



# INSTALLATION OF MASTR PROGRESS LINE

*Professional Series*

General Electric MASTR Progress Line features ruggedly constructed Two-Way Mobile Radios with unusually flexible mounting possibilities. The Two-Way Radio locks into a steel mounting frame to provide an exceptionally stable mobile installation.

## MTS MOBILE COMBINATIONS

LB1-8632A  
DF-9017



CONTROL UNIT

### TRUNK MOUNT



FRONT PANEL

MOUNTING FRAME



18-FOOT CONTROL CABLE  
(23-FOOT CABLE OPTIONAL)

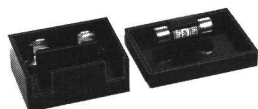
TWO-WAY RADIO

### TRUNK-MOUNTING HARDWARE



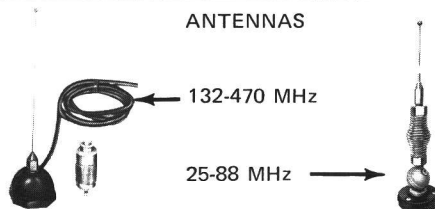
## ACCESSORIES

### FUSE ASSEMBLY



12-VOLT

### ANTENNAS



132-470 MHz

25-88 MHz

### KEY



### POWER CABLE

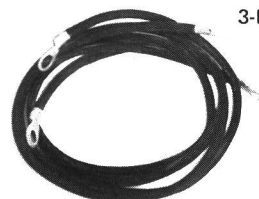


18-FOOT (TRUNK MOUNT)  
23-FOOT (OPTIONAL)

### ALIGNMENT TOOLS



### 3-FOOT BATTERY CABLES



## UNPACKING AND CHECKING EQUIPMENT

Carefully unpack the Two-Way Radio. It is recommended that you identify the items in the packing case and check them off in the appropriate column below before discarding the packing material. If any damage has occurred to the equipment during shipment, file a claim with the carrier immediately.

EQUIPMENT	TRUNK MOUNT
MASTR Progress Line Two-Way Radio _____	<input type="checkbox"/>
Control Unit Type EC-75A or B _____	<input type="checkbox"/>
Handset 4038824P1 _____	<input type="checkbox"/>
Antenna, Cable and RF Connector _____ (25-88 MHz antenna whip shipped in separate carton) _____	<input type="checkbox"/>
Fuse Assembly _____ 19B216021G1 (Med. Power 25-174 MHz) 19B216021G2 (Med. Power 406-470 MHz) 19B216021G3 (High Power 25-470 MHz)	<input type="checkbox"/>
Mounting Frame 19C303430G1 _____	<input type="checkbox"/>
Trunk Mounting Hardware 19A121626G2 _____	<input type="checkbox"/>
12-Volt Battery Cables (2) _____ Black 7147499G6 (1) Red 7147499G9 (1)	<input type="checkbox"/>
Trunk Mount Power Cable _____ 12-Volt 19C303601G2	<input type="checkbox"/>
18-Foot Control Cable 19D402706G1 _____	<input type="checkbox"/>

EQUIPMENT	TRUNK MOUNT
Front Panel Trunk Mount 19B204417P1 _____	<input type="checkbox"/>
Key 5491682P8 _____	<input type="checkbox"/>
Alignment Tools (2) _____	<input type="checkbox"/>
OPTIONAL EQUIPMENT	OPTION NUMBER
23-Foot Control Cable Multi-Frequency 19D402706G2 _____	5807
23-Foot, 12-Volt Power Cable 19C303601G2 _____	7083
Ledge-Mounting Hardware Kit _____	7002
5-Watt Speaker Model 4EZ20A11 _____	5809
Trunk Mount Spacer Kit 19A121884G1 _____	7082
Channel Jewels 19A122416G1 _____	5818

## PLANNING THE INSTALLATION

The accompanying photograph of a typical MASTR installation should help you in planning your installation. Suggestions for locating and installing the units are given with the following installation instructions.

Before starting, plan your installation carefully —so that it will be:

- Convenient for the operator to use
- Neat
- Protected from damage from water
- Easy for the serviceman to service

- Out of the way of auto mechanics
- Out of the way of passengers

It is suggested that you take advantage of the experience of one of the many authorized General Electric Service Stations located throughout the United States by having them install your Two-Way Radio and make the final adjustments.

## TRUNK-MOUNT INSTALLATION

Trunk-Mount Combinations are designed so that the Two-Way Radio can be mounted up to 18 feet from the operator (23 feet with option cables), such as in the trunk compartment or under the seat of a vehicle. The Control Unit mounts on the instrument panel of the vehicle.



Fig. 1—Control Unit

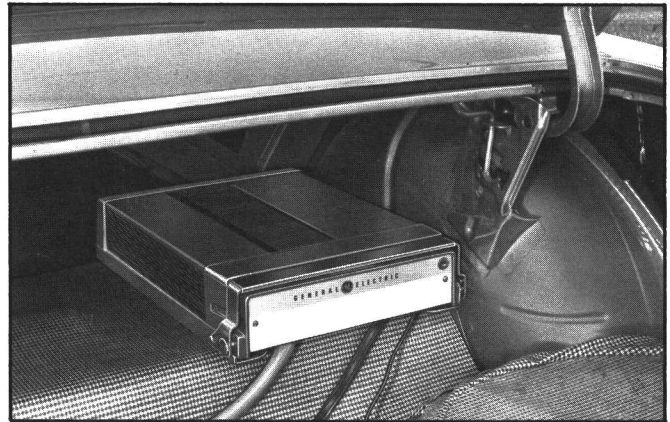


Fig. 2—Two-Way Radio Mounting

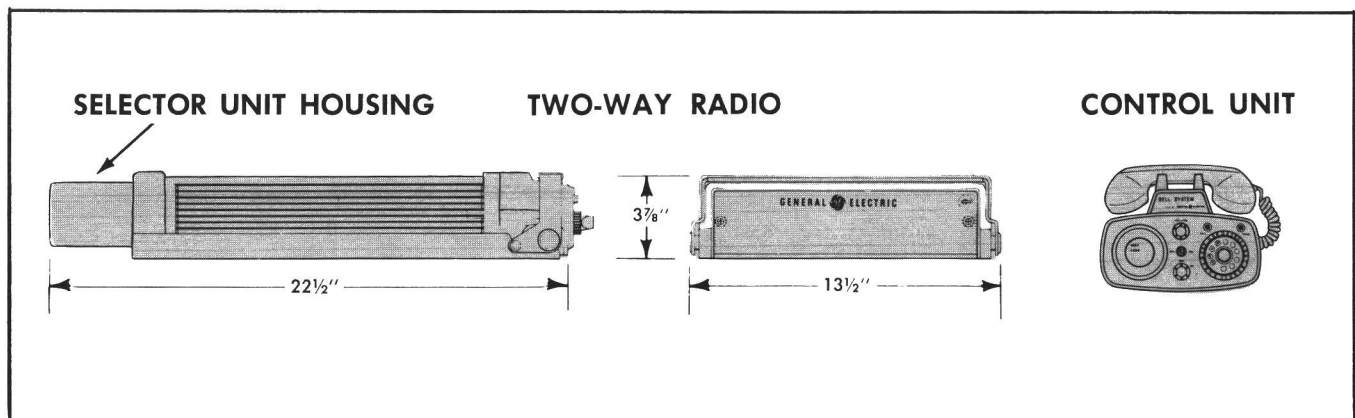


Fig. 3—Mounting Dimensions

## EQUIPMENT REQUIRED

The equipment required for installing the MASTR Two-Way Radio are

- Electric drill for drilling mounting holes
- Drills and circle cutters (see sizes in box below)
- Soldering iron for systems connector and antenna
- Phillips and flat-blade screwdrivers, and  $\frac{3}{8}$ -inch hex head driver for mounting screws.

### DRILL SIZES

#36 (7/64-inch) Drill for #6 Self-Tapping Screws.  
#32 (1/8-inch) Drill for #8 Self-Tapping Screws.  
#29 (9/64-inch) Drill for #10 Self-Tapping Screws.  
#9 (3/16-inch) Drill for #14 Self-Tapping Screws.  
9/32-Inch Drill for Lo-Band Antenna and 1/4-inch bolt.  
3/8-Inch Drill for Hi-Band Antenna.  
1 3/8-Inch Circle Cutter, Holesaw or Socket Punch for Lo-Band Antenna.  
7/8-Inch Circle Cutter, Holesaw or Socket Punch for Rubber Grommet.

## RUNNING CABLES

To assure the feasibility of the cable routings you plan to use, it is suggested that you run the cables before mounting the Two-Way Radio. Be sure to leave some slack in each cable going to the Control Unit and Trunk Mount Unit so that they may be pulled out for servicing with the power applied.

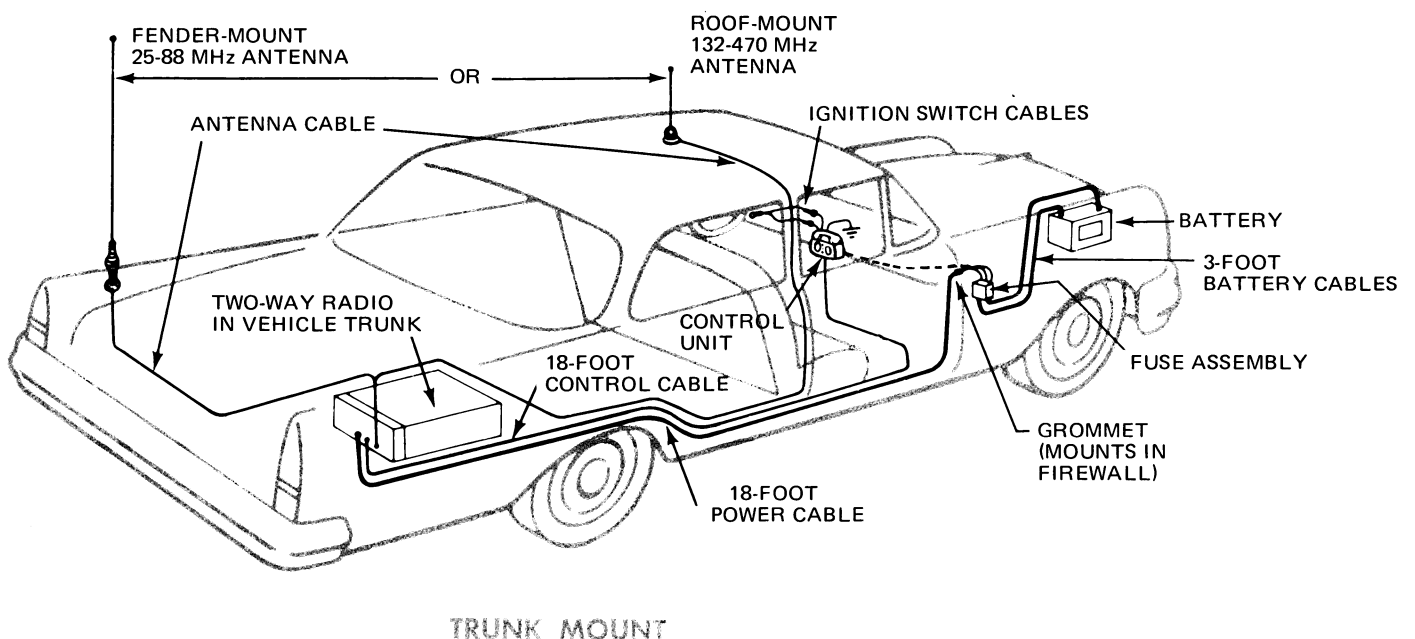
Try to route the cables away from locations where they will be exposed to heat, battery acid, sharp edges, or mechanical damage or where they will be a nuisance to automobile mechanics, the driver, or passengers. Keep wiring away from ignition circuits to help prevent noise pickup in the radio equipment.

In addition, try to utilize existing holes in the firewall and trunk wall and the channels above or beneath the doors. You may also use the channels through door and window columns, where they are convenient for running cables, unless you plan to install rigid or flexible conduit in which to run the cables.

If an existing hole is not conveniently located for the passage of the Power Cable through the firewall, drill a  $\frac{7}{8}$ -inch hole and insert the rubber grommet provided. Refer to Figure 4 and to the CABLING DIAGRAMS (Figures 5 and 15) for additional information.

If an existing hole is not conveniently located for the passage of the Battery Cable In-Line Fuse holder through the firewall, drill a  $1\frac{1}{8}$ -inch hole and insert the rubber grommet provided. Refer to Figure 4 and to the CABLING DIAGRAM (Figure 15) for additional information.

Fig. 4—Cable Routing



## POWER AND CONTROL CABLES (TRUNK MOUNT ONLY)

It is preferable to run the Power and Control Cables on opposite sides of the vehicle to minimize noise coupling. Leave at least 18 inches of slack in the female-plug ends of the cables at the location for the Two-Way Radio.

1. Run the ring-terminal end of the Power Cable to the vicinity of the battery.
2. Run the Control Cable to the vicinity of the Control Unit.
3. Use the 3-inch cable straps and #6 self-tapping screws provided in the Basic Mounting hardware to secure the cables neatly in place. See Figure 5.

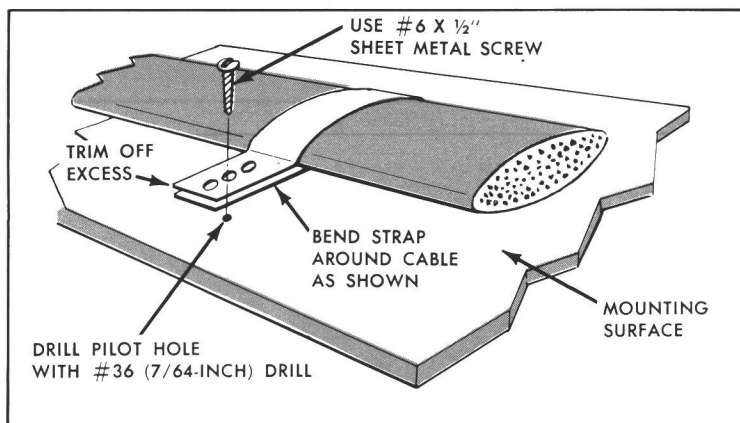


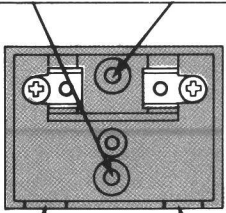
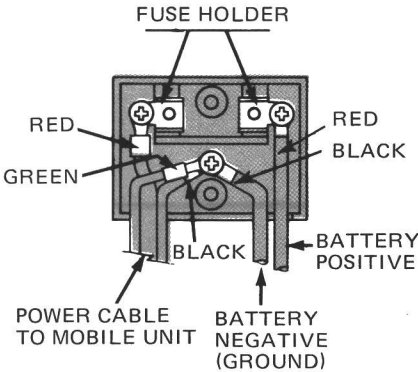
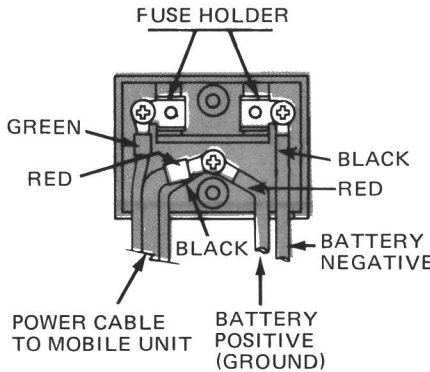
Figure 5—Installing Cable Straps

## FUSE ASSEMBLY

Remove the Fuse from the block and mount the Fuse Assembly in the engine compartment of the vehicle, within reach of the 3-foot Battery Cables.

Replace the Fuse after connecting the Battery and Power Cables as shown in Figure 6.

Fig. 6—Installation, Battery and Power Cable Connections to Fuse Assembly

INSTALLATION OF	NEGATIVE GROUND VEHICLES	POSITIVE GROUND VEHICLES
12-Volt Fuse Assembly	12-Volt	12-Volt
<p>DRILL MOUNTING HOLES WITH NO. 30 (1/8 INCH) DRILL. MOUNT WITH NO. 8 x 3/4" SELF-TAPPING SCREWS</p>  <p>ASSEMBLY SHOULD BE MOUNTED WITH CABLE ENTRY HOLES DOWN</p>	 <p>FUSE HOLDER</p> <p>RED, GREEN, BLACK, RED</p> <p>POWER CABLE TO MOBILE UNIT, BATTERY NEGATIVE (GROUND), BATTERY POSITIVE</p>	 <p>FUSE HOLDER</p> <p>GREEN, RED, BLACK, RED</p> <p>POWER CABLE TO MOBILE UNIT, BATTERY POSITIVE (GROUND), BATTERY NEGATIVE</p>

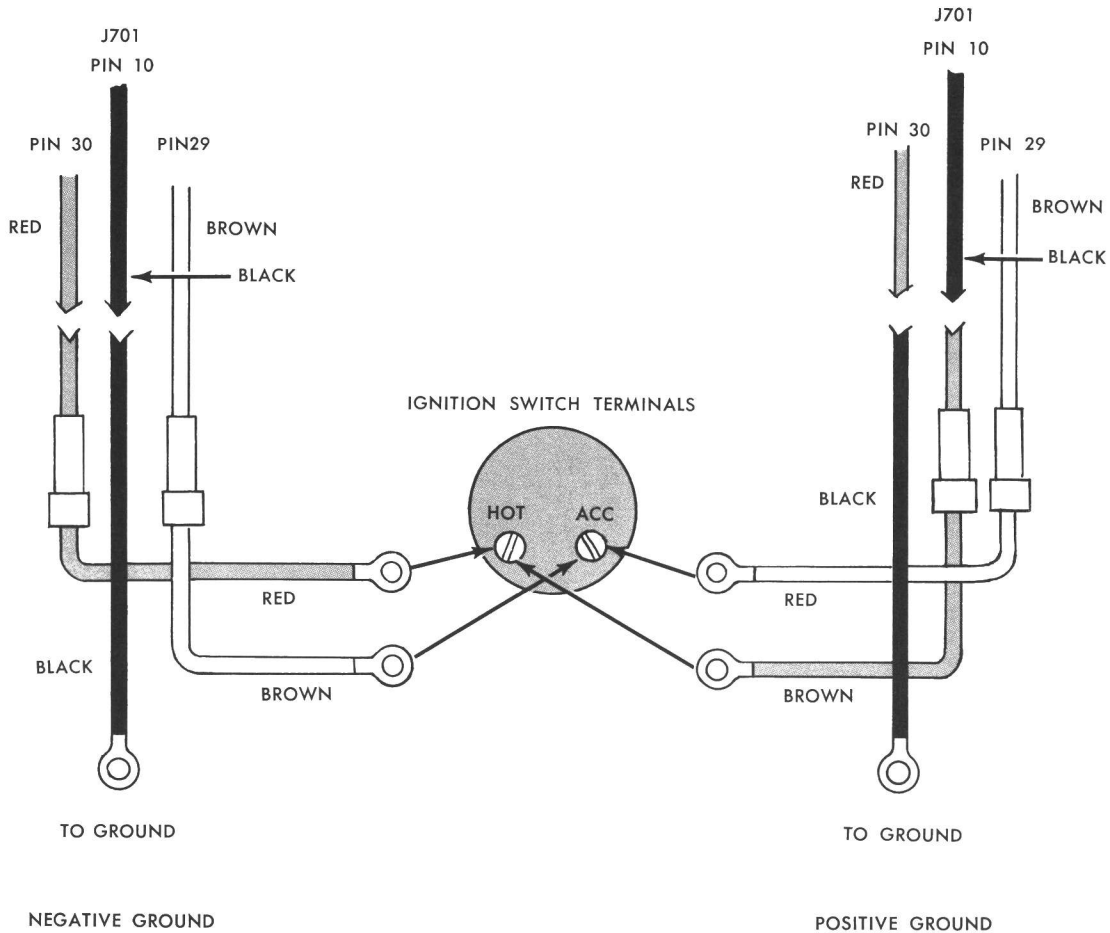
**Figure 7—Connections for 12-Volt Ignition Switch Cables**

Power to the radio can be controlled by one of the two methods described below. Select the type of control desired, and connect the Ignition Switch cables as directed.

**1**

**IGNITION SWITCH STANDBY**

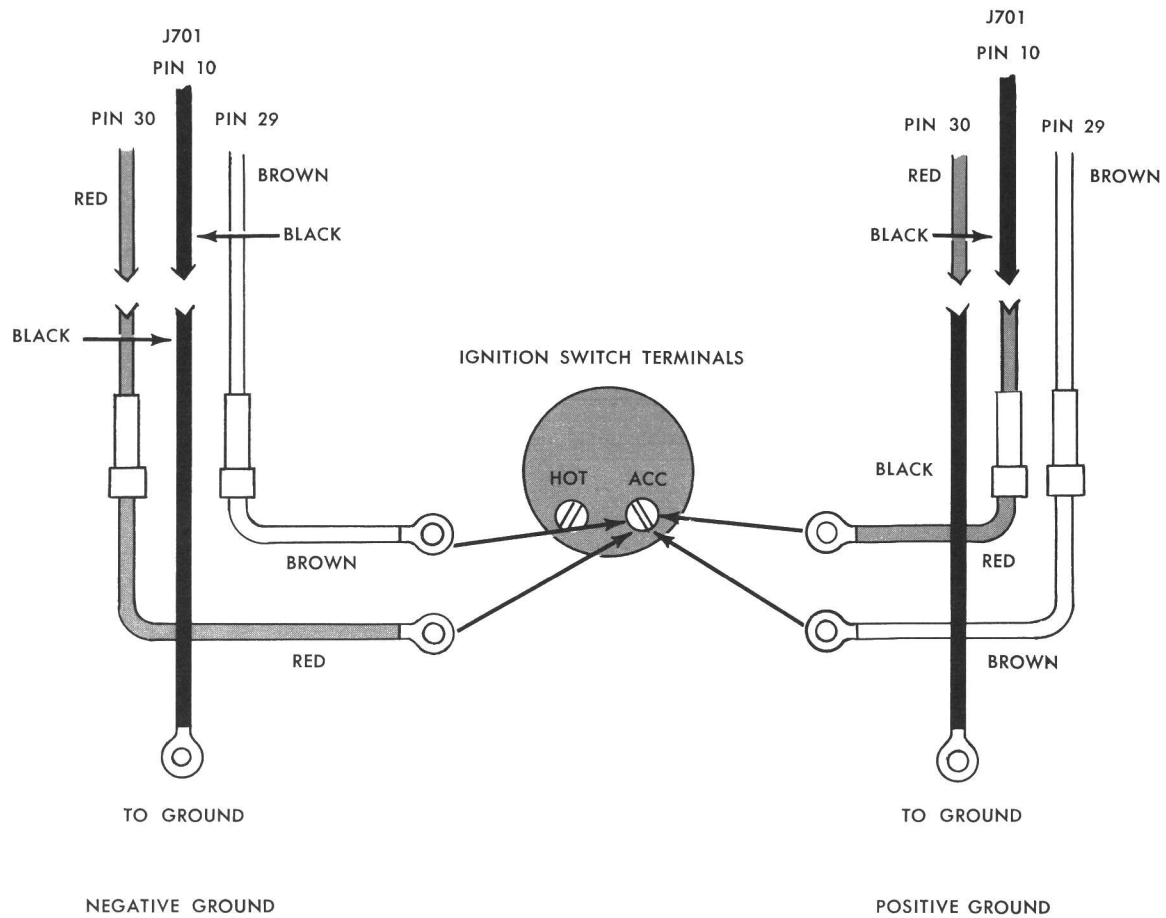
Receiver will operate independently of ignition switch.  
Transmitter will operate only with ignition switch in ACCESSORY or ON position.



# 2

## IGNITION SWITCH CONTROL

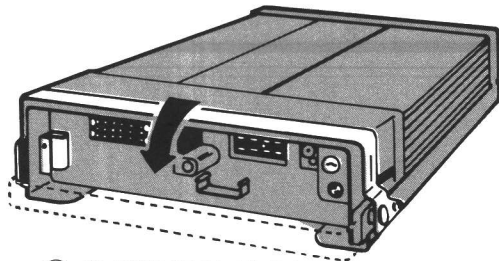
Transmitter and receiver will operate only with ignition switch in ACCESSORY or ON position. Turning ignition switch OFF removes all power to the radio.



## TRUNK-MOUNT TWO-WAY RADIO

The Two-Way Radio may be mounted horizontally, vertically or on its side. Select a mounting location with sufficient room for the radio to be pulled out of the mounting frame for servicing. Mount the Two-Way Radio as shown in Figure 8

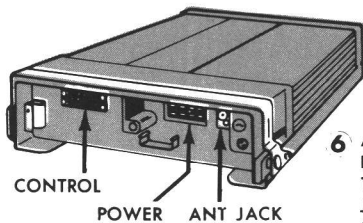
Figure 8—Installing the Trunk-Mount Radio



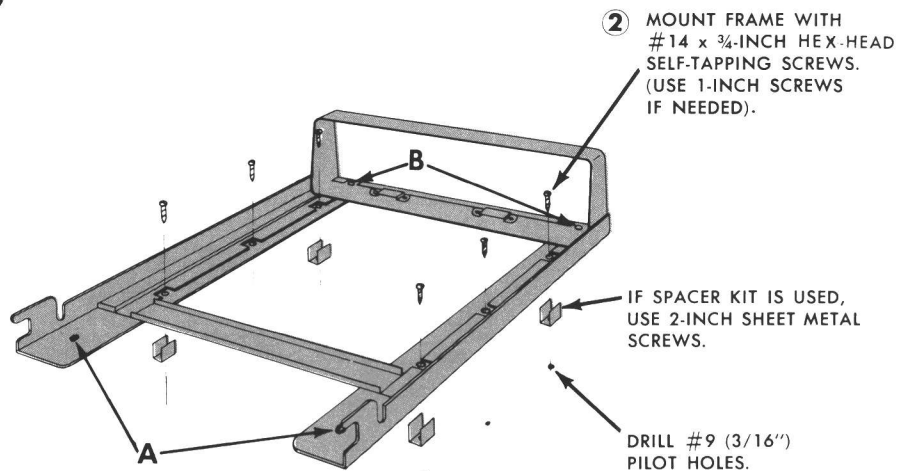
- ① TO REMOVE RADIO FROM MOUNTING FRAME, PULL HANDLE DOWN AS SHOWN AND PULL RADIO FORWARD OUT OF FRAME.

### CAUTION

BE CAREFUL TO AVOID DAMAGING SOME VITAL PART OF THE VEHICLE WHEN DRILLING MOUNTING HOLES.



- ⑥ ANT JACK CAN BE TILTED TOWARD POWER JACK FOR EASIER CONNECTION.



- ③ IF MOBILE UNIT WILL BE SUBJECTED TO HEAVY SHOCK OR VIBRATION, USE TWO #14 x 3/4-INCH PAN-HEAD SCREWS IN MOUNTING HOLES "A". LOOSEN SCREWS AT "B" AND ADJUST BACK RING FOR TIGHTER FIT.

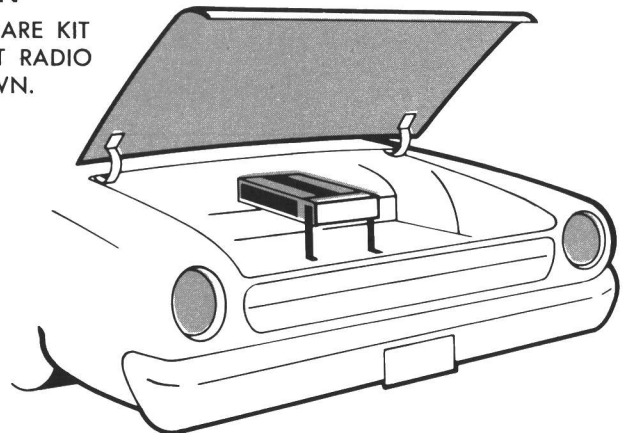
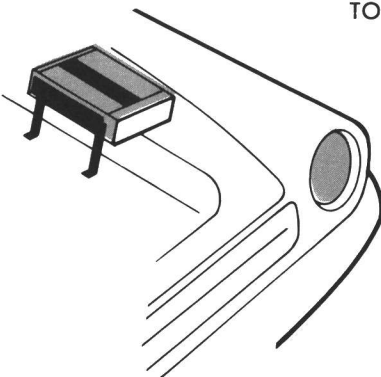


- ④ REPLACE RADIO IN MOUNTING BRACKET. PUSH UP HANDLE TO SECURE IN FRAME.

- ⑤ PLUG IN POWER AND CONTROL CABLES. LEAVE FRONT PANEL OFF UNTIL ANTENNA IS INSTALLED AND ALL CONNECTIONS ARE MADE TO THE VEHICLE SYSTEMS PLUG. THEN CONNECT ANTENNA AND SYSTEMS PLUG AND ATTACH FRONT PANEL WITH TWO KNURLED SCREWS.

### LEDGE MOUNT OPTION

THE LEDGE-MOUNT HARDWARE KIT PERMITS THE TRUNK-MOUNT RADIO TO BE MOUNTED AS SHOWN.





## CONTROL UNIT

In Trunk-Mount installations, the Control Unit should be mounted within convenient reach of the operator, and located so that it will not interfere with safe operation of the vehicle. Normally, the Control Unit is mounted on the underside and in the middle of the instrument panel. Use the bracket as a template for locating three mounting holes. Leave room for access to controls on rear of unit. Mount the Control Unit as shown in Figure 9. After mounting the unit, plug in the Control Cable and secure by means of the cover plate.

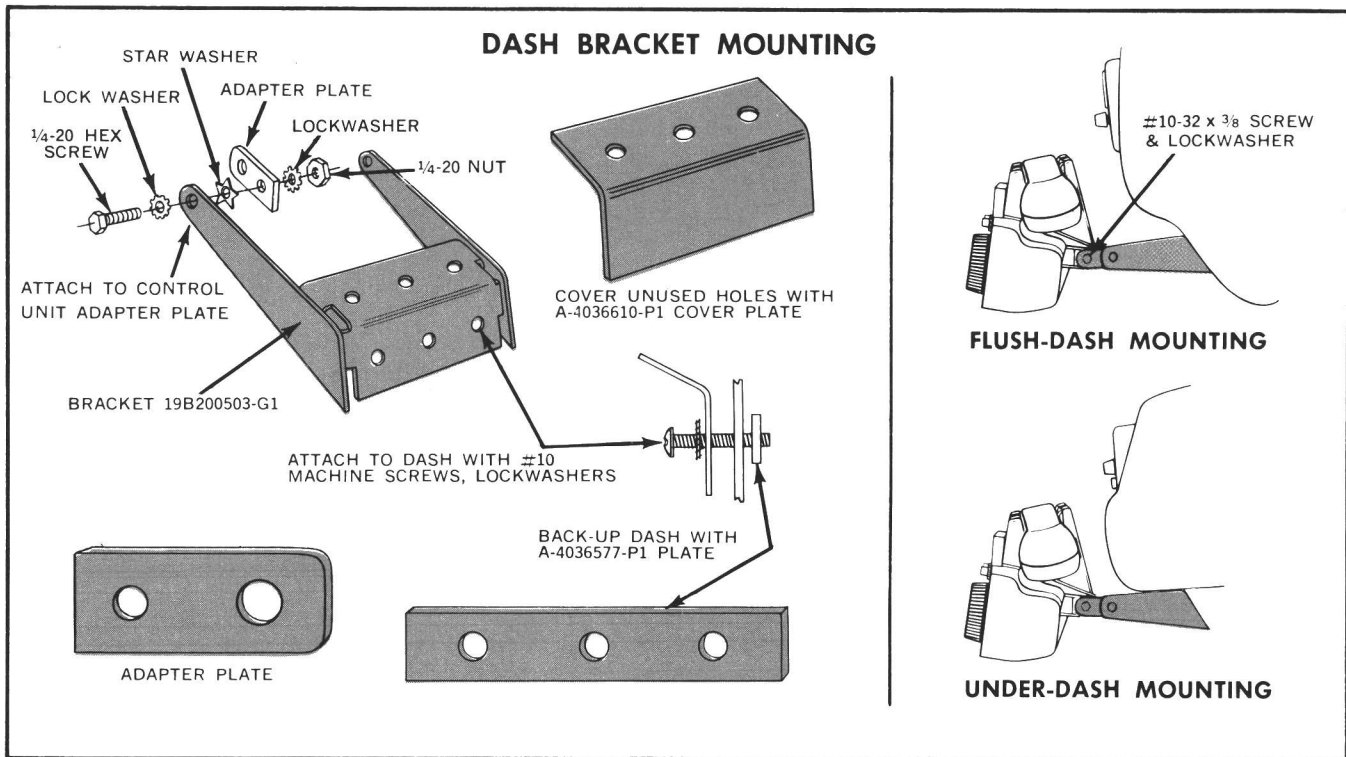


Fig. 9

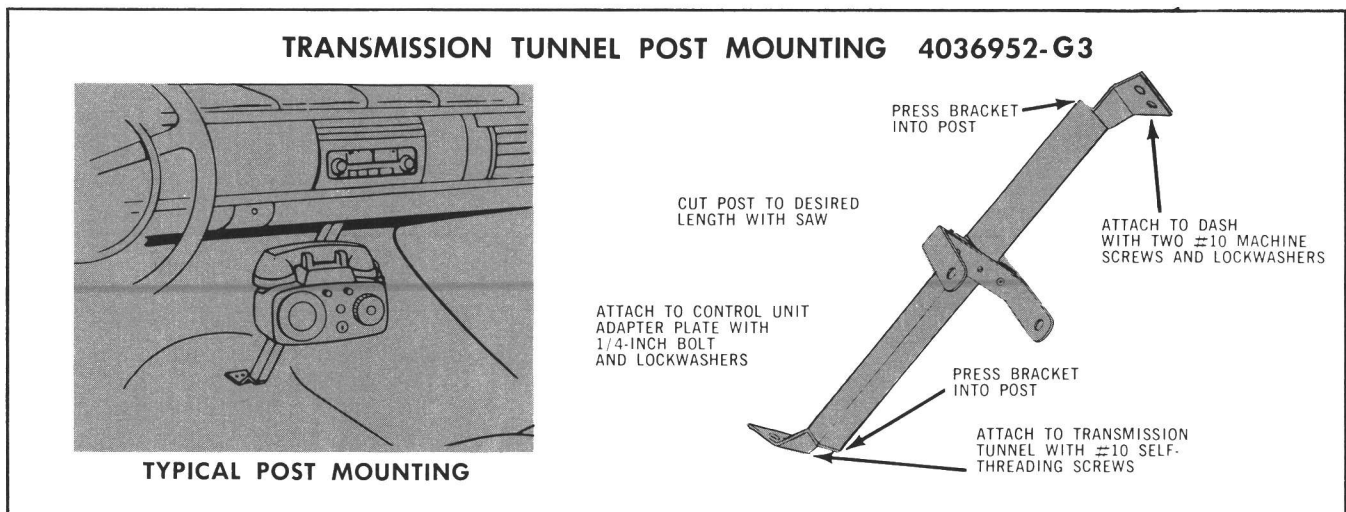


Fig. 10

## ANTENNA

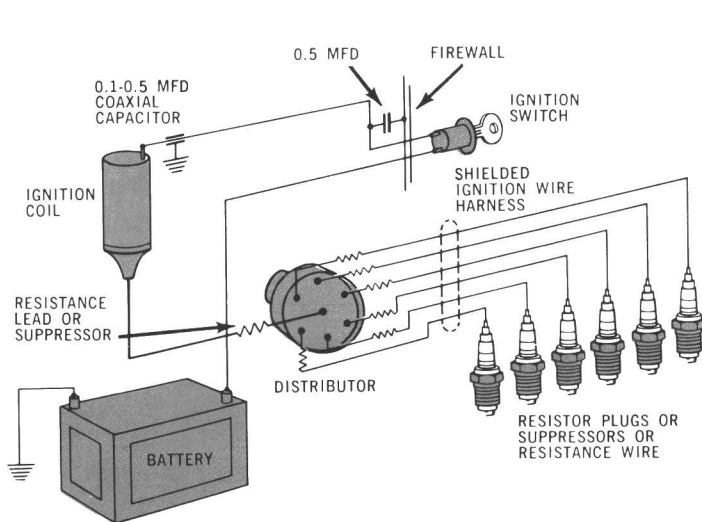
Installation instructions for the High-Band and Low-Band Antennas are packaged with the antenna. The antenna must be installed in accordance with good engineering practice for optimum results.

- For the 132-470 MHz antenna, the most effective mounting position is usually in the center of the roof of the vehicle. The antenna cable will normally run from the front of the Two-Way Radio, behind sections of the interior trim to a door or window post, and then up between the roof and header in the passenger compartment to the antenna base.
- For the 25-88 MHz antenna, the most effective mounting position is usually on the driver's side of the vehicle near the top of the left rear fender or body of the vehicle.

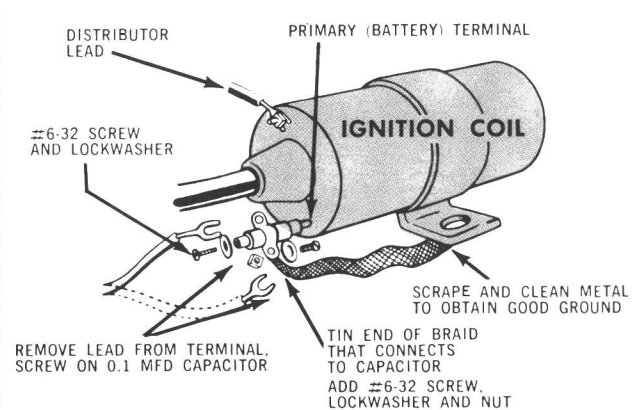
Try to route the cable away from locations where it will be exposed to heat, sharp edges or mechanical damage, and where it will be out of the way of the driver, passengers or vehicle mechanics. Wherever possible, existing holes in the trunk wall, and the channels above or beneath doors and window columns should be utilized.

## NOISE SUPPRESSION

The Noise Suppression instructions are shown for information purposes only. Components shown are available in ignition noise suppression Kit PL-4035219-G1.

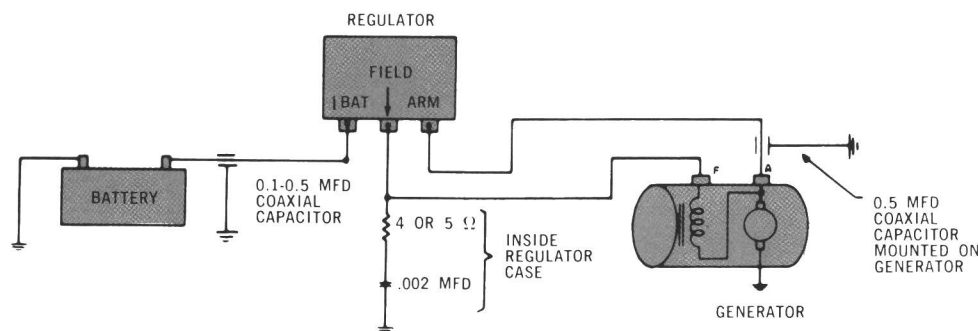


**Fig. 11**  
**IGNITION CIRCUIT WITH NOISE-SUPPRESSION COMPONENTS**

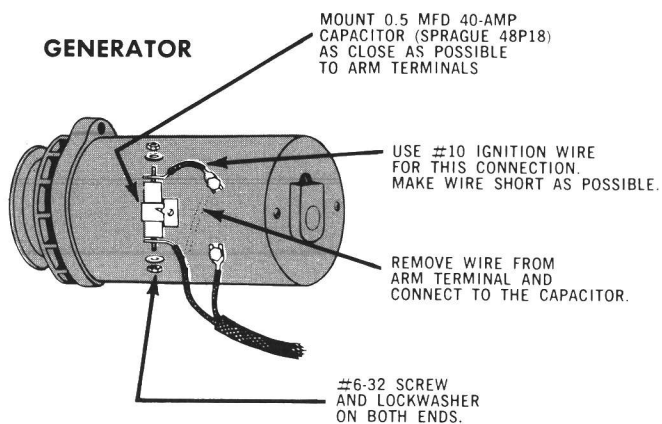


If the vehicle does not have a resistance lead from the coil to the center of the distributor cap, disconnect the lead at the distributor and insert a cable-type suppressor close to the distributor. Never cut the lead to insert a suppressor.

**Fig. 12**  
**IGNITION COIL SUPPRESSION**



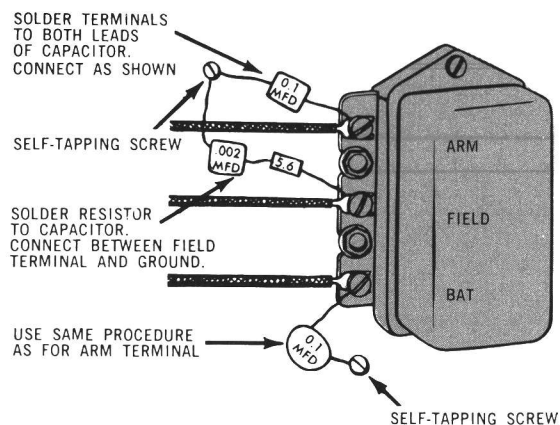
**Fig. 13** **GENERATOR CIRCUIT WITH NOISE-SUPPRESSION COMPONENTS**



**NOTE:** If an Alternator is used on the vehicle, omit installation of Generator Capacitor.

## REGULATOR

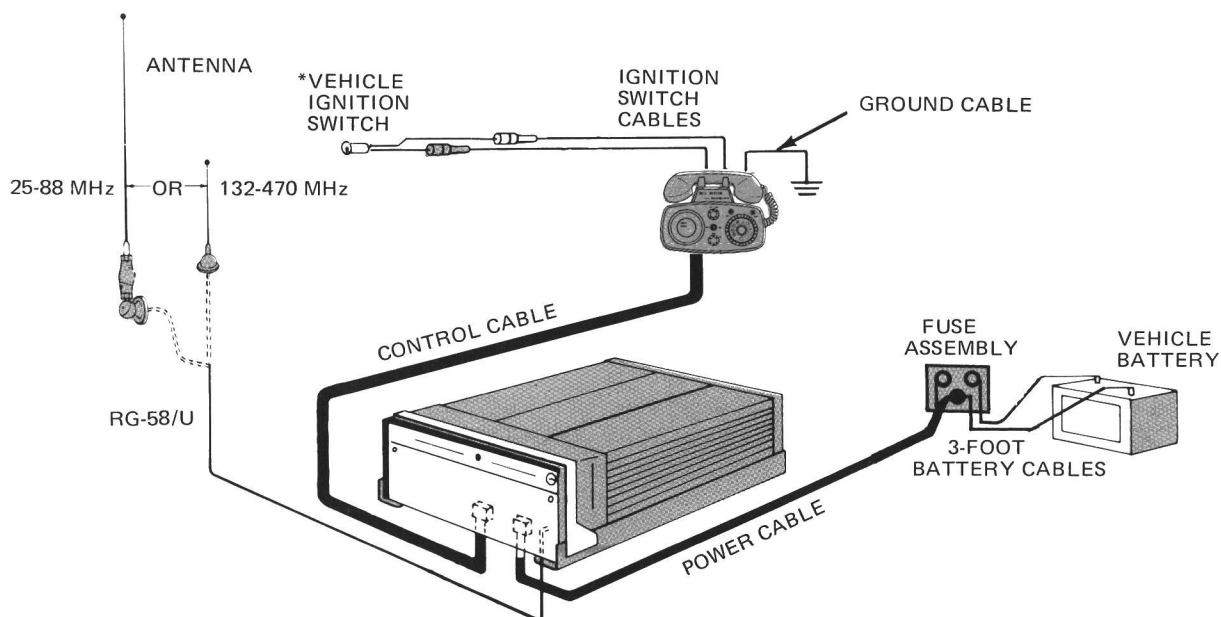
FOR MORE EFFECTIVE NOISE SUPPRESSION THE CAPACITOR AND RESISTOR CONNECTED TO THE FIELD TERMINAL MAY BE MOUNTED INSIDE THE REGULATOR.



## CAUTION

IF REGULATOR IS OPENED TO INSTALL THE CAPACITOR AND RESISTOR, REMEMBER THAT ONE WRONG CONNECTION OR SHORTED WIRE CAN DAMAGE THE REGULATOR AND GENERATOR.

**Fig. 14 GENERATOR CIRCUIT INSTALLATION DETAILS**



**Fig. 15 TRUNK-MOUNT CABLING DIAGRAM**

## PLACING THE TWO-WAY RADIO IN OPERATION

After completing the installation of the Two-Way Radio, the following final operations should be performed:

These include:

- Have an electronics technician who holds a 1st or 2nd Class FCC Radiotelephone license make the final adjustments.
  1. Transmitter (final tuning and loading; frequency and modulation check)
  2. Receiver (matching to antenna)
  3. Checking to see if any additional noise suppression is needed.
  4. Setting the Call Number, Home Channels and Installing the Call Number Card.
- Instructions are included in the Maintenance Manual for the Two-Way Radio. Alignment Tools packed with the radio, should be given to the technician, along with the key set.
- Be sure that a RADIO TRANSMITTER IDENTIFICATION form (FCC Form 452-C or General Electric Form ECP-82) is filled out and attached to the transmitter.
- Fill out and mail the WARRANTY REGISTRATION Card (General Electric Form CPD-271).

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MOBILE RADIO DEPARTMENT  
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

