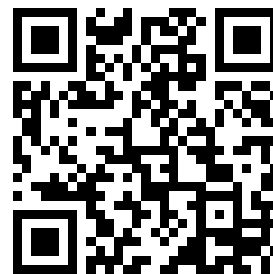


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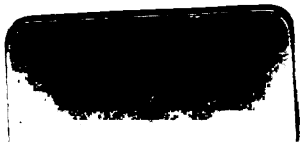
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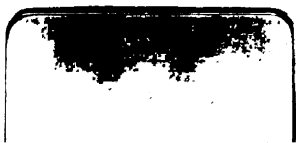
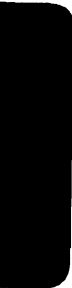
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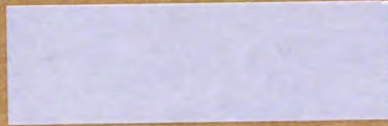




W1.35:11-2716-2718

# TM 11-2716

WAR DEPARTMENT TECHNICAL MANUAL



## INSTALLATION OF RADIO EQUIPMENT IN ARMORED UTILITY CAR M20

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WAR DEPARTMENT • NOVEMBER 1944



# INSTALLATION OF RADIO EQUIPMENT IN ARMORED UTILITY CAR M20



WAR DEPARTMENT

• NOVEMBER 1944

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*United States Government Printing Office*

*Washington: 1944*



WAR DEPARTMENT,  
WASHINGTON 25, D. C., 13 November 1944.

TM 11-2716, Installation of Radio Equipment in Armored Utility Car M20, is published for the information and guidance of all concerned.

[AG 300.7 (17 Oct 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,  
*Chief of Staff.*

OFFICIAL:

J. A. ULIO,  
*Major General,  
The Adjutant General.*

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11; T/O & E 11-107, 11-127, 11-237, 11-587, 11-592, 11-597.

18; T/O & E 18-10-1, 18-26, 18-28, 18-36, 18-37.

For explanation of symbols, see FM 21-6.

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## DESTRUCTION NOTICE

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**WHY**—To prevent the enemy from using or salvaging this equipment for his benefit.

**WHEN**—When ordered by your commander.

**HOW**—1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crow-bars, or other heavy tools.

2. Cut—Use axes, handaxes, or machetes.

3. Burn—Use gasoline, kerosene, oil, flame throwers, or incendiary grenades.

4. Explosives—Use firearms, grenades, or TNT.

5. Disposal—Bury in slit trenches, fox holes, or other holes. Throw in streams. Scatter.

### USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

**WHAT**—1. Smash—All vacuum tubes, crystals, control dials, coupling coils, transformers, speakers in the receivers, external loud-speakers, microphones, headsets, dynamotors, and cable connectors.

2. Cut—All connecting wires, cording, and cabling.

3. Burn—All equipment, and all associated training, technical, and installation manuals.

4. Bury or scatter—All remains, after destroying their usefulness.

### DESTROY EVERYTHING

## **SAFETY NOTICE**

---

**This equipment uses high voltages which are dangerous to life. Observe all safety precautions.**

- 1. Make no adjustments inside the equipment with the power switch on.**
- 2. Do not operate the equipment with the shields removed.**
- 3. Do not connect power to any unit of these radio sets until operating instructions have been read completely.**

## RESTRICTED

### SECTION I

## GUIDE TO USE OF THIS MANUAL

---

### 1. Purpose

This manual provides methods and procedure, based upon actual field experience, for installation of radio equipment in Armored Utility Car M20. Items required to make a complete operating installation are listed for each set. Official nomenclature followed by empty parentheses, such as Headset HS-( ), is used to indicate any model of equipment regardless of its procurement.

### 2. Equipment

Installations covered include the following radio sets:

SCR-506-( )  
SCR-508-( )  
SCR-510-( )  
SCR-528-( )  
SCR-608-( )  
SCR-610-( )  
SCR-628-( )

### 3. Holes and Brackets

Brackets required for installation of the radio

set are normally drilled and installed prior to delivery of Armored Utility Car M20. Drilling instructions are given in this manual for any other necessary holes and brackets. Do not relocate any holes or brackets unless absolutely necessary.

### 4. Preliminary Check

Study the illustrations, the installation methods outlined, and any subsequent changes to this manual.

**Caution:** Armored Utility Car M20 has a 12-volt electrical system. Before installing the radio sets, be sure they are designed for 12-volt operation, or tubes may burn out or dynamotors may be damaged.

### 5. Operating Check

Carefully study the Technical Manual covering the radio set before trying to operate it; then, make a thorough operating check to determine whether the equipment has been properly installed and is in working order.

## SECTION II

# IGNITION NOISE SUPPRESSION IN ARMORED UTILITY CAR M20

---

### 6. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Armored Utility Car M20. The Technical Manual issued with the vehicle will be helpful in locating the source of the noise, since it describes the suppression system used. Instructions for operating radio equipment used in the vehicle also should be studied.

### 7. Procedure

Locate and suppress ignition noises as follows:

- a. Start the motor of the vehicle and turn on

#### *Interference*

**Popping sound:** corresponds to ignition firing; stops when engine is turned off; accelerates when engine is raced.

**Intermittent, clicking sound:** lingers for several seconds when ignition is turned off.

**Whining sound:** varies with speed of engine; ceases only when generator stops rotating.

**Sparking, or continuous crackling noise.**

d. Interference from other electrical parts and circuits of the vehicle, such as panel gauges and heater fans, can usually be identified by turning off the gauges, fans, or other suspected mechanisms individually.

e. If the source of interference still cannot be found by any of the preceding methods, connect a probe antenna (fig. 1) to the antenna terminal of the radio set. Slowly move the loop of the probe antenna over the various parts of the electrical system of the vehicle. Keep the loop close to, but not in contact with, the part being examined. Noise from interference-producing parts should be heard in the receiver.

- f. Usually interference can be eliminated by

the radio set. Put the receiver sensitivity control at *maximum*; then, listening to the receiver output with a headset, slowly tune the receiver over the entire range of frequencies to be used for communication.

b. When the frequency (or frequencies) with greatest noise level is found, turn off the vehicle engine. If this noise continues, the source is outside the ignition system. If noise stops, the trouble is in the ignition system.

c. Start the engine again. Adjust the receiver sensitivity control until engine noises can be distinguished easily from static, etc. Interference may then be identified as follows:

#### *Usual source*

Ignition system.

Generator regulator.

Generator.

Brushes and commutator of generator.

cleaning, tightening, or replacing noise-producing parts. Examine and tighten all suppressor and shielding components, and all connections and grounding bonds. Clean the surface under them. This will assure good electrical contact between wires and terminals, and between metal casings and the frame of the vehicle. (Insulated but ungrounded metal parts absorb and reradiate electrical noises.)

g. If interference persists, suppressor components should be checked by substituting new ones. If a replacement is not available, disconnect the suspected component, and test capacitors, resistors, and chokes within it. Replace any that are defective.

# SECTION III

## RADIO SET SCR-506-( )

### 8. Required Parts

Set SCR-506-( ) in Armored Utility Car M20

Items necessary for the installation of Radio are listed below:

Quantity	Stock No.	Item
1	2A275-27	Antenna A-27, phantom.
1	2A224A	Antenna AN-24-A, auxiliary antenna.
2	2Z2651-421	Clamp MC-421.
2	2Z2651-422	Clamp MC-422.
2	2Z2651-423	Clamp MC-423.
2	2Z2651-424	Clamp MC-424.
2	6Z3147	Connector No. 61007 and Bondnut BL-50.
2	3E1307-5.5	Cord CD-307-A, 65', for Headset HS-30-( ).
*2	3E1604	Cord CD-604-( ), for Headset HS-30-( ).
1	3E1314	Cord CD-314, for Loudspeaker LS-3.
†1	2Z3367	Cover BG-67-( ), for Mast Base MP-37.
1	2Z3400-103	Cover BG-103, for radio set.
1	3H1640	Dynamotor DM-40-( ), 12 volts, for Radio Receiver BC-652-( ).
1	3H1642	Dynamotor DM-42-( ), 12 volts, for Radio Transmitter BC-653-( ).
1	2A1355-40	Guy Set GY-40.
1	6L50-508V63	Hardware bag.
*2	2B830	Headset HS-30-( ).
2	3Z3345	Key J-45.
3	3G586	Insulator IN-86, two for auxiliary antenna, one for tying down mast pressure.
5	3G598	Insulator IN-98.
3	3G621	Insulator IN-121.
1	2Z6303.1	Loudspeaker LS-3.
†1	2A2088-37	Mast Base MP-37.
2	2A2349	Mast Section MS-49.
2	2A2350	Mast Section MS-50.
2	2A2351	Mast Section MS-51.
2	2A2352	Mast Section MS-52.
2	2A2353	Mast Section MS-53.
3	2A2354	Mast Section MS-54, for stationary operation.
2	2B1617	Microphone T-17.
1	2Z6721-253	Mounting FT-253-( ), including two Cords CO-280, attached, and spare fuses and hardware in attached cloth bag.
1	2C4452	Radio Receiver BC-652-( ), with necessary tubes and Crystal Unit DC-15 intalled.
1	2C6530-653	Radio Transmitter BC-653-( ), including one set of tubes installed.
1	2Z8056A	Roll BG-56-A, for mast sections.
50 ft.	6Z7926	Rope RP-5, for auxiliary antenna and tying down mast sections.
2	6D13136	TM 11-630, for Radio Set SCR-506-( ).
2	2C4452/T1	Tubes, sets of spares, for Radio Receiver BC-652-( ).
2	2C6530-653/T1	Tubes, sets of spares, for Radio Transmitter BC-653-( ).
8 ft.	1B146	Wire W-146.

\* Headset HS-23 may replace Headset HS-30-( ). In this case, Cord CD-604-( ) will not be required.

† Mast Base MP-67 may be substituted for MP-37.

## 9. Assembly and Installation

Components of Radio Set SCR-506-( ) should be installed in the left sponson of Armored

### *Part and location*

**Mast Base MP-37 or MP-57; Insulators IN-98, IN-121; and Wire W-146, on left rear of vehicle, in position shown in figure 2.**

**Mast Sections MS-49 to MS-53; Clamps MC-421 to MC-424, on the mast base.**

**Mounting FT-253-( ), on provided shelf in left sponson.**

**Radio Receiver BC-652-( ) and Dynamotor DM-40-( ), on Mounting FT-253-( ).**

**Radio Transmitter BC-653-( ) and Dynamotor DM-42-( ), on Mounting FT-253-( ) (fig. 2).**

**Cover BG-67-( ).  
Connectors No. 61007 and Bondnut BL-50.**

**Microphone hook (fig. 5).**

**Loudspeaker LS-3, on left side of vehicle.**

**Antenna A-27, phantom.**

Utility Car M20 as shown in figure 2 and as directed below:

### *Method and materials*

Remove the rear-end plate and cover (item 32, fig. 2) for antenna lead-in from inside left tool compartment and install Mast Base MP-37 or MP-57 through hole in top of compartment. See figure 3 for assembly of Mast Base MP-37 and figure 4 for Mast Base MP-57. Install Insulator IN-121 through hole in each end of tool compartment. Mount Insulators IN-98 on brackets provided on floor of tool compartment and inside left sponson. Route Wire W-146 through clamps on Insulators IN-98 and through Insulators IN-121. Connect to mast base and tighten clamps on Insulators IN-98. Replace end plate and cover for antenna lead-in inside tool compartment.

Screw mast sections together and, after placing clamps over joints, screw into mast base. When not in use, mast sections and clamps should be carried in Roll BG-56-A.

Remove the six spacers from the bottom of Mounting FT-253-( ), place mounting on shelf, and fasten with provided hardware. It is absolutely necessary that mounting surfaces and holes be cleaned thoroughly in order to make good electrical contact and thus avoid noisy reception.

If Dynamotor DM-40-( ) is supplied uninstalled, remove screws around edge of receiver panel and the screws in rear center of cabinet. Pull receiver chassis from case, put dynamotor into place provided for it on upper section of chassis, and secure with snap-slide fasteners. All connections to the dynamotor are made by the flexible lead terminating in Plug PL-250. Installation of proper dynamotor and inserting plug in socket, automatically adjusts receiver circuits for correct operating voltage. The nameplate on front panel of receiver should be turned to indicate 12-VOLT OPERATION. Place receiver on mounting and secure with thumbscrews provided.

If Dynamotor DM-42-( ) is supplied uninstalled, slide it into the dynamotor compartment in lower right end of transmitter chassis and secure with the five screws provided. Remove patch cover plate located on top of radio transmitter, extreme right, and be sure that the six connector links are in the position for 12-volt operation, as indicated by the arrow on link terminal strip. Voltage indicator plate on dynamotor should be turned to indicate 12-VOLT OPERATION. Place transmitter on mounting and secure with thumbscrews provided. Connect antenna lead-in Wire W-146 to antenna terminal.

Place over mast base when mast sections are not in use. Used through terminal box knock-out holes to bush power Cord CO-280.

Locate as shown in figure 2, and secure with the two No. 8-32 x 1/2" screw, nuts, and lockwashers.

Drill and tap two holes in the left side of the vehicle as shown in figure 15. Install loudspeaker bracket (fig. 16) with provided hardware. Mount loudspeaker with existing hardware and connect it to Radio Set SCR-506-( ), using Cord CD-314.

Locate and weld the bracket (fig. 17) securely to the left-side armor plate of the vehicle, as shown in figure 18.



## SECTION IV

# RADIO SET SCR-508-( ), SCR-528-( ), SCR-608-( ), OR SCR-628-( )

### 10. Required Parts

Items necessary for the installation of Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) in Armored Utility Car M20, are listed below:

Quantity				Stock No.	Item
Radio Set SCR- 508-( )	Radio Set SCR- 528-( )	Radio Set SCR- 608-( )	Radio Set SCR- 628-( )		
1	1	0	0	2A262	Antenna A-62, phantom.
0	0	1	1	2A283	Antenna A-83, phantom.
0	0	1	1	2Z1140	Box BX-40-( ), for crystals.
8 ft.	8 ft.	8 ft.	8 ft.	1F562	Cable WC-562 or Cordage CO-282.
				3E2282	
2	2	2	2	2Z2651-423	Clamp MC-423.
2	2	2	2	2Z2651-424	Clamp MC-424.
1	1	1	1	6Z3147	Connector No. 61007 and Bondnut BL-50.
2	2	0	0	3E1307A-5.5	Cord CD-307-A, 65", for Headset HS-30-( ).
0	0	2	2	3E1605	Cord CD-605, 78", for Headset HS-30-( ).
2	2	0	0	3E1604	Cord CE-604, for Headset HS-30-( ).
1	1	1	1	2Z3396	Cover BG-96, for radio set.
1	1	1	1	2Z3400-108	Cover BG-108, for mast base.
80	80	120	120	2Z3541	Crystal Holder FT-241-( ), with crystal, four installed in Radio Transmitter BC-604.
2	1	2	1	3H1634	Dynamotor DM-34-( ), 12 volts, for Radio Receiver BC-603-( ) or BC-683-( ).
1	1	1	1	3H1635	Dynamotor DM-35-( ), 12 volts, for Radio Transmitter BC-604-( ) or BC-684-( ).
*1	*1	*1	*1	6L50-508V63	Hardware bag.
*2	*2	*2	*2	2B830	Headset HS-30-( ).
3	3	3	3	3G621	Insulator IN-121.
†1	†1	†1	†1	2A2088-48	Mast Base MP-48 or MP-48-A.
2	2	2	2	2A2351	Mast Section MS-51.
2	2	2	2	2A2352	Mast Section MS-52.
2	2	2	2	2A2353	Mast Section MS-53.
2	2	2	2	2B1617	Microphone T-17.
1	1	1	1	2Z6721-237	Mounting FT-237-( ), including Cord CO-278.
2	1	0	0	2C4403	Radio Receiver BC-603-( ), including set of tubes installed, spare lamps and fuses.
0	0	2	1	2C5560-683	Radio Receiver BC-683-( ), including set of tubes installed, spare lamps, and fuses.
1	1	0	0	2C6494	Radio Transmitter BC-604-( ), including set of tubes installed, spare fuses, and lamps.
0	0	1	1	2C6530-684	Radio Transmitter BC-684-( ), including set of tubes installed, spare lamps, and fuses.
1	1	1	1	2Z8056	Roll BG-56-( ), for mast sections.
1	1	0	0	6D13113	TM 11-600, for Radio Sets SCR-508-( ), SCR-528-( ), and SCR-538-( ).
0	0	1	1	6D13102	TM 11-620, for Radio Sets SCR-608-( ), SCR-628-( ).
2	2	0	0	2C4403/T1	Tubes, vacuum, sets of spares, for each Radio Receiver BC-603-( ).
0	0	2	2	2C4460-683/T1	Tubes, vacuum, sets of spares, for each Radio Receiver BC-683-( ).
2	2	0	0	2C6494/T1	Tubes, vacuum, sets of spares, for Radio Transmitter BC-604-( ).
0	0	2	2	2C6530-684/T1	Tubes, vacuum, sets of spares, for Radio Transmitter BC-684-( ).

\* Headset HS-23-( ) may replace Headset HS-30-( ). In this case, Cord CD-604 is not required.

† When Mast Base MP-48-A replaces Mast Base MP-48, one Cord CD-639 must be used. Refer to figure 9.

## 11. Assembly and Installation

Components of Radio Sets SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-

( ) should be installed as shown in figures 6 and 7 and as directed below:

### *Part and location*

Mounting FT-237-( ), connector No. 61007 and Bondnut BL-50, on mounting shelf in right sponson.

Mast Base MP-48 or MP-48-A, on top sponson plate, right rear of vehicle.

Insulator IN-121 and coaxial Cable WC-562 or Cordage CO-282.

Radio Transmitter BC-604-( ) (for Radio Set SCR-508-( ) or SCR-528-( )), or Radio Transmitter BC-684-( ) (for Radio Set SCR-608-( ) or SCR-628-( )) and Dynamotor DM-35-( ), on Mounting FT-237-( ).

Radio Receiver BC-603-( ) (for Radio Set SCR-508-( ) or SCR-528-( )), or Radio Receiver BC-683-( ) (for Radio Set SCR-608-( ) or SCR-628-( )), and Dynamotor DM-34-( ) (only one required for Radio Set SCR-528-( ) or SCR-628-( )), on Mounting FT-237-( ).

Mast Sections MS-51, MS-52, and MS-53; Clamps MC-423 and MC-424.

Cover BG-108.

Hook (fig. 5) for microphone and headset.

### *Method and materials*

Lower the two hinged covers to a horizontal position and secure with spring bolts to form radio shelf. Place Mounting FT-237-( ) on shelf and fasten with hardware supplied. Connect power cord to mounting and route to terminal box as shown in figure 6. Secure power cord with connector 61007 and bondnut BL-50 and No. 4 clamps (fig. 14).

Remove the rear-end plate and cover (item 24, fig. 6) for antenna lead-in from inside tool compartment. Install mast base through hole in top of compartment. Secure adapter, item 10 (fig. 7) to bottom of mast base with collar, item 18.

Install Insulator IN-121 through hole in each end of tool compartment and route coaxial cord through them. Fasten connector on end of cord (fig. 8 or 9) and attach to adapter (item 10 of fig. 7) on bottom of mast base. Secure cord in place with No. 4 clamps, as shown in figure 6. The coaxial cord is connected to Mounting FT-237 in the following manner: Strip approximately 5 inches of the outer insulation and 1 inch of the shield from one end of the cord. Solder a No. 4 clamp to shield approximately 4½ inches from end of cord, and fasten No. 4 clamp to grounding screw provided beside the TR post on Mounting FT-237. Strip ½ inch of insulation from inner conductor, solder-tin and connect to the TR post on Mounting FT-237.

Secure dynamotor in place on transmitter chassis with the four screws in its base. Place transmitter on mounting and lock in position with thumbscrews provided.

Secure dynamotor in place on receiver chassis with the four screws in its base. Place receivers on mounting and lock in position with thumbscrews provided.

Screw sections together, place clamps over joints and screw into mast base. If clamps are not supplied use friction tape. When removed, carry mast section and clamps in Roll BG-56-( ).

Place over mast base when mast sections are removed.

Secure to provided spacer with No. 8 screws and lock-washers.

## SECTION V

# RADIO SET SCR-510-( ) OR SCR-610-( )

### 12. Required Parts

Items necessary for the installation of Radio

Set SCR-510-( ) or SCR-610-( ) in Armored Utility Car M20 are listed below:

Quantity		Stock No.	Item
Radio Set SCR-510-( )	Radio Set SCR-610-( )		
1	1	6Q338-150 6Q349	Alignment Tool TL-150 or TL-207.
2	1	3A41	Battery BA-41, for Radio Receiver and Transmitter BC-620-( ) or BC-659-( ), internal.
0	1	2Z1140	Box BX-40-( ), for crystals.
2	2	2Z2651-423	Clamp MC-423.
2	2	2Z2651-424	Clamp MC-424.
1	1	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	0	3E1636	Cord CD-636, coaxial lead-in.
0	8 ft.	3E2282 1F562	Cordage CO-282 or Cable WC562, coaxial lead-in.
1	1	3E1605	Cord CD-605, 78", for Headset HS-30-( ).
1	1	2Z3400-108	Cover BG-108, for Mast Base MP-48.
1	1	2Z3400-153	Cover BG-153, for radio set.
80	120	3Z3453	Crystal Holder FT-243-( ), with crystal; two installed in radio receiver-transmitter.
1	1	6L508V63	Hardware bag.
*1	*1	2B830	Headset HS-30-( ).
2	2	3G621	Insulator IN-121.
2	2	3G586	Insulator IN-86, for auxiliary antenna.
†1	†1	2A2088-48	Mast Base MP-48 or MP-48-A.
2	2	2A2351	Mast Section MS-51.
2	2	2A2352	Mast Section MS-52.
2	2	2A2353	Mast Section MS-53.
1	1	2B1617	Microphone T-17.
1	1	2Z6721-250	Mounting FT-250-( ).
†1	†1	3H4496-120	Power Supply Unit PE-120-( ), including spare parts.
1	0	2C5360	Radio Receiver and Transmitter BC-620-( ), with two crystals and one set of tubes installed.
0	1	2C5379	Radio Receiver and Transmitter BC-659-( ), with two crystals and one set of tubes installed.
1	1	2Z8056	Roll BG-56-( ), for mast sections.
1	0	6D13038	TM 11-605, for Radio Sets SCR-509-( ) and SCR-510-( ).
0	1	6D13037	TM 11-615, for Radio Sets SCR-609-( ) and SCR-610-( ).
1	0	2Z9299-206	Terminal Box TM-206, antenna.
0	1	2Z9299-210	Terminal Box TM-210, antenna.
0	1	2Z9299-211	Terminal Box TM-211, antenna.
2	0	2C53	Tubes, sets of spares, for Power Unit PE-120-( ).
2	0	2C5360/T1	Tubes, sets of spares, for Radio Receiver and Transmitter BC-620-( ).
†2	†2	3H6713	Vibrator VB-13, 12 volts.
27 ft.	27 ft.	1B29	Wire W-29, auxiliary antenna.
10 ft.	12 ft.	1B128	Wire W-128.

\* In case Headset HS-30-( ) and Cord CD-605 are not available, Headset P-23 may be substituted. In this case, Cord CD-605 is not required.

† Until all supplies of the Plate Supply Units PE-97-( ) and PE-117-( ) are exhausted, they shall be substituted for Power Unit PE-120-( ) in Radio Sets SCR-510-( ) and SCR-610-( ), respectively. When these substitutions are made, Vibrator VB-13 is not required.

‡ When Mast Base MP-48-A replaces MP-48, one Cord CD-689 is required.

### 13. Assembly and Installation

#### Components of Radio Sets SCR-510-( )

##### *Part and location*

Mounting FT-250-( ), on mounting shelf in right sponson.

Power Supply Unit PE-120-( ) and Vibrator VB-13, on Mounting FT-250-( ).

Terminal Box TM-206 (fig. 11) for Radio Set SCR-510-( ), Terminal Box TM-210 (fig. 12) for Radio Set SCR-610-( ), on antenna post housing of radio receiver-transmitter.

Radio Receiver and Transmitter BC-620-( ) or BC-659-( ) and Battery BA-41, on Power Supply Unit PE-120-( ).

Hook, for microphone and headset (fig. 5).

Power cord, clamps No. 4 (fig. 14), connector No. 61007 and Bondnut BL-50.

Terminal Box TM-211 (for Radio Set SCR-610-( ) only), on Mast Base MP-48 or MP-48-A (fig. 13).

Mast Base MP-48 or MP-48-A, on top plate of right sponson, in rear of vehicle.

Insulator IN-121 and coaxial Cable WC-562, CO-282, or Cord CD-636.

Mast Sections MS-51, MS-52, MS-53; Clamps MC-423 and MC-424.

Cover BG-108.

and SCR-610-( ) should be installed as shown in figure 10 and as directed below:

##### *Method and materials*

Lower the two hinged covers of right sponson to a horizontal position and secure with spring bolts. Fasten mounting on shelf as shown in figure 10, with hardware supplied.

Raise the lid of Power Supply Unit PE-120-( ) and remove power pack cover. Consult diagram on cover and make sure that the change-over plug is in the 12-VOLT POSITION (arrow pointing to 12). Set the connector link in the BC-620 position for Radio Set SCR-510-( ) and in the BC-659 position for Radio Set SCR-610-( ). Plug Vibrator VB-13 into its socket and replace power pack cover. Close lid of case and place power supply unit on Mounting FT-250-( ), securing with hook fasteners provided.

Secure terminal box to antenna post housing of radio receiver by means of fasteners provided.

If Battery BA-41 is not already installed in receiver-transmitter, proceed as follows: Remove screws around outer edge of front panel and pull receiver and transmitter chassis from case. Remove cover of battery compartment located on chassis near front panel. Place Battery BA-41 into compartment and be sure to engage plug into socket of battery. Replace cover.

*Note.*—Before replacing chassis in its case, make sure that all tubes are pressed down firmly in their proper sockets, that crystals for desired operating frequencies are in their proper sockets with retaining clip in position, and that the two toggle switches near left side of chassis are in the ON position. Place receiver-transmitter unit on power supply unit and secure with provided catch clips. Secure to provided spacer with No. 8 screws and lockwashers.

Route cord along floor of sponson to terminal box. Use clamps No. 4 and connector and bondnut to secure in place, as shown in figure 10.

Refer to instructions furnished with Terminal Boxes TM-210 and TM-211 for procedure of drilling mast base and installing Terminal Box TM-211.

Remove the rear-end plate and cover for antenna lead-in from inside tool compartment, and install mast base through hole in top of compartment, as shown in figure 7. Secure adapter, item 10, on bottom of mast base with collar, item 18.

Install Insulator IN-121 through hole provided at each end of tool box. Route coaxial cables through insulators. Remove connector from one end of coaxial Cord CD-636 in order to pass through insulator. Fasten coaxial cable to adapter on bottom of mast base and to antenna Terminal Box TM-206 or TM-210 on radio set. Fasten cord in place with No. 4 clamps as shown in figure 10. If Mast Base MP-48-A is supplied, refer to figure 9.

Screw mast sections together and, after placing clamps over joints, screw into mast base. When removed, mast sections and clamps should be carried in Roll BG-56-( ).

Place over mast base when mast sections are not in use.

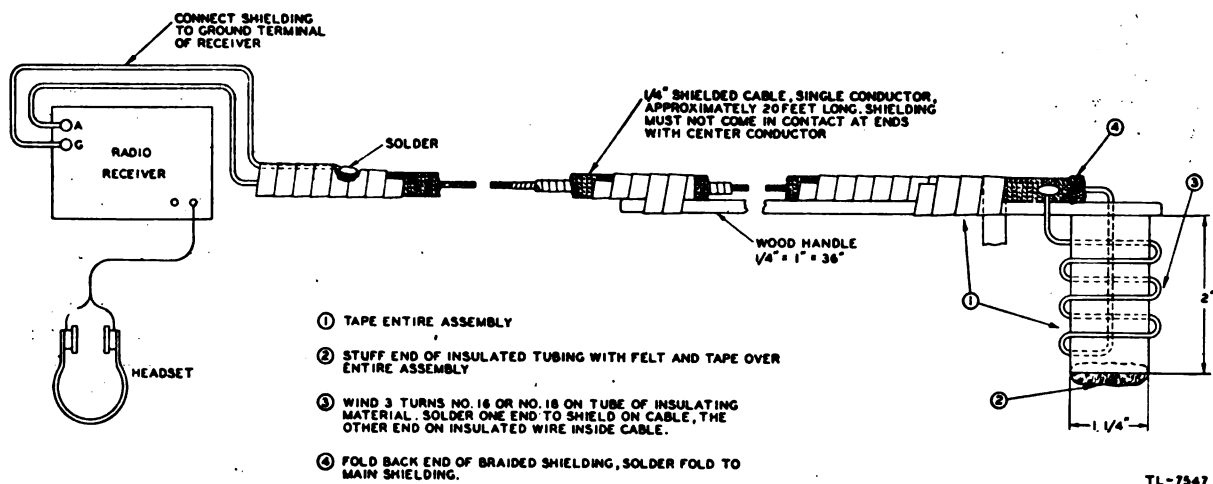


Figure 1. Probe antenna.

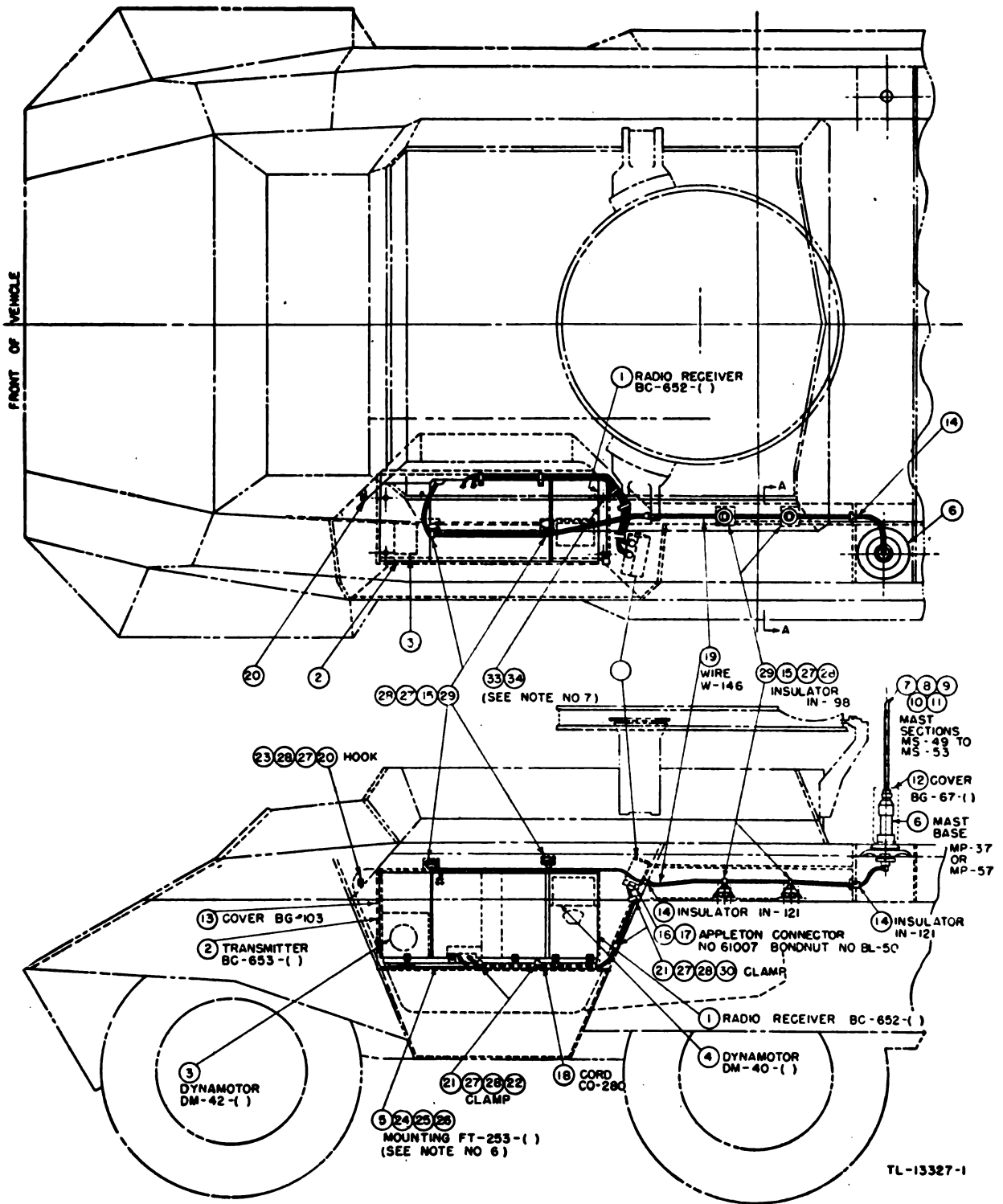
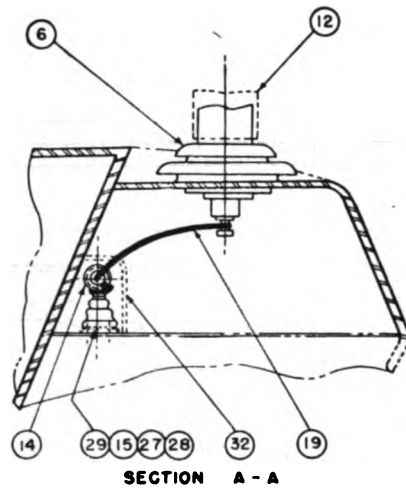


Figure 2. Installation of Radio Set SCR-506-( ) in Armored Utility Car M20.



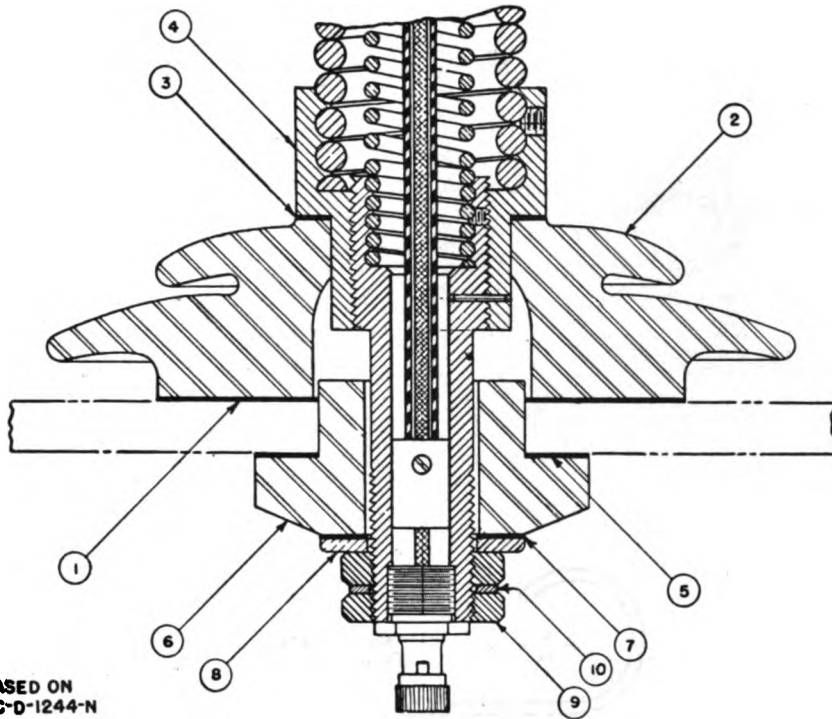
**NOTE.**

1. (29) TO (32) INCLUSIVE ARE FURNISHED BY VEHICLE MANUFACTURER
2. ENDS OF WIRE (19) AFTER BEING CUT TO PROPER LENGTH, SHALL BE TINNED BEFORE MAKING CONNECTIONS.
3. (24) TO (28) INCLUSIVE ARE FURNISHED WITH (5)
4. USE (12) WHEN MAST SECTIONS ARE NOT INSTALLED
5. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST
6. DO NOT USE MOUNTING SPACERS SUPPLIED WITH (5) BECAUSE OF THE LIMITED HEIGHT AVAILABLE IN SPONSON.
7. SUBSTITUTE (33) (34) FOR NUT AND BOLT SUPPLIED BY MANUFACTURER, WITH NO WASHER OR CLAMP UNDER BOLT HEAD, TO ELIMINATE INTERFERENCE BETWEEN BOLT HEAD AND (5)

ITEM NO	NAME OF ITEM	QUAN. REQ.	REMARKS
1	RADIO RECEIVER BC-652-( )	1	
2	RADIO TRANSMITTER BC-653-( )	1	
3	DYNAMOTOR DM-42-( )	1	
4	DYNAMOTOR DM-40-( )	1	
5	MOUNTING (SEE NOTE NO.3) FT-253-( )	1	
6	MAST BASE MP-37 OR MP-57	1	
7	MAST SECTION MS-49	1	WITH CLAMP MC-421
8	MAST SECTION MS-50	1	WITH CLAMP MC-422
9	MAST SECTION MS-51	1	WITH CLAMP MC-423
10	MAST SECTION MS-52	1	WITH CLAMP MC-424
11	MAST SECTION MS-53	1	
12	COVER (SEE NOTE NO 4) BG-67-( )	1	
13	COVER BG-103	1	
14	INSULATOR IN-121	2	
15	INSULATOR IN-98	4	
16	APPLETON CONNECTOR	2	CAT NO 61007
17	APPLETON BONDNUT	2	CAT NO BL-50
18	CORD CO-280	2	PART OF ITEM 5
19	WIRE (SEE NOTE NO. 2) W-146	1	7 FT LONG
20	HOOK	1	
21	CLAMP NO 7	5	
22	WASHER	2	NO.8
23	HEX NUT	2	NO.8-20 STD
24	ELASTIC STOP NUTS (SEE NOTE NO 3)	12	1/4"-20 STD
25	LOCKWASHER (SEE NOTE NO.3)	12	1/4" STD
26	HEX HD SCREW (SEE NOTE NO 3)	12	1/4"-20 X 1/2" LG
27	RD HD SCREW	19	NO.8-32 X 1/2" LG.
28	LOCKWASHER	19	STD FOR NO.8 SCREW
29	BRACKET (SEE NOTE NO 1)	4	
30	SPACER A19935 (SEE NOTE NO 1)	3	
31	TERMINAL BOX C100443 (SEE NOTE NO 1)	1	
32	COVER C119431 (SEE NOTE NO 1)	1	
33	CARRIAGE BOLT	1	5/16"-18 X 3/4" LG
34	HEX NUT	1	5/16"-18 STD

TL-13327-2

Figure 2. Installation of Radio Set SCR-508-( ) in Armored Utility Car M20—Continued.

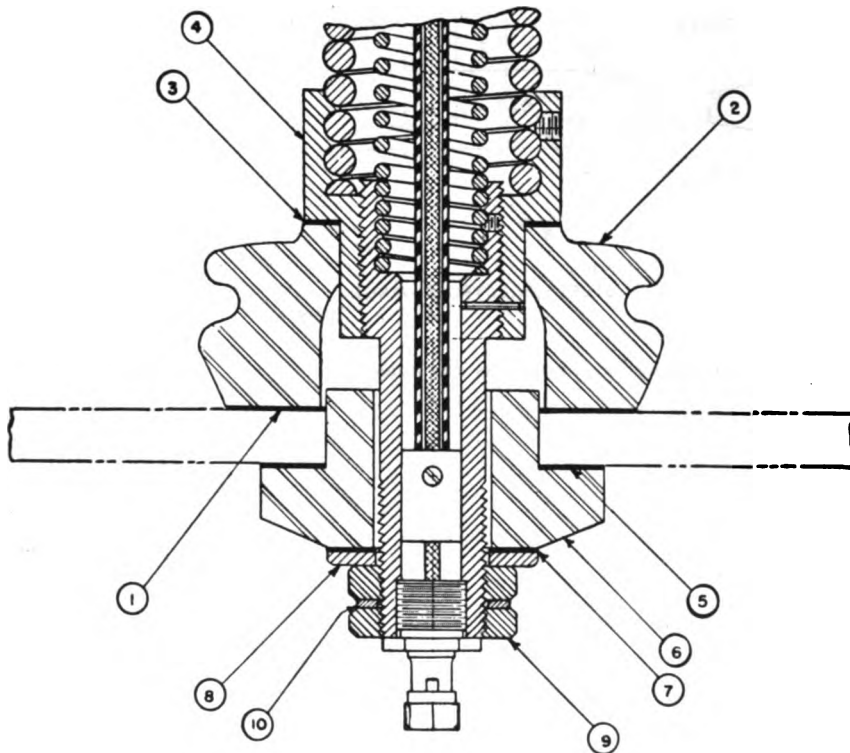


BASED ON  
SC-D-1244-N

- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

TL7539

Figure 3. Mast Base MP-57, assembly for installations.



BASED ON  
SC-D-1244-N

- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

TL7540

Figure 4. Mast Base MP-57, assembly for installations.



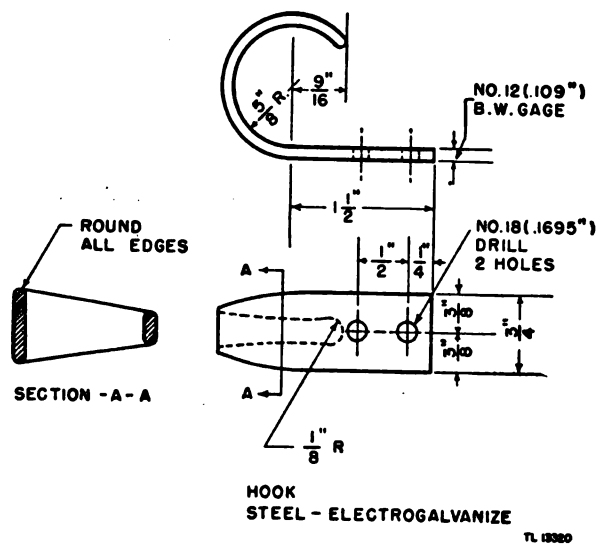


Figure 5. Hook for microphones and headsets.

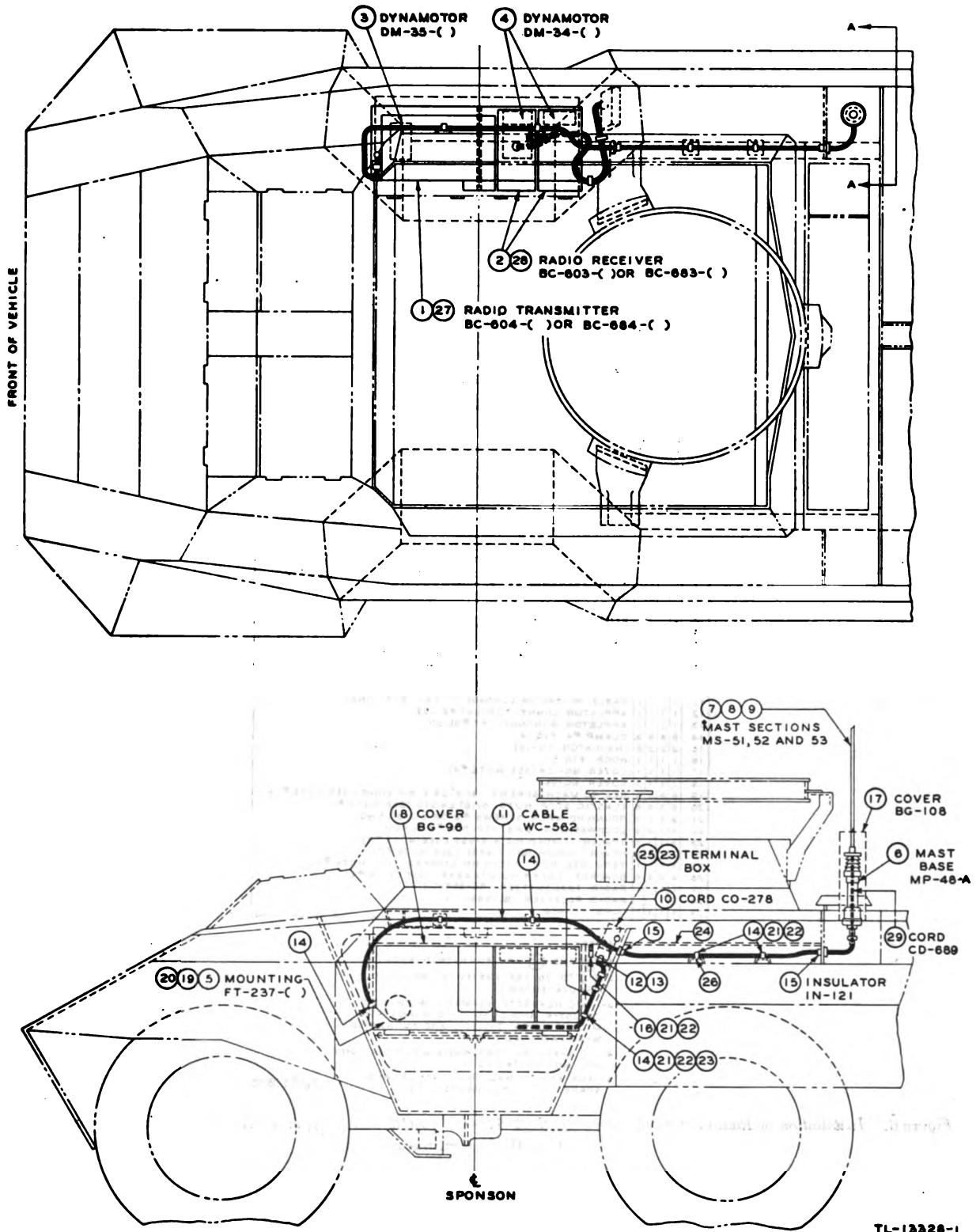
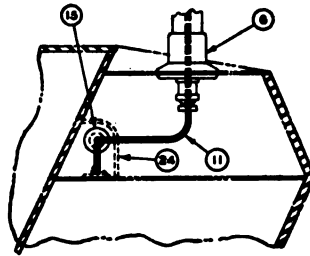


Figure 6. Installation of Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) in Armored Utility Car M20.



SECTION A-A

RADIO SET SCR-508-  
 RADIO SET SCR-528-  
 RADIO SET SCR-608-  
 RADIO SET SCR-628-

ITEM NO.	QUAN.	REQD.	NAME OF ITEM
1	1	1	RADIO TRANSMITTER SC-604-( )
2	1	1	RADIO RECEIVER SC-603-( )
3	1	1	DYNAMOTOR DM-35-( )
4	2	2	DYNAMOTOR DM-34-( )
5	1	1	MOUNTING FT-237-( )
6	1	1	MAST BASE MP-48-A
7	1	1	MAST SECTION MS-51 WITH CLAMP MS-423
8	1	1	MAST SECTION MS-52 WITH CLAMP MS-424
9	1	1	MAST SECTION MS-53
10	1	1	CORD CD-278 PART OF ⑩
11	1	1	CABLE WC-582 OR CORDAGE CO-262 8FT. LONG
12	1	1	APPLETON CONNECTOR CAT.#81007
13	1	1	APPLETON BONDNUT CAT.#BL-50
14	6	6	CLAMP #4 FIG.14
15	2	2	INSULATOR IN-121
16	1	1	HOOK FIG. 8
17	1	1	COVER 90-108 (SEE NOTE #4)
18	1	1	COVER 90-96
19	6	6	HEX HD. MACH. SCREWS 3/16"-24 X 3/4" LONG (SEE NOTE #1)
20	6	6	ELASTIC STOP NUTS 3/16"-24 STD. (SEE NOTE #1)
21	9	9	ROUND HD. MACH. SCREWS #8-32 X 3/8" LONG
22	9	9	LOCKWASHERS S.A.E. STD. FOR #8 SCREW
23	3	3	SPACER ORDER NO. A191935 (SEE NOTE #2)
24	1	1	COVER ORDER NO. C118431 (SEE NOTE #2)
25	1	1	TERMINAL BOX ORDER NO. C100443 (SEE NOTE #2)
26	4	4	BRACKET ORDER NO. A244946 (SEE NOTE #2)
27	1	1	RADIO TRANSMITTER SC-604-( )
28	2	1	RADIO RECEIVER SC-603-( )
29	1	1	CORD CD-699

NOTES:

- 1- ⑩ AND ⑫ ARE FURNISHED WITH ⑬
- 2- ⑭ TO 26 ARE INSTALLED BY VEHICLE MANUFACTURER.
- 3- TWO HEADSETS MS-30-( ) WITH CORD CD-307-A AND CORD CD-604 AND TWO MICROPHONES T-17-( ) ARE FURNISHED WITH EACH RADIO SET.
- 4- ⑰ SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
- 5- FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST

TL13328-2

Figure 6. Installation of Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) in Armored Utility Car M20—Continued.

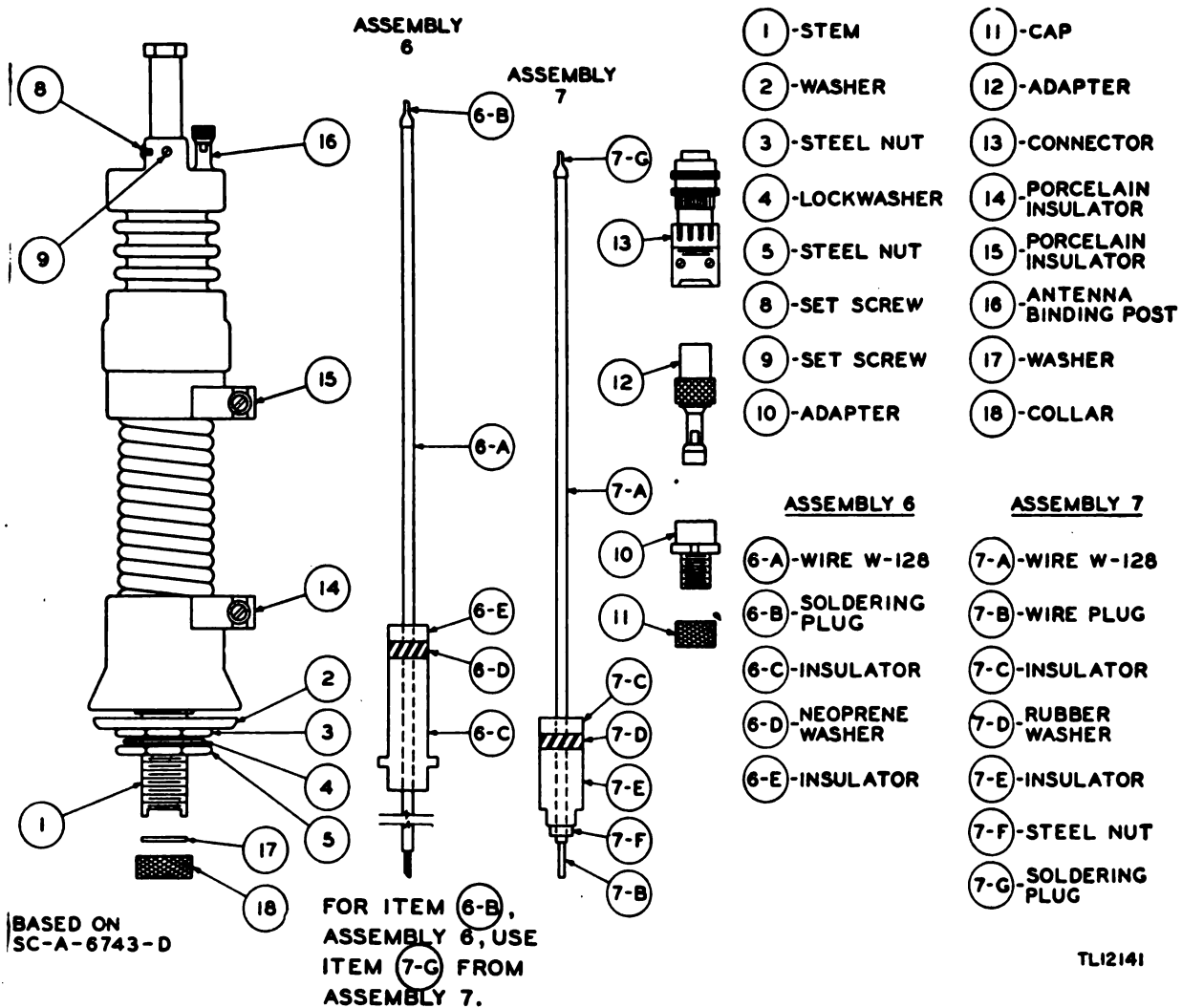
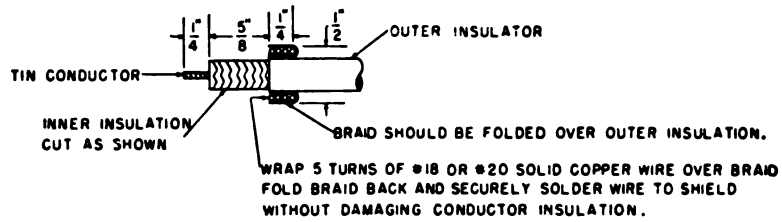
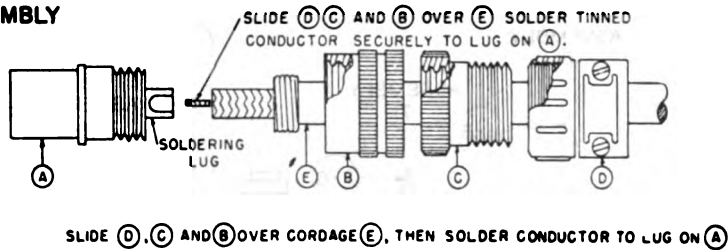


Figure 7. Mast Base MP-48, assembly for installation.

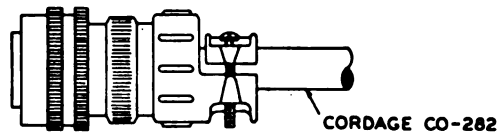
## PREPARATION OF CORDAGE



### PRE-ASSEMBLY



### ASSEMBLY

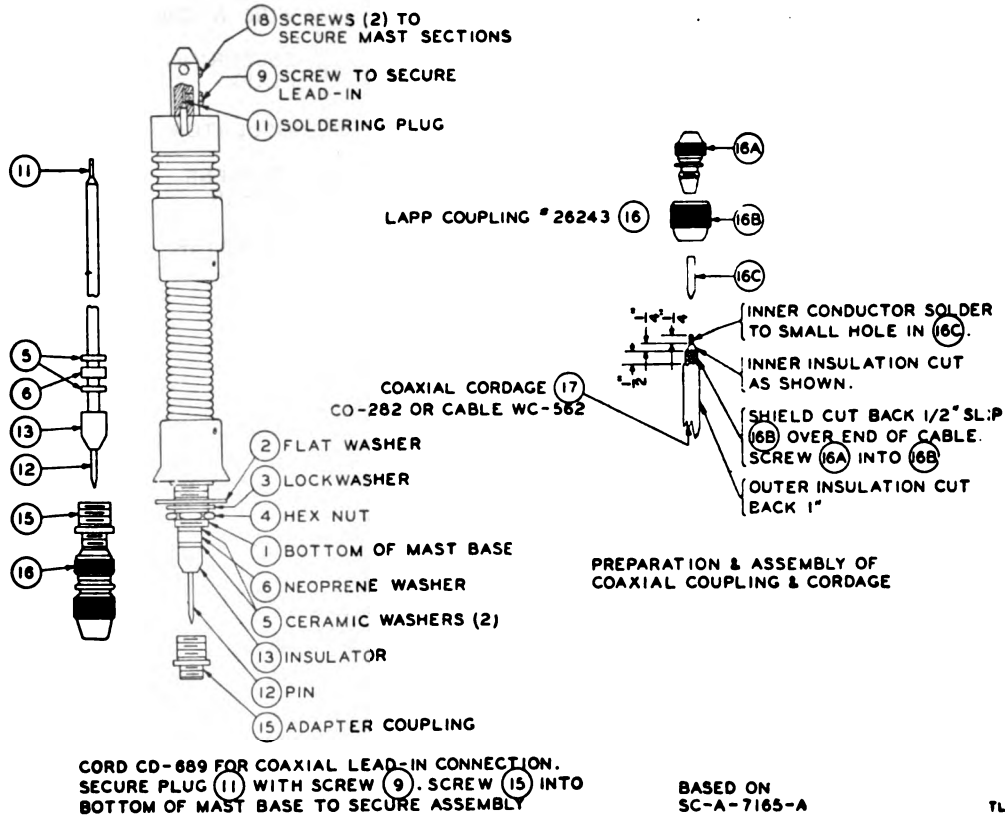


HOLD (A) FIRMLY SCREW (C) TO (A) THEN (D) TO (C) FINALLY FASTEN CLAMP (D)  
 OVER PREPARED BRAID (DO NOT CRUSH BRAID WHEN FASTENING CLAMP (D)).

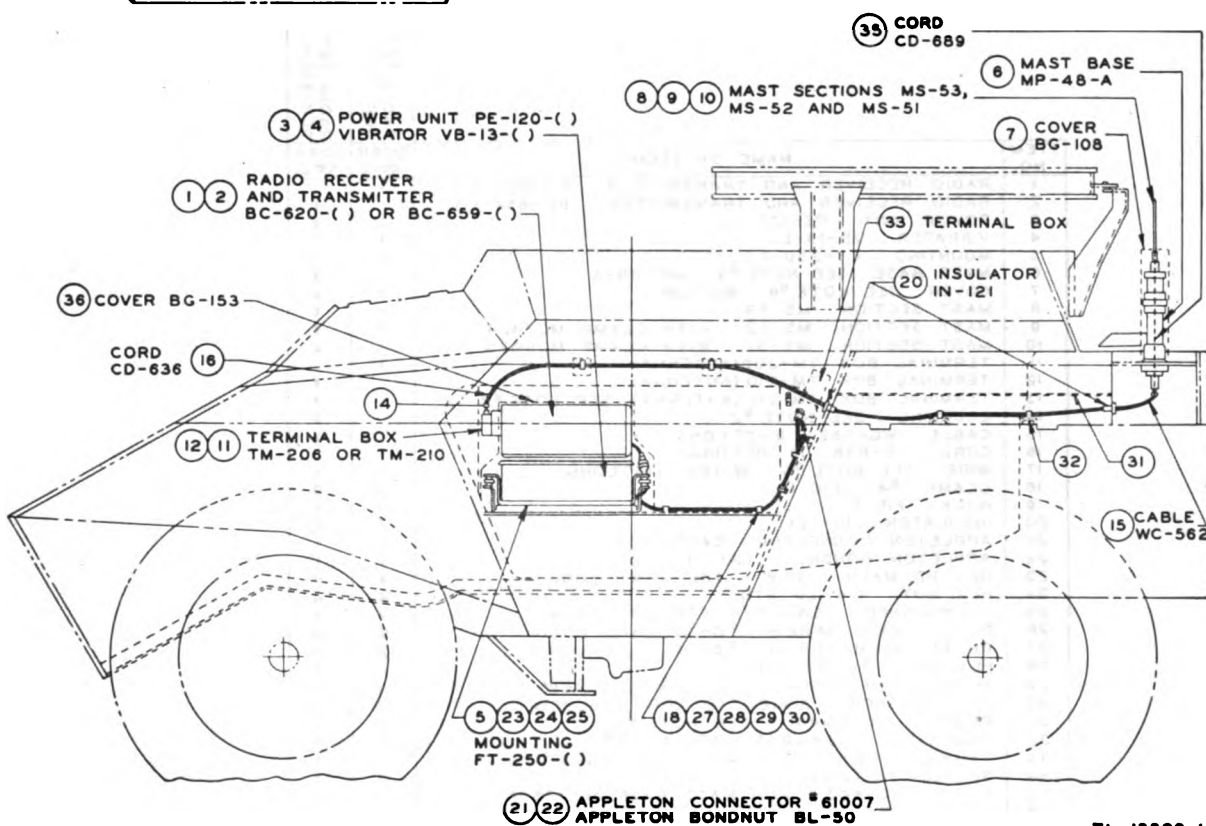
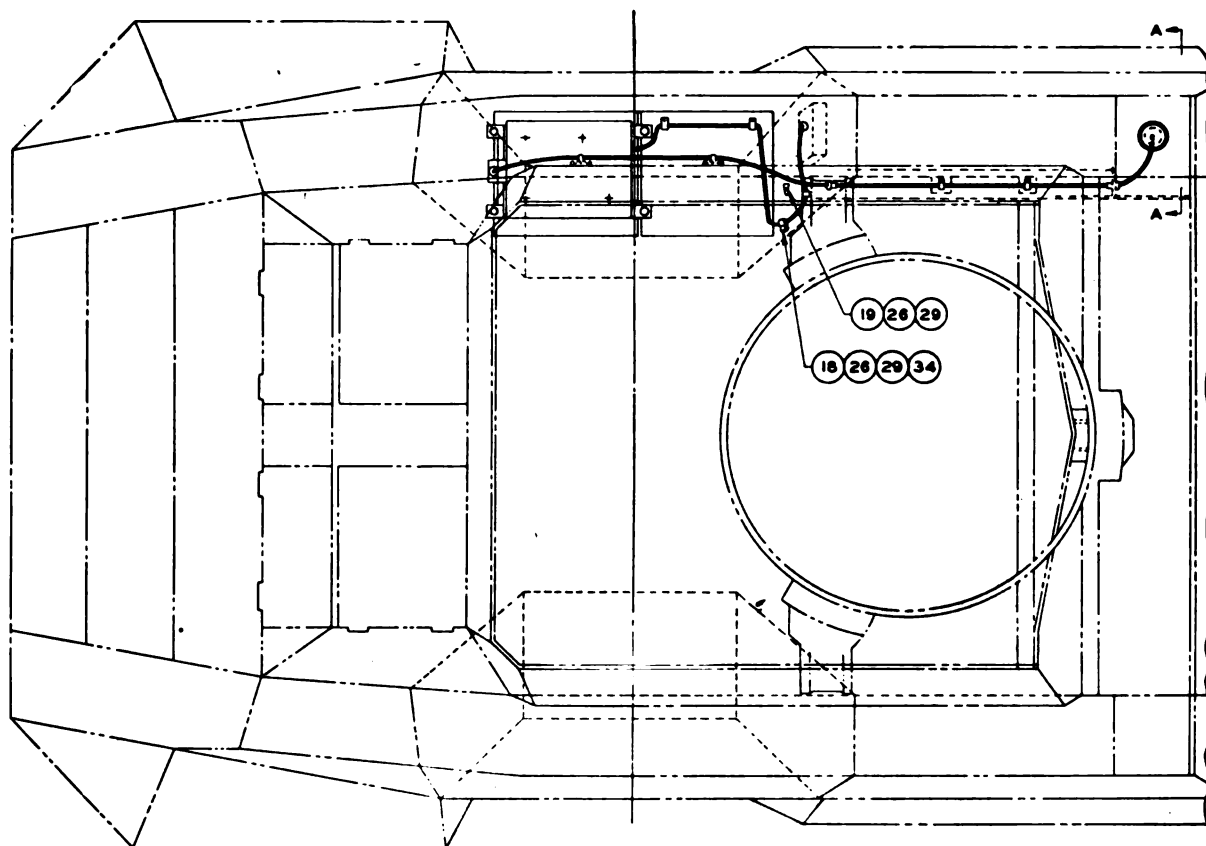
BASED ON  
SC-A-7075-A

TL10133

*Figure 8. Coaxial connector for Mast Base MP-48 and Cord CO-282, assembly for installation.*

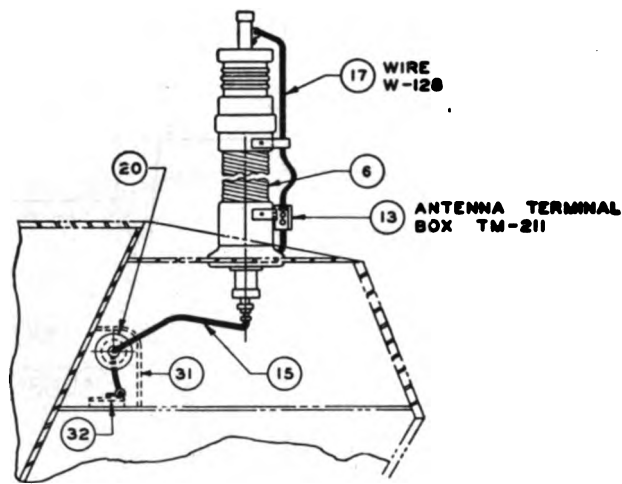


*Figure 9. Mast Base MP-48-A, assembly with coaxial lead-in connection.*



TL-13329-1

Figure 10. Installation of Radio Set SCR-510-( ) or SCR-610-( ) in Armored Utility Car M20.



SECTION A-A  
SHOWING INSTALLATION OF (8) AND (13) FOR RADIO SET SCR-610-()

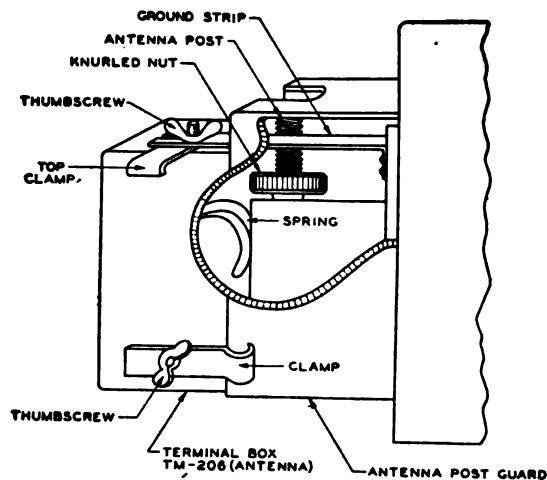
NOTE:

1. (31) TO (34) ARE INSTALLED BY VEHICLE MANUFACTURER.
2. (14) IS FURNISHED WITH TERMINAL BOX TM-210 (ANTENNA)
3. FOR DRILLING (8) AND INSTALLING (13), SEE FIG. 13.
4. ONE HEADSET HS-30-() WITH CORD CD-805-(78") AND ONE MICROPHONE T-17-() ARE FURNISHED WITH EACH RADIO SET.
5. ENDS OF WIRE (17) AFTER BEING CUT TO PROPER LENGTH, SHALL BE TINNED BEFORE MAKING CONNECTIONS.
6. USE (7) WHEN MAST SECTIONS ARE NOT INSTALLED.
7. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.

ITEM NO.	NAME OF ITEM	RADIO SET SCR-510-()	
		QUAN. REQ.	QUAN. REQ.
1	RADIO RECEIVER AND TRANSMITTER BC-620-()	1	1
2	RADIO RECEIVER AND TRANSMITTER BC-650-()	1	1
3	POWER UNIT PE-120-()	1	1
4	VIBRATOR VB-13-()	1	1
5	MOUNTING FT-250-()	1	1
6	MAST BASE SEE NOTE #3 MP-48-A	1	1
7	COVER SEE NOTE #6 BG-108	1	1
8	MAST SECTION MS-53	1	1
9	MAST SECTION MS-52 WITH CLAMP MC-424	1	1
10	MAST SECTION MS-51 WITH CLAMP MC-423	1	1
11	TERMINAL BOX TM-206(ANTENNA)	1	1
12	TERMINAL BOX TM-210 (ANTENNA)	1	1
13	TERMINAL BOX TM-211 (ANTENNA) SEE NOTE #3	1	1
14	COUPLING SEE NOTE #2	1	1
15	CABLE WC-562 8'-0" LONG	1	1
16	CORD CD-636 9'-0" LONG	1	1
17	WIRE SEE NOTE #5 W-128 18" LONG	1	1
18	CLAMP #4 FIG. 14	9	9
19	HOOK FIG. 5	1	1
20	INSULATOR IN-121	2	2
21	APPLETON CONNECTOR CAT.#61007	1	1
22	APPLETON BONDNUT CAT. BL-50	1	1
23	HEX. HD. MACH. SCREW 1/4"-20X1" LONG	4	4
24	HEX. NUT 1/4"-20 STD.	4	4
25	LOCKWASHER S.A.E. STD. FOR 1/4" SCREW	4	4
26	RD. HD. MACH. SCREW #8-32 X 3/8" LONG	9	9
27	RD. HD. MACH. SCREW #8-32 X 3/4" LONG	2	2
28	HEX. NUT #8-32 STD.	2	2
29	LOCKWASHER S.A.E. STD. FOR #8 SCREW	11	11
30	FLAT WASHER S.A.E. STD. FOR #8 SCREW	2	2
31	COVER C-119431 SEE NOTE #1	1	1
32	BRACKET A-244948 SEE NOTE #1	4	4
33	TERMINAL BOX C-100443 SEE NOTE #1	1	1
34	SPACER A-191935 SEE NOTE #1	3	3
35	CORD CD-889 FOR MAST BASE MP-48-A	1	1
36	COVER BG-153	1	1

TL-13329-2

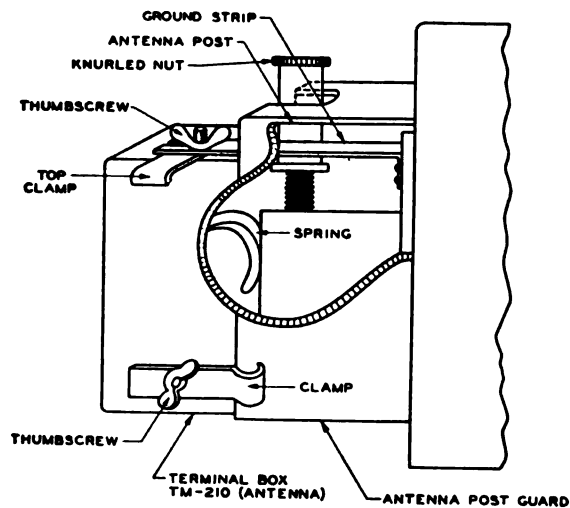
Figure 10. Installation of Radio Set SCR-510-() or SCR-610-() in Armored Utility Car M20—Continued.



1. REMOVE CHASSIS OF RADIO RECEIVER AND TRANSMITTER BC-620-(A) FROM CASE.
2. MOUNT GROUND STRIP, SECURING WITH UPPER RIGHT HAND SCREW IN ANTENNA POST GUARD.
3. TIGHTEN KNURLED NUT ON ANTENNA POST.
4. TURN TERMINAL BOX TM-206 FOR MOST DIRECT CONNECTION OF CORD CD-636.
5. TURN TOP CLAMP SIDEWISE.
6. PRESS TERMINAL BOX INTO POSITION AGAINST ANTENNA POST GUARD AND SECURE SLOTTED END OF GROUND STRIP BENEATH WASHER WITH THUMBSCREW.
7. SECURE THE THREE REMAINING CLAMPS TO THE ANTENNA POST GUARD BY TIGHTENING THE THUMBSCREWS.

TL1287

Figure 11. Terminal Box TM-206, mounting on Radio Receiver and Transmitter BC-620-( ).

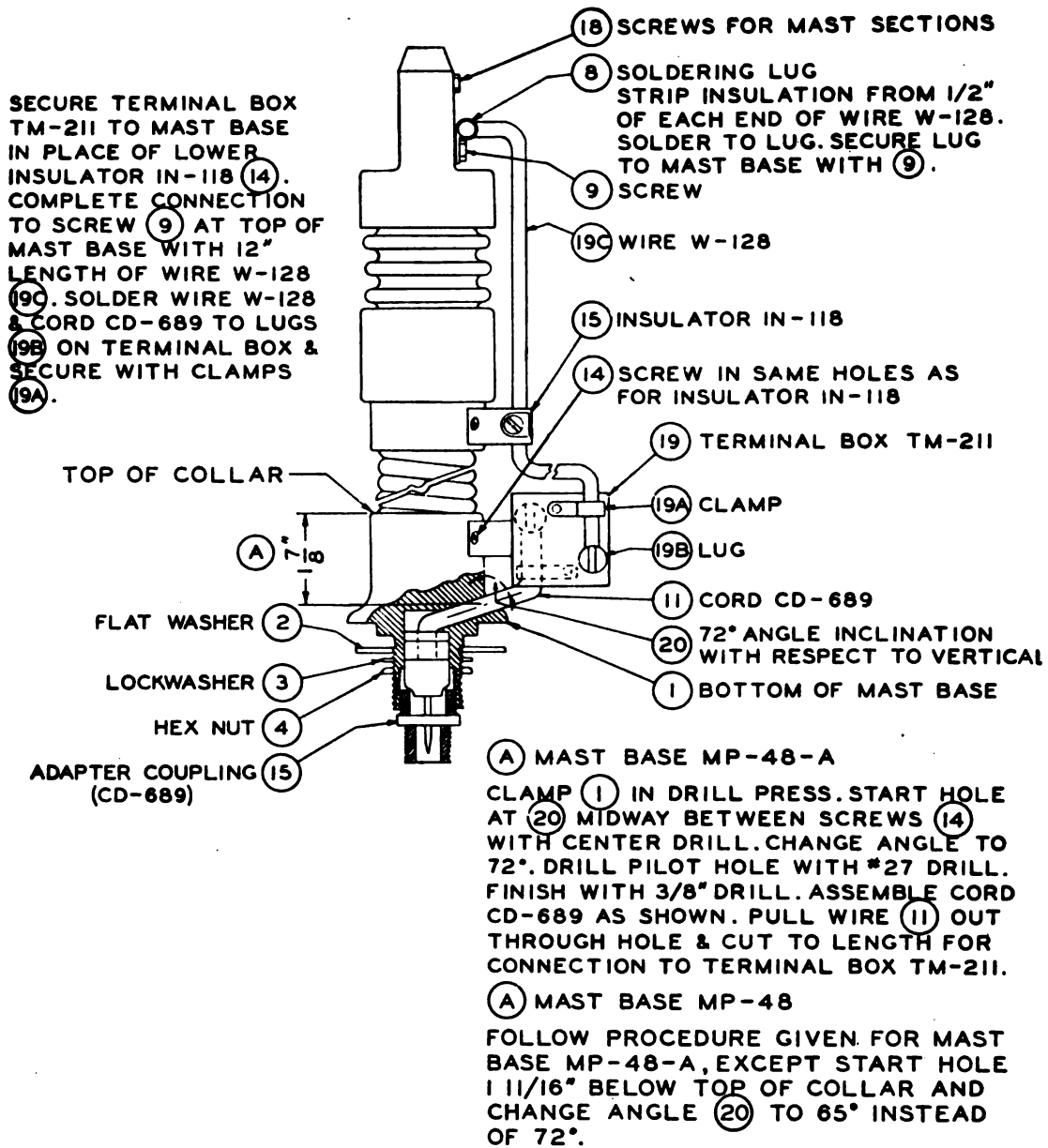


1. REMOVE CHASSIS OF RADIO RECEIVER AND TRANSMITTER BC-659-(A) FROM CASE.
2. MOUNT GROUND STRIP, SECURING WITH UPPER RIGHT HAND SCREW IN ANTENNA POST GUARD.
3. TIGHTEN KNURLED NUT ON ANTENNA POST.
4. TURN TERMINAL BOX TM-210 FOR MOST DIRECT CONNECTION OF CORDAGE CO-282.
5. TURN TOP CLAMP SIDEWISE.
6. PRESS TERMINAL BOX INTO POSITION AGAINST ANTENNA POST GUARD AND SECURE SLOTTED END OF GROUND STRIP BENEATH WASHER WITH THUMBSCREW.
7. SECURE THE THREE REMAINING CLAMPS TO THE ANTENNA POST GUARD BY TIGHTENING THE THUMBSCREWS.

TL3304

Figure 12. Terminal Box TM-210, mounting on Radio Receiver and Transmitter BC-659-( ).



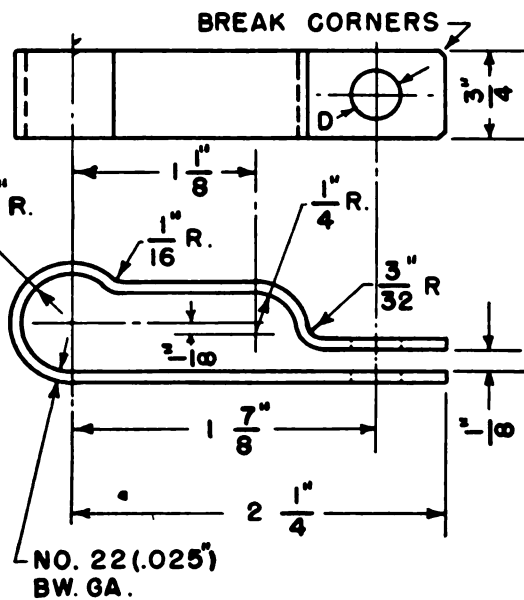
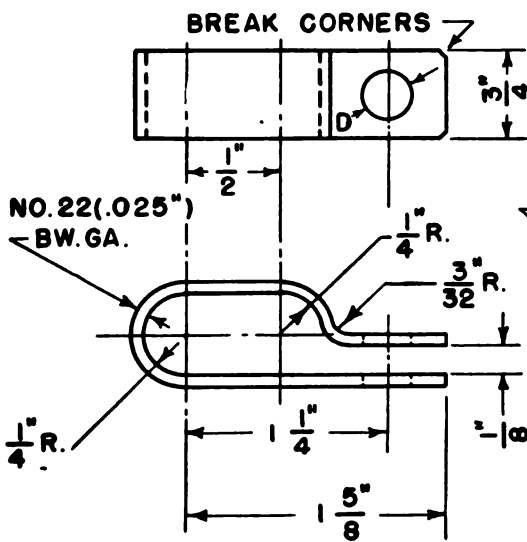
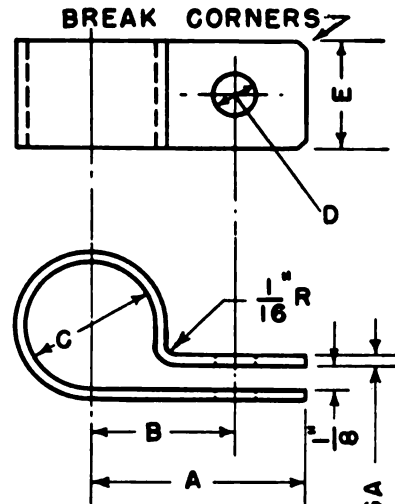


BASED ON  
 SC-A-7167-A

TL10138

Figure 13. Mast Base MP-48 or MP-48-A, assembly with Terminal Box TM-211.

GLAMP	A	B	C	D	E	STOCK NO.
1	1-1/8"	3/4"	7/16"	3/16"	1/2"	222637-1
2	1-1/8"	3/4"	7/16"	9/32"	3/4"	222637-2
3	1-1/8"	3/4"	7/16"	13/32"	3/4"	222637-3
4	1-1/8"	3/4"	17/32"	3/16"	1/2"	222637-4
5	1-1/8"	3/4"	17/32"	9/32"	3/4"	222637-5
6	1-1/8"	3/4"	17/32"	13/32"	3/4"	222637-6



NO. 22(.025") BW. GA.

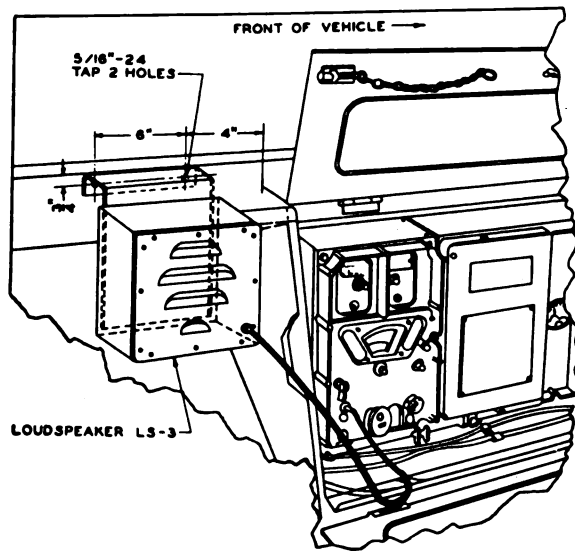
GLAMP	D	STOCK NO.
7	3/16"	222637-7
8	9/32"	222637-8
9	13/32"	222637-9

GLAMP	D	STOCK NO.
10	9/32"	222637-10
11	13/32"	222637-11

NOTE:  
TOLERANCES  $\pm 1/32"$

Figure 14. Clamps for radio cordage.

TL13319



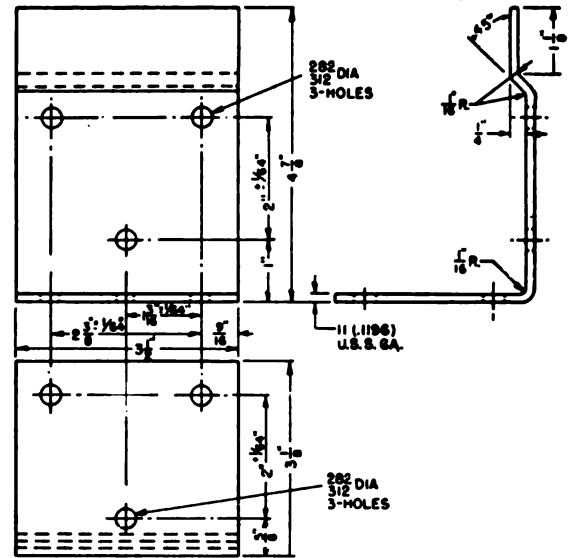
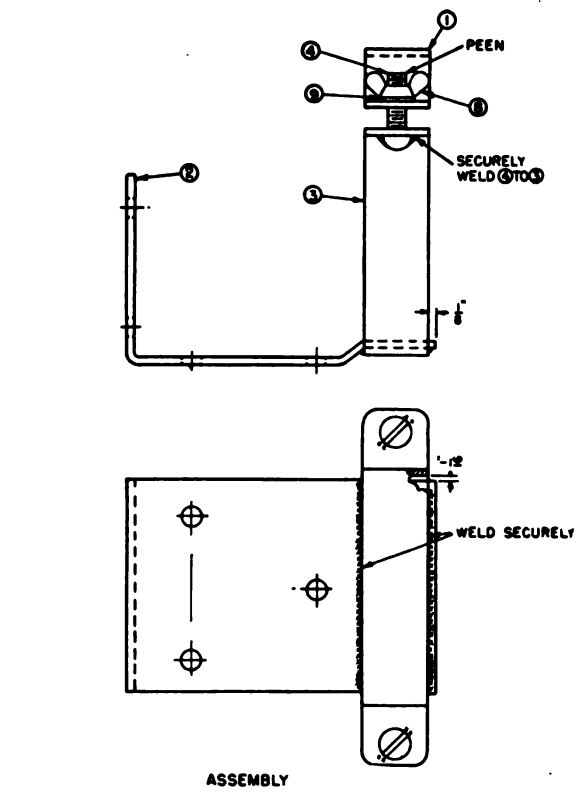
ITEMS REQUIRED

QUAN.	NAME
1	LOUDSPEAKER LS-3
1	BRACKET FIG. 16
1	CORD CD-314
2	HEX. HD. MACH. SCREW 5/16"-24 X 1/2" LG.
2	LOCKWASHER S.A.E. REG. FOR 5/16" SCREW

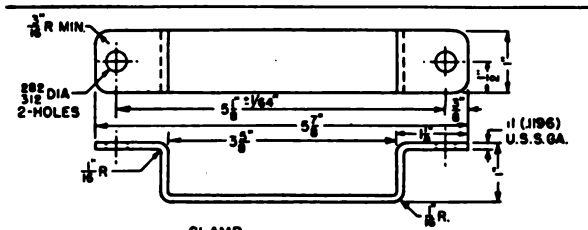
TL-11802

Figure 15. Location of Loudspeaker LS-3 for Radio Set SCR-506-( ) in Armored Utility Car M20.

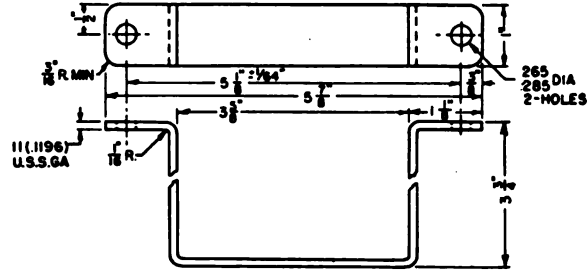




② BRACKET  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.



① CLAMP  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.



③ ARM  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.

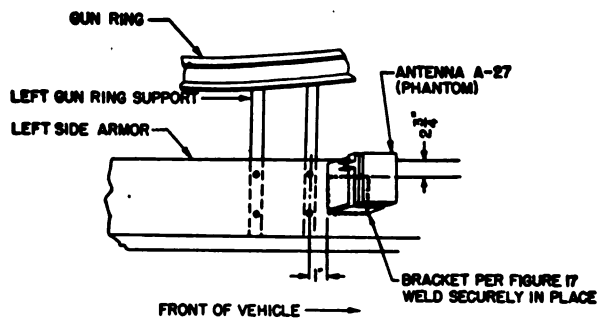
ITEMS REQUIRED

QUAN. REQ.	NAME OF ITEM	MATERIAL	TYPE NO.	ITEM NO.	REMARKS
6	LOCKWASHER	STEEL ELECTRO- GALVANIZED	SEE NOTE	9	S.A.F. REQ. FOR 1/4 SCREW
2	WING NUT		8	1/4 - 20	
4	HEX. NUT		7	1/4 - 20 STD.	
4	HEX. HD. CAP SCREW		6	1/4 - 20 X 3/4 LONG	
4	HEX. HD. CAP SCREW		5	1/4 - 20 X 1 1/2 LONG	
2	RD. HD. MACH. SCREW			4	1/4 - 20 X 1 LONG
1	ARM			3	
1	BRACKET	STEEL		2	
1	CLAMP			1	

BASED ON SC-D-7367

NOTE.  
REMOVE ALL BURRS.  
AFTER WELDING (2) & (3) TO (1), (2) & (3) SHALL BE BONDERIZED AND THEN GIVEN ONE SPRAY COAT OF METAL PRIMER, CLASS 101, AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB BAKING ENAMEL, CLASS 440. TOUCH UP HEADS OF (4) TO MATCH SURROUNDING SURFACE. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH ORDNANCE TENTATIVE SPECIFICATION TAC ES-NO. 680.  
(5), (6), (7) & (4) OF (3) ARE USED FOR INSTALLATION AND SHALL BE PLACED IN A HEAVY CLOTH BAG PLAINLY AND PERMANENTLY MARKED "THIS BAG CONTAINS SCREWS, NUTS AND LOCKWASHERS FOR INSTALLATION SPARES ARE INCLUDED IN QUANTITIES." THIS BAG SHALL BE TIED TO THE BRACKET.  
TL 15067

Figure 17. Bracket for Antenna A-27, phantom, assembly and details.



ITEMS REQUIRED

QUAN.	NAME	TYPE NO	REMARKS
1	ANTENNA (PHANTOM)	A-27	
1	BRACKET		PER FIGURE 17

BASED ON SC-A-7375-A  
REF. SC-D-7150

7.0000

Figure 18. Location of Antenna A-27, phantom, for Radio Set SCR-508-( ) in Armored Utility Car M20.









TM 11-2717

# TM 11-2717

WAR DEPARTMENT TECHNICAL MANUAL

## INSTALLATION OF RADIO AND INTERPHONE EQUIPMENT IN CAR, SCOUT, M 3A1



**RESTRICTED. DISSEMINATION OF RESTRICTED MATTER.**—The information contained in restricted documents and the essential characteristics of restricted material may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also par. 23b, AR 380-5, 15 Mar 1944.)



INSTALLATION OF RADIO  
AND INTERPHONE EQUIPMENT  
IN CAR, SCOUT, M 3A1



WAR DEPARTMENT • DECEMBER 1944

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WAR DEPARTMENT  
WASHINGTON 25, D. C., 16 December 1944

TM 11-2717, Installation of Radio and Interphone Equipment in Car, Scout, M3A1, is published for the information and guidance of all concerned.

[AG 300.7 (23 Nov 44).]

BY ORDER OF THE SECRETARY OF WAR:

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*Major General*  
*The Adjutant General*

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T/O&E 2-10 (2); 2-11 (2); 2-12 (3); 2-13 (3); 6-110-1 (3); 7-415 (2); 7-416 (3); 17-35 (2); 17-36 (3); 11-107 (3); 11-127 (3); 11-587 (3); 11-597 (3); 19-55 (2); 19-56 (3); 19-57 (3).

For explanation of symbols, see FM21-6.

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## DESTRUCTION NOTICE

---

**WHY** —To prevent the enemy from using or salvaging this equipment for his benefit.

**WHEN** —When ordered by your commander.

- HOW**
1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.
  2. Cut—Use axes, handaxes, machetes.
  3. Burn—Use gasoline, kerosene, oil, flame throwers, incendiary grenades.
  4. Explosives—Use firearms, grenades, TNT.
  5. Disposal—Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

### USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

- WHAT**
1. Smash—All vacuum tubes, crystals, control dials, coupling coils, transformers, speakers in receivers, external loudspeakers, microphones, headsets, dynamotors, and cable connectors.
  2. Cut—All connecting wires, cording, and cabling.
  3. Burn—All equipment, and all associated training, technical, and installation manuals.
  4. Bury or scatter—All remains, after destroying their usefulness.

### DESTROY EVERYTHING

---



## SAFETY NOTICE

This equipment uses high voltages which are dangerous to life. Observe all safety precautions.

1. Make no adjustments inside the equipment with the power switch on.
2. Do not operate the equipment with the shields removed.
3. Do not connect power to any unit of these radio sets until operating instructions have been read completely.

# RESTRICTED

## SECTION I

### GUIDE TO USE OF THIS MANUAL

---

#### 1. Purpose

This manual provides method and procedure, based upon actual field experience, for installation of radio equipment in Car, Scout, M3A1. Items required to make a complete operating installation are listed for each set. Official nomenclature followed by empty parentheses, such as Headset HS-30-( ), is used to indicate any model of equipment regardless of its procurement.

#### 2. Equipment

Installations covered include the following Radio Sets:

SCR-193-D  
SCR-284-( )  
SCR-506-( )  
SCR-508-( )  
SCR-510-( )  
SCR-528-( )  
SCR-593-( )  
SCR-608-( )  
SCR-610-( )  
SCR-628-( )

#### 3. Holes and Brackets

Holes and brackets required for installation of the radio sets are normally located prior to delivery of Car, Scout, M3A1. Drilling instructions are given in this manual for any other necessary holes and brackets. Do not relocate any holes or brackets unless absolutely necessary.

#### 4. Preliminary Check

Study the illustrations, the installation as outlined, and any subsequent changes to this manual.

**Caution:** Car, Scout, M3A1 has a 12-volt electrical system. Before installing the radio set, be sure it is designed for 12-volt operation, or tubes may burn out or dynamotors may be damaged.

#### 5. Operating Check

Carefully study the Technical Manual covering the radio set before trying to operate; then, make a thorough operating check to determine whether the equipment has been properly installed and is in working order.



## SECTION II

# IGNITION NOISE SUPPRESSION IN CAR, SCOUT, M3A1

### 6. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Car, Scout, M3A1. The Technical Manual issued with the vehicle will be helpful in locating the source of the noise since it describes the suppression system used. Instructions for operating radio equipment used in the vehicle should also be studied.

### 7. Procedure

Locate and suppress ignition noises as follows:

*a.* Start the motor of the vehicle and turn on the radio set. Put the receiver sensitivity control at

*maximum*; then, listening to the receiver output with a headset, tune the receiver slowly over the entire range of frequencies to be used for communication.

*b.* When the frequency (or frequencies) with greatest noise level is found, turn off the vehicle engine. If interference persists, the source is outside the ignition system. If noise stops, the trouble is in the ignition system.

*c.* Start the engine again. Adjust the receiver sensitivity control until engine noises can be distinguished easily from static, etc. Interference may then be identified as follows:

<i>Interference</i>	<i>Usual source</i>
Popping sound : corresponds to ignition firing ; stops when engine is turned off ; accelerates when engine is raced.	Ignition system.
Intermittent, clicking sound ; lingers for several seconds when ignition is turned off.	Generator regulator.
Whining sound ; varies with speed of engine ; ceases only when generator stops rotating.	Generator.
Sparking, or continuous crackling noise.	Brushes and commutator of generator.

*d.* Interference from other electrical parts and circuits of the vehicle, such as panel gauges and heater fans, can usually be identified by turning off the gauges, fans, or other suspected mechanisms individually.

*e.* If the source of interference still cannot be found by any of the preceding methods, connect a probe antenna (fig. 2) to the antenna terminal of the radio set. Slowly move the loop of the probe antenna over the various parts of the electrical system of the vehicle. Keep the loop close to, but not in contact with, the part being examined. Noise from interference-producing parts should be heard in the receiver.

*f.* Usually interference can be eliminated by cleaning, tightening, or replacing noise-producing parts. Examine and tighten all suppressor and shielding components, and all connections and grounding bonds. Clean the surface under them. This will assure good electrical contact between wires and terminals, and between metal casings and the frame of the vehicle. Insulated but ungrounded metal parts absorb and reradiate electrical noises.

*g.* If interference persists, check suppressor components by substituting new ones. If a replacement is not available, disconnect the suspected component and test capacitors, resistors, and chokes within it. Replace any that are defective.

## SECTION III

### RADIO SET SCR-193-D

#### 8. Required Parts

Items necessary for installation of Radio Set SCR-193-D in Car, Scout, M3A1 are listed below:

Quantity	Stock No.	Item
1	2A224A.....	Antenna AN-24-A, auxiliary.
1	2Z1108.....	Box BX-8, for transmitter spare tubes.
1	2Z1119.....	Box BX-19, for receiver spare tubes.
1	2Z1121.....	Box BX-21, for headset, microphone, etc.
1		Bracket (fig. 27) for Loudspeaker LS-3.
1	2Z1577-153.....	Chest CH-153-( ).
2	4B417-4.....	Chest Set TD-4.
1	2Z1848.....	Case CS-48, for transmitter tuning unit.
2	2Z2651-421.....	Clamp MC-421, for mast section.
2	2Z2651-422.....	Clamp MC-422, for mast section.
2	2Z2651-423.....	Clamp MC-423, for mast section.
2	2Z2651-424.....	Clamp MC-424, for mast section.
1	3E1411.....	Cord CD-411, connecting Radio Receiver BC-312-( ) to terminal box, including one connector No. 61007 and one Bondnut BL-50.
1	3E1267.....	Cord CD-267, for Loudspeaker LS-3.
2	3E1307-5.5.....	Cord CD-307-A, 65 in. long.
1	3E1320.....	Cord CD-320, connecting Radio Transmitter BC-191-( ) to Dynamotor Unit BD-77-( ).
1	3E1346.....	Cord CD-346, connecting Radio Transmitter BC-191-( ) to Dynamotor Unit BD-77-( ).
1	3E1410.....	Cord CD-410, connecting Radio Transmitter BC-191-( ) to terminal box, including one connector No. 61007 and one Bondnut BL-50.
1	3E2189.....	Cord CO-189, connecting Dynamotor Unit BD-77-( ) to terminal box, including one connector No. 61007 and one Bondnut BL-50.
2	3E1604.....	Cord CD-604.
1	2Z3367A.....	Cover BG-67, for mast base.
1	2Z3375A.....	Cover BG-75-A, for Radio Receiver BC-312-( ).
1	2Z3378A.....	Cover BG-78-A, for Radio Transmitter BC-191-( ).
1	3H1359A.....	Cover BG-79-A, for Dynamotor Unit BD-77-( ).
1	2Z3384.....	Cover BG-84, for radio cabinet.
1	6C18-41.....	Cover CW-41/U, for Loudspeaker LS-3.
1	3H1777.....	Dynamotor Unit BD-77-( ), including Mounting FT-107.
1	6L50-193V13.....	Hardware bag.
*2	2B800-16.....	Headset H-16/U or H-30-( ).
2	2B830.....	
3	3G586.....	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
2	3G601.....	Insulator IN-101.
1	2A224A/1.....	Instructions for installation of auxiliary Antenna AN-24-A.
4	3G604.....	Insulator IN-104.
1	3Z3445.....	Key J-45.
1	2Z6303.1.....	Loudspeaker LS-3.
1	2A2087.....	Mast Base MP-37.

\* Headset HS-23 may be substituted for Headset H-16/U or H-30-( ). When this is done, Cord OD-604 is not required.

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Quantity	Stock No.	Item
2	2A2349.....	Mast Section MS-49.
2	2A2350.....	Mast Section MS-50.
2	2A2351.....	Mast Section MS-51.
2	2A2352.....	Mast Section MS-52.
2	2A2353.....	Mast Section MS-53.
2	2B1567.....	Microphone Cover M-367.
2	{ 2B1645..... 2B1617..... }	Microphone T-45 or T-17.
1	2Z6712.....	Mounting FT-172, snubber for Radio Transmitter BC-191-( ).
1	2Z6718.....	Mounting FT-178, snubber for Radio Receiver BC-312-( ).
1	2C4312.....	Radio Receiver BC-312-( ), including Mounting FT-162.
1	2C6191.....	Radio Transmitter BC-191-( ), including Mounting FT-151-( ).
1	2Z8056A.....	Roll BG-56-A, for mast section.
50 ft.	6Z7926.....	Rope RP-5, for tying down mast sections.
1	2Z8793A.....	Socket Cap M-163-A, for unused socket in Radio Transmitter BC-191-( ).
2	6D13073.....	TM-11-273, for Radio Set SCR-193-D.
1	2Z9313.....	Terminal Block TM-183, for terminal box.
1	2C8005.....	Transmitter Tuning Unit TU-5-( ).
1	2C8006.....	Transmitter Tuning Unit TU-6-( ).
20 ft.	1B128.....	Wire W-128.

### 9. Assembly and Installation

a. Before proceeding with this installation, perform all necessary drilling of the vehicle for Chest CH-153-( ) and mast base pedestal as shown in

figure 4.

b. Components of Radio Set SCR-193-D should be installed in Car, Scout, M3A1 as shown in figures 1, 3, and 5 and as directed below:

Part and location	Method and materials
Mast Base MP-37, on mast base pedestal. (See fig. 5.)	Assemble as shown in figure 6.
Chest CH-153-( ), on floor of vehicle in front of mast base pedestal.	Fasten in place with eight 1/4"-20 x 1-inch screws, nuts, lockwashers provided.
Mounting FT-107-( ).	Attach to floor of Chest CH-153-( ), left side, with six 1/4"-20 x 7/16-inch screws and lockwashers provided.
Mounting FT-151-( ).	Attach to floor of Chest CH-153-( ), right side, with eight 1/4"-20 x 7/16-inch screws and lockwashers provided.
Mounting FT-162.	Attach to shelf inside Chest CH-153-( ) with ten No. 10-32 x 3/4-inch screws, nuts, and lockwashers provided.
Dynamotor Unit BD-77-( ) and Cover BG-79-A, on Mounting FT-107-( ).	Secure dynamotor on mounting with snap-slide fasteners provided. Place Cover BG-79-A over dynamotor.
Radio Receiver BC-312-( ), Mounting FT-178 (fig. 26), and Cover BG-75-A, on Mounting FT-162 (fig. 5).	Remove receiver from its case. Drill right end of case as shown in figure 8 and attach small angle bracket (part of Mounting FT-178). Replace receiver in case. Attach Mounting FT-178 to Chest CH-153-( ). Place receiver on Mounting FT-162 and secure with snap slide fasteners provided. Place Cover BG-75-A over receiver, cut slot for small angle bracket, and secure

<i>Part and location</i>	<i>Method and materials</i>
Radio Receiver BC-312-( )— <i>Continued</i>	threaded rod of Mounting FT-178 to small angle bracket with wingnuts provided.
Radio Transmitter BC-191-( ), Mounting FT-172 (fig. 26), and Cover BG-78-A, on Mounting FT-151-( ). (See fig. 5.)	Drill top of transmitter as shown in figure 9 and attach small angle bracket (part of Mounting FT-172). Attach Mounting FT-172 to Chest CH-153-( ). Place transmitter on Mounting FT-151-( ) and secure with snap slide fasteners provided. Place Cover BG-78-A over transmitter, cut slot in cover for small angle bracket, and secure threaded rod of Mounting FT-172 to small angle bracket with wingnuts provided.
Three Insulators IN-104.	Screw two Insulators IN-104 into tap holes provided in mast base pedestal. Install one inside Chest CH-153-( ), utilizing upper right hole for Mounting FT-172. (See fig. 10.)
Cover BG-84.	Drill necessary holes and install cover over Chest CH-153-( ).
Insulator IN-101.	Install through hole provided in top of Chest CH-153-( ). (See fig. 10.)
Mast Sections MS-49 to MS-53 inclusive; Clamps MC-421 to MC-424 inclusive.	Screw mast sections together, place clamps over joints, and screw into mast base. When removed, stow mast sections and clamps in Roll BG-56-A and close Cover BG-67 over mast base.
Wire W-128 for Radio Set SCR-193-D. Loudspeaker LS-3. (See fig. 28.)	Route and connect as shown in figures 10 and 5. Secure loudspeaker bracket (fig. 27) to vehicle and mount loudspeaker as shown in figure 28. Plug Cord CD-267 into loudspeaker and radio set.
Cover CW-41/U on Loudspeaker LS-3.	Remove screws from outer edge of front panel on loudspeaker. Place Cover CW-41/U over front of loudspeaker (flap opening upward) and secure by replacing screws in front panel of speaker.
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	To be used in place of Headset HS-30-( ), Microphone T-17, and associated cording, when available.
Microphone Cover M-367.	Place over Microphone T-45.
Terminal Block TM-183.	Install in terminal box supplied by car manufacturer.
Cord CO-189, connector No. 61007, and Bondnut BL-50.	Connects Dynamotor Unit BD-77-( ) to terminal box. Install through hole in terminal box, using connector and bondnut provided with cord.
Cord CD-410, connector No. 61007, and Bondnut BL-50.	Connects Radio Transmitter BC-191-( ) to terminal box. Install through hole in terminal box, using connector and bondnut provided with cord.
Cord CD-411, connector No. 61007, and Bondnut BL-50.	Connects Radio Receiver BC-312-( ) to terminal box. Install through hole in terminal box, using connector and bondnut provided with cord.

## SECTION IV

### RADIO SET SCR-284-( )

#### 10. Required Parts

Items necessary for installation of Radio Set SCR-284-( ) in Car, Scout, M3A1 are listed below:

Quantity	Stock No.	Item
1	2Z502A . . . . .	Bag BG-102-A, for spare parts, batteries, headsets, etc.
1	2Z529 . . . . .	Bag BG-129, for Power Unit PE-103-A.
1	2Z1131A . . . . .	Box BX-31-A, for tubes.
3	2Z1250 . . . . .	Bracket, for Frame FM-41.
1	2Z2651-421 . . . . .	Clamp MC-421.
1	2Z2651-422 . . . . .	Clamp MC-422.
1	2Z2651-423 . . . . .	Clamp MC-423.
1	2Z2651-424 . . . . .	Clamp MC-424.
1	3Z1501A . . . . .	Cord CD-501-A, connecting Radio Receiver and Transmitter BC-654-A to power supply.
*1	3E1605-6.5 . . . . .	Cord CD-605, for Headset HS-30-( ).
1	2Z3367 . . . . .	Cover BG-67, for Mast Base MP-37.
1	2Z3400-154 . . . . .	Cover BG-154, for Power Unit PE-103-( ).
1	2Z4641 . . . . .	Frame FM-41, mounting for Radio Set SCR-284-( ).
1	6L50-284V13 <sup>2</sup> . . . . .	Hardware bag.
*1	2B830 . . . . .	Headset HS-30-( ).
1	3Z3448 . . . . .	Key J-48-( ).
1	2Z6310-7 . . . . .	Loudspeaker LS-7.
1	{ 2A2087 . . . . . 2A2088-57 . . . . . }	Mast Base MP-37 or MP-57.
1	2A2349 . . . . .	Mast Section MS-49.
1	2A2350 . . . . .	Mast Section MS-50.
1	2A2351 . . . . .	Mast Section MS-51.
1	2A2352 . . . . .	Mast Section MS-52.
1	2A2353 . . . . .	Mast Section MS-53.
1	2B1617 . . . . .	Microphone T-17.
1	3H4600-104 . . . . .	Power Converter Unit PE-104-( ).
1	3H4600-103 . . . . .	Power Unit PE-103-( ).
1	2C5374 . . . . .	Radio Receiver and Transmitter BC-654-( ), including Crystal Unit DC-24-( ).
1	2Z8058 . . . . .	Roll BG-58 for mast section and generator legs.
4	6Z5093 . . . . .	Strap Holder.
3		Tapping Plate.
10 ft.	1B142 . . . . .	Wire W-142, for antenna and ground leads.

\* Headset HS-30-( ) may be replaced by Headset P-23. In this case, Cord CD-605 is not required.

## 11. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of Radio Set SCR-284-( ) should be installed in Car, Scout, M3A1 as shown in figure 11 and as directed below :

<i>Part and location</i>	<i>Method and materials</i>
Frame FM-41, on floor of vehicle. (See fig. 11.)	Secure Frame FM-41 to floor using Z brackets, tapping plates, and hardware provided. Four web straps are used to hold frame firmly in place. Web straps are attached to floor of vehicle using strap holders as illustrated in figure 11.
Radio Receiver and Transmitter BC-654-( ), on Frame FM-41.	Slide in place on frame and secure by closing the two spring fasteners which hook into the loops at bottom of case. The web strap which passes through slot in back of frame is slipped through loop on top of receiver-transmitter case and buckled.
Power Converter Unit PE-104-( ), in power supply compartment of Radio Receiver and Transmitter BC-654-( ).	Power Converter Unit PE-104-( ) is supplied installed. Before placing equipment in operation, open small door of power supply compartment, pull out plug, slide power converter forward to gain access to voltage switch, and set it for 12-volt operation.
Power Unit PE-103-( ), on mounting Frame FM-41.	Open spring cover in base of Power Unit PE-103-( ) and set slotted voltage adjustment to 12-VOLT OPERATION as marked. Set three circuit breakers (through door in side of base) to ON position, as marked. Place Power Unit PE-103-( ) on bottom of Frame FM-41 as shown in figure 11, and secure in place by tightening wingnuts provided.
Cord CD-501-A.	Connect to proper receptacles on Radio Receiver and Transmitter BC-654-( ) and Power Unit PE-103-( ).
Mast Base MP-37 or MP-57, on mast base pedestal.	Install mast base through hole in plate at top of mast base pedestal by assembling the necessary washers and insulator sections as follows (fig. 7) : Place large fiber washer, item 1, over hole in plate. Place large insulator section, item 2, over item 1. Place fabric washer, item 3, over item 2. Insert mast base, item 4, through hole. Place small fiber washer, item 5, over flange of small insulator section, item 6. Insert insulator, item 6, over item 4 (underneath) and push upward through hole in plate. Place washers, items 7 and 8, beneath item 6 and secure assembly in place with nuts, item 9, and lockwasher, item 10.
Key J-48-( ) and Microphone T-17.	Install in place provided on the inside of Radio Receiver and Transmitter BC-654-( ) case cover. Insert cord plugs in proper jacks on panel of Radio Receiver and Transmitter BC-654-( ).

<i>Part and location</i>	<i>Method and materials</i>
Headset HS-30-( ) and Cord CD-605.	Connect headset to Cord CD-605 and connect plug to proper jack on panel of Radio Receiver and Transmitter BC-654-( ).
Mast Sections MS-49 through MS-53, and Clamps MC-421 through MC-424, on Mast Base MP-37 or MP-57. Roll BG-58. Wire W-142.	Screw sections together and after placing clamps over joints, screw into mast base. When removed, stow in Roll BG-58. Disposition left to discretion of using arms.
Cover BG-67.	Cut to correct length and connect between antenna terminal on mast base to antenna terminal on Radio Receiver and Transmitter BC-654-( ). (See fig. 11.) Place on Mast Base MP-37 when mast sections are removed.
Loudspeaker LS-7.	Plug into phone jack on receiver panel.

b. **CORDING AND WIRING.** Cord and wire Radio Set SCR-284-( ) as shown in figure 11. Tighten the plug locks on the various cords by hand. *Do not use a tool to tighten these plug locks.* Leave sufficient slack in cording and wiring to permit free motion of all units having shock mountings. Connect all cords and clamp in place in such a manner as not to interfere with accessibility and operation of the equipment. Install power cord and connect leads to appropriate terminals in car terminal box after all other connections have been completed. This procedure will prevent accidental short circuiting of the vehicle battery.

## SECTION V

### RADIO SET SCR-506-( )

#### 12. Required Parts

Items necessary for installation of Radio Set SCR-506-( ) in Car, Scout, M3A1 are listed below:

Quantity	Stock No.	Item
1	2A275-27	Antenna A-27, Phantom.
1	2Z1246-2	Bracket, for Cabinet CH-74-A.
1	2Z1250.82	Bracket, for Antenna A-27, Phantom.
1	2Z1574A	Cabinet CH-74-A.
2	4B417-4	Chest Set TD-4.
1	2Z2651-421	Clamp MC-421, for mast section.
1	2Z2651-422	Clamp MC-422, for mast section.
1	2Z2651-423	Clamp MC-423, for mast section.
1	2Z2651-424	Clamp MC-424, for mast section.
2	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	3E1307A-4	Cord CD-307-A, 48 in. long, for Headset HS-30-( ).
1	3E1604	Cord CD-604, 6 in. long, for Headset HS-30-( ).
1	3E1314	Cord CD-314, for Loudspeaker LS-3.
1	2Z3367	Cover BG-67, for Mast Base MP-37 or MP-57.
1	6C18-41	Cover CW-41/U, for Loudspeaker LS-3.
1	3H1640	Dynamotor DM-40-( ), 12 volts, for Radio Receiver BC-652-( ), including attached spare parts.
1	3H1642	Dynamotor DM-42-( ), 12 volts, for Radio Transmitter BC-653-( ), including attached spare parts.
1	6L50-506V13	Hardware bag.
1 <sup>1</sup>	2B800-16	Headset II-16/U or HS-30-( ).
1	2B830	
1	3Z3445	Key J-45.
1	2Z6303	Loudspeaker LS-3.
2 <sup>1</sup>	2A2087	Mast Base MP-37 or MP-57.
1	2A2088-57	
1	2A2090-52	Mast Base Bracket MP-52.
1	2A2349	Mast Section MS-49.
1	2A2350	Mast Section MS-50.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
1	2B1645	Microphone T-45 or T-17.
1	2B1617	
1	2B1567	Microphone Cover M-367.
1	2Z6721-253	Mounting FT-253-( ), including two Cords CO-280, spare parts, fuses, hardware, etc.
1	2Z6721-326	Mounting FT-326.
1	2C4452	Radio Receiver BC-652-( ), including spare parts, crystal unit, and set of tubes installed.
1	2C6530-653	Radio Transmitter BC-653-( ), including spare parts, and set of tubes installed.
1	2Z8056	Roll BG-56-( ), for mast sections.
5 ft.	1B146	Wire W-146, for antenna and ground leads.

<sup>1</sup> Headset HS-23 may be substituted for Headset HS-30-( ). In this case, Cord CD-604 is not required.

<sup>2</sup> Mast Base MP-57 may be substituted for Mast Base MP-37.



### 13. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of Radio Set SCR-506-( ) should be installed in Car, Scout, M3A1 as shown in figures 12, 13, and 14 and as directed below:

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-326, on floor at rear of vehicle.	Fasten to floor of vehicle with hexagonal head bolts and elastic stopnuts provided. (See figs. 14 and 12.)
Cabinet CH-74-A (fig. 25), on Mounting FT-326.	Attach on mounting with bolts, lockwashers, etc., furnished with cabinet.
Bracket, on corner of Cabinet CH-74-A.	Used to secure Cabinet CH-74-A to rear of vehicle as shown in figure 14.
Mounting FT-253-( ), inside Cabinet CH-74-A.	Locate and secure in place with hardware provided as shown in figure 13. In order to avoid noisy reception while vehicle is in motion, make certain that radio set makes good electrical contact with vehicle. Clean surface upon which feet of Mounting FT-253-( ) rest, using emery cloth or sandpaper before mounting is bolted in place. Clean surfaces under heads of all mounting bolts to insure good electrical contact between Mounting FT-253-( ), Cabinet CH-74-A, and Mounting FT-326.
Mast Base Bracket MP-52, on top right front of Cabinet CH-74-A.	Remove blank cover over 2-inch hole in top right front of cabinet. Mount mast base bracket over 2-inch hole with 12 hexagonal headscrews and lockwashers already installed in top of cabinet. (See fig. 13.)
Mast Base MP-37 or Mast Base MP-57, on Mast Base Bracket MP-52.	Remove cover plate from top of mast base bracket and install mast base. (Refer to figure 6 for assembly of Mast Base MP-37 or figure 7 for assembly of Mast Base MP-57.) Strip insulation from one end of Wire W-146 and connect to binding post on mast base. Run Wire W-146 down through mast base bracket. Cut Wire W-146 to proper length and connect to antenna terminal on Radio Transmitter BC-653-( ).
Mast Sections MS-49 to MS-53 inclusive; Clamps MC-421 to MC-424 inclusive, on Mast Base MP-37 or MP-57.	Screw sections together and after placing clamps over joints, screw into mast base. When removed, stow in Roll BG-56-( ).
Dynamotor DM-40-( ), on top of Radio Receiver BC-652-( ) chassis.	If Dynamotor DM-40-( ) is supplied uninstalled, proceed as follows: Remove screws around edge of receiver panel and the screw in rear center of cabinet. Pull receiver chassis from cabinet and secure dynamotor in place with snap slide fasteners provided. Insert plug in which dynamotor lead terminates into socket on receiver chassis. Replace receiver in cabinet. Installation of proper dynamotor automatically adjusts receiver circuit

<i>Part and location</i>	<i>Method and materials</i>
Dynamotor DM-40-( )— <i>Continued</i>	for correct operating voltage. Voltage indicating plate on front panel of receiver should be turned to read 12-VOLT OPERATION.
Dynamotor DM-42-( ), in dynamotor compartment, lower right-hand side of Radio Transmitter BC-653-( ).	If Dynamotor DM-42-( ) is supplied uninstalled, slide it into dynamotor compartment and secure front panel of dynamotor chassis with screws provided. Remove patch cover plate located on top of Radio Transmitter BC-653-( ) (right end), and connect six connector links for 12-VOLT OPERATION as indicated by arrow on link terminal strip. Nameplate on dynamotor panel should read 12 VOLTS.
Radio Transmitter BC-653-( ), on Mounting FT-253-( ).	Place on mounting as shown in figure 13, and secure in place with wingnuts provided.
Radio Receiver BC-652-( ), on Mounting FT-253-( ).	Place on mounting as shown in figure 13, and secure in place with wingnuts provided.
Headset HS-30-( ), Microphone T-17, and Key J-45.	Connect as shown in figure 13.
Microphone Cover M-367.	Place over Microphone T-45.
Roll BG-56-( ).	Disposition left to discretion of using arms.
Cover BG-67.	To be placed over Mast Base MP-37 or Mast Base MP-57 when mast base is not in use.
Loudspeaker LS-3 and Cord CD-314, on right ammunition chest. (See fig. 29.)	Drill right ammunition chest as shown in figure 29 and mount loudspeaker with hardware provided. Connect into properly designated jack on front panel of Radio Receiver BC-652-( ) if use of loudspeaker is desired.
Cover CW-41/U.	Remove screws from outer edge of front panel of loudspeaker. Place cover over front of loudspeaker (flap opening upward) and secure by replacing screws in front panel of speaker.
Connector No. 61007 and Bondnut BL-50.	Install connectors and bondnuts in manner shown in figure 13.
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	Use in place of Headset HS-30-( ), Microphone T-17, and associated cording, when available.
Antenna A-27, Phantom, on bracket. (See fig. 36.)	Drill floor of vehicle as shown in figure 35 and mount bracket (fig. 36) with hardware provided.

b. CORDING AND WIRING. Cord and wire this equipment as shown in figures 13 and 14. Leave sufficient slack in all cording and wiring to permit free motion of all units having shock mountings. *Do not* connect the positive and negative 12-volt leads in the terminal box until all other connections have been made, thus preventing accidental short circuiting of the vehicle storage battery. In the event excess length is cut from Cord CO-280, the terminal lugs must be resoldered to the leads before connections are completed.

## SECTION VI

### RADIO SET SCR-508- ( ), SCR-528- ( ), SCR-608- ( ), OR SCR-628- ( )

#### 14. Required Parts

Items necessary for installation of Radio Set SCR-508- ( ), SCR-528- ( ), SCR-608- ( ), or SCR-628- ( ) in Car, Scout, M3A1 are listed below:

QUANTITY		Stock No.	Item
Radio Set SCR-508- ( ) or SCR-528- ( )	Radio Set SCR-608- ( ) or SCR-628- ( )		
1	0	2A262.....	Antenna A-62, phantom.
0	1	2Z1140.....	Box BX-40, for crystal holders.
1	0	2Z1250.56.....	Bracket (fig. 34) for Antenna A-62, Phantom.
1	50	2Z1246-2.....	Bracket, for Cabinet CH-74-A.
1	1	2Z1574A.....	Cabinet CH-74-A.
2	2	2B1645.....	Chest Set TD-4.
1	0	3E1307-5.5.....	Cord CD-307-A, 65 in. long, for Headset HS-30- ( ).
1	0	3E1604.....	Cord CD-604, 6 in. long, for Headset HS-30- ( ).
0	1	3E1605.....	Cord CD-605.
17 ft.	50	3E2218.....	Cordage CO-218.
12 ft.	12 ft.	3E2212.....	Cordage CO-212.
1	1	6Z3147.....	Connector No. 61007 and Bondnut BL-50, for power cable connection.
1	50	6Z3147-1.....	Connector No. 61004 and Bondnut BL-50.
1	1	2Z3400-108.....	Cover BG-108, for Mast Base MP-48.
1	1	2Z2651-424.....	Clamp MC-424, for Mast Section MS-52.
80	120	2Z3541.....	Crystal Holder FT-241- ( ), with crystal.
2	2	3H1634.....	Dynamotor DM-34- ( ), 12-volt, including attached spare parts, for Radio Receiver BC-603- ( ) or BC-683- ( ).
1	1	3H1635.....	Dynamotor DM-35- ( ), 12-volt, including attached spare parts, for Radio Transmitter BC-604- ( ) or BC-684- ( ).
0	51	2Z4643.....	Frame FM-43.
1	1	6L50-508V13.....	Hardware bag.
1	1	2B800-16.....	Headset H-16/U or HS-30- ( ).
1	1	2B830.....	
1	51	2C1738.....	Interphone Control Box BC-606- ( ).
1	1	2A2088-48.....	Mast Base MP-48 or MP-48-A.
1	1	2A2090-52.....	Mast Base Bracket MP-52.
1	1	2A2352.....	Mast Section MS-52.
1	1	2A2353.....	Mast Section MS-53.
1	1	2B1645.....	Microphone T-45 or T-17.
1	1	2B1617.....	
1	1	2B1567.....	Microphone Cover M-367.
1	1	2Z6721-237.....	Mounting FT-237- ( ), including Cord CO-278 to car terminal box, and necessary mounting bolts, lockwashers, nuts, etc.
1	50	2Z6721-326.....	Mounting FT-326.
2	0	2C4403.....	Radio Receiver BC-603- ( ), including one set of tubes installed, spare fuses, and lamps.
0	2	2C4460.....	Radio Receiver BC-683- ( ), including one set of tubes installed, spare fuses, and lamps.

QUANTITY		Stock No.	Item
Radio Set SCR-508-( ) or SCR-528-( )	Radio Set SCR-608-( ) or SCR-628-( )		
1	0	2C6494.....	Radio Transmitter BC-604-( ), including one set of tubes, spare fuses, and lamps.
0	1	2C6530-684.....	Radio Transmitter BC-684-( ), including one set of tubes, spare fuses, and lamps.
1	1	2Z8056A.....	Roll BG-56-( ), for antenna mast sections.
5 ft.	5 ft.	1B128.....	Wire W-128.

<sup>1</sup> Headset HS-23 may replace Headset H-16/U or HS-30-( ). In this case, Cord CD-604 is not required.

<sup>2</sup> Interphone Control Box BO-606-( ) and Cordage CO-218 are provided to permit operation of Radio Set SCR-508-( ) or SCR-528-( ) from the car commander's seat beside the driver. The interphone control box is used with Radio Set SCR-608-( ) or SCR-628-( ) in conjunction with Radio Set SCR-193-D to permit remote control.

<sup>3</sup> Only one Radio Receiver BO-608-( ) and one Radio Receiver BO-688-( ) are issued for Radio Sets SCR-528-( ) and SCR-628-( ), respectively. Only one Dynamotor DM-34-( ) is issued for Radio Set SCR-528-( ) or SCR-628-( ).

<sup>4</sup> Mounting FT-326 is required when Radio Set SCR-508-( ) or

SCR-528-( ) is installed alone or in conjunction with Radio Set SCR-193-D in Car, Scout, M3A1. When Radio Set SCR-508-( ) or SCR-528-( ) is installed in combination with Radio Set SCR-506-( ) in Car, Scout, M3A1, delete Mounting FT-326, Cordage CO-212, Cordage CO-218, connector No. 61004 and one Bondnut BL-50, bracket, Interphone Control Box BO-606-( ), and add Frame FM-43. (See fig. 15.)

<sup>5</sup> When Radio Set SCR-608-( ) or SCR-628-( ) is installed in combination with Radio Set SCR-193-D use figures 5, 16, and 17. Delete Frame FM-43 and add one Interphone Control Box BO-606-( ), 17 feet of Cordage CO-218, 12 feet of Cordage CO-212, one bracket, one connector No. 61004 and Bondnut BL-50, and Mounting FT-326.

## 15. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) should be installed in Car, Scout, M3A1 as shown in figures 15, 16, 17, and 23, and as directed below:

Part and location	Method and materials
Mounting FT-326, on floor in rear of vehicle. For Radio Set SCR-508-( ) or SCR-528-( ), see <sup>4</sup> above. For Radio Set SCR-608-( ) or SCR-628-( ), see <sup>5</sup> above.	Fasten to floor of vehicle with hexagonal head bolts and elastic stopnuts provided. See figures 4 and 12 for location and drilling data.
Cabinet CH-74-A and bracket, on Mounting FT-326. For Radio Set SCR-508-( ) or SCR-528-( ), see <sup>4</sup> . For Radio Set SCR-608-( ) or SCR-628-( ), see <sup>5</sup> above.	Fasten to mounting with screws and nuts provided. Fasten bracket to top of cabinet and rear wall as shown in figure 17.
Frame FM-43, on floor between ammunition chests. For Radio Set SCR-508-( ) or SCR-528-( ), see <sup>4</sup> above. For Radio Set SCR-608-( ) or SCR-628-( ), see <sup>5</sup> above.	Place as shown in figure 23 and fasten with hardware provided. Refer to c below for reinforcing of Frame FM-43.
Cabinet CH-74-A, on Frame FM-43. For Radio Set SCR-508-( ) or SCR-528-( ), see <sup>4</sup> above. For Radio Set SCR-608-( ) or SCR-628-( ), see <sup>5</sup> above.	Fasten to frame with screws and stopnuts provided with cabinet. (See fig. 15.)
Mounting FT-237-( ), in Cabinet CH-74-A.	Attach to floor of cabinet with bolts and nuts provided with mounting.
Cordage CO-212. (See figs. 16 and 17.)	Cordage CO-212 is used for power cord instead of Cordage CO-278 when Radio Set SCR-508-( ) or SCR-528-( ) is installed at rear of vehicle, or when Radio Set SCR-608-( ) or SCR-628-( ) is installed in combination with Radio Set SCR-193-D.

<i>Part and location</i>	<i>Method and materials</i>
<p>Mast Base Bracket MP-52, on top right front of Cabinet CH-74-A, for Radio Set SCR-508-( ) or SCR-528-( ). Also for Radio Set SCR-608-( ) or SCR-628-( ), when used in combination with Radio Set SCR-193-D.</p>	<p>Remove blank cover over 2-inch hole in top right part of cabinet. Mount mast base bracket over 2-inch hole with 12 hexagonal headscrews and lockwashers already installed in top of cabinet. (See fig. 17.)</p>
<p>Mast Base Bracket MP-52, on top left front of Cabinet CH-74-A, for Radio Set SCR-608-( ) or SCR-628-( ). Also for Radio Set SCR-508-( ) or SCR-528-( ) when used in combination with Radio Set SCR-506-( ).</p>	<p>Fasten in place with screws provided in top of cabinet.</p>
<p>Mast Base MP-48 or MP-48-A and Wire W-128, on Mast Base Bracket MP-52.</p>	<p>Remove cover plate from top of mast base bracket and install mast base in place. (See fig. 18.) Remove setscrews, items 8 and 9, and remove the internal lead-in assembly, item 7. Strip 1/2 inch of insulation from one end of Wire W-128 and solder metallic tip, item 6B, to it. Insert this end of Wire W-128 inside mast base, making certain that the tip is inserted in slot at top of mast base as far as possible. This may be viewed through holes for setscrews, items 8 and 9. Replace setscrews and tighten firmly. Slip insulator, item 6E, rubber gasket, item 6D, and insulator, item 6C, over Wire W-128 and install inside hollow stem of mast base. Be sure to provide enough slack wire inside mast base to allow for flexing of mast base spring, and tighten insulators and rubber gasket in place with knurled collar, item 18. Run Wire W-128 down through mast base bracket. Cut Wire W-128 to proper length and connect to terminal on Radio Transmitter BC-604-( ) or BC-684-( ) for Radio Set SCR-508-( ) and for Radio Set SCR-608-( ) or SCR-628-( ) when used in combination with Radio Set SCR-193-D. Connect to terminal on Mounting FT-237-( ) for Radio Set SCR-608-( ) or SCR-628-( ) and for Radio Set SCR-508-( ) or SCR-528-( ) when used in combination with Radio Set SCR-506-( ). See figure 37 for assembly of Mast Base MP-48-A.</p>
<p>Dynamotor DM-34-( ), in cabinet of Radio Receiver BC-603-( ) or BC-683-( ).</p>	<p>If dynamotor is not already installed in radio receiver, proceed as follows: Remove chassis from receiver cabinet by loosening screw lock in rear center of cabinet. Dynamotor unit is installed on top rear of receiver chassis by means of four screws in its base.</p>
<p>Dynamotor DM-35-( ), in cabinet of Radio Transmitter BC-604-( ) or BC-684-( ).</p>	<p>If dynamotor is not already installed in radio transmitter, proceed as follows: Remove crystal case from transmitter cabinet by loosening two screw locks on front panel and pulling crystal case out.</p>

<i>Part and location</i>	<i>Method and materials</i>
Dynamotor DM-35-( )— <i>Continued</i>	Loosen four screw locks holding cover on top of transmitter and remove cover. Dynamotor unit is installed in left rear of transmitter chassis by means of four screws in its base.
Radio Transmitter BC-604-( ) or BC-684-( ), on Mounting FT-237-( ).	Mount in position shown in figures 15, 16, 17, and 23 by means of thumbscrew locking devices.
Radio Receiver BC-603-( ) or BC-683-( ), on Mounting FT-237-( ).	Mount in position shown in figures 15, 16, 17, and 23 by means of thumbscrew locking devices.
Headset H-16/U, Microphone T-45, Chest Set TD-4.	Use, when available, to replace Headset HS-30-( ), Microphone T-17, and associated cording.
Microphone Cover M-367.	Place over Microphone T-45 when not in use.
Headset HS-30-( ), Cord CD-604-( ), and Cord CD-307-A, for Radio Set SCR-508-( ) or SCR-528-( ).	Connect Headset HS-30-( ) to Cord CD-604. Attach Cord CD-604 to Cord CD-307-A and connect Cord CD-307-A to jack on Radio Receiver BC-603-( ).
Headset HS-30-( ) and Cord CD-605, for Radio Set SCR-608-( ) or SCR-628-( ).	Connect Headset HS-30-( ) to jack on Radio Receiver BC-683-( ) with Cord CD-605.
Connector No. 61007 and Bondnut BL-50.	Install through knock-out hole in terminal box as shown in figures 17 and 23.
Connector No. 61004 and Bondnut BL-50. For Radio Set SCR-508-( ) or SCR-528-( ), refer to <sup>4</sup> above. For Radio Set SCR-608-( ) or SCR-628-( ), refer to <sup>5</sup> above.	Install through hole in bulkhead. Required for Cordage CO-218 in addition to connector No. 61007.
Microphone T-17.	For use when Microphone T-45 is not available. Plug into microphone jack on front panel of Radio Transmitter BC-604-( ) or BC-684-( ).
Mast Sections MS-52 and MS-53 and Clamp MC-424.	Screw together and after placing Clamp MC-424 over joint, screw into mast base. When removed, stow mast sections in Roll BG-56-( ).
Cover BG-108.	Place over mast base when mast sections are removed.
Roll BG-56-( ).	Disposition left to discretion of using arms.
Interphone Control Box BC-606-( ) and Cordage CO-218. For Radio Set SCR-508-( ) or SCR-528-( ), refer to <sup>4</sup> above. For Radio Set SCR-608-( ) or SCR-628-( ), refer to <sup>5</sup> above.	On instrument panel in place occupied by nameplate. Prepare ends of cable by standard methods. Provide a soldered ground connection at each end of cable for both inner and outer shielding. Install cable as shown in figure 17. Wire as shown in figure 19.
Antenna A-62, Phantom, on bracket (fig. 34), and Wire W-128.	Refer to position 3 of figure 33. Remove two screws from left front corner of Mounting FT-237-( ) and secure bracket (with antenna attached) to mounting using original lockwashers and two 10-32 x 5/8-inch screws provided. Disconnect standard antenna lead-in from binding post on Radio Transmitter BC-604-( ) for Radio Set SCR-508-( ) or SCR-528-( ) and Radio Set SCR-608-( ) or SCR-628-( ) when used in combination with Radio Set SCR-193-D, or

<i>Part and location</i>	<i>Method and materials</i>
Antenna A-62, Phantom, on bracket (fig. 34), and Wire W-128— <i>Continued</i>	from binding post on mounting FT-237-( ) for Radio Set SCR-608-( ) or SCR-628-( ) and for Radio Set SCR-508-( ) or SCR-528-( ) when used in combination with Radio Set SCR-506-( ). Connect one end of the 2-foot length of Wire W-128 to binding post from which lead-in was disconnected. Remove cover from antenna and connect other end of 2-foot length of Wire W-128 to antenna binding post marked ANT. Fasten ground clamp (connected to binding post marked GND) to tip of bracket.

*Note.* When Radio Set SCR-608-( ) or SCR-628-( ) is installed in combination with Radio Set SCR-193-D, see figures 5, 16, and 17. When this installation is made, Frame FM-43 is not used.

**b. CORDING AND WIRING.** Cord and wire Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) as shown in figures 15, 16, 17, and 23. Connect Cord CO-212 or CO-278 to vehicle terminal box only after all other connections have been completed, thus preventing accidental short circuiting of the vehicle battery. Leave sufficient slack in all cording and wiring to permit free motion of the shock mounting.

**c. REINFORCING FRAME FM-43.**

(1) Reports from the field state that excessive movement of Radio Set SCR-508-( ), SCR-528-( ), SCR-608-( ), or SCR-628-( ) causes the bolts securing Frame FM-43 to the floor of Car, Scout, M3A1 to break loose.

(2) The addition of reinforcing brackets between the rear corners of Frame FM-43 and the two adjacent ammunition racks will prevent this trouble.

(a) Items necessary for reinforcing Frame FM-43 are listed below:

Quantity	Stock No.	Item
1		Bracket (item 1, fig. 30).
1		Bracket (item 2, fig. 30).
2	2Z6721-429.....	Plate FT-429, reinforcing. (See fig. 31.)
8	5B1505-1.....	Screw, machine, 5/16 in.-24 x 1 1/4 in., hex. head, steel.
8	5B6405-24.....	Nut, steel, hex. standard, for 5/16 in.-24 screw.
8	6L73028.....	Lockwasher, steel, SAE regular, for 5/16 in. screw.

(b) See figure 32 for details of installation.

(c) With Frame FM-43 installed in vehicle, use bracket (item 1, fig. 30) as a template to mark the centers for two 1 1/32-inch holes in the left rear edge of the frame and in the left ammunition chest. Do the same on the right side of the frame and right ammunition chest, using bracket (item 2, fig. 30) as the template.

(d) Drill 1 1/32-inch holes (eight required) as marked.

(e) Mount bracket (item 1, fig. 30) to upper left rear corner of the frame and fasten with two machine screws, nuts, and lockwashers.

(f) Mount bracket (item 2, fig. 30) to upper right rear corner of the frame and fasten with two machine screws, nuts, and lockwashers.

(g) Use reinforcing Plate FT-429 on the inner portion of each ammunition rack, and insert the machine screws through the bracket, ammunition rack, and reinforcing plate. Tighten lockwashers and nuts securely at all points.

## SECTION VII

### RADIO SET SCR-510-( ) OR SCR-610-( )

#### 16. Required Parts

Items necessary for installation of Radio Set SCR-510-( ) or SCR-610-( ) in Car, Scout, M3A1 are listed below:

QUANTITY		Stock No.	Item
Radio Set SCR-510-( )	Radio Set SCR-610-( )		
1	1	6Q349.....	Alignment Tool TL-207.
1	1	3A41.....	Battery BA-41, internal.
0	1	2Z1140.....	Box BX-40-( ), for crystals.
0	1	3B879.....	Case CS-79-( ), for battery power supply.
0	1	2Z2651-423.....	Clamp MC-423, for Mast Section MS-51.
1	1	2Z2651-424.....	Clamp MC-424, for Mast Section MS-52.
1	1	6Z3147.....	Connector No. 61007 and Bondnut BL-50, for connection to car terminal box.
1	1	3E1605-6.5.....	Cord CD-605, 78 in. long, for Headset HS-30-( ).
80	120	2Z3543.....	Crystal Holder FT-243, with crystal.
1	1	2Z3400-108.....	Cover BG-108, for Mast Base MP-48.
1	1	2Z3400-153.....	Cover BG-153, for Radio Receiver and Transmitter BC-620-( ).
1	1	6L50-510V13.....	Hardware bag.
1 <sup>1</sup>	1 <sup>1</sup>	2B830.....	Headset HS-30-( ).
1	1	2A2088-48.....	Mast Base MP-48 or MP-48-A.
1	1	2A2090-50.....	Mast Base Bracket MP-50.
0	1	2A2351.....	Mast Section MS-51.
1	1	2A2352.....	Mast Section MS-52.
1	1	2A2353.....	Mast Section MS-53.
1	1	2B1617.....	Microphone T-17.
1 <sup>1</sup>	1 <sup>1</sup>	2Z6721-250.....	Mounting FT-250-( ).
1 <sup>1</sup>	1 <sup>1</sup>	3H4496-120.....	Power Supply Unit PE-120-( ).
1	0	2G5360.....	Radio Receiver and Transmitter BC-620-( ), including necessary crystals and set of tubes installed.
0	1	2C6659.....	Radio Receiver and Transmitter BC-659-( ), including necessary crystal and set of tubes installed.
3	3	2Z6721-429.....	Reinforcing Plate FT-429, for Mast Base Bracket MP-50.
1	1	2Z8056A.....	Roll BG-56-( ).
1	1	3H6713.....	Vibrator VB-13.
5 ft.	5 ft.	1B128.....	Wire W-128, for antenna lead-in.

<sup>1</sup> Headset HS-30-( ) may be replaced by Headset P-28. In this case, Cord CD-605 is not required.

<sup>2</sup> When Radio Set SCR-510-( ) or SCR-610-( ) is installed in combination with Radio Set SCR-193-D, and Mounting FT-317 and Cord CD-509 and install as shown in figure 20.

<sup>3</sup> Plate Supply Unit PE-97-( ) or PE-117-( ) may be substituted for Power Supply Unit PE-120-( ). When this is done, delete Vibrator VB-13 and add CD-509.



## 17. Assembly and Installation

Components of Radio Set SCR-510-( ) or SCR-610-( ) should be installed in Car, Scout, M3A1 as shown in figures 21 and 22 and as directed below. (Before proceeding see note below.)

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-250-( ), on floor of vehicle, right side. (See fig. 22.)	Fasten to floor with hardware provided. See figure 4 for drilling data.
Mast Base Bracket MP-50 and reinforcing Plate FT-429, on side of right ammunition rack. (See fig. 22.)	Fasten in place with hardware provided. See figure 4 for drilling data.
Mast Base MP-48 or MP-48-A, on Mast Base Bracket MP-50.	Install as shown in figure 22. Assemble as shown in figure 18. See figure 37 for Mast Base MP-48-A. Mast Base MP-48 is so designed that three approved modes of lead-in connections are possible: (a) coaxial cord; (b) Wire W-128, internal; and (c) Wire W-128, external. Wire W-128, external mode of connection, must be used in this installation as follows: Referring to figure 18, loosen setscrews 8 and 9, and pull assembly 7 from inside mast base. Strip $\frac{1}{2}$ inch of insulation from one end of Wire W-128, scrape wire clean, and solder-tin exposed end. Run tinned end of wire upward through holes in items 14 and 15 and fasten in slot of binding post, item 16. Tighten setscrews of items 14 and 15. Be sure to allow enough slack wire to allow mast base spring to flex freely. Cut Wire W-128 to a total length of 24 inches for Radio Set SCR-510-( ) or 36 inches for Radio Set SCR-610-( ). Strip 1 inch of insulation from end of wire. Clean and solder-tin this end for connection to Radio Receiver and Transmitter BC-620-( ) or BC-659-( ).
Battery BA-41, in battery box inside Radio Receiver and Transmitter BC-620-( ) or BC-659-( ).	If battery is not already installed, proceed as follows: Remove ten screws around outer edge of front panel and pull receiver and transmitter chassis from case. Remove cover of battery box located on chassis near front panel. Place Battery BA-41 in box, being careful to engage plug in socket of battery. Replace cover. Before replacing chassis in case, make sure that all tubes are pressed down firmly in their proper sockets, that crystals for desired operating frequencies are in their proper sockets with retaining clip in position, and that two toggle switches near left side of chassis are at ON position.
Power Supply Unit PE-120-( ) and Vibrator VB-13, on Mounting FT-250-( ).	Open case of Power Supply Unit PE-120-( ) and remove chassis cover, Install Vibrator VB-13 in its socket. Make certain that connector link is in BC-620 position (BC-659 position for Radio Set SCR-610-( )), that change-over plug is set for

<i>Part and location</i>	<i>Method and materials</i>
Power Supply Unit PE-120-( )— <i>Continued</i>	12 volts (arrow pointing to 12), and that tubes are pressed down firmly in their proper sockets. Replace cover on chassis and close lid of power supply unit. Secure to Mounting FT-250-( ) with hook fasteners provided.
Radio Receiver and Transmitter BC-620-( ) or BC-659-( ) on Power Supply Unit PE-120-( ). Microphone T-17 and Headset HS-30-( ).	Secure in place with catch-clips provided.
Mast Sections MS-52 and MS-53 and Clamp MC-424. Add Mast Sections MS-51 and Clamp MC-423 for installation of Radio Set SCR-610-( ). Cover BG-108.	Plug into properly designated cords and jacks. (See fig. 21.) Cord CD-605 is supplied for connecting to Headset HS-30-( ). Screw together and after placing clamps over joints, screw into mast place. When removed, stow mast sections and clamps in Roll BG-56-( ).
Connector No. 61007 and Bondnut BL-50.	Place over Mast Base MP-48 or MP-48-A when not in use. Install through knock-out hole in terminal box for power cord from Power Supply Unit PE-120-( ). Secure power cord in place with clamps provided as shown in figure 22.

*Note.* For installation of Radio Set SCR-510-( ) or SCR-610-( ) in combination with Radio Set SCR-193-D, perform necessary drilling of Chest CH-153 and right ammunition rack as shown in figure 4, and make the installation as above with the following installation changes shown in figure 20:

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-317-( ) and Power Supply Unit PE-120-( ).	Attach mounting to front end of right ammunition rack with hardware provided. Place power supply unit on mounting and secure with bracket provided.
Mounting FT-250-( ) and Radio Receiver and Transmitter BC-620-( ) or BC-659-( ).	Attach mounting to top of Chest CH-153-( ) with hardware provided. Place receiver-transmitter on mounting and secure with hook fasteners provided.
Cord CD-509.	Use Cord CD-509 to connect Power Supply Unit PE-120-( ) and Radio Receiver and Transmitter BC-620-( ) or BC-659-( ). Route and clamp all cording as shown in figure 20.

## SECTION VIII

### RADIO SET SCR-593-( )

#### 18. Required Parts

Items necessary for installation of Radio Set SCR-593-( ) in Car, Scout, M3A1 are listed below :

Quantity	Stock No.	Item
1	2A269-75.....	Antenna AN-75-( ), telescopic.
1	3B54.....	Battery BB-54-( ).
1	2Z551-169.....	Bag BG-169.
1	6Z3147-1.....	Connector No. 61004 and Bondnut BL-50, for power-lead connection.
1	3E1605.....	Cord CD-605, 78 in. long, for Headset HS-30-( ).
1	6L50-593V13.....	Hardware bag.
1	2B830.....	Headset HS-30-( ).
1	2Z6721-338.....	Mounting FT-338-( ), including extension bracket, strap, mounting screws, Cord CD-618, etc.
1	2C4728.....	Radio Receiver BC-728-( ), with tubes.
1		Reinforcing bracket.
1	6D13100.....	TM-11-859, for Radio Set SCR-593-( ).
1	2C4728/T1.....	Tubes, vacuum, complete set of spares, consisting of one VT-171, one VT-172, three VT-173, and two VT-174.
2	3H6708.....	Vibrator VB-8-( ), 2-volt.
2	3H6709.....	Vibrator VB-9-( ), 12-volt.

#### 19. Assembly and Installation

Components of Radio Set SCR-593-( ) should be installed in Car, Scout, M3A1 as shown in figure 24 and as directed below :

<i>Part and location</i>	<i>Method and materials</i>
Battery BB-54-( ), in battery compartment of Radio Receiver BC-728-( ).	<p>Place battery in service in accordance with instructions attached. Open case of radio set, lift chassis upon its hinges, and remove battery retainer bracket. Connect yellow-coded battery lead to positive terminal and other lead to negative terminal.</p> <p><b>Caution:</b> In placing battery into compartment be sure to attach airvent hose to battery air vent. Otherwise, sulphuric acid fumes may penetrate radio parts and produce harmful results.</p> <p>Push battery into compartment and replace retainer bracket. Before tightening screws, be sure antenna plug receptacle fits into opening provided inside of case.</p>

<i>Part and location</i>	<i>Method and materials</i>
Extension bracket and reinforcing bracket, on cover of tool chest located between two front seats.	Drill cover of tool chest and modify extension bracket according to details 1 and 3 in figure 24. Fasten extension bracket in position with hardware provided. Brace bracket from rear by means of reinforcing bracket.
Mounting FT-338-( ), on extension bracket.	Make sure switch actuating plug is removed from top of mounting and secure mounting to extension bracket with hardware provided, using flat washers for spacers as shown in detail 3, figure 24. Drill holes in bulkhead for clamps as shown in detail 2, figure 24. Route power cord to terminal box using clamps to secure in position. Install connector and bondnut through knock-out hole in terminal box for power cord.
Radio Receiver BC-728-( ), on Mounting FT-338-( ).	Place Radio Receiver BC-728-( ) on Mounting FT-338-( ). Line plug on radio set squarely with receptacle on mounting. Draw two cam levers down over two studs mounted on receiver. <b>Caution:</b> Do not permit the radio set to be left in a vehicle for a period of more than 3 or 4 days without being used, as the 2-volt battery will be overcharged and the vehicle battery discharged. Either remove radio set from Mounting FT-338-( ) or disconnect lead from terminal box. Mount on bracket provided on Radio Receiver BC-728-( ). Store spare parts and components not in use in bag. Store bag in any convenient location in vehicle.
Antenna AN-75-( ).	
Bag BG-169.	

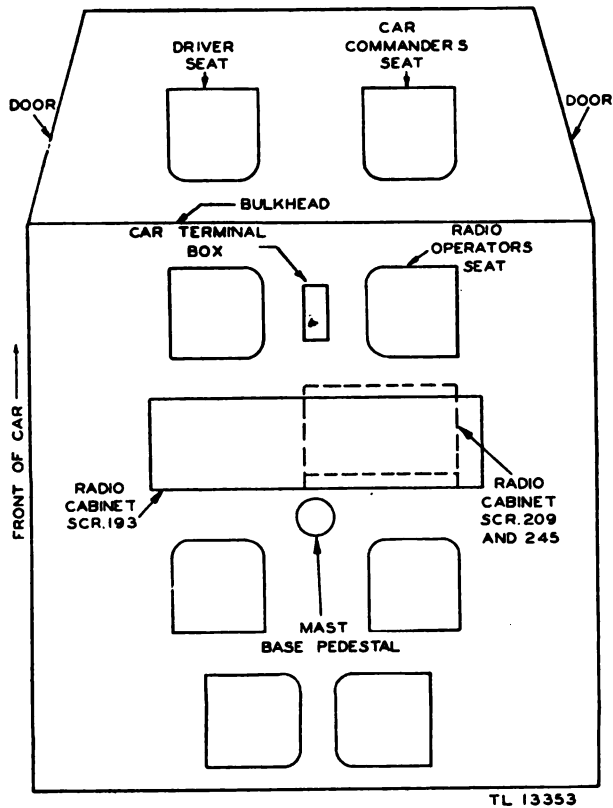


Figure 1. Location of Radio Set SCR-193-D and seating arrangement in Car, Scout, M3A1.

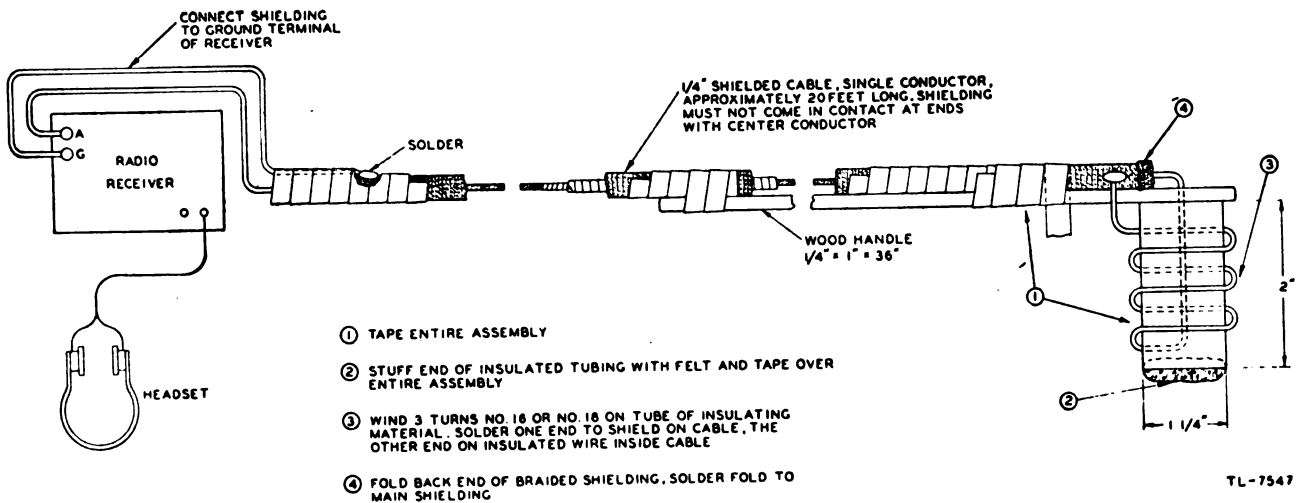
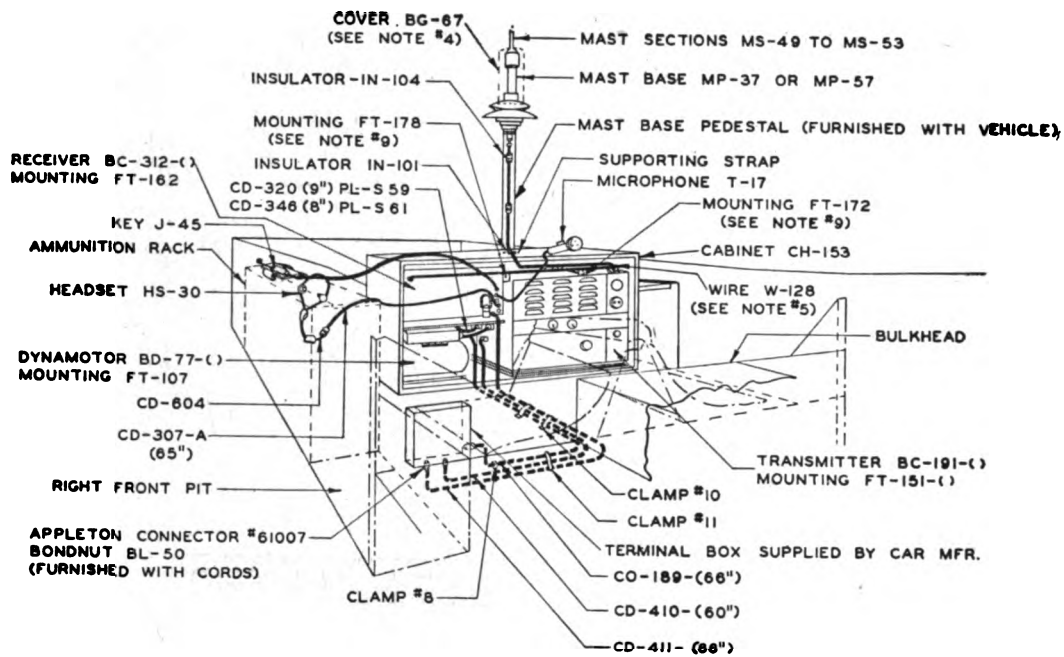
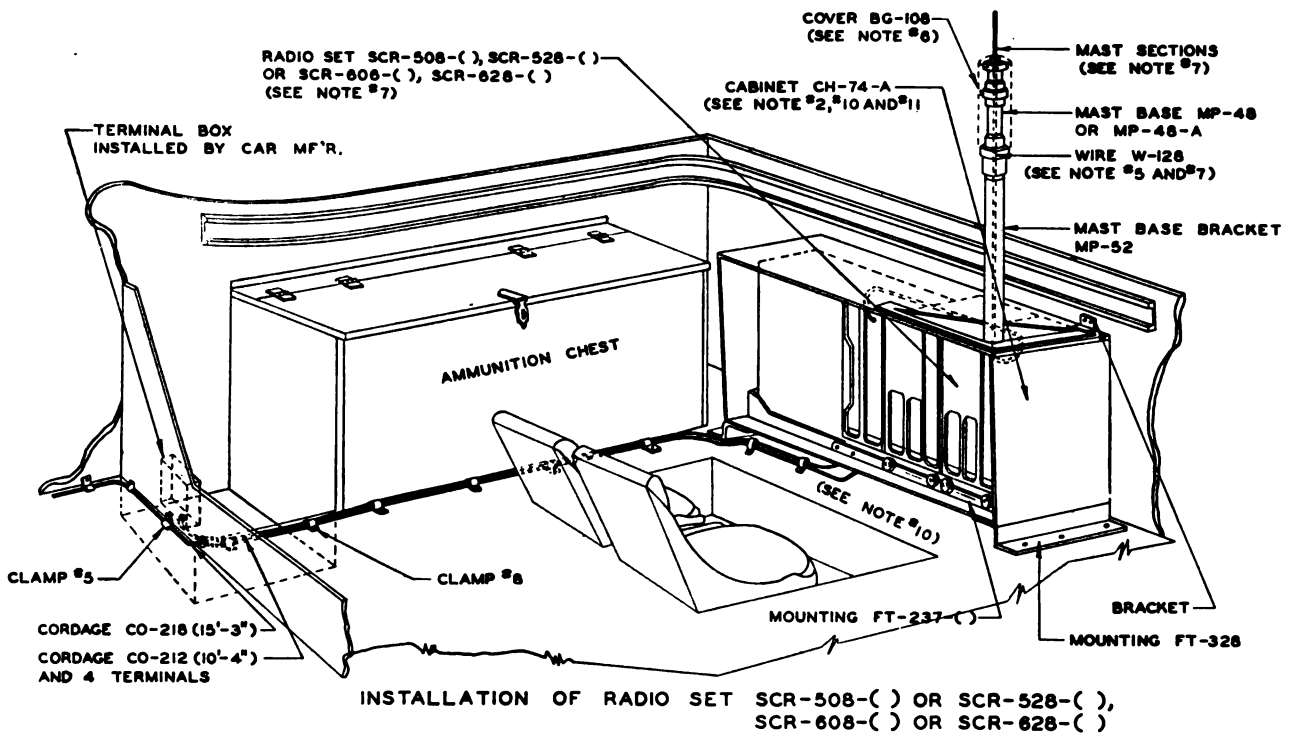


Figure 2. Probe antenna.



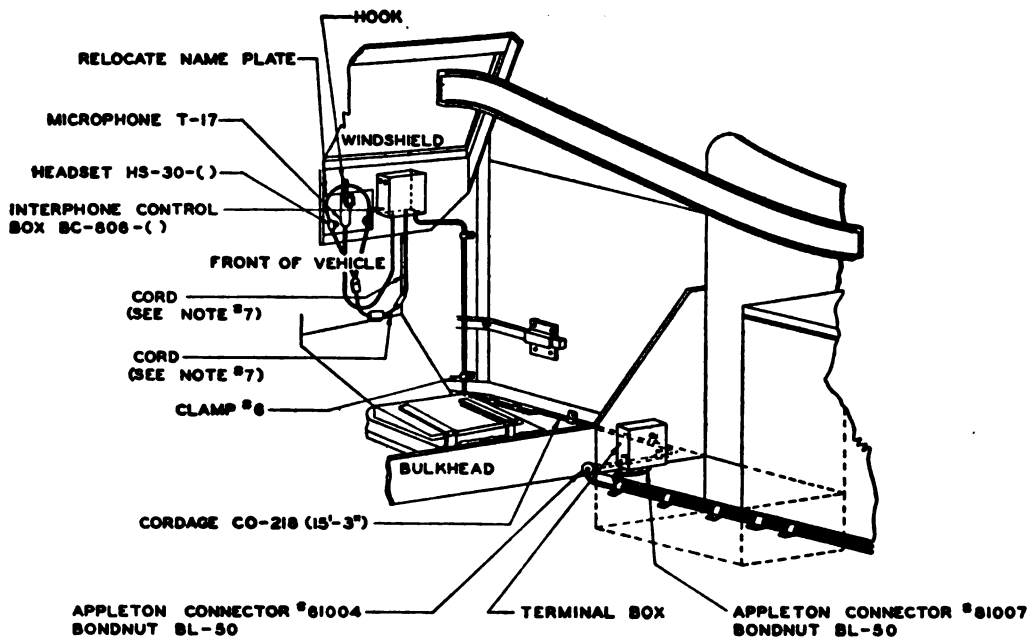
INSTALLATION OF RADIO SET SCR-193-D



INSTALLATION OF RADIO SET SCR-508-(-) OR SCR-528-(-),  
SCR-608-(-) OR SCR-628-(-)

TL-13354-1

Figure 3. Pictorial view of Radio Set SCR-193-D in combination with Radio Set SCR-508-(-), SCR-528-(-), SCR-608-(-), or SCR-628-(-) in Car, Scout, MSA1.



**HARDWARE REQUIRED:**

- MOUNTING FT-162  
 10-<sup>#</sup>10-32 X 3/4" LG. RD. HD. MACH. SCREWS  
 10-<sup>#</sup>10-32 HEX. NUTS  
 10-<sup>#</sup>10 LOCKWASHERS  
 MOUNTING FT-107  
 6-1/4"-28 X 7/16" LG. RD. HD. MACH. SCREWS  
 6-1/4" LOCKWASHERS  
 MOUNTING FT-151  
 6-1/4"-28 X 7/16" LG. RD. HD. MACH. SCREWS  
 6-1/4" LOCKWASHERS  
 MOUNTING FT-172 AND FT-178  
 6-<sup>#</sup>10-32 X 1/2" LG. RD. HD. MACH. SCREWS  
 6-<sup>#</sup>10-32 HEX. NUTS  
 6-<sup>#</sup>10 LOCKWASHERS  
 MOUNTING FT-328 (SEE NOTE 2)  
 8-3/8" LOCKWASHERS  
 2-3/8"-16 HEX. HD. NUTS AND SPACERS  
 2-3/8"-16 X 1-3/4" LG. RD. HD. BOLTS  
 6-3/8"-18 HEX. HD. NUTS  
 6-3/8"-16 X 1-1/4" LG. HEX. HD. BOLTS  
 CABINET CH-74-A (SEE NOTE 2)  
 6-1/4"-28 X 3/4" LG. HEX. HD. MACH. SCREWS  
 6-1/4"-28 ELASTIC STOP NUTS  
 MOUNTING FT-237-() (SEE NOTE 2)  
 6-5/16"-24 X 3/4" LG. HEX. HD. MACH. SCREWS  
 6-5/16"-24 ELASTIC STOP NUTS  
 INTERPHONE CONTROL BOX BC-606-()  
 3-<sup>#</sup>8-32 X 3/8" LG. RD. HD. MACH. SCREWS  
 3-<sup>#</sup>8-32 HEX. NUTS  
 3-<sup>#</sup>8 LOCKWASHERS  
 HOOK  
 2-<sup>#</sup>8-32 X 3/8" LG. RD. HD. MACH. SCREWS  
 2-<sup>#</sup>8-32 HEX. NUT  
 2-<sup>#</sup>8 LOCKWASHERS  
 HOOK ON DASH  
 1-<sup>#</sup>8 X 1/2" LG. SELF TAPPING SCREW  
 1-<sup>#</sup>8 LOCKWASHER  
 SCREWS, NUTS AND LOCKWASHERS SHOULD BE STEEL GALVANIZED.

**NOTES:**

1. FOR SCR-193-D CORDING DIAGRAM SEE FIG. 10
2. SCREWS, NUTS, ELASTIC STOP NUTS, AND LOCKWASHERS ARE FURNISHED WITH MOUNTING FT-237-(), CABINET CH-74-A AND MOUNTING FT-328.
3. FOR CORDING DIAGRAM OF RADIO SET SCR-508-() OR SCR-528-() SEE FIG. 16
4. USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
5. CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA AND GROUND CONNECTIONS.
6. USE COVER BG-108 WHEN MAST IS NOT INSTALLED.
7. INSTALLATION COMPONENTS

RADIO SET	SCR-508	SCR-528
MAST SECTIONS	MS-52, 53	MS-52, 53
ANTENNA LEAD-IN W-128	58'	58'
TRANSMITTER	BC-604	BC-604
RECEIVER	2-BC-603	BC-603
HEADSET CORDS	CORD CD-307-A (65')	CORD CD-604

8. FOR MTG. HOLES AND LOCATIONS SEE FIG. 4
9. SEE FIG. 26 FOR ASSEMBLY OF MTG. FT-172 AND FT-178.

10. IF CABINET CH-74-A IS ISSUED WITH OUT KNOCK-OUTS IN BOTTOM MODIFY AS PER FIG. 25
11. ELIMINATE BRACKET THROUGH BOLTS WITH SPACERS IN BACK OF CABINET CH-74-A WHEN MOUNTING HOLES ARE PROVIDED IN VEHICLE.

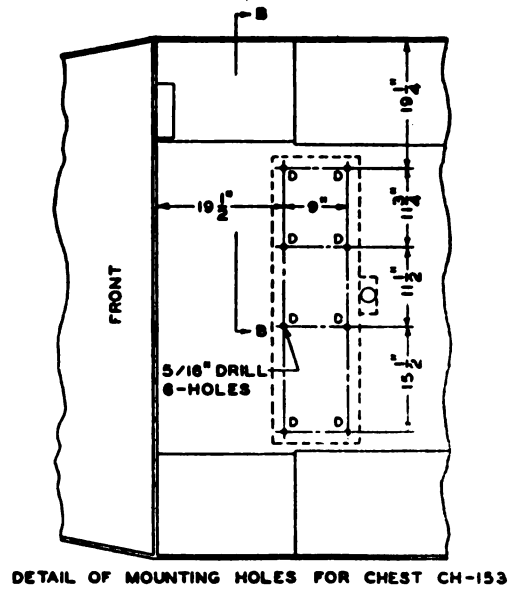
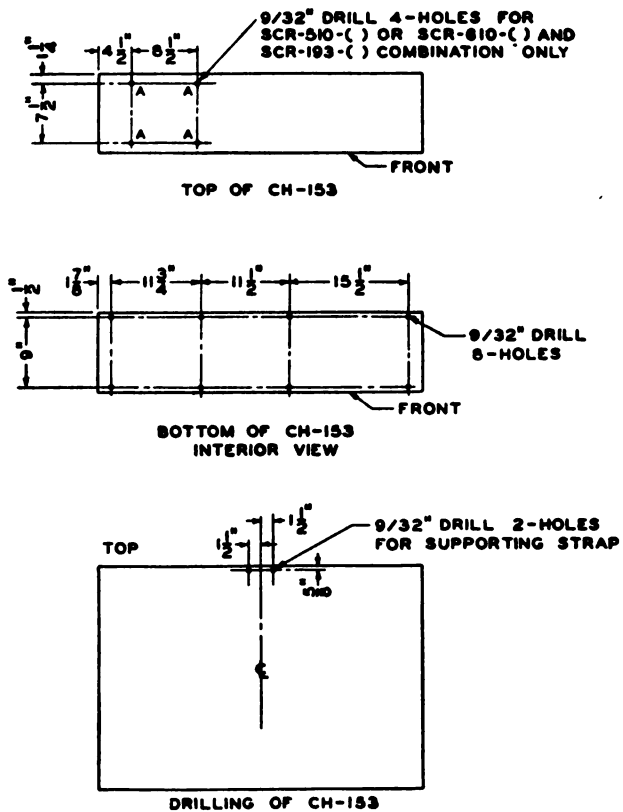
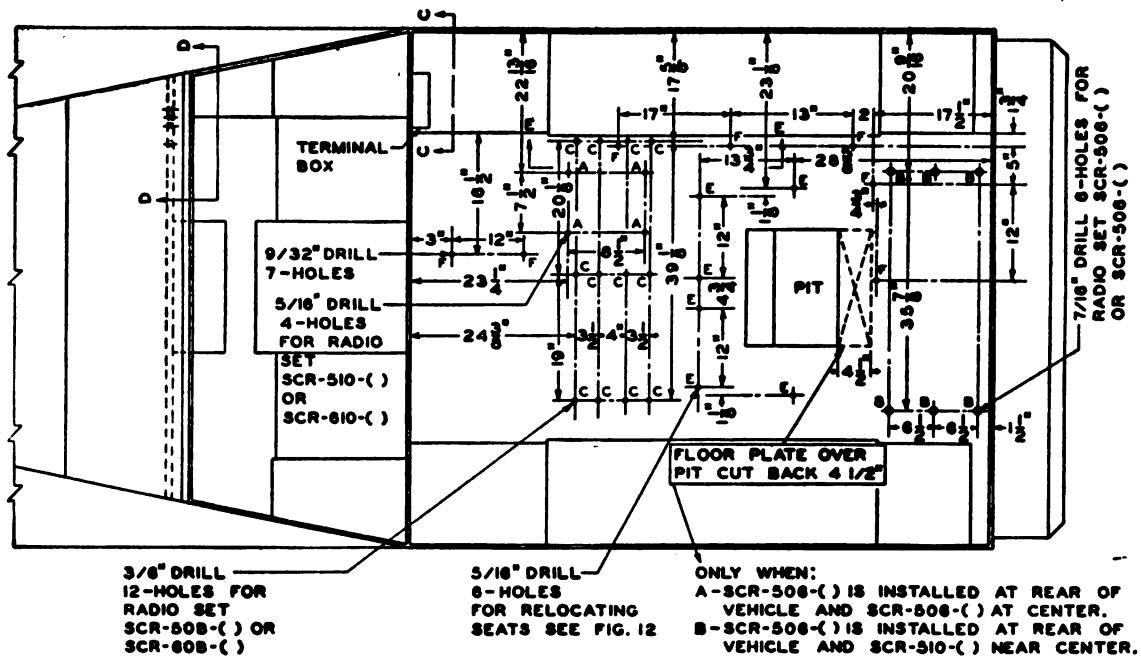
**CLAMPS:**

- CLAMP #11-1 REQ.  
 USE EXISTING BOLT  
 CLAMP #10-2 REQ.  
 2-1/4"-20 X 1" HEX. HD. MACH. SCREW  
 2-1/4"-20 HEX. NUTS  
 2-1/4" LOCKWASHERS  
 CLAMP #6-9 REQ.  
 9-1/4"-20 X 1" HEX. HD. MACH. SCREW  
 9-1/4"-20 HEX. NUTS  
 9-1/4" LOCKWASHERS  
 CLAMP #5-2 REQ.  
 USE EXISTING BOLT  
 CLAMP #6-8 REQ.  
 USE EXISTING BOLT

Figure 3—Continued.

TL-13354-2

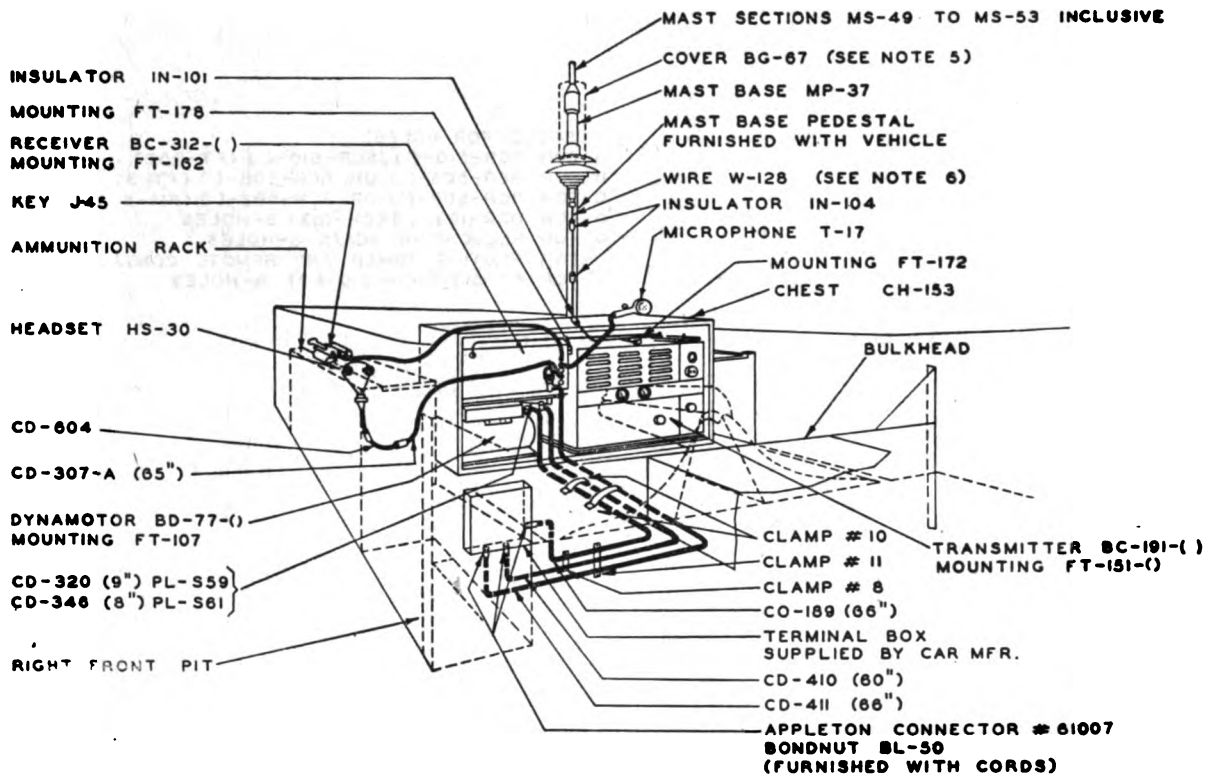




TL-13355-1

Figure 4. Mounting holes and locations in Car, Scout, M3A1.





**HARDWARE REQUIRED**

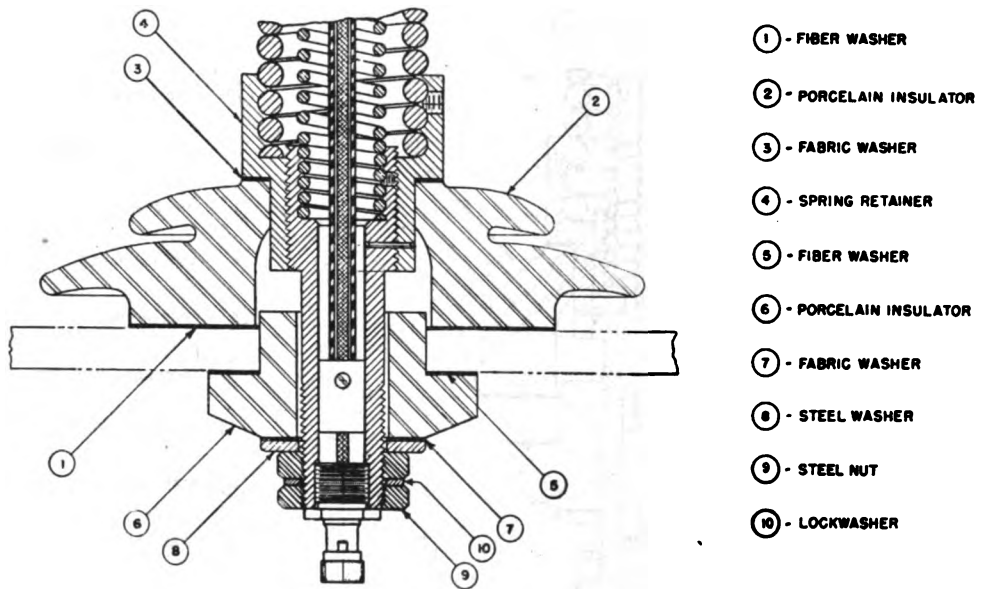
- MOUNTING FT-162  
10- # 10-32 X 3/4" ROUND HEAD MACH. SCREWS  
10- # 10-32 HEX. NUTS  
10- # 10 LOCK WASHERS  
MOUNTING FT-107  
8- 1/4"-28 X 7/16" ROUND HEAD MACH. SCREWS  
8- 1/4"-LOCK WASHERS  
MOUNTING FT-151-B  
8- 1/4"-28 X 7/16" ROUND HEAD MACH. SCREWS  
8- 1/4"-LOCK WASHERS  
MOUNTING FT-172 AND FT-179  
8- # 10-32 X 1/2" ROUND HEAD MACH. SCREWS  
8- # 10-32 HEX NUTS  
8- # 10 LOCK WASHERS  
CLAMP # 11-1 REQ.  
(USE EXISTING BOLT)  
CLAMP # 10-2 REQ.  
2- 1/4"-20 X 1" H.H.M.S.  
2- 1/4"-20 HEX NUT  
2- 1/4"-LOCK WASHER  
CLAMP # 8-1 REQ.  
1- 1/4"-20 X 1" H.H.M.S.  
1- 1/4"-20 HEX. NUT  
1- 1/4" LOCK WASHER  
SCREWS, NUTS AND LOCK WASHERS  
SHOULD BE STEEL GALVANIZED

**NOTE:**

1. FOR CORDING DIAGRAM SEE FIG.10.
2. FOR MOUNTING HOLES AND LOCATION SEE FIG.4.
3. SEE FIG.26 FOR ASSEMBLY OF MOUNTINGS FT-172 AND FT-178.
4. SEE FIGS.8 AND 9 FOR DRILLING OF RECEIVER AND TRANSMITTER FOR MOUNTING SNUBBERS.
5. USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
6. CUT WIRE W-128 TO PROPER LENGTH TIN ENDS FOR ANTENNA AND GROUND CONNECTIONS.
7. FOR COMBINATION OF SCR-193-( ) AND SCR-508-( ) SCR-526-( ), SCR-808-( ), OR SCR-628-( ) USE THIS FIGURE AND FIG. 17

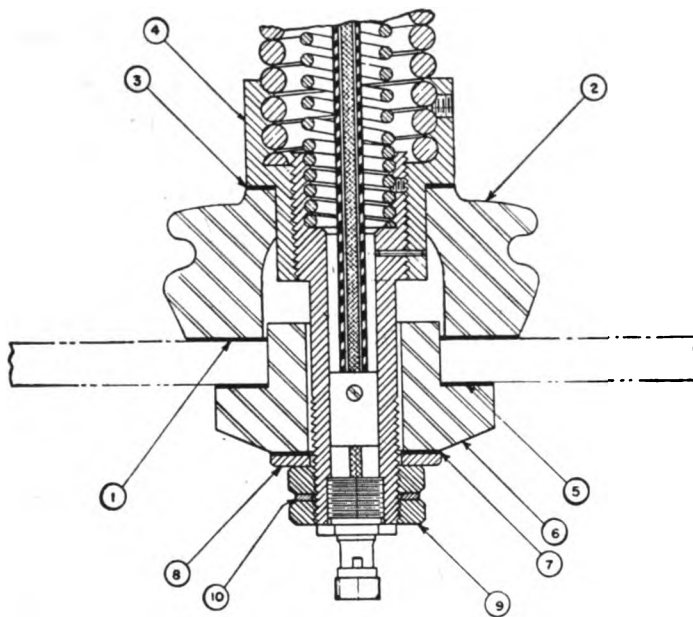
TL-13356

Figure 5. Pictorial view of Radio Set SCR-193-D in Car, Scout, M3A.



TL-7639

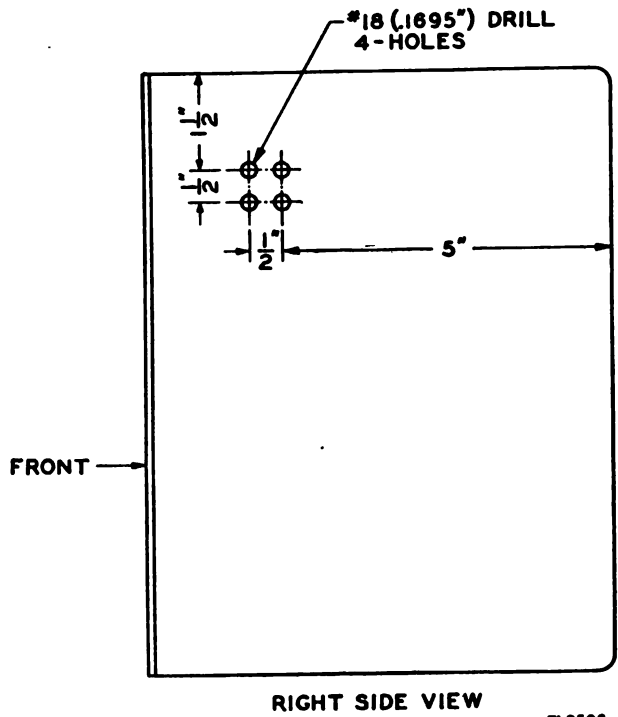
Figure 6. Mast Base MP-37, assembly for installation.



- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

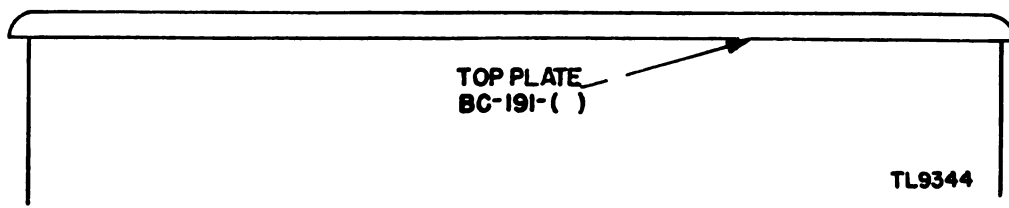
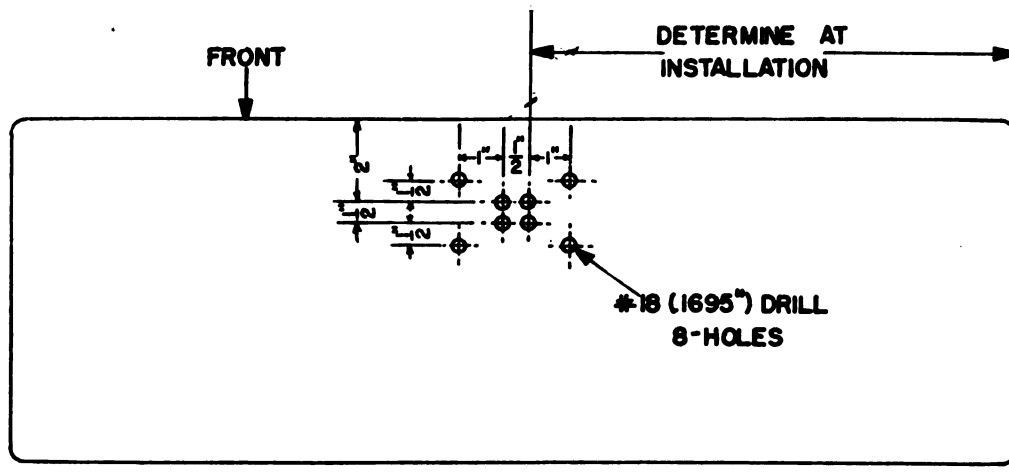
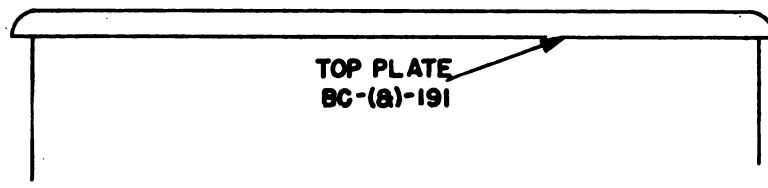
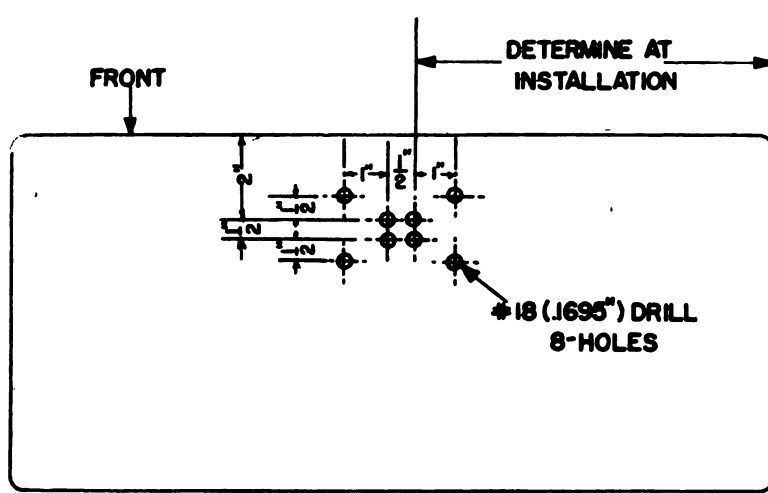
TL-7540

*Figure 7. Mast Base MP-57, assembly for installation.*



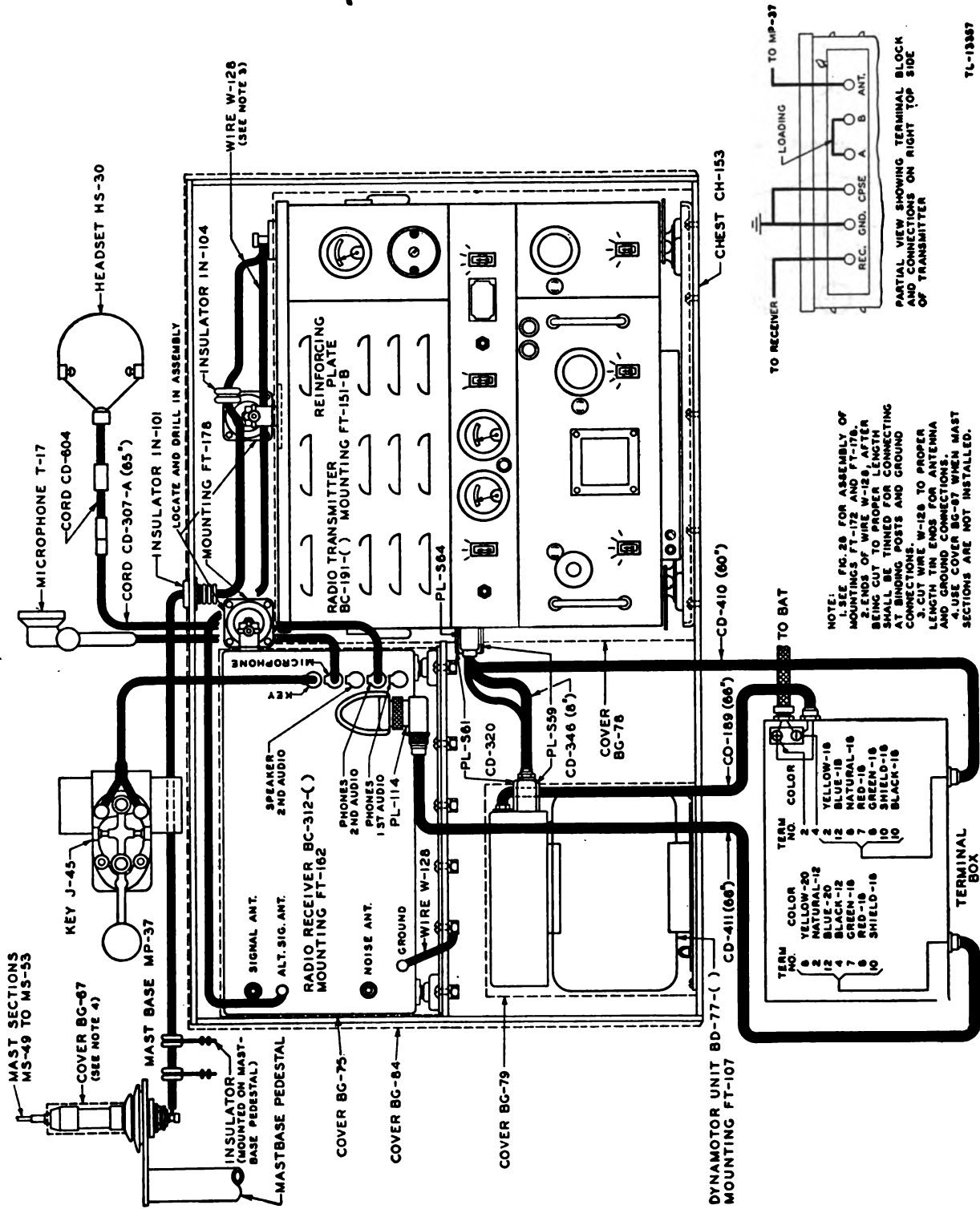
TL9506

Figure 8. Drilling of Radio Receiver BC-312-( ) for Mounting FT-178.



TL9344

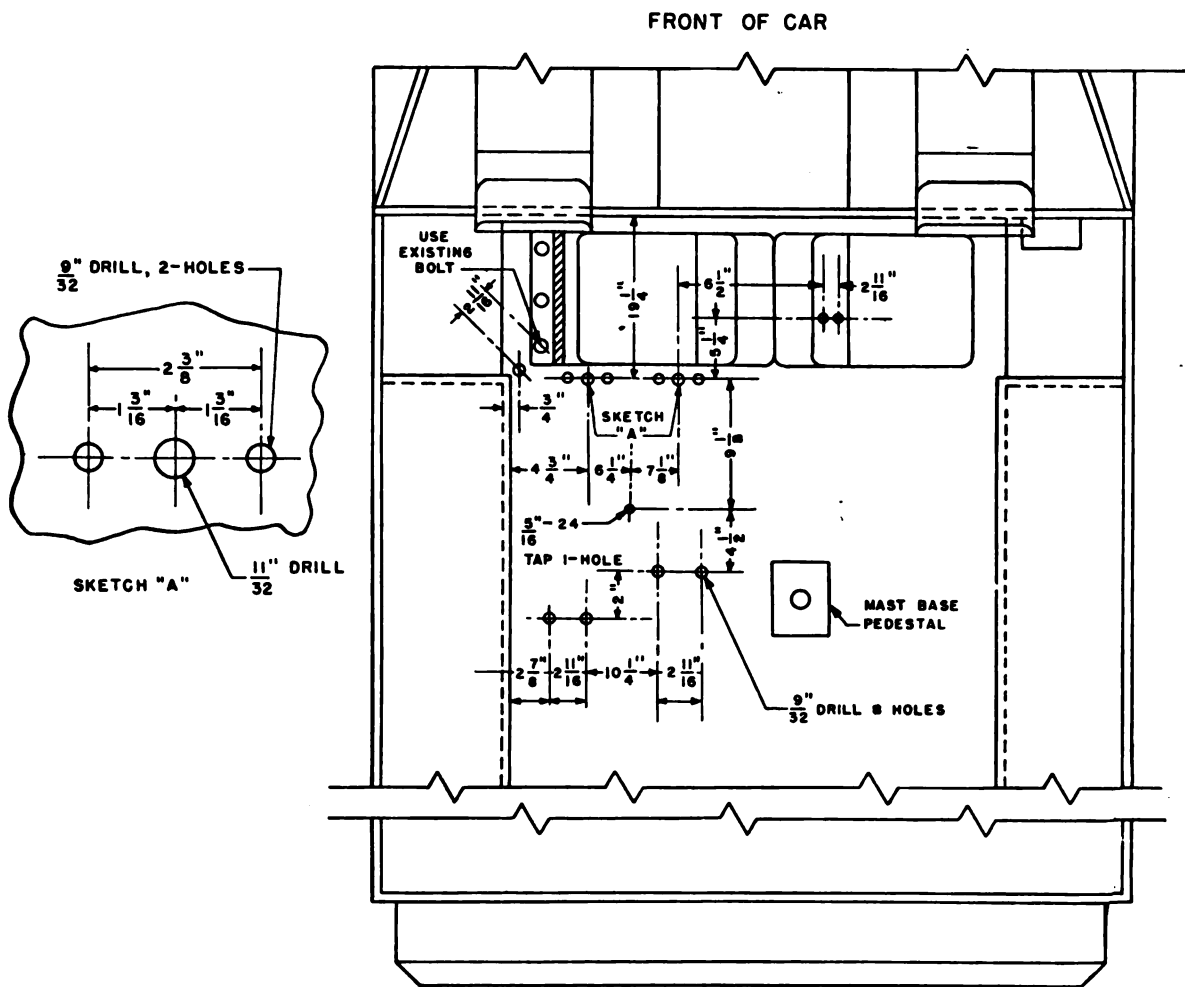
Figure 9. Drilling for Radio Transmitter BC-191-( ).



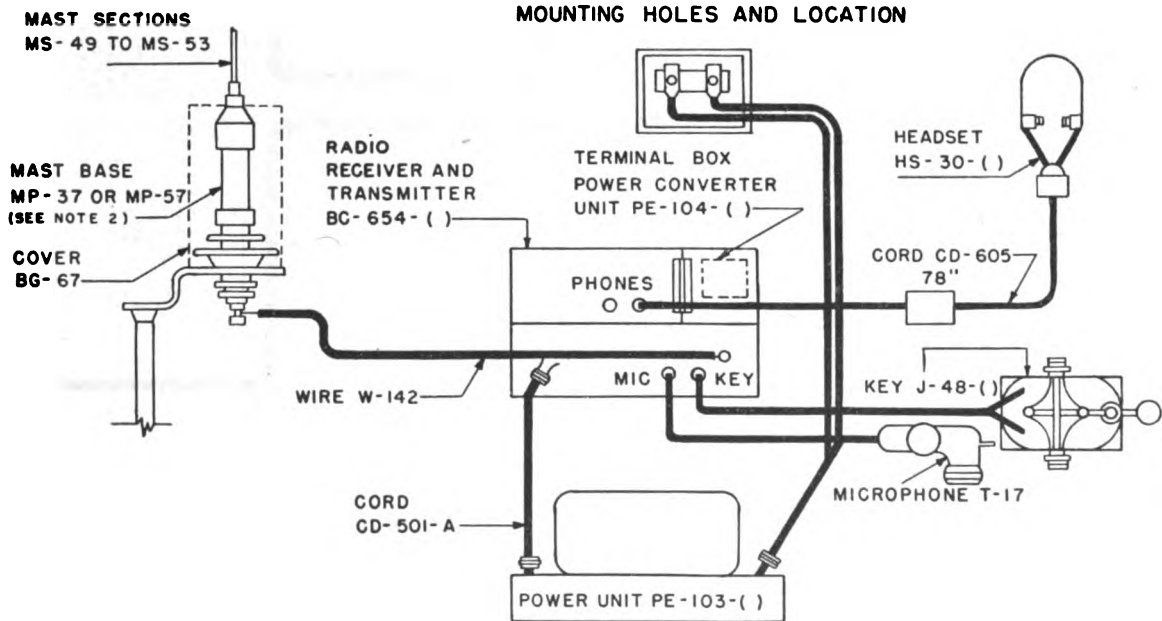
NOTE:  
 1. SEE FIG. 26 FOR ASSEMBLY OF MOUNTINGS FT-172 AND FT-178. THE WIRE W-128 SHOULD BE CUT TO PROPER LENGTH. THE WIRE SHOULD BE TINNED AT BINDING POSTS AND GROUND CONNECTIONS.  
 2. CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA AND GROUND CONNECTIONS. USE COVER BG-78 WHEN MAST SECTIONS ARE NOT INSTALLED.

Figure 10. Wiring diagram for Radio Set SCE-193-D in Car, Scout, MSA1.





MOUNTING HOLES AND LOCATION

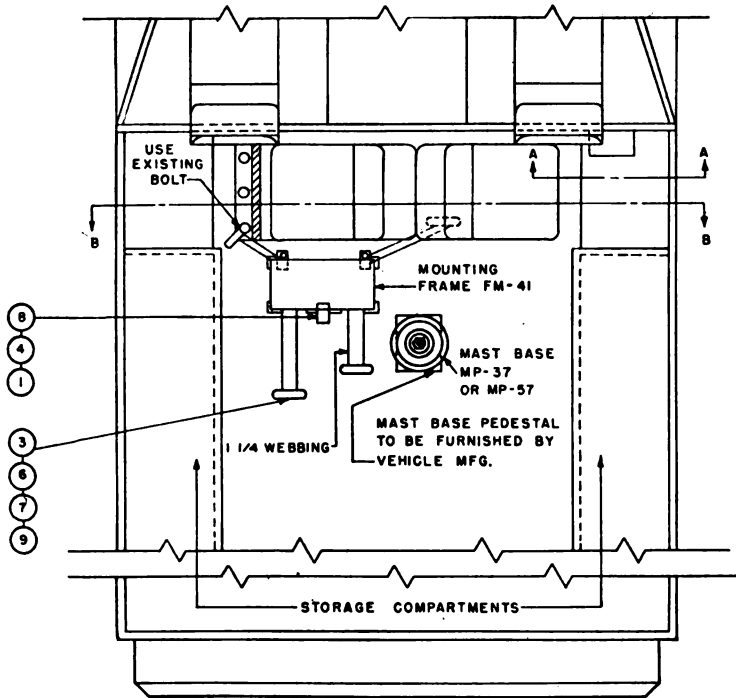


CORDING DIAGRAM

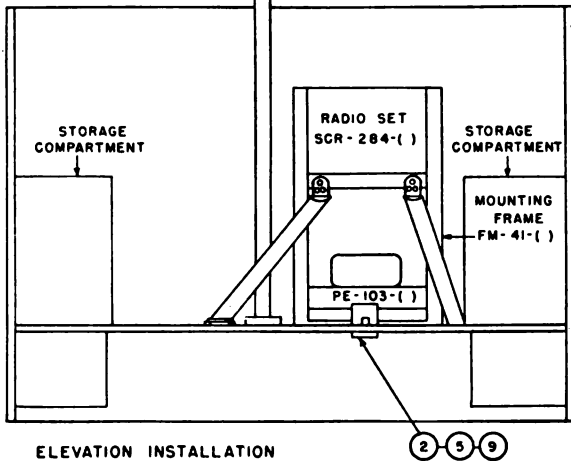
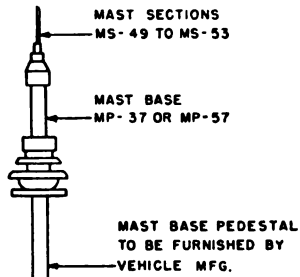
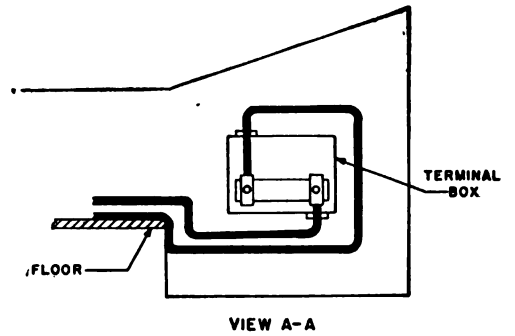
TL-13358-1

Figure 11. Mounting holes and location, cording diagram, and installation of Radio Set SCR-284-( ) in Car, Scout, M3A1.

FRONT OF CAR

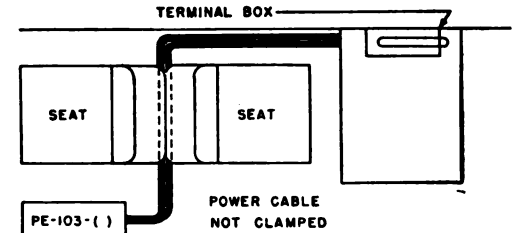


- FIGURE REFERENCES  
 SCR- 193, FIG. 5.  
 SCR- 193 AND SCR-510 OR 610 COMB., FIG. 20.  
 SCR- 510 OR 610, FIG. 21.  
 SCR- 508 OR 528, FIG. 17.  
 SCR- 608 OR 628, FIG. 23.  
 SCR- 508 OR 528 IN COMB. WITH  
 SCR- 506, FIG. 15.  
 SCR- 506, FIG. 14.  
 SCR- 593, FIG. 24.  
 SCR- 608 OR 628 IN COMB. WITH  
 SCR- 193, FIG. 3.
- USE COVER 86- 67 WHEN MAST SECTIONS ARE NOT INSTALLED.
- CUT WIRE W-142 TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.



ELEVATION INSTALLATION  
VIEW B-B

Figure 11—Continued.



PLANE VIEW OF POWER CABLES

ITEM NO.	QUAN. REQ.	NAME OF ITEM
1	3	BRACKET
2	3	TAPPING PLATE
3	4	STRAP HOLDER
4	3	HEX. HEAD MACH. SCR. $\frac{5}{16}$ " - 24 X $\frac{3}{4}$ " LONG
5	6	ROUND HEAD MACH. SCR. $\frac{1}{4}$ " - 20 X $\frac{1}{2}$ " LONG
6	8	HEX. HEAD MACH. SCR. $\frac{1}{4}$ " 20 X $\frac{3}{4}$ " LONG
7	8	HEX. NUT $\frac{1}{4}$ " - 20 STD.
8	3	LOCK WASHER SAE. REG. FOR $\frac{5}{16}$ " SCR.
9	14	LOCK WASHER REG. FOR $\frac{1}{4}$ " SCR.

TU-13358-2

WHEN FRAME FM-43 IS USED, CENTER SEATS TO BE MOVED 7-1/4" TO REAR OF VEHICLE RIGHT SEAT ONLY. MOVED 7-1/4" TO REAR FOR RADIO SET SCR-510-( ), SCR-610-( )

MAST BASE BRACKET MP-50 FOR RADIO SET SCR-510-( ), SCR-610-( )

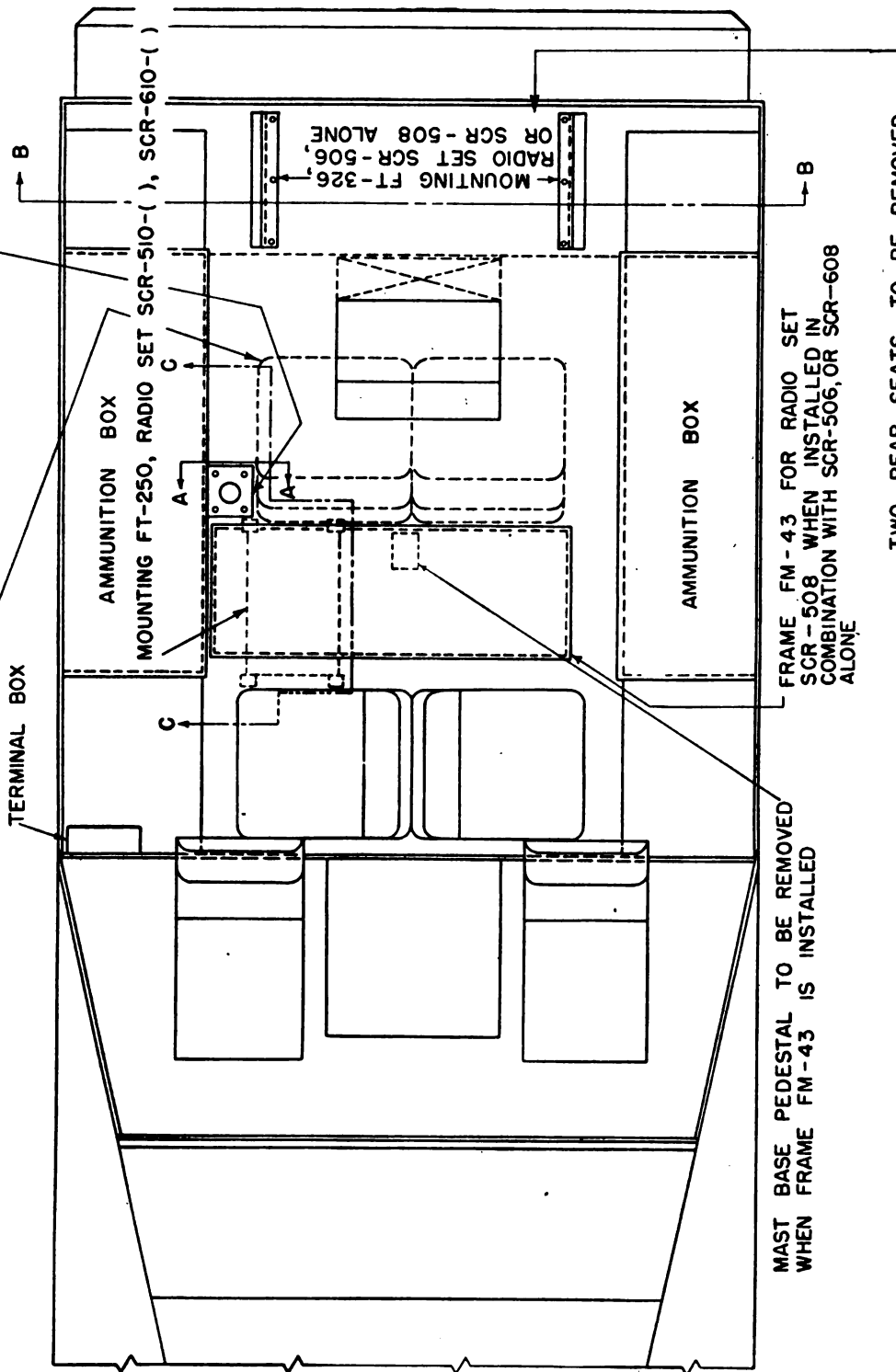
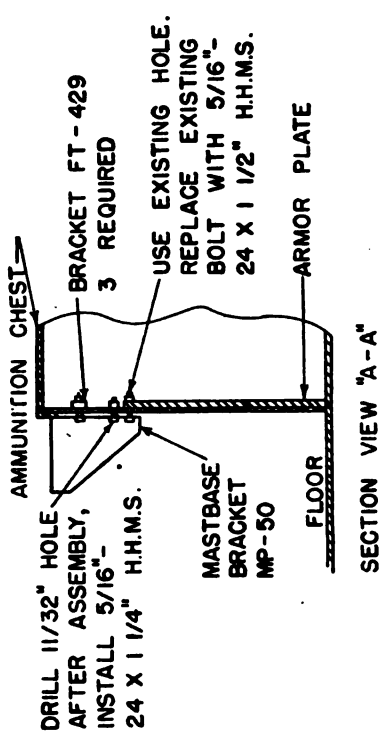


Figure 12. Installation of mounting frames in Car, Scout, M3A1.

TL-13359-1



DRILL 11/32" HOLE  
AFTER ASSEMBLY,  
INSTALL 5/16"-  
24 X 1 1/4" H.H.M.S.

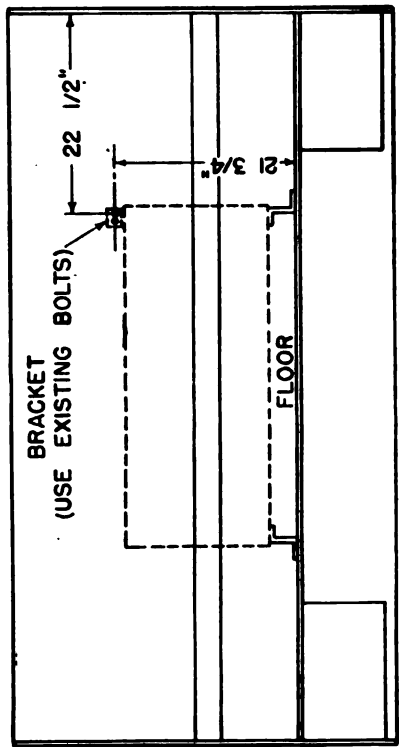
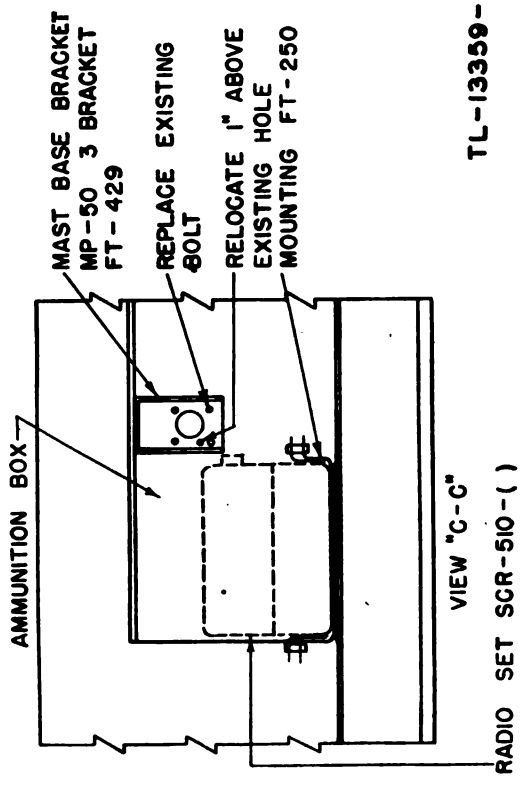


DIAGRAM OF EXISTING BOLT HOLES IN  
REAR OF VEHICLE USED FOR SUPPORTING  
CABINET CH-74 - A



TL-13359-2

Figure 12—Continued.

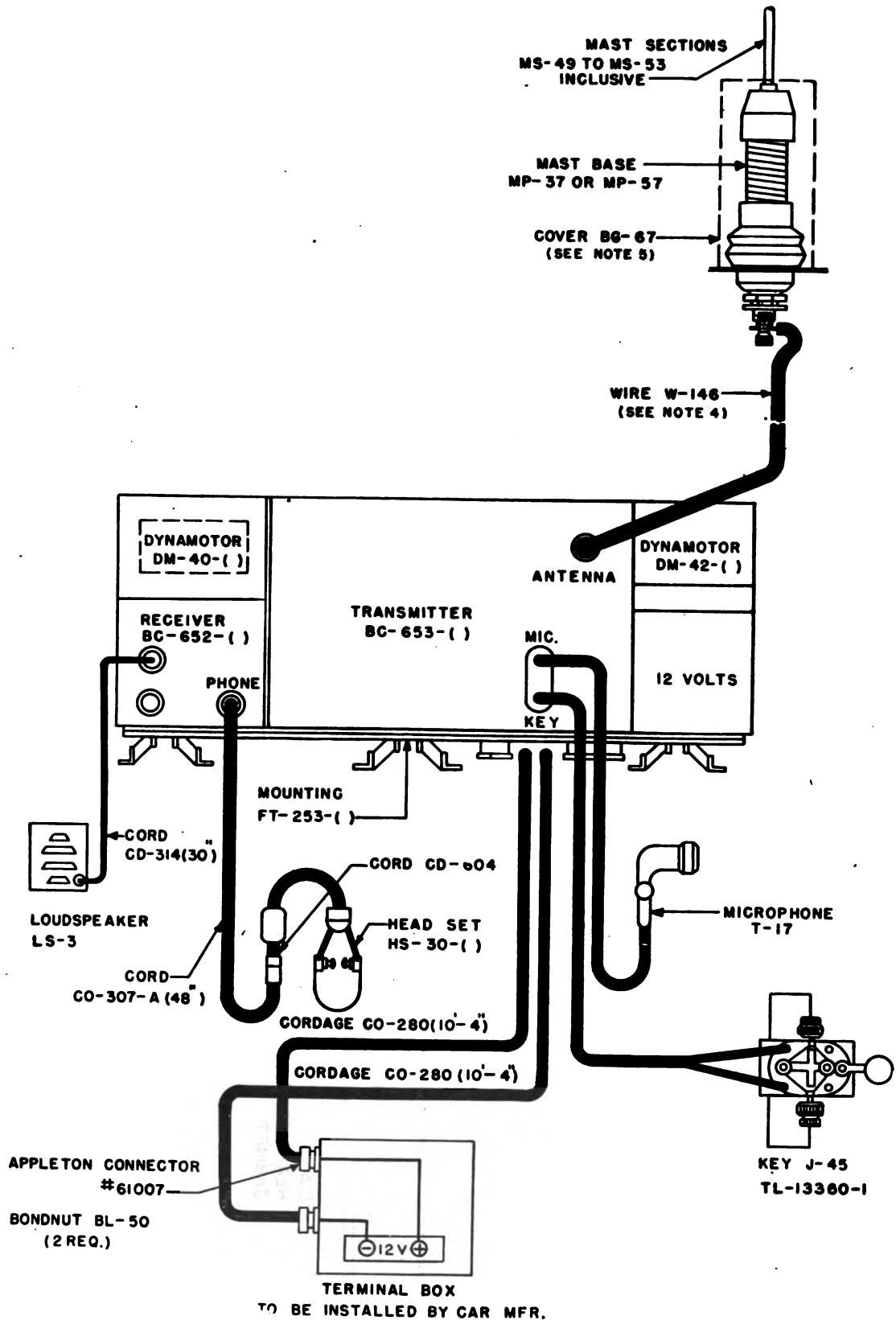
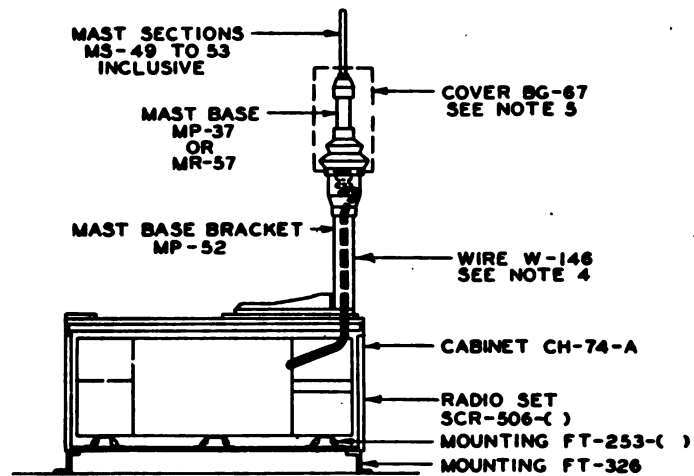
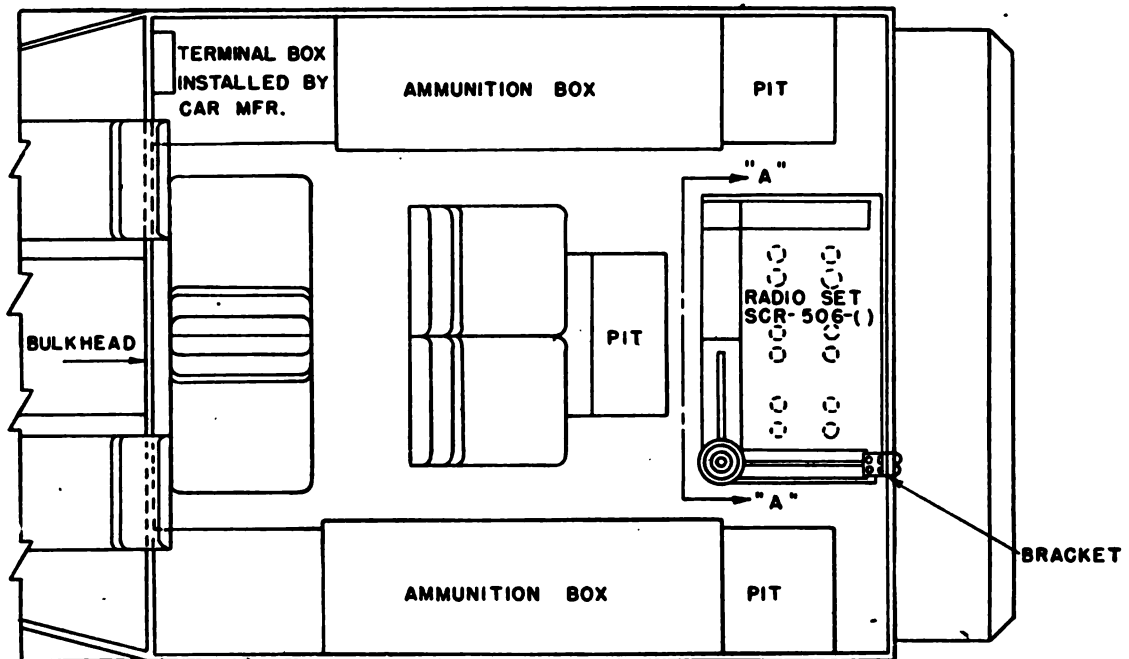


Figure 13. Cordng diagram for Radio Set SCB-506-() in Car, Scout, M3A1.



VIEW A-A

LOCATION OF EQUIPMENT

- 1 FOR MOUNTING HOLES AND LOCATION SEE FIG.4
- 2 FOR INSTALLATION OF MOUNTING SEE FIG.12
- 3 MACHINE SCREWS STOP NUTS, NUTS AND LOCK-WASHER ARE FURNISHED WITH MOUNTING FT-253 CABINET CH-74-A AND MOUNTING-FT-326
- 4 CUT WIRE W-146 TO PROPER LENGTH AND TIN ENDS FOR ANTENNA CONNECTIONS
- 5 USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED

Figure 13—Continued.

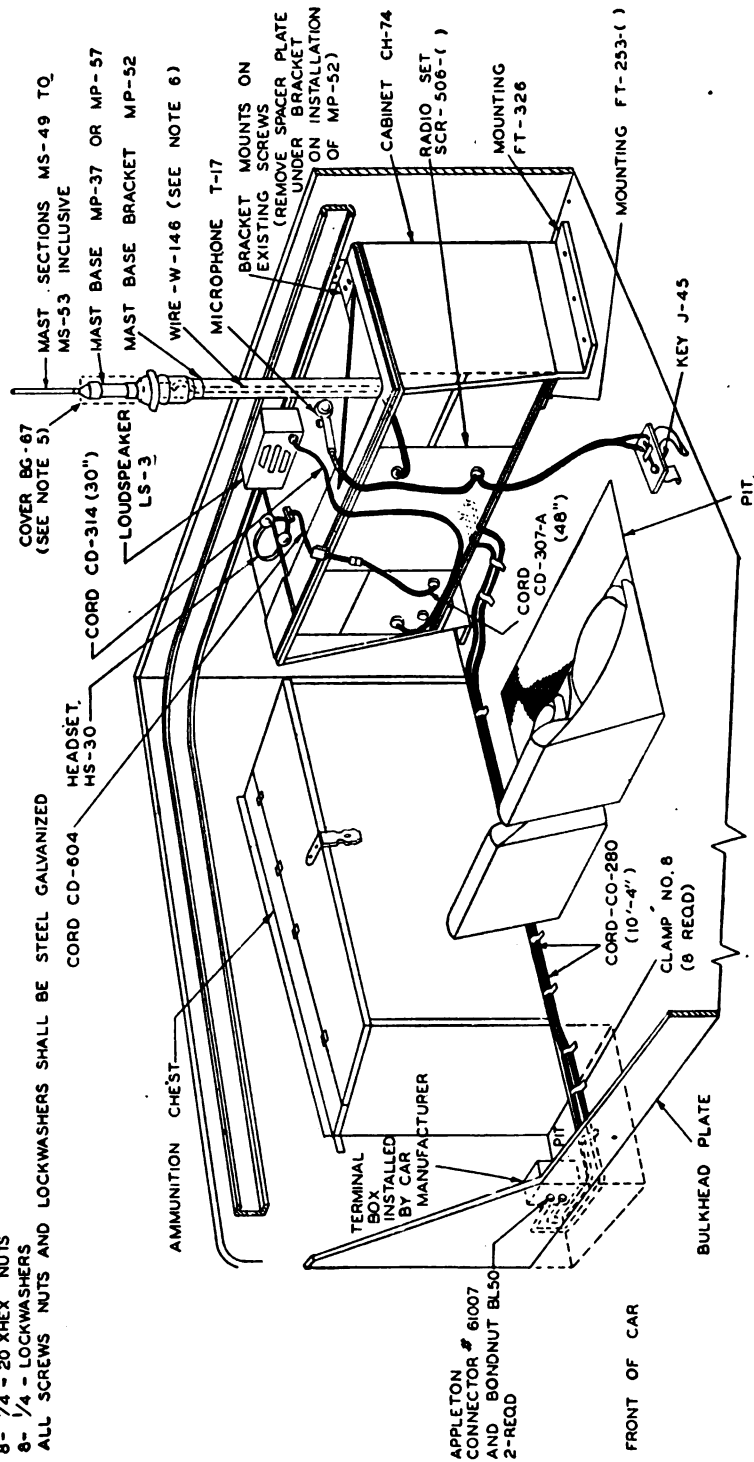
TL-13360-2

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- HARDWARE REQUIRED**
- MOUNTING FT-253-( ) (SEE NOTE 1)
  - 12- 1/4"-20 X 3/4" HEX. HEAD MACHINE SCREWS
  - 12- 1/4"-20 ELASTIC STOP NUTS
  - CABINET CH-74-A (SEE NOTE 1)
  - 6- 1/4"-28 X 3/4" HEX. HEAD MACHINE SCREWS
  - 6- 1/4"-28 ELASTIC STOP NUTS
  - MOUNTING FT-326
  - 2 SPACERS
  - 2- 3/8"-16 X 1 3/4" ROUND HEAD MACHINE SCREWS
  - 2- 3/8"-16 HEX. NUTS
  - 2- 3/8" LOCK WASHERS
  - 6- 3/8"-16 X 1 1/4" HEX. HEAD MACHINE SCREWS
  - 6- 3/8"-16 HEX. NUTS
  - 6- 3/8" LOCKWASHERS
  - CLAMPS
  - CLAMP # 8 (8 REQD.)
  - 8- 1/4"-20 X 1 H.H. BOLTS
  - 8- 1/4"-20 X HEX NUTS
  - 8- 1/4"-20 X HEX WASHERS
  - 8- 1/4" LOCKWASHERS
- ALL SCREWS, NUTS AND LOCKWASHERS SHALL BE STEEL GALVANIZED

- 1 SCREWS, NUTS, LOCKWASHERS, AND SPACERS ARE FURNISHED WITH MOUNTING FT-253-( ), CABINET CH-74-A AND MOUNTING FT-326-( )
- 2 FOR MOUNTING HOLES AND LOCATION SEE FIG. 4
- 3 FOR INSTALLATION OF MOUNTING LEGS SEE FIG. 12
- 4 FOR CORDING DIAGRAM SEE FIGURE 13
- 5 USE MAST BASE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
- 6 ANTENNA CONNECTIONS.  
FOR SCR-506-( ) SCR-508-( ),  
SCR-528-( ) COMBINATION USE THIS FIGURE AND FIG. 15.
- 8 FOR SCR-506-( ), SCR-510-( ) OR SCR-610-( ) COMBINATION USE THIS FIGURE AND FIG. 21.
- 9 ELIMINATE BRACKET AND INSTALL THROUGH BOLTS WITH SPACERS IN BACK OF CABINET CH-74-A WHEN MOUNTING HOLES ARE PROVIDED IN VEHICLE.



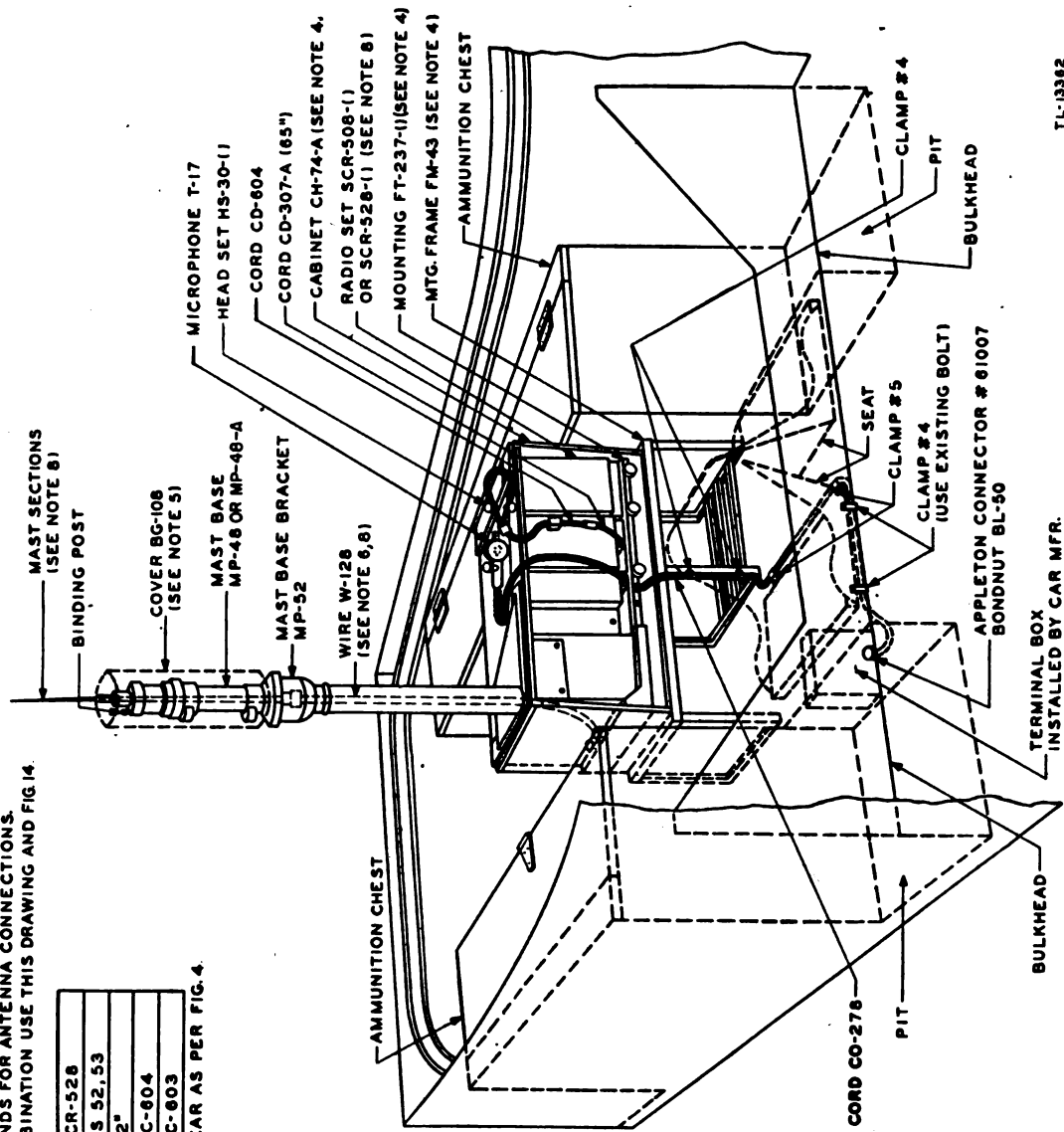
TL-13361

Figure 14. Pictorial view of Radio Set SCR-506-( ) in Car, Scout, M3A1.

- NOTE:
1. FOR MOUNTING HOLES AND LOCATION SEE FIG. 4.
  2. FOR INSTALLATION OF MOUNTING FRAME SEE FIG. 12.
  3. FOR CORDING DIAGRAM SEE FIG. 13 AND FIG. 16.
  4. SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-1, CABINET CH-74-A, AND FRAME FM-43.
  5. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
  6. CUT WIRE W-128 TO PROPER LENGTH AND TIN ENDS FOR ANTENNA CONNECTIONS.
  7. FOR SCR-508-(1) OR SCR-528-(1) AND SCR-506-(1) COMBINATION USE THIS DRAWING AND FIG. 14.
  8. INSTALLATION COMPONENTS:

RADIO SET	SCR-508	SCR-528
MAST SECTIONS	MS-52 AND 53	MS 52, 53
WIRE W-128	52'	52'
TRANSMITTER	BC-604	BC-604
RECEIVER	2 BC-603	BC-603

9. CENTER SEATS ARE RELOCATED 7/16" TO THE REAR AS PER FIG. 4.



- HARDWARE REQUIRED:**
- MOUNTING FT-237-1 (SEE NOTE 4)
  - 8-5/16"-24 X 3/4" HEX. HEAD MACH. SCREWS
  - 8-5/16"-24 ELASTIC STOP NUTS
  - CABINET CH-74-A (SEE NOTE 4)
  - 6-1/4"-28 X 3/4" HEX. HEAD MACH. SCREWS
  - 6-1/2"-28 ELASTIC STOP NUTS
  - FRAME FM-43 (SEE NOTE 4)
  - 12-9/16"-24 X 1/4" HEX. HEAD MACH. SCREWS
  - 12-5/16"-24 HEX. NUTS
  - 12-5/16" LOCKWASHERS
  - 12-5/16" FLATWASHERS
  - CABLE CLAMPS
  - CLAMP #4-(2 REQ.)
  - 2-#8-32 X 3/4" R.H.M.S.
  - 2-#8-32 HEX. NUTS
  - 2-#8-32 LOCKWASHERS
  - CLAMP #5 (2 REQ.)
  - 2-1/4"-20 X 3/4" R.H.M.S.
  - 2-1/4"-20 HEX. NUT
  - 2-1/4"-20 LOCKWASHERS
  - CLAMP #4-(2 REQ.)
  - (USE EXISTING BOLT)
- SCREWS, NUTS, AND WASHERS SHALL BE STEEL GALVANIZED.

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Figure 15. Pictorial view of Radio Set SCR-508-( ) or SCR-528-( ) in combination with SCR-506-( ) in Car, Scout, MSAI.



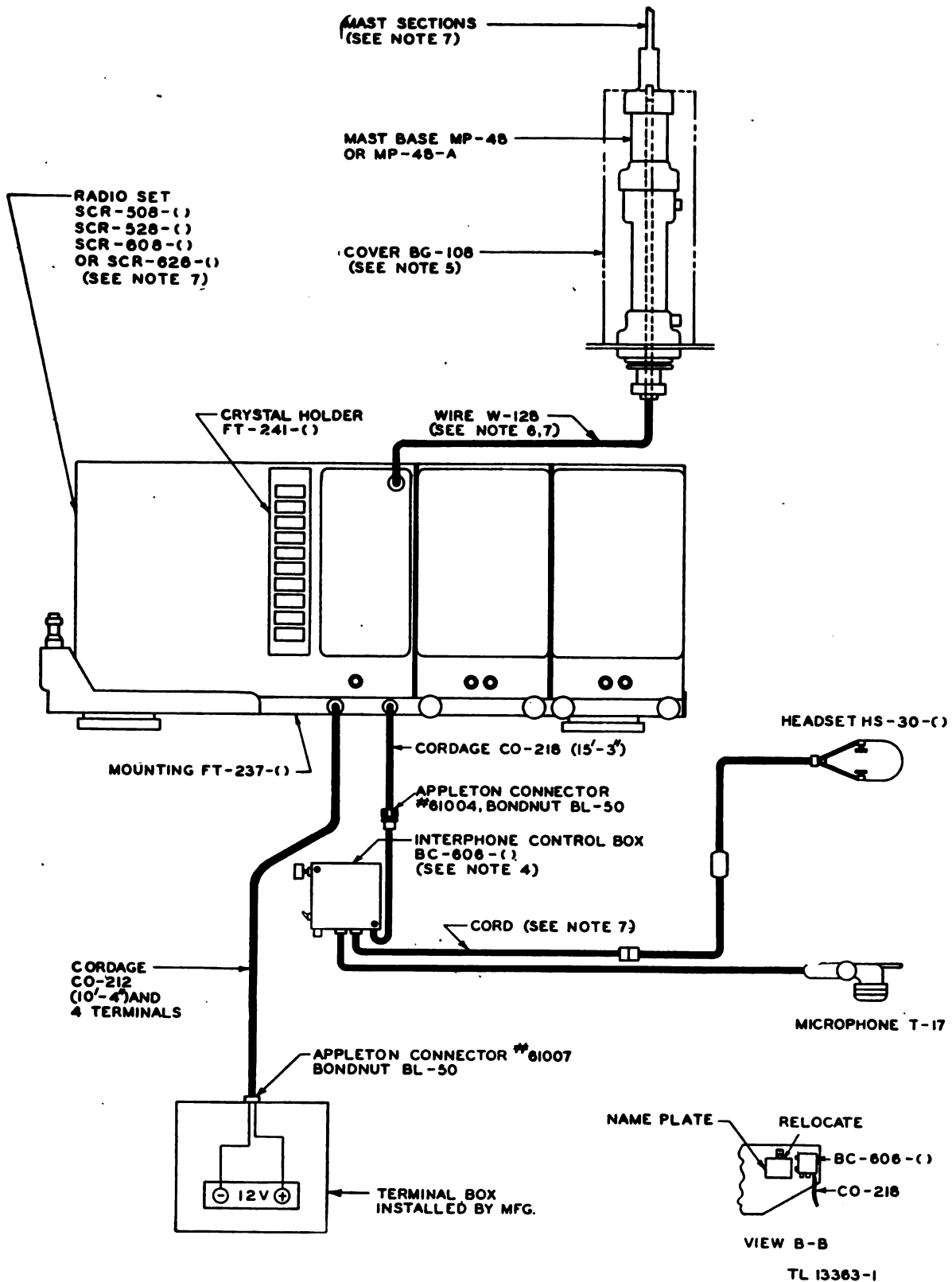
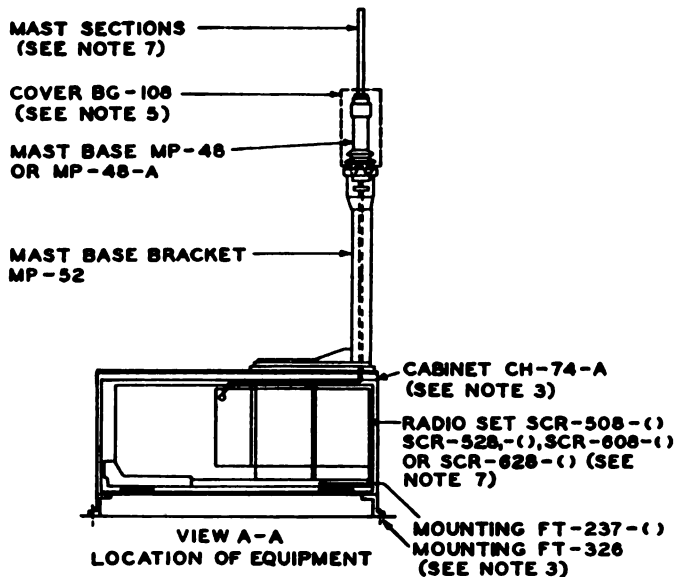
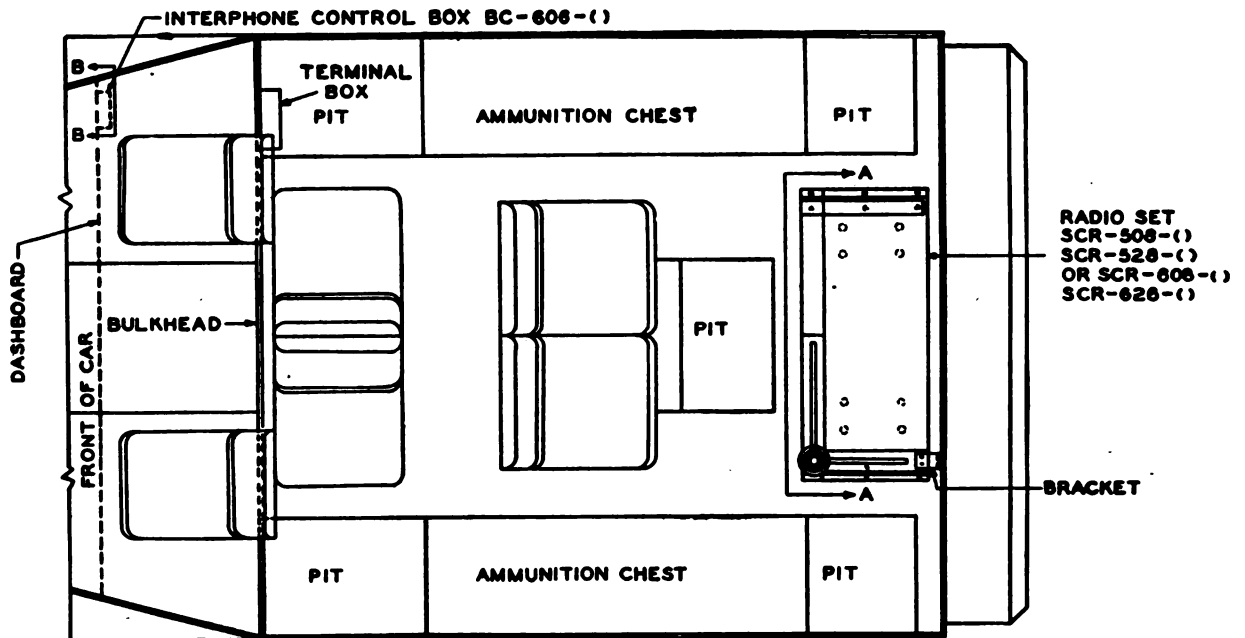


Figure 16. Cording diagram for Radio Set SCR-508-() or SCR-528-(); also cording diagram for Radio Set SCR-608-() or SCR-628-() when used in combination with Radio Set SCR-193-D in Car, Scout, MSA1.



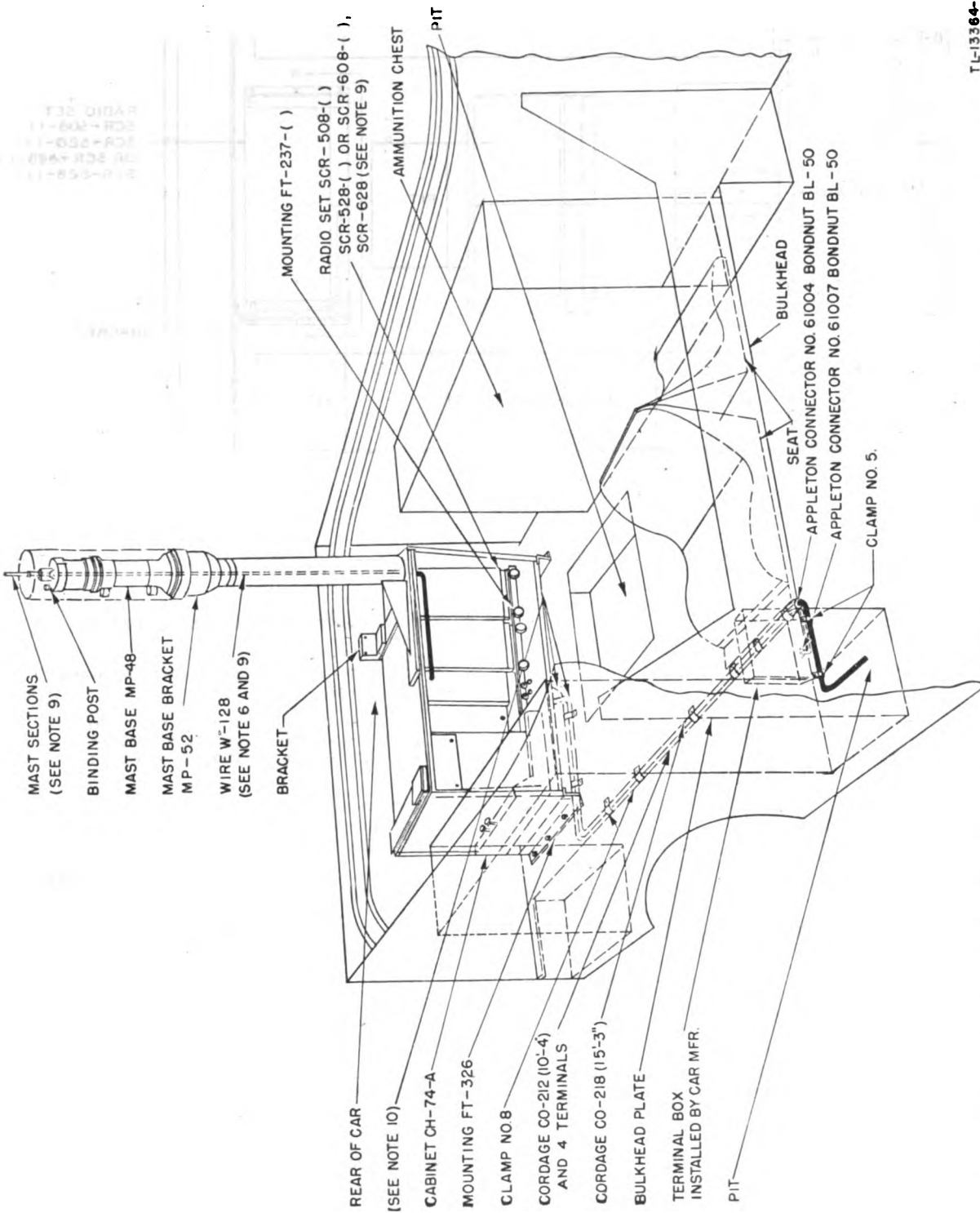
1. FOR MOUNTING HOLES AND LOCATION SEE FIG. 4.
2. FOR INSTALLATION OF MOUNTING FRAME SEE FIG. 12.
3. SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-(), CABINET CH-74-A AND MOUNTING FT-326.
4. FOR WIRING OF INTERPHONE CONTROL BOX BC-606-() FOR REMOTE CONTROL SEE FIG. 19.
5. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
6. CUT WIRE W-128 TO PROPER LENGTH, TIN ENDS FOR ANTENNA CONNECTIONS.
7. INSTALLATION COMPONENTS

RADIO SET	SCR-508-()	SCR-528-()	SCR-608-()	SCR-626-()
MAST SECTIONS	MS-52,MS-53	MS-52,MS-53	MS-52,MS-53	MS-52,MS-53
WIRE W-128	58"	58"	58"	58"
TRANSMITTER	BC-604-()	BC-604-()	BC-684-()	BC-684-()
RECEIVER	2-BC-603-()	BC-603-()	2-BC-683-()	BC-683-()
HEADSET	CD-604	CD-604	CD-605 (78)	CD-605 (78)
CORD	CD-307 (65)	CD-307 (65)		

Figure 16—Continued.

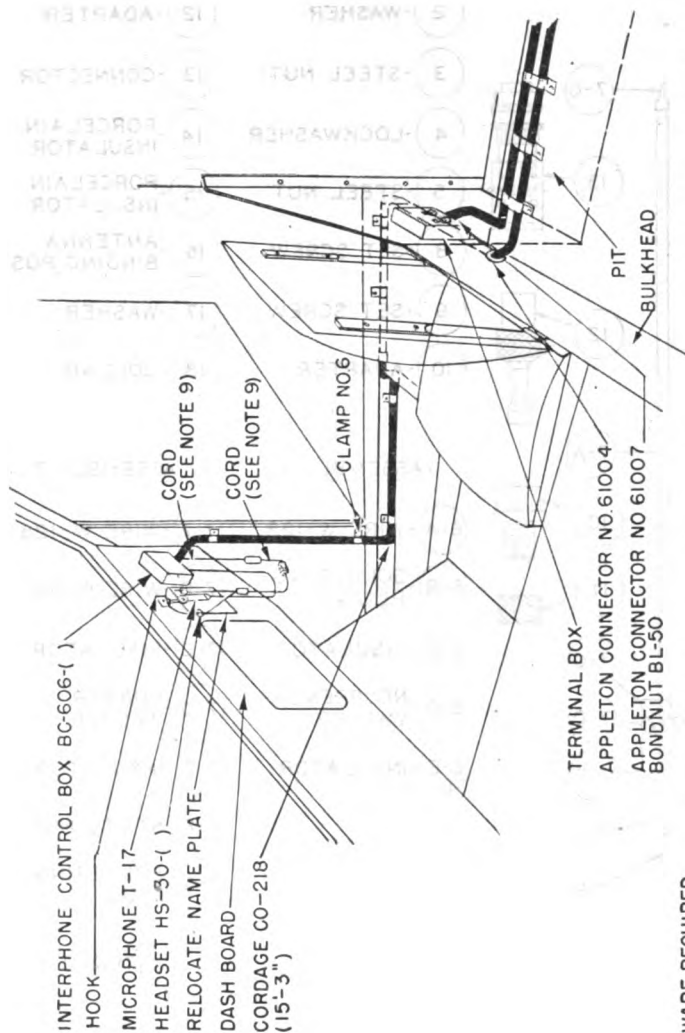
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Figure 17. Pictorial view of Radio Set SCR-508- ( ) or SCR-528- ( ) ; also pictorial view of Radio Set SCR-608- ( ) or SCR-628- ( ) when used in combination with Radio Set SCR-199-D in Car, Scout, MSAI.



**HARDWARE REQUIRED**

- MOUNTING FT-237-( ), (SEE NOTE 4)
- 8-5/16"-24 X 3/4" LG. HEX. HD. MACH. SCREWS
- 8-5/16"-24 ELASTIC STOP NUTS
- CABINET CH-74-A (SEE NOTE 4)
- 6-1/4"-28 X 3/4" LG. HEX. HD. MACH. SCREWS
- 6-1/4"-28 ELASTIC STOP NUTS
- MOUNTING FT-326 (SEE NOTE 4)
- 6-3/8"-16 X 1 1/4" LG. HEX. HD. BOLTS
- 6-3/8"-16 HD. NUTS
- 6-3/8"-LOCKWASHERS
- CLAMPS
- CLAMP NO. 5 (2 REQ'D.)
- USE EXISTING BOLTS
- CLAMP NO. 6 (6 REQ'D.)
- USE EXISTING BOLTS
- CLAMP NO. 8 (8 REQ'D.)
- 8-1/4"-20 X 1" H.H.M.S.
- 8-1/4"-20 HEX. NUT
- 8-1/4"-LOCKWASHER
- SCREWS, NUTS AND LOCKWASHERS SHALL BE STEEL, GALVANIZED.
- HOOK (SEE NOTE 7)
- 2-NO. 8-32 X 3/4" LG. RD. HD. MACH. SCREWS
- 2-NO. 8-32 HEX. NUTS
- 3-NO. 8-LOCKWASHER

- INTERPHONE CONTROL BOX BC-606-( ) (SEE NOTE 7)
- 3-NO. 8-32 X 1/2" LG. RD. HD. MACH. SCREWS
- 3-NO. 8-32 HEX. NUTS
- 3-NO. 8-LOCKWASHERS
- MOUNTING FT-326 (SEE NOTE 11)
- 2-SPACERS
- 2-3/8"-16 X 1 3/4" LONG RD. HEAD MACH. SCREWS
- 2-3/8"-16 HEX. NUTS
- 2-3/8"-LOCKWASHERS

- 1. FOR MOUNTING HOLES AND LOCATION SEE FIG. 4.
- 2. FOR INSTALLATION OF MOUNTING FRAME FIG. 12.
- 3. FOR CORDING DIAGRAM SEE FIG. 16.
- 4. SCREWS, NUTS, LOCKWASHERS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-326. MOUNTING FT-237-( ), CABINET CH-74-A
- 5. USE COVER BG-108 WHEN MAST IS NOT INSTALLED.
- 6. CUT WIRE-W-128 TO PROPER LENGTH TIN

- ENDS FOR ANTENNA CONNECTIONS
- 7. SCREWS, NUTS AND HOOK FURNISHED WITH CONTROL BOX BC-606-( )
- 8. FOR COMBINATION OF RADIO SET SCR-193-D AND SCR-608-( ), OR SCR-628-( ), USE THIS DWG. AND FIG. 5.
- 9. INSTALLATION COMPONENTS:

RADIO SET	SCR-508	SCR-528	SCR-608	SCR-628
MAST SECTIONS	MS-52-53	MS-52-53	MS-52-53	MS-52-53
ANTENNA W-128 LEAD-IN	58"	58"	58"	58"
TRANSMITTER	BC-604	BC-604	BC-684	BC-684
RECEIVER	2-BC-603	BC-603	2-BC-683	BC-683
HEADSET CORDS	CORD CD-307-A (65')		CORD CD-605-78"	
	CORD CD-604			

- 10. ELIMINATE BRACKET AND INSTALL THROUGH BOLTS WITH SPACERS IN BACK OF CABINET CH-74-A WHEN MOUNTING HOLES ARE PROVIDED IN VEHICLE.

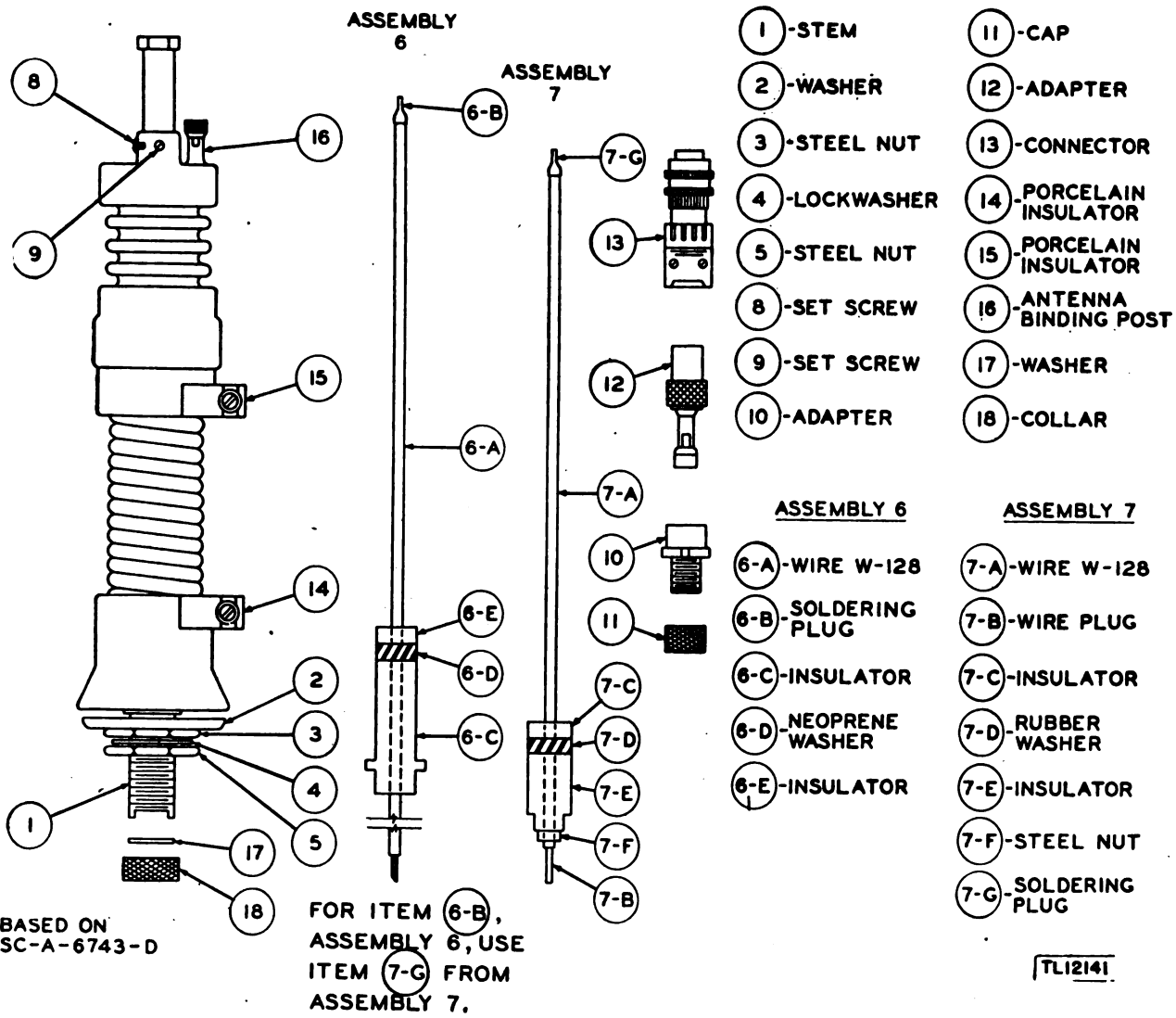


Figure 18. Mast Base MP-48, assembly for installation.

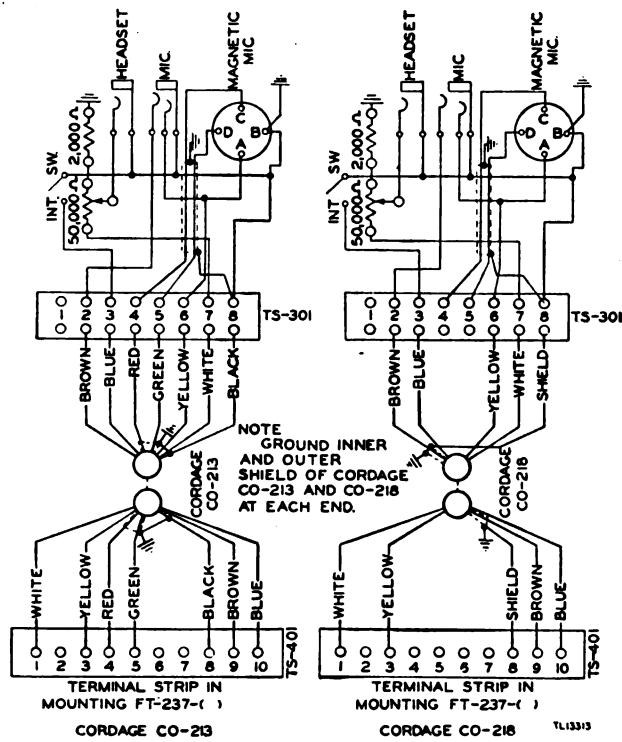
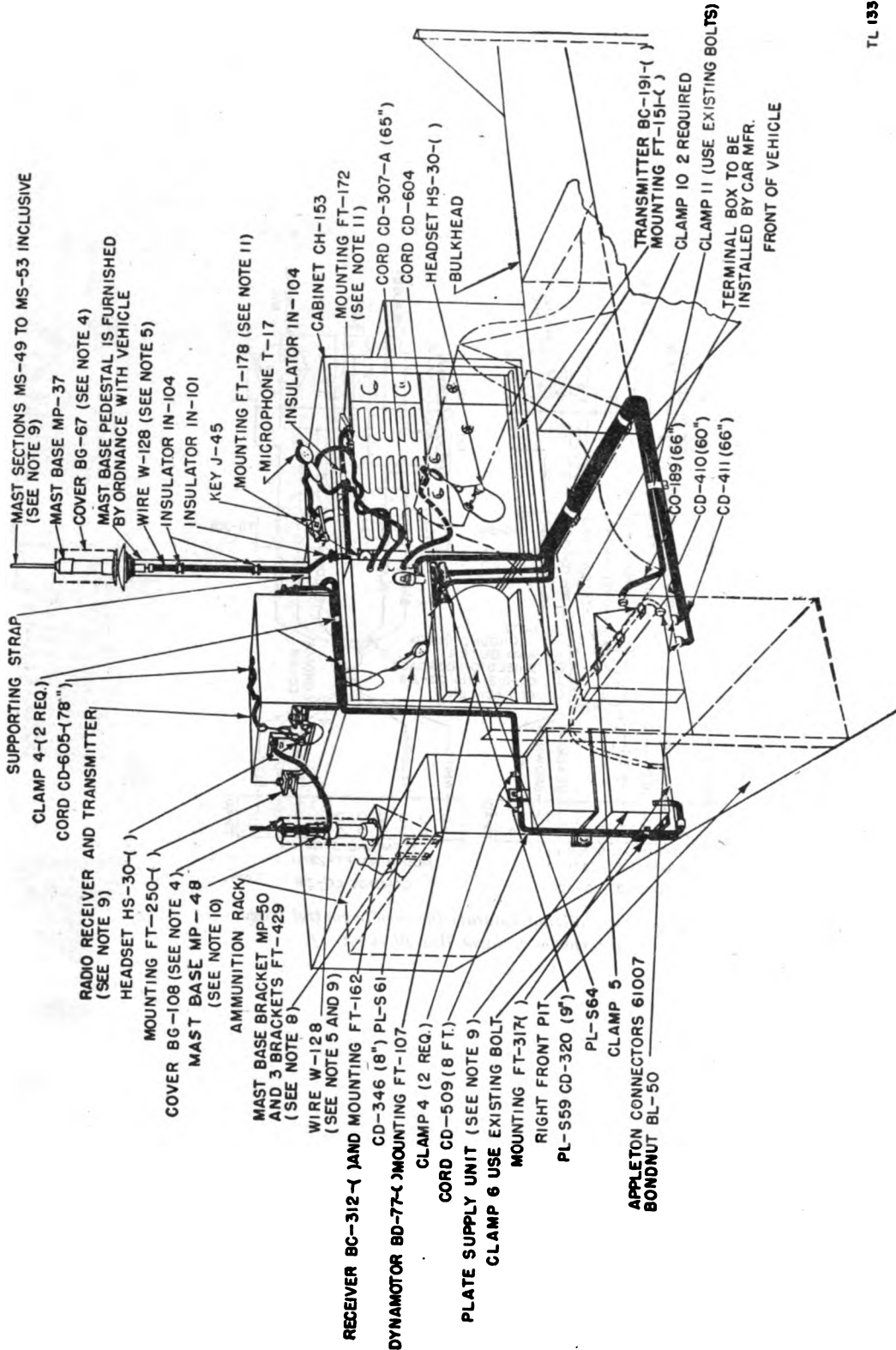


Figure 19. Wiring diagram for remote control from Interphone Control Box BC-606( ).



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Figure 20. Pictorial view of Radio Set SCR-198-D in combination with Radio Set SCR-510-( ) or SCR-610-( ) in Car, Scout, M3A1.

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**HARDWARE REQUIRED**

MOUNTING FT-317  
 4-5/16"-2.4 X 3/4" HEX. HEAD MACH. SCREW  
 4-5/16"-2.4 HEX. NUT  
 4-5/16" LOCKWASHER

MAST BASE BRACKET MP-50 AND 3 BRACKETS  
 FT-429  
 3-5/16"-2.4 X 1/4" HEX. HEAD MACH. SCREW  
 4-5/16"-2.4 HEX. NUT  
 4-5/16" LOCKWASHER  
 1-5/16"-2.4 X 2" HEX. HEAD MACH. SCREW

MOUNTING FT-250-( )  
 4-1/4"-20 X 3/4" HEX. HEAD MACH. SCREW  
 4-1/4"-20 HEX. NUT  
 4-1/4" LOCKWASHER

MOUNTING FT-178 AND FT-172  
 6 #10-32 X 1/2" ROUND HEAD MACH. SCREW  
 8 #10-32 HEX. NUT  
 8 #10 LOCKWASHER

MOUNTING FT-162  
 10 #10-32 X 3/4" ROUND HEAD MACH. SCREW  
 10 #10-32 HEX. NUT  
 10 #10 LOCKWASHER

MOUNTING FT-107  
 6-1/4"-2.6 X 7/16" ROUND HEAD MACH. SCREW  
 6-1/4" LOCKWASHER

MOUNTING FT-151-8  
 8-1/4"-2.6 X 7/16" ROUND HEAD MACH. SCREW  
 8-1/4" LOCKWASHER

SCREWS, NUTS AND LOCKWASHERS SHOULD  
 BE STEEL, GALVANIZED

**CLAMPS**

CLAMP #4-4 REQ  
 4 #6-32 X 3/4" ROUND HEAD MACH. SCREW  
 4 #6-32 HEX. NUT  
 4 #6 LOCKWASHER  
 4 #6 FLATWASHER

CLAMP #6-2 REQ  
 USE EXISTING BOLTS

CLAMP #5-3 REQ  
 USE EXISTING BOLTS

CLAMP #10-2 REQ  
 2-1/4"-20 X 1" HEX BOLT  
 2-1/4"-20 HEX. NUT  
 2-1/4" LOCKWASHER

CLAMP #11-1 REQ  
 USE EXISTING BOLTS

1. FOR CORDING DIAGRAM OF RADIO SET SCR-193-D SEE FIG. 10.

2. FOR MOUNTING HOLES AND LOCATION SEE FIG. 4.

3. FOR CORDING DIAGRAM OF RADIO SET SCR-510-( ) OR SCR-610-( ) SEE FIG. 21.

4. USE COVER BG-67 AND BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.

5. CUT WIRE W-128 TO PROPER LENGTH AND TIN ENDS FOR ANTENNA CONNECTIONS

6. FOR DRILLING OF RECEIVER BC-312 AND TRANSMITTER BC-191 SEE FIGS. 8 AND 9.

7. SEE FIG. 26 FOR ASSEMBLY OF MOUNTINGS FT-172 AND FT-178.

8. AFTER INSTALLATION OF MAST BASE BRACKET MP-50, DRILL 11/32" HOLE ONE INCH ABOVE EXISTING MOUNTING HOLE MP-50 THROUGH ENTIRE ASSEMBLY IN-STALL 5/16"-2.4 X 1/4" HEX. HEAD MACH. SCREW.

**9. INSTALLATION COMPONENTS:**

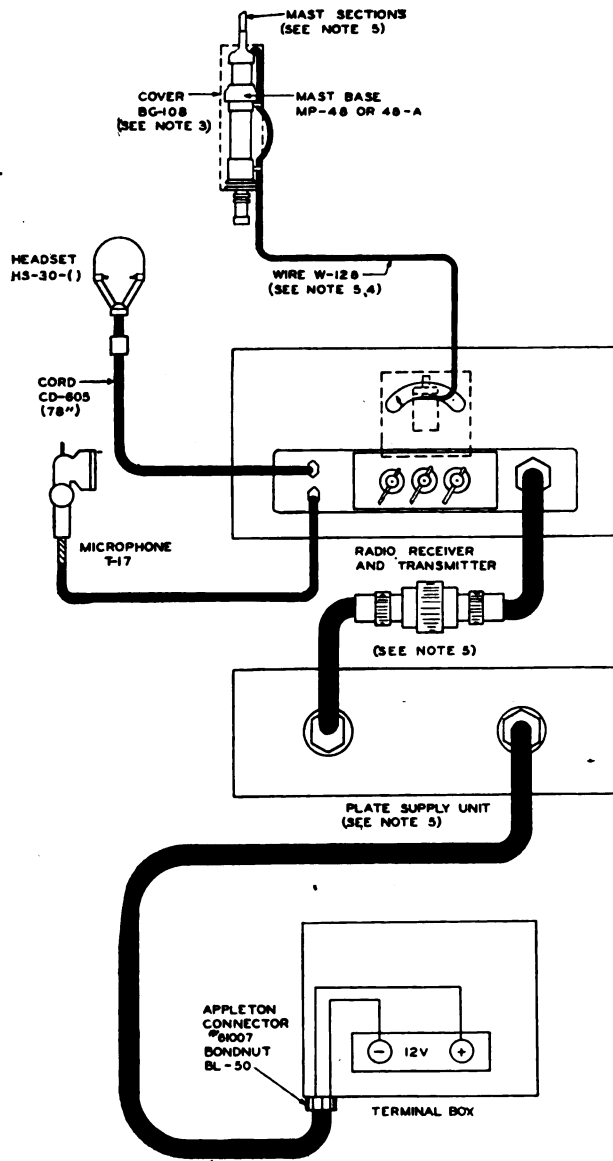
RADIO SET	SCR-510-( )	SCR-610-( )
MAST SECTIONS	MS-52,53	MS-51,52,53
LEAD IN WIRE W-128	2.4" ±1"	36" ±1"
RADIO RECEIVER AND TRANSMITTER	BC-620	BC-659
PLATE SUPPLY UNIT	PE-97	PE-117

10. REMOVE INTERNAL LEAD (ASSEMBLY #7) FROM MAST BASE MP-48.

11. FOR ASSEMBLY OF MOUNTING FT-172 AND FT-178 SEE FIG. 26.

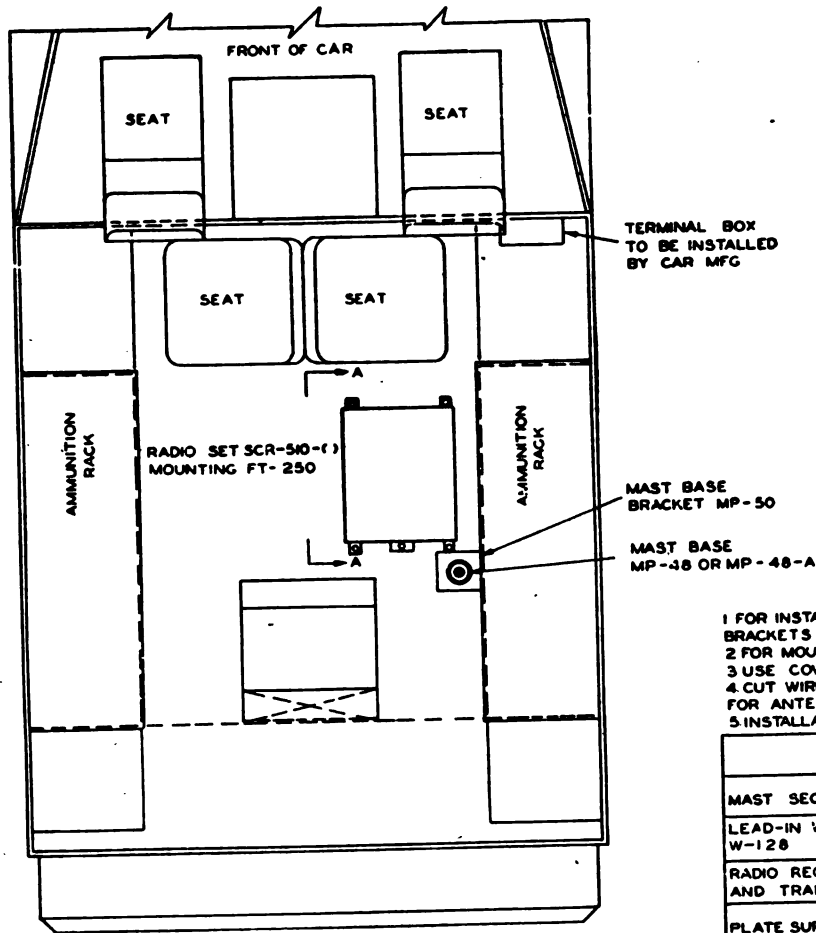
Figure 20—Continued.





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Figure 21. Cording diagram of Radio Set SCR-510-( ) or SCR-610-( ) in Car, Scout, M3A1.



- 1 FOR INSTALLATION OF MOUNTING FRAMES AND BRACKETS SEE FIG 2
- 2 FOR MOUNTING HOLES AND LOCATION SEE FIG 4
- 3 USE COVER BG-108 WHEN MAST IS NOT INSTALLED
- 4 CUT WIRE W-128 TO PROPER LENGTH TIN ENDS FOR ANTENNA CONNECTIONS
- 5 INSTALLATION COMPONENTS

	SCR-510	SCR-610
MAST SECTION	MS-52 AND MS-53	MS-54, MS-52, AND MS-53
LEAD-IN WIRE W-128	24" ± 1"	36" ± 1"
RADIO RECEIVER AND TRANSMITTER	BC-620	BC-659
PLATE SUPPLY UNIT	PE-97	PE-117

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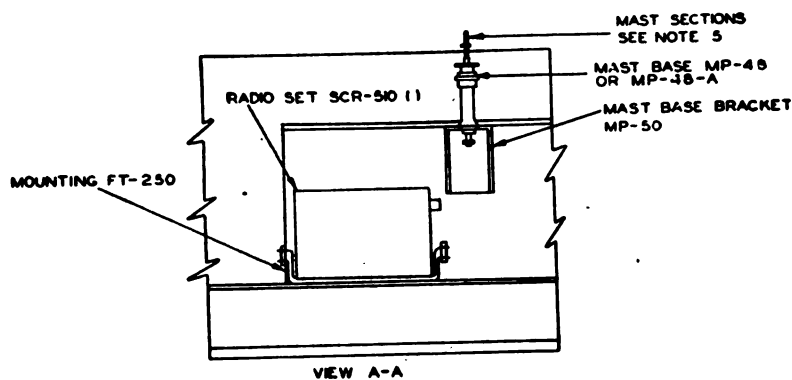
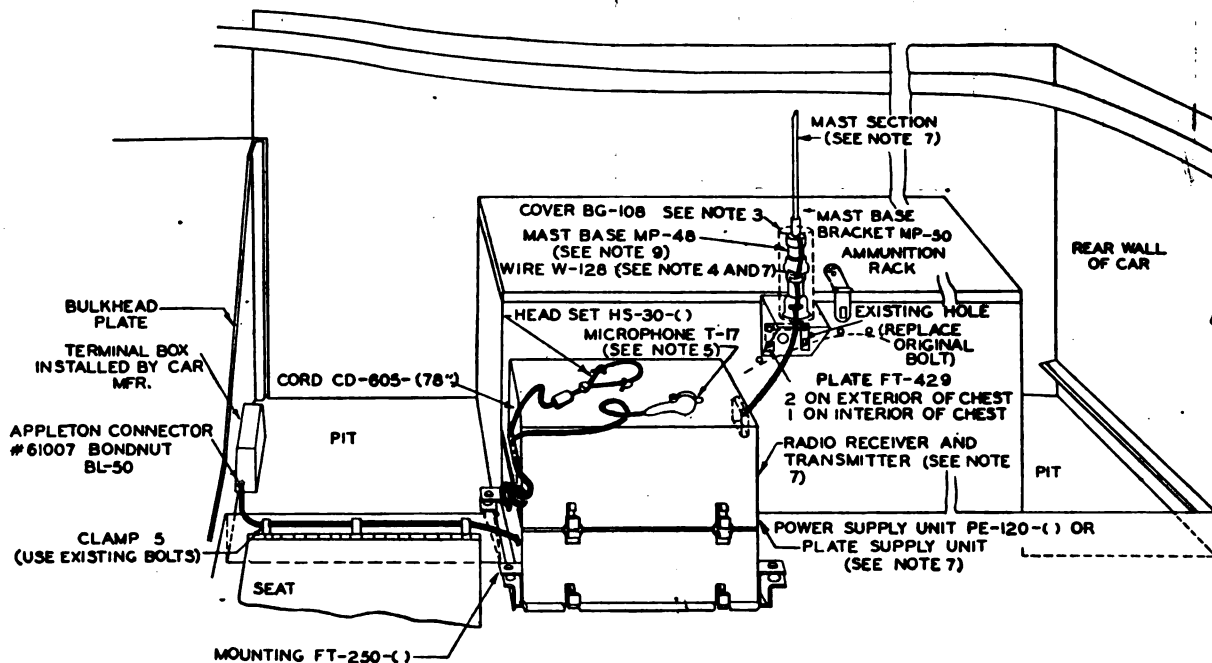


Figure 21—Continued.



**HARDWARE REQUIRED**

MOUNTING FT-250(-)

4-1/4"-20X3/4" HEX. HEAD MACH. SCREWS

4-1/4"-20 HEX. NUTS

4-1/4" LOCK WASHERS

MAST BASE BRACKET MP-50 AND 3-FT-429 BRACKETS

3-5/16"-24 X 1/4" HEX. HEAD MACH. SCREWS

1-5/16"-24 X 2" HEX. HEAD MACH. SCREWS

4-5/16"-24 HEX. NUTS

4-5/16" LOCKWASHERS

**CLAMPS**

CLAMP # 5 (3 REQ)

USE EXISTING BOLTS

ALL SCREWS, NUTS, AND LOCKWASHERS SHALL BE STEEL, ELECTRO-GALVANIZED.

1 FOR MOUNTING HOLES AND LOCATION SEE FIG. 4

2. FOR CORDING DIAGRAM OF RADIO SET SCR-510(-) OR SCR-610(-) SEE FIG. 21

3. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.

4. CUT WIRE W-128 TO PROPER LENGTH AND THEN TIN ENDS FOR CONNECTIONS.

5. AFTER INSTALLATION OF MAST BASE BRACKET MP-50, DRILL 11/32" HOLE ONE INCH ABOVE EXISTING MOUNTING HOLES IN MP-50. INSTALL 5/16"-24 X 1/4" HEX. HEAD MACH. SCREW THROUGH ENTIRE ASSEMBLY.

6. FOR SCR-510(-) OR SCR-610(-) AND SCR-508(-) COMBINATION USE FIG. 14. FOR SCR-510(-) OR SCR-610(-) SCR-284(-) COMBINATION USE THIS FIGURE AND FIG. 11

**7. INSTALLATION COMPONENTS:**

RADIO SET	SCR-510(-)	SCR-610(-)
MAST SECTIONS	MS-52.53	MS-51,52,53
LEAD IN WIRE W-128	24" ± 1"	36" ± 1"
RADIO RECEIVER AND TRANSMITTER	BC-820(-)	BC-659(-)
PLATE SUPPLY UNIT	PE-97(-)	PE-117(-)

8. RIGHT CENTER SEAT IS RELOCATED 7 1/4" TO THE REAR  
9. REMOVE INTERNAL LEAD (ASSEMBLY 7) FROM MAST BASE MP-48

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Figure 22. Pictorial view of Radio Set SCR-510(-) or SCR-610(-) in Car, Scout, M3A1.

### HARDWARE REQUIRED

MOUNTING FT-237-( ) (SEE NOTE 4)  
 8-5/16"-24 X 3/4" HEX. HEAD MACH SCREW  
 8-5/16"-24 ELASTIC STOP NUTS

CABINET CH-74-A (SEE NOTE 4)  
 6-1/4"-28 X 3/4" HEX. MACH SCREWS  
 6-1/4"-28 ELASTIC STOP NUTS

FRAME FM-43 (SEE NOTE 3)  
 12-5/16"-24 X 1 1/4" HEX. HEAD MACH SCREW  
 12-5/16"-24 HEX. NUTS  
 12-5/16" LOCKWASHERS  
 12-5/16" FLAT WASHERS

CABLE CLAMPS  
 CLAMP 4 (2 REQ)  
 2- 8-32 X 3/4" ROUND HEAD MACH SCREWS  
 2- 8-32 HEX. NUTS  
 2- 8-32 LOCKWASHERS  
 CLAMP 5 (3 REQ)  
 3-1/4"-20 X 3/4" ROUND HEAD SCREWS  
 3-1/4"-20 HEX. NUTS  
 3-1/4"-20 LOCKWASHERS  
 CLAMP 4 (1 REQ)  
 (USE EXISTING BOLT)

ALL SCREWS NUTS AND WASHERS SHALL BE STEEL GALVANIZED

### NOTES

- FOR MOUNTING HOLES AND LOCATION SEE FIG 4
- FOR INSTALLATION OF MOUNTING FRAME SEE FIG 12
- SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-( ) AND CABINET CH-74-A.
- SCREWS NUTS AND LOCKWASHERS ARE FURNISHED WITH FM-43
- USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED
- CUT WIRE W-128 TO PROPER LENGTH AND TIN ENDS FOR CONNECTIONS
- FOR SCR-608-( ) OR SCR-628-( ) AND SCR-506-( ) COMBINATION USE THIS DRAWING AND FIG 14
- INSTALLATION COMPONENTS

RADIO SET	SCR-608-( )	SCR-628-( )
MAST SECTIONS	MS-52,53	MS-52,53
WIRE W-128	52'	52'
TRANSMITTER	BC-684-( )	BC-684-( )
RECEIVER	2-BC-683-( )	BC-683-( )

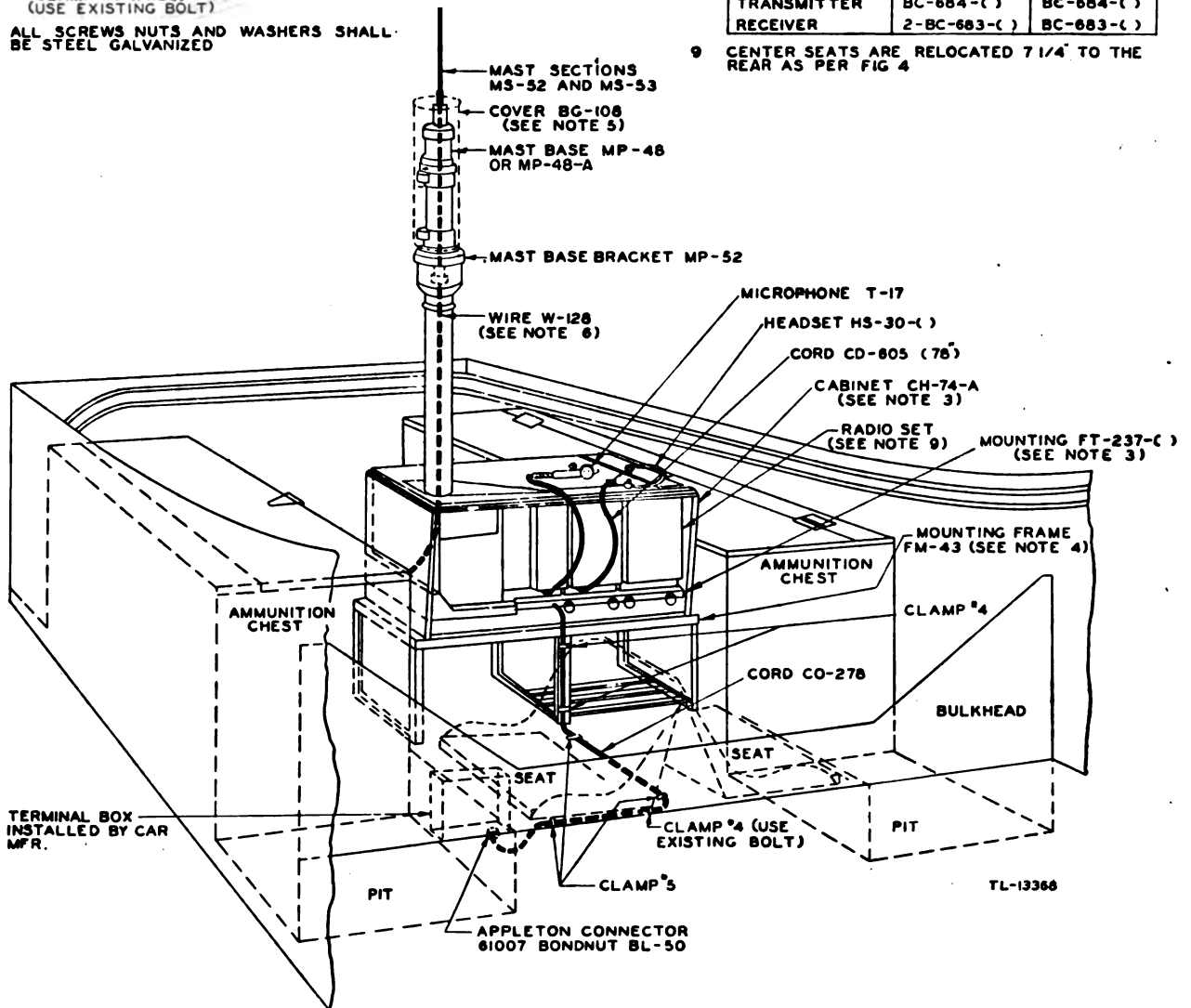
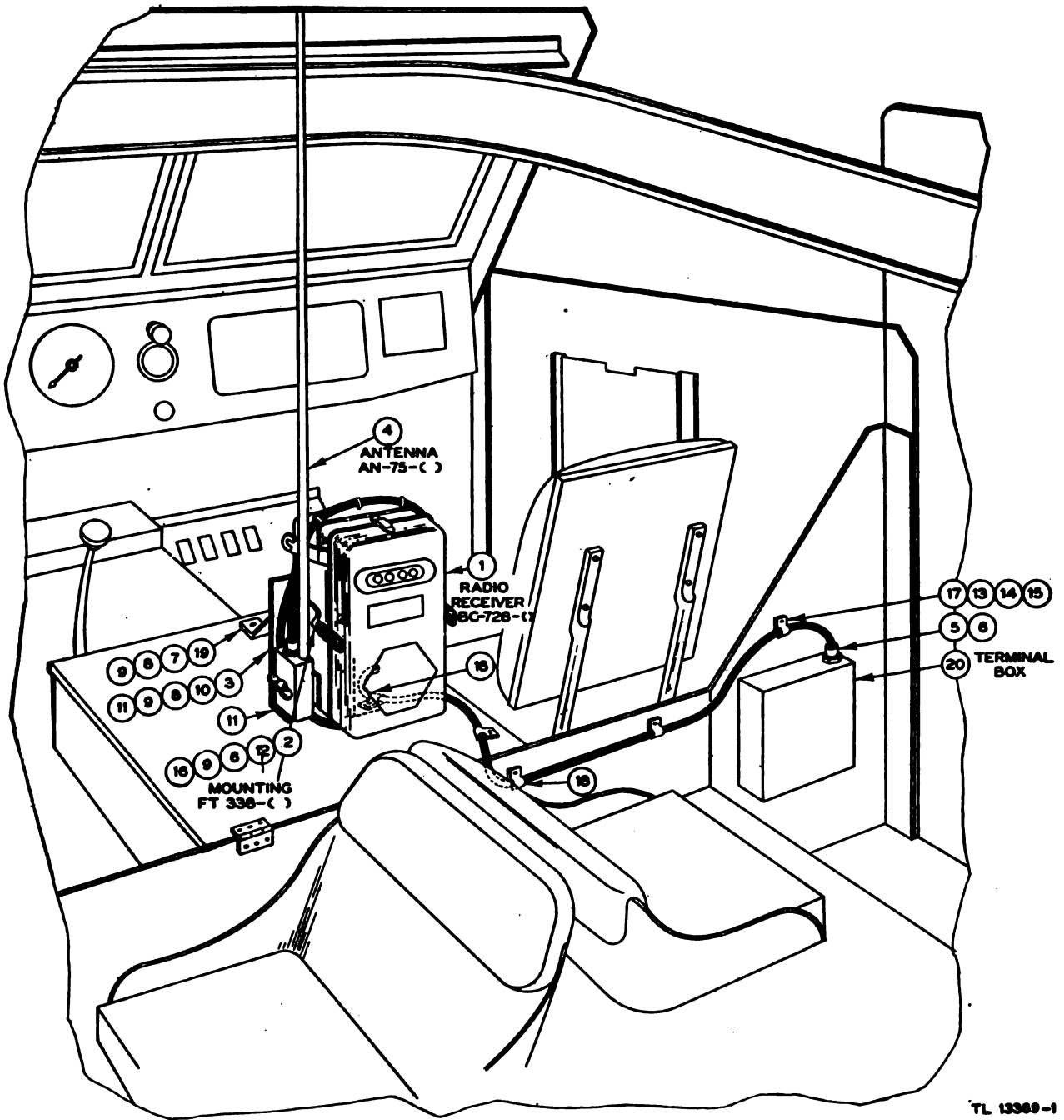


Figure 23. Pictorial view of Radio Set SCR-608-( ) or SCR-628-( ) in Car, Scout, M3A1.



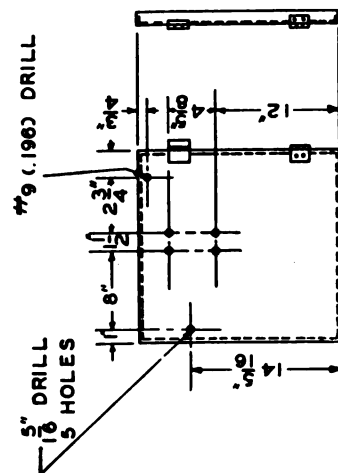
TL 13369-1

Figure 24. Installation of Radio Set SCE-593-( ) in Car, Scout, M3A1.

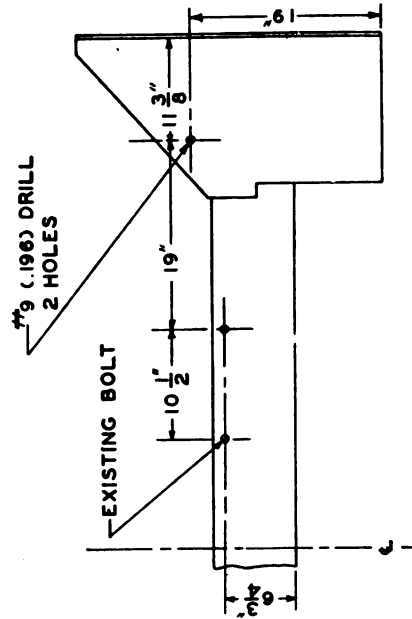
ITEM NO.	NAME OF ITEM	QUAN.	REQ.
1	RADIO RECEIVER BC-728-(C)	1	
2	MOUNTING FT-339-(C)	1	
3	EXTENSION BRACKET PART OF FT-338-(C) SEE DETAIL 3	1	
4	ANTENNA AN-75-(C)	1	
5	APPLETON CONNECTOR CAT. 61004	1	
6	APPLETON BONDNUT CAT. BL-50	1	
7	CAP SCREW 1/4"-20 X 1/2" LONG	2	
8	LOCKWASHER 1/4" INTERNAL TOOTH	9	
9	HEX. NUT 1/4"-20 STANDARD	9	
10	CAP SCREW 1/4"-20 X 1 1/4" LONG	4	
11	LOCKWASHER 5/16" INT.-EXT. TOOTH	3	
12	HEX. HEAD MACHINE SCREW 1/4"-20 X 3/4" LONG	3	
13	ROUND HEAD MACH. SCREW #8-32 X 1/2" LONG	3	
14	HEX. NUT #8-32 STANDARD	3	
15	LOCKWASHER SAE STANDARD FOR #8 SCREW	3	
16	FLAT WASHER SAE STANDARD FOR 1/4" SCREW	9	
17	CLAMP NO. 1	3	
18	CLAMP NO. 2 (SEE NOTE 1)	2	
19	REINFORCING BRACKET	1	
20	TERMINAL BOX C100427 (SEE NOTE 6)	1	

NOTE:

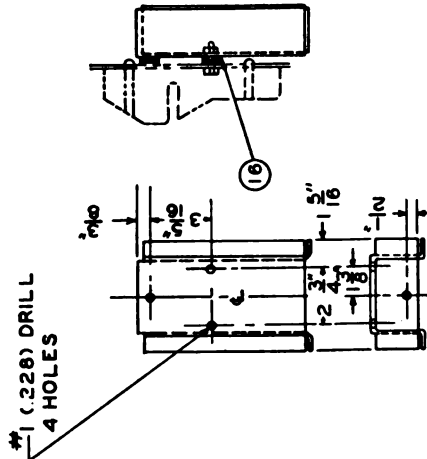
- (18) SHALL BE MOUNTED WITH EXISTING BOLTS.
- (7) TO (11) INCLUSIVE ARE FURNISHED WITH (2).
- TOOL CHEST COVER IN VEHICLE SHALL BE DRILLED PER DET. #1.
- RIGHT BULKHEAD IN VEHICLE SHALL BE DRILLED PER DET. #2.
- ONE HEADSET HS-30-( ), WITH CORD CD-605 SHALL BE FURNISHED FOR EACH RADIO SET SCR-593-( ).
- (20) SHALL BE FURNISHED AND INSTALLED BY VEHICLE M'FG.



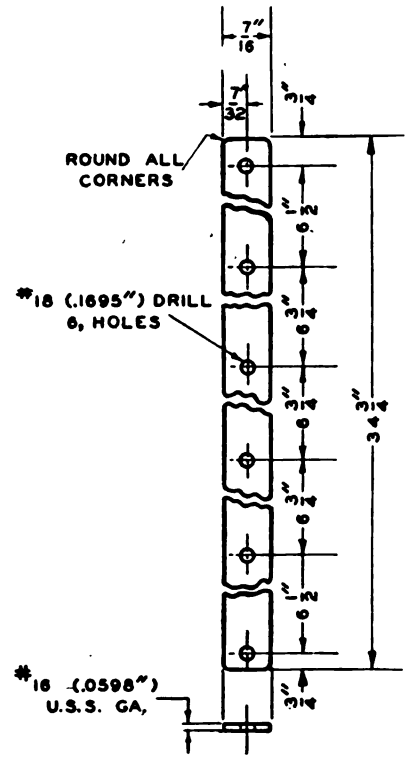
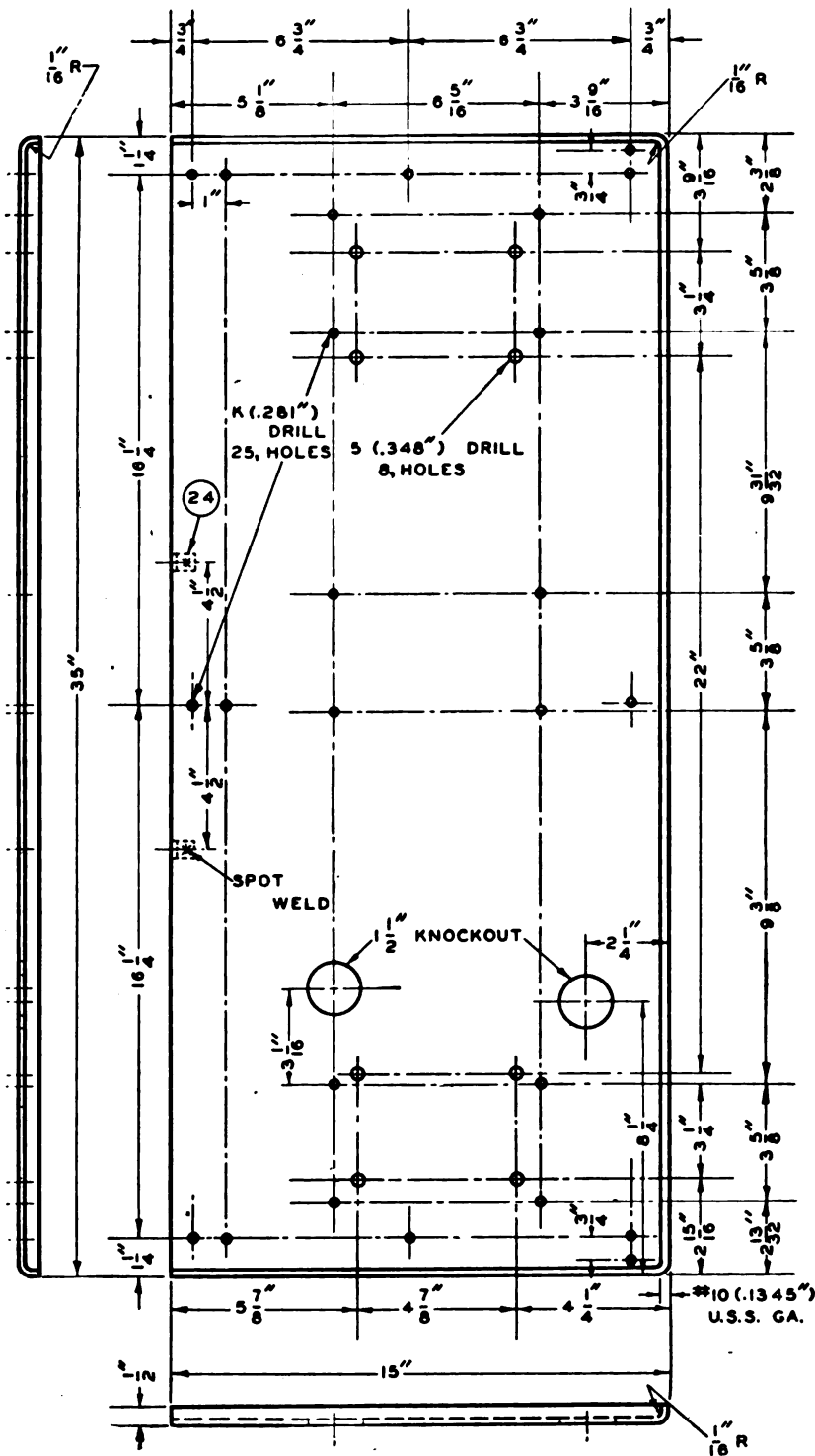
TOOL CHEST COVER  
DET. #1



BULKHEAD-RIGHT  
DET. #2



EXTENSION BRACKET MODIFIED  
DET. #3



(1) BASE PLATE  
 STEEL-HOT ROLLED  
 I-REQ

(4) BAR  
 STEEL-HOT ROLLED  
 I-REQ

Figure 25. Cabinet CH-74-A, details.

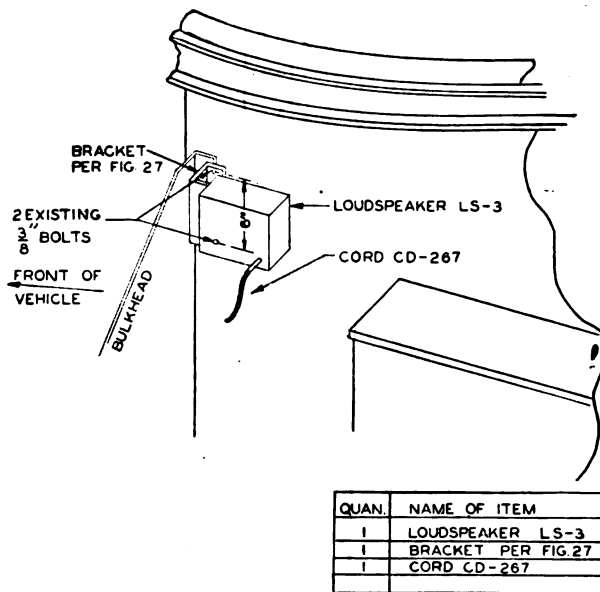
TL-10074-1





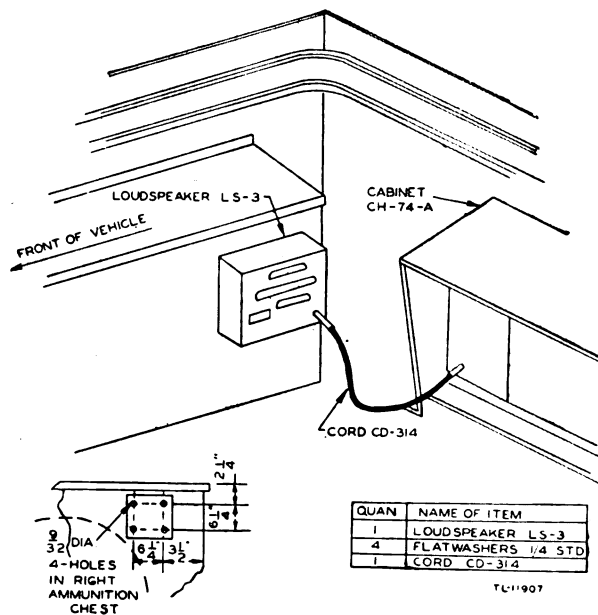






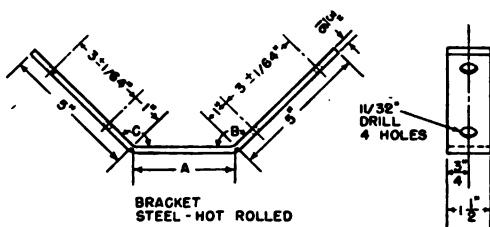
TL 11899

Figure 28. Location of Loudspeaker LS-3 for Radio Set SCR-193-D in Car, Scout, M3A1.



TL 11907

Figure 29. Location of Loudspeaker LS-3 for Radio Set SCB-506-( ) in Car, Scout, M3A1.



BRACKET  
STEEL - HOT ROLLED

ITEM	A	B	C
1	5 1/2"	125°	145°
2	3 1/2"	155°	115°

**NOTE:**

REMOVE ALL BURRS  
ALL SURFACES SHALL BE BONDERIZED AND THEN GIVEN ONE SPRAY COAT OF METAL PRIMER, CLASS 101, AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB BAKING ENAMEL, CLASS 440. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH ORDNANCE TENTATIVE SPECIFICATION TAG ES-NO. 680.  
TOLERANCES WHERE NOT SHOWN OTHERWISE SHALL BE HELD TO  $\pm 1/16"$   
DIMENSIONS WHERE NOT SHOWN OTHERWISE ARE IN INCHES

TL-12470

Figure 30. Bracket.

**NOTE:**

REMOVE ALL BURRS.  
BRACKET SHALL BE BONDERIZED AND THEN GIVEN ONE LIGHT SPRAY COAT OF METAL PRIMER, CLASS 101, AND ONE FULL SPRAY COAT OF LUSTRELESS OLIVE DRAB ENAMEL, CLASS 204. ALL PAINTS AND BAKING SHALL BE IN ACCORDANCE WITH ORDNANCE DEPT. TENTATIVE SPECIFICATION TAG ES-680. THEN FILL ENGRAVING WITH PERMANENT WHITE AND APPLY ONE COAT OF SILVER SPRAYING LACQUER ON ENGRAVING.  
TOLERANCES WHERE NOT SHOWN SHALL BE  $\pm 1/16"$

ENGRAVE OR METAL STAMP 3/8" CHARACTERS OF SUFFICIENT DEPTH THAT WHEN FINISH IS APPLIED THE CHARACTERS WILL BE CLEAR AND CLEAN OUT.

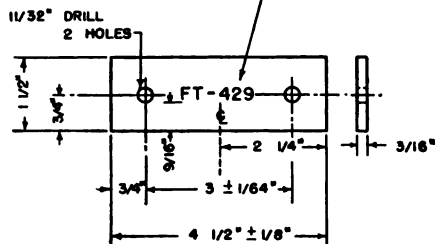
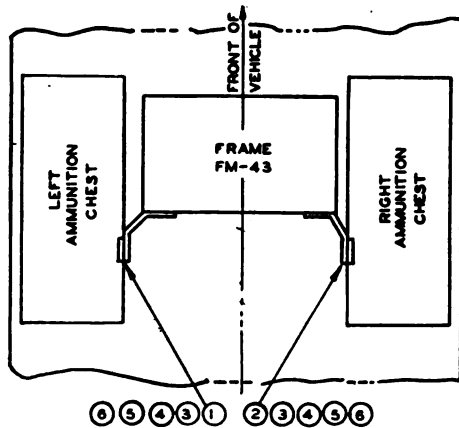


PLATE  
3/16" STEEL HOT ROLLED (SEE NOTE) AS REQUIRED

TL-12471

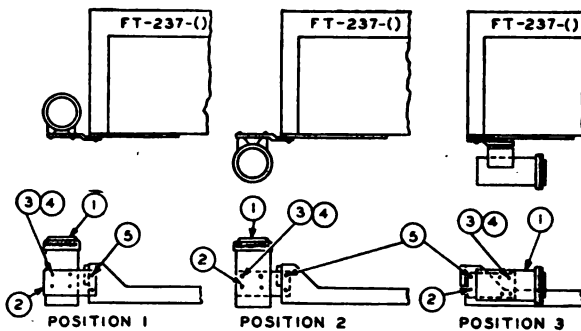
Figure 31. Plate FT-429.



QUAN REQ	NAME OF ITEM	MATERIAL	TYPE	ITEM NO	REMARKS
1	BRACKET			1	PER. FIG. 30
1	BRACKET			2	PER. FIG. 30
2	PLATE FT-420			3	PER. FIG. 31
6	HEX HD MACH SCR	STEEL		4	5/16" 24 X 1 1/4"
6	HEX NUT			ELECT	5
6	LOCKWASHER	GALV		6	STD FOR 5/16" SCR.

TL12472

Figure 32. Method of reinforcing Frame FM-43 in Car, Scout, MSA1



APPLICATION OF GROUND CLIP

ITEM NO	NAME OF ITEM AND REMARKS	QUAN REQ
1	ANTENNA A-62 (PHANTOM)	1
2	BRACKET	1
3	RD. HD MACH. SCR. #6-32 X 1/2" FURN WITH #1	4
4	LOCKWASHER #6 STD. FURN WITH #1	4
5	RD. HD. MACH. SCR. #10-32 X 5/8"	2

NOTE:

- 1 FOR ALL POSITIONS USE TIP OF BRACKET TO RECEIVE THE GROUND CLAMP OF ANTENNA A-62
- 2 USE LONGER SCREW (5) WHEN INSTALLING BRACKET ON MOUNTING FT-237-( ) AND RE-APPLY TOOTH-TYPE LOCKWASHERS.

TL13376

Figure 33. Installation of Antenna A-62, Phantom, on Mounting FT-237-( ).

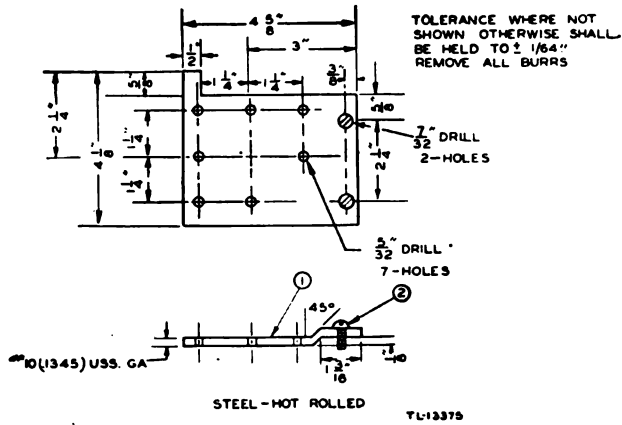
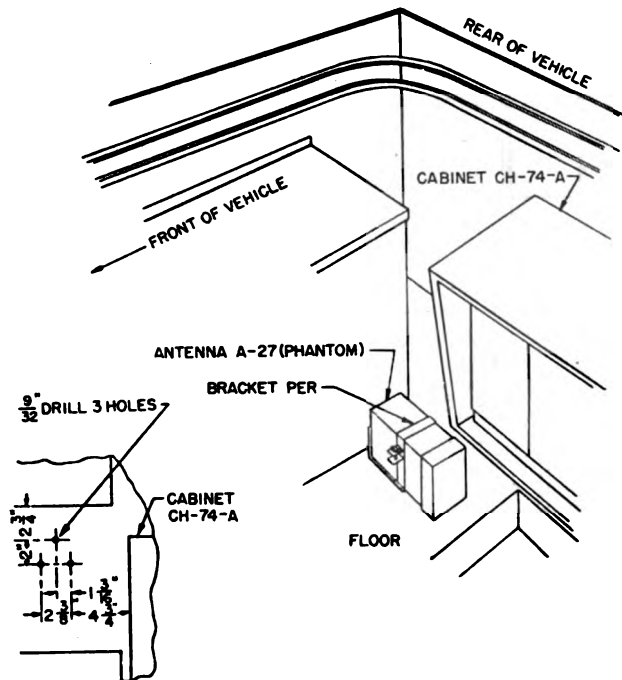


Figure 34. Bracket for Antenna A-62, Phantom.



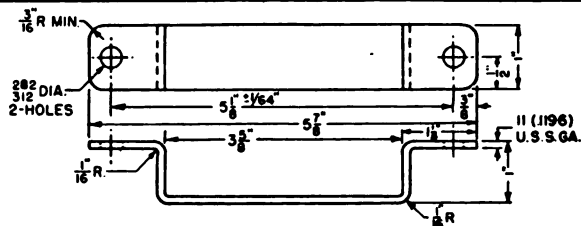
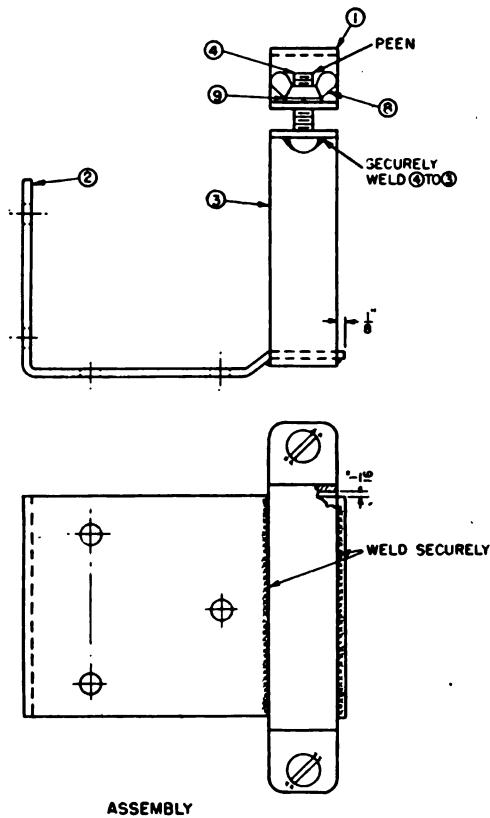
ITEMS REQUIRED

QUAN.	NAME	TYPE NO	REMARKS
1	ANTENNA (PHANTOM)	A-27	
1	BRACKET		
3	HEX. HD. CAP. SCR.		1/4" - 20 X 3/4" LG.
3	HEX. NUT		1/4" - 20 ST. D.
3	LOCKWASHER		S.A.E. REG. FOR 1/4" SCR.

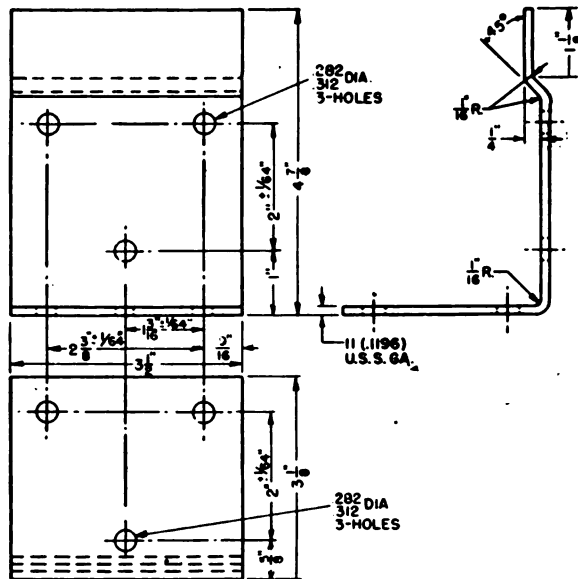
BASED ON SC-A-7253-A  
REF SC-D-9113

TL13001

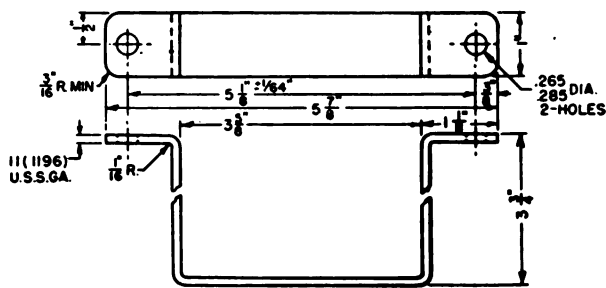
Figure 35. Location of Antenna A-27, Phantom in Car, Scout, M3A1.



① CLAMP  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.



② BRACKET  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.



③ ARM  
STEEL-HOT ROLLED (SEE NOTE)  
1-REQ.

ITEMS REQUIRED

QUAN REQ	NAME OF ITEM	MATERIAL	TYPE NO	ITEM NO.	REMARKS
6	LOCKWASHER	STEEL ELECTRO- GALVANIZED	SEE NOTE	9	S.A.E. REG. FOR 1/4 SCREW
2	WING NUT		SEE NOTE	8	1/4 - 20
4	HEX NUT		SEE NOTE	7	1/4 - 20 STD.
4	HEX HD CAP SCREW		SEE NOTE	6	1/4 - 20 X 3/4 LONG
4	HEX HD CAP SCREW		SEE NOTE	5	1/4 - 20 X 1 1/2 LONG
2	RD HD. MACH. SCREW			4	1/4 - 20 X 1 LONG
1	ARM			3	
1	BRACKET	STEEL		2	
1	CLAMP			1	

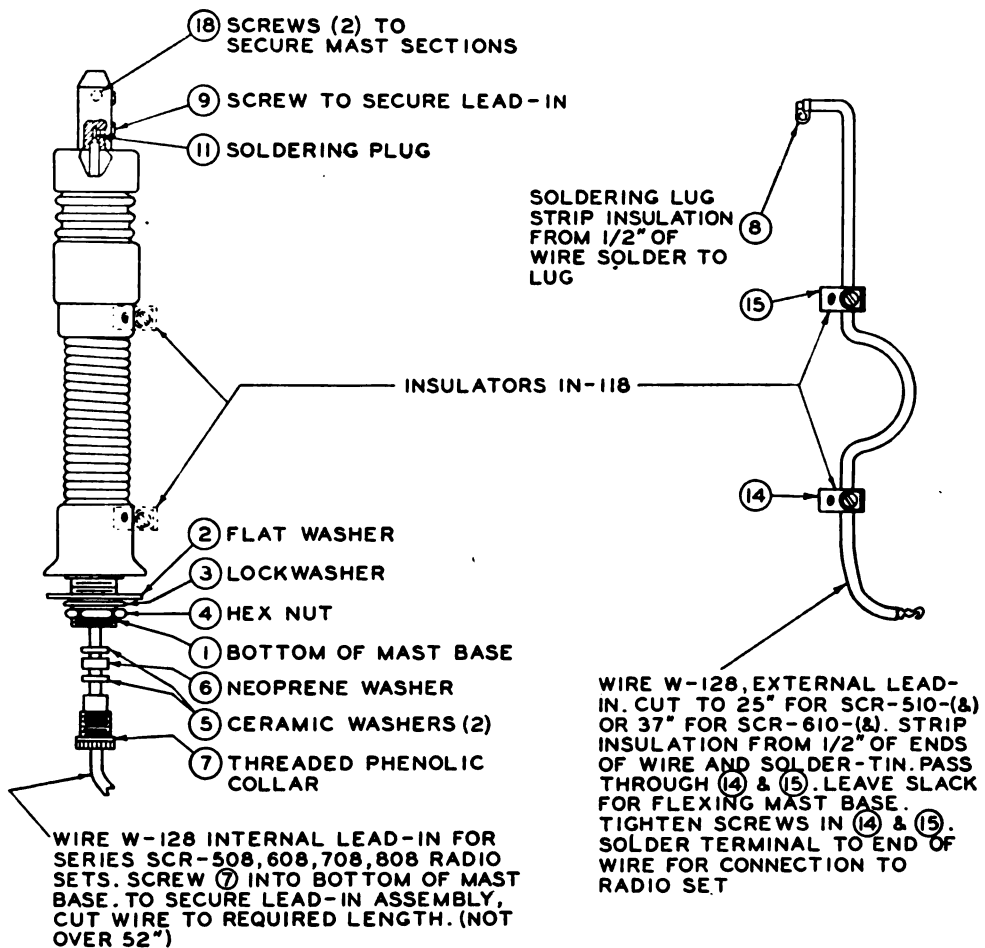
BASED ON SC-D-7367

NOTE:

REMOVE ALL BURRS.  
AFTER WELDING (2) & (4) TO (3), (1), (2) & (3) SHALL BE BONDERIZED AND THEN GIVEN ONE SPRAY COAT OF METAL PRIMER, CLASS 101, AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB BAKING ENAMEL, CLASS 440. TOUCH UP HEADS OF (4) TO MATCH SURROUNDING SURFACE. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH ORDNANCE TENTATIVE SPECIFICATION TAC ES-NO. 680.  
(5), (6), (7) & (4) OF (3) ARE USED FOR INSTALLATION AND SHALL BE PLACED IN A HEAVY CLOTH BAG PLAINLY AND PERMANENTLY MARKED "THIS BAG CONTAINS SCREWS NUTS AND LOCKWASHERS FOR INSTALLATION SPARES ARE INCLUDED IN QUANTITIES." THIS BAG SHALL BE TIED TO THE BRACKET.

TL 15087

Figure 36. Bracket for Antenna A-27, Phantom.



BASED ON  
 SC-A-7166-A

TL10134

Figure 37. Mast Base MP-48-A, assembly with Wire W-128 lead-in.











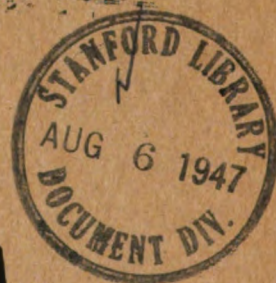


W1.35:11-2718

# TM 11-2718

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF RADIO AND  
FACSIMILE EQUIPMENT IN  
  
CAR, HALF-TRACK  
  
M2A1



**RESTRICTED** - DISSEMINATION OF RESTRICTED MATTER.  
No person is entitled solely by virtue of his grade or position  
to knowledge or possession of classified matter. Such matter  
is entrusted only to those individuals whose official duties  
require such knowledge or possession. (See also paragraph  
23b, AR 380-5, 15 March 1944.)

WAR DEPARTMENT • JUNE 1945



INSTALLATION OF RADIO AND  
FACSIMILE EQUIPMENT IN  
CAR, HALF-TRACK  
M2A1



WAR DEPARTMENT

JUNE 1945

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(See also paragraph 23b, AR 380-5, 15 March 1944.)

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WAR DEPARTMENT  
Washington 25, D. C., 6 June 1945.

TM 11-2718, Installation of Radio and Facsimile Equipment in Car, Halftrack, M2A1, is published for the information and guidance of all concerned.

[AG 300.7 (25 May 45)]

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OFFICIAL:

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*Major General*  
*The Adjutant General*

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	Equipment .....	102	101
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	Preliminary check .....	104	101
	Operating check .....	105	101
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	General .....	201	201
	Procedure .....	202	201
<b>SECTION</b>	<b>III. FACSIMILE EQUIPMENT RC-58-( ).</b>		
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<b>SECTION</b>	<b>IV. RADIO SET SCR-193-G.</b>		
	Required parts .....	401	401
	Assembly and installation.....	402	403
<b>SECTION</b>	<b>V. RADIO SET SCR-284-( ).</b>		
	Required parts .....	501	501
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<b>SECTION</b>	<b>VI. RADIO SET SCR-506-( ).</b>		
	Required parts .....	601	601
	Assembly and installation.....	602	604
<b>SECTION</b>	<b>VII. RADIO SET SCR-508-( ), SCR-528-( ), OR SCR-608-( ).</b>		
	Required parts .....	701	701
	Assembly and installation.....	702	704
<b>SECTION</b>	<b>VIII. RADIO SET SCR-510-( ) OR SCR-610-( ).</b>		
	Required parts .....	801	801
	Assembly and installation.....	802	804
<b>SECTION</b>	<b>IX. RADIO SET SCR-593-( ).</b>		
	Required parts .....	901	901
	Assembly and installation.....	902	901

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Changes to this manual will be published on a page basis as required. As change pages are received they will be inserted in their proper places, and the replaced pages salvaged or destroyed. Each page of the manual bears a date in its upper inside corner. This date is the date of the publication. Pages of changes will carry the date and number of the change.

Paragraphs are numbered according to sections in the manual; that is, paragraph number 103 indicates paragraph 3 in section I, paragraph number 209 indicates paragraph 9 in section II. Paragraphs carrying decimal suffixes indicate newly added material; for example, a paragraph numbered 123.1 represents the first main paragraph inserted between paragraphs 123 and 124.

Figures are numbered in the same way as paragraphs; that is, figure number 201 indicates figure 1 in section II, figure number 309 indicates figure 9 in section III. Figures carrying decimal suffixes indicate newly added material; for example, a figured number 203.1 represents the first figure added between figures 203 and 204.

Pages also are numbered according to sections; that is, page number 106 indicates page 6 in section I, page number 410 indicates page 10 in section IV. If new pages are added between existing pages they will carry alphabetical suffixes A, B, C, etc.; for example, if a new page is added between 101 and 102, the page will be numbered 101A. A second additional page in the same place would be numbered 101B, etc.

---

**WHY** — To prevent the enemy from using or salvaging this equipment for his benefit.

**WHEN**— When ordered by your commander.

**HOW** — 1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.  
2. Cut—Use axes, handaxes, machetes.  
3. Burn—Use gasoline, kerosene, oil, flame throwers, incendiary grenades.  
4. Explosives—Use firearms, grenades, TNT.  
5. Disposal—Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

### **USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT**

**WHAT**— 1. Smash—All vacuum tubes, crystals, control dials, coupling coils, transformers, speakers in receivers, external loudspeakers, microphones, headsets, dynamotors, and cable connectors.  
2. Cut—All connecting wires, cording, and cabling.  
3. Burn—All equipment, and all associated training, technical, and installation manuals.  
4. Bury or scatter—All remains, after destroying their usefulness.

**DESTROY EVERYTHING**

---

This equipment uses high voltages which are dangerous to life. Observe all safety precautions.

1. Make no adjustment with the power switch on.
2. Do not operate the equipment with the shields removed.
3. Do not connect power to any unit of the radio set until operating instructions have been read completely.

## GUIDE TO USE OF THIS MANUAL

---

### 101. Purpose

This manual provides methods and procedure, based upon actual field experience, for installation of radio and facsimile equipment in Car, Half-track, M2A1. Items required to make a complete operating installation are listed for each set. Official nomenclature followed by empty parentheses, such as Headset HS-30-( ), is used to indicate any model of equipment regardless of its procurement.

### 102. Equipment

Installations covered include Facsimile Equipment RC-58-( ) and the following Radio Sets:

SCR-193-G	SCR-508-( )	SCR-593-( )
SCR-284-( )	SCR-510-( )	SCR-608-( )
SCR-506-( )	SCR-528-( )	SCR-610-( )

### 103. Holes and Brackets

Brackets required for installation of the equipment

are normally drilled and installed prior to delivery of Car, Half-track, M2A1. Drilling instructions are given in this manual for any other necessary holes and brackets. Do not relocate any holes or brackets unless absolutely necessary.

### 104. Preliminary Check

Study the illustrations, the installation methods outlined, and any subsequent changes to this manual.

**Caution:** Car, half-track, M2A1, has a 12-volt electrical system. Before installing the equipments, be sure they are designed for 12-volt operation, or tubes may burn out or dynamotors may be damaged.

### 105. Operating Check

Carefully study the Technical Manual covering the equipment before trying to operate it; then, make a thorough operating check to determine whether the equipment has been properly installed and is in working order.



## IGNITION NOISE SUPPRESSION IN CAR, HALF-TRACK, M2A1

### 201. General

Excessive ignition or other electrical noises may interfere with operation of radio equipment in Car, Half-track, M2A1. The Technical Manual issued with the vehicle will be helpful in locating the source of the noise, since it describes the suppression system used. Study instructions for operating radio equipment used in this vehicle. See TM 11-483 for additional information on suppression of ignition noise in vehicles.

### 202. Procedure

Locate and suppress ignition as follows:

*a.* Place another radio set of the same type as installed in vehicle at a remote location far enough away from the vehicle to provide signals at weakest level that can be distinctly heard in the receiver of the radio set under test. Set radio receiver gain control to maximum and listen to output of receiver with a headset.

*b.* Start motor of the vehicle and accelerate vehicle engine to about 1,000 rpm. Check reception of weak signals from remote set at each frequency used for communication.

*c.* When the frequency (or frequencies) with greatest noise level that affects reception of the weak signals is found, leave the receiver tuned to one particular frequency and turn off the vehicle ignition switch. That part of noise which stops when the ignition switch is turned off is caused by the ignition system. Noise which lingers after the switch is turned off and continues until the vehicle motor comes to a stop is caused by voltage regulator or by battery-charging generator. Auxiliary equipment, such as oil, fuel, and temperature gauges, fans, motors, or others, should be turned on and off or disconnected individually in order to locate noises caused by them.

*d.* The table below will be helpful in distinguishing engine noises from static, etc.

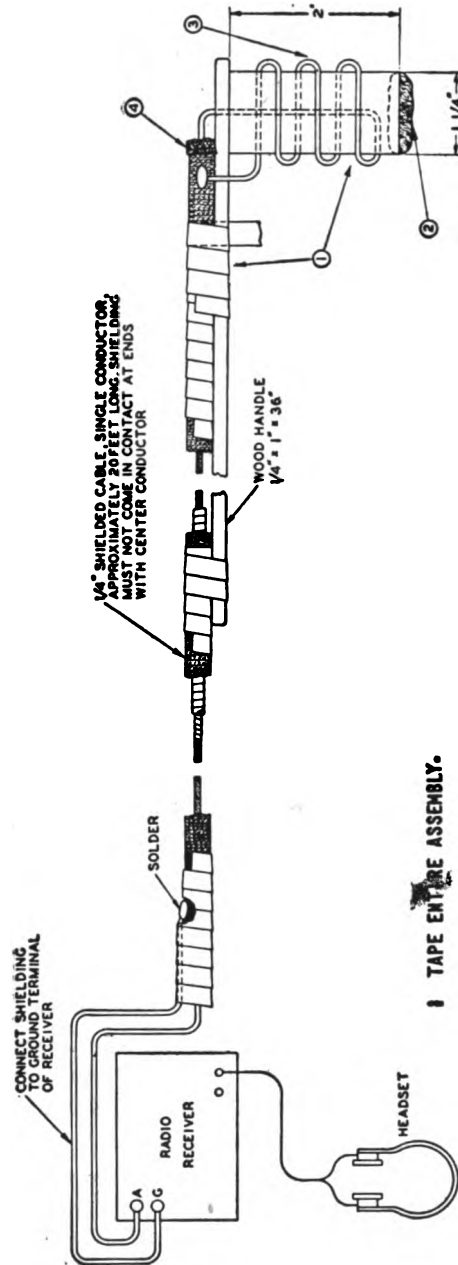
Interference	Usual source
Popping: Regular clicks corresponding to ignition firing; stops when motor is turned off; accelerates when motor speed is increased.	Ignition system.
Intermittent clicks: lingers for several seconds when ignition system is turned off.	Generator regulator.
Whine: varies with speed of motor; ceases when motor comes to a complete stop.	Generator.

*e.* A probe antenna, figure 201, connected to antenna and ground terminals of radio set under test will sometimes aid materially in locating source of interference. Slowly move the loop of probe antenna over the various parts of electrical system, close to, but not in contact with, the part under examination. Noise from interference-producing parts should be heard in receiver.

*f.* Usually interference can be eliminated by cleaning, tightening, or replacing noise-producing parts. Examine and tighten all suppressor and shielding components, and all connections and grounding bonds. Clean surface under them. This will assure good electrical contact between wires and terminals and between metal casings and the frame of the vehicle. (Insulated but ungrounded metal parts absorb and reradiate electrical noises.)

*g.* If interference persists, check suppressor components by substituting new ones. If a replacement is not available, disconnect the suspected component, and test capacitors, resistors, and chokes within it. Replace any that are defective.





- 1 TAPE ENTIRE ASSEMBLY.
- 2 STUFF END OF INSULATED TUBING WITH FELT AND TAPE OVER ENTIRE ASSEMBLY
- 3 WIND 3 TURNS NO. 16 OR NO. 18 WIRE ON TUBE OF INSULATING MATERIAL. SOLDER ONE END TO SHIELD ON CABLE, THE OTHER END ON INSULATED WIRE INSIDE CABLE.
- 4 ROLL BACK END OF SHIELDING, AND SECURE WITH SOLDER.

Figure 201. Probe antenna.

TL7547-A

## FACSIMILE EQUIPMENT RC-58-( )

### 301. Required Parts

Items necessary for installation of Facsimile Equipment RC-58-( ) in Car, Half-track, M2A1, are listed below:

*Basic unit Stock No. 6C25-58*

Quantity	Stock No.	Item
1	2C408	Amplifier BC-908( ), including two Dynamotor DM-21-( ) (one spare), Mounting FT-318-( ), set of installed tubes and spare parts.
1	2Z2599-108	Chest CH-108-( ).
1	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	3E1606	Cord CD-606, connecting Amplifier BC-908-( ) to Recorder-scanner BC-918-( ).
1	3E1608	Cord CD-608-( ), connecting Amplifier BC-908-( ) to terminal box.
1	3E1999-18	Cord CD-1018-( ), connecting Amplifier BC-908-( ) to radio receiver.
1	3E1999-19	Cord CD-1019-( ), connecting Amplifier BC-908-( ) to radio transmitter.
1	2Z3400-118	Cover BG-118-( ), for Recorder-scanner BC-918-( ).
1	2Z3400-128	Cover BG-128-( ), for Amplifier BC-908-( ).
1	2C262-918	Recorder-scanner BC-918-( ), including two Motor MO-28-( ) (one spare), Mounting FT-328-( ), set of installed tubes, two Vibrator VB-3-( ) (one spare), two Resistor RS-288-( ) (one spare), and two regulator resistors (one spare).
1	6C25-58/SP	Spare parts group.
50 rolls	6M1540	Tape M-298.
2	6D13047	TM 11-374.
1	6M2200	Writing Stand MC-308-( ).

*Installation unit Stock No. 6C25-58-V77/50*

Quantity	Stock No.	Item
1	2Z4460-89	Frame FM-89.
1	6L50-58V77	Hardware bag.
3 ft.	1B128	Wire W-128.

### 302. Assembly and Installation

Install components of Facsimile Equipment RC-58-( ) in Car, Half-track, M2A1, as shown in figure 301. After performing necessary drilling shown in figure 301, proceed with installation as directed below:

*Part and location*

Frame FM-89 (item 5, fig. 301), on cover of seat locker.

Wire W-128 and terminals (items 15 and 34, fig. 301).

*Method and materials*

Remove center seat between ammunition chests at front of vehicle. Drill required holes in cover of seat locker. Secure frame to seat locker with hardware provided. Use shakeproof washers under screw heads and under each nut.

Prepare two ground wires by cutting two 8-inch lengths of Wire W-128. Strip and solder-tin  $\frac{1}{2}$  inch of each end. Solder a terminal to one end of each length.

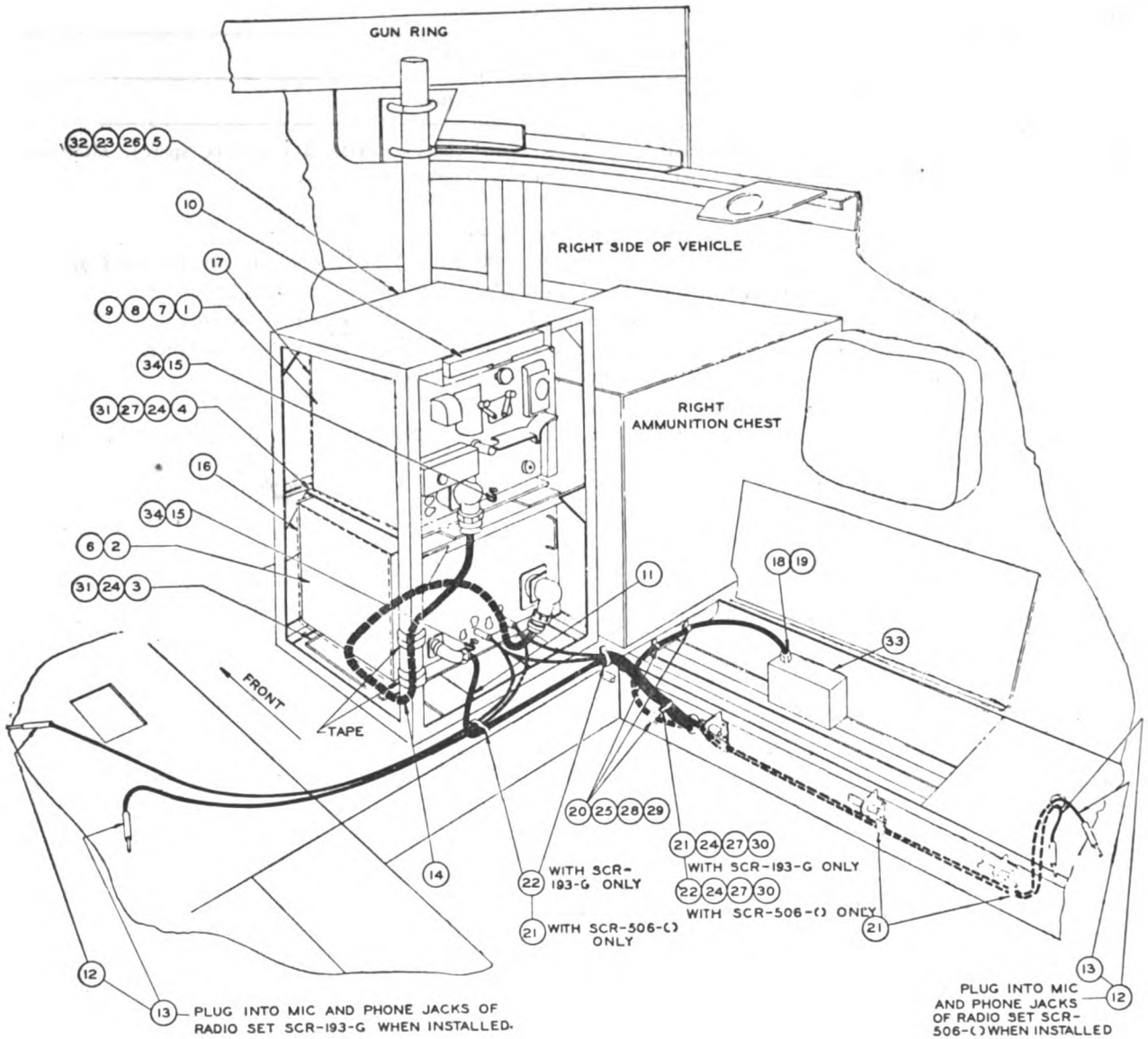
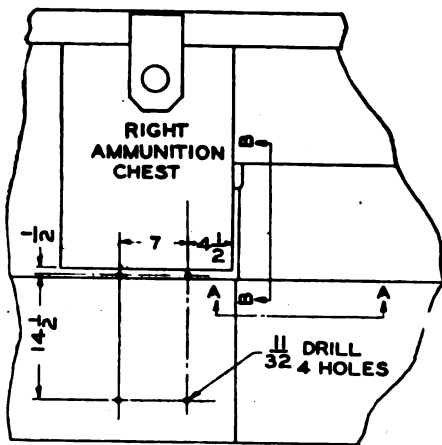
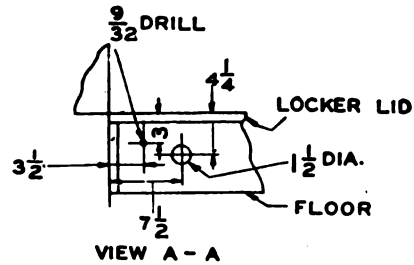


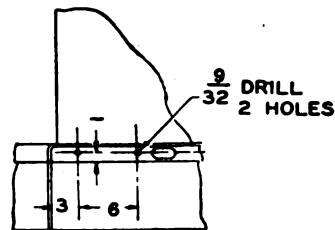
Figure 301. Installation of Facsimile Equipment



DRILLING OF MOUNTING HOLES FOR FRAME FM-89



VIEW A - A



VIEW B - B

NOTES:

1. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE COMPONENT PARTS LIST.
2. DIMENSIONS WHERE NOT SHOWN OTHERWISE ARE IN INCHES.
3. CUT (15) TO PROPER LENGTH. TIN ONE END; SOLDER (34) TO OTHER FOR GROUND CONNECTION.
4. (33) IS FURNISHED WITH THE VEHICLE BY THE MANUFACTURER.
5. MOUNT (21) AND (22) WITH EXISTING HARDWARE.
6. USE INSTALLATION SHOWN IN CONJUNCTION WITH EITHER RADIO SET SCR-506-( ) OR SCR-193-9. INSTALL (12) AND (13) ON SIDE OF VEHICLE NEAREST RADIO SET USED.
7. APPLICATION OF SHAKEPROOF WASHERS:
  - A. UNDER HEAD AND UNDER NUT OF EACH MOUNTING SCREW FOR (8).
  - B. UNDER HEAD OF EACH MOUNTING SCREW FOR (3).
  - C. UNDER HEAD AND UNDER TERMINAL WHEN (34) IS USED.
  - D. UNDER HEAD AND UNDER NUT OF EACH MOUNTING SCREW FOR (5).

ITEM NO.	NAME OF ITEM	QUANTITY REQUIRED
1	RECORDER-SCANNER RC-918-( )	1
2	AMPLIFIER RC-908-( )	1
3	MOUNTING FT-318-( )	1
4	MOUNTING FT-328-( )	1
5	FRAME FM-89	1
6	DYNAMOTOR DM-21-( )	1
7	VIBRATOR VB-3-( )	1
8	MOTOR MO-28-( )	1
9	RESISTOR RS-288-( )	1
10	WRITING STAND MC-308-( )	1
11	CORD CD-608-( )	1
12	CORD CD-1018-( ) 10 FT. LONG	1
13	CORD CD-1019-( ) 12 FT. LONG	1
14	CORD CD-606	1
15	WIRE W-128 8 IN. LONG	2
16	COVER BG-128-( )	1
17	COVER BG-118-( )	1
18	CONNECTOR NO. 61007	1
19	BOND NUT BL-50	1
20	CLAMP NO. 4	1
21	CLAMP NO. 6	2
22	CLAMP NO. 8	5
23	HEX HEAD MACH SCREW 6/16 - 24 X 3/4 LONG	2
24	HEX HEAD MACH SCREW 1/4 - 20 X 3/4 LONG	4
25	ROUNDHEAD MACH SCREW NO. 8 - 32 X 1/2 LONG	9
26	HEX NUT 5/16 - 24 STD.	2
27	HEX NUT 1/4 - 20 STD.	5
28	HEX NUT NO. 8 - 32 STD.	2
29	LOCK WASHER S.A.E. REG. FOR NO. 8 SCREW	2
30	LOCK WASHER S.A.E. REG. FOR 1/4 SCREW	2
31	SHAKEPROOF WASHER FOR 1/4 SCREW	14
32	SHAKEPROOF WASHER FOR 5/16 SCREW	8
33	TERMINAL BOX	1
34	TERMINAL	2

TL 10888-3-1

RC-58-( ) in Car, Half-track, M2A1.

*Part and location*

Mounting FT-318-( ) (item 3, fig. 301),  
at bottom of Frame FM-89.

Mounting FT-328-( ) (item 4, fig. 301),  
on center cross-members of Frame  
FM-89.

Amplifier BC-908-( ) (item 2, fig. 301),  
on Mounting FT-318-( ).

Recorder-Scanner BC-918-( ) (item 1,  
fig 301), on Mounting FT-328-( ).

Writing Stand MC-308-( ) (item 10,  
fig. 301).

Cord CD-606 (item 14, fig. 301).

Cord CD-608-( ) (item 11, fig. 301).

Cover BG-118-( ) (item 17, fig. 301).

Cover BG-128-( ) (item 16, fig. 301).

Cords CD-1018-( ) and CD-1019-( )  
items 12 and 13, fig. 301).

*Method and materials*

Secure mounting to cross-members at bottom of Frame FM-89 with four ¼-inch screws, nuts, and shakeproof washers. Attach terminal end of one prepared ground wire with a mounting screw securing front of Mounting FT-318-( ) to Frame FM-89.

Secure mounting to center of cross-members of Frame FM-89 with four ¼-inch screws, nuts, and shakeproof washers. Attach terminal end of other prepared ground wire with a mounting screw securing front of Mounting FT-328-( ) to Frame FM-89.

Place amplifier on mounting and secure with provided snap-slide fasteners. Connect ground wire from Mounting FT-318-( ) to GROUND binding post on amplifier.

Place recorder-scanner on mounting and secure with provided snap-slide fasteners. Connect ground wire from Mounting FT-328-( ) to GROUND binding post on recorder-scanner.

Stow writing stand in compartment provided in top of Frame FM-89.

Connect cord between amplifier and recorder-scanner.

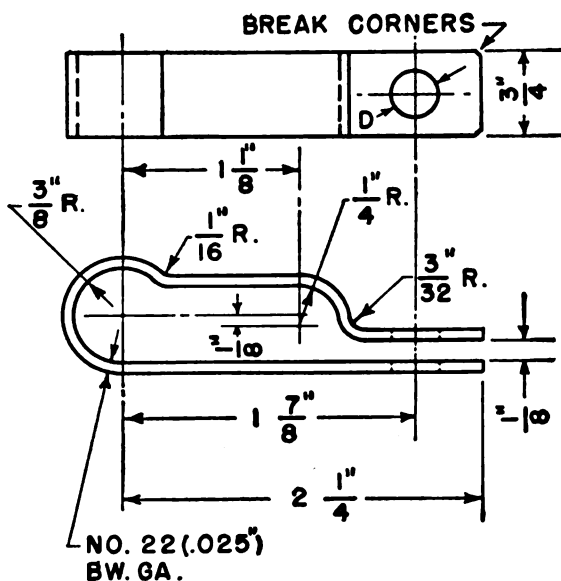
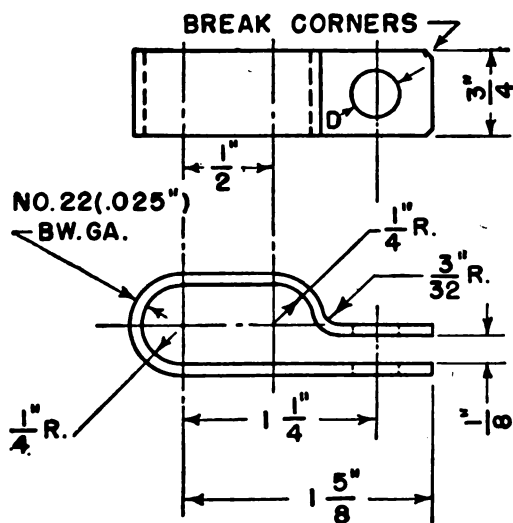
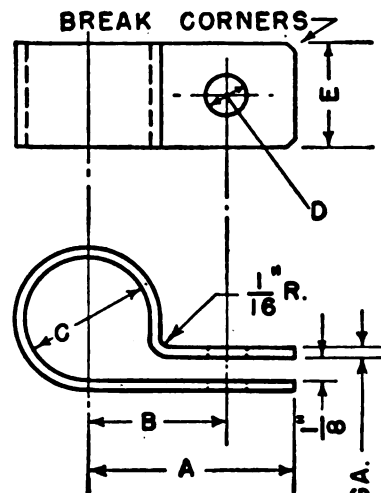
Connect cord to amplifier and route to vehicle terminal box as shown in figure 301. Secure in place with clamps provided. Install a connector No. 61007 and Bondnut BL-50 in knock-out hole in vehicle terminal box to secure Cord CD-608-( ). Connect white lead of cord to positive terminal and black lead to negative terminal inside vehicle terminal box.

Place cover over recorder-scanner.

Place cover over amplifier.

When Facsimile Equipment RC-58-( ) is installed in combination with Radio Set SCR-193-G, route cords along seat locker on left side of vehicle. When facsimile equipment is used in combination with Radio Set SCR-506-( ), route cords along seat locker on right side of vehicle. Insert Plugs PL-55 and PL-68 on one end of each cord into either the MICRO or PHONES jack on front of amplifier, and insert plugs on other ends of cords into microphone and headphone jacks on radio set. Secure cords in place with clamps and hardware provided.

CLAMP	A	B	C	D	E	STOCK NO.
1	1-1/8"	3/4"	7/16"	3/16"	1/2"	222637-1
2	1-1/8"	3/4"	7/16"	9/32"	3/4"	222637-2
3	1-1/8"	3/4"	7/16"	13/32"	3/4"	222637-3
4	1-1/8"	3/4"	17/32"	3/16"	1/2"	222637-4
5	1-1/8"	3/4"	17/32"	9/32"	3/4"	222637-5
6	1-1/8"	3/4"	17/32"	13/32"	3/4"	222637-6



CLAMP	D	STOCK NO.
7	3/16"	222637-7
8	9/32"	222637-8
9	13/32"	222637-9

CLAMP	D	STOCK NO.
10	9/32"	222637-10
11	13/32"	222637-11

NOTE:  
TOLERANCES  $\pm 1/32"$

TL-13319

Figure 302. Clamps for radio cordage.



## RADIO SET SCR-193-G

## 401. Required Parts

Items necessary for installation of Radio Set SCR-193-G in Car, Half-track, M2A1, are listed below:

*Basic unit Stock No. 2S193/12*

Quantity	Stock No.	Item
1	2A275-27	Antenna A-27, phantom.
1	2A224	Antenna AN-24.
1	2Z1108	Box BX-8, for transmitter spare tubes.
1	2Z1119	Box BX-19-A, for receiver spare tubes.
1	2Z1121	Box BX-21, for Box BX-8, BX-19-A, and spare parts.
1	2Z1250.82	Bracket assembly (fig. 409), for Antenna A-27, phantom.
1	3E1267	Cord CD-267.
1	2Z3375	Cover BG-75.
1	2Z3378	Cover BG-78.
1	2Z3379	Cover BG-79.
1	3H1777.2	Dynamotor Unit BD-77-( ), including Mounting FT-107-( ).
3	3G586	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
1	3Z3445	Key J-45.
1	2Z6303.1	Loudspeaker LS-3.
*1	2A2088-65	Mast Base MP-65.
*6	2A2416	Mast Section MS-116, including three spares.
*2	2A2417	Mast Section MS-117, including spare.
*2	2A2418	Mast Section MS-118, including spare.
1	2Z6712	Mounting FT-172.
1	2Z6718	Mounting FT-178.
1	2C4312	Radio Receiver BC-312-( ), including Mounting FT-162, TM 11-850, spare fuses and brushes, Dynamotor DM-21-( ), and set of tubes installed.
1	2C6191.8	Radio Transmitter BC-191-( ), including Mounting FT-151-( ), Socket Cap M-163-A, Socket Cap M-164-A, two Socket Cap M-165-A, fuses, lamps, and TM 11-800.
1	2Z8056	Roll BG-56-( ).
50 ft.	6Z7926	Rope RP-5, for tying down mast sections.
2	6D13073	TM 11-273.

*Installation unit Stock No. 2S193G-V10/50*

Quantity	Stock No.	Item
1	2Z1250.20	Bracket.
1	2Z1250.66	Bracket (fig. 407) for Loudspeaker LS-3.
*3	4B417-4	Chest Set TD-4, including spare.
1	3E1360	Cord CD-360, connecting Radio Receiver BC-312-( ) to vehicle terminal box.
1	3E1410	Cord CD-410, connecting Radio Transmitter BC-191-( ) to vehicle terminal box.
1	3E1472	Cord CD-472, connecting Radio Transmitter BC-191-( ) to Dynamotor Unit BD-77-( ).
1	3E1473	Cord CD-473, connecting Radio Transmitter BC-191-( ) to Dynamotor Unit BD-77-( ).
1	3E2260	Cord CO-260, connecting Dynamotor Unit BD-77-( ) to vehicle terminal box.
1	6C18-41	Cover CW-41/U.
1	6L50-193V10	Hardware bag.
*3	2B800-16	Headset H-16/U, including spare.





*Installation unit Stock No. 2S193G-V10/50—Continued .*

Quantity	Stock No.	Item
5	3G604	Insulator IN-104, including spare.
1	2B1617	Microphone T-17, spare item.
1	2B1645	Microphone T-45.
2	2B1567	Microphone Cover M-367, spare item.
1	2Z7090.9	Plate.
1	2Z9313	Terminal Block TM-183.
15 ft.	1B128	Wire W-128.

<sup>a</sup> If Mast Base MP-65 and Mast Sections MS-116, MS-117, and MS-118 are not available, use Mast Base MP-37 or MP-57, Mast Sections MS-51, MS-52, and MS-53, Clamps MC-423 and MC-424, and Cover BG-67-( ).

<sup>b</sup> If Headset H-16/U, Microphone T-45, and Chest Set TD-4 are not available, use Headset HS-30-( ), Microphone T-17, and Cords CD-307-A and CD-604.

## 402. Assembly and Installation

Install components of Radio Set SCR-193-G in Car, Half-track, M2A1, as shown in figure 401 and as directed below:

### *Part and location*

Mast Base Bracket MP-54 (supplied by manufacturer), on left top rail of vehicle above bulkhead plate.

Mast Base MP-65, on Mast Base Bracket MP-54.

Insulators IN-104, on Mast Base Bracket MP-54, and on left top rail.

Wire W-128.

Terminal Block TM-183, in vehicle terminal box.

### *Method and materials*

Secure mast base bracket in place with hardware supplied with bracket. (See fig. 401.)

Assemble Mast Base MP-65 as follows (fig.402): Place upper insulator, item 4, over hole in bracket. Place phenolic washer, item 3, over item 4. Place body of mast base, item 2, through items 3 and 4. Place lockwasher, item 9, plain washer item 8, and phenolic washer, item 7, over bolt and binding post assembly, item 10. Place lower insulator, item 6, over item 10. Screw threaded portion of item 10 into body, item 2, from underneath. Tighten assembly with a  $\frac{1}{8}$ -inch open-end wrench. Do not apply excessive pressure; it will damage mast base. If Mast Base MP-37 or MP-57 is used, see figure 403 for assembly.

Tap two holes, No. 10-32, on inside face of mast base bracket, and drill one hole,  $\frac{7}{32}$  inch in diameter, 1 inch to rear of mast base bracket on inside edge of left top rail. Use these holes to install insulators. Enlarge hole on panel of Radio Transmitter BC-191-( ) below antenna terminal strip to No.10-32 and install Insulator IN-104.

Cut length of Wire W-128 not to exceed 7 feet. Strip  $\frac{1}{2}$  inch of insulation from each end of wire, and solder-tin tips. Route wire through the four Insulators IN-104 from antenna terminal on transmitter to Mast Base MP-65. Prepare two short lengths of wire by stripping back  $\frac{1}{2}$  inch of insulation from each end. Solder-tin tips and solder a terminal (obtained from hardware bag) to one end of each length. Connect leads to ground terminals of transmitter and receiver and to a convenient ground on vehicle. Use shakeproof washer between terminal lug and vehicle.

Secure terminal block to supports in terminal box with screws provided.

*Part and location*

Mountings FT-162, FT-151-( ), and FT-107, on radio mounting plate.

Radio mounting plate, on floor of vehicle, left front, behind driver's seat.

Radio Receiver BC-312-( ), Mounting FT-178, and Cover BG-75.

Bracket, on left side of vehicle.

Radio Transmitter BC-191-( ), Mounting FT-172, and Socket Cap M-163-A, on Mounting FT-151-( ).

Cover BG-78, over Radio Transmitter BC-191-( ).

Dynamotor Unit BD-77-( ), on Mounting FT-107-( ).

Mast Sections MS-116, MS-117, and MS-118, on Mast Base MP-65.

Cord CD-360.

Cord CD-410.

Cord CD-472.

Cord CD-473.

*Method and materials*

Place mountings on mounting plate, as shown in figure 401, and fasten with hardware provided.

Secure mounting plate as shown in figure 401. Use screws provided in vehicle.

Remove receiver chassis from cabinet and drill top of cabinet as shown in figure 404. Lock cabinet on Mounting FT-162 with snap-slide catches. Install Mounting FT-178 as shown in figure 401. Cut a slot in top of Cover BG-75 to admit bracket (item 1, fig. 405). Slide cover over receiver cabinet, and couple items 1 and 3 (fig. 405) of Mounting FT-178 with wingnut. Replace receiver chassis in cabinet and tighten thumbscrew locking devices.

Fasten bracket to vehicle with existing bolts, as shown in figure 401.

Use reinforcing plate (fig. 405) as a template, and drill eight holes in top of radio transmitter as shown in figure 406. Fasten small bracket (item 1, fig. 405) and reinforcing plate in place, with stopnuts on outside. Place transmitter on Mounting FT-151-( ) and lock in position with snap-slide catches. Assemble Mounting FT-172 as shown in figure 405 and fasten item 2 to bracket on left wall of vehicle, as shown in figure 401. If necessary, bend item 3 and remove excessive length. Place socket cap over unused socket on transmitter.

Uncouple wingnut at transmitter end of Mounting FT-172. Cut a slot in top of cover to admit item 1 (fig. 405). Slide cover over transmitter and couple Mounting FT-172 with wingnut.

See figure 401. Install dynamotor in location shown. Lock dynamotor in position with snap-slide fasteners provided. Place Cover BG-79 over dynamotor unit.

Screw mast sections together and screw assembled antenna into Mast Base MP-65. Tape joints to prevent loss of sections. If Mast Base MP-57 is used, screw Mast Sections MS-49, MS-50, MS-51, MS-52, and MS-53 together. Place Clamps MC-421, MC-422, MC-423, and MC-424 over joints. Screw assembled antenna into Mast Base MP-57.

Connect cord between Radio Receiver BC-312-( ) and vehicle terminal box, as shown in figure 401.

Connect cord between Radio Transmitter BC-191-( ) and vehicle terminal box, as shown in figure 401.

Connect cord between Radio Transmitter BC-191-( ) and Dynamotor Unit BD-77-( ), as shown in figure 401.

Connect cord between Radio Transmitter BC-191-( ) and Dynamotor Unit BD-77-( ), as shown in figure 401.

*Part and location*  
Cord CO-260.

Bracket (fig. 407), Loudspeaker LS-3,  
Cover CW-41/U, and Cord CD-267.

Bracket assembly (fig. 409) and Antenna  
AN-27.

*Method and materials*

Connect cord between Dynamotor Unit BD-77-( ) and vehicle terminal box, as shown in figure 401.

Fasten bracket on upper left wall of vehicle with existing bolts as shown in figure 408. Remove screws from front panel of loudspeaker. Place cover on loudspeaker and replace screws. Fasten loudspeaker on bracket with cap screws provided. Connect Cord CD-267 between Radio Receiver BC-312-( ) and loudspeaker.

Assemble bracket and secure in any convenient place in vehicle. Fasten antenna in bracket assembly.

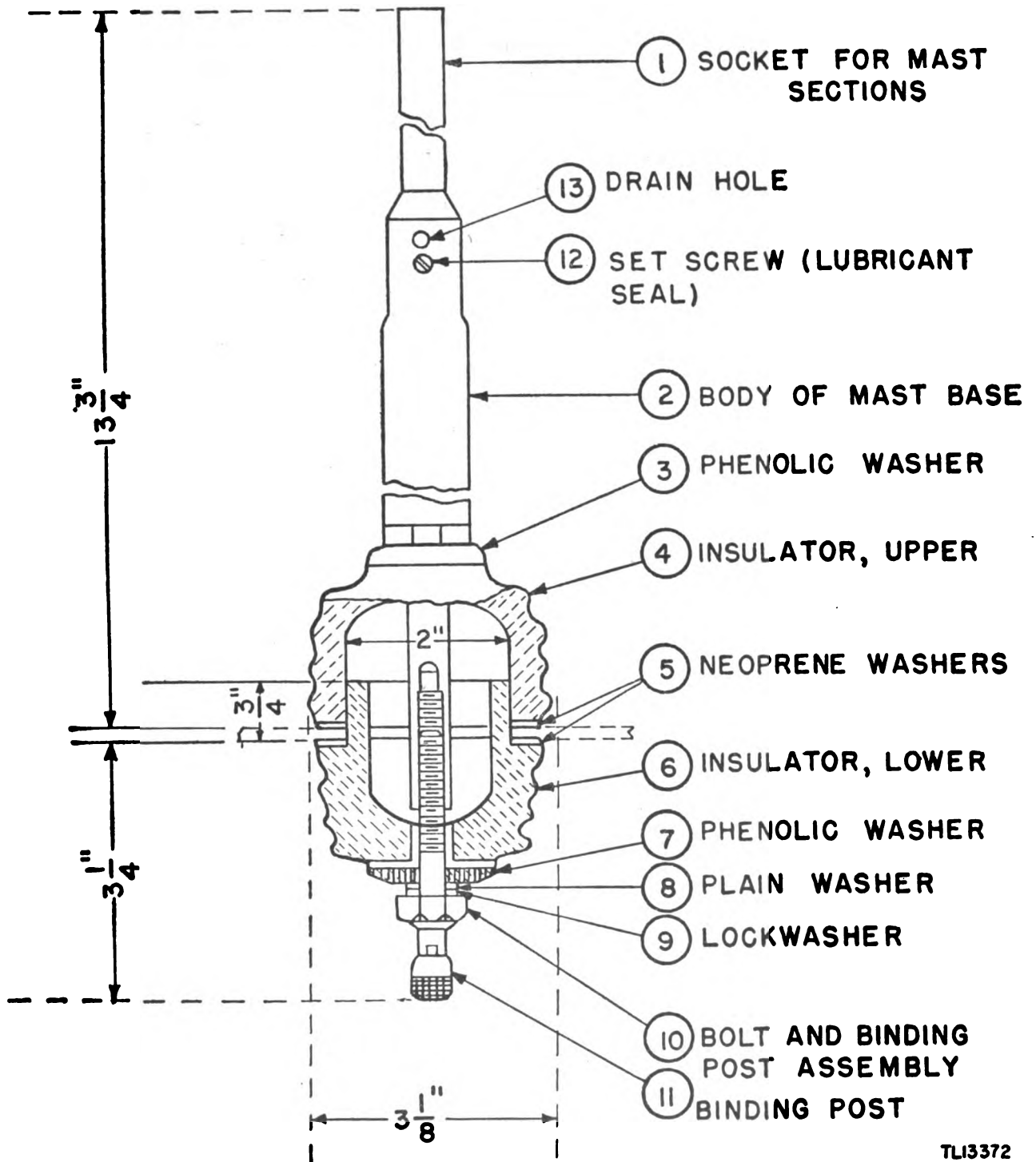
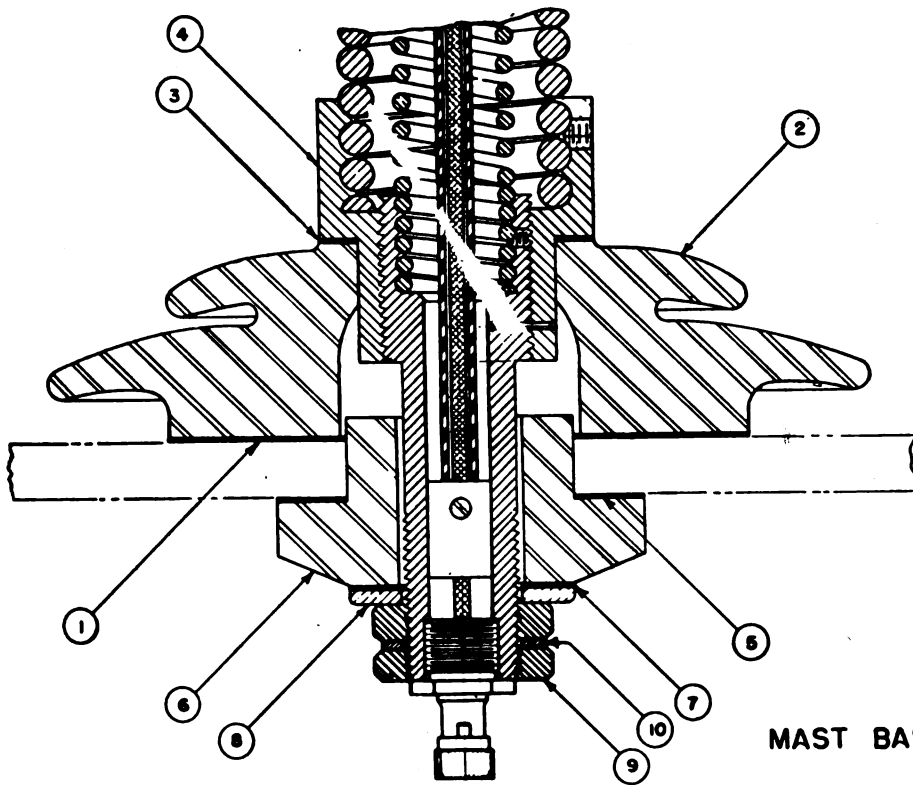
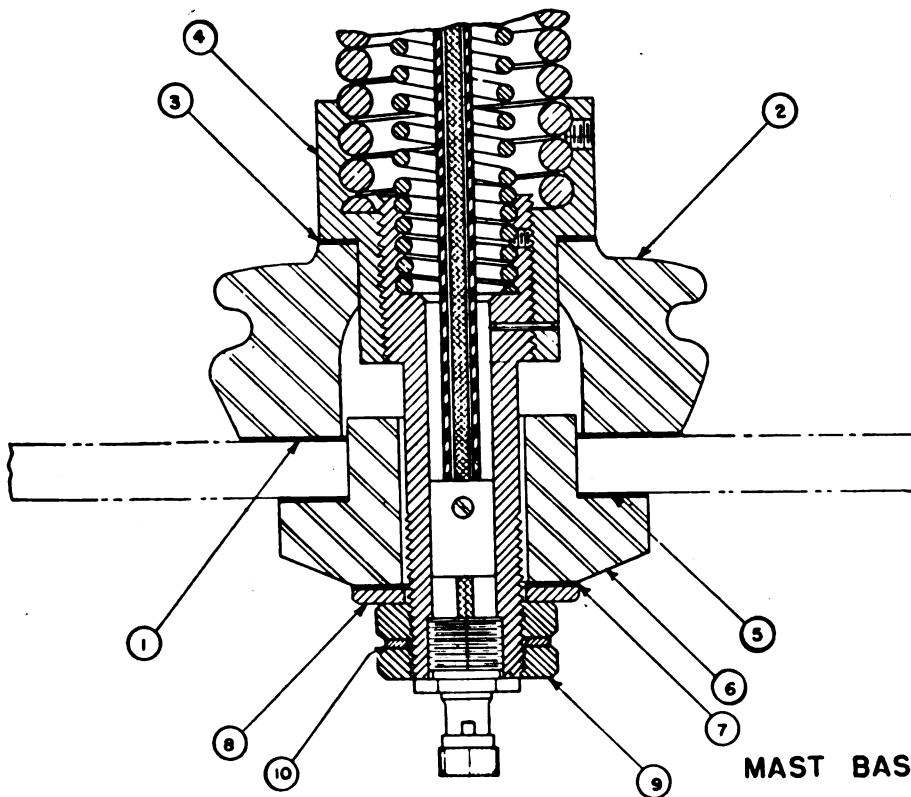


Figure 402. Mast Base MP-65, assembly.

TL13372



MAST BASE MP - 37



- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

MAST BASE MP - 57

TL15998-A

Figure 403. Mast Base MP-37 or MP-57, assembly.

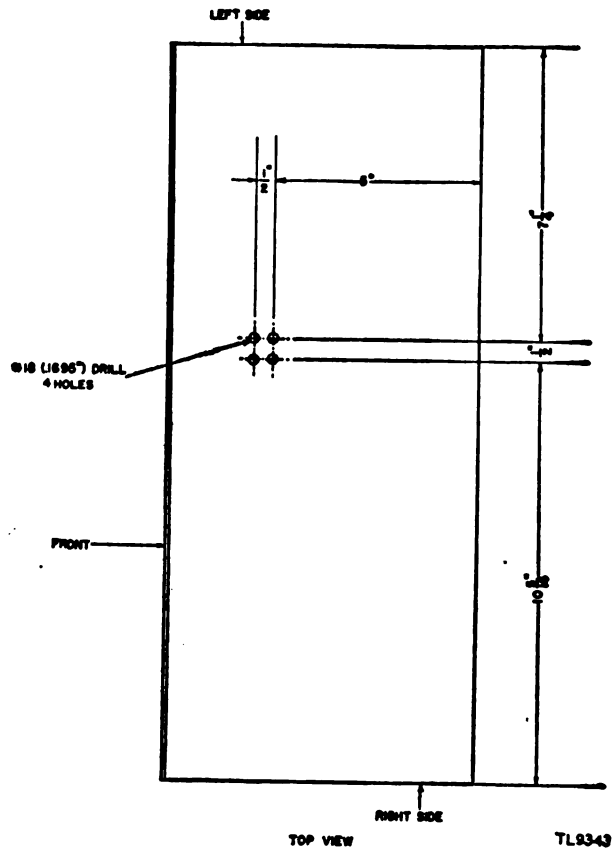


Figure 404. Drilling of Radio Receiver BC-312-( ) for Mounting FT-178.

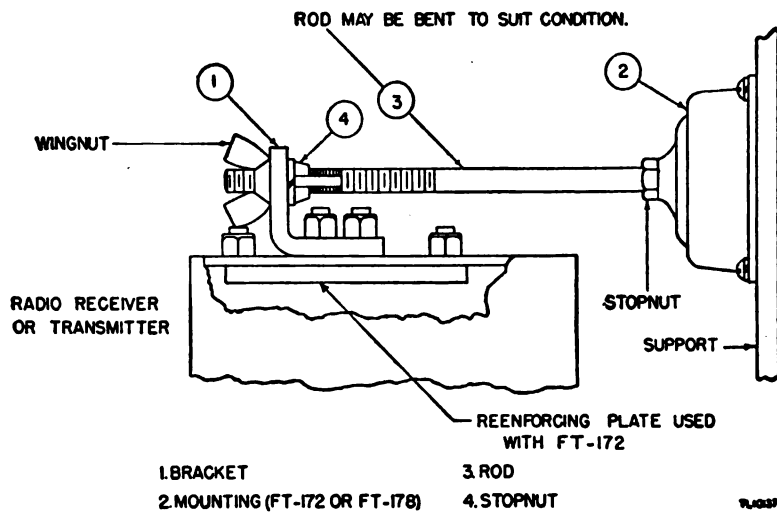


Figure 405. Assembly of Mounting FT-172 or FT-178.

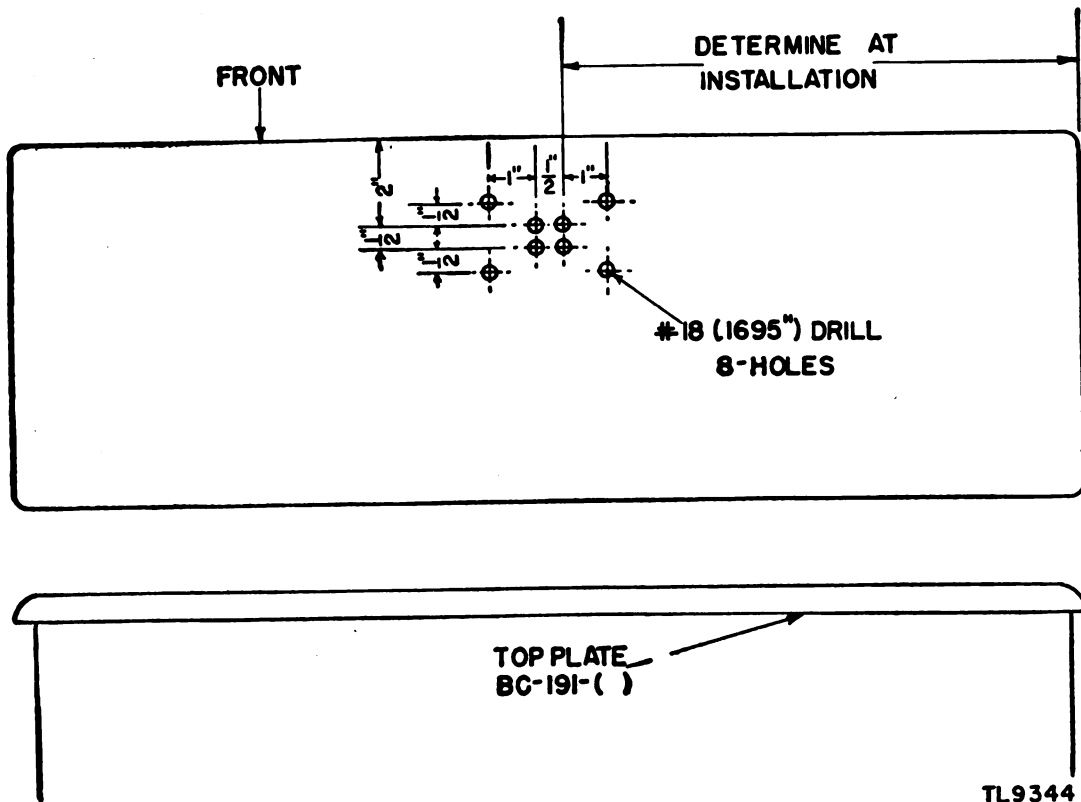
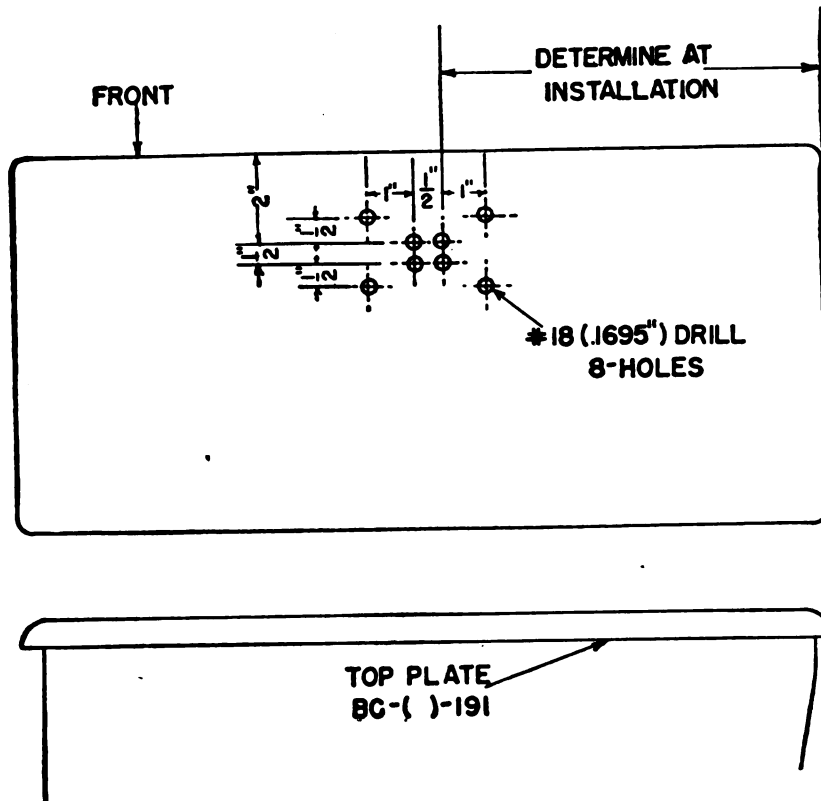
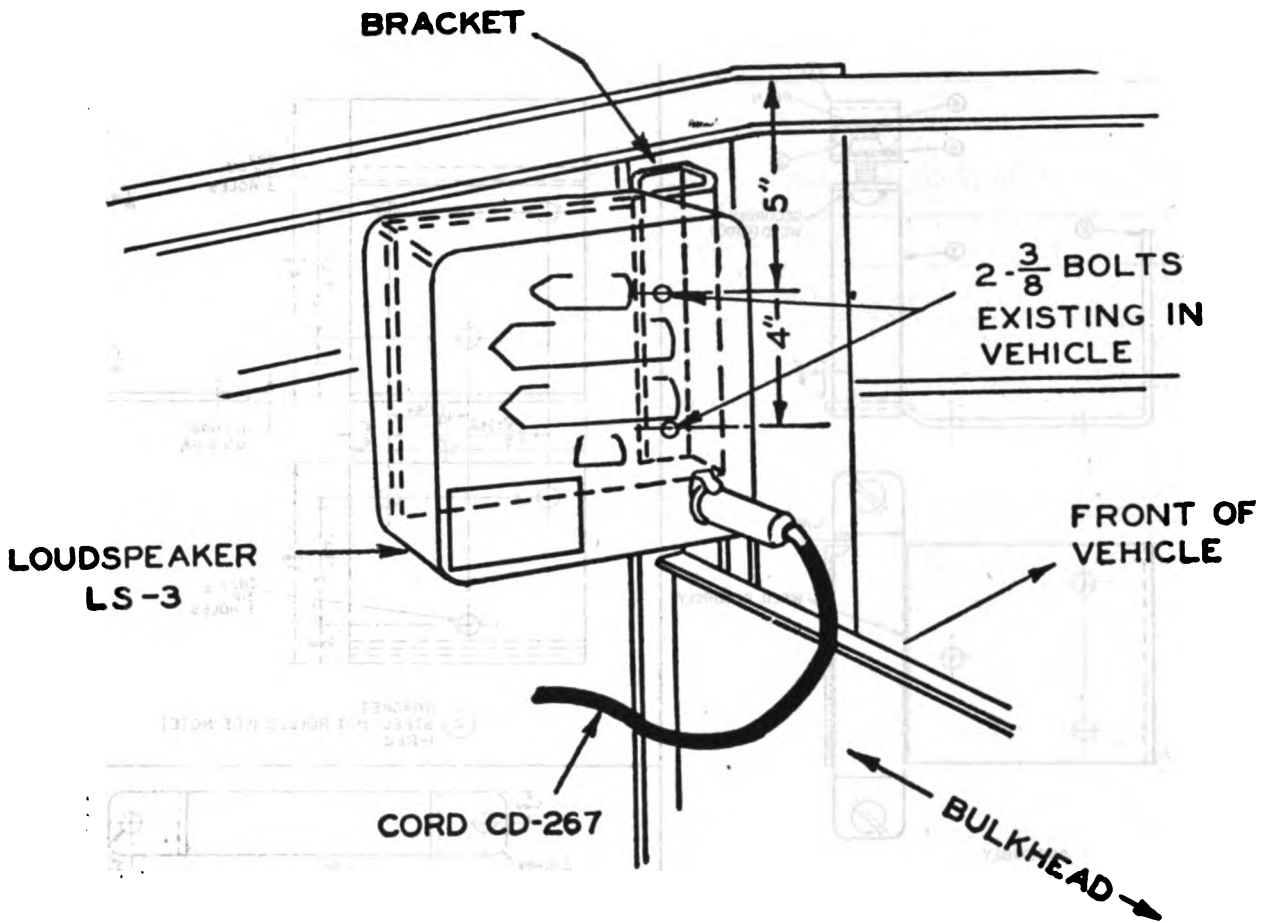


Figure 406. Drilling of Radio Transmitter BC-191-( ) for Mounting FT-172.





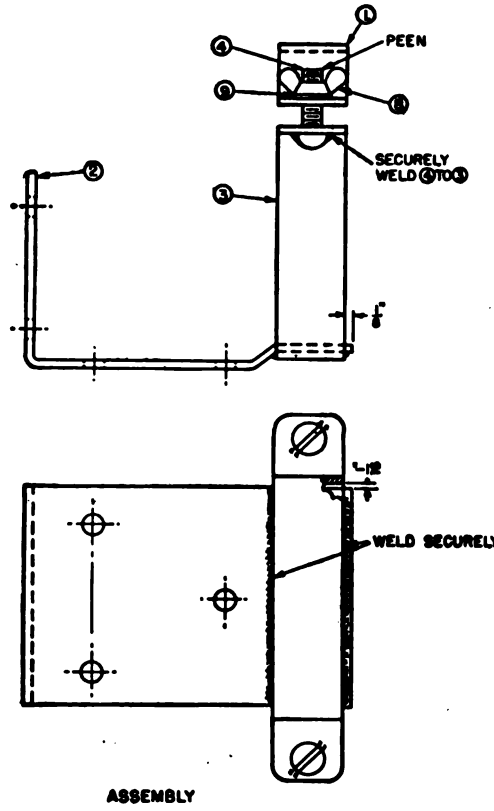


**ITEMS REQUIRED**

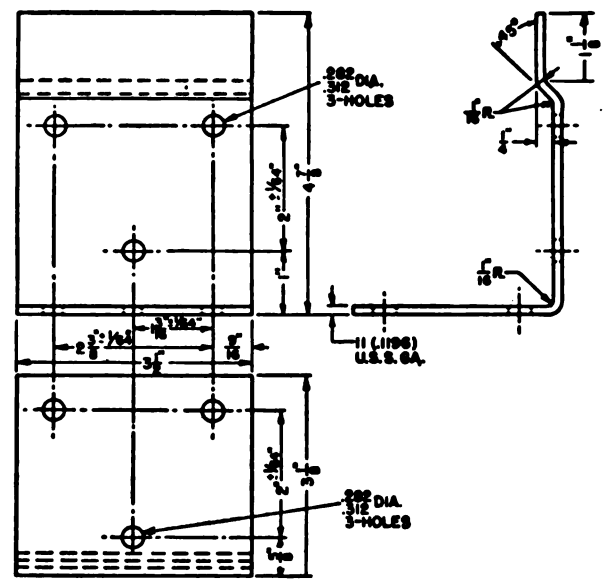
QUAN.	NAME	ITEM NO.	REMARKS
1	LOUD-SPEAKER	LS-3	
1	BRACKET		
1	CORD	CD-267	

TL 11897-A

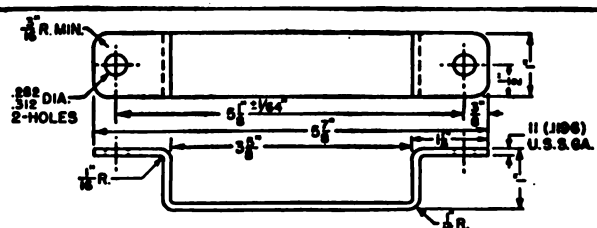
Figure 408. Location of Loudspeaker LS-3 when used with Radio Set SCR-193-G in Car, Half-track, M2A1.



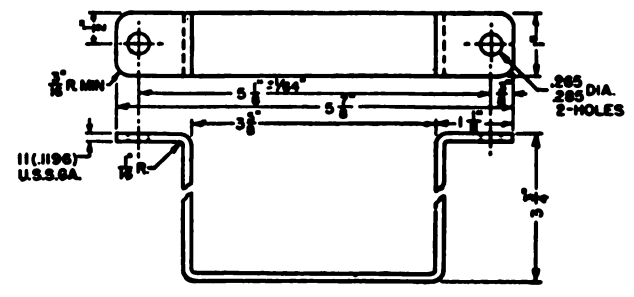
ASSEMBLY



2 BRACKET STEEL-HOT ROLLED (SEE NOTE) 1-REQ.



1 CLAMP STEEL-HOT ROLLED (SEE NOTE) 1-REQ.



3 ARM STEEL-HOT ROLLED (SEE NOTE) 1-REQ.

ITEMS REQUIRED

QUAN. REQ.	NAME OF ITEM	MATERIAL	TYPE NO.	ITEM NO.	REMARKS
6	LOCKWASHER	STEEL ELECTRO-GALVANIZED	SEE NOTE	9	S.A.E. REG. FOR 1/4 SCREW
2	WING NUT		8	1/4 - 20	
4	HEX. NUT		7	1/4 - 20 STD.	
4	HEX. HD. CAP SCREW		6	1/4 - 20 X 3/4 LONG	
4	HEX. HD. CAP SCREW		5	1/4 - 20 X 1 1/2 LONG	
2	RD. HD. MACH. SCREW		4	1/4 - 20 X 1 LONG	
1	ARM		3		
1	BRACKET	STEEL		2	
1	CLAMP			1.	

FABRICATION INSTRUCTIONS

REMOVE ALL BURRS.  
 AFTER WELDING (2) TO (3), (1), (2) & (3) SHALL BE BONDERIZED AND THEN GIVEN ONE SPRAY COAT OF METAL PRIMER, CLASS K1, AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB BAKING ENAMEL, CLASS 440. TOUCH UP HEADS OF (2) TO MATCH SURROUNDING SURFACE. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH ORDNANCE TENTATIVE SPECIFICATION TAC ES-NO. 680.  
 (5), (6), (7) & (4) OF (3) ARE USED FOR INSTALLATION AND SHALL BE PLACED IN A HEAVY CLOTH BAG PLAINLY AND PERMANENTLY MARKED "THIS BAG CONTAINS SCREWS NUTS AND LOCKWASHERS FOR INSTALLATION SPARES ARE INCLUDED IN QUANTITIES." THIS BAG SHALL BE TIED TO THE BRACKET.

TL15087

Figure 409. Bracket assembly for Antenna A-27, phantom.

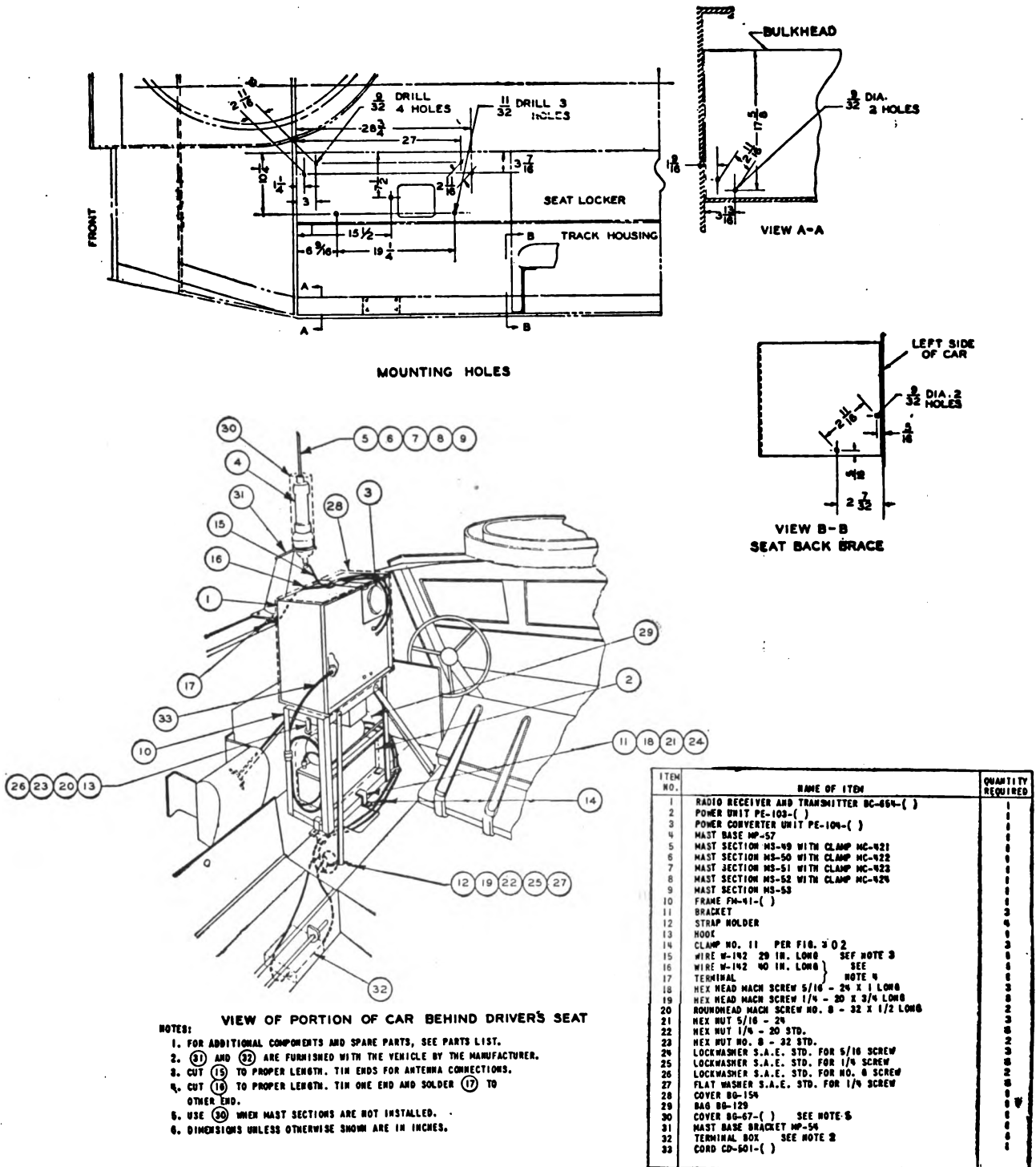
## RADIO SET SCR-284-( )

## 501. Required Parts

Items necessary for installation of Radio Set SCR-284-( ) in Car, Half-track, M2A1, are listed below:

*Basic unit Stock No. 2S284/12*

Quantity	Stock No.	Item
1	2Z502	Bag BG-102-( ).
1	2Z529	Bag BG-129.
1	2Z1131	Box BX-31-( ), for spare tubes and spare vibrator.
1	2Z1841	Case CS-41, for Generator GN-45-( ).
2	2Z2651-421	Clamp MC-421, including spare.
2	2Z2651-422	Clamp MC-422, including spare.
2	2Z2651-423	Clamp MC-423, including spare.
2	2Z2651-424	Clamp MC-424, including spare.
2	3E1501	Cord CD-501-( ).
*1	2A712	Counterpoise CP-12.
*1	2A713	Counterpoise CP-13.
1	2Z3367	Cover BG-67-( ).
1	2Z3400-154	Cover BG-154.
*2	3H1407	Crank GC-7.
1	2Z4641	Frame FM-41-( ).
*1	3H2345	Generator GN-45-( ).
*1	2A1311	Guy GY-11.
*1	2A1312	Guy GY-12.
1	3G586	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
1	3G806	Insulator IN-106.
1	3Z3445	Key J-45.
1	3Z3448	Key J-48.
*1	2Z6102	Leg LG-2.
*1	2Z6103	Leg LG-3.
*6	2Z6613	Leg LG-13-( ), including two spares.
1	2Z6310-7	Loudspeaker LS-7.
1	2A2088-57	Mast Base MP-57.
2	2A2349	Mast Section MS-49, including spare.
2	2A2350	Mast Section MS-50, including spare.
2	2A2351	Mast Section MS-51, including spare.
2	2A2352	Mast Section MS-52, including spare.
2	2A2353	Mast Section MS-53, including spare.
*1	2A2354	Mast Section MS-54.
*1	2A2355	Mast Section MS-55.
*1	2A2356	Mast Section MS-56.
1	3H4600-103	Power Unit PE-103-( ), including spare parts.
1	3H4600-104	Power Converter Unit PE-104-( ), including two vibrators (one spare).
1	2C5374	Radio Receiver and Transmitter BC-654-( ), including Crystal Unit DC-24-A, set of installed tubes, spare tubes, and pilot lamps.
*1	2A3128	Reel RL-28.
*1	2A3129	Reel RL-29.
1	2Z8058	Roll BG-58-( ), for mast sections and generator legs.
15 ft.	6Z7926	Rope RP-5, for tying down mast sections.
*4	2A3327	Stake GP-27, including spare.
2	6D13051	TM 11-275.
15 ft.	1B142	Wire W-142.



TL 10891-5

Figure 501. Installation of Radio Set SCR-284-( ) in Car, Half-track, M2A1.

*Installation unit Stock No. 2S284-V77/50*

Quantity	Stock No.	Item
*2	3A27	Battery BA-27, including spare.
*3	3A43	Battery BA-43, including two spares.
3	2Z1250	Bracket, for Frame FM-41-( ).
1	2Z1876	Case CS-76-( ), for remote control unit.
*2	4B417-4	Chest Set TD-4, including spare.
*2	2B800-16	Headset H-16/U, including spare.
1	2A2090-54	Mast Base Bracket MP-54, including hardware for mounting.
*2	2Z1645	Microphone T-45, including spare.
*1	2C7629	Remote Control Unit RM-29-( ).
4	2Z1200.3	Strap holder.

\* Used for fixed, portable, or emergency operation only.

\* If Headset H-16/U, Microphone T-45, and Chest Set TD-4 are not available, use Headset HS-30-( ), Microphone T-17, and Cords CD-307-A and CD-604.

## 502. Assembly and Installation

Install components of Radio Set SCR-284-( ) in Car, Half-track, M2A1, as shown in figure 501. Before installing components, remove left front ammunition chest and perform all drilling shown in figure 501. Install components as directed below :

### *Part and location*

### *Method and materials*

Strap holders (item 12, fig 501).

Attach two strap holders on floor, one on lower left portion of bulkhead and one on seat-back brace, using  $\frac{1}{4}$ -20 screws, nuts, and lockwashers provided. See figure 501.

Hook (item 13, fig. 501), on top left flange of Frame FM-41-( ).

Drill two  $\frac{3}{16}$ -inch holes in left top flange of Frame FM-41-( ). Attach hook with two No. 8-32 screws, nuts, and lockwashers provided.

Power Unit PE-103-( ) (item 2, fig. 501), on bottom of Frame FM-41-( ).

Open spring cover in base of Power Unit PE-103-( ) and set slotted voltage adjustment at 12 VOLTS. Set the three circuit breakers on the ON position. Place power unit on base of Frame FM-41-( ) and secure with wingnuts provided.

Frame FM-41-( ), three clamps No. 11 (fig. 302), and three brackets (items 10, 14, and 11, fig 501), forward on left side of vehicle.

Place frame in position and slip clamps over power cords from Power Unit PE-103-( ). Secure base of frame to floor, as shown in figure 501. Use brackets and  $\frac{5}{16}$ -24 x 1-inch screws, nuts, and lockwashers. Secure clamps No. 11 with same screws. Loop snubbing straps through strap holders and tighten securely.

Power Converter Unit PE-104-( ) and Radio Receiver and Transmitter BC-654-( ) (items 3 and 1, fig. 501), on Frame FM-41-( ).

Set the voltage-adjusting screw on power converter for 12 VOLTS. If power converter unit is supplied installed, open small door of power supply compartment of Radio Receiver and Transmitter BC-654-( ), pull out plug, slide power converter unit forward, and set voltage switch at 12 VOLTS. Place radio receiver and transmitter on Frame FM-41-( ) as shown in figure 501 and secure in place with spring fasteners provided.

*Part and location*

Mast Base MP-57, Wire W-142, and terminal (items 4, 15, 16, and 17, fig. 501), on Mast Base Bracket MP-54 (installed by vehicle manufacturer) above radio set.

Mast Sections MS-49 through MS-53 and Clamps MC-421 through MC-424 (items 5 through 9, fig. 501), on Mast Base MP-57.

Cord CD-501-( ) (item 33, fig. 501).

Cover BC-67-( ) (item 30, fig. 501).

Cover BG-154 (item 28, fig. 501).

*Method and materials*

See figure 403 for assembly of Mast Base MP-57. Cut a 41-inch length and a 30-inch length of Wire W-142. Strip back  $\frac{1}{2}$  inch of each end of both wires and solder-tin tips. Connect antenna and ground leads as shown in figure 501. Use terminal (obtained from hardware bag) to connect ground lead to mounting screw for mast base bracket as shown in figure 501.

Screw mast sections together and place clamps over joints. Screw assembled antenna into mast base. When not in use, stow mast sections and clamps in Roll BG-58-( ).

Connect cord from radio receiver and transmitter to power unit. Tape cord to leg of Frame FM-41-( ).

Place cover over mast base when mast sections are not installed.

Place cover over radio receiver and transmitter.

## RADIO SET SCR-506-( )

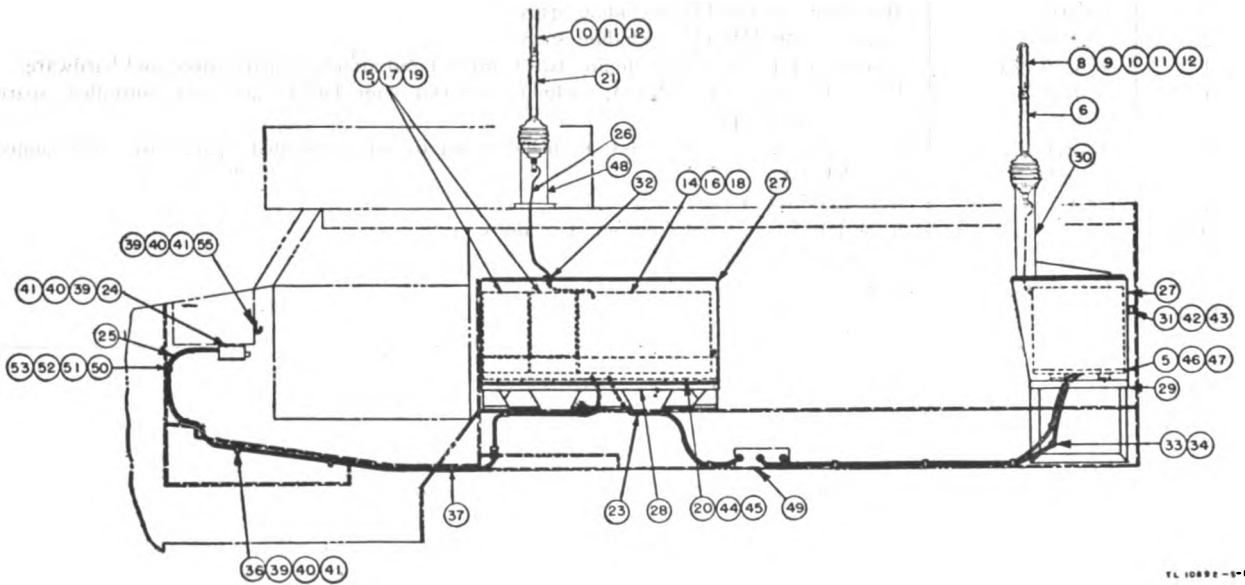
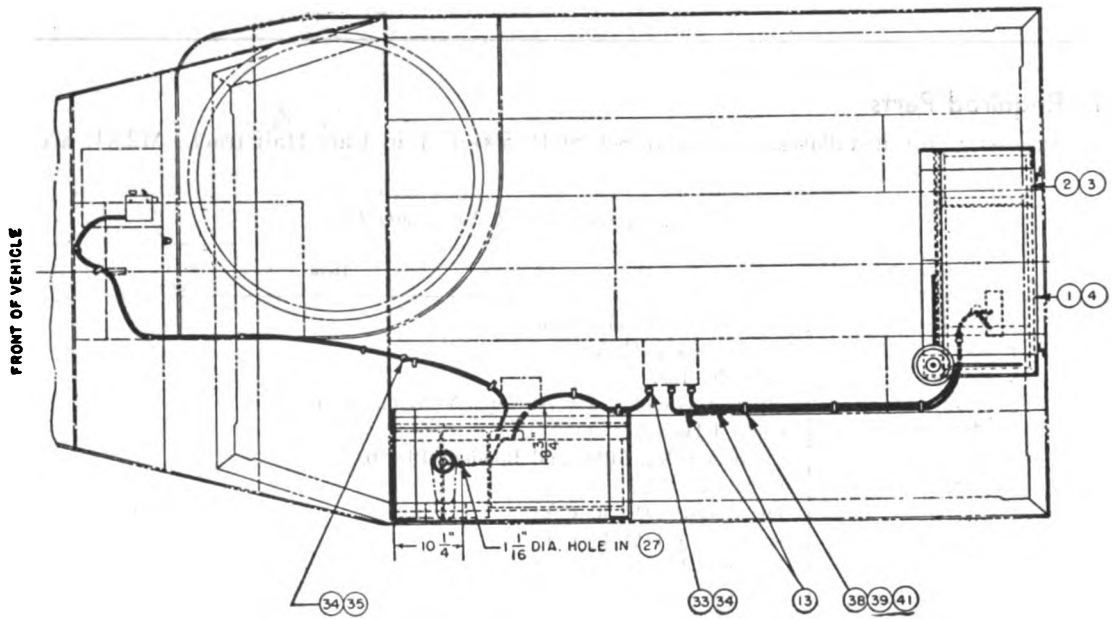
**601. Required Parts**

Items necessary for installation of Radio Set SCR-506-( ) in Car, Half-track, M2A1, are listed below:

*Basic unit Stock No. 2S506/12*

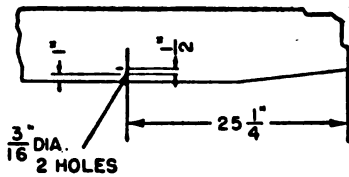
Quantity	Stock No.	Item
1	2A275-27	Antenna A-27, phantom.
1	2A224	Antenna AN-24-A.
1	2Z525	Bag BG-125.
1	2Z1250.82	Bracket assembly, for Antenna A-27, phantom.
1	2Z2599-263	Chest CH-263.
2	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	3E1314	Cord CD-314.
1	3H1640	Dynamotor DM-40-( ).
1	3H1642	Dynamotor DM-42-( ).
*1	2A1312	Guy GY-12.
*1	2A1336-42	Guy GY-42.
3	3G586	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
2	3Z3445	Key J-45.
1	2Z6303.1	Loudspeaker LS-3.
*1	2A2088-65	Mast Base MP-65.
*12	2A2416	Mast Section MS-116, including six spares.
*2	2A2417	Mast Section MS-117, including spare.
*2	2A2418	Mast Section MS-118, including spare.
1	2C6530-253	Mounting FT-253-( ), including two Cord CO-280 attached, spare fuses, and hardware.
1	2C4452	Radio Receiver BC-652-( ), including Crystal Unit DC-15 and tubes installed, spare fuses, and lamps.
1	2C6530-653	Radio Transmitter BC-653-( ), including set of tubes installed, spare fuses, and lamps.
*1	2A3129	Reel RL-29.
1	2Z8056	Roll BG-56-( ).
50 ft.	6Z7926	Rope RP-5, for tying down mast sections.
*4	2A3327	Stake GP-27, including spare.
2	6D13136	TM 11-630.
15 ft.	1B146	Wire W-146.



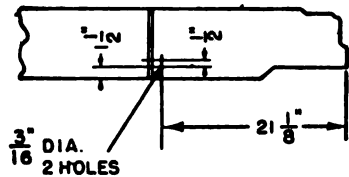


EL 10882-57

Figure 601. Installation of Radio Set SCR-506-( ) and Radio Half-track,



OLD TYPE PANEL



NEW PLUG-IN TYPE PANEL

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PANEL SHOWING HOLES FOR (55)

NOTES:

1. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.
2. CUT (26) AND (54) TO PROPER LENGTH AND TIN ENDS FOR ANTENNA CONNECTIONS.
3. MOUNT (28) (29) (31) AND (37) IN VEHICLE WITH EXISTING BOLTS.
4. (31) (43) AND (45) ARE FURNISHED WITH (28).
5. (46) AND (48) ARE FURNISHED WITH (30).
6. (46) AND (47) ARE FURNISHED WITH (5).
7. (48) AND (49) ARE FURNISHED AND INSTALLED BY THE VEHICLE MANUFACTURER.
8. IF (6) (8) (9) (10) (11) AND (12) ARE NOT AVAILABLE, USE MAST BASE MP-37 OR MP-57, MAST SECTIONS MS-49 THROUGH MS-53, AND CLAMPS MC-421 THROUGH MC-424.
9. IF (21) (1) AND (12) ARE NOT AVAILABLE, USE MAST BASE MP-48 OR MP-48-A, MAST SECTIONS MS-51 THROUGH MS-53, AND CLAMPS MC-423 AND MC-424. IF MAST BASE MP-48 OR MP-48-A IS USED, WIRE W-128 MUST BE 52 IN. LONG.
10. USE (7) WHEN MAST SECTIONS ARE REMOVED FROM MAST BASE MP-37 OR MP-57. USE (22) WHEN MAST SECTIONS ARE REMOVED FROM MAST BASE MP-48 OR MP-48-A.

ITEM NO.	NAME OF ITEM	QUANTITY REQUIRED			
		RADIO SET SCR-508-( )	RADIO SET SCR-508-( )	RADIO SET SCR-528-( )	RADIO SET SCR-608-( )
1	RADIO TRANSMITTER BC-652-( )				
2	RADIO RECEIVER BC-652-( )				
3	DYNAMOTOR DM-40-( )				
4	DYNAMOTOR DM-42-( )				
5	MOUNTING FT-285-( ) SEE NOTE 8				
6	MAST BASE MP-55 SEE NOTE 9				
7	COVER BG-47-( ) SEE NOTE 10				
8	MAST SECTION MS-116 SEE NOTE 8				
9	MAST SECTION MS-116 SEE NOTE 8				
10	MAST SECTION MS-116 SEE NOTES 8 AND 9				
11	MAST SECTION MS-117				
12	MAST SECTION MS-118				
13	CORD CO-280				
14	RADIO TRANSMITTER BC-604-( )				
15	RADIO RECEIVER BC-603-( )				
16	RADIO TRANSMITTER BC-684-( )				
17	RADIO RECEIVER BC-683-( )				
18	DYNAMOTOR DM-35-( )				
19	DYNAMOTOR DM-34-( )				
20	MOUNTING FT-237-( ) SEE NOTE 5				
21	MAST BASE AB-16/3R SEE NOTE 9				
22	COVER BG-108 SEE NOTE 10				
23	CORD CO-278				
24	INTERPHONE CONTROL BOX BC-606-( )				
25	CORDAGE CO-218 11 FT. LONG				
26	WIRE W-128 40 IN. LONG SEE NOTES 2 AND 9				
27	CABINET CH-74-( )				
28	MOUNTING FT-284-( ) SEE NOTE 3				
29	MOUNTING FT-285-( ) SEE NOTES 3 AND 4				
30	MAST BASE BRACKET MP-52				
31	BRACKET SEE NOTES 3 AND 4				
32	INSULATOR IN-121				
33	CONNECTOR NO. 61007				
34	BONDMUT BL-50				
35	CONNECTOR NO. 61004				
36	CLAMP NO. 4				
37	CLAMP NO. 3 SEE NOTE 3 PER FIGURE 302				
38	CLAMP NO. 7				
39	ROUNDHEAD MACH SCREW NO. 8 - 32 X 1/2 LONG				
40	HEX NUT NO. 8 - 32 STD.				
41	LOCKWASHER STD. FOR NO. 8 SCREW				
42	HEX HEAD MACH SCREW 5/16 - 24 X 5/8 LONG SEE NOTE 4				
43	ELASTIC STOP NUT 5/16 - 24				
44	HEX HEAD MACH SCREW 5/16 - 24 X 1 3/8 LONG SEE NOTE 5				
45	ELASTIC STOP NUT 5/16 - 24				
46	HEX HEAD MACH SCREW 1/4 - 20 X 1 1/2 LONG SEE NOTE 6				
47	ELASTIC STOP NUT 1/4 - 20				
48	BRACKET SEE NOTE 7				
49	TERMINAL BOX NOTE 7				
50	CLAMP NO. 2 PER FIGURE 302				
51	HEX HEAD MACH SCREW 1/4 - 20 X 3/8 LONG				
52	HEX NUT 1/4 - 20 STD.				
53	LOCKWASHER STD. FOR 1/4 SCREW				
54	WIRE W-146 42 IN. LONG SEE NOTE 2				
55	HOOK				

Set SCR-508-( ), SCR-528-( ), or SCR-608-( ) in Car, M2A1.

VL 10992 - 8-2

Installation unit Stock No. 2S506-V77-1/50

Quantity	Stock No.	Item
1	2Z1250.66	Bracket.
1	2Z1574	Cabinet CH-74-( ).
*3	4B417-4	Chest Set TD-4, including spare.
2	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	6C18-41	Cover CW-41/U.
1	6L50-506V77	Hardware bag.
*3	2B800-16	Headset H-16/U, including spare.
1	2A2090-52	Mast Base Bracket MP-52.
*1	2B1617	Microphone T-17, spare item.
*1	2B1645	Microphone T-45.
2	2B1567	Microphone Cover M-367, spare items.
1	2Z6721-285	Mounting FT-285-( ), including hardware, straps, and brackets for mounting.

\* Used for fixed, portable, or emergency operation only.

† If Mast Base MP-65 and Mast Sections MS-116, MS-117, and MS-118 are not available, use Mast Base MP-37 or MP-57, Mast Sections MS-49 through MS-53, Clamps MC-421 through MC-424, and Cover BG-67-( ).

‡ If Headset H-16/U, Microphone T-45, and Chest Set TD-4 are not available, use Headset HS-30-( ), Microphone T-17, and Cords CD-307-A and CD-604.

**602. Assembly and Installation**

Install components of Radio Set SCR-506-( ) in Car, Half-track, M2A1, as shown in figure 601 and as directed below:

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-285-( ) (item 29, fig. 601), in rear of vehicle.	Place mounting in position shown in figure 601. Unfasten handrails to provide space for mounting. To secure mounting in place, use hardware supplied in the four $1\frac{3}{8}$ -inch holes in inner walls of both left and right stowage compartments. Refasten handrails in original position.
Cabinet CH-74-( ) (item 27, fig. 601), on Mounting FT-285-( ).	Place cabinet on mounting and secure with hardware provided. Use the two brackets, furnished with Mounting FT-285-( ), to secure rear of Cabinet CH-74-( ) to brackets already installed in rear of vehicle. (See fig. 601.)
Bracket assembly (fig. 409), and Antenna A-27, phantom.	Drill bottom portion of Cabinet CH-74-( ) as shown in figure 603 and mount bracket with hardware provided. Fasten antenna in bracket assembly.
Mast Base Bracket MP-52 (item 30, fig. 601), on top of Cabinet CH-74-( ), right front corner.	Fasten in place with cap screws in top of cabinet.
Mounting FT-253-( ) (item 5, fig. 601), in Cabinet CH-74-( ).	Fasten mounting to floor of cabinet with screws and stopnuts provided.
Dynamotor DM-40-( ) and Radio Receiver BC-652-( ) (items 3 and 2, fig. 601), on Mounting FT-253-( ).	If Dynamotor DM-40-( ) is supplied uninstalled, remove screws around edge of receiver panel and screw in rear center of cabinet. Pull receiver chassis from case and secure dynamotor to receiver chassis with snap-slide fasteners. All connections to dynamotor are made by flexible lead terminating in Plug P-250. Installation of proper dynamotor automatically adjusts receiver circuits for correct operating voltage. Nameplate on front panel of receiver should be turned to read 12-VOLT OPERATION. Place Radio Receiver BC-652-( ) on Mounting FT-253-( ) and secure with thumb-screw locking devices.

*Part and location*

Dynamotor DM-42-( ) and Radio Transmitter BC-653-( ) (items 4 and 1, fig. 601), on Mounting FT-253-( ).

Mast Base MP-65, (item 6, fig. 601), on Mast Base Bracket MP-52.

Wire W-146 (item 54, fig. 601).

Connectors No. 61007 and Bondnuts BL-50 (items 33 and 34, fig. 601).

Mast Sections MS-116, MS-117, and MS-118 (items 8 through 12, fig. 601), on Mast Base MP-65.

Bracket (fig. 407), Loudspeaker LS-3, Cover CW-41/U, and Cord CD-314.

*Method and materials*

If Dynamotor DM-42-( ) is supplied uninstalled, slide it into its compartment and secure front panel of dynamotor chassis with five screws provided. Remove patch cover plate from extreme right top of radio transmitter. Connect the six connector links for 12-volt operation (indicated by arrow on terminal strip pointing to 12). Turn nameplate on dynamotor panel to read 12 VOLTS. Place Radio Transmitter BC-653-( ) on Mounting FT-253-( ) and secure with thumbscrew locking devices.

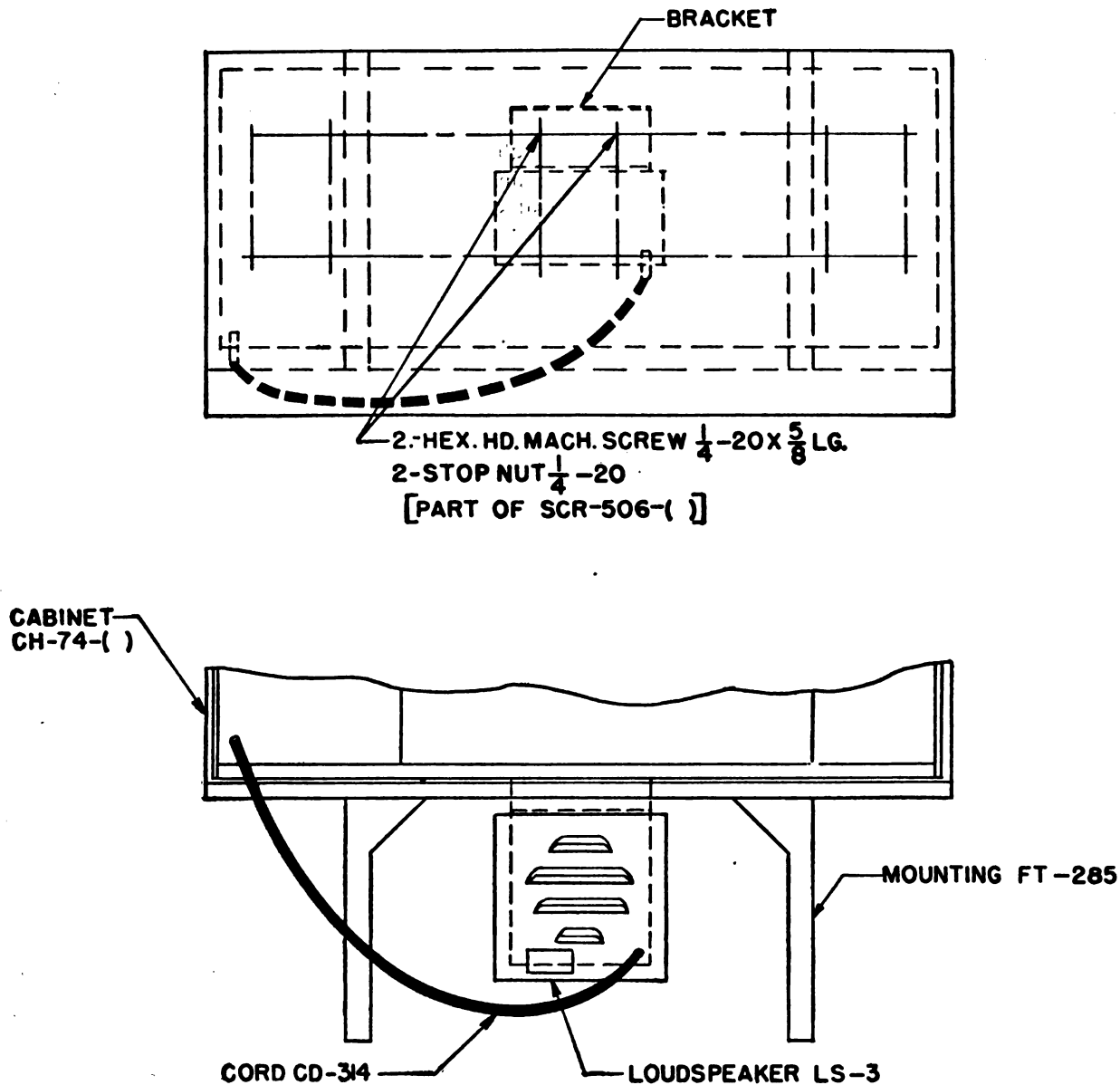
Remove cover plate from top of mast base bracket. (See fig. 402.) Place upper insulator, item 4, over hole in cover plate. Place phenolic washer, item 3, over item 4. Place body of mast base, item 2, through items 3 and 4. Place lockwasher, item 9, plain washer, item 8, and phenolic washer, item 7, over bolt and binding post assembly, item 10. Place lower insulator, item 6, over item 10. Screw threaded portion of item 10 into body, item 2, from underneath. Tighten assembly with a  $\frac{9}{16}$ -inch open-end wrench. Do not apply excessive pressure; it will damage mast base. Strip back  $\frac{1}{2}$  inch of insulation from one end of a length of Wire W-146. Solder-tin tip. Connect tinned end to antenna binding post and route wire down through Mast Base Bracket MP-52. Replace cover plate. If Mast Base MP-37 or MP-57 is used, see figure 403 for assembly.

Cut free end of Wire W-146 so that total length of antenna lead-in is 42 inches. Strip back  $\frac{1}{2}$  inch of insulation from free end of wire. Solder-tin tip. Connect tip to antenna binding post on Radio Transmitter BC-653-( ).

Install two connectors and bondnuts through holes provided in inner wall of left stowage compartment, and two through knock-out holes in vehicle terminal box, Secure Cord CO-280 in place with clamps provided.

Screw mast sections together and tape joints to prevent loss of mast sections. Screw assembled antenna into Mast Base MP-65. If Mast Base MP-37 or MP-57 is used, screw Mast Sections MS-49, MS-50, MS-51, MS-52, and MS-53 together. Place Clamps MC-421, MC-422, MC-423, and MC-424 over joints. Screw assembled antenna into Mast Base MP-37 or MP-57. When mast sections and clamps are removed, stow them in Roll BG-56-( ). Place Cover BG-67-( ) over Mast Base MP-37 or MP-57, when mast sections are removed.

Mount Bracket to base of Cabinet CH-74-( ) as shown in figure 602. Remove screws from front panel of loudspeaker. Place cover over loudspeaker and replace screws. Fasten loudspeaker to bracket with hardware provided. Connect Cord CD-314 between loudspeaker and Radio Receiver BC-652-( ).



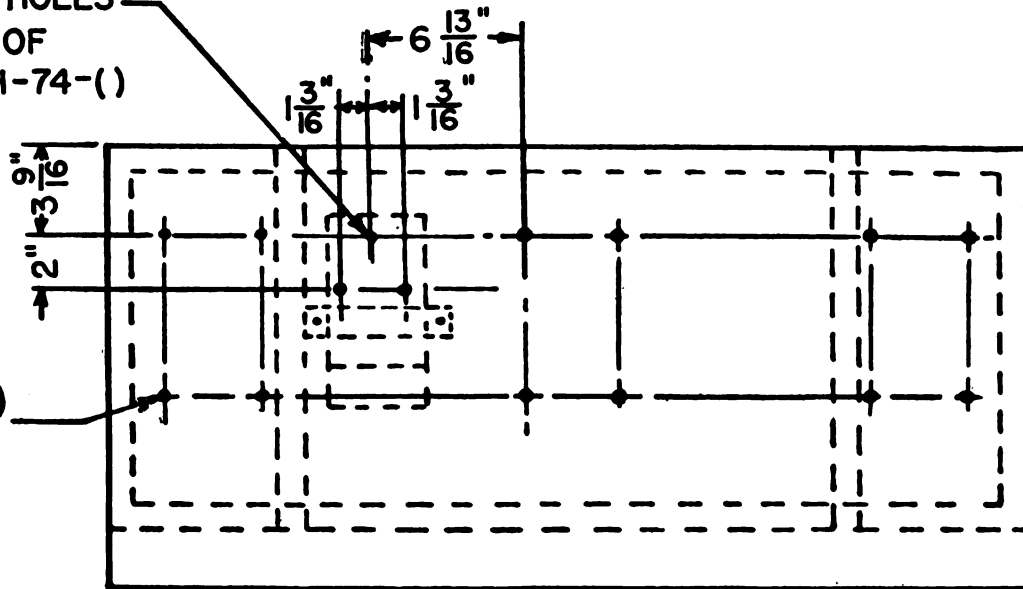
ITEMS REQUIRED

QUAN.	NAME	TYPE NO.
1	LOUDSPEAKER	LS-3
1	BRACKET	
1	CORD	CD-314

TL11905-A

Figure 602. Location of Loudspeaker LS-3 when used with Radio Set SCR-506-( ) in Car, Half-track, M2A1.

$\frac{9}{32}$ " DRILL 3 HOLES  
IN BOTTOM OF  
CABINET CH-74-()



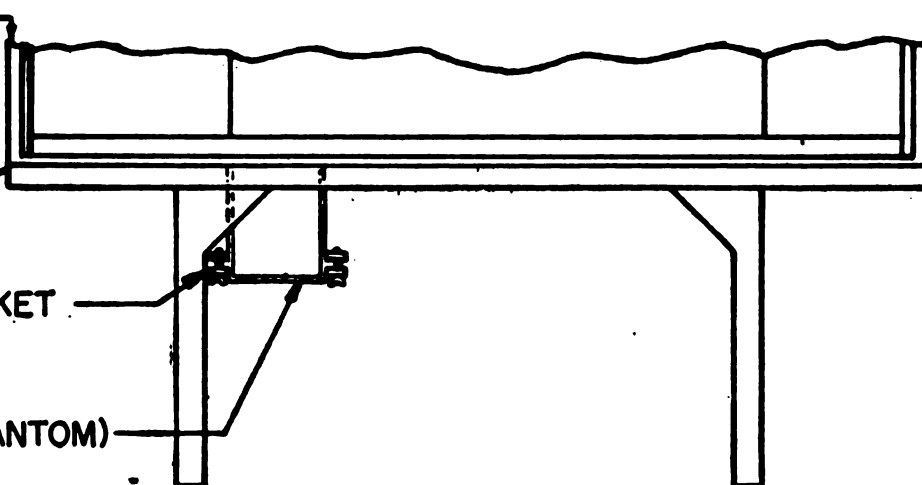
SCR-506-()  
MTG. HOLE

CABINET  
CH-74-()

MOUNTING  
FT-285-()

BRACKET

ANTENNA A-27 (PHANTOM)



ITEMS REQUIRED

QUAN.	NAME	TYPE NO.	REMARKS
1	ANTENNA (PHANTOM)	A-27	
2	BRACKET		
3	HEX. HD. CAP SCR.		1/4"-20X 3/4" LG.
3	HEX. NUT		1/4"-20 ST'D.
3	LOCKWASHER		S.A.E. REG. FOR 1/4"SCR.

TL15079-A

Figure 603. Location of Antenna A-27, phantom, for Radio Set SCR-506-() in Car, Half-track, M2A1.



## RADIO SET SCR-508-( ), SCR-528-( ), OR SCR-608-( )

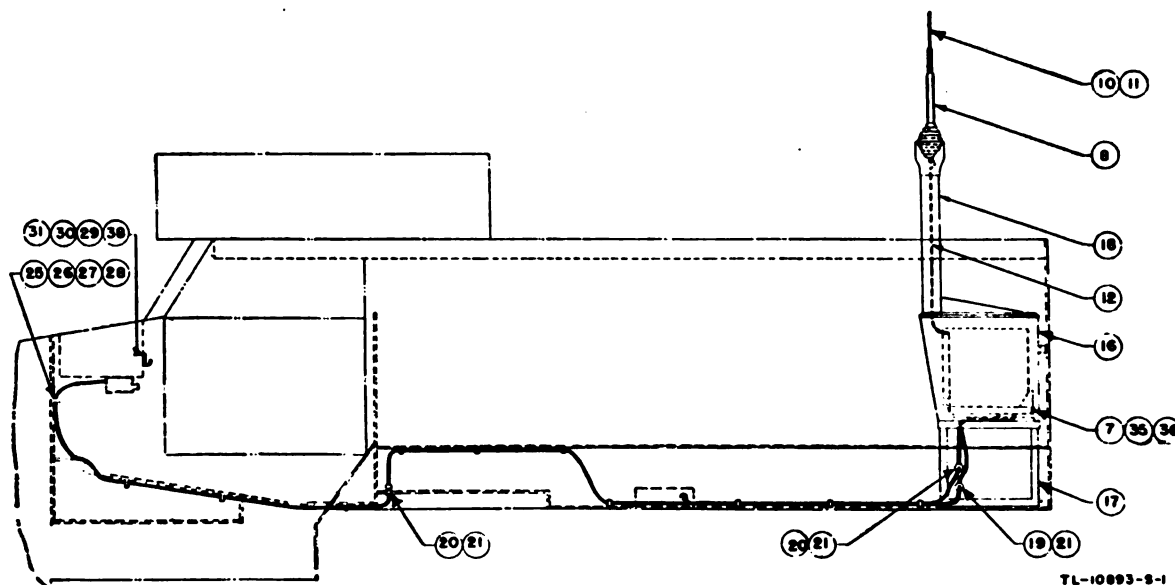
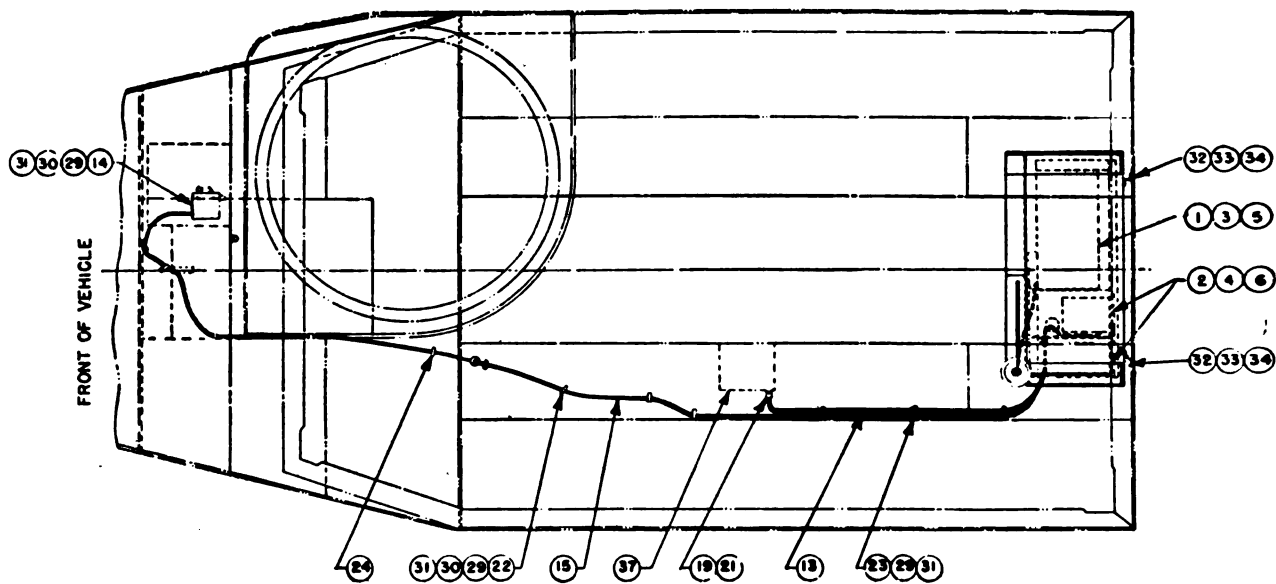
### 701. Required Parts

Items necessary for installation of Radio Set SCR-508-( ), SCR-528-( ), or SCR-608-( ) in Car, Half-track, M2A1, are listed below:

*Basic units Stock Nos. 2S508/12, 2S528/12, and 2S608/12*

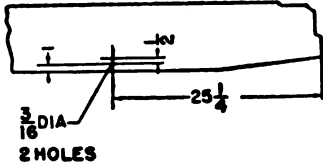
Quantity		Stock No.	Item
Radio Set SCR-508-( ), SCR-528-( )	Radio Set SCR-608-( )		
1	0	2A262	Antenna A-62, phantom, including bracket. (See fig. 706.)
0	1	2A283	Antenna A-83, phantom, including bracket.
0	1	2Z1140	Box BX-40.
0	1	6F796	Chest CH-96.
1	0	2Z2599-264	Chest CH-264.
1	1	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	1	2Z3396	Cover BG-96.
*2	2	3H1634	Dynamotor DM-34-( ).
1	1	3H1635	Dynamotor DM-35-( ).
*1	*1	2A2081-15	Mast Base AB-15/GR.
*2	*2	2A2417	Mast Section MS-117, including spare.
*2	*2	2A2418	Mast Section MS-118, including spare.
1	1	2Z6721-237	Mounting FT-237-( ), including Cord CO-278 and necessary hardware for mounting.
*2	0	2C4403	Radio Receiver BC-603-( ), including set of tubes installed, spare fuses, and lamps.
0	2	2C4460-683	Radio Receiver BC-683-( ), including set of tubes installed, spare fuses, and lamps.
1	0	2C6494	Radio Transmitter BC-604-( ), including set of tubes installed, spare fuses, and lamps.
0	1	2C6530-684	Radio Transmitter BC-684-( ), including set of tubes installed, spare fuses, and lamps.
1	1	2Z8056	Roll BG-56-( ).
2	0	6D13313	TM 11-600.
0	2	6D13102	TM 11-620.
6 ft.	6 ft.	1B128	Wire W-128.



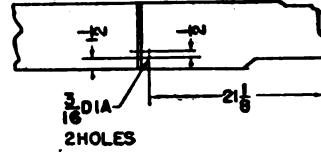


TL-10893-8-1

Figure 701. Installation of Radio Set SCR-508-( ), SCR-528 Set SCR-193-G or



OLD TYPE PANEL



NEW PLUG-IN TYPE PANEL

VIEW OF RIGHT SIDE OF INSTRUMENT  
PANEL SHOWING HOLES FOR (38)

NOTES:

1. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.
2. USE INSTALLATION SHOWN ONLY IN COMBINATION WITH RADIO SET SCR-182-B OR SCR-204-( ) INSTALLED IN LEFT FRONT OF VEHICLE.
3. (53) AND (56) ARE FURNISHED WITH (7).
4. CUT (12) TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.
5. MOUNT (17) (20) AND (32) IN VEHICLE WITH EXISTING BOLTS.
6. (32) (33) AND (34) ARE FURNISHED WITH (7).
7. (37) IS FURNISHED AND INSTALLED BY VEHICLE MANUFACTURER.
8. IF (8) (10) AND (11) ARE NOT AVAILABLE, USE MAST BASE MP-48 OR MP-48-A, MAST SECTIONS MS-52 AND MS-53, AND CLAMP MC-424. IF MP-48 OR MP-48-A IS USED, WIRE W-129 MUST BE 58 IN. LONG.
9. USE (9) TO COVER MAST BASE MP-48 OR MP-48-A WHEN MAST SECTIONS ARE NOT INSTALLED.

ITEM NO.	NAME OF ITEM	QUANTITY REQUIRED	RADIO SET SCR-500-( )	RADIO SET SCR-500-( )	RADIO SET SCR-500-( )
1	RADIO TRANSMITTER BC-604-( )	1	1	1	1
2	RADIO RECEIVER BC-603-( )	2	2	2	2
3	RADIO TRANSMITTER BC-604-( )	1	1	1	1
4	RADIO RECEIVER BC-603-( )	1	1	1	1
5	DYNAMOTOR DM-35-( )	1	1	1	1
6	DYNAMOTOR DM-34-( )	2	2	2	2
7	MOUNTING FT-237-( ) SEE NOTE 3	1	1	1	1
8	MAST BASE AB-15/GR SEE NOTE 3	1	1	1	1
9	COVER CG-108 SEE NOTE 9	1	1	1	1
10	MAST SECTION MS-117 SEE NOTE 3	1	1	1	1
11	MAST SECTION MS-118 SEE NOTE 3	1	1	1	1
12	WIRE W-128 46 IN. LONG SEE NOTES 4 AND 8	1	1	1	1
13	CORD CG-278	1	1	1	1
14	INTERPHONE CONTROL BOX BC-606-( )	1	1	1	1
15	CORDAGE CG-218 18 FT. LONG	1	1	1	1
16	CABINET CM-74-( )	1	1	1	1
17	MOUNTING FT-285-( ) SEE NOTE 6	1	1	1	1
18	MAST BASE, BRACKET, MP-52	2	2	2	2
19	CONNECTOR NO. 41007	2	2	2	2
20	CONNECTOR NO. 61004	4	4	4	4
21	BOND NUT BL-50	7	7	7	7
22	CLAMP NO. 4	3	3	3	3
23	CLAMP NO. 7	1	1	1	1
24	CLAMP NO. 8 SEE NOTE 5	1	1	1	1
25	CLAMP NO. 5	1	1	1	1
26	HEX HEAD MACH SCREW 1/4-20 X 5/8 LONG	1	1	1	1
27	HEX NUT 1/4-20 STD.	1	1	1	1
28	LOCKWASHER STD. FOR 1/4 SCREW	1	1	1	1
29	ROUNDHEAD MACH SCREW NO. 8 - 32 X 1/2 LONG	15	15	15	15
30	HEX NUT NO. 8 - 32 STD.	10	10	10	10
31	LOCKWASHER STD. FOR NO. 8 SCREW	15	15	15	15
32	BRACKET SEE NOTES 5 AND 6	2	2	2	2
33	HEX HEAD MACH SCREW 5/16-24 X 5/8 LONG	2	2	2	2
34	ELASTIC STOP NUT 5/16 - 24	2	2	2	2
35	HEX HEAD MACH SCREW 5/16-24 X 1 3/8 LONG	6	6	6	6
36	ELASTIC STOP NUT 5/16 - 24	6	6	6	6
37	TERMINAL BOX SEE NOTE 7	1	1	1	1
38	HOOK	1	1	1	1

TL 10893-B-2

-( ), or SCR-608-( ) when used in combination with Radio SCR-284-( ).

Installation unit Stock No. 2S508-177/50

Quantity	Stock No.	Item
1	2Z1574	Cabinet CH-74- ( ).
3	4B417-4	Chest Set TD-4, including spare.
1	6Z3147	Connector No. 61007 and Bondnut BL-50.
2	6Z3147-1	Connector No. 61004 and Bondnut BL-50.
18	3E2218	Cordage CO-218.
1	6L50-508V77	Hardware bag.
3	2B800-16	Headset H-16/U, including spare.
2	3G621	Insulator IN-121, including spare.
1	2C1738	Interphone Control Box BC-606- ( ).
2	2A2416	Mast Section MS-116, including spare.
1	2B1617	Microphone T-17, spare item.
2	2B1645	Microphone T-45.
2	2B1567	Microphone Cover M-367, spare item.
1	2Z6721-284	Mounting FT-284- ( ).

\* If Mast Base AB-15/GR and Mast Sections MS-117 and MS-118 are not available, use Mast Base MP-48 or MP-48-A, Mast Sections MS-51, MS-52, and MS-53, Clamps MC-423 and MC-424, and Cover BG-108.

† If Headset H-16/U, Microphone T-45, and Chest Set TD-4 are not available, use Headset HS-30- ( ), Microphone T-17, and Cords CD-307-A and CD-604.

‡ Only one Radio Receiver BC-603- ( ) and one Dynamotor DM-34- ( ) are required for Radio Set SCR-528- ( ).

§ When Radio Set SCR-508- ( ) or SCR-528- ( ) is installed in the rear of vehicle in combination with Radio Set SCR-193-G or SCR-284- ( ), delete Mounting FT-284- ( ), Mast Section MS-116, and two Insulators IN-121, and add Mounting FT-285- ( ), Connector No. 61007, Connector No. 61004, two Bondnuts BL-50, Mast Base Bracket MP-52, and supply 21 feet of Cordage CO-218 instead of 16 feet. If Mast Base MP-48 or MP-48-A is used in this case, delete Clamps MC-423 and Mast Sections MS-51.

**702. Assembly and Installation**

a. RADIO SET SCR-508- ( ), SCR-528- ( ), OR SCR-608- ( ) INSTALLED ALONE OR IN COMBINATION WITH RADIO SET SCR-506- ( ). Install components of Radio Set SCR-508- ( ), SCR-528- ( ), or SCR-608- ( ) alone or in combination with Radio Set SCR-506- ( ) in Car, Half-track, M2A1, as shown in figure 601 and as directed below :

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-284- ( ) (item 28, fig. 601), in position formerly occupied by left front ammunition chest.	Remove left front ammunition chest. Secure mounting to left front plate well with armor bolts and lockwashers supplied in the six 1 3/8-inch diameter holes.
Cabinet CH-74- ( ) (item 27, fig. 601), on Mounting FT-284- ( ).	Place cabinet on mounting and secure with hardware provided.
Mounting FT-237- ( ) (item 20, fig. 601), in Cabinet CH-74- ( ).	Place mounting in cabinet and secure in place with hardware provided.
Dynamotor DM-34- ( ) and Radio Receiver BC-603- ( ) or BC-683- ( ) (items 19, 15, and 17, fig. 601), on Mounting FT-237- ( ).	If Dynamotor DM-34- ( ) is supplied uninstalled, remove chassis from receiver cabinet by loosening screw lock in rear center of cabinet. Install dynamotor on top rear of receiver chassis from receiver cabinet by loosening screw lock in rear Mounting FT-237- ( ) in position shown in figure 601. Fasten with the thumbscrew locking devices.
Dynamotor DM-35- ( ) and Radio Transmitter BC-604- ( ) or BC-684- ( ) (items 18 and 14 or 16, fig. 601), on Mounting FT-237- ( ).	If Dynamotor DM-35- ( ) is supplied uninstalled, remove crystal case from transmitter cabinet by loosening the two screw locks on the front panel and pulling out crystal case. Loosen the four screw locks holding cover on top of transmitter and remove cover. Install dynamotor unit in left rear of transmitter chassis and fasten with four screws in dynamotor base. Place transmitter on Mounting FT-237- ( ) and secure with thumbscrew locking devices.

*Part and location*

Insulator IN-121 (item 32, fig. 601).

Mast Base AB-15/GR (item 21, fig. 601), on mast base bracket attached to left rail.

Wire W-128 (item 26, fig. 601).

Mast Sections MS-116, MS-117, and MS-118 (items 10, 11, and 12, fig. 601), on Mast Base AB-15/GR.

Connector No. 61007 and Bondnut BL-50 (items 33 and 34, fig. 601), in knock-out hole in vehicle terminal box.

Interphone Control Box BC-606-(\*) and Cordage CO-218 (items 24 and 25, fig. 601).

Connectors No. 61004 and 61007 and Bondnut BL-50 (items 35, 33, and 34, fig. 601).

Antenna A-62, phantom, and bracket (fig. 706), on Mounting F-237-( ) (for Radio Set SCR-508-( ) or SCR-528-( )).

Antenna A-83, phantom, and bracket.

Chest CH-264.

*Method and materials*

Drill a  $1\frac{1}{16}$ -inch hole through top of Cabinet CH-74-( ) in position shown in figure 601. Secure insulator in this hole.

See figure 702. Place upper insulator, item 5, over hole in mast base bracket. Place small neoprene washer, item 4, over item 5 and place plain washer, item 3, over item 4. Insert body of mast base, item 2, through hole in items 3, 4, 5, 6, and mast base bracket. Insert bolt, item 8, into item 2 from underneath and turn item 2 clockwise until mast base is tightened securely. If Mast Base MP-48 or MP-48-A is used, see figure 703 for assembly.

Cut a 41-inch length of Wire W-128. Strip  $\frac{1}{2}$  inch from each end and solder-tin tips. Connect one end to binding post on Mast Base AB-15/GR. Route wire down through Insulator IN-121 in top of Cabinet CH-74-( ). Connect wire to antenna terminal on Radio Transmitter BC-604-( ) or BC-684-( ). If Mast Base MP-48 or MP-48-A is used, cut a 53-inch length of Wire W-128.

Screw mast sections together and screw assembled antenna into mast base. Tape joints to prevent loss of mast sections. If Mast Base MP-48 or MP-48-A is used, screw Mast Sections MS-51, MS-52, and MS-53 together, and place Clamps MC-423 and MC-424 over joints. Screw assembled antenna into Mast Base MP-48 or MP-48-A. When mast sections and clamps are removed, stow them in Roll BG-56-( ). Place Cover BG-108 over Mast Base MP-48 or MP-48-A.

Install connector and bondnut as shown in figure 601. Route Cord CO-278 through 4 x 6-inch hole in left cover plate and secure with clamps No. 7 (fig. 302), as shown in figure 601.

Attach interphone control box to under side of map compartment. Use hardware provided. Wire as shown in figure 704 and route cordage as shown in figure 601.

Install as shown in figure 601. Route Cordage CO-218 and clamp in position shown in figure 601.

Attach antenna to bracket with hardware provided. Remove the two screws and lockwashers from left front corner of Mounting FT-237-( ) and secure bracket (with antenna attached) to mounting as shown in figure 705, Position 3. Use original lockwashers and two 10-32 x  $\frac{5}{8}$ -inch screws provided.

Attach antenna to bracket with hardware provided, and fasten bracket to Mounting FT-237-( ).

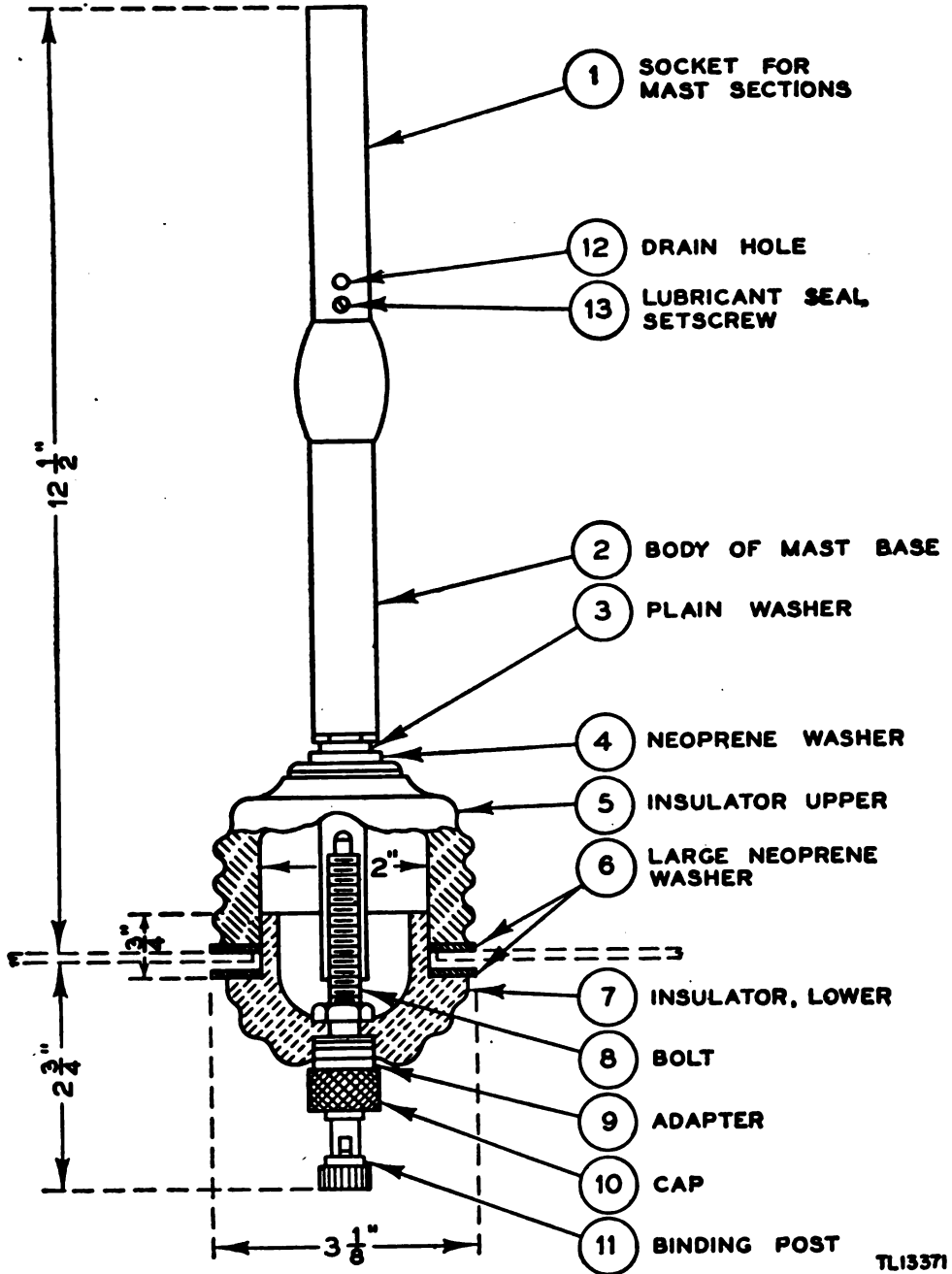
When used with Radio Set SCR-508-( ), stow chest in any convenient place in vehicle. When used with Radio Set SCR-528-( ), install chest on Mounting FT-237-( ) between Radio Receiver BC-603-( ) and Radio Transmitter BC-604-( ).

\* Indicates Interphone Control Box BC-606-A through -G (shown in upper portion of figure 704) and Interphone Control Box BC-606-H (shown in lower portion of figure 704). Cordage CO-218 is used in this installation; however, Cordage CO-213 may also be used.

b. RADIO SET SCR-508-( ), SCR-528-( ), OR SCR-608-( ) INSTALLED IN COMBINATION WITH RADIO SET SCR-193-G OR SCR-284-( ). Install components of Radio Set SCR-508-( ), SCR-528-( ), or SCR-608-( ) when used in combination with Radio Set SCR-193-G or SCR-284-( ) in Car, Half-track, M2A1, as shown in figure 701 and as directed below:

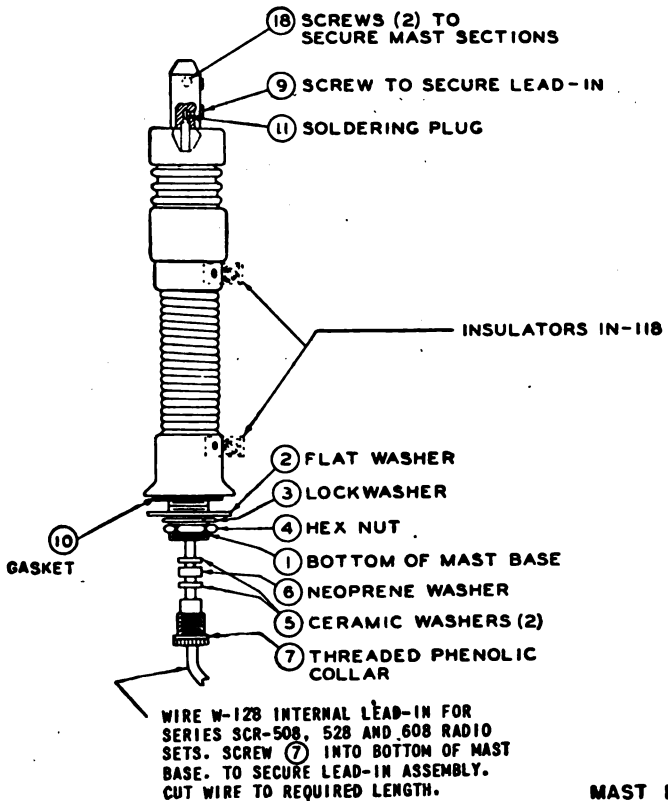
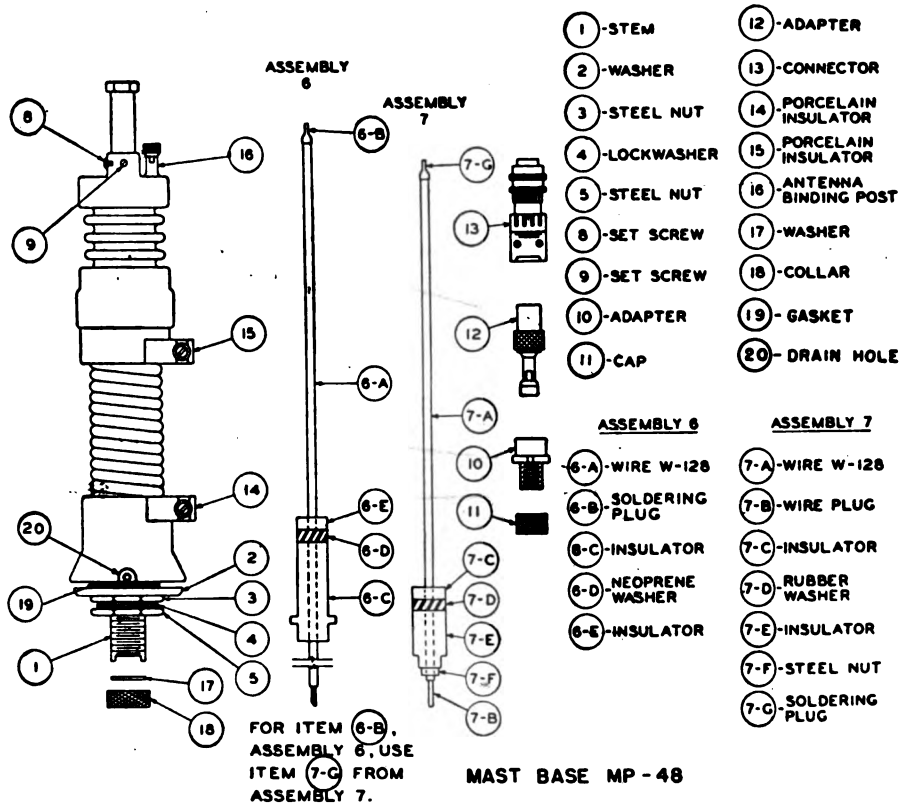
<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-285-( ) (item 17, fig. 701), in rear of vehicle.	Remove handrails to provide space for Mounting FT-285-( ). Secure mounting in position shown in figure 701. Replace handrails in original position.
Cabinet CH-74-( ) (item 16, fig. 701), on Mounting FT-285-( ).	Place cabinet on mounting and secure with hardware provided.
Mast Base Bracket MP-52 (item 18, fig. 701), on top front corner of Cabinet CH-74-( ).	Remove cover plate on top right front corner of cabinet. Secure mast base bracket with cap screws provided in cabinet.
Mast Base AB-15/GR (item 8, fig. 701), on Mast Base Bracket MP-52.	Remove cover plate from mast base bracket. See figure 702, and assemble Mast Base AB-15/GR in hole in cover plate in the same manner as assembly of mast base on mast base bracket explained in <i>a</i> above. If Mast Base MP-48 or MP-48-A is used, see figure 703 for assembly.
Wire W-128 (item 12, fig. 701).	Cut a 47-inch length Wire W-128. Strip ½ inch of insulation from each end and solder-in tips. Connect one end of wire to binding post on mast base. Route wire down through Mast Base Bracket MP-52. Replace cover plate (with Mast Base AB-15/GR installed on it) on mast base bracket. Connect other end of wire to antenna binding post on Radio Transmitter BC-604-( ) or BC-684-( ). If Mast Base MP-48 or MP-48-A is used, cut a 59-inch length of Wire W-128.
Connectors No. 61007 and 61004, and Bondnut BL-50 (items 19, 20, and 21, fig. 701).	Use connectors and bondnuts to bush Cordage CO-218 and CO-278 where they pass through stowage compartment, as shown in figure 701. Secure cords with clamps as shown.

*Note.* All other components are installed as described in *a* above.



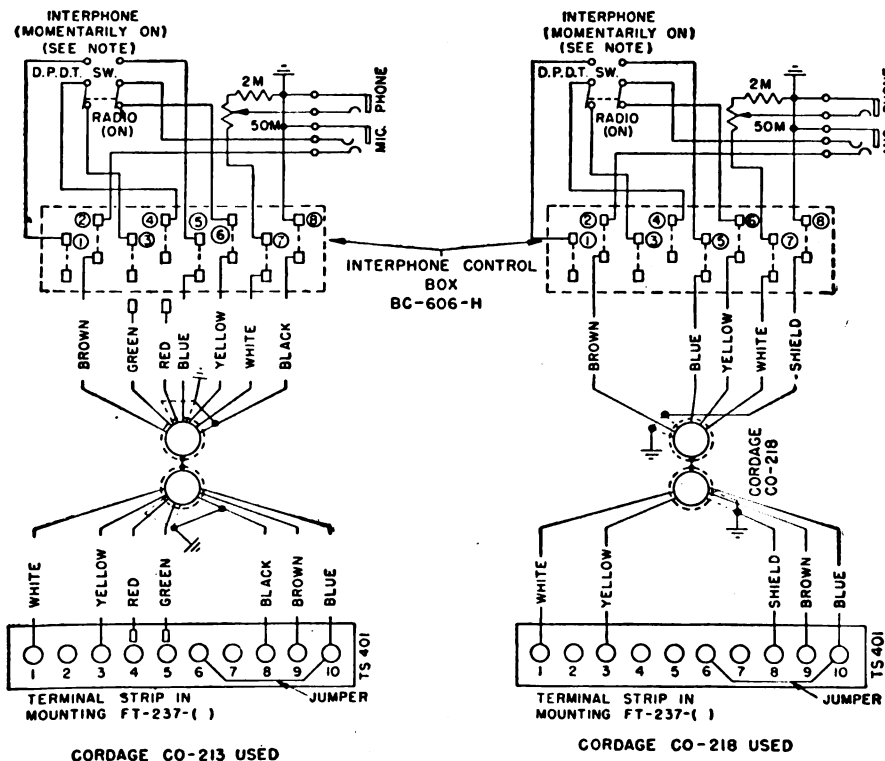
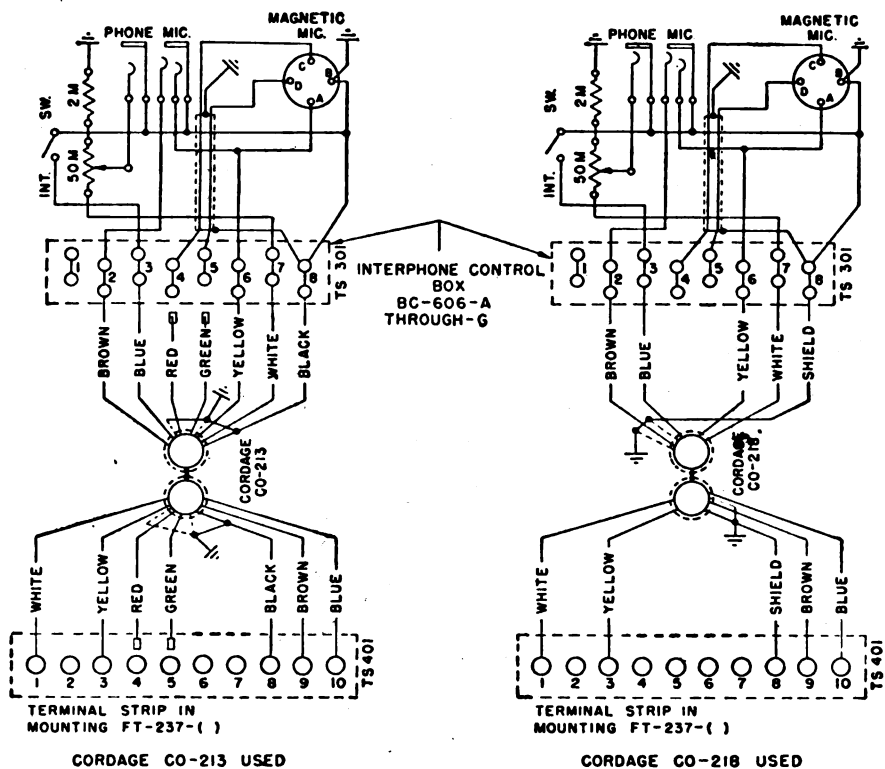
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Figure 702. Assembly of Mast Base AB-15/GR, using Wire W-128 lead-in.



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Figure 703. Mast Base MP-48 or MP-48-A, assembly.

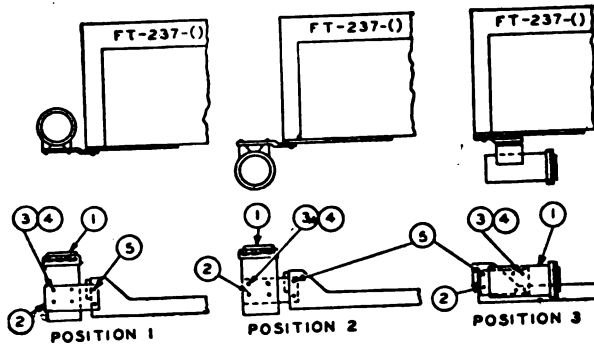


**NOTE**  
 GROUND INNER AND OUTER SHIELDS OF CORDAGE CO-213 AND CO-218 AT EACH END.  
 TAPE ENDS OF UNUSED LEADS.  
 SYSTEM IS WIRED SO THAT SWITCH ON BC-606-H IS SPRING LOADED IN POSITION FOR RADIO OPERATION  
 M = 1,000 Ω

TL 10878-9

Figure 704. Wiring diagram for remote control of Radio Set SCR-508-( ), SCR-528-( ), or SCR-608-( ), using Interphone Control Box BC-606-( ).





APPLICATION OF GROUND CLIP

ITEM NO	NAME OF ITEM AND REMARKS	QUAN REQ
1	ANTENNA A-62 (PHANTOM)	1
2	BRACKET	1
3	RD. HD. MACH. SCR. #6-32 X 1/2" FURN. WITH #1	4
4	LOCKWASHER #6 STD. FURN. WITH #1	4
5	RD. HD. MACH. SCR. #10-32 X 5/8"	2

NOTE:

1. FOR ALL POSITIONS USE TIP OF BRACKET TO RECEIVE THE GROUND CLAMP OF ANTENNA A-62.
2. USE LONGER SCREW (5) WHEN INSTALLING BRACKET ON MOUNTING FT-237-() AND RE-APPLY TOOTH-TYPE LOCKWASHERS.

Figure 705. Installation of Antenna A-62, phantom, on Mounting FT-237-().

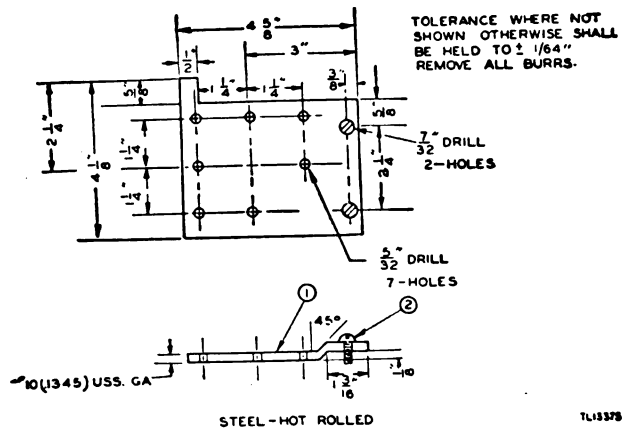


Figure 706. Bracket for Antenna A-62, phantom.

## RADIO SET SCR-510-( ) OR SCR-610-( )

## 801. Required Parts

Items necessary for installation of Radio Set SCR-510-( ) or SCR-610-( ) in Car, Half-track, M2A1, are listed below:

*Basic units Stock Nos. 2S510/12 and 2S610/12*

Quantity		Stock No.	Item
Radio Set SCR-510-( )	Radio Set SCR-610-( )		
1	1	6Q349	Alignment Tool TL-207.
*1	0	2A245	Antenna AN-45.
0	*1	2A229C	Antenna AN-29-C.
1	1	3B879	Case CS-79-( ), for battery power supply.
1	1	2Z8190-137	Case CS-137.
1	1	6Z3147	Connector No. 61007 and Bondnut BL-50.
2	2	2A2352/1	Fitting, including spare.
*1	*1	2B613	Handset TS-13, spare item.
2	2	3G586	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
*2	*2	3G1250-64.15	Insulator, glazed porcelain.
b1	b1	2A2081-15	Mast Base AB-15/GR.
0	b2	2A2416	Mast Section MS-116, including spare.
b2	b2	2A2417	Mast Section MS-117, including spare.
b2	b2	2A2418	Mast Section MS-118, including spare.
1	1	2Z6721-250	Mounting FT-250-( ).
1	1	3H4496-120	Power Supply Unit PE-120-( ), including spare parts.
1	0	2C5360	Radio Receiver and Transmitter BC-620-( ), including two crystals and set of tubes installed.
0	1	2C5379	Radio Receiver and Transmitter BC-659-( ), including two crystals and set of tubes installed.
1	1	2Z8056	Roll BG-56-( ).
15 ft.	15 ft.	6Z7926	Rope RP-5.
*2	*2	2Z9019	Strap ST-19.
2	0	6D13038	TM 11-605.
0	2	6D13037	TM 11-615.
1	1	3H6713	Vibrator VB-13.
*27 ft.	*27 ft.	1B29	Wire W-29.
6 ft.	6 ft.	1B128	Wire W-128.

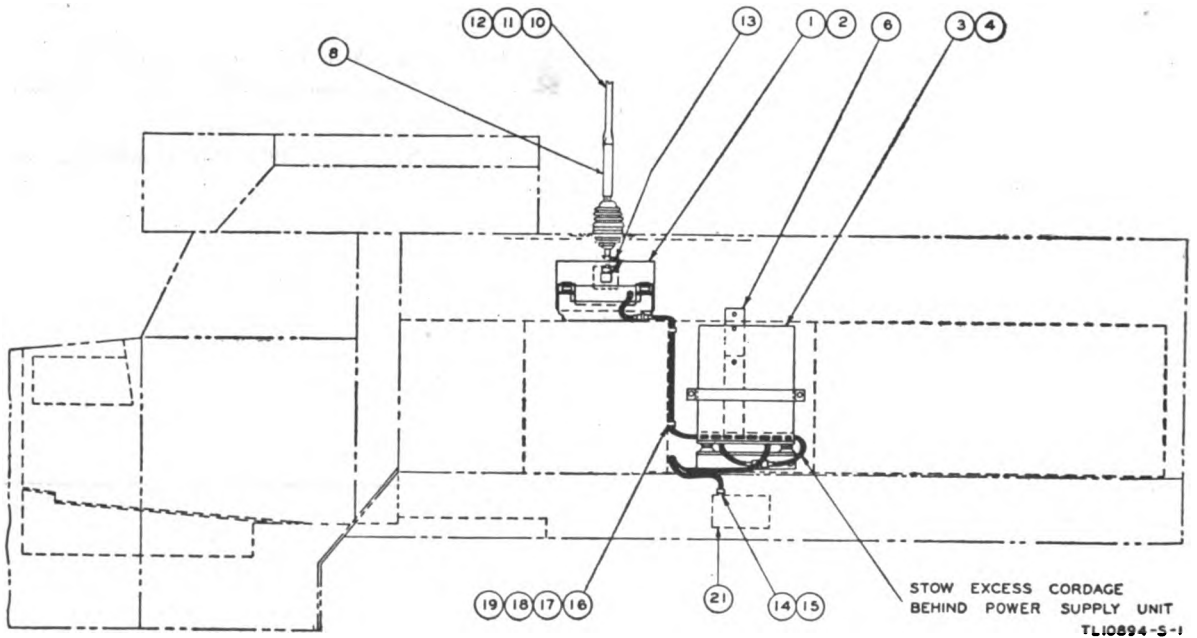
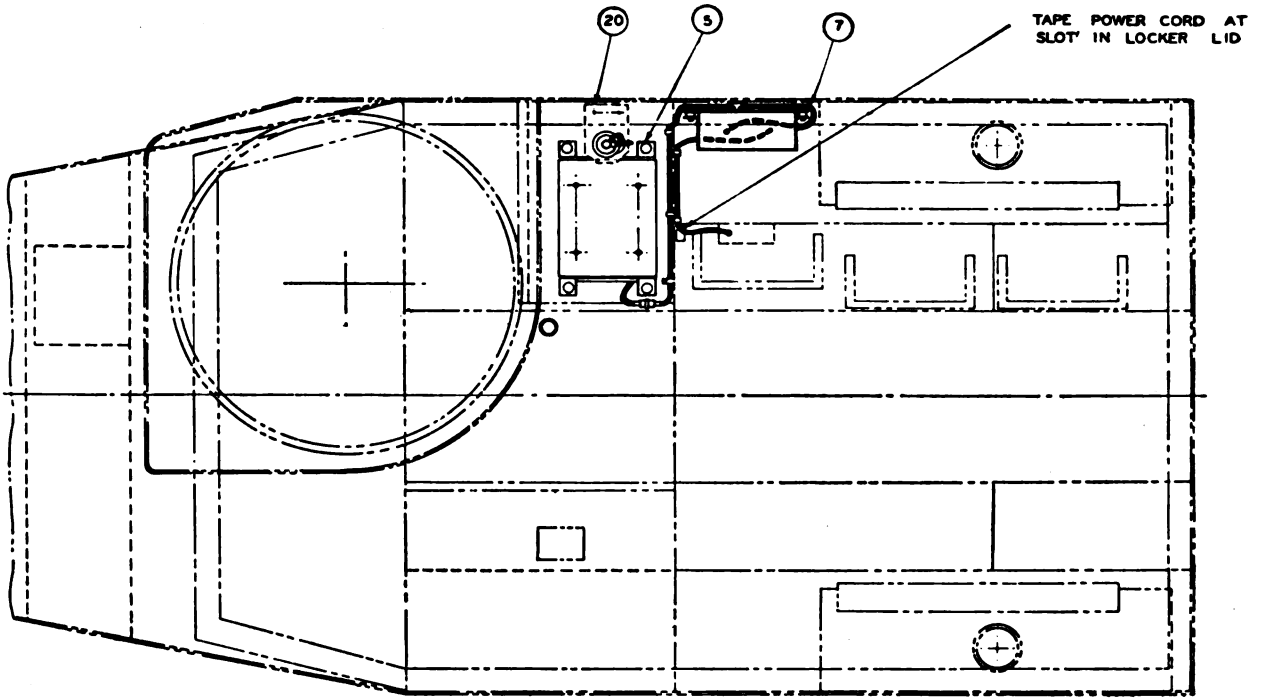
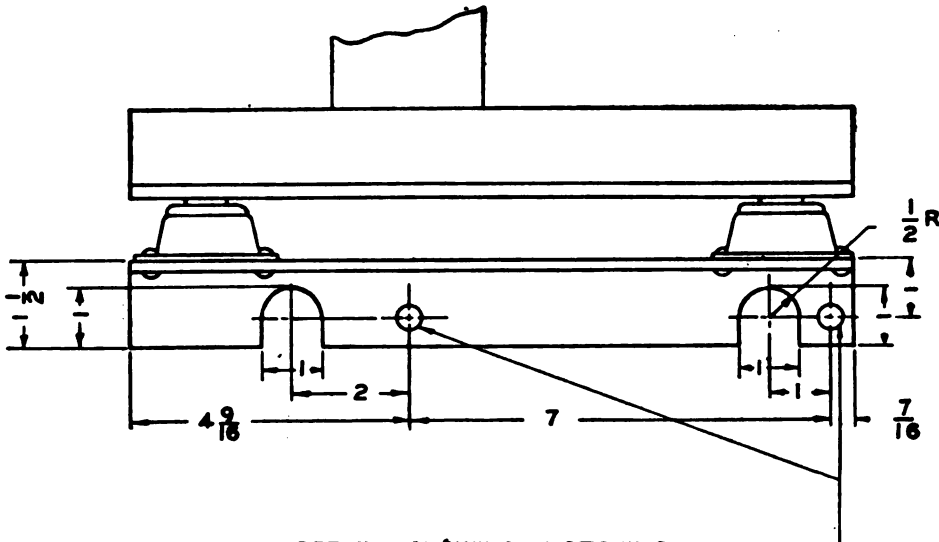


Figure 801. Installation of Radio Set SCR-510-( )



DETAIL SHOWING NOTCHING  
REQUIRED IN BASE OF ⑥  
TO CLEAR BOLTS IN VEHICLE.

MTG. HOLES

ITEM NO.	NAME OF ITEM	QUANTITY REQUIRED	
		RADIO SET SCR-510-( )	RADIO SET SCR-610-( )
1	RADIO RECEIVER AND TRANSMITTER BC-620-( )	1	1
2	RADIO RECEIVER AND TRANSMITTER BC-659-( )	1	1
3	POWER SUPPLY UNIT PE-120-( ) SEE NOTE 7	1	1
4	PLATE SUPPLY UNIT PE-97-( ) (FOR SCR-510-( )) OR PE-117-( ) (FOR SCR-610-( )) SEE NOTE 7	1	1
5	MOUNTING FT-250-( )	1	1
6	MOUNTING FT-317-( ) } SEE NOTE 2	1	1
7	CORD CD-509	1	1
8	MAST BASE AB-15/GR SEE NOTE 5	1	1
9	COVER DG-108 SEE NOTE 6	1	1
10	MAST SECTION MS-116	1	1
11	MAST SECTION MS-117	1	1
12	MAST SECTION MS-118	1	1
13	WIRE W-128 SEE NOTE 3	1	1
14	CONNECTOR NO. 61007	1	1
15	BONDNUT BL-50	1	1
16	CLAMP NO. 4 PER FIG. 302	7	7
17	ROUNDHEAD MACH SCREW NO. 8-32 X 1/2 LONG	7	7
18	HEX NUT NO. 8 - 32 STD.	7	7
19	LOCKWASHER STD. FOR NO. 8 SCREW	7	7
20	BRACKET	1	1
21	TERMINAL BOX SEE NOTE 4	1	1

NOTES:

- FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.
- MOUNT ⑤ AND ⑥ WITH BOLTS EXISTING IN VEHICLE.
- CUT ⑬ TO 24-INCH TERMINAL-TO-TERMINAL LENGTH FOR RADIO SET SCR-510-( ) OR 36-INCH LENGTH FOR RADIO SET SCR-610-( ).
- ⑲ AND ⑳ ARE FURNISHED BY VEHICLE MANUFACTURER.
- IF ⑧ ⑭ ⑪ AND ⑫ ARE NOT AVAILABLE, USE MAST BASE MP-4B OR MP-4B-A, MAST SECTIONS MS-51 (FOR SCR-610-( ) ONLY), MS-52, AND MS-53, CLAMPS MC-423 (FOR SCR-610-( ) ONLY) AND MC-424.
- USE ③ ON MAST BASE MP-4B OR MP-4B-A WHEN MAST SECTIONS ARE REMOVED.
- IF ③ IS NOT AVAILABLE, USE ④.

TL 10894-S-2

or SCR-610-( ) in Car, Half-track, M2A1.

Installation unit Stock No. 2S510-V77/50

Quantity	Stock No.	Item
*1	4B417-4	Chest Set TD-4.
1	3E1509	Cord CD-509.
1	3H1359-184	Cover BG-184.
1	2Z3400-185	Cover BG-185.
1	6L50-510V77	Hardware bag.
*1	2B800-16	Headset H-16/U.
*1	2B1645	Microphone T-45.
1	3H3947	Mounting FT-317-( ).

\* Used for fixed, portable, or emergency operation only.

<sup>b</sup> If Mast Base AB-15/GR and Mast Sections MS-116, MS-117, and MS-118 are not available, use Mast Base MP-48 or MP-48-A, Mast Sections MS-51, MS-52, and MS-53, Clamps MC-423 and MC-424, and Cover BG-108.

<sup>c</sup> If Headset H-16/U, Microphone T-45, and Chest Set TD-4 are not available, use Headset HS-30-( ), Microphone T-17, and Cords CD-307-A and CD-604.

**802. Assembly and Installation**

Install components of Radio Set SCR-510-( ) or SCR-610-( ) in Car, Half-track, M2A1, as shown in figure 801 and as directed below:

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-250-( ) (item 5, fig. 801), on cover of right ammunition chest.	Fasten mounting in place with four bolts already in cover of right ammunition chest.
Mounting FT-317-( ) (item 6, fig. 801), on right side wall of vehicle between ammunition chest and gas tank.	Notch bottom of mounting as shown in figure 801, view A-A. Fasten mounting in place with four bolts already in side wall of vehicle.
Mast Base AB-15/GR (item 8, fig. 801), on mast base bracket on right handrail.	See figure 702. Place upper insulator, item 5, over hole in mast base bracket. Place small neoprene washer, item 4, over item 5 and place plain washer, item 3, over item 4. Insert body of mast base, item 2, through hole in items 3, 4, 5, 6, and mast base bracket. Insert bolt, item 8, into item 2 from underneath and turn item 2 clockwise until mast base is tightened securely. If Mast Base MP-48 or MP-48-A is used, see figure 703 for assembly.
Connector No. 61007 and Bondnut BL-50 (items 14 and 15, fig. 801) in vehicle terminal box.	Install connector and bondnut through knock-out hole in vehicle terminal box as shown in figure 801.
Battery BA-41 and Radio Receiver and Transmitter BC-620-( ) or BC-659-( ) (item 1 or 2, fig. 801), on Mounting FT-250-( ).	If Battery BA-41 is supplied uninstalled, remove screws around outer edge of front panel and pull receiver and transmitter chassis from case. Remove cover of battery compartment located on chassis near front panel. Place Battery BA-41 into compartment; be careful to engage plug into socket of battery. Replace cover.

*Note.* Before replacing chassis in its case, make sure that all tubes are pressed down firmly in their proper sockets, that crystals for desired operating frequencies are in their proper sockets with retaining clip in position, and that the two toggle switches near left side of chassis are in the ON position.

Place radio receiver and transmitter unit on mounting, so that controls face left side of vehicle. Secure in place with hook fasteners provided.

*Part and location**Method and materials*

Wire W-128 (item 13, fig. 801).

Cut a 25-inch length of Wire W-128 if Radio Set SCR-510-( ) is used. Cut a 37-inch length if Radio Set SCR-610-( ) is used. Strip  $\frac{1}{2}$  inch of insulation from each end of wire, and solder-tin ends. Connect between binding post on mast base and antenna binding post on radio receiver-transmitter, making sure that terminal-to-terminal length of Wire W-128 is *exactly* 24 inches for Radio Set SCR-510-( ) or *exactly* 36 inches for Radio Set SCR-610-( ).

Power Supply Unit PE-120-( ) (item 3, fig. 801), on Mounting FT-317-( ).

Open case of power supply unit and remove chassis cover. Install Vibrator VB-13 in its socket. Make certain that connector link is in correct position (BC-620 position for Radio Set SCR-510-( ); BC-659 position for Radio Set SCR-510-( )). Make sure that change-over plug is set for 12-volt operation (arrow pointing to 12) and that tubes are pressed down firmly in their proper sockets. Replace cover on chassis and close lid of power supply unit. Secure to Mounting FT-317-( ) with hook fasteners provided. Route power cord to vehicle terminal box, using clamp No. 4 (fig. 302) to secure cord. (See fig. 801.)

Cord CD-509 (item 7, fig. 801).

Connect cord between Power Supply Unit PE-120-( ) and Radio Receiver and Transmitter BC-620-( ) or BC-659-( ), as shown in figure 801.

Mast Sections MS-116, MS-117, and MS-118 (items 10, 11, and 12, fig. 801), on Mast Base AB-15/GR.

Radio Set SCR-510-( ) does not require a Mast Section MS-116. Screw mast sections together and screw assembled antenna into Mast Base AB-15/GR. Tape joints to prevent loss of mast sections. If Mast Base MP-48 or MP-48-A is used, screw Mast Sections MS-51, MS-52, and MS-53 together. Place Clamps MC-423 and MC-424 over joints. (Mast Section MS-51 and Clamp MC-423 are not required for Radio Set SCR-510-( ).) Screw assembled antenna into Mast Base MP-48 or MP-48-A. When mast sections and clamps are removed, stow them in Roll BG-56-( ) and place Cover BG-108 over Mast Base MP-48 or MP-48-A.



## RADIO SET SCR-593-( )

### 901. Required Parts

Items necessary for the installation of Radio Set SCR-593-( ) in Car, Half-track, M2A1, are listed below:

*Basic unit Stock No. 2S593/12*

Quantity	Stock No.	Item
1	2A275-75	Antenna AN-75-( ).
1	2Z6721-338	Mounting FT-338-( ), including Cord CD-618-( ), extension bracket, strap, and mounting screws.
	2C4728	
1	6D13100	Radio Receiver BC-728-( ), including installed tubes.
2		TM 11-859.

*Installation unit Stock No. 2S593-V77/50*

Quantity	Stock No.	Item
1	2Z551-169	Bag BG-169.
1	2Z6721-338/1	Bracket, reinforcing, for Mounting FT-338-( ).
1	3D492	Capacitor CA-492.
1	6Z3147-1	Connector No. 61004 and Bondnut BL-50.
1	6L50-593V60	Hardware bag.

### 902. Assembly and Installation

Install components of Radio Set SCR-593-( ) in Car, Half-track, M2A1, as shown in figure 901 and as directed below:

*Part and location*

Battery BB-54-( ), in battery compartment of Radio Receiver BC-728-( ).

*Method and materials*

Open case of radio set, lift chassis on its hinges, and remove battery container bracket. Connect yellow-coded battery lead to positive terminal and other lead to negative terminal.

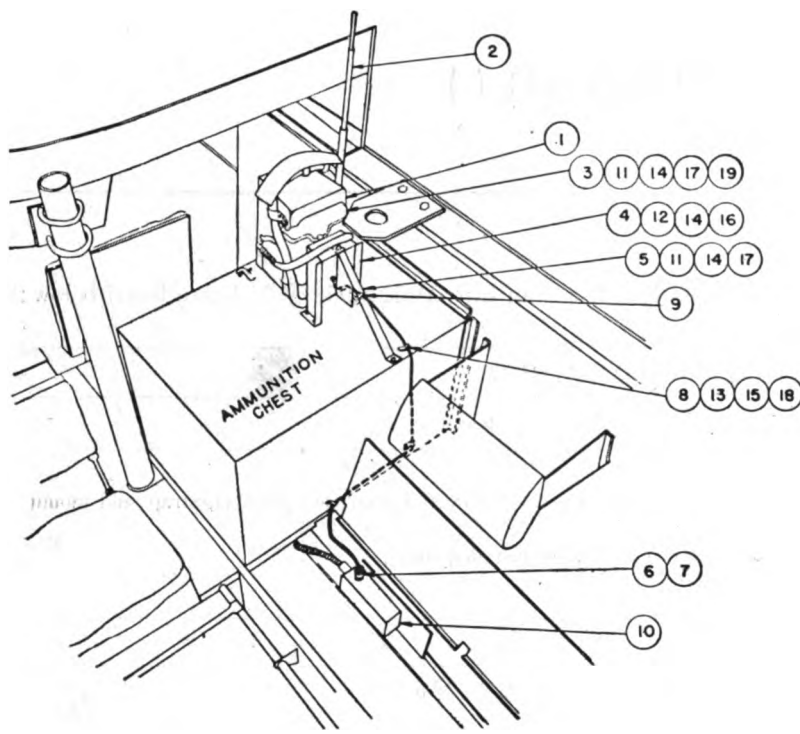
**Caution:** In placing battery into compartment, be sure to attach air-vent hose to battery air vent. Otherwise, sulphuric acid fumes may penetrate into radio parts and produce harmful results.

Push battery into compartment and replace retainer bracket. Before tightening screws be sure antenna plug receptacle fits into opening provided in side of case.

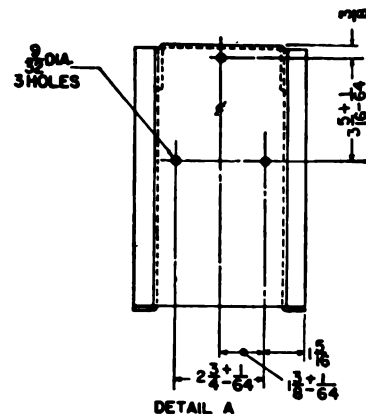
Extension bracket and reinforcing bracket (items 4 and 5, fig. 901), on lid of right ammunition chest.

Drill lid of ammunition chest as shown in figure 901, Plan View. Modify extension bracket (part of Mounting FT-338-( )) as shown in figure 901, Detail A. Mount extension bracket in position with hardware provided. Brace bracket from rear with reinforcing bracket.

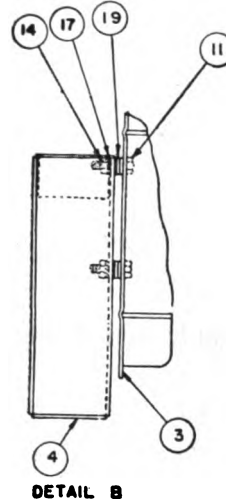




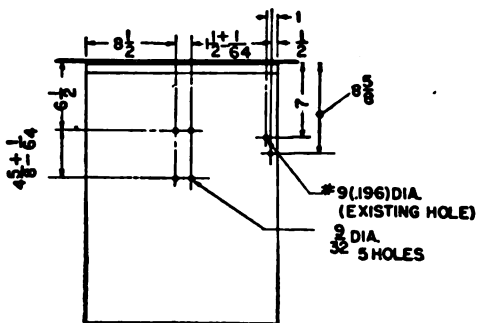
PICTORIAL VIEW  
RIGHT FRONT SECTION OF VEHICLE



DETAIL A



DETAIL B



PLAN VIEW  
AMMUNITION CHEST-RIGHT  
MOUNTING HOLES

NOTES:

1. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.
2. (10) IS FURNISHED WITH THE VEHICLE BY THE MANUFACTURER.
3. (11) (12) (14) (16) AND (17) ARE FURNISHED WITH (3).
4. SECURE (8) USING EXISTING HOLES.
5. MOUNT (9) WITH BRACKET HARDWARE.
6. DIMENSIONS WHERE NOT SHOWN OTHERWISE ARE IN INCHES.

ITEM NO.	NAME OF ITEM	QUAN REQ
1	RADIO RECEIVER BC-720-( )	1
2	ANTENNA AB-75-( )	1
3	MOUNTING FT-338-( )	1
4	EXTENSION BRACKET (PART OF MOUNTING FT-338-( ))	1
5	REINFORCING BRACKET	1
6	CONNECTOR NO. 61004	1
7	BONDPUT BL-50	1
8	CLAMP NO. 1	3
9	CLAMP NO. 2 SEE NOTE 5	1
10	TERMINAL BOX SEE NOTE 2	1
11	HEX HEAD MACH SCREW 1/4-20 X 1-1/8 LONG	5
12	HEX HEAD MACH SCREW 1/4-20 X 1/2 LONG	4
13	ROUNDHEAD MACH SCREW NO. 8 - 32 X 1/2 LONG	3
14	HEX NUT 1/4-20 STD.	9
15	HEX NUT NO. 8 - 32 STD.	3
16	LOCKWASHER 5/16 EXT.-INT.	4
17	LOCKWASHER 1/4 INT.	5
18	LOCKWASHER S.A.E. STD. FOR NO. 8 SCREW	3
19	FLATWASHER, S.A.E. STD. FOR 1/4 SCREW	9

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Figure 901. Installation of Radio Set SCR-593-( ) in Car, Half-track, M2A1.

*Part and location*

Mounting FT-338-( ) (item 3, fig. 901),  
on extension bracket.

Connector No. 61004 and Bondnut BL-50  
(items 6 and 7, fig. 901), in hole in  
vehicle terminal box.

Radio Receiver BC-728-( ) (item 1, fig.  
901), on Mounting FT-338-( ).

Antenna AN-75-( ) (item 2, fig. 901).

*Method and materials*

Make sure that switch actuating plug is removed from top of mounting. With hardware provided, secure mounting to extension bracket; use the flatwashers for spacers as shown in figure 901, Detail B. Drill holes in bulkhead for clamps. Route power cord to terminal box, using clamps to secure the cord in position.

Install connector and bondnut through knock-out hole in vehicle terminal box for bushing power cord, as shown in figure 901.

Place receiver on mounting. Line up plug on radio set squarely with receptacle on mounting. Draw the two cam levers down over the two studs mounted on receiver.

**Caution:** Do not permit radio set to be left in vehicle for a period of more than 3 or 4 days without being used, because the 2-volt battery will be overcharged and the vehicle battery discharged. Either remove radio set from Mounting FT-338-( ) or disconnect lead from terminal box.

Mount Antenna AN-75-( ) on bracket provided on Radio Receiver BC-728-( ).













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