LBI-31803D

ERICSSON

Mobile Communications

EDACS® S550
CONTROL UNIT
AND ACCESSORIES

Installation Manual

TABLE OF CONTENTS

INTRODUCTION

This manual contains installation instructions for the EDACS S-550 Control Unit and associated accessories. Included are mounting instructions for the control unit and standard and external speakers. Instructions for connecting the ignition cable assemblies and suggested cable routing are also included. Interconnection and wiring diagrams are provided at the back of the manual.

UNPACKING AND CHECKING EQUIPMENT

When ready for installation, carefully unpack the control unit 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 EDACS S-550 Control Unit:

- ❏ EDACS S-550 Control Unit
- ❏ Package of mounting hardware containing
  - Self-tapping screws (6)
  - Flat Washers (3)
- ❏ Mounting Bracket
- ❏ Microphone
- ❏ External Speaker
- ❏ Handset (optional)
- ❏ Emergency Floor Switch (optional)
- ❏ Power/Control Cable
- ❏ Microphone Hookswitch
- ❏ Ignition Cable
- ❏ Handset Hookswitch (optional)

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 GE Service Stations located throughout the United States by having them install your radio and make the final adjustments.

Installations using the dual control option can be quite complex, especially if these installations use mobile data or Voice Guard®. It is recommended that you sketch out an installation diagram before mounting equipment and routing cables.

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 and enlist his aid in determining if such electronic circuits will perform normally when the radio is transmitting.

EQUIPMENT REQUIRED

The equipment required for installing the EDACS S-550 Control Unit and accessories is:

- Electric drill for drilling mounting holes.
- Drills (see sizes in box at right)
- Phillips and flat-blade screwdriver, and 1/4-inch and 5/16-inch hex-head drivers for mounting screws.
- Electrical Tape
- Extractor Tool (part of tool kit 19B227456G1)

DRILL SIZES

- No. 36 (7/64-inch) Drill for No. 6 Self-Tapping Screws
- 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.

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 NFPA 58 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.

HORN SPEAKER (Option LS1G)

The horn speaker may be used to replace the standard speaker. It may be mounted under the hood, on the vehicle roof, or other suitable location. The Horn Speaker Option includes horn speaker 19B209425P1 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.

INSTALLATION

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

2. Using the backplate as a template, mark and drill four 1/4-inch holes for the speaker mounting screws.

3. Mount the speaker using four 1/4" x 7/8" screws and lockwashers.

4. Route cable from the control unit to the speaker.

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).

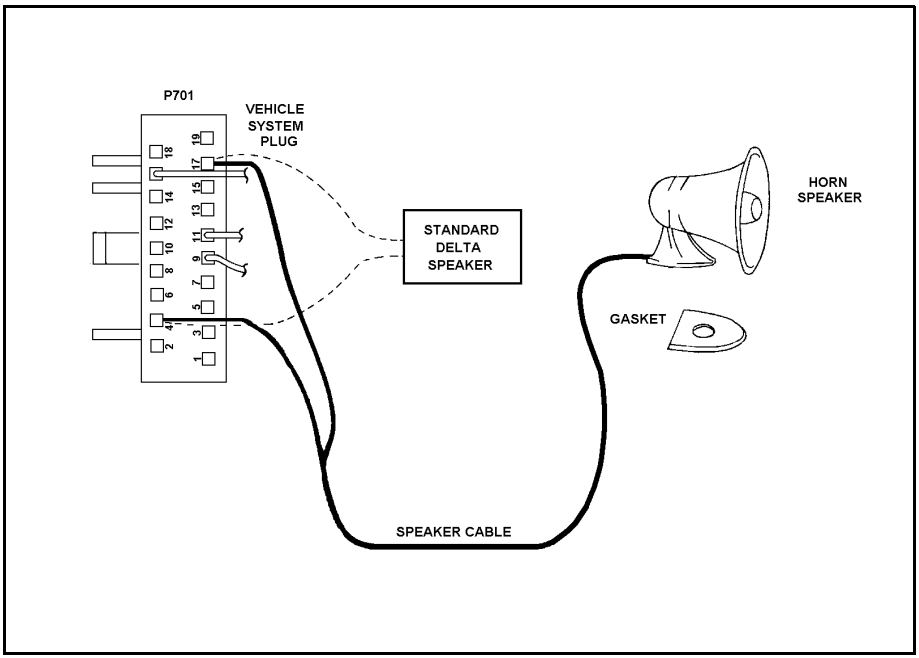


Figure 1 - Replacement Of Standard Speaker With Horn Speaker

CAUTION

Do not ground either side of the speaker leads.

CONTROL UNIT MODIFICATIONS

Before installing the control unit or making any electrical connections, it is necessary to configure jumpers on the System Board in order to support the selected options. Refer to Tables 1 and 2, the installation drawings and the maintenance manual for information on installing options. The tables show any changes required from the shipped configuration. Only the installed options should be enabled. The following options are currently available for use with the EDACS S-550.

- Handset Hookswitch
- Internal/External Speaker
- Emergency Floor Switch
- Hookswitch Microphone
- Voice Guard
- Mobile Data
- Dual Control

Table 1 - Option Configuration For 19B801551P1-P3

OPTION	**SYSTEM BOARD JUMPERS**				
	A	**C**	**D**	**Y**	**Z**
SHIPPED CONFIGURATION	I	I	I	R	I
HANDSET ONLY				I	R
HANDSET/HOOKSWITCH	R	R		I	R
EXTERNAL SPEAKER		R			
DTMF MICROPHONE					I
R = REMOVE JUMPER I = INSTALL JUMPER					

Table 2 - Option Configuration For 19B801551P4-P6

OPTION	SYSTEM BOARD JUMPERS						
	A	**C**	**L**	**M**	**Y**	**Z**	**N**
SHIPPED CONFIGURATION	I	I	I	R	I	R	I
HANDSET ONLY							
HANDSET/HOOKSWITCH	R	R					
EXTERNAL SPEAKER							R
DTMF MICROPHONE					R	I	
DUAL CONTROL WITH SWITCHED AUDIO							R

R = REMOVE JUMPER L-M and Y-Z are three-pin movable jumpers.
I = INSTALL JUMPER

HANDSET HOOKSWITCH

When the handset hookset option is used, configure the jumpers as shown in Tables 1 and 2. "A," "C" and "Z" on the system board must be removed.

INTERNAL/EXTERNAL SPEAKER

Mount the horn speaker under the hood, on the roof, or other suitable location. Mount the standard speaker where it will direct sound to the operator, but not interfere with vision or be hazardous to passengers in case of an accident.

1. Refer to Horn Speaker installation and mount speaker in desired location.

2. Configure jumpers as shown in Tables 1 and 2. PC programming of the EDACS RANGR is also required to make external speakers function.

3. Refer to Figure 1 and connect external speaker wires to P201-2 and -19.

HANDSET, DTMF OR HOOKSWITCH MICROPHONE

When a handset is used without the optional hookswitch the jumpers must be changed according to Tables 1 and 2. Jumpers must also be changed according to Tables 1 and 2 when the control unit is used with a DTMF or hookswitch microphone.

EXTERNAL ALARM

An optional external alarm relay kit (19B235113G2) is available for use with the control unit. This relay kit allows an external alarm device (horn, light, etc.) to be activated when a special call is received. Connect the relay kit as shown in Figure 2.

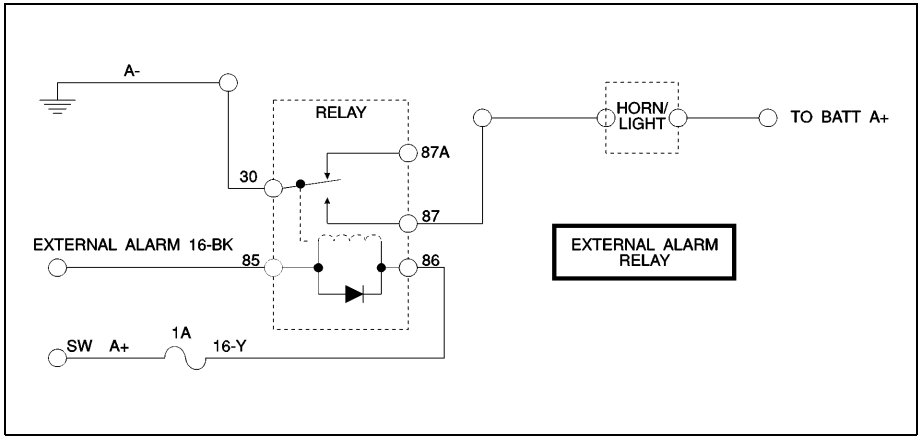


Figure 2 - Alarm Relay

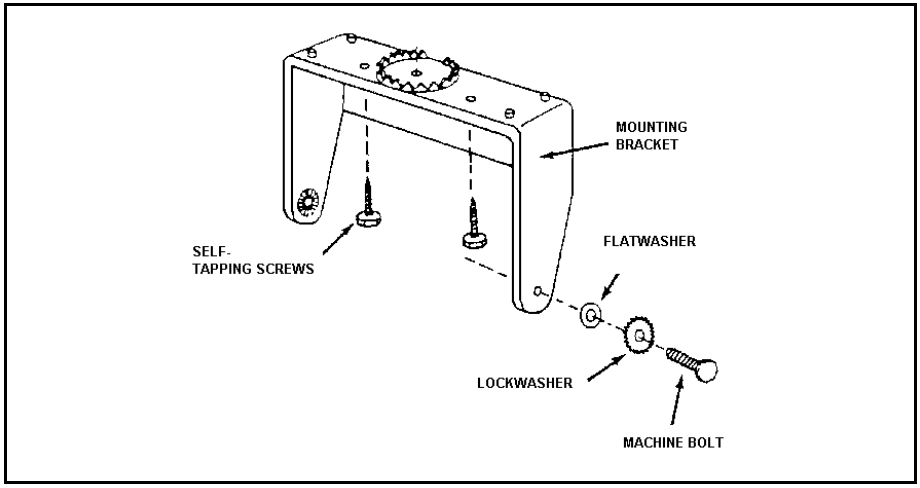


Figure 3 - Mounting The Standard Speaker Figure

EMERGENCY FLOOR SWITCH

No control unit modifications are required to use the optional emergency floor switch. Refer to the control unit connection diagram.

STANDARD SPEAKER

The speaker may be mounted on the lower edge of the instrument panel on the firewall, above the windshield in some trucks or behind the built-in speaker grille in others.

When installing the speaker, use the mounting bracket as a template to locate the mounting holes, and mount the speaker as shown in Figure 3. Refer to Figure 1 and connect the speaker leads to P201-4 and -17 on the Vehicle System Plug.

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.

1. Mark the location of the two self-tapping screws using the mounting bracket as a template.

2. Drill two pilot holes at the marked locations using a No. 27 (9/64-inch) drill.

3. Attach the Speaker Mounting Bracket to the vehicle surface using two self-tapping screws.

DUAL CONTROL

Two EDACS Control Units can be used to control a single RANGR EDACS radio using the dual-control option.

When dual control units are used, the active control unit shows the user settings, while the inactive control unit shows "dual" in the System and Group displays. Control is passed from one control unit to the other by pressing the PTT switch on the microphone. If a user is keyed and transmitting when the inactive unit’s PTT switch is pressed, control will not pass. The radio stores the ID of the active control unit so that when power is removed from the radio, the same control unit will be active when power is restored.

Several different configurations are possible using dual-control depending on the types of control units and accessories. Refer to the dual-control configuration diagrams at the back of this manual.

When installing dual control units, certain jumpers must be configured in both control units. The primary control unit is the unit closest to the radio. A dual-control cable connects the primary control unit to the secondary (dual control unit). Make sure the dual-control cable is not installed backwards. The two cable ends are keyed and are not interchangeable. Vehicle power should only be connected to the primary control unit. Do not connect power to the secondary Control Unit.

The dual-control ID jumper is located on the Microprocessor board of the control unit (3-pin jumper, J102). The primary control unit must have jumper J102 connected across pins 2 and 3 (shipped configuration). The secondary control unit must have jumper J102 connected across pins 1 and 2.

NOTE

Failure to set jumper J102 correctly will prevent proper operation of the radio.

Radio Programming

The mobile radio must be programmed properly before it can be used with dual control units. The radio may be programmed for parallel- or selected-speaker audio. Also, the radio may be programmed so control unit settings (system, group, scan on and backlight options) are selected independently at each control unit or are common to both control units.

Parallel- Or Selected-Speaker Audio

The selected-speaker audio option will allow audio to be switched to the speaker associated with the active control unit. Parallel-speaker audio allows both speakers associated with the control units to be active at the same time.

After programming the radio for the desired option, install jumper"N" on the primary control unit for parallel audio or remove the jumper for selected-speaker audio (Tables 1 & 2).

External Options

External radio options (external speaker, Voice Guard®, and Mobile Data) are connected to the secondary control unit. When using an external speaker, only one speaker is required for both control units. Speaker audio is automatically routed to the correct speaker based on the selection made at the active control unit.

CONTROL UNIT INSTALLATION

The EDACS S-550 Control Unit should be mounted within convenient reach of the operator. Mount the control unit 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 4 when installing the control unit.

1. Mark the location of the two self-tapping screws using the Retaining Bracket as a template.

CAUTION

If pilot holes must be drilled, remove all metal shavings from drilling holes before installing screws. 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.

2. Drill two pilot holes at the marked locations using a No. 27 (9/64-inch) drill.

3. Remove the two machine bolts which hold the mounting bracket to the EDACS S-550 Control Unit.

4. Attach the Control Unit Mounting Bracket to the vehicle surface using the two self-tapping screws.

5. Attach the EDACS S-550 Control Unit to the Mounting Bracket using the two machine screws.

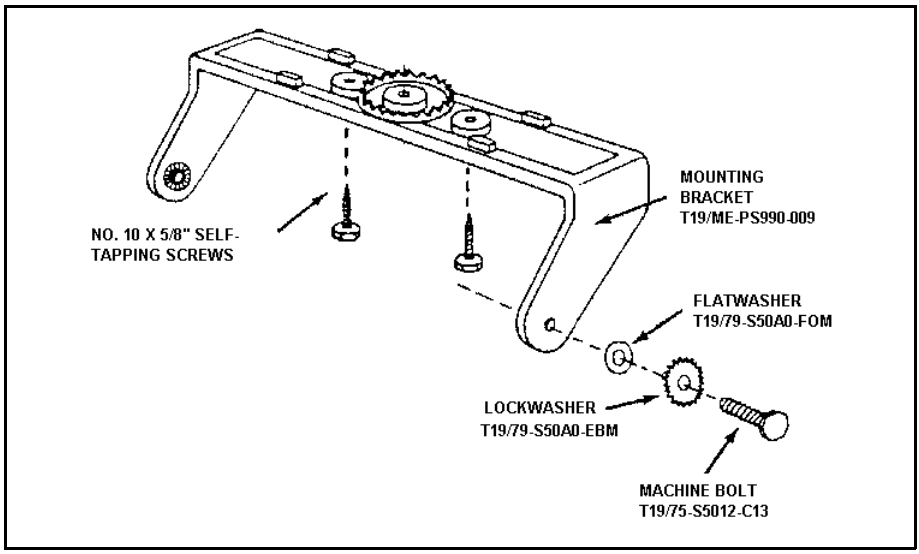


Figure 4 - Control Unit Mounting

CONTROL UNIT POWER CONNECTION

CAUTION

Power connections to the Control Unit are made through a two-wire Ignition Cable assembly. Certain problems may be encountered when accessory equipment is connected to the ignition or accessory lines of the vehicle, where these lines may have large filter capacitors or a leakage path present.

If the equipment does not turn off within a reasonable amount of time after the ignition is turned off, first try a different accessory or ignition sense pick up point in the vehicle. 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 present.

If a different pickup point cannot be found, then 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 to a low value. Current drain through this resistor will be minimal (less than 0.03A) when the ignition is switched on.

NOTE

With 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.

The two-wire cable may be connected to provide ignition switch control or ignition switch bypass. The black cable is the system ground connection. The yellow fused lead provides the receiver hot and the transmitter enable connections. Refer to Figures 5, 6 and 8 for installation instructions.

NOTE

The speaker connections and other option connections (hookswitches, etc.) are also made to the System Plug. Do not connect the System Plug to the control unit until all connections have been made.

Power to the radio can be controlled by one of two methods shown in Figures 6 and 8. Select the type of control desired and connect the ignition switch cables as shown. When wired as shown in Figure 6, the radio will operate only with the ignition switch in the accessory or on position. The radio operates independent of ignition switch position when wired as shown in Figure 8.

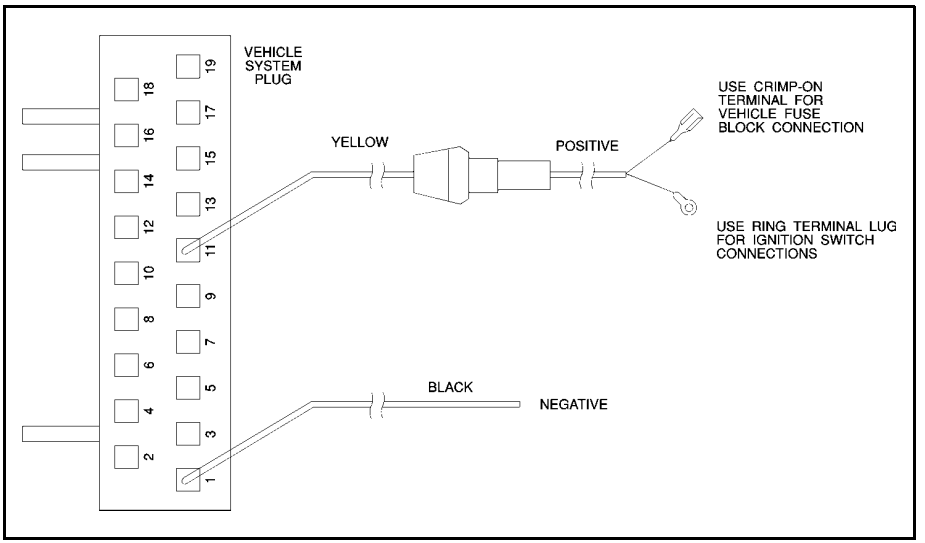


Figure 5 - 12-volt Negative Ground Connections

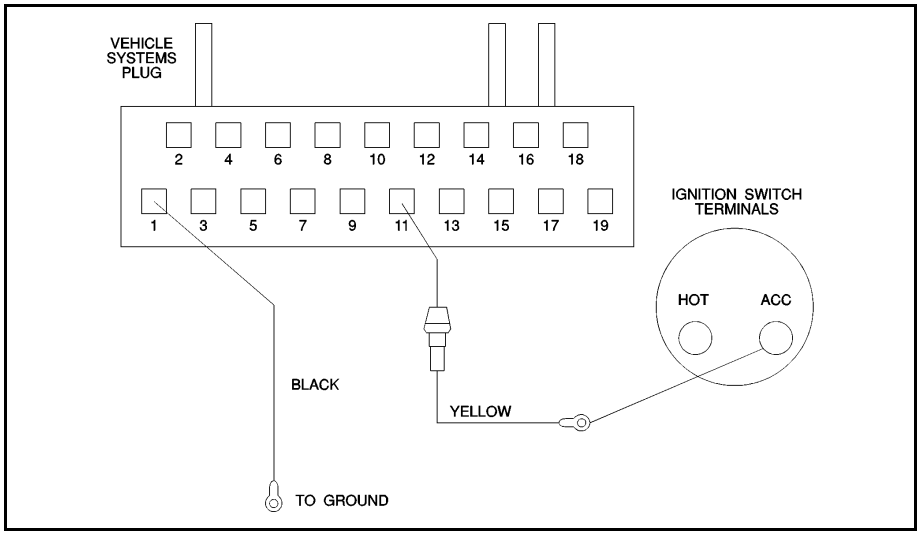


Figure 6 - Connections For Ignition Switch Control

POWER RELAY KIT

An optional power relay kit (19B235113G2) is available for use with the control unit. The relay kit is used to control power to the mobile radio. The three basic wiring configurations for the power relay kit are shown in Figure 7. Configuration "A" is used when the mobile radio power is to be controlled by the control unit. Configuration "B" allows both the mobile radio and Control Unit power to be controlled by the ignition switch. Configuration "C" applies power to the control unit at all times. The mobile radio may be operated in the receive mode at any time, but transmit operation is only possible when the ignition switch is turned on. Additional information on installing the relay is supplied in the installation instructions shipped with the kit.

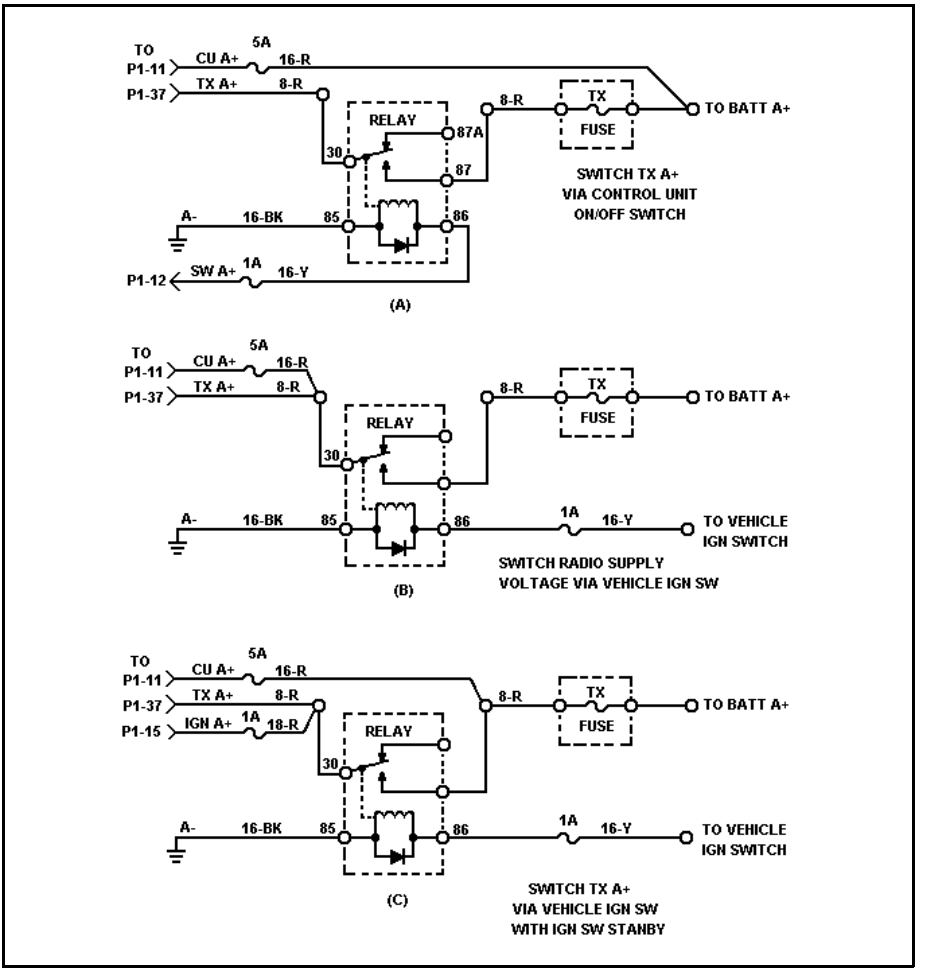


Figure 7 - Power Relay Kit Connections

RUNNING CABLES

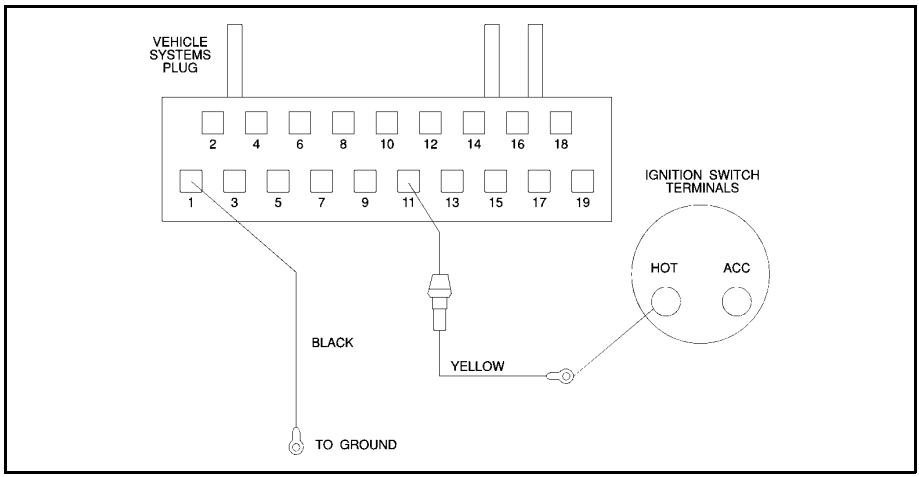


Figure 8 - Connections For Ignition Switch Bypass

To assure the feasibility of the cable routings you plan to use, it is suggested that you run the cables before installing the two-way radio and control unit. Be sure to leave some slack in each cable so that the radio and control unit 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 addtion, 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, 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 1-1/8-inch 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 9.

POWER AND CONTROL CABLES

The Power/Control Cable plug assembly, as supplied, is wired for negative ground systems. If the radio is to be installed in a vehicle with positive ground, a polarity converter must be used.

CAUTION

If pilot holes must be drilled, remove all metal shavings from drilling holes before installing screws. 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

Terminal 19A115799P15 is available for use with batteries having side terminals. To use the terminal, trim off 1/2-inch of the ridge on the plastic corrosion shield on the battery to allow the terminal to lie flat. Remove the screw in the battery terminal and slide the power cable terminal over the screw. Then replace the screw. Do not strap the power cable within one foot of the battery terminal.

1. Starting with the plug end of the power/control cable, run the black control cable to the control unit location and the red power cable to the vicinity of the battery. Drill a No. 9 (3/16-inch) pilot hole and connect the short black power cable to a good vehicle ground with the 1/4 x 5/8-inch hex-head self-tapping screw and the two external tooth lockwashers. The external tooth lockwashers are placed on each side of the black power cable ring terminal. Refer to Figure 9, Typical Cable Routing.

2. Connect cable shield terminal to the radio chassis using the hardware supplied.

3. Tape the plug(s) and retaining hook. If it is necessary to disassemble the 19-pin plug(s) to run the cable, use the extractor tool as shown in Figure 10. Mark the plug(s) for identification and write down the wire colors and hole numbers as the wires are removed from the plug(s).

4. Use the 3-inch cable straps and No. 6 self-tapping screw provided in the Mounting Hardware Kit to secure the cables neatly in place (See Figure 11).

TRANSMITTER FUSE ASSEMBLY

Mount the fuse assembly near the battery (See Figure 12). Cut the red power cable and connect to the fuse assembly with the ring terminals and lockwashers provided. Assemble one lockwasher between each terminal and head of each screw. Refer to Figure 13, Power Cable Connection to Fuse Assembly Diagram.

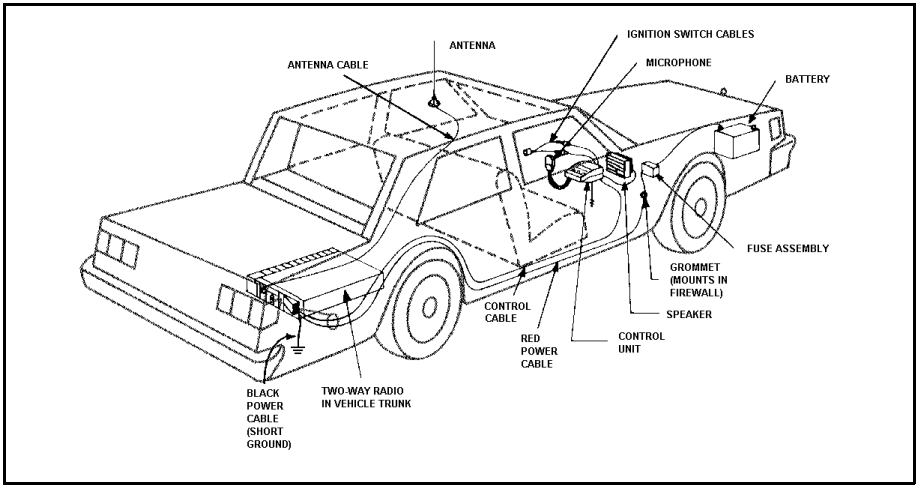


Figure 9 - Typical Cable Routing

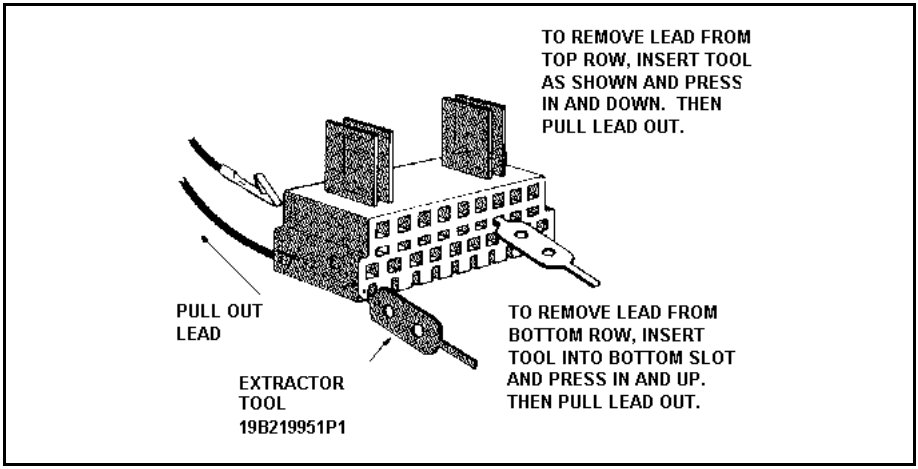


Figure 10 - Using Extraction Tool

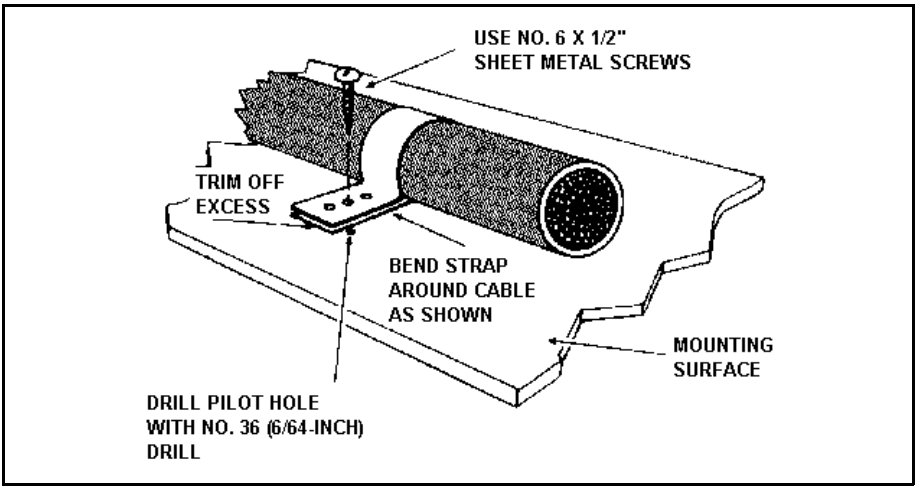


Figure 11 - Installing Cable Straps

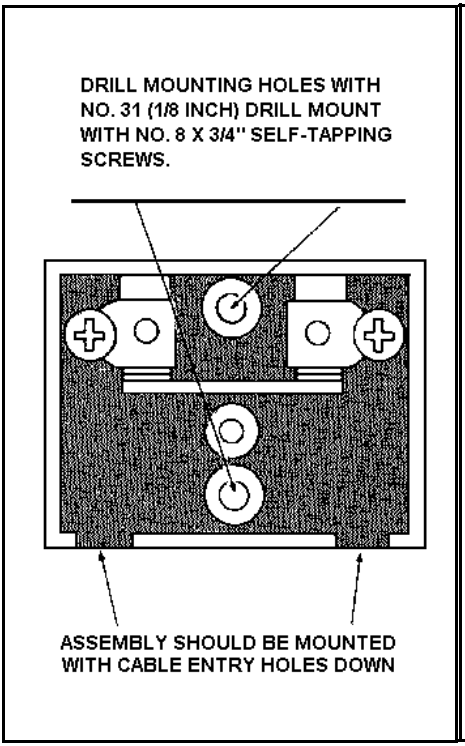


Figure 12 - Installation Of 12-Volt Fuse Assembly

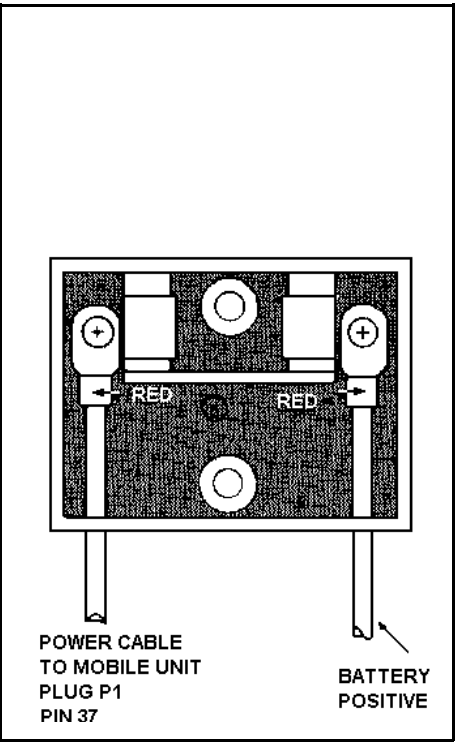


Figure 13 - Power Cable/Fuse Assembly Connections

MICROPHONE

Mount the microphone where it will be within easy reach of the operator, but will not interfere with safe operation of the vehicle. After the microphone bracket is mounted, connect the microphone plug into the microphone jack on the back of the control unit and tighten the retaining screw in the plug. Refer to Figure 14 for mounting instructions.

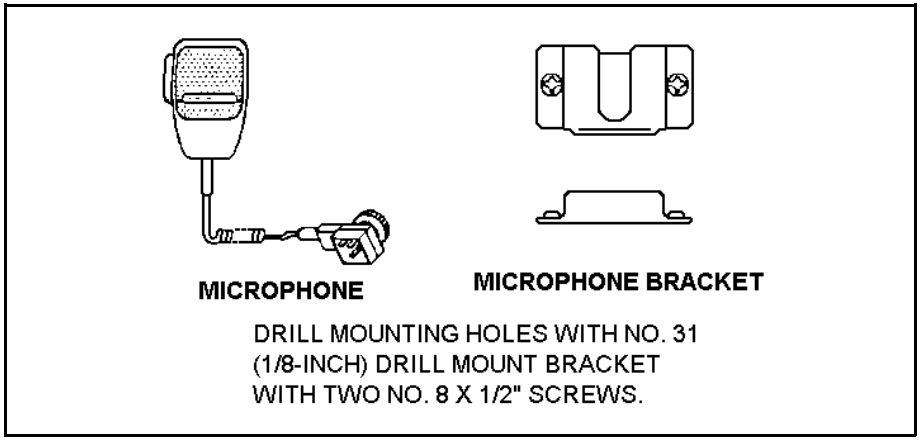


Figure 14 - Microphone Bracket Mounting

HOOKSWITCH

Mount the hookswitch as shown in Figure 15. After mounting the hookswitch, connect the two pins to holes 10 and 14 on Vehicle Systems Plug, P201. Refer to Tables 1 and 2 for control unit jumper configuration.

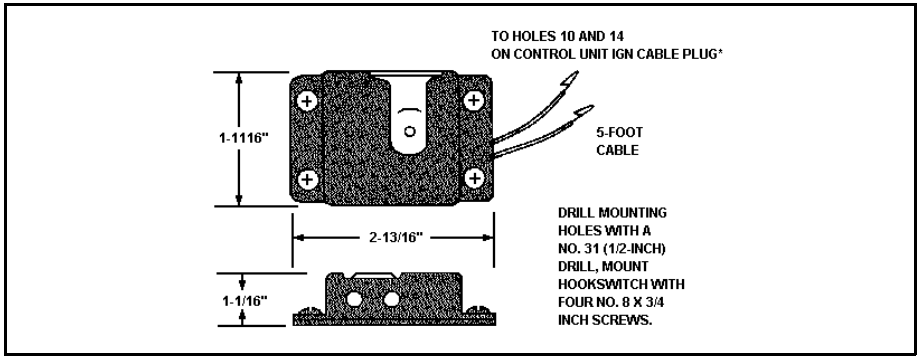


Figure 15 - Hookswitch Mounting

HANDSET AND HOOKSWITCH (OPTIONAL)

Mount the handset hookswitch as shown in Figure 16. After mounting the handset hookswitch, connect the handset plug to microphone jack on the bottom of the control unit. If the hookswitch has been disconnected, connect the hookswitch cable to the Vehicle Systems Plug as shown in the Table 1 or Figure 16. Refer to Tables 1 and 2 for control unit jumper configuration.

NOTE

The control unit is shipped with a printed run connecting J204-4 to A+ for a DTMF microphone. This run must be cut before installing the handset for 19B801551P1-P3.

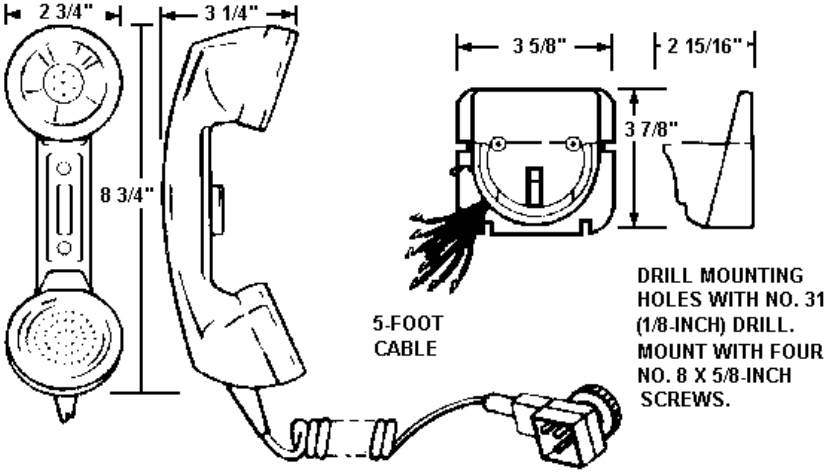
ANTENNA

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 front of the two-way 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.

Try to route the cable away from locations where it will be exposed to heat, sharp edges or mechanical damage. Keep the cable away from 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. Generally the left side of the vehicle has more usable space.

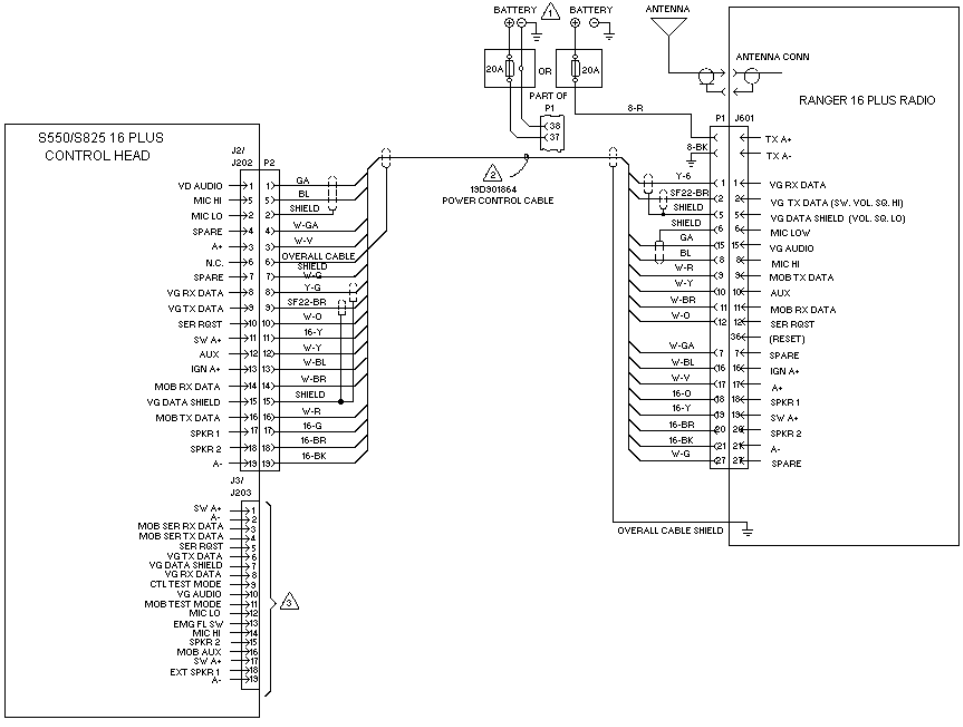


WIRE COLOR	SYSTEM PLUG P201
BLACK*	PIN 14
GREEN*	PIN 2
RED	PIN 10
ORANGE	PIN 15
BLUE	PIN 13
BROWN	PIN 18

HOOKSWITCH JUMPER
MUST BE REMOVED
FROM S1-5 AND S2-5.

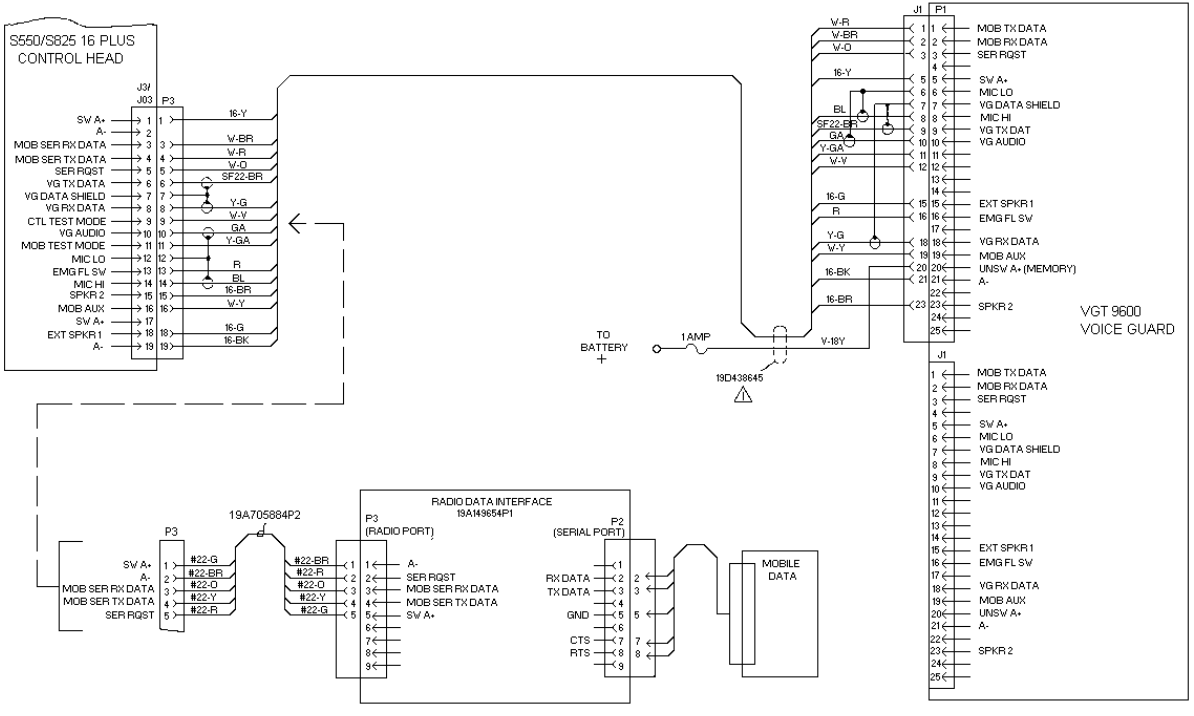
* Black wire must be spliced into wire (if present) at P2-19. Green wire (SPKR 1) must be spliced into existing wire (if present) from P1-2 (External Speaker)

Figure 16 - Handset Hookswitch Mounting



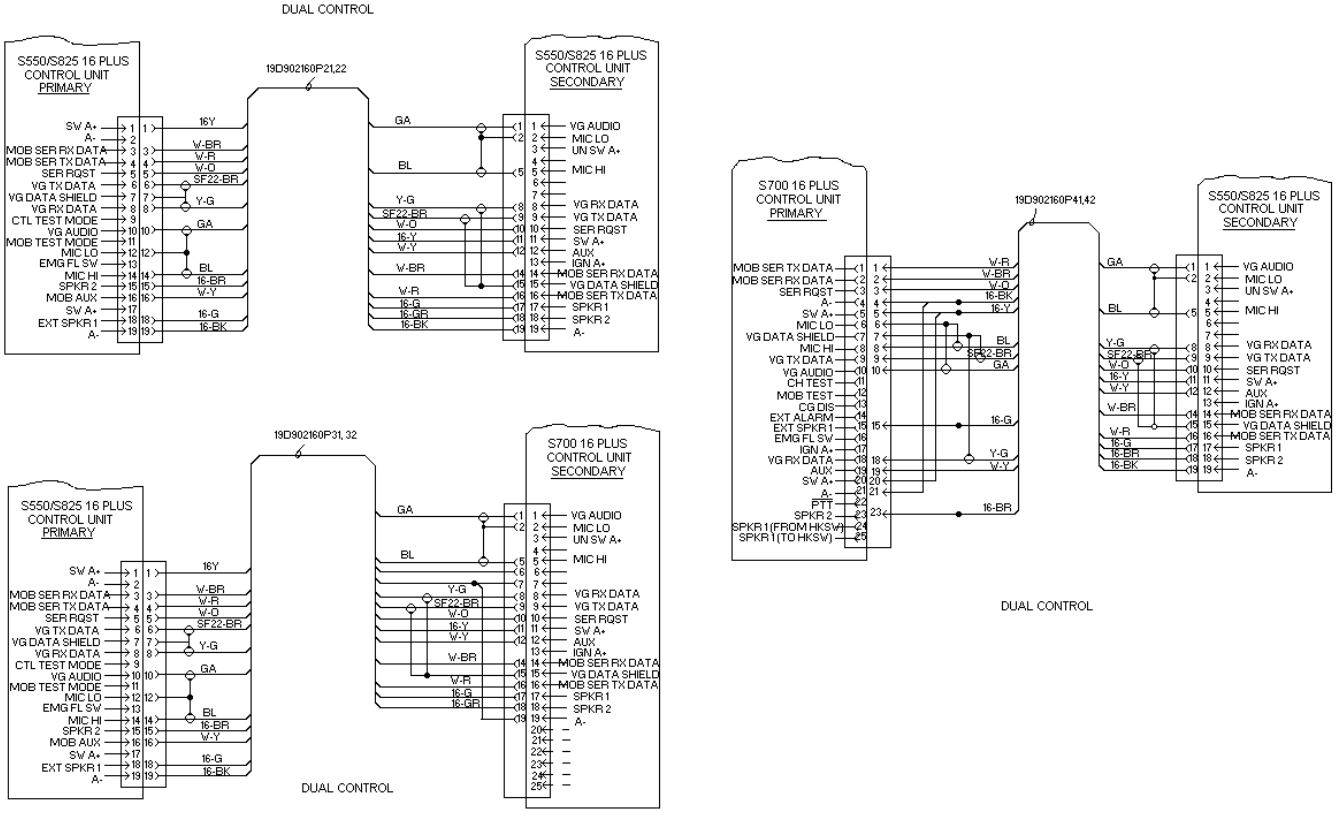
Control Unit - Radio Interconnection Diagram

(19D901912, Sh. 1, Rev. 3)



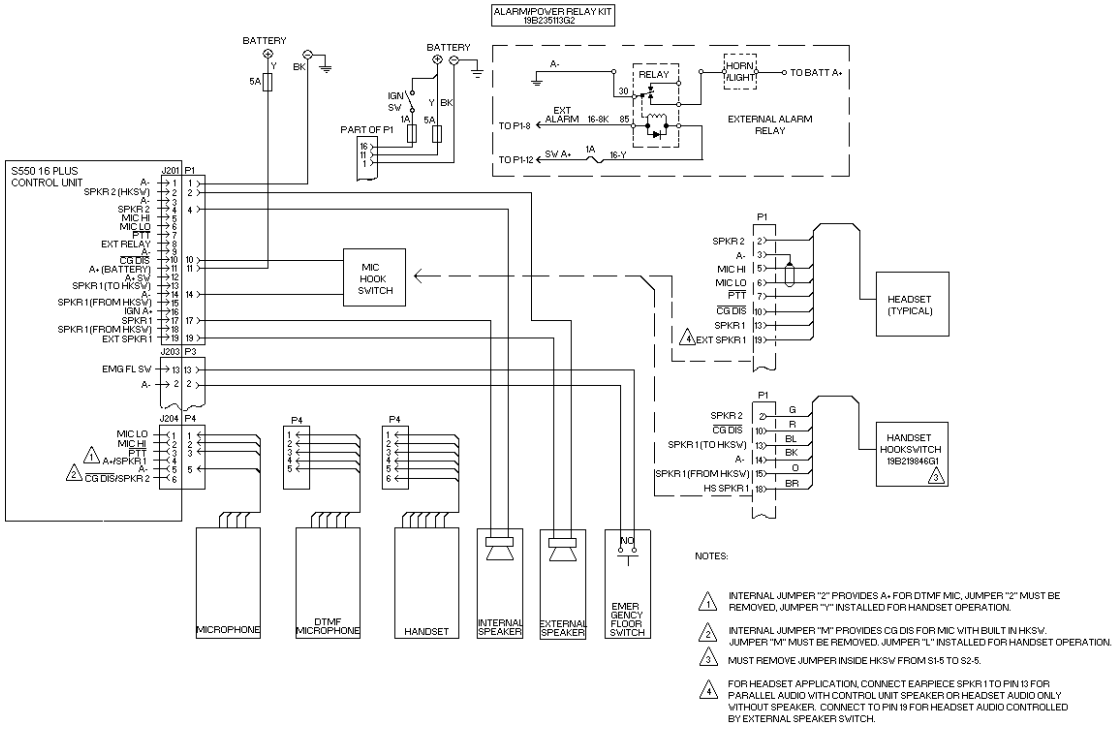
Control Unit - Radio Interconnect Diagram

(19D901912, Sh. 4, Rev. 2)



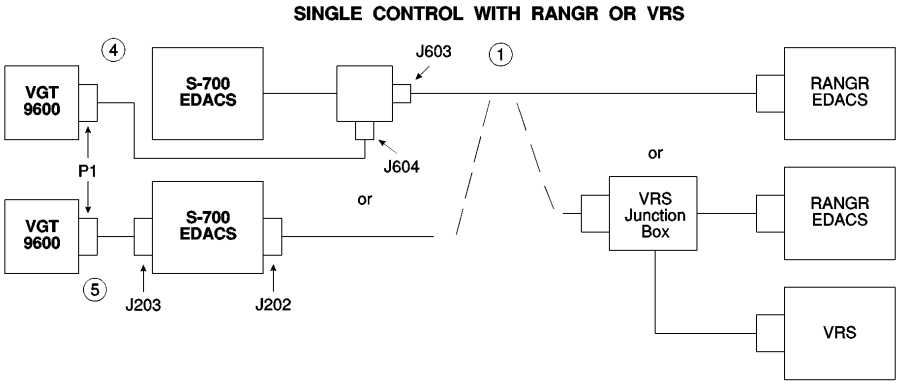
Control Unit - Radio Interconnection Diagram

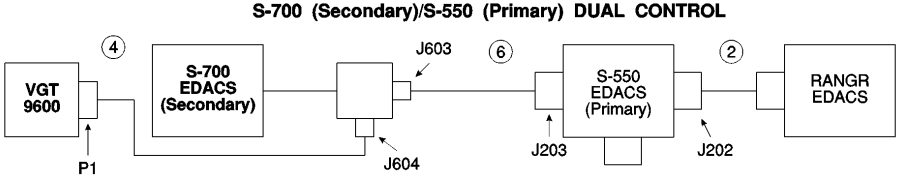
(19D901912, Sh. 5, Rev. 1)

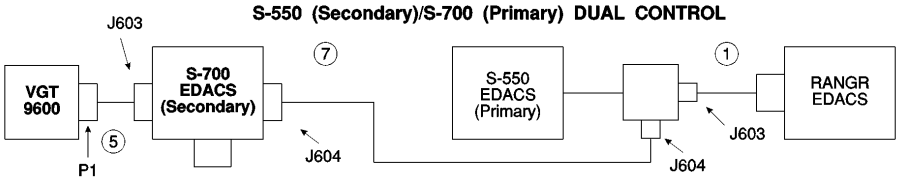


Control Unit - Radio Interconnection Diagram

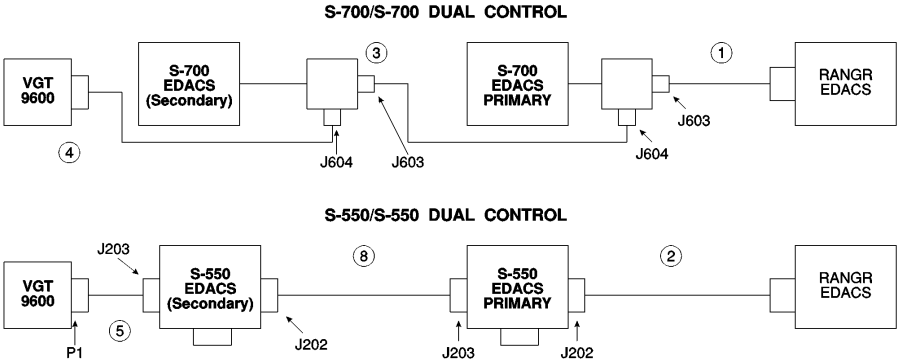
(19D901912, Sh. 6, Rev. 0)







Dual Control Configurations And Cables



INTERCONNECTING CABLES		
ITEM	**PART NUMBER**	**LENGTH (FEET)**
1	19D902160P1 19D902160P2 19D902160P3 19D902160P4	10 18 30 2.5
2	19D901864P2 19D901864P3 19D901864P4	10 18 30
3	19D902160P11 19D902160P12	30 50
4	19D438646P1 19D438646P2 19D438646P3	2 9 18
5	19D438645P1 19D438645P2 19D438645P3	1.25 9 10
6	19D902160P31 19D902160P32	30 50
7	19D902160P41 19D902160P42	30 50
8	19D902160P21 19D902160P22	30 50

DUAL CONTROL CONFIGURATIONS AND CABLES

NOTES

NOTES

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