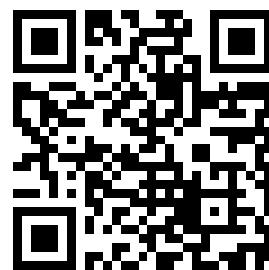

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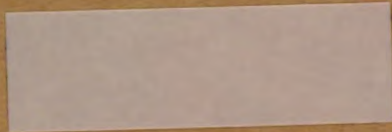
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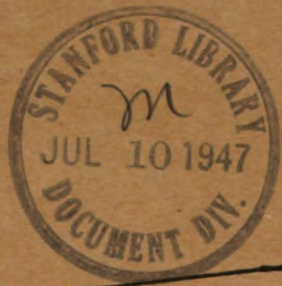
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TM 11-2711

WAR DEPARTMENT TECHNICAL MANUAL



INSTALLATION OF RADIO EQUIPMENT IN CARRIER, PERSONNEL, HALF-TRACK, M5 OR M5A1



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.)

WAR DEPARTMENT • 15 SEPTEMBER 1944

WAR DEPARTMENT TECHNICAL MANUAL
TM 11-2711

INSTALLATION OF
RADIO EQUIPMENT IN CARRIER,
PERSONNEL, HALF-TRACK, M5 OR M5A1



WAR DEPARTMENT . 15 SEPTEMBER . 1944

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 15 SEPTEMBER 1944.

TM 11-2711, Installation of Radio Equipment in Carrier, Personnel, Half-track, M5 or M5A1, is published for the information and guidance of all concerned.

[A. G. 300.7 (2 Aug 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

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

DISTRIBUTION:

As prescribed in paragraph 9a, FM 21-6.

Armies (Sig) (5); Sv C (Sig) (5); Dept (Sig) (5); Def Comd (Sig) (2);
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IBn 2: T/O & E 2-25.

IBn 3: T/O & E 3-25.

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IBn 7: T/O 7-415.

IBn 17: T/O & E 17-35.

IBn 44: T/O & E 44-25, 44-75, 44-125, 44-225S.

IC 2: T/O & E 2-26.

IC 3: T/O & E 3-26.

IC 5: T/O & E 5-416.

IC 7: T/O & E 7-17, 7-27, 7-416.

IC 11: T/O & E 11-7, 11-47, 11-107, 11-127, 11-237, 11-587, 11-592,
11-597.

IC 17: T/O & E 17-2, 17-13, 17-14, 17-16, 17-12, 17-27, 17-37.

IC 44: T/O & E 44-26, 44-76, 44-126, 44-226S.

For explanation of symbols, see FM. 21-6.

CONTENTS

Section		Paragraph	Page
	I. Guide to use of this manual.		
	Purpose	1	1
	Holes and brackets	2	1
	Preliminary check	3	1
	Operating check	4	1
	II. Radio Set SCR-506-().		
	Required parts	5	2
	Assembly and installation	6	2
	III. Radio Sets SCR-508-(), SCR-528-(), SCR-608-(), or SCR-628-().		
	Required parts	7	4
	Assembly and installation	8	4
	IV. Radio Set SCR-510-() or SCR-610-().		
	Required parts	9	6
	Assembly and installation	10	6
	APPENDIX. Ignition Noise Suppression in Carrier, Personnel, Half-track, M5 or M5A1.		
	General	1	9
	Procedure	2	9

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 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.

- 1. MAKE NO ADJUSTMENTS INSIDE THE EQUIPMENT WITH THE POWER SWITCH ON.**
- 2. DO NOT OPERATE THE EQUIPMENT WITH SHIELDS REMOVED.**
- 3. 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 procedures, based upon actual field experience, for installation of Radio Set SCR-510-() or SCR-610-() and Radio Set SCR-506-() in combination with Radio Set SCR-508-(), SCR-528-(), SCR-608-(), or SCR-628-(), in Carrier, Personnel, Half-track, M5 or M5A1. Items required to make a complete operating installation are listed for each radio set. Official nomenclature followed by (), such as Headset HS-30-(), is used to indicate any model of equipment regardless of its procurement.

2. Holes and Brackets

Holes and brackets required for installation of the radio set normally are located prior to delivery of Carrier, Personnel, Half-track, M5 or M5A1. Drilling instructions are given in this manual for any other necessary holes and brackets.

Do not relocate any holes or brackets unless absolutely necessary.

3. Preliminary Check

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

CAUTION: Carrier, Personnel, Half-track, M5 or M5A1 has a 12-volt electrical system. Before installing the radio set, be sure that it is designed for a 12-volt installation. Otherwise, tubes may be burned out or dynamotors may be damaged.

4. 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

RADIO SET SCR-506-()

5. Required Parts

Items necessary for the installation of Radio Set SCR-506-() in Carrier, Personnel, Half-track, M5 or M5A1 are listed below.

Quantity	Stock No.	Item
1	2Z1574	Cabinet CH-74-A.
2	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
1	3E1314	Cord CD-314, for Loudspeaker LS-3.
2	3E1307A-4	Cord CD-307-A, 48", for Headset HS-30-().
2	3E1604	Cord CD-604, 6", for connecting Cord CD-307-A to Headset HS-30-().
1	2Z3367	Cover BG-67-(), for Mast Base MP-37 or MP-57.
2	2Z2651-421	Clamp MC-421, for securing Mast Sections MS-49 and MS-50.
2	2Z2651-422	Clamp MC-422, for securing Mast Sections MS-50 and MS-51.
2	2Z2651-423	Clamp MC-423, for securing Mast Sections MS-51 and MS-52.
2	2Z2651-424	Clamp MC-424, for securing Mast Sections MS-52 and MS-53.
1	3H1640	Dynamotor DM-40-(), 12-volt, for Radio Receiver BC-652-(), including spare parts.
1	3H1642	Dynamotor DM-42-(), 12-volt, for Radio Transmitter BC-653-(), including spare parts.
1	6L50-506V27	Hardware bag.
1	2B830	Headset HS-30-().
2	3Z3445	Key J-45.
1	2Z6303.1	Loudspeaker LS-3.
1	2A2087	Mast Base MP-37 or Mast Base MP-57 (2A2088-57).
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.
4	2A2354	Mast Section MS-54, for stationary operation.
1	2A2090-52	Mast Base Bracket MP-52.
2	2B1617	Microphone T-17-().
1	2Z6721-253	Mounting FT-253-(), including two Cords CO-280, spare parts and hardware.
1	2Z6721-284	Mounting FT-284, for Cabinet CH-74-A.

Quantity	Stock No.	Item
1	2C4452	Radio Receiver BC-652-(), including spare parts, 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.
7 ft.	1B146	Wire W-146, for antenna lead-in.

6. Assembly and Installation

a. PROCEDURE. Components of the radio set should be installed as shown in figure 1 and as directed below.

Part and location	Method and materials
Mast Base Bracket MP-52, on top of Cabinet CH-74-A; right front corner in Carrier, Personnel, Half-track, M5; left front corner in Carrier, Personnel, Half-track, M5A1.	Mount the bracket over the hole on the top of the cabinet with the hardware supplied with the cabinet in the position shown in figure 1.
Mast Base MP-37 or MP-57, on Mast Base Bracket MP-52.	If Mast Base MP-37 is supplied, refer to figure 2 and assemble as follows: Place item 1 over the hole in the mast base bracket. Place item 2 over item 1. Place item 3 over item 2. Insert item 4 through the hole in the mast base bracket. Place item 5 over the flange on item 6. Insert item 6 upward through the hole in the mast base bracket. Place items 7 and 8 beneath item 6 and fasten entire assembly in place with items 9 and 10. If Mast Base MP-57 is furnished, refer to figure 9 and assemble in the above sequence.
Mounting FT-284, on right rear seat platform.*	Remove rear seat back panel and use existing hardware to bolt the mounting to the seat platform as shown in figure 1.

* Use emery cloth or sandpaper to clean the contact surfaces between the vehicle, cabinet, and mountings to insure good electrical contact.

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Cabinet CH-74-A, on Mounting FT-284.*	Secure the cabinet to the mounting with the hardware supplied with the cabinet.	Radio Receiver BC-652-(), on Mounting FT-253-().	Place the receiver on the mounting and secure with the thumbscrew locks.
Mounting FT-253-() in Cabinet CH-74-A.*	Fasten the mounting in the cabinet with the hardware supplied with the mounting.	Mast Sections MS-49 to MS-53 and Clamps MC-421 to MC-424, on the mast base.	Screw the mast sections together and secure with the clamps. Fasten the clamps to the male end of the mast sections. Then screw the mast antenna into the mast base. When not in use, carry the mast sections and clamps in Roll BG-56-().
Dynamotor DM-40-(), in Radio Receiver BC-652-().	If the dynamotor is not installed, proceed as follows: Remove two screws from the outer edge of the front panel of the receiver and one screw from the center of the rear of the cabinet. Slide the receiver chassis out of the cabinet. Mount the dynamotor on top of the chassis and lock in place with the snap-slide fasteners. Connect the dynamotor to the receiver by the cord terminating in Plug P-250. Turn the name plate on the front panel of the receiver to read 12 VOLTS OPERATION.	Cover BG-67-().	Place the cover over the mast base when the mast antenna is not mounted.
Dynamotor DM-42-(), in Radio Transmitter BC-653-().	If the dynamotor is not installed, proceed as follows: Slide the dynamotor into the compartment at the right end of the radio cabinet and secure with four screws. Connections are made automatically by plugs in the rear of the compartment which engage sockets on the rear of the dynamotor. Remove the patch cover on the top right end of the transmitter and place the six links in the 12-VOLT position, as indicated, by arrow on the link strip. Turn the name plate above the dynamotor to read 12 VOLTS.	Roll BG-56-().	Stow at some convenient place in the vehicle.
Radio Transmitter BC-653-(), on Mounting FT-253-().	Place the transmitter on the mounting and secure with the thumbscrew locks.	Connectors No. 61007 and Bondnuts BL-50.	Install in the knockout holes in the vehicle terminal box to bush and secure Cords CO-280.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-506-() as shown in figure 1. Connect and secure so as not to interfere with the accessibility and operation of the equipment. Enough slack must be left to permit free movement of all units having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

(2) To prevent accidental shorts of the battery, do not connect the positive 12-volt and negative 12-volt leads (in the terminal box) until all other connections have been completed.

*Use emery cloth or sandpaper to clean the contact surfaces between the vehicle, cabinet, and mountings to insure good electrical contact.

SECTION III

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

7. Required Parts

Items necessary for the installation of Radio Set SCR-508-(), SCR-528-(), SCR-608-(), or SCR-628-() in Carrier, Personnel, Half-track, M5 or M5A1 are listed below:

Quantity	Stock No.	Item
1	2A262	Antenna A-62, phantom.
1	2Z1574	Cabinet CH-74-A.
2	3E1307A-5.5	Cord CD-307-A, 65", for Headset HS-30-().
2	3E1604	Cord CD-604, 6", for connecting Cord CD-307-A to Headset HS-30-().
1	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
20 ft.	3E2218	Cordage CO-218.
2	2Z2651-424	Clamp MC-424, for securing Mast Sections MS-52 and MS-53.
1	2Z3400-108	Cover BG-108, for mast base.
2*	3H1634	Dynamotor DM-34-(), 12-volt, for Radio Receiver BC-603-(), including spare parts.
1	3H1635	Dynamotor DM-35-(), 12-volt, for Radio Transmitter BC-604-(), including attached spare parts.
2	2B830	Headset HS-30-().
1	6L50-508V27	Hardware bag.
1	2C1738	Interphone Control Box BC-606-().
1	2A2088-48	Mast Base MP-48 or MP-48-A.
1	2A2090-52	Mast Base Bracket MP-52.
2	2A2352	Mast Section MS-52.
2	2A2353	Mast Section MS-53.
2	2B1617	Microphone T-17-().
1	2Z6721-237	Mounting FT-237-(), including Cord CO-278 for power connection, and necessary hardware.
1	2Z6721-284	Mounting FT-284, for Cabinet CH-74-A.
2*	2C4403	Radio Receiver BC-603-(), including one set of tubes installed; for Radio Set SCR-508-() or SCR-528-().
2**	2C4460-683	Radio Receiver BC-683-(), including one set of tubes installed; for Radio Set SCR-608-() or SCR-628-().

Quantity	Stock No.	Item
1	2C6494	Radio Transmitter BC-604-(), including one set of tubes installed and necessary crystals; for Radio Set SCR-508-() or SCR-528-().
1	2C6530-684	Radio Transmitter BC-684-(), including one set of tubes installed and necessary crystals; for Radio Set SCR-608-() or SCR-628-().
1	2Z8056	Roll BG-56-(), for antenna mast sections.
7 ft.	1B128	Wire W-128.

8. Assembly and Installation

a. PROCEDURE. Components of the radio set should be installed as shown in figure 1 and as directed below.

Part and location	Method and materials
Mounting FT-284, on rear left seat platform.	Remove the rear seat back panel and use existing hardware to bolt the mounting to the seat platform as shown in figure 1.
Cabinet CH-74-A, on Mounting FT-284.	Secure the cabinet to the mounting with the hardware supplied with the cabinet.
Mast Base Bracket MP-52, on top left front corner of Cabinet CH-74-A.	Remove the blank cover over the 2-inch hole through the top of the cabinet and mount the bracket over the hole as shown in figure 1, securing with hardware supplied with the cabinet.
Mast Base MP-48 or MP-48-A, on Mast Base Bracket MP-52.	If Mast Base MP-48 is supplied, refer to figure 4 and assemble as follows: Remove items 2, 3, 4, and 5 from item 1. Loosen items 8 and 9 and pull assembly 7 out of the mast base and stow it. Cut Wire W-128 to the length specified in figure 1 and strip 1/2 inch of insulation from each end of the wire. Clean and

* One only supplied with Radio Set SCR-528-().

** One only supplied with Radio Set SCR-628-().

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
	tin the ends. Solder item 6B to one end. Place the porcelain insulator (item 6C), neoprene washer (item 6D), and ceramic insulator (item 6E) over the wire. Insert the assembly into the mast base and secure with the setscrews (items 8 and 9). Insert Wire W-128 and item 1 through the hole in the mast base bracket and secure in place with items 2, 3, 4, and 5. Flex the mast base 90° and screw the retaining collar (item 18) on the end of the mast base stem (item 1), to secure the assembly in the mast base. When Mast Base MP-48-A is supplied, assemble as shown in figure 7, using Wire W-128 internal lead-in.	Headset HS-30-() and Cords CD-307-A and CD-604.	Connect the headset to Cord CD-604. Connect Cords CD-604 and CD-307-A. Plug Cord CD-307-A into the proper jack on the receiver or control box, as required.
		Microphone T-17-().	Plug into the proper jack of the transmitter or control box, as required.
		Mast Sections MS-52 and MS-53 and Clamp MC-424, on the mast base.	Screw the mast sections together and secure with the clamp. Fasten the clamp to the male end of Mast Section MS-53. Then screw the mast antenna into the mast base. When not in use, carry the mast sections in Roll BG-56-().
Dynamotors DM-34-(), in Radio Receivers BC-603-() or BC-683-().	Mount each dynamotor on the chassis of each receiver and secure with the four screws provided.	Cover BG-108.	Place over the mast base when the mast antenna is not mounted in position.
Dynamotor DM-35-(), in Radio Transmitter BC-604-() or BC-684-().	Mount the dynamotor on the transmitter chassis and secure with the four screws provided.	Roll BG-56-().	Carry in a convenient place in the vehicle.
Radio Transmitter BC-604-() or BC-684-(), on Mounting FT-237-().	Mount the transmitter in the position shown in figure 1 and secure with the thumbscrew locks.		
Radio Receiver BC-603-() or BC-683-(), on Mounting FT-237-().	Mount the receiver in the position shown in figure 1 and secure with the thumbscrew locks.		
Interphone Control Box BC-606-(), underneath map compartment.	Mount the control box in the position shown in figure 1 and secure with the hardware provided.		

b. CORDING AND WIRING. (1) Cord and wire the radio set as shown in figure 1. Figure 5 shows the wiring diagram for remote control of the radio set from Interphone Control Box BC-606-(). Connect and secure all wires and cords so as not to interfere with the accessibility and operation of the equipment. Enough slack must be left to permit free movement of all units having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

(2) To prevent accidental shorts of the battery, do not connect the positive and negative 12-volt leads (in the terminal box) until all other connections have been completed.

SECTION IV

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

9. Required Parts

Items necessary for the installation of Radio Set SCR-510-() or SCR-610-() in Carrier, Personnel, Half-track, M5 or M5A1 are listed below.

Quantity	Stock No.	Item
1	6Q349	Alignment Tool TL-207.
1*	3A41	Battery BA-41, for Radio Receiver and Transmitter BC-620-() or BC-659-().
0	2Z2651-423	Clamp MC-423, for securing Mast Sections MS-51 and MS-52.
1	2Z2651-424	Clamp MC-424, for securing Mast Sections MS-52 and MS-53.
2	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
1	6Z3147-1	Connector No. 61004 and Bondnut BL-50 (Appleton) (required only in Carrier, Personnel, Half-track, M5A1 installations).
15 ft	3E2218	Cordage CO-218, for remote control connection (required only in Carrier, Personnel, Half-track, M5A1 installations).
1	3E1307A-5.5	Cord CD-307-A.
1	3E1509	Cord CD-509.
1	3E1604	Cord CD-604.
1	3E1605	Cord CD-605, for Headset HS-30-().
1	2Z3400-108	Cover BG-108, for mast base.
1	2Z4648	Frame FM-48.
1	6L50-510V27	Hardware bag (for Carrier, Personnel, Half-track, M5 installations).
1	6L50-510T	Hardware bag (for Carrier, Personnel, Half-track, M5A1 installations).
0	6L50-610V27	Hardware bag (for Carrier, Personnel, Half-track, M5 installations).
0	6L50-610T	Hardware bag (for Carrier, Personnel, Half-track, M5A1 installations).

Quantity	Stock No.	Item
1	2B830	Headset HS-30-().
1	2C1738	Interphone Control Box BC-606-() (for Carrier, Personnel, Half-track, M5A1 installations).
1	2A2088-48	Mast Base MP-48 or MP-48-A.
1	2A2090-54	Mast Base Bracket MP-54.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
1	2B1617	Microphone T-17-().
1	2B1645	Microphone T-45.
2	2Z6721-250	Mounting FT-250-().
1**	3H4496	Power Unit PE-120.
1	2C5360-120	Radio Receiver and Transmitter BC-620-(), including two crystals and one set of tubes installed.
0	2C5379	Radio Receiver and Transmitter BC-659-(), including two crystals and one set of tubes installed.
1	2Z8056	Roll BG-56-().
15 ft	6Z7926	Rope RP-5, for tying down mast antenna.
1	3H6713	Vibrator VB-13.
6 ft	1B128	Wire W-128.

10. Assembly and Installation

a. PROCEDURE. Components of the radio sets should be installed as shown in figures 6 and 9 as directed below. Refer to figure 6 for Carrier, Personnel, Half-track, M5 installations, and to figure 9 for Carrier, Personnel, Half-track, M5A1 installations.

Part and location	Method and materials
Frame FM-48 and Mounting FT-250-(), in	When making the installation in Carrier Personnel, Half-track, M5, the frame and mounting are

* To be requisitioned from the nearest Signal Corps depot or Signal section of an Army Service Forces depot.

** Plate Supply Unit PE-97-() or PE-117-(), respectively, may be substituted for Power Unit PE-120-() in Radio Set SCR-510-() or SCR-610-().

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
position shown in figure 6 or 9.	placed on the right side above the fuel tank, as shown in figure 6. When making the installation in Carrier, Personnel Half-track, M5A1, the frame and mounting are placed on the left side of the vehicle behind the bulkhead, as shown in figure 9. Fasten the frame to the vehicle with the hardware provided. Place the mounting on the frame and secure with the hardware provided.	Mast Base MP-48 or MP-48-A, on mast base bracket.	If Mast Base MP-48 is supplied, refer to figure 4 and assemble as follows: Remove items 2, 3, 4, 5, 17, and 18 from item 1. If the mast base has been supplied with assembly 7 installed, loosen items 8 and 9 and remove the assembly and stow it. Insert item 1 through the hole in the mast base bracket and secure with items 2, 3, 4, and 5. Replace items 17 and 18 on item 1 to prevent dirt and moisture from collecting inside the mast base. Cut Wire W-128 to length specified in figure 6 or figure 9. Strip one inch of insulation from one end of the wire and clean and solder-tin the wire. Pass the prepared end of the wire through items 14 and 15 and fasten the tinned wire to item 16. Allow sufficient slack in the wire to permit flexing of the mast base and then tighten the screws in items 14 and 15. If Mast Base MP-48-A is supplied, assemble as shown in figure 7, using Wire W-128 external lead-in.
Mounting FT-250-(), for power unit, on floor under center seat in driver's compartment, as shown in figure 6 or 9.	Fasten the mounting to the floor with the hardware provided.		
Radio Receiver and Transmitter BC-620-() or BC-659-() and Battery BA-41, on Mounting FT-250-().	Remove the screws or loosen the screw locks in the front panel of the receiver and transmitter and pull the chassis out of the cabinet. Remove the cover of the battery compartment near the front panel on the chassis. Insert the battery, engaging the plug in the socket of the battery. Place the two toggle switches near the left edge of the chassis in the ON position. Replace the chassis in the cabinet and secure. Mount the receiver and transmitter on the mounting, with the controls facing the front of vehicle. Secure with the catch clips.		
Power Unit PE-120-(), and Vibrator VB-13, on Mounting FT-250-().	Raise the lid of the power unit and remove the cover of the power pack. Set the change-over plug in the 12-volt position, as shown in the diagram on the cover, with the 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 the vibrator into its socket and replace the power pack cover. Close the lid of the power unit and place the unit on the mounting. Secure with the hook fasteners.	Cover BG-108.	Place the cover on the mast base when the mast antenna is not in use.
		Mast Sections MS-52 and MS-53 and Clamp MC-424, on the mast base. (Add Mast Section MS-51 and Clamp MC-423 for Radio Set SCR-610-().)	Screw the mast sections together and secure with the clamp. Fasten the clamp to the male end of the mast section. Then screw the mast antenna into the mast base. Secure with item 18, figure 7, when using Mast Base MP-48-A. When not in use, carry the mast sections and the clamps in Roll BG-56-().
		Connectors No. 61007 and Bondnuts BL-50.	Insert through the knockout holes in the terminal box and the hole in the bulkhead to bush and secure the power cord.
		Roll BG-56-().	Stow at a convenient place in the vehicle.
		Interphone Control Box BC-606-(), Connector No. 61004, and Bondnut BL-50, on underside of map compartment.	Mount the interphone control box beneath the map compartment as shown in figure 9 and secure with the hardware provided. Use the connector and bondnut to bush Cordage CO-218 through the hole in the floor of the seat compartment.
Mast Base Bracket MP-54, on top rail above receiver and transmitter, as shown in figure 6 or 9.	Fasten the bracket to the rail with the hardware provided with the bracket.		

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-510-() or SCR-610-() as

shown in figure 6 or 9. Figure 8 shows the wiring diagram for remote control of Radio Set SCR-510-() or SCR-610-() from Interphone Control Box BC-606 (). Connect and secure all wires and cords so as not to interfere with the accessibility and operation of the equipment. Enough slack must be left to permit free movement of all units having shock mountings.

Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

(2) To prevent accidental shorts of the battery, do not connect the positive and negative 12-volt leads (in the terminal box) until all other connections have been completed.

APPENDIX

IGNITION NOISE SUPPRESSION IN CARRIER, PERSONNEL, HALF-TRACK, M5 OR M5A1

1. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Carrier, Personnel, Half-track, M5 or M5A1. The technical manual issued with the vehicle will be helpful in locating the source of the noise since it describes the suppression systems used. Instructions for operating radio and interphone equipment used in the vehicle should also be studied.

2. Procedure

Locate and suppress ignition noise as follows:

a. Start the vehicle motor and turn on the radio receiver. 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, accelerate when engine is raced, stop when engine is turned off.	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, heater fans, etc., can usually be identified by turning off the gauges, fans or other suspected mechanisms, individually.

e. If the source of interference cannot be found by any of the preceding methods, connect a probe antenna (fig. 10) to the antenna terminal of the radio set. Move the loop of the probe antenna slowly over the various parts of the electric system of the vehicle. Keep the loop close to, but not in contact with, the part being examined. Interference-producing parts should be heard in the receiver.

f. Generally, interference can 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 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.

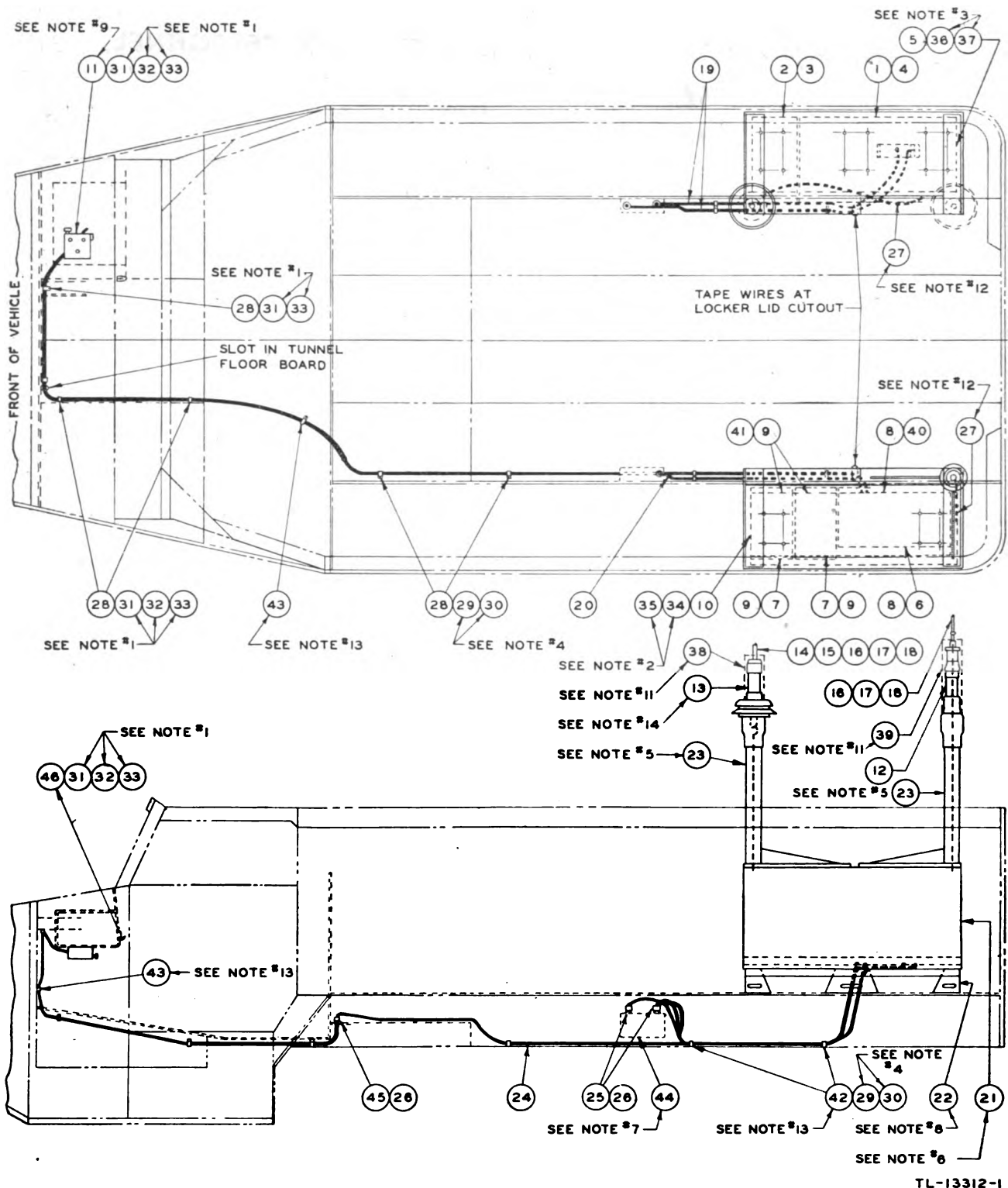
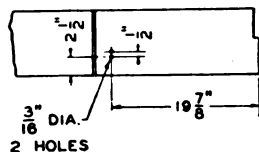


Figure 1. Installation of Radio Set SCR-506-() with Radio Set SCR-508-(), SCR-528-(), SCR-608-(), or SCR-628-() in Carrier, Personnel, Half-track, M5 or M5A1.

NOTE.

1. (31) (32) AND (33) ARE FURNISHED WITH (11)
2. (34) AND (35) ARE FURNISHED WITH (10).
3. (36) AND (37) ARE FURNISHED WITH (5).
4. (29) AND (30) SHALL BE FURNISHED AS PER PARTS LIST.
5. SCREWS FOR MOUNTING (23) ARE FURNISHED WITH (21).
6. SCREWS FOR MOUNTING (21) TO (22) ARE FURNISHED WITH (21).
7. (44) SHALL BE FURNISHED AND INSTALLED BY VEHICLE MFR.
8. AFTER REMOVING BACKS OF REAR SEATS, (22) SHALL BE MOUNTED WITH SCREWS EXISTING IN VEHICLE.
9. FOR WIRING DIAGRAM OF REMOTE CONTROL SYSTEM FOR RADIO SET SCR-508-() OR SCR-528-(), SCR-608-() OR SCR-628-() SEE FIG 5.
10. FOR ADDITIONAL COMPONENTS AND SPARE PARTS SEE PARTS LIST.
11. (38) AND (39) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
12. (27) SHALL BE 58" LONG (M5A1) OR 42" LONG (M5) FOR SCR-506-() AND 52" LONG FOR SCR-508-() AND SCR-608-(). ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
13. (42) AND (43) SHALL BE INSTALLED WITH EXISTING SCREWS.
14. (23) SHALL BE INSTALLED AS SHOWN FOR M5A1 ONLY, FOR M5 (13) SHALL BE INSTALLED AS SHOWN IN PHANTOM LINES.
15. ONE HEADSET HS-30-() AND ONE MICROPHONE T-17() SHALL BE FURNISHED FOR EACH RADIO SET. CORDS CD-604 AND CD-307-A(65" LG) SHALL BE USED WITH HS-30-() FOR SCR-508-() OR SCR-528-() AND CORDS CD-604 AND CD-307-A(48" LG.) FOR SCR-506-(), AND CORD CD-605 (78" LG.). FOR SCR-608-() OR SCR-628-().

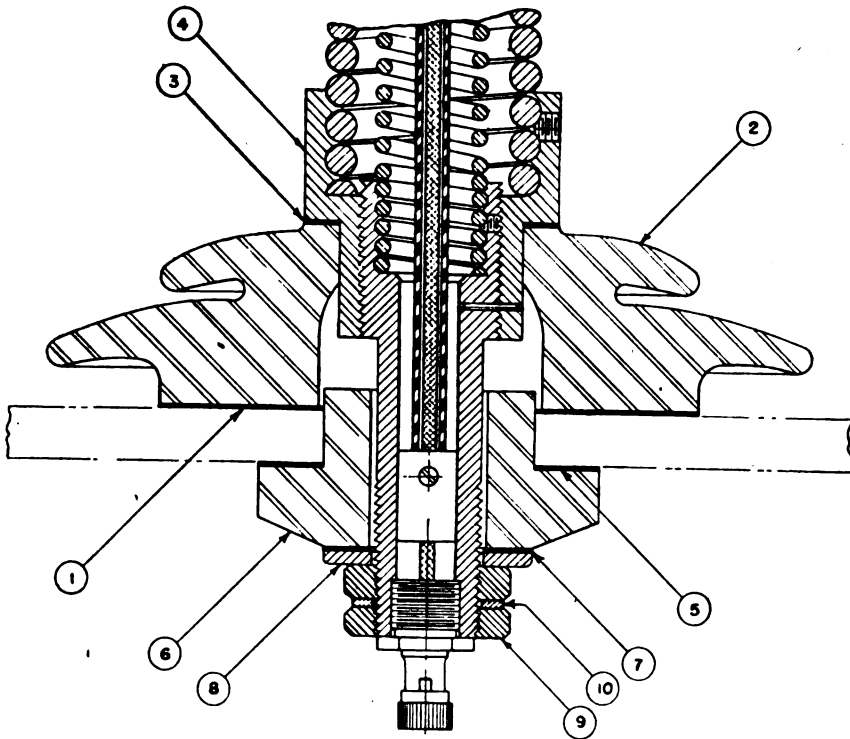
ITEM NO.	NAME OF ITEM	RADIO SET SCR-506-()					RADIO SET SCR-508-()					RADIO SET SCR-528-()					RADIO SET SCR-608-()					RADIO SET SCR-628-()					
		QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.	QUAN. REQ.
1	RADIO TRANSMITTER BC-653-()	1																									
2	RADIO RECEIVER BC-652-()	1																									
3	DYNAMOTOR DM-40-()	1																									
4	DYNAMOTOR DM-42-()	1																									
5	MOUNTING FT-253-()	1																									
6	RADIO TRANSMITTER BC-604-()		1																								
7	RADIO RECEIVER BC-603-()		2																								
8	DYNAMOTOR DM-35-()		1																								
9	DYNAMOTOR DM-34-()		2																								
10	MOUNTING FT-237-()		1																								
11	INTERPHONE CONTROL BOX BC-606-()		1																								
12	MAST BASE MP-46 OR MP-46-A		1																								
13	MAST BASE MP-37 OR MP-57		1																								
14	MAST SECTION MS-49 WITH CLAMP MC-421		1																								
15	MAST SECTION MS-50 WITH CLAMP MC-422		1																								
16	MAST SECTION MS-51 WITH CLAMP MC-423		1																								
17	MAST SECTION MS-52 WITH CLAMP MC-424		1																								
18	MAST SECTION MS-53		1																								
19	CORD CO-280		1																								
20	CORD CO-278		1																								
21	CABINET CH-74-A		1																								
22	MOUNTING FT-284		1																								
23	MAST BASE BRACKET MP-52		1																								
24	CORDAGE CO-218 18'-0" LG.		1																								
25	APPLETON CONNECTOR CAT. #81007		2																								
26	APPLETON BONDNUT CAT. #BL-50		2																								
27	WIRE W-128		1																								
28	CLAMP NO. 4			5		5		5		5		5		5		5		5		5		5		5		5	
29	RD. HD MACH. SCREW #8-32 X 3/4" LG.		2		4		4		4		4		4		4		4		4		4		4		4		4
30	LOCKWASHER ST'D FOR #8 SCREW		2		4		4		4		4		4		4		4		4		4		4		4		4
31	RD. HD. MACH. SCREW #8-32 X 1/2" LG.			8		8		8		8		8		8		8		8		8		8		8		8	
32	HEX. NUT #8-32 ST'D			7		7		7		7		7		7		7		7		7		7		7		7	
33	LOCKWASHER ST'D FOR #8 SCREW			8		8		8		8		8		8		8		8		8		8		8		8	
34	HEX HD MACH SCREW 5/16" 24 X 1 3/8" LG.			8		8		8		8		8		8		8		8		8		8		8		8	
35	ELASTIC STOP NUT 5/16"-24			8		8		8		8		8		8		8		8		8		8		8		8	
36	HEX HD MACH. SCREW 1/4"-20 X 1 1/2" LG		12																								
37	ELASTIC STOP NUT 1/4"-20		12																								
38	COVER BG-67-()		1																								
39	COVER BG-108			1		1		1		1		1		1		1		1		1		1		1		1	
40	RADIO TRANSMITTER BC-664-()																										
41	RADIO RECEIVER BC-663-()																										
42	CLAMP NO. 7		2		2		2		2		2		2		2		2		2		2		2		2		2
43	CLAMP NO. 6			2		2		2		2		2		2		2		2		2		2		2		2	
44	TERMINAL BOX		1		1		1		1		1		1		1		1		1		1		1		1		1
45	APPLETON CONNECTOR CAT. #81004		1		1		1		1		1		1		1		1		1		1		1		1		1
46	HOOK		1		1		1		1		1		1		1		1		1		1		1		1		1



VIEW OF RIGHT SIDE OF INSTRUMENT PANEL SHOWING HOLES FOR (46)

Figure 1. Continued.

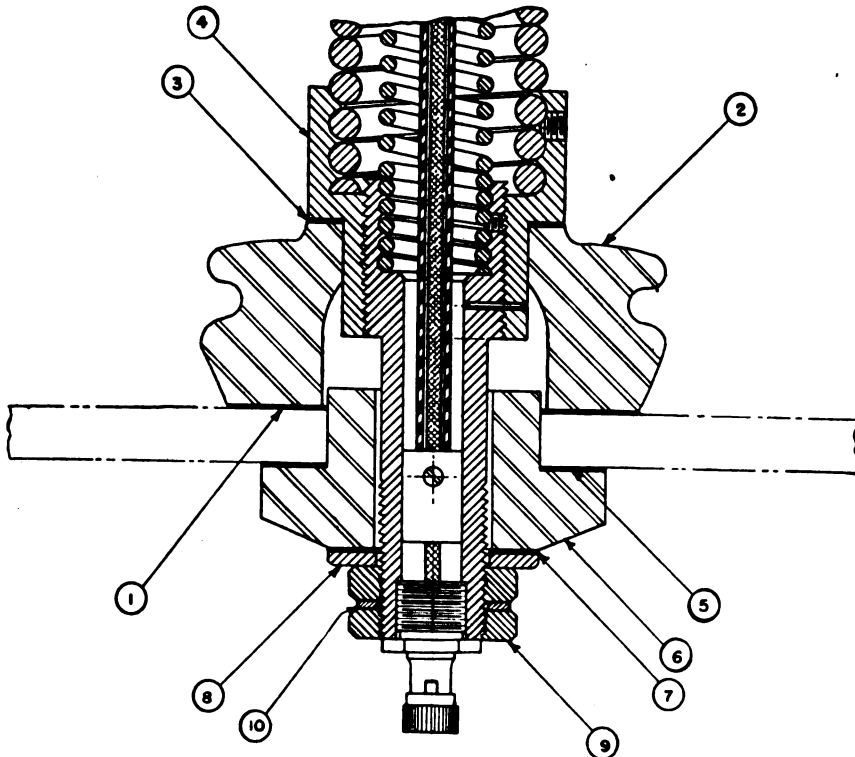
TL-13312-2



- 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-7539

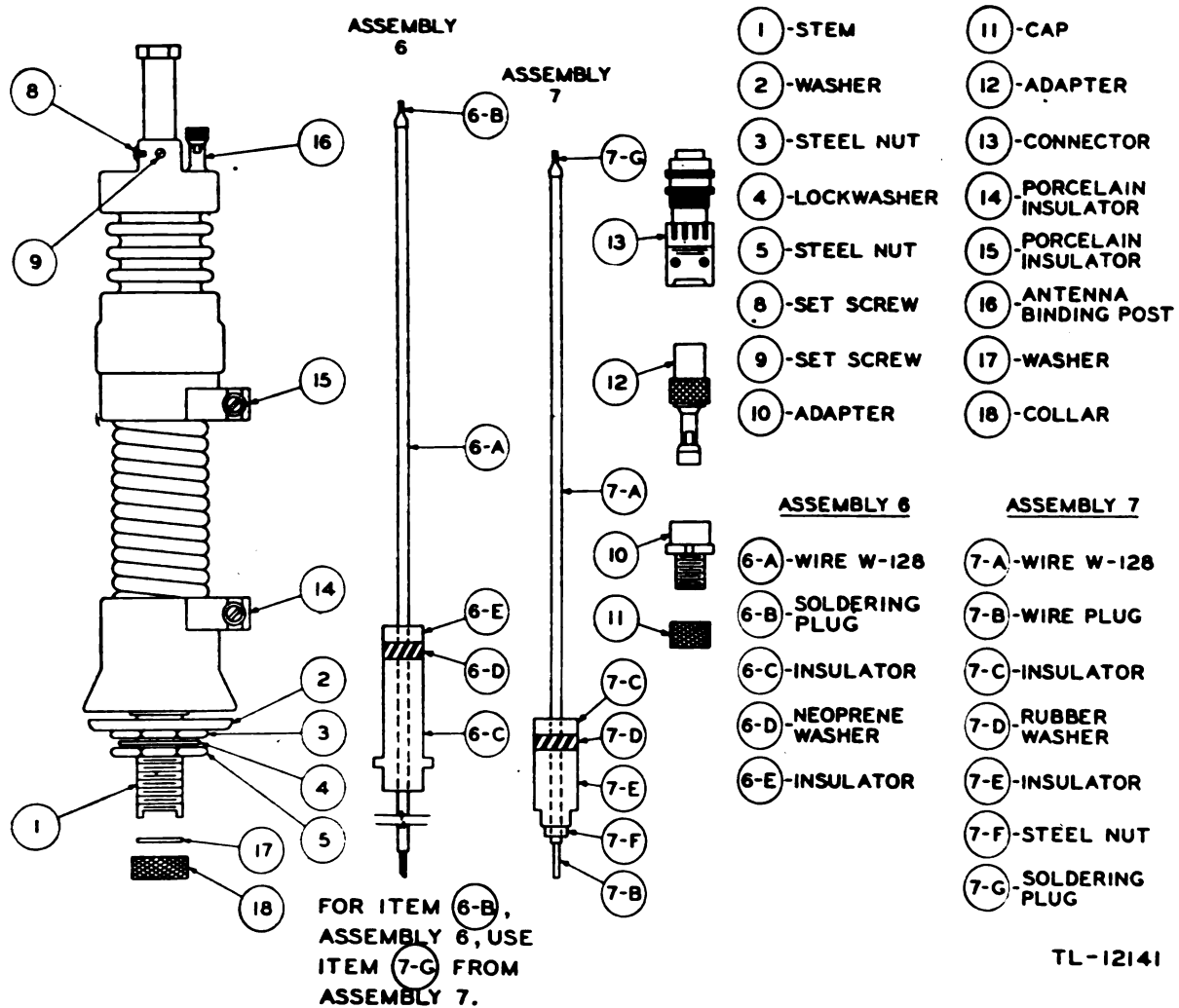
Figure 2. Mast Base MP-37, assembly for installation.



- 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

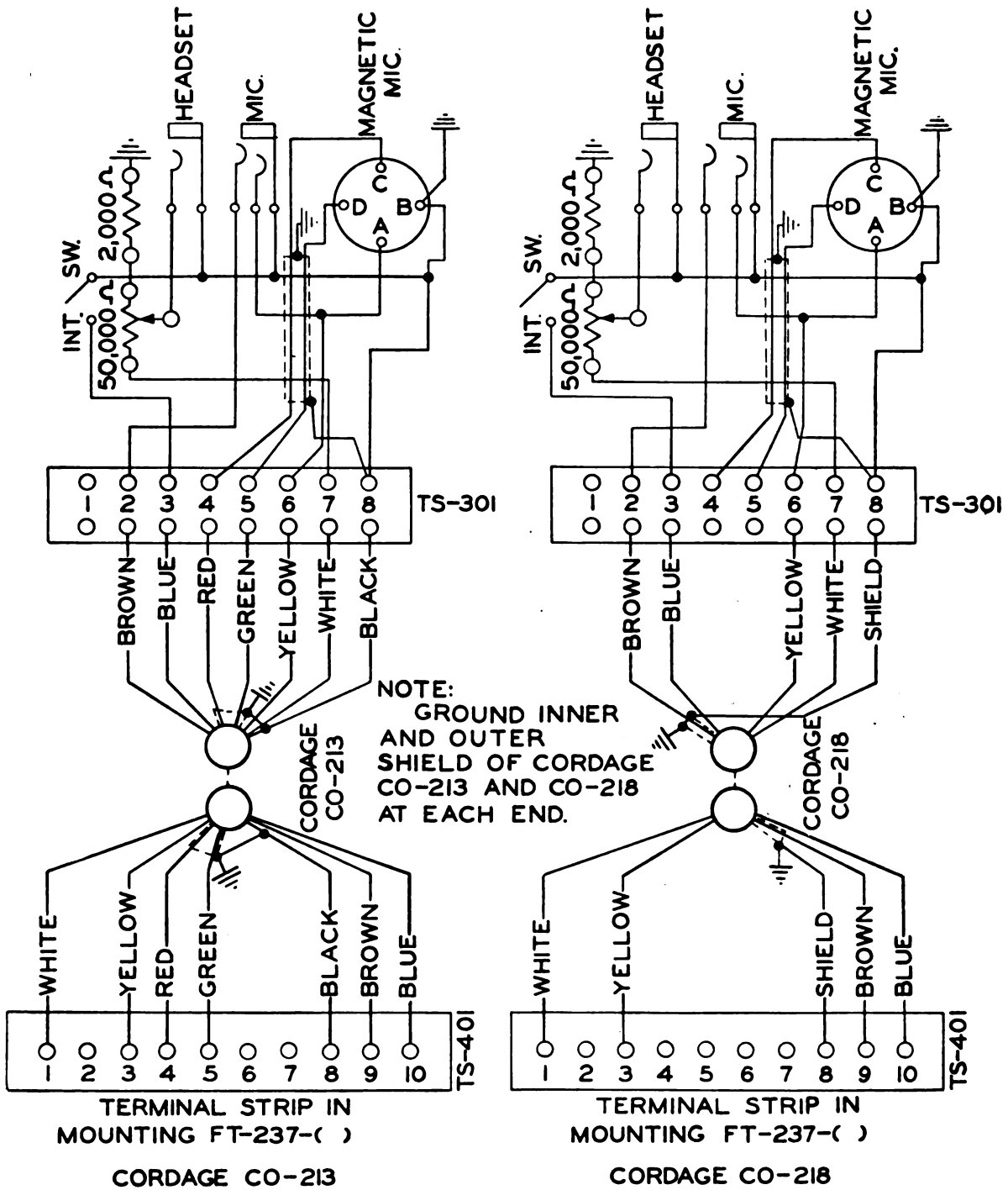
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Figure 3. Mast Base MP-57, assembly for installation.



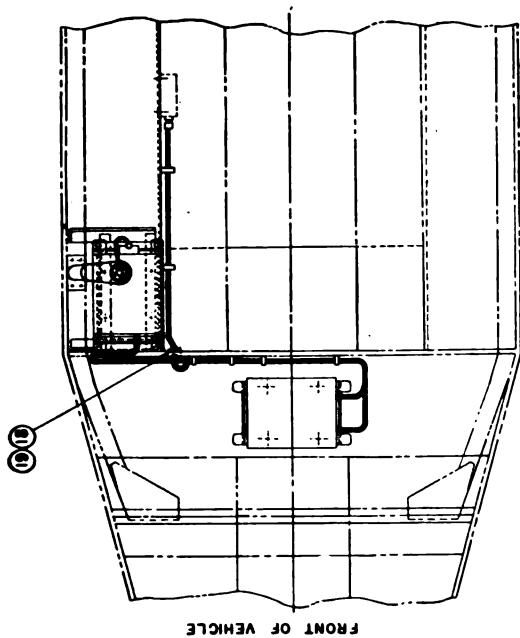
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Figure 4. Mast Base MP-48, assembly for installation.

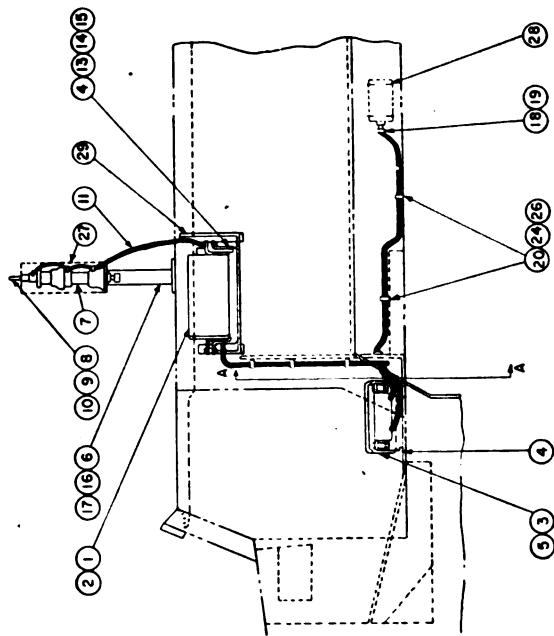


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Figure 5. Wiring diagram for remote control of Radio Set SCR-508-(), SCR-528-(), SCR-508-(), or SCR-628-() from Interphone Control Box BC-606-().

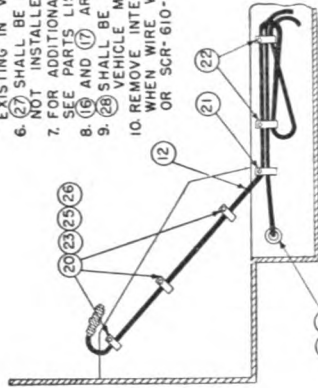


FRONT OF VEHICLE



NOTE

1. INSTALLATION SHOWN MAY BE USED IN COMBINATION WITH RADIO SET SCR-506-() AS SHOWN IN FIG. 1.
2. (10) SHALL BE CUT TO 30" LONG (NON-STANDARD) FOR SCR-510-() OR 36" LONG FOR SCR-610-(). ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
3. ONE HEADSET HS-30-() WITH CORD CD-605 AND ONE MICROPHONE T-17-() SHALL BE FURNISHED FOR RADIO SET SCR-510-() OR SCR-610-().
4. (4) WHERE MOUNTED ON FLOOR OF DRIVER'S COMPARTMENT SHALL USE EXISTING SCREWS.
5. (23), (21), AND (22) SHALL BE INSTALLED WITH SCREWS EXISTING IN VEHICLE.
6. (27) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
7. FOR ADDITIONAL COMPONENTS AND SPARE PARTS SEE PART'S LIST.
8. (16) AND (17) ARE FURNISHED WITH (6).
9. (28) SHALL BE FURNISHED AND INSTALLED BY VEHICLE MFR.
10. REMOVE INTERNAL LEAD IN MAST BASE WHEN WIRE W-128 IS USED WITH SCR-510-() OR SCR-610-().



SECTION A-A

ITEM NO.	NAME OF ITEM	QUAN REQ.	RADIO SET ()	RADIO SET ()
1	RADIO RECEIVER AND TRANSMITTER BC-620-()	1	SCR-510-()	SCR-610-()
2	RADIO RECEIVER AND TRANSMITTER BC-659-()	1		
3	PLATE SUPPLY UNIT PE-97-() OR POWER UNIT PE-120-()	1		
4	MOUNTING FT-250-() (SEE NOTE #4)	2		
5	PLATE SUPPLY UNIT PE-117-() OR POWER UNIT PE-120-()	1		
6	MAST BASE BRACKET MP-54	1		
7	MAST BASE MP-48 OR MP-48-A (SEE NOTE #10)	1		
8	MAST SECTION MS-51, WITH CLAMP MC-423	1		
9	MAST SECTION MS-52, WITH CLAMP MC-424	1		
10	MAST SECTION MS-53	1		
11	WIRE W-128 (SEE NOTE #2)	1		
12	CORD CD-509	1		
13	HEX. HD. MACH. SCREW 1/4"-20 X 3/4" LONG	4		
14	HEX. NUT 1/4"-20 STD.	4		
15	LOCKWASHER STD. FOR 1/4" SCREW	4		
16	HEX. HD. MACH. SCREW 5/16"-24 X 1" LONG	4		
17	ELASTIC STOP NUT 5/16"-24 (SEE NOTE #8)	4		
18	APPLETON CONNECTOR CAT. # 61007	2		
19	APPLETON BOND NUT CAT. # BL-50	2		
20	CLAMP NO. 4	5		
21	CLAMP NO. 9 (SEE NOTE #5)	1		
22	CLAMP NO. 11 (SEE NOTE #5)	2		
23	RD. HD. MACH. SCREW # 8-32 X 1/2" LONG	3		
24	RD. HD. MACH. SCREW # 8-32 X 1" LONG	2		
25	HEX. NUT # 8-32 STD.	3		
26	LOCKWASHER STD. FOR # 8 SCREW	5		
27	COVER BG-108 (SEE NOTE #6)	1		
28	TERMINAL BOX C100427 (SEE NOTE #9)	1		
29	FRAME FM-48 (SEE NOTE #5)	1		

TL-1031/4

Figure 6. Installation of Radio Set SCR-510-() or SCR-610-() in Carrier, Personnel, Half-track, M5.

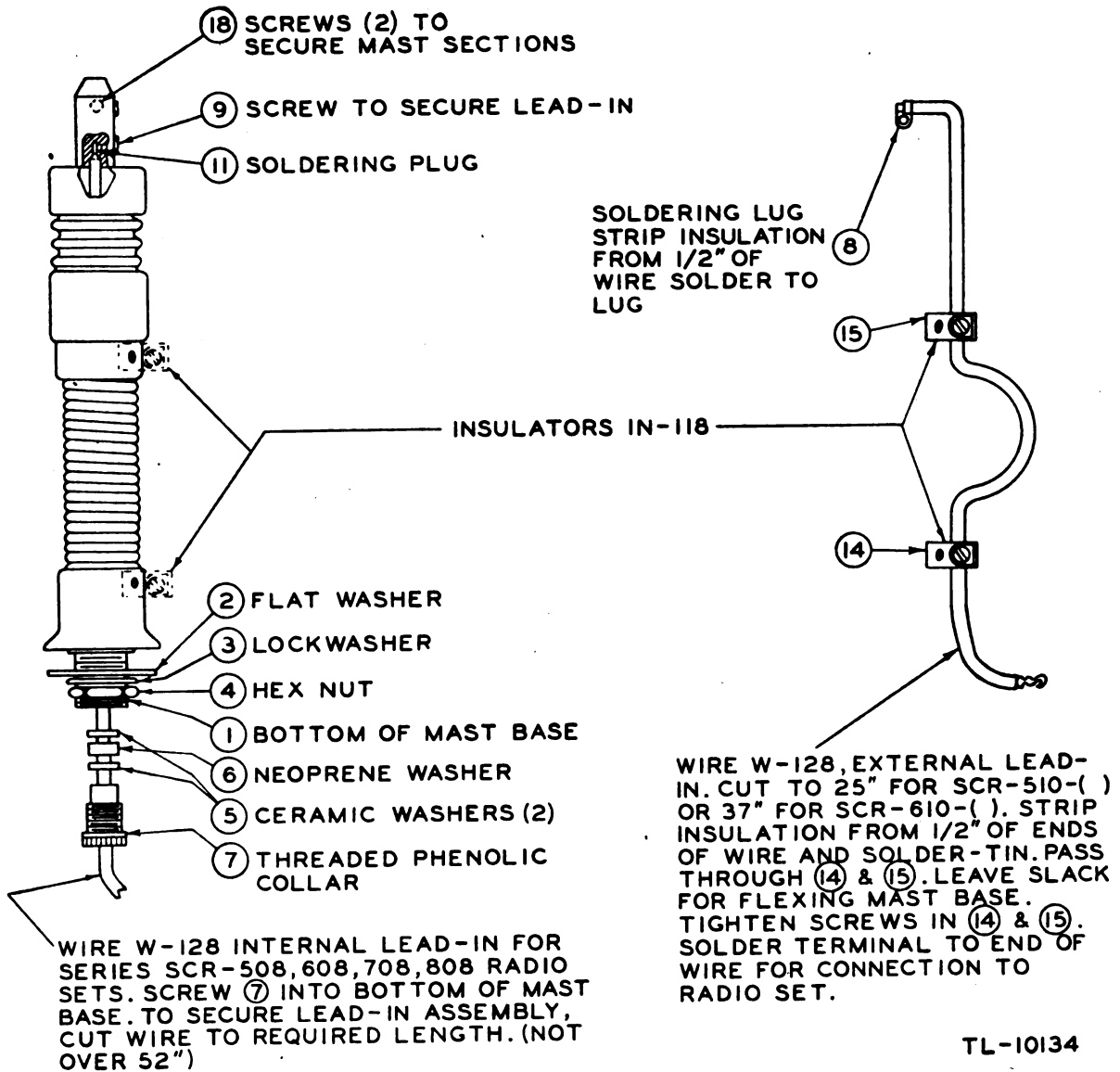


Figure 7. Mast Base MP-48-A, assembly with Wire W-128 lead-in.

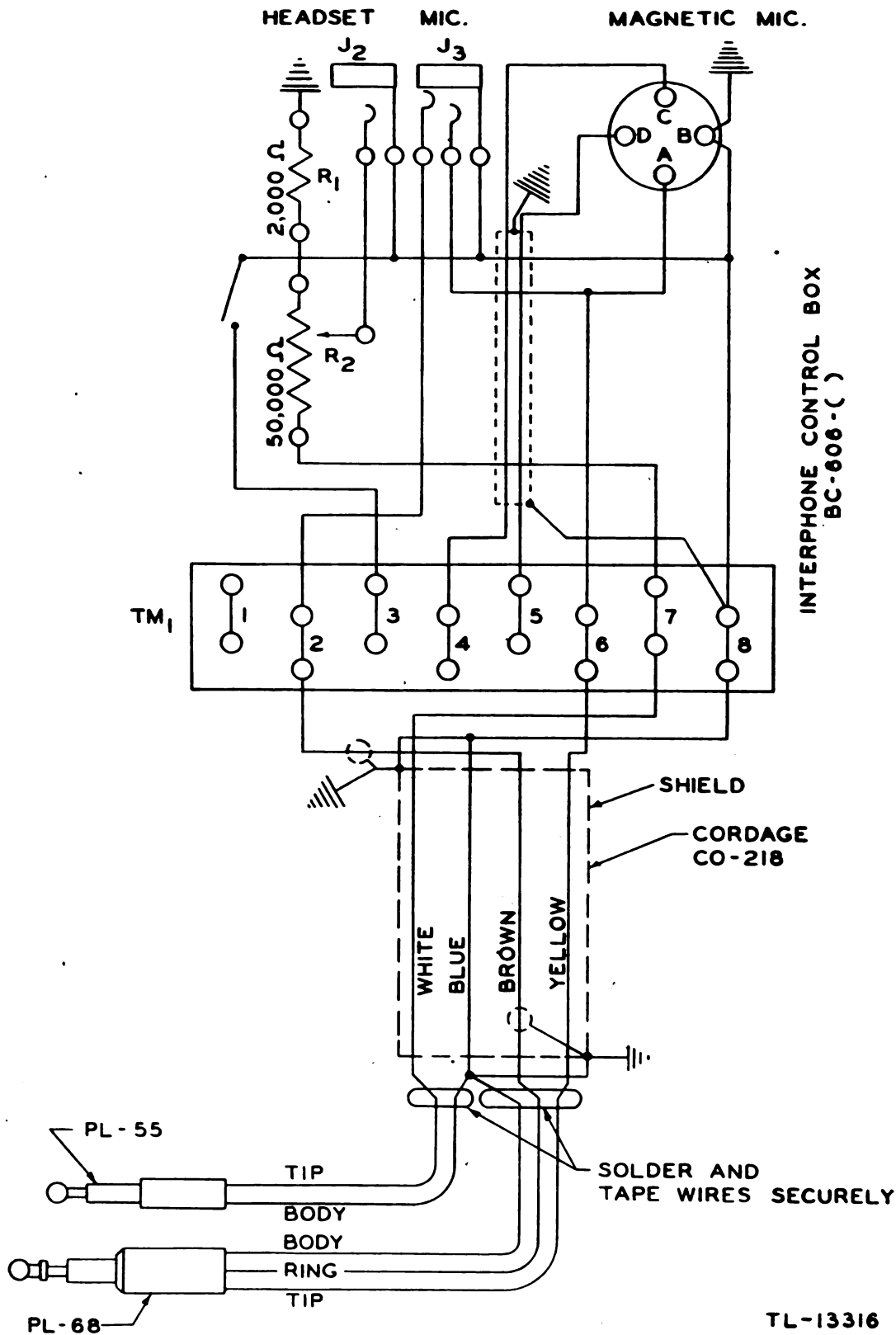
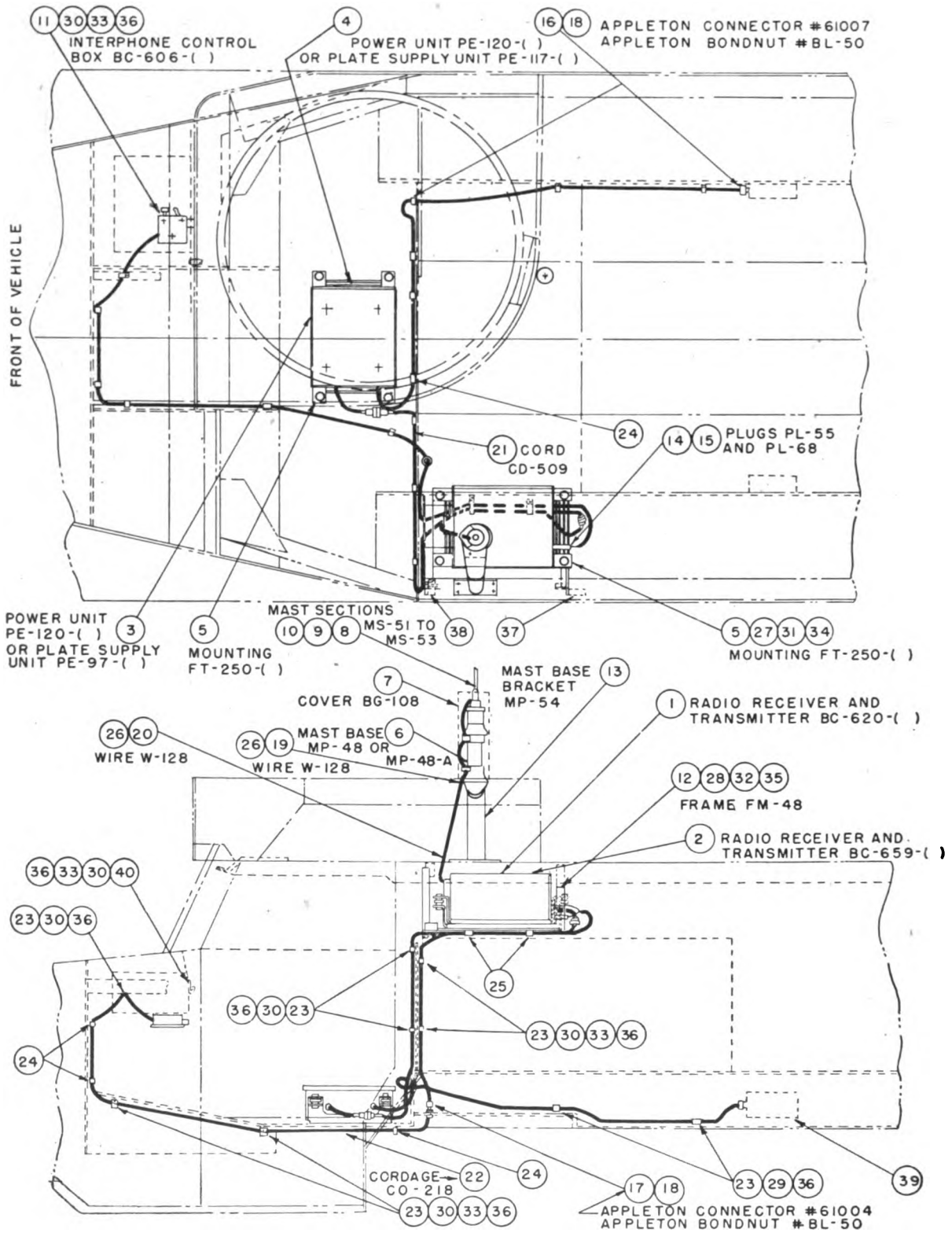


Figure 8. Wiring diagram for remote control of Radio Set SCR-510-() or SCR-610-() from Interphone Control Box BC-606-().



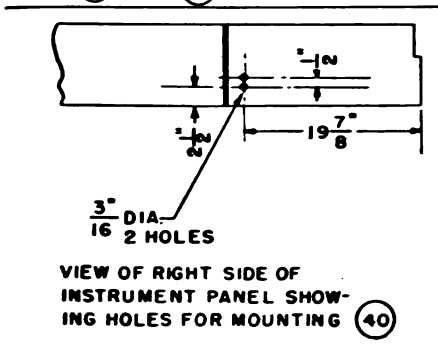
TL-13315-1

Figure 9. Installation of Radio Set SCR-510-() or SCR-610-() in Carrier, Personnel, Half-track M5A1

ITEM NO	NAME OF ITEM	QJAN REQ RADIO SET	
		SCR-510-()	SCR-610-()
1	RADIO RECEIVER AND TRANSMITTER BC-620-()	1	
2	RADIO RECEIVER AND TRANSMITTER BC-659-()		1
3	POWER UNIT PE-120-() OR PLATE SUPPLY UNIT PE-97-()	1	
4	POWER UNIT PE-120-() OR PLATE SUPPLY UNIT PE-117-()		1
5	MOUNTING FT-250-() (SEE NOTE 2)	2	2
6	MAST BASE MP-48 OR MP-48-A (SEE NOTE 10)	1	1
7	COVER BG-108 (SEE NOTE 3)	1	1
8	MAST SECTION MS-51 WITH CLAMP MC-423		1
9	MAST SECTION MS-52 WITH CLAMP MC-424	1	1
10	MAST SECTION MS-53	1	1
11	INTERPHONE CONTROL BOX BC-606-()	1	1
12	FRAME FM-48	1	1
13	MAST BASE BRACKET MP-54 (SEE NOTE 4)	1	1
14	PLUG PL-55	1	1
15	PLUG PL-68	1	1
16	APPLETON CONNECTOR CAT #61007	2	2
17	APPLETON CONNECTOR CAT #61004	1	1
18	APPLETON BOND NUT CAT #BL-50	3	3
19	WIRE W-128 30" LONG (SEE NOTE 5)	1	
20	WIRE W-128 36" ± 1" LONG (SEE NOTE 5)		1
21	CORD CD-509	1	1
22	CORDAGE CO-218 13'-0" LONG	1	1
23	CLAMP NO. 4	12	12
24	CLAMP NO. 6 (SEE NOTE 6)	6	6
25	CLAMP NO. 8 (SEE NOTE 7)	2	2
26	TERMINAL (SEE NOTE 8)	1	1
27	HEX. HD. MACH. SCREW 1/4"-20-3/4" LONG	4	4
28	HEX. HD. MACH. SCREW 3/8"-24-3/4" LONG	4	4
29	RD. HD. MACH. SCREW #8-32 X 1" LONG	2	2
30	RD. HD. MACH. SCREW #8-32 X 1/2" LONG	15	15
31	HEX. NUT 1/4"-20 STD.	4	4
32	HEX. NUT 3/8"-24 STD.	4	4
33	HEX. NUT #8-32 STD.	9	9
34	LOCKWASHER S. A. E. REG. 1/4" SCREW	4	4
35	LOCKWASHER S. A. E. REG. 3/8" SCREW	4	4
36	LOCKWASHER S. A. E. REG. # 8 SCREW	17	17
37	BRACKET B288432 (SEE NOTE 9)	1	1
38	BRACKET B288434 (SEE NOTE 9)	1	1
39	TERMINAL BOX C100427	1	1
40	HOOK	1	1

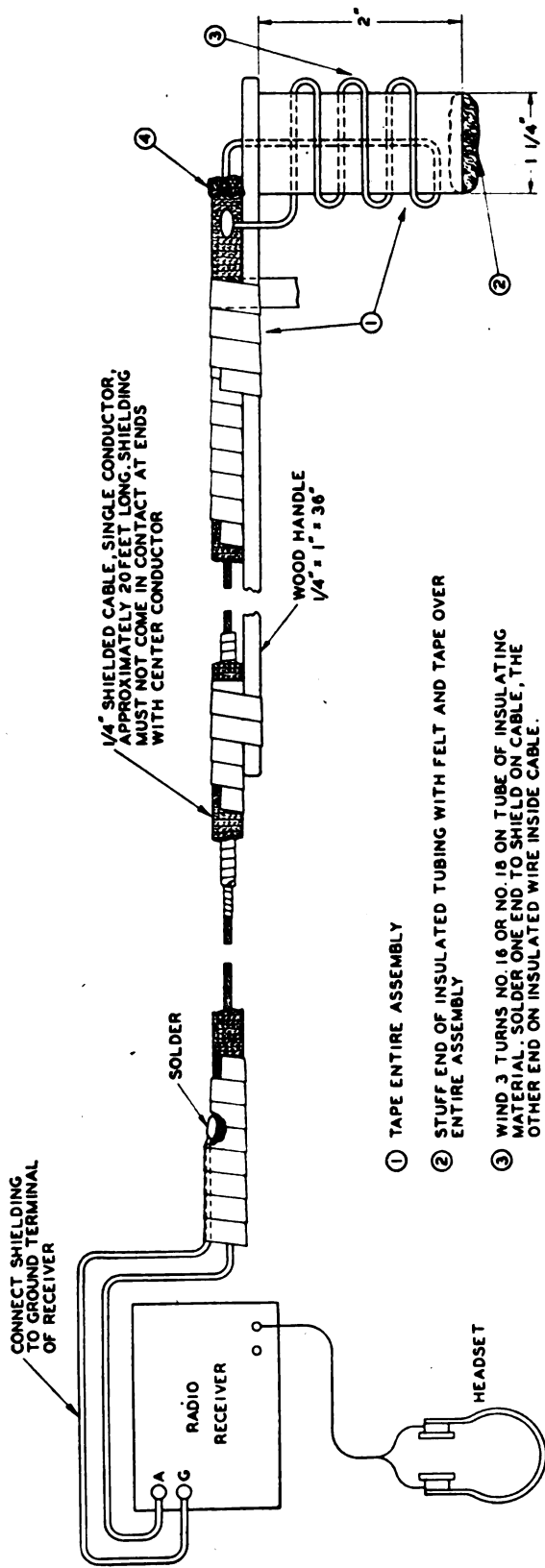
NOTE :

- ONE HEADSET HS-30-() WITH CORD CD-605 AND ONE MICROPHONE T-17-(), SHALL BE FURNISHED FOR EACH RADIO SET SCR-510-() OR SCR-610-().
- EXISTING SCREWS SHALL BE USED FOR MOUNTING (5) TO FLOOR OF DRIVER'S COMPARTMENT.
- (7) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
- (13) SHALL BE MOUNTED WITH EXISTING BOLTS.
- (19) AND (20) SHALL BE CUT TO PROPER LENGTH. ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.



- (24) SHALL BE MOUNTED WITH EXISTING BOLTS.
 - (25) SHALL BE MOUNTED TO (12) WITH RADIO SET MOUNTING BOLTS.
 - (26) SHALL BE SECURELY SOLDERED TO RECEIVER END OF (19) OR (20).
 - (37) (38) AND (39) SHALL BE FURNISHED AND INSTALLED BY VEHICLE MFR.
 - INTERNAL LEAD-IN ASSEMBLY SHALL BE REMOVED FROM (6).
 - FOR ADDITIONAL COMPONENTS AND SPARE PARTS SEE PARTS LIST.
 - FOR WIRING DIAGRAM OF REMOTE CONTROL OF RADIO SET SCR-510-() OR SCR-610-() SEE FIG. 9.
 - FOR INSTALLATION OF RADIO SET SCR-508-(), SCR-528-(), SCR-608-(), OR SCR-628-() AND RADIO SET SCR-506-() SEE FIG. 1.
- TL-13315-2

Figure 9. Installation of Radio Set SCR-510-() or SCR-610-() in Carrier, Personnel, Half-Track, M5A1-Continued



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

TL-7547

Figure 10. Probe antenna.

135:11-2712

TM 11-2712

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF RADIO EQUIPMENT IN MULTIPLE GUN MOTOR CARRIAGE M13, M14, M16, OR M17



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WAR DEPARTMENT

• 15 JULY 1944

WAR DEPARTMENT,
WASHINGTON 25, D. C., 15 July, 1944.

TM 11-2712, Installation of Radio Equipment in Multiple Gun Motor Carriage M13, M14, M16, or M17 is published for the information and guidance of all concerned.

[A. G. 300.7 (7 Jun 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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IC 5: T/O & E 5-800-2.

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

IC 44: T/O & E 44-77.

For explanation of symbols, see FM 21-6.

CONTENTS

SECTION I. GUIDE TO USE OF THIS MANUAL.

	<i>Paragraph</i>	<i>Page</i>
Purpose.....	1	1
Holes and brackets.....	2	1
Before beginning installation.....	3	1
Immediately after installation.....	4	1

II. RADIO SET SCR-528-(&).

Required parts.....	5	2
Assembly and installation.....	6	3

APPENDIX. IGNITION NOISE SUPPRESSION IN MULTIPLE GUN MOTOR CARRIAGE M13, M14, M16, OR M17.....

6

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 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.

1. Make no adjustments inside the equipment with the power 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.

RESTRICTED

SECTION I

GUIDE TO USE OF THIS MANUAL

1. Purpose

This manual provides methods and procedures, based upon actual field experience, for installation of Radio Set SCR-528-($\&$) in Multiple Gun Motor Carriage M13, M14, M16, or M17. Items required to make a complete operating installation are listed for the radio set. Official nomenclature followed by ($\&$), such as Headset HS-30-($\&$), is used to indicate any model of equipment regardless of its procurement.

2. Holes and Brackets

Holes and brackets required for installation of the radio set are normally located prior to delivery of Multiple Gun Motor Carriage M13, M14, M16, or M17. Drilling instructions are given in this manual for any other necessary holes and brackets. Do not relocate any holes or brackets unless absolutely necessary.

3. Before Beginning Installation

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

Caution: Multiple Gun Motor Carriage M13, M14, M16, or M17 has a 12-volt electrical system. Before installing the radio set, be sure that it is designed for a 12-volt installation, or tubes may burn out and dynamotors may be damaged.

4. Immediately After Installation

Study carefully 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

RADIO SET SCR-528-(~~&~~)

5. Required Parts

Items necessary for the installation of Radio Set SCR-528-(~~&~~) in Multiple Gun Motor Carriage M13, M14, M16, or M17 are listed below.

Quantity	Stock No.	Item
1	2A262	Antenna A-62 (phantom).
1	2Z1574(&)	Cabinet CH-74-(&).
1	2Z2595-264	Chest CH-264, for spare parts.
1	2Z2651-423	Clamps MC-423, for securing Mast Sections MS-51 and MS-52.
1	2Z2651-424	Clamps MC-424, for securing Mast Sections MS-52 and MS-53.
1	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
2	3E1307A-5.5	Cord CD-307-A, 65 inches long, for HS-30-(&).
1	3E1318(&)	Cord CD-318-(&), for microphone.
2	3E1604	Cord CD-604, for Headset HS-30-(&).
1	2Z3400-108	Cover BG-108, for Mast Base MP-48 or MP-48-A.
1	2Z3396(&)	Cover BG-96-(&), for radio set.
80	2Z3541-A.1(&)	Crystal Holder FT-241-(&), with crystal installed.
1	3H1634(&)	Dynamotor DM-34-(&), 12-volt, for Radio Receiver BC-603-(&).
1	3H1635(&)	Dynamotor DM-35-(&), 12-volt, for Radio Transmitter BC-604-(&).
1	6L50-528V69	Hardware bag.
2	2B830(&)	Headset HS-30-(&).
1	3G621	Insulator IN-121.
1	2A2088-48(&)	Mast Base MP-48 or MP-48-A.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
2	2B1567	Microphone Cover M-367.
2	2B1617(&)	Microphone T-17-(&).
1	2B1645	Microphone T-45.
1	2Z6721-237(&)	Mounting FT-237-(&), including Power Cord CO-278, mounting hardware, and spare fuses.
1	2Z1250.31	Mounting bracket.
1	2C4403(&)	Radio Receiver BC-603-(&), including set of tubes installed, spare lamps, and fuses.
1	2C6494(&)	Radio Transmitter BC-604-(&), including set of tubes installed, spare lamps, and fuses.
1	2Z8056(&)	Roll BG-56-(&), for carrying mast sections.
7 feet.	1B128	Wire W-128.

6. Assembly and Installation

a. PROCEDURE. Components of the radio set should be installed as shown in figure 1, and as directed below.

Part and location

Method and materials

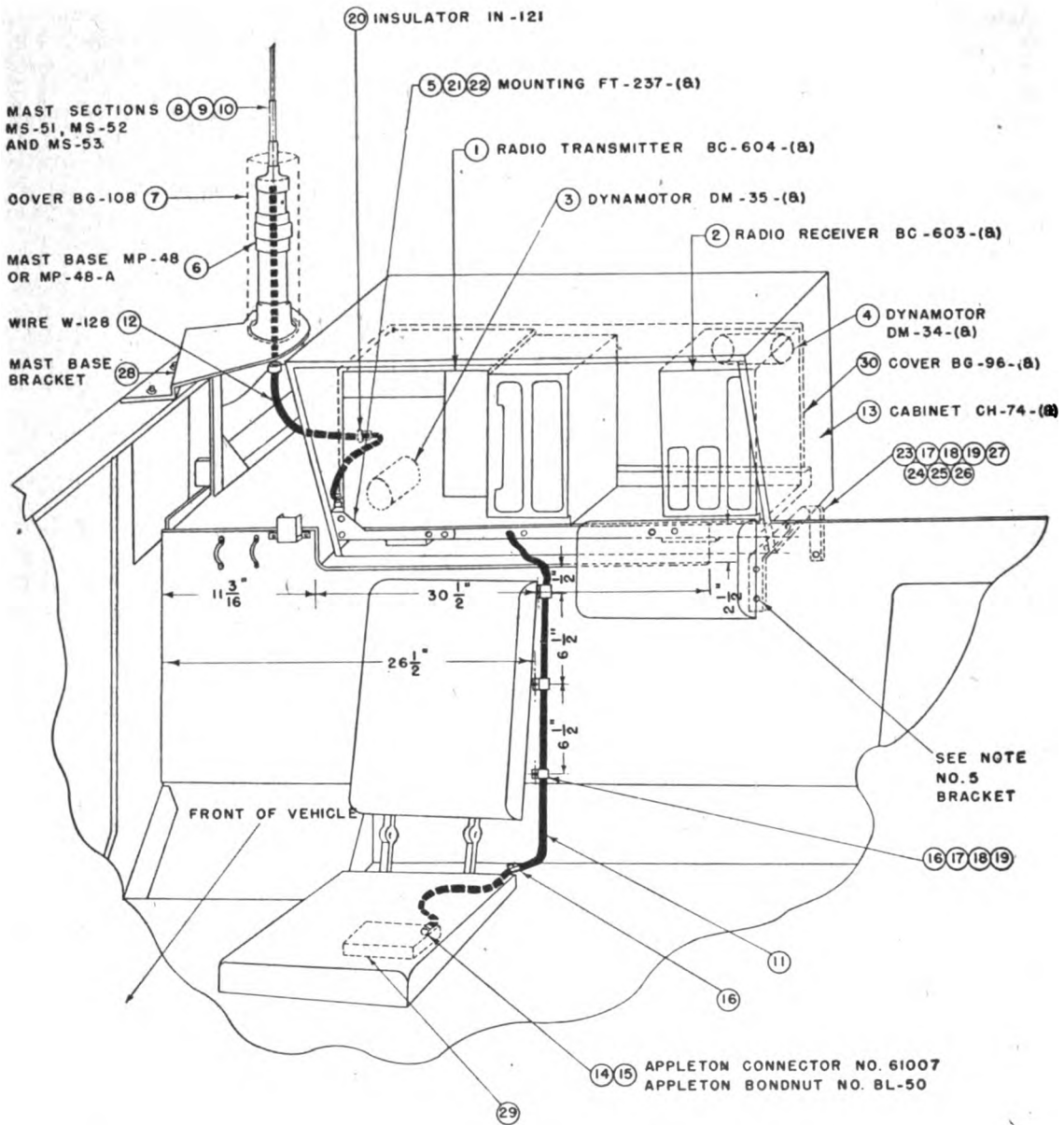
- Cabinet CH-74-(&) and Mounting FT-237-(&)**, on mounting plate to the rear of the right front seat as shown in figure 1.
- Mounting bracket**, under unsupported end of Cabinet CH-74-(&).
- Radio Transmitter BC-604-(&) and Dynamotor DM-35-(&)**, on Mounting FT-237-(&).
- Radio Receiver BC-603-(&) and Dynamotor DM-34-(&)**, on Mounting FT-237-(&).
- Insulator IN-121**
- Mast Base MP-48 or MP-48-A**, on mast base bracket (item 28, fig. 1). If Mast Base MP-48 is supplied, refer to figure 2 for assembly. When Mast Base MP-48-A is supplied, refer to figure 3.
- Mast Sections MS-51, MS-52, and MS-53, and Clamps MC-423 and MC-424**, on Mast Base MP-48 or MP-48-A.
- Remove the mounting bracket which is already installed on the mounting plate. Drill the mounting plate as shown in detail in figure 1. Place Cabinet CH-74-(&) on the mounting plate; then put Mounting FT-237-(&) into the cabinet. Line up all the holes in the plate, cabinet, and mounting. Secure firmly with the hardware provided.
- Refer to figure 1 and fasten the mounting bracket (item 23) to the cabinet (item 13); then mark holes on the bulkhead and ammunition rack with a center punch. Drill the holes. Secure the bracket to the bulkhead and ammunition rack with the hardware provided.
- Mount the dynamotor on the transmitter chassis and secure with four screws through its base. Place the transmitter and dynamotor on the mounting as shown in figure 1 and secure with the thumbscrews provided.
- Mount the dynamotor on the receiver chassis with four screws through its base. Place the receiver and dynamotor on mounting as shown in figure 1 and secure with the four locking screws furnished.
- Insert the insulator through the knock-out hole in the side of Cabinet CH-74-(&), as shown in figure 1.
- Remove nuts and washers (items 2, 3, 4, and 5) from stem (item 1) of Mast Base MP-48 (fig. 2). Loosen setscrews (items 8 and 9) and pull assembly 7 out of the mast base. Prepare assembly 6 (fig. 2) as follows: Strip $\frac{1}{2}$ inch of the insulation from each end of the 38-inch length of Wire W-128; clean and tin the ends. Solder plug (item 6B) to one end. Place the porcelain insulator (item 6C), neoprene washer (item 6D), and ceramic insulator (item 6E) over Wire W-128. Insert the assembly into the mast base and secure with setscrews (items 8 and 9). Insert Wire W-128 and the stem (item 1) through the hole in the mast base bracket and secure in place with items 2, 3, 4, and 5. Flex the mast base 90° and screw the retaining collar (item 18) on the end of the mast base stem (item 1) to secure the assembly in the mast base while the mast base is flexed.
- When Mast Base MP-48-A is supplied, assembly as shown in figure 3, using Wire W-128 internal lead-in. Run lead-in Wire W-128 through Insulator IN-121 in the side of Cabinet CH-74-(&) and connect to antenna terminal on Mounting FT-237-(&).
- Screw the mast sections together and secure with the clamps. Fasten the clamps to the male end of the mast sections. Then screw the antenna into the mast base. When using Mast Base MP-48-A, secure with item 18 (fig. 3). Carry the mast sections and clamps in Roll BG-56-(&) when not in use.

b. CORDING AND WIRING.

(1) Cord and wire Radio Set SCR-528-(&) as shown in figure 1. Connect and secure so as not to interfere with the accessibility and operation of the equipment. Enough slack must be left to permit free movement of all units having shock mounting. Cording or cable likely to rub against

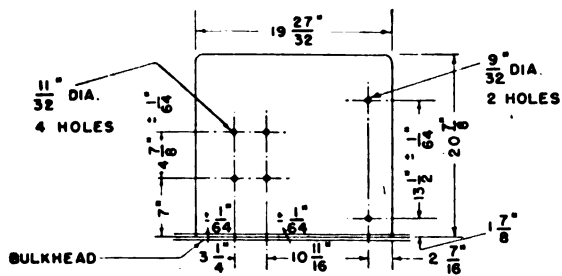
sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

(2) To prevent accidental shorts of the battery, do not connect the positive 12-volt and negative 12-volt leads (in the terminal box) until all other connections have been completed.

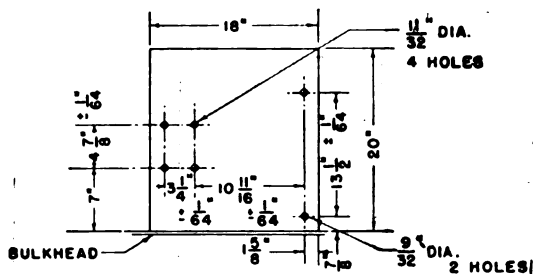


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BASED ON
SC-D-8695-C

Figure 1. Installation of Radio Set SCR-528-(d) in Multiple Gun Motor Carriage M13, M14, M16, or M17.



DETAIL FOR DRILLING HOLES
IN MOUNTING PLATE FOR M14 OR M17



DETAIL FOR DRILLING HOLES
IN MOUNTING PLATE FOR M13 OR M16

NOTES

1. (16) SHALL BE MOUNTED WITH EXISTING BOLT IN FLOOR OF VEHICLE.
2. (7) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
3. (12) SHALL BE CUT TO PROPER LENGTH, ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
4. TWO HEADSETS HS-30-(B) WITH CORDS CD-604 AND CD-307-A, AND TWO MICROPHONES T-17-(B) SHALL BE FURNISHED WITH RADIO SET SCR-528-(B).
5. (17)(18) AND (19) SHALL BE USED TO BOLT (13) TO (23), THEN MARK HOLES ON BULKHEAD AND AMMUNITION RACK FOR DRILLING, USING (24)(25)(26) AND (27) TO SECURE.
6. (28) AND (29) SHALL BE FURNISHED AND INSTALLED BY VEHICLE MANUFACTURER
7. (21) AND (22) SHALL BE USED TO BOLT (5) AND (13), FOUR OF WHICH SHALL BE USED TO SECURE ASSEMBLY TO MOUNTING PLATE.

ITEM NO	NAME OF ITEM	QUAN REQ	REMARKS
1	RADIO TRANSMITTER BC-604-(B)	1	
2	RADIO RECEIVER BC-603-(B)	1	
3	DYNAMOTOR DM-35-(B)	1	
4	DYNAMOTOR DM-34-(B)	1	
5	MOUNTING FT-237-(B)	1	
6	MAST BASE MP-48 OR MP-48-A	1	
7	COVER BG-108	1	SEE NOTE NO. 2
8	MAST SECTION MS-51	1	WITH CLAMP MC-423
9	MAST SECTION MS-52	1	WITH CLAMP MC-424
10	MAST SECTION MS-53	1	
11	CORD CO-278	1	
12	WIRE W-128	1	36" LONG, SEE NOTE NO. 3
13	CABINET CH-74-(B)	1	
14	APPLETON CONNECTOR	1	CAT. NO. 61007
15	APPLETON BONDNUT	1	CAT. NO. 8L-50
16	CLAMP NO 5	4	SEE NOTE NO. 1
17	RD. HD. MACH SCREW	5	1/4"-20 X 3/4" LONG, SEE NOTE NO. 5
18	HEX NUT	5	1/4"-20 ST'D, SEE NOTE NO. 5
19	LOCKWASHER	5	ST'D. FOR 1/4" SCREW, SEE NOTE NO. 5
20	INSULATOR IN-121	1	
21	HEX HD. MACH SCREW	8	5/16"-24 X 3/8" LONG, SEE NOTE NO. 7
22	ELASTIC STOP NUT	8	5/16"-24 ST'D., SEE NOTE NO. 7
23	MOUNTING BRACKET	1	
24	HEX HD MACH SCREW	2	3/8"-24 X 1 1/4" LONG, SEE NOTE NO. 5
25	HEX HD MACH SCREW	1	3/8"-24 X 1" LONG, SEE NOTE NO. 5
26	HEX. NUT	3	3/8"-24 ST'D., SEE NOTE NO. 5
27	LOCKWASHER	3	ST'D FOR 3/8" SCREW, SEE NOTE NO. 5
28	MAST BASE BRACKET B 258382	1	SEE NOTE NO 6
29	TERMINAL BOX C100427	1	SEE NOTE NO 6
30	COVER BG-96-(B)	1	

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Figure 1.—Continued.

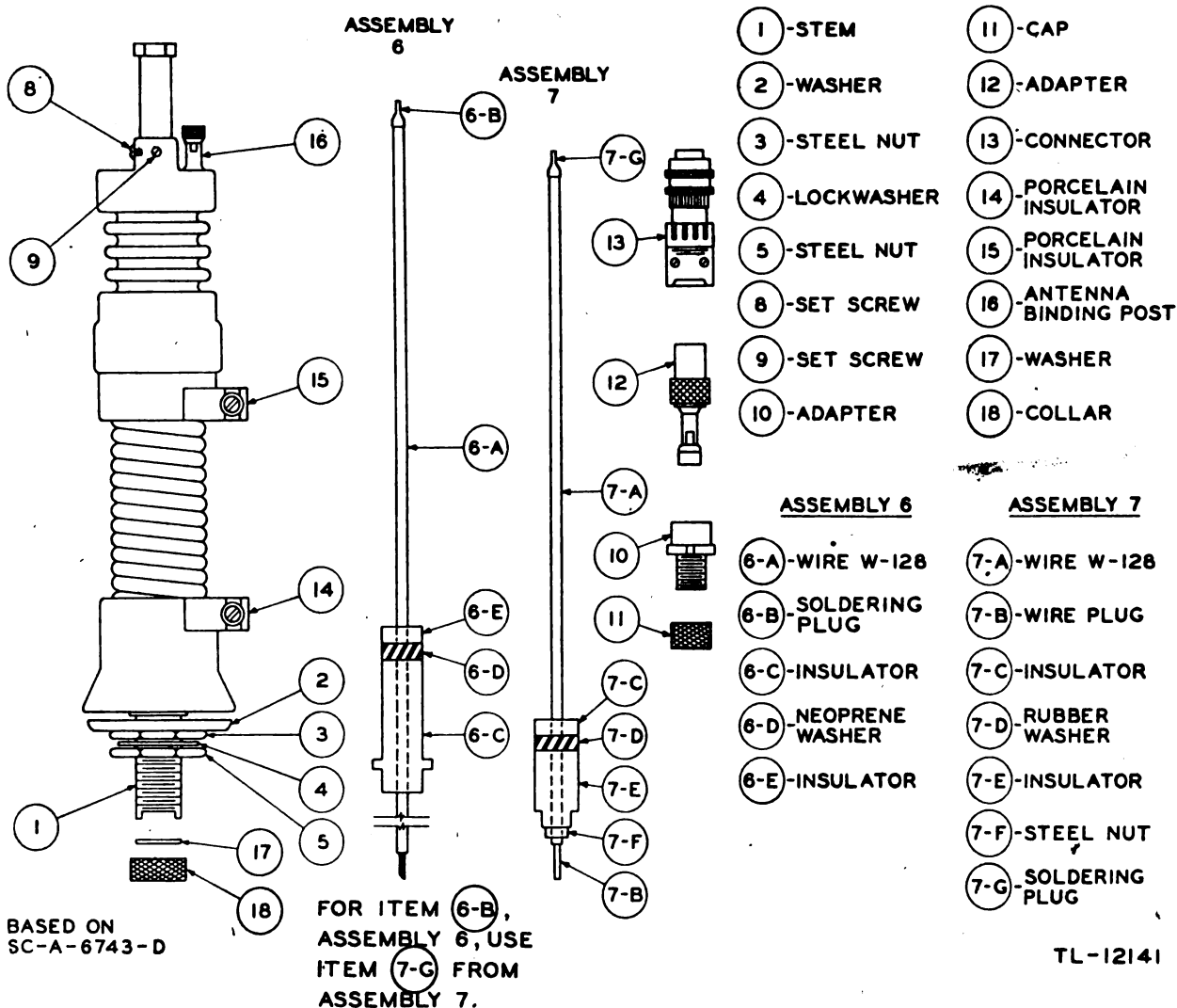


Figure 2. Mast Base MP-48, assembly for installation.

APPENDIX

IGNITION NOISE SUPPRESSION IN MULTIPLE GUN MOTOR CARRIAGE M13, M14, M16, OR M17

1. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Multiple Gun Motor Carriage M13, M14, M16, or M17. The Technical Manual issued with the vehicle 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 vehicle should also be studied.

2. 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.

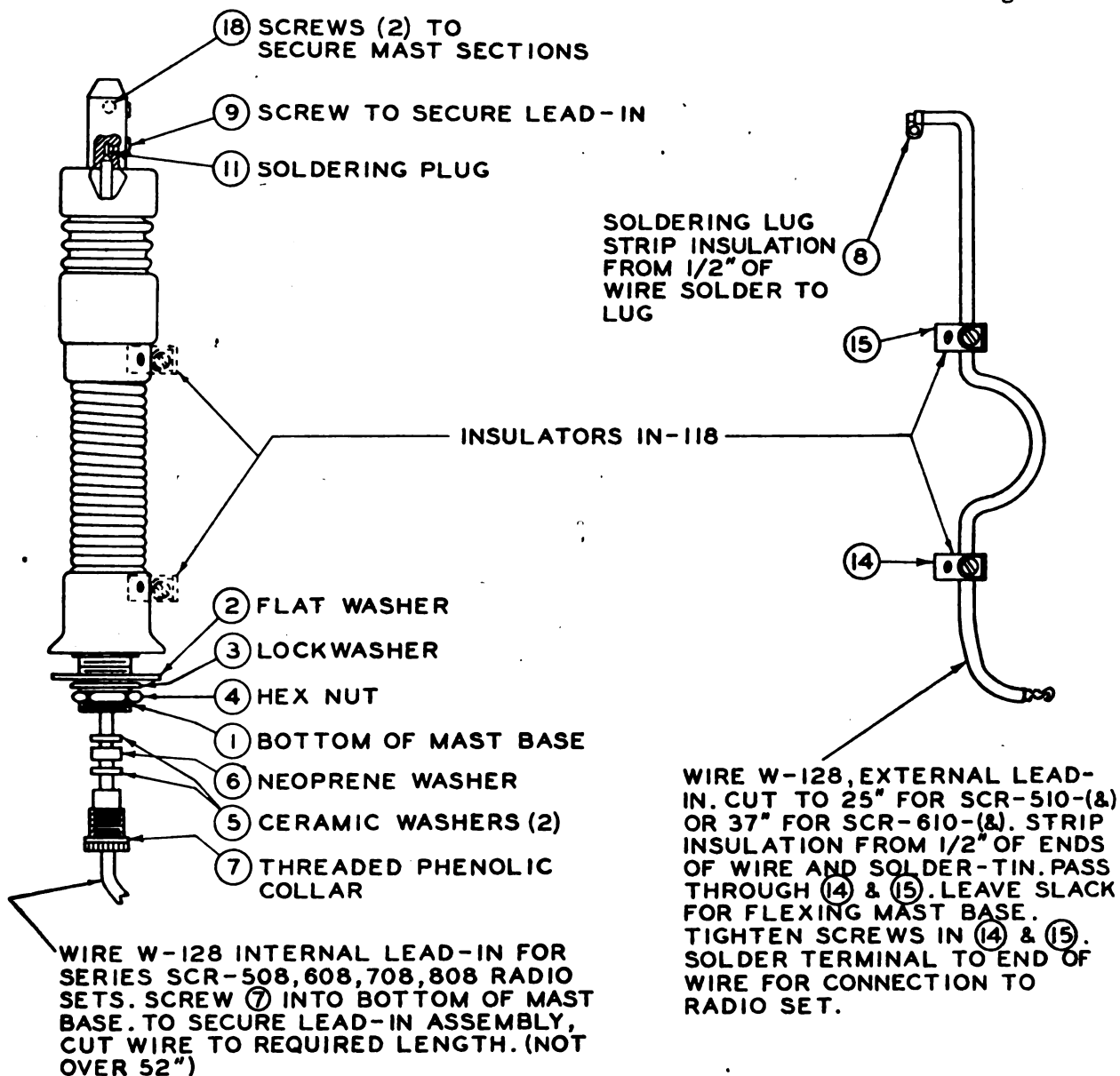
b. When the frequency (or frequencies) with greatest noise level is found, turn off the vehicle engine. If interference persists, the source is outside the ignition system. If noise stops, the trouble is in the ignition system.

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

Interference

Usual source

- Popping sounds, corresponding to ignition firing:** stop when engine is turned off; accelerate 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.**



BASED ON
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TL-10134

Figure 3. Mast Base MP-48-A, assembly with Wire W-128 lead-in.

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. 4) to the antenna terminal of the radio set. Move the loop of the probe antenna slowly over the various parts of the electric system of the vehicle. Keep the loop close to, but not in contact with, the part being examined. Interference-producing parts should be heard in the receiver.

f. Usually interference can 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 surface under them cleaned. This will assure good electrical contact between wires and terminals, and 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.

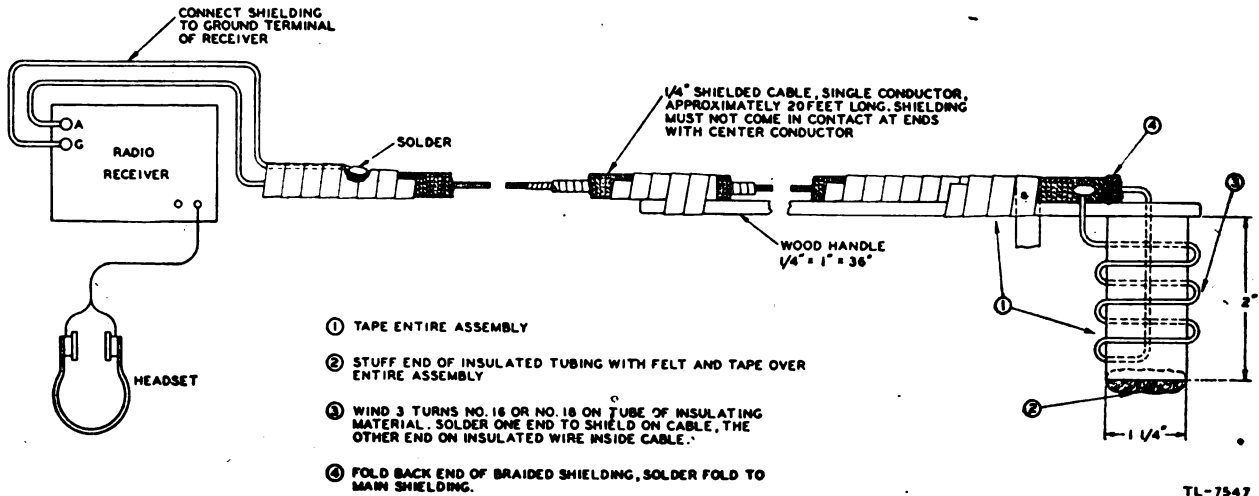


Figure 4. Probe antenna.

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