ERICSSON

Mobile Communications

FMD™

MOBILE RADIO AND ACCESSORIES

Installation Manual

TABLE OF CONTENTS

INTRODUCTION

This manual contains installation instructions for the FMD Mobile Radio and associated accessories. Included are mounting and cabling instructions. Interconnection and wiring diagrams are provided at the back of the manual. Before installation, the radio personality should be programmed. Refer to the applicable programming manual for instructions.

NOTE

The FMD radio is supplied with a test personality. Save this personality with the programmer before entering new channel frequencies.

RADIO INSTALLATION

The following paragraphs will explain how to mount and wire the FMD radio. Installation and wiring of external options are also covered. External connection points on the FMD radio are shown in Figure 1.

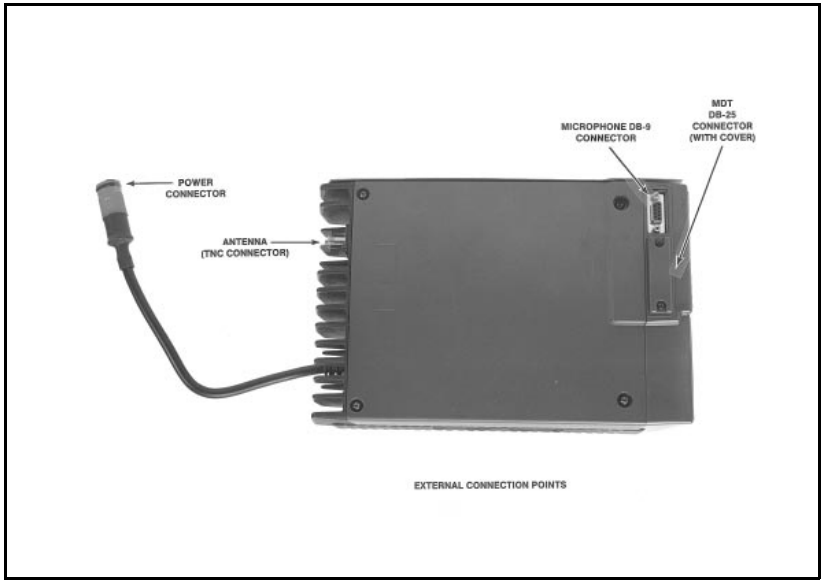


Figure 1 - External Connection Points

UNPACKING AND CHECKING EQUIPMENT

When ready for installation, carefully unpack the radio and any accessories. It is recommended that you identify each item in the packing case. If any damage has occurred to the equipment during shipment, file a claim with the carrier immediately. The following is a list of equipment packed with the radio.

* FMD Radio Unit
* Package of mounting hardware
* Mounting bracket
* Power Cable
* Microphone
* Microphone hanger
* Remote internal speaker (optional with FMD scan model)
* External speaker (optional)
* Emergency switch (optional)
* Operator’s manual
* Installation manual

PLANNING THE INSTALLATION

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

- Safe for the operator and passengers
- Convenient for the operator to use
- Neat
- Protected from water damage
- Easy 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 Service Stations located throughout the United States by having them install your radio and make the final adjustments. A typical installation is shown in Figure 2.

WARNING

Interference with vehicular electronics - Electronic fuel injection systems, electronic anti-skid braking systems, electronic cruise control systems, etc. are typical of the types of electronic devices which may be prone to malfunction due to the lack of protection from radio frequency energy present when transmitting. If the vehicle contains such equipment, consult the dealer for the make of vehicle for help in determining if such electronic circuits will perform normally when the radio is transmitting.

EQUIPMENT REQUIRED

The equipment required for installing the radio and accessories is listed below:

- Electric drill for drilling mounting holes
- Drills (see sizes in box)
- Phillips screwdriver and Allen wrench for mounting screws
- Electrical Tape

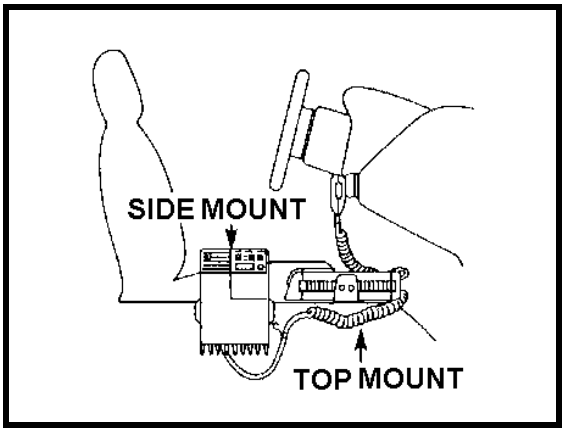
DRILL SIZES

- No. 36 (7/64-inch) drill for No. 6 self-tapping screw
- No. 31(1/8-inch) drill for No. 8 self-tapping screws
- No. 27 (9/64-inch) drill for No. 10 self-tapping screws
- No. 9 (3/16-inch) drill for No. 9 self-tapping screws

INSTALLATIONS IN VEHICLES POWERED BY LIQUEFIED (LP) GAS

WARNING

Radio installation in vehicles powered by liquefied petroleum gas must conform to the following requirements.



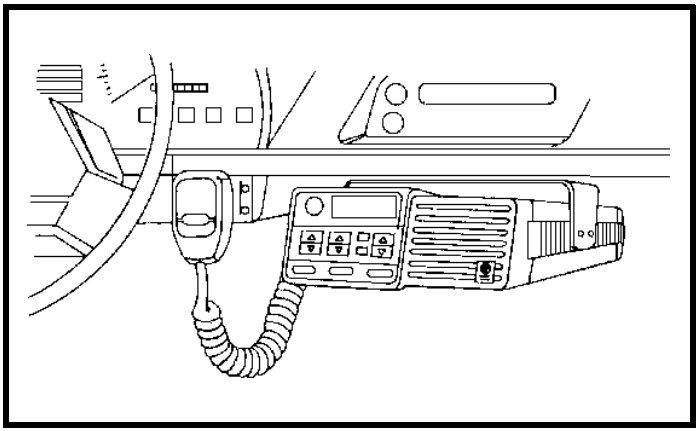


Figure 2 - Typical Installation

Radio installation in vehicles powered by liquefied petroleum gas, with the LP gas container in the trunk or other sealed-off space within the interior of the vehicle, must conform to the National Fire Protection Association Standard NFPA58 which requires that:

- Space containing radio equipment shall be isolated by a seal from the space containing the LP gas container and its fittings.
- Outside filling connections shall be used for the LP gas container.
- The LP gas container space shall be vented to the outside of the vehicle.

RADIO CONFIGURATION

Before installing the radio or making any electrical connections, it is necessary to configure jumpers on the internal circuit card assemblies in order to support the selected options. Refer to Table 1 and the maintenance manual for information. Only the installed options should be enabled. The FMD System model does not have a speaker within the radio due to the positioning of the keypad, therefore it comes standard with the remote internal speaker option. Connector option FMCN1B or Connector/Cable option FMCC5J must be specified when ordering the FMD System model in order to install the supplied speaker. The particular connector and cable option will depend on the combination of options and the planned installation. System model radios do not require the removal of panel control board jumper C. The following options are currently available for use with the FMD radio.

- External speaker
- Remote internal speaker
- Emergency switch
- Bypass ignition switch

TABLE 1- OPTION CONFIGURATION

OPTION	PANEL CONTROL BOARD JUMPERS						SYSTEM CONTROL BOARD JUMPERS		
	A	C	N/D	F	X	Y	W1	J603	J604
SHIPPED CONFIGURATION	I	I	I	I	R	I	I		1 & 2
EXTERNAL SPEAKER									
CONTROL PANEL CLOCK FREQUENCY SHIFT				R					
REMOTE INTERNAL SPEAKER		R							
SYSTEM CONTROL CLOCK FREQUENCY SHIFT							R		
EMERGENCY SWITCH									
NPSPAC								2 & 3	
HANDSET					I	R			
BYPASS IGNITION SWITCH									2 & 3

NOTE: I=Jumper Installed R=Jumper Removed Some jumpers must be removed by cutting the printed wire run and installed by restoring the run.

Emergency Switch

No modifications are required to use the optional emergency switch. Refer to the connection diagram for wiring details.

External And Remote Internal Speakers

No modifications are required to use a single external speaker with the radio (a horn speaker is configured as an external speaker). If a remote internal speaker is used in addition to the external speaker, the radio jumper configuration must be changed. See Table 1, Figure 3, and the connection diagram for details.

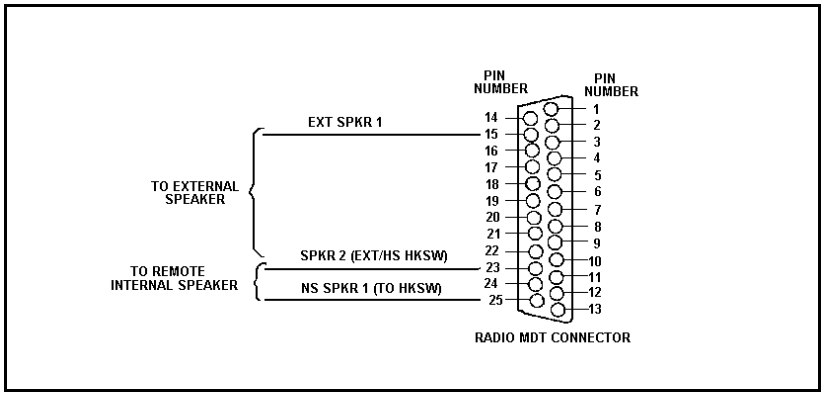


Figure 3 - Speaker Wiring

Bypass Ignition Switch

The bypass ignition switch option allows the radio to be operated at all times. In this configuration, the ignition switch may be turned off and the radio will continue to operate. Refer to Table 1, the connection diagram, and the power cable installation section of this manual.

NOTE

The yellow ignition sense lead (part of power cable) must be connected to A+ before the radio can be programmed.

RUNNING CABLES

To assure the feasibility of the cable routes you plan to use, it is suggested that you run the cables before installing the radio. Be sure to leave some slack in each cable so that the radio 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 (exhaust pipes, mufflers, tailpipes, etc.), 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 fire wall 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, unless you plan to install rigid or flexible conduit in which to run the cables.

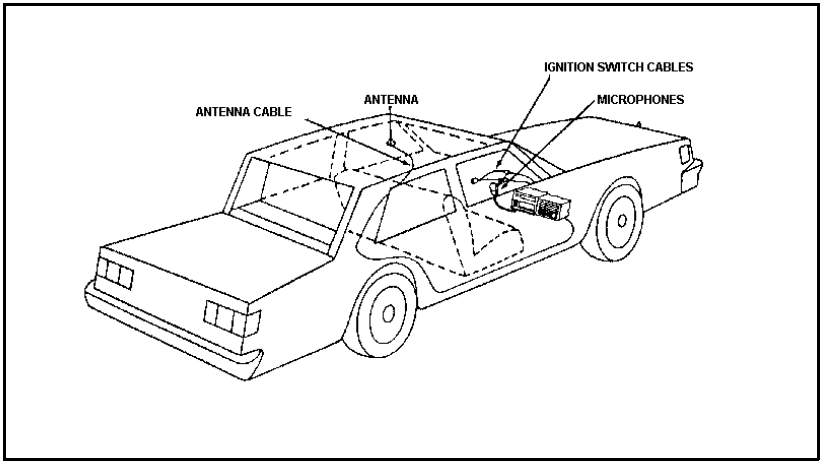


Figure 4 - Typical Cable Routing

If an existing hole is not conveniently located for passing the power cable through the fire wall, drill a hole and insert the rubber grommet provided. Leave at least 18 inches of slack in the plug end of the cables next to the radio. A typical cable routing diagram is shown in Figure 4.

MOUNTING THE RADIO

The radio should be mounted within convenient reach of the operator. Mount the radio where it will not interfere with the safe operation of the vehicle or cause a hazard to passengers in case of an accident. Refer to Figure 5 for details on securing the mounting bracket.

The mounting bracket may be placed over or under the radio housing depending on the mounting location. Additionally, the radio may be tilted within the mounting bracket to allow the best viewing angle.

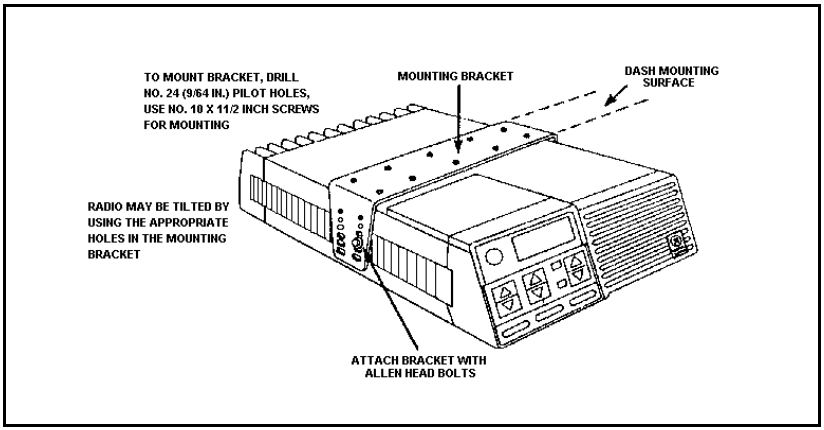


Figure 5 - Installing Mounting Bracket

POWER CABLE INSTALLATION

Power connections to the radio are made through a three-wire power cable assembly (Figure 6).

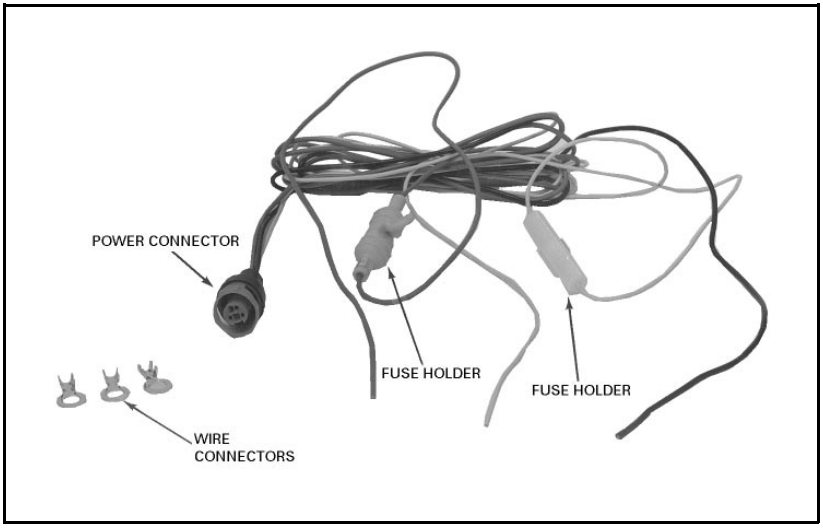


Figure 6 - Power Cable

CAUTION

Certain problems maybe encountered when accessory equipment is connected to the ignition or accessory lines. In some vehicles these lines have large filter capacitors or a leakage path is present.

If the equipment does not turn off within a reasonable amount of time after the ignition is turned off, first verify that the radio jumpers are in their correct positions. Next, try a different accessory or ignition sense pick up point. Many vehicles have more than one circuit that is switched by the ignition switch, and one may be available that does not have large filter capacitors or a leakage path.

If a different pickup point cannot be found, try adding a 470-ohm, 1-watt resistor from the ignition sense pickup point to ground. This will discharge the capacitor(s) or reduce the leakage voltage. Current drain through this resistor will be minimal (less than 0.03A) when the ignition is switched on.

NOTE

On some accessory points, the voltage only drops when the ignition switch is in the START position. A connection point should be used where the voltage is completely off when the ignition switch is in the START position.

A three-wire cable is used to provide power to the radio. The red fused lead supplies power to the radio directly from the vehicle battery. The yellow fused lead is an ignition sense lead. It is used by the radio electronics to determine when the ignition switch is turned on. This lead is not used to supply power to the radio but must have power applied when the radio is programmed. The black lead is the radio ground connection.

Depending on how the radio jumpers are configured, the radio may be operated only when the ignition switch is turned on (or in the accessory position), or may be operated regardless of ignition switch position (ignition switch bypass). Before connecting the radio to power, refer to Table 1 and the connection diagram for the proper jumper configuration and wiring details. The power connectors lock into place when they are mated together. Squeeze the end of the connector when disconnecting the power plug.

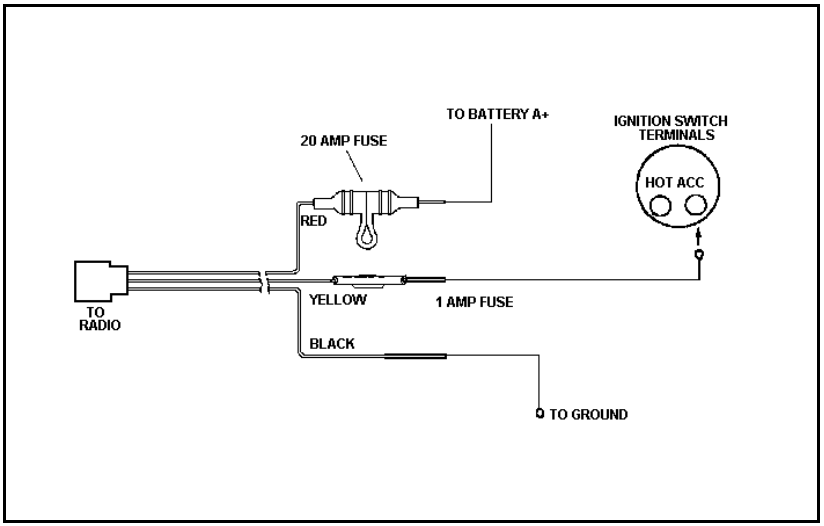


Figure 7 - Power Cable Connection

MICROPHONE

The microphone has an internal hookswitch which is activated when the microphone is placed into the hanger. There are no wires connected to the microphone hanger.

Mount the microphone where it will be within easy reach of the operator, but will not interfere with safe operation of the vehicle. Connect the microphone plug into the microphone connector on the radio and tighten the retaining screws in the plug. Refer to Figure 8 for microphone and mounting bracket details.

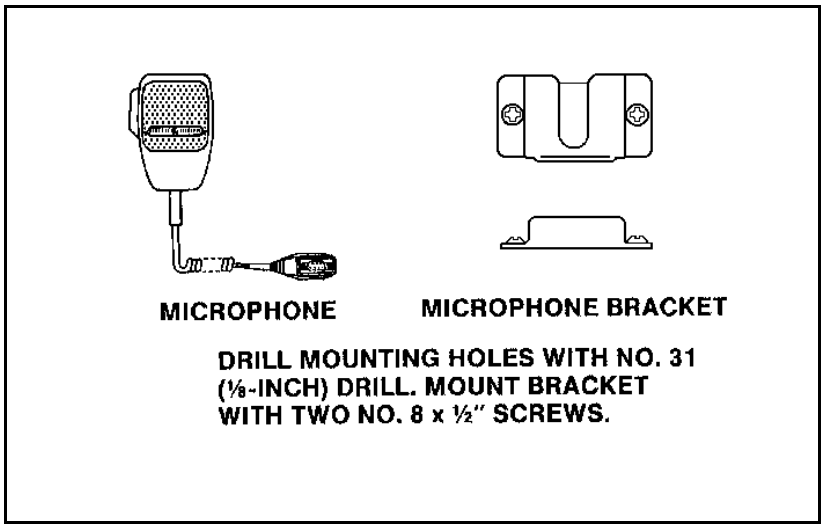


Figure 8 - Microphone And Microphone Hanger

ANTENNA

Installation instructions for the antenna are packaged with the antenna. The antenna must be installed in accordance with good engineering practices for optimum results.

The most effective mounting position is usually in the center of the roof of the vehicle. The antenna cable will normally run from the radio, behind sections of the interior trim to a door or window post. Then run the cable up between the roof and headliner in the passenger compartment to the antenna base.

Once the antenna is installed, connected it to the TNC connector at the left rear of the radio.

HORN SPEAKER (OPTION)

The horn speaker may be used as an external speaker. It may be mounted under the hood, on the vehicle roof, or other suitable location. The horn speaker option includes horn speaker and speaker cable assembly.

CAUTION

Be careful to avoid damaging some vital part (fuel tank, transmission housing, etc.) of the vehicle when drilling mounting holes. Always check to see how far the mounting screws will extend below the mounting surface before installing.

NOTE

Refer to the operator's manual for the external speaker volume adjustment procedure.

1. Mount the speaker in the desired location and make the electrical connections indicated in Figure 9.

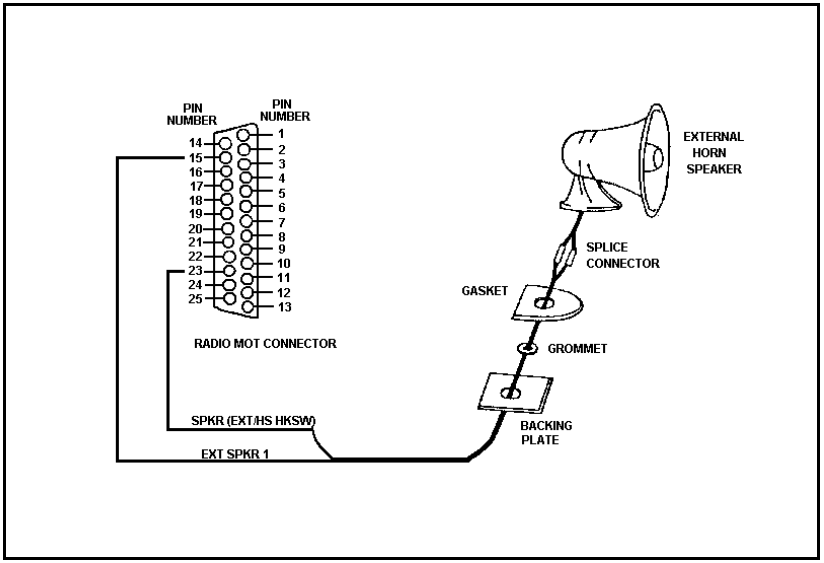


Figure 9 - Horn Speaker Mounting

2. Using the backplate as a template, mark and drill two 13/64-inch holes for the backplate retaining screws, and four 9/32-inch holes for the speaker mounting screws. Next, drill a 5/8-inch hole for the speaker cable and insert rubber grommet in the hole.

3. Attach the backing plate to the mounting surface with two 8-32 thread forming screws and lock washers.

4. Route cable from radio through backplate (under mounting surface), grommet, and gasket, to the speaker.

CAUTION

Do not ground either side of the speaker leads.

5. Connect the speaker cable leads and the speaker leads using the two splice connectors supplied.

6. Provide strain relief for the speaker cable using a standard cable clamp (not supplied).

7. Mount the speaker using four 1/4 x 7/8 inch screws and lock washers supplied.

8. Remove the two screws holding the cover over the DB-25 connector on the radio (cover is not mounted on all radios).

9. Connect the speaker to the DB-25 connector as shown.

EMERGENCY SWITCH MOUNTING

An optional external emergency switch may be used with the radio. After the switch is mounted, it should be connected to the radio as shown in Figure 10.

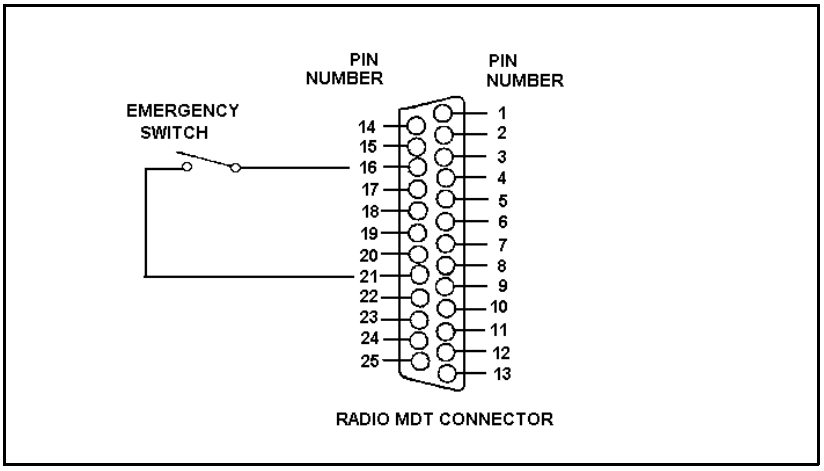
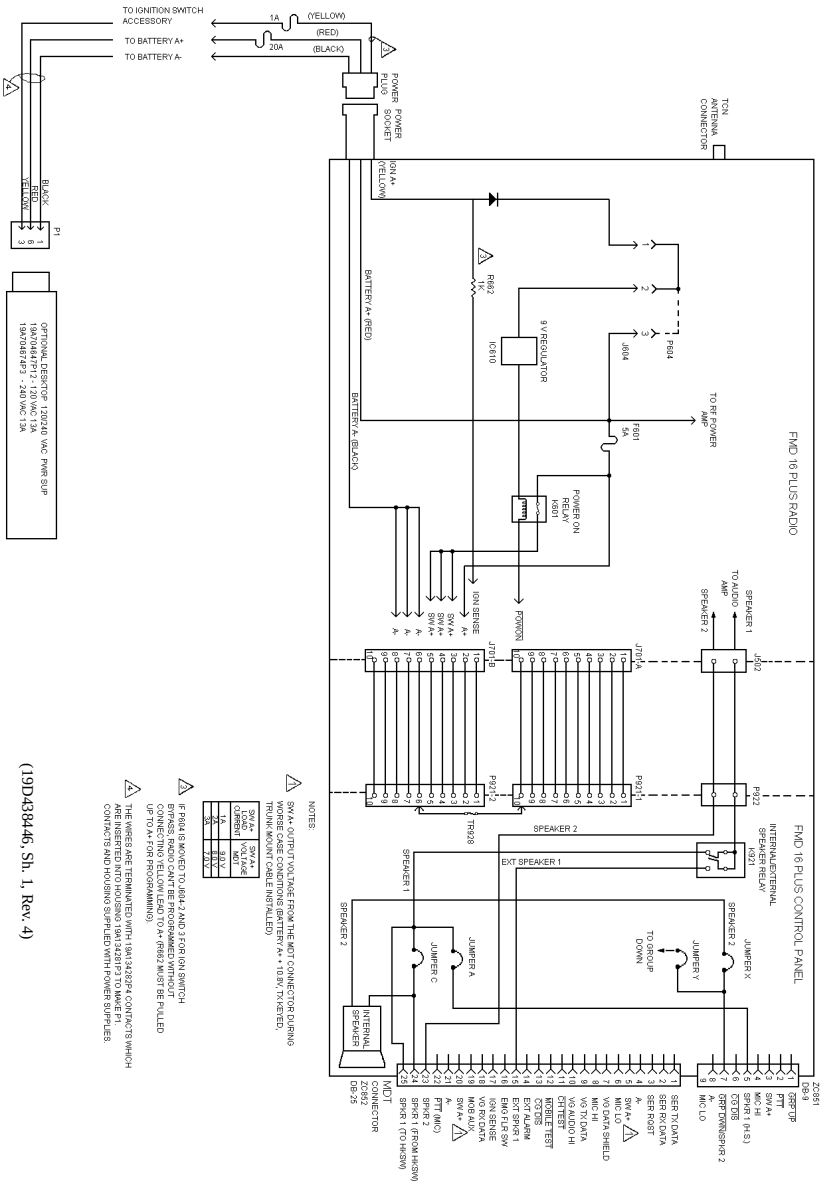


Figure 10 - Emergency Switch Wiring

CONNECTOR COVER

If the MDT connector is not used, place the protective cover (Figure 1) over the unused connector and tighten the retaining screws. The cover prevents moisture and debris from entering the unused connector. The cover is shipped mounted to the radio or in the mounting hardware bag.

CONNECTION DIAGRAM



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Ericsson GE Mobile Communications Inc.
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