

TM 11-2701

WAR DEPARTMENT TECHNICAL MANUAL

T7-527

INSTALLATION OF RADIO EQUIPMENT IN CAR, HALF-TRACK M2

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WAR DEPARTMENT

• 17 MAY 1944

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WAR DEPARTMENT,
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TM 11-2701, Installation of Radio Equipment in Car, Half-track, M2, is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

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Chief of Staff.

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

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 Car, Half-track, M2. Items required to make a complete operating installation are listed for each radio set.

2. Equipment.

Installations covered include the following radio sets:

SCR-245-P	SCR-628-(&)
SCR-510-(&)	SCR-593-(&)
SCR-608-(&)	SCR-506-(&)
SCR-193-G	SCR-528-(&)
SCR-284-(&)	SCR-610-(&)
SCR-508-(&)	

3. Symbol (&).

The symbol (&), used throughout this manual, refers to all existing 12-volt models of radio sets mentioned, and to all models of other items of equipment with which it appears.

4. Holes and brackets.

Holes and brackets required for installations of the radio sets normally are located prior to delivery of Car, Half-track, M2. Drilling instruc-

tions will be given in the pertinent section of this manual for any other necessary holes and brackets. Holes and brackets in the vehicle or on any radio part should not be relocated unless absolutely necessary.

5. Before Beginning Installation.

Illustrations, installation methods, and any subsequent changes to this manual must be studied carefully before making an installation.

CAUTION: Car, Half-track, M2 has a 12-volt electrical system. Before installing any radio set covered in this manual, be sure that it is designed for a 12-volt installation.

6. Immediately after Installation.

At the completion of the installation, a thorough operating check must be made to determine that the equipment has been properly installed and is in working order.

CAUTION: Do not operate any of the radio equipment until the instruction book or Technical Manual covering the specific radio set has been studied carefully. Otherwise, damage to the equipment may result.

SECTION II

RADIO SET SCR-245-P

7. Required Parts.

Items necessary for the installation of Radio Set SCR-245-P in Car, Half-track, M2, are listed below:

Quantity	Stock No.	Item
1.....	2Z119A.....	Box BX-19-A, or Box BX-19, for spare receiver tubes.
1.....	2Z1120.....	Box BX-20, for spare transmitter tubes.
1.....	2Z1121.....	Box BX-21, for Boxes BX-19-A, BX-20, headsets and excess material.
1.....	2Z1856.....	Case CS-56, for transmitter tuning unit.
1.....	3E1470.....	Cord CD-442, 54'' long; connects Radio Receiver BC-312-(&) to Radio Transmitter BC-223-(&).
1.....	3E1441.....	Cord CD-426, 24'' long; connects Radio Transmitter BC-223-(&) to Dynamotor Unit PE-55.
1.....	3E1307A-5.5..	Cord CD-307-A, 65'' long; connects Cord CD-604 to Radio Receiver BC-312-(&).
1 ^a	3E1604.....	Cord CD-604; connects Headset HS-30-(&) to Cord CD-307-A.
1.....	3E2273.....	Cord CO-260, 72'' long; connects Dynamotor Unit PE-55 to terminal box.
1.....	2Z3367.....	Cover BG-67, for mast base.
1.....	2Z3375.....	Cover BG-75, for Radio Receiver BC-312-(&).
1.....	3H1357.....	Cover BG-77, for Dynamotor Unit PE-55.
1.....	2Z3386.....	Cover BG-86, for Radio Transmitter BC-223-(&).
1 ^b	2Z3531.....	Crystal Holder FT-171-(&), with crystal.
1.....	3H1855.....	Dynamotor Unit PE-55, including Mounting FT-185.
1 ^a	2B830(&).....	Headset HS-30-(&).
2.....	3G604.....	Insulator IN-104.
1.....	3Z3445.....	Key J-45.
1.....	2A2087.....	Mast Base MP-37.
1.....	2A349.....	Mast Section MS-49.
1.....	2A2350.....	Mast Section MS-50.

^a In the event Headset HS-30-(&) is not available, Headset HS-23-(&) may be substituted, in which case Cord CD-604 is not required.

^b The quantity of Crystal Holders FT-171-(&) and the frequency of the crystals will be authorized for each using organization. Crystal Holder FT-171 or FT-171-B may be used.

Quantity	Stock No.	Item
1.....	2A2351.....	Mast Section MS-51.
1.....	2A2352.....	Mast Section MS-52.
1.....	2A2353.....	Mast Section MS-53.
1.....	2B1617(&)...	Microphone T-17-(&).
1.....	2Z6712.....	Mounting FT-172, snubber for BC-223-(&).
1.....	2Z6718.....	Mounting FT-178, snubber for BC-312-(&).
1.....	2C4312(&).1	Radio Receiver BC-312-(&), including Mounting FT-162.
1 ^c	2C6223(&)...	Radio Transmitter BC-223-(&), including calibration chart, and Mounting FT-173.
1.....	2Z8056A.....	Roll BG-56-A, for mast sections.
1.....	6L50-245V10.	Hardware bag containing screws, nuts, and lockwashers.
1 ^c	2C8017(&)...	Transmitter Tuning Unit TU-17-(&).
1 ^c	2C8018(&)...	Transmitter Tuning Unit TU-18-(&).
2.....	2T62.....	Tubes VT-62 (transmitter).
3.....	2T63.....	Tubes VT-63 (transmitter).
5 ft...	1B128.....	Wire W-128.

^c In all cases, the serial number and order number of Radio Transmitter BC-223-(&) must agree with that of Transmitter Tuning Units TU-17-(&) and TU-18-(&) and calibration chart with which used.

8. Assembly and Installation.

a. PROCEDURE. Components of the radio set should be installed as follows:

<i>Part and location</i>	<i>Method and materials</i>
Mast Base MP-37, on mast base pedestal, located on mast base column.	Refer to figures 2 and 14. Place item 1 over the hole in the bracket and place item 2 over item 1. Place item 3 over item 2. Then beginning from top, insert item 4 through hole, into item 2 and bracket. Place items 7 and 8 beneath item 6. Fasten assembly in place with items 9 and 10. Consult figure 14 for termination of antenna lead, before cutting the wire.

<i>Part and location</i>	<i>Method and materials</i>
Insulators IN-104, on stem of mast column (fig. 14).	Screw into tapped holes provided.
Mountings FT-162, FT-173, and FT-185 on radio mounting plate.	Fasten mountings to radio mounting plate (fig. 6) with screws and lockwashers provided (fig. 14).
Mounting FT-178.	See figures 11, 13, and 14. Remove the receiver from the box and drill holes in the top of the box as shown in figure 11. Fasten the small bracket (item 1, fig. 13) in place with stopnuts on outside of box. Install the mounting (item 2, fig. 13) on bracket, as shown in figure 14. Place the receiver box on Mounting FT-162, and complete assembly with items 3 and 4 (fig. 13). (Item 3 may be bent to suit conditions and extra length removed.)
Radio Receiver BC-312-(&) on Mounting FT-162.	Install any necessary tubes. Place the receiver in the box on the mounting, tighten the thumbscrews, and lock the unit in place with the snap slide catches.
Cover BG-75, over Radio Receiver BC-312-(&).	Cut a slot in the top of the cover to admit item 1, figure 13. Disengage the receiver end of Mounting FT-178 and remove the receiver from cabinet. Slide Cover BG-75 over the receiver and refasten Mounting FT-178 to the receiver bracket.
Mounting FT-172 (figs. 13 and 14).	Using the reinforcing plate shown in figure 13 as a template, drill eight holes in the top of Radio Transmitter BC-223-(&). Fasten the small bracket,

<i>Part and location</i>	<i>Method and materials</i>
Radio Transmitter BC-223-(&) on Mounting FT-173.	item 1, figure 13, and the reinforcing plate in place with the stopnuts on the outside of the transmitter. Assemble the mounting as shown in figure 13 and fasten item 2 to the bracket as shown in figure 14. (Item 3 may be bent to suit conditions and any extra length removed.) Install necessary tubes, place transmitter on the mounting, and lock in position.
Cover BG-86, over Radio Transmitter BC-223-(&).	Cut a slot in the top of the cover to admit item 1, figure 13. Then disengage the transmitter end of Mounting FT-172 and and slide the cover over the transmitter.
Crystal Holder FT-171-B, with crystal.	Stow in Transmitter Tuning Unit TU-17-(&) or TU-18-(&), depending upon the frequency designated on the holder.
Dynamotor Unit PE-55, on Mounting FT-185 (fig. 14).	Place the dynamotor on the mounting and lock in position with snap slide fasteners.
Cover BG-77.	Place over Dynamotor Unit PE-55.
Transmitter Tuning Units TU-17-(&) and TU-18-(&).	Carry one unit in transmitter. Carry spare in Case CS-56.
Case CS-56, Box BX-19-A, BX-20, and BX-21.	Carry in any convenient place in car.
Headset HS-30-(&).	Connect to Cord CD-604, and attach the cord to Cord CD-307-A. Plug Cord CD-307-A into Radio Receiver BC-312-A.
Microphone T-J-45.	Plug into designated plugs 17-(&) and Key (fig. 14).

<i>Part and location</i>	<i>Method and materials</i>
Wire W-128, screws, nuts, and other materials.	Stow all excess wire, screws, nuts, and other materials in Box BX-21.
Mast Sections MS-49 to MS-53 on Mast Base MS-37.	Screw mast sections together and into the mast base. Carry in Roll BG-56 when not in use.
Roll BG-56-A.	Carry in any convenient place.
Cover BG-67.	Place over mast base when mast sections are not in use.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-245-P as shown in figure 14. Tighten the plug locks on the various cords by hand; never use a tool. Enough slack should be left when cording and wiring the car to permit free movement of all components having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage.

(2) To prevent accidental shorts of the battery, do not connect the +12-volt and -12-volt leads (in the terminal box) until all other connections have been completed. When installing Cord CO-260 at the dynamotor, the entrance hole may be reamed if necessary. The dynamotor end of the cord also may be modified, if necessary, by shortening the leads. If the leads are shortened, terminals must be resoldered to them before completing connections.

(3) The antenna and ground connections should be made with Wire W-128 (fig. 14). The ground connections from the transmitter and the receiver should be as short as possible. The wire may be secured, using lockwashers, under the head of any mounting screw used to secure the receiver and transmitter mounting to the radio mounting plate. All wire ends should be solder-tinned. Connect and clamp all cords so they do not interfere with either accessibility or operation of any part of the equipment.

SECTION III

RADIO SET SCR-284-(&)

9. Required Parts.

Items necessary for the installation of Radio Set SCR-284-(&) in Car, Half-track, M2, are listed below:

Quantity	Stock No.	Item
1.....	2Z502A.....	Bag BG-102-A, for spare parts, batteries, headset, and other material.
1 ^a	3A27.....	Battery BA-27, for Remote Control Unit RM-29-(&).
1.....	3Z1131 (&) ..	Box BX-31-(&), for tubes.
3.....	2Z1250.....	Bracket.
1 ^a	2Z1876-B....	Case CS-76-B, for Remote Control Unit RM-29-(&).
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.....	3E1501A.....	Cord CD-501-A.
1 ^b	3E1605-6.5...	Cord CD-605, 78" long; for Headset HS-30-(&).
2.....	6Z3147.....	Connector No. 61007 and Bondnut BL-50; Appleton Electric Co.
1 ^a	2A712.....	Counterpoise CP-12.
1 ^a	2A713.....	Counterpoise CP-13.
2 ^a	3H1407.....	Crank GC-7.
1.....	2Z4641 (&)...	Frame FM-41-(&).
1 ^a	3H2345A.....	Generator GN-45-A, including Gauge TL-127 and spare parts.
1 ^a	2A1311.....	Guy GY-11.
1 ^a	2A1312.....	Guy GY-12.
1.....	6L50-284V10.	Hardware bag containing— 3 screws, hexagonal, head, 5/16"-24 x 1". 14 screws, RH, 1/4" x 20 x 1". 8 nuts, hexagonal, 1/4"-20. 3 lockwashers, 1/4", standard. 1 hook, for microphone and headset. 2 screws, No. 8-32-3/8". 2 nuts, hexagonal, No. 8-32. 2 lockwashers, No. 8, standard.
1 ^b	2B830(&)....	Headset HS-30-(&).
1.....	3G604.....	Insulator IN-104.
1 ^a	3G606A.....	Insulator IN-106-A.
1.....	3Z3448A.....	Key J-48-A.
1 ^a	2Z6102A.....	Leg LG-2-A, for Generator GN-45-A.
2 ^a	2Z6103A.....	Leg LG-3-A, for Generator GN-45-A.
4 ^a	2Z6113A.....	Leg LG-13-A, for radio set.
1.....	2A2087.....	Mast Base MP-37.

Quantity	Stock No.	Item
1.....	2Z3367.....	Cover BG-67, for Mast Base MB-37.
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 ^a	2A2354.....	Mast Section MS-54.
1 ^a	3A2355.....	Mast Section MS-55.
1 ^a	2A2356.....	Mast Section MS-56.
1.....	2B1617 (&)...	Microphone T-17-(&).
1.....	3H4600-104A.	Power Converter Unit PE-104-A.
1.....	3H4600-103A.	Power Unit PE-103-A, including spare parts.
1.....	2C5374.....	Radio Receiver-Transmitter BC-654-A, including Crystal Unit DC-12-A.
1 ^a	2A3128.....	Reel RL-28.
1 ^a	2A3129.....	Reel RL-29.
1 ^a	2C7629A.....	Remote Control Unit RM-29-A.
1.....	2Z8058.....	Roll BG-58, for mast section—and generator legs.
4.....	6Z5095.....	Strap holder.
3 ^a	2A3327.....	Stake GP-27, ground.
3.....	2Z7090.1.....	Tapping plate.
1 set..	.....	Tubes, vacuum, for Radio Transmitter - Receiver BC-654-A.
5 ft...	1B142.....	Wire W-142.
1.....	3G586.....	Insulator IN-86, for tying down mast sections.
50 ft..	6Z7926.....	Rope RP-5, for tying down mast sections.

^a Required only when Radio Set SCR-284-(&) is used as a field set.

^b In the event Headset HS-30-(&) and Cord CD-605 are not available, Headset HS-23 and Cord CD-307-A will be supplied.

10. Assembly and Installation.

a. PROCEDURE. Components of the radio set should be installed as follows:

<i>Part and location</i>	<i>Method and materials</i>
Strap holder, floor of vehicle between ammunition racks.	Figure 9.
Tapping plate.	Install with the hardware provided (fig. 9).

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Frame FM-41-(&) and brackets.	Locate as shown in figure 9. Secure with brackets and hardware provided.	Headset HS-30-605, Microphone T-17-(&), and key J-48-A.	Plug into properly designated cords and jacks (fig. 9).
Insulator IN-104.	Install on mast base pedestal as shown in figure 9.	Mast Sections MS-49 to MS-53, and Clamps MC-421 and MC-424, on Mast Base MP-37.	Screw the mast sections together and fasten the clamps over the joints to prevent loss of sections. Then screw the antenna into the mast base. Carry the mast sections in Roll BG-58 when they are not in use.
Mast Base MP-37, on mast base pedestal bracket.	Assemble and place the mast base as shown in figures 2 and 9. Then place item 1 over hole in bracket. Place item 2 over item 1. Place item 3 over item 2. Beginning from the top, insert item 4 through the hole into item 2 and the bracket. Place items 7 and 8 under item 6. Fasten the assembly in place with items 9 and 10. Consult figure 9 for termination of the antenna lead before cutting Wire W-142.	Mast Sections MS-54, MS-55, and MS-56.	For use in the field only. Carry in Roll BG-58.
Power Unit PE-103-A, on bottom of Frame FM-41-(&).	Open the spring cover in the base of the power unit and set the slotted voltage adjustment for 12-volt operation. Set the three circuit breakers to the ON position. Then place the power unit on the bottom of Frame FM-41-(&) as shown in figure 9, and tighten the wingnuts provided.	Cover BG-67.	Place over Mast Base MP-37 when mast sections are not in use.
Power Converter Unit PE-104-A, in power supply compartment of Radio Transmitter-Receiver BC-654-(&).	The power converter unit is supplied already installed. Before operating the equipment, however, open the small door of the power supply compartment, pull out the plug, slide the power converter forward, and set the voltage switch for 12-volt operation.	Bag BG-102-A.	For spare parts. Carry in convenient place in vehicle.
Radio Transmitter-Receiver BC-654-(&), on Frame FM-41-(&).	Place on the frame as shown in figure 9. Secure in place by tightening the wingnuts provided.	Roll BG-58.	For mast sections. Carry in convenient place in vehicle.
		Box BX-31.	For spare tubes. Carry in convenient place in vehicle.
		Connector No. 61007 and Bondnut BL-50.	Install through knock-out holes in car terminal box (fig. 9).

b. CORDING AND WIRING. Cord and wire this equipment as shown in figure 9. Leave enough slack in all cording and wiring to permit free movement of all units having shock mountings. Where cording or cable is likely to rub against sharp edges, tape with at least two layers to prevent damage. Do not connect the +12-volt and the -12-volt leads to the terminal box strip until all other connections have been completed. Do not reverse the lead connections. If any extra wire is cut from the leads, the terminal lugs must be resoldered to the leads before connections are completed.

SECTION IV

RADIO SET SCR-506-(&)

11. Required Parts.

Items necessary for the installation of Radio Set SCR-506-(&) in Car, Half-track, M2, are listed below:

Quantity	Stock No.	Item
1.....	2Z1574A.....	Cabinet CH-74-A.
1.....	2Z2651-421.....	Clamp MC-421.
1.....	2Z2651-422.....	Clamp MC-422.
1.....	2Z2651-423.....	Clamp MC-423.
1.....	2Z2651-424.....	Clamp MC-424.
2.....	6Z3147.....	Connector No. 61007 and Bondnut BL-50, Appleton Electric Co.
1 ^a	3E1307A-4.....	Cord CD-307-A; 48 in. long, for Headset HS-30-(&).
1 ^a	3E1604.....	Cord CD-604, for Headset HS-30.
1.....	3E1314.....	Cord CD-314, for Loudspeaker LS-3.
1.....	2Z3367.....	Cover BG-67.
1.....	3H1640(&).....	Dynamotor DM-40-(&)
1.....	3H1642(&).....	Dynamotor DM-42-(&).
1.....	6L50-506V10...	Hardware bag containing— 2 clamps, No. 8. 1 hook, for microphone and headset. 2 screws, machine, RH, No. 8-32 x 3/8 in. 2 nut, hexagonal, No. 8-32. 2 lockwashers, No. 8, standard.
1 ^a	2B830(&).....	Headset HS-30-(&).
2.....	3G598.....	Insulator IN-98.
1.....	3Z3445.....	Key J-45.
1.....	2E6303.1.....	Loudspeaker LS-3.
1.....	2A2037.....	Mast Base MP-37.
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.....	2B1617(&).....	Microphone T-17-(&).
1.....	2Z6721-284.....	Mounting FT-284.

^a Headset HS-23 may be substituted for Headset HS-30-(&) and Cord CD-604.

Quantity	Stock No.	Item
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-(&), including tubes and Crystal Unit DC-15 installed.
1.....	2C6530-653(&)	Radio Transmitter BC-653-(&) including one set of tubes.
1.....	2Z8056A.....	Roll BG-56-A, for mast sections.
5 ft...	1B146.....	Wire W-146.

12. Assembly and Installation.

Components of the radio set should be installed as follows:

Part and location	Method and materials
Mounting FT-284, left forward corner of vehicle (fig. 18).	Remove ammunition rack and fasten Mounting FT-284 in place with screws and nuts in vehicle.
Insulators IN-98, for Wire W-146.	Install inside Cabinet CH-74-A (fig. 18).
Cabinet CH-74-A, on Mounting FT-284.	Fasten to mounting with screws and stopnuts supplied.
Mounting FT-253, in Cabinet CH-74-A.	Place on floor of cabinet and fasten in place with hardware provided.
Mast Base Bracket MP-52, on left front corner of top of Cabinet CH-74-A.	Fasten to top of cabinet with screws and lockwashers provided.

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Dynamotor DM-40-(&), on top of Radio Receiver BC-652-(&) chassis.	Remove the screws around the edge of the receiver panel and the screw in the center of the rear of the cabinet. Pull the receiver chassis from the case and secure the dynamotor to the chassis with snap-slide fasteners. All connections to the dynamotor are made by a flexible lead and Plug PL-250. Installation of the dynamotor automatically adjusts the receiver circuits for the correct operating voltage. The nameplate on the front panel of the receiver should be turned to read 12-VOLT OPERATION.	Radio Transmitter BC-653-(&), on Mounting FT-253-(&).	Secure in place with the thumbscrew locking devices.
Dynamotor DM-42-(&), in dynamotor compartment, lower left of Radio Transmitter BC-653-(&).	Slide the dynamotor into the dynamotor compartment and secure the front panel of the dynamotor chassis with the five screws provided. Remove the patch cover plate on the right top of the radio transmitter, and connect the six connector links for 12-volt operation, indicated by the arrow on the link terminal strip. The nameplate on the dynamotor panel should read 12 VOLTS.	Mast Base MP-37, on Mast Base Bracket MP-52.	Remove the cover plate from the top of the mast base bracket and place the cover plate on the mast base. Connect Wire W-146 to the binding post on the mast base. Run the wire down through the mast base bracket and replace the cover plate. Cut the lead-in wire to the proper length and connect it to the antenna binding post on the transmitter.
Radio Receiver BC-652-(&), on left end of Mounting FT-253-(&).	Secure in place with the thumbscrew locking devices.	Connector No. 61007 and Bondnut BL-50.	Install through knock-out holes in terminal box for Power Cords CO-280.
		Headset HS-30-(&), Cords CD-604 and CD-307-A, Microphone T-17-(&), and Key J-45.	Figure 18.
		Loudspeaker LS-3- and Cord CD-314.	Connect the loudspeaker to the receiver with Cord CD-314.
		Mast Sections MS-49 to MS-53, and Clamps MC-421 to 424.	Screw the mast sections together and place clamps over joints. Then screw the antenna into the mast base. When mast sections and clamps are not in use, carry in Roll BG-56-A.
		Cover BG-67.	Place over mast base when mast sections are not in use.
		Roll BG-56-A.	Carry in any convenient place in vehicle.

SECTION V

RADIO SET SCR-510-(&)

13. Required Parts.

Items necessary for the installation of Radio Set SCR-510-(&) in Car, Half-track, M2, are listed below:

Quantity	Stock No.	Item
1.....	6Q349.....	Alignment Tool TL-207.
1 ^a	2A245A.....	Antenna AN-45-A.
1.....	3A39.....	Battery BA-39-, for transmitter.
1.....	3A40.....	Battery BA-40, for receiver.
1.....	3A41.....	Battery BA-41, for internal use.
1.....	3E1509.....	Cord CD-509.
1 ^b	3E1605-6.5.....	Cord CD-605.
1.....	6Z3147.....	Connector No. 61007 and Bondnut BL-50, Appleton Electric Co.
1.....	3B879.....	Case CS-79, for battery power supply.
1.....	2Z2651-424.....	Clamp MC-424, for mast sections.
1.....	2Z3400-108.....	Cover BG-108, for Mast Base MP-48.
1.....	6L50-510V10...	Hardware bag containing: 9 clamps No. 4. 1 clamp No. 6. 10 screw, hexagonal head, 1/4"-20 x 3/4". 10 nuts, hexagonal, 1/4"-20. 10 lockwashers, 1/4", standard. 9 screws, RH, No. 8, 32 x 3/4". 9 nuts, hexagonal, No. 8-32. 9 lockwashers, No. 8, standard.
1 ^a	4B1113(&).....	Handset TS-13-(&).
1 ^b	2B830(&).....	Headset HS-30-(&).
1.....	2A2090-60.....	Mast Base Bracket MP-60.
1.....	2A2088-48.....	Mast Base MP-48.
1.....	2A2352.....	Mast Section MS-52.
1.....	2A2353.....	Mast Section MS-53.
1 ^b	2B1617.....	Microphone T-17-(&).
1.....	2Z6721-250(&)	Mounting FT-250-(&).
1.....	3H3917(&).....	Mounting FT-317-(&).
1 ^c	3H4496-120(&)	Power Unit PE-120-(&), including spare parts.

^a Required only when Radio Set SCR-510-(&) is used as a portable set.

^b In an emergency, Headset P-23 may be substituted for Headset HS-30-(&) and Cord CD-605; and Microphone T-30-(&) may be substituted for Microphone T-17 and Cord CD-318.

^c Plate Supply Unit PE-97-(&) may be substituted for Power Unit PE-120-(&), in which case Vibrator VB-13 is not required.

Quantity	Stock No.	Item
1 ^d	2C5360(&).....	Radio Transmitter-Receiver BC-620-(&), with necessary crystals in Holders FT-243.
1.....	2Z8056.....	Roll BG-56, for mast sections.
1 set..	.....	Tubes, vacuum, complete for SCR-510-(&).
1.....	3H6713.....	Vibrator VB-13.
27 ft ^e ..	1B29.....	Wire W-29.
5 ft ^f ..	1B128.....	Wire W-128.
2.....	.....	Supports FT-418 (angle irons to reinforce ammunition box cover for radio mounting).

^d Quantity and frequency of crystals will be as authorized for the using arm.

^e For wire antenna. Used only where conditions warrant its substitution for whip antenna.

^f The effective length of antenna lead-in, using Wire W-128, should be 24 inches. Cut a section of the wire 27 inches long. Strip and clean 1 inch of insulation from one end and 2 inches from the other end. Solder-tin the bare ends and make connection.

14. Assembly and Installation.

a. PROCEDURE. Components of the radio set should be installed as follows:

Part and location	Method and materials
Mounting FT-250-(&) and mast base bracket, on lid of right forward ammunition box.	Drill mounting holes at the points shown in figure 8. Place Mounting FT-250-(&) and the mast base bracket in position (fig. 15), and secure them with the hardware provided. Reinforce the mounting and the mast base bracket with the supporting angle irons, which mount on the underside of ammunition box lid. The supports are held in place by the mounting and mast base bracket mounting bolts.

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-317-(&), on right side of wall of car, behind backrest of single seat.	Secure to wall (fig. 15) with bolts and nuts used in construction of vehicle.	Transmitter-Receiver BC-620.	Then plug Vibrator VB-13 into its socket and replace the power-pack cover. Close the lid of the case and place the power unit on Mounting FT-317 (fig. 15), securing it with the hook fasteners provided.
Mast Base MP-48, on mast base bracket.	Remove internal lead-in, assembly 7 (fig. 4), by loosening setscrews 8 and 9, and pulling out front bottom of mast base. Install mast base on Mast Base Bracket MP-60 (fig. 21). Connect lead-in Wire W-128, leaving enough slack to allow flexing of the mast base spring.	Microphone T-17 and Headset HS-30-(&).	Connect as shown in figure 15.
Battery BA-41, in battery box inside Radio Transmitter-Receiver BC-620-(&).	Remove the 10 screws around the outer edge of the front panel of the radio set and pull the chassis from the case. Remove the cover of the battery box, located on the chassis near the front panel. Place Battery BA-41 in the box, being sure to engage the plug in the socket of the battery. Replace the cover.*	Mast Sections MS-52 and MS-53, and Clamp MC-424, on Mast Base MP-48.	Screw mast sections together and place the clamp over the joint. Then screw the antenna into the mast base. Carry the mast sections in Roll BG-56 when they are not in use.
Radio Transmitter-Receiver BC-620-(&), on Mounting FT-250-(&) (fig. 15).	Place on mounting and secure in position with the catches provided.	Connector No. 61007 and Bond-nut BL-50.	Install through knock-out hole in terminal box (fig. 21).
Power Unit PE-120-(&), on Mounting FT-317-(&).	Open the lid of Power Unit PE-120-(&) and remove the power-pack cover. Consult the diagram on the cover and make sure that the change-over plug is set so that arrow points to the 12-volt position. See that the terminal-connector link is set for Radio	Cable clamps. Cover BG-108.	Figure 21. Place over mast base when mast sections are not in use.
		Cord CD-509.	Connect Radio Transmitter-Receiver BC-620-(&) to Power Unit PE-120-(&) with Cord CD-509 (fig. 15).

*While the chassis is out of its case, see that all tubes are in their proper sockets and pushed down flush. See that crystals for desired operating frequencies are in their proper sockets and the retaining clip in position to hold them securely. Do not interchange the crystals. Before replacing chassis in case, see that the two toggle switches near the left edge of the chassis are in the ON position.

SECTION VI

RADIO SETS SCR-508-(&), SCR-528-(&), SCR-608-(&), AND SCR-628-(&)

15. Required Parts.

Items necessary for the installation of Radio Sets SCR-608-(&), SCR-508-(&), SCR-528-(&) and SCR-628-(&), in Car, Half-track, M2, are listed below. Column A, under Quantity, covers items required for Radio Sets SCR-508-(&) and SCR-528-(&), while column B covers Radio Sets SCR-608-(&) and SCR-628-(&).

Quantity		Stock No.	Item
A	B		
	1 ^a ...	3A27.....	Battery BA-27, for Remote Control Unit RM-29-(&).
	1....	2Z1140.....	Box BX-40, for Crystal Holders FT-241-(&).
1....	1....	2Z1574A.....	Cabinet CH-74-A.
	1 ^a ...	2Z1876(&).....	Case CS-76-(&).
2....	2....	6Z3147.....	Connector No. 61007 and Bondnut BL-50, Appleton Electric Co.
1....	.....	3E1307A-5.5...	Cord CD-307-A, 65' long; for Headset HS-30-(&).
	1 ^b ...	3E1605-6.5.....	Cord CD-605.
1 ^c...	.....	3E1604.....	Cord CD-604, 6' long; for Headset HS-30-(&).
1....	1....	2Z3400-108....	Cover BG-108.
1....	1....	2Z2651-424....	Clamp MC-424.
2 ^{d, e} ...	2 ^{d, e} ...	3H1634(&).....	Dynamotor DM-34-(&).
1 ^e ...	1....	3H1635(&).....	Dynamotor DM-35-(&).
16 ft.	16 ft.	3E2218.....	Cordage CO-218, for interphone connections.
1....	1....	6L50-508V10...	Hardware bag containing— 2 clamps, No. 5. 16 clamps, No. 6. 2 nuts, hexagonal, No. 8-32.
1 ^c ...	1 ^b ...	2B830(&).....	Headset HS-30-(&).
1....	1....	2C1738(&).....	Interphone Control Box BC-606-(&).
1....	1....	2A2088-48(&)..	Mast Base MP-48-(&).
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....	2B1617(&).....	Microphone T-17-(&).
1....	1....	2Z6721-284....	Mounting FT-284.
1....	1....	2E6721-237(A)	Mounting FT-237-A, including Cord CO-278 and spare parts.

Quantity		Stock No.	Item
A	B		
2 ^d....	.....	2C4403(&).....	Radio Receiver BC-603-(&), including attached spare parts and tubes installed.
.....	2 ^d ...	2C4460-683(&).	Radio Receiver BC-683-(&), including attached spare parts and tubes installed.
1....	.....	2C6494(&).....	Radio Transmitter BC-604-(&), including attached spare parts, installed tubes, and necessary crystals.
.....	1....	2C6530-684(&).	Radio Transmitter BC-684-(&), including attached spare parts, installed tubes, and necessary crystals.
.....	1 ^a ...	2C7629B.....	Remote Control Unit RM-29-(B).
1....	1....	2Z8056.....	Roll BG-56, for mast sections.
5 ft..	5 ft..	1B128.....	Wire W-128.
1 set.	1 set.	.....	Screws, nuts, and washers.

^a Required when remote control of Radio Set SCR-608-(&) or SCR-628-(&) is desired.

^b Headset P-23 may replace Headset HS-30-(&) and Cord CD-605.

^c Headset HS-23 may replace headset HS-30-(&) and Cord CD-604.

^d Only one Dynamotor DM-34-(&) and one radio receiver is issued with Radio Set SCR-528-(&) and SCR-628-(&).

^e Dynamotors DM-34-(&) and DM-35-(&) may already be installed in Radio Receiver BC-603-(&) or BC-683-(&) and Radio Transmitter BC-604-(&) or BC-684-(&).

16. Assembly and Installation.

a. PROCEDURE. Components of the radio sets should be installed as directed below. Radio Set SCR-508-(&) normally is mounted in the left front of the vehicle, except when it is used in combination with Radio Set SCR-193-G. When the combination installation is made, Radio Set SCR-193-G is mounted in the left front of vehicle, and Radio Set SCR-508-(&) is

mounted in the rear of the vehicle in the space normally occupied by Radio Set SCR-506-(&) (fig. 22), and Mounting FT-285 is substituted for Mounting FT-284. Interphone Control Box BC-606, 21 feet of Cordage CO-218, and necessary hardware are provided to permit operation of Radio Set SCR-508-(&) from the car commander's seat.

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-284, left forward corner of vehicle.	Place the mounting as shown in figure 16. Open the left trap door of the car and remove the screws which line up with the holes in the mounting brackets of Mounting FT-284. Secure the mounting in place with the bolts and nuts removed from the vehicle body. The undersides of the bolts nearest the center of the vehicle may be reached through the left forward side of the vehicle, next to the bulkhead partition and side trap door.
Cabinet CH-74-A, on Mounting FT-284.	Place on mounting as shown in figure 16, lining the cabinet up with the holes. Fasten in place with the hardware provided.
Mounting FT-237-A in Cabinet CH-74-A.	Place in the cabinet and line up the holes. Secure in place with the hardware provided.
Mast Base Bracket MP-52, on left forward corner of top of Cabinet CH-74-A.	Remove the square plate from the left front corner of the cabinet and the 12 screws from the reinforcing strip. Place Mast Base Bracket MP-52 over the reinforcing strip (fig. 16) and secure it in place with the hardware provided.
Mast Base MP-48-(&), on Mast Base Bracket MP-52.	Remove the cover plate from the mast base bracket and insert the lower end of the mast base through the hole in the plate. Place item

Part and location

Method and materials

	2 (fig. 4) over item 1 and tighten in place with item 3. Place item 4 over item 3 and tighten with item 5. The mast base must be used with Wire W-128 lead-in connection in this installation. If coaxial cord (assembly 7) is installed it must be removed. To remove the cord, loosen the setscrews, items 8 and 9, and pull the assembly out from the bottom. An internal lead-in may be prepared, using Wire W-128. Remove 1/2 inch of insulation from one end, scrape the wire clean, and solder-tin. Run the cleaned end of the wire all the way up through the mast base and tighten setscrews 8 and 9 (fig. 4). Run the free end of the wire down inside the Mast Base Bracket MP-52 and place the mast base on top of the bracket. Fasten it in place with the screws on the flange of the circular mounting plate. Then cut, clean, and tin the free end of the wire and connect it to the ANT. post on Mounting FT-237-A. Leave enough slack to permit flexing of the mast base spring.
Dynamotors DM-34-(&), on chassis of Radio Receivers BC-603-(&) or BC-683-(&).	Remove the chassis from the receiver cabinet by loosening the screw lock in the rear center of the cabinet. Place the dynamotor unit on the top rear of the chassis and secure in place with the four screws in its base.

<i>Part and location</i>	<i>Method and materials</i>
Dynamotor DM-35-(&) , in cabinet of Radio Transmitter BC-604-(&) or BC-684-(&) .	Remove the crystal case from the transmitter cabinet by loosening the two screw locks on the front panel and pulling out the crystal case. Loosen the four screw locks holding the cover on the top of the transmitter and remove the cover. Place the dynamotor unit at the left rear of the transmitter chassis and secure in place with the four screws in its base.
Radio Transmitter BC-684-(&) (or BC-64-(&)), on Mounting FT-237-(&) .	Place as shown in figure 16. Lock in position with the thumbscrew locking device.
Radio Receiver BC-603-(&) or BC-683-(&) , on Mounting FT-237-(&) .	Place as shown in figure 16, using the thumbscrew locking devices provided.
Headset HS-30-(&) , Cords CD-604 and CD-307-A , and CD-605 .	Use Cords CD-604 and CD-307-A to connect Headset HS-30-(&) to Radio Receiver BC-603-(&) . Use Cord CD-605 to connect the headset and Radio Receiver BC-683-(&) .
Microphone T-17-(&) .	Plug into the microphone jack on the front panel of Radio Transmitter BC-604-(&) or BC-684-(&) .
Mast Sections MS-52 and MS-53 , and Clamp MC-424 .	Screw the mast sections together and place the clamp over the joint. Then screw the sections into the mast base. Carry the sections in Roll BG-56-A when not in use.

<i>Part and location</i>	<i>Method and materials</i>
Cover BG-108 .	Place over the mast base when the mast sections are not in use.
Roll BG-56-A .	Carry in any convenient place in vehicle.
Connector No. 61007 and Bondnut BL-50 and Cord CO-278 , on terminal box of vehicle.	Slip the connector over the cord at the terminal-box end of the cord (fig. 16). Remove the terminal-box knock-out plug which is most convenient for short connections to the terminal strip and run the end of the cord through the hole. Slide the bondnut over it and fasten in place. Fasten the terminal lugs of the cord firmly to the +12-volt and -12-volt terminals. Do not reverse the connections.
Interphone Control Box BC-606-(&) .	Mount on the vehicle instrument panel in the place occupied by the name plate.
Cordage CO-218 and clamps 4 and 6.	Prepare the ends of the cable for connection by standard methods, providing a soldered ground connection for the cable shielding at both ends of the cable. Install as shown in figure 19, securing the clamps. Wire in accordance with figure 10.

b. **CORDING AND WIRING.** Cord and wire the radio sets as shown in figures 16 and 19. To prevent accidental shorting of the vehicle battery, connect Cord **CO-278** to the vehicle terminal box only after all other connections have been made. Leave enough slack in all cording and wiring to permit free movement of components on shock mountings.

SECTION VII

RADIO SET SCR-610-(&)

17. Required Parts.

Items necessary for the installation of Radio Set SCR-610-(&) in Car, Half-track, M2, are listed below.

Quantity	Stock No.	Item
1.....	6Q349.....	Alignment Tool TL-207.
1 ^a	2A229(&).....	Antenna AN-29-(&).
1 ^a	3A27.....	Battery BA-27, for remote control unit.
1 ^a	3A39.....	Battery BA-39, transmitter.
1 ^a	3A40.....	Battery BA-40, receiver.
1.....	3A41.....	Battery BA-41, for Radio Transmitter - Receiver BC-659-(&).
1.....	2Z1140(&).....	Box BX-40-(&), for crystals.
1 ^a	2Z1876(&).....	Case CS-76-(&), for remote control unit.
1 ^a	3B879(&).....	Case CS-79-(&), for battery power supply.
1.....	2Z2651-423.....	Clamp MC-423, for Mast Section MS-51.
1.....	2Z2651-424.....	Clamp MC-424, for Mast Section MS-52.
1.....	6Z3147.....	Connector No. 61007 and Bondnut BL-50, Appleton Electric Co.
1 ^b	3E1605-6.5.....	Cord CD-605, for Headset HS-30-(&).
1.....	2Z3400-108.....	Cover BG-108.
1.....	3E1509.....	Cord CD-509, for power connection.
1.....	6150-610V10....	Hardware bag containing— 9 Clamps, No. 4. 1 clamp, No. 6. 10 screws, hexagonal head, 1/4"-20 x 3/4". 10 nuts, hexagonal, 1/4"-20. 10 lockwashers, 1/4", standard. 9 screws, machine, RH, No. 8-32 x 3/4". 9 nuts, hexagonal, No. 8-32. 9 lockwashers, No. 8.
1 ^a	4B1113(&).....	Handset TS-13-(&).
1 ^b	2B830(&).....	Headset HS-30-(&).
2 ^a	3G586.....	Insulator IN-86, for auxiliary antenna.
1.....	2A2088-48.....	Mast Base MP-48.
1.....	2A2090-60.....	Mast Base Bracket MP-60.
1.....	2A2351.....	Mast Section MS-51.
1.....	2A2352.....	Mast Section MS-52.
1.....	2A2353.....	Mast Section MS-53.
1.....	2B1617.....	Microphone T-17.
1.....	2Z6721-250(&).	Mounting FT-250-(&).
1.....	3H3947(&).....	Mounting FT-317-(&).

Quantity	Stock No.	Item
1 ^c	3H4496-120(&).	Power Unit PE-120-(&).
1.....	2C6659(&).....	Radio Transmitter-Receiver BC-659-(&), with tubes, crystals, and spare parts.
1 ^a	2C7629(&).....	Remote Control Unit RM-29-(&).
1.....	2Z8056(&).....	Roll BG-56-(&), for mast sections.
2 ^a	2Z9019(&).....	Strap ST-19-(&).
2.....	2Z6721-418.....	Supports FT-418 (angle irons for reinforcing ammunition box covering for radio mounting).
1.....	3H6713.....	Vibrator VB-13.
27 ft ^{a d}	1B29.....	Wire W-29, auxiliary antenna.
5 ft...	1B128.....	Wire W-128.

^a Required only when used as a portable or field set.

^b Headset P-23 may be substituted for Headset HS-30-(&) and Cord CD-605.

^c Power Unit PE-117 may be substituted for Power Unit PE-120; in this case *Vibrator* VB-13 is not needed.

^d Length of Wire W-29 for auxiliary antenna must be 27 feet, plus or minus 1 inch.

18. Assembly and Installation.

a. PROCEDURE. Components of the radio set should be located and assembled as shown in figures 15 and 21 and as directed below except figure 23 must also be studied when the set is installed in combination with Radio Set SCR-193-G.

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-250-(&)	Drill mounting holes as shown in figure 8. Place
Mast Base Bracket MP-60,	Mounting FT-250-(&) and the mast base bracket
on lid of right forward ammunition box.	(fig. 15), and secure in place with the hardware provided. Fasten the supporting angle irons on the under side of the ammunition box lid with the mounting bolts of Mounting FT-250-(&) (fig. 15) and those of the antenna mast base bracket.

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-317 - (&), on right side wall of vehicle, behind backrest of single seat.	Secure to wall with bolts and nuts used in the construction of the vehicle.
Mast Base MP-48, on Mast Base Bracket MP-60 (figs. 4 and 21).	Remove the internal lead-in, assembly 7, figure 4, by loosening setscrews 8 and 9, and pulling from the bottom of the mast base. Install the mast base on the Mast Base Bracket MP-60 (fig. 21), and connect lead-in Wire W-128, leaving enough slack to allow for the flexing of the mast base spring.
Battery BA-41, in battery box inside Radio Transmitter-Receiver BC-659-(&).	Remove the 10 screws around the outer edge of the front panel of the radio case and pull out the receiver and transmitter chassis. Remove the cover of the battery box, located on the chassis near the front panel, and put the battery in the box. Be sure that the plug is properly inserted in the battery socket. Then replace the battery box cover.*
Radio Transmitter-Receiver BC-659-(&), on Mounting FT-250-(&).	Place on the mounting as shown in figure 15 and secure in position with the catches provided.
Power Unit PE-120-(&), on Mounting FT-317 (fig. 15).	Open the lid of the power unit and remove the power-pack cover. Study the diagram on the cover and make sure that the change-over plug is in the 12-volt position (arrow pointing to 12), and that the terminal connector link is set for Radio Trans-

<i>Part and location</i>	<i>Method and materials</i>
Microphone T-17 and Headset HS-30-(&).	Figure 15.
Mast Sections MS-51 to MS-53, and Clamps MC-423 and MC-424, on Mast Base MP-48.	Screw mast sections together and place the clamps over the joints to prevent loss of the sections. Then screw the mast sections into the mast base. When the mast sections are not in use, carry them in Roll BG-56.
Connector No. 61007 and Bondnut BL-50.	Install through the terminal box knock-out hole most convenient for short connection of the power cord (fig. 15).
Cable Clamps 4 and 6.	Figure 21.
Cover BG-108.	Place over the mast base when the mast sections are not in use.
Cord CD-509.	Connect Radio Transmitter-Receiver BC-659-(&) to Power Unit PE-120-(&) with Cord CD-509 (fig. 15).

b. CORDING AND WIRING. Cord and wire Radio Set SCR-610-(&) as shown in figures 15 and 21. Tighten the plug locks on the various cords by hand; do not use a tool. Leave enough slack in all cording and wiring to allow free movement of all units on shock mountings. To prevent accidental shorts on the vehicle battery, do not connect the positive and negative 12-volt leads (in the terminal box) until all other connections have been completed. If any excess wire is cut from the power cord, the terminal lugs must be resoldered to the leads before completion of the connections.

*While the chassis is out of the case, see that all tubes are in their proper sockets and are seated firmly. See that the crystals for the desired operating frequencies are in the proper sockets and that the retaining clip is in position to hold them securely. Do not interchange the crystals. Before replacing the chassis in the case, be sure that the two toggle switches near the ledge of the chassis are in the ON position.

SECTION VIII

RADIO SET SCR-193-G

19. Required Parts.

Items necessary for the installation of Radio Set SCR-193-G in Car, Half-track, M2, are listed below.

Quantity	Stock No.	Item
1.....	2Z1108.....	Box BX-8, for spare transmitter tubes.
1.....	2Z1119.....	Box BX-19, or Box BX-19-A, for spare receiver tubes.
1.....	2Z1121.....	Box BX-21, for Boxes BX-8 and BX-19, headsets, and other material.
1.....	2Z1250-20.....	Bracket.
1.....	2Z1848.....	Case CS-48, for transmitter tuning unit.
1.....	3E1307A-5.5..	Cord CD-307-A, 65'' long, for Headset HS-23.
1 ^a	3E1604.....	Cord CD-604.
1.....	3E1410.....	Cord CD-410, 60'' long; connects Radio Transmitter BC-191-($\&$) to terminal box.
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.....	3E1472.....	Cord CD-472; connects Radio Transmitter BC-191-($\&$) to Dynamotor Unit BD-77-($\&$).
1.....	3E1473.....	Cord CD-473; connects Radio Transmitter BC-191-($\&$) to Dynamotor Unit BD-77-($\&$).
1.....	3E1360.....	Cord CD-360, 48'' long; connects Radio Transmitter BC-312-($\&$) to terminal box.
1.....	3E2260.....	Cord CO-260, 72-in., connects Dynamotor Unit BD-77-($\&$) to terminal box.
1.....	2Z3367A.....	Cover BG-67-A 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 ^b	3A1777($\&$)...	Dynamotor Unit BD-77-($\&$), includes Mounting FT-107.
1.....	6L50-193V10.	Hardware bag containing— 10 screws, No. 10-32 x $\frac{3}{8}$ ''. 8 screws, No. 10-32 x $\frac{1}{2}$ ''. 8 nuts, hexagonal, No. 10-32. 10 screws, hexagonal head, $\frac{1}{4}$ ''-20 x $\frac{7}{16}$ ''.

Quantity	Stock No.	Item
1.....	6L50-193V10.	Hardware bag containing—Con. 6 screws, hexagonal head, $\frac{1}{4}$ ''-20 x $\frac{1}{2}$ ''. 18 lockwashers, No. 10, standard. 16 lockwashers, $\frac{1}{4}$ ''-20.
1 ^a	2B830($\&$)....	Headset HS-30-($\&$).
4.....	3G604.....	Insulator IN-104.
1.....	3Z3445.....	Key J-45.
1 ^c	2A2087.....	Mast Base MP-37.
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 ^d	2B1617.....	Microphone T-17.
1.....	2Z6691B.....	Mounting FT-151-B, for BC-191-($\&$).
1.....	2Z6712.....	Mounting FT-172, snubber for BC-191-($\&$).
1.....	2Z6718.....	Mounting FT-178, snubber for BC-312-($\&$).
1.....	2C4312($\&$).4..	Radio Receiver BC-312-($\&$), includes Mounting FT-162.
1 ^e	2C6191($\&$)....	Radio Transmitter BC-191-($\&$).
1.....	2Z8056A.....	Roll BG-56-A, for mast sections.
1.....	2Z8793A.....	Socket Cap M-163-A.
1.....	3Z10183.....	Terminal Block TM-183, for terminal box.
1.....	2C8005($\&$)....	Transmitter Tuning Unit TU-5-($\&$).
1.....	2C8006($\&$)....	Transmitter Tuning Unit TU-6-($\&$).
4.....	2T4C.....	Tube VT-4-C (transmitter).
1.....	2T25.....	Tube VT-25 (transmitter).
2.....	2T65.....	Tube VT-65 (receiver).
1.....	2T66.....	Tube VT-66 (receiver).
4.....	2T86.....	Tube VT-86 (receiver).
1.....	2T87.....	Tube VT-87 (receiver).
1.....	2T88.....	Tube VT-88 (receiver).
20 ft..	1B128.....	Wire W-128.

^a Headset HS-23 may replace Headset HS-30-($\&$) and Cord CD-604.

^b Brushes and springs for the dynamotors must be the proper type for the particular dynamotor furnished.

^c Mast Base MP-14 may be substituted for Mast Base MP-37.

^d Microphone T-30-($\&$) and Cord CD-318 may replace Microphone T-17-($\&$).

^e In all cases the serial number and order number of Radio Transmitter BC-191-($\&$) must agree with that of Transmitter Tuning Units TU-5-($\&$) and TU-6-($\&$), and calibration chart with which used.

20. Assembly and Installation.

a. PROCEDURE. Components of the radio set should be installed as follows:

<i>Part and location</i>	<i>Method and materials</i>
Mast Base MP-37, on mast base pedestal.	Figures 2 and 23.
Insulator IN-104, on stem of mast column and top of Radio Transmitter BC-191-G.	Figure 23.
Terminal Block TM-183, in terminal box of car.	Fasten to brackets with hardware provided.
Mountings FT-162, FT-151-B, and FT-107, on radio mounting plate.	Place as shown in figure 23, and fasten in place with hardware provided.
Radio Receiver BC-312-C and Mounting FT-178.	Remove the receiver from the cabinet and drill holes in the top of the cabinet as shown in figure 11. Lock the cabinet on the mounting with the snap-slide catches and install the mounting as shown in figure 23. Replace the receiver in the cabinet and tighten the thumbscrew locking devices.
Cover BG-75-A, over Receiver BC-312-A.	Cut a slot in the top of the cover to admit the bracket, item 1, figure 13. Then disengage Mounting FT-178 and slide the cover over the receiver. Re-fasten the mounting to the receiver bracket.
Bracket, on left-front side of vehicle (fig. 23).	Fasten to the vehicle with bolts.
Radio Transmitter BC-191-G and Mounting FT-172, on Mounting FT-151-B.	Use the reinforcing plate shown in figure 13, as a template, and drill eight holes in the top of the transmitter as shown in figure 12. Fasten the
small bracket, item 1, figure 13, and the reinforcing plate in place with stop-nuts on the outside of the transmitter. Install the necessary tubes, place the transmitter on the mounting, and lock it in position with the snap-slide catches. Assemble the mounting as shown in figure 13, and fasten item 2 to the bracket as shown in figure 23. (Item 3 may be bent to suit conditions and any extra length removed.)	
Cover BG-78-A, over Radio Transmitter BC-191-G.	Cut a slot in the top of the cover to admit item 1, figure 13. Disengage the transmitter end of Mounting FT-172 and slide the cover over the transmitter. Then replace the end of the mounting.
Dynamotor Unit BD-77-(&), on Mounting FT-107 (fig. 17).	Place the dynamotor on the mounting and lock in position with the snap-slide fasteners.
Cover BG-79-A.	Place over Dynamotor Unit BD-77-(&).
Transmitter Tuning Units TU-5-(&) and TU-6-(&).	One transmitter tuning unit is carried in the transmitter. The unit not in use is carried in Case CS-48.
Case CS-48 and Boxes BX-8, BX-19-(&) and BX-21.	Carry in convenient place in car.
Headset HS-30-(&), and Cords CD-604 and CD-307-A.	Connect Headset HS-30-(&) to Cord CD-604. Plug the Cord CD-604 into Cord CD-307-A. Then plug Cord CD-307-A into the correct jack of the receiver.
Microphone T-17-(&) and Key J-45.	Plug into the designated jack on the receiver (fig. 17).

<i>Part and location</i>	<i>Method and materials</i>
Wire W-128,	Stow all excess wire, screw, screw and nuts, nuts, and other materials and other materials in box BX-21.
Mast Sections MS-49 to MS-53,	Carry in Roll BG-56 when not in use.
Mast Base MP-37.	
Roll BG-56.	Carry in convenient place in car.
Cover BG-67.	Place over mast base when mast sections are not in use.
Socket Cap M-163-A.	Plug into unused socket of transmitter.

b. CORDING AND WIRING. (1) Cord and wire the radio set as shown in figure 17. Follow the color coding specified. Tighten the plug locks on the cords by hand; do not use a tool. Enough slack should be left in the cording and wiring to permit free movement of all units on shock mountings.

(2) To prevent accidental shorts on the battery, do not connect the +12-volt and -12-volt leads between Terminal Block TM-183 and the battery terminal block (in the terminal box) until all other connections have been completed. When installing Cord CO-260, it may be necessary to modify the dynamotor by reaming the entrance hole. It is also permissible to modify the end of the cord by removing any extra length from the leads, in which case it will be necessary to resolder the terminals to the leads before completing the connections.

(3) The antenna and ground connections should be made with Wire W-128 as shown in figure 17. The ground connections from the transmitter and the receiver should be as short as possible, and may be made under the head of a mounting screw used to secure the receiver and transmitter mountings to the radio mounting plate. All wire ends should be solder-tinned. All cords should be connected and clamped in place in such a manner that they do not interfere with either accessibility or operation of any part of the equipment.

SECTION IX

RADIO SET SCR-593-(&)

21. Required Parts.

Items necessary for the installation of Radio Set SCR-593-(&) in Car, Half-track, M2, are listed below:

Quantity	Stock No.	Item
1.....	2A275-75(&)	Antenna AN-75-(&), telescopic.
1.....	3B54(&)	Battery BB-54-(&).
1.....	.....	Bag BG-169.
1.....	6Z3147.....	Connector No.61007 and Bond-nut BL-50, Appleton Electric Co.
1.....	3E1605-6.5.....	Cord CD-605, 78'' long; for Headset HS-30-(&).
11½ ft.	3E2131.....	Cordage CO-131, for power lead.
1 ^a	3E1618(&)	Cord CD-618-(&).
1.....	6L50-593V10...	Hardware bag containing: 2 clamps, No. 2. 8 clamps, No. 1. 9 washers, flat, ¼'', standard. 8 lockwashers, No. 8 standard. 8 nuts, hexagonal head, No. 8-32. 8 screws, machined, RH, No. 8-32 x ⅜''. 3 screws, machined, hexagonal head, ¼''-20 x ¾''. 3 nuts, ¼'', 20, steel, galvanized. 3 lockwashers, ¼'', standard, steel, galvanized.
1.....	2B830(&)	Headset HS-30-(&).
1.....	2Z6721-338(&)	Mounting FT-338-(&), including extension bracket, strap, mounting screws, and other hardware.
1.....	2C4728(&)	Radio Receiver BC-728-(&) with tubes.
1.....	.....	Bracket, reinforcing.
1.....	3H6708(&)	Vibrator VB-8-(&), 2-volt.
1.....	3H6709(&)	Vibrator VB-9-(&), 10-volt.

^a Cord CD-618-(&) is a 2-conductor cable used to connect the battery-charger circuit to a 6- or 12-volt battery, for the purpose of charging the storage Battery BB-54-(&) when the radio set is not installed in a vehicle.

22. Assembly and Installation.

Components of the radio set should be installed as follows:

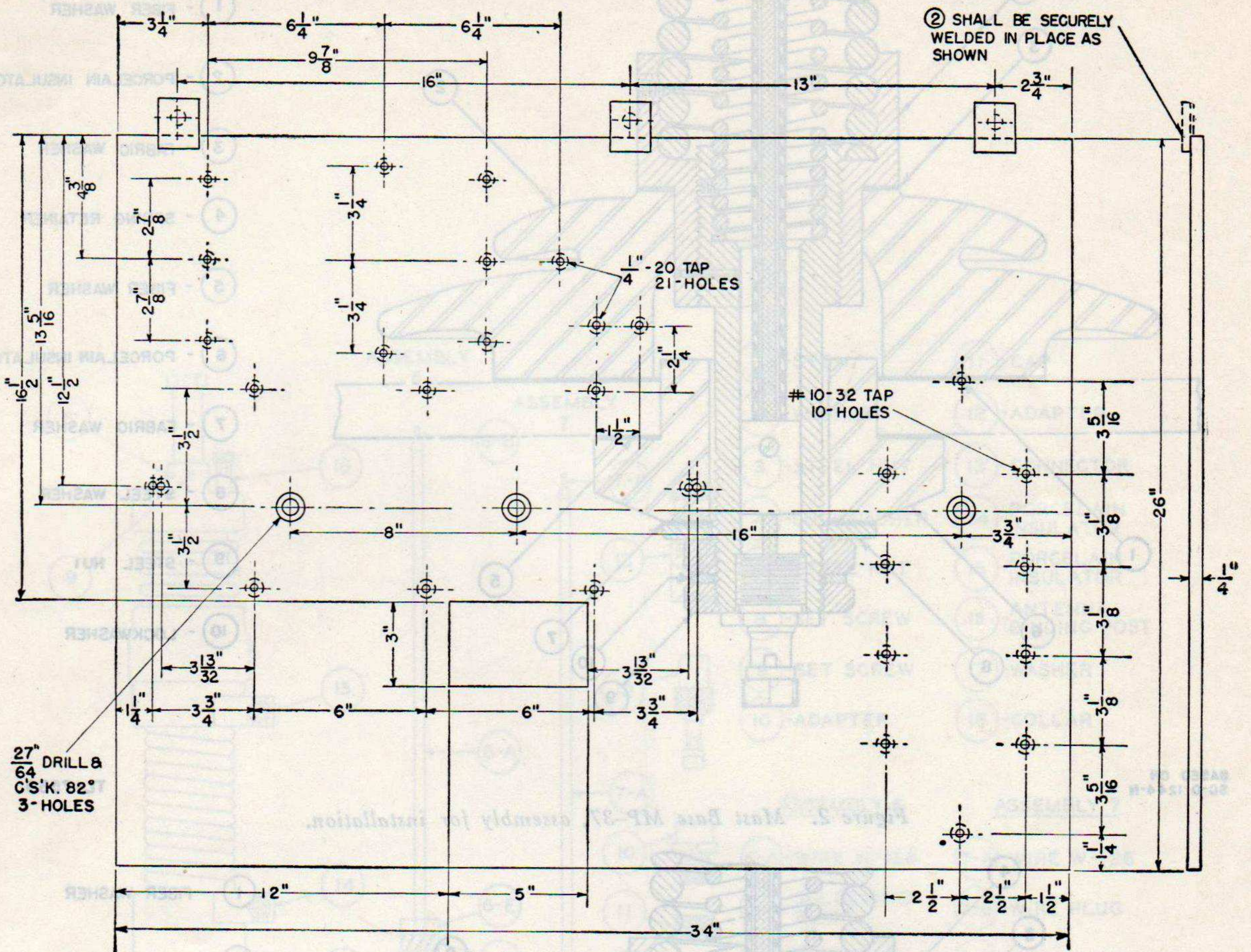
<i>Part and location</i>	<i>Method and materials</i>
Battery BB-54-(&), in battery compartment of Radio Receiver BC-728-(&).	Open the case of the radio set, lift the chassis on its hinges, and remove the battery retainer bracket. Connect the yellow battery lead to the positive terminal and the other lead to the negative terminal. (When placing the battery in the compartment, be sure to attach the air vent hose to the battery air vent, or sulphuric acid fumes may damage the radio set.) Push the battery into the compartment and replace the retainer bracket. Before tightening the screws, be sure that the antenna plug receptacle fits into the opening provided in the side of the case. Read the instructions attached to the battery.

Extension bracket and reinforcing bracket, on the right-front of the ammunition chest cover.

Drill the cover of the ammunition chest and modify the extension bracket as explained in details 1 and 2 in figure 24. Mount the extension bracket in a vertical position and secure it with the hardware provided. Brace the exten-

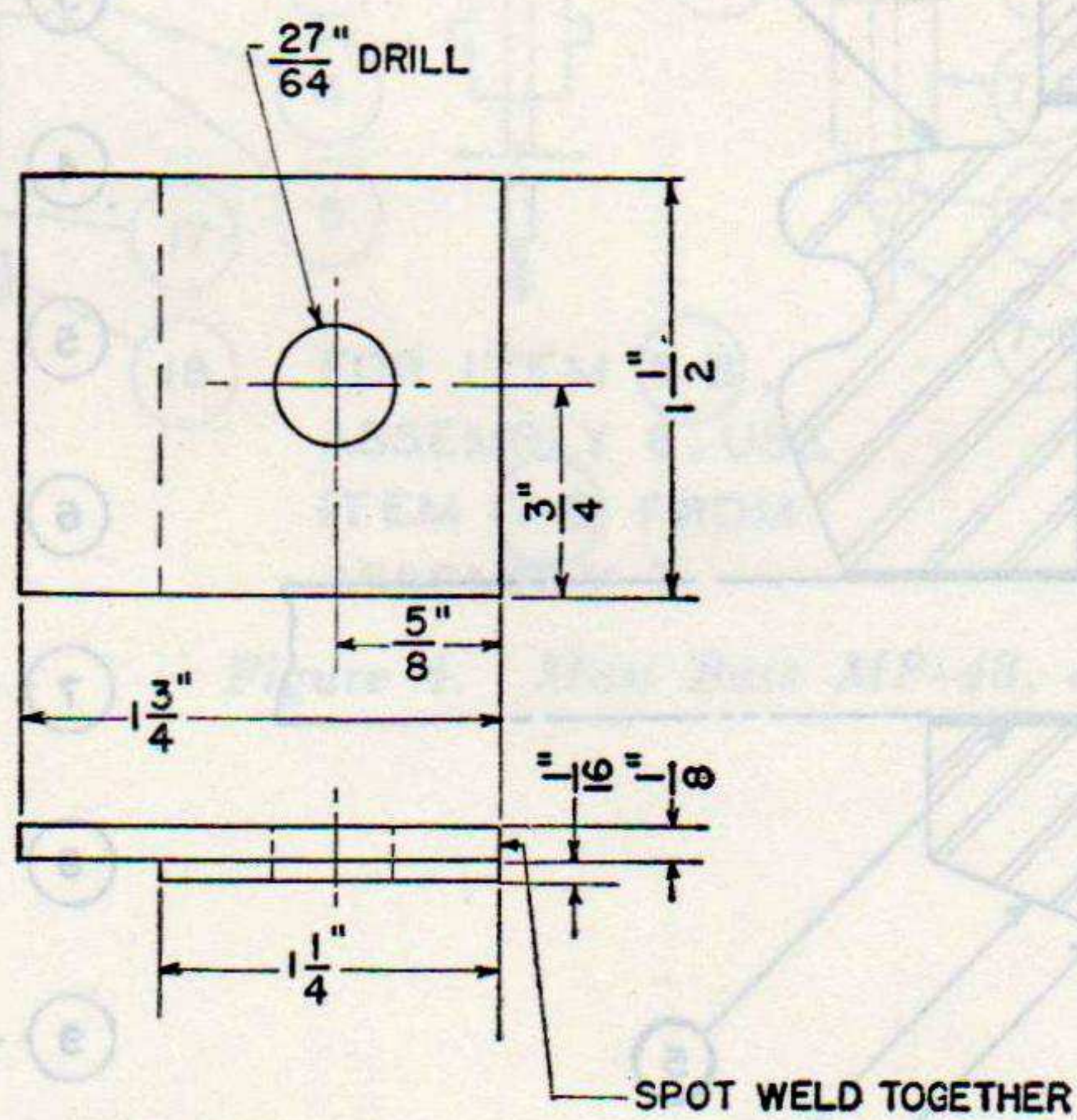
<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
	ion bracket from the rear with the reinforcing bracket.	R a d i o R e c e i v e r	Place the receiver on the mounting, being careful to align the plug on the radio set squarely with the receptacle on the mounting. Draw the two cam levers down over the two studs mounted on the receiver. When the set is to be left in a vehicle for more than 3 or 4 days without being used, either remove the set from Mounting FT-338-(&) or disconnect the lead from the terminal box, to prevent overcharging of the 2-volt battery and the discharge of the vehicle battery.
M o u n t i n g F T-338-(&) and C o r d a g e C O-131 , on extension bracket.	Disconnect the power lead from Mounting FT-338-(&) and replace with Cordage CO-131. Make sure that the switch-actuating plug is removed from the top of the mounting. Secure the mounting to the extension bracket with the hardware provided, using the flat washers for spacers (detail 2, fig. 24). Secure the cord in place with clamps provided. Install the connector and bondnut through the knockout hole in the terminal box for the power cord.	o n M o u n t i n g F T-338-(&).	
		A n t e n n a A N-75-(&).	Mount on the bracket provided on the receiver.

Figure 17. Cording diagram for Radio Set SCR-57C with Cordage CO-131



27" DRILL &
64 C'S'K. 82°
3-HOLES

1 RADIO MOUNTING PLATE
STEEL PLATE
1-REQ.



2 TAB
STEEL PLATE
1-REQ

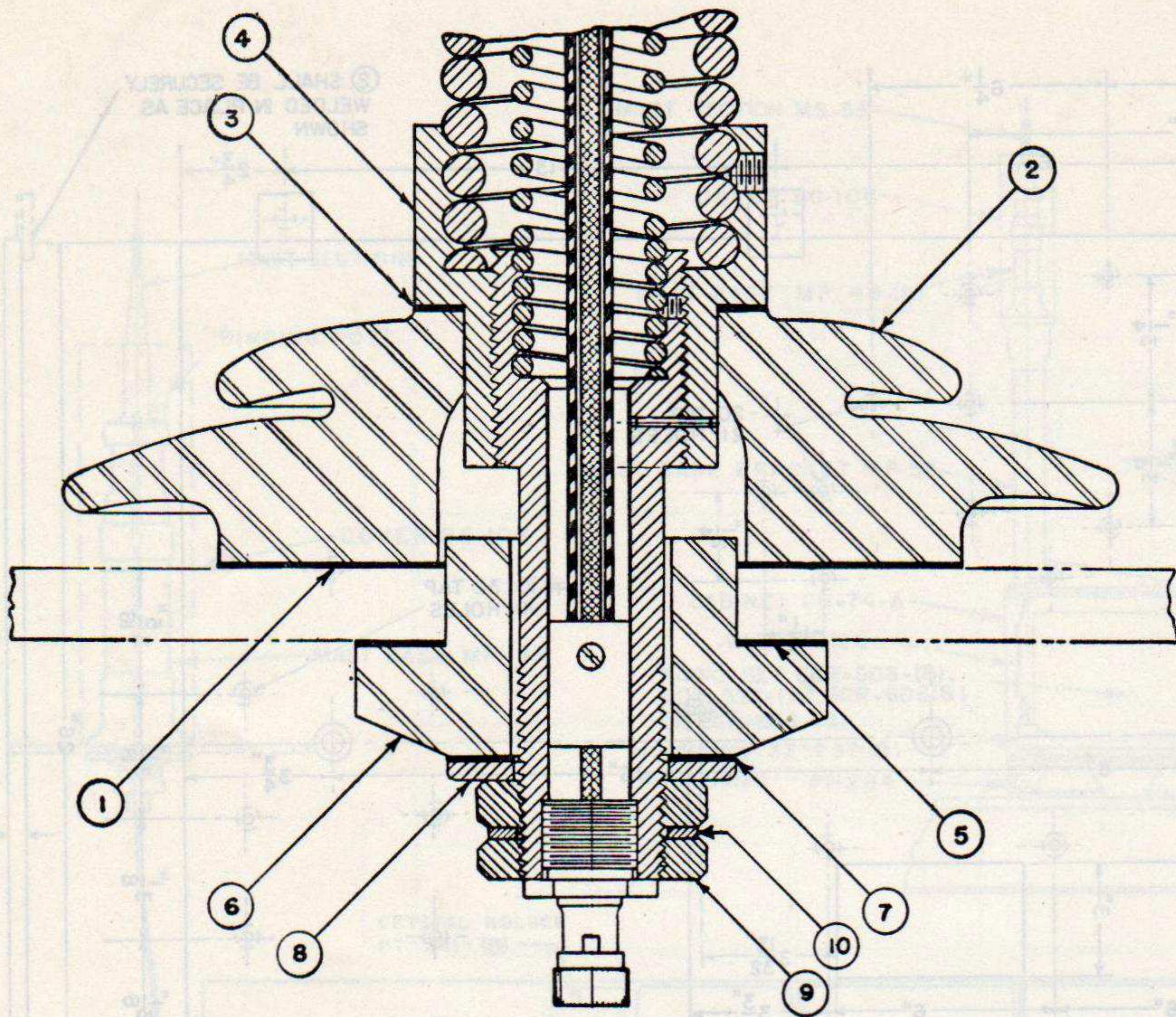
NOTE:

- 1- REMOVE ALL BURRS BEFORE ASSEMBLY OF COMPONENTS.
- 2- 1 AND 2 MUST BE BONDED TOGETHER AND PAINTED AFTER ASSEMBLY.

BASED ON
SC-D-4773-F

TL-9336

Figure 1. Half-track Car M2, details.

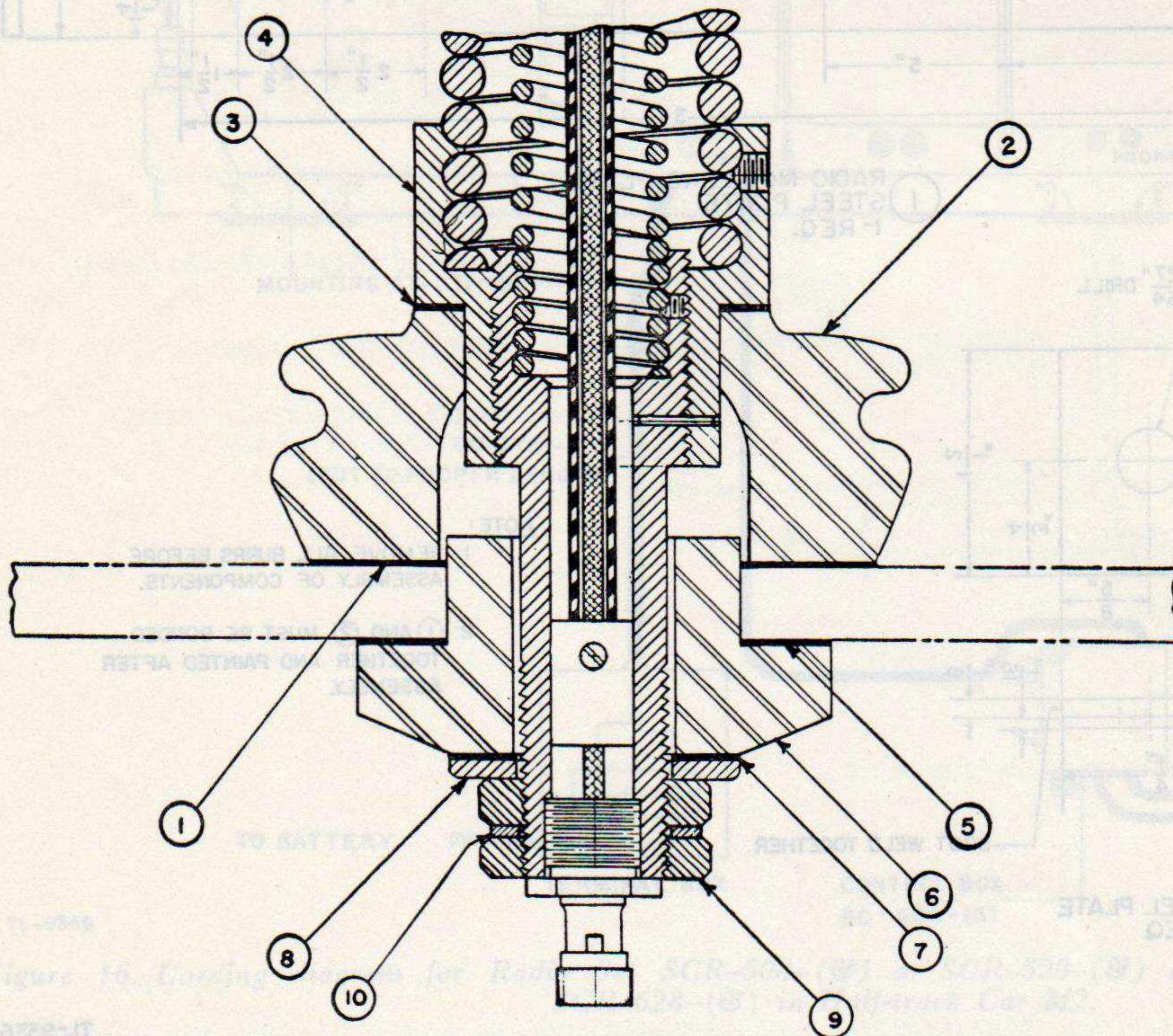


- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

BASED ON
SC-D-1244-N

TL-7539

Figure 2. 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

BASED ON
SC-D-1244-N

TL-7540

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

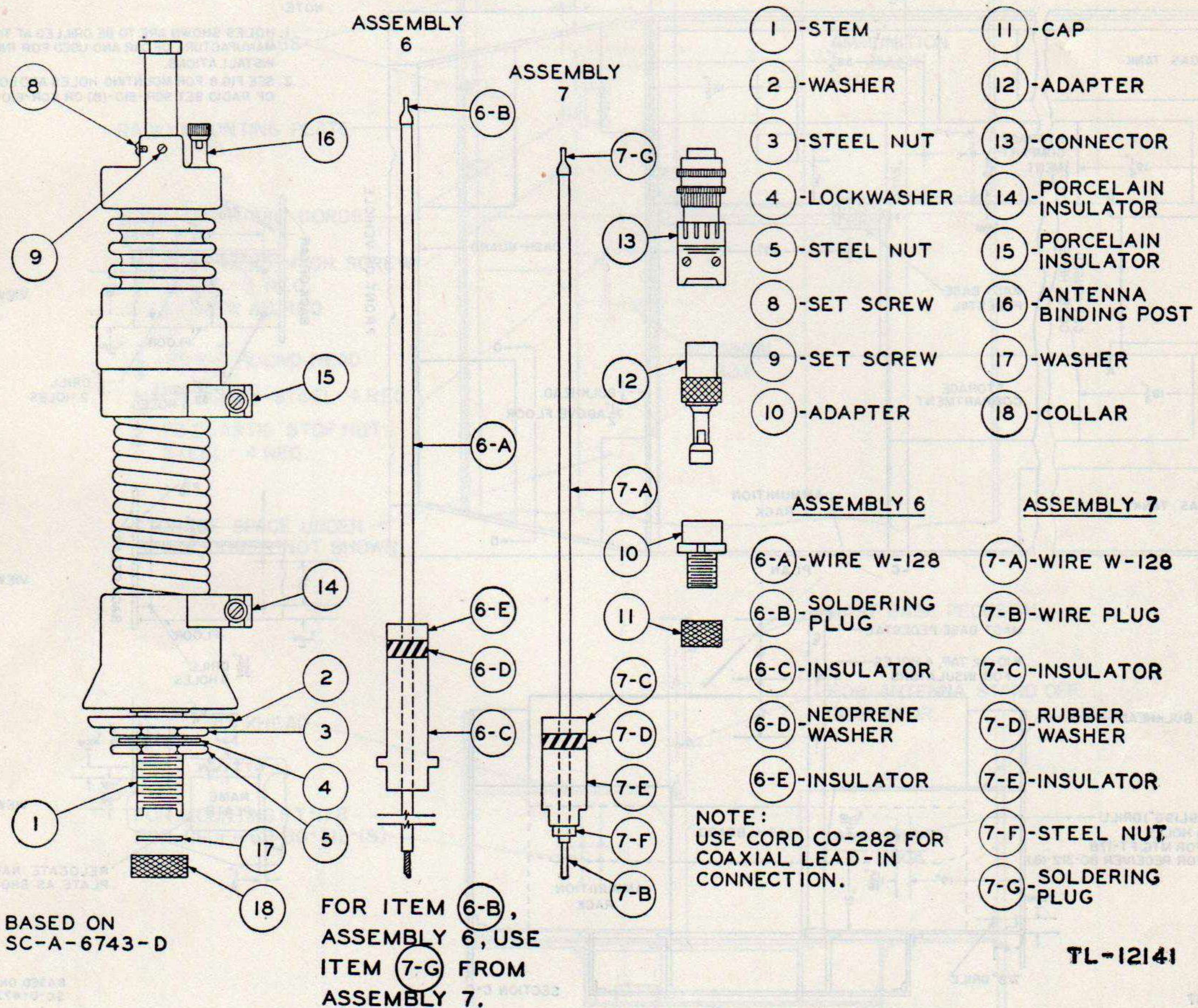
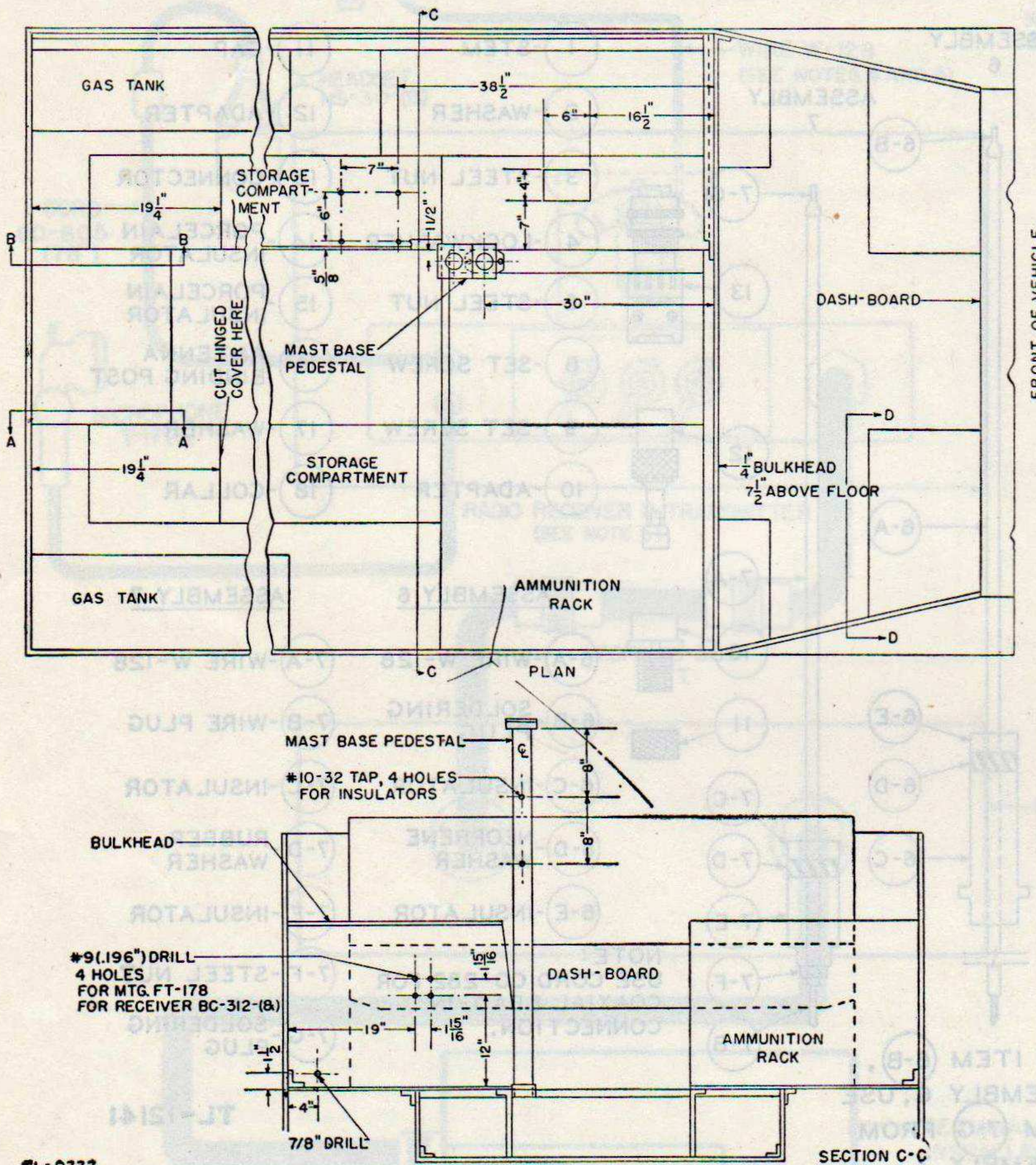
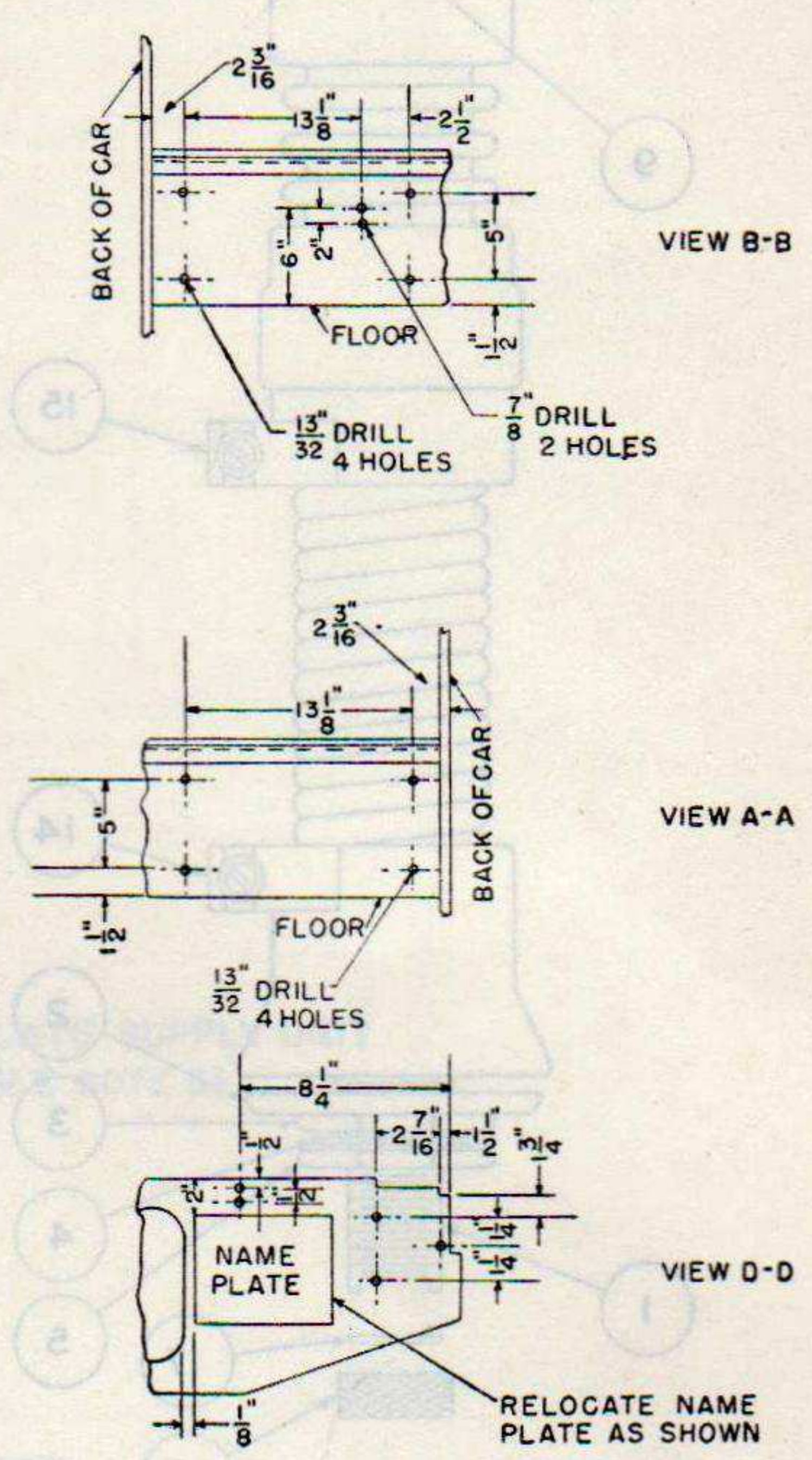


Figure 4. Mast Base MP-48, assembly for installation.



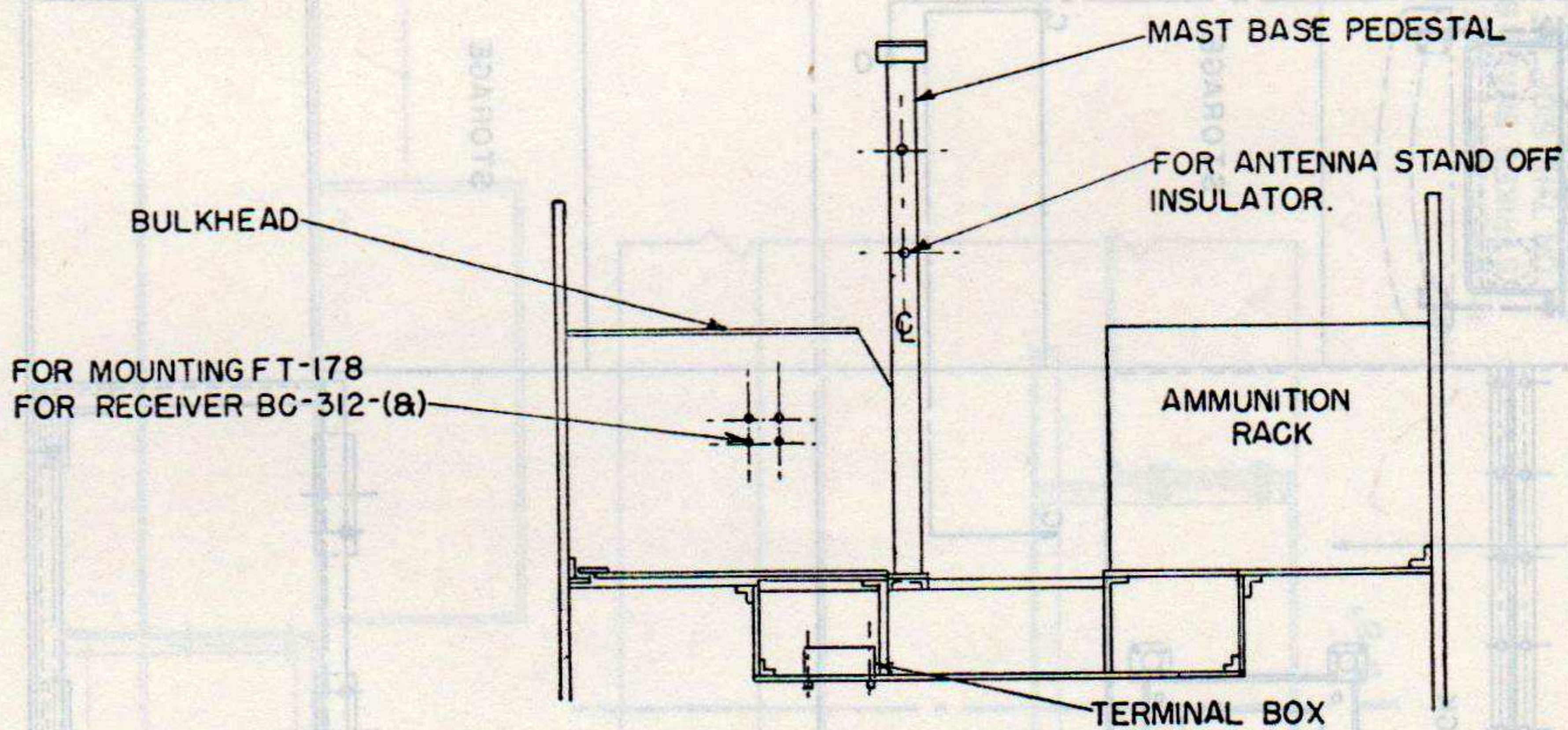
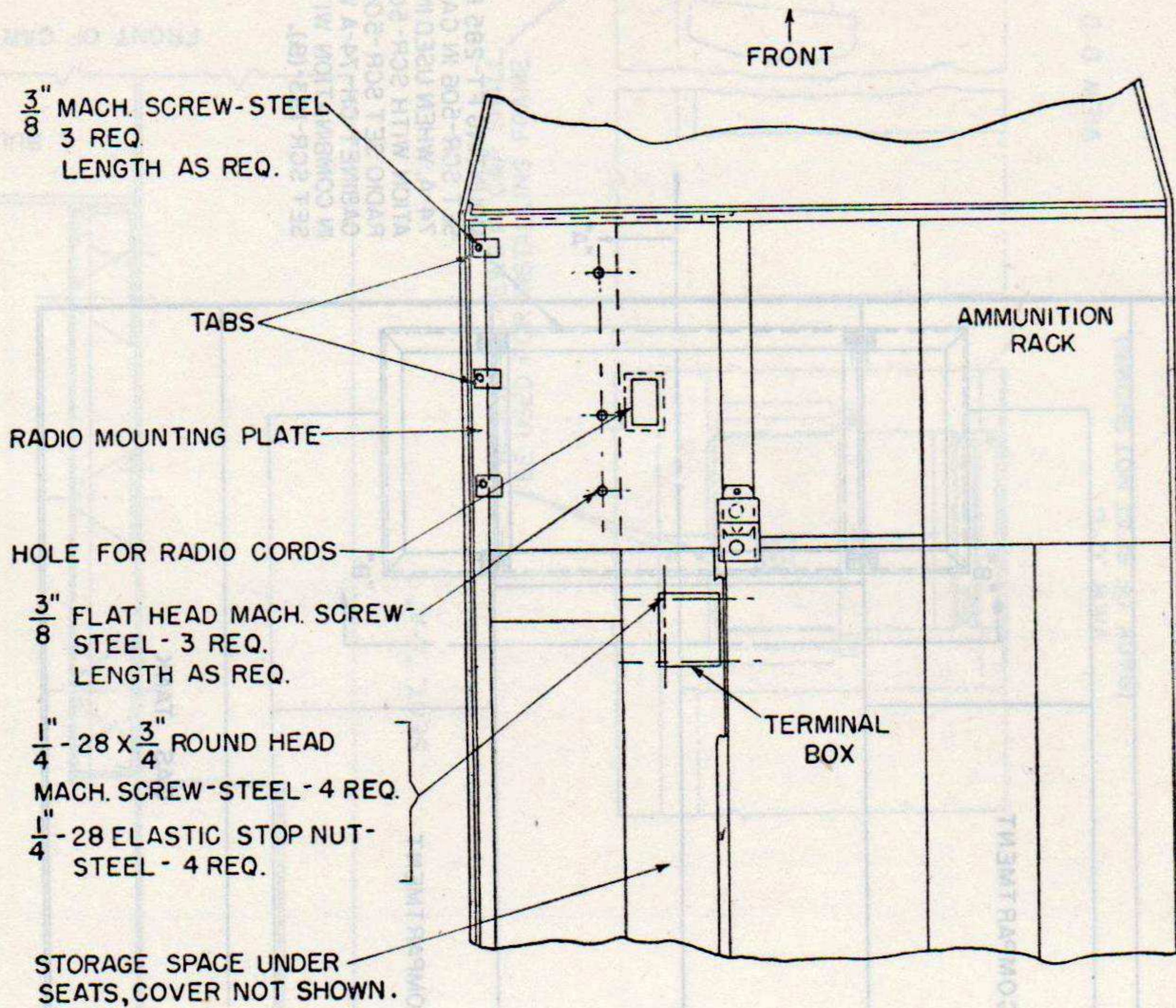
NOTE:
 1. HOLES SHOWN ARE TO BE DRILLED AT TIME OF MANUFACTURE OF CAR AND USED FOR RADIO INSTALLATIONS.
 2. SEE FIG. 8 FOR MOUNTING HOLES AND LOCATION OF RADIO SET SCR-510-(B) OR SCR-610-(B).



TL-9337

BASED ON SC-D-4774-E

Figure 5. Mounting holes and location in Half-track Car M2.



NOTE: ① - THE ORDNANCE DEPARTMENT WILL HAVE FURNISHED ALL PLATES, BRACKETS, SCREWS AND NUTS.

BASED ON
SC-D-4775-E

TL-9338

Figure 6. Installation of brackets and terminal box in Half-track Car M2.

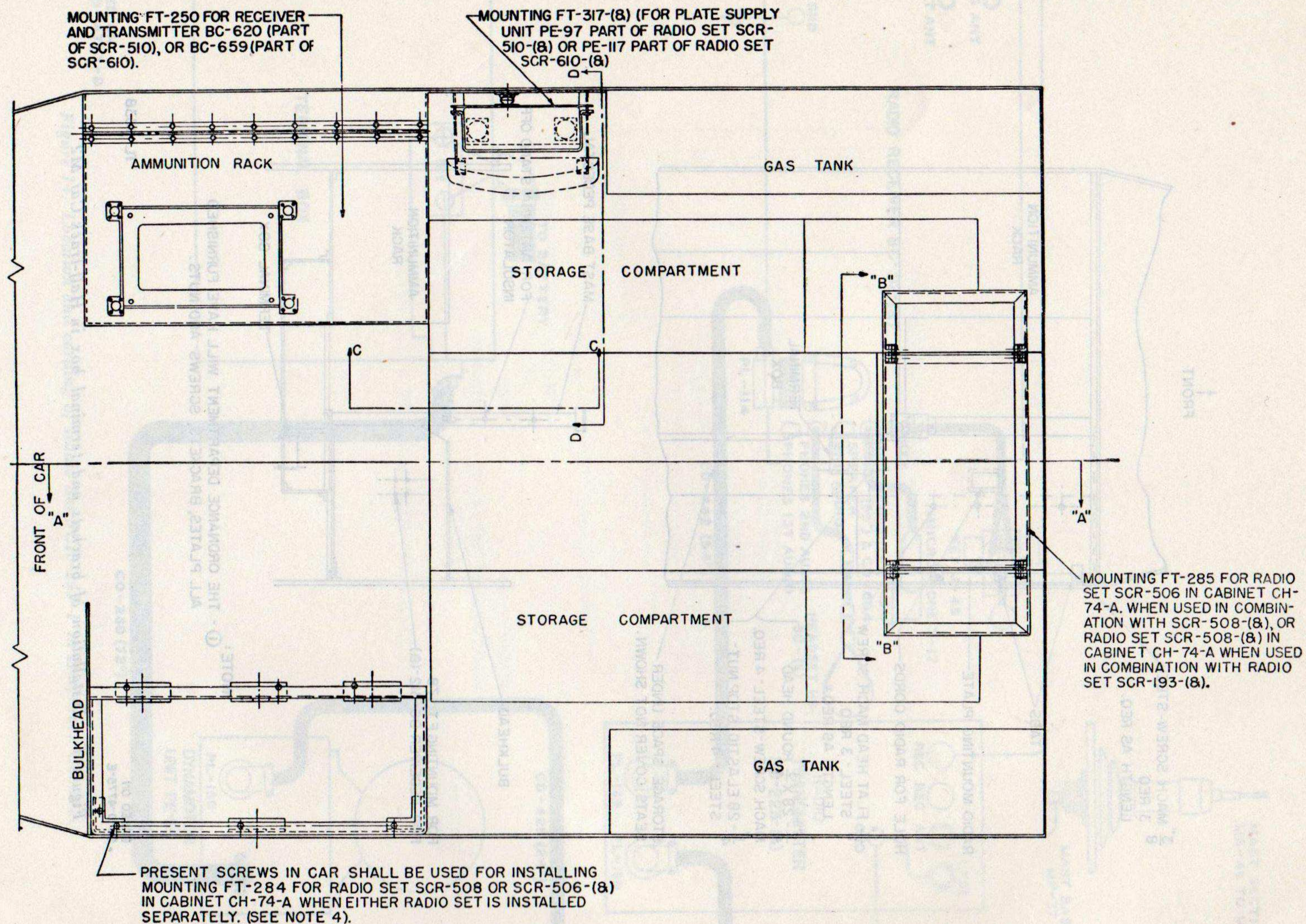
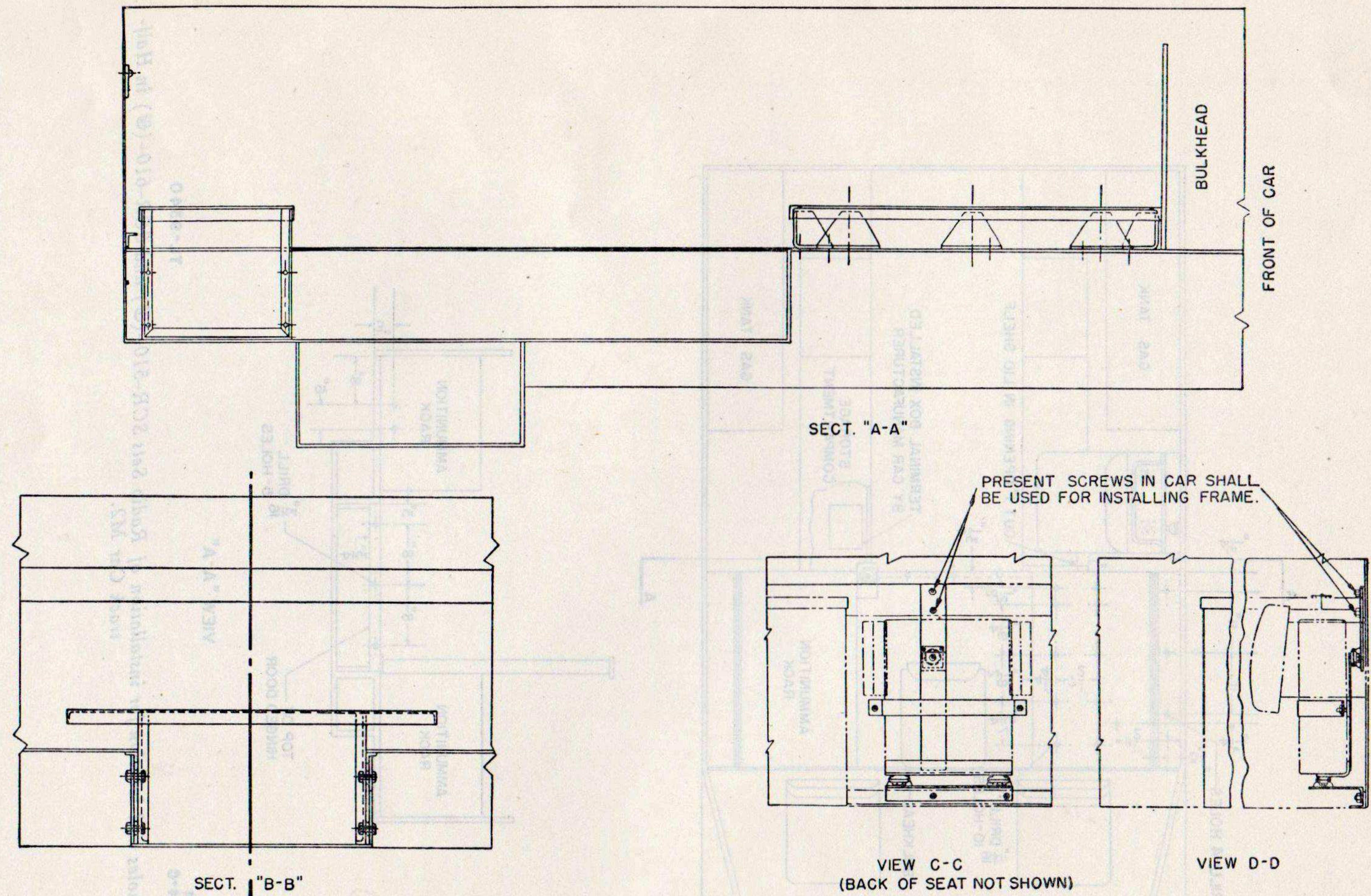


Figure 7. Installation of mountings for Radio Sets SCR-506-(8), SCR-508-(8), SCR-510-(8), SCR-608-(8), and SCR-610-(8), in Half-track Car M2.

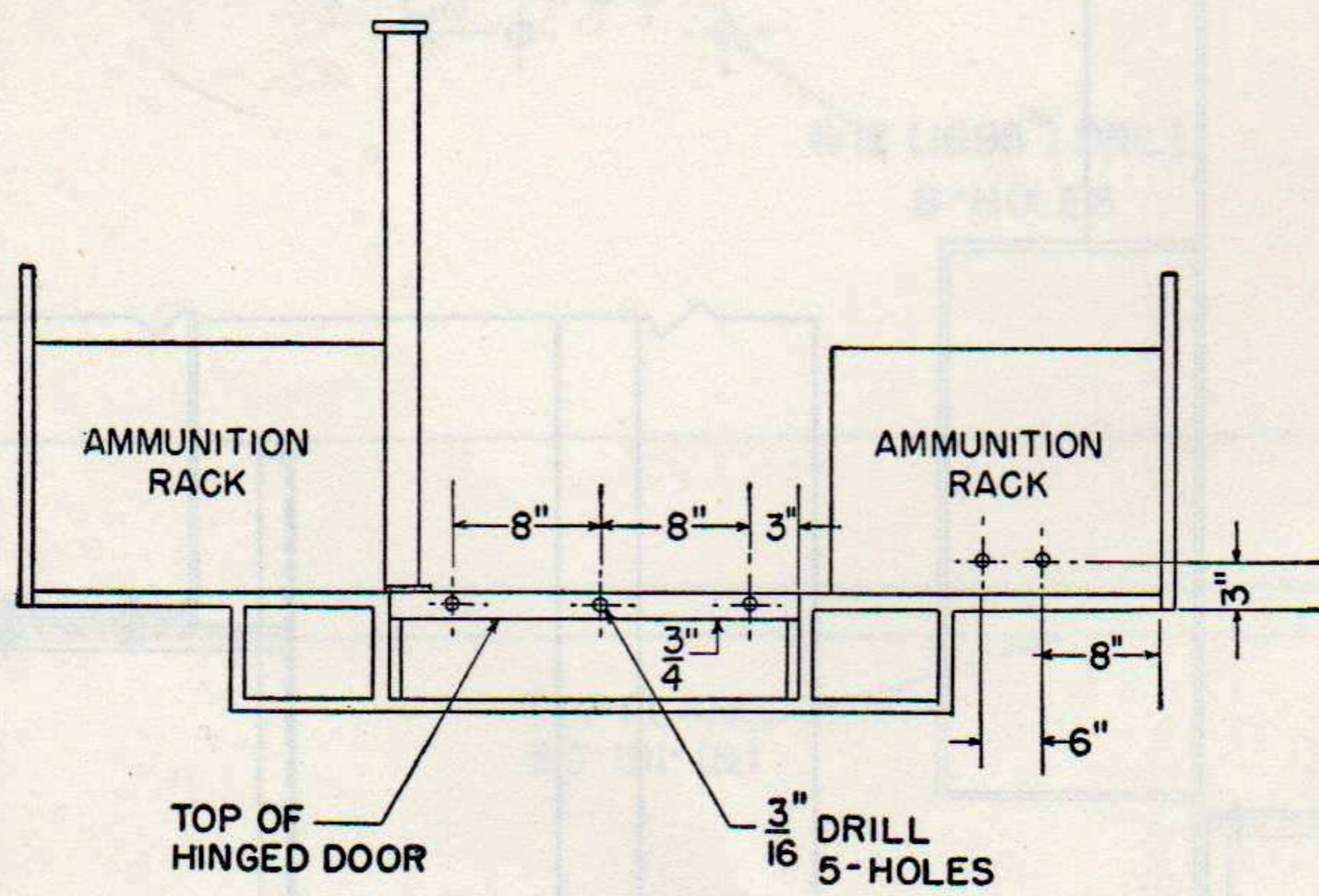
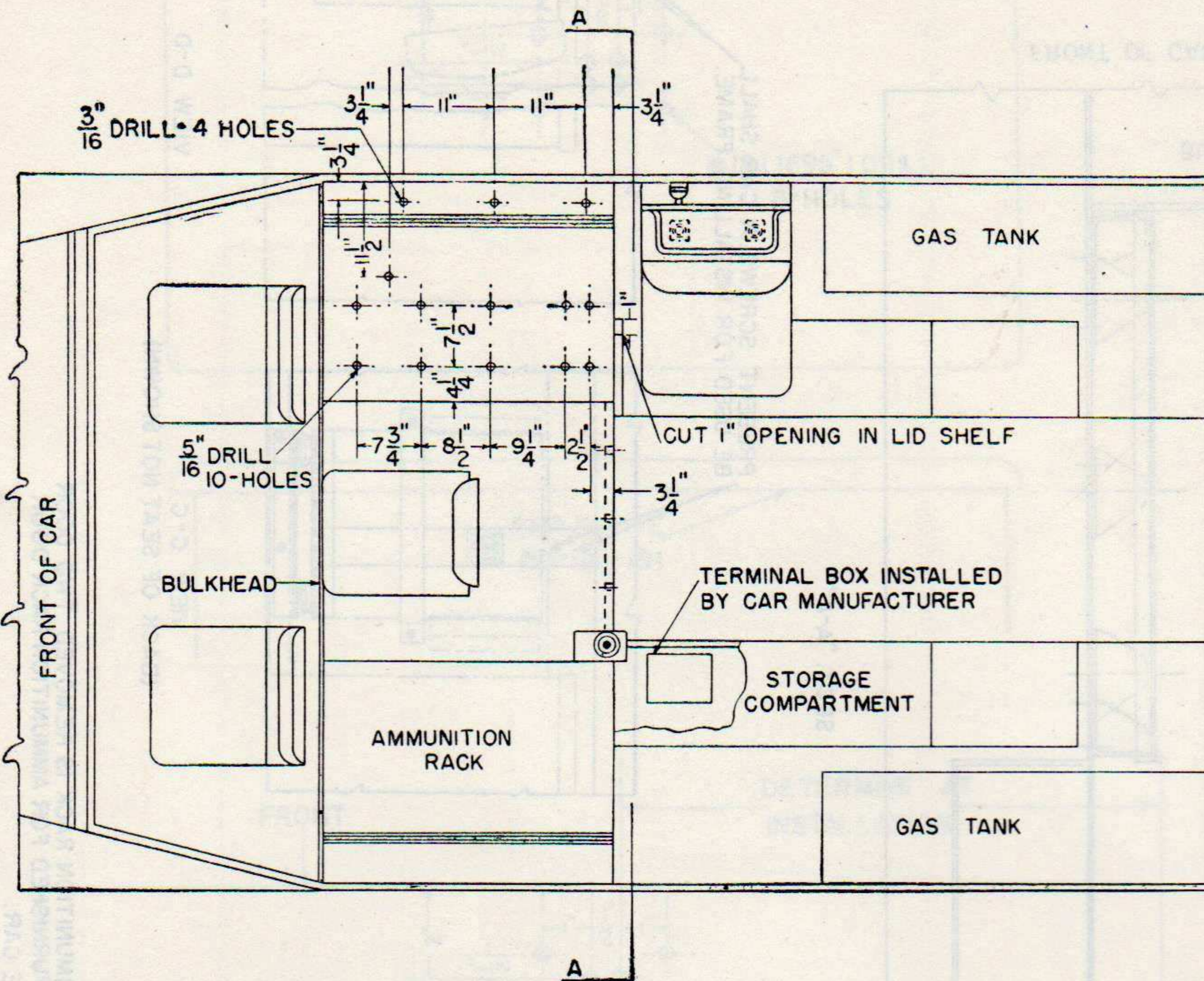


- NOTE:
- 1- WHEN LEFT SIDE AMMUNITION RACK IS REMOVED TWO DOOR STRIKES SHALL BE FURNISHED FOR AMMUNITION RACK DOOR ON THE SIDE OF THE CAR.
 - 2- FOR INSTALLATION OF BRACKETS FOR RADIO SET SCR-196-G OR SCR-245-P, AND TERMINAL BOX, SEE FIG. 6.
 - 3- FOR MOUNTING HOLES AND LOCATION SEE FIG. 5.
 - 4- FOR MODIFICATION OF CABINET CH-74 AND MOUNTING FT-284 SEE FIG. 26.

BASED ON
SC-D-6736

TL-9339

Figure 7. Installation of mountings for Radio Sets SCR-506-(G), SCR-508-(G), SCR-510-(G), SCR-608-(G), and SCR-610-(G), in Half-track Car M2—Continued.

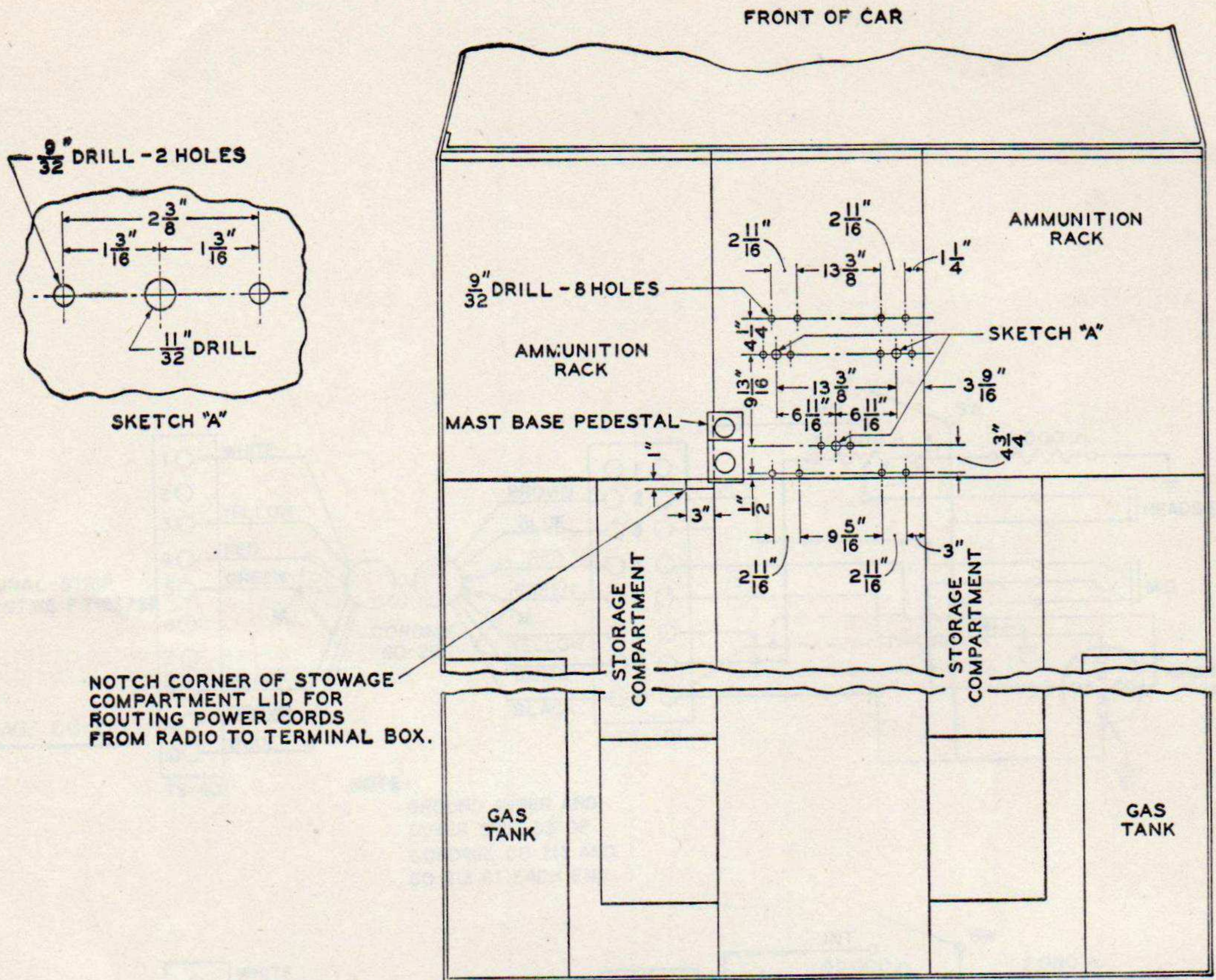


VIEW "A-A"

BASED ON
SC-D-8104-C

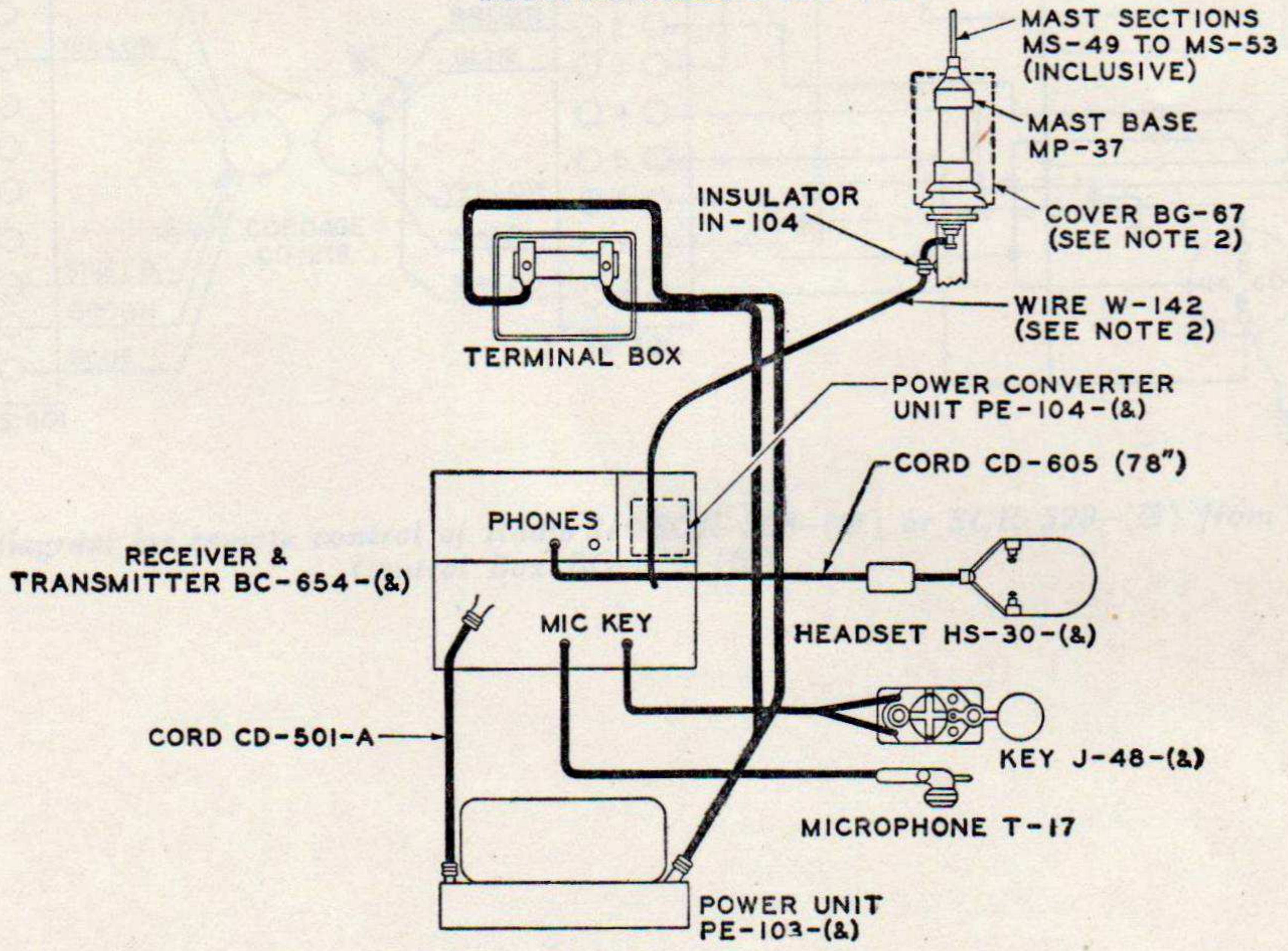
TL-9340

Figure 8. Mounting holes and location for installation of Radio Sets SCR-510-(☉) and SCR-610-(☉) in Half-track Car M2.



NOTCH CORNER OF STOWAGE COMPARTMENT LID FOR ROUTING POWER CORDS FROM RADIO TO TERMINAL BOX.

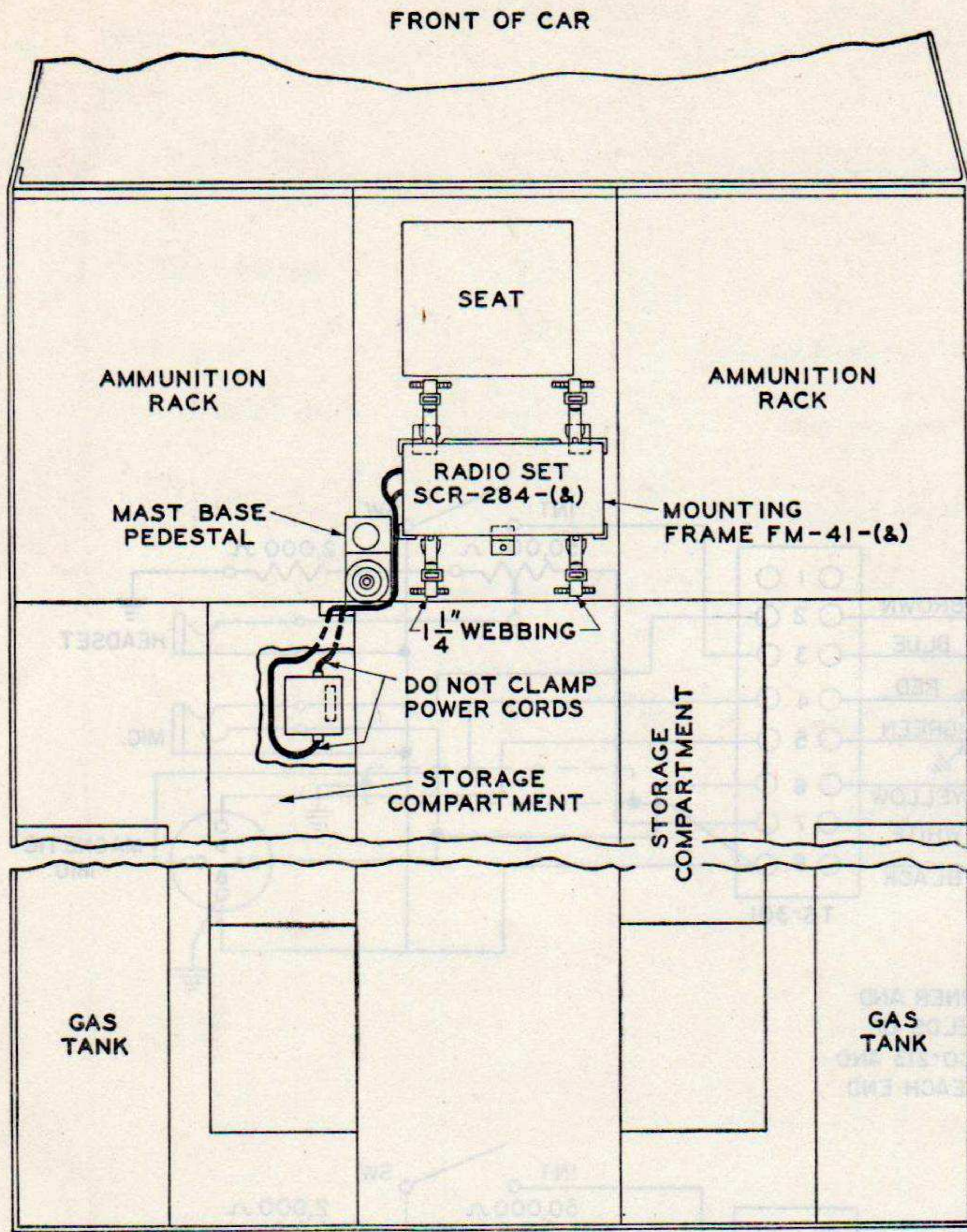
MOUNTING HOLES & LOCATION



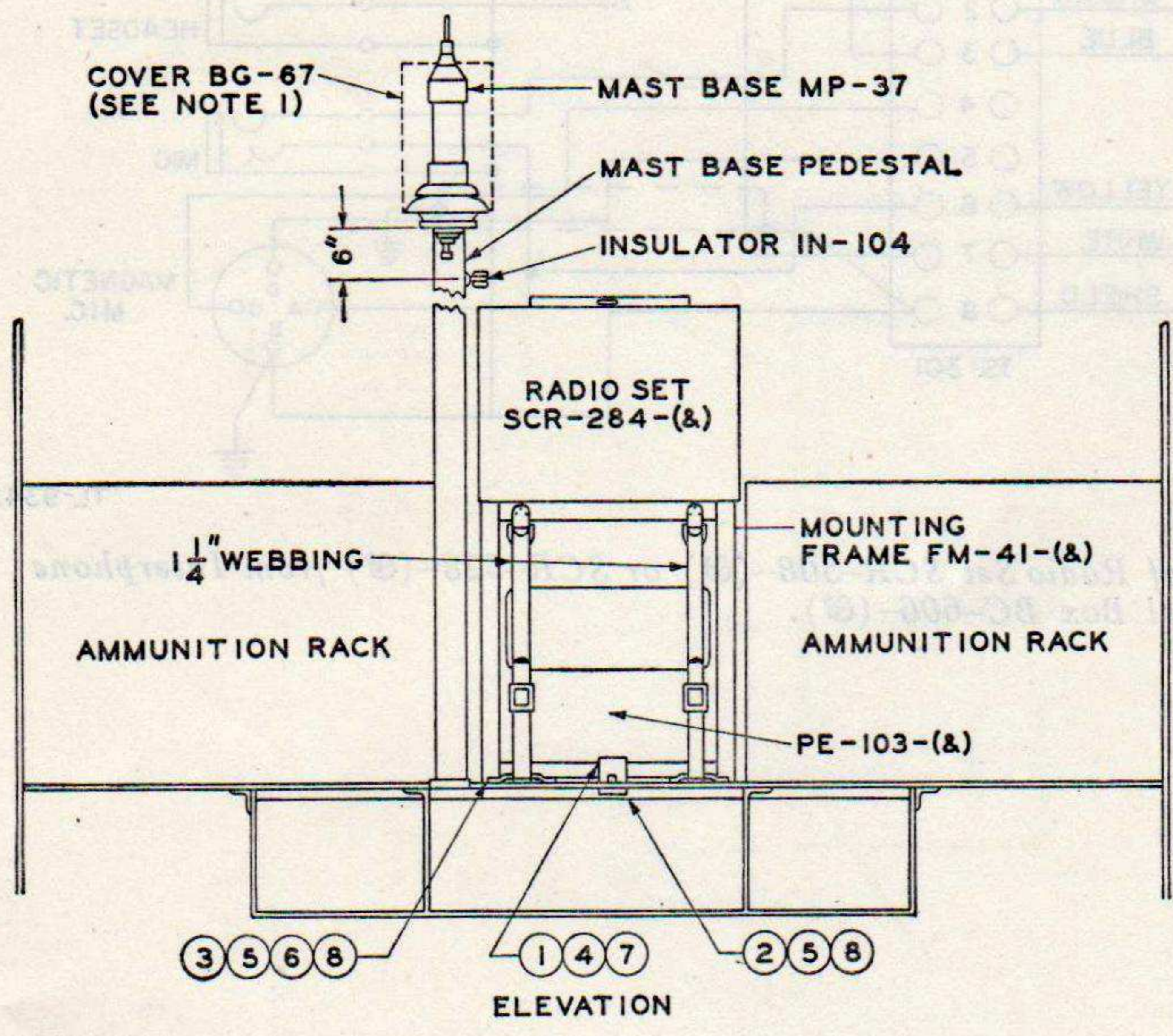
CORDING DIAGRAM

BASED ON SC-D-8134-C

Figure 9. Mounting holes, cording diagram, and installation of Radio Set SCR-284-(&) in Half-track Car M2.



NOTE:
 1. USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
 2. CUT WIRE W-142 TO PROPER LENGTH, TIN ENDS FOR ANTENNA CONNECTIONS.

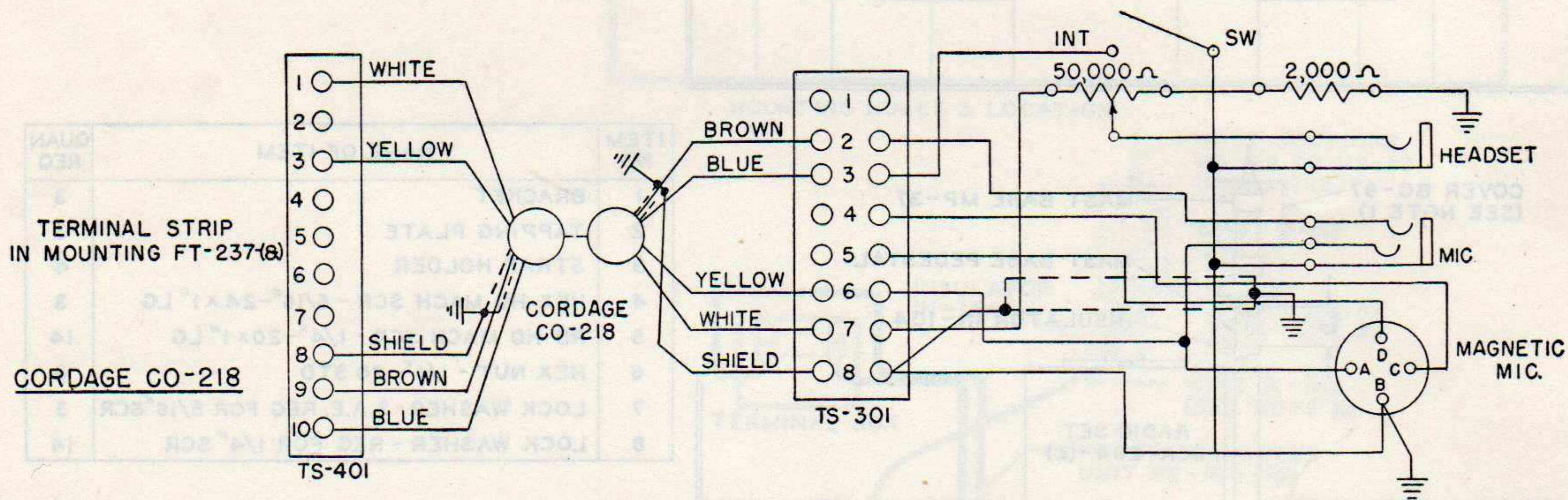
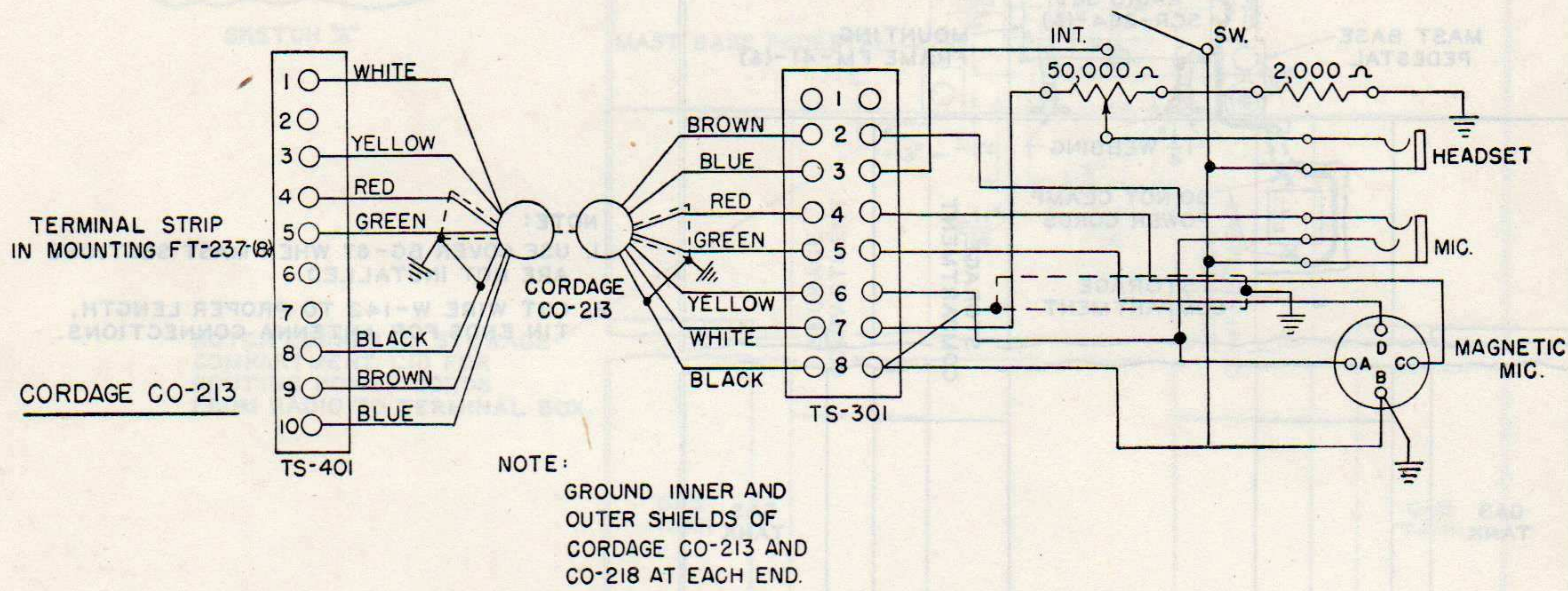


ITEM NO	NAME OF ITEM	QUAN REQ
1	BRACKET	3
2	TAPPING PLATE	3
3	STRAP HOLDER	4
4	HEX HD MACH SCR - 5/16"-24 x 1" LG	3
5	RD HD MACH SCR - 1/4"-20 x 1" LG	14
6	HEX NUT - 1/4"-20 STD	8
7	LOCK WASHER - S.A.E. REG FOR 5/16" SCR	3
8	LOCK WASHER - REG FOR 1/4" SCR	14

INSTALLATION

TL-9341

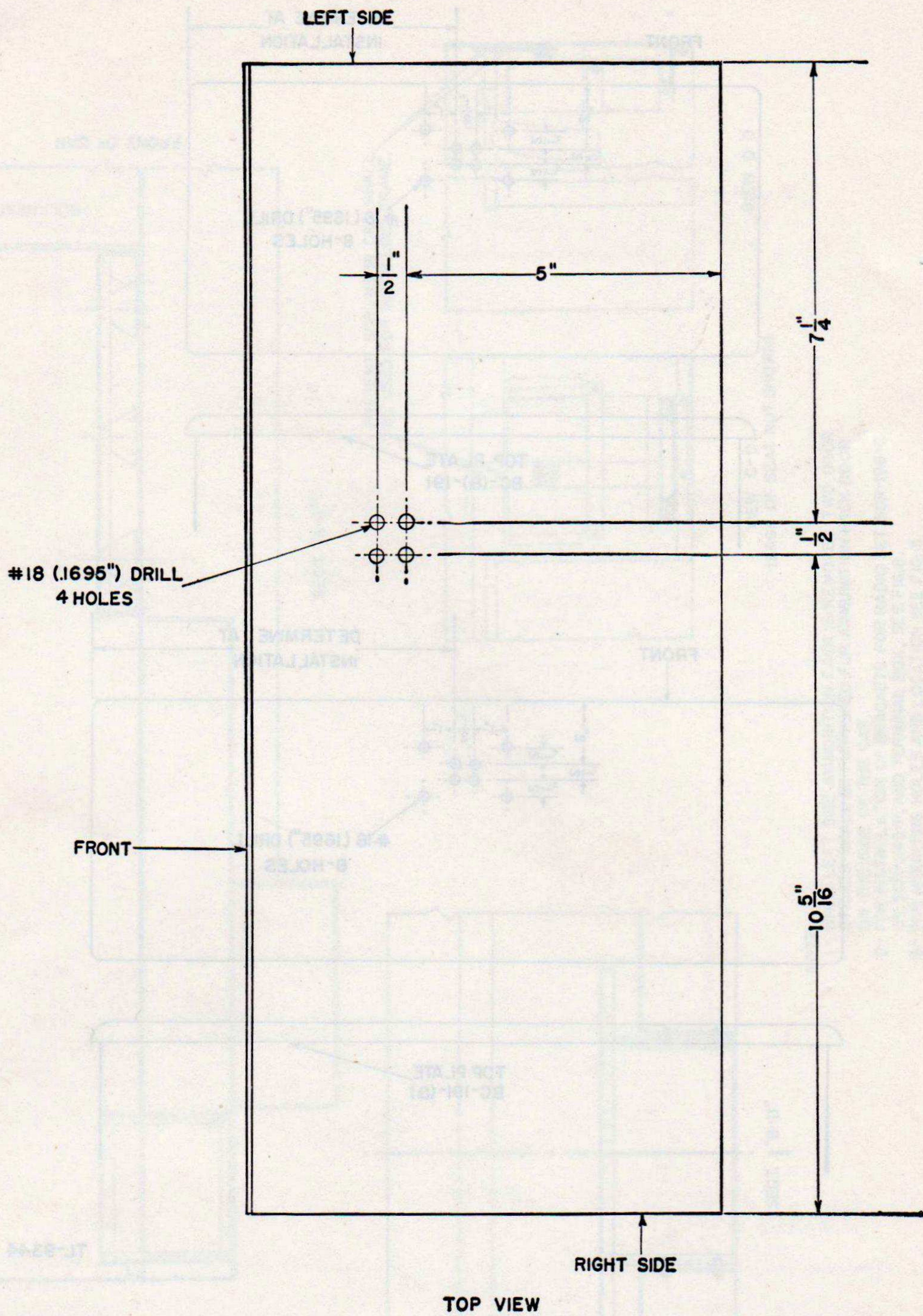
Figure 9. Mounting holes, cording diagram, and installation of Radio Set SCR-284-(G) in Half-track Car M2.—Continued.



BASED ON
SC-A-8477-B

TL-9342

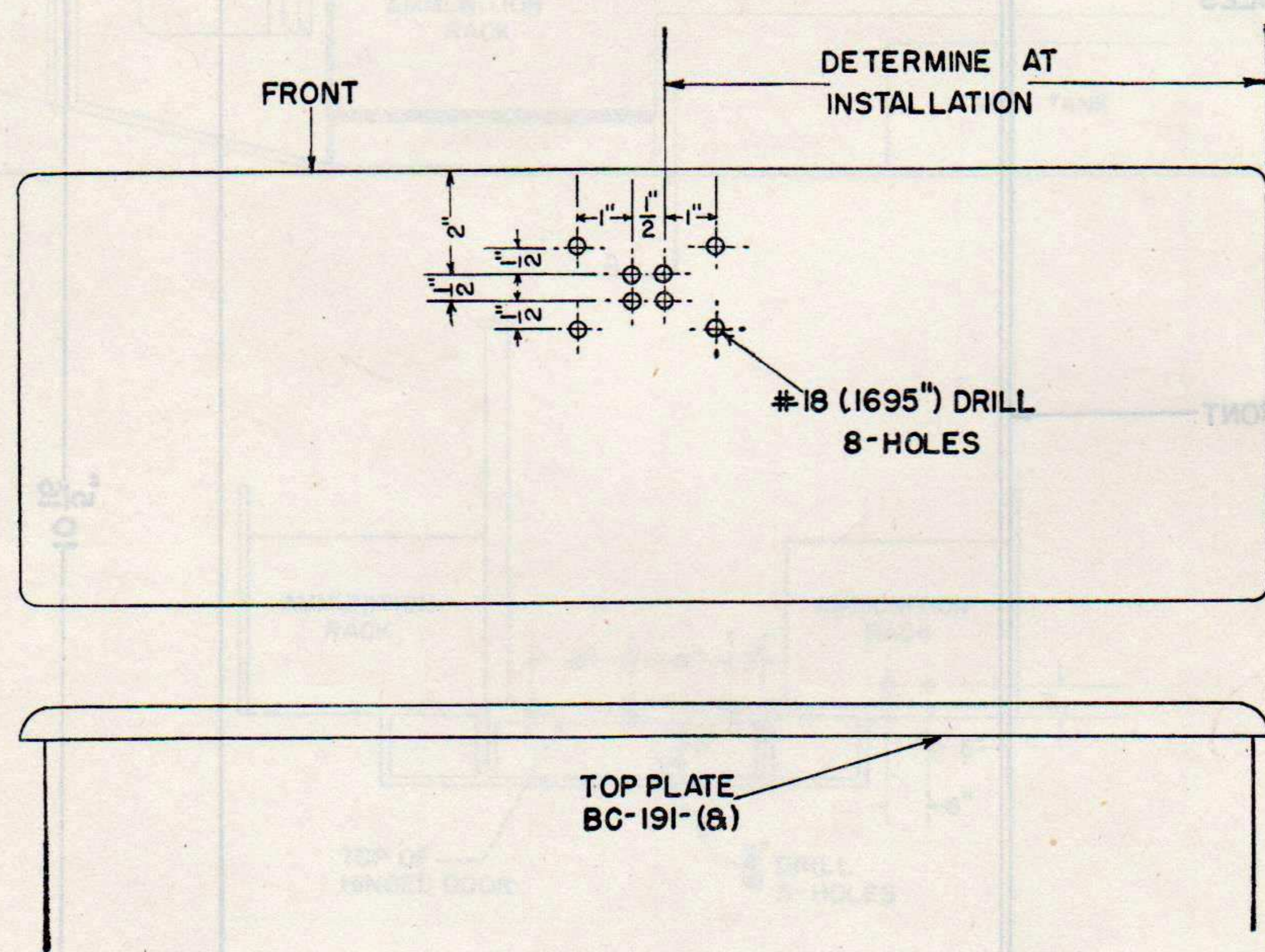
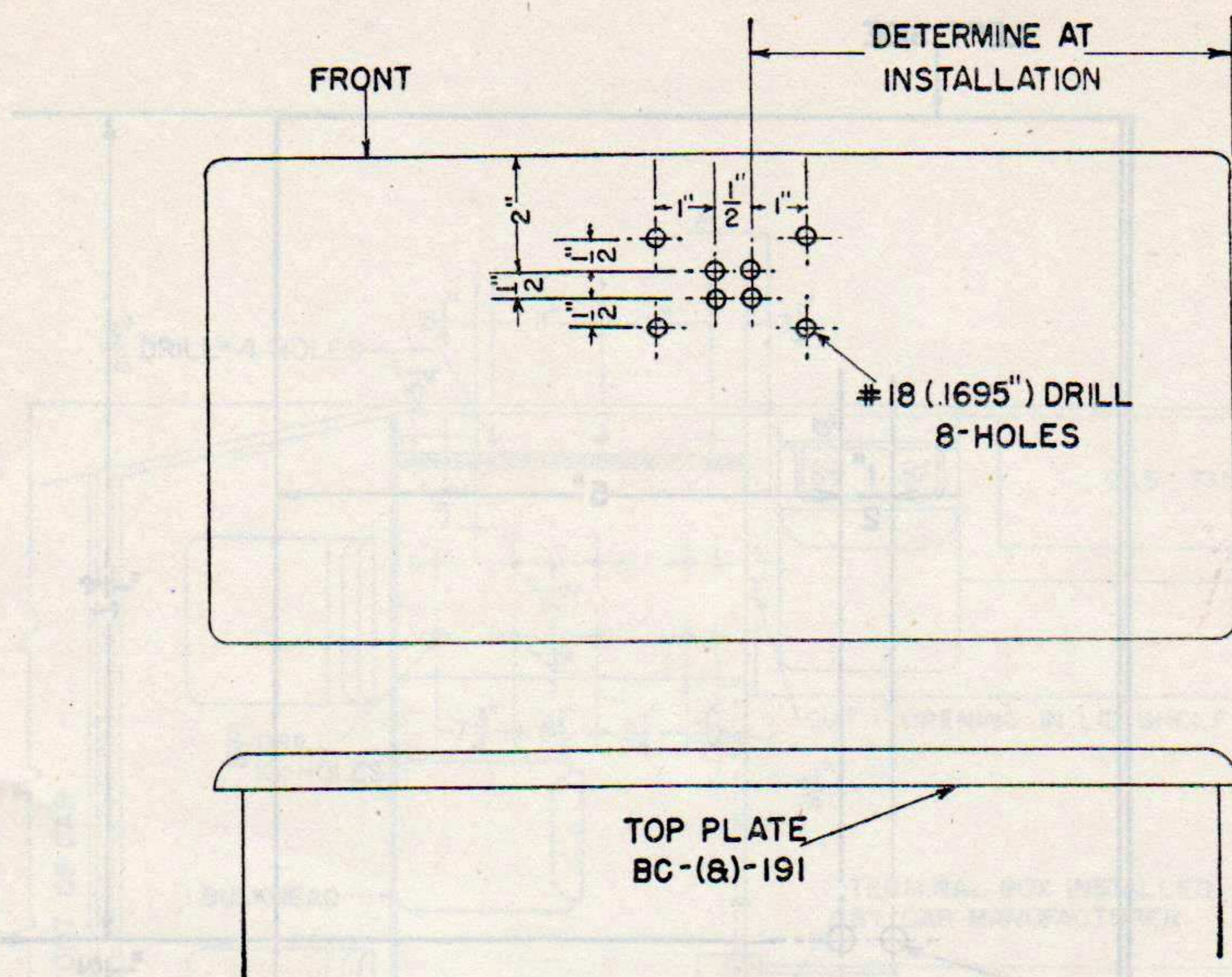
Figure 10.—Wiring diagram for remote control of Radio Set SCR-508- (Ⓢ) or SCR-528- (Ⓢ) from Interphone Control Box BC-606- (Ⓢ).



BASED ON
SC-A-4143-B

TL-9343

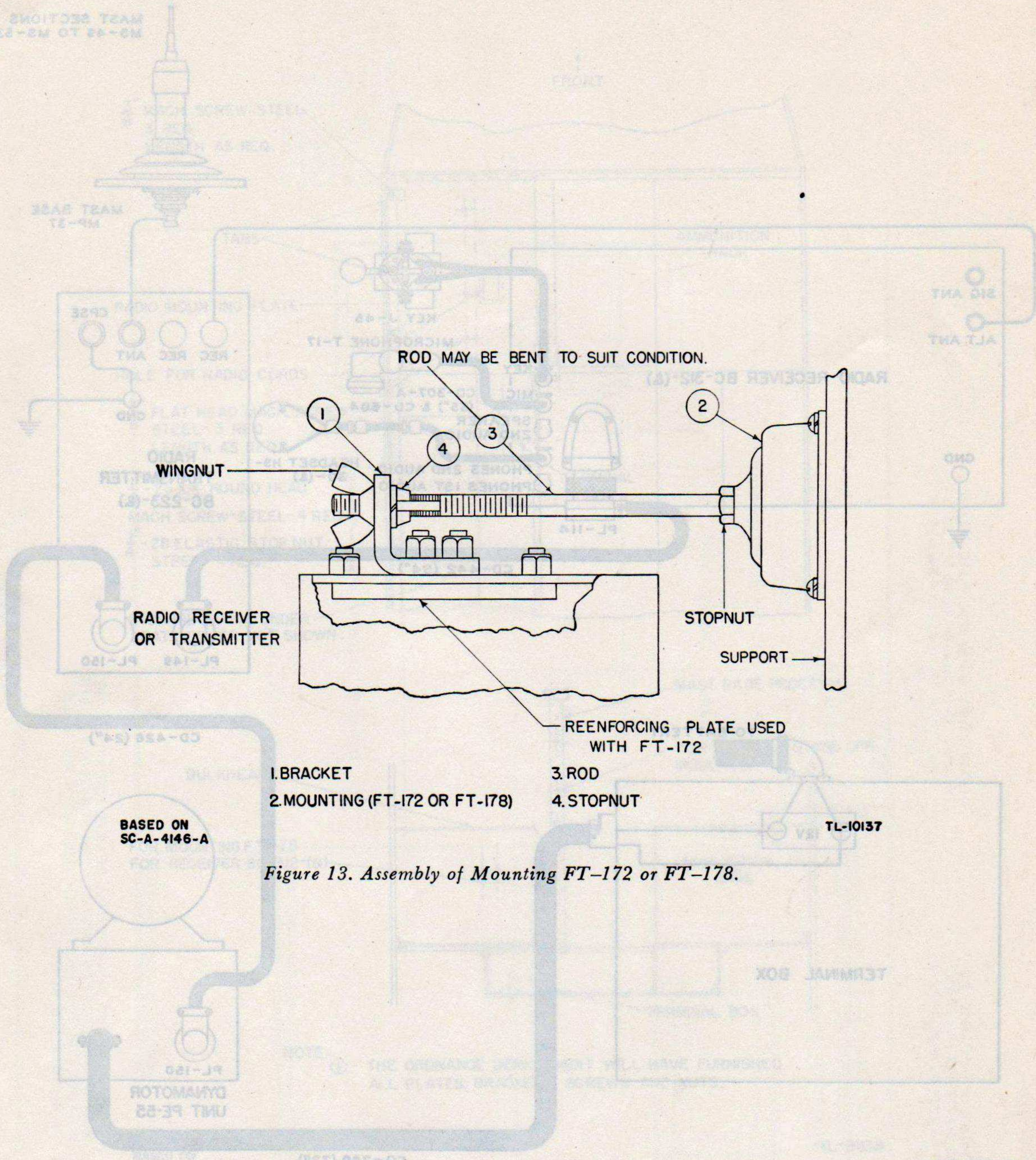
Figure 11. Drilling of Radio Receiver BC-312-(G) for Mounting FT-178.



TL-9344

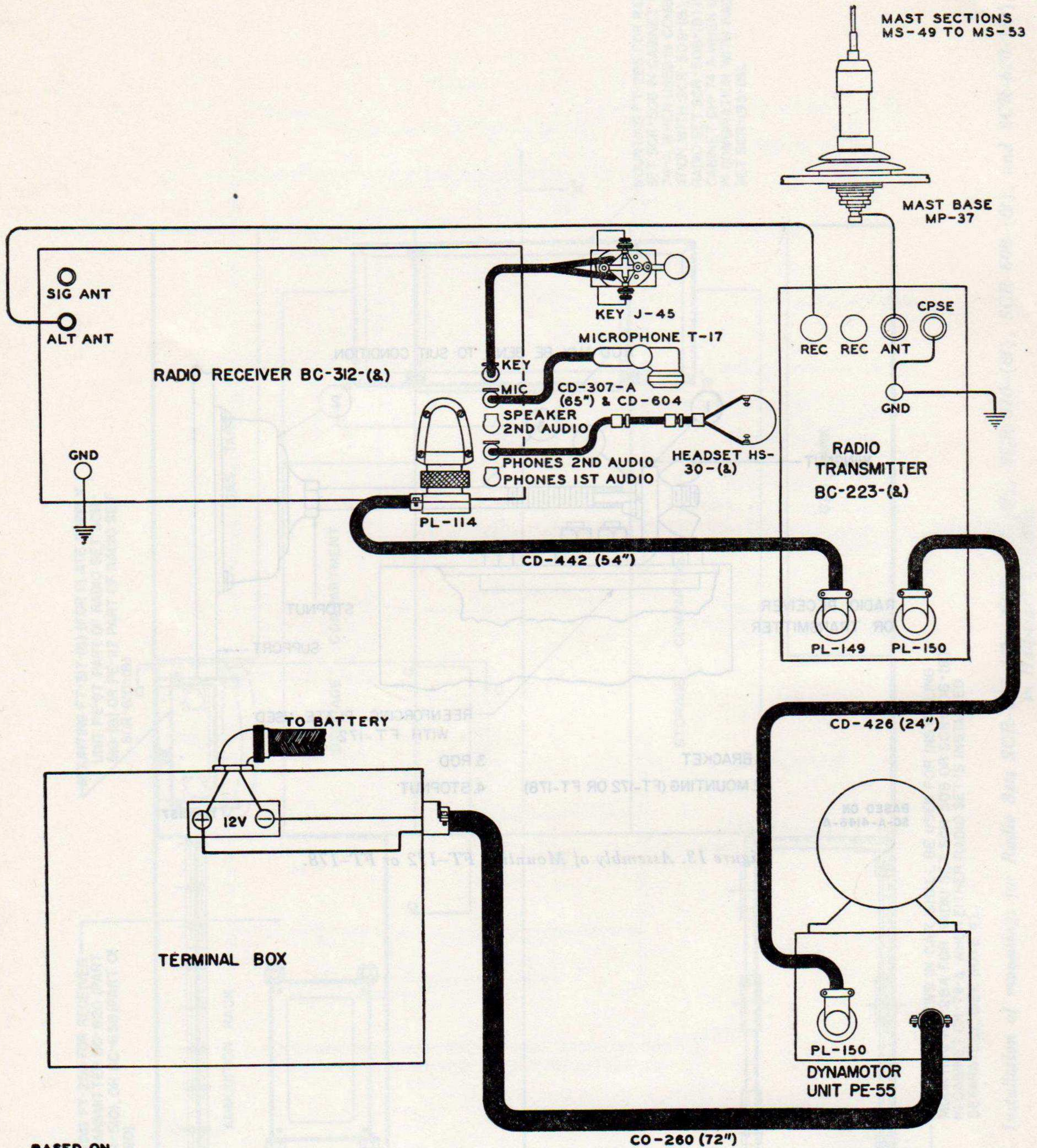
BASED ON - ISSUED-17 JUNE,1941 ISSUE C: 3 FEB.,1940 ISSUE B: 19 JULY,1938
 SC-A-2728-D BC-191-(8) WAS BC-191-A TOP PLATES, 8 HOLES WERE 6. ON TOP PLATES OUTSIDE HOLES ADDED.

Figure 12. Drilling data for Radio Transmitter BC-191-(8).



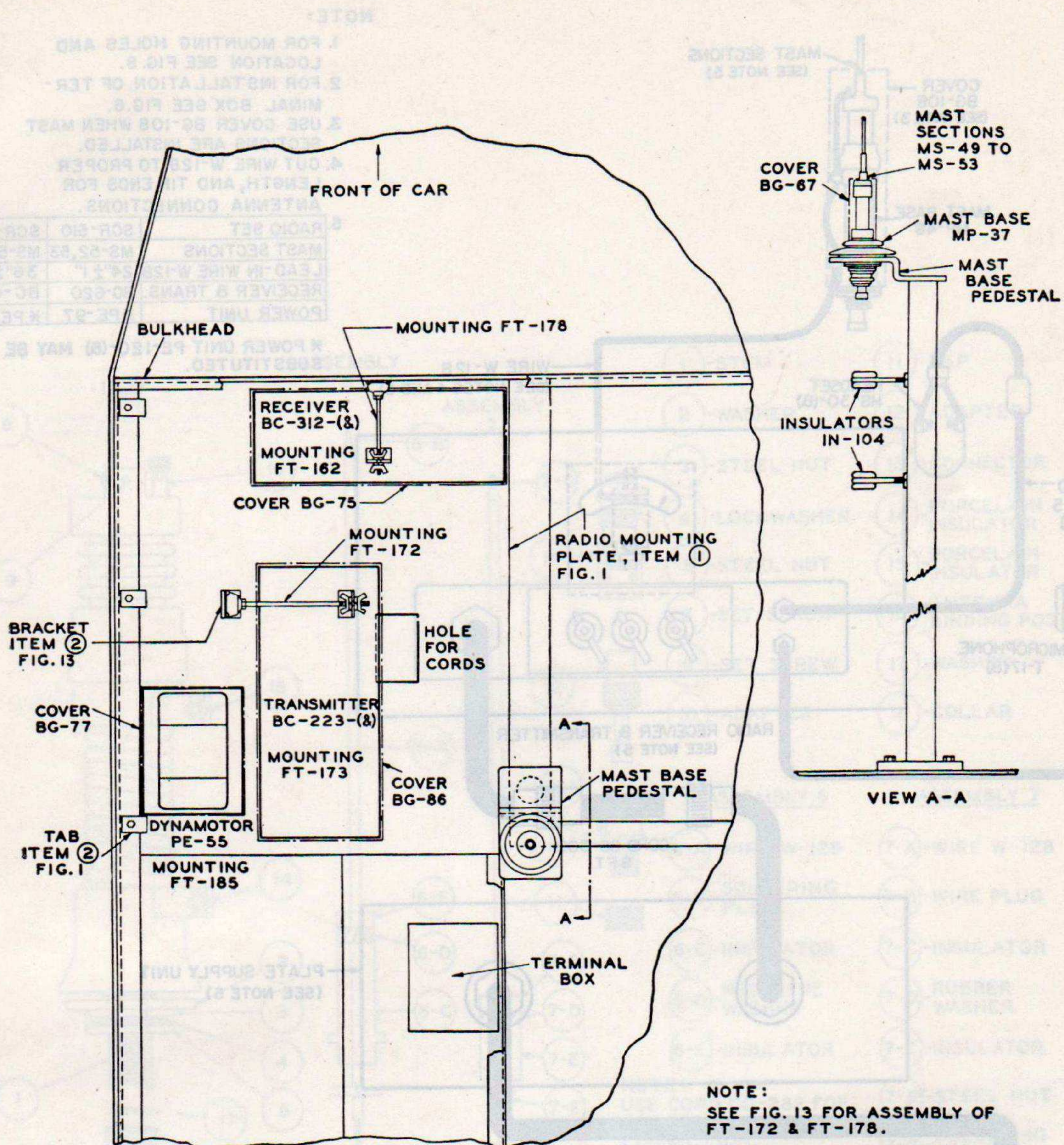
- 1. BRACKET
- 2. MOUNTING (FT-172 OR FT-178)
- 3. ROD
- 4. STOPNUT

Figure 13. Assembly of Mounting FT-172 or FT-178.



BASED ON
SC-D-4777-D

Figure 14. Location and cording of Radio Set SCR-245-P in Half-track Car M2.

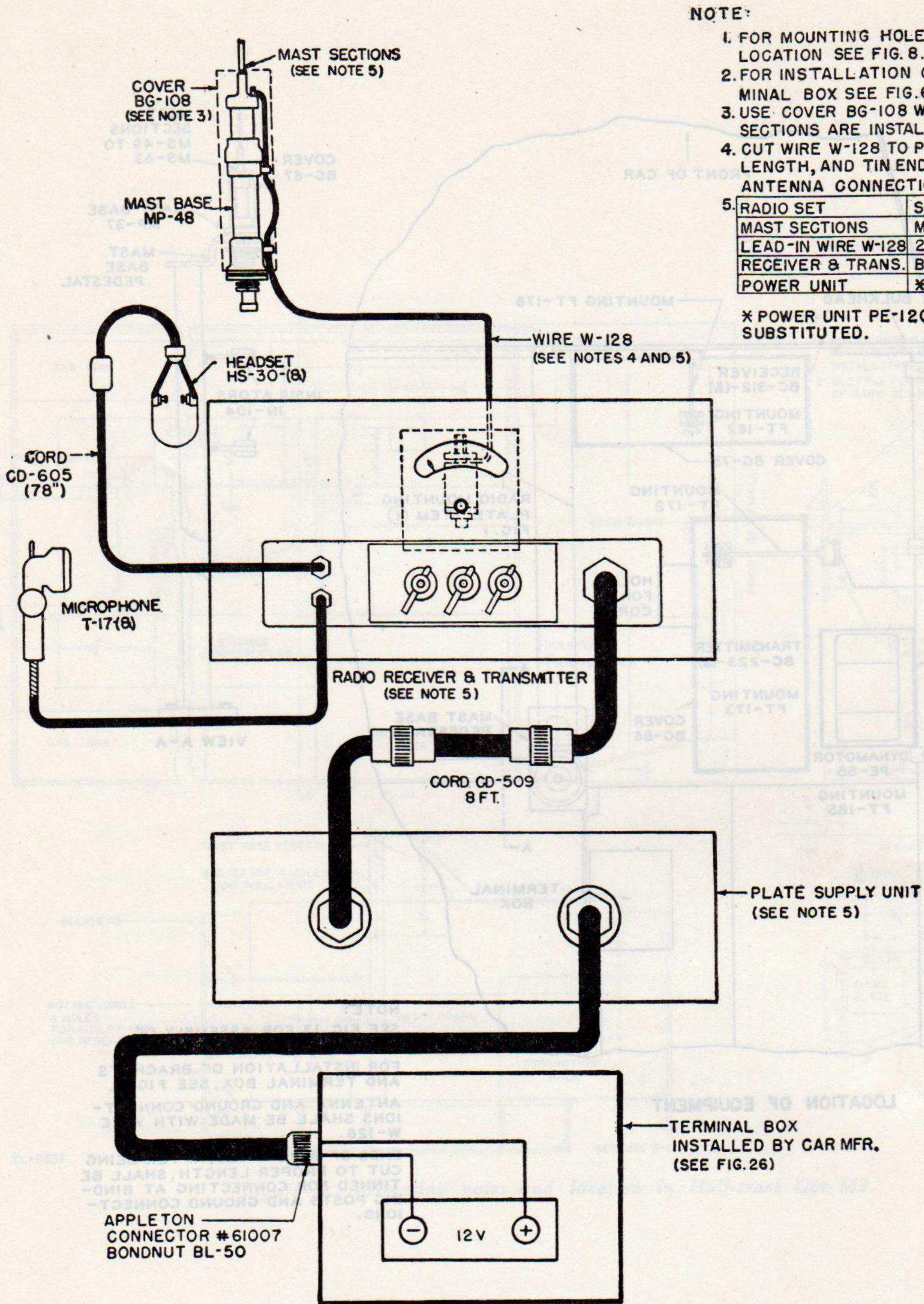


LOCATION OF EQUIPMENT

NOTE:
 SEE FIG. 13 FOR ASSEMBLY OF FT-172 & FT-178.
 FOR INSTALLATION OF BRACKETS AND TERMINAL BOX, SEE FIG. 6.
 ANTENNA AND GROUND CONNECTIONS SHALL BE MADE WITH WIRE W-128.
 ENDS OF WIRE W-128, AFTER BEING CUT TO PROPER LENGTH, SHALL BE TINNED FOR CONNECTING AT BINDING POSTS AND GROUND CONNECTIONS.

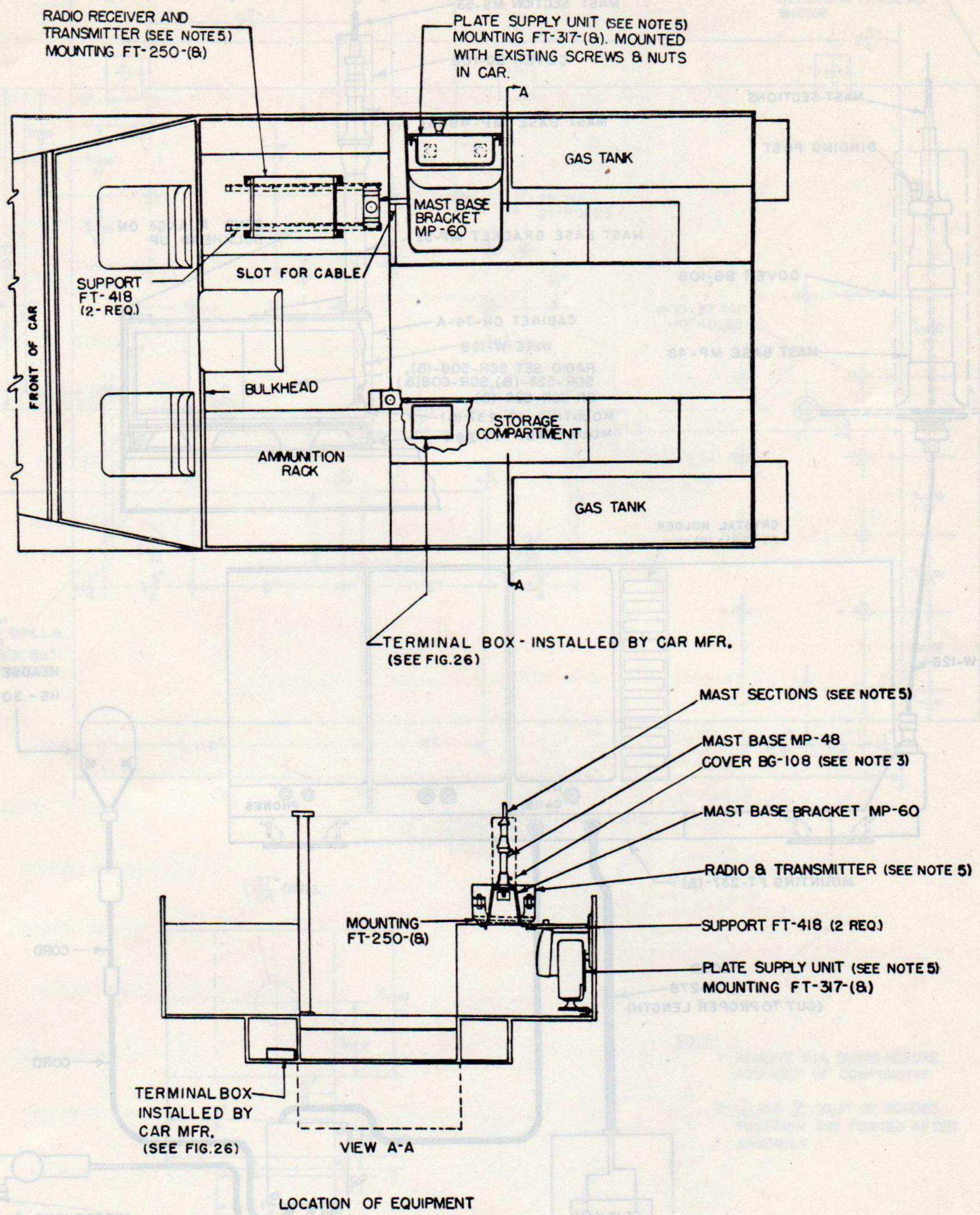
TL-9346

Figure 14. Location and cording of Radio Set SCR-245-P in Half-track Car M2—Continued.



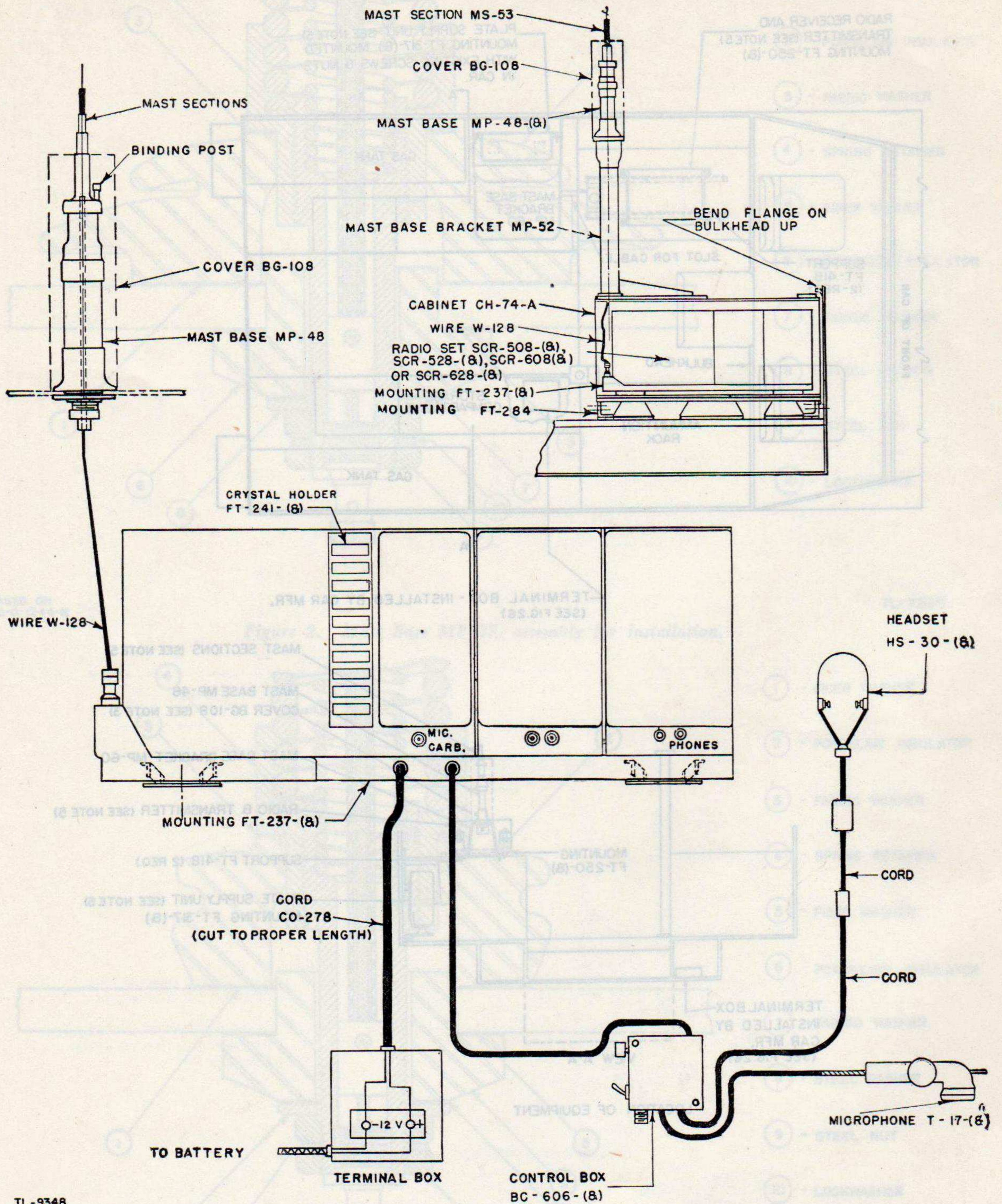
BASED ON
SC-D-7002-C

Figure 15. Cording diagram for Radio Sets SCR-510-(8) and SCR-610-(8) in Half-track Car M2.



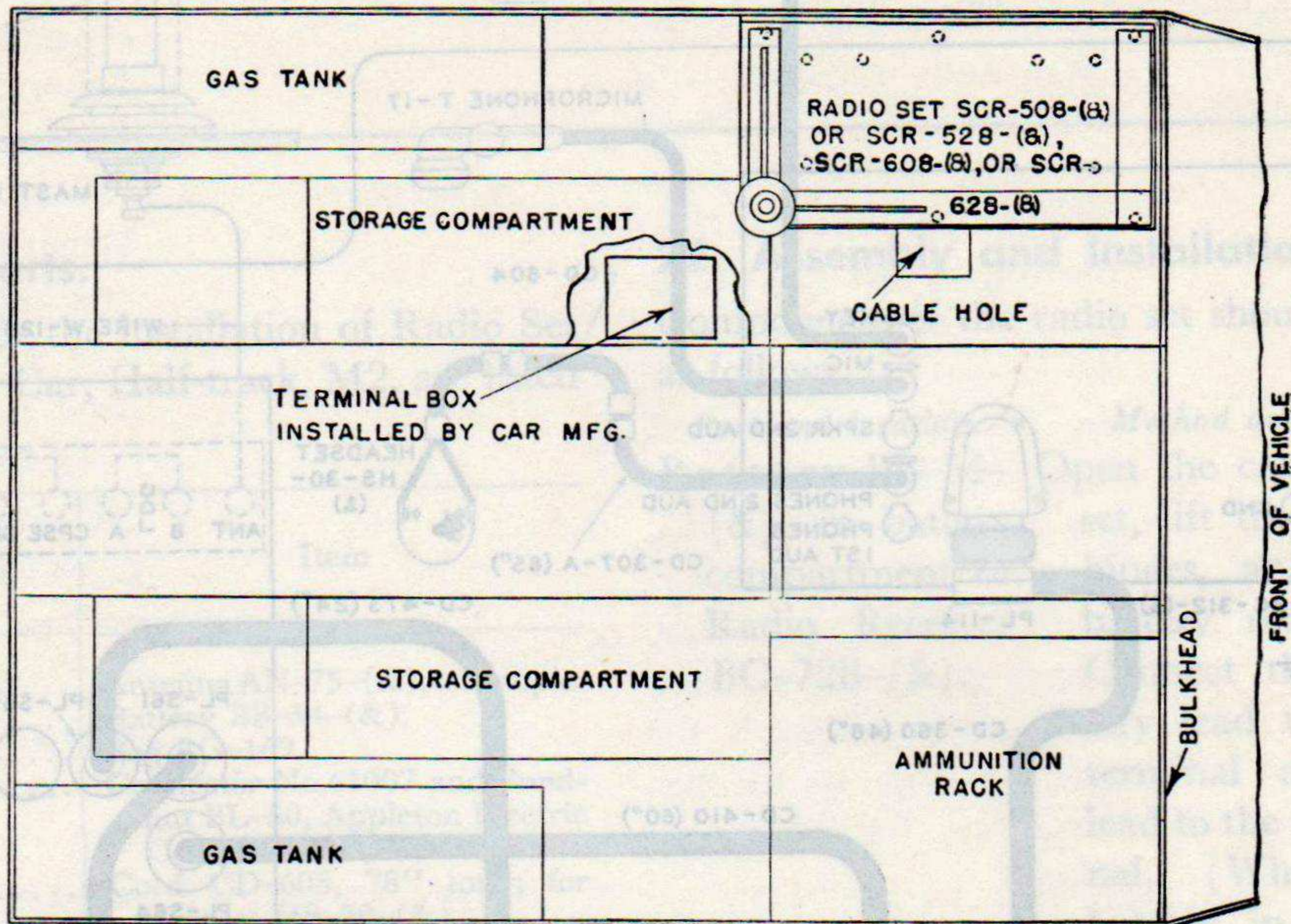
TL-9347

Figure 15. Cording diagram for Radio Sets SCR-510-(G) and SCR-610-(G) in Half-track Car M2—Continued.



TL-9348

Figure 16. Cording diagram for Radio Set SCR-508-(8) or SCR-528-(8) and Radio Set SCR-608-(8) or SCR-628-(8) in Half-track Car M2.



NOTES:

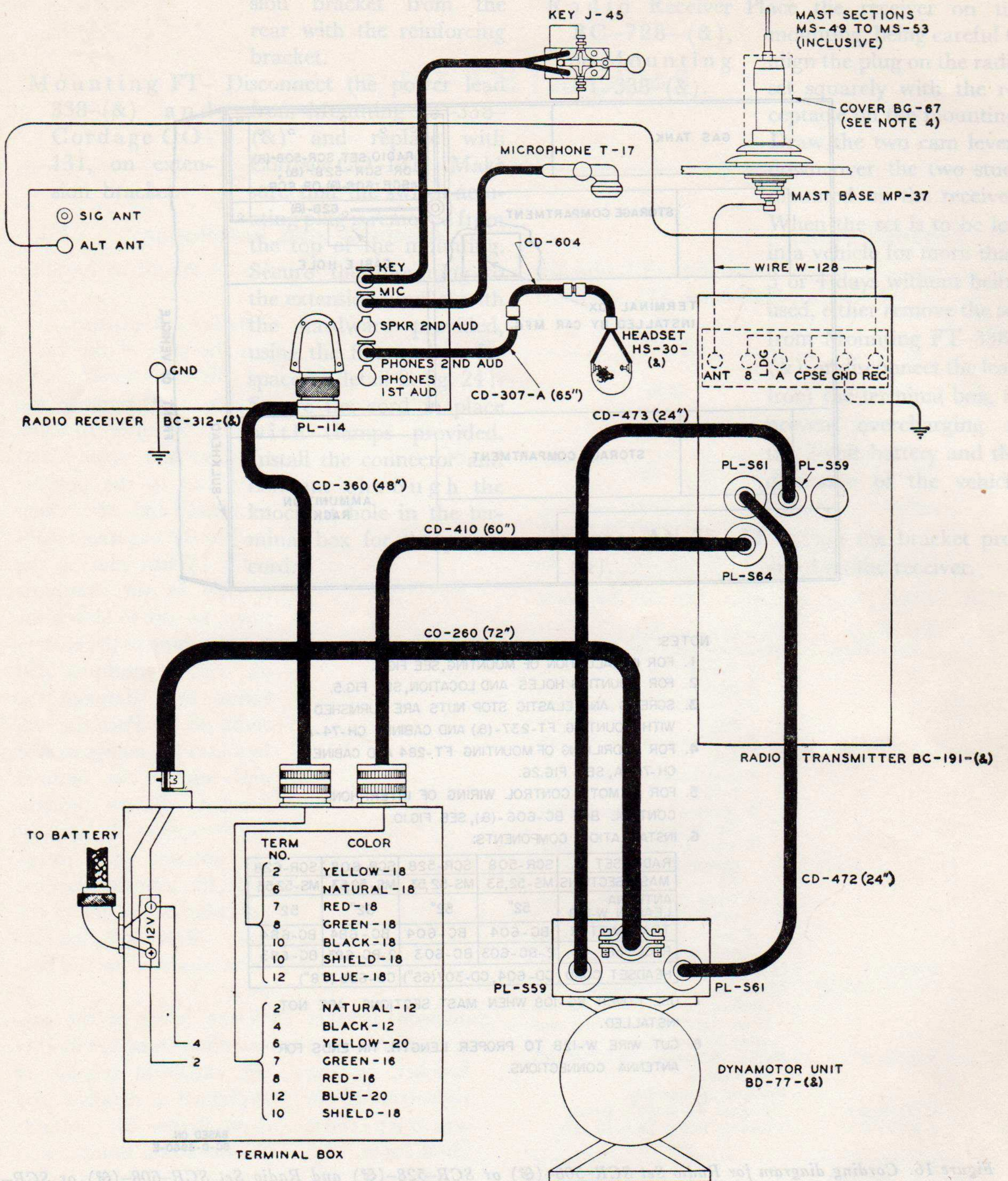
1. FOR INSTALLATION OF MOUNTING, SEE FIG. 7.
2. FOR MOUNTING HOLES AND LOCATION, SEE FIG. 5.
3. SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-(a) AND CABINET CH-74-A
4. FOR REDRILLING OF MOUNTING FT-284 AND CABINET CH-74-A, SEE FIG. 26.
5. FOR REMOTE CONTROL WIRING OF INTERPHONE CONTROL BOX BC-606-(a), SEE FIG. 10.
6. 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 LEAD IN W-128	52"	52"	52"	52"
TRANSMITTER	BC-604	BC-604	BC-684	BC-684
RECEIVER	2-BC-603	BC-603	2-BC-683	BC-683
HEADSET CORD	CD-604, CD-307(65")		CD-605 (78")	

7. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
8. CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.

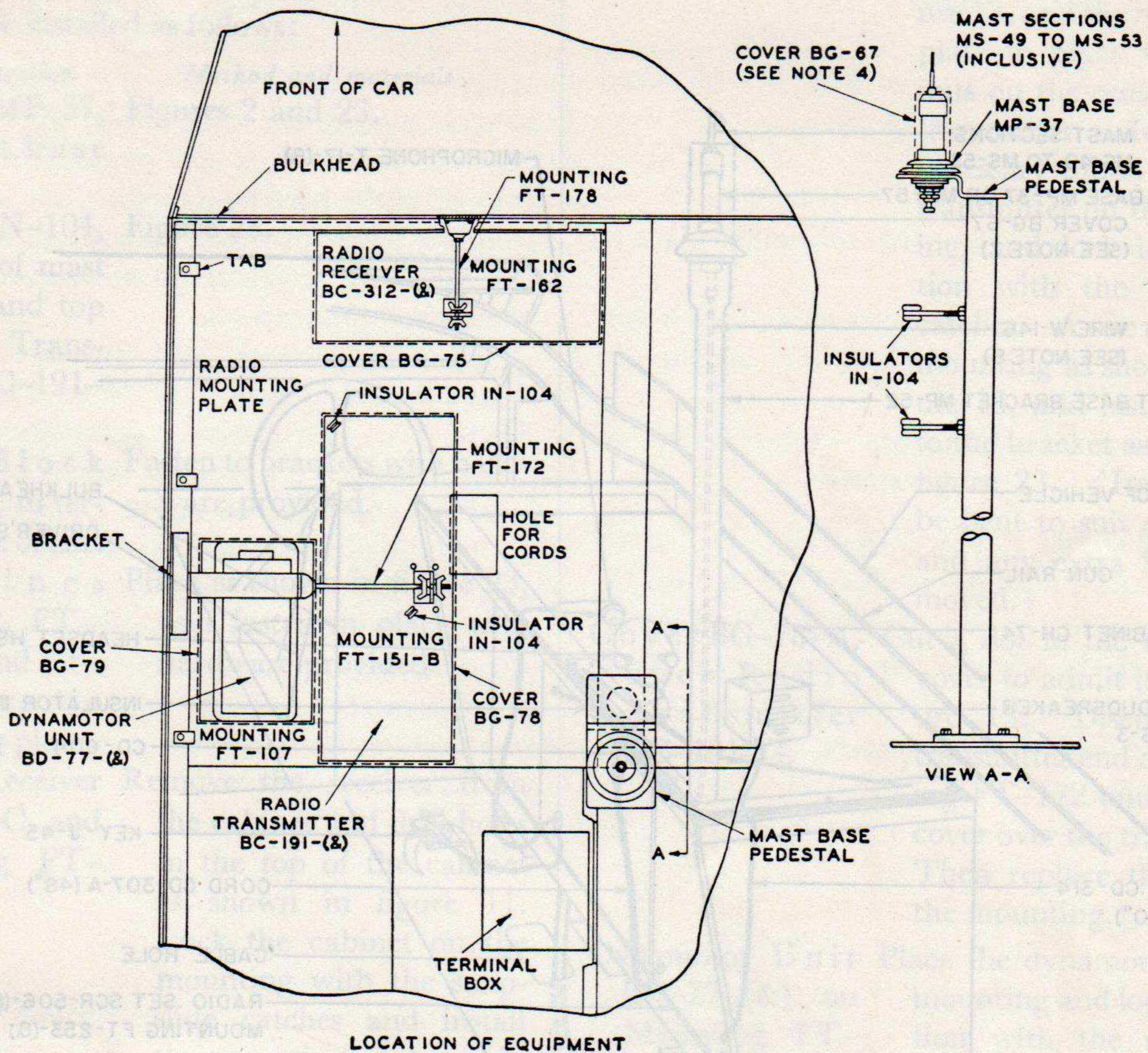
BASED ON
SC-D-6960-E

Figure 16. Cording diagram for Radio Set SCR-508-(a) or SCR-528-(a) and Radio Set SCR-608-(a) or SCR-628-(a) in Half-track Car M2—Continued.



BASED ON
SC-D-4776-E

Figure 17. Cording diagram for Radio Set SCR-193-G in Half-track Car M2.

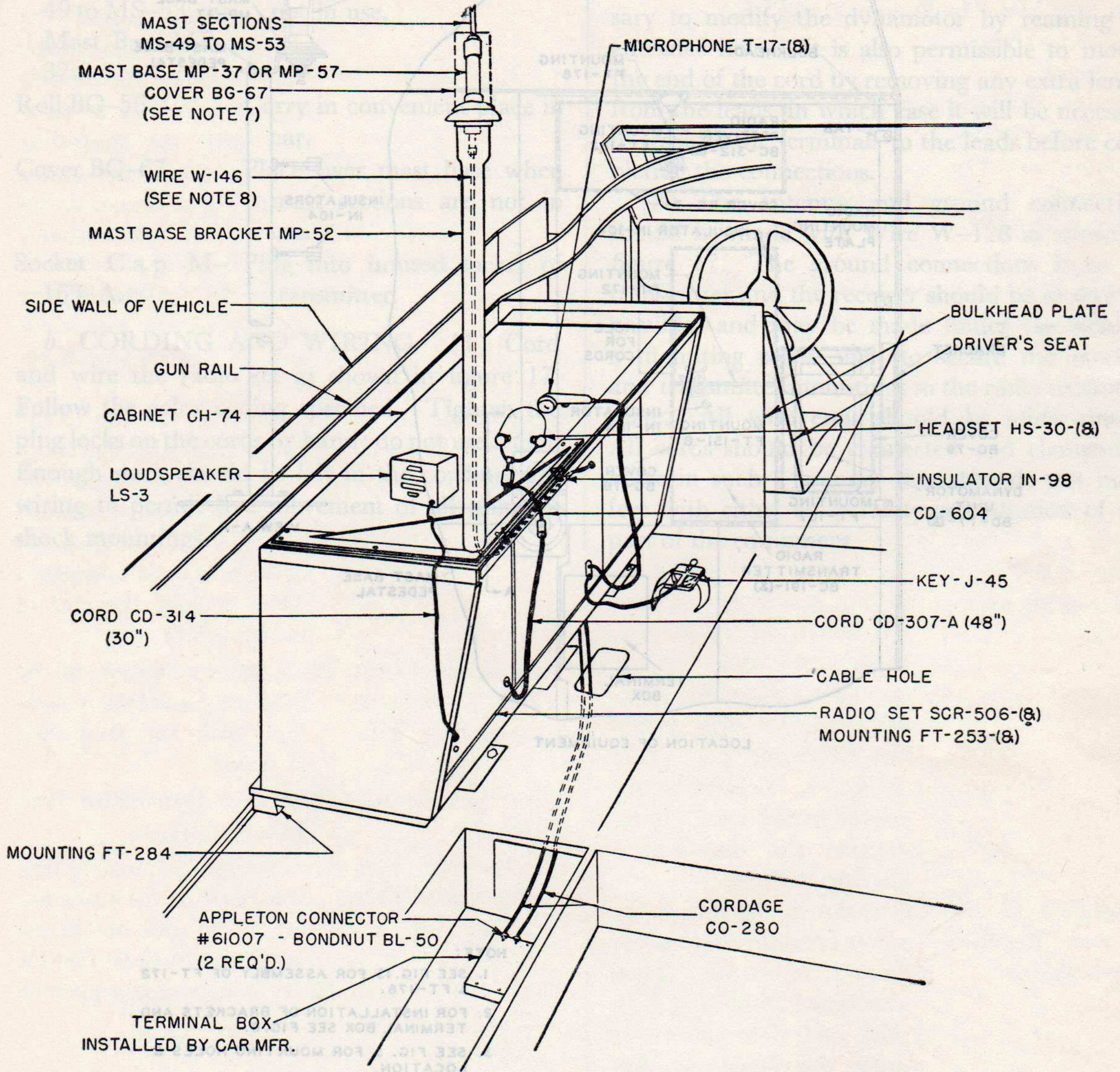


NOTE:

1. SEE FIG. 13 FOR ASSEMBLY OF FT-172 & FT-178.
2. FOR INSTALLATION OF BRACKETS AND TERMINAL BOX SEE FIG. 6.
3. SEE FIG. 5 FOR MOUNTING HOLES & LOCATION.
4. USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
5. ANTENNA AND GROUND CONNECTIONS SHALL BE MADE WITH WIRE W-128.
6. ENDS OF WIRE W-128, AFTER BEING CUT TO PROPER LENGTH, SHALL BE TINNED FOR CONNECTING AT BINDING POSTS AND GROUND CONNECTIONS.

TL-9349

Figure 17. Cording diagram for Radio Set SCR-193-G in Half-track Car M2—Continued.



BASED ON
SC-D-9102-C

Figure 18. Radio Set SCR-506-(8) in Half-track Car M2.

HARDWARE REQUIRED

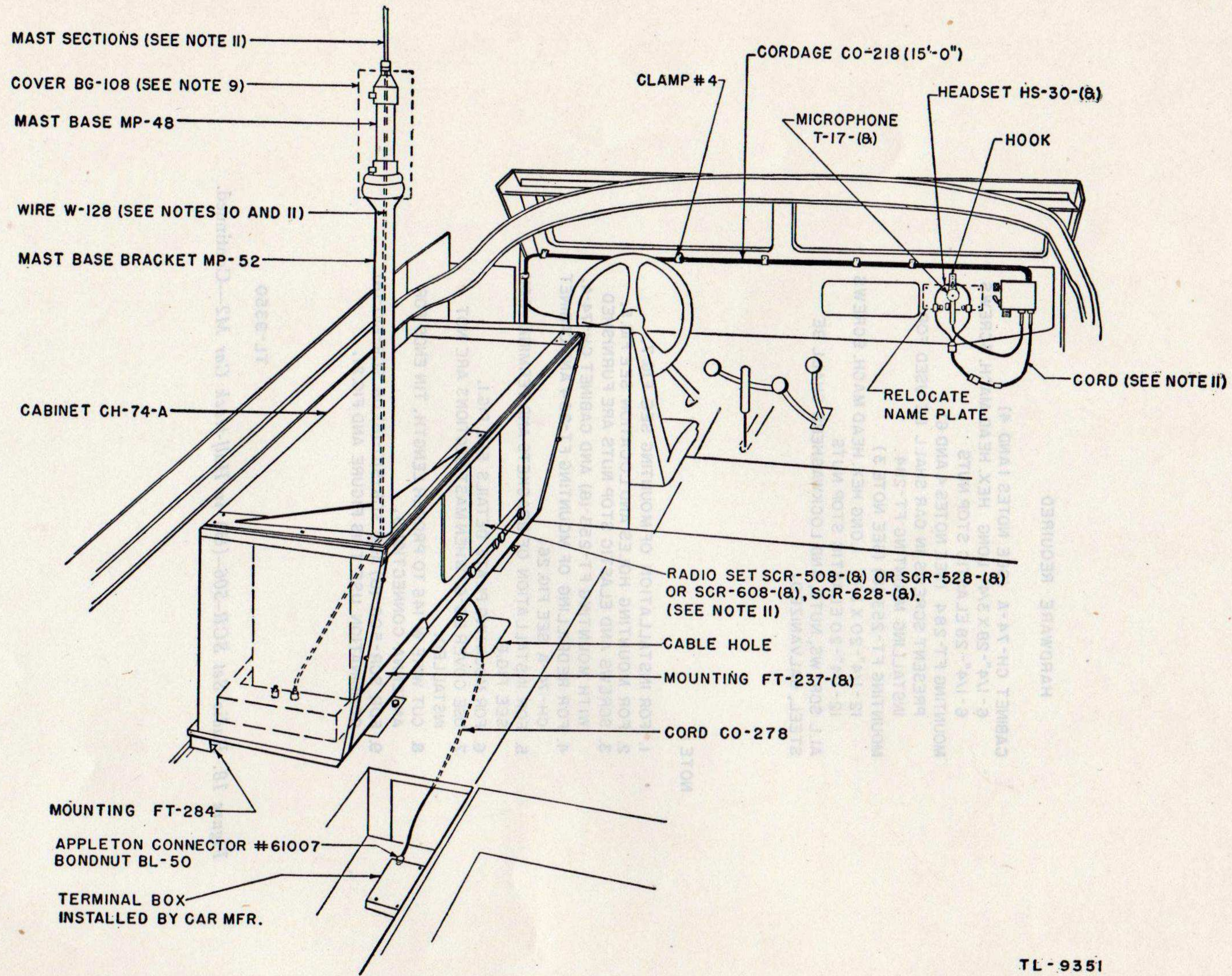
- CABINET CH-74-A (SEE NOTES 1 AND 4)
- 6-1/4"-28 X 3/4" LONG HEX. HEAD MACH. SCREWS
- 6-1/4"-28 ELASTIC STOP NUTS
- MOUNTING FT-284 (SEE NOTES 4 AND 6)
- PRESENT SCREWS IN CAR SHALL BE USED FOR INSTALLING MOUNTING FT-284.
- MOUNTING FT-253-(8) (SEE NOTE 3)
- 12-1/4"-20 X 3/4" LONG HEX. HEAD MACH. SCREWS
- 12-1/4"-20 ELASTIC STOP NUTS
- ALL SCREWS, NUTS, AND LOCKWASHERS SHALL BE STEEL, GALVANIZED.

NOTE:

1. FOR INSTALLATION OF MOUNTING SEE FIG. 7.
2. FOR MOUNTING HOLES AND LOCATION SEE FIG. 5.
3. SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-253-(8) AND CABINET CH-74-A.
4. FOR REDRILLING OF MOUNTING FT-284 AND CABINET CH-74-A SEE FIG. 26.
5. FOR INSTALLATION OF BRACKETS AND TERMINAL BOX SEE FIG. 6.
6. FOR MOUNTING PLATE DETAILS SEE FIG. 1.
7. USE COVER BG-67 WHEN MAST SECTIONS ARE NOT INSTALLED.
8. CUT WIRE W-146 TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.
9. FOR SCR-506-(8) AND SCR-510-(8) OR SCR-610-(8) COMBINATION USE THIS FIGURE AND FIG. 21.

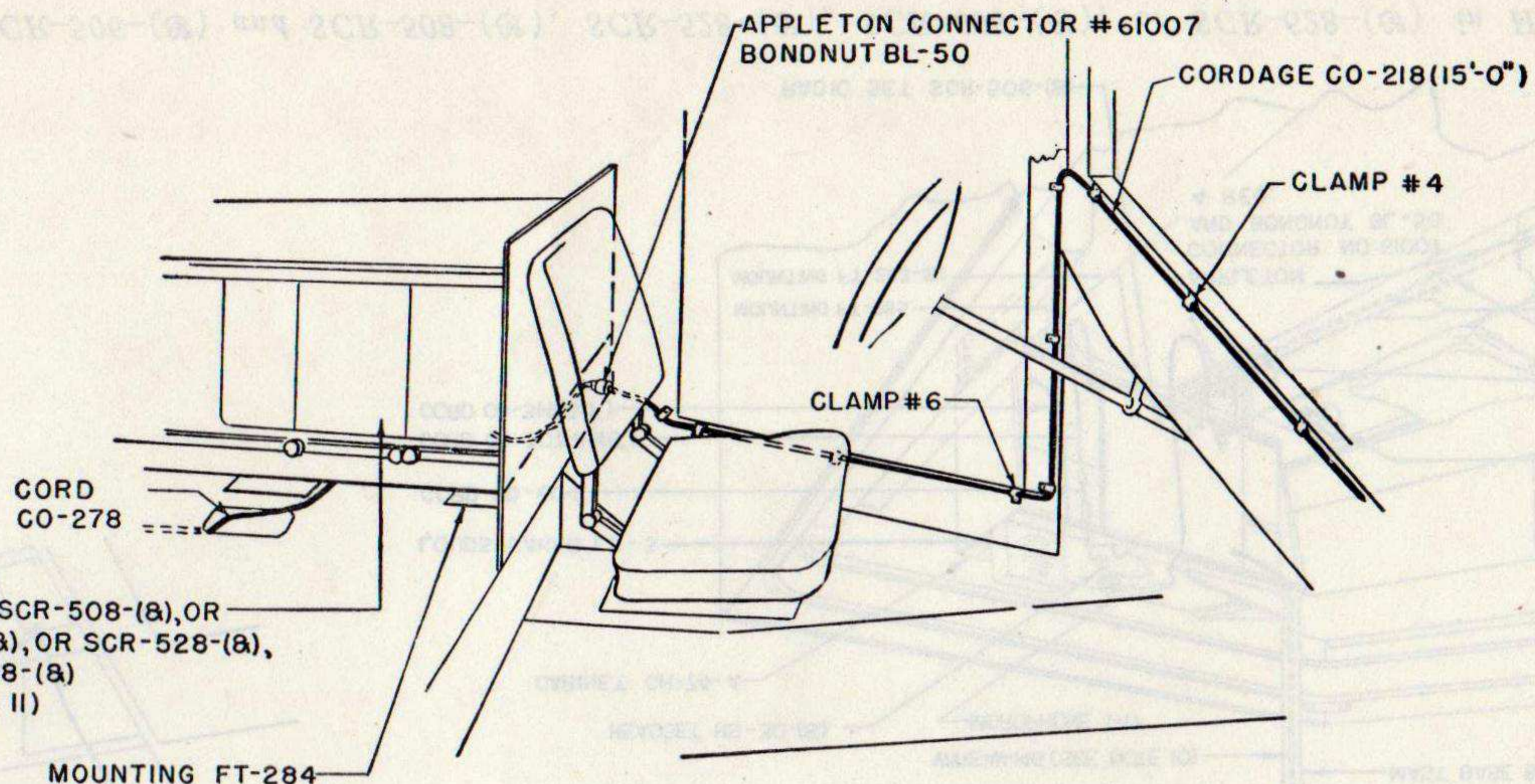
TL-9350

Figure 18. Radio Set SCR-506-(8) in Half-track Car M2—Continued.



TL-9351

Figure 19. Radio Set SCR-508-(8), SCR-528-(8), SCR-608-(8), or SCR-628-(8) in Half-track Car M2.



RADIO SET SCR-508-(8), OR
SCR-608-(8), OR SCR-528-(8),
OR SCR-628-(8)
(SEE NOTE II)

MOUNTING FT-284

NOTE:

1. FOR INSTALLATION OF MOUNTING SEE FIG. 7.
2. FOR MOUNTING HOLES AND LOCATION, SEE FIG. 5.
3. SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-(8), CABINET CH-74-A.
4. FOR REDRILLING OF MOUNTING FT-284 AND CABINET CH-74-A SEE FIG. 26.
5. FOR CORDING DIAGRAM SEE FIG. 16.
6. FRAME FT-284 TO BE MOUNTED WITH EXISTING SCREWS AND NUTS IN VEHICLE.
7. FOR WIRING OF INTERPHONE CONTROL BOX BC-606-(8) FOR REMOTE CONTROL SEE FIG. 10.
8. SCREWS, NUTS, HOOKS, AND CLAMP # 4 ARE PROVIDED WITH CONTROL BOX BC-606-(8).
9. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
10. CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.

II.

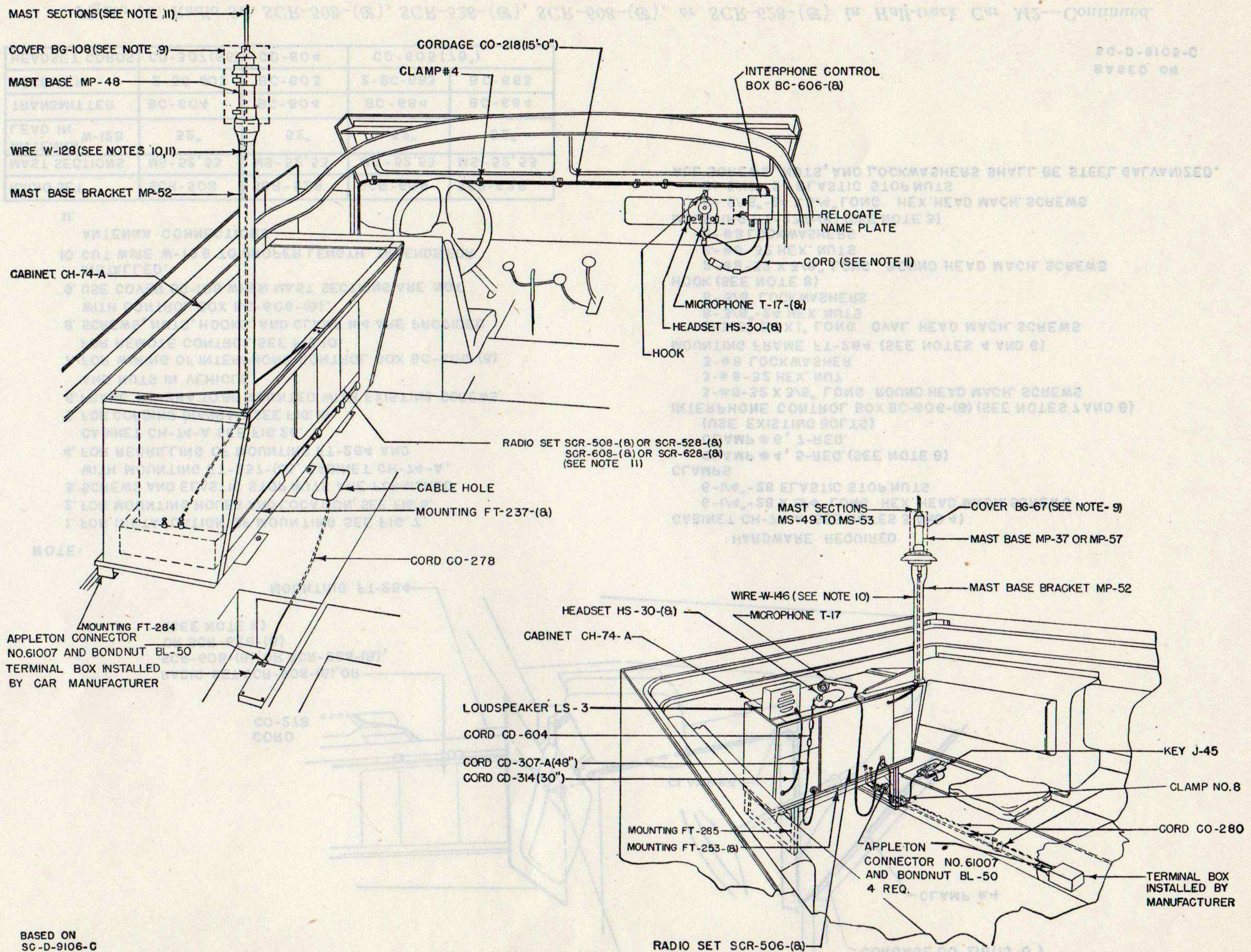
RADIO SET	SCR-508	SCR-528	SCR-608	SCR-628
MAST SECTIONS	MS-52,53	MS-52,53	MS-52,53	MS-52,53
ANTENNA LEAD IN W-128	52"	52"	52"	52"
TRANSMITTER	BC-604	BC-604	BC-684	BC-684
RECEIVER	2-BC-603	BC-603	2-BC-683	BC-683
HEADSET CORDS	CD-307(65"), CD-604		CD-605(78")	

HARDWARE REQUIRED

- CABINET CH-74-A (SEE NOTES 3 AND 4)
6-1/4"-28 X 3/4" LONG HEX. HEAD MACH. SCREWS
6-1/4"-28 ELASTIC STOP NUTS
- CLAMPS
CLAMP #4, 5-REQ. (SEE NOTE 8)
CLAMP #6, 7-REQ.
(USE EXISTING BOLTS)
- INTERPHONE CONTROL BOX BC-606-(8) (SEE NOTES 7 AND 8)
3-#8-32 X 3/8" LONG ROUND HEAD MACH. SCREWS
3-#8-32 HEX. NUT
3-#8 LOCKWASHER
- MOUNTING FRAME FT-284 (SEE NOTES 4 AND 6)
8-3/8"-24 X 1" LONG OVAL HEAD MACH. SCREWS
8-3/8"-24 HEX. NUTS
8-3/8" LOCKWASHERS
- HOOK (SEE NOTE 8)
2-#8-32 X 3/8" LONG ROUND HEAD MACH. SCREWS
2-#8-32 HEX. NUTS
2-#8 LOCKWASHERS
- MOUNTING FT-237-(8) (SEE NOTE 3)
8-5/16"-24 X 3/4" LONG HEX. HEAD MACH. SCREWS
8-5/16"-24 ELASTIC STOP NUTS
ALL SCREWS, NUTS, AND LOCKWASHERS SHALL BE STEEL GALVANIZED.

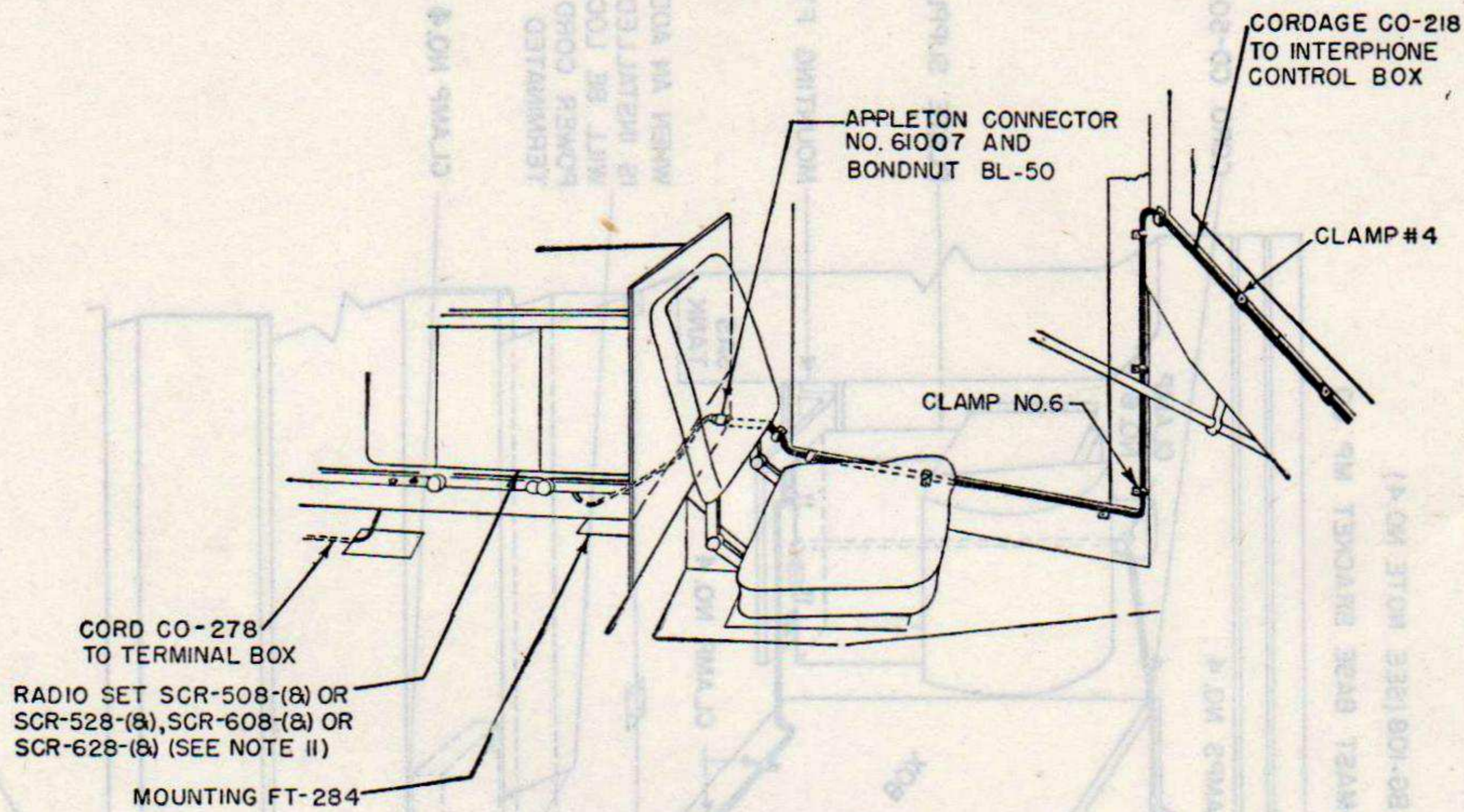
BASED ON
SC-D-9103-C

Figure 19. Radio Set SCR-508-(8), SCR-528-(8), SCR-608-(8), or SCR-628-(8) in Half-track Car M2—Continued.



BASED ON
SC-D-9106-C

Figure 20. Radio Set SCR-506-(8) and SCR-508-(8), SCR-528-(8), SCR-608-(8), or SCR-628-(8) in Half-track Car M2.



NOTES

1. FOR INSTALLATION OF MOUNTINGS SEE FIGURE 7.
2. FOR MOUNTING HOLES AND LOCATION, SEE FIGURE 5.
3. SCREWS & ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-(8), FT-253-(8), FT-285, CABINET CH-74-A.
4. FOR REDRILLING OF MOUNTING FT-284 & CABINET CH-74-A SEE FIGURE 26.
5. CORDING DIAGRAM FOR RADIO SET SCR-508-(8) OR SCR-528-(8), SCR-608-(8) OR SCR-628-(8), SEE FIGURE 16.
6. FRAME FT-284 TO BE MOUNTED WITH EXISTING SCREWS AND NUTS IN VEHICLE.
7. SCREWS, NUTS, HOOKS AND 8 CLAMP NO. 4 PROVIDED WITH CONTROL BOX BC-606.
8. FOR WIRING OF CONTROL BOX BC-606 FOR REMOTE CONTROL SEE FIGURE 10.
9. USE COVERS BG-67, BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
10. CUT WIRE W-146 AND WIRE W-128 TO PROPER LENGTHS, TIN ENDS FOR ANTENNA CONNECTIONS.
11. 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, LEAD-IN WIRE W-128	52"	52"	52"	52"
TRANSMITTER	BC-604	BC-604	BC-684	BC-684
RECEIVER	2-BC-603	BC-603	2-BC-683	BC-683
HEAD SET CORDS	CD-307(65"), CD-604		CD-605(78")	

HARDWARE REQUIRED:

- CABINET CH-74-A (SEE NOTE 3 AND 4).
- 12-1/4"-28 X 3/4" LG. HEX. HD. MACH. SCREWS.
- 12-1/4"-28 ELASTIC STOP NUTS.
- CLAMPS
- CLAMP NO. 4-5 REQ. (SEE NOTE 7)
- CLAMP NO. 6-7 REQ.
- CLAMP NO. 8-2 REQ. (USE EXISTING BOLTS)
- INTERPHONE CONTROL BOX BC-606-(8) (SEE NOTE 7 AND 8).
- 3-NO. 8-32 X 3/8" LG. RD. HD. MACH. SCREWS.
- 3-NO. 8-32 HEX. NUTS.
- 3-NO. 8 LOCK WASHERS.
- MOUNTING FRAME FT-284 (SEE NOTES 1, 4, 6)
- 8-3/8"-24 X 1" LG. OVAL HD. MACH. SCREWS.
- 8-3/8"-24 HEX. NUTS.
- 8-3/8" LOCK WASHERS.
- HOOK
- 2-NO. 8-32 X 3/8" LG. RD. HD. MACH. SCREWS.
- 2-NO. 8-32 HEX. NUTS.
- 2-NO. 8 LOCK WASHERS.
- MOUNTING FT-237-(8) (SEE NOTES 3, 8)
- 8-5/16"-24 X 3/4" LG. HEX. HD. MACH. SCREWS.
- 8-5/16"-24 ELASTIC STOP NUTS.
- MOUNTING FT-253-(8) (SEE NOTE 3).
- 12-1/4"-20 X 3/4" LG. HEX. HD. MACH. SCREWS.
- 12-1/4"-20 ELASTIC STOP NUTS.
- FRAME FT-285 (SEE NOTE 3).
- 8-3/8"-24 X 3/4" LG. HEX. HD. MACH. SCREWS.
- 8-3/8"-24 ELASTIC STOP NUTS.

ALL SCREWS NUTS AND LOCK WASHERS SHALL BE GALVANIZED.

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Figure 20. Radio Set SCR-506-(8) and SCR-508-(8), SCR-528-(8), SCR-608-(8), or SCR-628-(8) in Half-track Car M2—Continued.

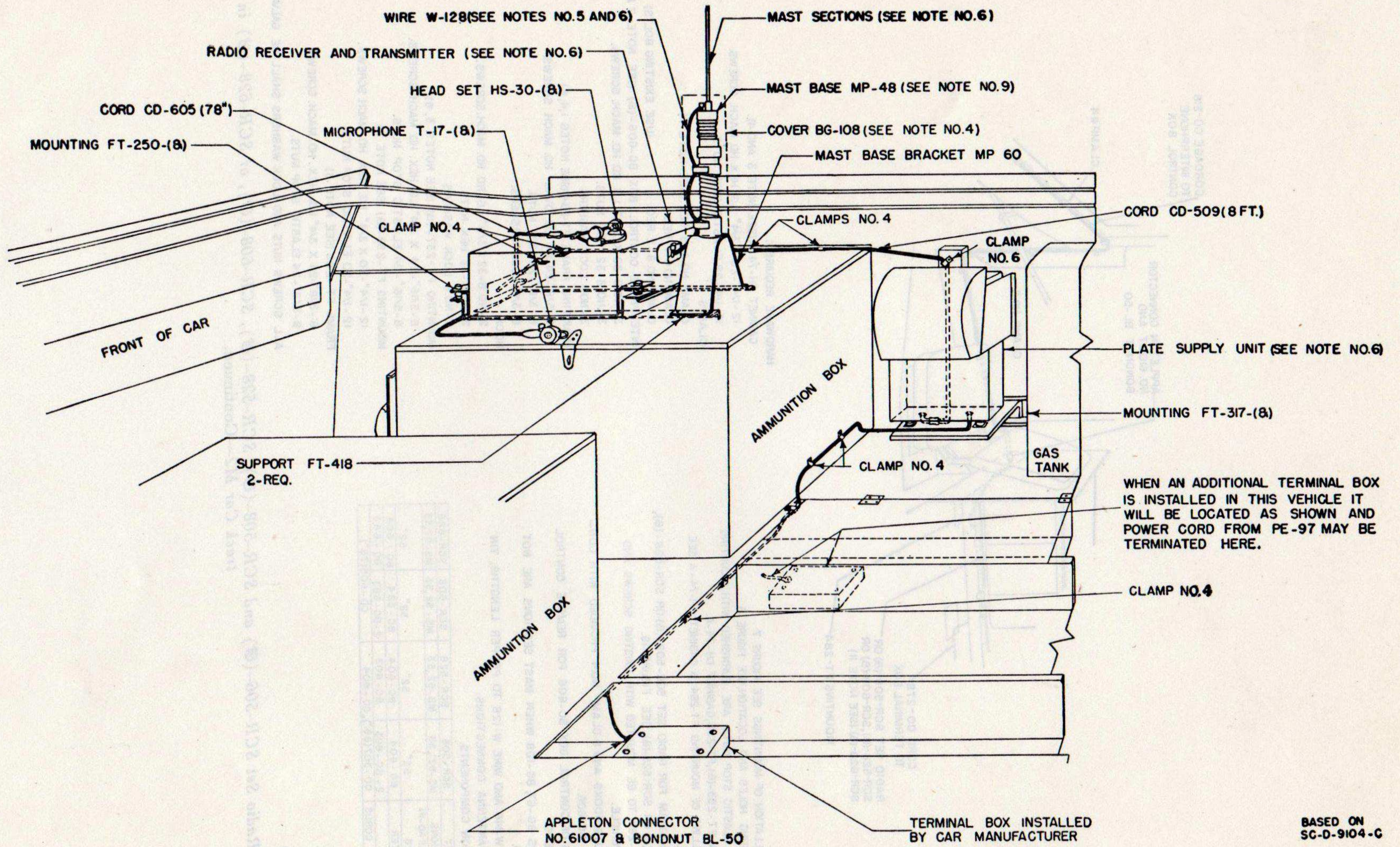


Figure 21. Radio Set SCR-510-(E) or SCR-610-(E) in Half-track Car M2.

Figure 21. Radio Set SCR-510-(B) or SCR-610-(B) in Half-track Car M2

20-0-8100-0
REVISED ON

NOTES:

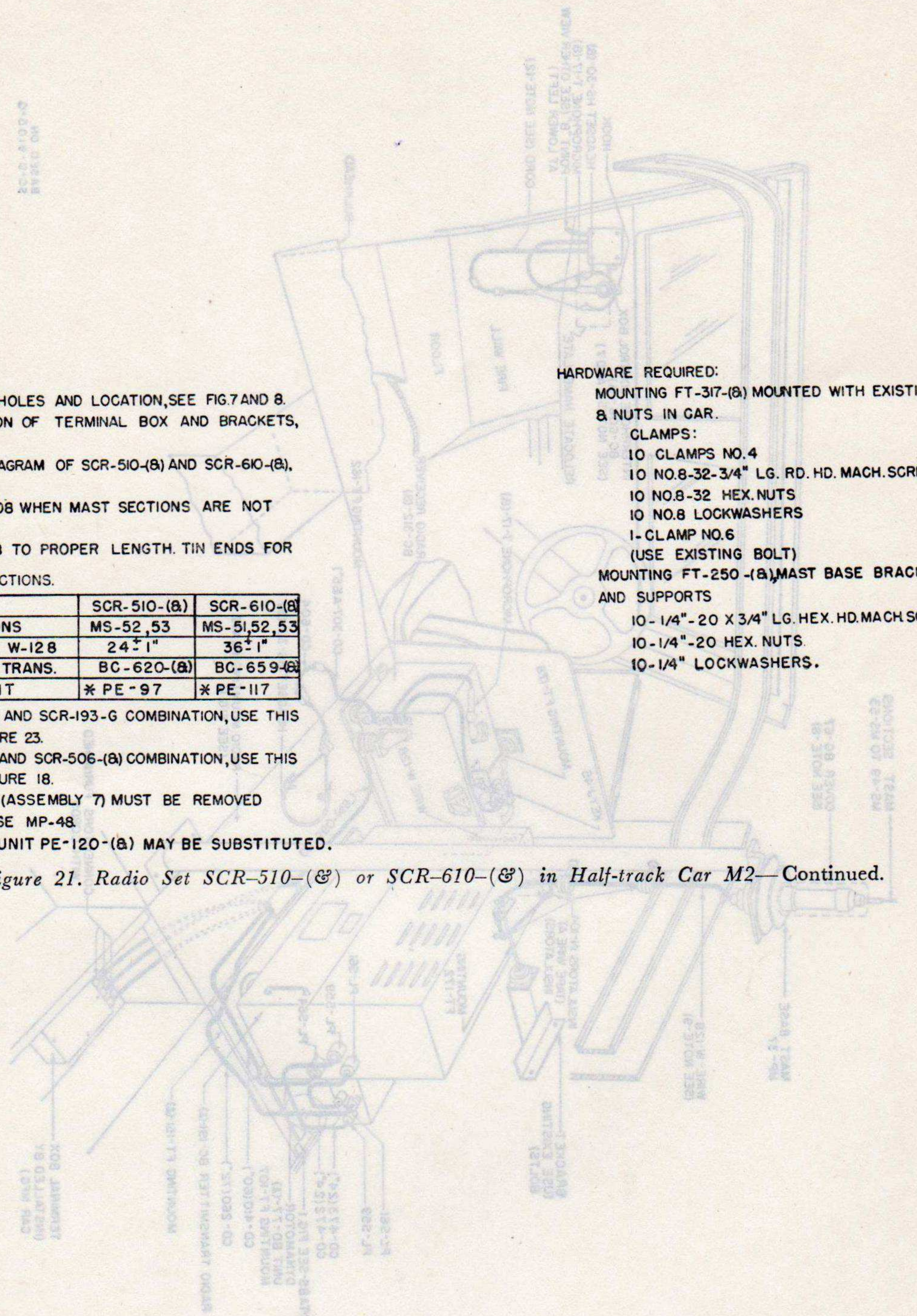
1. FOR MOUNTING HOLES AND LOCATION, SEE FIG. 7 AND 8.
2. FOR INSTALLATION OF TERMINAL BOX AND BRACKETS, SEE FIGURE 6.
3. FOR CORDING DIAGRAM OF SCR-510-(B) AND SCR-610-(B), SEE FIGURE 15.
4. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
5. CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.
6.

RADIO SETS	SCR-510-(B)	SCR-610-(B)
MAST SECTIONS	MS-52, 53	MS-51, 52, 53
LEAD-IN WIRE W-128	24'-1"	36'-1"
RADIO REC. & TRANS.	BC-620-(B)	BC-659-(B)
POWER UNIT	* PE-97	* PE-117
7. FOR SCR-510-(B) AND SCR-193-G COMBINATION, USE THIS FIGURE AND FIGURE 23.
8. FOR SCR-510-(B) AND SCR-506-(B) COMBINATION, USE THIS FIGURE AND FIGURE 18.
9. INTERNAL LEAD (ASSEMBLY 7) MUST BE REMOVED FROM MAST BASE MP-48.

* POWER UNIT PE-120-(B) MAY BE SUBSTITUTED.

HARDWARE REQUIRED:

- MOUNTING FT-317-(B) MOUNTED WITH EXISTING SCREWS & NUTS IN CAR.
- CLAMPS:
 - 10 CLAMPS NO. 4
 - 10 NO. 8-32-3/4" LG. RD. HD. MACH. SCREWS
 - 10 NO. 8-32 HEX. NUTS
 - 10 NO. 8 LOCKWASHERS
 - 1-CLAMP NO. 6 (USE EXISTING BOLT)
- MOUNTING FT-250-(B), MAST BASE BRACKET MP-60, AND SUPPORTS
 - 10- 1/4"-20 X 3/4" LG. HEX. HD. MACH. SCREWS.
 - 10- 1/4"-20 HEX. NUTS.
 - 10- 1/4" LOCKWASHERS.



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Figure 21. Radio Set SCR-510-(B) or SCR-610-(B) in Half-track Car M2—Continued.

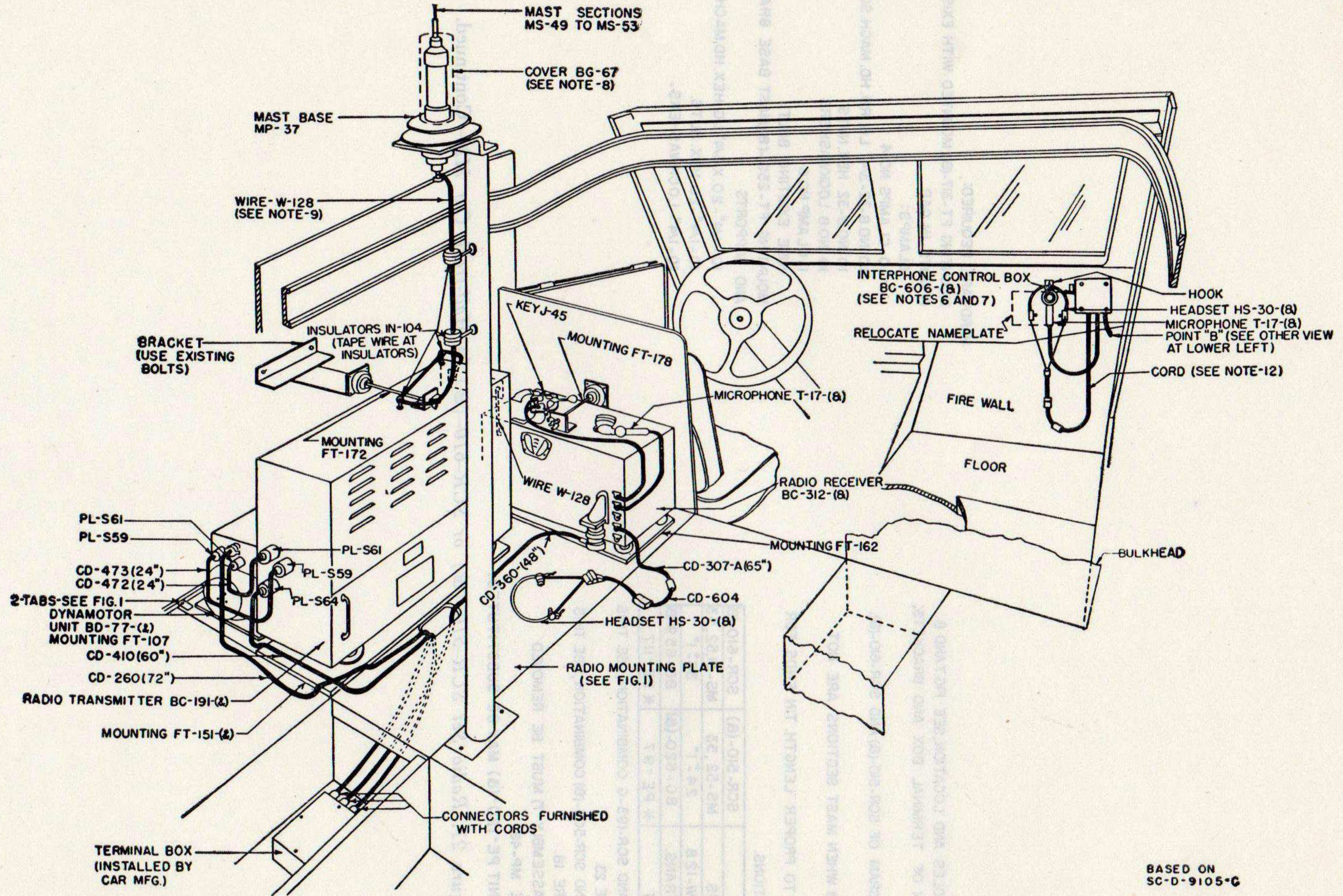
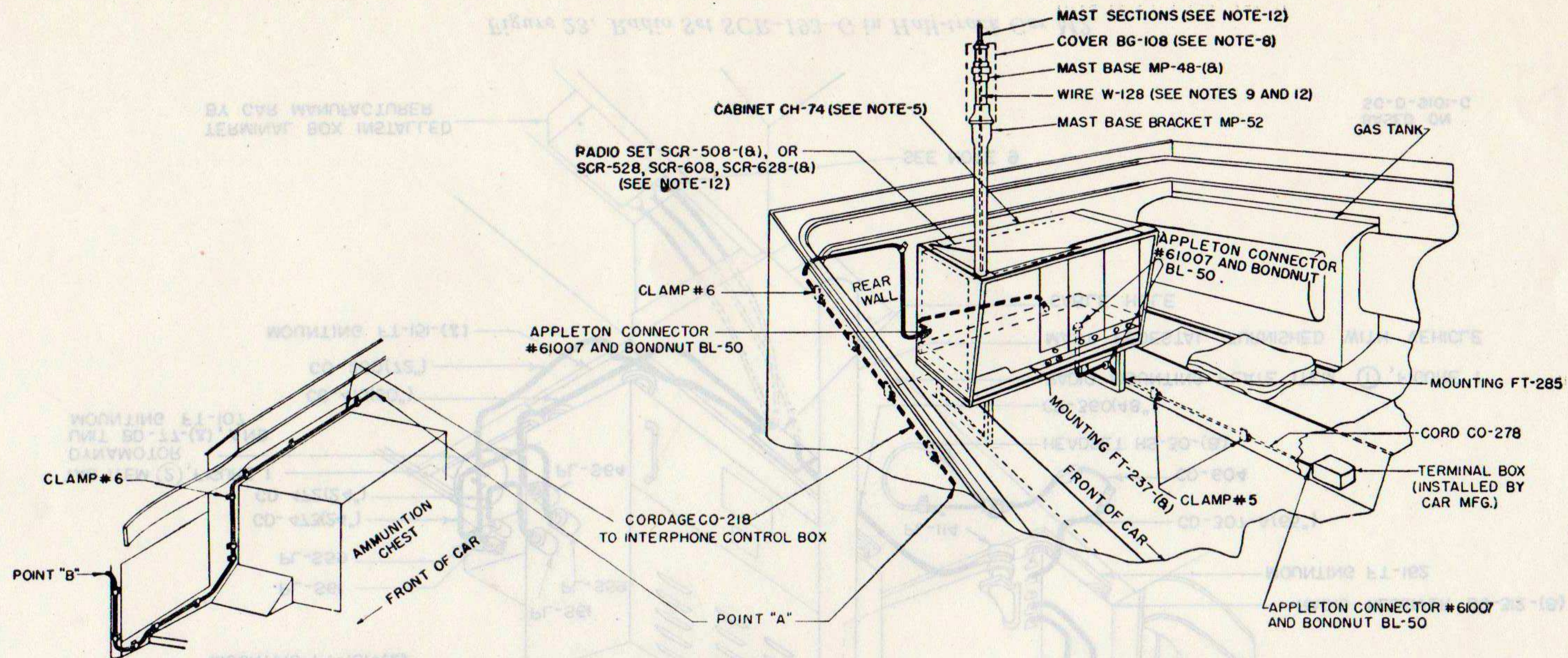


Figure 22. Radio Sets SCR-193-G and SCR-508-(⊗), SCR-528-(⊗), SCR-608-(⊗), or SCR-628-(⊗) in Half-track Car M2.



HARDWARE REQUIRED -
(FOR RADIO MOUNTING PLATE, USE EXISTING SCREWS AND NUTS IN CAR.)

- MOUNTING FT-162
- 10- #10-32 X 3/8" LONG HEX. HEAD MACH. SCREWS
- 10- #10 LOCK WASHERS
- MOUNTING FT-107
- 6- 1/4"-20 X 7/16" LONG HEX. HEAD MACH. SCREWS
- 6- 1/4" LOCK WASHERS
- MOUNTING FT-151-B
- 8- 1/4"-20 X 7/16" LONG HEX. HEAD MACH. SCREWS
- 8- 1/4" LOCK WASHERS
- MOUNTING FT-172 AND FT-178
- 8- #10-32 X 1/2" LONG ROUND HEAD MACH. SCREWS
- 8- #10-LOCK WASHERS
- 8- #10-32 HEX. NUTS
- CABINET CH-74-A (SEE NOTE-5)
- 6- 1/4"-28 X 3/4" LONG HEX. HEAD MACH. SCREWS
- 6- 1/4"-28 ELASTIC STOP NUTS
- MOUNTING FT-237-(8) (SEE NOTE-5)
- 8- 5/16"-24 X 3/4" LONG HEX. HEAD MACH. SCREWS
- 8- 5/16"-24 ELASTIC STOP NUTS
- MOUNTING FT-285 (SEE NOTE-5)
- 8- 3/8"-24 X 3/4" LONG HEX. HEAD MACH. SCREWS
- 8- 3/8"-24 ELASTIC STOP NUTS
- 16- CLAMP #6 (USE EXISTING BOLTS)
- 2- CLAMP #5 (USE EXISTING BOLTS)
- INTERPHONE CONTROL BOX BC-606-(8)
- (SEE NOTE-6 AND 7)
- 3- #8-32 X 3/8" LONG HEX. HEAD MACH. SCREWS
- 3- #8-32 HEX. NUTS
- 3- #8- LOCK WASHERS

NOTES:

- 1- FOR CORDING DIAGRAM OF RADIO SET SCR-193-G, SEE FIG. 17.
- 2- FOR INSTALLATION OF MOUNTING, SEE FIG. 7.
- 3- FOR INSTALLATION OF BRACKETS AND TERMINAL BOX, SEE FIG. 6.
- 4- FOR MOUNTING HOLES AND LOCATION, SEE FIG. 5.
- 5- SCREWS AND ELASTIC STOP NUTS ARE FURNISHED WITH MOUNTING FT-237-(8), CABINET CH-74-A AND MOUNTING FT-285.
- 6- FOR WIRING OF INTERPHONE CONTROL BOX BC-606-(8) FOR REMOTE CONTROL, SEE FIG. 10.
- 7- SCREWS, NUTS, HOOKS AND CLAMP #4 ARE SUPPLIED WITH CONTROL BOX BC-606-(8).
- 8- USE COVER BG-67, BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
- 9- CUT WIRE W-128 TO PROPER LENGTH. TIN ENDS FOR ANTENNA AND GROUND CONNECTIONS.
- 10- FOR ASSEMBLY OF MOUNTING FT-172 AND FT-178, SEE FIG. 13.
- 11- FOR DRILLING OF RECEIVER BC-312-(8) AND TRANSMITTER BC-191-(8), SEE FIGS. 11 AND 12.
- 12- 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
LEAD-IN WIRE W-128	52"	52"	52"	52"
TRANSMITTER	BC-604	BC-604	BC-684	BC-684
RECEIVER	2-BC-603	BC-603	2-BC-683	BC-683
HEADSET CORDS	CD-307-(65")	CD-604	CD-605-(78")	

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Figure 22. Radio Sets SCR-193-G and SCR-508-(8), SCR-528-(8), SCR-608-(8), or SCR-628-(8) in Half-track Car M2—Continued.

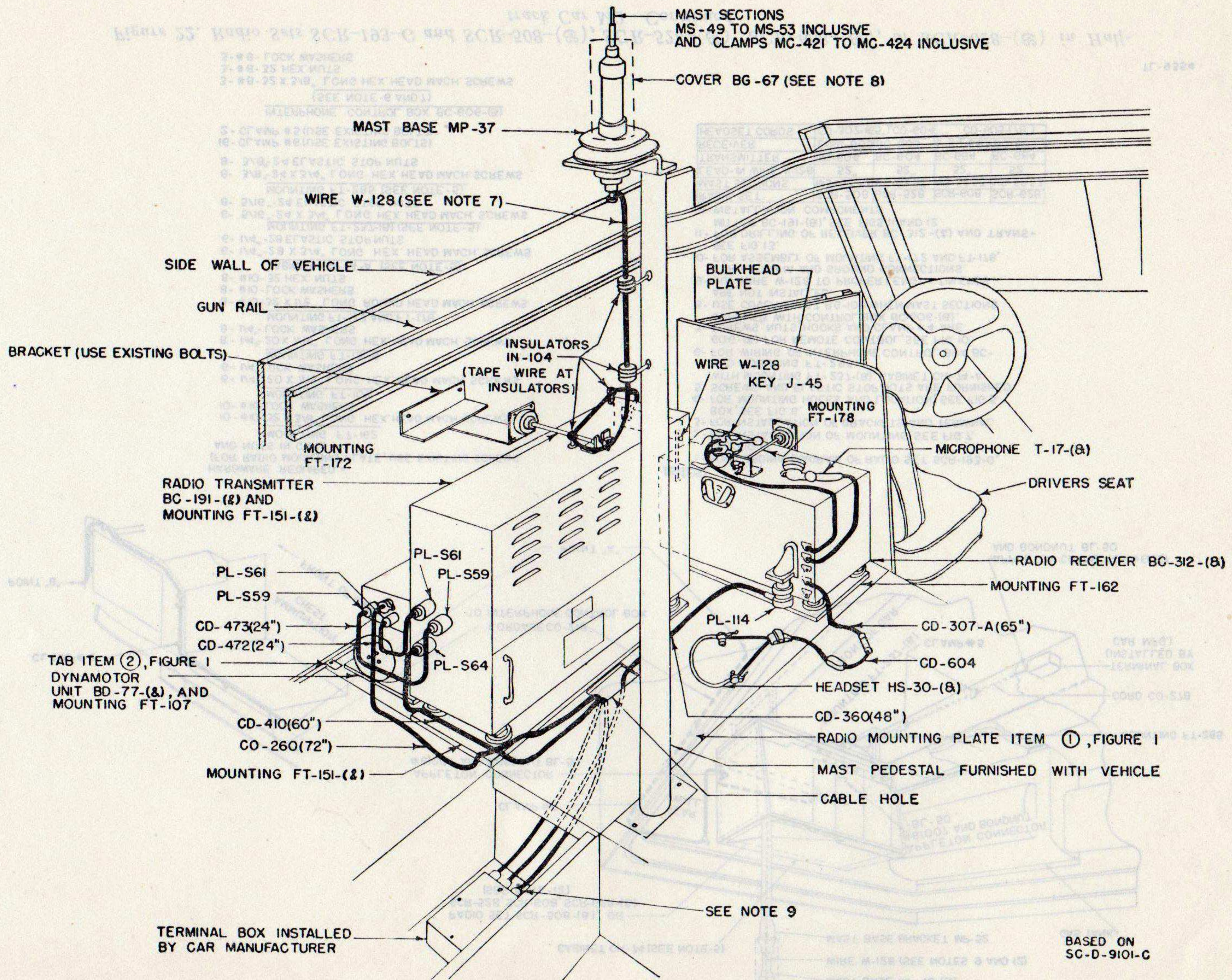


Figure 23. Radio Set SCR-193-G in Half-track Car M2.

NOTE:

1. FOR MOUNTING HOLES AND LOCATION SEE FIGURE 5.
2. FOR INSTALLATION OF BRACKETS AND TERMINAL BOX SEE FIGURE 6.
3. FOR CORDING DIAGRAM SEE FIGURE 17.
4. FOR MOUNTING PLATE DETAILS SEE FIGURE 1.
5. FOR ASSEMBLY OF MOUNTINGS FT-172 AND FT-178 SEE FIGURE 13.
6. FOR DRILLING OF RECEIVER AND TRANSMITTER FOR SNUBBERS SEE FIGURES 11 AND 12.
7. CUT WIRE W-128 TO PROPER LENGTH TIN ENDS FOR ANTENNA AND GROUND CONNECTIONS.
8. USE COVER BG-67 WHEN MAINT SECTIONS ARE NOT INSTALLED.
9. FOR SCR-193 AND SCR-510-(B) OR SCR-610-(B) COMBINATION USE THIS DRAWING AND FIGURE 21.
10. CABLE CONNECTIONS ARE INCLUDED AS PART OF CORDS CD-360, CO-260 AND CD-410.

HARDWARE REQUIRED:

- FOR RADIO MOUNTING PLATE USE EXISTING SCREWS AND NUTS.
- MOUNTING FT-162
10-NO.10-32 X 3/8" LG. HEX. HD. MACH. SCREWS
10-NO.10 LOCK WASHERS
MOUNTING FT-107
6-1/4"-20 X 7/16" LG. RD. HD. MACH. SCREWS
6-1/4" LOCK WASHERS
MOUNTING FT-151-B
8-1/4"-20 X 7/16" LG. RD. HD. MACH. SCREWS
8-1/4" LOCK WASHERS
MOUNTING FT-172 AND FT-178
8-NO.10-32 X 1/2" LG. RD. HD. MACH. SCREWS
8-NO.10-32 HEX. NUTS.
8-NO.10 LOCK WASHERS
- ALL SCREWS, NUTS AND LOCK WASHERS SHALL BE STEEL, GALVANIZED.

TL-9355

Figure 23. Radio Set SCR-193-G in Half-track Car M2—Continued.

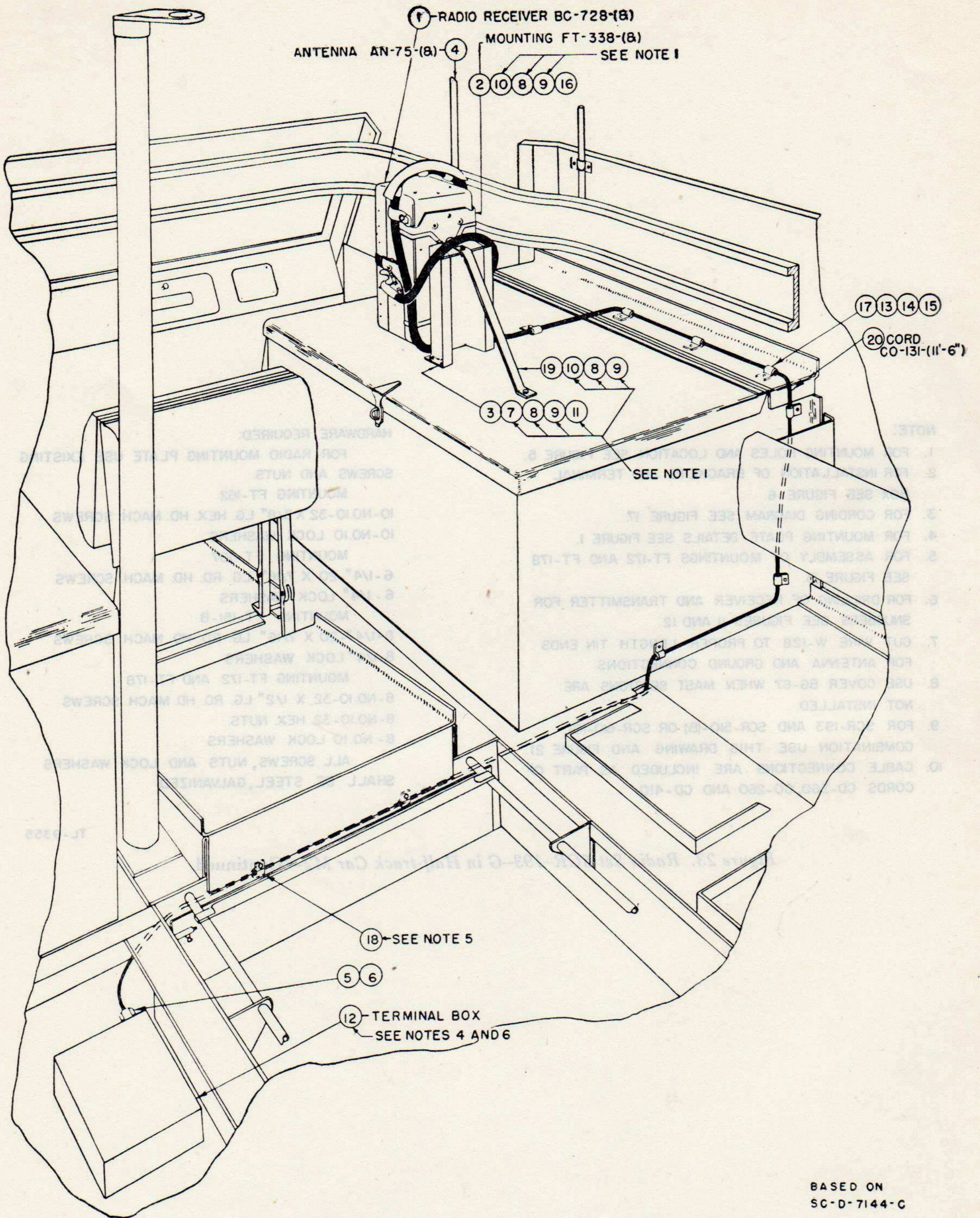
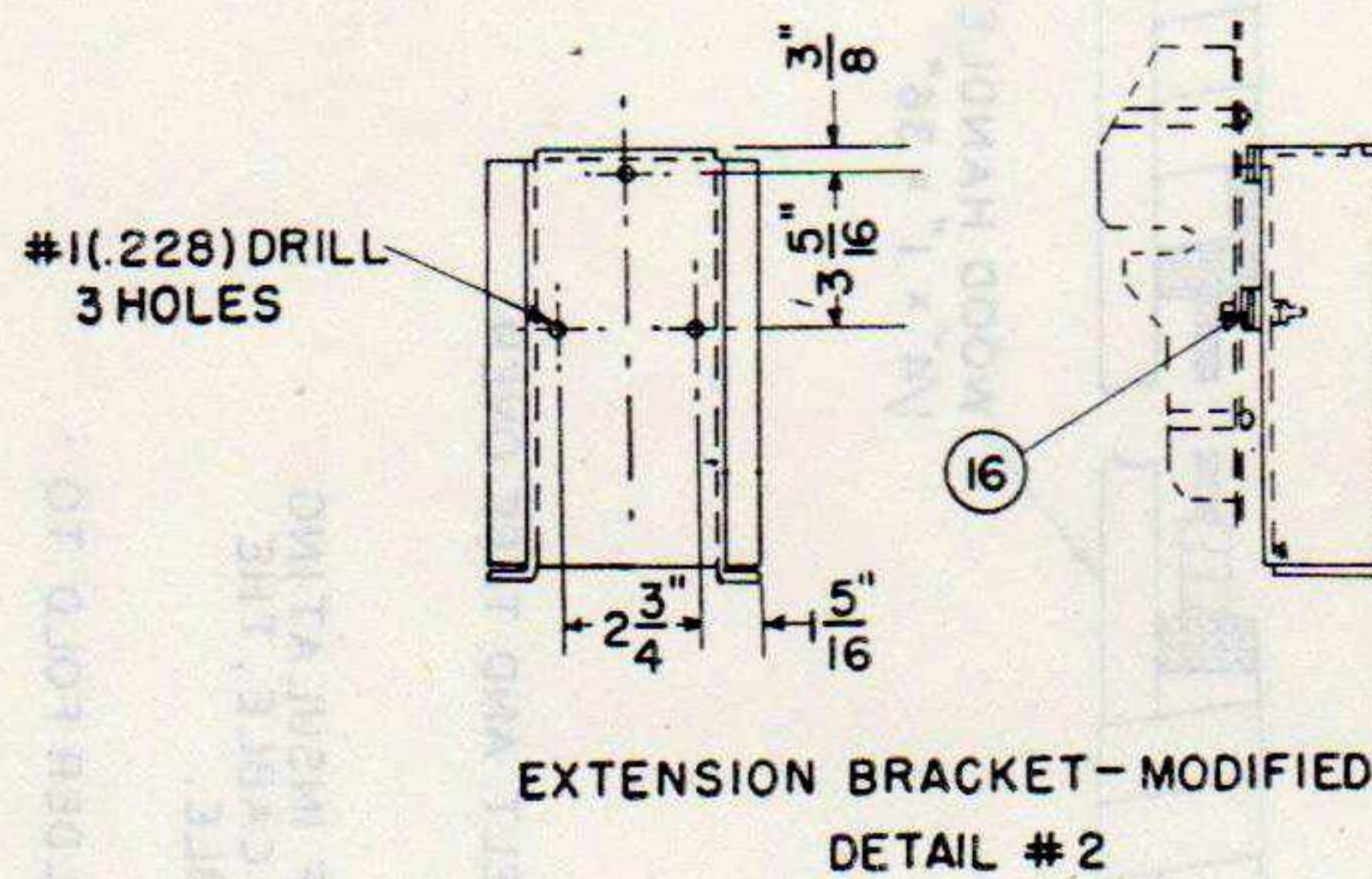
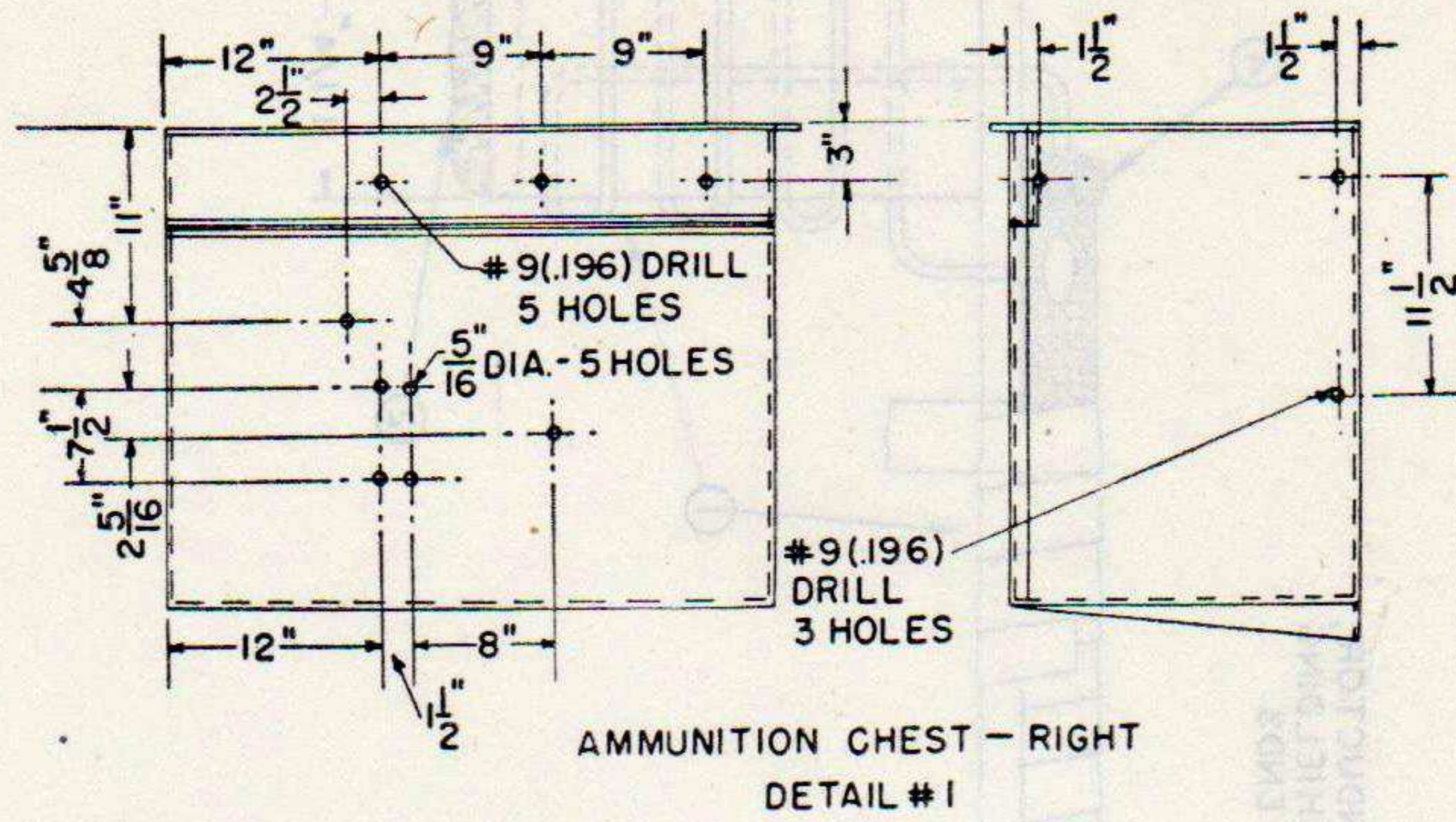


Figure 24. Installation of Radio Set SCR-593-(8) in Half-track Car M2.



ITEM NO.	NAME OF ITEM	QUAN. REQ.
1	RADIO RECEIVER BC-728-(8)	1
2	MOUNTING FT-338-(8)	1
3	EXTENSION BK'T (SEE DETAIL#2) PART OF FT-338-(8)	1
4	ANTENNA AN-75-(8)	1
5	APPLETON CONNECTOR CAT #61007	1
6	APPLETON BONDNUT CAT #BL-50	1
7	HEX. HD. MACH. SCREWS 1/4"-20 X 1/2" LONG	4
8	LOCKWASHER 1/4" INTERNAL TOOTH	5
9	HEX. NUT 1/4"-20 STANDARD	9
10	HEX. HD. MACH. SCREWS 1/4"-20 X 1-1/4" LONG	5
11	LOCKWASHER 5/16" INT.-EXT. TOOTH	4
12	TERMINAL BOX C66522	1
13	RD. HD. MACH. SCREWS #8-32 X 3/8" LONG	8
14	HEX. NUT #8-32	8
15	LOCKWASHER SAE STD. FOR #8 SCREW	8
16	FLATWASHER SAE STD. FOR 1/4" SCREW	9
17	CLAMP NO. 1	8
18	CLAMP NO. 2	2
19	REINFORCING B'K'T	1
20	CORDAGE CO-131 11'-6" LONG	1

NOTE:

- ⑦ TO ⑪ INCLUSIVE ARE FURNISHED WITH ②
- AMMUNITION CHEST IN VEHICLE SHALL BE DRILLED PER DETAIL #1.
- DETACH POWER CORD FURNISHED WITH MOUNTING FT-338-(8) FROM RECEPTACLE AND ATTACH ② IN ITS PLACE.
- ⑫ SHALL BE FURNISHED AND INSTALLED BY VEHICLE MFR.
- ⑬ SHALL BE MOUNTED WITH EXISTING BOLTS.
- IF VEHICLE IS PROVIDED WITH A TERMINAL BOX IN RIGHT HAND STORAGE COMPARTMENT, POWER CONNECTION SHOULD BE MADE AT THAT TERMINAL BOX.

TL-11856

Figure 24. Installation of Radio Set SCR-593-(8) in Half-track Car M2—Continued.

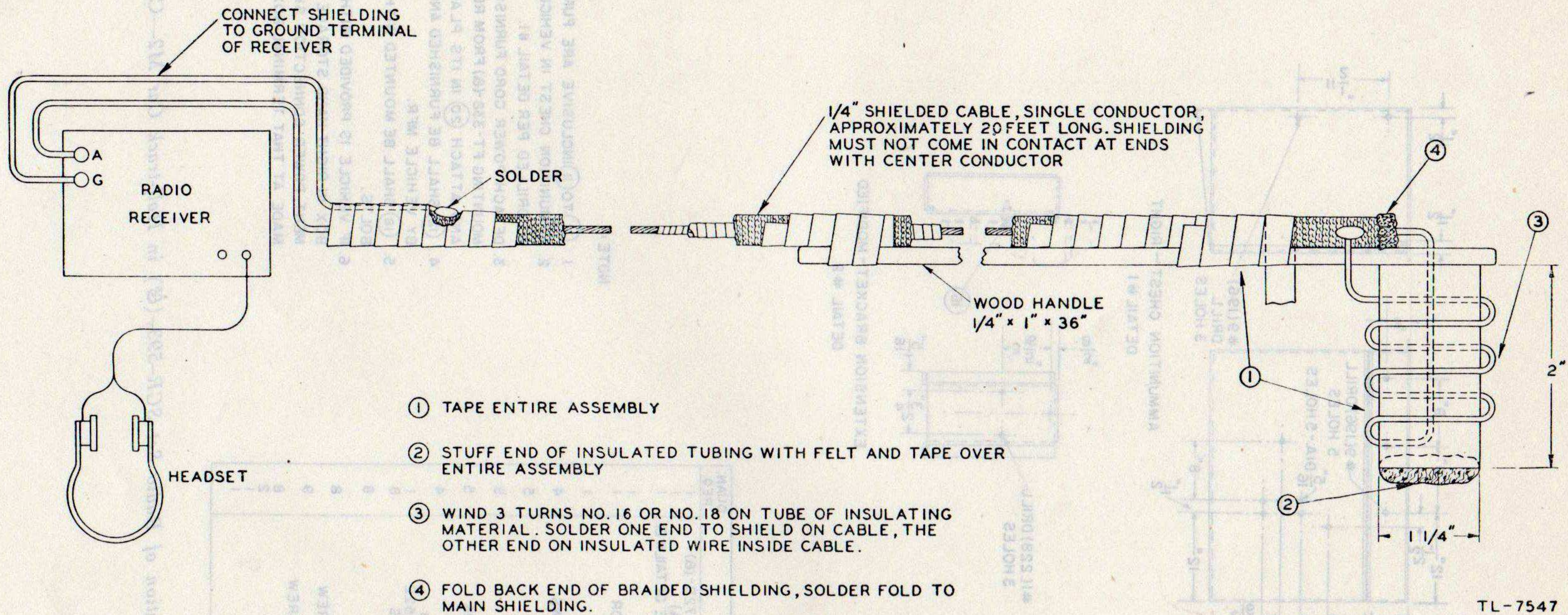
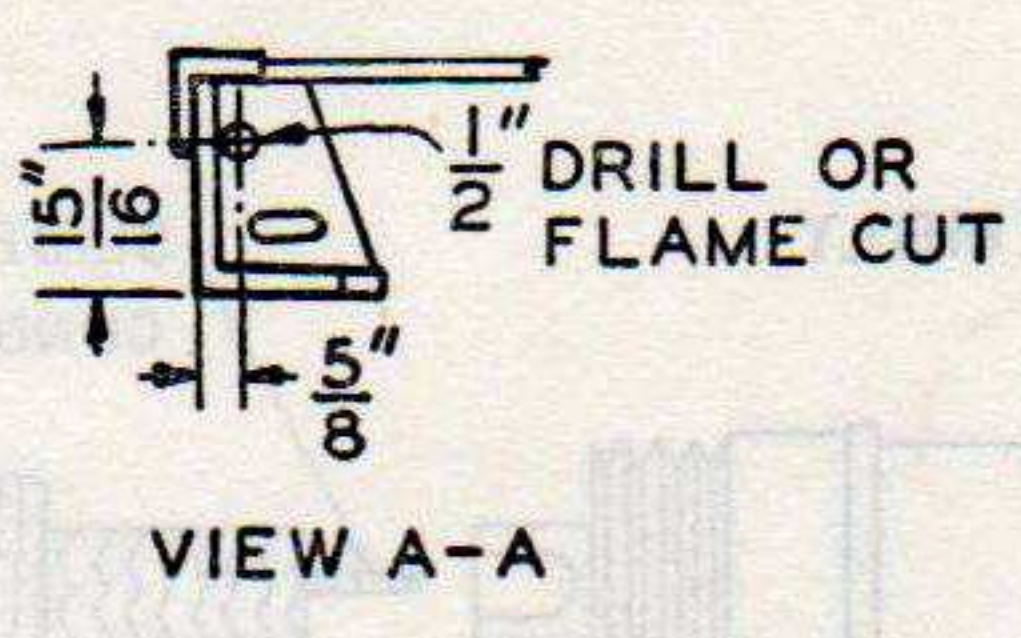
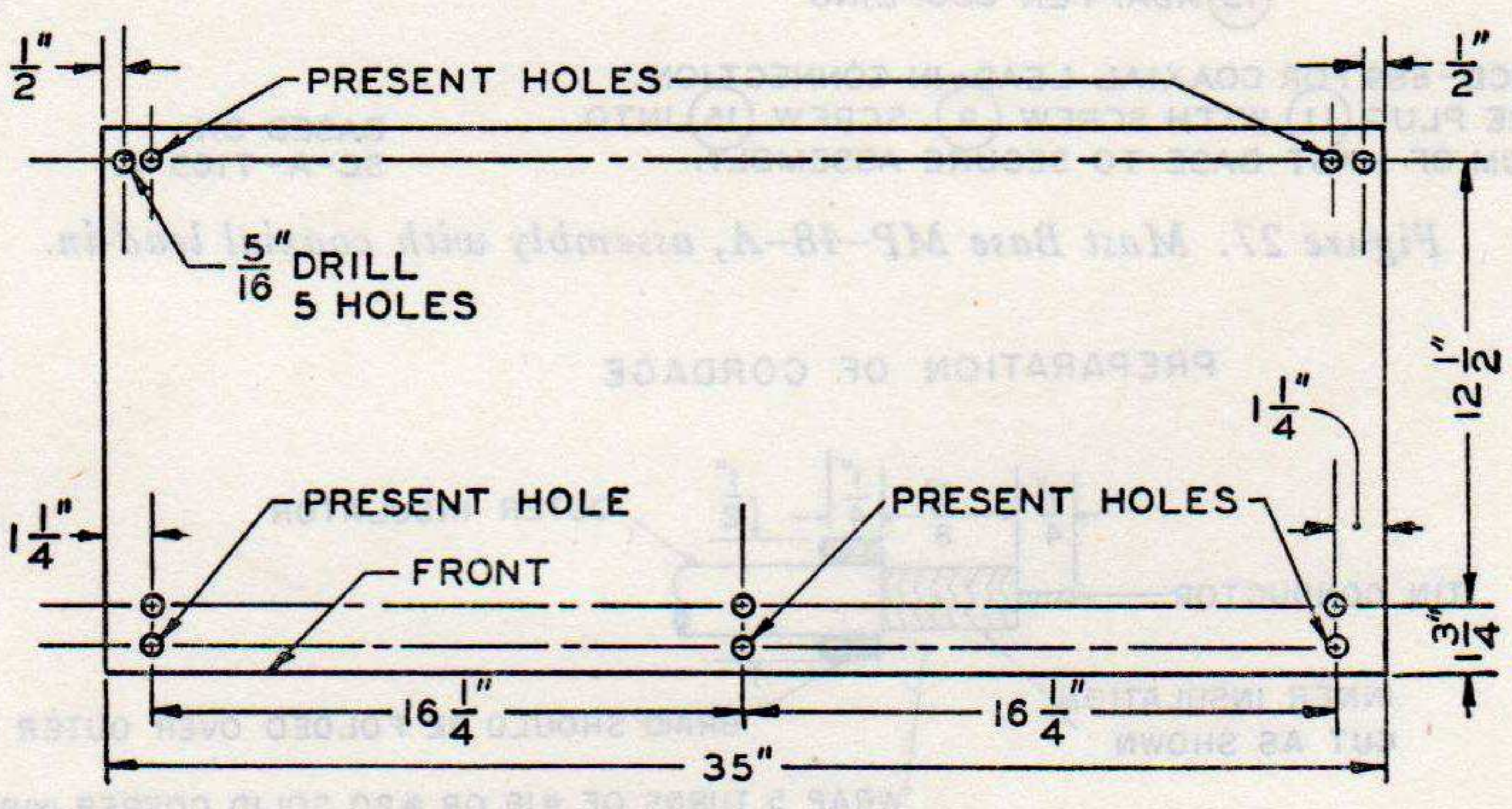
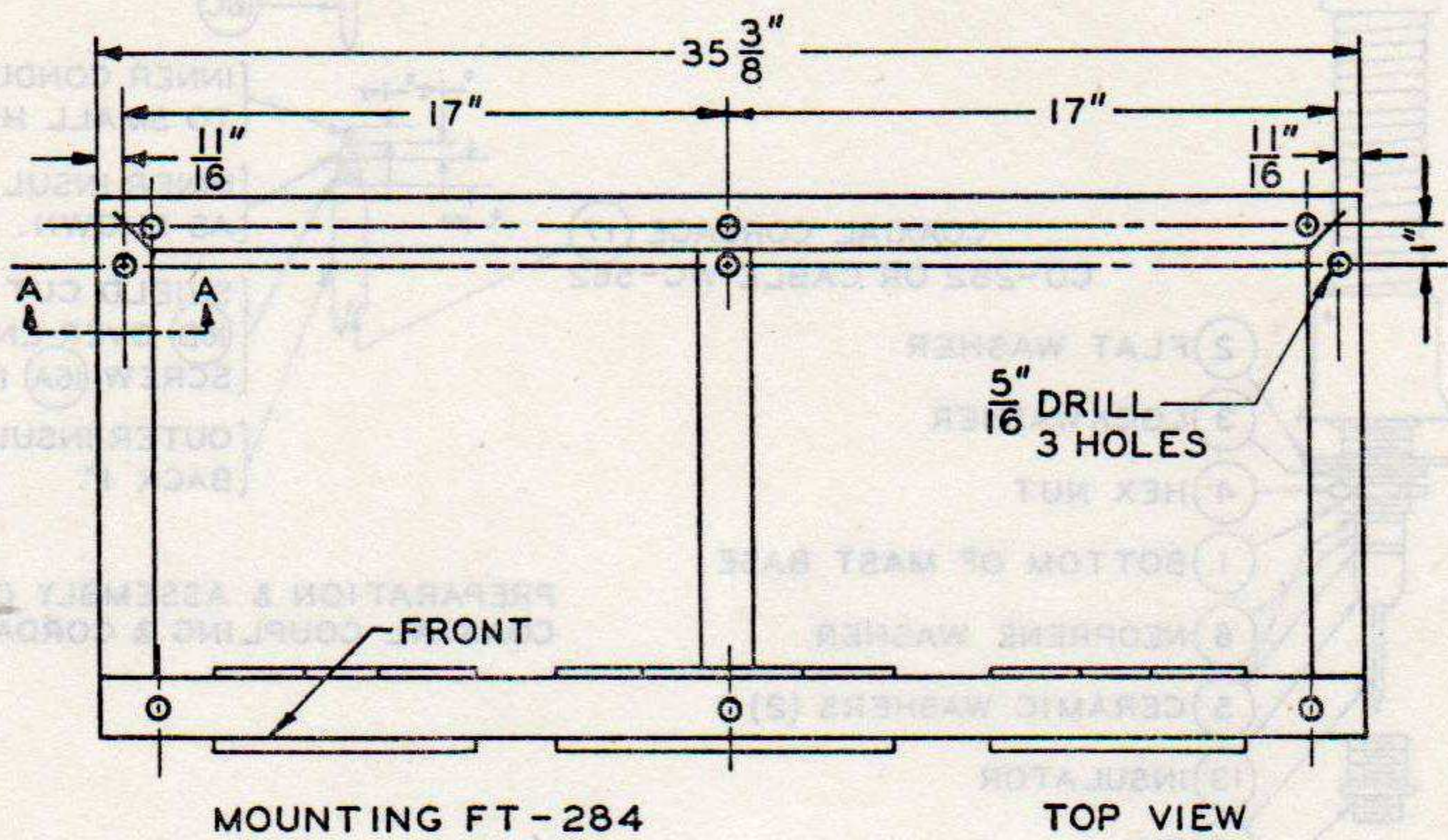


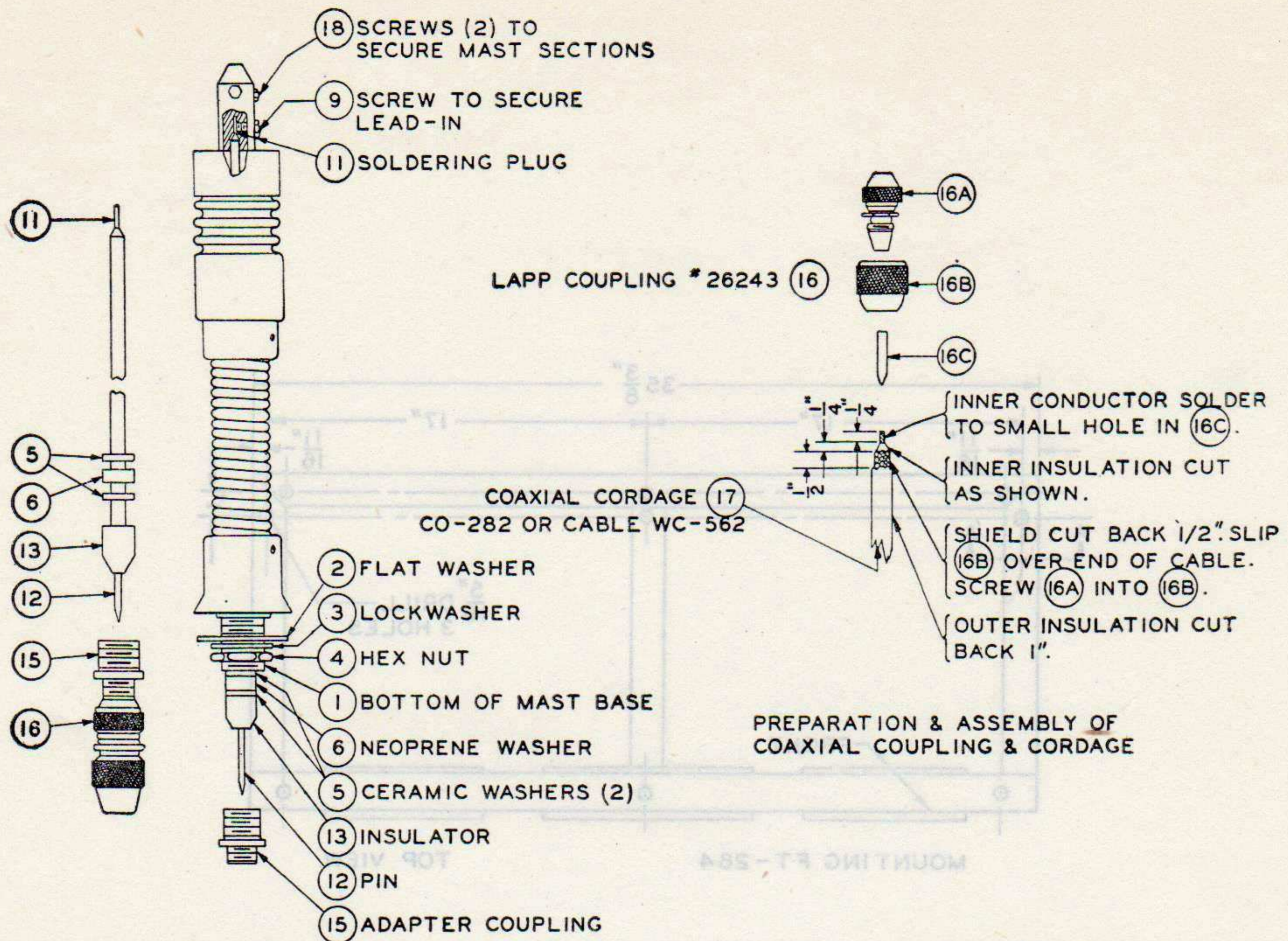
Figure 25. Probe antenna.



BASED ON SC-A-8137-C

TL-10131

Figure 26. Drilling of Mounting FT-284 and Cabinet CH-74-A for installation.

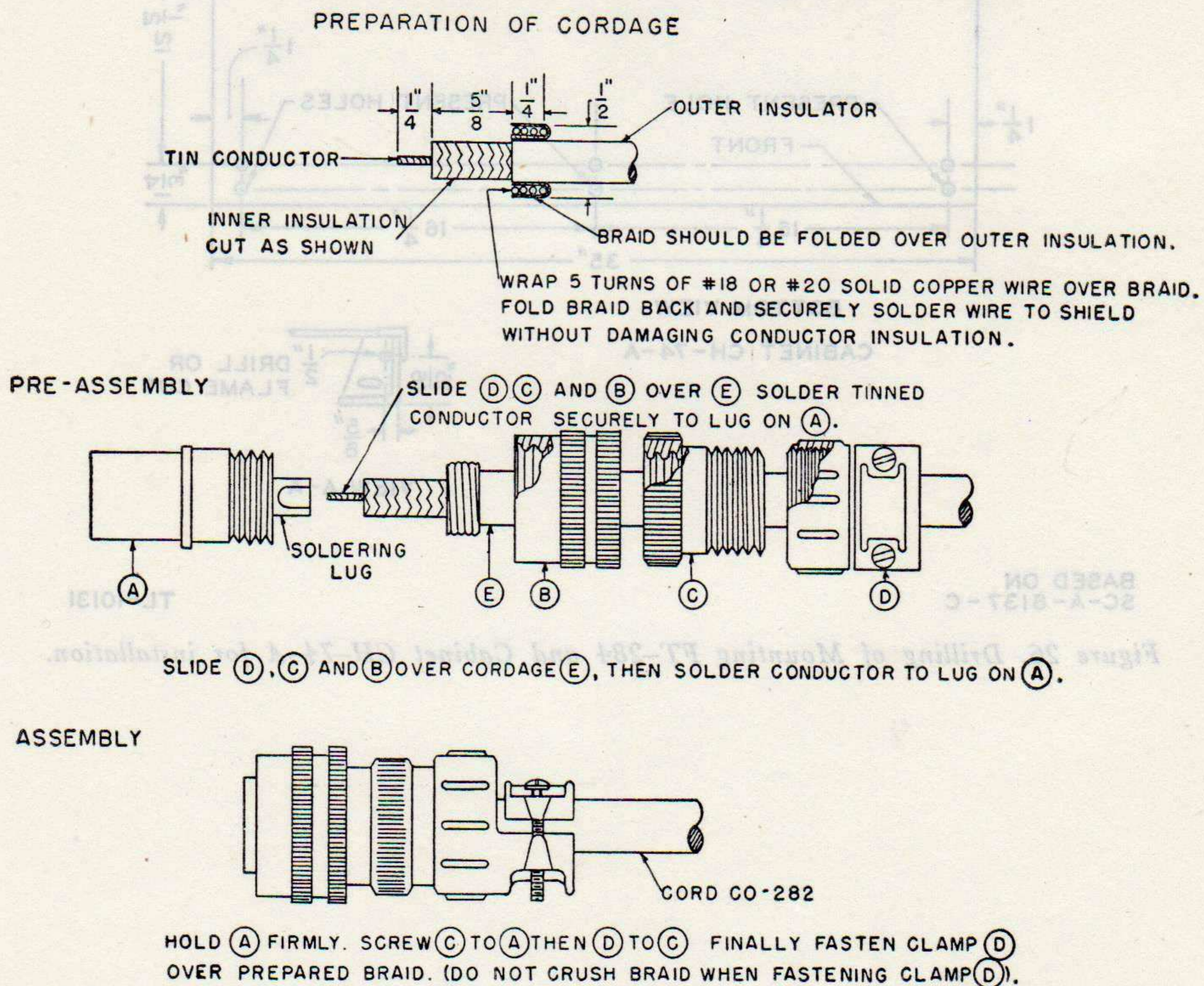


CORD CD-689 FOR COAXIAL LEAD-IN CONNECTION. SECURE PLUG (11) WITH SCREW (9). SCREW (15) INTO BOTTOM OF MAST BASE TO SECURE ASSEMBLY.

BASED ON SC-A-7165-A

TL-10132

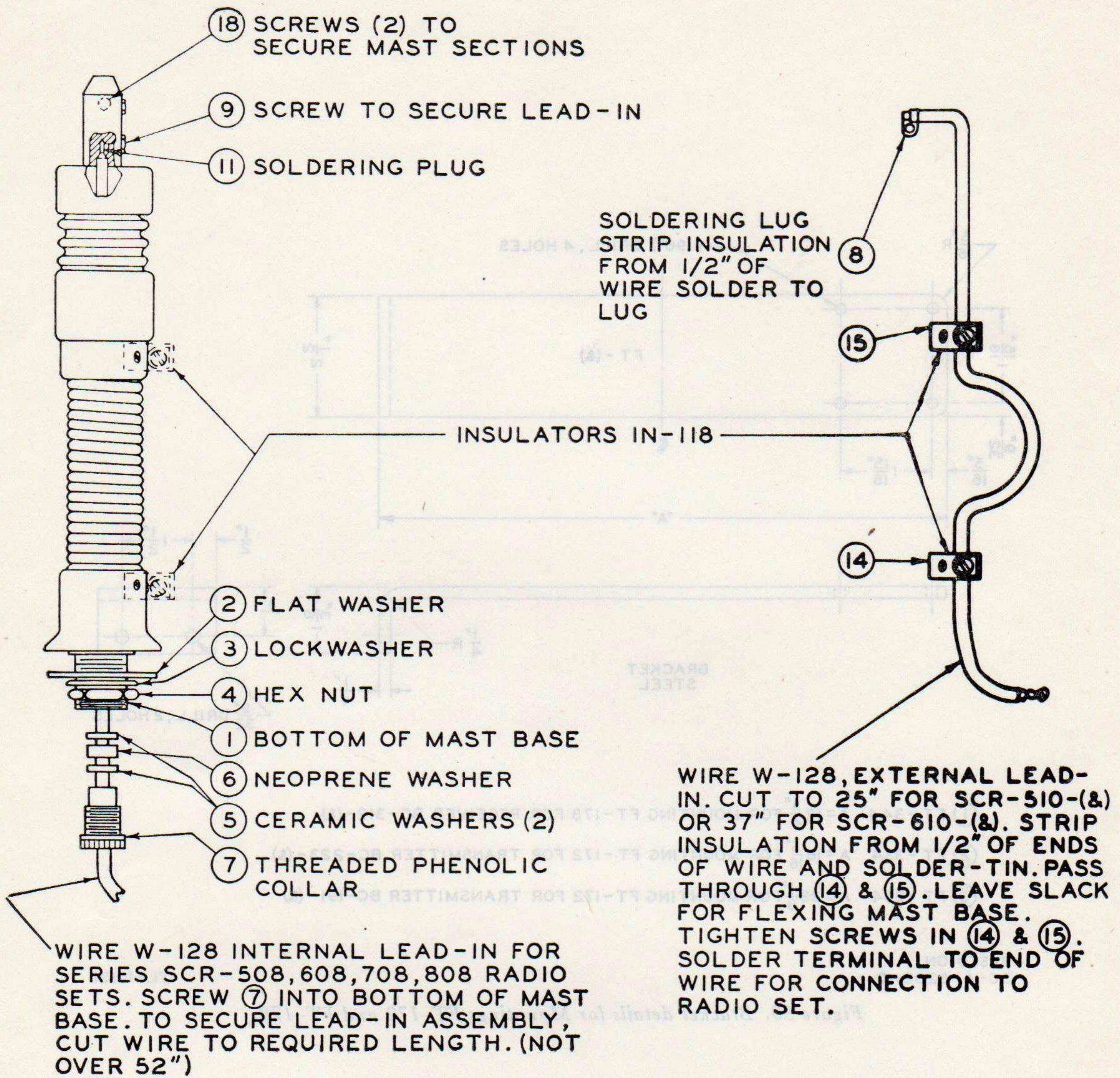
Figure 27. Mast Base MP-48-A, assembly with coaxial lead-in.



BASED ON SC-A-7075-A

TL-10133

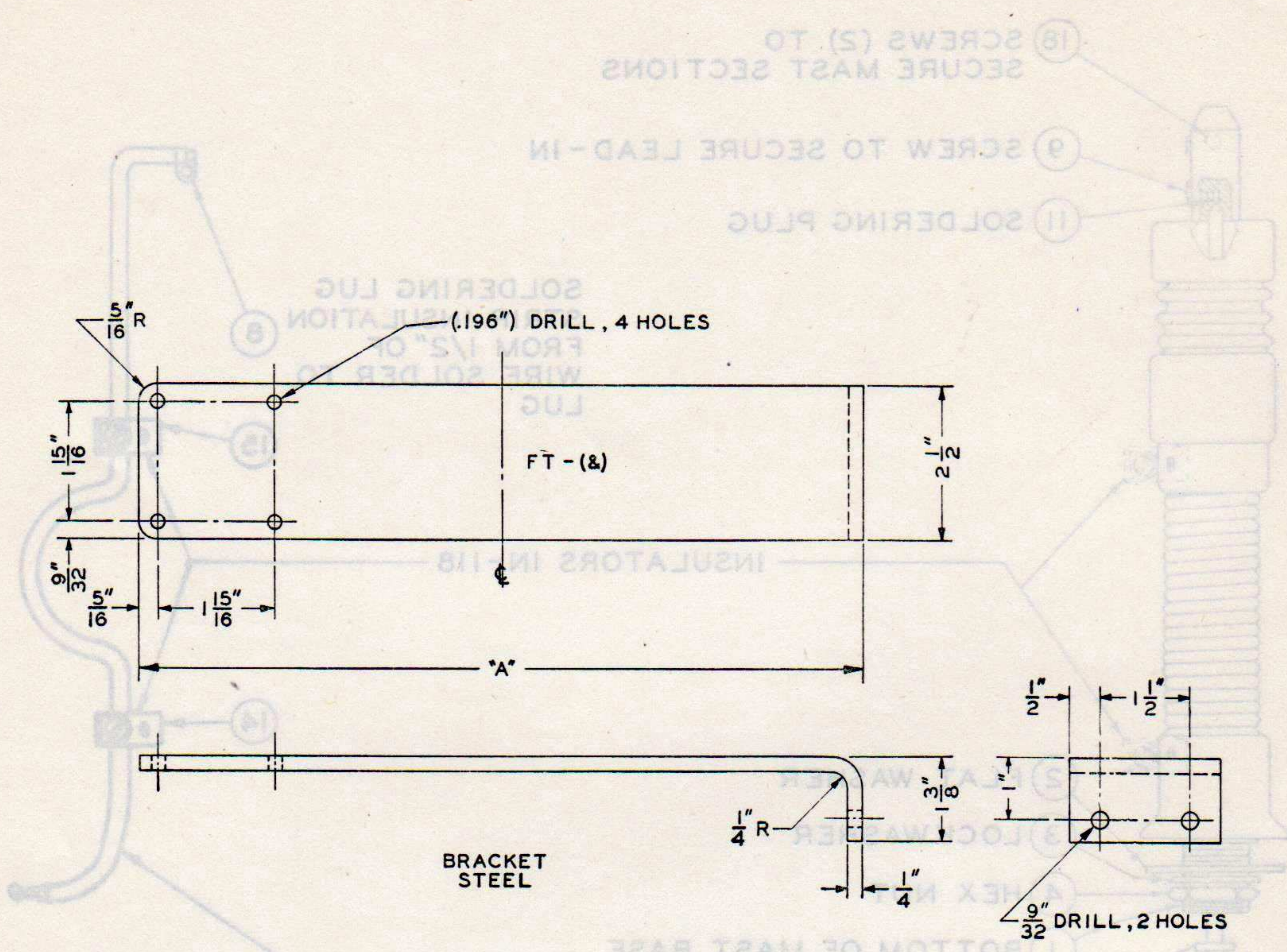
Figure 28. Coaxial connector for MP-48 and Cord CO-282, assembly for installation.



BASED ON
SC-A-7166-A

TL-10134

Figure 29. Mast Base MP-48-A, assembly with Wire W-128 lead-in.



- ① FT-344 A = $12 \frac{3}{4}$ " FOR MOUNTING FT-178 FOR RECEIVER BC-312-(&)
 - ② FT-334 A = $16 \frac{5}{16}$ " FOR MOUNTING FT-172 FOR TRANSMITTER BC-223-(&)
 - ③ FT-364 A = $23 \frac{1}{8}$ " FOR MOUNTING FT-172 FOR TRANSMITTER BC-191-(&)
- BASED ON
SC-A-5282-D
- TL-10136

Figure 30. Bracket details for Mountings FT-172 and FT-178.

APPENDIX

IGNITION NOISE SUPPRESSION IN HALF-TRACK CAR M 2

1. General.

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Half-track Car M2. The Technical Manual issued with the car will be helpful in locating the source of the noise since it describes the suppression systems used. Instructions for operating radio equipment used in the car should also be studied.

2. Procedure.

Locate and suppress ignition noises as follows:

a. Start the tank motor 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 most easily from static, etc. Interference may then be identified as follows:

<i>Interference</i>	<i>Usual Source</i>
Popping sounds, corresponding to ignition firing; stop when engine is turned off and accelerate when engine is raced.	Ignition system.
Intermittent, clicking sound; lingers for several seconds when ignition is turned off.	Generator regulator.

<i>Interference</i>	<i>Usual Source</i>
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. 25) to the antenna terminal of the radio set. Move the loop of the probe antenna slowly over the various parts of the vehicle's electrical system. Keep the loop close to, but not in contact with, the part being examined. Interference-producing parts should be heard in the receiver.

f. Interference can generally be eliminated by cleaning, tightening, or replacing noise-producing parts. All suppressor and shielding components and all connections and grounding bonds should be examined, tightened, and the surfaces under them cleaned. This will assure good electrical contact between wires and terminals, and metal casings and the frame of the vehicles. (Insulated but ungrounded metal parts absorb and re-radiate 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.



