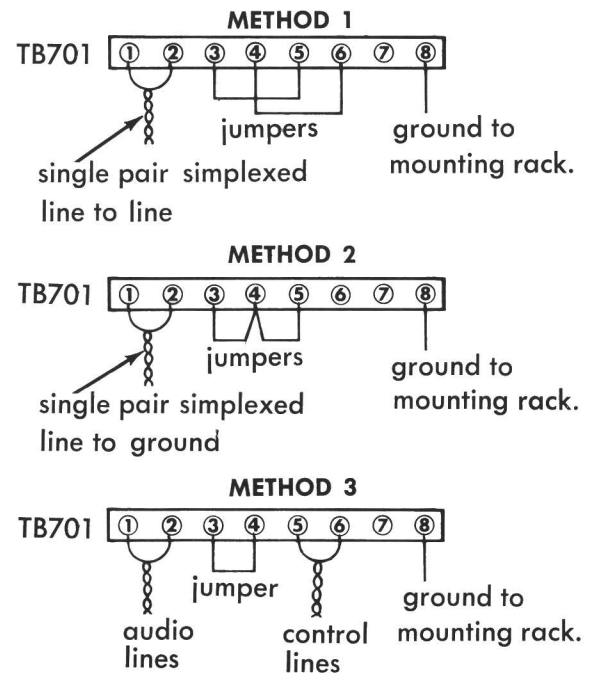
LOCAL/REMOTE CONNECTIONS



RECHECK ALL CONNECTIONS BEFORE INSERTING POWER PLUG INTO POWER RECEPTACLE.



- ① Cut 1-inch hole for antenna cable using circle cutter, holesaw or socket punch. Use location shown or another location that meets system requirements. Insert grommet (supplied by installer) in hole.
- ② Mount strain relief clamps (supplied by installer) in holes.
- ③ Connect antenna jack to transmission line using 4-foot RG-8/U cable provided.
- ④ Make power connections:
 117VAC { hot wire to TB706-2.
 { neutral wire to TB706-1.
 { green ground wire to chassis mounting rack.
- ⑤ Connect mike to J901.
- ⑥ Tighten all cable clamps. (supplied by installer)
- ⑦ Connect telephone lines using AWG #16 double-jacketed polyurethane wire. (supplied by installer)



REMOTE CONTROL CONNECTIONS

① Cut 1-inch hole for antenna cable using circle cutter, holesaw or socket punch. Use location shown or another location that meets system requirements. Insert grommet (supplied by installer) in hole.

② Mount strain relief clamps (supplied by installer) in holes.

③ Connect antenna jack to transmission line using 4-foot RG-8/U cable provided.

④ Make power connections:

117VAC { hot wire to TB706-2.
neutral wire to TB706-1.
green ground wire to chassis mounting rack.

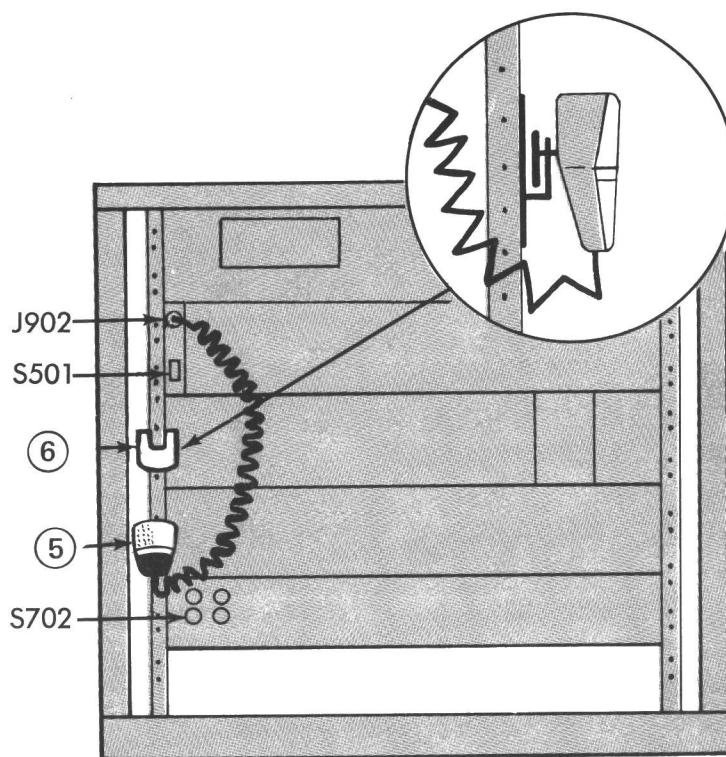
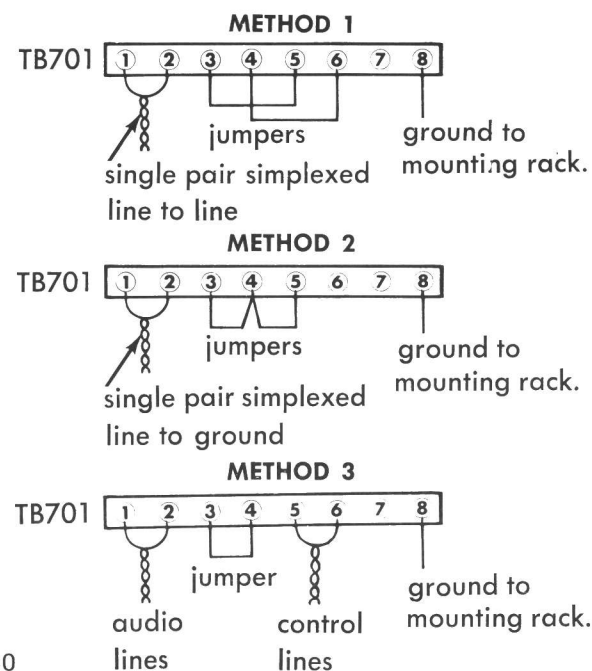
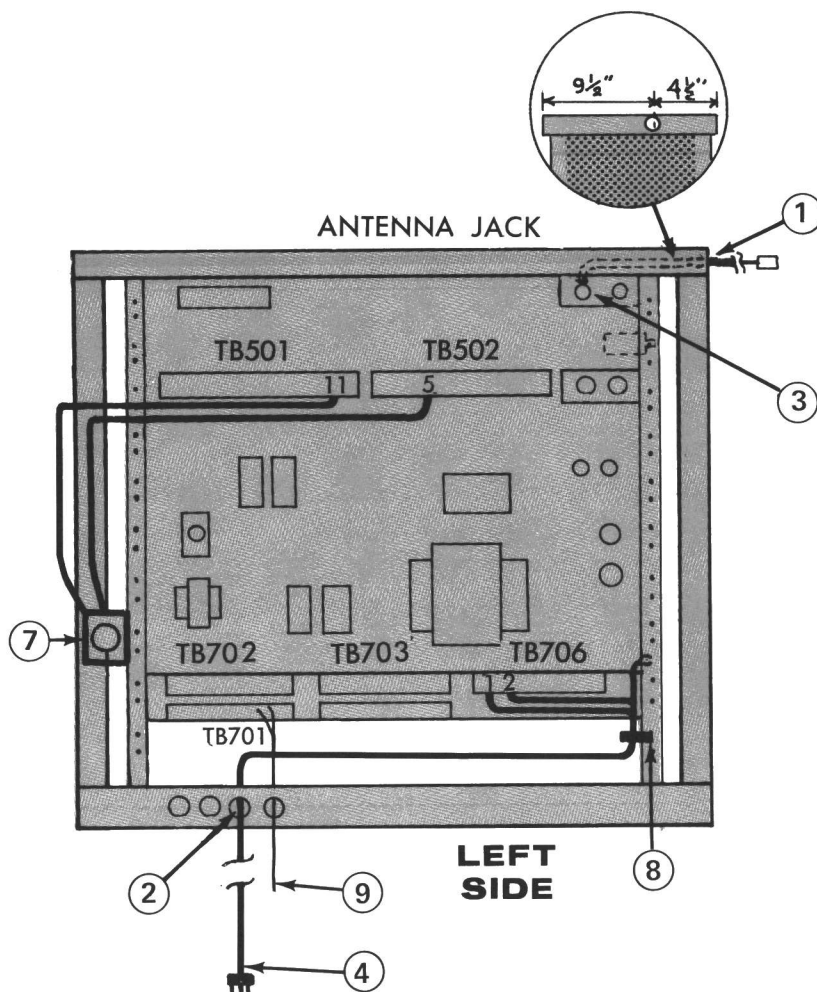
⑤ Connect mike cable to J902.

⑥ Screw mike holder bracket to rack.

⑦ Connect speaker or a 3.5 ohm, 10-watt resistor from TB501-11 to TB502-5.

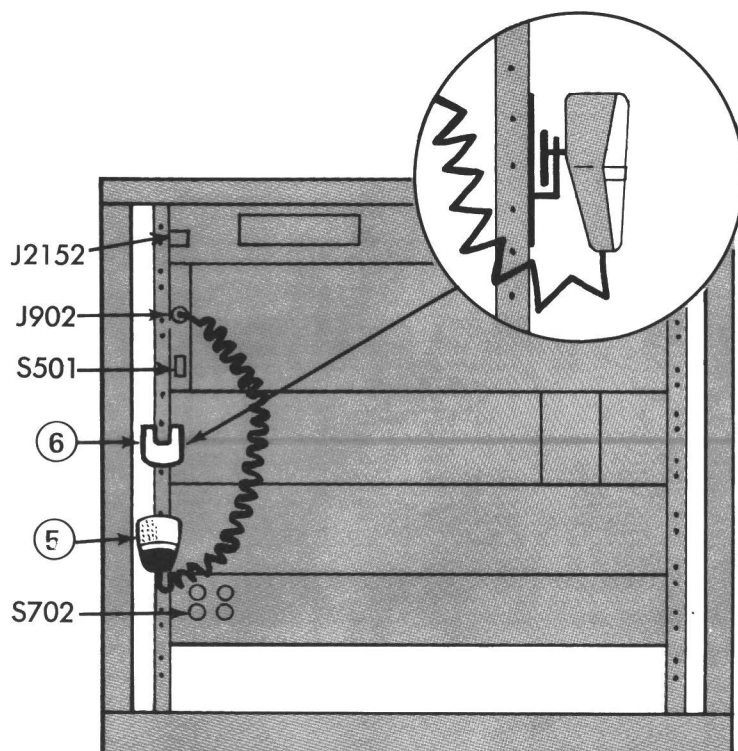
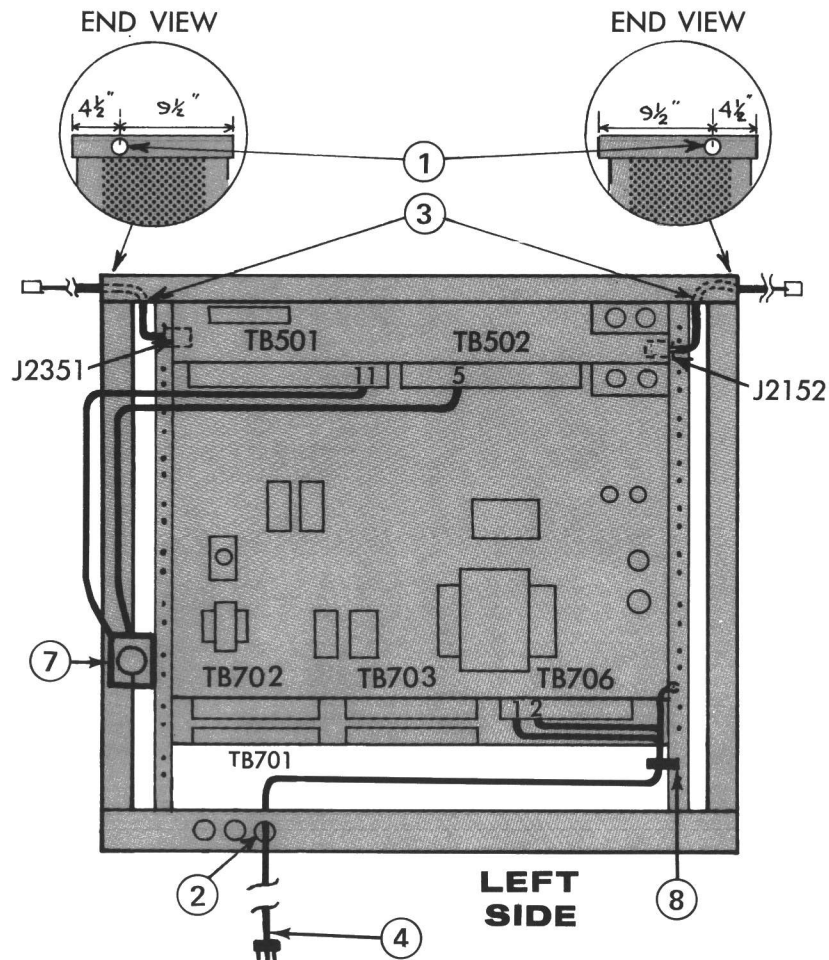
⑧ Tighten all cable clamps. (supplied by installer)

Connect telephone lines using AWG #16 double-jacketed polyurethane wire. (supplied by installer)



RIGHT SIDE

REPEATER CONTROL CONNECTIONS



RIGHT SIDE

- ① Cut 1-inch hole for antenna cable in each end of the cabinet using circle cutter, holesaw or socket punch. Insert grommet (supplied by installer) in holes.
- ② Mount strain relief clamps (supplied by installer) in holes.
- ③ Connect receive antenna to J2351 and transmit antenna to J2152 using two 4-foot RG-8/U cables provided.
- ④ Make power connections:
117VAC { hot wire to TB706-2.
 { neutral wire to TB706-1.
 { green ground wire to chassis mounting rack.
- ⑤ Connect mike cable to J902.
- ⑥ Screw mike holder bracket to rack.
- ⑦ Connect speaker or a 3.5 ohm, 10-watt resistor from TB501-11 to TB502-5.
- ⑧ Tighten all cable clamps. (supplied by installer)

RECHECK ALL CONNECTIONS BEFORE INSERTING POWER PLUG INTO POWER RECEPTACLE.

FINAL CHECKS BEFORE PLACING YOUR "DM" STATION IN OPERATION

After completing the installation of your Desk Mate Station, the following final operations should be performed:

- Final adjustments should be made to the receiver, transmitter and power supply—Transmitter adjustments must be made by a 1st or 2nd Class Radiotelephone or Radiotelegraph licensed electronic technician. Instructions for making these adjustments are included in the Desk Mate Maintenance Manual. The adjustments include:

- Transmitter—
- final tuning and loading
 - deviation and frequency checks
 - plate power input

Transmitter measurements should be entered in the permanent station records along with the signature and license number of the technician.

- Receiver—
- matching to antenna and netting frequency to transmitter

- Power Supply—
- VOLUME and SQUELCH controls

Control
Panels—

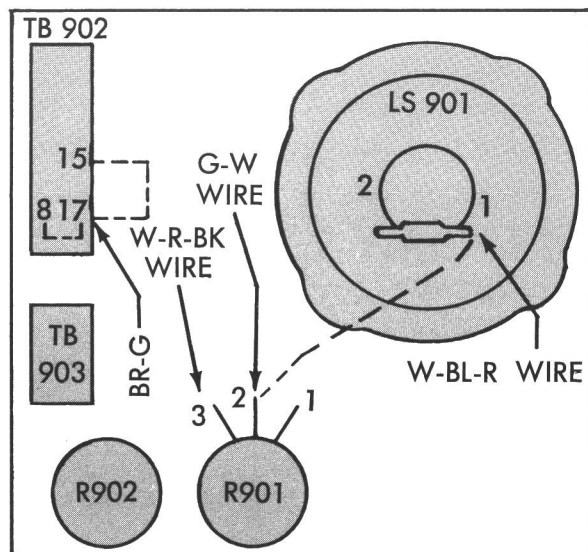
- Turn Switch S501 ON
- Remote Control — adjust the transmit audio level control, and turn S701 ON. For Local / Remote, also adjust audio limiter control.
- Repeater Control — Adjust audio coupler control. Turn S701 ON.

- Be sure the station license is displayed as required by FCC rules.
- A transmitter identification card (FCC Form 452-C or GE Form ECP82-A) must be attached to the transmitter when the transmitter is not in view or accessible to the operator.
- Give the alignment tools to the maintenance technician.
- Give the Operator's Manual to the station operator.

HOOKSWITCH MOUNTING, 19B204867-G2

(Option on Local Control and
Local/Remote Stations)

1. Remove three wires shown in dotted lines.
2. Bring hookswitch cable through a cable entry hole.
3. Connect the four hookswitch cable wires as shown by arrows.
4. Mount hookswitch with two 1¼" self-tapping screws.



CONTROL PANEL—BACK VIEW

GENERAL  ELECTRIC

MOBILE RADIO DEPARTMENT LYNCHBURG, VIRGINIA 24502 CABLE GECOMPROD
(In Canada, Canadian General Electric Company, Ltd., 100 Wingold Ave., Toronto 19, Ontario)