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11-2708-2709

TM 11-2708

DEPARTMENT TECHNICAL MANUAL

Classification Cancelled
By Authority O1 - VJ J R 858
7 NOV, 46

INSTALLATION OF RADIO

Classification Cancelled
By Authority O1 - VJ J R 858
7 NOV, 46

EQUIPMENT IN MULTIPLE

GUN MOTOR CARRIAGE M15



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R DEPARTMENT

11 MAY 1944

INSTALLATION OF RADIO
EQUIPMENT IN MULTIPLE
GUN MOTOR CARRIAGE M15



WAR DEPARTMENT • 11 MAY 1944

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 11 May 1944.

TM 11-2708, Installation of Radio Equipment in Multiple Gun Motor Carriage M15, is published for the information and guidance of all concerned.

[A. G. 300.7 (14 Apr 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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I Bn 44: T/O & E 44-75, AAA A-Wpns Bn (S-P).

IC 11: T/O 11-107, Sig Dep Co; 11-127, Sig Rep Co; 11-327, Sig Port Sv Co; T/O & E 11-587, Sig Base Maint Co; 11-592, Hq & Hq Co, Sig Base, Dep; 11-597, Sig Base Dep Co.

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
Symbol (&).....	3	1
Holes and brackets.....	4	1
Before beginning installation.....	5	1
Immediately after installation.....	6	1
II. Radio Set SCR-510-(&).		
Required parts.....	7	2
Assembly and installation.....	8	2
APPENDIX. Ignition noise suppression in Multiple Gun Motor Carriage M15.....		4

DESTRUCTION NOTICE

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

WHEN—When ordered by your commander.

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

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

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

DESTROY EVERYTHING SAFETY NOTICE

THIS EQUIPMENT USES HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OBSERVE ALL SAFETY PRECAUTIONS.

1. MAKE NO ADJUSTMENTS INSIDE THE EQUIPMENT WITH THE POWER SWITCH ON.

2. DO NOT OPERATE THE EQUIPMENT WITH THE SHIELDS REMOVED.
3. DO NOT CONNECT POWER TO ANY UNIT OF THE RADIO SETS UNTIL OPERATING INSTRUCTIONS HAVE BEEN READ COMPLETELY.

SECTION I

GUIDE TO USE OF THIS MANUAL

1. Purpose.

This manual provides methods and procedures, based upon actual field experience, for installation of radio equipment in Multiple Gun Motor Carriage M15. Items required to make a complete operating installation are listed for Radio Set SCR-510-(&).

2. Equipment.

This manual covers installation of Radio Set SCR-510-(&).

3. Symbol (&).

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

4. Holes and Brackets.

Holes and brackets required for installations of Radio Set SCR-510-(&) normally are located prior to delivery of Multiple Gun Motor Carriage M15. Drilling instructions will be given in the appropriate section of this manual for any other necessary holes and brackets. Holes

and brackets in the vehicle or on any radio part should not be relocated unless it is absolutely necessary.

5. Before beginning installation.

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

CAUTION: Multiple Gun Motor Carriage M15 has a 12-volt electrical system. Before installing Radio Set SCR-510-(&), be sure that it is designed for a 12-volt installation, or tubes may burn out.

6. Immediately after installation.

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

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

SECTION II

RADIO SET SCR-510-(&)

7. Required Parts.

Items necessary for the installation of Radio Set SCR-510-(&) in Multiple Gun Motor Carriage M15, are listed below:

Quantity	Stock No.	Item
1 ^a	6Z338-150.....	Alignment Tool TL-150.
1 ^b	2A245(&).....	Antenna AN-45-(&).
1 ^b	3A39.....	Battery BA-39 (for Case CS-79-(&)).
1 ^b	3A40.....	Battery BA-40 (for Case CS-79-(&)).
1.....	3A41.....	Battery BA-41 (for Radio Receiver and Transmitter BC-620-(&), internal).
1.....	2Z7090.11.....	Bracket.
1.....	2Z1250.30.....	Bracket.
2.....	2Z1250.28.....	Bracket.
1 ^b	3B879(&).....	Case CS-79-(&) (for battery power supply).
1.....	6Z3147.....	Connector No. 61007 and Bondnut BL-50 (Appleton).
1 ^a	3E1636.....	Cord CD-636 (coaxial lead-in).
1.....	3Z1605-6.5.....	Cord CD-605 (for Headset HS-30-(&)).
1.....	2Z3400-153.....	Cover BG-153 (for radio set).
1.....	2Z3400-108.....	Cover BG-108 (for mast base).
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).
80.....	2Z3543.1.....	Crystal Holder FT-243, with crystal (2 installed in Radio Receiver and Transmitter BC-620-(&)).
1 ^b	2B613(&).....	Handset TS-13-(&).
1.....	6L50-510V66.....	Hardware bag containing: 10 clamp #4. 3 clamp #5. 1 clamp #8. 8 lockwasher, #8 standard. 10 lockwasher, 1/4" standard. 8 nut, hex hd, #8-32. 10 nut, hex hd, 1/4"-20. 8 screw, mach, rd hd, #8-32 x 1/8". 5 screw, mach, hex hd, 1/4"-20 x 1". 5 screw, mach, hex hd, 1/4"-20 x 3/4". 2 screw, wood, rd hd, #8 x 1/2".

Quantity	Stock No.	Item
1.....	2B830(&).....	Headset HS-30(&).
3.....	3G586.....	Insulator IN-86 (for auxiliary antenna and for tying down mast sections).
1 ^d	2A2088-48.....	Mast Base MP-48.
1.....	2A2090-50.....	Mast Base Bracket MP-50.
1.....	2A2351.....	Mast Section MS-51.
1.....	2A2352.....	Mast Section MS-52.
1.....	2A2353.....	Mast Section MS-53.
1.....	2B1617.....	Microphone T-17-(&).
1.....	2Z6721-250(&).....	Mounting FT-250-(&).
1 ^a	3H4496-120(&).....	Power Unit PE-120-(&) (includes installed tubes).
1.....	2C5360(&).....	Radio Receiver and Transmitter BC-620-(&) (includes 2 crystals installed and set of tubes).
1.....	2Z8056A.....	Roll BG-56-A (for mast sections).
25 feet..	6Z7926.....	Rope RP-5.
1 ^a	5C2806.....	Terminal Box TM-206.
1 set.....	Tubes, vacuum, for power unit.
1 set.....	Tubes, vacuum, for Radio Receiver and Transmitter BC-620-(&).
1 ^a	3H6713.....	Vibrator VB-13 (12 volts, installed in Power Unit PE-120-(&)).
27 ^b feet..	1B29.....	Wire W-29 (plus or minus one inch) for auxiliary antenna.
10 ^a feet..	1B128.....	Wire W-128.

^a Alignment Tool TL-207 (stock No. 6Z349) may be substituted.
^b Required only when SCR-510-(&) is used as a portable or field set.
^c 9 feet, 4 inches of Cordage CO-282 (stock No. 3E2282), and two Couplings Lapp No. 26243 (stock No. 2A2088-48/c4) may be substituted for Cord CD-636. Figure 5 shows assembly details. When coaxial Cord CD-636 and Terminal Box TM-206 are not available Wire W-128 may be substituted. This wire should be as short as possible. Refer to figure 4.
^d Mast Base MP-48-A may be substituted for Mast Base MB-48.
^e Plate Supply Unit PE-97-(&) may be substituted for Power Unit PE-120-(&) and Vibrator VB-13.

8. Assembly and Installation.

a. PROCEDURE. Components of Radio Set SCR-510-(&) should be installed in the following order:

<i>Part and location</i>	<i>Method and materials</i>
Mast Base Bracket MP-50, on antenna bracket on right side panel of vehicle.	Modify Mast Base Bracket MP-50 as shown in figure 1, view A-A. Fasten bracket, as shown in figure 1, with the three armor bolts already in the vehicle.

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Mast Base MP-48 or MP-48-A, on Mast Base Bracket MP-50.	Locate as shown in figure 1. Assemble as shown in figure 2. This installation requires assembly 7 for coaxial connection. Refer to figure 3 when installing Mast Base MP-48-A.		located on the chassis near front panel; and insert Battery BA-41 into the box, being careful to engage plug into socket of battery. While the chassis is out of its case, see that all tubes are in their proper sockets and pushed down firmly. Be sure the two crystals for the desired operating frequencies are in their sockets and secured in position by the retaining clip. <i>Do not interchange these crystals.</i> Place the two toggle switches near the left edge of the chassis in the ON position, then slide chassis back into the case and replace the screws. Place Radio Receiver and Transmitter BC-620-($\&$) on Power Unit PE-120-($\&$), with the controls facing the right side of the vehicle and secure with the hook fasteners supplied.
Coaxial Cord CD-636 and Terminal Box TM-206.	Consult the instruction sheets which are supplied with Terminal Box TM-206 for instructions and diagrams covering the installation of coaxial Cord CD-636 and Terminal Box TM-206. Use clamps Nos. 4, 5, and 8 to secure Cord CD-636 as shown in figure 1.		Screw mast sections together, secure with clamps, and screw into mast base, fastening with item 18, figure 3.
Bracket (item 25, fig. 1) and reinforcing plate (item 26, fig. 1), on tool chest in driver's compartment.	Use bracket as template and drill three $\frac{5}{16}$ -inch diameter holes $1\frac{3}{16}$ inches from hinge in top of tool chest. Mount bracket outside and reinforcing plate inside top of tool chest as shown in figure 1, and secure with hardware supplied.	Mast Sections MS-51, MS-52, MS-53, and Clamps MC-423 and MC-424.	
Brackets, L-shaped (item 24, fig. 1), on bracket (item 25, fig. 1).	Install L-shaped brackets on bulkhead with existing screws. Secure to brackets (item 25) with two $\frac{1}{4}$ -inch, 20-by 1-inch screws and washers as shown in figure 1.	Cover BG-108-----	Place over mast base when mast sections are not in use.
Mounting FT-250-($\&$), on item 24, fig. 1.	Relocate rifle racks as shown in detail in figure 1 to provide sufficient space for Mounting FT-250-($\&$). Secure mounting to brackets with hardware provided.	Connector No. 61007 and Bondnut BL-50.	Install through knock-out hole in the vehicle terminal box (item 32, fig. 1) to bush and secure power cord of Power Unit PE-120-($\&$).
Power Unit PE-120-($\&$) and Vibrator VB-13, on Mounting FT-250-($\&$).	Open case of Power Unit PE-120-($\&$) and remove chassis cover. Install Vibrator VB-13 in its socket. Make certain that the connector link is in the "BC-620" position; set the change-over plug for 12 volts (arrow pointing to 12); press tubes down firmly into their proper sockets. Replace cover on chassis and close case of power unit. Place unit on Mounting FT-250-($\&$) and secure with attached clips.		
Radio Receiver and Transmitter BC-620-($\&$) and Battery BA-41, on Power Unit PE-120-($\&$).	If Battery BA-41 is not already installed, remove the 10 screws on the outer edge of the front panel of Radio Receiver and Transmitter BC-620-($\&$) and pull the chassis out of its case. Remove cover of battery box,		

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-510-($\&$) as shown in figure 1. Connect and secure the cording and wiring so as not to interfere with the accessibility and operation of the equipment. Enough slack must be left to permit free movement of all units having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

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

APPENDIX

IGNITION NOISE SUPPRESSION IN MULTIPLE GUN MOTOR CARRIAGE M15

1. General.

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Multiple Gun Motor Carriage M15. The Technical Manual issued with the vehicle will be helpful in locating the source of the noise since it describes the suppression systems used. Instructions for operating radio equipment used in the vehicle should also be studied.

2. Procedure.

Locate and suppress ignition noises as follows:

a. Start the motor of the vehicle and turn on Radio Set SCR-510-(&). Set the receiver sensitivity control at *maximum*. Then, listening to the receiver output with a headset, tune the receiver slowly over the entire range of frequencies to be used for communication.

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

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

<i>Interference</i>	<i>Usual source</i>
Popping sounds, corresponding to ignition firing; stop when engine is turned off and accelerate when engine is raced.	Ignition system.
Intermittent, clicking sound; lingers for several seconds when ignition is turned off.	Generator regulator.
Whining sound; varies with speed of engine; ceases only when generator stops rotating.	Generator.

Interference

Sparking, or continuous crackling noise.

Usual source

Brushes and commutator of generator.

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

e. If the source of interference still cannot be found by any of the preceding methods, connect a probe antenna (fig. 6) to the antenna terminal of the radio set. Move the loop of the probe antenna slowly over the various parts of the vehicle's electrical system. Keep the loop close to, but not in contact with the part being examined. Noise from interference-producing parts should be heard in the receiver.

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

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

D

C

C

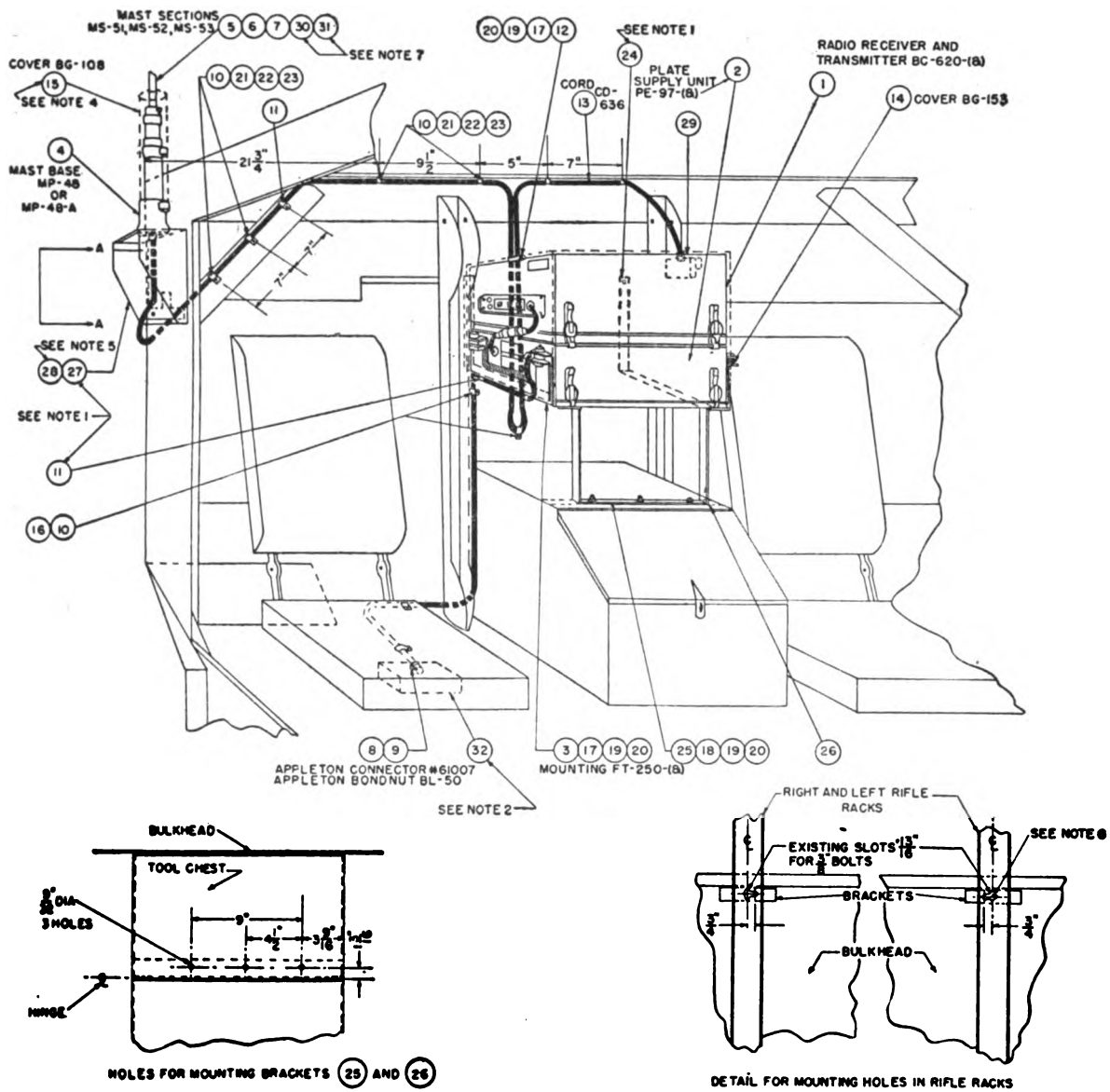
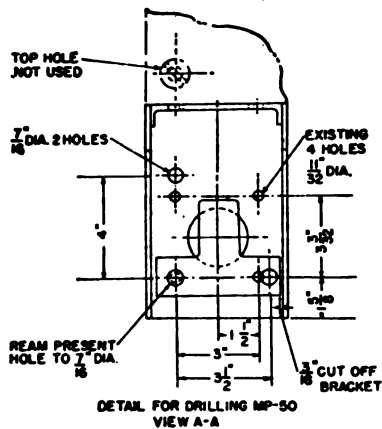


Figure 1. Installation of Radio Set SCR-510-(*) in Multiple Gun Motor Carriage M15.



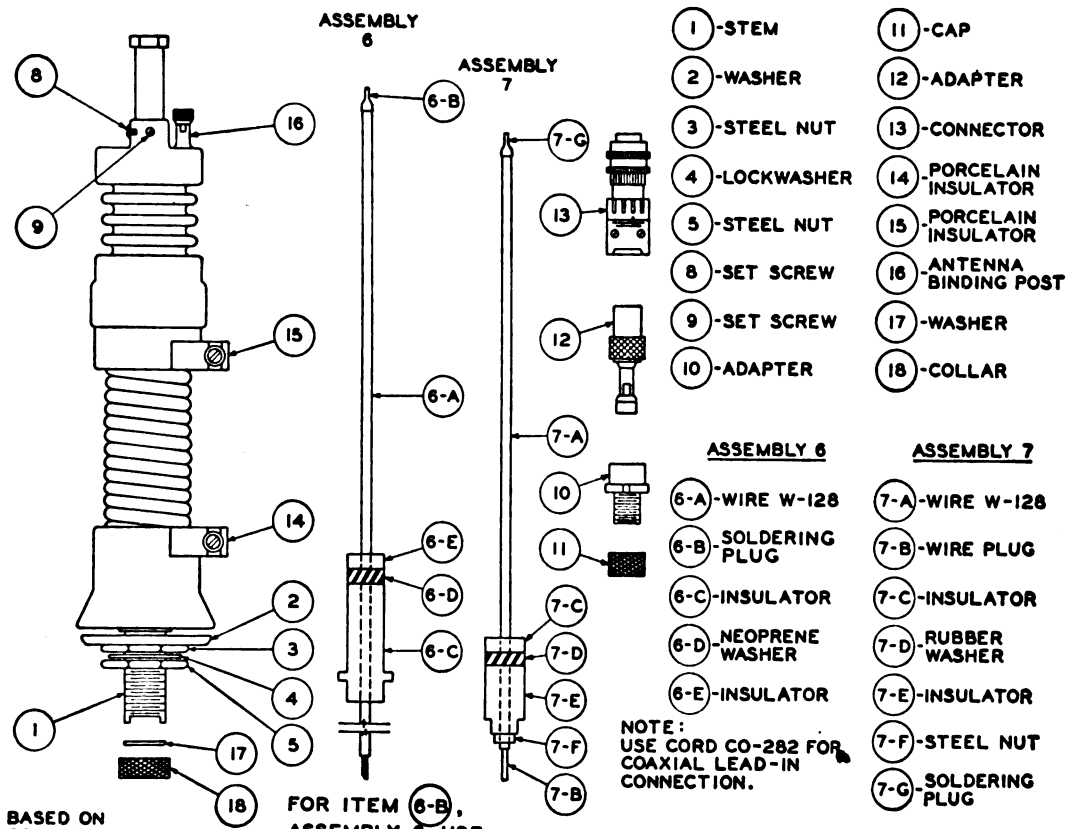
NOTE:

1. (11), (24) AND (27) SHALL BE MOUNTED WITH EXISTING BOLTS.
2. (52) SHALL BE FURNISHED AND INSTALLED BY VEHICLE MANUFACTURER.
3. ONE HEADSET MS-30-(B), WITH CORD CD-605, AND ONE MICROPHONE T-17-(B) SHALL BE FURNISHED WITH RADIO SET SCR-510-(B).
4. (15) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
5. (26) SHALL BE USED IN MOUNTING (27) TOP HOLE.
6. HOLES IN RIFLE RACK SHALL BE MARKED INDIVIDUALLY TO ALIGN WITH EXISTING HOLES IN BULKHEAD.
7. (30) AND (31) SHALL BE USED TO THE DOWN ANTENNA.

ITEM NO.	NAME OF ITEM	QUAN.	REMARKS
1	RADIO RECEIVER AND RADIO TRANSMITTER BC-620-(B)	1	
2	PLATE SUPPLY UNIT PE-97-(B)	1	* POWER UNIT PE-120-(B) MAY BE SUBSTITUTED.
3	MOUNTING FT-250-(B)	1	
4	MAST BASE MP-48 OR MP-48-A	1	
5	MAST SECTION MS-51 WITH CLAMP MC-423	1	
6	MAST SECTION MS-52 WITH CLAMP MC-424	1	
7	MAST SECTION MS-53	1	
8	APPLETON CONNECTOR CAT. # 6007	1	
9	APPLETON BOND NUT CAT. # BL-50	1	
10	CLAMP NO. 4	10	
11	CLAMP NO. 5	3	
12	CLAMP NO. 8	1	
13	CORD CD-636	1	
14	COVER 86-153	1	
15	COVER 86-108	1	
16	RD. HD. WOOD SCREW #8 X 1 1/2" LONG	2	
17	HEX. HD. MACH. SCREW 1/4" - 20 X 3/4" LONG	5	
18	HEX. HD. MACH. SCREW 1/4" - 20 X 1" LONG	5	
19	HEX. NUT 1/4" - 20 STD.	10	
20	LOCKWASHER STD. FOR 1/4" SCREW	10	
21	RD. HD. MACH. SCREW #8 - 32 X 3/8" LONG	8	
22	HEX. NUT #8 - 32 STD.	8	
23	LOCKWASHER STD. FOR #8 SCREW	8	
24	BRACKET	2	
25	BRACKET	1	
26	BRACKET (REINFORCING PLATE)	1	
27	BRACKET MP-50	1	
28	FLAT WASHER 5/8" STD	1	
29	TERMINAL BOX TM-206	1	
30	ROPE RP-5 25' LONG	1	
31	INSULATOR IN-86	1	
32	TERMINAL BOX C00427	1	

TL-11268
BASED ON
SC-D-8691-B

Figure 1. Installation of Radio Set SCR-510-(B) in Multiple Gun Carriage M15—Continued.



- (1) -STEM
- (2) -WASHER
- (3) -STEEL NUT
- (4) -LOCKWASHER
- (5) -STEEL NUT
- (8) -SET SCREW
- (9) -SET SCREW
- (10) -ADAPTER
- (11) -CAP
- (12) -ADAPTER
- (13) -CONNECTOR
- (14) -PORCELAIN INSULATOR
- (15) -PORCELAIN INSULATOR
- (16) -ANTENNA BINDING POST
- (17) -WASHER
- (18) -COLLAR

ASSEMBLY 6

- (6-A) -WIRE W-128
- (6-B) -SOLDERING PLUG
- (6-C) -INSULATOR
- (6-D) -NEOPRENE WASHER
- (6-E) -INSULATOR

ASSEMBLY 7

- (7-A) -WIRE W-128
- (7-B) -WIRE PLUG
- (7-C) -INSULATOR
- (7-D) -RUBBER WASHER
- (7-E) -INSULATOR
- (7-F) -STEEL NUT
- (7-G) -SOLDERING PLUG

NOTE:
USE CORD CO-282 FOR
COAXIAL LEAD-IN
CONNECTION.

BASED ON
SC-A-6743-D

FOR ITEM (6-B),
ASSEMBLY 6, USE
ITEM (7-G) FROM
ASSEMBLY 7.

TL-12141

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

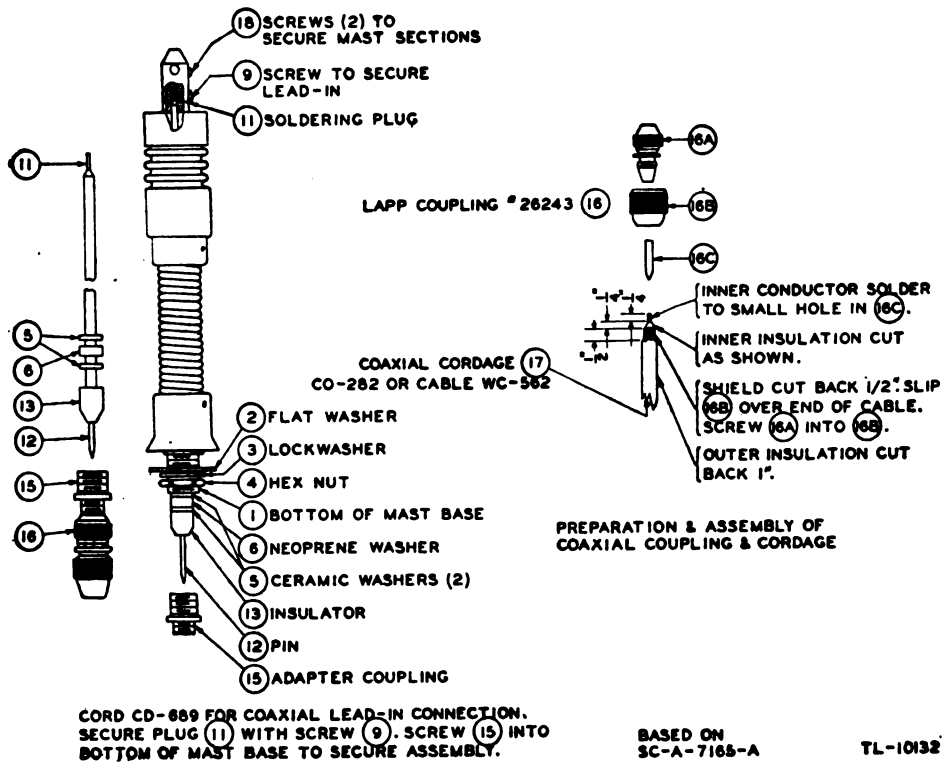
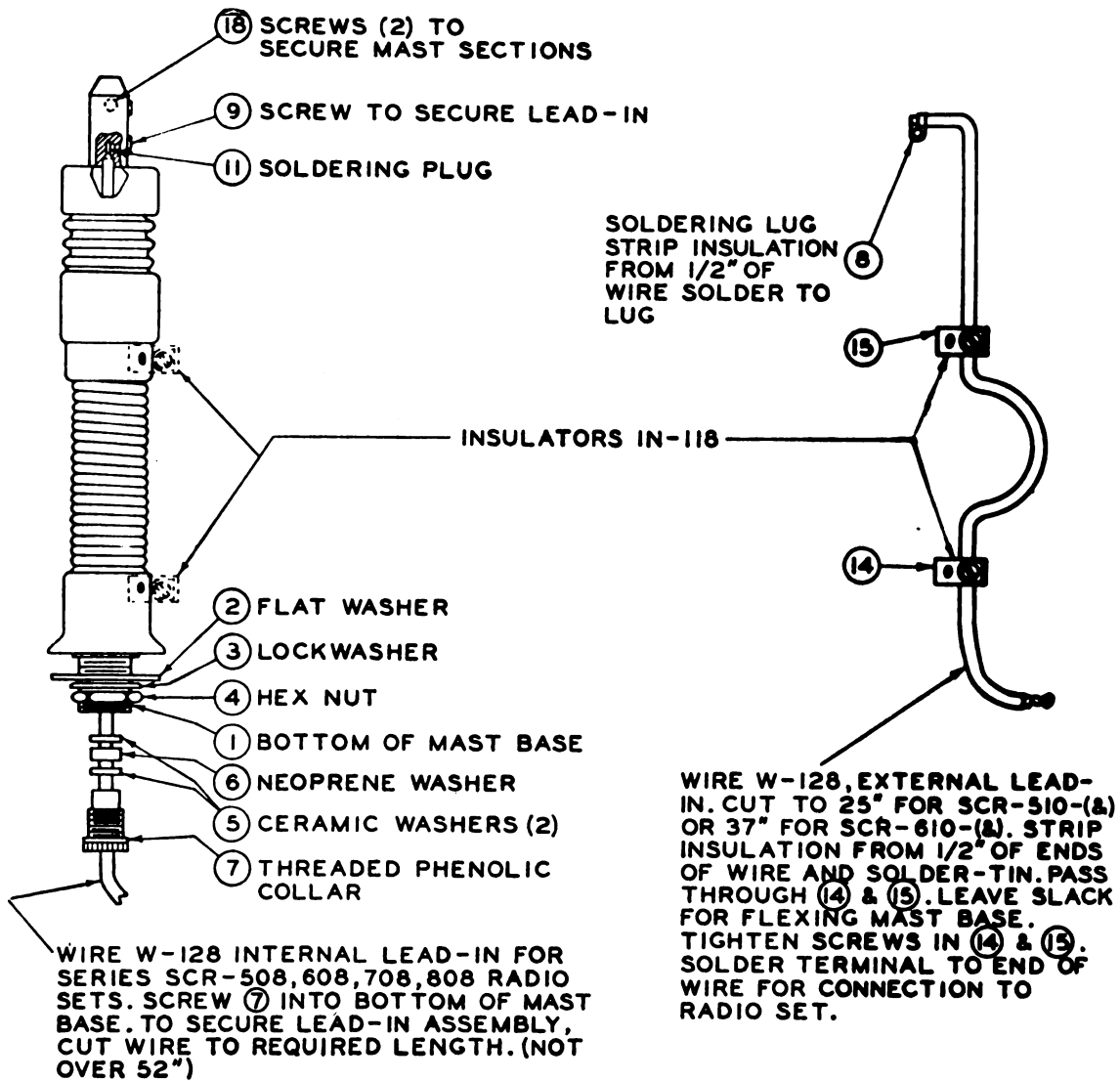


Figure 3. Mast Base MP-48-A, assembly with coaxial lead-in.

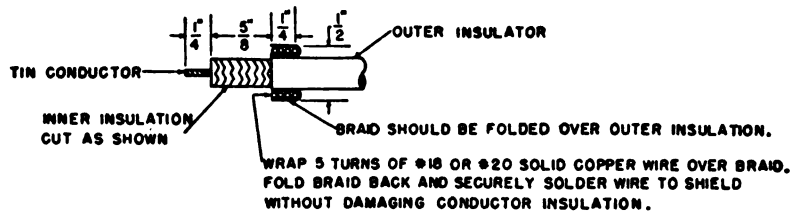


BASED ON
 SC-A-7166-A

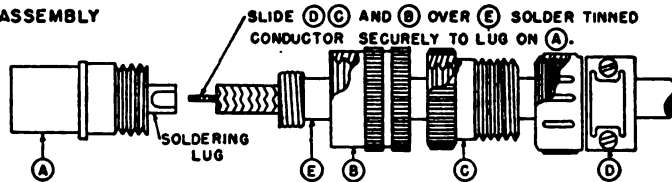
TL-10134

Figure 4. Mast Base MP-48-A, assembly with Wire W-128 lead-in.

PREPARATION OF CORDAGE

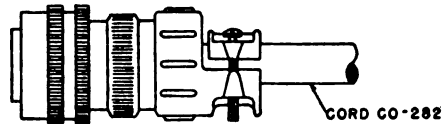


PRE-ASSEMBLY



SLIDE (D), (C) AND (B) OVER CORDAGE (E), THEN SOLDER CONDUCTOR TO LUG ON (A).

ASSEMBLY

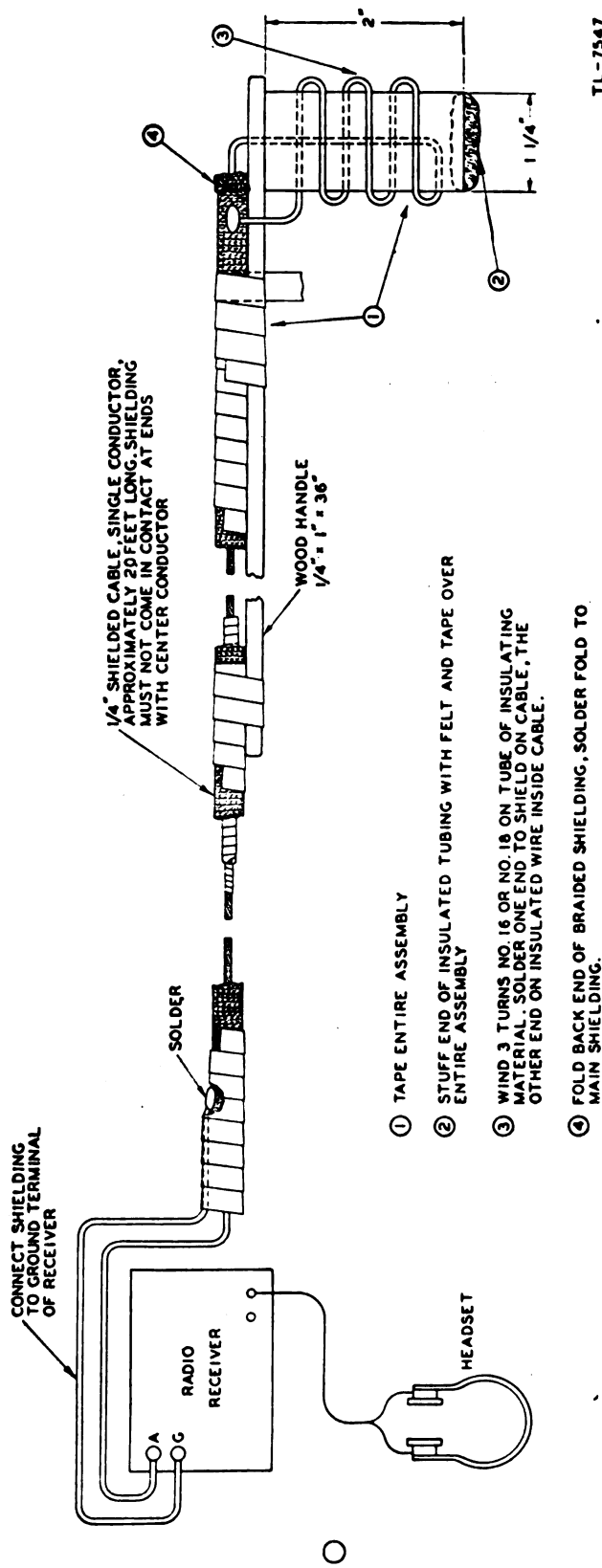


HOLD (A) FIRMLY. SCREW (C) TO (A) THEN (D) TO (C) FINALLY FASTEN CLAMP (D) OVER PREPARED BRAID. (DO NOT CRUSH BRAID WHEN FASTENING CLAMP (D)).

BASED ON
SC-A-7078-A

TL-10133

Figure 5. Coaxial connector for Mast Base MP-48 and Cordage CO-282, assembly for installation.



TL-7547

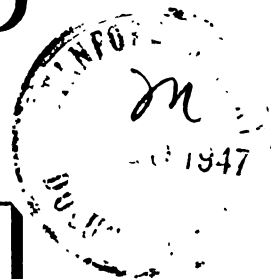
Figure 6. Probe antenna.

1:35711 2709

TM 11-2709

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF RADIO EQUIPMENT IN TRUCK 2½-TON, 6 X 6, CARGO



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

WAR DEPARTMENT

26 JUNE 1944

10

11

12

INSTALLATION OF RADIO
EQUIPMENT IN TRUCK
2½-TON, 6X6, CARGO



WAR DEPARTMENT

26 JUNE 1944

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WASHINGTON 25, D. C., 26 June 1944.

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[A. G. 300.7 (20 May 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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IBn 2: T/O & E 2-25, Cav Rcn Sq, Mecz.

IBn 5: T/O & E 5-215, Armd Engr Bn.

IBn 6: T/O & E 6-55, FA Bn, Mtz, 155-mm Gun, Trk-d; 6-95, FA Bn, Mtz, 240-mm How; 6-325, FA Bn, Mtz, 105-mm How, Trac-d; 6-335, FA Bn, Mtz, 155-mm How, Trac-d; 6-355, FA Bn, Mtz, 155-mm Gun, Trac-d; 6-395, FA Bn, Mtz, 240-mm How or 8-in Gun, Trac-d; 6-225, Glider FA Bn, 75-mm Pack How; 6-165, Armd FA Bn.

IBn 7: T/O & E 7-25, Armd Inf Bn.

IBn 9: T/O & E 9-65, Ord Maint Bn, Armd Div.

IBn 11: T/O & E 11-15, Sig Bn.

IBn 17: T/O & E 17-15, L Tk Bn; 17-25, Tk Bn; 17-45S, M Tk Bn, Sp; 17-115, Amph Tk Bn.

IBn 18: T/O 18-25, TD Bn.

IC 2: T/O & E 2-22, Hq & Hq Tr, Cav Gp, Mecz; 2-27, Cav Rcn Tr, Mecz.

IC 3: T/O & E 3-267, Cml Smoke Genr Co.

IC 5: T/O & E 5-217, Co, Armd Engr Bn; 5-627, Engr Treadway Bridge Co.

IC 6: T/O & E 6-50-1, Hq & Hq Btry, Mtz, CA; 6-57, FA Btry, Mtz, 155-mm Gun Trk-d; 6-59, Sv Btry, Mtz, 155-mm; 6-78S, FA Sound Ranging Plat; 6-97, FA Btry, Mtz, 240-mm How; 6-127, FA Btry, Mtz, 155-mm Gun, Self-P; 6-129, Sv Btry, Mtz, FA Bn, 155-mm Gun, Self-p; 6-327, FA Btry, Mtz, 105-mm How, Trk-d; 6-329, Sv Btry, Mtz, FA Bn, 105-mm How, Trk-d; 6-337, FA Btry, Mtz, 155-mm How or 4.5 in Gun, Trk-d; 6-339, Sv Btry, Mtz, 155-mm How or 4.5 in Gun, Trk-d; 6-357, FA Btry, Mtz, 155-mm Gun Trac-d; 6-367, FA Btry, 8-in How, Mtz, Trac-d; 6-397, FA Btry, Mtz, 240-mm How, Trac-d; 6-200-1, Hq & Hq Btry, AB Div, Arty; 6-216, Hq & Hq & Sv Btry, Prcht FA Btry, 75-mm Pack How; 6-359, Sv Btry, Mtz, FA Bn, 155-mm Gun, 8-in Gun Trac-d; 6-167, Btry, Armd FA Bn; 6-10-1, Hq & Hq Btry, Mtz, Div Arty, Inf Div; 6-12, Hq & Hq Btry, Mtz, FA Gp; 6-26, Hq & Hq Btry, Mtz, FA Bn, 105-mm How, Trk-d or Trac-d; 6-27, FA Btry, Mtz, 105-mm Trk-d; 6-29, Sv Btry, Mtz, FA Bn, 105-mm How, Trk-d; 6-39, Sv Btry, Mtz, FA Bn, 155-mm How, Trk-d.

IC 7: T/O & E 7-25, Hq & Hq Co, Armd Inf Regt; 7-27, Rifle Co, Armd Inf Div; 7-29, Sv Co, Armd Inf Bn.

IC 8: T/O & E 8-76, Hq & Hq Co, Med Bn, Armd.

IC 9: T/O & E 9-67, Maint Co, Ord Maint Bn, Armd Div.

IC 11: T/O & E 11-7, Sig Co, Inf Div; 11-107, Sig Co, Dep; 11-127, Sig Co, Rep; 11-237, Sig Co, Sv Gp; 11-327, Sig Port Sv Co; 11-287, Sig Co, Dep, Avn; 11-587, Sig Base Maint Co; 11-592, Hq & Hq Co, Sig Base Dep; 11-597, Sig Base Dep Co.

IC 17: T/O & E 17-2, Hq Co, Armd Div; 17-17, L Tk Co; 17-19, Sv Co, L Tk Bn; 17-20-1, Hq & Hq Co, Comb Comd, Armd Div; 17-22, Hq & Hq Co, Armd Gp; 17-27, M Tk Co, Tk Bn; 17-29, Sv Co, Tk Bn; 17-47S, Co, M Tk Bn, Sp; 17-49S, Sv Co, M Tk Bn, Sp; 17-60-1, Hq & Hq Co, Armd Div, Trains.

IC 18: T/O & E 18-27, TD Co; 18-36, Hq & Hq Co, TD Bn, Towed; 18-37, TD Co, Towed.

IC 19: T/O 19-57, M P Co.

For explanations 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
Symbol (&)	3	1
Holes and brackets	4	1
Before beginning installation	5	1
Immediately after installation	6	1
II. RADIO SET SCR-510-(&)		
Required parts	7	2
Assembly and installation	8	2
III. RADIO SET SCR-610-(&)		
Required parts	9	5
Assembly and installation	10	5
APPENDIX. IGNITION NOISE SUPPRESSION IN TRUCK, 2½-TON, 6 X 6, CARGO		21

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

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

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

DESTROY EVERYTHING

SAFETY NOTICE

This equipment uses high voltages which are dangerous to life. Observe all safety precautions. Make no adjustments inside the equipment with the power switch on. Do not operate the equipment with the shields removed. Do not connect power to any unit of these radio sets until operating instructions have been read completely.

SECTION I

GUIDE TO USE OF THIS MANUAL

1. Purpose

This manual provides methods and procedures based upon actual field experience, for installation of radio equipment in truck, 2½-ton, 6 x 6, cargo. Items required to make a complete operating installation are listed for each radio set.

2. Equipment

Installations covered include Radio Sets SCR-510-($\&$) SCR-610-($\&$).

3. Symbol ($\&$)

The symbol ($\&$), used throughout this manual, refers to all existing 6-volt models of radio sets mentioned, and to all models of other items of equipment with which it appears.

4. Holes and Brackets

Holes and brackets required for installation of the radio sets normally are located prior to delivery of truck, 2½-ton, 6 x 6, cargo. Drilling instructions are given in pertinent sections of this manual for any other necessary holes and brackets. Holes and brackets in the vehicle

or on any radio part should not be relocated unless it is absolutely necessary.

5. Before Beginning Installation

Study the illustrations and installation procedures outlined herein, and any subsequent changes to this manual, before starting an installation.

Caution: Truck, 2½-ton, 6 x 6, cargo has a 6-volt electrical system. Before installing any radio set covered in this manual, be sure that it is designed for a 6-volt installation, or damage to the equipment may result.

6. Immediately after Installation

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

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

SECTION II

RADIO SET SCR-510-(&)

7. Required Parts

Items necessary for installation of Radio Set SCR-510-(&) in truck, 2½-ton, 6 x 6, cargo, are listed below:

Quantity	Stock No.	Item
1 ¹	6Q338-150	Alignment Tool TL-150.
1 ²	2A245 (&)	Antenna AN-45-(&).
1 ³	3A39	Battery BA-39, for transmitter.
1 ³	3A40	Battery BA-40, for receiver.
1 ³	3A41	Battery BA-41, for use in Radio Receiver and Transmitter BC-620-(&).
54 ⁴ in.		Braid, bonding (Lenz).
1	2Z1246-7	Bracket (item 10, fig. 1).
1 ⁵	3B879 (&)	Case CS-79-(&), for battery power supply.
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	2Z3400-153	Cover BG-153, for Radio Receiver and Transmitter BC-620-(&).
1	6Z3147	Connector No. 61007 and Bondnut BL-50 (Appleton).
1	3E1509	Cord CD-509, for power connections.
1 ⁶	3E1605-6.5	Cord CD-605, for Headset HS-30-(&).
1 ⁶	3E1636	Cord CD-636, coaxial antenna lead-in.
1	2Z3400-108	Cover BG-108, for Mast Base MP 48.
1 ⁷	2B613(&)	Handset TS-13-(&).
1	6L50-510V35	Hardware bag.
1 ⁸	2B830(&)	Headset HS-30-(&).
2 ⁹	3G586	Insulator IN-86, for auxiliary antenna.
1	3G611	Insulator IN-111.
1 ⁷	2A2088-48(&)	Mast Base MP-48.
1	2A2090-50	Mast Bracket MP-50.
1	2A2351	Mast Section MS-51.
1	2A2352	Mast Section MS-52.
1	2A2353	Mast Section MS-53.
1	2B1617(&)	Microphone T-17-(&).
1	2Z6721-250-(&).	Mounting FT-250-(&).
1	3H3947(&)	Mounting FT-317-(&).
1	2Z6721-429	Reinforcing Plate FT-429, for Mast Bracket MP-50.
1 ⁸	3H4496-120 (&).	Power Unit PE-120-(&), including spare parts.
1 ⁹	2C5360(&)	Radio Receiver and Transmitter BC-620-(&), with set of tubes, spare parts, and necessary crystals.
1	2Z8056(&)	Roll BG-56-(&), for mast sections.
1	2Z9299-206	Terminal Box TM-206, antenna terminal.
1 ⁸	3H6712	Vibrator VB-12 (6-volt).
1 ¹⁰		Wood spacer (item 1, fig. 3).

Quantity	Stock No.	Item
27 ft. ² 11	1B29	Wire W-29 for auxiliary antenna.
10 ft. ² 12	1B128	Wire W-128.

¹ Alignment Tool TL-207 (stock No. 6Q339) may be substituted for Alignment Tool TL-150.

² Required only when Radio Set SCR-510-(&) is used as a portable or field set.

³ To be requisitioned from the nearest Signal Corps Depot or Signal Section of an Army Service Forces Depot.

⁴ Required for bonding and snubbing Radio Receiver and Transmitter BC-620-(&), and for grounding Mast Bracket MP-50.

⁵ Headset P-23 may be substituted for Headset HS-30-(&) and Cord CD-605.

⁶ Nine feet, four inches of Cordage CO-282 (stock No. 3E2282) and two Lapp couplings (stock No. 2A2088-48/C4) may be substituted for Cord CD-636. Refer to figure 5 for preparation.

⁷ Mast Base MP-48-A may be substituted for Mast Base MP-48.

⁸ Plate Supply Unit PE-97-(&) may be substituted for Power Unit PE-120-(&) and Vibrator VB-12.

⁹ Quantity and frequency of crystals issued will be as authorized for the particular using organization.

¹⁰ Constructed in the field with dimensions according to item 1, figure 3.

¹¹ Length of Wire W-29 for auxiliary antenna must be 27 feet plus or minus 1 inch.

¹² Supplied as an auxiliary lead-in. Refer to figure 6 when installing.

8. Assembly and Installation

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

<i>Part and location</i>	<i>Method and materials</i>
Mast Bracket MP-50, Reinforcing Plate FT-429, and Insulator IN-111, on right side of vehicle behind the seat.	Drill, locate, and mount as shown in figure 1.
Mast Base MP-48, or Mast Base MP-48-A, on Mast Bracket MP-50.	If Mast Base MP-48 is supplied, refer to figure 4. If the internal lead-in, assembly 7, is not already installed, proceed as follows: Loosen set screws, items 8 and 9, in the top of the mast base and insert assembly 7 upward through the mast base stem, item 1. Make certain that the soldering plug, item 7G, is inserted as far as possible into the slot in the top of the mast base and lock in

Part and location
Mast Base MP-48,
or Mast Base
MP-48-A, on
Mast Bracket
MP-50.—Con.

Method and materials
place with the set-
screws, items 8 and 9.
Remove items 2, 3, 4,
and 5 from the stem,
item 1. Then mount
the mast base by in-
serting the stem through
the hole in the mast
bracket (item 14, fig. 1)
and secure in place with
items 2, 3, 4, and 5.
Then insert the adapter,
item 10, into the stem,
item 1, and lock in
place with the collar,
item 18. One end of
coaxial Cord CD-636
may now be attached
to the adapter, item 10.
If Mast Base MP-48-A
is supplied, refer to fig-
ure 5. If the internal
lead-in, Cord CD-689,
is not already installed,
proceed as follows:
Loosen the screw, item
9, in the top of the mast
base, and insert Cord
CD-689 upward
through the mast base
stem, item 1. Make
certain that the solder-
ing plug, item 11, is in-
serted as far as possible
into the mast base and
fasten item 11 by tight-
ening the screw, item 9.
Remove items 2, 3, and
4 from the bottom of
the mast base. Insert
the mast base through
the hole in the mast
bracket (item 14, fig.
1) and lock in place
with items 2, 3, and 4.
Screw the adapter
coupling, item 15, firmly
into the mast base stem,
item 1. Then connect
one end of Cord CD-636
to the adapter coupling,
item 15.

Part and location
Mast Sections MS-
51, MS-52, and
MS-53, and
Clamps MC-423
and MC-424, on
Mast Base MP-
48.

Method and materials
Screw the mast sections
together and secure with
the clamps. (Clamp
MC-423 should be fas-
tened to the male end
of Mast Section MS-51,
MC-424 to the male
end of MS-52. Then
screw the antenna into
the mast base. Secure
with item 18, figure 5,
when using Mast Base
MP-48-A. When not
in use, carry mast sec-
tions and clamps in Roll
BG-56-(&).)

Terminal Box TM-
206(antenna), on
Radio Receiver
and Transmitter
BC-620-(&).

Mount the terminal box
(item 11, fig. 1), on the
antenna post guard of
the receiver and trans-
mitter as shown in figure
10. **Warning: Refer to
the instructions supplied
with the terminal box
for information cover-
ing changes in the
antenna loading coil,
necessitated by use of
the terminal box.**

Cord CD-636 (co-
axial), on Mast
Base MP-48 or
MP-48-A and
Terminal Box
TM-206.

Use the cord to connect the
mast base and terminal
box as shown in figure 1.
If Cord CD-636 is not
supplied, substitute 9
feet 4 inches of Cable
WC-562 (or Cordage
CO-282) and coupling,
Lapp No. 26243 (Stock
No. 2A2088-48/C4). Fig-
ure 5 shows details for
the preparation of the
cordage.

Mounting FT-317-
(&) and brackets
(item 10, fig. 1),
on fire wall of
truck cab.

Locate and install as
shown in figure 1. Re-
move map compartment.
Refer to figure 3 for
modification of Mount-
ing FT-317-(&) to con-
form with angle of the
floor board.

<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Wood spacer (item 1, fig. 3), on base of Mounting FT-317-(&).	The wood spacer is not furnished with the equipment. See figure 3 for details and construct from any available wood. Install as shown in figure 3.	Power Unit PE-120 - (&) and Vibrator VB-12, on Mounting FT-250-(&).	Open the case of the power unit and remove chassis cover. Install the vibrator in its socket. Set the connector link in the BC-620 position; set the change-over plug for 6-volts (arrow pointing to 6); and press the tubes down into their proper sockets. Replace cover on chassis and close the case of the power unit. Place the unit on Mounting FT-250-(&) and secure with the catch clips provided.
Battery BA-41, in Radio Receiver and Transmitter BC-620-(&).	If Battery BA-41 is not already installed, remove the 10 screws on the outer edge of the front panel of the receiver and transmitter case and pull out the chassis. Remove cover of battery box located on the chassis, and insert Battery BA-41 into the box, lining up the plugs. While the chassis is out of its case, place the two toggle switches near the left edge of the chassis to the ON position. Replace chassis in case.	Microphone T-17-(&).	Plug into designated jack on panel of Radio Receiver and Transmitter BC-620-(&).
Radio Receiver and Transmitter BC-620-(&), on Mounting FT-317-(&).	Place on the mounting and secure with the brackets provided. (Access to controls is gained through the map compartment door).	Headset HS-30-(&) and Cord CD-605.	Connect the headset to the cord and plug the cord into the proper jack on the panel of Radio Receiver and Transmitter BC-620-(&).
Bonding braid (Lenz).	Prepare the bonding braid for use with Mounting FT-317-(&) as shown in item 3, figure 3. Install as shown in figures 1 and 3. Use the balance of the bonding braid to ground Mast Base Bracket MP-50 as instructed in note 4, figure 1.	Roll BG-56-(&)-...-	For mast sections when not in use. Disposition left to the discretion of the using arms.
Mounting FT-250-(&), under the seat.	Locate and install as shown in figure 1.	Cover BG-108-.....	Place over mast base when mast sections are not installed.
Connector No. 61007 and Bond-nut BL-50, through metal floor under the seat.	Locate and install as shown in figure 1.		

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-510-(&) as shown in figure 1. Connect and secure so as not to interfere with the accessibility and operation of the equipment. Leave enough slack to permit free movement of all units having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.

(2) To prevent accidental shorts of the battery, do not connect the positive 6-volt and negative 6-volt leads in the terminal box until all other connections have been completed.

SECTION III

RADIO SET SCR-610-(&)

9. Required Parts

Items necessary for installation of Radio Set SCR-610-(&) in truck, 2½-ton, 6 x 6, cargo are listed below:

Quantity	Stock No.	Item
1 ¹ -----	6Q338-150-----	Alignment Tool TL-150.
1 ² -----	2A229C-----	Antenna AN-29-C.
54 in ³ -----		Braid, bonding (Lenz).
1 ⁴ -----	3A39-----	Battery BA-39, for transmitter.
1 ⁴ -----	3A40-----	Battery BA-40, for receiver.
1 ⁴ -----	3A41-----	Battery BA-41, for Radio Receiver and Transmitter BC-659-(&).
1-----	2Z1140 (&)-----	Box BX-40-(&), for crystals.
1-----		Bracket (item 10, fig. 2).
1 ³ -----	3B879 (&)-----	Case CS-79-(&), for battery power supply.
1-----	2Z3400-153-----	Cover BG-153, for Radio Receiver and Transmitter BC-659-(&).
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).
1-----	3E1509-----	Cord CD-509, for power connection.
1-----	3E1605-6.5-----	Cord CD-605, for Headset HS-30-(&).
9½ ft-----	3E2282-----	Cordage CO-282 (coaxial).
1-----	2A2088-48/C4-----	Coupling (Lapp), for Cordage CO-282 connections.
1-----	2Z3400-108-----	Cover BG-108, for Mast Base MP-48.
1 ² -----	2B613 (&)-----	Handset TS-13-(&).
1-----	6L50-610V35-----	Hardware bag.
1 ⁴ -----	2B830 (&)-----	Headset HS-30-(&).
2 ² -----	3G586-----	Insulator IN-86, for auxiliary antenna.
1-----	3G611-----	Insulator IN-111.
1 ⁴ -----	2A2088-48 (&)-----	Mast Base MP-48.
1-----	2A2090-50-----	Mast Bracket MP-50.
1-----	2A2351-----	Mast Section MS-51.
1-----	2A2352-----	Mast Section MS-52.
1-----	2A2353-----	Mast Section MS-53.
1-----	2B1617(&)-----	Microphone T-17-(&).
1-----	2Z6721-250 (&)-----	Mounting FT-250-(&).
1-----	3H3947(&)-----	Mounting FT-317-(&).
1-----	2Z6721-429-----	Reinforcing Plate FT-429, for Mast Bracket MP-50.
1 ¹ -----	3H4496-120 (&)-----	Power Unit PE-120-(&), with spare parts.

Quantity	Stock No.	Item
1 ⁴ -----	2C5379(&)-----	Radio Receiver and Transmitter BC-659-(&), with crystals, spare parts, and tubes.
1-----	2Z8053(&)-----	Roll BG-56-(&), for mast sections.
2-----	2Z9019(&)-----	Strap ST-19-(&).
1 ⁴ -----	2Z9299-210-----	Terminal Box TM-210, for antenna.
1 ⁴ -----	2Z9299-211-----	Terminal Box TM-211, for antenna.
1-----	3H6712-----	Vibrator VB-12.
27 ft ^{2 10} -----	1B29-----	Wire W-29, for auxiliary antenna.
10 ft-----	1B128-----	Wire W-128.
1 ¹¹ -----		Wood spacer (item 1, fig. 3).

¹ Alignment Tool TL-207 (stock No. 6Q330) may be substituted for Alignment Tool TL-150.

² Required only when Radio Set SCR-610-(&) is used as a portable or field set.

³ Required for bonding and snubbing Radio Receiver and Transmitter BC-620-(&), and for grounding Mast Bracket MP-50.

⁴ To be requisitioned from the nearest Signal Corps Depot or Signal Section of an Army Service Forces Depot.

⁵ Headset P-23 may be substituted for Headset HS-30-(&) and Cord CD-605.

⁶ Mast Base MP-48-A may be substituted for Mast Base MP-48.

⁷ Plate Supply Unit PE-117-(&) may be substituted for Power Unit PE-120-(&) and Vibrator VB-12.

⁸ Quantity and frequency of crystals issued will be as authorized for the particular using organization.

⁹ Terminal Boxes TM-210 and TM-211, required for this installation, may not be available at the time of installation. As a temporary measure use 6 to 9 feet of Wire W-128 and Mast Sections MS-52 and MS-53 only (refer to figure 6 when assembling with the mast base). When TM-210 and TM-211 become available, they may be requisitioned to replace the temporary lead-in. When coaxial lead-in is installed, Mast Sections MS-51, MS-52, and MS-53 will be used.

¹⁰ Length of Wire W-29 for auxiliary antenna must be 27 feet, plus or minus 1 inch.

¹¹ Constructed in field with dimensions according to item 1, figure 3.

10. Assembly and Installation

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

<i>Part and location</i>	<i>Method and materials</i>
Mast Bracket MP-50, Reinforcing Plate FT-429, and Insulator IN-111, on right side of vehicle behind seat.	Drill, locate, and mount as shown in figure 2.
Mast Base MP-48, If Mast Base MP-48 is or Mast Base MP-48-A, on Mast Bracket MP-50.	4. If the internal lead-in, assembly 7, is not

Part and location
Mast Base MP-48,
or Mast Base MP-
48-A, on Mast
Bracket MP-50—
Continued.

Method and materials
already installed, proceed as follows: Loosen set screws, items 8 and 9, in the top of the mast base and insert assembly 7 upward through the mast base stem, item 1. Make certain that the soldering plug, item 7G, is inserted as far as possible into the slot in the top of the mast base and lock in place with the set-screws, items 8 and 9. Remove items 2, 3, 4, and 5 from the stem, item 1. Then mount the mast base by inserting the stem through the hole in the mast base bracket (item 17, fig. 2) and secure in place with items 2, 3, 4, and 5. Then insert the adapter, item 10, into the stem, item 1, and lock in place with the collar, item 18. One end of coaxial Cord CD-636 may now be attached to the adapter, item 10. If Mast Base MP-48-A is supplied, refer to figure 5. If the internal lead-in, Cord CD-689, is not already installed, proceed as follows: Loosen the screw, item 9, in the top of the mast base, and insert Cord CD-689 upward through the mast base stem, item 1. Make certain that the soldering plug, item 11, is inserted as far as possible into the mast base and fasten item 11 by tightening the screw, item 9. Remove items

Part and location
Mast Base MP-48,
or Mast Base MP-
48-A, on Mast
Bracket MP-50—
Continued.

Method and materials
2, 3, and 4 from the bottom of the mast base. Insert the mast base through the hole in the mast bracket (item 17, fig. 2) and lock in place with items 2, 3, and 4. Screw the adapter coupling, item 15, firmly into the mast base stem, item 1. Then connect one end of Cord CD-636 to the adapter coupling, item 15.

Mast Sections MS-51, MS-52, and MS-53, and Clamps MC-423 and MC-424, on Mast Base MP-48.

Screw mast sections together and secure with the clamps. Screw antenna into the mast base. Secure with item 18, figure 7 when using Mast Base MP-48-A. Carry mast sections and clamps in Roll BG-56-(&) when not in use.

Terminal Boxes TM-210 and TM-211 and Cordage CO-282 with couplings.

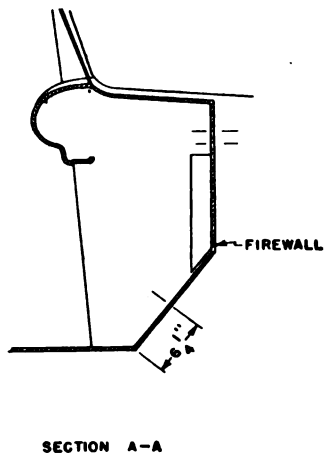
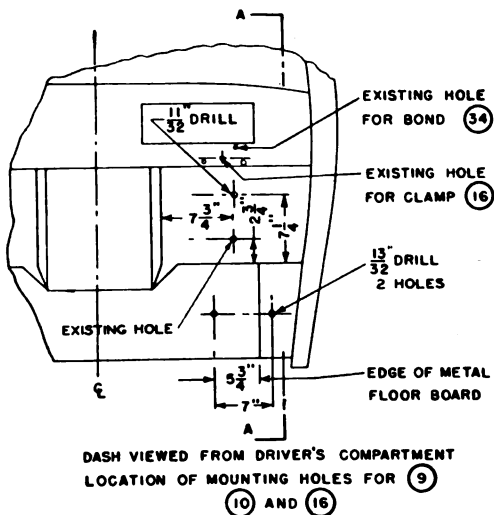
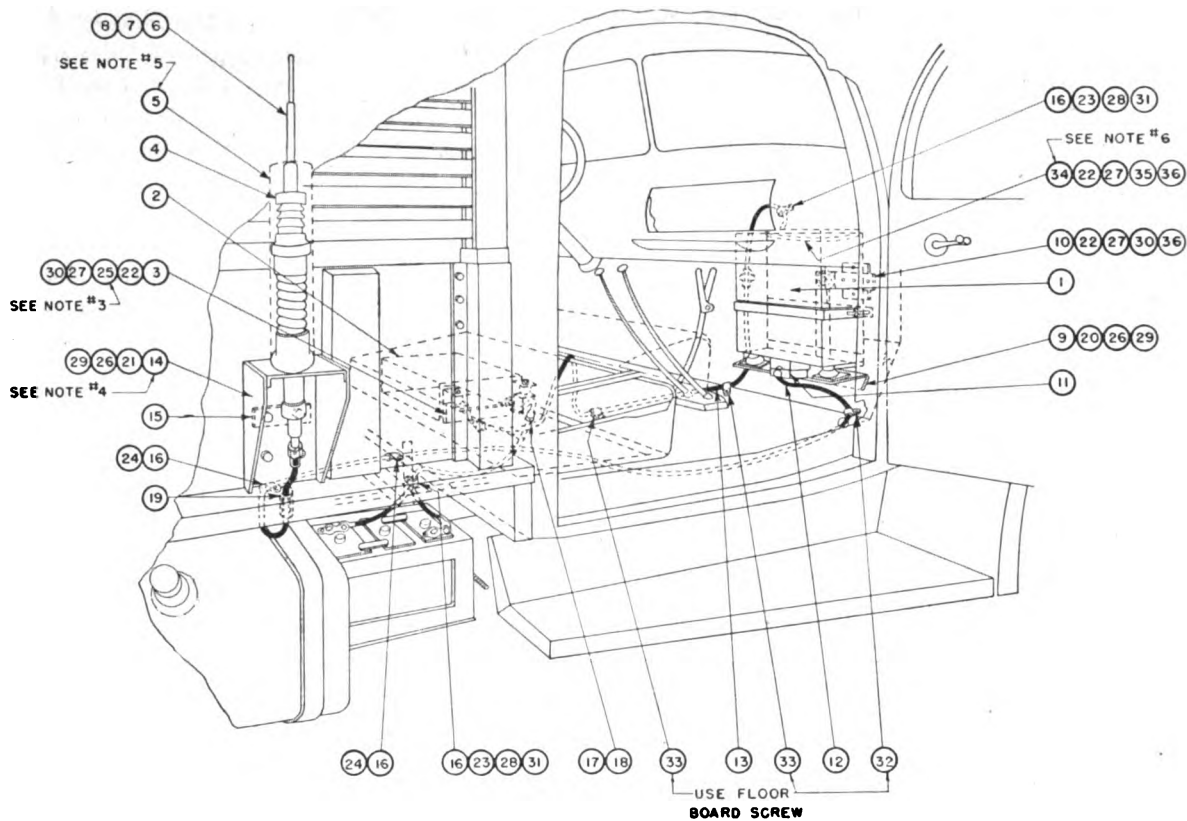
Mount Terminal Box TM-210 as shown in figure 8, securing it to the antenna post guard of Radio Receiver and Transmitter BC-659-(&). Mount Terminal Box TM-211 on Mast Base MP-48 or MP-48-A as shown in figure 7. Cut Cordage CO-282 to a length of 9 feet 4 inches. Prepare the cordage and install the connectors as shown in figure 9. Install the cordage as shown in figure 2.

Mounting FT-317-(&) and bracket (item 10, fig. 2) on fire wall of truck cab.

Locate and install as shown in figure 2. Remove the map compartment. Refer to figure 3 for modification of Mounting FT-317-(&) to conform with angle of the floor board.

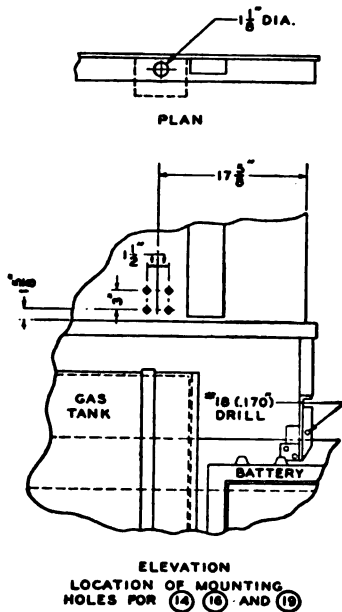
<i>Part and location</i>	<i>Method and materials</i>	<i>Part and location</i>	<i>Method and materials</i>
Wood spacer (item 1, fig. 3), on base of Mounting FT-317-(&).	The wood spacer is not furnished with the equipment. See figure 3 for details and construct from any available wood. Install as shown in figure 3.	Power Unit PE-120-(&) and Vibrator VB-12, on Mounting FT-250-(&).	Open case of Power Unit PE-120-(&) and remove chassis cover. Install Vibrator VB-12-(&) in its socket. See that the connector link is in the BC-659 position; set the change-over plug for 6 volts (arrow pointing to 6); and press the tubes down into their proper sockets. Replace cover on chassis and close case of power unit. Place power unit on Mounting FT-250-(&) and secure with catch clips provided.
Battery BA-41, in Radio Receiver and Transmitter BC-659-(&).	If Battery BA-41 is not already installed, remove the 10 screws on the outer edge of the front panel of receiver and transmitter case and pull out the chassis. Remove cover of battery box located on the chassis, and insert Battery BA-41 into the box, lining up the plugs. While the chassis is out of its case, place the two toggle switches near the left edge of the chassis to the ON position. Replace chassis in case.	Microphone T-17-(&).	Plug into designated jack on panel of Radio Receiver and transmitter BC-659-(&).
Radio Receiver and Transmitter BC-659-(&), on Mounting FT-317-(&).	Place on mounting and secure in place with the provided brackets. (Access to controls is gained through map compartment door).	Headset HS-30-(&) and Cord CD-605.	Connect the headset to the cord and plug the cord into the proper jack on the panel of Radio Receiver and Transmitter BC-659-(&).
Bonding braid (Lenz).	Prepare the bonding braid for use with Mounting FT-317-(&) as shown in item 3, figure 3. Install as shown in figures 1 and 3. Ground Mast Bracket MP-50 to the chassis of the vehicle with the balance of the bonding braid.	Clamps (for power cords).	Install as shown in figure 2.
Mounting FT-250-(&), under the seat.	Locate and install as shown in figure 2.	Cover BG-108.....	Place over the mast base when mast sections are not installed.
Connector No. 61007 and Bondnut BL-50, through metal floor, under the seat.	Locate and install as shown in figure 2.	Roll BG-56-(&)---	For mast sections when not in use. Disposition left to the discretion of the using arms.

b. CORDING AND WIRING. (1) Cord and wire Radio Set SCR-610-(&) as shown in figure 2. Connect and secure so as not to interfere with the accessibility and operation of the equipment. Leave enough slack to permit free movement of all units having shock mountings. Cording or cable likely to rub against sharp edges should be taped with at least two layers to prevent damage. Solder-tin all wire ends.



TL-11207-1
BASED ON
SC-D-8486-C

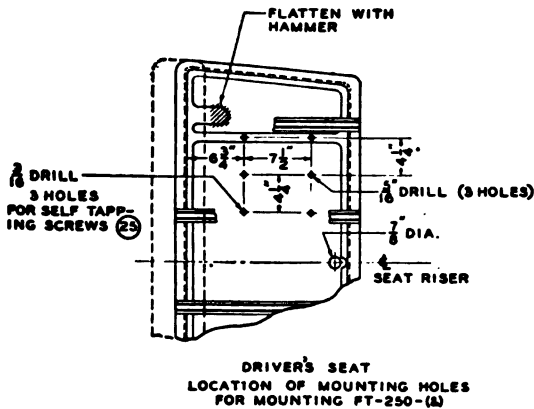
Figure 1. Installation of Radio Set SCR-510-(&) in truck, 2½-ton, 6 x 6, cargo.



ITEM NO.	NAME OF ITEM	QUAN. REQ.
1	RADIO RECEIVER AND TRANSMITTER BC-620-(A)	1
2	POWER SUPPLY UNIT PE-97-(A)	1
3	MOUNTING FT-250-(A)	1
4	MAST BASE MP-48-(A)	1
5	COVER BG-108	1
6	MAST SECTION MS-53	1
7	MAST SECTION MS-52 WITH CLAMP MC-424	1
8	MAST SECTION MS-51 WITH CLAMP MC-423	1
9	MOUNTING ASSEM. MODIFIED FT-317-(A) (FIG.3)	1
10	BRACKET	1
11	ANTENNA TERMINAL BOX TM-206	1
12	CORD CD-636	1
13	CORD CD-509	1
14	MAST BRACKET MP-50	1
15	REINFORCING PLATE FT-429	1
16	CLAMP #4	4
17	APPLETON CONNECTOR #81007	1
18	BONDNUT #BL-50	1
19	INSULATOR IN-1111	1
20	HEX. HD. MACH. SCREW 5/16"-24 X 1" LONG	2
21	HEX. HD. MACH. SCREW 5/16"-24 X 1 3/4" LONG	4
22	HEX. HD. MACH. SCREW 1/4"-20 X 1" LONG	6
23	ROUND HD. MACH. SCREW #8-32 X 3/4" LONG	2
24	ROUND HD. WOOD SCREW #8 X 3/4" LONG	2
25	SELF TAPPING SCREW 1/4" X 1/2" LONG	3
26	HEX. NUT 5/16"-24 STD.	6
27	HEX. NUT 1/4"-20 STD.	6
28	HEX NUT #8-32 STD.	2
29	LOCKWASHER S.A.E. REG. FOR 5/16" SCR.	6
30	LOCKWASHER S.A.E. REG FOR 1/4" SCR.	6
31	LOCKWASHER S.A.E. REG FOR #8 SCR.	2
32	CLAMP #2	1
33	CLAMP #5	2
34	BONDING BRAID (ITEM 3, FIG. 3)	1
35	FLAT WASHER S.A.E. REG. FOR 1/4" SCR.	1
36	I.E.T. LOCK WASHER S.A.E. REG. FOR 1/4" SCR.	3

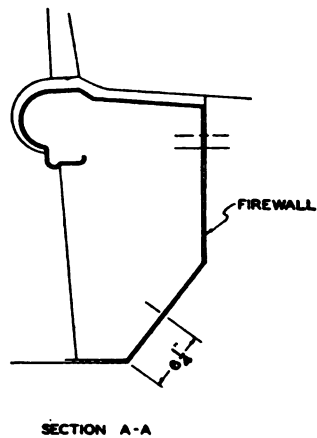
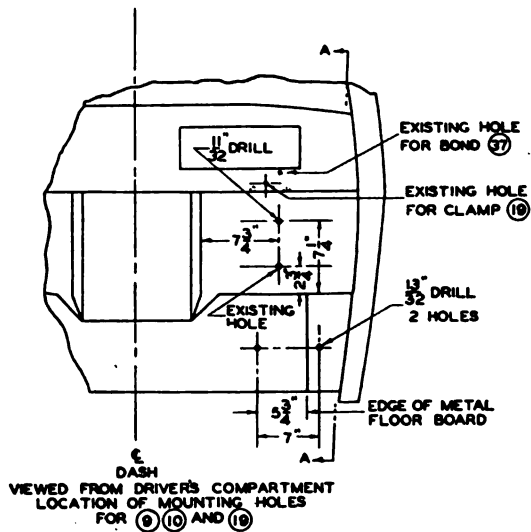
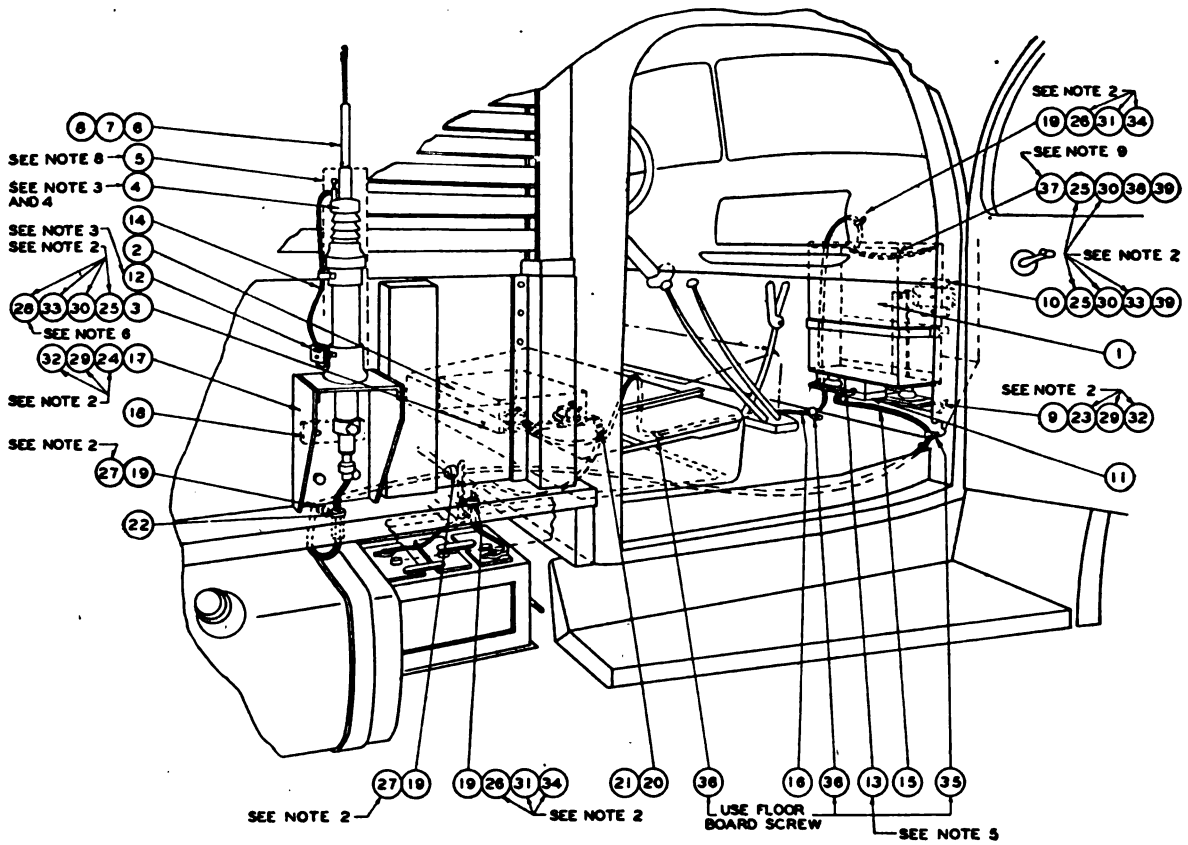
NOTES

- ONE HEADSET HS-30-(A) WITH CORD CD-605 (76) AND 1 MICROPHONE T-17-(A) SHALL BE PLUGGED INTO JACKS ON RADIO RECEIVER AND TRANSMITTER BC-620-(A).
- REMOVE MAP COMPARTMENT. REPLACE FIRE EXTINGUISHER ON LEFT SIDE.
- (22) SHALL BE ROUND HD. SELF-TAPPING, TYPE 2 SCREW, 1/4 X 1/2 LONG (PARKER-KALON)
- USE A PORTION OF THE PROVIDED BONDING BRAID, ITEM 3, FIG. 3, FOR GROUNDING MAST BRACKET MP-50 TO THE GROUND TERMINAL OF THE VEHICLE STORAGE BATTERY.
- (5) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
- FOR INSTALLATION OF (34) SEE FIG. 3



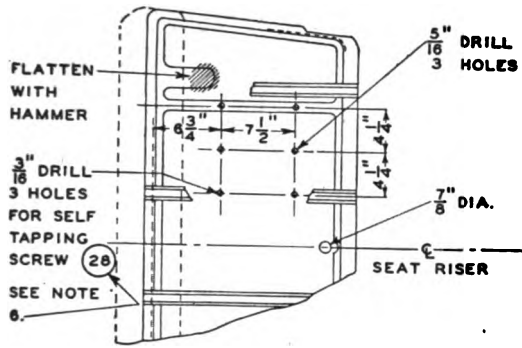
TL-11297-2
BASED ON
SC-D-6488-C

Figure 1. Installation of Radio Set SCR-510-(A) in truck, 2 1/2-ton, 6 x 6, cargo—Continued.

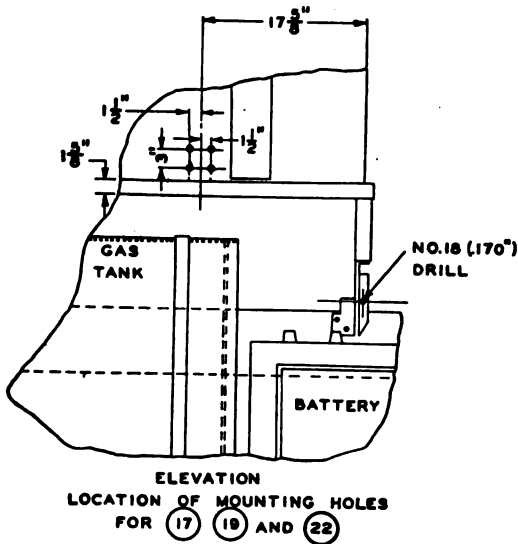
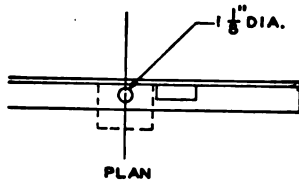


TL-11298-1
 BASED ON
 SC-D-8803-C

Figure 2. Installation of Radio Set SCR-810-(d) in truck, 2 1/2-ton, 6 x 6, cargo.



DRIVER'S SEAT
LOCATION OF MOUNTING HOLES
FOR MOUNTING FT-250-(A)



ELEVATION
LOCATION OF MOUNTING HOLES
FOR (17) (18) AND (22)

ITEM NO	NAME OF ITEM	QUAN	REQ
1	RADIO RECEIVER AND TRANSMITTER BC-659-(A)	1	
2	POWER SUPPLY UNIT PE-117-(A)	1	
3	MOUNTING FT-250-(A)	1	
4	MAST BASE MP-46-(A)	1	
5	COVER BG-108	1	
6	MAST SECTION MS-53	1	
7	MAST SECTION MS-52 WITH CLAMP MC-424	1	
8	MAST SECTION MS-51 WITH CLAMP MC-423	1	
9	MOUNTING ASSEM. MODIFIED FT-317-(A) (FIG.3)	1	
10	BRACKET	1	
11	ANTENNA TERMINAL BOX TM-210	1	
12	ANTENNA TERMINAL BOX TM-211	1	
13	COUPLING	2	
14	WIRE W-126 16" LONG	1	
15	CORDAGE CO-262 9'-6" LONG	1	
16	CORD CD-509	1	
17	MAST BRACKET MP-50	1	
18	REINFORCING PLATE FT-429	1	
19	CLAMP NO.4	4	
20	APPLETON CONNECTOR NO. 61007	1	
21	BONDNUT NO. BL-50	1	
22	INSULATOR IN-111	1	
23	HEX. HD. MACH. SCREW 5/16"-24 X 1" LG.	2	
24	HEX. HD. MACH. SCREW 5/16"-24 X 1 3/4" LG.	4	
25	HEX. HD. MACH. SCREW 1/4"-20 X 1" LG.	6	
26	RD. HD. MACH. SCREW NO. 6-32 X 3/4" LG.	2	
27	RD. HD. WOOD SCREW NO. 8 X 3/4" LG.	2	
28	SELF-TAPPING SCREW 1/4" X 1/2" LG.	3	
29	HEX. NUT 5/16"-24	6	
30	HEX. NUT 1/4"-20	6	
31	HEX. NUT NO. 6-32	2	
32	LOCKWASHER SAE REG. FOR 5/16" SCREW	6	
33	LOCKWASHER SAE REG. FOR 1/4" SCREW	6	
34	LOCKWASHER SAE REG. FOR NO. 6 SCREW	2	
35	CLAMP NO.2	1	
36	CLAMP NO.5	2	
37	BONDING BRAID (ITEM 3, FIG.3)	1	
38	FLAT WASHER SAE REG. FOR 1/4" SCREW	1	
39	I.E.T. LOCKWASHER SAE REG. FOR 1/4" SCREW	3	

NOTES

- ONE HEADSET HS-30-(A) WITH CORD CD-605 (76") AND ONE MICROPHONE T-17-(A) SHALL BE PLUGGED INTO JACKS ON RADIO SET PANEL.
- (23) TO (34) INCL. FURNISHED WITH VEHICLE. REMOVE MAP COMPARTMENT AND REPLACE FIRE EXTINGUISHER ON LEFT SIDE.
- FOR DRILLING OF MAST BASE (4) AND INSTALLATION OF BOX (12) SEE FIG. 7.
- INTERNAL LEAD-IN ASSEMBLY SHALL BE REMOVED FROM MAST BASE (4).
- (13) COUPLING LAPP NO.26423.
- (28) SHALL BE RD. HD. SELF-TAPPING TYPE 2 SCREW 1/4" X 1/2" LONG PARKER-KALON CO.
- USE A PORTION OF THE BONDING BRAID (ITEM 3, FIG.3) FOR GROUNDING MAST BASE BRACKET MP-50 TO THE GROUND TERMINAL OF THE VEHICLE STORAGE BATTERY.
- (5) SHALL BE USED WHEN MAST SECTIONS ARE NOT INSTALLED.
- FOR INSTALLATION OF (37) SEE FIG. 3.

TL-11296-2
BASED ON
SC-D-8603-C

Figure 2. Installation of Radio Set SCR-810-(A) in truck, 2 1/2-ton, 6 x 6, cargo—Continued.

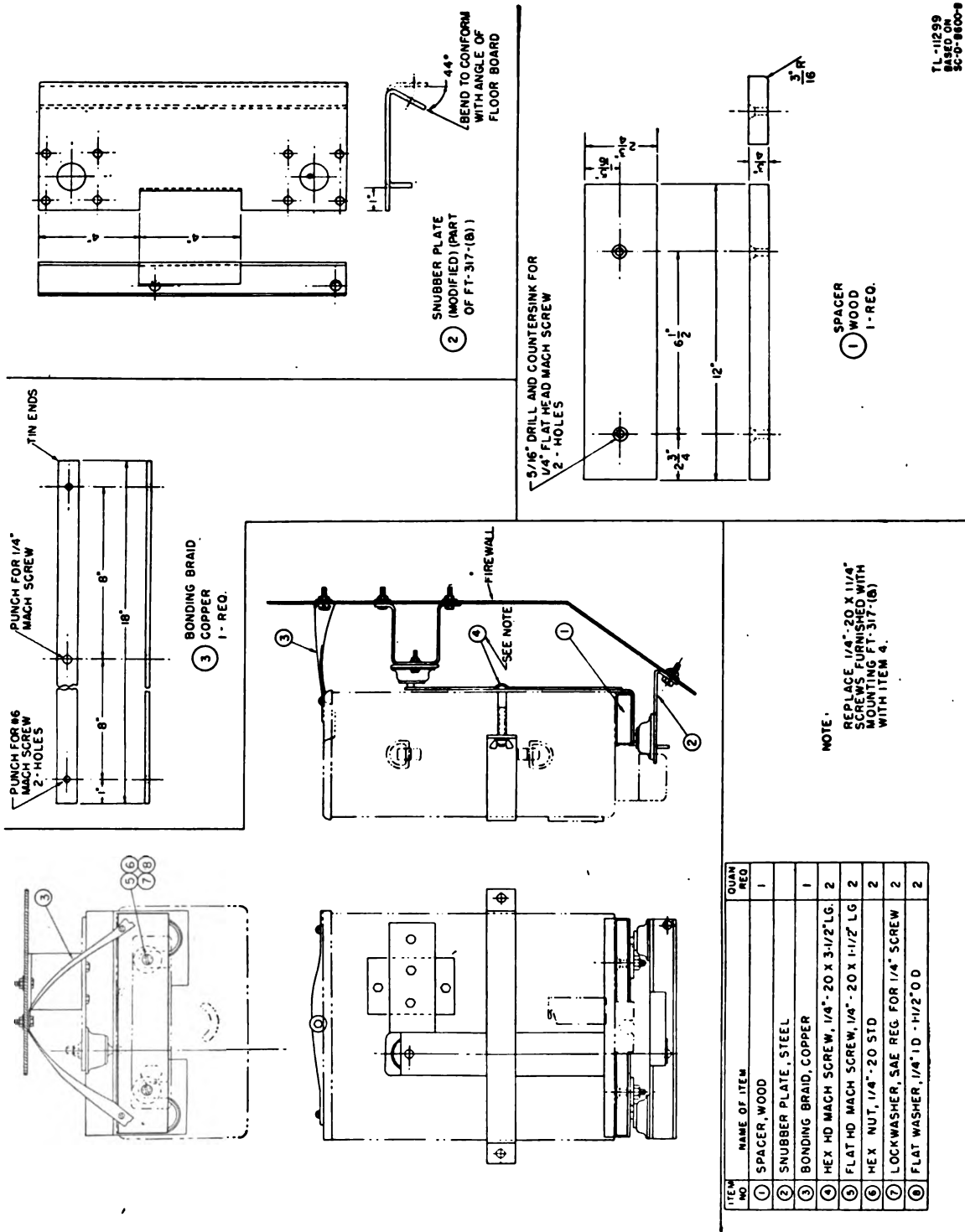


Figure 3. Modified Mounting FT-317-(B) for truck, 9 1/2-ton, 6 x 6, cargo, assembly and details.

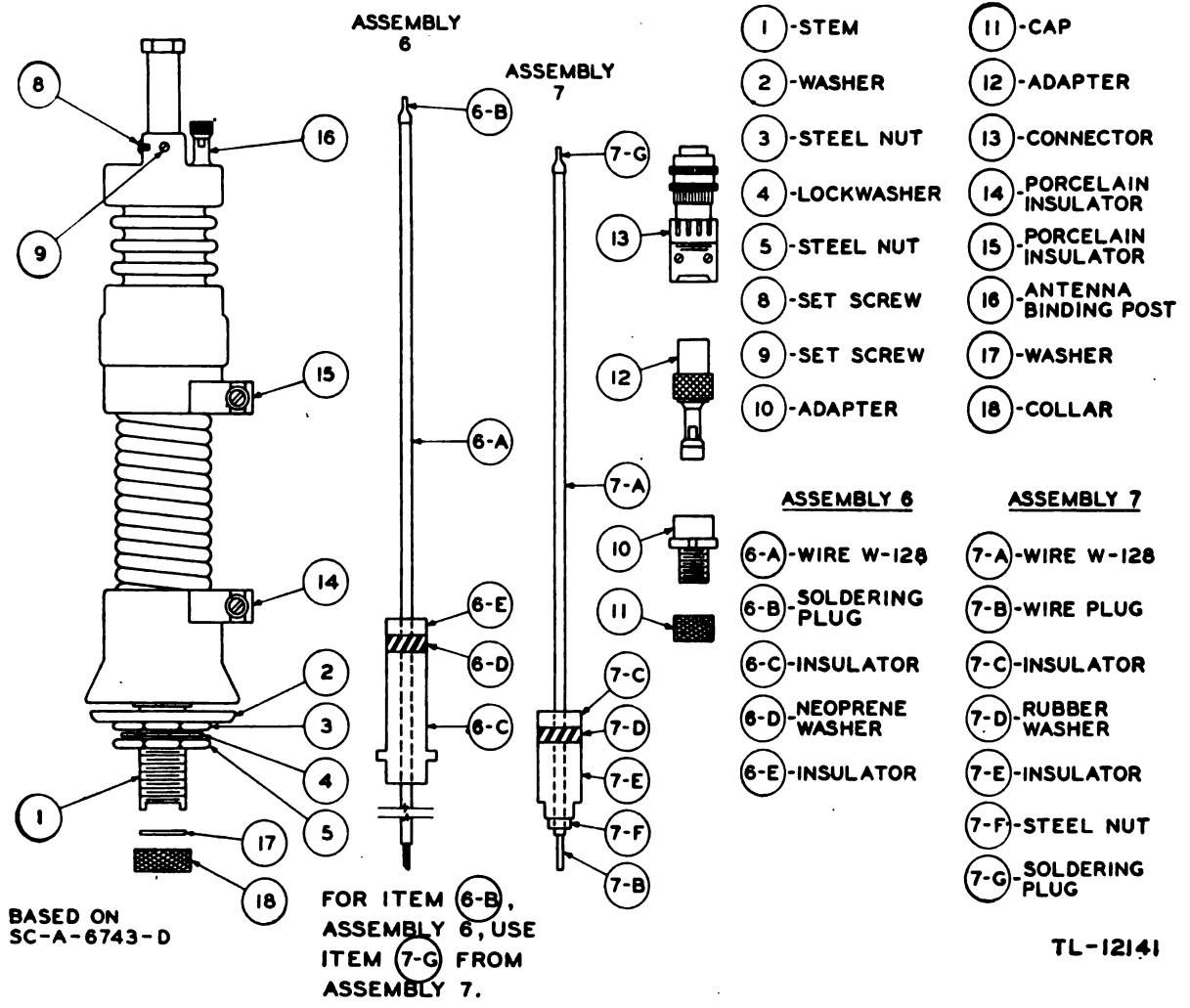
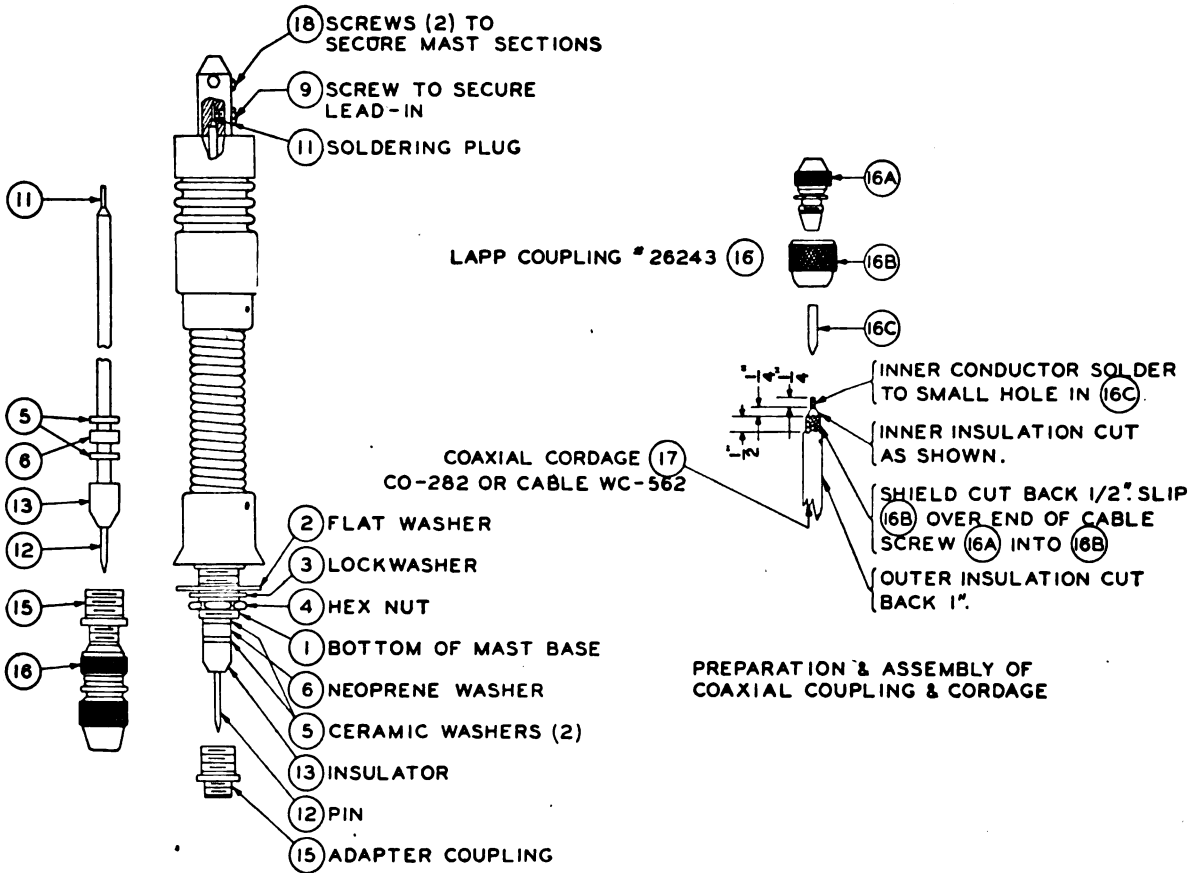


Figure 4. Mast Base MP-48, assembly for installation.

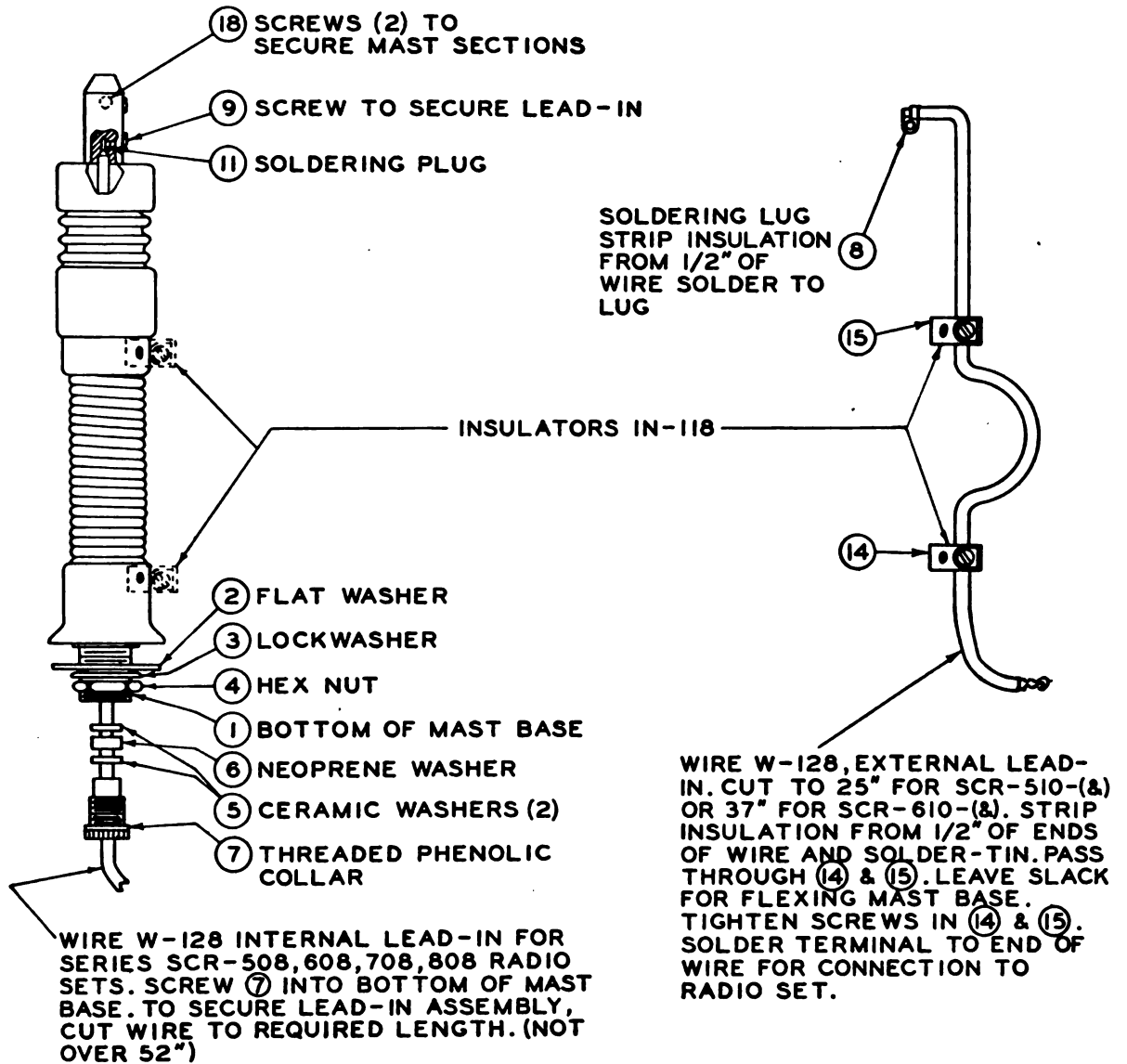


CORD CD-689 FOR COAXIAL LEAD-IN CONNECTION.
SECURE PLUG (11) WITH SCREW (9). SCREW (15) INTO
BOTTOM OF MAST BASE TO SECURE ASSEMBLY.

BASED ON
SC-A-7165-A

TL-10132

Figure 5. Mast Base MP-48-A, assembly with coaxial lead-in.

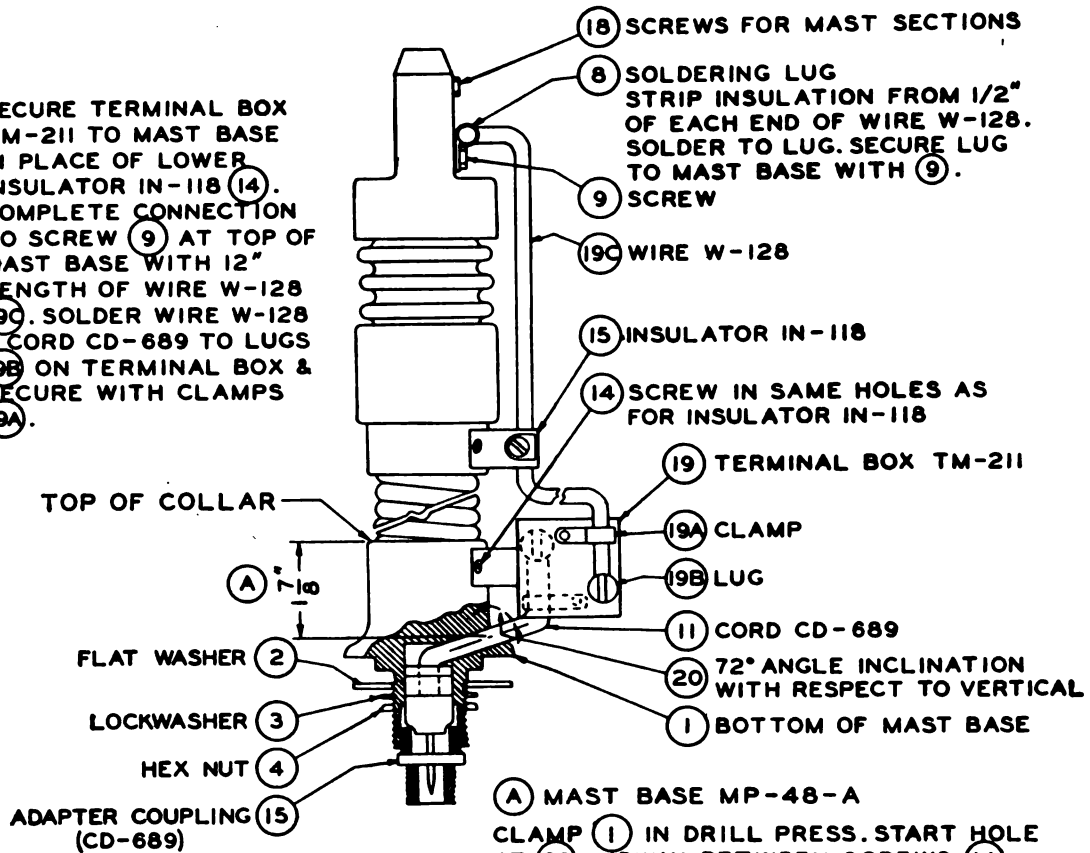


BASED ON
 SC-A-7166-A

TL-10134

Figure 6. Mast Base MP-48-A, assembly with Wire W-128 lead-in.

SECURE TERMINAL BOX TM-211 TO MAST BASE IN PLACE OF LOWER INSULATOR IN-118 (14). COMPLETE CONNECTION TO SCREW (9) AT TOP OF MAST BASE WITH 12" LENGTH OF WIRE W-128 (19C). SOLDER WIRE W-128 & CORD CD-689 TO LUGS (19B) ON TERMINAL BOX & SECURE WITH CLAMPS (19A).



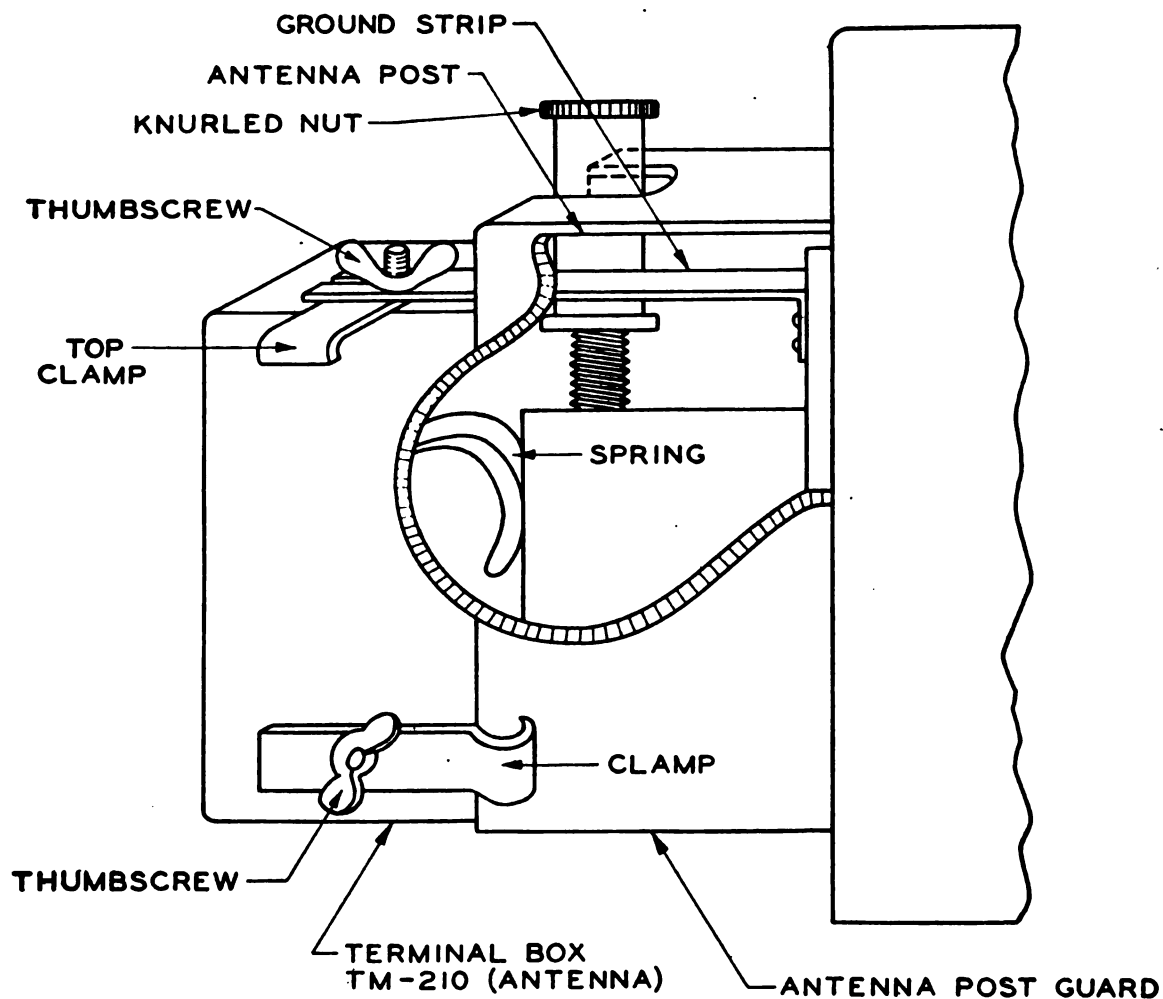
(A) MAST BASE MP-48-A
CLAMP (1) IN DRILL PRESS. START HOLE AT (20) MIDWAY BETWEEN SCREWS (14) WITH CENTER DRILL. CHANGE ANGLE TO 72°. DRILL PILOT HOLE WITH #27 DRILL. FINISH WITH 3/8" DRILL. ASSEMBLE CORD CD-689 AS SHOWN. PULL WIRE (11) OUT THROUGH HOLE & CUT TO LENGTH FOR CONNECTION TO TERMINAL BOX TM-211.

(A) MAST BASE MP-48
FOLLOW PROCEDURE GIVEN FOR MAST BASE MP-48-A, EXCEPT START HOLE 1 11/16" BELOW TOP OF COLLAR AND CHANGE ANGLE (20) TO 65° INSTEAD OF 72°.

BASED ON
SC-A-7167-A

TL-10138

Figure 7. Mast Base MP-48-A, assembly with Terminal Box TM-211.

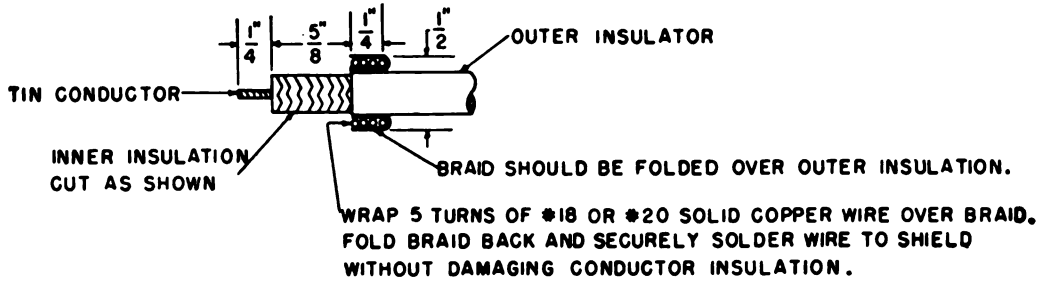


1. REMOVE CHASSIS OF RADIO RECEIVER AND TRANSMITTER BC-659-(&) FROM CASE.
2. MOUNT GROUND STRIP, SECURING WITH UPPER RIGHT HAND SCREW IN ANTENNA POST GUARD.
3. TIGHTEN KNURLED NUT ON ANTENNA POST.
4. TURN TERMINAL BOX TM-210 FOR MOST DIRECT CONNECTION OF CORDAGE CO-282.
5. TURN TOP CLAMP SIDEWISE .
6.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

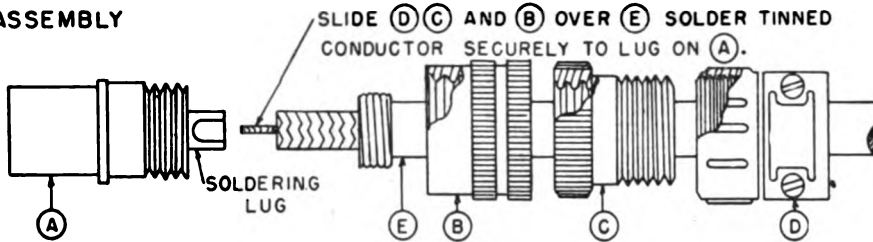
TL-13301

Figure 8. Terminal Box TM-210, mounting on Radio Receiver and Transmitter BC-659-(&).

PREPARATION OF CORDAGE

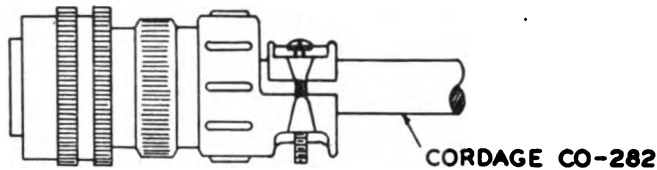


PRE-ASSEMBLY



SLIDE (D), (C) AND (B) OVER CORDAGE (E), THEN SOLDER CONDUCTOR TO LUG ON (A).

ASSEMBLY

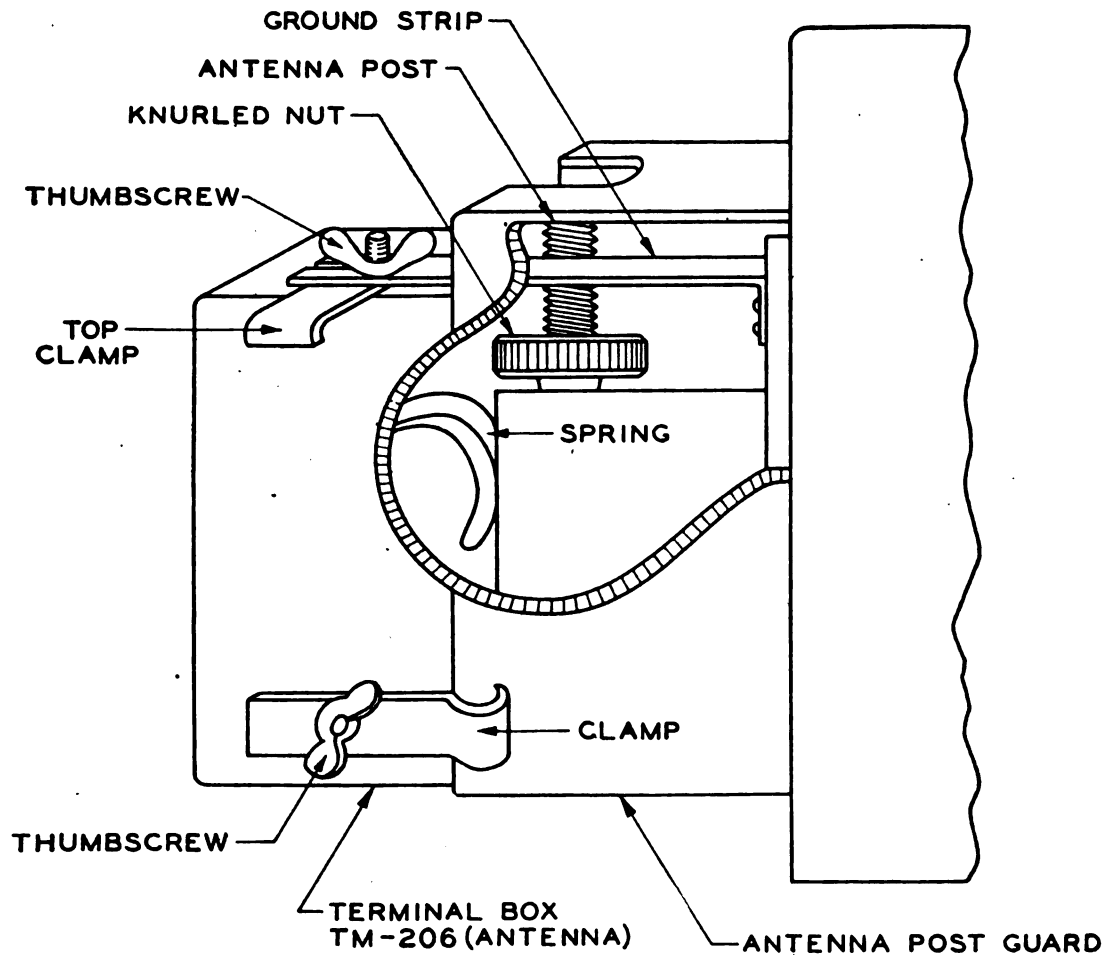


HOLD (A) FIRMLY. SCREW (C) TO (A) THEN (D) TO (C) FINALLY FASTEN CLAMP (D) OVER PREPARED BRAID. (DO NOT CRUSH BRAID WHEN FASTENING CLAMP (D)).

BASED ON
36-A-7078-A

TL-10133

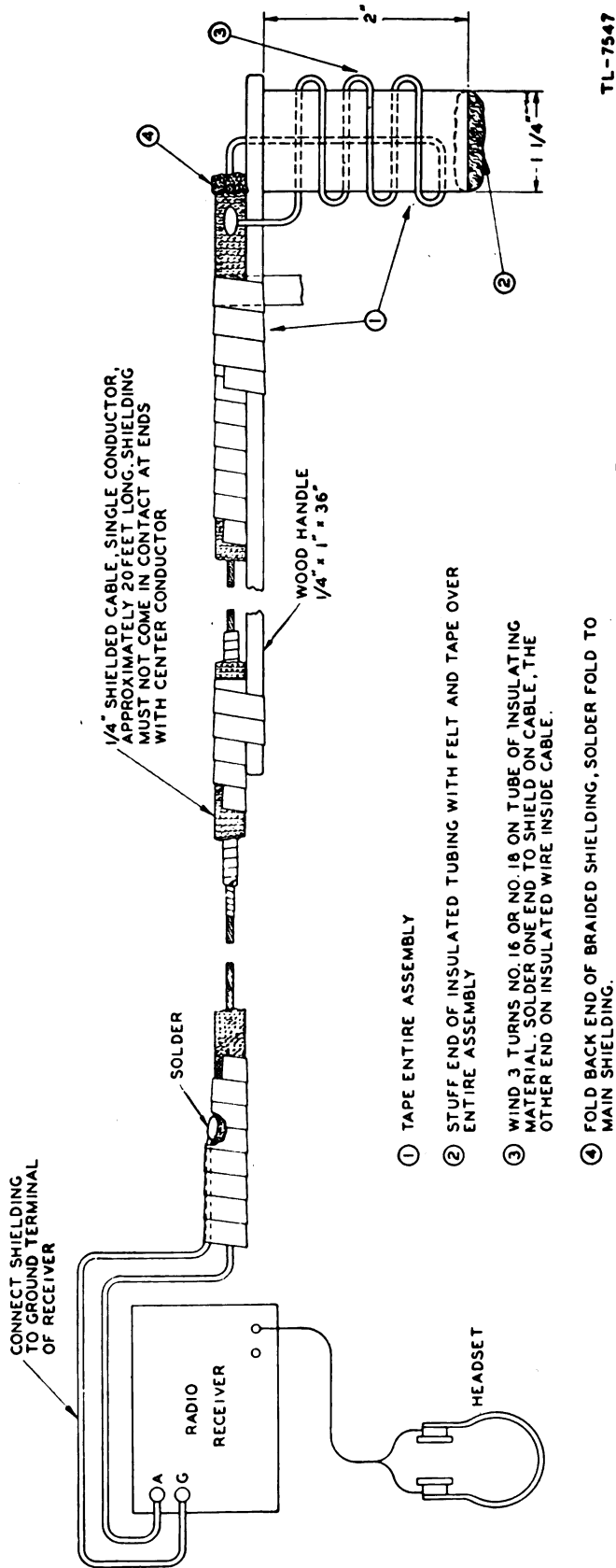
Figure 9. Coaxial connector for Mast Base MP-48 and Cordage CO-282, assembly for installation.



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

TL-12167

Figure 10. Terminal Box TM-206, mounting on Radio Receiver and Transmitter BC-620-(&).



TL-7547

Figure 11. Probe antenna.

APPENDIX

IGNITION NOISE SUPPRESSION IN TRUCK, 2½-TON, 6 x 6, CARGO

1. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in truck, 2½-ton, 6 x 6, cargo. The technical manual issued with the truck will be helpful in locating the source of the noise since it describes the suppression systems used. Instructions for operating radio equipment used in the truck should also be studied.

2. Procedure

Locate and suppress ignition noises as follows:

a. Start the motor of the vehicle and turn on the radio set. Set the receiver sensitivity control at *maximum*. Then, listening to the receiver output with a headset, tune the receiver *slowly* over the entire range of frequencies to be used for communication.

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

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

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

<i>Interference</i>	<i>Usual source</i>
Whining sound; varies with speed of engine; ceases only when generator stops rotating.	Generator.
Sparkling, or continuous crackling noise.	Brushes and commutator of generator.

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

e. If the source of interference still cannot be found by any of the preceding methods, connect a probe antenna (fig. 11) to the antenna terminal of the radio set. Move the loop of the probe antenna slowly over the various parts of the vehicle's electrical system. Keep the loop close to, but not in contact with, the part being examined. Noise from interference-producing parts should be heard in the receiver.

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

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

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