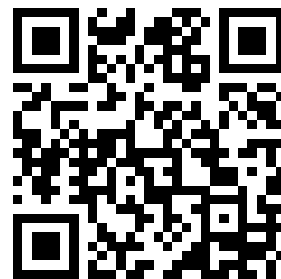

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

<https://books.google.com>

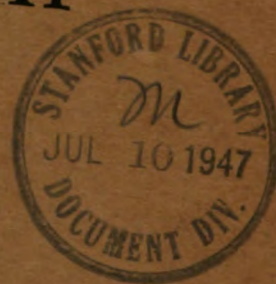


:11-2720

TM 11-2720

DEPARTMENT TECHNICAL MANUAL

STALLATION OF RADIO AND INTERPHONE QUIPMENT IN LIGHT TANKS M5 AND 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.)

DEPARTMENT

DECEMBER 1944
Digitized by Google



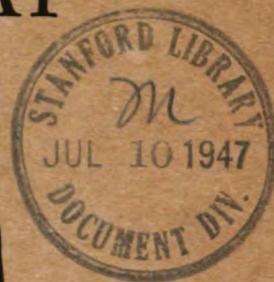
W1.35:11-2720

TM 11-2720

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF RADIO AND INTERPHONE EQUIPMENT IN LIGHT TANKS M5 AND 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. 236, AR 380-5, 15 Mar 1944.)



WAR DEPARTMENT

DECEMBER 1944

Digitized by Google

INSTALLATION OF RADIO
AND INTERPHONE
EQUIPMENT IN LIGHT
TANKS M5 AND M5A1



WAR DEPARTMENT

DECEMBER 1944

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 44.)

WAR DEPARTMENT,

WASHINGTON 25, D. C., 5 DECEMBER 1944.

TM 11-2720, Installation of Radio and Interphone Equipment in Light Tanks M5 and M5A1 is published for the information and guidance of all concerned.

[AG 300.7 (6 Nov 44)]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

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

DISTRIBUTION:

AAF (5); AGF (5); ASF (5); AAF C (2); Arm & Sv Bd (2); Def C (2); T of Opns (5); Base C (5); Tech Sv (2); SvC (5); Area ASvC (2); PC&S (2); PE (2); Dep 11 (2); Gen Oversea SOS Dep (Sig Sec) (2); GH (2); M ConcC (2); Air Base Hosp (2); Gen Sv Sch (5); Sp Sv Sch (10); USMA (2); ROTC (5); Lab 11 (2); Aig AS (2); Rep Sh 11 (2); A (5); Dept (5); D (2); Bn 2 (2); T/O & E 2-22 (3); 2-26 (3); 2-27 (3); 7-25; 7-26 (3); 7-29 (3); 11-107 (3); 11-127 (3); 11-237 (3); 11-587 (3); 11-592 (3); 11-597 (3); 17-15; 17-16 (3); 17-17 (3); 17-19 (3); 17-25; 17-26 (3); 17-27 (3); 17-29 (3).

For explanation of symbols, see FM 21-6.

CONTENTS

	<i>Paragraph</i>	<i>Page</i>
SECTION I. GUIDE TO USE OF THIS MANUAL.		
Purpose.....	1	1
Equipment.....	2	1
Holes and brackets.....	3	1
Before beginning installation.....	4	1
Immediately after installation.....	5	1
II. IGNITION NOISE SUPPRESSION IN LIGHT TANK M5 SERIES.		
General.....	6	2
Procedure.....	7	2
III. RADIO SET SCR-245-U.		
Required parts.....	8	3
Assembly and installation.....	9	4
IV. RADIO SET SCR-506-().		
Required parts.....	10	6
Assembly and installation.....	11	7
V. RADIO SET SCR-508-() OR SCR-528-().		
Required parts.....	12	9
Assembly and installation.....	13	10
VI. RADIO SET AN/VRC-3-().		
Required parts.....	14	12
Assembly and installation.....	15	12
VII. INTERPHONE EQUIPMENT ASSOCIATED WITH RADIO SET SCR-508-() OR SCR-528-().		
Required parts.....	16	15
Assembly and installation.....	17	15

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 ADJUSTMENT WITH THE POWER SWITCH ON.**
- 2. DO NOT OPERATE THE EQUIPMENT WITH THE SHIELDS REMOVED.**
- 3. DO NOT CONNECT POWER TO ANY UNIT OF THE RADIO SET UNTIL OPERATING INSTRUCTIONS HAVE BEEN READ COMPLETELY.**

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 and interphone equipment in Light Tank M5 series. Items required to make a complete operating installation are listed for each radio set and interphone equipment. Official nomenclature followed by empty parentheses, such as Headset HS-30-(), is used to indicate any model of equipment regardless of its procurement.

2. Equipment

Installations covered include the following radio sets:

SCR-245-U¹
SCR-508-()
AN/VRC-3-()
SCR-506-()
SCR-528-()

3. Holes and Brackets

The preliminary preparation of Light Tank M5 for installation of radio and interphone equipment consists of the necessary drilling of the vehicle, the location and spacing of certain holes and bolts, and the mounting of the terminal box complete with battery and interphone connections. Normally, these preparations will have been completed before delivery of the vehicle. Should any vehicle arrive undrilled, reference must be made to the

appropriate figure for complete drilling data. In the event relocation of holes appears to be necessary, consult these figures before drilling. *Do not change hole line-up on any radio part unless absolutely necessary.* Specific instructions for any particular part of these installations are included in the section devoted to that installation. Figures 3 and 12 show the mounting holes used for the various radio sets installed in Light Tank M5.

4. Before Beginning Installation

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

Caution: Light Tank M5 series has a 12-volt electrical system. Before installing any radio set or interphone equipment covered in this manual, be sure that it is designed for a 12-volt installation, and that 12-volt dynamotors have been supplied.

5. Immediately After Installation

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

Caution: Do not operate any of the radio or interphone equipment until the instruction book or technical manual, covering the specific radio set or interphone equipment, has been studied carefully. Otherwise, damage to the equipment may result.

SECTION II

IGNITION NOISE SUPPRESSION IN LIGHT TANK M5 SERIES

6. General

An electrical noise suppression system has been installed in Light Tank M5 series by the manufacturer. The type of suppression installed in this series is usually called the filter suppressor, bypass capacitor, and shielding system. For a detailed description of this suppression system. see the technical manual furnished by the manufacturer for each vehicle. Normally, little trouble is experienced with this system. However, should a case arise where excessive ignition or other electrical noise is encountered, locate the source of the noise and take steps toward eliminating it. Use the following procedure.

7. Procedure

a. Complete the radio installation and study the detailed operating instructions contained in the technical manual of the radio set. Place the radio set in operation, set the receiver sensitivity control at maximum, and tune the receiver *slowly* over the entire range of frequencies to be utilized for communication. Listen to the receiver output with a headset.

b. When the frequency or frequencies of greatest noise level have been found, leave the receiver tuned to one of these frequencies and shut off the vehicle engine. Observe to what degree the noise has subsided. That part of the noise which subsides when the vehicle engine is shut off, is caused by the engine's ignition system. That part of the noise which still persists is picked up from sources other than the vehicle's ignition system.

c. Start the vehicle engine again. Adjust receiver sensitivity control to a point where the engine noise can be most readily distinguished from the static, etc. Proceed to identify the engine noises by reference to the following table:

<i>Interference</i>	<i>Usual Source</i>
Popping sound; corresponds to ignition firing; accelerates when engine is raced; stops when engine is turned off.	Ignition system.

Intermittent, clicking sound; lingers for several seconds when ignition is turned off. Generator regulator.

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

Sparking, or continuous crackling noise. Brushes and commutator of generator.

d. Noises from other electrical components and circuits of the vehicle, such as panel gauges, heater fans; and, in turreted vehicles, traversing motors and gyrostabilizers, will generally fall into one or more of the above categories. To identify noises emanating from them, these auxiliaries may be turned on and off individually.

e. If the source of interference cannot be found by any of the preceding methods, connect a probe antenna (fig. 31) to the antenna terminal of the radio set. Slowly move the loop of the probe antenna 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 generally can be eliminated by cleaning, tightening, or replacing noise-producing parts. Examine and tighten all suppressor and shielding components, and all connections and grounding bonds. Clean the surfaces under them. This will assure good electrical contact between wires and terminals, and between metal casings and the frame of the vehicles. (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 for opens, shorts, or other faults.

SECTION III

RADIO SET SCR-245-U

8. Required Parts

Items necessary for installation of Radio Set SCR-245-U in Light Tank M5 series are listed below:

Quantity	Stock Number	Item
1	2Z1119	Box BX-19, for receiver spare tubes.
1	2Z1120	Box BX-20, for transmitter spare tubes.
1	2Z1121	Box BX-21, for Boxes BX-19, BX-20, headsets, etc.
1	2Z1856	Case CS-56, for transmitter tuning unit.
1	4B417	Chest set TD-4.
1 each	2Z2651-421 to-424, incl.	Clamps MC-421 to MC-424 inclusive, for mast sections.
1	3E1307-5.5	Cord CD-307-A 65-inch, for Headset HS-30-().
1	3E1318	Cord CD-318 for Microphone T-30-().
1	3E1426	Cord CD-426 connects Radio Transmitter BC-223-() to Dynamotor Unit PE-55.
1	3E1355	Cord CD-355, connects Radio Receiver BC-312-() to Radio Transmitter BC-223-().
1	3E2188A	Cord CO-188-A, connects Dynamotor Unit PE-55 to terminal box.
1	3E1604	Cord CD-604, 6-inch, for Headset HS-30-().
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	2Z3531	Crystal Holder FT-171-(), with crystal.
1	3H1855	Dynamotor Unit PE-55, includes Mounting FT-185.
1	6L50-245V14	Hardware bag.
31	2B800-16	Headset H-16/U or HS-30-().
2	2B830	
2	3G598	Insulator IN-98, for antenna lead-in Wire W-128.
1	3Z3445	Key J-45.
31	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	2B1645	Microphone T-45 or T-30-().
1	2B1630	
1	2Z6712	Mounting FT-172, snubber for Radio Transmitter BC-223-().
1	2Z6718	Mounting FT-178, snubber for Radio Receiver BC-312-().
1	2C4312	Radio Receiver BC-312-(), includes Mounting FT-162.
41	2C6223	Radio Transmitter BC-223-(), includes calibration chart and Mounting FT-173.
1	2Z8056	Roll BG-56-A, for mast sections.
41	2C8017	Transmitter Tuning Unit TU-17-().
41	2C8018	Transmitter Tuning Unit TU-18-().
5 feet	1B128	Wire W-128.

¹Crystal Holder FT-171, FT-171-A, or FT-171-B may be used.

²Headset HS-23 may be substituted for Headset H-16/U or HS-30-(). (Cord CD-604 is not required.)

³Mast Base MP-14, MP-14-A, or MP-57 may be substituted for Mast Base MP-37.

⁴The serial numbers and order numbers of the calibration chart and of Transmitter Tuning Units TU-17-() and TU-18-(), must agree with those of Radio Transmitter BC-223-().

9. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of the radio set (fig. 6) should be installed as follows (figs. 3 and 19 for bracket details):

<i>Part and location</i>	<i>Method and materials</i>
Mast Base MP-37, in hole provided in roof of right sponson (figs 1 and 6).	Install mast base through hole in roof of right sponson by assembling the necessary washers and insulator sections as follows: Place item 1 over hole in sponson. Place item 2 over item 1. Place item 3 over item 2. Insert item 4 through hole. Place item 5 over item 6 and insert through bottom of hole in sponson. Place items 7 and 8 beneath item 6 and fasten entire assembly in place with items 9 and 10. See figure 6 for termination of antenna lead before cutting wire.
Insulator IN-98.	Fasten to pads shown in figure 3, with screws and washers provided.
Mounting FT-162, on floor of right sponson, left side.	Secure to sponson with screws and stopnuts provided. (See fig. 6.)
Mounting FT-173, on floor of right sponson, center.	Secure to sponson with screws and stopnuts provided. (See fig 6.)
Mounting FT-185, on floor of right sponson, right side.	Secure to sponson with screws and stopnuts provided. (See fig. 6.)
Mounting FT-178.	Remove receiver from receiver cabinet and drill cabinet as shown in figure 4. Install Mounting FT-178 as shown in figure 5. (See also fig. 6.)
Cover BG-75.	Replace the receiver in its cabinet. Cut a slot in top of cover to admit item 1 (fig. 5), and place over receiver cabinet before completing assembly of Mounting FT-178, as shown in figure 6.
Radio Receiver BC-312-(), on Mounting FT-162.	Place receiver on Mounting FT-162, tighten thumbscrews, and lock in place with the snap-slide catches.
Mounting FT-172.	Remove the tuning unit from the transmitter. While using the small reinforcing plate as a template, drill side of transmitter cabinet. Install Mounting FT-172 as shown in figures 5 and 6. Replace the tuning unit.
Cover BG-86.	Cut a slot in top of cover to admit item 1 (fig. 5), and place over transmitter cabinet before completing the assembly of Mounting FT-172, as shown in figure 6.
Radio Transmitter BC-223-(), on Mounting FT-173.	Place the transmitter on Mounting FT-173 and lock in position with snap-slide fasteners.
Calibration charts.	To be carried in side pocket of transmitter or mounted in some convenient location by drilling small holes in corners and securing with machine screws.
Dynamotor Unit PE-55, on Mounting FT-185 (fig. 6).	Place dynamotor on mounting and lock in position with snap-slide fasteners.

Cover BG-77.	Place cover over Dynamotor Unit PE-55.
Transmitter Tuning Units TU-17-() and TU-18-().	One tuning unit carried in transmitter. Unit not in use to be carried in Case CS-56.
Case CS-56.	Disposition left to discretion of using arms.
Mast Sections MS-49 to MS-53 and Clamps MC-421 to MC-424 on Mast Base MP-37.	Screw mast sections together and fasten with clamps. Carry in Roll BG-56-A, when not in use.
Roll BG-56-A.	For mast sections and clamps when not in use. Disposition left to discretion of using arms.
Cover BG-67.	Place cover over mast base when mast sections are not in use. (See fig. 6.)
Box BX-19 and Box BX-20.	Disposition left to discretion of using arms. Stow in Box BX-21, when not in use, if Box BX-21 is carried in the vehicle.
Box BX-21.	Disposition left to discretion of using arms.
Headset HS-30-().	Plug Cord CD-307 into jack of Radio Receiver BC-312-() Plug Cord CD-604 into Cord CD-307 and connect Headset HS-30-() to Cord CD-604.
Microphone T-30-() and Key J-45.	Plug the cords attached to Microphone T-30-() and Key J-45 to the proper jacks in Radio Receiver BC-312-().
Crystal Holder FT-171-(), with crystal.	Carried in Transmitter Tuning Unit TU-17-() or TU 18-(), according to frequency designated on holder.
Wire W-128, and screws, nuts, etc.	Stow any excess material remaining in Box BX-21 after completion of installation.
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	Use in place of Headset HS-30-(), Microphone T-30-(), and associated cording, when available.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-245-U as shown in figure 6. Hand tighten the plug locks on the various cords. *Do not* use any tool to tighten these plug locks. Sufficient slack should be left in the cording and wiring connections to permit free motion of all units having shock mountings. *Follow the color coding specified.*

(2) *Do not* connect the +12-volt and -12-volt leads of Cord CO-188-A, connecting Dynamotor Unit PE-55 and the battery terminal block (in the terminal box), until all other connections have been completed. This procedure will prevent accidental shorts of the battery. When installing Cord CO-188-A at the dynamotor end, it may be necessary to ream the entrance hole provided in

the dynamotor housing. If necessary, it is permissible to modify the dynamotor end of this cord by removing excess length of leads. The terminals must be resoldered to the leads before completing the electrical connections.

(3) Make the antenna and ground connections, using Wire W-128 as shown in figure 6. The ground connections from the transmitter and the receiver should be as short as possible. Exercise care to insure good electrical connections. All wires should be solder-tinned.

(4) Connect and drape all cords so that they will not interfere with the accessibility and operation of the radio equipment. Clamps to hold radio cordage are shown in figure 25.

SECTION IV
RADIO SET SCR-506-()

10. Required Parts

Items necessary for installation of Radio Set SCR-506-() in Light Tank M5 series are listed below:

Quantity	Stock Number	Item
1	2A275-27	Antenna A-27, phantom.
1	2Z1250	Bracket, for Antenna A-27, phantom.
1	2Z2599-263	Chest CH-263.
1	4B417-4	Chest Set TD-4.
1 each	2Z2651-421 to -424, incl.	Clamps MC-421 to MC-424, inclusive.
2	6Z3147	Connector No. 61007 and Bondnut BL-50.
1	3E1307-5.5	Cord CD-307-A, 65-inch, for Headset HS-30-().
1	3E1604	Cord CD-604, 6-inch, for Headset HS-30-().
1	3E1314	Cord CD-314, for loudspeaker LS-3.
1	3E1318	Cord CD-318, for Microphone T-30-().
1	2Z3367	Cover BG-67, for Mast Base MP-37.
1	3H1640	Dynamotor DM-40-(), 12 volts.
1	3H1642	Dynamotor DM-42-(), 12 volts.
1 ¹	2B830	Headset H-16/U or HS-30-().
	2B800-16	
1	6L50-506V4	Hardware bag.
2	3G598	Insulator IN-98.
1	3Z3445	Key J-45.
1	2Z6303.1	Loudspeaker LS-3.
2 ¹	2A2087	Mast Base MP-37 or MP-57.
1	2A2349	Mast Section MS-49.
1	2A2350	Mast Section MS-50.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
1	2B1645	Microphone T-45 or T-17.
	2B1617	
2 ¹	2B1630	Microphone T-30-().
1	2B1567	Microphone Cover M-367, for Microphone T-45.
1	2Z6721-253	Mounting FT-253, including Cord CO-280.
1	2C4452	Radio Receiver BC-652-(), includes crystal unit, set of tubes, and spare parts.
1	2C6530-653	Radio Transmitter BC-653-(), includes set of tubes and spare parts.
1	2Z8056A	Roll BG-56-A, for mast sections.
1	2C7978	Switch Box BC-658-().
5 feet	1B146	Wire W-146, for antenna and ground leads.

¹Headset HS-18 may be substituted for Headset HS-30-(). (Cord CD-604 is not required.) Headset H-16/U should be used when available.

²Mast Base MP-57 or MP-14 may be substituted for Mast Base MP-37.

³Microphone T-17 may be substituted for Microphone T-30. (Cord CD-318 is not required.) Microphone T-45 should be used when available.

11. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of the radio set (figs. 10 and 11) should be installed as follows (figs. 3 and 19 for bracket details):

<i>Part and location</i>	<i>Method and materials</i>
Mast Base MP-37 or MP-57 (fig. 1), in hole provided in roof of right sponson.	Install mast base through hole in roof of sponson by inserting the necessary washers and insulator sections as follows: Place item 1 over hole in sponson. Place item 2 over item 1. Place item 3 over item 2. Insert item 4 through hole. Place item 5 over item 6 and insert through hole from inside the sponson. Place items 7 and 8 beneath item 6, and fasten entire assembly in place with items 9 and 10. See figure 10 for termination of antenna lead before cutting wire.
Insulator IN-98, on mounting pads, ceiling of right sponson.	Fasten to pads with screws and washers provided, as shown in figure 10.
Dynamotor DM-40-(), in crystal frequency control unit of Radio Receiver BC-652-().	If the dynamotor is furnished uninstalled, install it in the crystal frequency control unit. The four snap fasteners accessible from the top of the crystal frequency control unit are used to hold the dynamotor in place. All connections to the dynamotor are made by flexible leads terminating in Plug P-250. Installation of proper dynamotor automatically adjusts the receiver circuits for correct operating voltage. The nameplate on the front panel of the receiver should be turned to read 12-VOLTS OPERATION.
Dynamotor DM-42-(), in Radio Transmitter BC-653-().	If the dynamotor is not already installed, install it in Radio Transmitter BC-653-() by plugging into provided jacks and clamping in place. Before placing the radio set in operation, see that links on the right side of the transmitter are in proper places for 12-volt operation. If they are not, remove the top of Radio Transmitter BC-653-(), and connect the six links in the 12-volt position as indicated by the arrow on edge of terminal strip. The outer side of the voltage indicator plate, above the dynamotor's red pilot light, should read 12 VOLTS.
Mounting FT-253-(), in right sponson.	Fasten to floor of sponson with hardware provided. To avoid noisy reception while the vehicle is in motion, the <i>feet</i> of Mounting FT-253-() must make good electrical contact with the vehicle. The surface upon which the <i>feet</i> of the mounting rest, must be cleaned thoroughly with emery cloth or sandpaper before the mounting is bolted in place. Where the radio mounting shelf is not welded to the vehicle, the surfaces under the heads of all mounting bolts must be cleaned to insure good electrical contact between mounting shelf and vehicle frame.
Radio Transmitter BC-653-(), on Mounting FT-253-().	Place on Mounting FT-253 (fig. 10), and secure in place by tightening provided wingnuts.

Part and location

Method and materials

Radio Receiver BC-652-(), on Mounting FT-253-().	Place on Mounting FT-253 (fig. 10), and secure in place by tightening provided wingnuts.
Switch Box BC-658-(), on bracket, extreme front of right sponson. (See fig. 10.)	Fasten to bracket with screws and washers provided. Connect the attached cords as shown in figure 11.
Headset HS-30-() and Microphone T-30-(), or T-17, and Key J-45.	Plug into properly designated cords and jacks, as shown in figure 11.
Mast Sections MS-49 to MS-53 inclusive, Clamps MC-421 to MC-424 inclusive, on Mast Base MP-37.	Place clamps over mast section joints to prevent loss of upper sections. When not in use, carry mast sections and clamps in Roll BG-56-A.
Cover BG-67.	Place over mast base when mast sections are removed.
Roll BG-56-A.	Disposition left to discretion of using arms.
Loudspeaker LS-3 and Cord CD-314.	If use of these items is desired, connect them together and plug into properly designated jack on front panel of Radio Receiver BC-652-().
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	Use in place of Headset HS-30-(), Microphone T-30-() or T-17, and associated cording, when available.
Antenna A-27, phantom.	Locate and weld bracket (fig. 32) securely to front edge of transmission housing, as shown in figure 33.
Chest CH-263.	Store in any convenient location.

b. CORDING AND WIRING. Cord and wire Radio Set SCR-506-() as shown in figure 11. Leave sufficient slack in all cording and wiring to permit free motion of all units having shock mountings. *Do not* connect the positive and negative 12-volt leads in the terminal box until all other connections have been made, thus preventing accidental short-circuiting of the car storage battery.

SECTION V

RADIO SET SCR-508-() OR SCR-528-()

12: Required Parts

Items necessary for installation of Radio Set SCR-508-() or SCR-528-() in Light Tank M5 series are listed below:

Quantity		Stock Number	Item
Radio Set SCR-508-()	Radio Set SCR-528-()		
1	1	2A262	Antenna A-62, phantom.
1	1	2Z1250.56	Bracket for Antenna A-62.
1	1	4B417-4	Chest Set TD-4.
1	1	2Z2599-264	Chest CH-264.
1	1	2Z2651-423	Clamps MC-423 and MC-424, for mast sections.
1	1	3E1307A-5.5	Cord CD-307-A, 65-inch, for headset.
1 ¹	1 ¹	3E1604	Cord CD-604, 6-inch, for connecting Headset HS-30-() to Cord CD-307-A.
1	1	6Z3147	Connector No. 61007 and Bondnut BL-50, for power cable connection.
1	1	2Z3400-108	Cover BG-108, for Mast Base MP-48.
2 ²	2 ²	3H1634	Dynamotor DM-34-(), 12 volts, includes attached spare parts.
2 ¹	2 ¹	3H1635	Dynamotor DM-35-(), 12 volts, includes attached spare parts.
1	1	6L50-508V4	Hardware bag.
1 ¹	1 ¹	2B800-16	Headset H-16/U or HS-30-().
		2B830	
8 in.	8 in.	6Z6017-7	Hose, rubber, garden, 5/8 inch I.D.
1	1	3G601	Insulator IN-101.
1	1	2A2088-48	Mast Base MP-48 or MP-48-A.
1	1	2A2351	Mast Section MS-51.
1	1	2A2352	Mast Section MS-52.
1	1	2A2353	Mast Section MS-53.
1	1	2A2416	Mast Section MS-116.
2 ¹	2 ¹	2B1645	Microphone T-45 or T-17.
		2B1617	
1	1	2B1567	Microphone Cover M-367.
1	1	2Z6721-237	Mounting FT-237-(), including Cord CO-278 to power terminal box, and necessary mounting bolts, locknuts, etc.
2	1	2C4403	Radio Receiver BC-603-(), including one set of tubes installed.
1	1	2C6494	Radio Transmitter BC-604-(), including one set of tubes and necessary crystals installed.
1	1	2Z8056A	Roll BG-56-A, for antenna mast sections.
7 feet	7 feet	1B128	Wire W-128; 2 feet required for Antenna A-62.

¹Headset HS-18 may replace Headset H-16/U or HS-30-(). When this is done, Cord CD-604 is not used.

²Microphone T-30-() may replace Microphone T-45 or T-17. When this is done, Cord CD-318, control cord for Microphone T-30-(), must be supplied.

³Dynamotor DM-34-() and Dynamotor DM-35-() may already be installed in Radio Receiver BC-603-() and Radio Transmitter BC-604-(), respectively.

13. Assembly and Installation

a. LOCATION AND ASSEMBLY OF COMPONENTS. Components of Radio Set SCR-508-() or SCR-528-() (figs. 2, 7, and 9) should be installed in Light Tank M5 as follows (figs. 3 and 19 for bracket details):

<i>Part and location</i>	<i>Method and materials</i>
Mounting FT-237-(), including Cord CO-278, in left sponson.	Fasten to floor of sponson with 8 mounting screws $\frac{5}{16}$ "— $24 \times 1\frac{3}{8}$ ", nuts, and washers provided. (See fig. 2.)
Mast Base MP-48 or MP-48-A, in hole provided in roof of left sponson.	Install mast base through hole in roof of left sponson in the following sequence as shown in figure 8: Place item 1 through hole in sponson. Place item 2 over item 1 underneath (inside sponson) and tighten in place with item 3. Place item 4 over item 1 and tighten firmly with item 5. Mast Base MP-48 is designed so that three modes of lead-in connections are possible: coaxial cord; Wire W-128, internal; Wire W-128, external. Wire W-128, internal, <i>must be used</i> in this installation as follows: Cut antenna lead-in Wire W-128 to proper length and strip $\frac{1}{2}$ -inch of the insulation from one end; clean and tin this end and solder tip, item 6B, to it as shown in figure 8. Loosen setscrews 8 and 9. Remove assembly 7 and install the wire inside the mast base, through hollow stem, item 1, making certain that metallic tip, item 6B, is inserted in the slot as far as possible. Tighten setscrews 8 and 9. This step should be made before mast base is installed through hole in roof of sponson. After mast base is installed and tightened, insulator 6C, neoprene washer 6D, and insulator 6E are slipped over Wire W-128 and installed inside hollow stem, item 1. Follow up with washer, item 17, and retaining collar, item 18. Sufficient slack wire must be provided inside stem, item 1, to allow for flexing of mast base. For Mast Base MP-48-A, see figure 20.
Dynamotor DM-34-(), in cabinet of Radio Receiver BC-603-(). (Two Dynamotors DM-34-() and two Radio Receivers BC-603-() required for Radio Set SCR-508-().)	In case Dynamotor DM-34-() is not already installed in receiver, install it as follows: Remove chassis from receiver cabinet by loosening screw lock in rear center of cabinet. Dynamotor unit is installed on top rear of receiver chassis by means of four bolts in its base.
Dynamotor DM-35-(), in cabinet of Radio Transmitter BC-604-().	If dynamotor is not already installed in the transmitter, install it as follows: Remove crystal case from transmitter cabinet by loosening the two screw locks on front panel and pulling crystal case out. Loosen the four screw locks holding cover on top of transmitter and remove cover. Dynamotor unit is installed in left rear of transmitter chassis by means of four bolts in its base.
Radio Transmitter BC-604-(), including necessary crystals, on Mounting FT-237-().	Mount in position as shown in figure 2 by means of thumb-screw locking devices.
Radio Receiver BC-603-(), on Mounting FT-237-(). (Two Radio Receivers BC-603-() required for Radio Set SCR-508-().)	Mount in position as shown in figure 2 by means of thumb-screw locking devices.

Cover BG-108.	Place over Mast Base MP-48 when equipment is not in use.
Headset HS-30-().	Use Cords CD-604 and CD-307-A to connect headset to jack in Radio Receiver BC-603-().
Microphone T-17 or T-30-().	Insert plug of cord in microphone jack of Radio Transmitter BC-604-().
Mast Sections MS-51, MS-52, and MS-53; Clamps MC-423 and MC-424.	Screw mast sections together and, after placing clamps over joints, screw into mast base. When removed, stow mast sections in Roll BG-56-A.
Roll BG-56-A.	Disposition left to the discretion of using arms.
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	Use in place of Headset HS-30-(), Microphone T-30-() or T-17, and associated cording, when available.
Antenna A-62, phantom, and bracket.	See position 3, figure 34. Attach phantom antenna to bracket as shown. Remove two screws and lockwashers from left front corner of Mounting FT-237-(), and secure bracket with antenna attached to mounting with original lockwashers and hardware provided with bracket.
Wire W-128, for Antenna A-62, phantom.	Disconnect standard antenna lead-in from antenna binding post on transmitter and connect one end of 2-foot length of Wire W-128 to this binding post. Remove cover from antenna and connect other end of wire to antenna binding post marked ANT. Fasten ground clamp securely to tip of bracket.
Chest CH-264.	When used with Radio Set SCR-508-(), store in any convenient location. When used with Radio Set SCR-528-(), install on Mounting FT-237-() in vacant space between Radio Transmitter BC-604-() and Radio Receiver BC-603-().

Note. The above procedure applies to the installation of Radio Set SCR-508-() or SCR-528-() in left sponson of Light Tank M5. For location of Radio Set SCR-508-() or SCR-528-() in turret of Light Tank M5A1, see figures 14, 15, 16, and 17. Assembly of components is similar to above procedure.

Rubber hose, to prevent damage to Mast Section MS-53, caused by mast section striking edge of hatch door of Light Tank M5A1.	Loosen two setscrews on Clamp MC-424 at joint of Mast Sections MS-53 and MS-52. Remove clamp. Unscrew two mast sections. Pass 8-inch length of hose over and down on Mast Section MS-53 to a position just above Mast Base MP-48 and where mast section is protected by hose when mast sways and strikes open hatch door.
--	---

b. CORDING AND WIRING. Cord and wire this radio set as shown in figure 7 (fig. 15 for Light Tank M5A1). Sufficient slack should be left in all cording and wiring at Mounting FT-237-() to permit free motion of the shock mountings. Install Cord CO-278 connecting Mounting FT-237-() and the battery terminal strip in the car terminal box after all other connections have been completed. This procedure will prevent accidental shorts of the battery.

SECTION VI

RADIO SET AN/VRC-3-()

14. Required Parts

Items necessary for installation of Radio Set AN/VRC-3-() in Light Tank M5 series are listed below.

Quantity	Stock Number	Item
1	2A275	Antenna AN-130-A.
1	3A70	Battery BA-70.
2		Bracket. (See fig. 19(C).)
2		Bracket. (See fig. 19(A).)
1		Bracket. (See fig. 19(B).)
1	6F428	Case CS-128-().
1	2C5395	Radio Receiver and Transmitter BC-1000-A.
*1	2Z9940-410-1	Transformer C-410, to be attached to Switchbox BC-658-().
1	2Z3400-108	Cover BG-108, for Mast Base MP-48-A.
1 set		Hardware.
1	4B1115	Handset TS-15-(), with Cord CD-494.
1	2A2088-48	Mast Base MP-48-A or MP-48.
2	2A2353	Mast Section MS-53, includes one spare.
1	2Z6721-250	Mounting FT-250-().
1	2Z9050	Strap ST-50.
1	2C7978	Switch Box BC-658-().
2	6D13059	TM 11-637, for Radio Set AN/VRC-3-().
8 ft.	1B128	Wire W-128.

*Transformer C-410 may be obtained from Cord CD-604 or CD-605, if it is not available separately.

15. Assembly and Installation

Components of Radio Set AN/VRC-3-() should be installed as follows (figs. 3 and 19 for bracket details):

<i>Part and location</i>	<i>Method and materials</i>
<p>Ammunition rack and periscope box, on right sponson.</p>	<p>Remove the .30 caliber ammunition rack from right sponson to provide room for the radio set. Remove periscope box on sponson to provide access to all mounting locations. Replace periscope box when installation has been completed.</p>
<p>Mounting FT-250-(), and brackets shown in figures 19A and 19C.</p>	<p>Secure brackets (fig. 19(C)) to Mounting FT-250-() with two hex. head machine screws, nuts, and lockwashers, as shown in figure 18. Secure brackets (fig. 19(A)) to bottom of Mounting FT-250-(), using 4 hex. head machine screws, $\frac{1}{4}$"-20 x $\frac{3}{4}$" with hex. nuts and lockwashers. Insert two hex. head machine screws upward through holes in Mounting FT-250-(), and secure with nuts and washers as shown in detail A, figure 18. Place Mounting FT-250-() in position on right sponson, in place of the .30 caliber ammunition rack, and secure to sponson by means of screws and nuts removed from ammunition rack, placing the screws upward through the sponson, as shown in detail C, figure 18.</p>

Radio Receiver and Transmitter
BC-1000-A and Battery BA-70.

Install Battery BA-70 in Case CS-128-() of Radio Receiver and Transmitter BC-1000-A. Place Radio Receiver and Transmitter BC-1000-A on Mounting FT-250-() and secure to brackets (fig. 19(C)) with two hex. head machine screws, $\frac{1}{4}$ "-20 x $\frac{1}{2}$ ", nuts, and lockwashers, as shown in figure 18. Place bracket (fig. 19(B)) over receiver-transmitter, and secure to Mounting FT-250-() as shown in detail A, figure 18.

Switchbox BC-658-() (figs. 21 and 24) and Transformer C-410.

Before Switch Box BC-658-() is installed in the vehicle, Transformer C-410, part of Cord CD-604, must be inserted in series with the headset patch cord on the RADIO side of the box. If a separate Transformer C-410 is not available, a complete Cord CD-604 may be used by reversing connections to Transformer C-410. Terminals 1 and 2, on Transformer C-410, marked "headset," will be used for connection to the radio set, and terminals 3 and 4, marked "cord," will be used to connect the cord from Switchbox BC-658-(). Open the case of Transformer C-410 (detail D, fig. 18) by removing the four brass screws in the flat side of case. Disconnect the 6-inch cord from terminals 3 and 4 (cord terminals) of the transformer. Place the 6-inch cord on opposite end of transformer, and connect terminal lugs of cord to terminals 1 and 2. Remove Plug PL-540 from the end of Cord CD-604. Remove the Plug PL-55 from headset patch cord on the RADIO side of Switch Box BC-658-(). Place Plug PL-55 on end of Cord CD-604, in place of Plug PL-540. Solder Terminal TM-163 to ends of headset patch cord on Switch Box BC-658-() and connect Terminal TM-163 to terminals 3 and 4 on Transformer C-410. Replace cover and screws on case of Transformer C-410. If Transformer C-410 is supplied separately, cut headset patch cord from Switch Box BC-658-(), prepare tips of cordage, solder Terminal TM-163 to tips, and connect as shown in figure 18. Mount Switch Box BC-658-() on bracket (fig. 26) beside the codriver's Interphone Control Box BC-606-(), with provided hardware. Figure 18 shows the location of switch box on two types of mounting brackets supplied in Light Tanks M5 series. Route the patch cords on the RADIO side of switch box to Radio Receiver and Transmitter BC-1000-A, as shown in figure 18. Insert Plug PL-68 into microphone jack on panel and Plug PL-55, on Cord CD-604, into phone No. 1 jack.

Part and location

Method and materials

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

See figure 20 for assembly of Mast Base MP-48-A. In this installation an internal lead-in, Wire W-128, is used. Cut a 75-inch length of Wire W-128, clean and solder-tin $\frac{1}{2}$ -inch of each end, and solder plug, item 11, on end of wire. Insert end of lead-in, with the soldering plug, item 11, upward through the mast base and secure item 11 with screw, item 9, at top of mast base. Place washers, items 5 and 6, and collar, item 7, over Wire W-128, as shown in figure 20, and screw item 7 into bottom of mast base. Solder a terminal lug, as shown in figure 30, to the other end of Wire W-128. Secure terminal lug to antenna terminal by means of a hex. head machine screw, $\frac{3}{8}$ "-24 x $\frac{1}{2}$ ", as shown in figure 18. See figure 8 for assembly of Mast Base MP-48. Cut a 14-inch length of Wire W-128 for use as a ground wire and connect it as shown in detail C, figure 18.

Mast Section MS-53.

Screw into Mast Base MP-48 or MP-48-A.

Antenna AN-130, Handset TS-15-(), and Strap ST-50.

These items are for portable operation of Radio Set AN/VRC-3-(). Stow these items, and the technical manuals, in a convenient place in the vehicle.

SECTION VII

INTERPHONE EQUIPMENT ASSOCIATED WITH RADIO SET SCR-508-() OR SCR-528-()

16. Required Parts

Items necessary for installation of interphone equipment in Light Tank M5 series are listed below.

Quantity	Stock Number	Item
4	4B417-4	Chest Set TD-4.
1	6Z3147	Connector No. 61007 and Bondnut BL-50.
4	2C1738	Interphone Control Box BC-606-(), including screws, clamps, etc.
4	3E1307-5.5	Cord CD-307-A, 65-inch, for headset.
24	3E1318	Cord CD-318, for Microphone T-30-().
4	3E1604	Cord CD-604, 6-inch, for connecting Headset HS-30-() to Cord CD-307-A.
26 feet	3E2213	Cord CD-213, interphone cable.
1		Adapter bracket, (See fig. 27(B).)
4	2B800-16	Headset H-16/U or HS-30-().
	2B830	
24	2B1645	Microphone T-45 or T-30-().
	2B1630	

¹Headset HS-18 may be substituted for Headset HS-30-(). When this is done, Cord CD-604 is not used.

²In an emergency, Microphone T-17 may be substituted for Microphone T-30-(). When this is done, Cord CD-318 is not used.

17. Assembly and Installation

a. LIGHT TANK M5. (1) Interphone control boxes for driver and codriver. The interphone equipment supplied for Radio Set SCR-508-() or SCR-528-() is not completely wired for installation. To interconnect Interphone Control Box BC-606-(), as shown in figures 2, 7, and 9, cut Cordage CO-213 to lengths shown in figure 7. At the end of each length, strip back 4 inches of the outer rubber, $3\frac{1}{4}$ inches of outside shielding, and $2\frac{1}{2}$ inches of the shielding around red and green wires. Fold back each shielding about $\frac{1}{4}$ inch and wrap and solder several turns of No. 18 tinned hook-up wire around each shielding, leaving a 4-inch lead to be connected with the black wire of the cable for making ground connection. Insert the prepared cable through the appropriate hole in the interphone control box. Solder ends of wires to numbered studs and fasten the cable with clamp in control box. Insert the prepared cable (connecting to radio set) through the appropriate cordage hole in Mounting FT-237-() and wire and clamp to terminal board. Figure 23 shows the wiring of slip rings and terminal boxes.

(2) Interphone control boxes for tank commander and gunner. Prepare proper length of cording as

explained in (1) above. Remove the plug attached to the bottom end of the $\frac{3}{4}$ -inch flexible conduit underneath the turret, and feed Cordage CO-213 through the conduit. Solder the wires to the appropriate plug pins. (See fig. 9). Wire all shielding to pin *E* by means of the hook-up wire. Replace the plug on the conduit and attach the plug to its socket on the slip-ring assembly. Insert the upper end of the prepared cordage through the appropriate hole in the tank commander's control box. Solder wires to appropriate numbered studs (See fig. 9). Connect the shielding to stud No. 8 with attached hook-up wire. Fasten cable with clamp in control box. Prepare a short length of Cordage CO-213 and connect the tank commander's control box in parallel with the gunner's control box. Insert the prepared cable connecting the radio set to the terminal box through the appropriate cordage hole in Mounting FT-237-() and wire and clamp to the terminal board. Insert the other end of the cordage through the appropriate knock-out hole in the terminal box, using the provided connector and bondnut. See figure 9 for wiring the cordage to the terminal block in the terminal box.

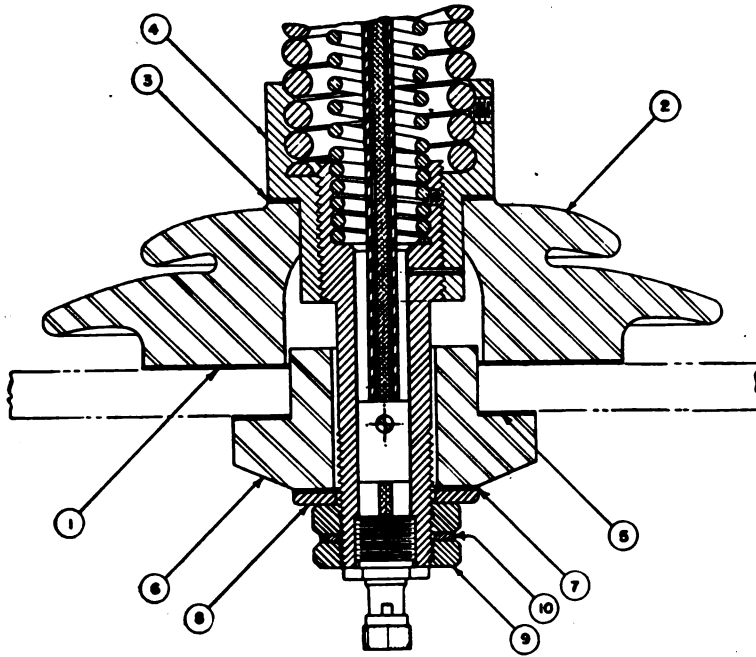
(3) Location and assembly of components (figs. 2 and 7). Install components of the interphone equipment as follows:

Part and location

Method and materials

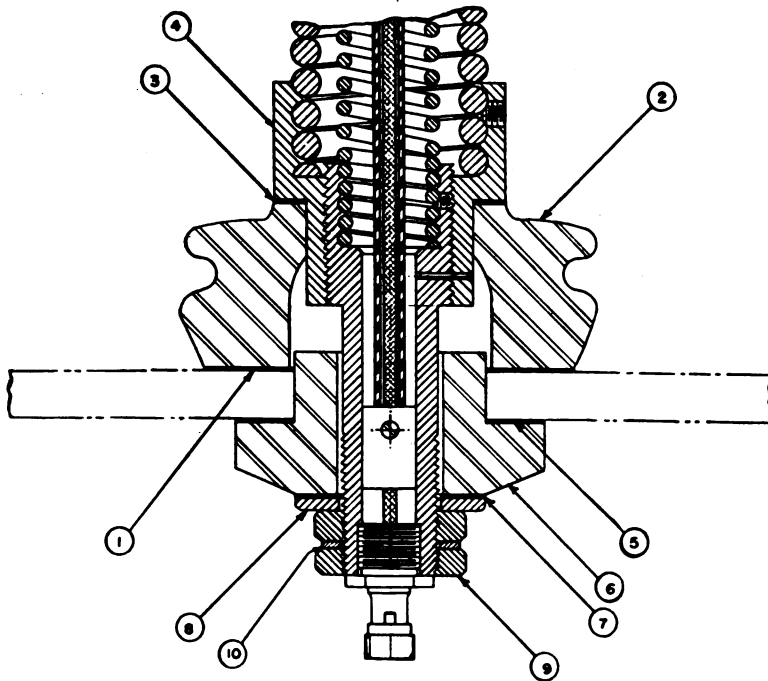
Interphone Control Box BC-606-() (driver), on bracket, extreme left of sponson.	Secure in place with machine screws and lockwashers provided. (See fig. 2.)
Adapter bracket. (See fig. 27(B).)	Attach to existing bracket on rear of turret ceiling with hardware provided.
Interphone Control Box BC-606-() (codriver), on bracket, extreme front of right sponson.	Secure in place with machine screws and lockwashers provided. (See fig. 2.)
Two Interphone Control Boxes BC-606-() (tank commander), (gunner), on bracket (fig. 27(B)), rear of turret ceiling.	Secure in place with machine screws and lockwashers provided. (See fig. 2.)
Headset HS-30-().	Use Cords CD-604 and CD-307-A, respectively, to connect headsets to jacks of Interphone Control Boxes BC-606-().
Microphone T-30-().	To be strapped comfortably around throat above the larynx. Use Cord CD-318 to connect microphones to jacks of Interphone Control Boxes BC-606-().
Cord CD-307-A.	Extension cord for Headset HS-30-().
Cord CD-318.	Control cord for Microphone T-30-().
Cord CD-604.	Connects Headset HS-30-() to Cord CD-307-A.
Cordage CO-213, for interconnecting interphone components.	After mounting and interconnecting control boxes, secure cable along walls and hull of tank with clamps, screws, etc., provided with control boxes and listed in figure 2.
Headset H-16/U, Microphone T-45, and Chest Set TD-4.	Use in place of Headset HS-30-(), Microphone T-30-(), and associated cording, when available.

b. LIGHT TANK M5A1. For assembly and location of interphone equipment in Light Tank M5A1, see figures 13, 14, 15, 16, and 17. The procedure is similar to above procedure for Light Tank M5.



- 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-7839

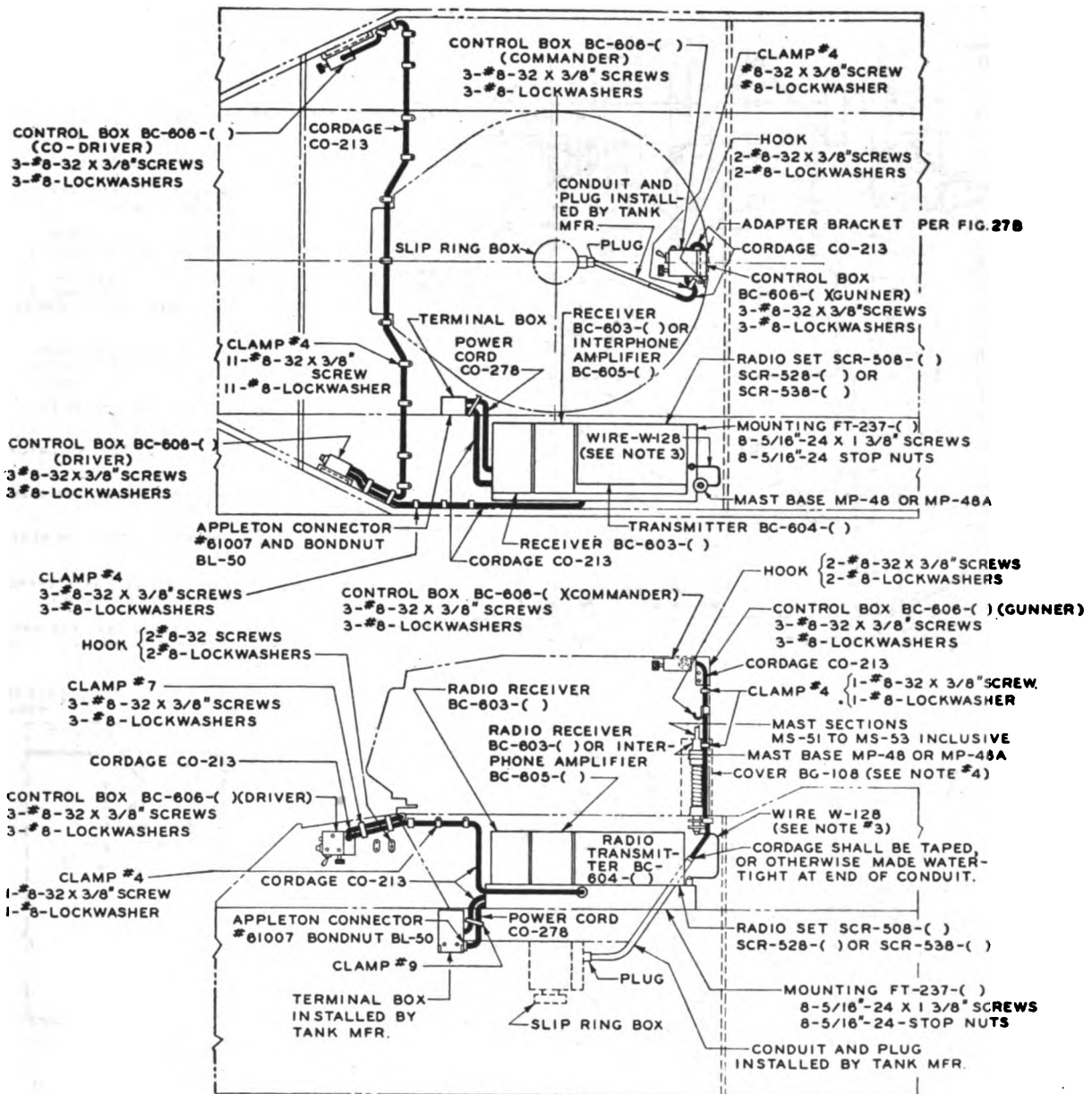


- ① - FIBER WASHER
- ② - PORCELAIN INSULATOR
- ③ - FABRIC WASHER
- ④ - SPRING RETAINER
- ⑤ - FIBER WASHER
- ⑥ - PORCELAIN INSULATOR
- ⑦ - FABRIC WASHER
- ⑧ - STEEL WASHER
- ⑨ - STEEL NUT
- ⑩ - LOCKWASHER

TL-7840

BASED ON
90-D-1244-N

Figure 1. Mast Bases MP-37 and MP-57, assembly for installation.



LIST OF SCREWS, NUTS AND LOCKWASHERS REQUIRED FOR MOUNTING EQUIPMENT

- 8-5/16"-24 X 1 3/8" HEX. HEAD MACH. SCREWS
- 8-5/16"-24 STOPNUT
- 47-#8-32 X 3/8" ROUND HEAD MACH. SCREWS
- 47-#8-STANDARD LOCKWASHERS

NOTE: ALL MACH. SCREWS, NUTS AND LOCKWASHERS SHALL BE STEEL, GALVANIZED.

CLAMPS PER FIG. 25

- CLAMP #4
- 20-#8-32 X 1/2" ROUND HEAD MACH. SCREWS
- 20-#8-LOCKWASHERS

- CLAMP #7
- 2-#8-32 X 3/8" ROUND HEAD MACH. SCREWS
- 2-#8-LOCKWASHERS

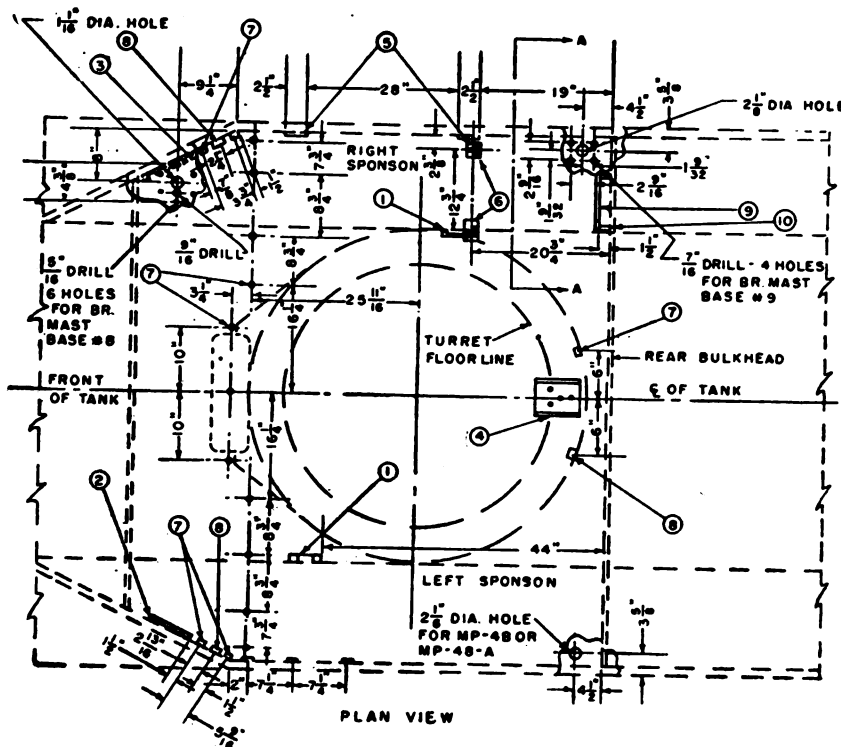
- CLAMP #9
- USE EXISTING SCREW
- 2-5/16"-24 X 5/8" HEX. HEAD MACH. SCREWS
- 2-5/16"-STANDARD LOCKWASHERS

NOTES:

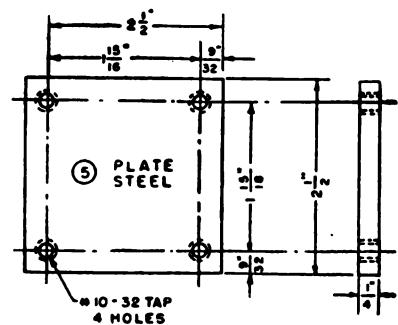
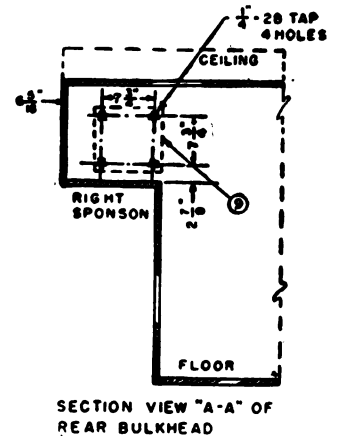
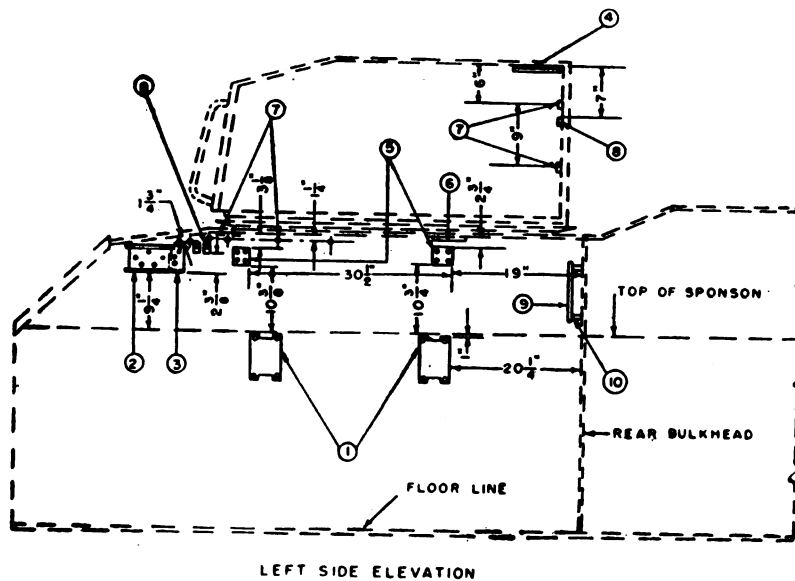
1. FOR WIRING DIAGRAM (SEE FIG. 9)
2. FOR CORDING DIAGRAM (SEE FIG. 7)
3. WIRE W-128 SHALL BE CUT TO PROPER LENGTH. ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
4. COVER BG-108 SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED

TL-13331

Figure 2. Installation of Radio Set SCR-508(-), SCR-528(-), or SCR-538(-) and associated interphone equipment in Light Tank M5.



- DETAIL LEGEND
- ① BRACKET (FIG 27C) FOR TERMINAL BOX
 - ② BRACKET (FIG.26C) FOR CONTROL BOX BC-606-(1)
 - ③ BRACKET (FIG.26A) FOR CONTROL BOX BC-606-(1) AND SWITCH BOX BC-658-(1) (FIG 21)
 - ④ BRACKET (FIG 26B) FOR CONTROL BOX BC-606-(1) IN TURRET
 - ⑤ PLATE FOR MOUNTING FT-172 OR FT-178
 - ⑥ PAD (FIG.10) FOR INSULATOR IN-98
 - ⑦ SPACER (FIG. 28D) FOR CABLE CLAMPS
 - ⑧ SPACER (FIG. 28B) FOR HEAD-SET HOOKS
 - ⑨ PLATE (FIG. 22) FOR INTERPHONE AMPLIFIER BOX BC-367
 - ⑩ SPACER (FIG. 28A) FOR AMPLIFIER PLATE (FIG. 22)



- NOTE
- 1 FOR RADIO MOUNTING HOLES AND LOCATION IN SPONSONS SEE FIG. 12.
 - 2 MANUFACTURER SHALL FURNISH AND INSTALL ALL MOUNTING DETAILS.
 - 3 MOUNTING DETAILS SHALL BE SECURELY WELDED IN PLACE AND THEN PAINTED TO CONFORM TO COLOR OF SURROUNDING AREA OF TANK.

TL 13332

Figure 3. Location of mounting holes and brackets for radio and interphone equipment in Light Tank M5.

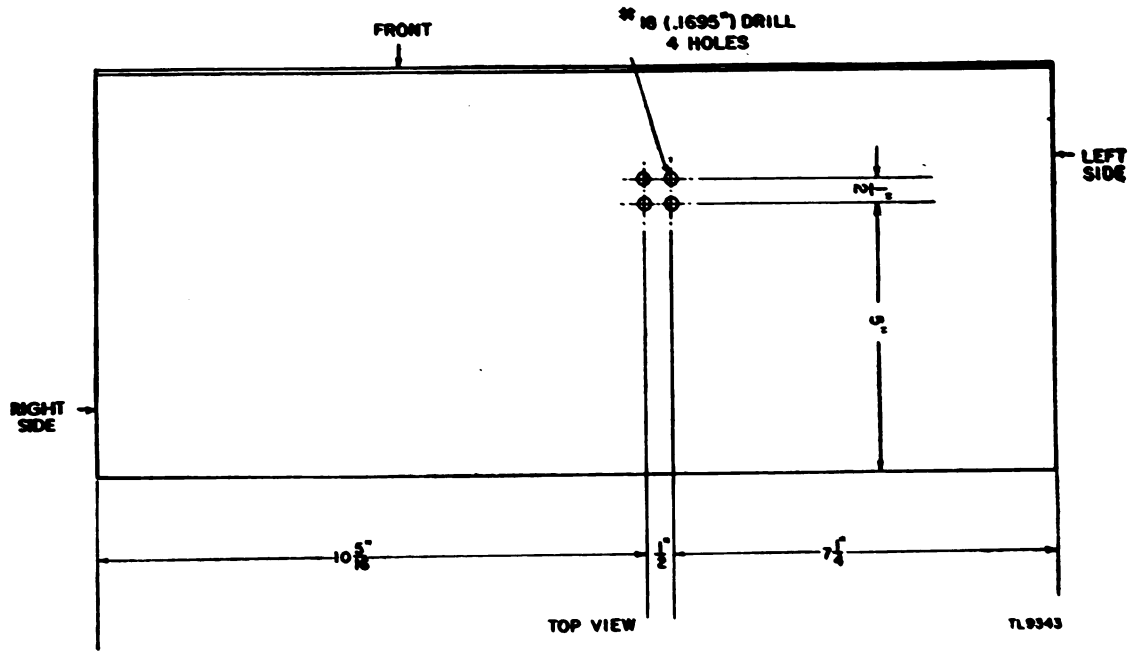


Figure 4. Drilling of Radio Receiver BC-312-() for Mounting FT-178.

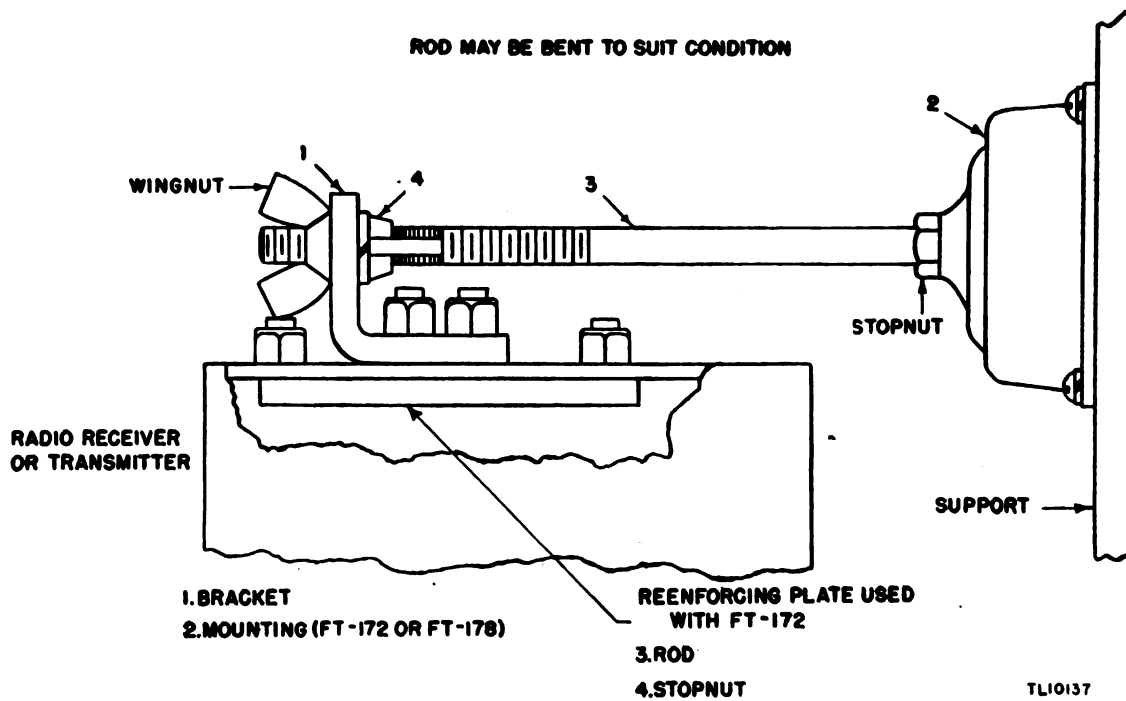
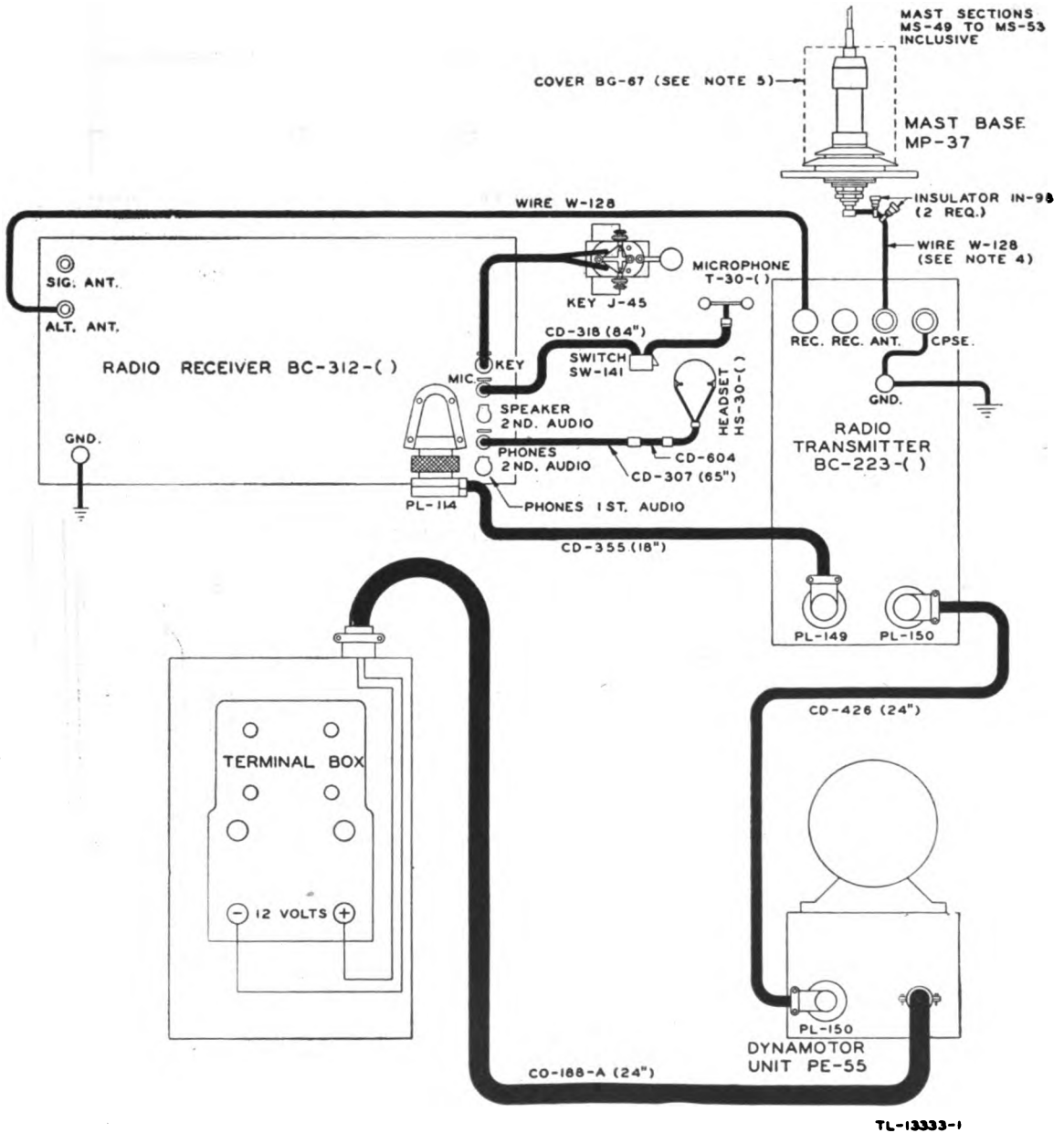


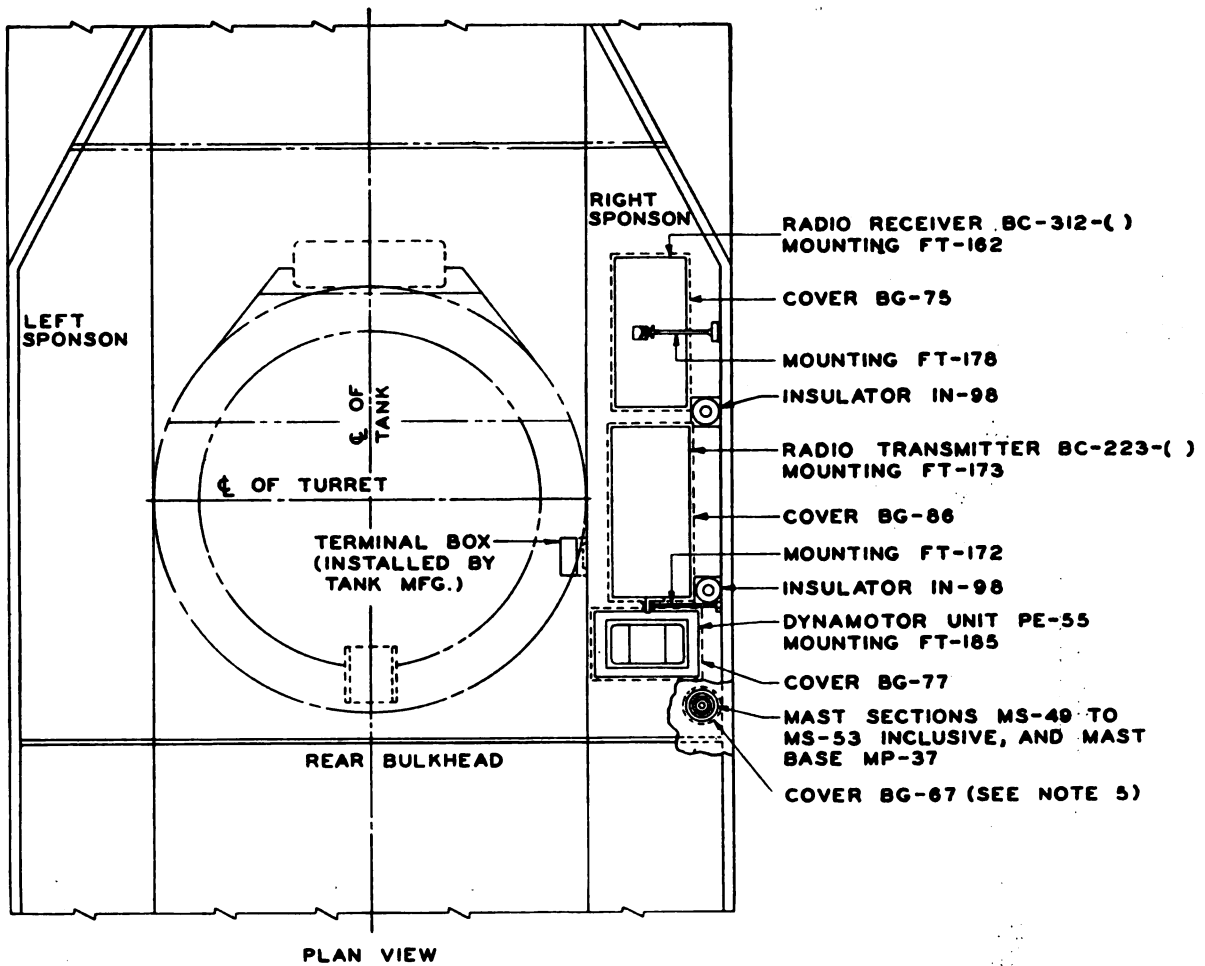
Figure 5. Assembly of Mounting FT-172 or FT-178.



TL-13333-1

Figure 6. Cording diagram for Radio Set

FRONT OF TANK



LOCATION OF EQUIPMENT

NOTE:

1. SEE FIGURE 5 FOR ASSEMBLY OF FT-172 AND FT-178.
2. FOR LOCATION OF MOUNTING HOLES, BRACKETS, AND TERMINAL BOX, SEE FIGURE 3.
3. FOR MOUNTING HOLES AND LOCATION IN SPONSON SEE FIGURE 12.
4. WIRE W-128 SHALL BE CUT TO PROPER LENGTH. ENDS SHALL BE TINNED FOR ANTENNA AND GROUND CONNECTIONS.
5. COVER BG-67 SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.

TL-13333-2

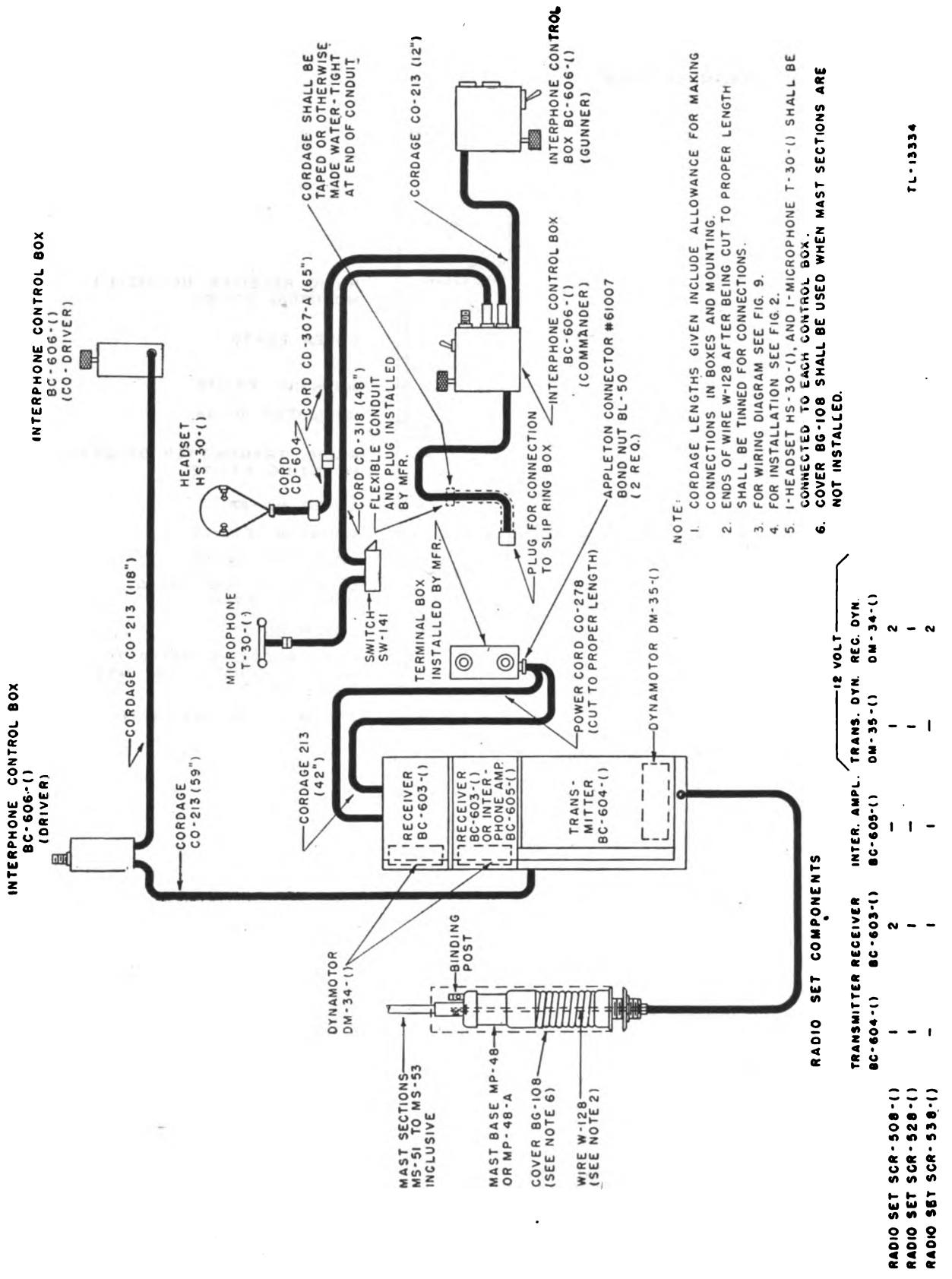
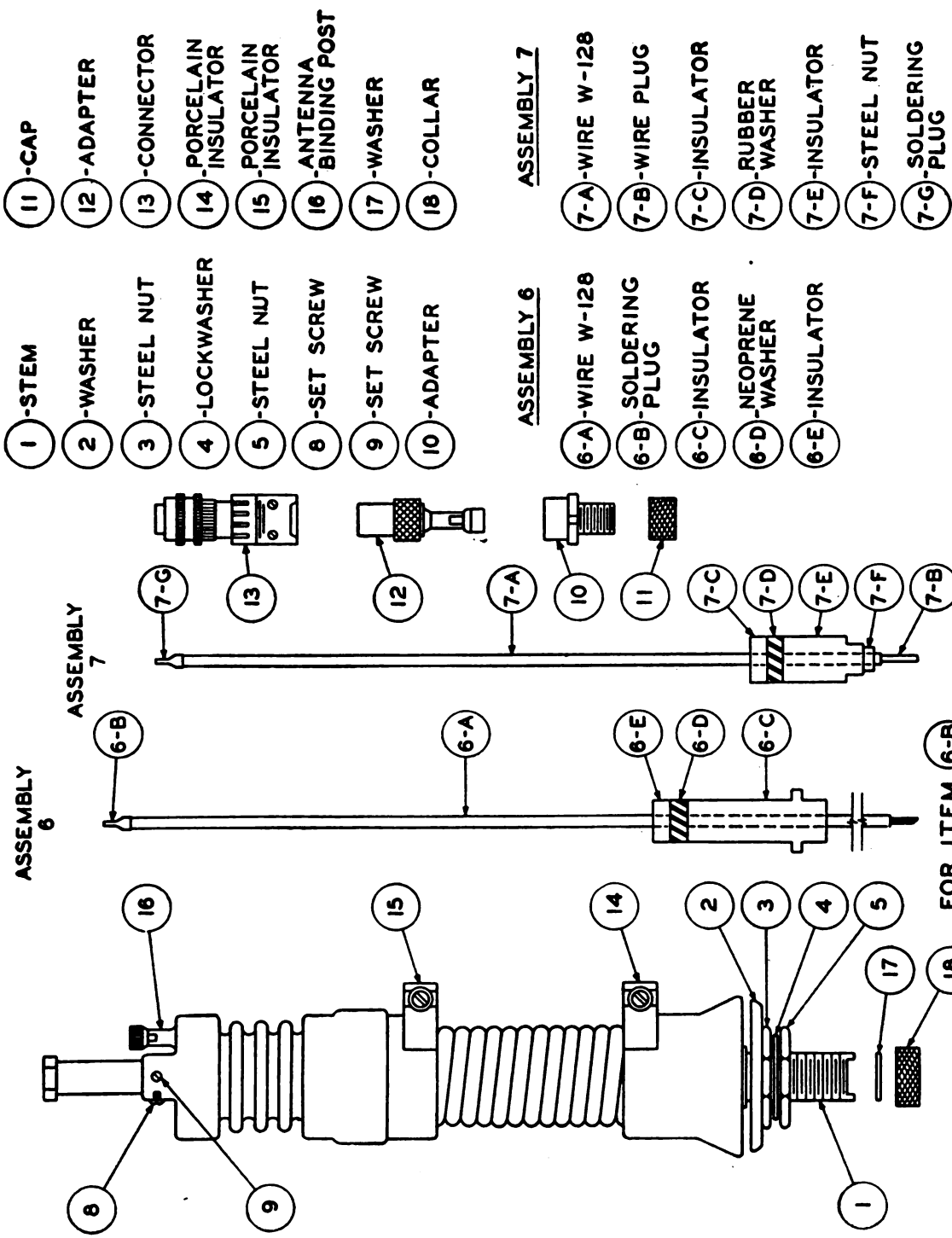


Figure 7. Wiring diagram of Radio Set SCR-508-(-), SCR-528-(-), or SCR-538-(-) and associated interphone equipment in Light Tank M5.

TL-13334



TL12141

Figure 8. Mast Base MP-48, assembly for installation.

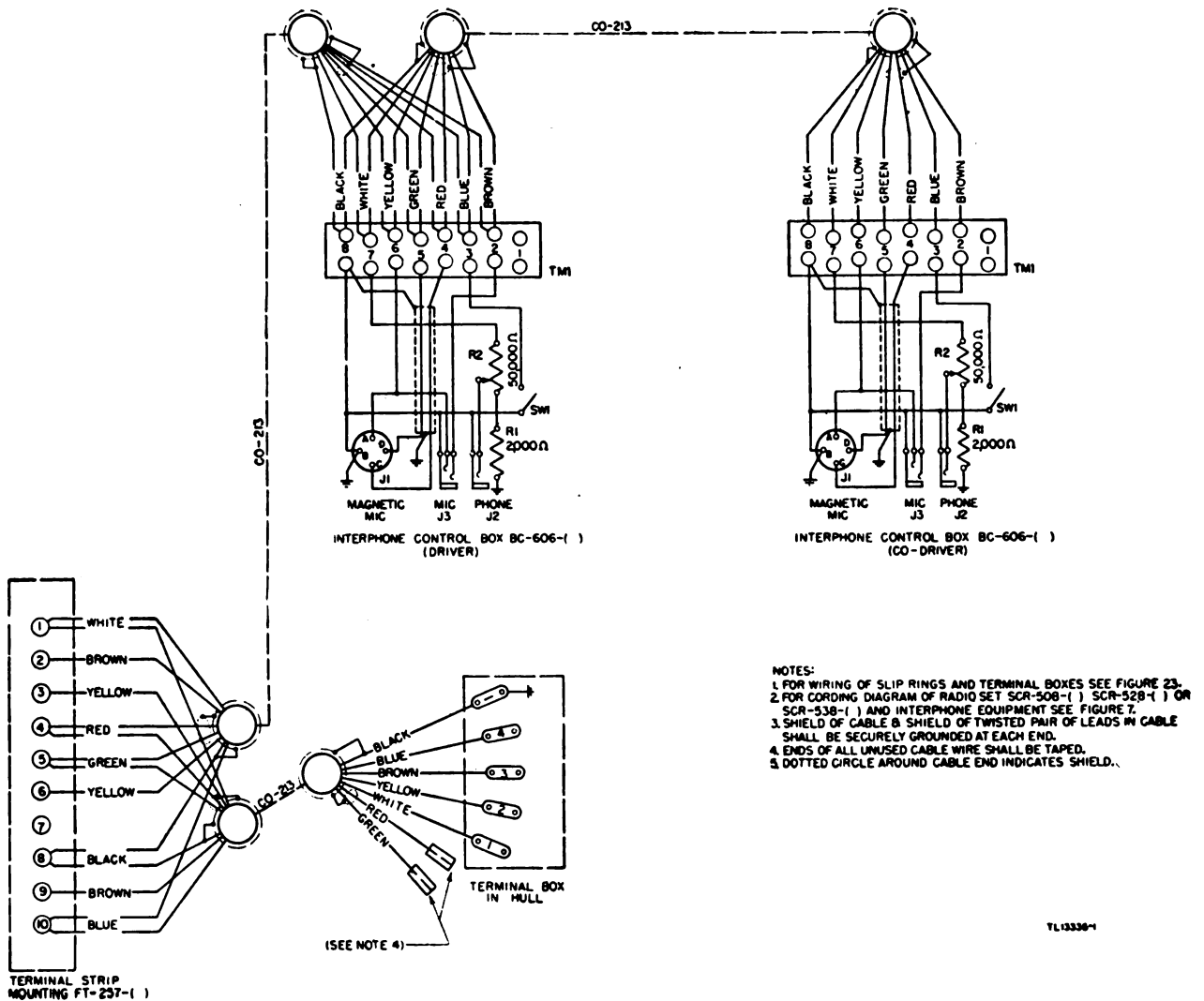
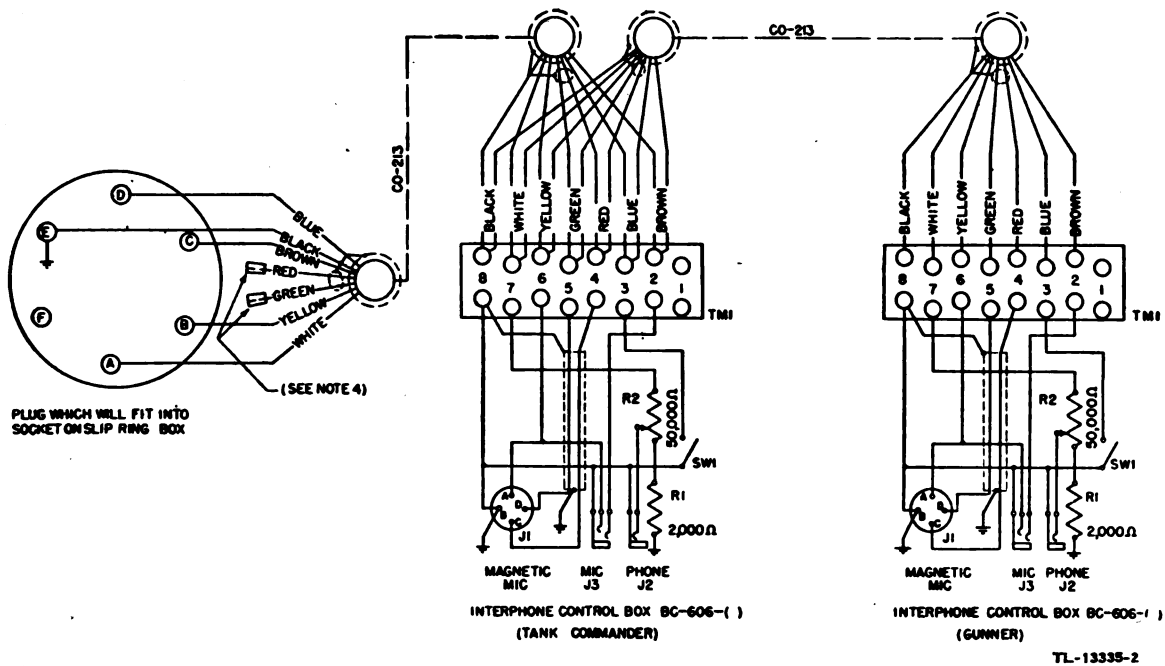
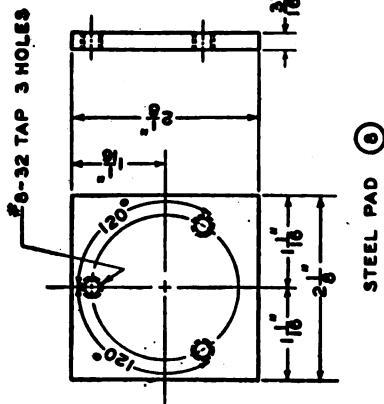


Figure 9. Wiring diagram of interphone equipment for Radio Set



SCR-508-(), SCR-528-(), or SCR-538-() in Light Tank M5.

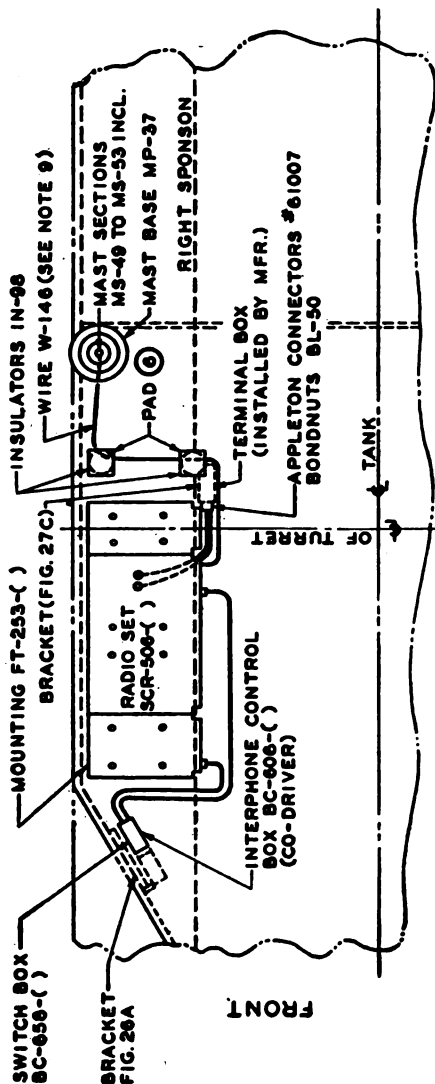


STEEL PAD (6)

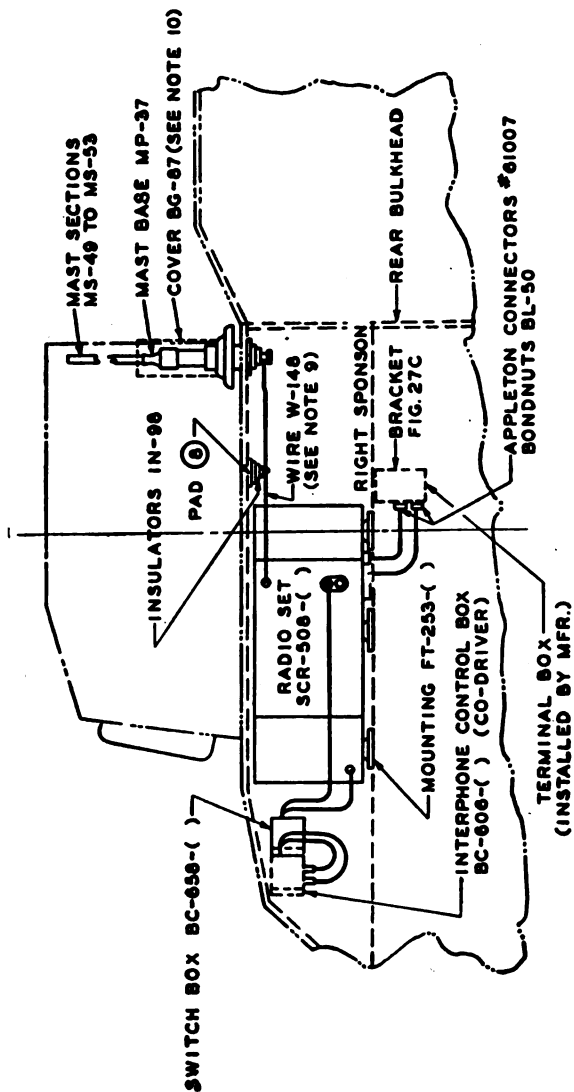
NOTES:

1. FOR LOCATION OF MOUNTING HOLES IN LIGHT TANK M5 SEE FIG.12
2. FOR CODING DIAGRAM OF RADIO SET SCR-508-() SEE FIG.11
3. FOR LOCATION OF BRACKETS IN LIGHT TANK M5 SEE FIG.3
4. ALL SCREWS, NUTS AND LOCKWASHERS TO BE ELECTRO GALVANIZED.
5. SCREWS, NUTS AND LOCKWASHERS ARE FURNISHED WITH MOUNTING FT-253-() AND SWITCH BOX BC-658-()
6. PAD FOR MOUNTING INSULATOR IN-98
7. M5A1 HAS TURRET BULGE.
8. M5 IS COMPLETE WITHOUT TURRET BULGE.
9. WIRE W-148 SHALL BE CUT TO PROPER LENGTH. ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
10. COVER BG-67 SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.

- SCREWS, NUTS AND LOCKWASHERS REQUIRED
- SWITCH BOX BC-658-()
 - 3-3/8-32 X 3/8" HEX. HEAD MACH. SCREWS
 - 3-#8 LOCKWASHERS
 - INSULATOR IN-98
 - 6-#8-32 X 1/2" ROUND HEAD MACH. SCREWS
 - 6-#8 LOCKWASHERS
 - MOUNTING FT-253-()
 - 12-1/4" X 20 X 1/2" HEX. HEAD MACH. SCREWS
 - 12-1/4" X 20 HEX. NUTS
 - 12-1/4" X 20 HEX. HEAD MACH. SCREWS
 - 12-1/4" X 20 HEX. NUTS



PLAN VIEW OF RIGHT SIDE OF TANK



SIDE ELEVATION

Figure 10. Installation of Radio Set SCR-508-() in Light Tanks M5 and M5A1.

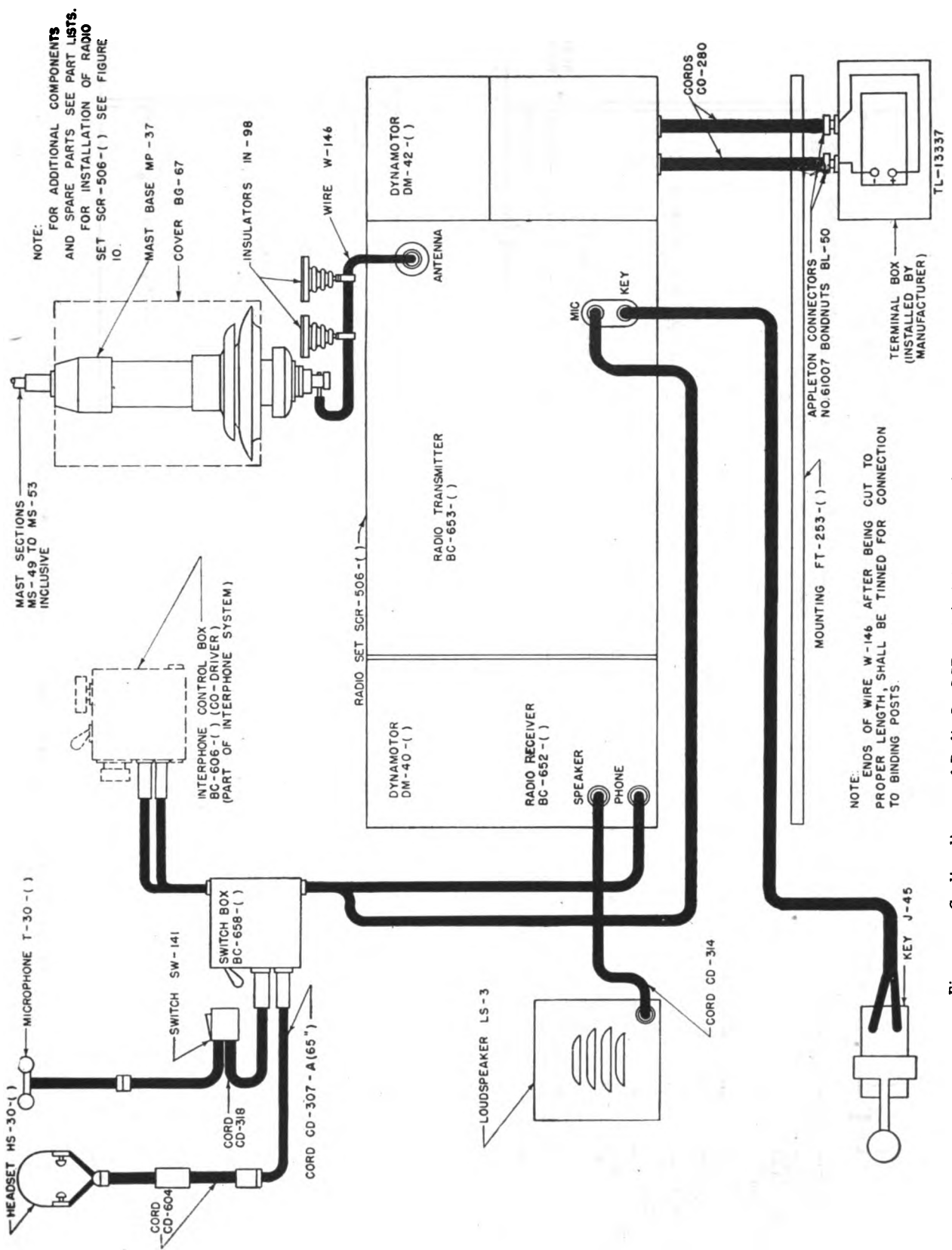
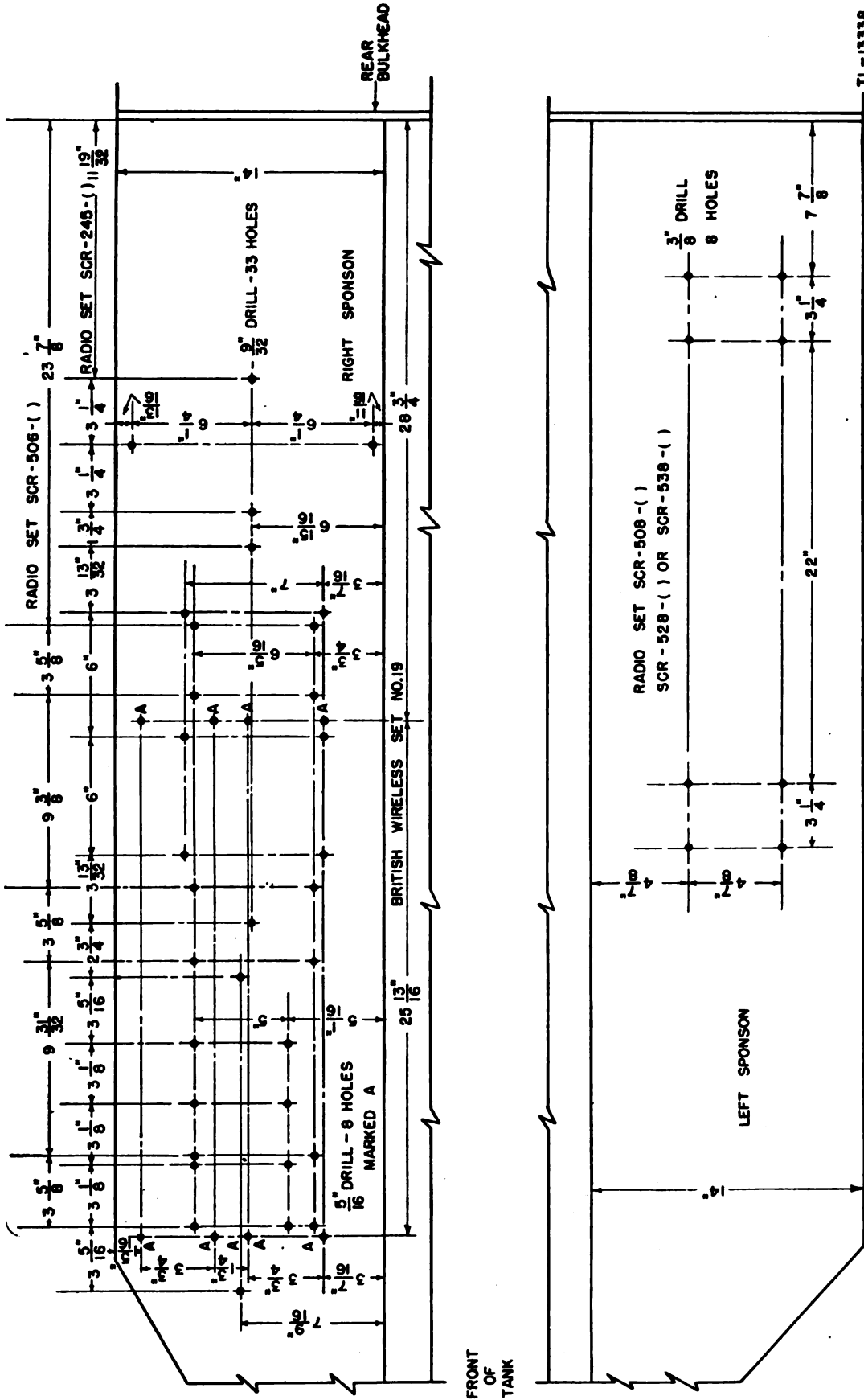
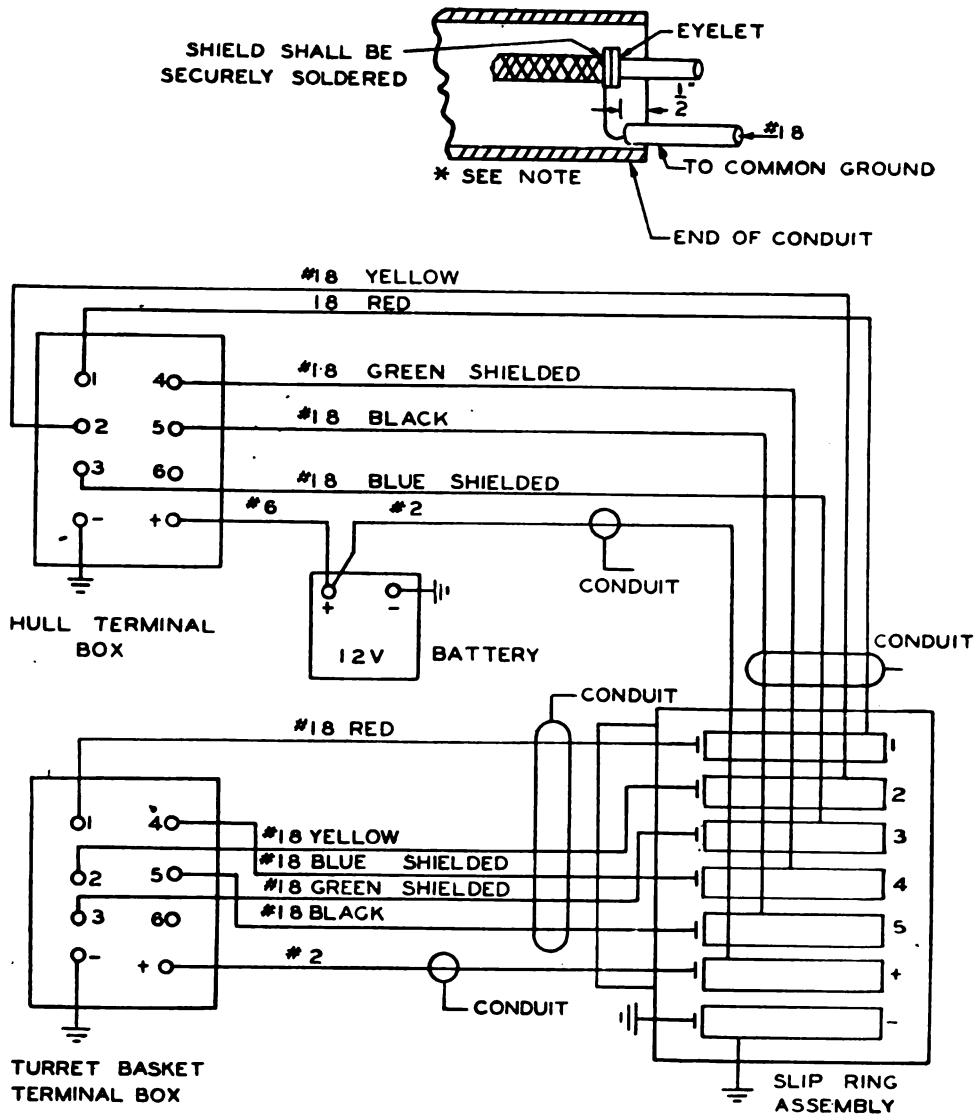


Figure 11. Cording diagram of Radio Set SCR-506(-) in Light Tanks M5 and M5A1.



TL-15356

Figure 12. Mounting holes and location for radio sets in sponsons of Light Tank M5.



WIRING, TERMINAL BOXES AND SLIP RING ASSEMBLY IS FURNISHED AND INSTALLED BY MANUFACTURER OF VEHICLE. THESE TERMINAL BOXES ARE USED FOR RADIO AND INTERPHONE WIRING ONLY.

* ALL SHIELDS ON SHIELDED WIRES SHALL BE GROUNDED ON BOTH ENDS.

TL 13339

Figure 13. Wiring diagram of slip rings and terminal boxes in 12-volt Light Tank M5A1.

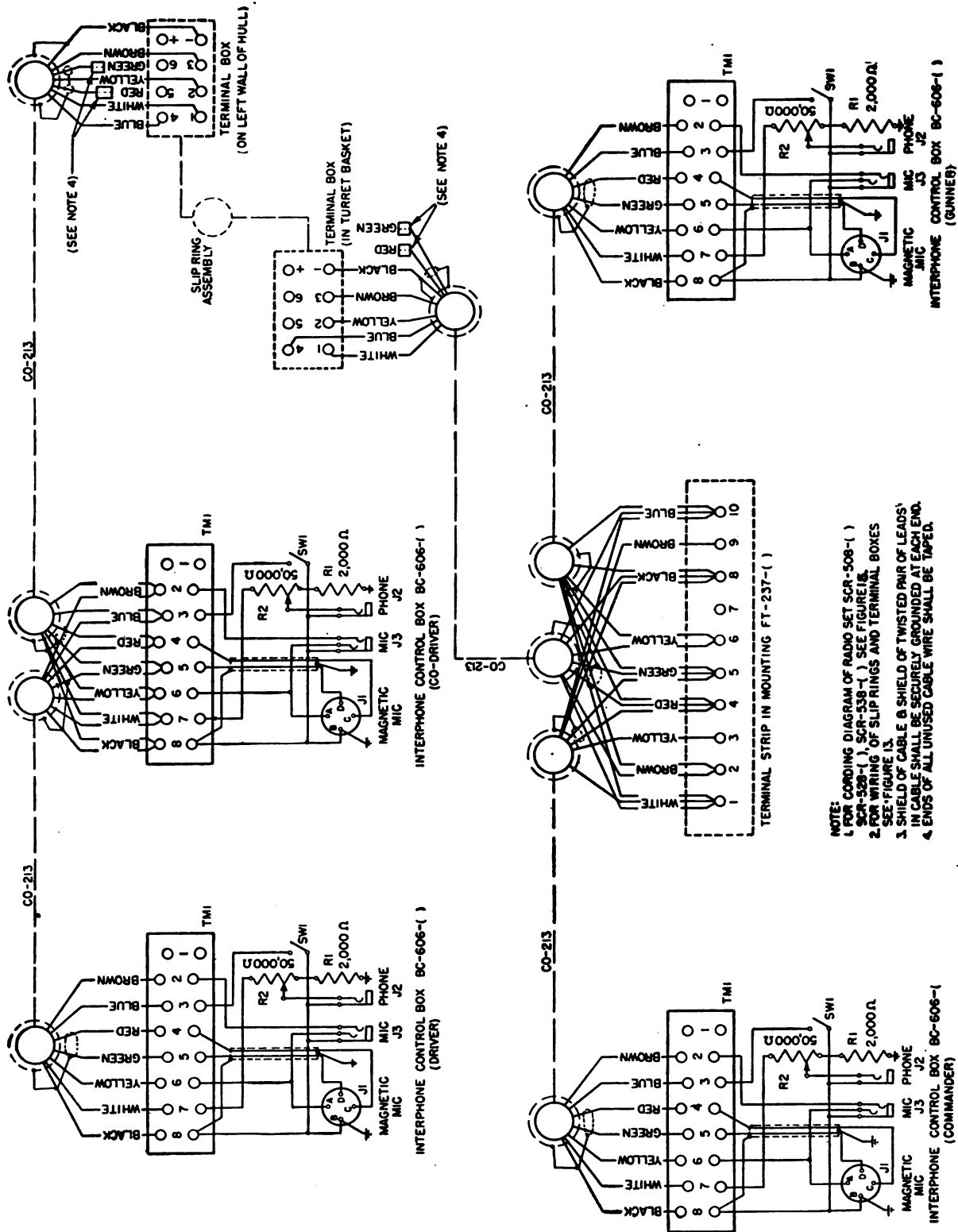


Figure 14. Wiring diagram of interphone equipment for Radio Set SCR-508-1, SCR-528-1, or SCR-538-1 in Light Tank M5A1.

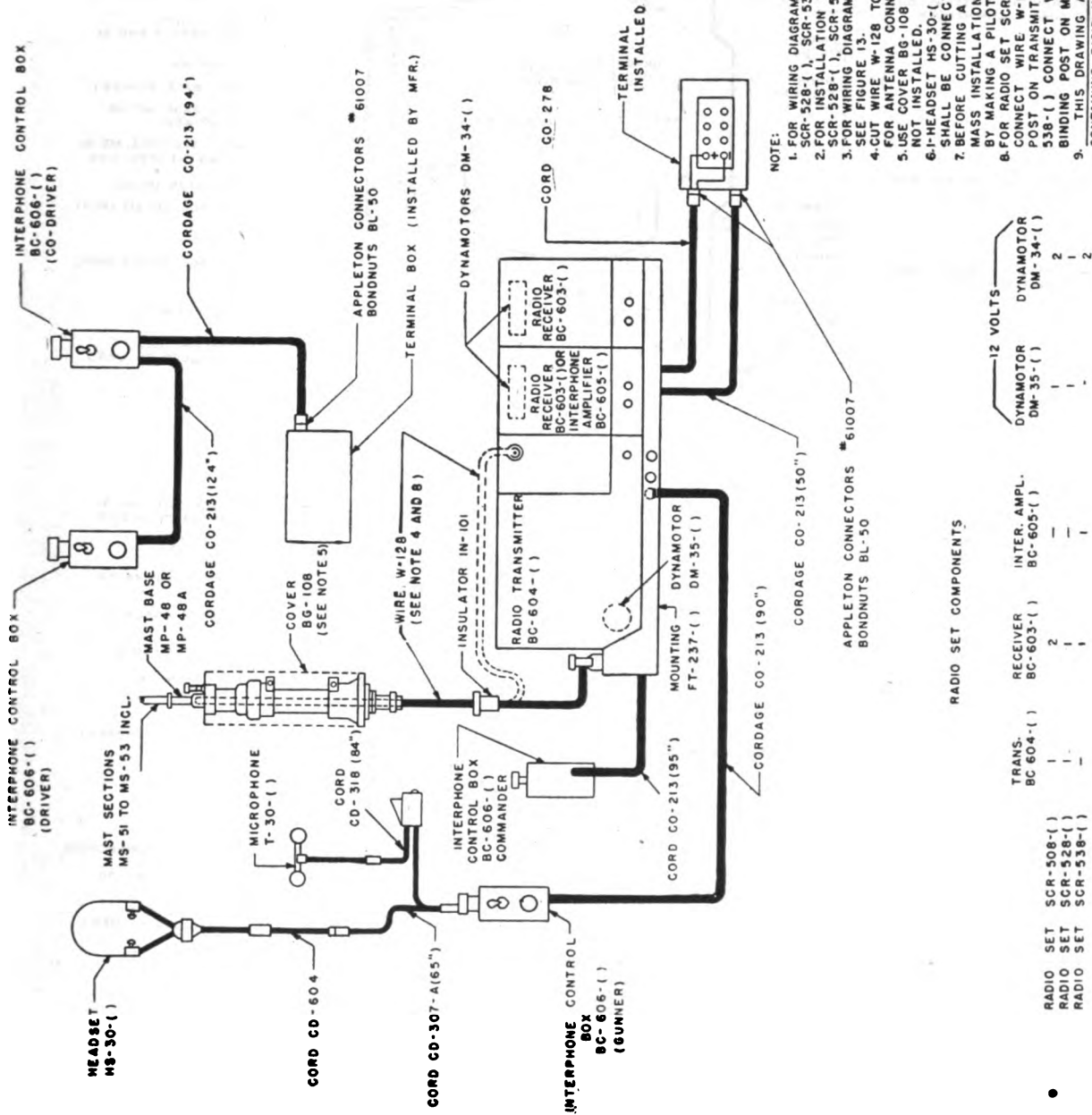
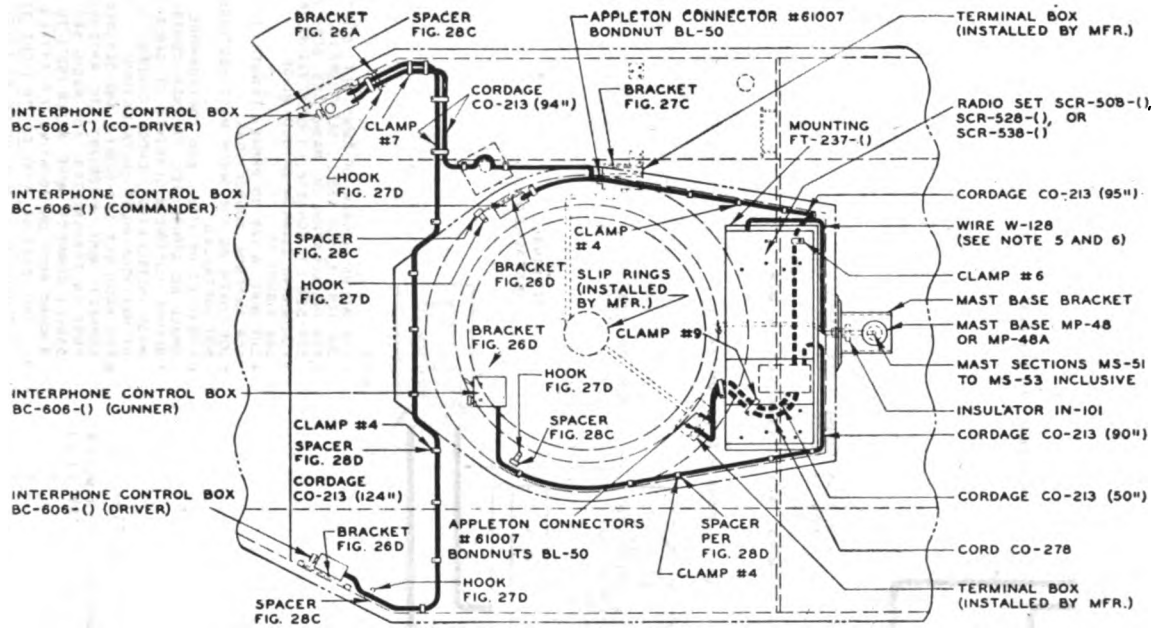
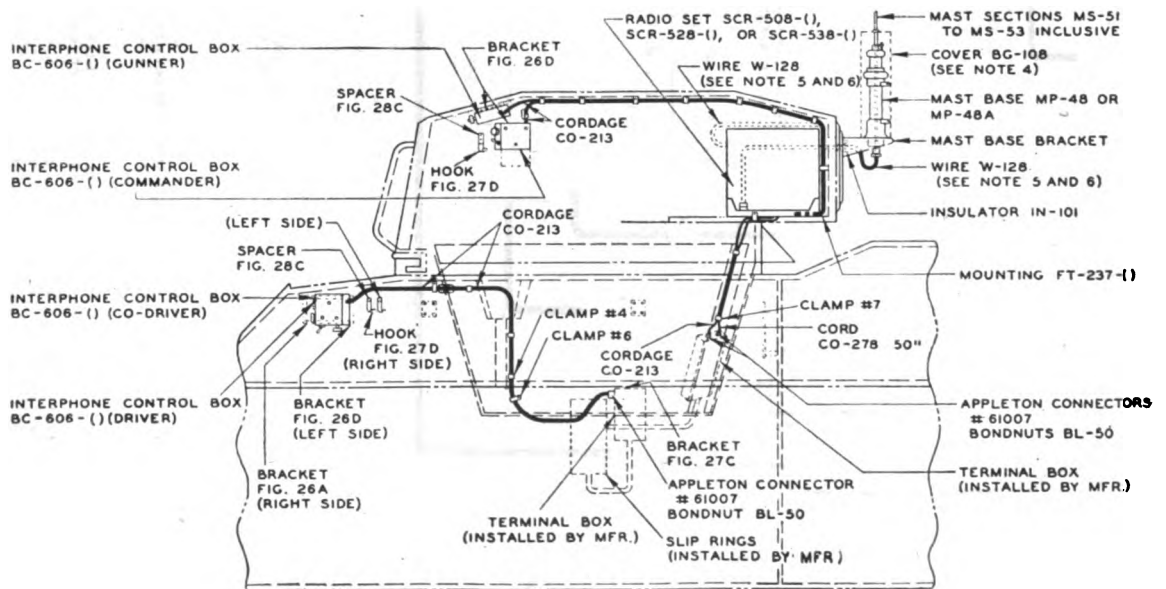


Figure 15. Wiring diagram of Radio Set SCR-508-() , SCR-538-() , or SCR-528-() and associated interphone equipment in Light Tank M5A1.



PLAN VIEW



SIDE ELEVATION

TL-13341-1

Figure 16. Installation of Radio Set SCR-508-(), SCR-528-(),

**LIST OF SCREWS, NUTS AND LOCKWASHERS
FOR MOUNTING RADIO SETS SCR-508-(),
SCR-528-(), AND SCR-538-().**

MOUNTING FT-237-() (SEE NOTE 3)

8- 5/16 X 24 X 1/2" HEX. HD. SCREWS
8- 5/16 X 24 HEX. NUTS
8- 5/16 LOCKWASHERS

INTERPHONE CONTROL BOX BC-606-()

12- #8- 32 X 1/2" RD. HD. MACH. SCREWS
12- #8 LOCKWASHERS

HOOK PER FIG. 27 (4 REQ'D)

8- #8- 32 X 1/2" RD. HD. MACH. SCREWS
8- #8- LOCKWASHERS

CLAMPS PER FIG. 25

CLAMP #4 (32 REQ'D)
32- #8- 32 X 1/2" RD. HD. MACH. SCREWS
32- #8- LOCKWASHERS
CLAMP #7 (6 REQ'D)
6- #8- 32 X 3/8" RD. HD. MACH. SCREWS
6- #8- LOCKWASHERS
CLAMP #9 (3 REQ'D)
USE EXISTING SCREWS
CLAMP #6 (2 REQ'D)
USE EXISTING SCREWS

NOTE:

1. FOR WIRING DIAGRAM OF RADIO SET SCR-508-(), SCR-528-(), AND SCR-538-() SEE FIG. 14.
2. FOR CORDING DIAGRAM OF RADIO SET SCR-508-(), SCR-528-(), AND SCR-538-() SEE FIG. 15.
3. MOUNTING SCREWS FURNISHED WITH MOUNTING FT-237-().
4. USE COVER BG-108 WHEN ANTENNA IS NOT INSTALLED.
5. WIRE W-128 SHALL BE CUT TO PROPER LENGTH, ENDS SHALL BE TINNED FOR ANTENNA CONNECTIONS.
6. FOR RADIO SET SCR-508-() AND SCR-528-() CONNECT WIRE W-128 (28") TO ANTENNA BINDING POST ON TRANSMITTER. FOR RADIO SET SCR-538-() CONNECT WIRE W-128 (52") TO ANTENNA BINDING POST ON MOUNTING FT-237-().
7. THIS DRAWING APPLIES TO LIGHT TANK M5A1 CONTAINING RIGID NON-SHOCK MOUNTED INTERPHONE BOX MOUNTING BRACKETS. FOR VEHICLES WITH LAMINATED FABRIC INTERPHONE BOX MOUNTING BRACKETS, SEE FIG. 17.

TL-13341-2

or SCR-538- () and associated interphone equipment in Light Tank M5A1.

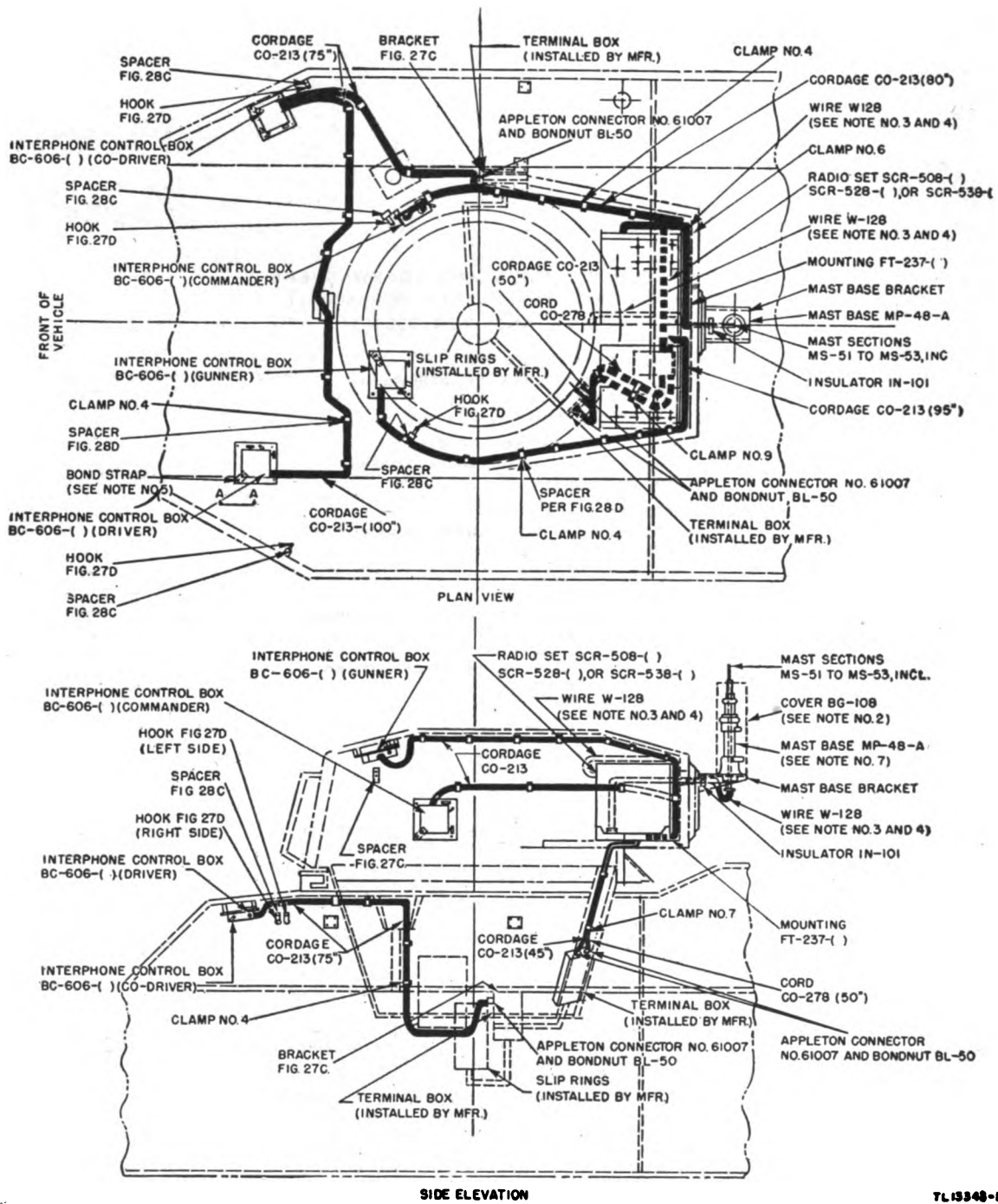
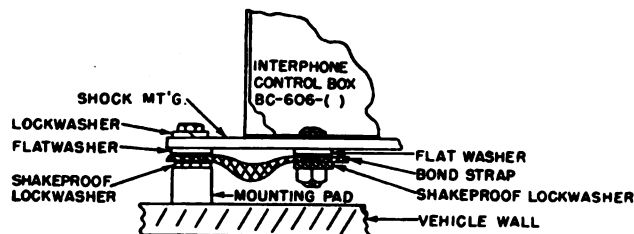


Figure 17. Installation of Radio Set SCR-508-(), SCR-528-(), or SCR-538-() and



VIEW A-A

SECTION VIEW SHOWING APPLICATION OF BOND STRAP BETWEEN INTERPHONE CONTROL BOX BC-606-1 AND MOUNTING PAD. (SEE NOTE NO.5).

NOTE:

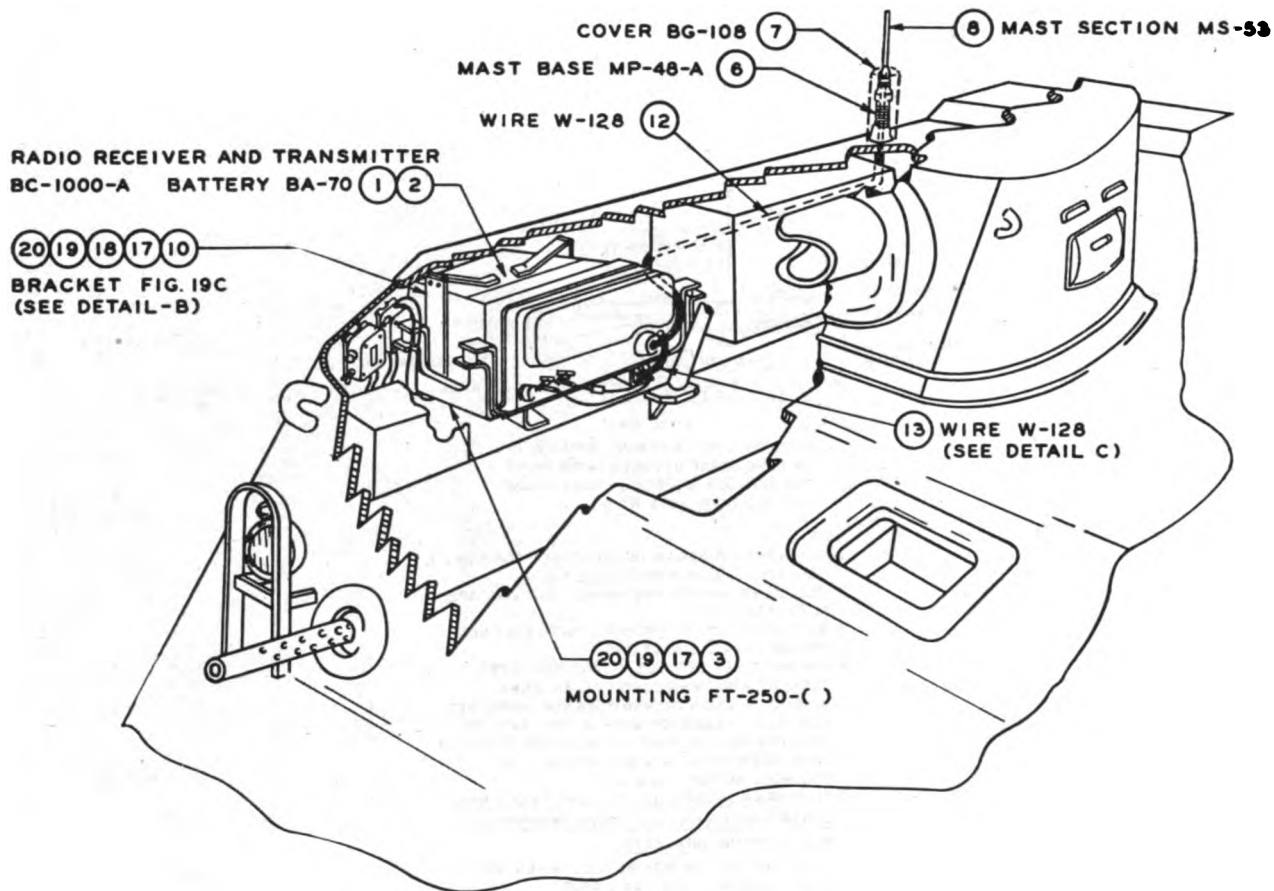
1. FOR WIRING DIAGRAM OF RADIO SET SCR-508-1, SCR-528-1, SCR-538-1, SEE FIG. 14.
2. USE COVER BG-108 WHEN MAST SECTIONS ARE NOT INSTALLED.
3. WIRE W-128 CUT TO PROPER LENGTH. TIN ENDS FOR ANTENNA CONNECTIONS.
4. FOR RADIO SET SCR-508-1 AND SCR-528-1 CONNECT WIRE W-128 (28") TO ANTENNA BINDING POST ON TRANSMITTER. FOR RADIO SET SCR-538-1 CONNECT WIRE W-128 (52") TO ANTENNA BINDING POST ON MOUNTING FT-237-1
5. EACH INTERPHONE CONTROL BOX WILL BE GROUNDED AS PER "VIEW A-A".
6. THIS DRAWING APPLIES TO LIGHT TANK M5A1 CONTAINING LAMINATED FABRIC INTERPHONE BOX MOUNTING BRACKETS.
7. MAST BASE MP-48 MAY BE USED WHEN MAST BASE MP-48-A IS NOT AVAILABLE.
8. FOR ADDITIONAL COMPONENTS AND SPARE PARTS, SEE PARTS LIST.

LIST OF SCREWS, NUTS, AND LOCKWASHERS FOR MOUNTING RADIO SETS SCR-508-1, SCR-528-1, SCR-538-1.

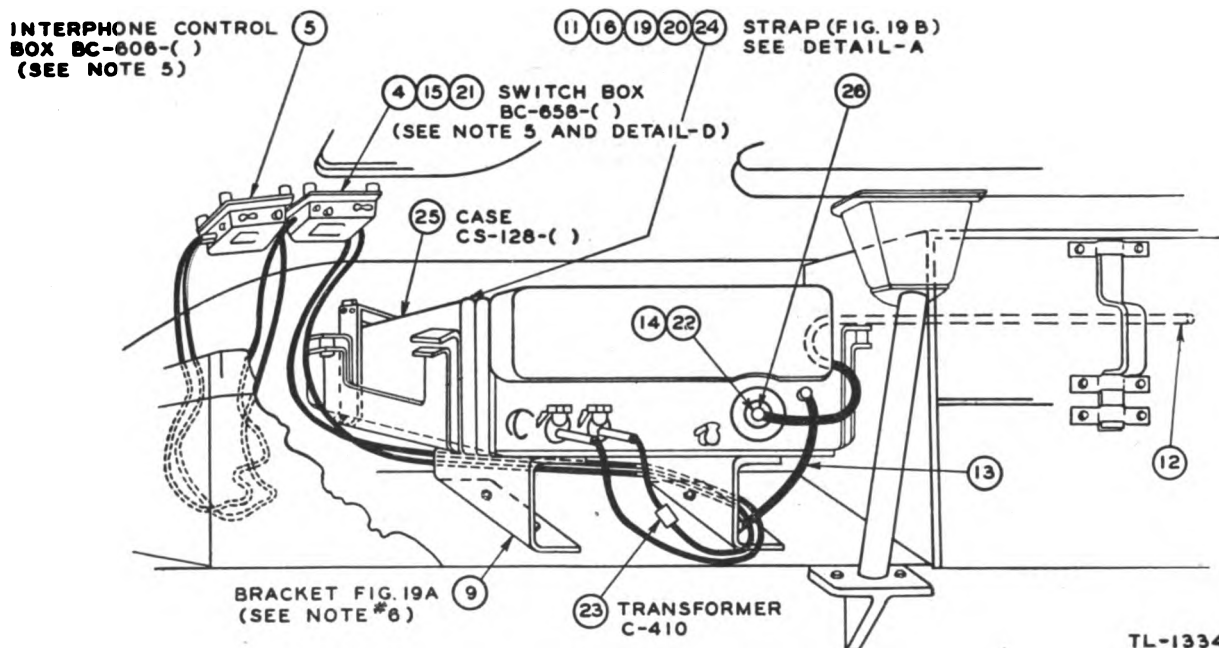
- MOUNTING FT-237-1.
- 8-5/16" X 24 X 1/2" HEX. HD. MACH. SCREWS
 - 8-5/16" X 24 HEX. NUT
 - 8-5/16" LOCKWASHER
- INTERPHONE CONTROL BOX BC-606-1.
- 12-NO. 8-32 X 3/4" RD. HD. MACH. SCREWS
 - 12-NO. 8 HEX. NUTS
 - 4-NO. 8 FLATWASHER
 - 8-NO. 8 LOCKWASHER
 - 8-LOCKWASHER FOR NO. 8 SCREW SHAKEPROOF NO. 4008-14, OR EQUAL
 - 4-5/16" FLATWASHER
 - 4-LOCKWASHER FOR 5/16" SCREW SHAKEPROOF NO. 4018-24, OR EQUAL.
 - 4-3/8" X 3/4" BOND STRAP (SEE NOTE NO.5)
- HOOK PER FIGURE 27D. (4 REQ.)
- 8-NO. 8-32 X 1/2" RD. HD. MACH. SCREW
 - 8-NO. 8 LOCKWASHER
- CLAMPS PER FIGURE 25
- CLAMP NO. 4 (33 REQ.)
 - 33-NO. 8-32 X 1/2" RD. HD. MACH. SCREW
 - 33-NO. 8 LOCKWASHER
 - CLAMP NO. 7 (2 REQ.)
 - 2-NO. 8-32 X 3/8" RD. HD. MACH. SCREW
 - 2-NO. 8 LOCKWASHER
 - CLAMP NO. 9 (1 REQ.)
 - USE EXISTING SCREW
 - CLAMP NO. 6 (1 REQ.)
 - USE EXISTING SCREW

TL 13343-2

associated interphone equipment in Light Tank M5A1, with laminated brackets.



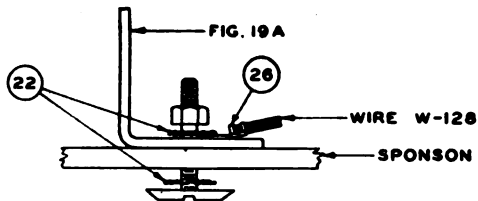
VIEW OF RIGHT FRONT PORTION OF VEHICLE



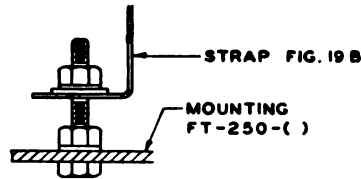
VIEW OF RIGHT FRONT SPONSON

TL-13344-1

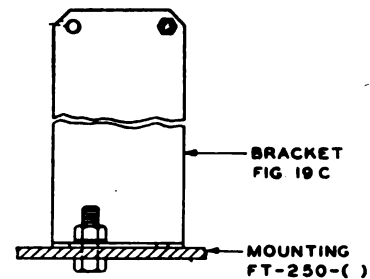
Figure 18. Installation of Radio Set AN/VRC-3-()



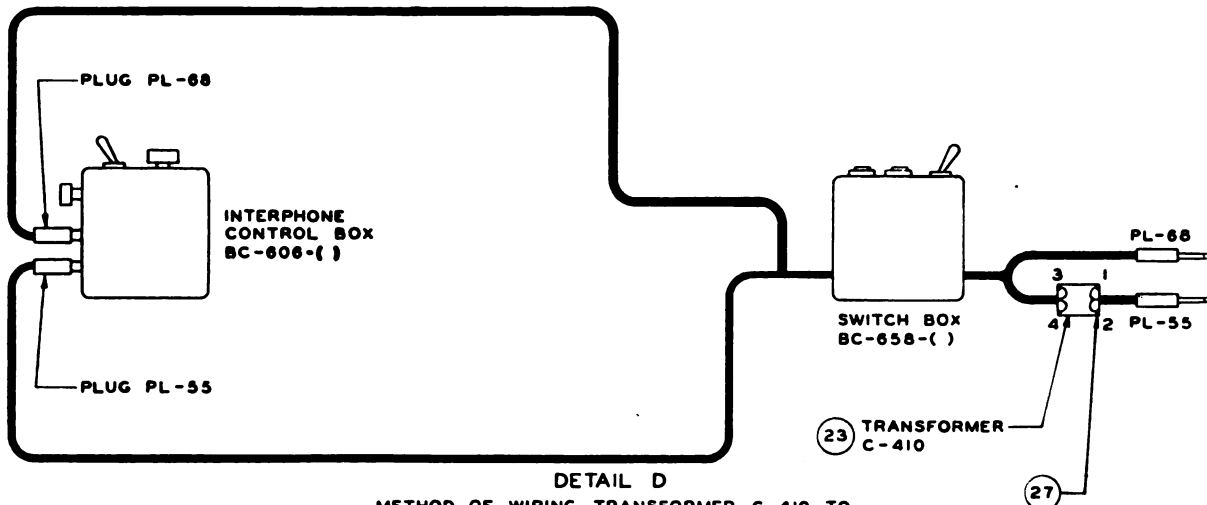
DETAIL C
APPLICATION OF SHAKEPROOF WASHER FOR SECURING GROUND WIRE TO MOUNTING BRACKET



DETAIL A
METHOD FOR SECURING STRAP FIG. 19B TO MOUNTING FT-250-()



DETAIL B
METHOD FOR SECURING BRACKET FIG. 19C TO MOUNTING FT-250-()



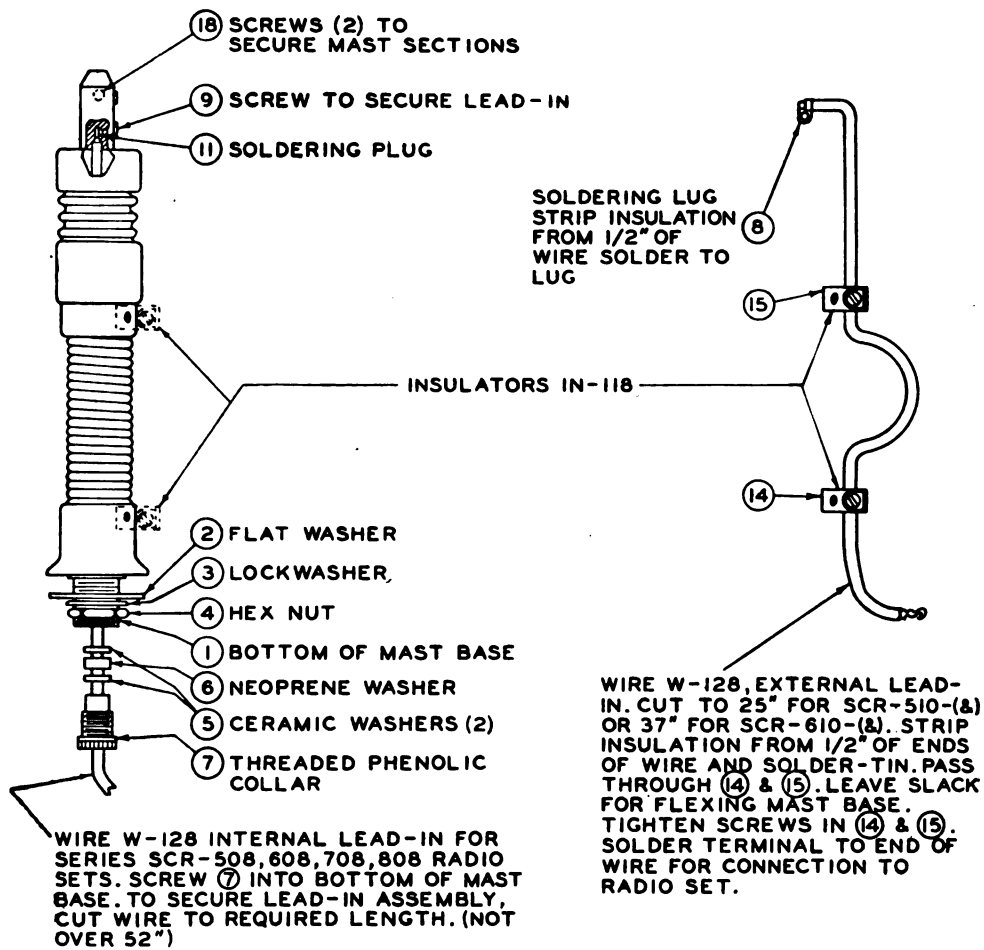
DETAIL D
METHOD OF WIRING TRANSFORMER C-410 TO PATCH CORD OF SWITCH BOX BC-658-() TO PROVIDE PROPER IMPEDANCE MATCHING

NOTE:

1. (15) AND (21) ARE FURNISHED WITH (4)
2. (12) AND (13) SHALL BE TINNED AT BOTH ENDS FOR CONNECTIONS.
3. DRAWING REFERENCES:
INSTALLATION OF:
SCR-508-() SERIES IN L. TANK M5 --- FIG. 2
SCR-508-() SERIES IN L. TANK M5A1 --- FIG. 15 AND FIG. 17
BRACKET --- FIG. 19C
BRACKET --- FIG. 19A
STRAP --- FIG. 19B
4. (5) IS FURNISHED ONLY WITH RADIO SET SCR-508-(), SCR-528-(), OR SCR-538-() WHEN INSTALLED IN THIS VEHICLE.
5. UPPER VIEW SHOWS (4) AND (5) MOUNTED ON RIGID MOUNTING BRACKETS FURNISHED IN EARLIER PRODUCTION OF LIGHT TANK, M5 SERIES. LOWER VIEW SHOWS MOUNTING OF (4) AND (5) ON FABRIKKA PADS FURNISHED IN LATER PRODUCTION.
6. REMOVE .30 CALIBRE AMMUNITION RACK AND MOUNT (9) WITH BOLTS NUTS AND WASHERS USED TO SECURE THE AMMUNITION RACK.
7. (22) SHALL BE CAT. NO. 42-4020-26 AS MADE BY SHAKEPROOF INC, CHICAGO, ILL, OR EQUAL.
8. USE MAST BASE MP-48 IF (6) IS NOT AVAILABLE.
9. 75 INCH LENGTH INCLUDES THE INTERNAL RUN OF WIRE IN MAST BASE MP-48-A OR MP-48.

ITEM NO.	NAME OF ITEM	QUAN. REQ.
1	RADIO RECEIVER AND TRANSMITTER BC-1000-A	1
2	BATTERY BA-70	1
3	MOUNTING FT-250-() SEE NOTE 6	1
4	SWITCH BOX BC-658-() SEE NOTE 1	1
5	INTERPHONE CONTROL BOX BC-606-() SEE NOTE 4	1
6	MAST BASE MP-48-A SEE NOTE 8	1
7	COVER BG-108	1
8	MAST SECTION MS-53	1
9	BRACKET FIG. 19 A	2
10	BRACKET FIG. 19 C	2
11	STRAP FIG. 19 B	1
12	WIRE W-128 75 IN. LG. SEE NOTE 2 AND 9	1
13	WIRE W-128 14 IN. LG. SEE NOTE 2	1
14	HEX. HD. MACH. SCREW 3/8"-24 X 1/2" LG.	1
15	RD. HD. MACH. SCREW #8-32 X 3/8" LG.	3
16	HEX. HD. MACH. SCREW 1/4"-20 X 1 1/2" LG.	2
17	HEX. HD. MACH. SCREW 1/4"-20 X 3/4" LG.	6
18	HEX. HD. MACH. SCREW 1/4"-20 X 1/2" LG.	2
19	HEX. NUT 1/4"-20 ST'D.	12
20	LOCKWASHER S.A.E. REG. FOR 1/4" SCREW	12
21	LOCKWASHER ST'D. FOR #8 SCREW	3
22	SHAKEPROOF WASHER SEE NOTE 7	3
23	TRANSFORMER C-410 SEE DETAIL-D	1
24	FLAT WASHER ST'D FOR 1/4" SCREW	2
25	CASE CS-128-()	1
26	TERMINAL FIG. 30	2
27	TERMINAL TM-163	4

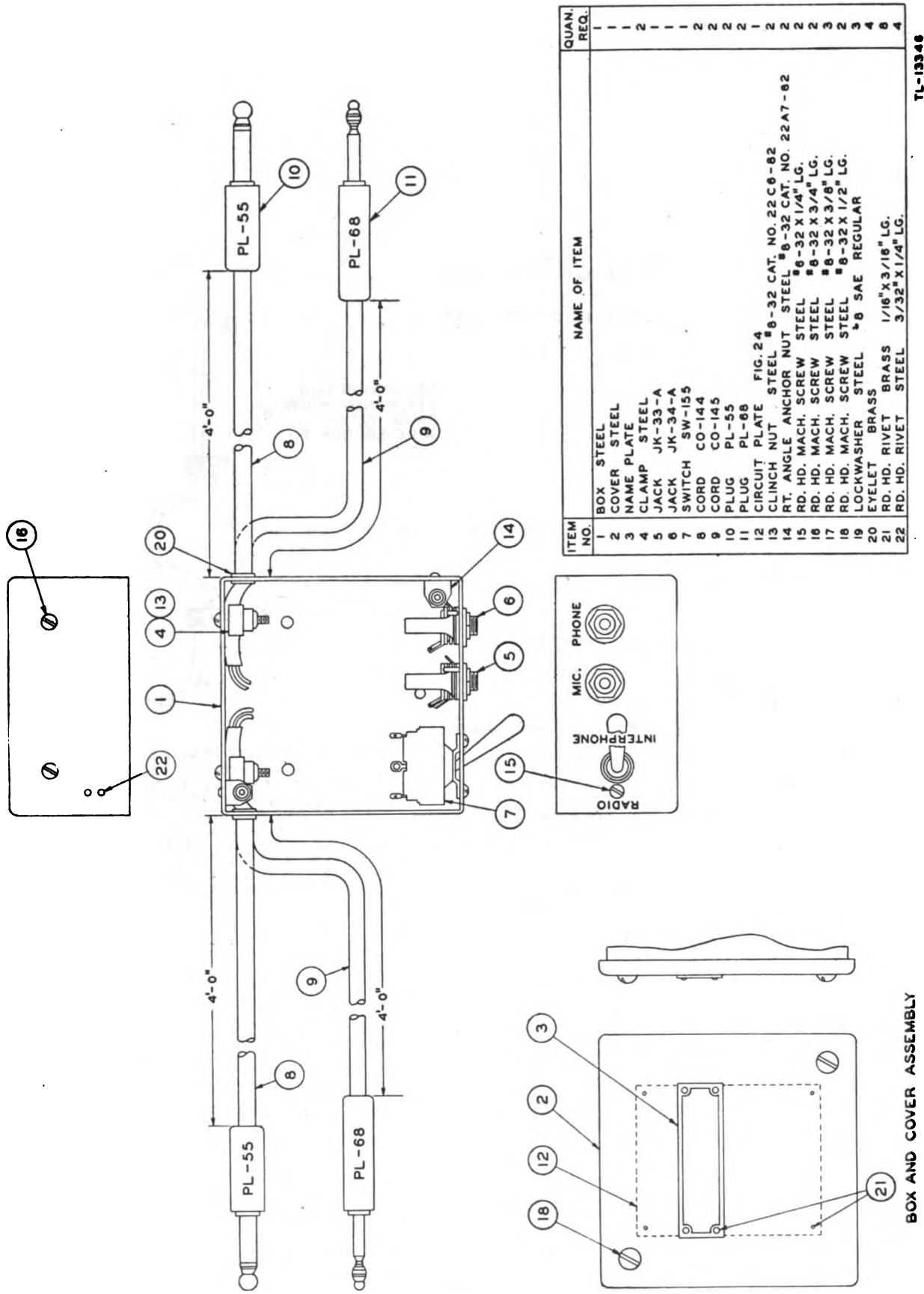
TL-13344-2



BASED ON
 SC-A-7186-A

TL0134

Figure 20. Mast Base MP-48-A, assembly with Wire W-128 lead-in.



BOX AND COVER ASSEMBLY

Figure 21. Switchbox BC-658-(), assembly for Light Tank M5 or M5A1.

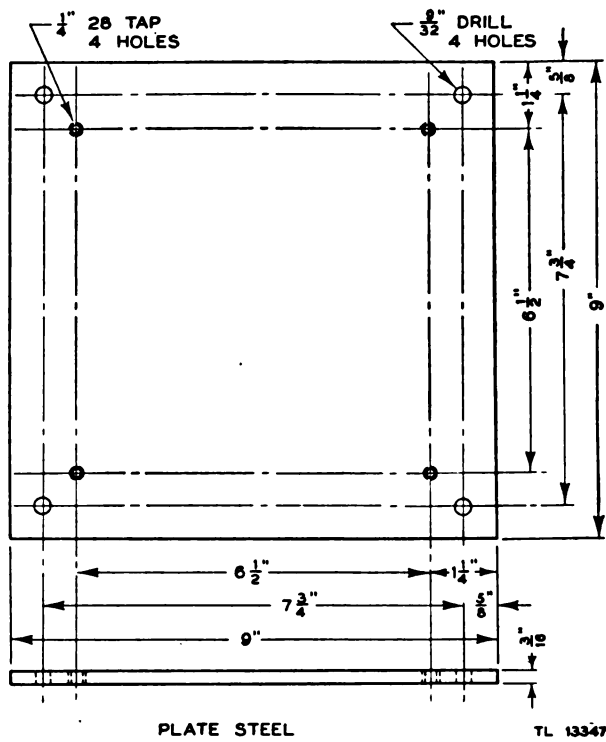
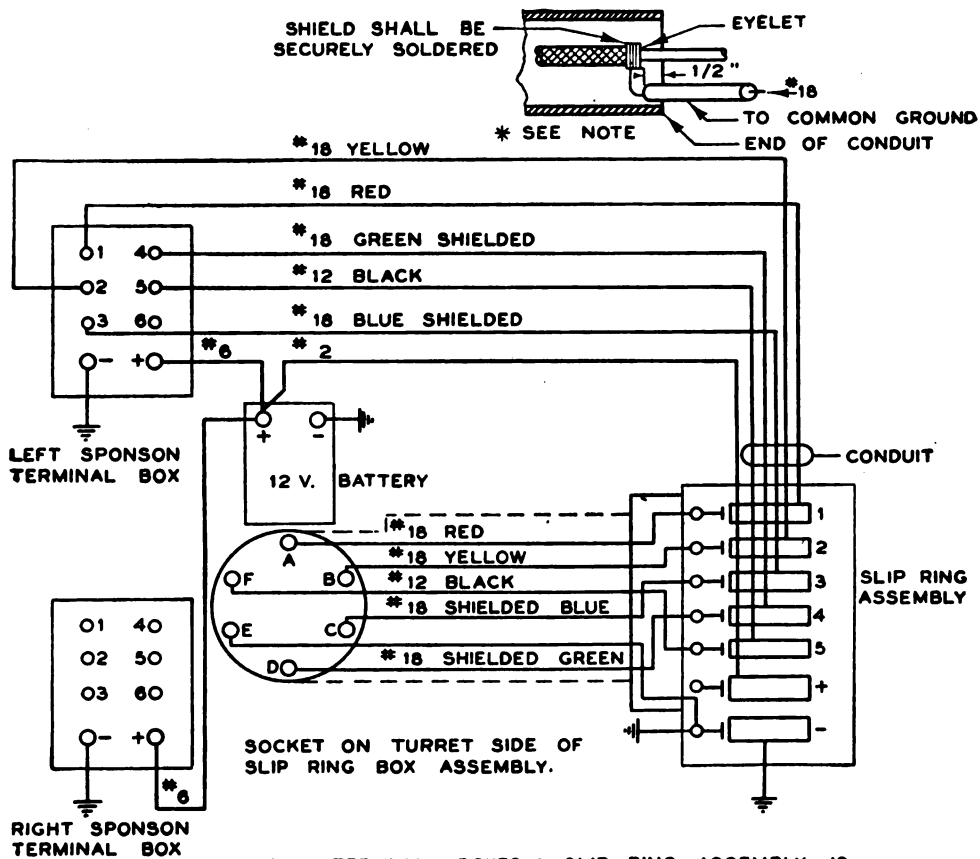


Figure 22. Plate for mounting interphone amplifier box.

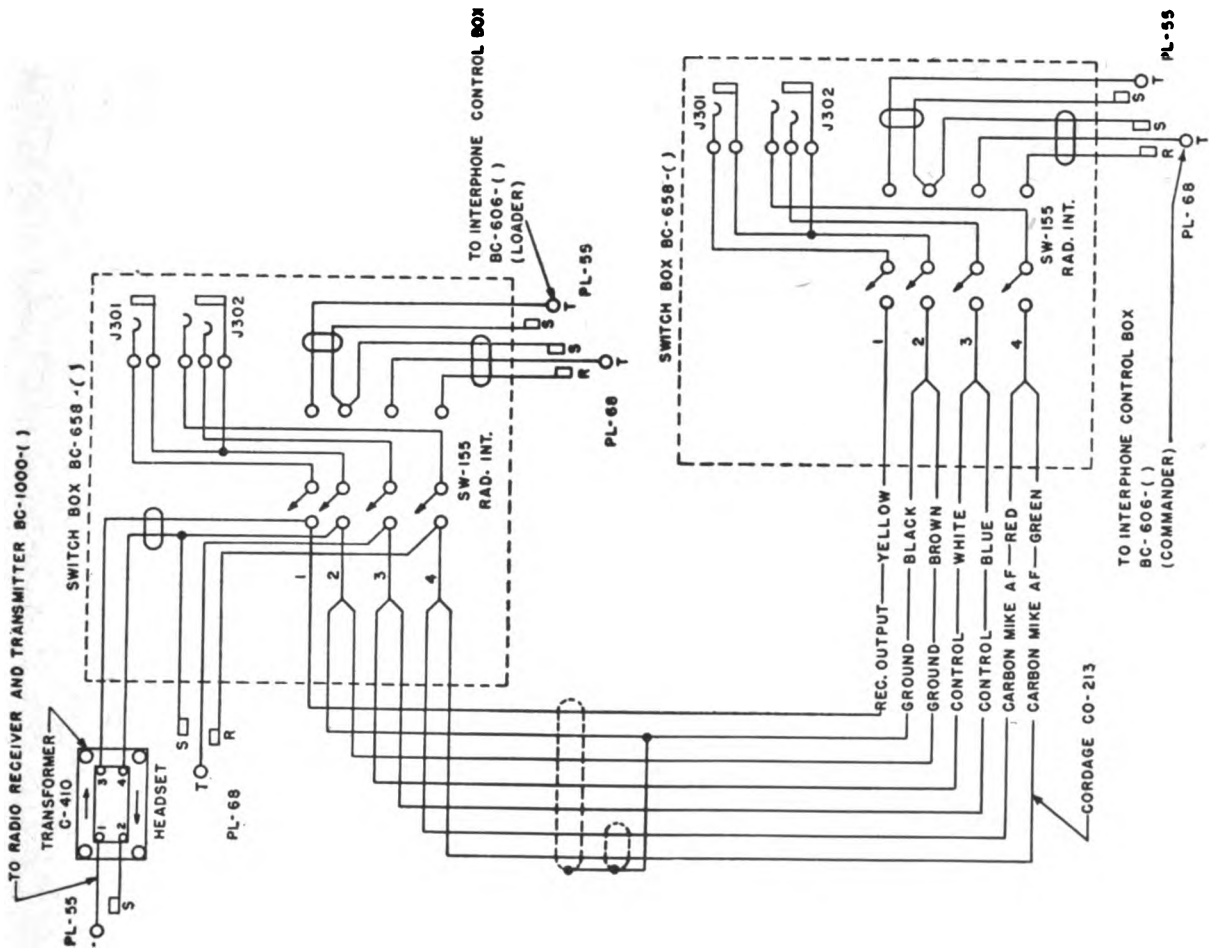


WIRING, TERMINAL BOXES, & SLIP RING ASSEMBLY IS FURNISHED & INSTALLED BY THE MANUFACTURER THESE TERMINAL BOXES ARE USED FOR RADIO & INTERPHONE WIRING ONLY.

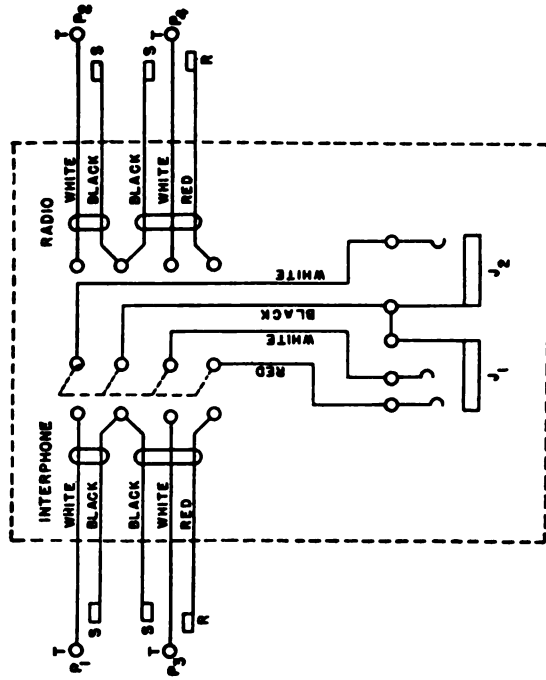
* ALL SHIELDS ON SHIELDED WIRES SHALL BE GROUNDED ON BOTH ENDS.

TL 13348

Figure 23. Wiring diagram of slip rings and terminal boxes in Light Tank M5.



CIRCUIT DIAGRAM FOR SWITCHBOX BC-658-(-)

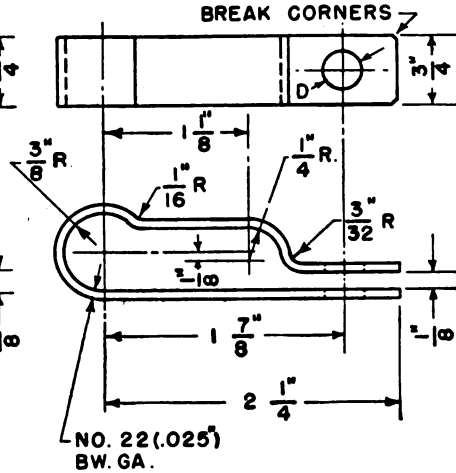
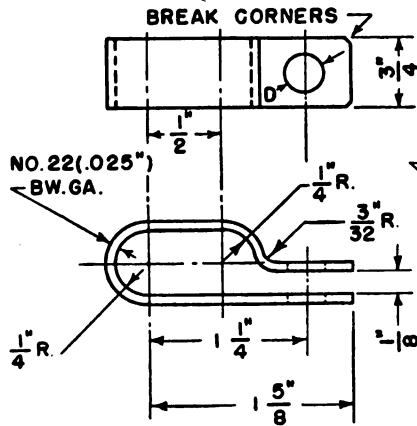
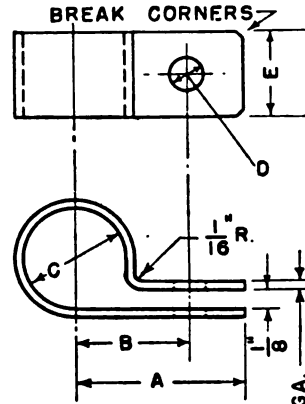


- J1 JACK JK-33- A (MICROPHONE)
- J2 JACK JK-34- A (PHONE)
- P1 PLUG PL-55 (INTERPHONE)
- P2 PLUG PL-55 (RADIO)
- P3 PLUG PL-68 (INTERPHONE)
- P4 PLUG PL-68 (RADIO)
- SW1 SWITCH SW-155 (INTERPHONE-RADIO)

TL 13349

Figure 24. Wiring diagram of interconnection of Switch Boxes BC-658-(-).

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



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

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

NOTE:
TOLERANCES $\pm 1/32$ "

TL13319

Figure 25. Clamps for radio cordage.

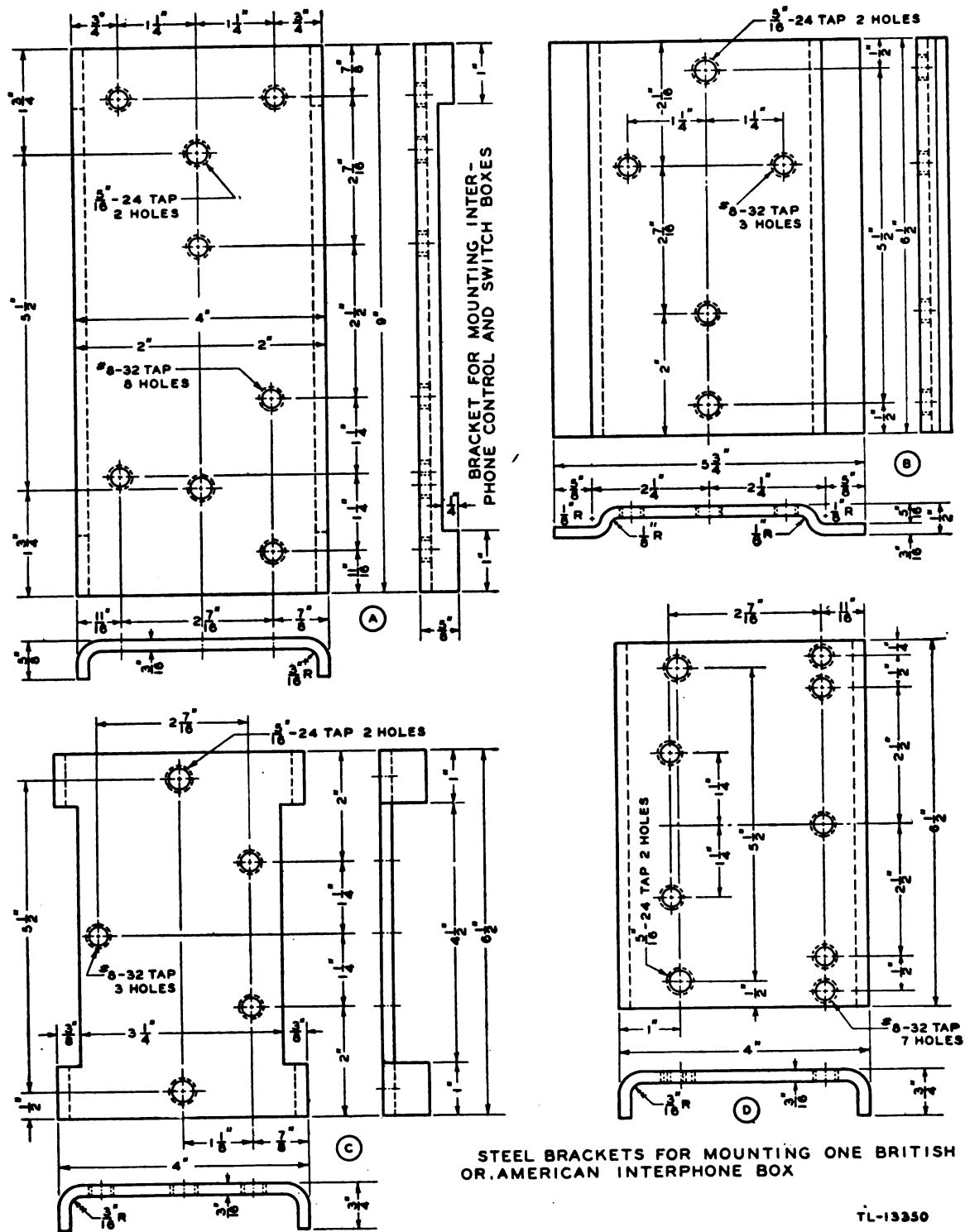
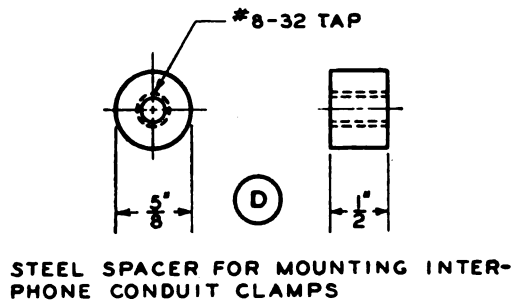
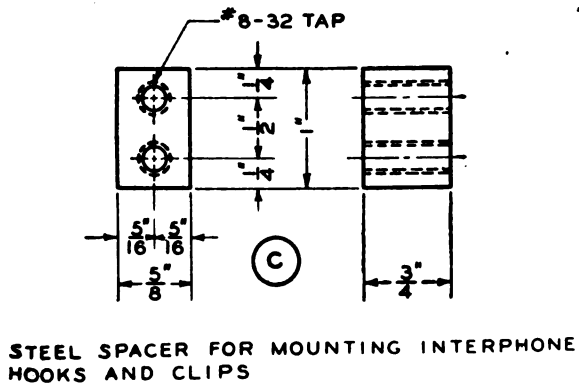
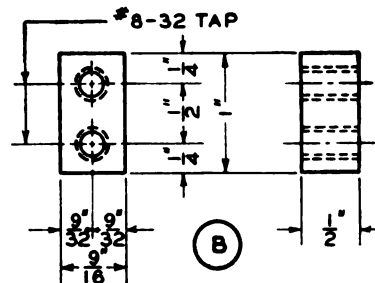
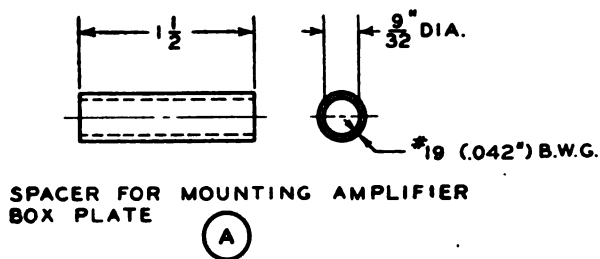
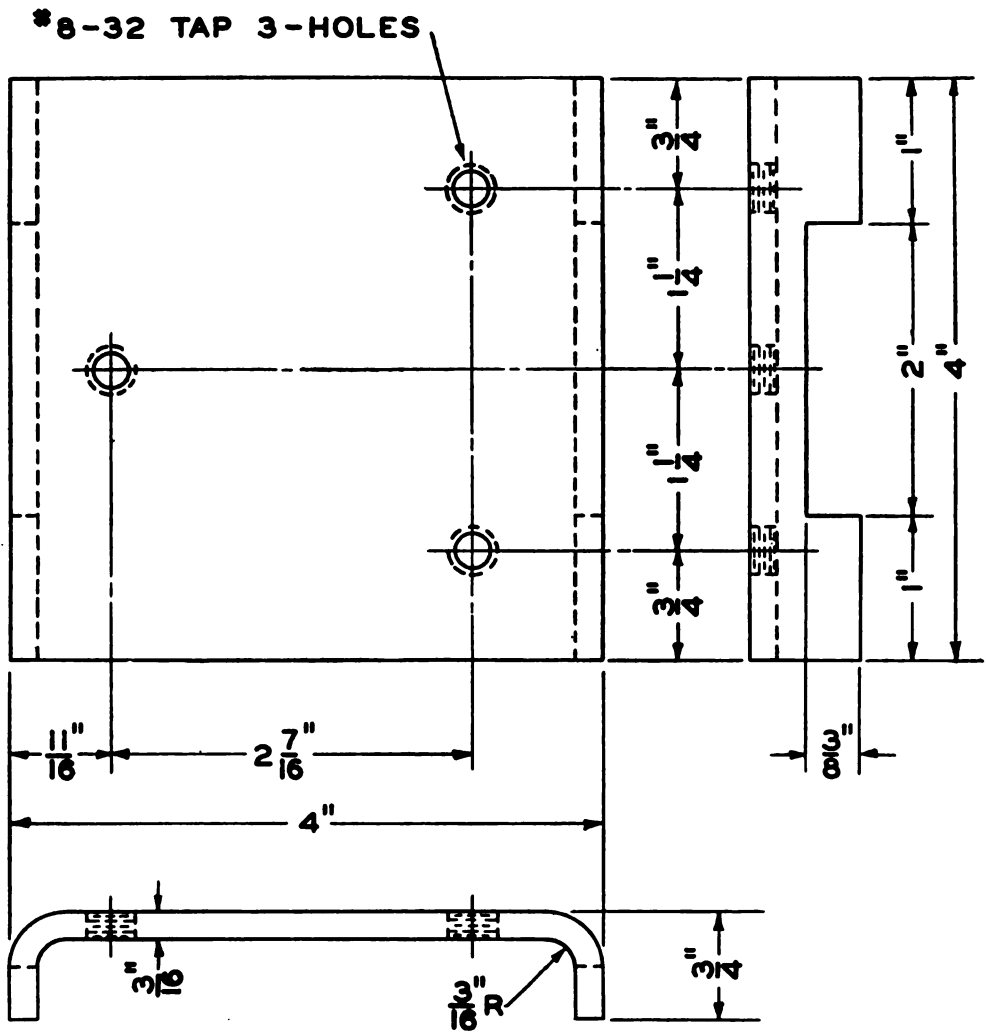


Figure 26. Mounting brackets for interphone and switchboxes in Light Tank M5 or M5A1.



TL-13352

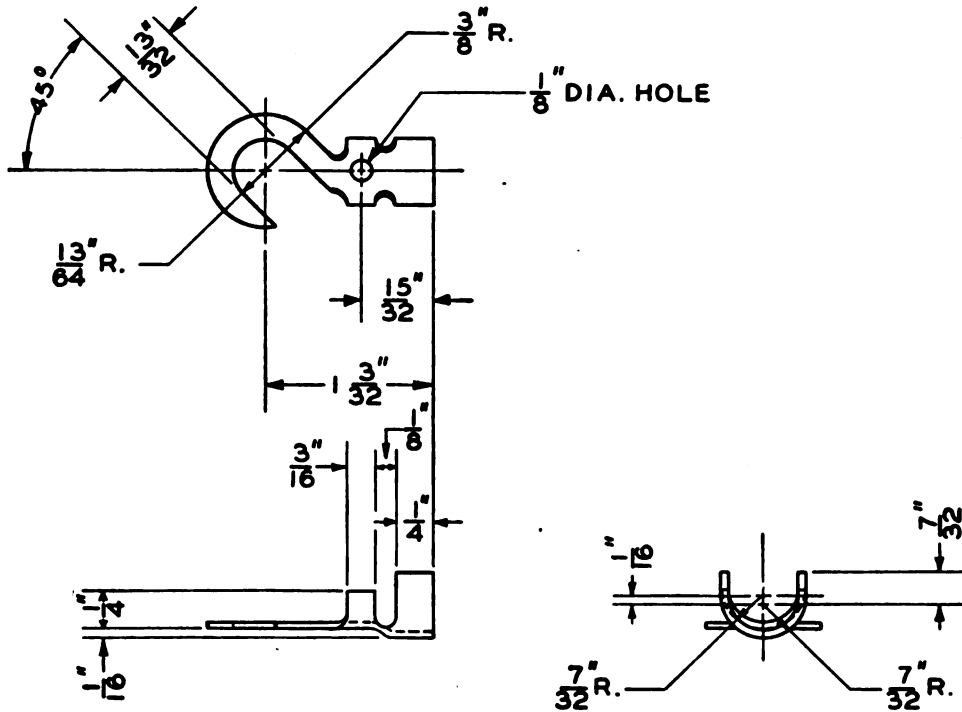
Figure 28. Mounting spacers for mounting radio equipment in Light Tanks M5 and M5A1.



BRACKET

TL13325

Figure 29. Bracket.



TERMINAL
COPPER-TINNED #18 (.040) B & S GA. AS REQ

NOTE:
 TOLERANCES WHERE NOT
 SHOWN OTHERWISE SHALL
 BE HELD TO $\pm \frac{1}{64}$

TL13326

Figure 30. Terminal.

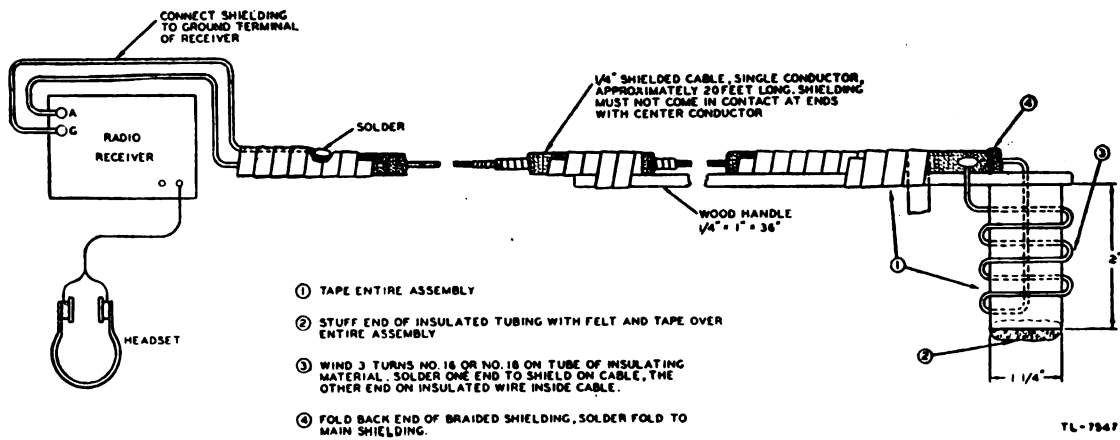
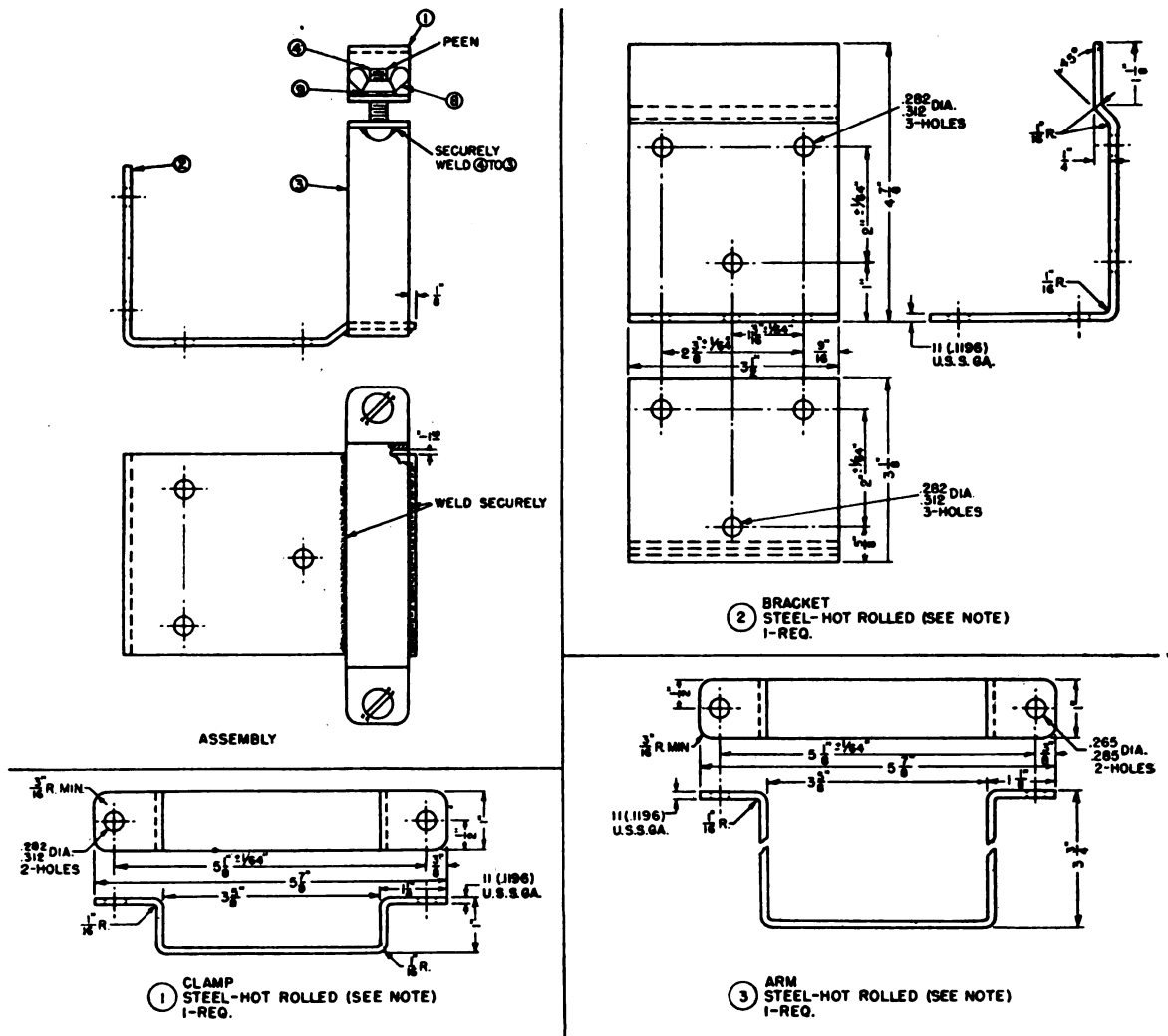


Figure 31. Probe antenna.



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

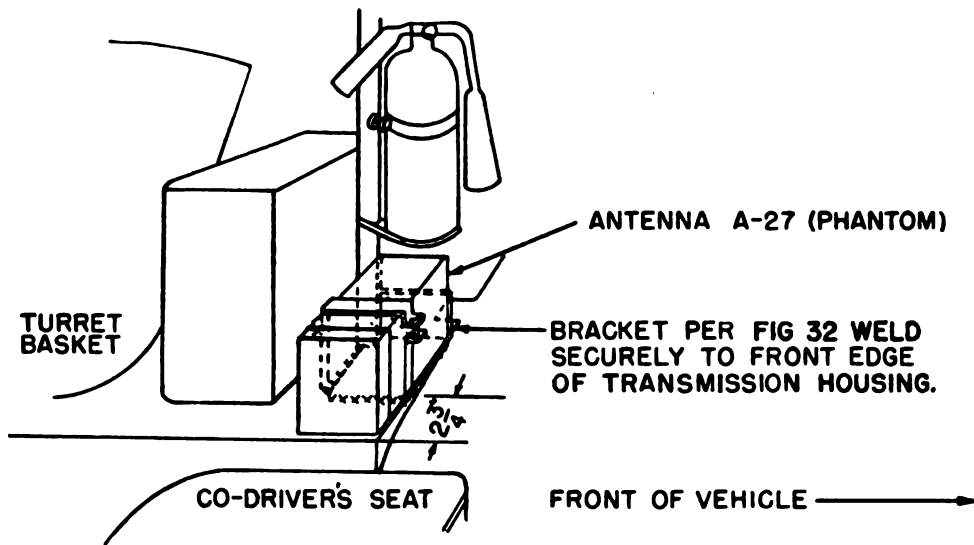
BASED ON SC-D-7367

NOTE:

REMOVE ALL BURRS.
AFTER WELDING (2) & (4) TO (3), (1), (2) & (3) SHALL BE BONDERIZED AND THEN GIVEN ONE SPRAY COAT OF METAL PRIMER, CLASS 101, AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB BAKING ENAMEL, CLASS 440. TOUCH UP HEADS OF (4) TO MATCH SURROUNDING SURFACE. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH ORDNANCE TENTATIVE SPECIFICATION JAG ES-NO. 680.

(3), (6), (7) & (4) OF (8) ARE USED FOR INSTALLATION AND SHALL BE PLACED IN A HEAVY CLOTH BAG PLAINLY, AND PERMANENTLY MARKED "THIS BAG CONTAINS SCREWS NUTS AND LOCKWASHERS FOR INSTALLATION SPARES ARE INCLUDED IN QUANTITIES." THIS BAG SHALL BE TIED TO THE BRACKET

Figure 32. Bracket for Antenna A-27, phantom, assembly and details.



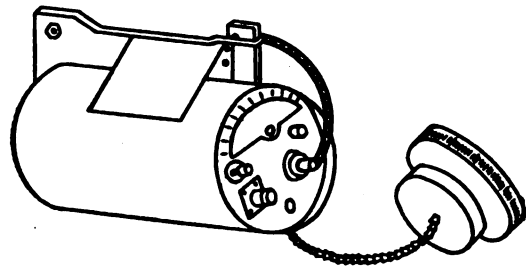
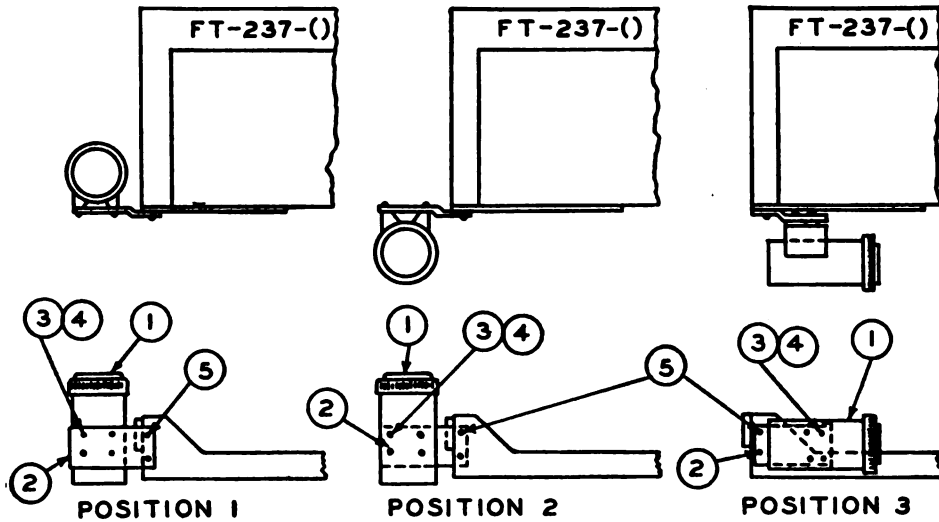
ITEMS REQUIRED

QUAN.	NAME	ITEM NO.	REMARKS
1	ANTENNA (PHANTOM)	A-27	
1	BRACKET		PER FIGURE 32

BASED ON SC-A-7376
REF. SC-D-8506

TL15077

Figure 33. Location of Antenna A-27, phantom, for Radio Set SCR-506-() in Light Tanks M5 and M5A1.



APPLICATION OF GROUND CLIP

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

NOTE

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

TL13376A

Figure 34. Installation of Antenna A-62, phantom, on Mounting FT-237-().

