

TM 11-2717

WAR DEPARTMENT TECHNICAL MANUAL

INSTALLATION OF RADIO AND INTERPHONE EQUIPMENT IN CAR, SCOUT, M 3A1

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WAR DEPARTMENT
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TM 11-2717, Installation of Radio and Interphone Equipment in Car, Scout, M3A1, is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

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For explanation of symbols, see FM21-6.

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

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

WHAT—1. Smash—All vacuum tubes, crystals, control dials, coupling coils, transformers, speakers in 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 these radio sets until operating instructions have been read completely.

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SECTION I GUIDE TO USE OF THIS MANUAL

1. Purpose

This manual provides method and procedure, based upon actual field experience, for installation of radio equipment in Car, Scout, M3A1. Items required to make a complete operating installation are listed for each set. Official nomenclature followed by empty parentheses, such as Headset HS-30-(), is used to indicate any model of equipment regardless of its procurement.

2. Equipment

Installations covered include the following Radio Sets:

SCR-193-D
SCR-284-()
SCR-506-()
SCR-508-()
SCR-510-()
SCR-528-()
SCR-593-()
SCR-608-()
SCR-610-()
SCR-628-()

3. Holes and Brackets

Holes and brackets required for installation of the radio sets are normally located prior to delivery of Car, Scout, M3A1. 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 as outlined, and any subsequent changes to this manual.

Caution: Car, Scout, M3A1 has a 12-volt electrical system. Before installing the radio set, be sure it is designed for 12-volt operation, or tubes may burn out or dynamotors may be damaged.

5. Operating Check

Carefully study the Technical Manual covering the radio set before trying to operate; then, make a thorough operating check to determine whether the equipment has been properly installed and is in working order.

SECTION II

IGNITION NOISE SUPPRESSION IN CAR, SCOUT, M3A1

6. General

Excessive ignition or other electrical noises may interfere with the operation of radio equipment in Car, Scout, M3A1. The Technical Manual issued with the vehicle will be helpful in locating the source of the noise since it describes the suppression system used. Instructions for operating radio equipment used in the vehicle should also be studied.

7. Procedure

Locate and suppress ignition noises as follows:

a. Start the motor of the vehicle and turn on the radio set. Put the receiver sensitivity control at

maximum; then, listening to the receiver output with a headset, tune the receiver slowly over the entire range of frequencies to be used for communication.

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

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

<i>Interference</i>	<i>Usual source</i>
Popping sound : corresponds to ignition firing ; stops when engine is turned off ; accelerates when engine is raced.	Ignition system.
Intermittent, clicking sound ; lingers for several seconds when ignition is turned off.	Generator regulator.
Whining sound ; varies with speed of engine ; ceases only when generator stops rotating.	Generator.
Sparking, or continuous crackling noise.	Brushes and commutator of generator.

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. 2) to the antenna terminal of the radio set. Slowly move the loop of the probe antenna over the various parts of the electrical system of the vehicle. 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. Usually interference can be eliminated by cleaning, tightening, or replacing noise-producing parts. Examine and tighten all suppressor and shielding components, and all connections and grounding bonds. Clean the surface under them. This will assure good electrical contact between wires and terminals, and between metal casings and the frame of the vehicle. Insulated but ungrounded metal parts absorb and reradiate electrical noises.

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

SECTION III

RADIO SET SCR-193-D

8. Required Parts

Items necessary for installation of Radio Set SCR-193-D in Car, Scout, M3A1 are listed below :

Quantity	Stock No.	Item
1	2A224A.....	Antenna AN-24-A, auxiliary.
1	2Z1108.....	Box BX-8, for transmitter spare tubes.
1	2Z1119.....	Box BX-19, for receiver spare tubes.
1	2Z1121.....	Box BX-21, for headset, microphone, etc.
1		Bracket (fig. 27) for Loudspeaker LS-3.
1	2Z1577-153.....	Chest CH-153-().
2	4B417-4.....	Chest Set TD-4.
1	2Z1848.....	Case CS-48, for transmitter tuning unit.
2	2Z2651-421.....	Clamp MC-421, for mast section.
2	2Z2651-422.....	Clamp MC-422, for mast section.
2	2Z2651-423.....	Clamp MC-423, for mast section.
2	2Z2651-424.....	Clamp MC-424, for mast section.
1	3E1411.....	Cord CD-411, connecting Radio Receiver BC-312-() to terminal box, including one connector No. 61007 and one Bondnut BL-50.
1	3E1267.....	Cord CD-267, for Loudspeaker LS-3.
2	3E1307-5.5.....	Cord CD-307-A, 65 in. long.
1	3E1320.....	Cord CD-320, connecting Radio Transmitter BC-191-() to Dynamotor Unit BD-77-().
1	3E1346.....	Cord CD-346, connecting Radio Transmitter BC-191-() to Dynamotor Unit BD-77-().
1	3E1410.....	Cord CD-410, connecting Radio Transmitter BC-191-() to terminal box, including one connector No. 61007 and one Bondnut BL-50.
1	3E2189.....	Cord CO-189, connecting Dynamotor Unit BD-77-() to terminal box, including one connector No. 61007 and one Bondnut BL-50.
2	3E1604.....	Cord CD-604.
1	2Z3367A.....	Cover BG-67, for mast base.
1	2Z3375A.....	Cover BG-75-A, for Radio Receiver BC-312-().
1	2Z3378A.....	Cover BG-78-A, for Radio Transmitter BC-191-().
1	3H1359A.....	Cover BG-79-A, for Dynamotor Unit BD-77-().
1	2Z3384.....	Cover BG-84, for radio cabinet.
1	6C18-41.....	Cover CW-41/U, for Loudspeaker LS-3.
1	3H1777.....	Dynamotor Unit BD-77-(), including Mounting FT-107.
1	6L50-193V13.....	Hardware bag.
*2	2B800-16.....	Headset H-16/U or HS-30-().
	2B830.....	
3	3G586.....	Insulator IN-86, used with Rope RP-5 for tying down mast sections.
2	3G601.....	Insulator IN-101.
1	2A224A/1.....	Instructions for installation of auxiliary Antenna AN-24-A.
4	3G604.....	Insulator IN-104.
1	3Z3445.....	Key J-45.
1	2Z6303.1.....	Loudspeaker LS-3.
1	2A2087.....	Mast Base MP-37.

* Headset HS-28 may be substituted for Headset H-16/U or HS-30-(). When this is done, Cord CD-604 is not required.

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Quantity	Stock No.	Item
2	2A2349.....	Mast Section MS-49.
2	2A2350.....	Mast Section MS-50.
2	2A2351.....	Mast Section MS-51.
2	2A2352.....	Mast Section MS-52.
2	2A2353.....	Mast Section MS-53.
2	2B1567.....	Microphone Cover M-367.
2	{ 2B1645..... 2B1617..... }	Microphone T-45 or T-17.
1	2Z6712.....	Mounting FT-172, snubber for Radio Transmitter BC-191-().
1	2Z6718.....	Mounting FT-178, snubber for Radio Receiver BC-312-().
1	2C4312.....	Radio Receiver BC-312-(), including Mounting FT-162.
1	2C6191.....	Radio Transmitter BC-191-(), including Mounting FT-151-().
1	2Z8056A.....	Roll BG-56-A, for mast section.
50 ft.	6Z7926.....	Rope RP-5, for tying down mast sections.
1	2Z8793A.....	Socket Cap M-163-A, for unused socket in Radio Transmitter BC-191-().
2	6D13073.....	TM-11-273, for Radio Set SCR-193-D.
1	2Z9313.....	Terminal Block TM-183, for terminal box.
1	2C8005.....	Transmitter Tuning Unit TU-5-().
1	2C8006.....	Transmitter Tuning Unit TU-6-().
20 ft.	1B128.....	Wire W-128.

9. Assembly and Installation

a. Before proceeding with this installation, perform all necessary drilling of the vehicle for Chest CH-153-() and mast base pedestal as shown in

figure 4.

b. Components of Radio Set SCR-193-D should be installed in Car, Scout, M3A1 as shown in figures 1, 3, and 5 and as directed below:

Part and location	Method and materials
Mast Base MP-37, on mast base pedestal. (See fig. 5.)	Assemble as shown in figure 6.
Chest CH-153-(), on floor of vehicle in front of mast base pedestal.	Fasten in place with eight $\frac{1}{4}$ "-20 x 1-inch screws, nuts, lockwashers provided.
Mounting FT-107-().	Attach to floor of Chest CH-153-(), left side, with six $\frac{1}{4}$ "-20 x $\frac{7}{16}$ -inch screws and lockwashers provided.
Mounting FT-151-().	Attach to floor of Chest CH-153-(), right side, with eight $\frac{1}{4}$ "-20 x $\frac{7}{16}$ -inch screws and lockwashers provided.
Mounting FT-162.	Attach to shelf inside Chest CH-153-() with ten No. 10-32 x $\frac{3}{4}$ -inch screws, nuts, and lockwashers provided.
Dynamotor Unit BD-77-() and Cover BG-79-A, on Mounting FT-107-().	Secure dynamotor on mounting with snap-slide fasteners provided. Place Cover BG-79-A over dynamotor.
Radio Receiver BC-312-(), Mounting FT-178 (fig. 26), and Cover BG-75-A, on Mounting FT-162 (fig. 5).	Remove receiver from its case. Drill right end of case as shown in figure 8 and attach small angle bracket (part of Mounting FT-178). Replace receiver in case. Attach Mounting FT-178 to Chest CH-153-(). Place receiver on Mounting FT-162 and secure with snap slide fasteners provided. Place Cover BG-75-A over receiver, cut slot for small angle bracket, and secure