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TM 11-2713

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF  
RADIO AND  
INTERPHONE EQUIPMENT  
IN LIGHT TANK M3

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WAR DEPARTMENT • 9 OCTOBER 1944

INSTALLATION OF  
RADIO AND  
INTERPHONE EQUIPMENT  
IN LIGHT TANK M3



WAR DEPARTMENT • 9 OCTOBER 1944

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WAR DEPARTMENT,  
WASHINGTON 25, D. C., 9 OCTOBER 1944.

TM 11-2713, Installation of Radio and Interphone Equipment in Light Tank M3, is published for the information and guidance of all concerned. [A.G. 300.7 (29 Aug. 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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For explanation of symbols, see FM 21-6.

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## DESTRUCTION NOTICE

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

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

**HOW** —1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crow-bars, 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 and interphone equipment in Light Tank M3. Items required to make a complete operating installation are listed for each set. Official nomenclature followed by ( ), 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 and associated interphone equipment:

SCR-506-( )	SCR-528-( )
SCR-508-( )	SCR-538-( )

### 3. Holes and Brackets

Holes and brackets required for installation of the radio sets are normally located prior to delivery of Light Tank M3. Drilling instructions are given in this manual for any other necessary holes and brackets. Do not relocate any holes or brackets unless absolutely necessary.

### 4. Preliminary Check

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

**Caution:** Light Tank M3 has a 12-volt electrical system. Before installing the radio sets, be sure they are designed for 12-volt operation, or tubes may burn out and dynamotors may be damaged.

### 5. Operating Checks

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-( )

#### 6. Required Parts

Items necessary for the installation of Radio Set SCR-506-( ) in Light Tank M3, are listed below:

Quantity	Stock No.	Item
1	2Z2651-421	Clamp MC-421, for securing Mast Sections MS-49 and MS-50.
1	2Z2651-422	Clamp MC-422, for securing Mast Sections MS-50 and MS-51.
1	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), for power cable connection.
1	3E1307A-5.5	Cord CD-307-A, 65", for Headset HS-30-( ).
1	3E1314	Cord CD-314, for Loudspeaker LS-3.
1	3E1318	Cord CD-318, control cord for Microphone T-30-( ).
1	3E1604	Cord CD-604, 6", for connecting Cord CD-307A to Headset HS-30-( ).
1	2Z3367	Cover BG-67-( ), for Mast Base MP-37 or MP-57.
1	3H1640	Dynamotor DM-40-( ), for Radio Receiver BC-652-( ); 12-volt; includes spare parts.
1	3H1642	Dynamotor DM-42-( ), 12-volt; for Radio Transmitter BC-653-( ); includes spare parts.
1	2B830	Headset HS-30-( ).
1	3G598	Insulator IN-98.
3	3G601	Insulator IN-101.
1	3Z3445	Key J-45.
1	2Z6303.1	Loudspeaker LS-3.
1	2A2087	Mast Base MP-37 or MP-57 (2A2088-57).
1	2A2349	Mast Section MS-49.
1	2A2350	Mast Section MS-50.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
1	2B1617	Microphone T-17-( ).
1	2B1630	Microphone T-30-( ).
1	2Z6721-253	Mounting FT-253-( ), includes two Cords CD-280, and necessary hardware.
1	2C4452	Radio Receiver BC-652-( ), includes one set of tubes and spare parts.
1	2C6530-653	Radio Transmitter BC-653-( ), includes one set of tubes and spare fuses.
1	2Z8056	Roll BG-56-( ), for mast sections.
1	2C7978	Switchbox BC-658-( ).
1	6L50-506V2	Hardware bag.
8 ft	1B146	Wire W-146, for antenna and ground leads.

#### 7. Assembly and Installation

a. PROCEDURE. Components of the radio set should be installed as shown in figures 1 and 2, and as directed below. Figure 3 shows mounting holes and location for radio equipment in Light Tank M3; figure 4 shows installation of brackets in the vehicle; and figure 5 shows details of the brackets.

#### Parts and location

Mounting FT-253-( ), on floor of right sponson, as shown in figure 1.

Mast Base MP-37 or MP-57, on mast base bracket attached to the right rear of the vehicle, as shown in figure 1.

Insulators IN-101.

Insulator IN-98 on pad located on roof of hull at right rear corner, as shown in figure 1.

Dynamotor DM-40-( ), in crystal control unit of Radio Receiver BC-652-( ).

#### Method and materials

The feet of Mounting FT-253-( ) are provided with extra spacer plates for use in light tanks. Remove and discard the short bolts utilized to hold the spacers during shipment, and secure the mounting to the bottom plate of the right sponson, using the twelve 1/4"-20 x 1 1/2" bolts, nuts, and washers supplied with the mounting. The feet of Mounting FT-253-( ) must make good electrical contact with the vehicle to avoid noisy reception during motion. Thoroughly clean the surface of the sponson where the mounting feet rest, and around the mounting holes under the boltheads. Use emery cloth or sandpaper; then draw the mounting bolts down securely.

If Mast Base MP-37 is supplied, see figure 6 and assemble as follows: Remove items 7, 8, 9, and 10 from the mast base stem (item 4). Place item 1 over the hole in the mast base bracket; item 2 over item 1; item 3 over item 2; item 4 through the hole in the mast base bracket; item 5 over the flange of item 6; insert item 6 upward through the hole in the mast base bracket; place items 7 and 8 over item 4, and tighten securely with item 9; place item 10 over item 4 and tighten securely with item 9. If Mast Base MP-57 is supplied, assemble as shown in figure 7 and as directed above.

Place one Insulator IN-101 downward through the 1 1/8-inch hole directly under the mast base bracket, securing with the spring clip provided. Place the second Insulator IN-101 through the hole in the shroud, and the third Insulator IN-101 through the hole in the rear bulkhead, securing with the spring clips provided as shown in figures 1 and 2.

Place the fiber washer between the insulator base and pad. Fasten with three No. 8-32 roundhead screws supplied with the radio equipment. Do not tighten too firmly or the porcelain may be fractured.

If Dynamotor DM-40-( ) is not installed, proceed as follows: Remove Receiver BC-652-( ) from the case by loosening the three fasteners, one on the rear and two on the upper corners of the front panel, and withdraw the chassis. Mount the dynamotor on the top of the crystal frequency control unit and secure with the four snap-slide fasteners. Connections to the dynamotor are

made by means of the flexible lead terminating in Plug P-250. Installation of Dynamotor DM-40-( ) automatically adjusts the receiver circuits for 12-volt operation. The nameplate on the front panel should be turned to read 12 VOLTS OPERATION. While the chassis of Radio Receiver BC-652-( ) is out of its case, note that all vacuum tubes are firmly in place, in their proper sockets, and that the crystal unit is installed. Return the chassis to its case and secure with the fasteners.

Dynamotor DM-42-( ), in compartment in lower right hand corner of Transmitter BC-653-( ).

If Dynamotor DM-42-( ) is not installed, place the dynamotor in the compartment and fasten firmly with the four screws on the panel. The dynamotor connections are automatically made by plug connections at the rear of the dynamotor. To complete adjustment of the equipment for 12-volt operation, remove the voltage regulator plate at the extreme right top, of Radio Transmitter BC-653-( ), and connect the six links for 12-volt operation by swinging the upper end of the links to the position nearer the transmitter. Turn the voltage indicator plate above the red light of the dynamotor to read: 12-VOLTS.

Radio Transmitter BC-653-( ) on Mounting FT-253-( ).

If vacuum tubes for Radio Transmitter BC-653-( ) are not installed, remove the three patch covers on top of the transmitter case by loosening the fasteners. Insert the vacuum tubes. The sockets of Tubes VT-100 and VT-154 are equipped with clamps which secure these larger type tubes in place. Tighten these clamps by turning the slotted part of the clamp one-quarter turn in a clockwise direction, using a long-bladed screw driver. Replace the patch covers. Place Radio Transmitter BC-653-( ) on Mounting FT-253-( ), as shown in figures 1 and 2, and secure in place with the wingnuts provided.

Radio Receiver BC-652-( ), on Mounting FT-253-( ).

Place on the mounting as shown in figures 1 and 2 and secure in place with the wingnuts provided.

Switch Box BC-658-( ), on bracket attached to the front end of the right sponson.

Fasten to the bracket with the screws and washers provided. Connect the attached cords as shown in figure 2.

Mast Sections MS-49 to MS-53, Clamps MC-421 to MC-424, on Mast Base MP-37 or MP-57.

Screw the mast sections together, securing with the clamps. Fasten the clamps to the male end of the mast sections. Then screw the mast antenna into the mast base. Carry mast sections and clamps in Roll BG-56-( ) when not in use.

Wire W-146.

Pass Wire W-146 through Insulators IN-101 in bulkhead, shroud and roof of tank. Cut to required length, clean 1/2-inch of insulation from ends, and solder-tin the tips. Place wire through clamp of Insulator IN-98, and tighten. Connect wire to Radio Transmitter BC-653-( ) and Mast Base MP-37 as shown in figures 1 and 2.

Microphone T-30-( ) and Cord CD-318.

Plug Cord CD-318 into Switch Box BC-658-( ) and connect the microphone to the cord, as shown in figure 2.

Headset HS-30-( ) and Cords CD-307-A and CD-604.

Plug Cord CD-307-A into jack of Switch Box BC-658-( ). Plug Cord CD-604 into Cord CD-307-A, and connect the headset to Cord CD-604, as shown in figure 2.

Key J-45.

Plug into proper jack in Radio Transmitter BC-653-( ).

Loudspeaker LS-3 and Cord CD-314.

Connect the speaker to Cord CD-314 and plug the cord into speaker jack on Radio Receiver BC-652-( ).

Connector No. 61007 and Bondnut BL-50, on terminal box.

Remove knockouts that are most convenient for advantageous connection of the power cords, from the bottom of the box, and install connectors and bondnuts through knockout holes to bush and secure Cords CO-280, as shown in figure 2.

Cover BG-67-( ).

To be placed over the mast base when antenna mast sections are removed.

Roll BG-56-( ) and Microphone T-17-( ).

Disposition left to the discretion of the using arms.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-506-( ) as shown in figures 1 and 2. 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 and negative 12-volt leads (in the terminal box) until all other connections have been made.

SECTION III

RADIO SET SCR-508-( )

8. Required Parts

Items necessary for the installation of Radio Set SCR-508-( ) in Light Tank M3, are listed below:

Quantity	Stock No.	Item
1	2A262	Antenna A-62, phantom.
1	3E1307A-5.5	Cord CD-307-A, 65", for Headset HS-30-( ).
1	3E1604	Cord CD-604, for connecting Cord CD-307-A to Headset HS-30-( ).
1	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
1	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.
1	2Z3400-108	Cover BG-108, for mast base.
80	2Z3541A.1	Crystal Holder FT-241-( ), with crystal.
2	3H1634	Dynamotor DM-34-( ), 12-volt for radio receiver.
1	3H1635	Dynamotor DM-35-( ), 12-volt, for radio transmitter.
1	2B830	Headset HS-30-( ).
1	3G611	Insulator IN-111.
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.
1	2B1617	Microphone T-17-( ).
1	2Z6721-237	Mounting FT-237-( ), including Cord CO-278 for connection to auxiliary power terminal box, and necessary mounting hardware.
2	2C4403	Radio Receiver BC-603-( ), includes installed tubes.
1	2C6494	Radio Transmitter BC-604-( ), includes installed tubes and necessary crystals.
1	2Z8056	Roll BG-56-( ), for antenna mast sections.
7 ft.	1B128	Wire W-128.

9. Assembly and Installation

a. PROCEDURE. Components of Radio Set SCR-508-( ) should be installed as shown in figures 8 and 9, and as directed below. Figure 3 shows mounting holes and location for radio equipment in Light Tank M3; figure 4 shows installation of brackets in the vehicle; and figure 5 shows details of the brackets.

Parts and location

Mounting FT-237-( ), including Cord CO-278, in left sponson, as shown in figure 8.  
Mast Base MP-48 or MP-48-A, on mast base bracket mounted on the wall of the vehicle to rear of left sponson, as shown in figure 8.

Method and materials

Fasten to floor of sponson with the hardware provided.  
If Mast Base MP-48 is supplied, see figure 10, and assemble as follows: Remove nuts and washers (items 2, 3, 4, and 5) from stem (item 1). Loosen setscrews (items 8 and 9) and pull assembly 7 out of the mast base. Prepare assembly 6 (fig. 10) as follows: Strip 1/2 inch of the insulation from each end

Parts and location

Method and materials

of the proper 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 the 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. When Mast Base MP-48-A is supplied, assemble as shown in figure 11, using Wire W-128 internal lead-in.

Insulator IN-111.

Insulator IN-121, on side brace of mast base bracket.

Dynamotor DM-34-( ), in cabinets of Radio Receivers BC-603-( ).

Dynamotor DM-35-( ), in cabinet of Radio Transmitter BC-604-( ).

Insert through hole in rear plate of left sponson, as shown in figure 8.

Insert through hole in side brace of mast base bracket, as shown in figure 8.

If Dynamotor DM-34-( ) is not already installed in each Radio Receiver BC-603-( ), remove chassis from the receiver cabinet by loosening the screw lock in the rear center of the cabinet, and install the dynamotor unit on the top rear of the receiver chassis by means of four bolts through its base. Replace chassis in the cabinet and secure.

If Dynamotor DM-35-( ) is not already installed in Radio Transmitter BC-604-( ), proceed as follows: Remove the crystal case from the transmitter cabinet by loosening the screw locks on the front panel and pulling the crystal case out. Loosen the four screw locks holding the cover on top of the transmitter and remove the cover. Install the dynamotor unit in left rear of the transmitter chassis by means of four bolts through its base. Replace cover and crystal case and secure.

Mount in position as shown in figures 8 and 9 and fasten with the thumbscrew locks.

Mount in position as shown in figures 8 and 9 and fasten with the thumbscrew locks.

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

Plug Cord CD-307-A into jack of one of Radio Receivers BC-603-( ). Plug Cord CD-604 into Cord CD-307-A and connect the headset to Cord CD-604, as shown in figure 9.

Radio Transmitter BC-604-( ), including necessary crystals, on Mounting FT-237-( ).

Radio Receivers BC-603-( ) on Mounting FT-237-( ).

Cover BG-108

Headset HS-30-( ) and Cords CD-307-A and CD-604.



*Parts and location*

Microphone T-17-( ).

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.

Connector No. 61007 and Bondnut BL-50, on terminal box.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-508-( ) as shown in figures 8 and 9. 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 and negative 12-volt leads (in the terminal box) until all other connections have been made.

*Method and materials*

Plug microphone cord into microphone jack of Radio Transmitter BC-604-( ).

Screw the mast sections together, securing with clamps. Fasten the clamps to the male end of the mast sections. Then screw the mast antenna into the mast base. Secure with item 18, figure 11, when using Mast Base MP-48-A. Carry mast sections and clamps in Roll BG-56-( ) when not in use.

Remove knockout that is most convenient for advantageous connection of the power cord, from bottom of the box, and install connector and bondnut through knockout hole to bush and secure Cord CO-278, as shown in figure 9.

**SECTION IV**

**RADIO SET SCR-528-( )**

**10. Required Parts**

Items necessary for the installation of Radio Set SCR-528-( ) in Light Tank M3, are listed below:

Quantity	Stock No.	Item
1	2A262	Antenna A-62, phantom.
1	3E1307A-5.5	Cord CD-307-A, 65", for Headset HS-30-( ).
1	3E1604	Cord CD-604, for connecting Headset HS-30-( ) to Cord CD-307-A.
1	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.
1	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton), for power cable.
1	2Z3400-108	Cover BG-108, for mast base.
80	2Z3541A.1	Crystal Holder FT-241-( ), with crystal.
1	3H1634	Dynamotor DM-34-( ), 12-volt, for receiver.
1	3H1635	Dynamotor DM-35-( ), 12-volt, for transmitter.
1	2B830	Headset HS-30-( ).
1	3G611	Insulator IN-111.
1	3G621	Insulator IN-121.
1	2A2038-48	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.
1	2B1617	Microphone T-17-( ).
1	2Z6721-237	Mounting FT-237-( ), including Cord CO-278 for connection to auxiliary power terminal box and necessary hardware.
1	2C4403	Radio Receiver BC-603-( ), includes installed tubes.
1	2C6494	Radio Transmitter BC-604-( ), includes installed tubes and necessary crystals.
1	2Z8056	Roll BG-56-( ), for antenna mast sections.
7 ft	1B128	Wire W-128.

**11. Assembly and Installation**

a. PROCEDURE. Components of Radio Set SCR-528-( ) should be installed as shown in figures 8 and 9, and as directed below. Figure 3 shows mounting holes and location of radio equipment in Light Tank M3; figure 4 shows installation of brackets in the vehicle; and figure 5 shows details of the brackets.

*Parts and location*

Mounting FT-237-( ), including Cord CO-278, in left sponson, as shown in figure 8.

Mast Base MP-48 or MP-48-A, on mast base bracket mounted on the wall of the vehicle to rear of left sponson, as shown in figure 8.

*Method and materials*

Fasten to floor of sponson with hardware provided.

If Mast Base MP-48 is supplied, refer to figure 10 and assemble as follows: Remove nuts and washers (items 2, 3, 4, and 5) from stem (item 1). Loosen setscrews (items 8 and 9) and pull assembly 7 out of the mast base. Prepare assembly 6 (fig. 10) as follows: Strip 1/2 inch of the insulation from each

Parts and location

Method and materials

end of the proper 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 the 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. When Mast Base MP-48-A is supplied, assemble as shown in figure 11, using Wire W-128 internal lead-in.

Insulator IN-111. Insert through hole in rear plate of left sponson, as shown in figure 8.

Insulator IN-121, on side brace of mast base bracket. Insert through hole in side brace of mast base bracket, as shown in figure 8.

Dynamotor DM-34-( ), in cabinet of Radio Receiver BC-603-( ). If Dynamotor DM-34-( ) is not already installed in Radio Receiver BC-603-( ), remove chassis from the receiver cabinet by loosening the screw lock in the rear center of the cabinet, and install the dynamotor unit on the top rear of the receiver chassis and fasten with four bolts through its base. Replace chassis in the cabinet and secure.

Dynamotor DM-35-( ), in cabinet of Radio Transmitter BC-604-( ). If Dynamotor DM-35-( ) is not already installed in Radio Transmitter BC-604-( ), proceed as follows: Remove the crystal case from the transmitter cabinet by loosening the screw locks on the front panel and pulling the crystal case out. Loosen the four screw locks holding the cover on top of the transmitter and remove the cover. Mount the dynamotor unit in left rear of the transmitter chassis and secure with four bolts through its base. Replace cover and crystal case and secure.

Radio Transmitter BC-604-( ), including necessary crystals, on Mounting FT-237-( ). Mount in position as shown in figures 8 and 9 and fasten with the thumbscrew locks.

Radio Receiver BC-603-( ), on Mounting FT-237-( ). Mount in position as shown in figures 8 and 9 and fasten with the thumbscrew locks.

Cover BG-108. Place over the mast base when the mast sections are removed.

Headset HS-30-( ), and Cords CD-307-A and CD-604. Plug Cord CD-307-A into jack of Radio Receiver BC-603-( ). Plug Cord CD-604 into Cord CD-307-A and connect the headset to Cord CD-604, as shown in figure 9.

Parts and location

Method and materials

Microphone T-17-( ). Plug microphone cord into microphone jack of Radio Transmitter BC-604-( ).

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. Screw the mast sections together, securing with the clamps. Fasten the clamps to the male end of the mast sections. Then screw the mast antenna into the mast base. Secure with item 18, figure 11, when using Mast Base MP-48-A. Carry mast sections and clamps in Roll BG-56-( ) when not in use.

Connector No. 61007 and Bondnut BL-50, on terminal box. Remove knockout from bottom of the box that is most convenient for advantageous connection of the power cord. Install connector and bondnut through knockout hole to bush and secure Cord CO-278, as shown in figure 9.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-528-( ) as shown in figures 8 and 9. Connect and secure so as not to interfere with 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 and negative 12-volt leads (in the terminal box) until all other connections have been made.

SECTION V

RADIO SET SCR-538-( )

12. Required Parts

Items necessary for the installation of Radio Set SCR-538-( ) in Light Tank M3, are listed below:

Quantity	Stock No.	Item
1	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.
1	3E1307A-5.5	Cord CD-307-A, 65-inch, for Headset HS-30-( ).
1	3E1604	Cord CD-604, for connecting Headset HS-30-( ) to Cord CD-307-A.
1	6Z3147	Connector No. 61007, and Bondnut BL-50, (Appleton), for power cable.
1	2Z3400-108	Cover BG-108, for mast base.
1	3H1634	Dynamotor DM-34-( ), 12-volt.
1	2B830	Headset HS-30-( ).
1	3G611	Insulator IN-111.
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.
1	2Z6721-237	Mounting FT-237-( ), including Cord CO-278 for connection to auxiliary power terminal box and necessary hardware.
1	2C4403	Radio Receiver BC-603-( ), including installed tubes.
1	2Z8056	Roll BG-56-( ), for antenna mast sections.
7 ft	1B128	Wire W-128.

13. Assembly and Installation

a. PROCEDURE. Components of Radio Set SCR-538-( ) should be installed as shown in figures 8 and 9, and as directed below. Figure 3 shows mounting holes and location of radio equipment in Light Tank M3; figure 4 shows installation of brackets in the vehicle; and figure 5 shows details of the brackets.

Parts and location

Mounting FT-237-( ), including Cord CO-278, in left sponson, as shown in figure 8.  
Mast Base MP-48 or MP-48-A, on mast base bracket mounted on the wall of the vehicle to rear of left sponson as shown in figure 8.

Method and materials

Fasten to floor of sponson with hardware provided.  
If Mast Base MP-48 is supplied, refer to figure 10 and assemble as follows: Remove nuts and washers (items 2, 3, 4, and 5) from stem (item 1). Loosen setscrews (items 8 and 9) and pull assembly 7 out of the mast base. Prepare assembly 6 (fig. 10) as follows: Strip 1/2 inch of the insulation from each end of the proper 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

Parts and location

Insulator IN-111.

Insulator IN-121, on side brace of mast base bracket.

Dynamotor DM-34-( ), in cabinet of Radio Receiver BC-603-( ).

Radio Receiver BC-603-( ), on Mounting FT-237-( ).

Cover BG-108.

Headset HS-30-( ), and Cords CD-307-A and CD-604.

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.

Connector No. 61007 and Bondnut BL-50, on terminal box.

Method and materials

Wire W-128. Insert the assembly into the mast base and secure with the 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. When Mast Base MP-48-A is supplied, assemble as shown in figure 11, using Wire W-128 internal lead-in.

Insert through hole in rear plate of left sponson, as shown in figure 8.

Insert through hole in side brace of mast base bracket, as shown in figure 8.

If Dynamotor DM-34-( ) is not already installed in Radio Receiver BC-603-( ), remove chassis from the receiver cabinet by loosening the screw lock in the rear center of the cabinet, and install the dynamotor unit on the top rear of the receiver chassis by means of the four bolts through its base. Replace chassis in cabinet and secure.

Mount in position as shown in figures 8 and 9 and fasten with the thumbscrew locks.

Place over the mast base when the mast sections are removed.

Plug Cord CD-307-A into jack of Radio Receiver BC-603-( ). Plug Cord CD-604 into Cord CD-307-A and connect the headset to Cord CD-604, as shown in figure 9.

Screw the mast sections together, securing with the clamps. Fasten the clamps to the male end of the mast sections. Then screw the mast antenna into the mast base. Secure with item 18, figure 11, when using Mast Base MP-48-A. Carry mast sections and clamps in Roll BG-56-( ) when not in use.

Remove knockout that is most convenient for advantageous connection of the power cord, from bottom of the box; install connector and bondnut through knockout hole to bush and secure Cord CO-278, as shown in figure 9.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-538-( ) as shown in figures 8 and 9. 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 and negative 12-volt leads (in the terminal box) until all other connections have been made.

SECTION VI

INTERPHONE EQUIPMENT USED WITH RADIO SETS  
SCR-508-( ), SCR-528-( ), OR SCR-538-( )

14. Required Parts

Items necessary for the installation of interphone equipment for use with Radio Set SCR-508-( ), SCR-528-( ), or SCR-538-( ) in Light Tank M3, are listed below:

Quantity	Stock No.	Item
3	2C1738	Interphone Control Box BC-606-( ), including hardware.
3	3E1307A-5.5	Cord CD-307-A, 65-inch, for Headset HS-30-( ).
4	3E1318	Cord CD-318, Microphone T-30-( ) control cord.
3	3E1604	Cord CD-604, for connecting Headset HS-30-( ) to Cord CD-307-A.
25 ft	3E2213	Cordage CO-213, interphone cable.
1	3H1634	Dynamotor DM-34-( ), 12-volt.
4	2B830	Headset HS-30-( ).
1*	2C1617	Interphone Amplifier BC-605-( ).
4	2B1630	Microphone T-30-( ).

\*Interphone Amplifier BC-605-( ) is not required for Radio Set SCR-508-( ) or SCR-528-( ). Interphone speech amplification is provided in these sets by the speech amplifier section of Radio Transmitter BC-604-( ). Interphone speech amplification is provided in Radio Set SCR-538-( ) by Interphone Amplifier BC-605-( ).

15. Assembly and Installation

a. PROCEDURE. Components of the interphone equipment used with Radio Sets SCR-508-( ), SCR-528-( ), or SCR-538-( ) should be installed as shown in figures 12 and 13, and as directed below. Figure 14 shows the mounting hole numbering for Control Box BC-606-( ).

<i>Parts and location</i>	<i>Method and materials</i>
Dynamotor DM-34-( ), in cabinet of Interphone Amplifier BC-605-( ).	Remove chassis from the amplifier cabinet by loosening the screw lock in the rear center of the cabinet. Install the dynamotor on the top rear of the amplifier chassis by means of four screws through its base.
Interphone Amplifier BC-605-( ), on Mounting FT-237-( ).	Mount in position by means of thumbscrew locks, as shown in figures 8 and 9.
Control Box BC-606-( ), for driver, on bracket near upper left front of hull.	Secure in place with the three machine screws provided, at holes numbered 3, 8, and 13 in figure 14.
Control Box BC-606-( ), for gunner, on ceiling of right sponson, near roof support post.	Secure in place with the three machine screws provided, at holes numbered 1, 7, and 12 in figure 14.
Control Box BC-606-( ), for loader, on ceiling of right sponson at rear, near turret basket.	Secure in place with two machine screws and locknuts provided, at holes numbered 5 and 14 in figure 14.
Headset HS-30-( ), and Cords CD-307-A and CD-604.	Plug Cords CD-307-A into the jacks of Control Boxes BC-606-( ) and Interphone Amplifier BC-605-( ). Plug Cord CD-604

*Parts and location*

*Method and materials*

Microphone T-30-( ).

into Cord CD-307-A and connect the headset to CD-604.

Plug microphone cord into microphone jack of Control Box BC-606-( ).

b. CORDING AND WIRING. (1) Cord and wire the interphone equipment used with Radio Sets SCR-508-( ), SCR-528-( ), or SCR-538-( ) as shown in figures 9 and 13. Cordage CO-213 is used between the control boxes and the radio set, and should be prepared as follows: At each end of lengths of Cordage CO-213, strip back 3½ inches of outer rubber, and approximately 2 inches of shielding, leaving 1½ inches of exposed shielding. Slit the remaining 1½ inches of exposed shielding and pull back. Cut a slit into one side of the shielding covering the red and green wires and pull the shielding back. Strip about ½ inch of the insulation from the black wire (ground wire) close to the end of the outer rubber covering. Twist the strips of shielding together neatly; cut the twisted shielding to the proper length; connect and solder to the exposed section of the black (ground) wire. Insert the prepared cable through the appropriate hole in the casing of Control Box BC-606-( ). Solder ends of wires to numbered studs and fasten the cable by means of a clamp in the control box. Insert the other end of the prepared cable through the appropriate cordage hole in Mounting FT-237-( ) of the radio set and wire and clamp to the terminal board as described above. Secure all cordage 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. Cordage 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 made.