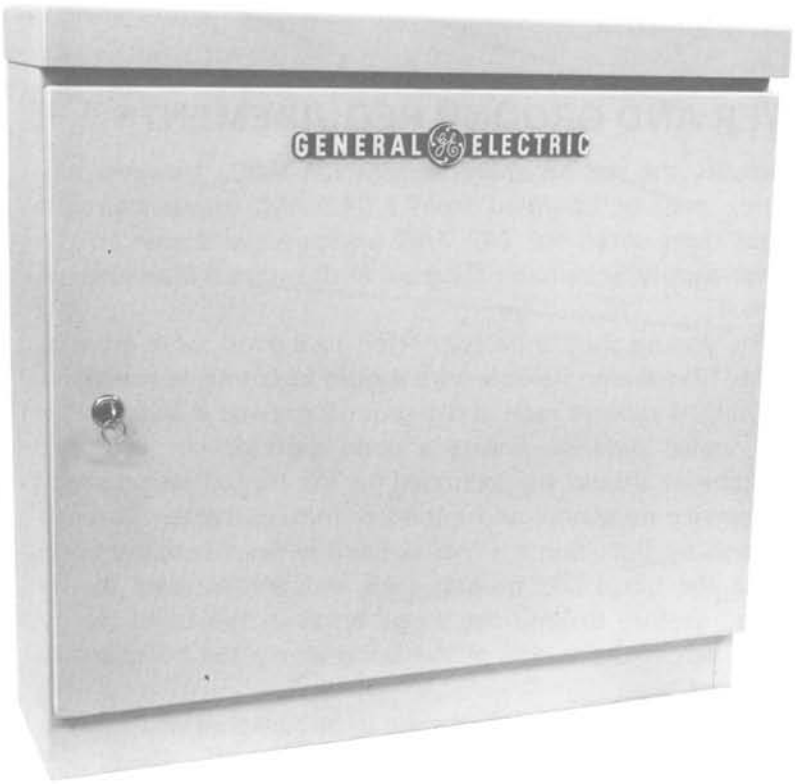
MOBILE RADIO

LBI-30097A
(DF9040)

INSTALLATION OF
MASTR *Executive II*
TWO-WAY FM WALL MOUNT STATION



The Wall Mount Station Combination can be installed in your office, warehouse, garage, or even outdoors. Slimlined and compactly built, the station occupies a minimum of space.

A weatherproof cabinet protects the station against all types of weather. The cabinet is equipped with a key lock to prevent unauthorized entry.

PLANNING SPECIFICATIONS

Dimensions (H x W x D)	21-1/4" x 22-1/2" x 6-7/8"
Weight	65 lbs.
Temperature Range	–30°C to +60°C (–22°F to +140°F)
AC Power Input	121/242-VAC, ±20%, 50/60 Hz (Normally shipped wired for 121-VAC)
Power Requirements	Standby: 0.26A Receive: 0.6A Transmit: 2.5A @ 121-VAC.

GENERAL ELECTRIC

STATION LOCATION

The Wall Mount Station can be mounted on a wall, on the cross-arm of a single pole, on cross-arms between two poles, on the antenna support (tower), or some other vertical surface. Be sure that the selected location is strong enough to hold the weight of the station (approximately 68 pounds). When an outside location is selected for your station, it is recommended that the cabinet be mounted so the cabinet door will face away from the prevailing wind for maximum protection against weather. The station should always be accessible for maintenance and servicing. When the station is wall mounted, be sure that the cabinet is mounted at least 1-inch above the floor or other flat surface to ensure adequate ventilation.

POWER AND GROUND REQUIREMENTS

Normally the station operates from 121 VAC. However, the station may be operated from a 242-VAC power source if it has been wired for 242-VAC operation as shown on the power supply Schematic Diagram in the station Maintenance Manual.

The station should be connected to a good earth ground. A No. 12 stranded flexible wire should be connected between the hinged cabinet rack and a ground rod—or if inside, to a cold water pipe—to ensure a good ground. In addition, the cabinet should be grounded to the hinged rack to protect service personnel and minimize hum currents. This can be done by installing a 1" wide flexible tinned copper bond across the hinge and bolting each end of the bond to the frame. Before drilling the screw holes in the bond, apply solder across the width of the bond where the holes are to be drilled.

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

ANTENNA REQUIREMENTS

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

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. A typical antenna system installation is shown in Figure 1.

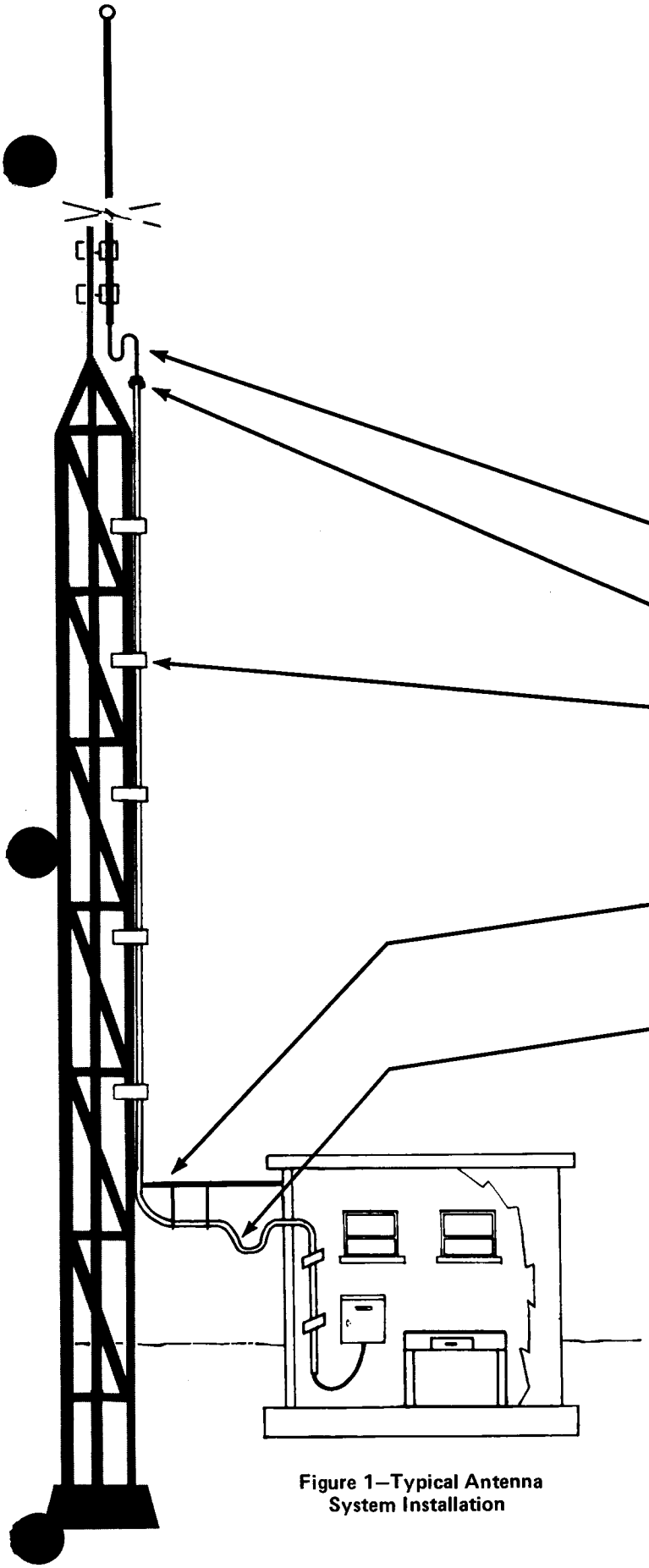


Figure 1—Typical Antenna System Installation

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.
- Tape, or otherwise protect in-line fittings from weather.
- Clamp the line to the tower every five feet.
  - Use wraplock on Heliax® or RG-17/U type cable.
  - Use vinyl tape on Foamflex® or RG type 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.
- Upon completion of antenna installation, measure and record the antenna system V.S.W.R. at the transmitter antenna connector.

INSTALLING YOUR STATION

The "swing-out" chassis should be removed to facilitate cabinet mounting and the drilling of cable entry holes. Remove the chassis frame and chassis (see Figure 2) as follows:

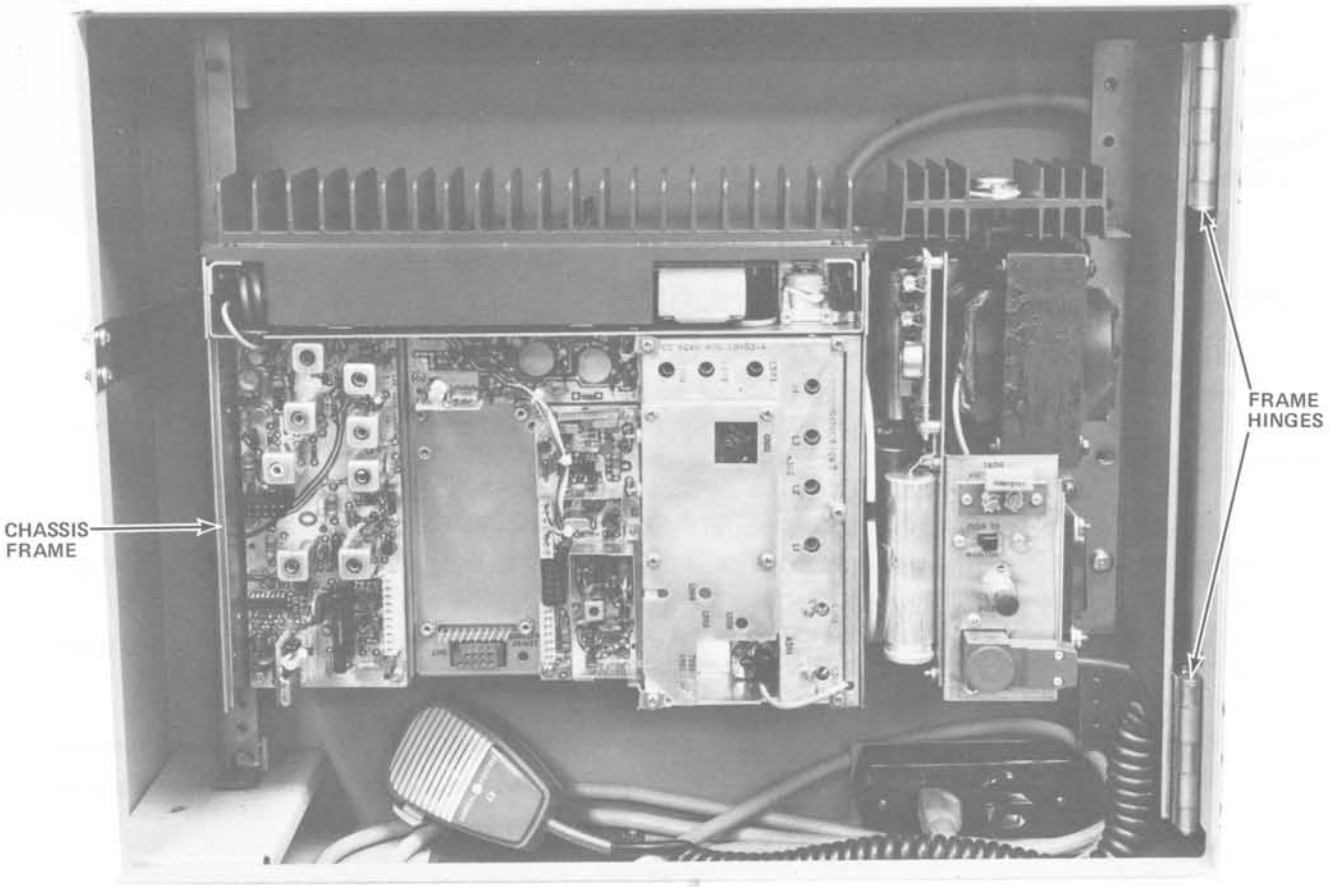


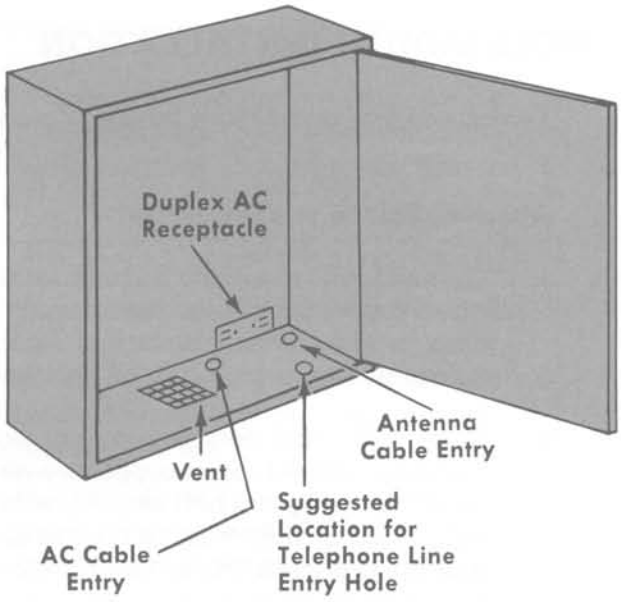
Figure 2 – Wall Mount Station (Chassis View)

1. Disconnect AC plug from duplex AC outlet in cabinet.
2. Remove screw retaining top hinge pin.
3. Remove top and bottom hinge pins from frame hinges.
4. Remove screws holding top and bottom of mounting frame to left side of cabinet. (These screws are necessary for shipping only.)
5. Carefully lift chassis frame, with chassis, out of cabinet.

CABLE ENTRY HOLES

Two access holes are located in the bottom of the cabinet for installing the antenna and AC power cables. A separate 1/2-inch hole for the telephone lines may be drilled by the installer, or the telephone lines may be brought in through the antenna entry hole with the antenna. (See Figure 3 for location of cable entry holes.) Attach 1/2-inch conduit or strain relief cable clamps in each hole (clamps or conduit are supplied by the owner or installer).

Figure 3 — Cable Entry Holes



TYPICAL WALL MOUNT INSTALLATION

1. Measure distance between the center of wall studs where station is to be mounted as shown in Figure 4. (Be sure wall can support full weight of station.)
2. Mark off this measurement inside cabinet.
3. Drill six 1/4" mounting holes in cabinet.
4. Using cabinet as a template, drill six 3/16" starting holes in studs.
5. Mount cabinet using the No. 14 screws and flat washers supplied.
6. Bring in antenna cable and telephone lines.
7. Re-install chassis and mounting frame in cabinet.
8. Connect station to AC power as follows:

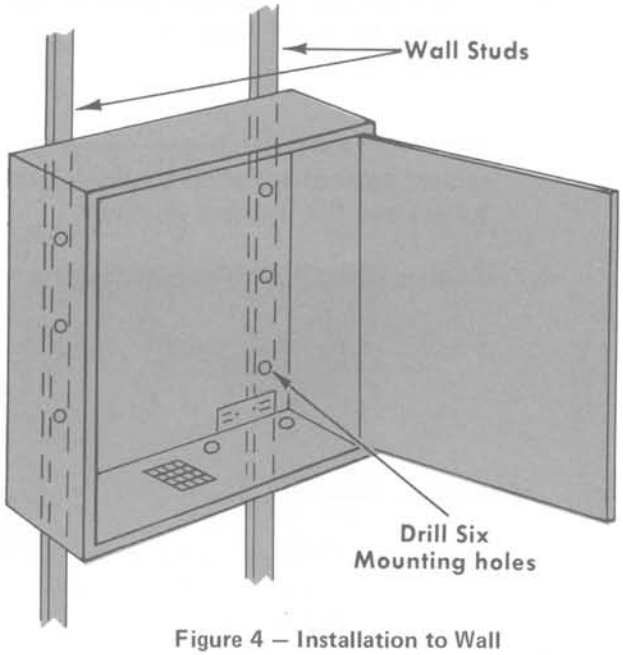


Figure 4 — Installation to Wall

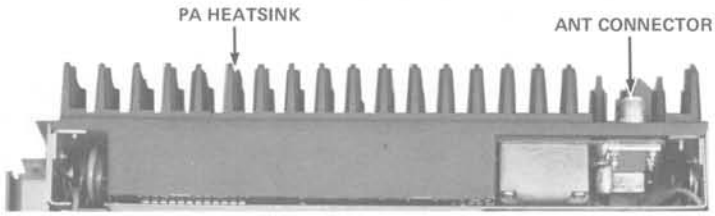
121-VAC Remove AC duplex receptacle cover and connect a No. 12 three-wire AC cable to its terminals. Connect black (hot) wire to copper terminal, the white wire to white terminal, and the ground wire to green terminal. Connect a No. 12 wire from the "swing-out" chassis to the remaining green terminal.

Connect AC plug from chassis into AC duplex receptacle.

242-VAC Make modifications and connections as shown on the power supply Schematic Diagram in the station Maintenance Manual. *Do not* connect 242-VAC to the duplex receptacle.

9. Connect antenna cable to chassis antenna jack.

NOTE: The antenna connector on the 806–870 MHz stations is located on the PA Heat Sink.



POLE MOUNT INSTALLATION

Typical outdoor installations follow. Keep cabinet elevated above high water and flood levels.

Attaching Station to a Single Pole

1. Cut horizontal mounting surfaces for two 2" by 4" wood supports on pole. Cut should be about 1" deep to allow outside surface of wood support to extend out from curvature of pole (see Figure 5).

2. Drill a 1/2" hole through center of wood supports and pole. Mount wood supports with a 1/2" diameter bolt. Tighten bolt securely with washer and nut. Head of bolt must be countersunk on wood support to provide flat surface for cabinet.

3. Drill four 3/8" mounting holes in cabinet and bolt cabinet to wood supports using four 3/8" bolts, washers, and nuts;

   OR

   Drill six 1/4" mounting holes in cabinet and mount cabinet to wood supports using six No. 14 screws and flat washers supplied.

4. Follow steps 6-9 of "Wall Mount Installation".

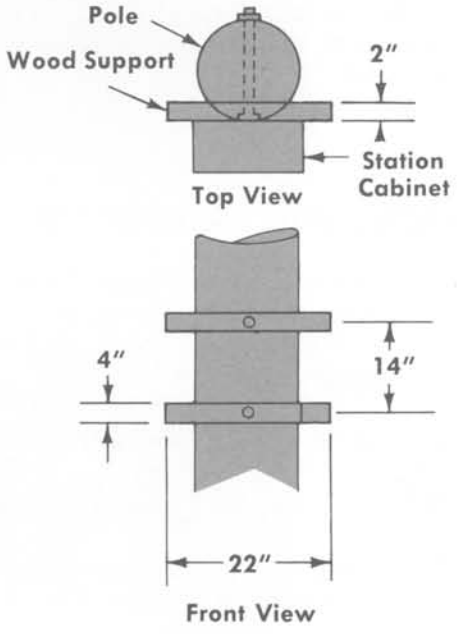


Figure 5 – Installation to a Single Pole

Attaching Station to Antenna Support (Tower)

1. Mount 2" by 4" supports on antenna support as shown in Figure 6. Bolt securely and band tightly together to prevent slippage and vibration.

2. Drill four 3/8" mounting holes in cabinet and bolt cabinet to wood supports using four 3/8" bolts, washers, and nuts;

   OR

   Drill six 1/4" mounting holes in cabinet and mount cabinet to wood supports using six No. 14 screws and flat washers supplied.

3. Follow steps 6-9 of "Wall Mount Installation".

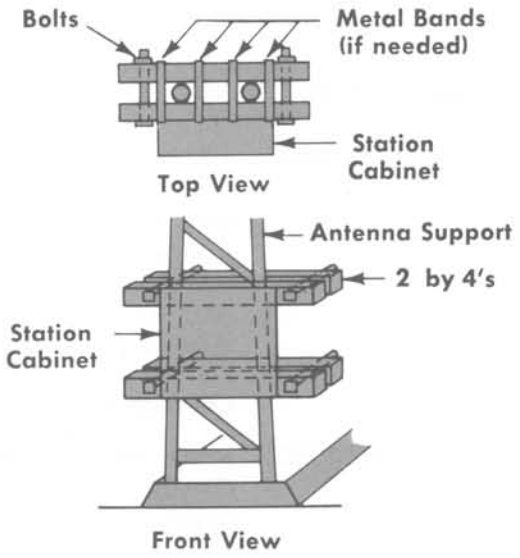


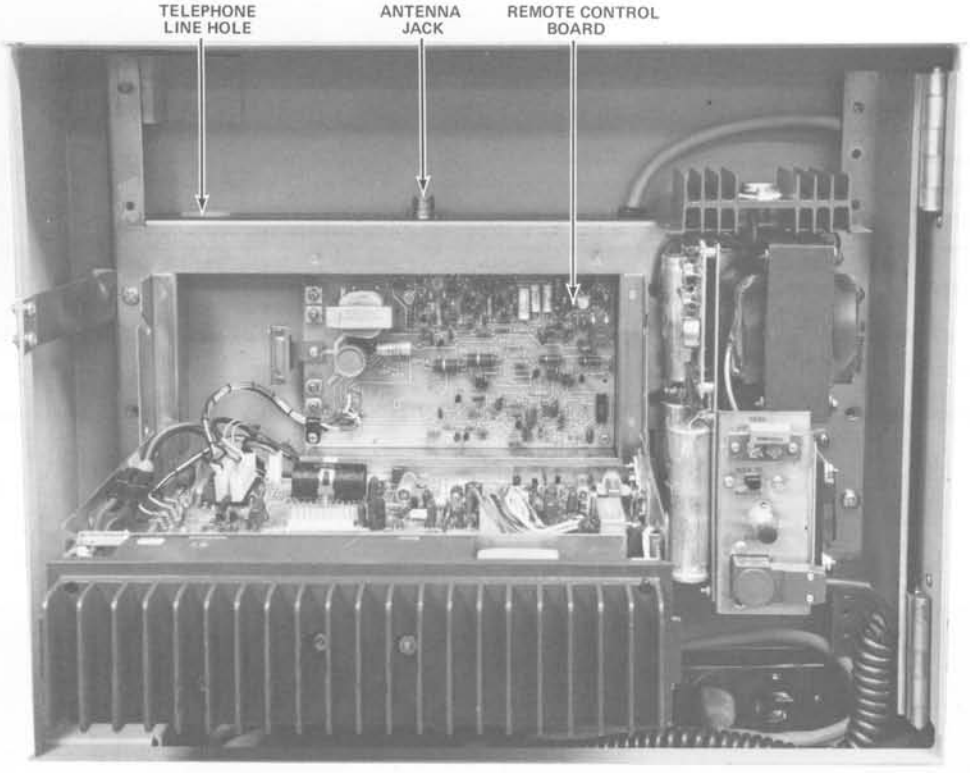
Figure 6 – Installation to Antenna Support

TELEPHONE LINE REQUIREMENTS

Local/Remote Stations require the addition of telephone lines between the station and the Remote Control Console (see Methods 1 through 3).

When choosing one of the following 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).

METHOD	DESCRIPTION	ADVANTAGES OR DISADVANTAGES
1	One metallic pair: for both audio and control voltages with control voltage from line to line.	Economical; dependable where earth currents may be large; slight keying clicks will be heard in paralleled Remote Control Units. In most applications, preferred over Method No. 2.
2	One metallic pair: for both audio and control voltages with control voltages from line to ground.	Economical; earth ground currents may result in interference with control functions; keying clicks minimized. Good earth to ground required at station and all control points.
3	Two telephone pairs; one for audio voltage and one for control voltage (metallic pair).	Provides best performance; keying clicks will not be heard. Requires 2 pair.



- To gain access to the Remote Control Board, grasp the heat sink and swing the radio chassis down into the horizontal position as shown. The Remote Control Board is mounted to the chassis mounting frame.

REMOTE CONNECTIONS

- The station is normally shipped with jumpers on the Remote Control Board connected as described for Method 1. If Method 2 or 3 is to be used, connect the jumpers as shown in the following chart.

CONTROL METHOD	TELEPHONE LINE CONNECTIONS	JUMPER CONNECTIONS
1	Connect telephone lines to TB-1 and -2.	Jumper H32 to H33 and H34 to H35.
2	Connect telephone lines to TB1-1 and -2. Connect good earth ground to TB1-4.	Move jumper from H34 – H35 to H33 – H35.
3	Connect audio telephone lines to TB1-1 and -2 and control lines to TB1-3 and -4.	Remove jumpers from H32 to H33 and H34 to H35.

FINAL CHECKS BEFORE PLACING YOUR STATION IN OPERATION

After completing the installation of your station, the following final operations should be performed:

- Final adjustments should be made to the receiver and transmitter. 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 station 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.

- Be sure the station license is displayed as required by FCC rules.
- A transmitter identification card (FCC Form 452-C or GE Form NP270303) must be attached to the transmitter.
- Give the alignment tools to the maintenance technician.