W.O. CODE No. 127

USER HANDBOOK

for

RADIO INSTALLATIONS

IN FFR 'B' VEHICLES

PUBLISHED UNDER THE AUTHORITY OF
THE SIGNAL OFFICER-IN-CHIEF
THE WAR OFFICE
WHITEHALL S.W.I.

Printed at the
Signals Research and Development Establishment, Christchurch, Hants.

JANUARY 1963

PART I
GENERAL INSTRUCTIONS

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SUMMARY OF PARTS AND CHAPTERS

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Reprinted October 1963 incorporating amendment list No. 1

RESTRICTED

SUMMARY OF PARTS AND CHAPTERS

CHAPTER I
INTRODUCTION

C O N T E N T S

Section 1 THE NEW INSTALLATION SYSTEM

A new installation system has been introduced to enable any of the new range regimental role radio sets to be installed and operated in any vehicle which is "fitted for radio" (FFR).

In former vehicle-mounted installations of field radio sets, all furniture and connectors were "made to measure" to fit set or sets into one particular vehicle. Furniture, connectors, control harness and sets were issued as a complete installation kit for users to install in that particular vehicle. The furniture could not be used in any other type of vehicle.

Under the new system, furniture applicable to one type of vehicle is collected into a vehicle fitting kit and installed to become an integral part of that vehicle. This kit enables the vehicle to accept one or more radio sets according to its size. A separate kit is available for each type of vehicle, some kits including items not hitherto used in these vehicles.

For the radio sets, ancillary items such as carriers, etc., are regrouped into an installation kit for use with that particular set.

Remaining items required to operate any set in any vehicle have been formed into a multi-purpose kit. This kit includes control boxes and standardised connectors to replace the former "made-to-measure" lengths. Various additional features are available in the form of supplementary kits which can be added to any installation. Kits are summarised in section 4 on page 3.

Section 2 THE NEW FFR VEHICLES

Vehicles of the following makes and types are included in the FFR range:

Truck FFR ¼-ton 4 x 4 Austin
" " " " Rover Mks. 1, 2, 3 and 5 (Series I)
" " " " Rover Mk. 8 (Series II)
" " ¾-ton 4 x 4 Rover Mk. 9
" Armoured FFR 1-ton 4 x 4 Humber
" FFR 1-ton 4 x 4 Austin K9
" Radio FFR 1-ton 4 x 4 Austin K9

It should be specially noted that an FFR (fitted for radio) version of a vehicle is not the same as an FFW (fitted for wireless) version. The old type of FFW vehicle contained part of the equipment needed to fit a radio set, different makes of vehicle were furnished to different standards and all required workshop action before the set could be fitted.

But FFR vehicles are much more fully equipped and all types are fitted to the same standard so that a radio set kit can be installed in any FFR vehicle or transferred from one to another without additional fittings. Every FFR vehicle includes tables drilled ready to accept set carriers, brackets ready to accept aerial bases and ATUs, and carriers ready for batteries. Connectors which have to be clamped to the vehicle are also in position. In normal circumstances FFR vehicles require no further workshop action before the radio station is installed.

Vehicles in the 1-ton and ¾-ton ranges have fittings for three radio sets. ¼-ton trucks are prepared for two sets. Recommended positions for radio sets and aerials, together with details of vehicle fitting kits are given in part 2 of this handbook in the chapter dealing with the vehicle concerned.

New vehicles will be added to the above range as they become available and fitting instructions for installation kit items will be issued in the form of additional chapters in part 2.

Section 3 RADIO SETS WHICH CAN BE INSTALLED

Under the new system the following radio sets can be installed either singly or in various combinations:

HF	VHF
C11-R210	A41
C12	B47 and B48
C13	C42 and C45
R209	

Method of installing the complete radio set assembly is given in the relevant radio set chapter in part 3 of this handbook, which includes connector diagrams for radio set and associated control harness, but not operating instructions for radio sets.

New sets will be added to the above range as they become available and fitting instructions will be issued in the form of additional chapters in part 3.

Section 4 THE NEW KITS

In order to install a radio set in a vehicle under the new system the following kits of parts are required:

(1) Vehicle fitting kit (FFR kit)

One kit is required for each vehicle and under the new system it should be fitted before the vehicle is issued as "FFR" to the user. For vehicles not so furnished it can be obtained by the user and fitted in accordance with an EMER fitting instruction. Particulars are given in the relevant vehicle chapter in part 2.

(2) Radio set kit

This is the standard set kit and includes the radio set and PSU.

(3) Radio set installation kit

Contains additional items essential for the radio set concerned. Every set kit must be accompanied by one of the associated installation kits. Details of set and installation kits are given in the relevant radio set chapter in part 3.

(4) Multi-purpose kit

One is required for each radio set. It contains items needed to connect and operate any set in any vehicle. See part 1 page 15.

(5) Supplementary kits

For details of control harness kits, charging set kit, etc., see chapter 3 in part 1. For details of rejector unit kits, etc., see the relevant radio set chapter in part 3.

Section 5 TRANSFERRING SETS TO OTHER VEHICLES

The complete flexibility of the new system enables Regimental signallers using spanners and screwdrivers to install a radio set in any available FFR vehicle and to transfer it rapidly from one type of FFR vehicle to another. For example a C42 can be transferred from an FFR ¼-ton truck to an FFR 1-ton truck within approximately half an hour.

Certain new GS cargo vehicles are prepared in manufacture with a number of essential fittings and pre-drilled holes. In some future vehicles the cargo version will be identical to the FFR version except that it will not contain the vehicle fitting kit.

In an emergency these cargo vehicles can be used in a radio role without further workshop action, the user transferring his radio set and the furniture from the FFR vehicle to a cargo vehicle of the same make and type. A C42 installation in a ¼-ton can be transferred in this way within two hours. Transferring the vehicle fitting kit does not convert the cargo version into an FFR version as the true FFR vehicle includes engine suppression to prevent radio interference when working on the move, whereas cargo vehicles may not be suppressed.

Section 6 INTEGRATING OLD AND NEW SYSTEMS

A large number of "made to measure" kits are already in service and in the interim period they are likely to be used in regimental role installations side by side with kits of the new system.

In ¼-ton trucks, radio stations installed with "made to measure" kits or new system kits do not differ except for connectors and in some cases control harness boxes. With these exceptions, old and new installations are interchangeable.

In 1-ton trucks many changes arise, mainly from the introduction of the standard operator's table, and old and new installations are quite different.

An old type installation kit "made to measure" for one particular vehicle can be transferred readily into any new pattern FFR vehicle without calling for any new items and leaving most of the hardware in the original vehicle as surplus to requirements. But it can be transferred to a non-FFR vehicle only if the appropriate vehicle kit is fitted first.

General instructions regarding conversions of "made to measure" kits to new system kits are given on page 13. Detailed instructions will be issued as and when required.

CHAPTER 2
GENERAL INSTRUCTIONS

CONTENTS

Section 1 PLANNING THE INSTALLATION

Recommended positions for radio sets and aerials are given in the relevant vehicle chapter. The positioning of sets in relation to one another depends upon type of set and type of vehicle but certain general rules should be observed. For example the HF set is always fitted at the LH end of the 50-in. table and the VHF set at the RH end.

Before beginning an installation, check that the multi-purpose kit is complete and that its voltage corresponds with that of the set. A kit list is given in chapter 3. Check the contents of set kits and set installation kits against the lists given in the relevant radio set chapter. If any additional kits are to be installed check them against the lists in the kit list chapter or the radio set chapter. Check that vehicle fittings are complete. A summary of each vehicle fitting kit is given in the relevant vehicle chapter.

Section 2 AERIALS

(1) Aerial positions

Fit the aerial base or bases as instructed in the relevant vehicle chapter in part 2.

As a general principle the connector between ATU and aerial base must be kept as short as possible. Hence the ATU must always be adjacent to the aerial rather than to the set.

In all vehicle installations the recommended positions for aerials have been found to be the most suitable. Aerials should not be mounted elsewhere or the performance of the sets is likely to suffer.

(2) HF aerials

For HF sets on the move an 8-ft. or a 12-ft. rod can be used. At the halt the HF rod can be extended to 16-ft. when necessary but a 16-ft. rod should not be used on the move. These antennae rods are all made up from standard 4-ft. antennae rod aerial elements. HF sets can also be operated with vertical radiators and horizontal wire aerials. See part 4 chapter 2.

In all radio set assemblies where alternative positions exist, as for example in C11 and C13 where the ATU can be fitted in either half of the top tray, the position which enables the ATU to be brought as near as possible to the aerial should always be chosen.

An HF aerial lead of the exact length to fit between ATU and aerial base should be made up by the user to suit each particular installation. Instructions are given in the relevant vehicle chapter. If in a subsequent installation this lead is too long or too short a new lead of the correct length should be substituted and all the insulating beads, terminals, etc., transferred to the new cable. Do not discard the old cable. Label it with set and vehicle for which it was cut and keep it for use if such an installation occurs again.

VHF AERIALS

THREE VITAL POINTS

AERIAL MOUNTINGS MUST BE POSITIONED AS INSTRUCTED IN THIS HANDBOOK

AERIAL LEADS BETWEEN TUNING UNITS AND AERIAL BASES MUST NEVER EXCEED 16 INCHES

AERIAL RODS MUST NOT BE TIED DOWN TO THE VEHICLE IN ANY WAY

OR THE RANGE OF THE RADIO SETS WILL BE REDUCED, AND IN THE CASE OF C42 AND C45 USED ON HIGH POWER, SERIOUS DAMAGE TO THE RADIO SETS MAY RESULT.

(3) VH aerials

For the VHF sets B47, B48, C42 and C45, use 8-ft. antennae rods (two 4-ft. aerial elements) in all operating conditions. For these VHF sets the lead between ATU and aerial base must never exceed 16-in. This is the length of the lead supplied with all installations where the ATU is mounted inside the vehicle and connected to an external aerial base, and it must not be varied. The dismountable ATU assembly is fitted with a 12-in. lead for use when the assembly is mounted externally on the vehicle and when it is used remotely.

NOTE - Rod aerials for the VHF sets B47, B48, C42 and C45 must not exceed 8-ft. in length.

Section 3 MUTUAL INTERFERENCE

(1) Rejector units

When two or more radio sets are installed in a vehicle, mutual interference can be caused by the closeness of the rod aerials, and if two sets have to be operated on adjacent frequencies the transmitter of one set may cause interference on the receiver of the other. For VHF sets a rejector unit can be used to reduce this interference, enabling sets to operate on frequencies down to 2 Mc/s apart and possibly closer on some channels. Rejector unit No. 3 and rejector units B47 and B48, for which separate user handbooks are issued, must be accurately tuned if they are to be effective. The following filter and rejector units are available. Further information is given in the relevant radio set chapter.

(2) For VHF sets B47, B48, C42, C45

Rejector unit No. 3 is used but it should not be connected until the interference becomes intolerable.

(3) For B47

A Rejector unit B47 can be used instead of Rejector unit No. 3. It is connected between B47 and ATU No. 8 as part of the installation.

(4) For B48

A Rejector unit B48 can be used instead of Rejector unit No. 3. It is connected between B48 and ATU No. 10 as part of the installation.

(5) For C11-R210/C42

A Filter unit RF No. 15 is fitted between C11 and ATU No. 7 to prevent the C42 interfering with R210 at certain frequencies. This unit does not require tuning.

(6) For two HF sets

On C11-R210/C11-R210, C11-R210/C13 and C13/C13 installations the aerial of set 'A' cannot be tuned if set 'B' is tuned to the same or a nearby frequency, even though set 'B' is not switched on. If one set is not to be used its rod aerial should be taken down to avoid affecting the other set. The aerial tuning of set 'A' will be upset when set 'B' is tuned. Aerial tuning on the set in use should therefore be checked after the other set has been brought into use or has been retuned to a different frequency.

NOTE - When it is practicable, the simplest way of eliminating mutual interference is to use a remote aerial. See part 4 chapter 2.

Section 4 POWER SUPPLY

(1) Battery supply

All radio installations are battery operated, the batteries being float-charged in those vehicles equipped with power take-off. Input voltages are 12V or 24V, the latter being in more general use. Certain radio sets have alternative supply units for 12V and 24V working, others are limited to one voltage. Details are given in the relevant radio set chapter.

One or two pairs of 12V 75 Ah batteries are required for all vehicles except Rovers Mk. 8 and 9 FFR. These two new Rovers are equipped with extra vehicle-type batteries to power the radio sets. When fitting batteries, examine the level of the electrolyte and if necessary top up with distilled water. Fit the batteries as instructed in the relevant vehicle chapter.

NOTE - Connect positive (red) lead to positive (+)1 terminal and negative (black) lead to negative (-) terminal. If polarity is reversed the equipment will be damaged.

(2) Voltage control relay (VCR)

To appreciate the need for a VCR, consider a nominal 24V installation in a vehicle with power take-off for battery charging. When the engine is running and the radio batteries are being charged through the power take-off, the output from the vehicle generator exceeds the nominal voltage rating of the radio set. Consequently the set, being connected to the power take-off, must be able to operate safely on voltages up to 29V. When the engine is not running and the set is operated on batteries alone, the battery voltage gradually drops. When this voltage reaches 23.5V the VCR operates and causes the supply unit output to be automatically stepped up to compensate for the drop in voltage. The set continues operating until the battery voltage falls below approximately 20.7V. Without the aid of the VCR the set would not function satisfactorily on a battery voltage below approximately 22V. For 12V installations these figures should all be halved.

Conditions are similar in a vehicle without power take-off as the voltage of freshly charged batteries may exceed the nominal 24V or 12V.

VHF radio sets do not contain their own VCR. They use the VCR fitted in the control harness junction box (J1 or J2). Hence the J1 or J2 must be connected to the same power supply as the set or the set is deprived of the assistance of the VCR. HF radio sets have VCRs fitted in their PSUs. They do not use the VCR in the control harness box. Details of the voltage control circuit and VCR are given in the user handbook for the Wireless control harness type 'B' and in radio set user handbooks.

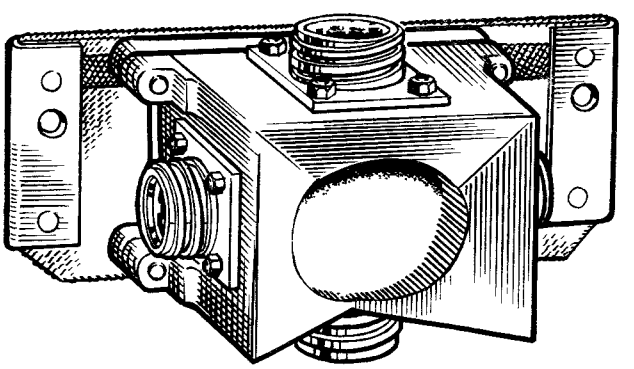


FIG. 1 AN LT INTERCONNECTING BOX FOR 12V OR 24V SUPPLY

(3) Negative earth

The negative side of the battery supply for the radio equipment must be earthed to the vehicle chassis by means of a direct connection. Serious damage can be caused to the control harness if the battery negative terminal is not properly earthed.

(4) Battery charging

Radio batteries in ¼-ton Austin, Rover Mk. 8, Rover Mk. 9 and 1-ton Armoured can be float charged from the vehicle generator and power take-off. In the remaining vehicles, batteries should be removed for central charging. Further instructions on battery charging are given in part 4 chapter 3.

(5) LT boxes

Three different LT distribution boxes are available, each designed for a different purpose as shown in the following paragraphs. They are all similarly shaped as shown in fig. 1. Positions of plugs and sockets are indicated in fig. 2, the figures '2' and '4' denoting 2-pt. or 4-pt. connections.

(6) Interconnecting box 4-way No. 4

This LT box is supplied in all set installation kits except those for C11-R210, R209 and A41. The 2-pt. battery input plug accepts the normal battery connector (Cable assy. twin, 6-ft. 6-in.) or the connector to the power supply terminals (Conector twin No. 394, 2-ft. 6-in.) Note that the 4-pt. input is used for the power take-off connection in 1/4-ton Austin only. In any other vehicle a Connector 4/2-pt. No. 3 or No. 4 can be fitted between this input plug and the battery supply. Typical connections are shown in part 2 page 8.

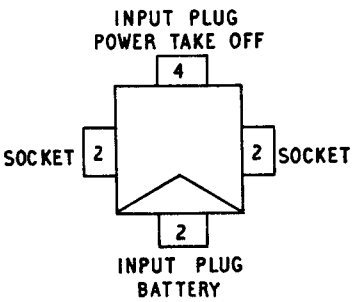
(7) Interconnecting box LT 4-way No. 1

This LT box is supplied in the J2 harness kit and used in two-set installations when a number of additional 2-pt. output sockets are required. Typical connections are shown in part 3 page 58.

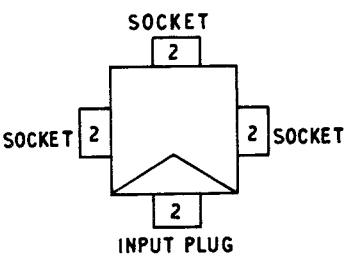
(8) Interconnecting box 4-way No. 1

This LT box is supplied in the C11-R210 installation kit, the 4-pt. connectors being provided to carry the extra power taken by the C11. Typical connections are shown in part 3 page 8.

INTERCONNECTING BOX
4 - WAY No. 4.
ZI/5820-99-949-0960
ZA 46982



INTERCONNECTING BOX
LT 4-WAY No. 1.
ZI/5820-99-949-1172
ZA 49790



INTERCONNECTING BOX
4 - WAY No. 1.
ZI/5820-99-949-1173
ZA 51311

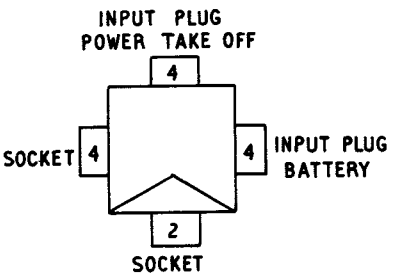


FIG. 2 PLUG AND SOCKET POSITIONS ON THE THREE LT BOXES

Section 5 CONTROL HARNESS

(1) Wireless control harness type 'B'

In the installations described in this handbook all radio sets except A41 and R209 are operated through wireless control harness type 'B'. Detailed operating instructions are given in part 4 chapter 1. Three different basic arrangements of control harness boxes are likely to be encountered, as follows:

(2) J1

Every radio set installed on the new system is equipped with a J1, the basic control unit for local and remote control. It is mounted on the top of the set. Two J1s can be connected by D10 cable to give automatic rebroadcasting between two VHF sets. The J1, with microphone, earphones, remote control handset and D10 cable, is supplied in the multi-purpose kit as listed on page 16.

(3) 'E' box kit

If two radio sets with J1 are fitted in the same vehicle an 'E' box kit can be added to enable one operator to control both sets through a 'C' box. An MRRB box can be connected by D10 cable between the two J1s to give manual rebroadcasting between the two sets. 'E', 'C' and MRRB boxes should be bolted to the slotted angle framework in all vehicles where this is provided. These boxes are supplied in the 'E' box kit as listed on page 18.

(4) J2 harness

This is an older type of harness consisting of J2 and 'R' box, and possibly 'B' and 'C' boxes, which may be found in a radio station made up by converting an old type "made to measure" kit. The J2 kit is listed on page 18 but it will not normally be supplied in any new installations.

(5) Additional facilities

The 'O' box, supplied in the multi-purpose kit, enables any set to be operated without a normal harness. A morse telegraph key ('K' box) is supplied with HF sets. A loudspeaker kit is available as listed on page 19.

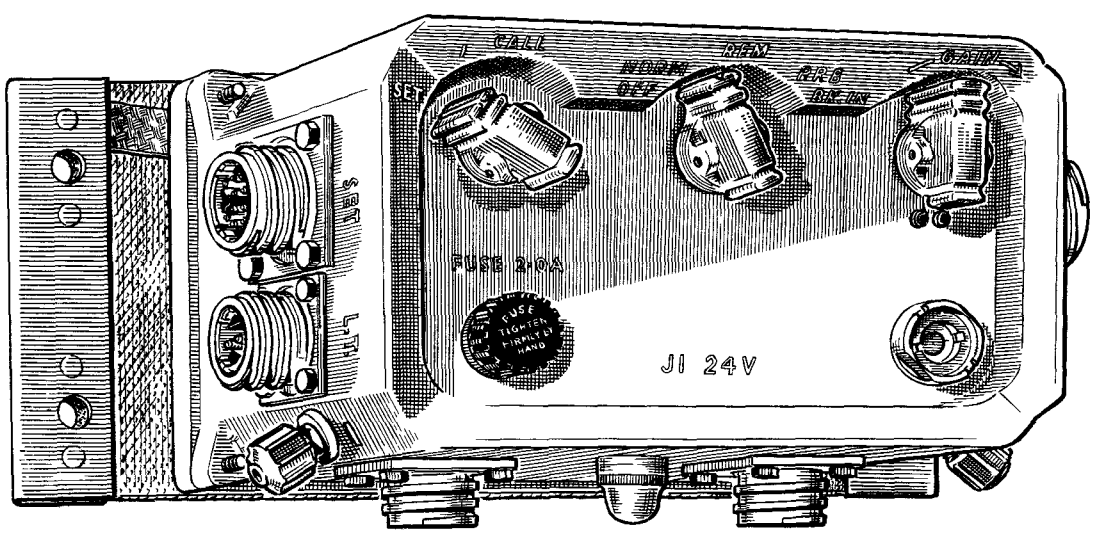


FIG. 3 INTERCONNECTING BOX J1, CONTROL UNIT FOR ONE SET

Section 6 TABLES FOR RADIO SETS

(1) Table top, 50 x 16½

This is the long table, used in all FFR 'B' vehicles. It is supplied in the vehicle fitting kit and is mounted across the vehicle as shown in the typical installation in part 2 fig. 1. It is made of wood approximately ¾-in. thick, bolted into a steel frame. At the ends of the frame are welded the two channels carrying retaining clamps to secure the table to the runners on which it is mounted. See part 2 page 5.

The table top is drilled to accept two Carriers set No. 82 Mk. 1 or Mk. 2, or two Carriers set No. 81, or one of each. Holes to suit other carriers must be drilled by the user as required, for which instructions are given in the relevant radio set chapter. Note that the earth terminal indicates the front of the table.

Before fitting the carrier or carriers to the long table, remove the table from the runners. It will be difficult or impossible to bolt the carriers down with the table fixed to the runners. If two radio sets are to be installed, bolt both carriers to the table at the same time. After fitting the carrier or carriers, remount the table on the runners. To fit the table, unscrew the four clamps completely and remove them with the angle brackets. Lift the table top on to the runners and place it in the correct position, then re-assemble the clamps and brackets in their original positions. Tighten the four clamps to secure the table. A copper braid connector is supplied with the table. Fit it between the table and a good earthing point on the vehicle body.

(2) Table top, 23 x 13½

This is the short table, used in all ¾-ton and 1-ton FFR 'B' vehicles. It is supplied in the vehicle fitting kit for one-ton vehicles, or separately for ¾-ton trucks, and is fitted in the LH or RH rear corner to carry the third radio set when required, as shown in the typical installations in part 2 pages 46 and 84. It consists of a wooden top on a metal base and it is mounted on "top hat" sections bolted to the vehicle or on angle brackets fixed to the wall. The table is drilled to accept Carrier set No. 81 or 82 Mk. 1 or Mk. 2. Holes to suit other carriers must be drilled by the user as required, for which drilling instructions are given in the relevant radio set chapter in part 3 of this handbook. Two earth terminals are provided for earth leads. The 23-in. table must be securely mounted in the vehicle before the radio set carrier is fitted to it.

(3) Correct method of bolting set carriers to tables

Securing bolts are supplied in washer assemblies and are issued in set installation kits. Each washer assembly consists of a 2¼-in. bolt, four small washers, one 2-in. dia. washer plate, a nut and a lock nut. Two of the small washers are provided to compensate for variations in the thickness of the table top and on a thick table they will not be required. Each washer assembly should always be assembled with one, two or three small washers as necessary under the head of the bolt, the 2-in. washer plate between the resilient mount and the table to prevent the mount being drawn into the wood as the bolt is tightened, and a small washer, nut and lock nut under the table. Suitable tools are provided on the vehicle as part of the vehicle fitting kit. Bolts and nuts provided with the carriers should be returned to stores as they are not required when the washer assemblies are issued.

(4) Table top adapter, 16 x 9½

This adapter forms an extension to the 23-in. table in Trucks 1-ton armoured. It can be fitted to the table frame horizontally or in a sloping position. See part 2 page 56.

Section 7 STOWED ACCESSORIES

Headsets, rod aerials and other essential accessories are stowed in the truck ready to be fitted for operation and users should ensure that these items are always available when required.

When not in use, headsets and rod aerials should be kept in the containers provided for the purpose, to protect them from damage. Do not leave them lying about in the truck. All accessories should be maintained in a serviceable condition.

The list below shows stowed equipment and where each item should normally be carried. Many radio stations do not include all these items as the actual list depends upon the radio sets installed and upon the employment of the station. Users should compile a stowage list for each radio station and before commencing an operation they should check that all essential accessories are stowed in the truck.

List of Stowed Accessories

Equipment	Where Supplied	Where Stowed
Microphone	Multi-purpose kit	Haversacks
Headset earphones	" "	
Handset remote control	" "	
'O' box	" "	
'K' box (when required)	Installation kit	
User handbooks	Set kits	
Antennae rods (middle and lower)	Multi-purpose kit	Case aerial
Antennae rod (top section for HF sets)	Installation kit	
Spare lamps and fuses	Installation kit	Case maintenance kit
Wrench keys	" "	
Cable coaxial, 3-ft.	Multi-purpose kit	Lockers when available
Cable coaxial, 50-ft.	" "	
Cable twin, 6-ft. 6-in.	" "	
Cable 6-condr., 30-ft.	" "	
Cable D10 dispenser pack	" "	
Carriers fixed and free for 'K' box	HF install. kit	
Clamp to fasten aerial base No. 31	" "	
Couplers plug and chain assy.	" "	
Lead counterpoise, 25-ft.	" "	
Rod earth, 36-in.	" "	
Tool adjusting for aerial base No. 31	" "	
Connector single No. 228, 12-in.	C11 install. kit	
Connector 4/2-pt. No. 3, 6-ft.	" "	
Support aerial MS	VHF install. "	
Tool kit (See page 20)	Vehicle fitting kit	

Section 8 CONVERSIONS

If the radio station is to be made up with new equipment, the necessary kits as listed on page 3 will be provided. But if the station has to be assembled by converting an old type "made to measure" installation, users will be given a conversion kit instead of the various new kits and they will then have to obtain the remaining items from the old installation. Old installation plus conversion kit will give all the items now supplied in set kit, installation kit, vehicle fitting kit and multi-purpose kit. A list of the equipment required to install a complete radio station is given in the relevant chapter in this handbook. Fitting instructions are the same whether this equipment is supplied in a new kit or taken from an old installation. Users must retain all surplus items. See section 9.

Section 9 SURPLUS EQUIPMENT

After installing the radio station, collect all items which are surplus to present requirements. Pack and label them and deposit them in unit stores. Items surplus in one installation will be essential in another. They must be available for use if at a later date the kits have to be transferred to a non-FFR vehicle or for any other type of conversion. Spare screws, nuts, washers, etc., should also be kept for future use.

Section 10 TESTING THE INSTALLATION

After completing the installation inspect all fittings, ensuring that screws and nuts are securely tightened. Check that all connectors are correctly fitted and locking rings screwed up firmly by hand. Ensure that the equipment is clean and dry. Carry out a thorough mechanical test on the installation. This can best be achieved by driving the vehicle for a few miles over uneven road surfaces. Check any brackets or other fittings which show defects and repeat the test.

Although the radio equipment should have been inspected when it was issued from stores, it is advisable to ensure that its serviceability has not since been impaired. Conduct normal routine tests in accordance with the user handbooks.

Section 11 OPERATING INSTRUCTIONS FOR THE RADIO SETS

General descriptions and full operating instructions for radio sets are contained in the user handbooks issued with the sets. See part 4. Part 4 also gives additional operating instructions, covering control harness features and remote aerials not included in the radio set user handbooks.

Note that mileage ranges quoted in the radio set chapters are arbitrary figures and may vary considerably according to operating conditions and environment. Choice of a suitable site and parking position is important. When the radio station is operated in a stationary truck using rod aerials, communication can often be improved by turning the truck. It may be necessary to reposition the truck several times before the best position is found.

Section 12 SERVICING

No installation can be expected to work properly unless it is kept in first class condition by regular servicing, conscientiously carried out. This servicing is the responsibility of the NCO or man who is in direct charge of the equipment and responsible for its operation, NOT of workshop or repair staffs, though workshop personnel may be called upon to carry out certain servicing tasks. To guide the NCO or man responsible for servicing and to ensure that it is done, it has been laid down that signal equipment will be serviced on the task system and that completion of each task will be recorded on Army Form B2661 - operator servicing log. Completion of servicing tasks will be recorded by

initialling in the spaces provided on the front of the form; all repairs and replacements will be recorded on the reverse. The form lasts 24 weeks and replacements should be obtained on indent in the normal way. Servicing tasks to be carried out daily, weekly and monthly by the user are listed in the servicing chapters of the relevant user handbooks, which show the full servicing required for an installation in continuous use. In conditions where this does not apply, the frequency with which each task is carried out will be detailed by the commander concerned.

Section 13 SEALED EQUIPMENT

Control harness boxes and radio units are sealed and operators must not loosen any fixing screws or in any way attempt to remove cover plates from boxes or control units. In particular control knobs should not be tampered with as this might damage the spindle sealing glands. When adjustments or replacements are required which involve opening a sealed unit, the unit should be sent to workshops.

Royal Signals radio technicians may open a sealed unit for servicing, so far as their technical ability and the equipment and spares in their possession allows, either on the initiative of the technician, when absolutely necessary to restore essential communications, or on the authority of the Officer Commanding. These are the only occasions when Royal Signals radio technicians may open a sealed unit. If a sealed unit is opened in accordance with these conditions, it should be done only in a clean and dry situation. Ensure that the risk of dust or moisture getting into the equipment is as small as possible. The equipment must be sent to workshops for testing of the seals, and drying out if necessary, as soon as possible after an emergency opening.

Section 14 GROUND STATIONS

Radio sets can be dismounted from the vehicle and operated on the ground or in a building. Dismountable ATU assemblies incorporate an aerial base for use in a ground station or with a remote aerial. In a ground station the general layout of units must remain unchanged in order to use the existing inter unit connectors. Operating procedure is the same whether the set is fitted in a vehicle or on the ground.

With the exception of C11 and C12, all radio sets, ATUs and control harness boxes are sealed to withstand exposure. The C11 and its PSU are not completely sealed; these two units have air inlets and outlets which must be open when the transmitter is switched on. The assembly must therefore be kept clear of the ground and covered in wet weather. Handles are provided on the trays fitted to the tops of the sets so that the sets with control equipment can be lifted from the vehicle almost completely assembled. As separate aerial bases are provided for remote aerials the mountings on the vehicle should not be removed when a vehicle station is transferred to the ground.

Section 15 RECOVERING KITS FROM A VEHICLE TO BE EVACUATED

If the vehicle is evacuated as "beyond local repair", or if for any other reason it is removed from the charge of the unit holding the radio equipment this equipment must be dismantled. This includes the radio set kits, radio installation kits and multi-purpose kits. All items in these kits, including stowed items, must be removed. They should be retained by the unit to await installation in a replacement vehicle. If the replacement vehicle is an FFR type the FFR equipment in the original vehicle should not be dismantled. If the replacement vehicle is a cargo type, or if it contains equipment on the old FFW standard, the FFR equipment should be dismantled from the original vehicle and transferred to the replacement. FFR equipment is shown in the vehicle fitting kit list in the relevant chapter of this handbook and fitting instructions are given in the appropriate EMER.

Failure to remove complete kits from an evacuated vehicle will cause considerable delay and difficulty in re-installing the radio station in a replacement vehicle.

CHAPTER 3
KIT LISTS

C O N T E N T S

Section 1 GENERAL INFORMATION

(1) Where to find kit lists

Details of the multi-purpose kit used in all installations and of other kits which can be used in any installation are given in this chapter. Details of set kits, installation kits, etc., intended for use with one particular radio set, are given in the chapter dealing with that set. Details of vehicle fitting kits and other kits intended for use with one particular vehicle are given in the chapter dealing with that vehicle.

(2) Catalogue numbers and designations

Two types of Cat No. are quoted in these kit lists and in the lists included in vehicle and radio set chapters. New items are given a 15-digit Cat No., for example Z1/5820-99-949-0985. Existing items have a 7-digit VAOS Cat No., for example ZA 55683. In addition, many items are given both numbers. The designations and Cat Numbers of these items have been changed from the old type to the new type and the former VAOS Cat. No. is included in the description to provide a cross reference for an item already in service under a different name.

Section 2 MULTI-PURPOSE KIT

This kit contains equipment to fit any radio set into any vehicle and to operate it. One multi-purpose kit is required for each set installed. If three sets are installed, three multi-purpose kits are required and any redundant items should be retained in unit stores for future use. Multi-purpose kits are available in 12V and 24V versions. The two versions are identical except for the J1, which must have the same voltage rating as the radio set to which it is connected. The 24V kit is listed in full and the variations in the 12V kit are shown below it.

Installation kit electronic equipment, multi-purpose radio, 24V (Z1/5820-99-949-2810)

For details see CES No. 42900

Description	Remarks	Number on Connector diagrams
Aerial element, 4-ft. (two) (Z1/5820-99-949-0985) (ZA 44683)	Antennae rod (upper section)	
Aerial element, 4-ft. (two) (Z1/5820-99-949-0995) (ZA 44682)	Antennae rod (lower section)	
Cable assy. RF Co-axial, 3-ft. (Z1/5995-99-949-0999) (ZA 46971)	Set to ATU	16
Cable assy. RF Co-axial, 50-ft. (Z1/5995-99-949-1016) (ZA 47107)	Set to Remote ATU Two others for use with HF sets are supplied in HF installation kits	25
Cable assy. twin, 6-ft. 6-in. (Z1/5995-99-949-1001) (ZA 47108)	LT box to battery (angle socket - two lugs)	70
Cable assy. 6-condr. 30-ft. (Z1/5995-99-949-1080) (ZA 46732)	Headset extension straight plug - straight socket	80
Cable assy. 12-condr. 3-ft. 6-in. (Z1/5995-99-949-1477)	Set to J1 straight plug - angle socket	28
Cable elec. D10 twisted pair (Y3/6145-99-942-6314)	½-mile dispenser pack	
Case aerial (Z1/5985-99-949-1061) (ZA 11550)	To hold 4-ft. antennae rods	
Case maintenance kit, 1¾ x 4¼ x 7¼ (Z2/5820-99-949-1009)	To hold spare fuses, lamps and wrenches	
Connector Co-axial No. 120, 9-ft. (Z1/ZA 50413)	Set to ATU Alternative length	17
Connector twin No. 400, 3-ft. type GA (two) (Z1/ZA 54389)	LT box to J1, LT box to PSU on all sets except C11. (angle each end)	41
Connector 4/2-pt. No. 4, 5-ft. type C (Z1/ZA 51401)	LT box to terminal batten (angle socket - two eyelets)	68
Gasket rubber (Z1/5820-99-949-1082) (ZA 35728)	Fitted under VHF aerial base in 1-ton Radio (see part 2 page 96).	
Headset earphone (two) (Y1/5965-99-901-0725)(YA 9595)	See part 4 page 21	
Handset telephone (Y1/5976-99-901-0727) (YA 9311)	Remote control telephone See part 4 page 22	
Interconnecting box '0' (Z1/5820-99-949-1006) (ZA 46194)	'0' box See part 4 page 13	

Multi-purpose kit main items (Continued)

Description	Remarks	Number on Connector diagrams
Interconnecting box J1, 24V. Mk. 2 (Z1/5820-99-949-1214)	Mk. 1 may be issued See part 1 page 10	
Lead elec. 8¾-in. (Z1/5995-99-949-1075) (ZA 46905)	Copper braid (lug each end)	42
Lead elec. 10¾-in. (Z1/5995-99-949-1055) (ZA 46904)	Copper braid (lug each end)	6
Lead elec. single, 2-ft. 6-in. (Z1/5995-99-949-1068) (ZA 0781)	Battery series connector (lug each end)	64
Lead elec. single, 3-ft. (Z1/5995-99-949-1000) (ZA 47089)	Battery earth (lug each end)	66
Microphone hand with neckband (two) (Y1/5965-99-901-0717) (YA 11382)	See part 4 page 21	
Haversacks No. 1 (Z1/8465-99-949-0047)	To carry mic. and phones	
User handbook for Radio installations in FFR 'B' vehicles	W.O. Code No. 12798	

Fastenings, Spares, etc.

Fuse link cartridge, 2A 250V (X2/5920-99-059-0139)	3 spare for J1
Lamp fil. 28V 0.04A Midget (X5/6240-99-995-9118)	3 spare for J1
Screws, UNF, ¼ x ¾-in. (six) With nuts and spring washers	To secure VHF aerial base
Screws UNF, 5/16 x ⅞-in. (two) With nuts and flat washers	To secure a control unit
Plastic strip perforated (Y3/9930-99-943-4857)	To strap cables together
Studs polythene (Y3/5325-99-943-4855)	To fasten plastic strip

(2) Installation kit electronic equipment multi-purpose radio, 12V (Z1/5820-99-949-3107)

For details see CES No. 42933

Description	Remarks
Interconnecting box J1, 12V, Mk. 2 (Z1/5820-99-949-1213)	Mk. 1 may be issued
Lamp fil. 12V 1.2W midget	3 spare for 12V. J1

Section 3 'E' BOX CONTROL HARNESS KIT

Installation kit electronic equipment, harness type 'B' (E) (Z1/5820-99-949-2915)

For details see CES No. 42903

Description	Remarks	Number on Connector diagrams
Cable assy. 12-condr., 2-ft. 6-in. type CE (Z1/5995-99-949-2969) (two)	J1 to 'E' box (angle plug - straight socket)	32
Cable assy. 12-condr., 3-ft. 6-in. (Z1/5995-99-949-1477)	'E' box to 'C' box (straight plug - angle socket)	28
Connector 12-pt. No. 93, 11-ft. 6-in. type EC (Z1/ZA47098)	'C' box to 'C' box (straight plug - angle socket)	34
Control radio set 'C' (Z1/5820-99-949-1007) (two)	'C' box. See part 4 page 12	
Interconnecting box 'E' (Z1/5820-99-949-1757)	'E' box. See part 4 page 4	
Remote control rebroadcast unit MRRB (Z1/ZA 50246)	MRRB box. See part 4 page 6	

Section 4 J2 CONTROL HARNESS KIT

This kit is available in 12V and 24V versions. The two versions are identical except for J2 and 'R' boxes, which must have the same voltage rating as the radio sets to which they are connected. The 24V kit is listed in full and the variations in the 12V kit are shown below it. See paragraph 4 on page 10.

(1) Installation kit electronic equipment, harness type 'B' 24V (Z1/5820-99-949-2914)

For details see CES No. 42916

Description	Remarks	Number on Connector diagrams
Cable assy. 25-pt., 14-in. type DF (Z1/5995-99-949-0964) (ZA 50158)	'R' box to 'B' box (angle each end)	31
Connector twin No. 394, 2-ft. 6-in. type A (Z1/ZA 49067)	LT box to power terminals (angle socket - two eyelets)	71
Connector twin No. 400, 3-ft. type GA (Z1/ZA 54389)	LT box to LT box on second set (angle each end)	41
Connector 12-pt. No. 93, 11-ft. 6-in. type EC (Z1/ZA 47098)	J2 to 'C' box in cab (straight plug - angle socket)	34
Cable assy. 12-condr., 2-ft. 6-in. type CE (Z1/5995-99-949-2969)	J2 to 'C' box (angle plug - straight socket)	32
Cable assy. 25-pt., 7½-in. type GG (Z1/5995-99-949-0963) (ZA 49908)	J2 to 'R' box (angle each end)	30
Control radio set 'R' 24V (Z1/5820-99-949-1216)	'R' box. See part 4 page 20	
Control radio set 'C' (Z1/5820-99-949-1007)	'C' box. See part 4 page 12	

Description	Remarks
Fuse link cartridge, 2A 250V (X2/5920-99-059-0139)	3 spare for J2
Interconnecting box 4-way No. 1 (Z1/5820-99-949-1172) (ZA 49790)	LT box with 2-pt. input
Interconnecting box J2, 24V (Z1/5820-99-949-1098)	See part 4 page 14
Interconnecting box rebroadcast 'B' (Z1/5820-99-949-1024)	'B' box. See part 4 page 18
Lamp fil. 28V 0.04A Midget (X5/6240-99-995-9118)	3 spare for J2
Screws UNF hex, 5/16 x $\frac{7}{8}$-in. (two) With nuts and washers	To secure a 'C' box

(2) Installation kit electronic equipment, harness type 'B' 12V (Z1/5820-99-949-3094)

For details see CES No. 42932

Description	Remarks
Control Radio set 'R', 12V (Z1/5820-99-949-1215)	All the remaining items in
Interconnecting box J2, 12V (Z1/5820-99-949-1168)	this kit are the same as
Lamp fil. 12V 1.2W midget (X5/6240-99-949- 9120)	those in the 24V kit

Section 5 LOUDSPEAKER (ALS) KIT

Loudspeaking kit for multi-purpose radio installation Z1/5820-99-949-3101)

For details see CES No. 42934

Description	Remarks
Amplifier AF, 2W 24V (Y1/5805-99-100-1694)	See part 4 page 10
Bracket double angle MS, 11 x $1\frac{1}{4}$ x $\frac{5}{8}$ (Z2/5340-99-949-1081)	To mount the carrier
Carrier battery No. 34 (Z2/ZB 14966)	Holds two 12V 22 Ah batteries
Cable assy. 2-condr., 8-ft. (Z1/5995-99-959-3105)	Amplifier to battery (angle socket - two lugs)
Carrier amplifier (LV9/AHY/5820-99-200-0999)	

Description	Remarks
Cable assy. 3-condr., 2-ft. (Z1/5995-99-949-1012)	Amplifier to loudspeaker (straight entry each end)
Cable assy. 6-condr., 8-ft. 6-in. (Z1/5995-99-949-2970)	'T' box to 'T' box (angle each end)
Cable assy. 6-condr., 18-ft. (Z1/5995-99-949-2971)	J1 to amplifier (angle each end)
Connector single, 18-in. (Z1/ZA 54241)	Battery series connector (lug each end)
Connector 3-pt. No. 105, 23-ft. (Z1/ZA 53725)	Loudspeaker extension (straight entry each end)
Connector 6-pt. No. 36, 18-in. (Z1/ZA 54300)	Amplifier to 'T' box (angle each end)
Interconnecting box 'T' (two) (Z1/5820-99-949-1023) (ZA 46195)	'T' box. See part 4 page 10
Loudspeaker S1, 5-in. 3-ohm. (Y1/YA 11417)	
Loudspeaker PM 9-ohm., 3¼-in. (Y1/5965-99-901-0731)	Alternative loudspeaker

Section 6 TOOL KIT

Each vehicle fitting kit includes the undermentioned tools to enable the user to fit and remove the kit. These tools should always remain with the vehicle fitting kit, either in the FFR vehicle or in the vehicle to which the vehicle fitting kit has been transferred temporarily.

Spanner, American thread, open jaw, double end, 7/16 x $\frac{1}{2}$ (F1/FA17096)
" " " " " " " 9/16 x $\frac{5}{8}$ (F1/FA17097)
" " " box tubular, double end, $\frac{3}{8}$ x 7/16 (F1/FA17052)
" box, unified and American, double end, 50 x 56 AF ($\frac{1}{2}$ x 9/16) (F1/5120-99-942-7813)

Tommy bar, 3/16 x 4 (F1/5120-99-910-6536)
" " $\frac{3}{8}$ x 6 (F1/5120-99-910-6539)

ASSOCIATED USER HANDBOOKS

User handbook	WO Code No.
A41	12336
B47	11791
B48	12275
C11	12052
C12	11562
C13	12289
C42	11197
C45	11792
BE201	11147
R 209 Mk. 2	10710
R 210	12051
Apparatus loudspeaking No. 19 ...	11356
Braid aerials	12781
Control harness type 'B' ...	11195
Elevated aerial 23-38 Mc/s Kit No. 1	12341
Elevated aerial 36-60 Mc/s Kit No. 1	12060
Mast 27-ft. telescopic	12059
Rejector unit B47	12435
Rejector unit B48	12436

Reference numbers of EMER modification and fitting instructions are given in the relevant chapters in part 2.

PART 2
VEHICLES

CONTENTS

Reprinted October 1963 incorporating amendment list No. 1

RESTRICTED

CHAPTER 1
TRUCK FFR ¼-TON AUSTIN

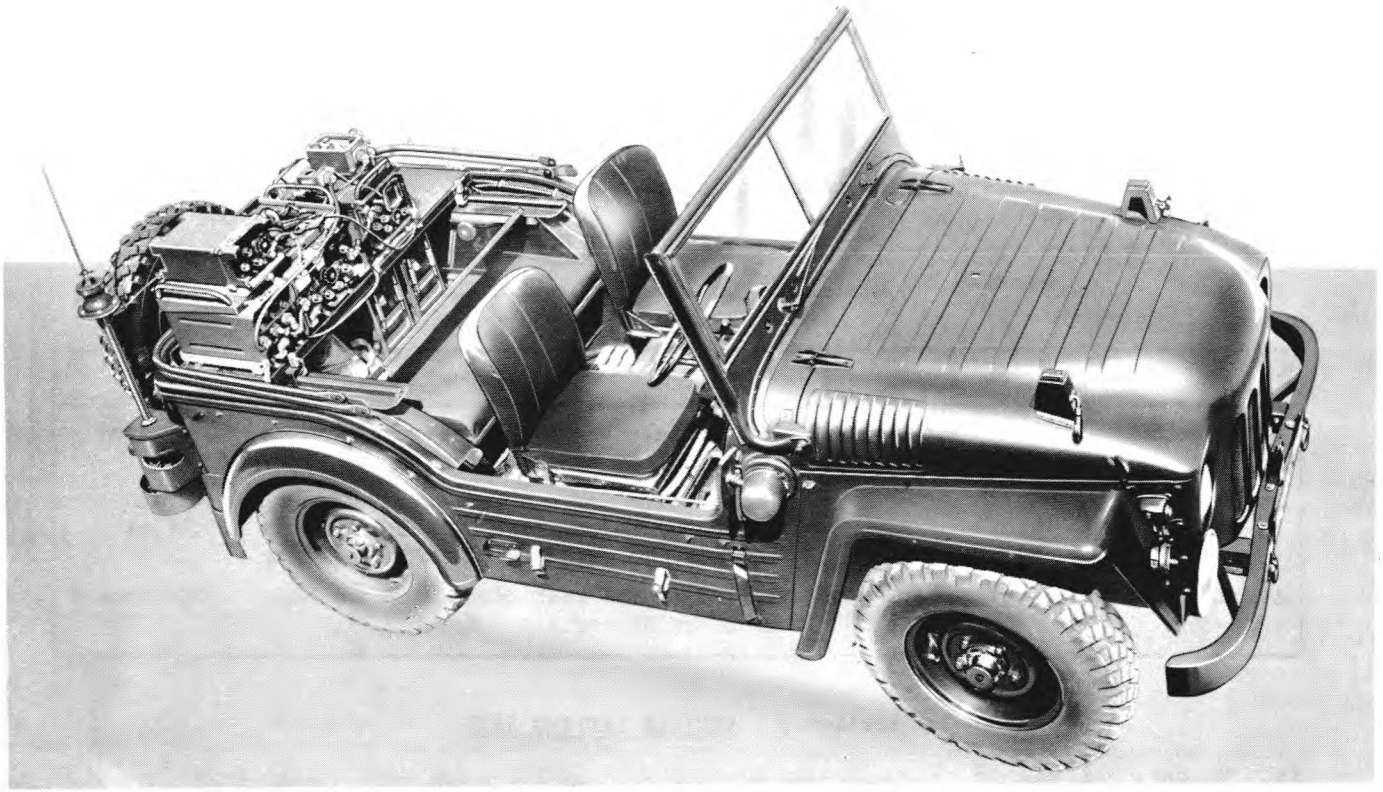


FIG. 1 ¼-TON AUSTIN WITH C11-R210

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck FFR ¼-ton 4 x 4 Austin contains the radio equipment listed in sections 2 and 3 below and is ready for the user to install his installation kit and multi-purpose kit. Fig. 1 shows the truck with C11-R210 installed.

(2) FFW version

Truck ¼-ton GS FFW 4 x 4 Austin contains the basic radio fittings shown in section 2 below. The FFW version can be converted to the FFR version by adding the vehicle fitting kit (see section 3) as instructed in the EMER in section 4. If the vehicle has previously been used in a radio role it may not need drilling.

(3) Cargo version

This contains no basic radio equipment and would not normally be used for radio installations.

Section 2 BASIC RADIO FITTINGS IN FFR AND FFW TRUCKS

Description	Remarks
Suppression	The vehicle should have been suppressed to current standards in accordance with the relevant EMER.
Power take-off (24V)	Radio batteries can be connected to the vehicle generator in parallel with the vehicle batteries and charged when the engine is running.
Aerial mounting brackets (two)	Bolted to the rear corners of the body. RH bracket used for HF aerial. See fig. 1.

Section 3 VEHICLE FITTING KITS

(1) Vehicle fitting kit, radio, truck ¼-ton Austin or Rover (Z1/5820-99-949-3125)

For details see CES No. 42926. This is a common kit for all ¼-ton trucks. Items used in the Austin are marked AUSTIN or ALL in the following list. An alternative kit is shown on page 5. Fitting instructions are given in the EMER quoted on page 5.

Description	Used on	Remarks	Fig.
Backrest, 38⅝ x 12 x 1⅜ (ZB14896)	Austin	Fitted in place of the standard rear seat backrest.	3
Baseboard, 30 x 16 x ⅜ (ZB15002)	All	Screwed to the floor to strengthen it under the batteries.	2
Block wood hard, 30 x 1⅜ x 1⅜ (ZA51740)	Austin	Wood batten to prevent the lowered hood frame crushing the coaxial cables where they pass over the top rim of the wall.	3
Bracket aerial support steel	Rover 8-9		
Bracket mounting aerial base	Rover 1-5		
Bracket MS	Rover 1-5		

Description	Used on	Remarks	Fig.
Cable assy. coaxial, 14-ft. (Z1/5995-99-949-1036) (ZA46980) (two)	All	In conduit clamped to sides of truck. To connect ATU on wing to set on table (Connector No. 23)	10
Carrier battery, 17½ x 16 (ZB14743)	All	Screwed to the baseboard	2
Channel MS semicircular, 28¼ x ¾ x 16 SWG (ZA49660) (two)	Austin	Protects coaxial cables where they pass along the sides of the truck	
Connector 4-pt. No. 97, 12-ft. 6, type CE (ZA50325)	Austin	Power take-off connector fitted to junction box behind LH seat. Ready for connection to LT box on radio set. (Connector No. 74)	
Disc and bolt assy. 2¼ x 1¾ x 1¾ (ZB14895)	Austin	Two to support the backrest	3
Disc rubber and rivet assy. 3½-in. dia. (ZB14980)	All	HF aerial inlet. Riveted to hood adjacent to HF aerial base.	9
Mounting aerial base, 18-in. No. 1 (ZB14939)	All	For HF aerial base. Screwed into RH aerial mounting bracket.	19

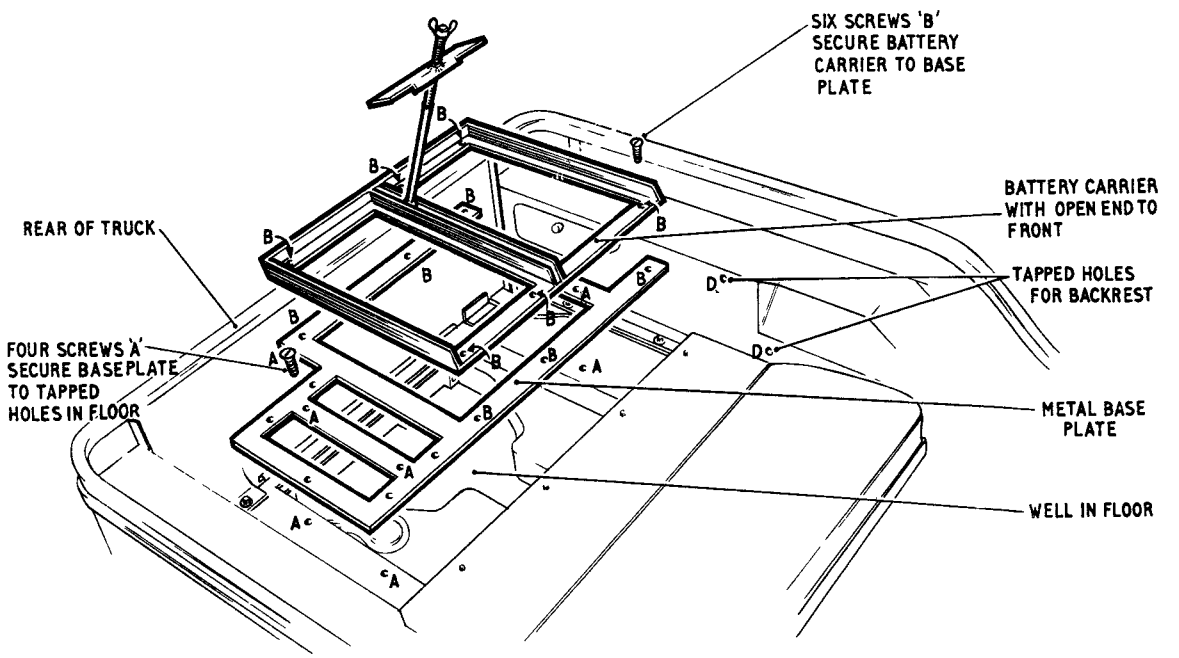


FIG. 2 METHOD OF FITTING THE BATTERY CARRIER AND BASEBOARD

Description	Used on	Remarks	Fig.
Plate and screw assy. No.1 & 2	Rover 1-5		
Plate assy. 7.9/16 x 6.7/8 Mk.2 (ZB14988) (two)	Austin	Bolted to each front wing for VHF ATUs.	10
Plate assembly stiffening	Rover 1-5		
Runner assy. 19 x 5 x 3½	Rover		
Runner assy. 33 x 5 x 1½ (ZB14897) (pair)	Austin	Screwed to the wheel arches	3
Table top, 50 x 16½ x 3⅛ (ZB14899)	All	Clamped to the runner assy.	4
Tool kit	All	See part 1 page 20	

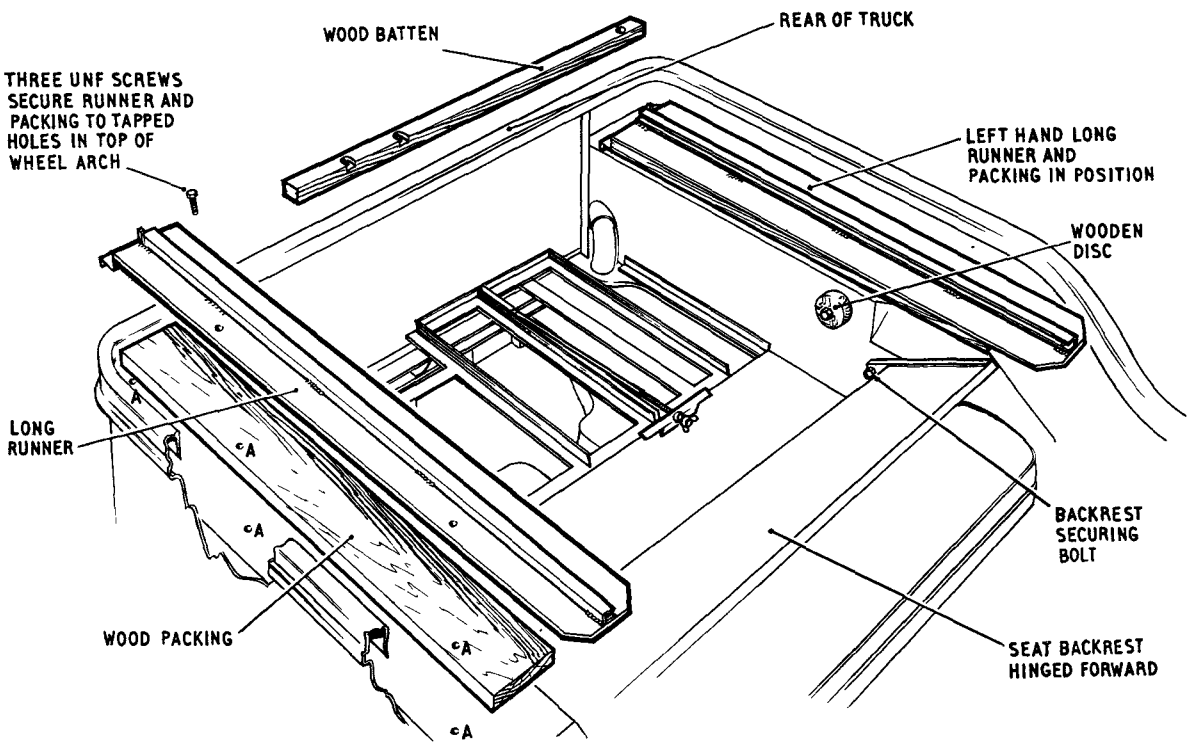


FIG. 3 METHOD OF FITTING THE TABLE RUNNERS AND BACKREST

(2) Vehicle fitting kit, radio, truck ¼-ton Austin (Z1/5820-99-949-3827)

For details see CES No. 42953. This kit is intended for use only on ¼-ton Austin as an alternative to the above kit. It contains items marked AUSTIN or ALL in the above kit and is fitted in accordance with the same EMER.

Section 4 EMER WV D.577 MOD INSTR. NO. 43

Issue 2 of the above EMER gives details of vehicle modifications and fitting instructions for the vehicle fitting kit in the Truck FFW ¼-ton Austin.

In addition to the modifications for the vehicle fitting kit, two holes are drilled in the dashboard shelf to fit a 'C' box when required. See fig. 11. These holes may exist if the vehicle has previously been used in a radio role.

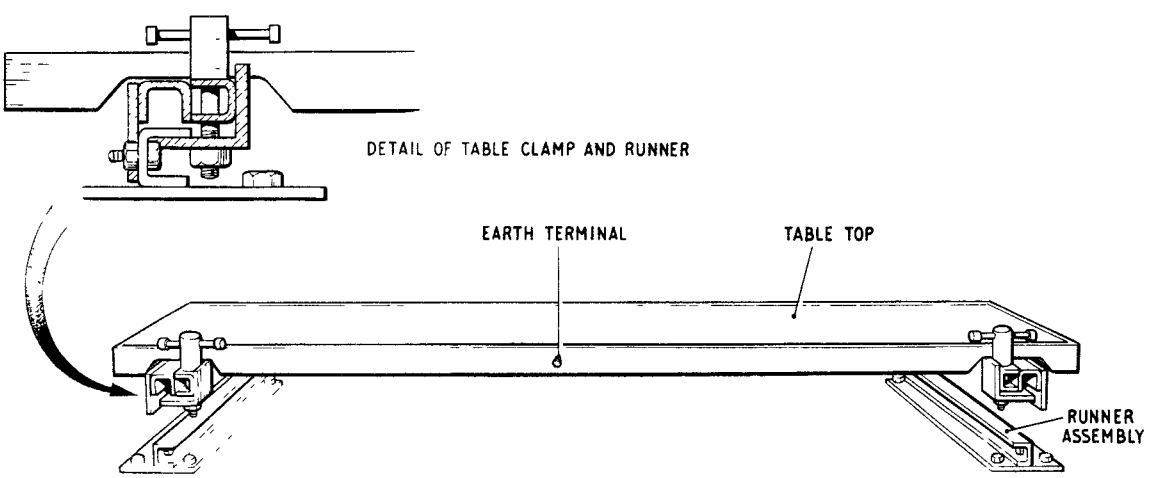


FIG. 4 TABLE TOP SHOWING RUNNERS AND DETAIL OF CLAMP

Section 5 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of a set installation kit and a multi-purpose kit in a Truck FFR ¼-ton Austin can be transferred readily into any other FFR vehicle. Retain all surplus items for use if the station is transferred to a different make of truck.

(2) FFW version of ¼-ton Austin

It can be transferred to an FFW version if the essential items of the vehicle fitting kit are moved with it. For an HF set, transfer the hood if possible as this has the rubber disc riveted to it. For a VHF set, temporarily connect the VHF ATU on the front wing to the set on the table by means of the 50-ft. coaxial cable normally used with the remote aerial. Lash this cable to the truck.

(3) ¼-ton Rover cargo

A radio station in a ¼-ton Austin FFR truck can be transferred to any mark of ¼-ton Rover cargo truck. Move items marked ROVER or ALL in the vehicle fitting kit list.

(4) ¾-ton Rover cargo

It can be transferred to a ¾-ton Rover cargo truck if items marked ROVER 8-9 or ALL in the vehicle fitting kit list are moved with it.

(5) Transfers not practicable

It cannot be transferred from an FFR version into a cargo version Austin ¼-ton truck, nor can it be transferred into a non-FFR version of any other type of truck.

Section 6 SPECIAL NOTES

(1) Sets facing forward

In this truck the radio sets are mounted to face forward. Consequently the general rule of set positions is reversed in relation to the truck but the HF set is still at the operator's left hand as he turns to face it. See fig. 1.

(2) Sliding table

In the Austin ¼-ton truck the table slides forward to give access to the radio batteries. When operating an HF set it should be fixed at the rear of the runners so that a short aerial connector can be used.

(3) Weight limitations

A C11-R210 should not form part of a two-set installation in a ¼-ton truck. The combined weight of C11-R210 and for example C42, would exceed the permitted load for a ¼-ton Austin.

(4) Two HF sets

No provision is made for fitting two HF aerials on this truck as only one mounting is provided in the vehicle fitting kit.

Switch off before disconnecting batteries

Section 7 RADIO SET POSITIONS

See fig. 5 and paragraph 1 in section 6 opposite

Radio set	Set positions		Aerial positions			
	1	2	A	B	C	D
Single HF set (See fig. 1)		HF			HF	
Single VHF set	VHF		VHF			
C13/C42	C42	C13	C42		C13	
C42/B47	B47	C42	B47	C42		
C45/C45 (If a J2 harness is used, fit it on the 'B' set.)	B set	A set	B set	A set		
C42/BE201	C42	BE201	C42	BE201		

Section 8 INSTALLING RADIO SETS

After the vehicle fitting kit has been installed, fit the batteries as on page 8. Then mount the radio set on the table as instructed in the relevant radio set chapter in part 3. Positions of sets are shown above.

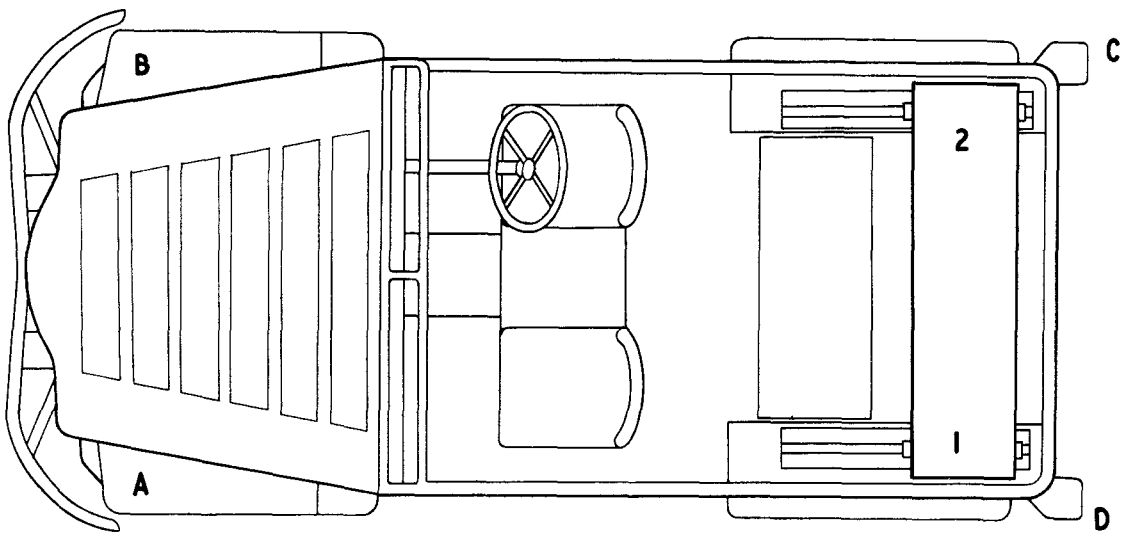


FIG. 5 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 9 RADIO BATTERIES

(1) 24V supply

Load two 12V 75 Ah batteries into the battery carrier and position them so that the lids open outwards. Battery leads should be connected before the clamp is tightened down. See paragraph 4.

Note that in the Austin it is necessary to slide the table forward in order to fit the batteries into the carrier and attach the connectors, after which the table should be moved back to its position at the rear of the runners and clamped. Check the copper braid earth connection between one end of the table and a bolt in the wheel arch.

(2) 12V supply

For a 12V equipment, one 12V or two 6V batteries may be provided. Do not connect a 12V installation to the 24V power take-off.

(3) Power take-off

Fit the free end of the 4-pt. power take-off connector to the 4-pt. plug on the LT box on the set. This connector is part of the vehicle fitting kit. It is connected to the power take-off junction box behind the LH seat and secured in clamps.

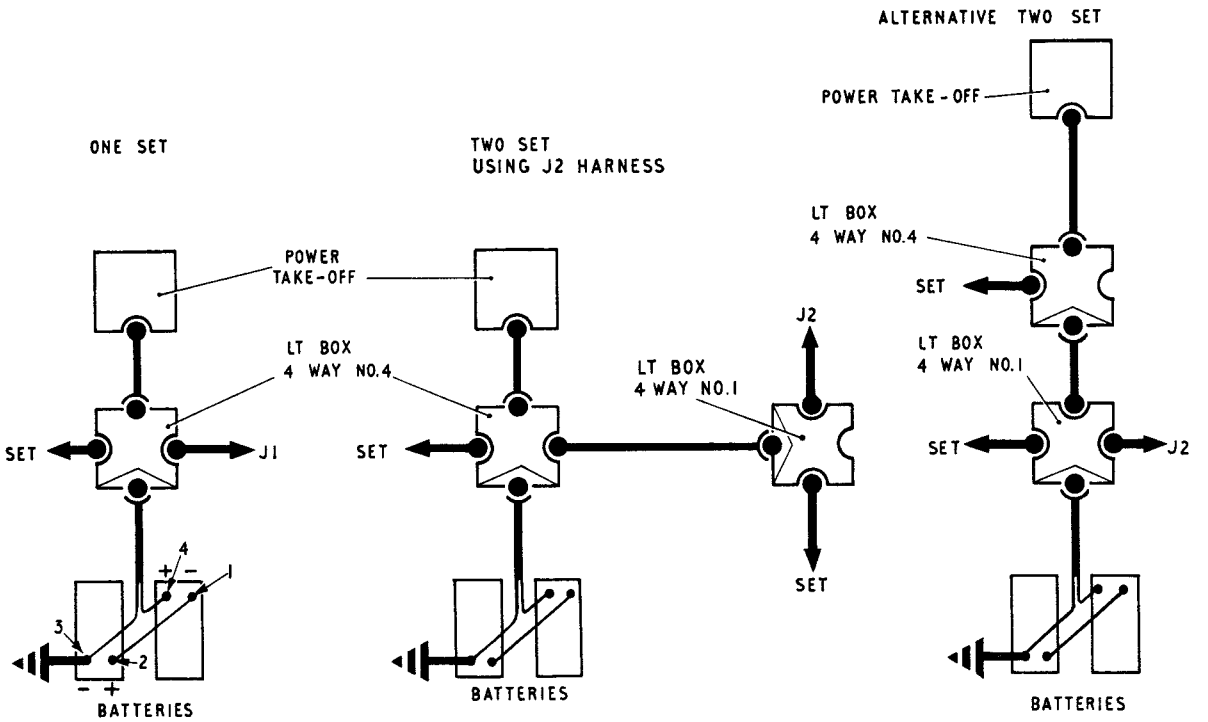


FIG. 6 BATTERY CONNECTIONS TO ALTERNATIVE LT BOXES

(4) Battery connections

It is very easy to short circuit the power supply when metal cased batteries are used in metal floored vehicles and loose leads are allowed to come into contact with either the case of the battery or the metal floor or framework. Such a short circuit will cause severe damage by allowing a very heavy current to flow in the negative lead to the equipment. Before connecting batteries, see that one end of the earth connector (lead electrical single, 3-ft.) is firmly secured to the earth terminal on the metal baseboard under the battery carrier. This earthing screw is shown in fig. 13. To minimise the risk of short circuits, always fit battery connections in the order shown on the batteries in the LH diagram in fig. 6.

(a) First fit the series connector (lead electrical single, 2-ft.6-in.) between the negative terminal on one battery (1 in fig. 6) and the positive terminal on the other (2 in fig. 6). The terminals to which the series connector is fitted must not now be used for any other connections.

(b) Fit the free end of the 3-ft. earth connector to the vacant negative terminal (3 in fig. 6).

(c) Fit the negative lead of the power supply connector to the same terminal as the earth connector (3 in fig. 6). Do not use terminals occupied by the series connector.

(d) Then fit the positive lead of the power supply connector to the vacant positive terminal (4 in fig. 6).

(e) Finally fit the socket end of the power supply connector to the LT box on the set.

(f) Disconnect batteries in the reverse order.

(5) "Live" lugs on the battery connector

When a 24V kit is installed in a Truck FFR ¼-ton Austin, the radio batteries are connected in parallel with the vehicle batteries so that they can be charged from the vehicle generator. The power take-off is connected to the LT box on the set as shown in fig. 6. As a result of this arrangement the lugs on the ends of the radio battery lead are "live" when disconnected from the battery, unless the battery lead is first detached from the LT box on the radio set. In the same way the lugs become "live" when the battery lead is connected to the LT box. If these lugs are brought together, or if the positive lug comes into contact with the vehicle, a short circuit will occur and the vehicle batteries will rapidly discharge. Consequently, always connect and disconnect this battery lead as shown below.

WARNING

DISCONNECTING BATTERY LEAD

REMOVE THE SOCKET END FROM THE LT BOX ON THE SET BEFORE DISCONNECTING THE LUG ENDS FROM THE RADIO BATTERIES.

CONNECTING BATTERY LEAD

CONNECT THE LUG ENDS TO THE BATTERIES BEFORE FITTING THE SOCKET END TO THE LT BOX.

(6) Connections to LT boxes

In a one-set installation with a J1, the LT box 4-way No. 4 is fitted between batteries and power take-off, giving power sockets for set and J1 as shown in the LH diagram in fig. 6. For a two set installation using the J2 harness, where additional power sockets are required, an LT box 4-way No. 1 is supplied in the J2 harness kit and can be connected either to one of the power sockets on the first LT box, as in the centre diagram in fig. 6, or between that LT box and the batteries as shown in the RH diagram in fig. 6. All other connectors are shown in the relevant radio set chapter.

Section 10 HF AERIAL

NOTE - Slide the table back and clamp it at the rear of the runners so that the HF aerial connector is kept as short as possible. Remember to release the connector from the ATU before sliding the table forward to change batteries.

(1) Aerial connector

Users should make up an aerial connector of the exact length to reach between the aerial base and the ATU. This connector must be fitted at the same time as the aerial base. The following equipment is supplied in the HF set installation kit:

Aerial base No. 31 with adjusting tool to tighten the gland nut
Clamp aerial base
Cable electric P11
Gland nut with washer
Insulating beads (50) with four rubber clamps
Lug special
Plate plastic, ¼-in. ID x 5-in. OD x ⅛-in. thick

(2) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer supplied with it. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(3) Clamping the aerial base to the mounting on the vehicle

The clamp secures the aerial base and the plate plastic to the top flange on the aerial mounting without the use of screws and nuts. Fit it as follows:

(a) Thread the free end of the cable through the centre hole in the plate plastic and down through the hole in the centre of the mounting on the truck. Position the plate plastic on the top of the mounting and line up the six bolt holes.

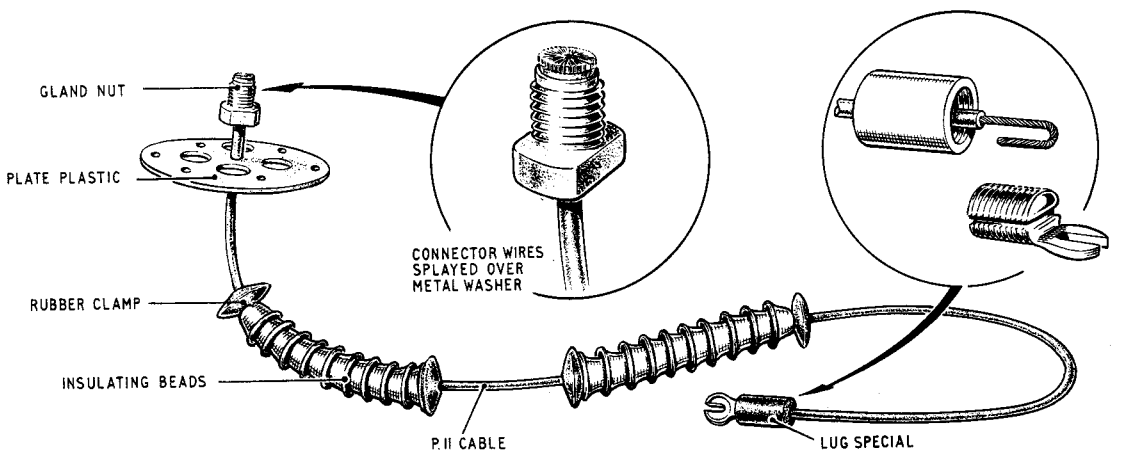


FIG. 7 MAKING THE HF AERIAL CONNECTOR

(b) Fit the two halves of the clamp on the plate plastic, screw clamp upwards as in fig. 8, and engage the two dowel pins in any two adjacent holes. Position it so that the clamp does not project outwards from the side of the vehicle.

(c) Open the clamp sufficiently to allow the aerial base to be fitted on the two dowel pins. Draw the slack cable down through the centre hole in the plate plastic and assemble the aerial base on the dowel pins. Close the clamp to bring the holding lugs together so that they grip the mounting and plate underneath, and the aerial base on the top. Tighten the wing nut to secure the assembly. See fig. 9.

(4) Fitting the insulating beads on the cable

(a) Thread on the cable one rubber clamp, 25 beads with the open ends downwards, and the second rubber clamp. Slide the beads up firmly against the underside of the plate plastic to prevent the cable coming into contact with the aerial mounting bracket.

(b) When the hood is fitted, thread the connector through the hole in the centre of the rubber disc on it. Do not leave any slack cable outside the vehicle.

(c) Inside the vehicle, thread on the cable another rubber clamp, the remaining 25 beads, and then the fourth rubber clamp.

NOTE - If the cable should touch any metal parts when the set is transmitting, the rubber insulation would be burnt off.

(5) Cutting the connector to the required length

Do not cut the cable before the HF set and its ATU are installed. After fitting the ATU, offer the cable up to the installation to ascertain the length required to reach to the ATU aerial terminal. The connector should be as short as possible without straining it as it must not touch any metal projections such as the corners of sets, etc. Allow approximately 4-in. free movement in the centre of the cable so that the flexing of the aerial base does not strain it. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

NOTE - The connector is an effective part of the aerial and must be kept as short as possible or the ATU tuning calculations will be upset and there will be a loss of output.

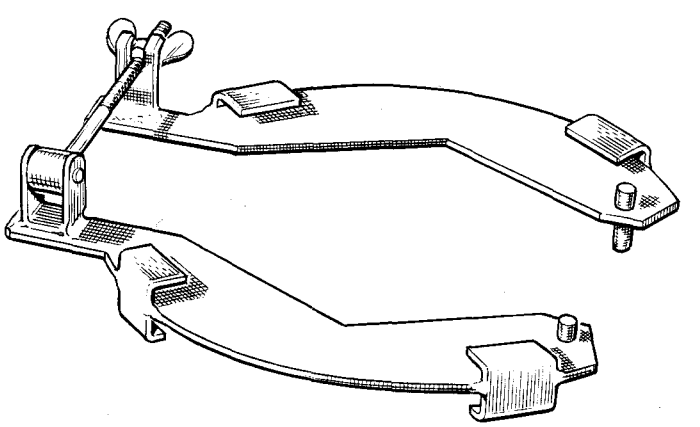


FIG. 8 CLAMP TO SECURE THE HF AERIAL BASE

(6) Fitting the lug to the cable

At the end of the cable, strip back the insulation for 1½-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. See fig. 7.

(7) Fitting the connector to the ATU

Fit the lug to the aerial terminal on the rear of the ATU. Finally, group the insulating beads between the two rubber clamps and slide them along the cable to the ATU end, or to any point where there is a risk of the cable touching any metal parts.

(8) Fitting the rod aerial

When it is required for use, fit the rod aerial into the aerial base. A 12-ft. rod should normally be used. Further information is given in the radio set handbook.

NOTE - Do not paint Aerial base No. 31. Paint has an adverse effect upon its special finish and reduces its efficiency.

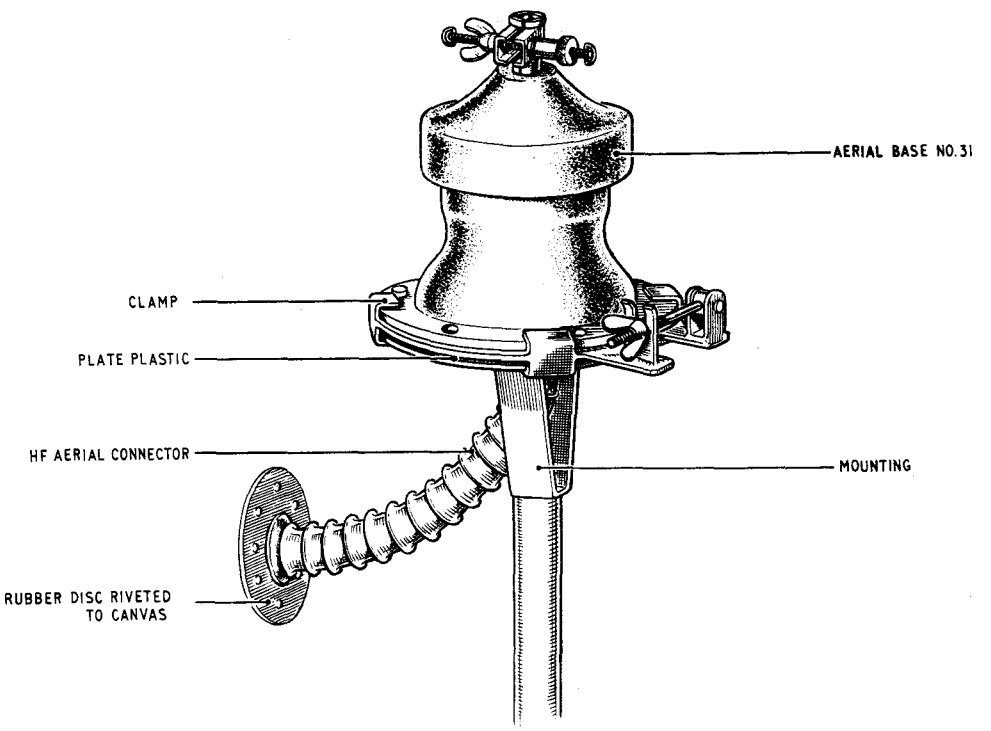


FIG. 9 HF AERIAL BRACKET AND BASE WITH CONNECTOR FITTED

Section 11 VHF ATU AND AERIAL

(1) Aerial base and tuning unit assembly

This assembly contains one of the following ATUs, all of which are identical in appearance: ATU No. 6 for C42; ATU No. 8 for B47 or A41; ATU No. 9 for C45; ATU No. 10 for B48. The assembly is shown fitted in fig. 10 and it can be dismounted for use with a remote aerial. **Before fitting the ATU, see the note on page 30.**

NOTE - Separate VHF aerial bases are not required on this vehicle as the rod aerial is fitted into the aerial base on the top of the assembly.

(2) Method of fitting

Plates are fitted on both front wings to strengthen them for VHF ATUs. Instructions on page 7 show which wing should be used. Fit the assembly, engage two locating dowels and secure it with the heavy clamping screw under the wing. Tighten the screw firmly by hand.

See that the rod aerial clamp at the top of the aerial base is turned to the front to provide maximum space between the clamp and the windscreen when this is lowered on to the vehicle bonnet. Rod aerials for VHF sets must not exceed 8-ft. in length.

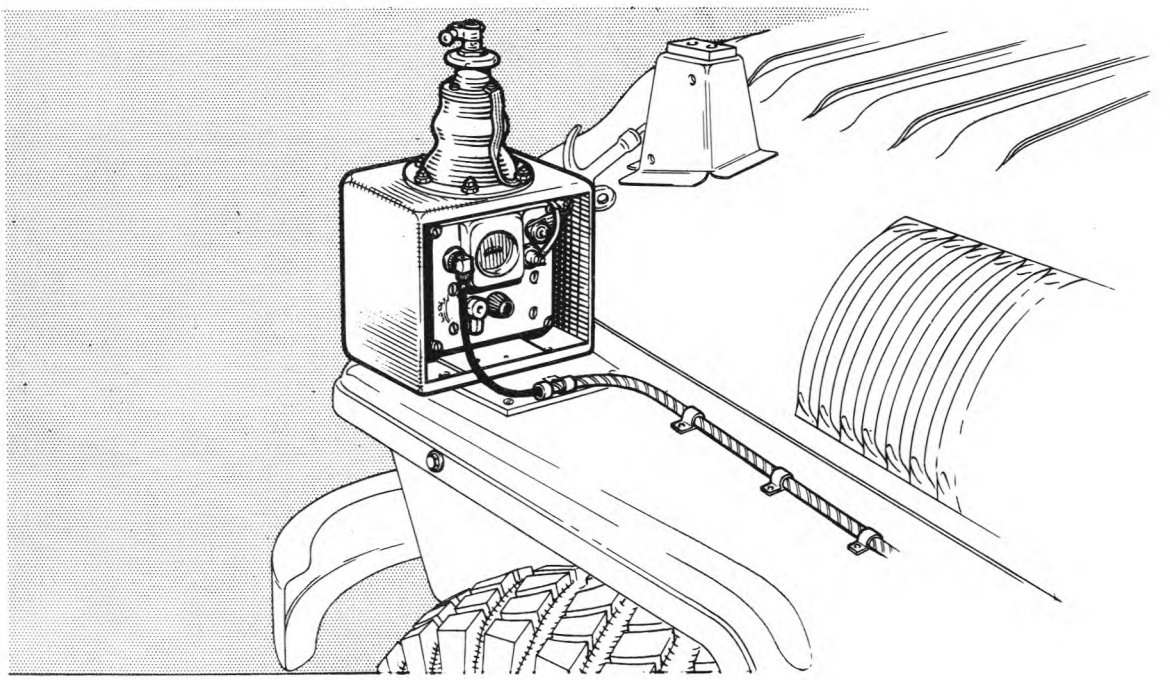


FIG. 10 DISMOUNTABLE VHF ATU SHOWN ON THE LH FRONT WING

Section 12 ADDITIONAL EQUIPMENT

When any of the kits shown in column 1 below are to be installed, the items shown against them are required.

Kit	Equipment required	Remarks	Fig.
'E' box harness	'C' box	Bolt to dashboard shelf. Fit the 12-way cable between 'C' box and harness. Run the cable back under the top lip of the LH wall and tie it to existing cables.	11
	'E' box	Bolt to improvised mounting	
	MRRB box	Bolt to improvised mounting	
Radio set B48	Carrier battery No.34	Screw down to baseboard at side of large battery carrier.	2
	Batteries 12V 22 Ah	Fit into Carrier battery No.34. These batteries are used when B48 is dismounted and operated as a remote ground station.	

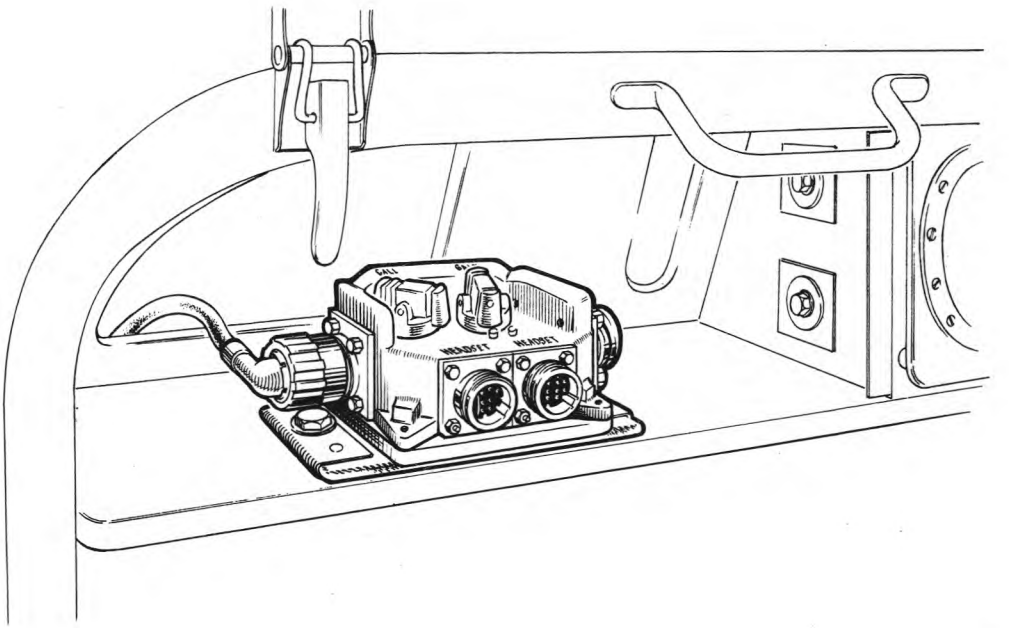


FIG. 11 'C' BOX FITTED TO THE LH DASHBOARD SHELF

CHAPTER 2
TRUCK FFR ¼-TON ROVER MKS. 1-5

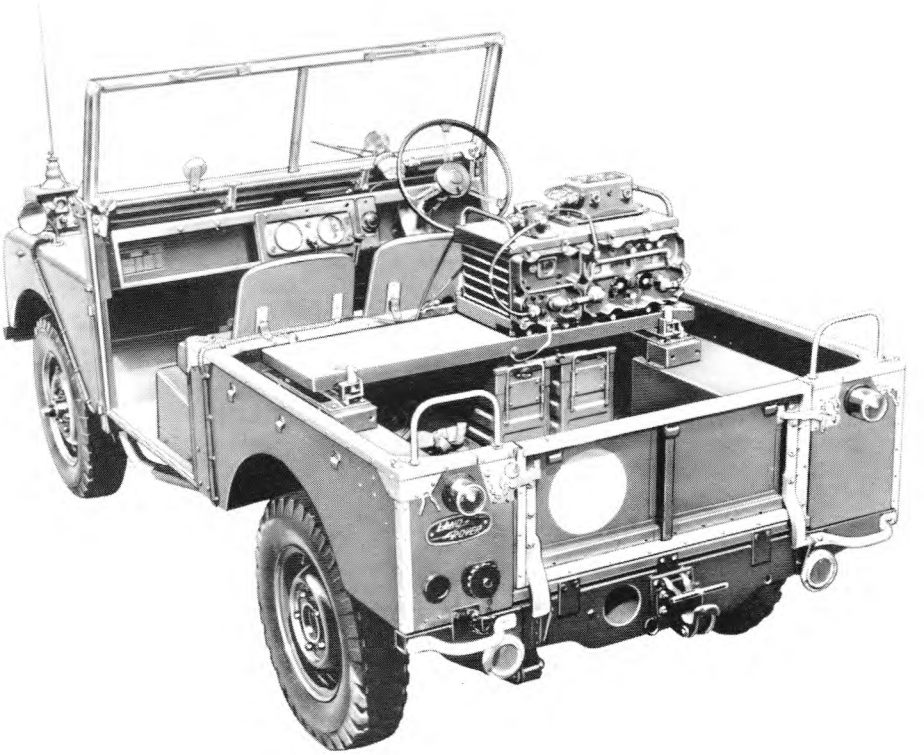


FIG. 12 ROVER MK. 5 WITH C42 OR C45

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version of Rovers Mk. 3 and 5 without power take-off

Truck FFR ¼-ton 4 x 4 Rover Mk.3 (86-in. wheelbase) or Mk.5 (88-in. wheelbase) contains the vehicle fitting kit listed in section 2 below, fitted in accordance with the EMER in section 3. It is ready for the user to install his multi-purpose kit and installation kits. Fig. 12 shows the truck with C42 installed.

(2) FFR version of Rovers Mk. 3 and 5 with 24V power take-off

As above but with 24V power take-off to charge radio and vehicle batteries. This 24V electrical system with AC generator is the same as that fitted to Rovers Mk. 8 and 9. See page 34.

(3) Cargo version

Cargo versions of Trucks ¼-ton 4 x 4 Rover Mks. 1 and 2 (80-in. wheelbase) and Mks. 3 and 5 can be converted to the FFR version by adding the vehicle fitting kit in section 2 as instructed in the EMER. The necessary holes may exist if the vehicle has previously been used in a radio role.

(4) Suppression

All the above vehicles should have been suppressed to current standards in accordance with the relevant EMER.

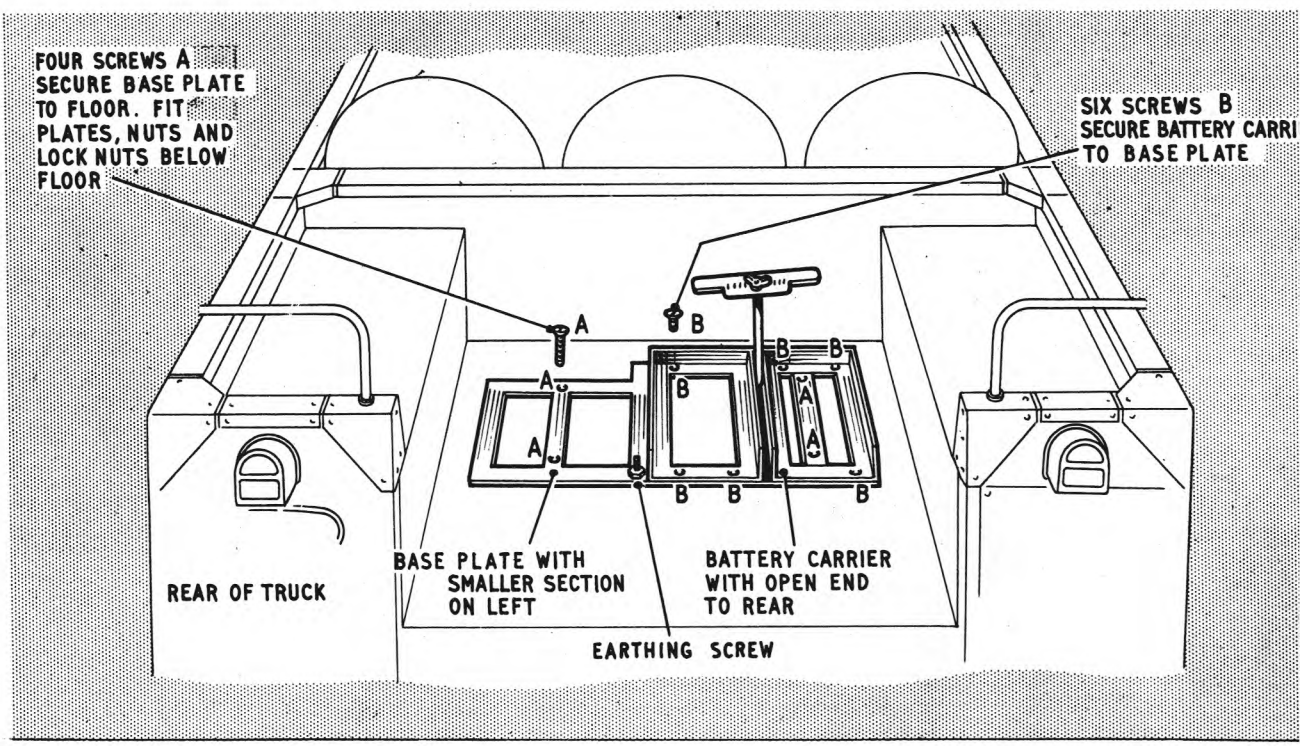


FIG. 13 METHOD OF FITTING THE BATTERY CARRIER AND BASEBOARD

Section 2 VEHICLE FITTING KIT

(1) Vehicle fitting kit, radio, truck ¼-ton Austin or Rover (Z1/5820-99-949-3125)

For details see CES No. 42926.

This is a common kit for all ¼-ton trucks. Items used on Rovers Mk. 1-5 are marked ROVER or ALL in the following list. An alternative kit is shown in paragraph 2 on page 18.

Description	Used on	Remarks	Fig.
Backrest	Austin		
Baseboard, 30 x 16 x ⅜ (ZB15002)	All	Bolted to the floor to strengthen it	13
Block wood hard	Austin		
Bracket aerial support steel	Rover 8-9		
Brackets mounting aerial base, 4⅝ x 3¾ No. 1 (ZA39117)	Rover 1-5	Bolted to brackets MS	20
Brackets MS 12 SWG, 6 x 2⅛ x 4 (ZA49659)	Rover 1-5	Bolted to side wall	20
Cable assy. coaxial, 14-ft. (Z1/5995-99-949-1036)(ZA46980) (two)	All	In conduit clamped to the sides of the truck. To connect ATUs on wings to sets on table (No.23 in the connector diagrams in part 3).	12

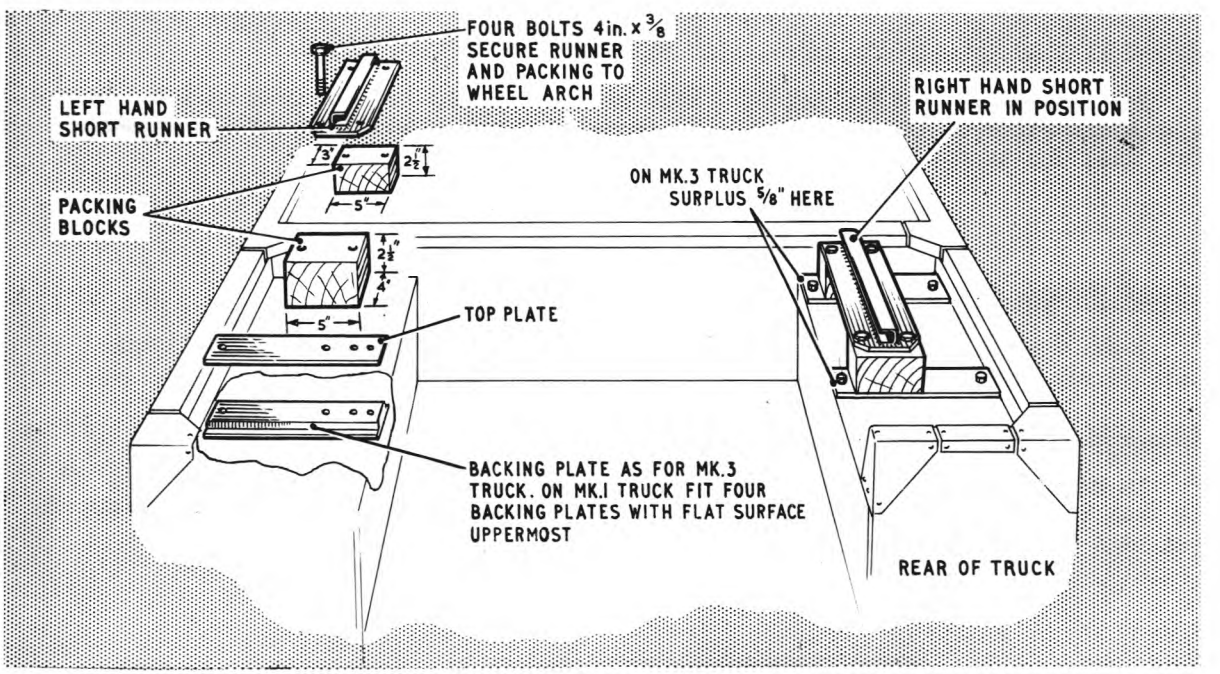


FIG. 14 METHOD OF FITTING TABLE RUNNERS AND STIFFENING PLATES

Description	Used on	Remarks	Fig.
Carrier battery, 17½ x 16 (ZB14743)	All	Screwed to the baseboard	13
Channel MS semi-circular	Austin		
Connector 4-pt. No. 97, 12-ft. 6-in.	Austin		
Disc and bolt assy.	Austin		
Disc rubber and rivet assy. 3½-in. dia. (ZB14980)	All	HF aerial inlet. Riveted to hood adjacent to HF aerial base	20
Mounting aerial base, 18-in. No. 1 (ZB14939)	All	For HF aerial base Screwed into bracket mounting aerial	20
Plate and screw assy. 9.11/16 x 9½ No. 1 (ZB14979)	Rover 1-5	Bolted under LH front wing. Includes three fixing holes, temporarily sealed, for the ATU.	18
Plate and screw assy. 9.11/16 x 9½ No. 2 (ZB14978)	Rover 1-5	Bolted under RH front wing with fixing for ATU	18
Plate assy. 7.9/16 x 6.7/8-in.	Austin		
Plate assy. stiffening, 12 x 3-in. (ZB14916)	Rover 1-5	Four bolted to wheel arches to support table runners	14
Runner assy. 19 x 5 x 3½ (ZB14898) (pair)	Rover 1-5 Rover 8-9	Raised on wooden blocks and bolted to stiffening plates on wheel arches	14
Runner assy. 33 x 5 x 1½	Austin		
Table top, 50 x 16½ x 3⅛ (ZB14899)	All	Fitted across the truck behind the seats and clamped to the runners	4
Tool kit (see part 1 page 20)	All	Four spanners	

(2) Vehicle fitting kit, radio, truck ¼-ton Rover (Z1/5820-99-949-3124)

For details see CES No. 42925. This kit is intended for use only on ¼-ton Rovers as an alternative to the above kit. It contains items marked ROVER or ALL in the above list and is fitted in accordance with the same EMER.

Section 3 EMER WV Q.027 MOD INSTR. NO. 3

(1) Vehicle fitting kit

Issue 2 of the above EMER gives details of vehicle modifications and fitting instructions for the vehicle fitting kit in the Truck ¼-ton Rover Mks. 1 - 5.

(2) Additional holes

In addition, on Mks. 3 and 5 two holes are drilled in the dashboard to fit a 'C' box when required. See fig. 21. These holes may exist if the vehicle has previously been used in a radio role.

Check regularly that coaxial connectors for ATUs on front wings are not damaged.

Section 4 24V ELECTRICAL SYSTEM FOR ROVERS MK.3 AND 5

Certain ¼-ton Rovers Mk. 3 and Mk. 5 have been modified for radio installations and fitted with a 24V electrical system for charging radio batteries. This 24V system is the same as that fitted as standard on Rovers Mk. 8 FFR. See page 34. It consists of the following items:-

Description	Remarks
24V power take-off	Only on certain Mk. 3 and 5 trucks. AC generator with rectifier, control boxes, etc., charging vehicle batteries and radio batteries.
Battens terminal 2-pt. No. 4 One marked BATTERY One marked EQUIPMENT	Bolted to a plate on the wall at the LH end of the table. Connected in parallel and wired to the power take-off generator.
Battery leads	Radio battery to Batten terminal 2-pt. No. 4.

Section 5 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of a set installation kit and a multi-purpose kit in a Truck FFR ¼-ton Rover can be transferred readily into any other FFR vehicle using the same kits. Retain all redundant items for use if the station is transferred to a different make of truck.

(2) Cargo version of ¼-ton Rover 1, 2, 3 or 5

In an emergency it can also be transferred from an FFR version to a cargo version if the essential items of the vehicle fitting kit are moved with it. For an HF set, transfer the hood if possible as this has the rubber disc riveted to it. For a VHF set, temporarily connect the ATU to the set by means of the 50-ft. coaxial cable and lash the cable to the truck.

(3) Truck FFW 1/4-ton 4x4 Austin

It can be transferred to a non-FFR ¼-ton Austin if the essential items of the vehicle fitting kit are moved with it. Fit items marked AUSTIN or ALL in the kit list.

(4) Rover Mk. 8 and 9 cargo

It can be transferred to a ¼-ton Rover Mk. 8 cargo or a ¾-ton Rover Mk. 9 cargo if the items marked ROVER 8-9 or ALL in the kit list are moved with it.
See chapter 3 or 4.

(5) Transfers not practicable

The radio station cannot be transferred to a non-FFR vehicle of any other type.

Switch off before disconnecting batteries

Section 6 RADIO SET POSITIONS

See fig. 15

Radio sets	Set position		Aerial position			
	1	2	A	B	C	D
Single HF set	HF					HF
Single VHF set (see fig.12)		VHF	VHF			
C13/C13	A set	B set			B set	A set
C13/C42 (see fig.16)	C13	C42	C42			C13
C42/B47	C42	B47	C42	B47		
C45/C45 (If a J2 harness is used, fit it on the 'B' set	A set	B set	A set	B set		
C42/BE201	BE201	C42	C42	BE201		

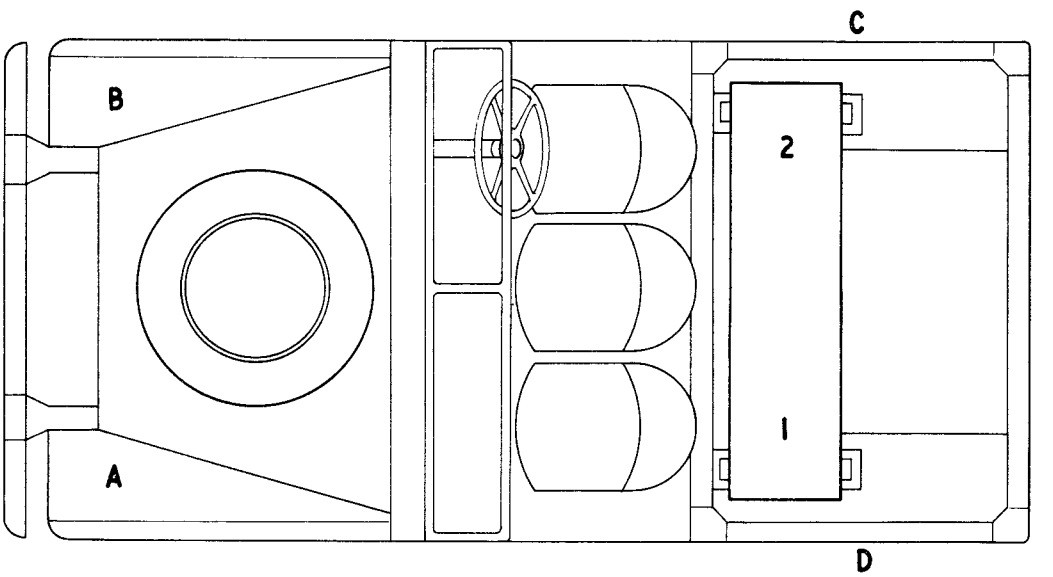


FIG. 15 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 7 INSTALLING RADIO SETS

After installing the vehicle fitting kit, mount the radio set on the table as instructed in the relevant radio set chapter in part 3. Positions of sets are shown opposite.

Fig. 16 below shows a C13/C42 installation in a Rover Mk. 5. C13 is on the left and C42 on the right.

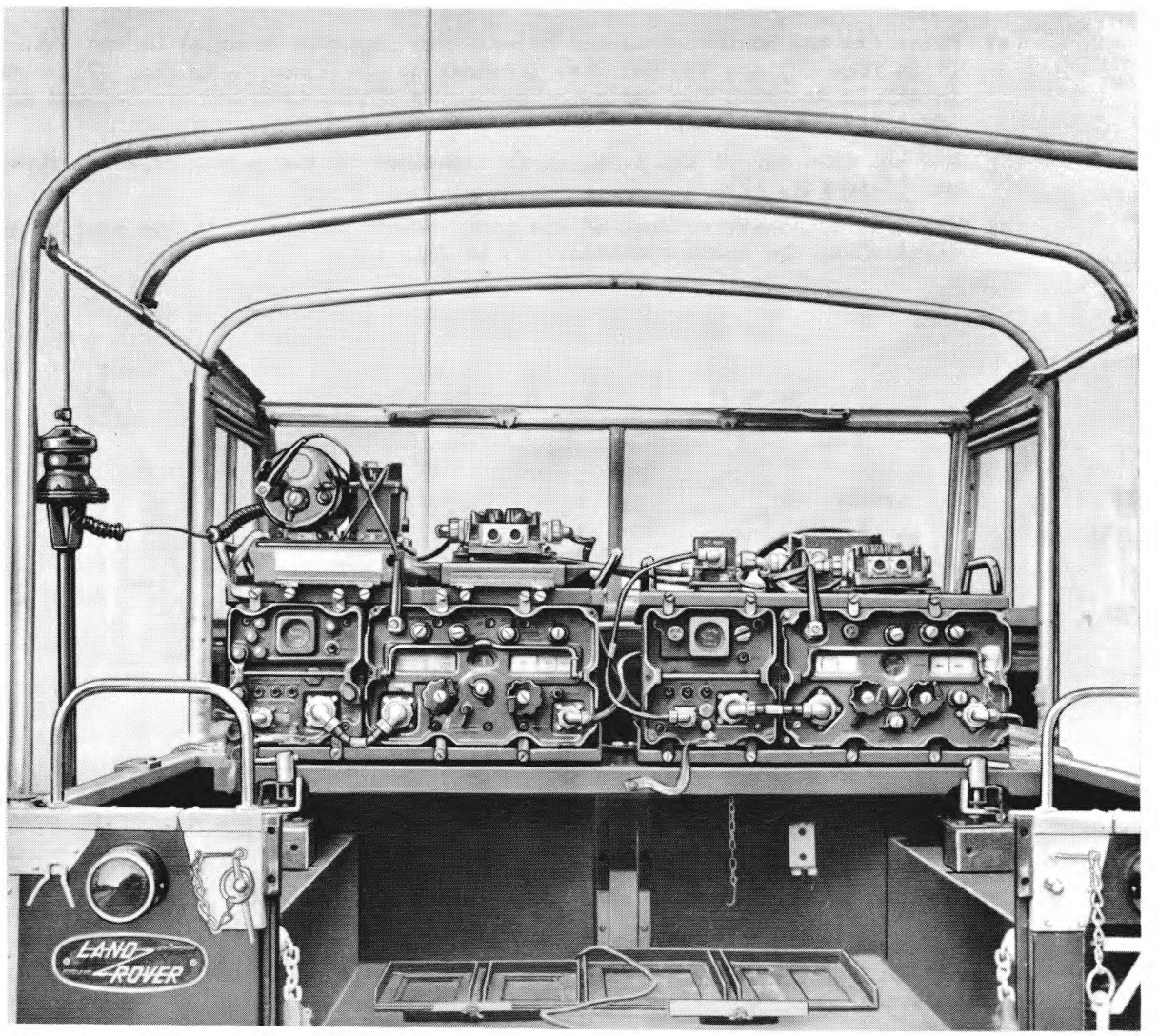


FIG. 16 ROVER MK. 5 WITH C13/C42

Section 8 RADIO BATTERIES

(1) Fitting the batteries

Load two 12V 75 Ah batteries into the battery carrier. If 12V batteries are supplied for a 12V installation do not connect them in series.

(2) Battery connectors

It is very easy to short circuit the power supply when metal cased batteries are used in metal floored vehicles and loose leads come into contact with either the case of the battery or the metal floor or framework. Such a short circuit will cause severe damage by allowing a very heavy current to flow in the negative lead to the equipment. Before connecting batteries, see that the 3-ft. earth connector is firmly secured to the earth terminal on the baseboard under the battery carrier. To minimise the risk of short circuits, always fit battery connections in the order shown below.

(a) First fit the series connector between the negative terminal on one battery (1 in fig. 17) and the positive terminal on the other (2 in fig. 17). The terminals to which the series connector is fitted must not now be used for any other connections.

(b) Fit the free end of the 3-ft. earth connector to the vacant negative terminal (3 in fig. 17).

(c) Then fit the negative lead of the power supply connector to the same battery terminal as the earth connector (3 in fig. 17).

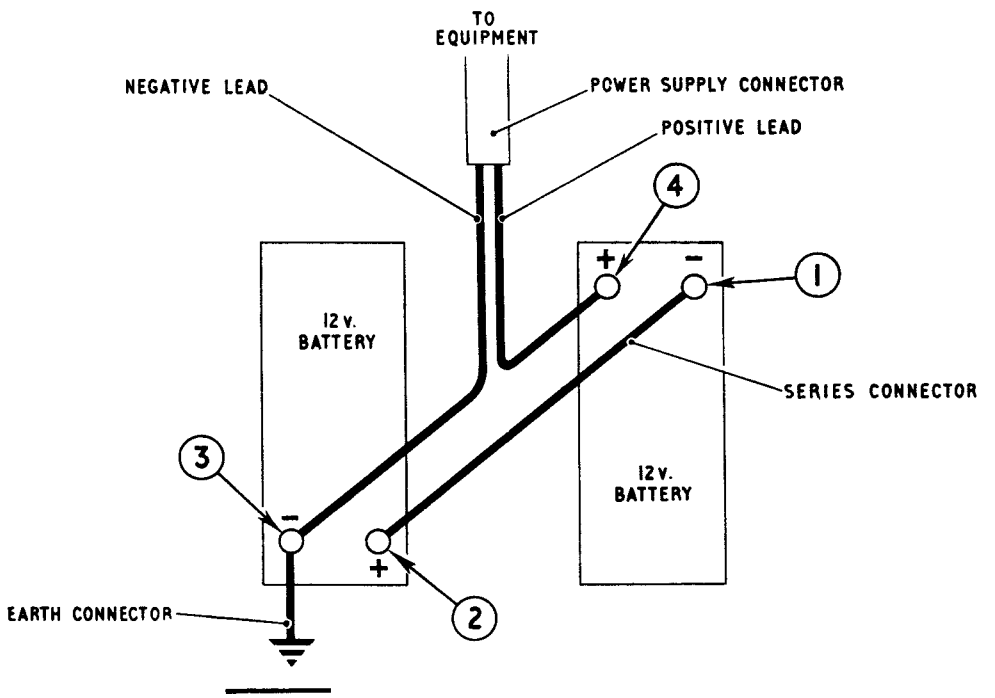


FIG. 17 METHOD OF FITTING CONNECTORS TO TWO BATTERIES

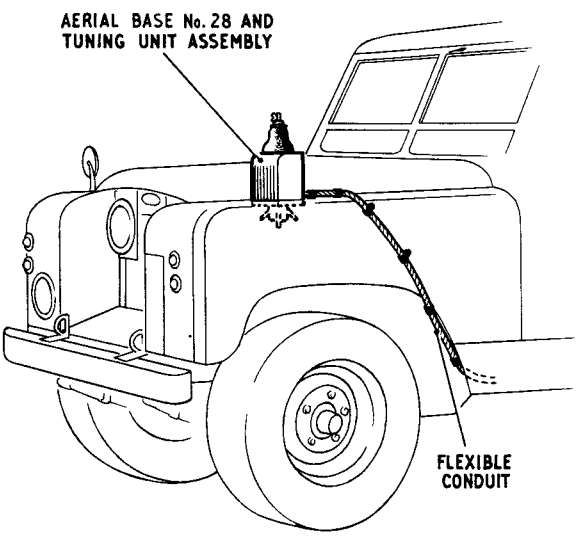
(d) Finally fit the positive lead of the power supply connector to the vacant positive terminal (4 in fig. 17).

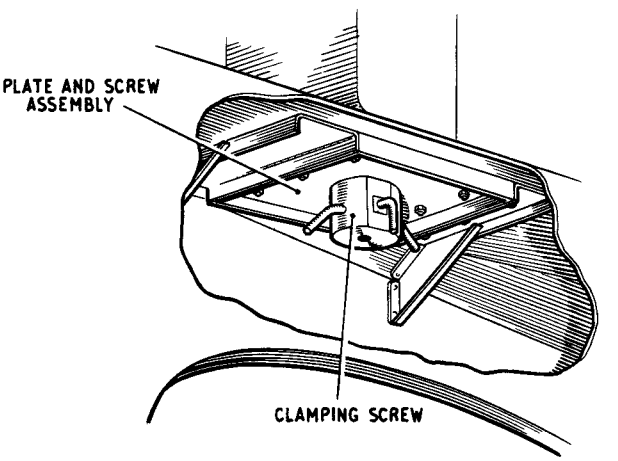
(e) Disconnect batteries in the reverse order, 4 to 1. Connector details are given in the relevant radio set chapter.

Section 9 VHF ATU AND AERIAL

Fit the dismountable ATU assembly to the appropriate front wing as shown in fig. 18. Engage the two locating dowels and secure the assembly by means of the heavy clamping screw under the wing. Tighten this screw firmly by hand. Separate aerial bases are not required on this vehicle as the rod aerial is fitted into the aerial base on the top of the ATU assembly.

NOTE - Before fitting the ATU, see the note on page 30.





VIEW UNDER FRONT WING

FIG. 18 FITTING THE DISMOUNTABLE VHF ATU TO THE LH FRONT WING

Section 10 HF AERIAL

(1) Aerial connector

Users should make up an aerial connector of the exact length to reach between aerial base and ATU. This connector must be fitted at the same time as the aerial base. The following equipment is supplied in the HF set installation kit. See fig. 19.

Aerial base No. 31 with adjusting tool to tighten the gland nut
Clamp aerial base
Cable electric P11 with gland nut and washer and a lug special
Insulating beads (50) with four rubber clamps
Plate plastic, ¼-in. ID x 5-in. OD x ⅛-in. thick

(2) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(3) Clamping the aerial base to the mounting on the vehicle

(a) Thread the cable through the centre of the plate plastic and down through the mounting. Position the plate plastic on the mounting and line up the bolt holes.

(b) Fit the two halves of the clamp on the plate plastic, screw clamp upwards as in fig. 20, and engage the two dowel pins in any two adjacent holes. Position it so that the clamp does not project outwards from the side of the vehicle.

(c) Open the clamp sufficiently to allow the aerial base to be fitted on the two dowel pins. Then close the clamp to bring the holding lugs together so that they grip the mounting and plate underneath, and the aerial base on the top. Tighten the wing nut to secure the assembly. See fig. 20.

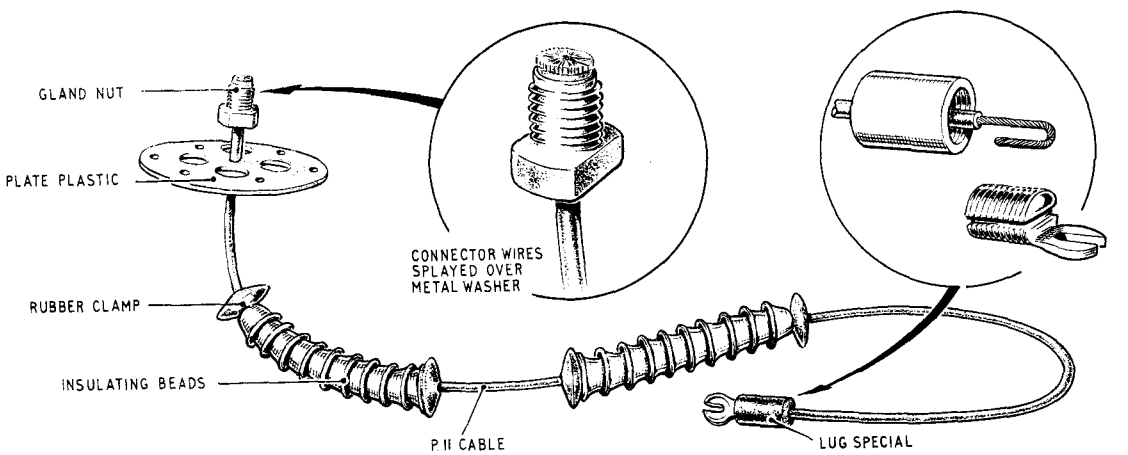


FIG. 19 MAKING THE HF AERIAL CONNECTOR

(4) Fitting the insulating beads on the cable

Thread on the cable one rubber clamp, 25 beads with the open ends downwards to prevent moisture lying inside, and the second rubber clamp. Slide them up against the plate plastic to prevent the cable coming into contact with the bracket. If the hood is fitted, thread the cable through the hole in the rubber disc on the hood. Do not leave any slack cable outside the vehicle. Inside the vehicle, thread on the cable another rubber clamp, the remaining beads, and then the fourth rubber clamp.

(5) Cutting the connector to the required length

Do not cut the cable before the HF set and ATU are installed. After fitting the ATU, offer the cable up to the installation to ascertain the length required to reach to the ATU aerial terminal. The connector should be as short as possible. Allow approximately 4-in. free movement in the centre of the cable so that the flexing of the aerial base does not strain it. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

(6) Fitting the lug to the end of the cable

Strip back the insulation for 1½-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. See fig. 19.

(7) Fitting the connector to the ATU

Fit the lug to the ATU. Finally, slide the beads along to the ATU end, or to any point where there is a risk of the cable touching any metal projections.

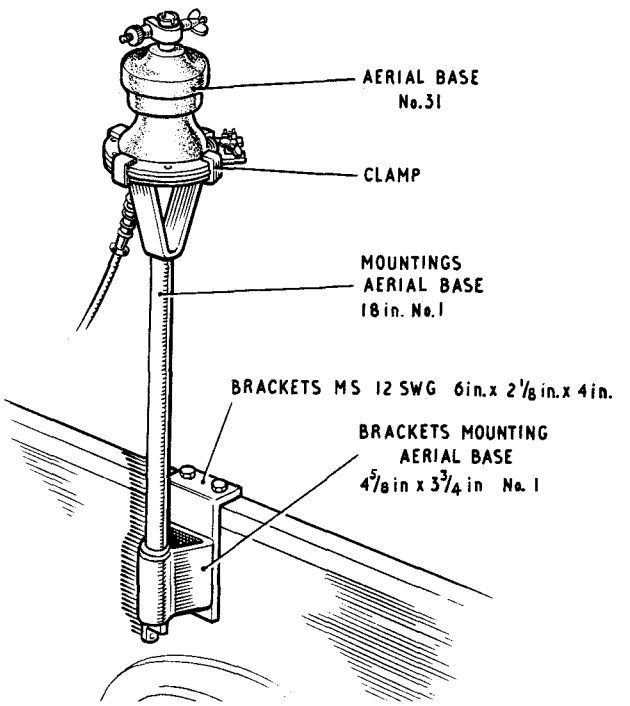
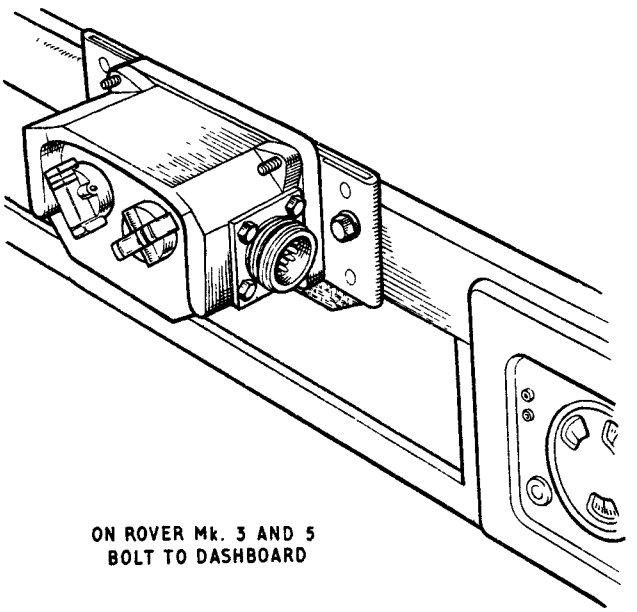


FIG. 20 HF AERIAL MOUNTING BRACKETS SHOWN ON THE LH SIDE

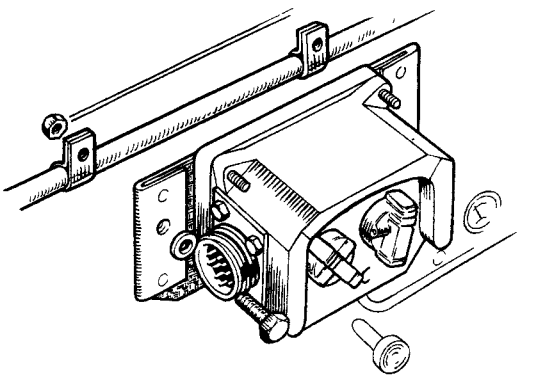
Section 11 ADDITIONAL EQUIPMENT

When any of the kits in column 1 are to be installed, the items against them are required.

Kit	Equipment required	Remarks	Fig.
'E' box harness	'C' box	In Mks. 1 and 2 bolt to two clips round the handrail. In Mks. 3 and 5 bolt to dashboard cross member	21
	Cable assy. 12-condr.	Run the cable along the side of the gearbox cover and between LH and centre seats	
	'E' box	Bolt to improvised mounting	
	MRRB box	Bolt to improvised mounting	
B48	Carrier battery No.34	Screw down to baseboard at side of large battery carrier	13
	Batteries 12V 22 Ah	Fit into the carrier. These batteries are used when B48 is dismounted and operated as a remote ground station.	
BE 201	Dipole aerial	Fit to RH front wing	



ON ROVER Mk. 3 AND 5
BOLT TO DASHBOARD



ON ROVER Mk.1 AND 2
BOLT TO TWO CLIPS ON HANDRAIL

FIG. 21 'C' BOX FOR USE IN THE FRONT OF THE TRUCK

CHAPTER 3

TRUCK FFR ¼-TON ROVER MK. 8

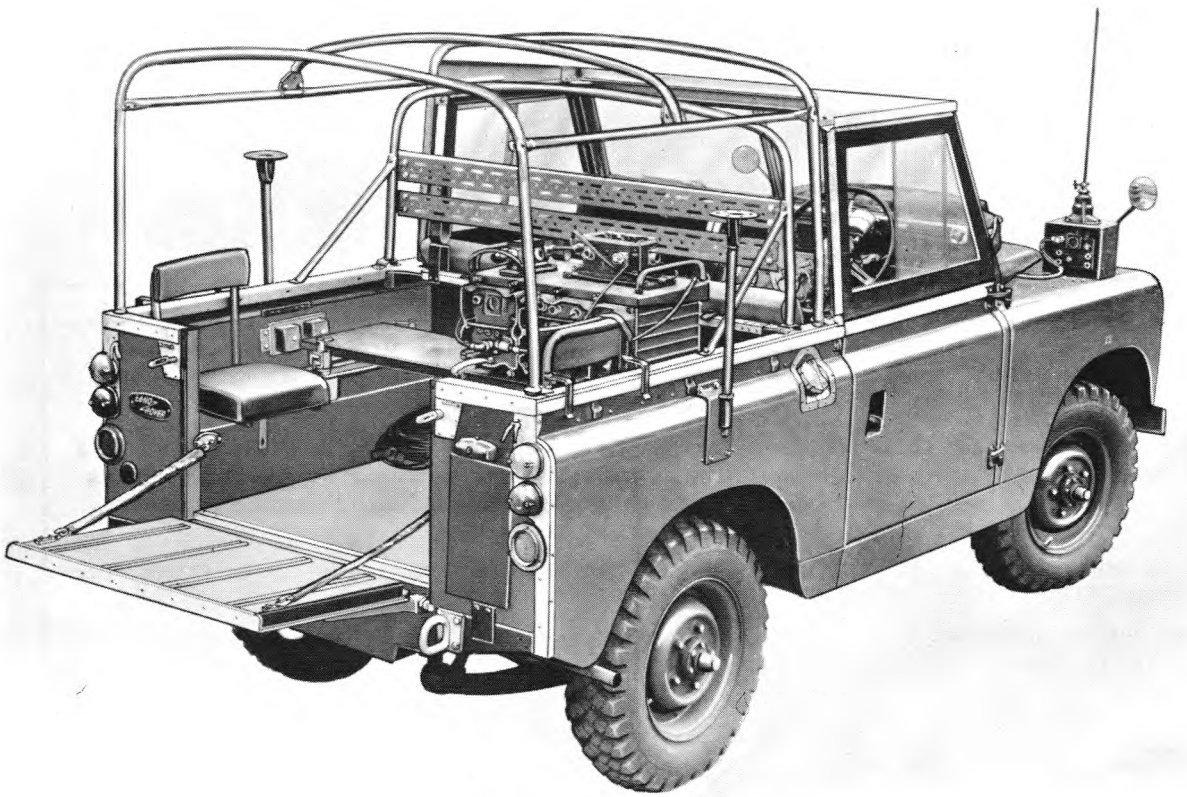


FIG. 22 ROVER MK. 8 WITH C42

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck FFR ¼-ton 4 x 4 Rover Mk. 8 (88-in. wheelbase) contains the radio equipment listed in sections 2 and 3 below and is ready for the user to install his multi-purpose kit and radio set installation kit or kits. Fig. 22 shows the truck with C42 installed.

(2) Cargo version

Truck cargo ¼-ton 4 x 4 Rover Mk. 8 contains the basic radio fittings and has been drilled as shown in section 2. These holes are temporarily sealed with plastic grommets. The cargo version is not equipped with power take-off but in all other respects can be converted to carry radio equipment by transferring the essential items listed in section 3 paragraph 1 on page 29. Fitting instructions are given in the EMER.
See page 32.

Section 2 BASIC RADIO FITTINGS

The following equipment is provided on FFR and cargo versions of Rover Mk. 8

Item	Description	Remarks
1	Suppression	The vehicle should have been suppressed to current standards in accordance with the relevant EMER.
2	Plate and screw assy., 9.11/16 x 9½ No.1 (ZB14979)	Strengthening plate for dismountable VHF ATU, bolted to LH front wing. Includes three fixing holes, temporarily sealed, for the ATU.
3	Plate and screw assy., 9.11/16 x 9½ No.2 (ZB14978)	Similar plate bolted under RH front wing.
4	Disc rubber and rivet assy. 3½-in. dia. (ZB14980) (two)	HF aerial inlet. Riveted to hood adjacent to HF aerial base and covered by a strap-down canvas flap. Important - See the note on page 29.
5	Stiffening plates (four)	Riveted to wheel arches under wooden blocks supporting runner assemblies.
6	Stud on wheel arch	To strap the operator's seat down.
7	Long mirror arms (two)	On both front wings to extend mirrors above VHF ATUs when fitted.
8	Holes for bracket aerial support	Four in each side wall with stiffening plates riveted to inside.
9	Holes for runner assemblies	In each wheel arch stiffening plate.
10	Holes for battery carrier	In the floor to fit item 2 below.
11	Holes for alternative battery carrier baseboard	In the floor. See paragraph 6 on page 33.
12	Holes for spring clips	In the floor.
13	Holes for slotted angle framework	In the tops of the side walls.
14	Notches in sides of bonnet	Made in interests of standardisation but not used on cargo truck.

NOTE - On early productions of Rover Mk. 8 FFR and cargo, the rubber disc for the HF aerial connector (item 4 on page 28) was riveted to a continuous metal ring round the hole. This ring must be removed and ten washers used in its place. Inspect the inside of the canvas hood and if the ring is fitted round the aerial inlet, send it to workshops to be modified. See EMER WV Q.027 Mod. Instr. No. 18.

Section 3 RADIO EQUIPMENT PROVIDED IN THE FFR TRUCK

The following equipment is provided on the FFR version by the manufacturer. This list is divided into two parts. In the first part are the 14 items which the user can transfer to the cargo version to enable it to be used in a radio role. In the second part are connectors and items associated with the power take-off which should not be transferred to the cargo truck.

(1) Items which can be transferred to a cargo truck

For a VHF set, items 8 and 9 are not required

Item	Description	Remarks	Fig.
1	Batteries (12V 100 Ah)	Two or four stowed in the battery carrier	
2	Battery carrier	Bolted to floor under table	
3	Battery cover	Protects batteries	23
4	Battery cover retaining strips (two)	On rear of seat bulkhead to hold front of battery cover down.	
5	Battery cover spring clips (two)	Bolted to floor to hold the rear of the battery cover down.	31
6	Battery post clamps (four)	To fit lugs on battery leads to battery terminal posts.	
7	Battery series connector	Fitted between batteries	24
8	Bracket aerial support steel, 7¾ x 4 x 3¼ (Z1/5985-99-949-3507)	Bolted to each side wall to support a Mounting aerial base, 18-in. No. 1. Fixing points include stiffening plates riveted to inside of wall.	28
9	Mounting aerial base, 18-in. No.1 (ZB14939)	Screwed into each bracket aerial support	28
10	Runner assy. 19 x 5 x 3½ (ZB14898) (pair)	Table mountings. Raised on wooden blocks and bolted to stiffening plates on wheel arches.	23
11	Table top, 50 x 16½ x 3⅛ (ZB14899)	Fitted across truck behind seats and clamped to runner assembly	23
12	Seat	Hooked to side and strapped down to stud on side of wheel arch.	23
13	Slotted angle framework	For control units, etc.	23
14	Tool kit (See part 1 page 20)	Spanners open end 7/16 x ½ 9/16 x ⅝ Spanners tubular ⅜ x 7/16 ½ x 9/16 Tommy bars 3/16 x 4 ⅜ x 6	

(2) Items which should not be transferred to a cargo truck

Item	Description	Remarks	Fig.
15	Cable assy. coaxial, 14-ft. (No. 23 in the connector diagrams in part 3)	Clamped down from both front wings to centre of bulkhead to connect VHF sets to ATUs. Screw caps on rear ends, front ends stowed on dummy plugs inside bonnet. The two front clamps have to be moved when the connector is brought into use. See page 37.	26
16	Battens terminal 2-pt. No. 4 One marked BATTERY One marked EQUIPMENT	Bolted to a plate on the wall at LH end of table. Both connected to the power take-off generator.	23 24
17	Battery leads One positive One negative	Connect the battery to the Batten terminal 2-pt. No. 4 marked BATTERY.	24
18	Battery series connector clips (two)	On LH wheel arch for stowage of series connector when this is removed from batteries.	
19	Earth lead	Copper braid fitted between the negative terminals on battens and vehicle body.	24
20	Insulated terminals	For stowage of lug ends of battery leads when they are removed from batteries.	
21	Power take-off (24V)	AC generator with rectifier, control boxes, etc. See page 34.	

NOTE - VHF aerial positions in Trucks ¼-ton and ¾-ton.

In recommending that the VHF ATU and aerial base should be mounted on the LH front wing, as on page 15, it was assumed that the vehicle would be used overseas and driven on the RH side of the road. In this way the rod aerial is positioned near the centre of the roadway where it is more likely to be free of obstructions.

If the vehicle is to be used in the United Kingdom the ATU should be mounted on the RH wing as on page 27, in order to keep the aerial near the centre of the road.

POWER SUPPLIES

Three important points

1. When removing the battery cover on the Rover Mk. 8, always draw the cover straight back without tilting it. If the rear end is lifted as this cover is drawn back, the front edge may touch the battery terminals and cause a short circuit.

2. When batteries are disconnected, always stow the lug ends of the battery leads on the insulated terminals on the side of the LH wheel arch.

   These leads are "live" when the engine is running.

3. Always replace the covers on both Battens terminal 2-pt. No. 4 after fitting or removing connectors.

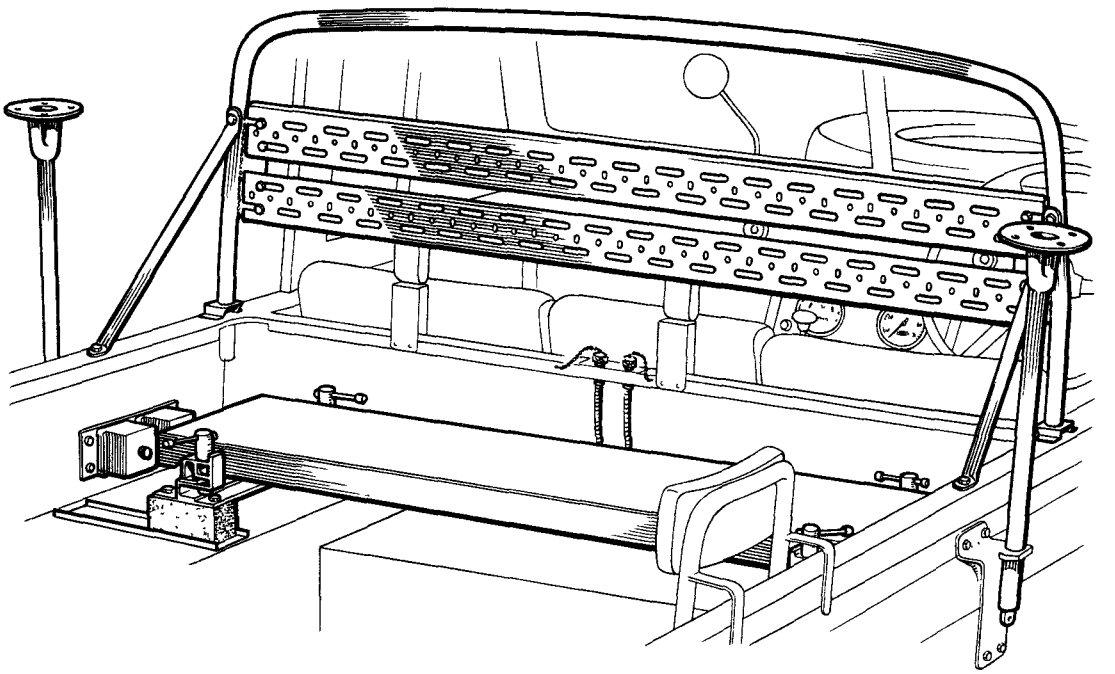


FIG. 23 INTERIOR READY FOR THE INSTALLATION

Section 4 EMERs

(1) EMER WV Q.029 Miscellaneous Instruction No. 17

This EMER gives instructions for fitting items 1 to 13 in Section 3 above into a Truck cargo 1/4-ton Rover Mk. 8, to enable it to be used in a radio role.

(2) EMER WV Q.027 Modification Instruction No. 18

This EMER gives instructions for modifying the HF aerial inlet in the canvas hood when this is necessary. See the note on page 29.

Section 5 VEHICLE FITTING KIT

The necessary furniture to convert a Truck cargo ¼-ton Rover Mk. 8 for use in a radio role can be obtained from one of the vehicle fitting kits for a ¼-ton truck shown below. In this case use the batteries and power supply connector as in paragraph 6 on page 33. These kits contain all the essential furniture except the slotted angle framework.

(1) Vehicle fitting kit, radio, truck ¼-ton Austin or Rover (Z1/5820-99-949-3125)

This is a common kit for all ¼-ton trucks. It is summarised on pages 17 and 18. For details see CES No. 42926.

(2) Vehicle fitting kit, radio, truck ¼-ton Rover (Z1/5820-99-949-3124)

This kit is intended for use only on ¼-ton Rovers as an alternative to the kit in paragraph 1 above. For details see CES No. 42925.

Section 6 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of a set installation kit and a multi-purpose kit in a truck FFR ¼-ton Rover Mk. 8 can be transferred readily into any other FFR vehicle using the same kits. Retain all surplus items for use if the station is transferred to a different make of truck.

(2) Cargo version of Rover Mk. 8

The radio station can be transferred to a Truck cargo ¼-ton Rover Mk. 8 if items 1 to 13 in section 3 are moved with it. In order to provide this interchangeability the necessary holes are drilled in manufacture. If 12V 75 Ah batteries are available, fit them in the cargo truck as in paragraph 6 below, otherwise fit the batteries from the FFR truck as in paragraph 7.

(3) Truck FFW ¼-ton 4 x 4 Austin

The radio station in the FFR Rover Mk. 8 can be transferred to a Truck FFW ¼-ton Austin if items marked AUSTIN or ALL in the vehicle fitting kit on pages 2 to 5 are moved with it.

(4) Truck cargo ¼-ton Rover Mks. 1 - 5

It can be transferred to a non-FFR Rover if the items marked ROVER 1-5 or ALL in the vehicle fitting kit on pages 17 and 18 are moved with it.

(5) Cargo version of Rover Mk. 9

The radio station can also be transferred from a Truck FFR ¼-ton Rover Mk. 8 to a Truck cargo ¾-ton Rover Mk. 9 if items 1 to 13 in section 3 on page 29 are moved with it. See paragraph 2 above.

(6) Using 12V 75 Ah batteries

If 12V 75 Ah batteries are available they can be used in the cargo truck to save moving the radio batteries from the FFR truck. A carrier for 12V 75 Ah batteries is supplied in the vehicle fitting kits quoted in section 5 opposite. Bolt this carrier and its baseboard to the floor of the cargo truck using the alternative holes provided there to fit it. (Item 11 on page 29). Connect these batteries as instructed for Rovers Mk. 1 - 5 on page 22.

(7) Using the 12V 100 Ah batteries from the FFR truck

When removing the radio station from an FFR truck to a cargo truck, first remove the battery cover and disconnect the batteries as instructed in the note on page 32 and in paragraph 3(d) on page 34. Dismount the batteries.

Do not dismantle the terminal battens nor any of the power take-off wiring from the FFR truck. None of this can be used in the cargo truck.

Dismount the battery carrier and fit it in the cargo truck. Fit the two radio batteries and connect them in series with the original connector. Use the ground station battery lead to connect the LT box on the set direct to these batteries.

(8) Water can carrier

Before the 50-in. table and the battery carrier can be fitted in the Truck cargo Rover Mk. 8, the water can carrier must be removed from its position behind the centre seat. No provision is made for mounting this elsewhere in the cargo truck.

(9) VHF ATU connector on the cargo truck

In cargo trucks no provision is made for clamping the coaxial cable to the vehicle between the set and the dismountable VHF ATU on the front wing. Use the 50-ft. remote aerial cable and lash it externally to the windscreen and superstructure between these two points.

(10) VHF ATU connector remaining on the FFR truck (item 15 on page 30)

After removing the VHF ATU from the front wing, stow the front end of the coaxial connector on the dummy plug inside the bonnet, replacing the two front cable clamps in their original positions. See page 37 paragraph 2. Replace the screw cap on the rear end of the connector to keep the contacts clean.

(11) Transfers not practicable

The radio station cannot be transferred from an FFR Rover Mk. 8 to a non-FFR version of any vehicle except those in paragraphs 3, 4 and 5 above.

Section 7 RADIO BATTERIES

(1) 12V 100 Ah batteries

In Trucks FFR ¼-ton Rover Mk. 8 and ¾-ton Rover Mk. 9, two 12V 100 Ah batteries are normally provided for the radio equipment. They are connected in series to supply 24V and they are charged by the vehicle generator when the engine is running. They are secured in the front half of the battery carrier under the table and protected by a metal cover. A battery series connector and two battery terminal post connectors are supplied with each pair of radio batteries.

(2) Terminals

Two pairs of terminals (Battens terminal 2-pt. No. 4), one for BATTERY and the other for EQUIPMENT connectors, are fitted on the LH wall at the end of the table. See fig. 23. They are both wired permanently to the power take-off. An earth connection is made from the negative side of each pair of terminals to the vehicle body. Connectors between the terminal batten and the radio batteries may be fitted or they may be clipped up to the front wall with the battery lugs stowed temporarily on two terminals provided for this purpose. If the connectors are not in place, fit them as follows.

(3) Connecting batteries

It is very easy to short circuit the power supply in metal floored vehicles. Such a short circuit will cause severe damage by allowing a very heavy current to flow in the negative lead to the equipment. Before connecting batteries, see that the earth connection is made from the negative side of the terminal batten to the vehicle body. To gain access to the batteries the cover must be removed. Release the clips and draw the cover clear. Always connect batteries as follows:-

(a) First fit the negative power supply connector to the negative terminal on the battery.

(b) Then fit the positive power supply connector to the positive terminal on the other battery.

(c) Finally fit the series connector between the vacant negative terminal on one battery and the vacant positive terminal on the other. The terminals to which the series connector is fitted must not be used for any other connections.

(d) Disconnect batteries in the reverse order: series connector first, positive connector second, negative connector last.

NOTE - The recommended method of connecting batteries in the Rover Mks. 8 and 9 differs slightly from that recommended for other vehicles.

(4) Connecting two pairs of batteries

For radio sets having a heavy power consumption four batteries can be installed. The second pair are also connected to the terminals marked BTY as shown by the dotted lines in fig. 24.

IMPORTANT - ALWAYS stow the lug ends of battery leads on the insulated terminals when they are not fitted to the battery. If the engine is started with the positive lug in contact with the floor there would be a short circuit.

NEVER disconnect the loop end of battery lead from the terminal batten while the lug end is connected to the battery.

(5) Connecting the equipment

Connect the LT box on the radio set to the LH terminal batten. Use Connector 4/2-pt. No. 4, 5-ft. (Connector No. 68 in the connector diagrams in part 3). Fit it from the 4-pt. plug on LT box 4-way No. 4 to the terminal batten or from one of the 4-pt. input plugs on the LT box used with the C11 to the terminal batten. Alternatively, Connector twin No. 394, 2-ft. 6-in. (Connector No. 71 in the connector diagrams in part 3) can be used here for all sets except C11. Fit it from the 2-pt. battery plug on the LT box 4-way No. 4 to the terminal batten.

All other radio equipment connectors are shown in the diagram in the relevant radio set chapter.

IMPORTANT - MAKE SURE THAT POWER LEADS ARE CONNECTED POSITIVE TO POSITIVE AND NEGATIVE TO NEGATIVE THROUGHOUT. IF POLARITY IS REVERSED THE EQUIPMENT WILL BE DAMAGED.

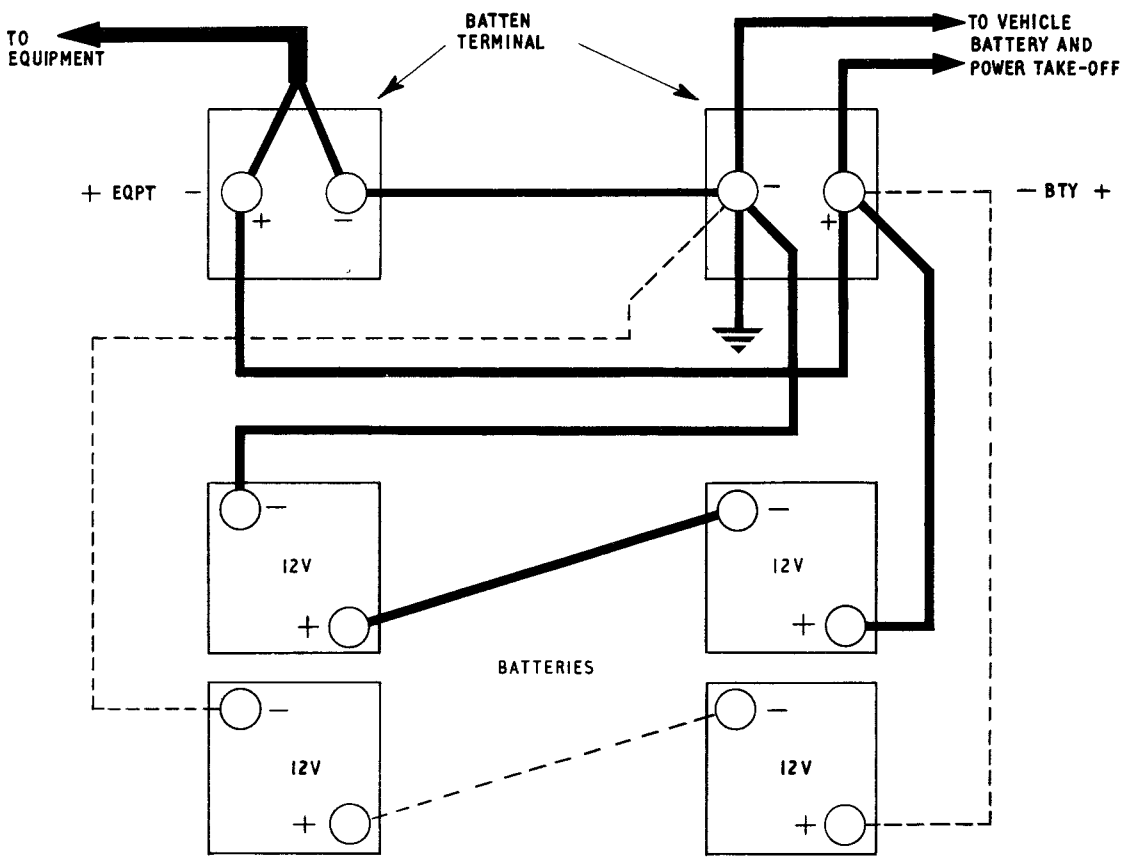


FIG. 24 CONNECTIONS TO BATTERIES AND TERMINAL BATTENS

Section 8 RADIO SET POSITIONS

See fig. 25

Radio sets	Set positions		Aerial positions			
	1	2	A	B	C	D
Single HF set	HF					HF
Single VHF set (See fig. 22)		VHF	VHF			
C13/C13	A set	B set			B set	A set
C13/C42 (See fig. 16)	C13	C42	C42			C13
C42/B47	C42	B47	C42	B47		
C45/C45 (If a J2 harness is used, fit it on the 'B' set)	A set	B set	A set	B set		
C42/BE201	BE201	C42	C42	BE201		

Section 9 INSTALLING RADIO SETS

With the vehicle fitting kit installed, mount the radio set on the table as instructed in the relevant radio set chapter in part 3.

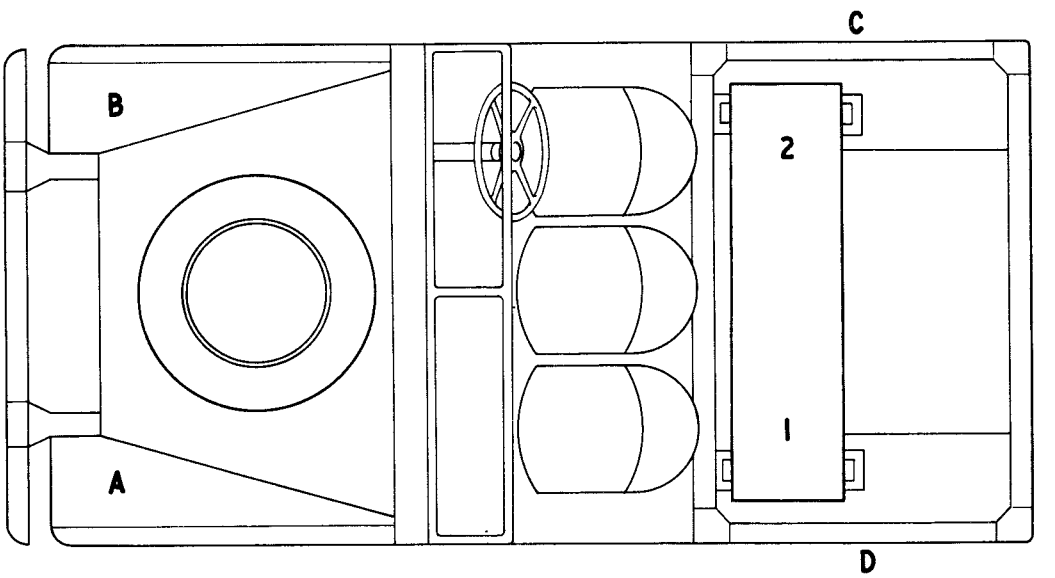


FIG. 25 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 10 VHF ATU AND AERIAL

(1) Fitting the ATU to the appropriate front wing

Remove the plastic grommets which seal the centre fixing hole and the two staggered locating holes in the top of the wing. Fit the dismountable ATU assembly as shown in fig. 26 and in fig. 18 on page 23. Engage the locating dowels and secure the assembly by means of the heavy clamping screw under the wing. Tighten the screw firmly by hand. When it is required for use, fit the 8-ft. rod aerial in the aerial base on the top of the ATU assembly.

(2) Fitting the coaxial cable

Release the end of the connector from the dummy plug inside the bonnet. Detach the two front cable clamps which secure the connector to the wing inside the bonnet and transfer them to the two diagonal screws in the top of the wing. Replace the screws in the captive nuts and see that the connector is so arranged that it passes through the notch in the edge of the bonnet. Fit the connector to the ATU and tighten the locking ring.

NOTE - Before fitting the ATU, see the note on page 30.

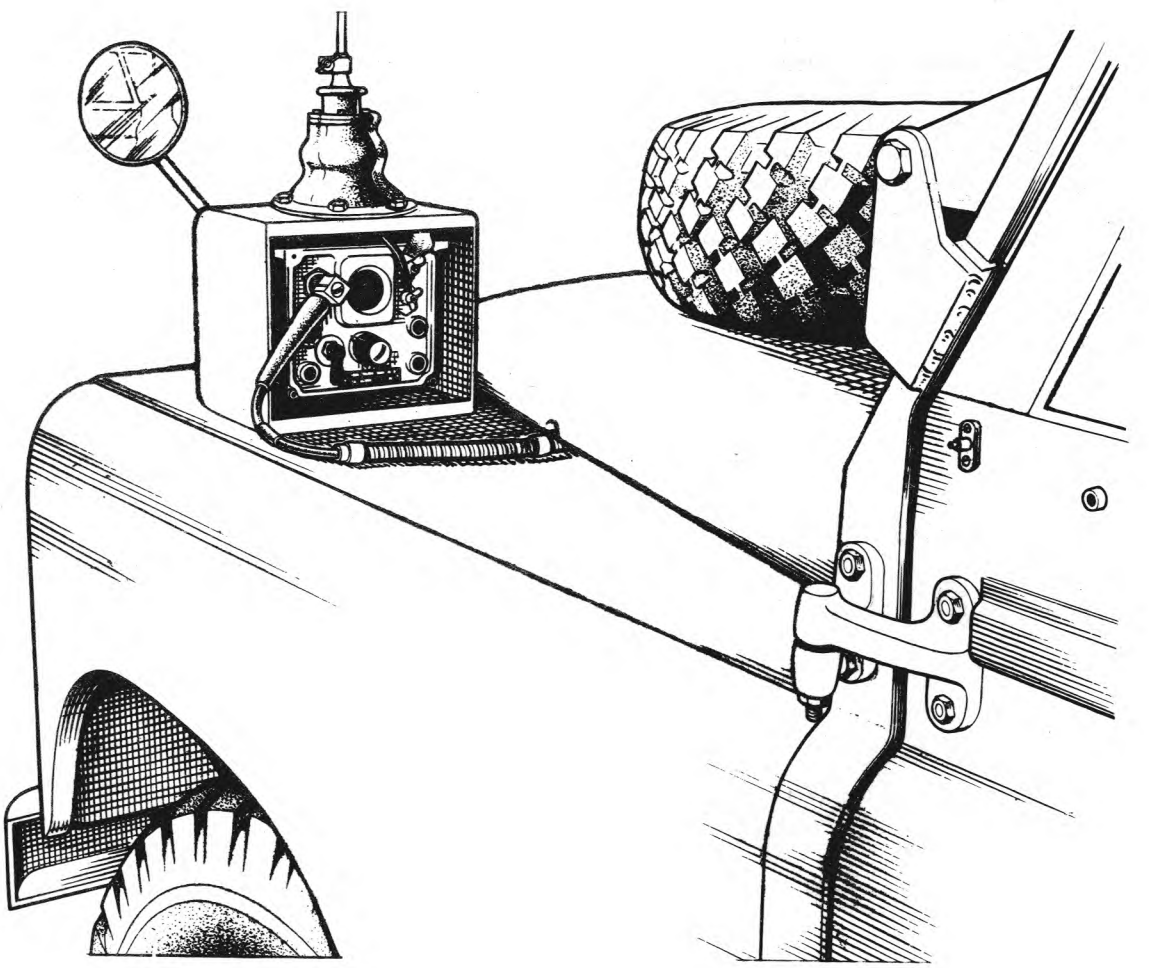


FIG. 26 DISMOUNTABLE VHF ATU SHOWN ON THE LH FRONT WING

Section 11 HF AERIAL

(1) Aerial connector

Users should make up an aerial connector of the exact length to reach between aerial base and ATU. This connector must be fitted at the same time as the aerial base. The following equipment is supplied in the HF set installation kit. See fig.27.

Aerial base No. 31 with adjusting tool to tighten the gland nut
Clamp aerial base
Cable electric P11 with gland nut and lug special
Insulating beads (50) with four rubber clamps
Plate plastic, ¼-in. ID x 5-in. OD x ⅛-in. thick.

(2) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(3) Clamping the aerial base to the mounting on the vehicle

The clamp secures the aerial base and the plate plastic to the top flange on the aerial mounting without the use of screws and nuts. Fit it as follows:

(a) Thread the cable through the centre of the plate plastic and then down through the mounting. Position the plate on the mounting and line up the bolt holes.

(b) Fit the two halves of the clamp on the plate plastic, screw clamp upwards as in fig. 28, and engage the two dowel pins in any two adjacent holes. Position it so that the clamp does not project outwards from the side of the vehicle.

(c) Open the clamp sufficiently to allow the aerial base to be placed on the two dowel pins. Then close the clamp to bring the holding lugs together so that they grip the mounting and plate underneath, and the aerial base on the top. Tighten the wing nut to secure the assembly. See fig. 28.

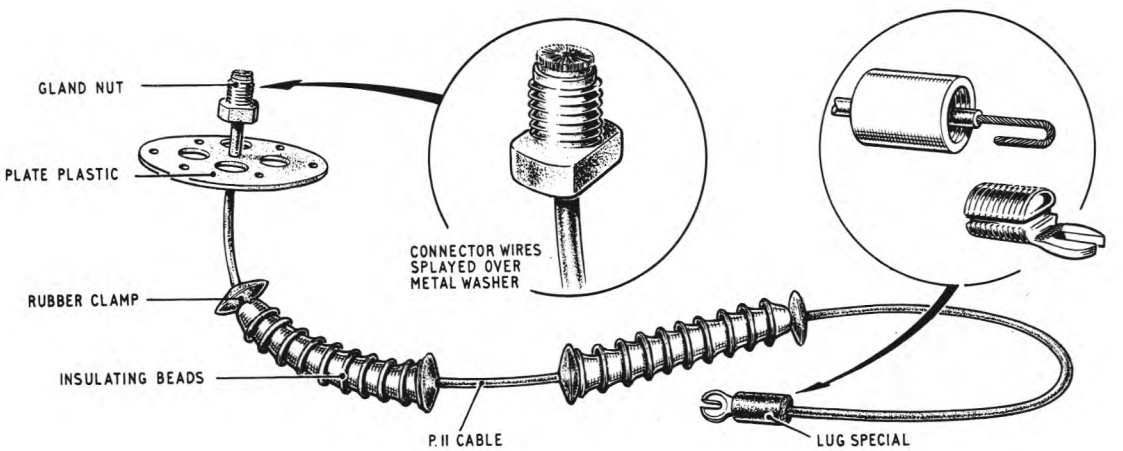


FIG. 27 MAKING THE HF AERIAL CONNECTOR

(4) Fitting the insulating beads on the cable

(a) Thread on the cable one rubber clamp, 25 beads with the open ends downwards to prevent moisture lying inside, and the second rubber clamp. Slide them up against the plate plastic to prevent the cable coming into contact with the bracket.

(b) If the hood is fitted, thread the cable through the hole in the rubber disc riveted to it. Do not leave any slack cable outside the vehicle. Inside the vehicle, thread on the cable another rubber clamp, the remaining beads, and then the fourth rubber clamp.

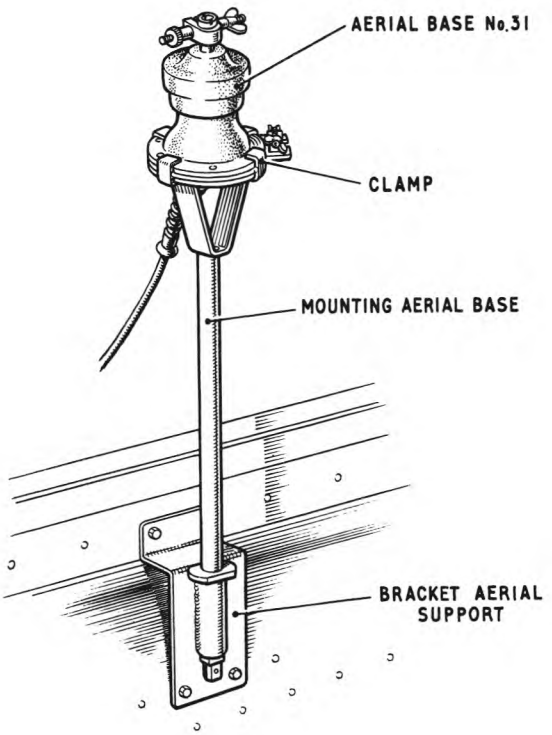


FIG. 28 HF AERIAL BRACKET WITH MOUNTING AND BASE FITTED

(5) Cutting the connector to the required length

Do not cut the cable before the HF set and ATU are installed. After fitting the ATU, offer the cable up to the installation to ascertain the length required to reach to the ATU aerial terminal. Keep the connector as short as possible. Allow approximately 4-in. free movement in the centre of the cable so that the flexing of the aerial base does not strain it. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

NOTE - The connector is an effective part of the aerial and must be kept as short as possible or the ATU tuning calculations will be upset and there will be a loss of output.

(6) Fitting the lug to the end of the cable

Strip back the insulation for 1½-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. See fig. 27.

(7) Fitting the connector to the ATU

Fit the lug to the ATU. Finally, slide the beads along to the ATU end, or to any point where there is a risk of the cable touching any metal projections.

NOTE - If the cable should touch any metal parts when the set is transmitting, the rubber insulation would be burnt off.

(8) Fitting the rod aerial

When it is required for use, fit the rod aerial into the aerial base. A 12-ft. rod should normally be used. Further information is given in the radio set user handbook.

Section 12 ADDITIONAL EQUIPMENT

When any of the kits shown in column 1 below are to be installed, the items shown against them are required.

Kit	Equipment required	Remarks
'E' box harness	'C' box 'E' box MRRB	Bolt to slotted angle framework for access from the front seats
C42/B47 C45/B48	Rejector (see part 3 page 47)	Bolt to slotted angle framework near the set
Two VHF sets	Rejector Unit No. 3 (see part 3 page 47)	Bolt to slotted angle framework

CHAPTER 4

TRUCK FFR ¾-TON ROVER MK 9

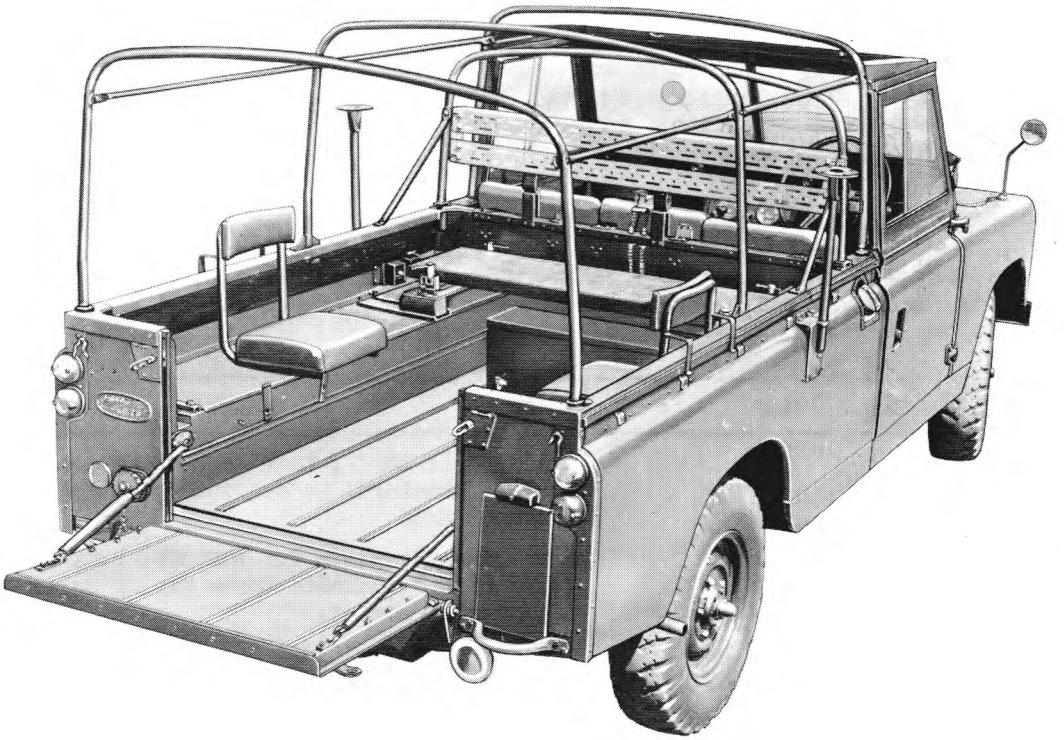


FIG. 29 ROVER MK. 9 FFR

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck FFR ¾-ton 4 x 4 Rover Mk. 9 (109-in. wheelbase) contains the radio equipment listed in sections 2, 3 and 4 below and is ready for the user to install his multi-purpose kit and radio set installation kit or kits.

(2) Cargo version

Truck cargo ¾-ton 4 x 4 Rover Mk. 9 contains the basic radio fittings and has been drilled as shown in section 2. These holes are temporarily sealed with plastic grommets. The cargo version is not equipped with power take-off but in all other respects can be converted to carry radio equipment by transferring the essential items listed in section 3 paragraph 1 on page 43. Fitting instructions are given in the EMER. See page 47.

Section 2 BASIC RADIO FITTINGS IN FFR AND CARGO TRUCKS

Notice that the body of the ¾-ton Rover Mk. 9 is similar to that of the ¼-ton Rover Mk. 8, except for its length. Consequently, the radio fittings and equipment in the two vehicles are the same and can when necessary be interchanged.

Item	Description	Remarks
1	Suppression	The vehicle should have been suppressed to current standards in accordance with the relevant EMER
2	Plate and screw assy., 9.11/16 x 9½ No.1 (ZB14979)	Strengthening plate for VHF ATU, bolted under LH front wing. Includes three fixing holes temporarily sealed.
3	Plate and screw assy., 9.11/16 x 9½ No.2 (ZB14978)	Similar plate bolted under RH front wing
4	Disc rubber and rivet assy. 3½-in. dia. (ZB14980) (two)	HF aerial inlets. Riveted to hood adjacent to HF aerial base and covered by a strap-down canvas flap. See the note on page 49.
5	Stiffening plates (four)	Riveted to wheel arches under wooden blocks supporting runner assemblies.
6	Studs on wheel arches	To strap the operators' seats down
7	Long mirror arms (two)	On both front wings to extend mirrors above VHF ATUs when fitted.
8	Holes for bracket aerial support	Four in each side wall with stiffening plates riveted to inside of wall.
9	Holes for runner assemblies	Two in each wheel arch stiffening plate
10	Holes for battery carrier	In the floor to fit item 2 below
11	Holes for alternative battery carrier baseboard	To fit the earlier type battery carrier baseboard supplied in vehicle fitting kits for trucks ¼-ton
12	Holes for spring clips	In the floor to fit item 5 below
13	Holes for slotted angle framework	In the tops of the side walls
14	Holes for "top hat" sections	In the tops of the wheel arches
15	Notches in sides of bonnet	Made in interests of standardisation but not used on cargo truck

Section 3 RADIO EQUIPMENT PROVIDED IN THE FFR TRUCK

The following equipment is provided on the FFR version by the manufacturer. This list is divided into two parts, showing items which the user can transfer to the cargo version to enable it to be used in a radio role, and connectors and items associated with the power take-off which should not be transferred.

(1) Items which can be transferred to a cargo truck

For a VHF set, items 8 and 9 are not required.

Item	Description	Remarks	Fig.
1	Batteries (12V 100 Ah)	Two or four stowed in battery carrier	
2	Battery carrier	Bolted to floor under table	
3	Battery cover	Protects batteries	31
4	Battery cover retaining strips (two)	On rear of seat bulkhead to hold the front of the battery cover down	
5	Battery cover spring clips (two)	Bolted to floor to hold the rear of the battery cover down	31
6	Battery post clamps (four)	To fit lugs on battery leads to battery terminal posts	
7	Battery series connector	Fitted between batteries	24
8	Bracket aerial support steel, 7¾ x 4 x 3¼ (Z1/5985-99-949-3507)	Bolted to each side wall. Fixing points include stiffening plates riveted to inside of wall.	28
9	Mounting aerial base, 18-in. No.1 (ZB14939) (two)	Screwed into each bracket aerial support	28
10	Runner assy. 19 x 5 x 3½ (ZB14898) (pair)	Table mountings. Raised on wooden blocks and bolted to stiffening plates on wheel arches.	30
11	Table top, 50 x 16½ x 3⅛ (ZB14899)	Fitted across truck behind seats and clamped to runner assembly.	30
12	Seats (two)	Hooked to side and strapped down to stud on side of wheel arch	30
13	Slotted angle framework	For control units, etc.	30
14	"Top hat" sections (three)	Bolted to either wheel arch, spaced 20-in. and 10-in. apart to carry the 23-in. table on the 10-in. (front) spacing	31
15	Tool kit (see part 1 page 20)	Four spanners	
16	Inspection lamp	To illuminate the radio set, etc. Plugs into socket on dashboard.	

NOTE - Carrier battery No. 34, shown in fig. 31, is not part of the vehicle fitting kit. It is supplied in B48 and R209 installation kits and is required only when one of these sets is installed.

(2) Items which should not be transferred to a cargo truck

Item	Description	Remarks	Fig.
17	Coaxial cables (two)	Clamped down from both front wings to centre of bulkhead to connect VHF sets to ATUs.	26
18	Battens terminal 2-pt. No. 4 One marked BATTERY One marked EQUIPMENT	Bolted to a plate on the wall at LH end of table. Both connected to the power take-off generator.	30
19	Battery leads One positive, one negative	Connects the battery to the Batten terminal 2-pt. No. 4 marked BATTERY	24
20	Battery series connector clips (two)	On side of LH wheel arch for stowage of battery series connector when this is removed from batteries	

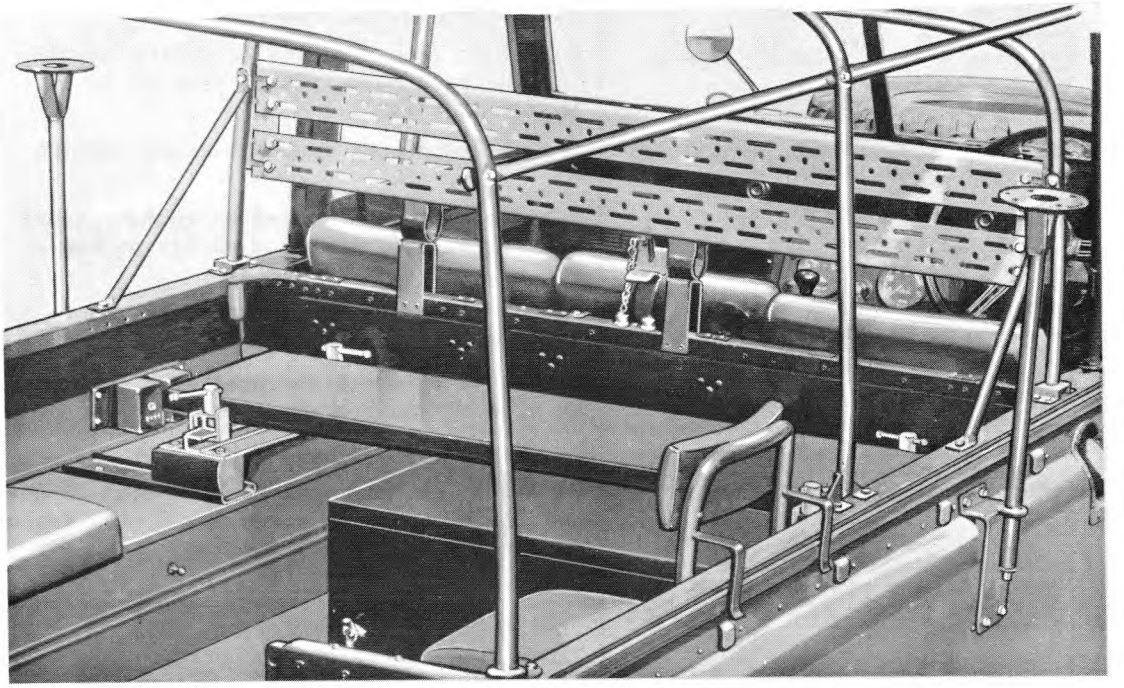


FIG. 30 INTERIOR READY FOR THE INSTALLATION

Item	Description	Remarks	Fig.
21	Earth connector	Copper braid fitted between negative terminals on battens and vehicle body.	24
22	Insulated terminals	For stowage of lug ends of battery leads when they are removed from batteries.	
23	Power take-off (24V)	AC generator with rectifier, control boxes, etc. See page 34.	

Section 4 VEHICLE FITTING KIT

In early productions of Trucks FFR ¾-ton Rover Mk. 9, the 23-in. table was not fitted by the manufacturer. For such vehicles this item is available in the undermentioned kit.

VEHICLE FITTING KIT, RADIO, TRUCK ¾-ton ROVER MK. 9 (Z1/5820-99-949-3123)

For details see CES 42924

Description	Remarks	Fig.
Table, radio equipment, 23 x 13½ x 1⅞ (Z2/5820-99-949-3373)	Bolted to two "top hat" sections, item 14 on page 44.	31
Channel, U-section, 13.7/16 x 1¾ x ¾ (Z2/5820-99-949-3299)	To strengthen the wheel arch under the 23-in. table.	31
Spacer plywood, 12¼ x 7¼ x ¼ (Z2/5820-99-949-3300)	Under carrier battery No. 34 when this is fitted on the floor at the rear.	31

Instructions for fitting the above three items are given in the EMER quoted in Section 5 paragraph 2 below.

NOTE - If a reception set R209 is to be installed on the 23-in. table, the table will require drilling as shown in the relevant chapter in part 3 of this handbook.

Section 5 EMERs

(1) Aerial inlet modification

EMER WV Q.027, Modification Instruction No. 18 gives instructions for removing the ring round the HF aerial inlet in the canvas hood when this is necessary. See the note in section 11 on page 49.

(2) Installing the vehicle fitting kit

EMER WV Q.027, Modification Instruction No. 19 gives instructions for installing the vehicle fitting kit listed in section 4 above when a third radio set is to be fitted into the ¾-ton truck.

(3) Transferring the vehicle furniture to a cargo truck

EMER WV Q.029 Miscellaneous Instruction No.17 gives instructions for transferring items1 to 16 in section 3 on page 43 from a Truck FFR ¾-ton into a Truck cargo ¾-ton. This enables the cargo truck to be used in a radio role.

POWER SUPPLIES

Three important points

1. When removing the battery cover on the Rover Mk. 9, always draw the cover straight back without tilting it. If the rear end is lifted as this cover is drawn back, the front edge may touch the battery terminals and cause a short circuit.

2. When batteries are disconnected, always stow the lug ends of the battery leads on the insulated terminals on the side of the LH wheel arch.

   These leads are "live" when the engine is running.

3. Always replace the covers on both Battens terminal 2-pt. No. 4 after fitting or removing connectors.

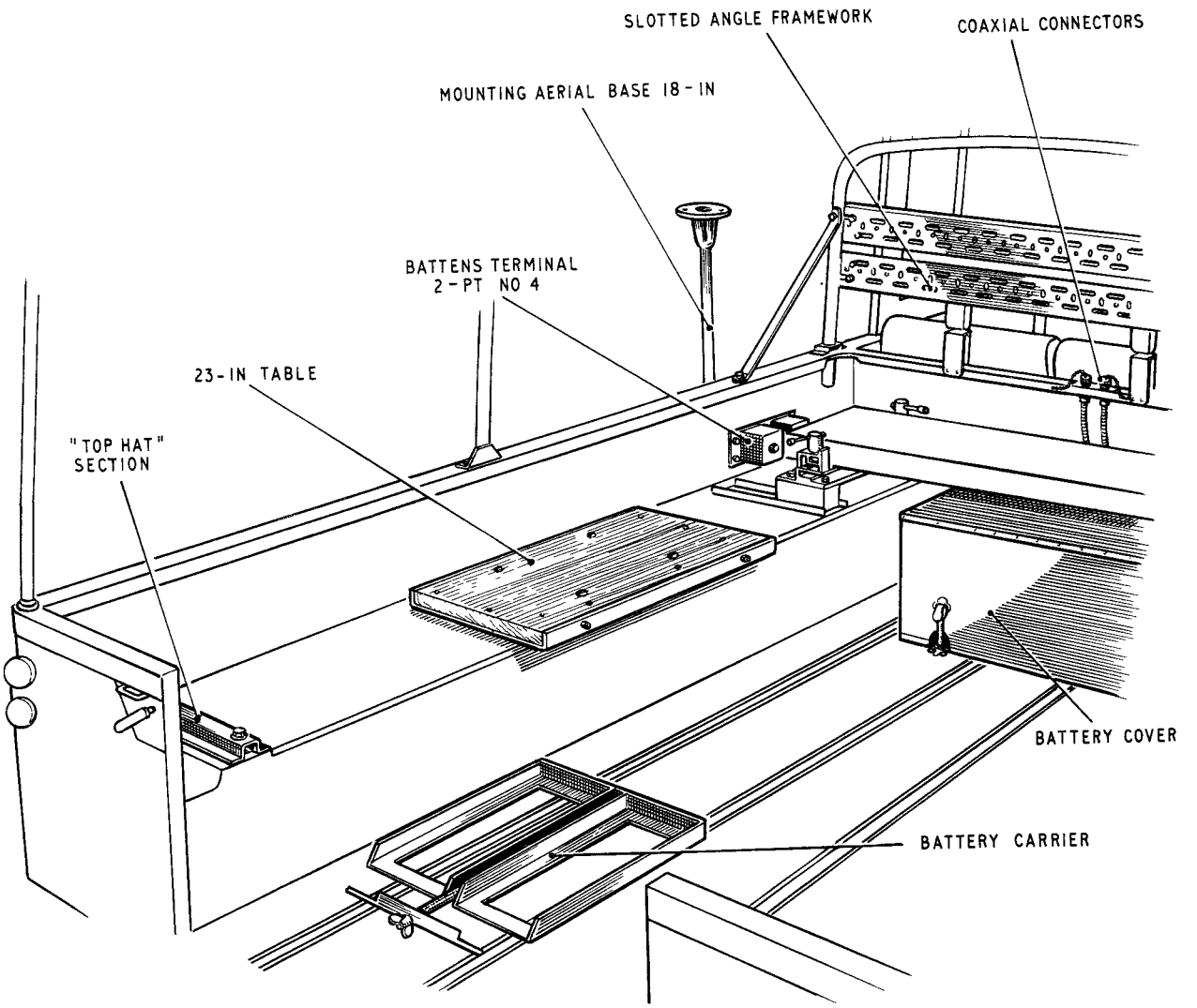


FIG. 31 SMALL BATTERY CARRIER AND 23-IN. TABLE INSTALLED

Section 6 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of set installation kit and multi-purpose kit in a Truck FFR ¾-ton Rover Mk. 9 can be transferred readily into any other FFR vehicle using the same kits. Retain surplus items for use if the station is transferred to a different type of truck.

(2) Cargo version of Rover Mk. 9

The radio station can be transferred to a Truck cargo ¾-ton Rover Mk. 9 if items 1 to 14 in section 3 are moved with it. Instructions for fitting these items are given in the EMER quoted in section 5 paragraph 3 on page 45.

When moving the radio station from an FFR truck to a cargo truck, first remove the battery cover and disconnect the batteries as instructed in the note opposite and on page 34 paragraph 3(d). Dismount the batteries.

Do not dismantle the terminal battens nor any of the power take-off wiring from the FFR truck. None of this can be used in the cargo truck.

Dismount the battery carrier and fit it in the cargo truck. Fit the two radio batteries and connect them in series with the original connector. Use the ground station battery lead to connect the LT box on the set direct to these batteries.

(3) Cargo version of Rover Mk. 8

The radio station can also be transferred from a Truck FFR ¾-ton Rover Mk. 9 to a Truck cargo ¼-ton Rover Mk. 8 if items 1 to 13 in Section 3 are transferred with it. Note that the 23-in. table for the third set cannot be fitted in the Rover Mk. 8, so that a complete three-set installation cannot be transferred in this way.

(4) Water can carrier

Before the 50-in. table and the battery carrier can be fitted in the Truck cargo ¾-ton Rover Mk. 9, the water can carrier must be removed from its position behind the centre seat. No provision is made for mounting this elsewhere in the cargo truck.

(5) VHF ATU connector on the cargo truck

In cargo trucks no provision is made for clamping the coaxial cable to the vehicle between the set and the dismountable VHF ATU on the front wing. Use the 50-ft. remote aerial cable and lash it externally to the windscreen and superstructure between these two points.

(6) VHF ATU connector remaining on the FFR truck (item 17 on page 44)

After removing the VHF ATU from the front wing check that this coaxial connector is undamaged. Stow the front end of the connector on the dummy plug inside the bonnet, replacing the two front cable clamps in their original positions. See page 37 paragraph 2. Replace the screw cap on the rear end of the connector to keep the contacts clean.

(7) Transfer from any ¼-ton truck to a ¾-ton cargo version

The vehicle fitting kit for ¼-ton trucks can be installed in a Truck cargo ¾-ton Rover Mk. 9.

(8) Transfers not practicable

The radio station cannot be transferred from an FFR Rover Mk. 9 to a non-FFR version of any vehicle except those in paragraphs 2 and 3 above.

Section 7 RADIO SET POSITIONS

See fig. 32

Radio sets	Set positions			Aerial positions			
	1	2	3	A	B	C	D
Single HF set	HF						HF
Single VHF set (see fig. 22)		VHF		VHF			
C11-R210/C42	C11 R210	C42		C42			C11
C13/C13	A set	B set				B set	A set
C13/C42	C13	C42		C42			C13
C13/C45/B48	C45	B48	C13	C45	B48		C13
C42/B47	C42	B47		C42	B47		
C45/C45 (If a J2 harness is used, fit it on the 'B' set)	A set	B set		A set	B set		
C45/C45/R209	A set	B set	R209	A set	B set		R209

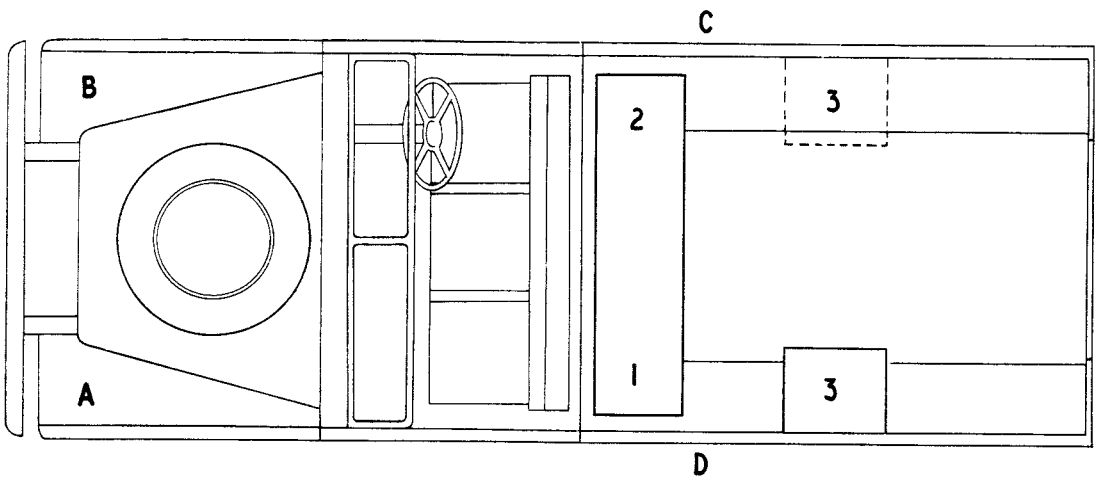


FIG. 32 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 8 RADIO BATTERIES

Battery connectors in the Truck FFR ¾-ton Rover Mk. 9 are exactly the same as those in the Truck FFR ¼-ton Rover Mk. 8. Connect batteries and equipment to the terminal battens on the LH wall as described on pages 34 and 35 in chapter 3. This provides the power supply for one or two radio sets on the 50-in. table.

If a radio set requiring a 24V supply is fitted on the 23-in. table, this also should be connected to the terminal batten marked EQUIPMENT.

If a Reception set R209 Mk. 2 is fitted on the 23-in. table, connect it to one of the 12V 22 Ah batteries fitted in the carrier on the floor and shown in fig. 31 on page 46. Do not connect the R209 to the 24V power supply.

Section 9 INSTALLING RADIO SETS

With the radio equipment listed in Section 3 and if necessary the small table kit as in Section 4 fitted in the vehicle, install the radio set or sets as instructed in the relevant radio set chapter in part 3. Positions of sets are shown in fig. 32 and in Section 7 opposite.

Only two HF and two VHF aerials can be erected on the truck. If three sets of the same type are installed one of them should use a remote aerial.

Section 10 VHF ATU AND AERIAL BASE

VHF aerial fittings on the Rover Mk. 9 are the same as on the Rover Mk. 8. For a VHF set, fit the dismountable VHF ATU assembly as on page 37 in chapter 3. Positions are shown in Section 7 opposite.

When it is required for use, erect an 8-ft. rod aerial in the aerial base and tighten the clamp.

NOTE - Before fitting the ATU, see the note on page 30.

Section 11 HF AERIAL BASE

HF aerial fittings on the Rover Mk. 9 are the same as on the Rover Mk. 8. For an HF set, fit the HF aerial base as on pages 38 and 39 in chapter 3. Positions are shown in Section 7 opposite. When it is required for use, fit the rod aerial into the aerial base. A 12-ft. rod should normally be used. Further information is given in the radio set user handbook.

NOTE - On early productions of Trucks ¾-ton FFR and cargo, Rover Mk. 9, the rubber disc for the HF aerial connector (Item 4 on page 42) was riveted to a continuous metal ring round the hole. This ring must be removed and ten washers used in its place. Inspect the inside of the canvas hood and if the ring is fitted round the aerial inlet, send it to workshops to be modified. See EMER WV Q.027 Mod. Instr. No. 18.

Section 12 ADDITIONAL EQUIPMENT

When any of the kits shown in column 1 below are to be installed, the items shown against them are required.

Kit	Equipment Required	Remarks	Fig.
"E" box harness	"E" box "C" box MRRB box	Bolt to slotted angle framework. See part 4 chapter 1.	30
B48 or R209	Carrier battery No.34	Bolt to floor in LH rear corner. Fit a plywood spacer under the carrier to support it between the floor runners. This spacer is supplied in the kit shown on page 46.	31
	Batteries 12V 22 Ah	Fit into carrier and fasten the clamp. For B48, these batteries are used when the set is dismounted and operated as a remote ground station. For R209, one of these batteries is used to power the set in the vehicle.	31
C42/B47 C45/B48	Rejector (See part 3 page 47)	Bolt to slotted angle framework near the set	
Two VHF sets	Rejector unit No. 3 (see part 3 page 47)	Bolt to slotted angle framework near the set	

CHAPTER 5
TRUCK ARMOURED FFR 1-TON

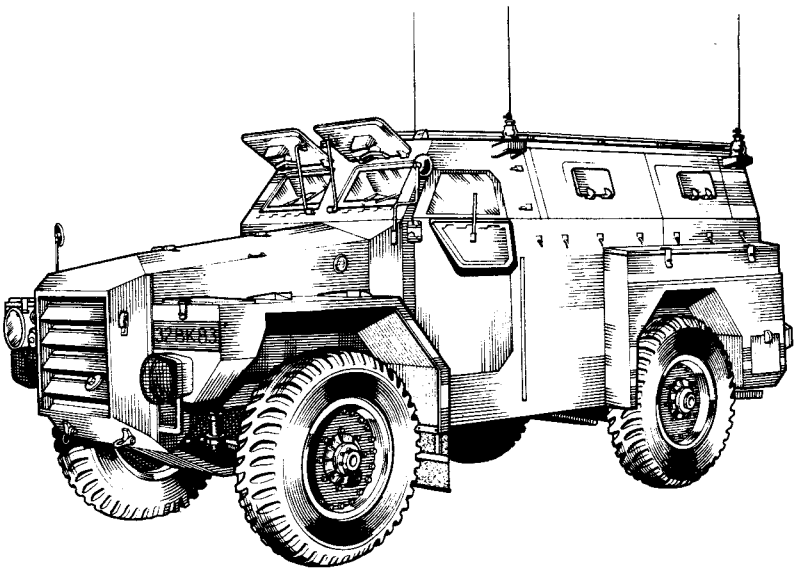


FIG. 33 TRUCK 1-TON ARMOURED

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck Armoured FFR 1-ton 4 x 4 Humber (FV1612) has been modified and contains the radio equipment listed in sections 2 and 3 below. It is ready for the user to install his multi-purpose kit and radio set installation kit or kits.

(2) FFW version

Truck Armoured FFW 1-ton 4 x 4 Humber (FV1612) contains the basic radio fittings shown in section 2 below. The FFW version can be converted to the FFR version by adding the vehicle fitting kit in section 3 as instructed in the EMER. If the vehicle has previously been used in a radio role it may not need drilling.

(3) Cargo version

This contains the basic radio fittings shown in Section 2 but it is not equipped with 24V power take-off. In all other respects it can be converted to carry radio equipment by transferring the essential items of the vehicle fitting kit in accordance with the EMER.

Section 2 BASIC RADIO FITTINGS

Description	Remarks	Fig.
Aerial brackets (three)	At 'A', 'B' and 'D' in fig. 38	42
Aerial inlet holes	Under each aerial mounting bracket.	34
Fans	The wiring allows two fans to be fitted in any of the side revolver ports. Power supplied by vehicle batteries.	
Interior lights	Power is taken from the vehicle batteries.	
Power take-off (24V) (FV1612 only)	Radio batteries can be charged from the vehicle generator. Power take-off terminals behind the driver's seat.	40
Stowage lockers (external)	On each side above rear wheels. Intended primarily for mast and aerial components.	33
Suppression	The vehicle should have been suppressed to current standards in accordance with the relevant EMER.	
"Top hat" sections	On interior walls and roof, tapped bushes are welded up in vertical groups of two or three, each group supporting a length of steel channel section ("top hat" section). Equipment is mounted on the "top hat" sections on brackets secured either direct to the bolts holding the "top hat" sections to the tapped bushes or to studs with square flanges fitted inside the "top hat" sections as in the inset to fig. 39. Cable supports are secured to "top hat" sections by means of self tapping screws. The EMER quoted on page 53 includes instructions for drilling "top hat" sections.	34 35

Section 3 VEHICLE FITTING KIT

Vehicle modifications and fitting instructions for the vehicle fitting kit in the Truck armoured 1-ton are given in EMER WV N.257 Mod. Instr. No. 57. This Mod. instruction also outlines manufacturing and fitting details for the fourth aerial bracket, at position "C" in fig. 38.

VEHICLE FITTING KIT, RADIO, TRUCK 1-TON ARMOURED (For details see CES No. 42928)

Description	Remarks	Fig.
Battens terminal 2-pt. No.4	Power points (two)	45
Board, mounting, 14 x 14 x $\frac{7}{8}$ (Z2/5820-99-949-3374)	Bolted to RH front wing. The charging set carrier can be fitted to it.	
Bracket angle, $8\frac{1}{2}$ x $8\frac{3}{8}$ x $6\frac{1}{2}$ (Z2/5820-99-949-3354) (two)	Screwed to wall in rear corners to carry dismountable VHF ATUs	44
Bracket angle, 13 x 2 x 2 (Z2/5820-99-949-3336)	Supports for frame carrying 23-in. table	36
Bracket angle, 15 x 2 x 2 (Z2/5820-99-949-3337)	Screwed to 'top hat' sections on RH wall	36
Bracket assy., $2\frac{7}{8}$ x $2\frac{7}{8}$ x $\frac{7}{8}$ (ZB15025) (two)	Screwed to 'top hat' sections to carry Battens terminal 2-pt. No. 4	45
Bracket assy., $10\frac{1}{2}$ x 9 x $2\frac{1}{4}$ (ZB15035)	Screwed to wall to carry VHF ATU at RH front aerial position	45
Bracket assy., $12\frac{1}{2}$ x 9 x $2\frac{1}{4}$ (ZB15039)	Screwed to wall to carry VHF ATU at LH front aerial position	46
Bracket, table, $19\frac{1}{2}$ x 16 x 9 (Z2/5340-99-949-3355)	Supports for 50-in. table Bolted to side wall	34
Bracket, table, $19\frac{1}{2}$ x18 x17 (Z2/5340-99-949-3359)	Supports for 50-in. table Bolted to side wall	35
Chairs pedestal, 10-in. (ZB15049) (two)	Screwed to floor	37
Carriers battery, $17\frac{1}{2}$ x 16 (ZB14743) (two)	Bolted to floor in rear corners	37
Channel assy. 21 x $6\frac{1}{4}$ x $1\frac{1}{4}$ (Z2/5340-99-949-3371)	Screwed to RH wall to carry rejector or ALS equipment	47
Channel assy. 2-ft.3 x 19/32 (ZB15026) (three)	Screwed to RH wall to support cables	35
Channel assy.5-ft.$1\frac{1}{2}$ x19/32 (ZB15027) (three)	Screwed across 'top hat' sections to support cables	34
Channel assy. 5-ft.5 x $1\frac{3}{4}$ (ZB15029)	Protects cables crossing floor behind driver's seat. The windscreen stowage rack is moved forward to make room for this channel.	

Description	Remarks	Fig.
Connector single, 3-ft. (ZA54242)	Battery earth. Connector No. 67	40
Connector single, 5-ft. 9, +ve (ZA54220)	Panel power dist No. 8 to RH Batten terminal. (Connectors 52 and 53)	40
Connector single, 5-ft. 9, -ve (ZA54221)		
Connector single, 6-ft. 9, +ve (ZA54218)	Power take-off terminals to Panel power dist No. 8. (Connectors 50 and 51)	40
Connector single, 6-ft. 9, -ve (ZA54219)		
Connector single, 12-ft., +ve (ZA54224)	Panel power dist. No. 8 to RH batteries. (Connectors 56 and 57)	40
Connector single, 12-ft., -ve (ZA54225)		

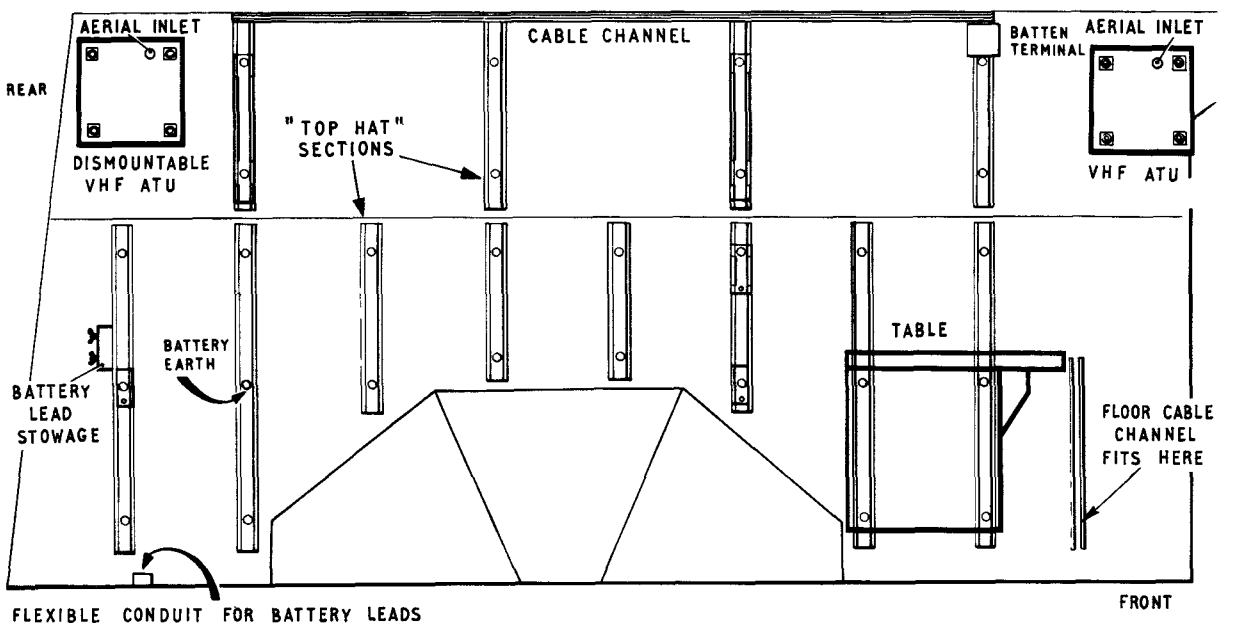


FIG. 34 BRACKETS AND EQUIPMENT MOUNTED ON THE LH WALL

Description	Remarks	Fig.
Connector single, 14-ft.6 +ve (ZA54226)	RH to LH Battens terminal 2-pt. No. 4 Connectors 58 and 59	40
Connector single, 14-ft.6 -ve (ZA54227)		
Connector single, 19-ft.6 +ve (ZA54222)	Panel power dist. No. 8 to LH batteries. (Connectors 54 and 55)	40
Connector single, 19-ft.6 -ve (ZA54223)		
Flexible conduit assy. 6-ft. 10 x 1.3/16-in. (ZB15028)	Fitted under floor at rear for the two 19-ft.6-in.connectors to pass through	
Frame MS, $15\frac{1}{2}$ x $11\frac{3}{4}$ x $7\frac{1}{2}$ (ZB15030)	Screwed to brackets on RH wall to carry 23-in. table	36
Gland assy. $\frac{1}{4}$ x $2\frac{1}{4}$ x 7-in. long (ZA50361) (four)	Fitted in aerial inlet holes	42
Installation kit, table folding (Z1/5820-99-949-3217)	To fit the table folding	
Panel power distribution No. 8 (ZA46174)	Bolted to bracket supporting RH end of table	39

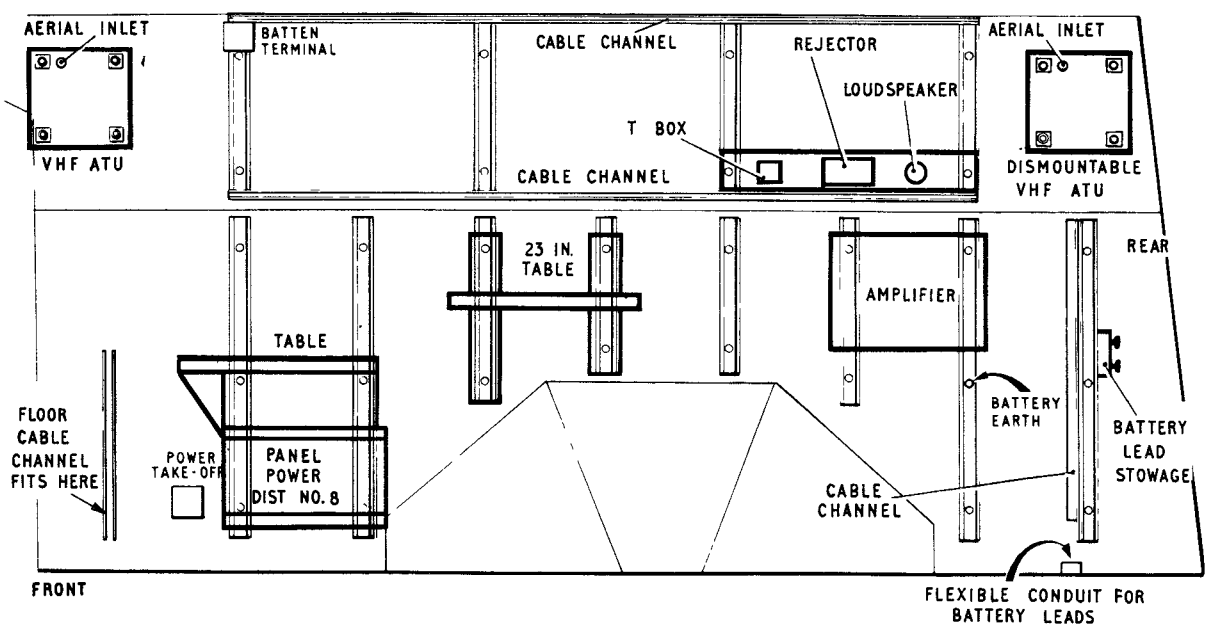


FIG. 35 BRACKETS AND EQUIPMENT MOUNTED ON THE RH WALL

Description	Remarks	Fig.
Plastic strip perforated (8 yd)	To strap up loose connectors.	40
Runner assy. 19 x 5 x 3½ (ZB14898) (pair)	Bolted to brackets to carry 50-in. table top.	37
Screws UNF, ¼ x ¾ with nuts and washers(16)	To secure carriers battery.	
Studs, polythene (24)	To secure the plastic straps.	40
Support electrical cable (Z2/5975-99-949-3372)	Slotted angle framework. Bolted in position over the table for control units, etc.	37
Table folding, 36 x 32 (Z2/5820-99-949-1436)	A folding map table is supplied according to the role of the station. It is adjustable for angle and when not in use can be strapped up to the roof.	
Table radio equipment. 23 x 13½ (Z2/5820-99-949-3373)	23-in. table. Bolted to frame MS for third radio set.	36
Table top adapter, 16 x 6½ (ZB15032)	When required it can be fitted to the frame supporting the short table, to provide a horizontal or sloping writing surface.	36
Table top, 50 x 16½ x 3⅛ (ZB14899)	50-in. table. Fitted across truck on runner assemblies.	37

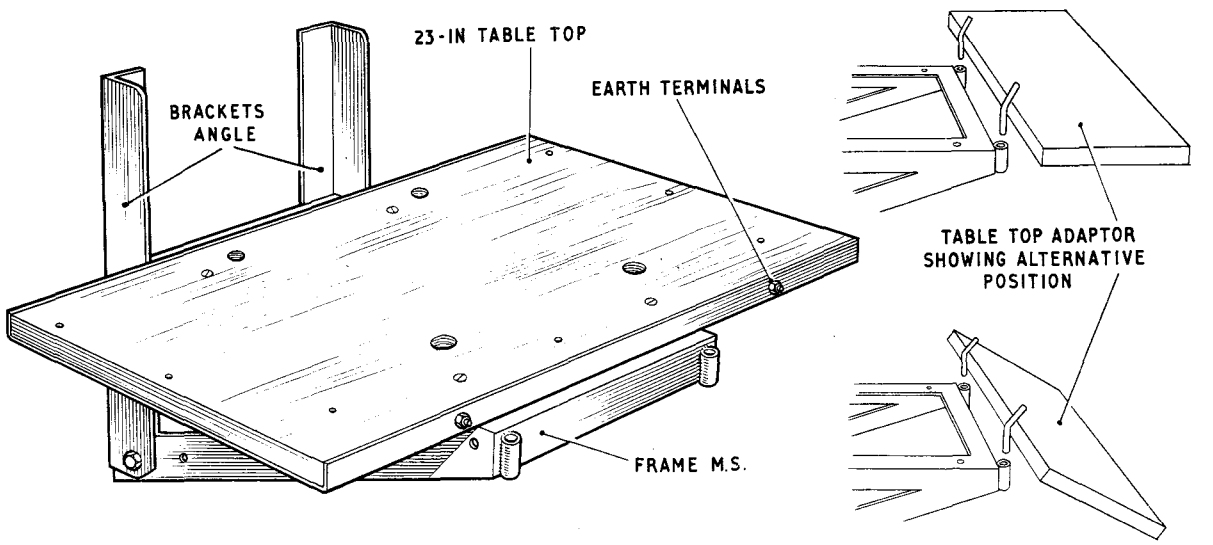


FIG. 36 SHORT TABLE WITH BRACKET AND ADAPTER

Description	Remarks	Fig.
Terminal board, 3 $\frac{1}{2}$ x $\frac{7}{8}$ x $\frac{1}{2}$ (Z1/5820-99-949-3346) (two)	Insulated terminals bolted to 'top hat' sections above batteries. Battery leads should always be stowed here when disconnected from batteries.	34 35
Terminal cover assy. (ZA54243)	Insulated covers to fit over terminals on Panel power distribution No. 8	39

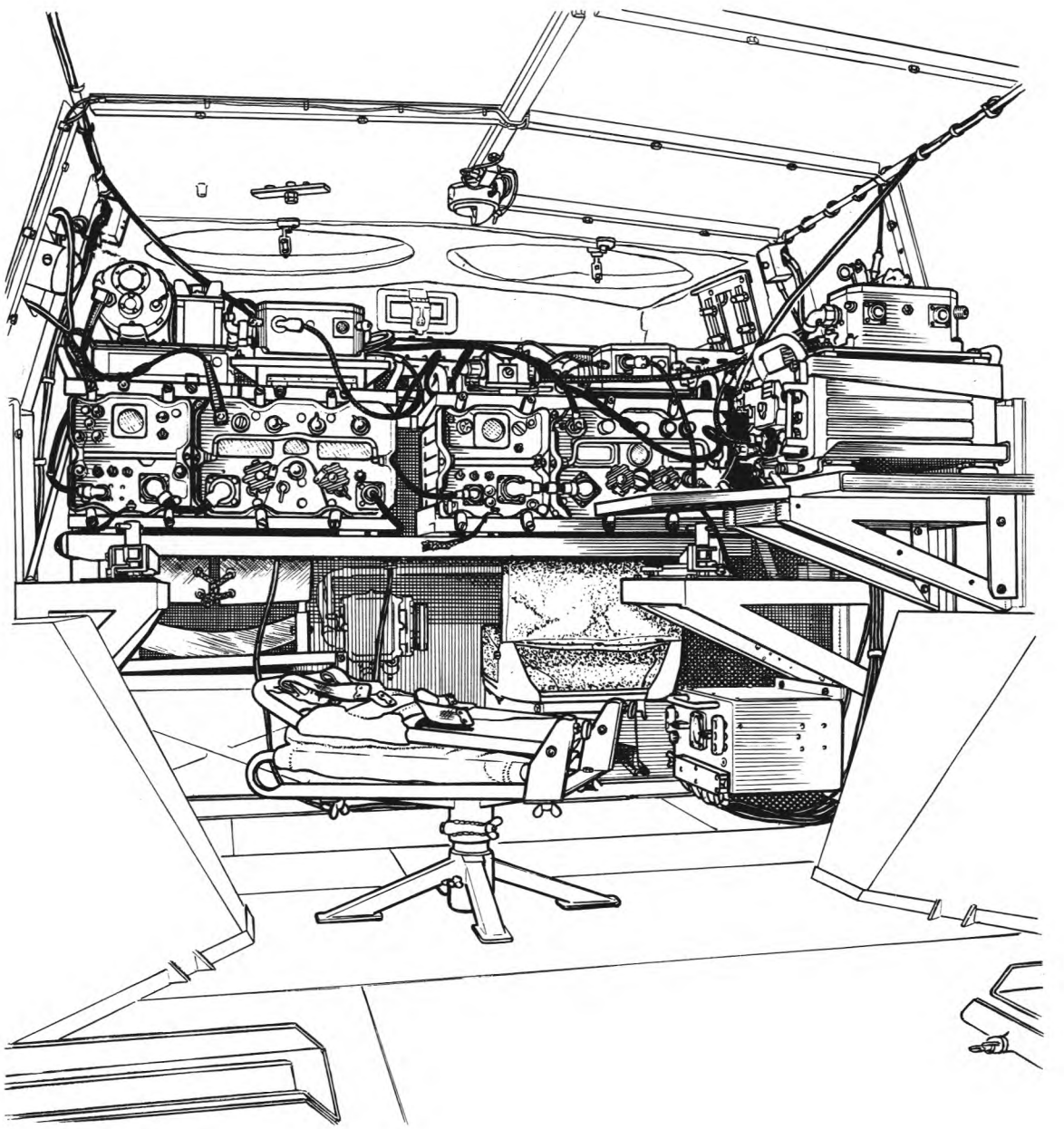


FIG. 37 INTERIOR WITH C13/C45/B48 INSTALLED

Section 4 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of a set installation kit and multi-purpose kit in a Truck Armoured FFR 1-ton can be transferred readily into any other FFR vehicle using the same kits.

(2) 1-ton Armoured FFW version

In an emergency it can be transferred from an FFR version to an FFW version if the essential items of the vehicle fitting kit are moved with it. The vehicle will require modification in accordance with EMER WV N.257, Mod. Instr. No. 57, before the vehicle fitting kit can be installed.

(3) 1-ton Armoured cargo version

It can also be transferred to a cargo version 1-ton Armoured if the vehicle is modified in accordance with the EMER and the vehicle fitting kit is installed. As the cargo version has no power take-off the power panel, wiring, etc., should not be transferred. Batteries should be connected by means of the ground station battery lead.

(4) Transfers not practicable

It cannot be transferred from a Truck Armoured FFR 1-ton to a non-FFR vehicle of any other type.

Section 5 INSTALLING RADIO SETS

After the vehicle fitting kit has been installed, mount the radio set or sets on the tables as instructed in the relevant radio set chapter in part 3. Positions of sets are shown on the opposite page. Note the following points:

(1) HF set on the 50-in. table

If it is found that the LH end of the tray on the HF set fouls the strut on the slotted angle framework, slacken the bolts securing the framework and move it to the left. These bolt holes are slotted.

(2) HF set on the 23-in. table

The 23-in. table on the RH side (position 3) is not recommended for any HF set except R209 owing to the length of the aerial connector. Consequently any installation of three HF transmitter-receivers should not normally be fitted.

Section 6 PANEL POWER DISTRIBUTION NO. 8

Before connecting batteries or equipment, check that the voltage selector is correctly positioned for the equipment installed. The selector link is located at the RH end of the front panel. See fig. 39. It selects 24V or 12V and in the latter position it drops the voltage of the power take-off to suit 12V equipment.

IMPORTANT - ALWAYS TURN BOTH SWITCHES TO OFF BEFORE CONNECTING OR DISCONNECTING BATTERIES.

General instructions for the use of the panel are given on the instruction card supplied with it. See also part 4 page 33 in this handbook.

Check regularly that the wing nut terminals on the front of the panel are firmly tightened. These terminals are protected by an insulated cover to prevent accidental contacts and short circuits.

Section 7 RADIO SET POSITIONS

See fig. 38

Radio sets	Set positions			Aerial positions			
	1	2	3	A	B	C	D
Single HF set	HF			HF			
Single VHF set		VHF				VHF	
C11-R210/C42	C11	C42		C11		C42	
C12/C42	C12	C42		C12		C42	
C13/C13	A set	B set		A set	B set		
C13/C42	A13	C42		C13		C42	
C13/C45/B48 (See fig. 37)	C13	C45	B48	C13		B48	C45
C42/C45/B48	C45	B48	C42		C42	B48	C45
C42/B47	C42	B47				B47	C42
C45/B48	C45	B48				B48	C45
C45/C45/R209	A set	B set	R209		R209	B set	A set

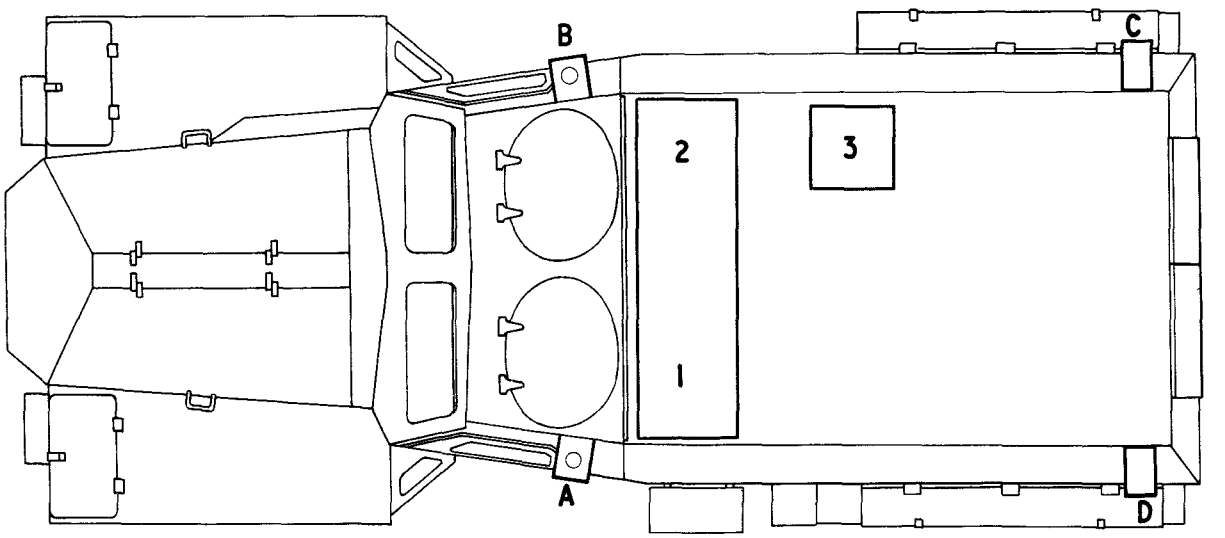


FIG. 38 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 8 RADIO BATTERIES

(1) Fitting four 12V 75 Ah batteries

Fit two batteries in each carrier with the lids opening outwards. Secure the clamps after fitting connectors.

(2) Battery connectors

It is very easy to short circuit the power supply when metal cased batteries are used in metal floored vehicles. If loose connectors come into contact with the battery or the floor a short circuit will cause severe damage by allowing a very heavy current to flow in the negative connector to the equipment. To minimise the risk of short circuits, always fit battery connectors in the order shown opposite. Disconnect in the reverse order. Connectors in fig. 40, except No. 64, are supplied in the vehicle fitting kit and are secured in the vehicle. Battery series connectors, numbered 64, are supplied in the multi-purpose kit.

(3) Stowing battery connectors - THIS IS IMPORTANT

At all times when batteries are disconnected, fit the ends of the battery connectors to the two insulated terminals provided on the wall. See figs. 34 and 35. If the engine is started with Panel power distribution No. 8 switched on and the positive connector is in contact with the metal bodywork, a short circuit would cause serious damage to the generator.

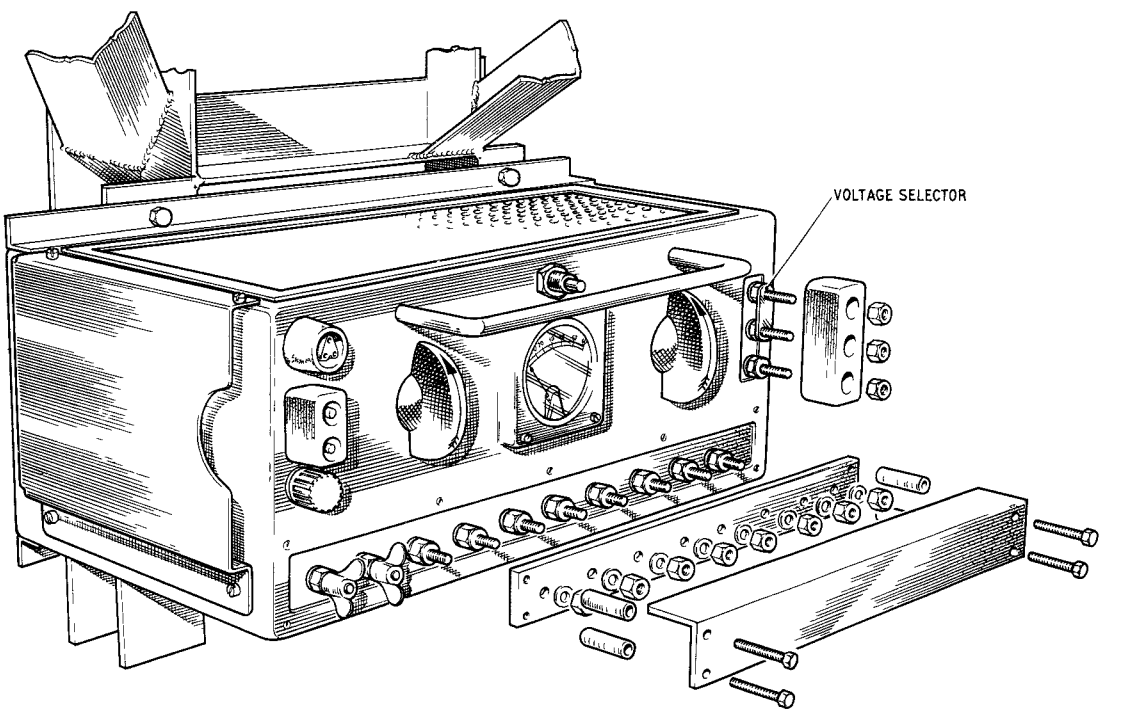


FIG. 39 PANEL POWER DISTRIBUTION NO. 8 WITH TERMINAL COVER

Fig.40	Connector	Position
64	Lead elec. single, 2-ft. 6-in. (Z1/5995-99-949-1068) (ZA0781) (two)	Series connector. Terminals to which the series connector is fitted must not be used for any other connections.
67	Connector single, 3-ft. (two)	Negative terminal on each pair of batteries to earthing bolts on the vehicle walls.
55	Connector single, 19-ft. 6-in.(-)	Negative terminal on the LH pair of batteries to panel terminal BTY 1 (-)
54	Connector single, 19-ft. 6-in.(+)	Positive terminal on LH pair of batteries to panel terminal BTY 1 (+)
57	Connector single, 12-ft. (-)	Negative terminal on RH pair of batteries to panel terminal BTY 2 (-)
56	Connector single, 12-ft. (+)	Positive terminal on RH pair of batteries to panel terminal BTY 2 (+)

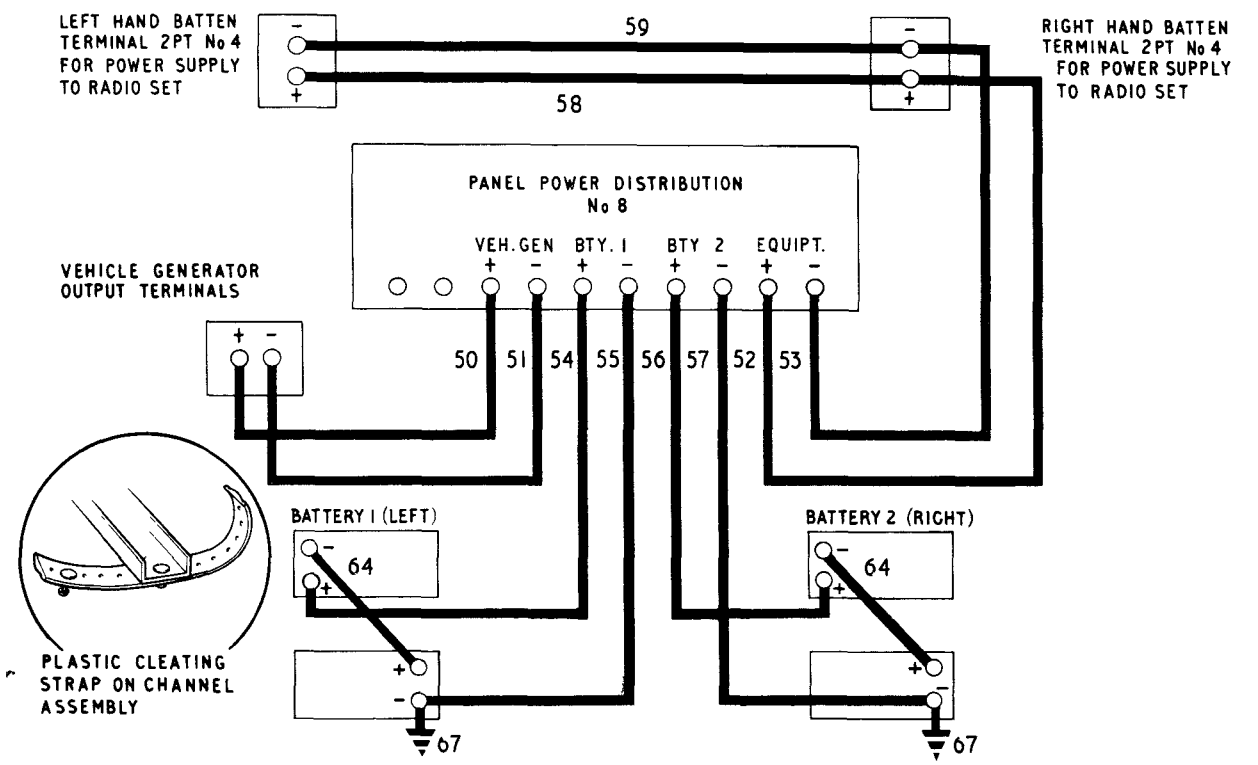


FIG. 40 POWER SUPPLY CONNECTOR DIAGRAM

Section 9 HF AERIAL BASE

(1) Aerial connector

Users should make up an aerial connector of the exact length to reach between the aerial base and the ATU. This connector must be fitted at the same time as the aerial base. The following equipment is supplied in the HF set installation kit.

Aerial base No. 31 with adjusting tool to tighten the gland nut.
Cable electric P11 with gland nut and washer and Lug special.
Insulating beads (50) with four rubber clamps.
Plate plastic, 1/4-in. ID x 5-in. OD x 1/8-in. thick.

(2) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer supplied with it. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(3) Fitting aerial base No. 31 at the selected position

Thread the free end of the cable through the centre hole in the plate plastic and then down through the bracket. Bolt the aerial base and plate plastic to the bracket using six screws $\frac{1}{4}$-in. UNF x 1-in. with nuts and spring washers.

(4) Fitting the insulating beads on the cable

Thread on the cable one rubber clamp, 12 beads with the open ends downwards, and the second rubber clamp. Slide them up against the plate plastic to prevent the cable touching the bracket. Thread the cable through the gland. Do not leave any slack cable outside the vehicle. Inside the vehicle, thread on the cable another rubber clamp, the remaining beads and then the final clamp.

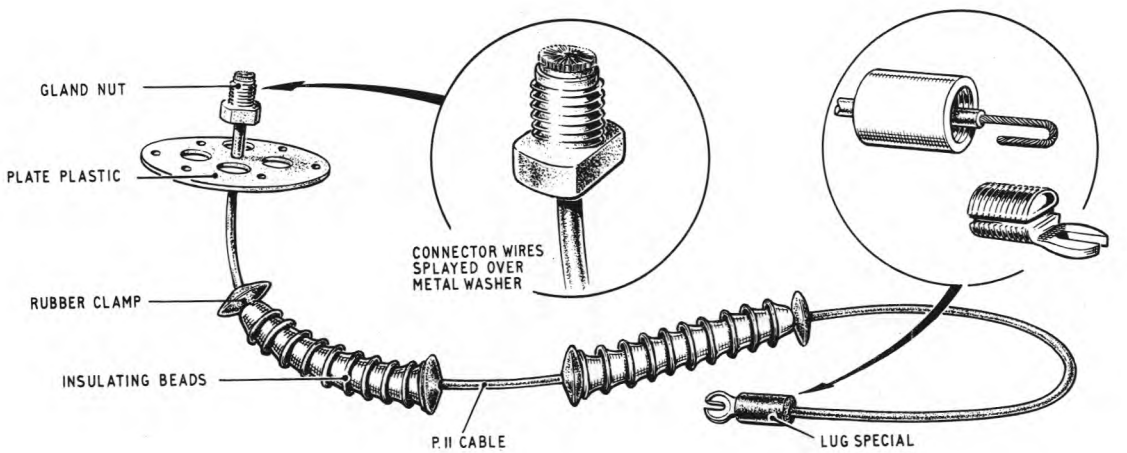


FIG. 41 MAKING THE HF AERIAL LEAD

(5) Cutting the connector to the required length

Do not cut the cable before the HF set and its ATU are installed. After fitting the ATU, offer the cable up to the installation to ascertain the length required to reach to the ATU aerial terminal. Keep the connector as short as possible without straining it. Allow approximately 4-in. free movement in the centre of the cable so that the flexing of the aerial base does not strain it. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

NOTE - The connector is an effective part of the aerial and must be kept as short as possible or the ATU tuning calculations will be upset and there will be a loss of output.

(6) Fitting the lug to the end of the cable

Strip back the insulation for $1\frac{1}{2}$-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. See fig. 41.

(7) Fitting the connector to the ATU

Fit the lug to the ATU. Finally, group the insulating beads between the two rubber clamps and slide them along the cable to the ATU end, or to any other point where there is a risk of the cable touching any metal parts.

NOTE - If the cable should touch any metal parts when the set is transmitting, the rubber insulation would be burnt off.

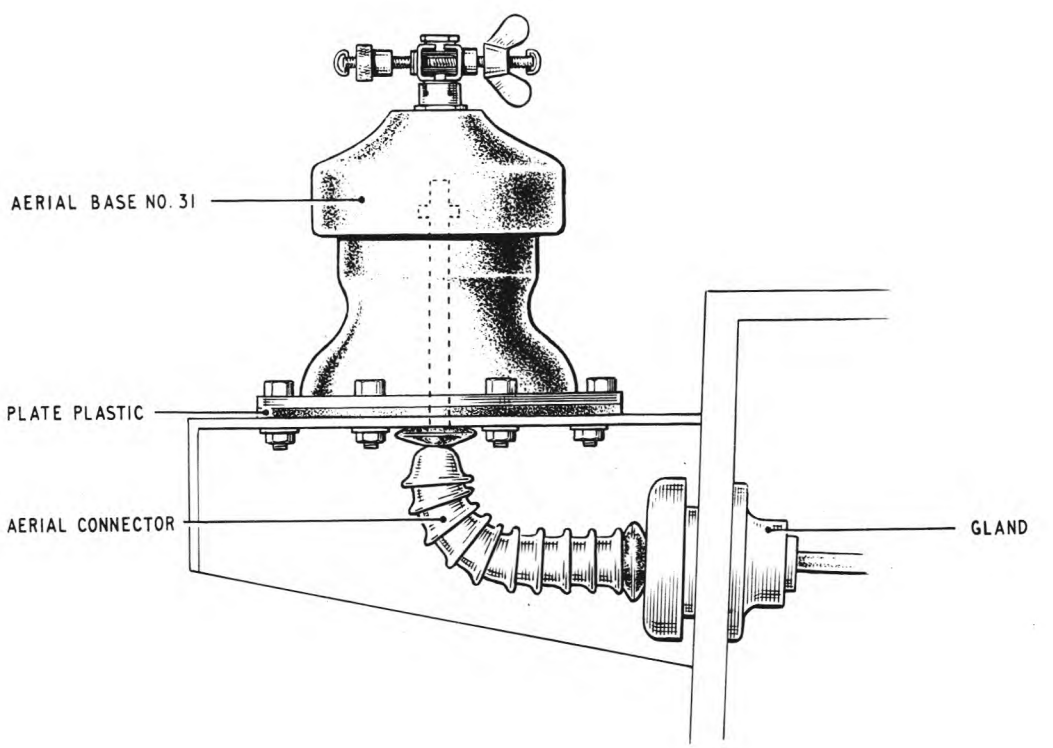


FIG. 42 HF AERIAL BASE FITTED

Section 10 VHF AERIAL BASE

(1) Lead electrical, 16-in.

This connector and the aerial base are supplied in the radio set installation kit. Fit one end of the connector to the terminal inside the aerial base and tighten the terminal screw. Do not use any other connector here as the length of 16-in. must not be exceeded.

(2) Base aerial support rubber/steel

Ascertain which aerial position is to be used for the VHF aerial base. See page 59. At the selected position, mount the aerial base on the bracket as shown in fig. 43. Pass the connector down through the central hole in the mounting bracket and through the gland into the vehicle. Bolt the aerial base to the bracket by means of six $\frac{1}{4}$ and $\frac{3}{4}$-in. screws with nuts and spring washers. These screws are supplied in the multi-purpose kit. See that the copper braid connector supplied as part of the aerial base is secured to the top ring and held under the head of one of the screws holding the aerial base to the bracket.

(3) Rod aerial

When it is required for use, erect the 8-ft. rod aerial in the aerial base and tighten the clamp.

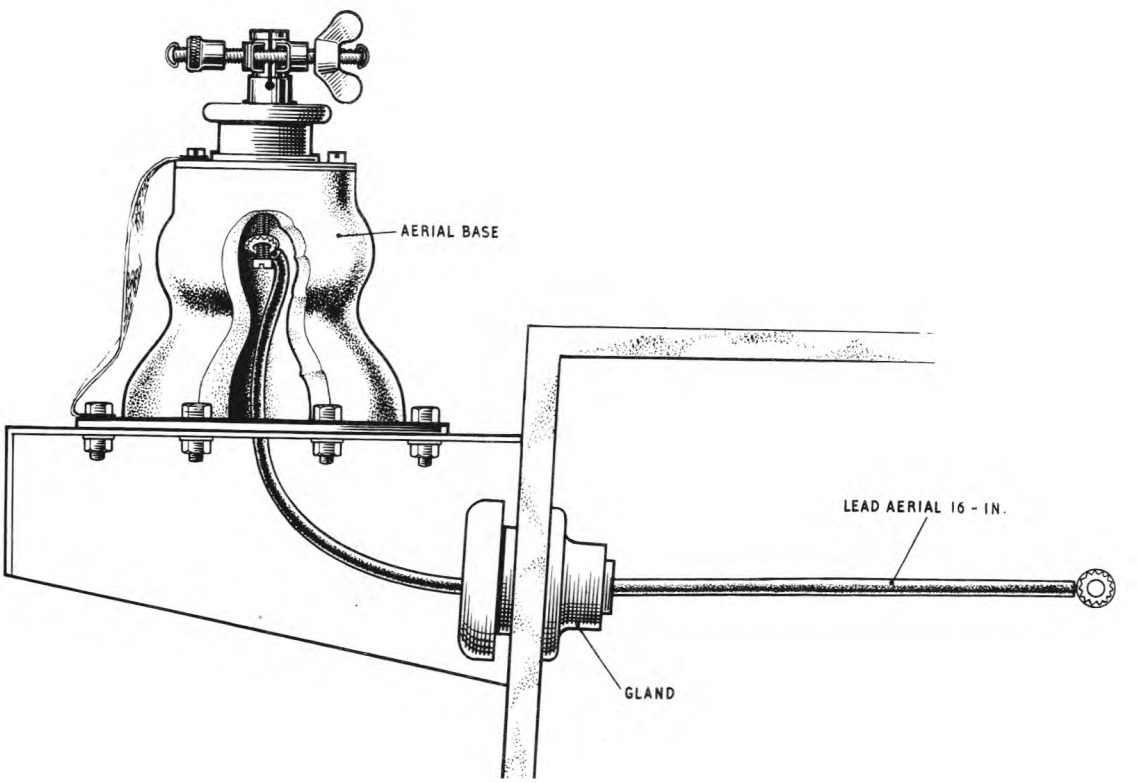


FIG. 43 VHF AERIAL BASE AND AERIAL LEAD FITTED

Section 11 DISMOUNTABLE VHF ATU ASSEMBLY

(1) VHF ATU assembly

Bracket assemblies, $8\frac{1}{2}$ x $8\frac{3}{4}$ x $6\frac{1}{2}$-in. are fitted at each rear aerial position. Fit the ATU into the appropriate bracket and tighten the large screw in the base. Release the fitted aerial and earth connectors from the terminals on the ATU and tuck them into the side of the case. They are not used in the vehicle.

(2) Wing Nuts

Fit 2 BA and 4 BA wing nuts to the ATU aerial and earth terminals respectively in place of the nuts normally used there. The wing nuts are supplied in the radio set installation kit.

(3) Connectors

A copper braid connector is provided on the bracket. Fit it to the ATU earth terminal as shown in fig. 44. Connect the free end of the 16-in. aerial connector to the ATU aerial terminal. Fit a 9-ft. coaxial cable between ATU and radio set, or a 3-ft. cable between ATU and rejector unit when this is fitted. Strap the coaxial cable to the channel on the wall as in fig. 44.

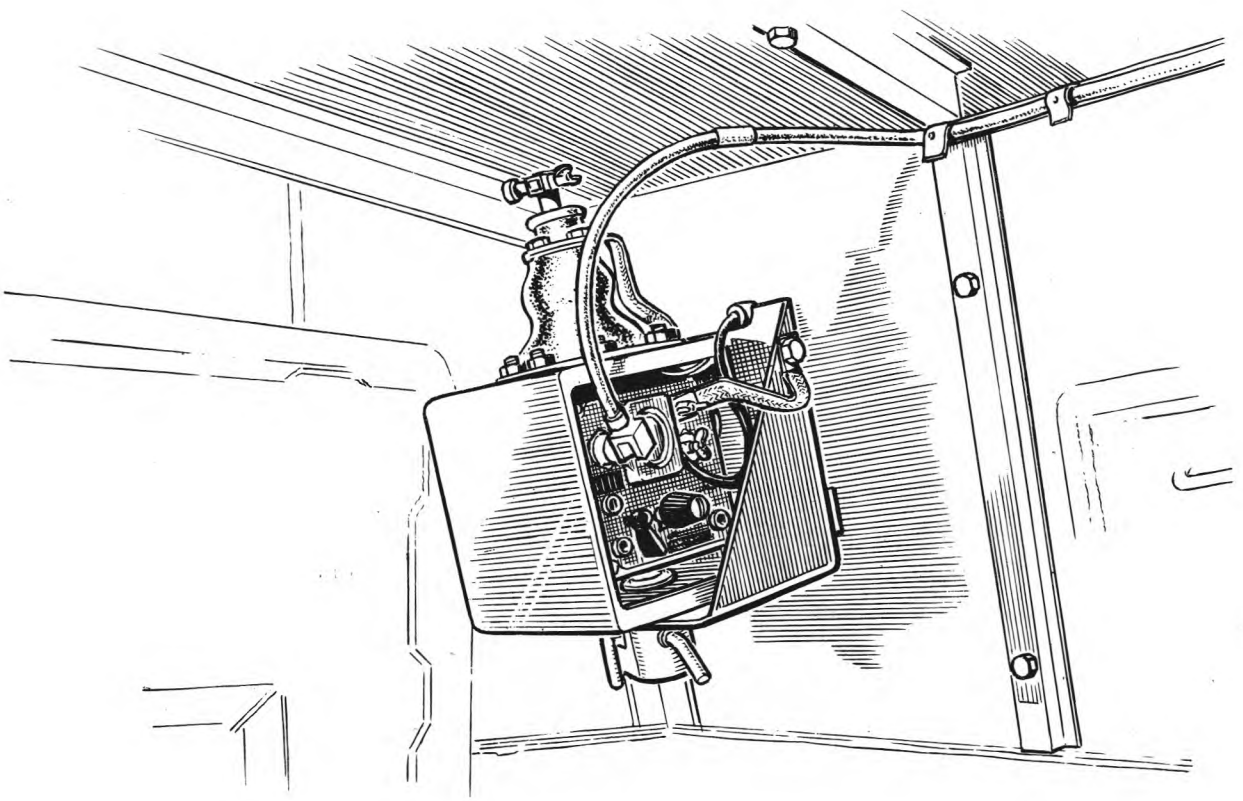


FIG. 44 DISMOUNTABLE VHF ATU ASSEMBLY SHOWN IN THE LH REAR CORNER

Section 12 ADDITIONAL EQUIPMENT

When any of the kits shown in column 1 are to be installed the items shown against them are required.

Kit	Equipment required	Remarks
'E' box harness	'E' box, 'C' box, MRRB box	Bolt to slotted angle framework
R209 Mk.2	Carrier battery No.34	Bolt to floor under table, in holes normally blanked off with two plywood strips. Keep these to seal the holes again when the carrier is removed.
	Batteries 12V 22 Ah	Fit two batteries into carrier and fasten the clamp. One of these batteries is used to power the R209. Do not connect R209 to the 24V power supply.
C42/B47 C45/B48	Rejector (see part 3 page 47)	Fit to four studs in the centre of the channel on the RH wall, as shown in fig. 35.
Two VHF sets	Rejector unit No.3 (See part 3 page 47)	Fit as the above rejector unit when required
B48 ground station	Carrier battery No.34	Bolt to floor at rear end, in holes normally blanked off with screws and nuts.
	Batteries 12V 22 Ah	Stow two batteries in the carrier. These batteries are used when the B48 is dismounted and operated as a remote ground station.
Charging set	Charging set carrier	Bolt to plywood board on RH front wing. The board, screws and nuts are part of the vehicle fitting kit.
	Charging set	Clamp into carrier on wing
ALS	Amplifier Loudspeaker 'T' box	See page 69
Third VHF set	ATU on RH wall	See page 67
A41	ATU No. 8	Fit at aerial position 'C' or 'D' as on page 65. If these positions are occupied use aerial position 'A' or 'B' as on page 67 or 68.

Section 13 VHF ATU AT RH FRONT AERIAL POSITION

(1) **Using position 'B' for a VHF aerial**

When a third VHF set is to be installed, the ATU for it should be mounted at aerial position 'B' in fig. 38. This position should also be used when maximum spacing is required between VHF aerials, fitting one at 'B' and the other at 'D'.

(2) **Bracket assembly, 10½ x 9 x 2¼-in.**

This bracket is mounted on the sloping wall above the driver's seat. See fig.45.

(3) **ATU**

Remove the ATU from its ground station case. Refit the resilient mounts in the case to prevent loss and stow the case for future use. Remove the nuts, washers and round rubber bushes from the pillars on the bracket. Place the square rubber washer down on each pillar. Assemble the ATU upside down on the pillars. It is turned upside down to bring the AERIAL terminal within reach of the 16-in. aerial connector from the external aerial base. On each pillar, refit the rubber bush with the small section inserted through the ATU base and into the square washer. Secure each rubber bush with the flat washer and nut.

(4) **Wing nuts**

Fit 2 BA and 4 BA wing nuts to the ATU aerial and earth terminals respectively.

(5) **Connectors**

A copper braid connector is provided on the bracket. Fit the slotted end to the ATU earth terminal as shown in fig. 45. Fit the 16-in. aerial connector from the external aerial base to the ATU aerial terminal. Fit a coaxial cable between the ATU and the set.

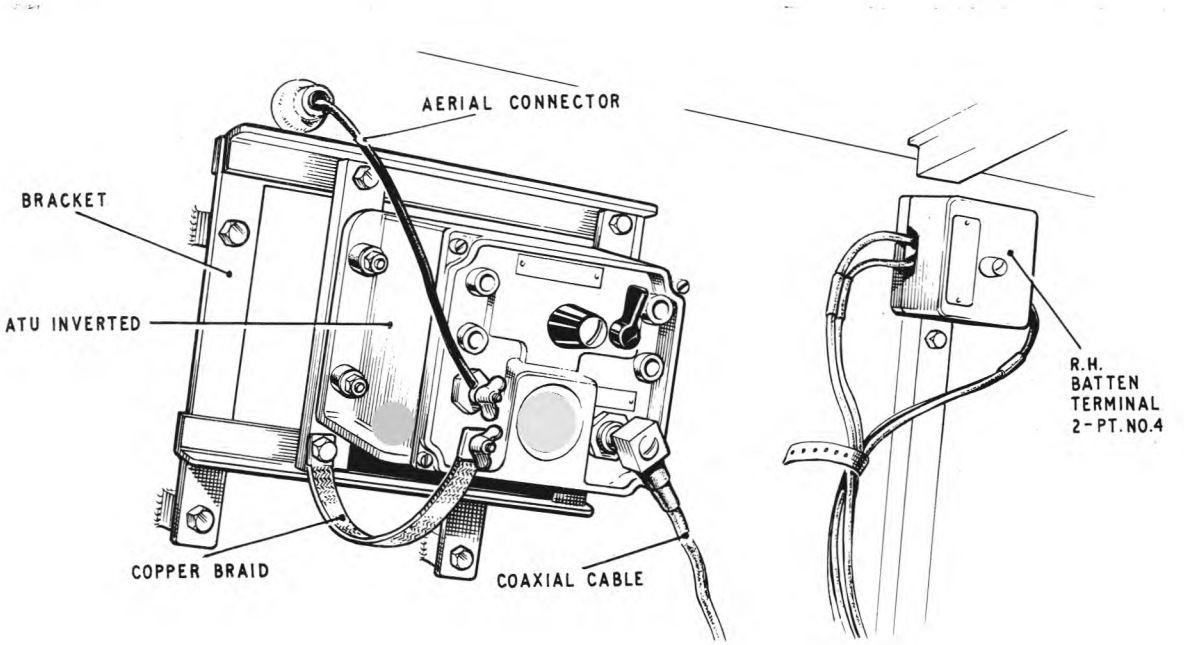


FIG. 45 VHF ATU (INVERTED) IN BRACKET ON RH WALL

Section 14 VHF ATU AT LH FRONT AERIAL POSITION

(1) Using position 'A' for a VHF aerial

If the installation already has three VHF ATUs, as for example in a C42/C45/B48 station, and it is necessary to fit a vehicle-mounted aerial and ATU for the A41, the LH front aerial position can be used.

(2) Bracket assembly, 12½ x 9 x 2¼-in.

This bracket is mounted above the LH side door as in fig. 46.

(3) ATU

Remove the ATU from its ground station case. Refit the resilient mounts in the case to prevent loss and stow the case for future use. Fit the ATU to the studs on the bracket. Secure it as in paragraph 2 on page 67 except that in this instance the ATU must not be mounted upside down. Fit 2 BA and 4 BA wing nuts to the terminals on the ATU in place of the nuts provided there.

(4) Connectors

A copper braid connector is provided on the bracket. Fit the slotted end to the ATU earth terminal as shown in fig. 46. Fit the 16-in. connector from the external aerial base to the ATU aerial terminal. Fit a coaxial cable between the ATU and the set.

(5) Dismounting VHF ATUs from positions 'A' and 'B'

These ATUs may have to be dismounted for use with remote rod aerials. Instructions for fitting the ATU into the ground station case are given in part 4 chapter 2.

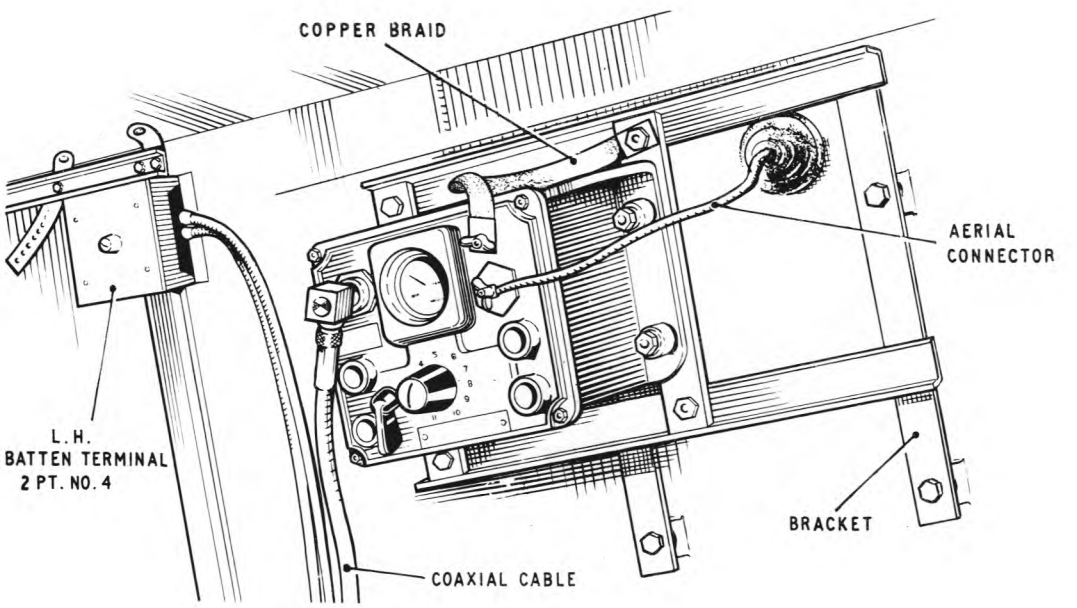


FIG. 46 VHF ATU IN BRACKET ON LH WALL

Section 15 ALS EQUIPMENT

(1) Brackets double angle MS, 11 x $1\frac{1}{4}$ x $\frac{5}{8}$

Two of these brackets are supplied in the ALS kit. Bolt them to the back of the amplifier carrier with the end holes in the brackets 10-in. apart to correspond with the 10-in. centres of the "top hat" sections. Use the four $\frac{3}{8}$-in. screws, nuts and washers which originally secured the amplifier to the carrier. Remove the fixing studs, nuts and washers from the brackets double angle.

(2) "Top hat" sections

Fig. 35 shows the position of the amplifier and the two "top hat" sections on which it is fitted. Remove the two "top hat" sections, which have been drilled to accept the fixing studs. Fit the studs with the square flanges inside the "top hat" sections. Then refit the two "top hat" sections and secure with the original screws. Note that the centre screw on the rear section also secures the battery earth connector as shown in fig. 47.

(3) Mounting the amplifier on the wall

Mount the ends of the brackets double angle on the studs and secure with nuts and washers. If they do not fit, check that they are correctly positioned on the rear of the amplifier.

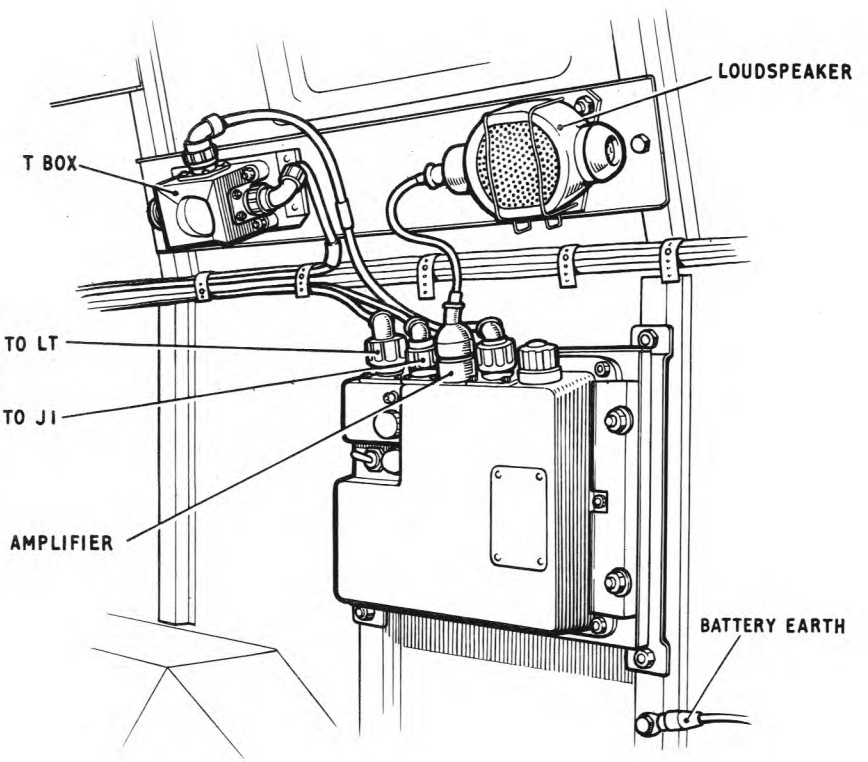


FIG. 47 ALS EQUIPMENT ON THE RH SIDE WALL

(4) Loudspeaker

When a 5-in. loudspeaker is issued, bolt it to the rear end of the channel on the RH wall. See figs. 35 and 47. Screws and nuts are provided in the lugs on the channel. If the alternative 3¼-in. loudspeaker is issued, fit its carrier to the channel in the same position as the 5-in. loudspeaker, using the two suitably spaced studs and nuts. Fit the loudspeaker into the carrier and secure it with the wire clips.

(5) 'T' box

A 'T' box is mounted on the channel with the loudspeaker. See fig. 47. Fit the 'T' box with the cut-away side at the bottom and secure it on two studs with nuts and washers. If a second 'T' box is required it should be bolted to the slotted angle framework at the front of the truck.

(6) Connectors

A connector diagram and operating instructions are given in part 4, chapter 1, page 10.

(7) Using the ALS in a 12V installation

It may be necessary to install the ALS in a vehicle with 12V equipment. In this case the 24V supply for the amplifier can be obtained from two 12V 22Ah batteries in series, while the rest of the installation is powered from the normal supply via Panel power distribution No. 8 adjusted for 12V working. Fit the batteries and Carrier battery No. 34 as for the R209 on page 66. Note that the amplifier operates on 24V and if it is to be connected to a 12V control harness it must be modified in accordance with EMER Tels C409 Misc. Instruction No. 3.

W A R N I N G - FOOT WELLS

Users are reminded that the foot wells in the truck are not armoured and that they must not be used when there is any possibility of the truck striking a mine.

Operators should use the foot wells only when the truck is stationary. Before moving off, the foot well covers should be placed in position and screwed down.

CHAPTER 6

TRUCK FFR 1-TON AUSTIN K9

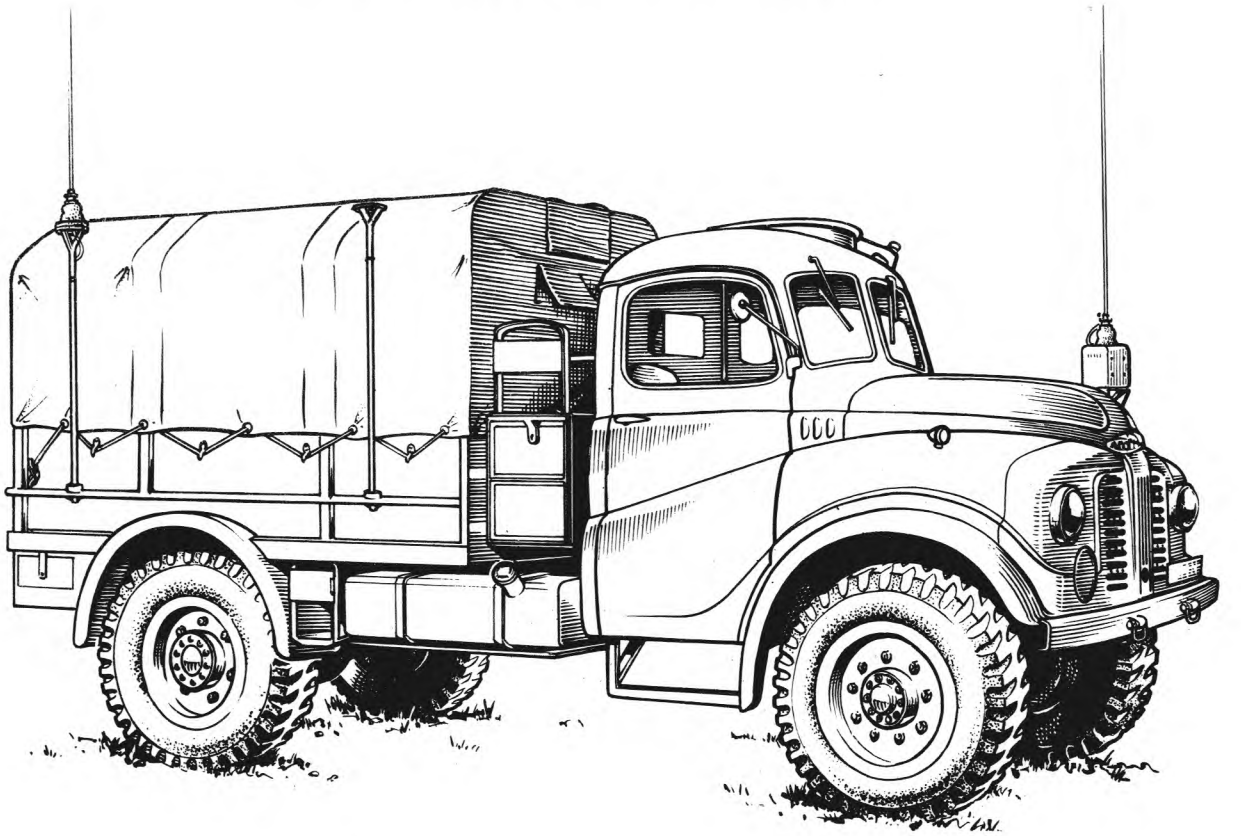


FIG. 48 TRUCK 1-TON FFR AUSTIN

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck FFR 1-ton 4 x 4 Austin K9 has been modified and contains the radio equipment listed in sections 2 and 3 below. It is ready for the user to install his multi-purpose kit and radio set installation kit or kits.

(2) FFR version

Truck 1-ton GS FFW 4 x 4 Austin K9 contains the basic radio fittings shown in section 2 below. The FFW version can be converted to the FFR version by adding the vehicle fitting kit (section 3) as instructed in the EMER (section 4).

(3) Cargo version

Truck cargo 1-ton 4 x 4 Austin K9 contains no basic radio fittings and would not normally be used for radio installations.

Section 2 BASIC RADIO FITTINGS

Description	Remarks	Fig.
Brackets aerial assy. (LV6/FV228952) (two)	Bolted to side walls at 'B' and 'D' in fig. 52.	48
Brackets aerial mast steady (LV6/FV228916) (two)	Retain tops of mountings aerial base to tilt frame at 'B' and 'D' in fig. 52.	53
Canvas seats (two)	On the wheel arch lockers.	50
Canvas sleeve	For connectors between cab and body.	
Carriers battery, 17½ x 16 (ZB14743) (two)	Bolted to the floor between the table supports.	50
Charging set locker	Between cab and body on RH side. See part 4 page 34.	48
Exterior battery locker	On the left hand side, with carriers for four spare batteries.	
Mounting aerial base (two)	Screwed into Brackets aerial assy. at 'B' and 'D' in fig. 52.	48
Suppression	The vehicle should be suppressed to current standards in accordance with the relevant EMER.	
Vehicle table	Fitted across the front of the body, with sliding drawers and hinged flaps. NOTE - This table has been modified to carry the weight of a two-set installation. The modification consists of cross bracing strips and brackets to secure the ends of the table to the side walls of the vehicle. Details are given in the EMER quoted on page 74.	49

Section 3 VEHICLE FITTING KIT

VEHICLE FITTING KIT, RADIO, TRUCK 1-TON GS FFW (Z1/5820-99-949-3121)

For details see CES No. 42941

Description	Remarks	Fig.
Bracket aerial assy. (LV6/MT13/FV228952)	Bolted to wall at RH rear corner for aerial at position 'C' (see page 78)	48
Bracket aerial mast steady. (LV6/MT13/FV228916)	Retain top of bracket aerial assy. to tilt frame at aerial position 'C'	53
Bracket & spacer assy.15 x $1\frac{7}{8}$ x $2\frac{1}{8}$ (Z2/5820-99-949-3330) (two)	Bolted to top of support table steel	58
Bracket assy. MS, 'U' shaped, $8\frac{1}{2}$ x $6\frac{3}{8}$ x $5\frac{1}{2}$ (ZB14948)	Bolted to LH front wing to carry dismountable VHF ATU	55
Bracket assy. MS, $11\frac{1}{4}$ x $5\frac{1}{8}$ x 4 (ZB14965) (two)	Clamped to tilt frame at aerial positions 'C' and 'D' to carry dismountable VHF ATUs	54
Cable assy. coaxial, 20-ft. (Z1/5995-99-949-1038) (ZA49873)	Clamped between LH front wing and front wall of cargo compartment	55
Carrier battery, $17\frac{1}{2}$ x 16 (ZB14743)	Bolted to floor in RH rear corner	58
Connector copper braid No.25,5-in. (ZA46975) (three)	Fitted between top of mountings aerial base and tilt frame at aerial positions 'B', 'C' and 'D'	53
Disc rubber and rivet assy. $3\frac{1}{2}$-in. dia. (ZB14980) (three)	Riveted to canvas at aerial positions, 'B', 'C' and 'D' for HF aerial leads	57
Lead elec. copper braid, 8-in. (Z1/5820-99-949-3102)	Fitted between vehicle table and chassis	
Lead elec.copper braid, $10\frac{3}{4}$-in. (Z1/5995-99-949-1055)(ZA46904) (two)	Copper braid with lug ends. Fitted to tilt at aerial positions 'C' and 'D' to earth VHF ATU	54
Mounting aerial base assy. (LV6/MT13/FV311807)	Screwed into bracket at aerial position 'C'	48
Packing plywood,$17\frac{1}{2}$ x $1\frac{3}{8}$ x 15/32 (Z2/5820-99-949-3315) (three)	Fitted under carrier battery in RH rear corner	58
Plate and packing assy. (ZA53865) (two)	Fitted in wheel arch to support carrier battery No. 34 when this is required	59
Plug elec. RF (Z1/5935-99-011-9484) (two)	To anchor the ends of coaxial cable when it is not in use	55
Runner assy. 19 x 5 x $3\frac{1}{2}$ (ZB14898) (pair)	Bolted to top of vehicle table on spacers	49
Spacer, plywood, 17 x 8 x 55/64 (Z2/5820-99-949-3332) (two)	Fitted between runner assemblies and vehicle table	49
Support elec.cable, 56 x $24\frac{3}{4}$ x $2\frac{7}{8}$ (Z2/5820-99-949-3331)	Slotted angle framework for control units, etc. Clamped to front of tilt frame.	49
Support table steel, $39\frac{1}{8}$ x $27\frac{1}{2}$ x 20 (Z2/5820-99-949-4558)	Supports 23-in. table in RH rear corner	58
Table radio equipment, 23 x $13\frac{1}{2}$ (Z2/5820-99-949-3373)	23-in. table. Bolted to bracket and spacer assy	58
Table top,50 x $16\frac{1}{2}$ x $3\frac{1}{8}$ (ZB14899)	50-in.table. Clamped to runner assys.on vehicle table	49
Tool kit (see part 1 page 20)	To fit radio and FFR kit	

Section 4 EMER WV D.607, MOD. INSTR. NO.34

(1) Vehicle fitting kit

The above EMER gives fitting instructions for the vehicle fitting kit in the Truck FFR 1-ton 4 x 4 Austin K9. It contains details of vehicle modifications, including the fitting of brackets to strengthen the vehicle table.

(2) Additional holes

It includes instructions for drilling the following holes, which may exist if the vehicle has previously been used in a radio role. These holes are only required when certain radio stations are installed.

(a) Two holes in the front of the metal bin in the cab, to fit a 'C' box when required for intercom. See fig. 60.

(b) Four holes in the RH wheel arch locker, to fit a Carrier battery No. 34 for 12V 22 Ah batteries when required. See fig. 59.

Section 5 TRANSFERRING TO OTHER VEHICLES

(1) Any FFR vehicle

A radio station installed with the aid of a set installation kit and a multi-purpose kit in a Truck FFR 1-ton Austin K9 can be transferred readily into any other FFR vehicle. Retain all surplus items for use if later the station is transferred to a different type of truck.

(2) 1-ton FFW Austin K9

In an emergency the radio station can be transferred to a Truck FFW 1-ton Austin K9, if the essential items of the vehicle fitting kit from the FFR vehicle can be transferred with it. For a VHF set the tilt frame should also be transferred, as earthing bosses for the VHF ATU are welded to the longitudinal tubes, although these may exist on the FFW vehicle if it has previously been modified to accept a VHF installation kit. For an HF set the canvas tilt should also be transferred, as it has the rubber discs for the HF aerial leads riveted to it. The vehicle table should be strengthened in accordance with the modification instruction quoted above.

Drilling will be required in the top of the vehicle table to fit the table runners, and when necessary in the floor and RH wall to fit the support for the third radio set. See fig. 58. If the truck has previously been used in a VHF radio role the holes for the ATU mounting on the LH front wing may exist.

(3) Transfers not practicable

The radio station in the 1-ton FFR Austin cannot be transferred to any non-FFR truck except the 1-ton FFW as outlined in paragraph 2.

(4) Power supply

Always switch the radio equipment off before connecting or disconnecting batteries.

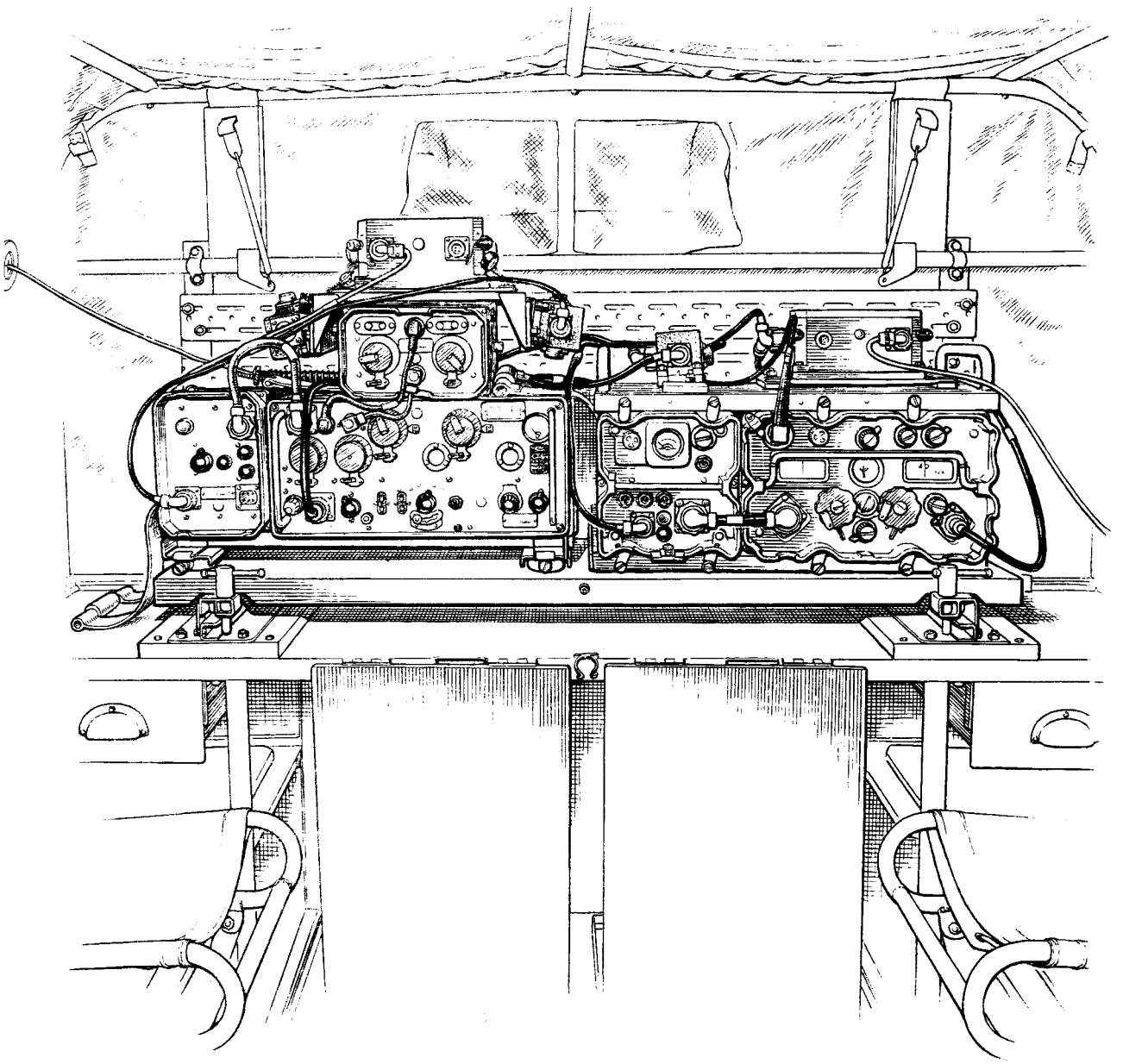


FIG. 49 INTERIOR WITH C12/C42 INSTALLED

Section 6 RADIO BATTERIES

(1) Installing batteries for one or two sets

For one radio set, stow two 12V 75 Ah batteries in the LH battery carrier under the table. Position them so that the lids open outwards and fasten the clamp after the leads are connected. For a two-set installation, both sets should be powered by the same pair of batteries. For two separate one-set installations, fit a second pair of batteries in the RH carrier so that each set has its own independent power supply.

(2) Installing batteries for the third set when fitted

Stow two 12V 75 Ah batteries in the carrier in the RH rear corner when a set is to be used in this position. See fig. 58.

(3) 12V supply

For a 12V radio set, one 12V or two 6V batteries may be provided. If 12V batteries are issued, do not connect them in series.

(4) Spare batteries

An external locker is provided for the carriage of a reserve bank of four 12V 75 Ah batteries.

(5) Battery earth leads

The negative terminal on each pair of batteries must be earthed before the equipment is connected. One 3-ft. battery earth lead is supplied in each multi-purpose kit. Before installing batteries, connect one end of the earth lead to the vehicle as follows:-

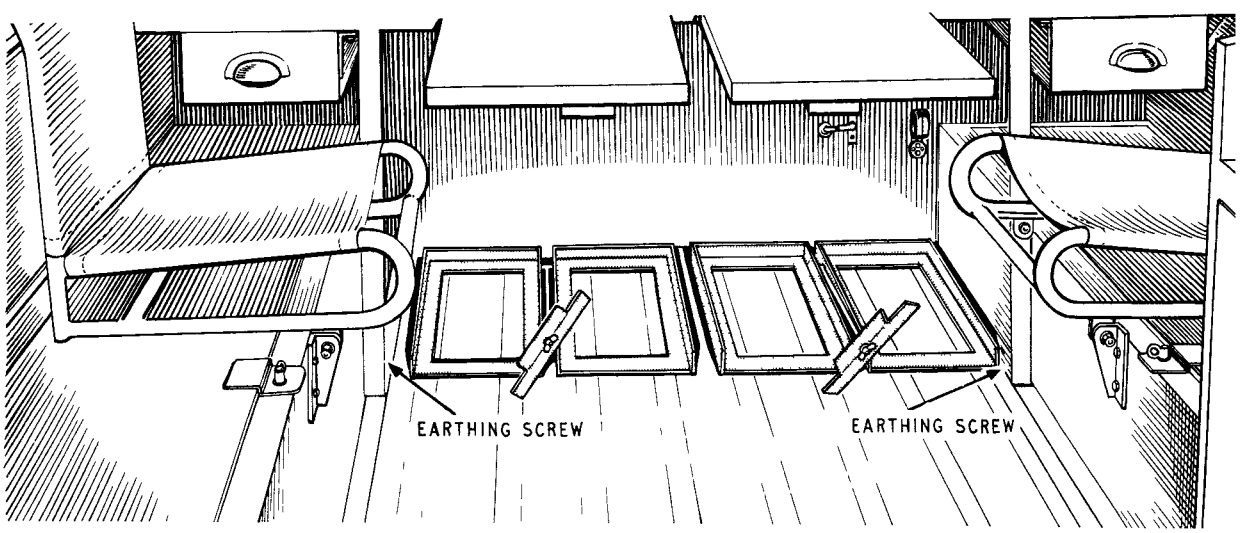


FIG. 50 TWO CARRIERS FOR FOUR BATTERIES FITTED UNDER THE TABLE

(a) When one pair of batteries is installed, fit the battery earth lead to the bolt at the foot of the LH table support. See fig. 50.

(b) When two pairs of batteries are installed, fit the second battery earth lead to the foot of the RH table support. See fig. 50.

(c) When three pairs of batteries are installed, fit the third battery earth lead to the spare earth terminal on the front of the 23-in. table. See fig. 58.

(6) Battery connectors

To minimise the risk of short circuits, always fit battery connectors in the following order:-

(a) First fit the series connector (Lead elec. single, 2-ft.6-in.) between the negative terminal on one battery (1 in fig. 51) and the positive terminal on the other battery (2 in fig. 51).

The terminals to which the series connector is fitted must not now be used for any other connection.

(b) Fit the free end of the earth connector to the vacant negative terminal (3 in fig. 51).

(c) Then fit the negative lead of the power supply connector to the same terminal as the earth connector (3 in Fig. 51).

(d) Finally fit the positive lead of the power supply connector to the vacant positive terminal (4 in fig. 51).

(e) Disconnect batteries in the reverse order.

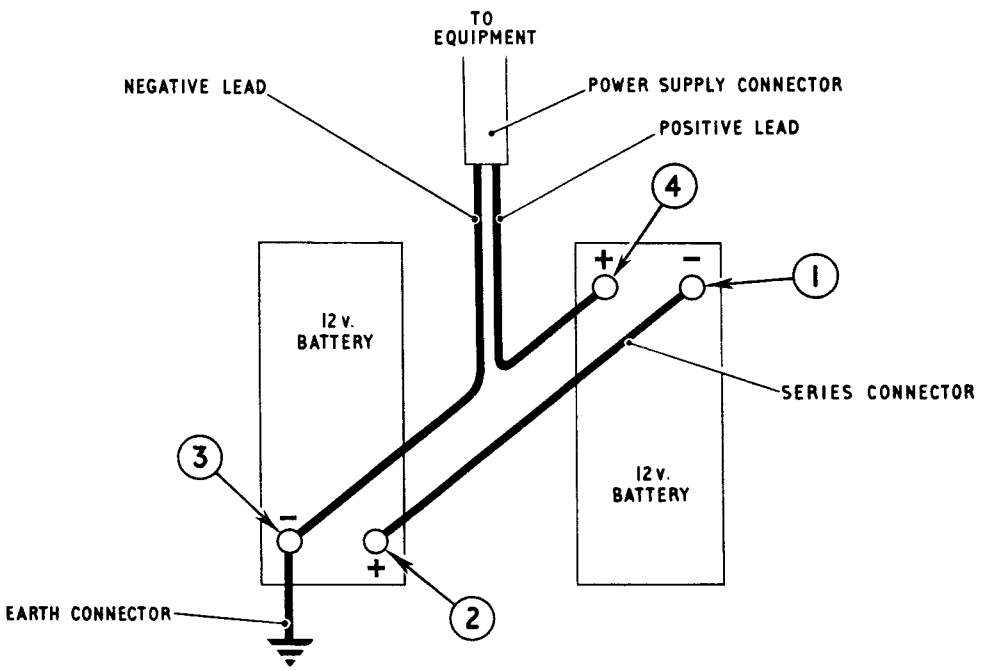


FIG. 51 METHOD OF FITTING CONNECTORS TO TWO BATTERIES

Section 7 RADIO SETS AND AERIALS

After the vehicle fitting kit has been installed, mount the radio set or sets on the table as instructed in the relevant radio set chapter in part 3. Positions of sets are shown below and in fig. 52.

Radio sets	Set positions			Aerial positions			
	1	2	3	A	B	C	D
Single HF set	HF						HF
Single VHF set		VHF				VHF	
C11-R210/C42	C11	C42				C42	C11
C13/C13	A set	B set			B set		A set
C13/C42	C13	C42				C42	C13
C13/C45/B48	C45	B48	C13	B48		C13	C45
C42/C45/B48	C45	B48	C42	B48		C42	C45
C42/B47	C42	B47		B47		C42	
C45/C45/R209	A set	B set	R209	A set	R209	B set	

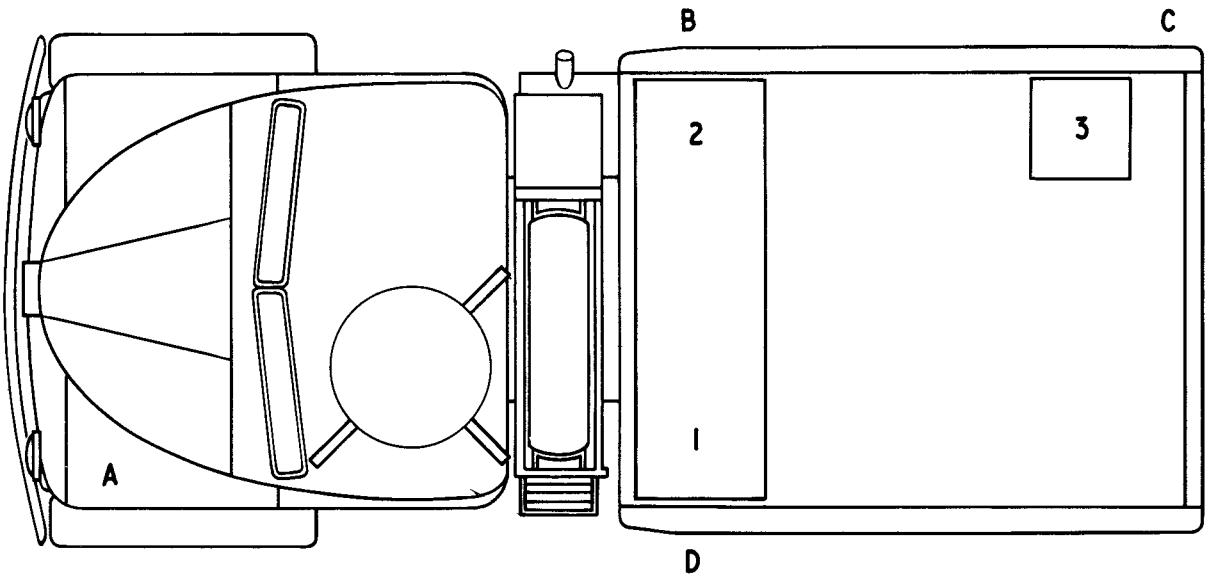


FIG. 52 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 8 VHF AERIAL BASE

(1) **Lead elec, 16-in.**

This aerial connector and the aerial base are supplied in the radio set installation kit. Before fitting the aerial base, attach the connector to the inside terminal. Do not use any other connector as its length must not exceed 16-in.

(2) **Fitting the aerial base**

At the required aerial position, pass the aerial connector down through the top of the mounting and bolt the aerial base down as shown in fig. 53, using six screws $\frac{1}{4}$ x $\frac{3}{4}$-in. with nuts and spring washers. Fit the copper braid between top and bottom of the aerial base. These screws are supplied in the multi-purpose kit.

NOTE - No separate aerial base is required for the VHF set using aerial position 'A' in fig. 52, as the dismountable ATU incorporates an aerial base. See page 81.

Section 9 VHF ATU ASSEMBLIES ON THE TILT FRAME

(1) **Dismountable ATU assembly**

Fit the ATU assembly as shown in fig. 54, with aerial and earth terminals nearer the lower edge. Disconnect the fitted aerial connector and copper braid from the terminals on the ATU and tuck them into the side of the case. Fit wing nuts to the ATU terminals in place of the ordinary nuts. Connect the 10-in. braid from the tilt frame to the ATU earth terminal.

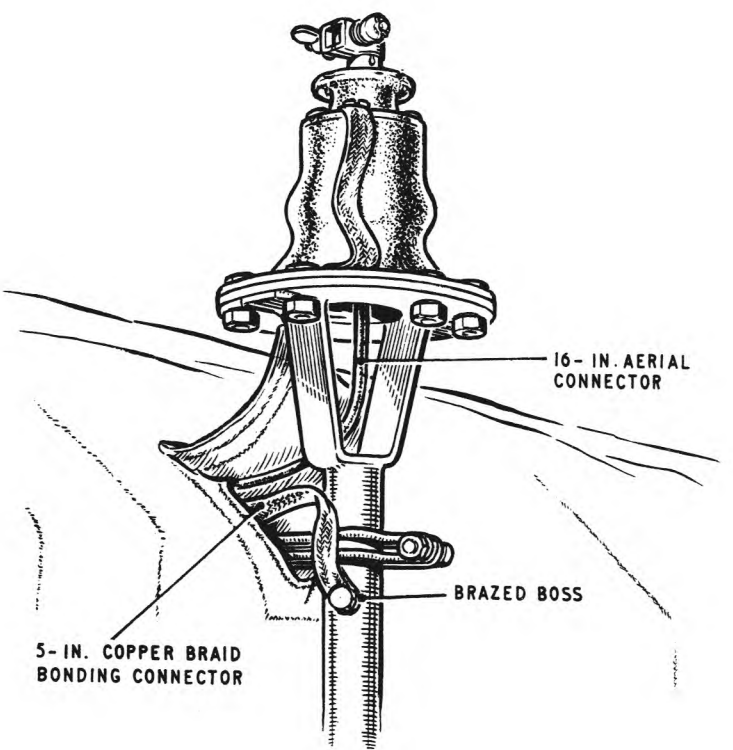


FIG. 53 AERIAL BRACKET WITH VHF BASE AND LEAD FITTED

(2) Lead elec. 16-in.

This aerial connector has been fitted to the external aerial base. Pass it through the opening in the canvas and under the ATU to the aerial terminal as shown in fig. 54. Ensure that when it is fitted, sufficient slack lead is left to allow for the flexibility of the aerial base. Re-position the 'U' clamps if necessary, to provide the greatest possible loop.

(3) Cable assembly coaxial, 3-ft.

This connector is used when a VHF ATU is fitted at aerial position 'D' in fig. 52 and connected to a set at position 1. Fit it between the ATU and the radio set. If a rejector unit is installed on the slotted angle framework for use with this ATU, fit the connector between ATU and rejector and a second 3-ft. connector between rejector and set.

(4) Connector coaxial No. 120, 9-ft.

This connector is used when an ATU is fitted at aerial position 'C' in fig. 52 and connected to a set at position 1 or 2. Plastic strip and studs are supplied in the multi-purpose kit. From the strip cut twelve pieces, each 9-in. long. Strap the connector as follows: along the tilt frame front cross member, fit four straps evenly spaced. Then along the second tube from the RH side, fit eight straps evenly spaced. Pass the cable over the second and third cross members. Fit the rear end to the ATU. Fit the front end to the radio set. If a rejector unit is installed for this ATU, fit the front end to the rejector and fit a 3-ft. coaxial cable between rejector and set.

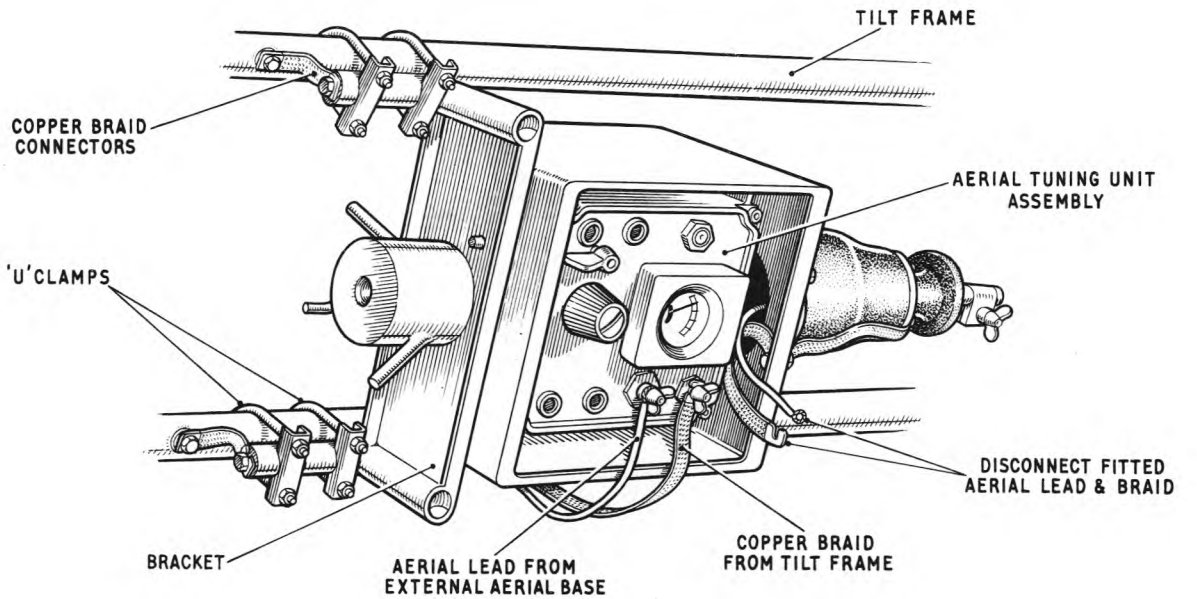


FIG. 54 DISMOUNTABLE VHF ATU ASSEMBLY ON THE TILT FRAME

Section 10 VHF ATU ON THE FRONT WING

(1) Dismountable ATU assembly

Fit the assembly to the bracket on the LH front wing, with the panel to the rear. Engage two locating pins and secure it by means of the clamping screw.

(2) Cable assembly coaxial, 20-ft. (installed on truck)

The ends are stowed on dummy plugs. Fit the front end to the ATU and the rear end to the radio set. If a rejector is installed for this ATU, fit the rear end to the rejector and a 3-ft. coaxial cable between rejector and set.

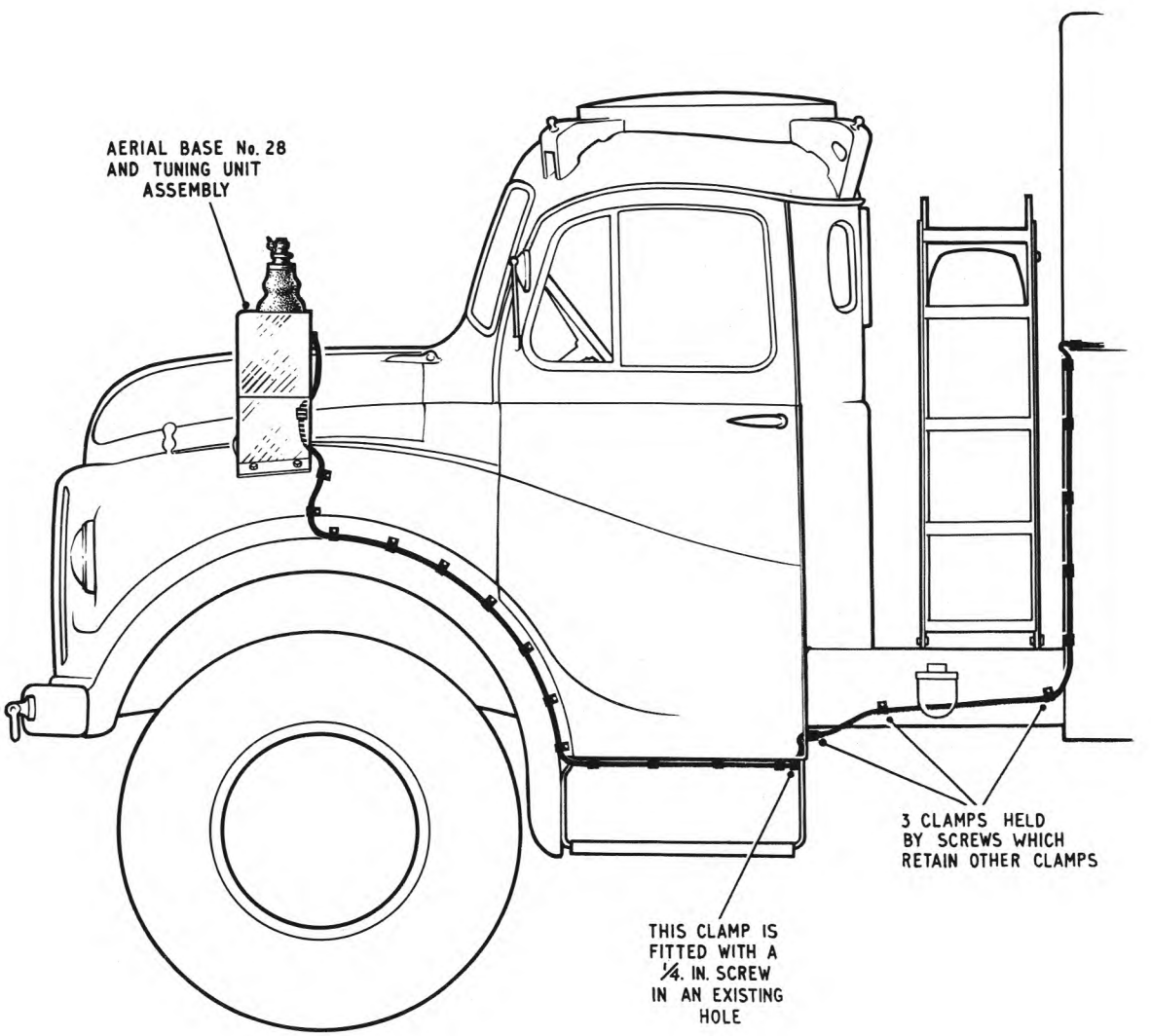


FIG. 55 DISMOUNTABLE VHF ATU ON THE LH FRONT WING

Section 11 HF AERIAL BASE

(1) Aerial connector

Make up an aerial connector of the exact length to reach between aerial base and ATU. The following equipment is supplied in the HF set installation kit.

Aerial base No. 31 with adjusting tool to tighten the gland nut
Clamp aerial base
Cable electric P11 with gland nut and lug special
Insulating beads (50) with four rubber clamps
Plate plastic, $\frac{1}{4}$-in. ID x 5-in. OD x $\frac{1}{8}$-in. thick

(2) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer supplied with it. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(3) Clamping the aerial base to the mounting on the vehicle

(a) Thread the cable through the centre hole in the plate plastic and down through the mounting. Position the plate plastic on the top of the mounting.

(b) Fit the two halves of the clamp on the plate plastic, screw clamp upwards as in fig.57, and engage the two dowel pins in any two adjacent holes. Position it so that the clamp does not project outwards from the side of the vehicle.

(c) Open the clamp sufficiently to allow the aerial base to be fitted on the dowel pins. Then close it to bring the holding lugs together so that they grip the mounting and plate underneath and the aerial base on the top. Tighten the wing nut.

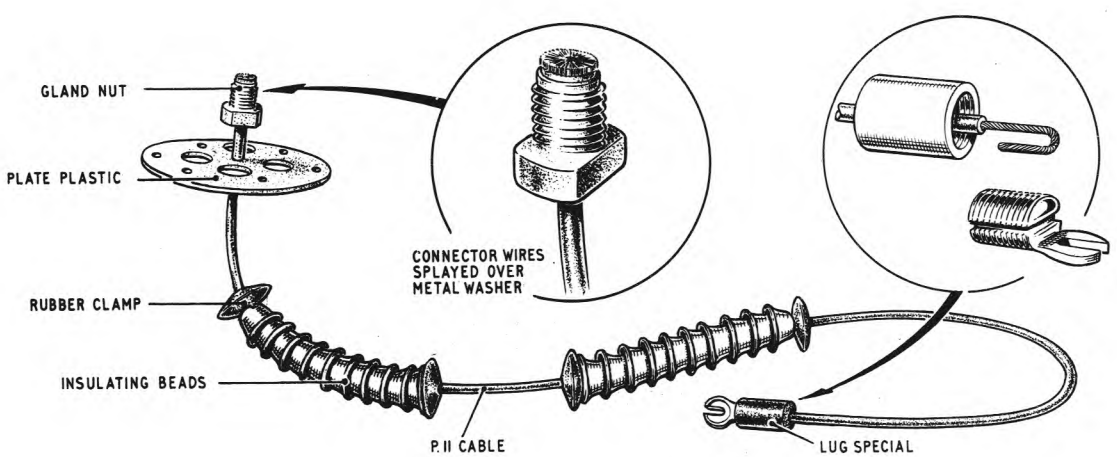


FIG. 56 MAKING THE HF AERIAL LEAD

(4) Fitting the insulating beads on the cable

Thread on the cable one rubber clamp, 25 beads with open ends downwards, and the second clamp. Slide them up against the plate plastic to prevent the cable touching the bracket. Thread the cable through the rubber disc on the canvas. Do not leave any slack cable outside the vehicle. Inside the vehicle, thread on the cable another rubber clamp, the remaining 25 beads and then the fourth rubber clamp.

(5) Cutting the connector to the required length

Do not cut the cable before the HF set and its ATU are installed. After fitting the ATU, offer up the cable to the installation to ascertain the length required to reach to the ATU aerial terminal. Keep the connector as short as possible. Allow approximately 4-in. free movement in the centre. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

(6) Fitting the lug to the end of the cable

Strip back the insulation for 1½-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. Fit the lug to the ATU. Slide the insulating beads along to the ATU end of the cable to prevent it touching any metal parts.

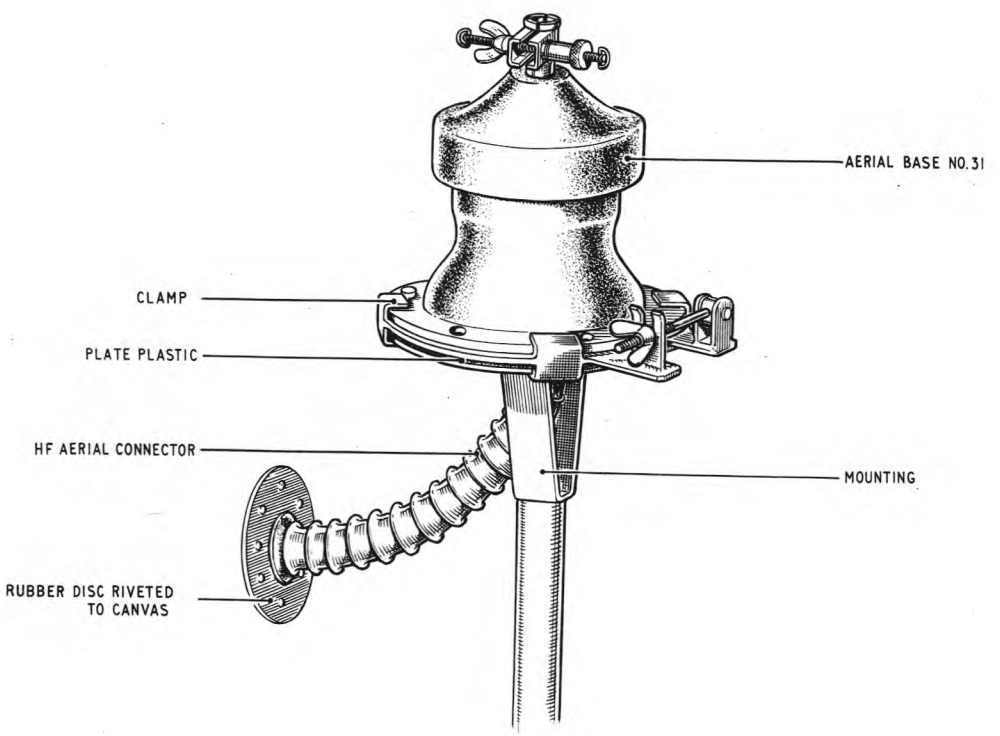


FIG. 57 AERIAL BRACKET WITH HF BASE AND LEAD FITTED

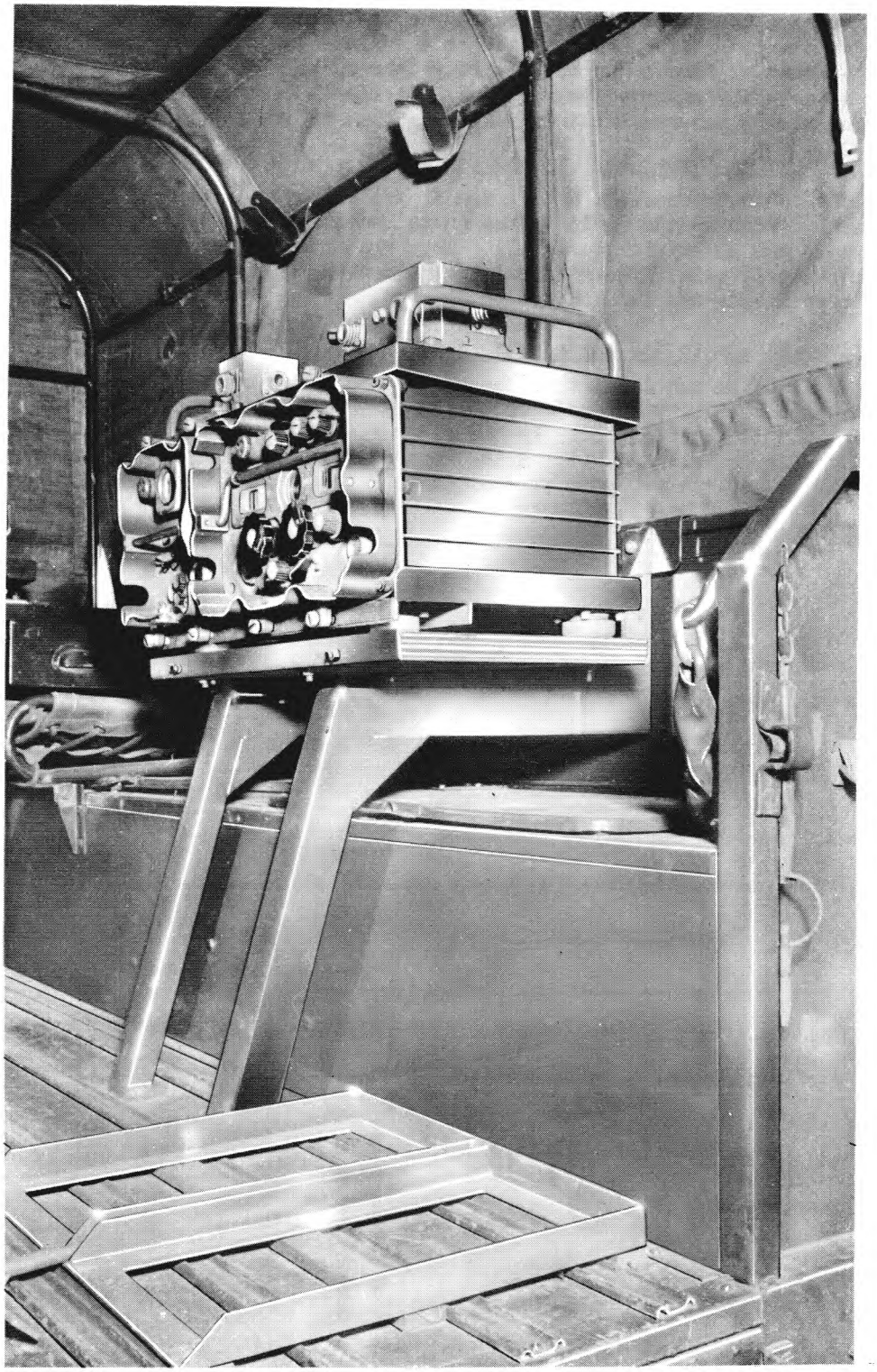


FIG. 58 RADIO SET POSITION IN RH REAR CORNER

Section 12 ADDITIONAL EQUIPMENT

When any of the kits in column 1 are to be installed the items shown against them are required.

Kit	Equipment required	Remarks	Fig.
'E' box harness	'E' box 'C' box MRRB box	Bolt to slotted angle framework.	
	'C' box for intercomm and to operate sets from cab	Bolt upside down to the front of a metal bin in the cab. Screws, etc., are supplied in the harness kit.	60
	Cable assy. 12-condr., 11-ft.6-in.	Fit between 'C' box and J1 or J2. Pass it through the cab rear window.	
B48	Carrier battery No. 34	Bolt down in RH wheel arch locker with plate and packing assembly between carrier and floor. Fit backing plates under floor.	59
	Batteries 12V 22 Ah (two)	Fit into carrier. These batteries are used when the B48 is dismounted and operated as a remote ground station.	59
C42/B47 C45/B48	Rejector (see part 3 page 47)	Bolt to slotted angle framework.	
Two VHF sets	Rejector unit No. 3 (see part 3 page 47)	Bolt to slotted angle framework	
Charging set	Charging set 300 W.	Stow inside the locker behind the cab. See part 4 page 34.	
	Connector twin No. 53	Stow on the vehicle.	
Third set	Carrier battery, 17½ x 16	Bolt to floor in RH rear corner with three plywood packings between carrier and floor.	58
ALS	Amplifier and loudspeaker 'T' box	Bolt to slotted angle framework.	

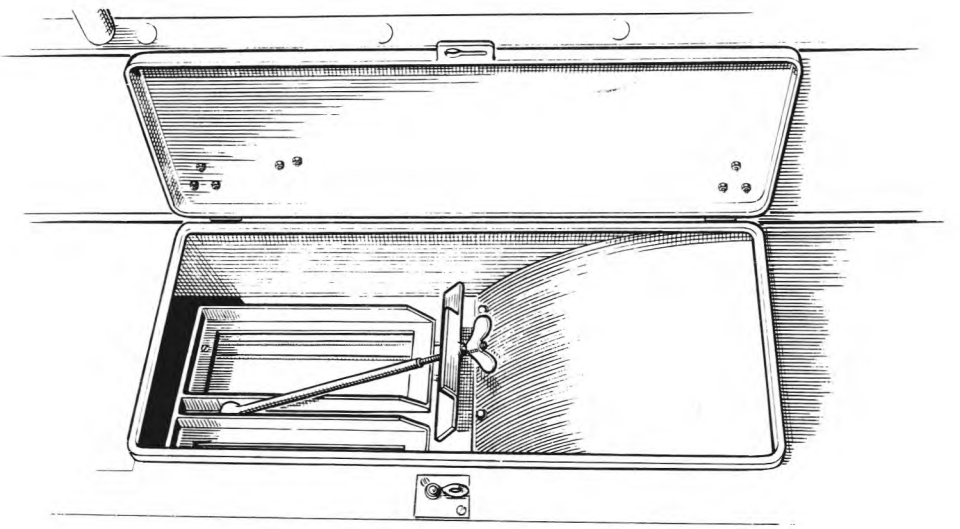


FIG. 59 SMALL BATTERY CARRIER IN WHEEL ARCH LOCKER

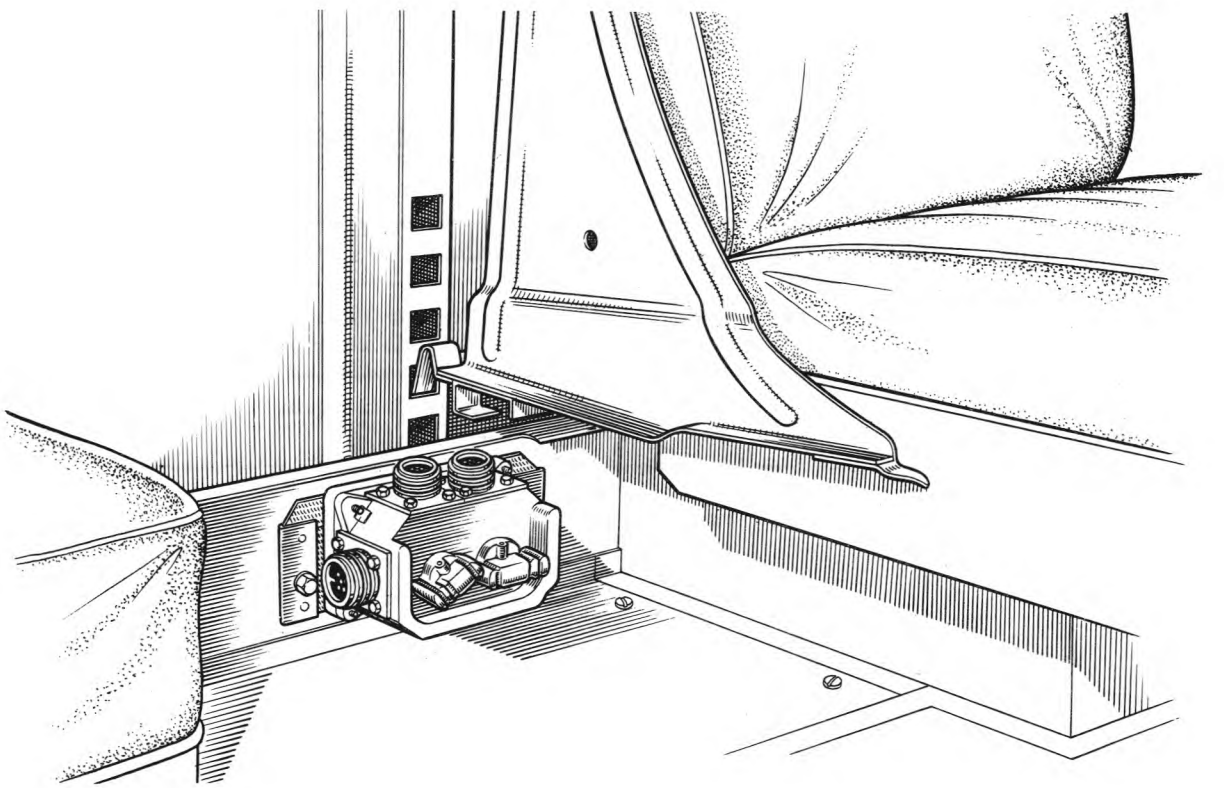


FIG. 60 'C' BOX IN THE CAB

CHAPTER 7
TRUCK RADIO FFR 1-TON AUSTIN K9

FIG. 61 TRUCK 1-TON RADIO AUSTIN

CONTENTS

Section 1 VEHICLE TYPES

(1) FFR version

Truck Radio FFR 1-ton 4 x 4 Austin K9 has been modified and contains the radio equipment listed in sections 2 and 3 below. It is ready for the user to install his radio set installation kit and multi-purpose kit.

(2) Regimental role version

Truck Radio Regimental 1-ton 4 x 4 Austin K9 contains the basic radio fittings shown in section 2. It can be converted to the FFR version by adding the vehicle fitting kit in section 3 as instructed in the EMER.

(3) Unfitted version

Truck signals 1-ton 4 x 4 Austin K9 (unfitted body) does not contain a table and would not normally be modified for the installation of a vehicle fitting kit.

Section 2 BASIC RADIO FITTINGS IN FFR AND REGIMENTAL TRUCKS

Description	Remarks	Fig.
Aerial base mountings (four)	One at each corner of the roof. Fitted with sealing plates and earth braids.	61
Carriers battery, 17½ x 16 (two)	Bolted to the floor under the table.	62
Charging set locker	Behind cab on RH side. See part 4 page 34	
Exterior battery locker	On LH side to carry four 12V 75 Ah batteries.	61
Interior lights and fan	Ready for connection to the radio batteries. See page 95.	
Interior locker	In LH rear corner.	
Mast brackets	Bolted to exterior side walls to hold 4-ft. 6-in. tubular mast sections. See page 94.	61
Seats	Three supplied. Screwed to the floor.	
Sleeve between cab and body	For connectors, etc. (Not on Mk. 1)	
Suppression	The vehicle should be suppressed to current standards in accordance with the relevant EMER.	
Vehicle table	Bolted to the floor at the front of the body. Equipped with two drawers and hinged flaps. NOTE - This table has been modified to carry the weight of a two-set installation. The modification consists of cross bracing strips and brackets to secure the ends of the table to the side walls of the vehicle. Details are given in the EMER quoted on page 89.	62

Section 3 VEHICLE FITTING KIT

EMER WV D.607 Modification Instruction No. 35 gives fitting instructions for the vehicle fitting kit in the Truck Radio 1-ton 4 x 4 Austin K9. It contains details of vehicle modifications, including the fitting of brackets to strengthen the vehicle table, and the drilling of two holes in the cab to fit a 'C' box when required for intercomm (see fig. 60).

VEHICLE FITTING KIT, RADIO, TRUCK 1-TON RADIO MK. 2 REGIMENTAL ROLE
(Z1/5820-99-949-3120)

For details see CES No. 42927

Item	Description	Remarks	Fig.
1	Bracket angle,steel, 23x1½x1½ RH (Z1/5820-99-949-3311)	Bolted to wall in RH rear corner to carry frame for 23-in. table	63
2	Bracket angle steel, 23x1½x1½ LH (Z1/5820-99-949-3312)		
3	Bracket assy. LH and RH (ZB15005)	Part of table bracing. Bolted to front wall and clamped to the channel assembly.	62
4	Bracket MS, 14 SWG, 7 x 6 x 4½ (ZB14961) (three)	Bolted to wall at aerial positions 'A', 'B' and 'C' in fig.64 to carry dismountable VHF ATUs.	67
5	Carrier battery, 17½ x 16 (ZB14743)	Additional for third radio set. Bolted to floor in RH rear corner.	63
6	Channel assy. 1 x 1⅛ x 51 (ZB15006)	Part of table bracing. Bolted to front edge of table and clamped to bracket assy.	
7	Connector and plate assy. (ZB14945) (three)	Used in Mk. 1 only. Earth connector for dismountable VHF ATU. When not used it should be stowed on the truck.	67
8	Frame MS, 15½ x 11¾ x 7½ (ZB15030)	Bolted to brackets angle on rear wall to carry 23-in. table.	63
9	Gland assy. ¼ x 2¼ x 7 (ZA50361) (three)	Fitted in the aerial inlet holes in the roof at aerial positions 'A', 'B' and 'C' in fig.64. See paragraph 3 on page 93.	68
10	Mounting aerial base No. 3 Mk.1 (ZA1827)(two)	Rubber mounting fitted under Aerial base No.31 for HF aerials. See note on page 91.	68
11	Runner assy. 19 x 5 x 3½ (ZB14898) (pair)	Bolted to the top of the vehicle table on spacer plates.	62
12	Screws UNF, ¼ x 1¼ (G1/5305-99-941-1071) (12)	For mounting one or two Aerial bases No. 31 and the mounting (item 10) on the roof when an HF set or sets are installed. See note on page 91.	
13	Screws wood, No. 12 x 1-in. (G1/5305-99-941-7524) (6)	To secure Carrier battery No. 34 when 12V 22Ah batteries are to be installed. See page 100. When not used they should be packed and labelled and stowed on the truck.	62

Item	Description	Remarks	Fig.
	Bracket table, $16\frac{1}{2}$ x $10^{1}/4$ x $3^{3}/4$ (Z2/5820-99-900-7685) (two)	Part of table bracing	62
	Brace table, 38 x $3\frac{1}{2}$ x $^{3}/4$ (Z2/5820-99-900-7684) (four)		

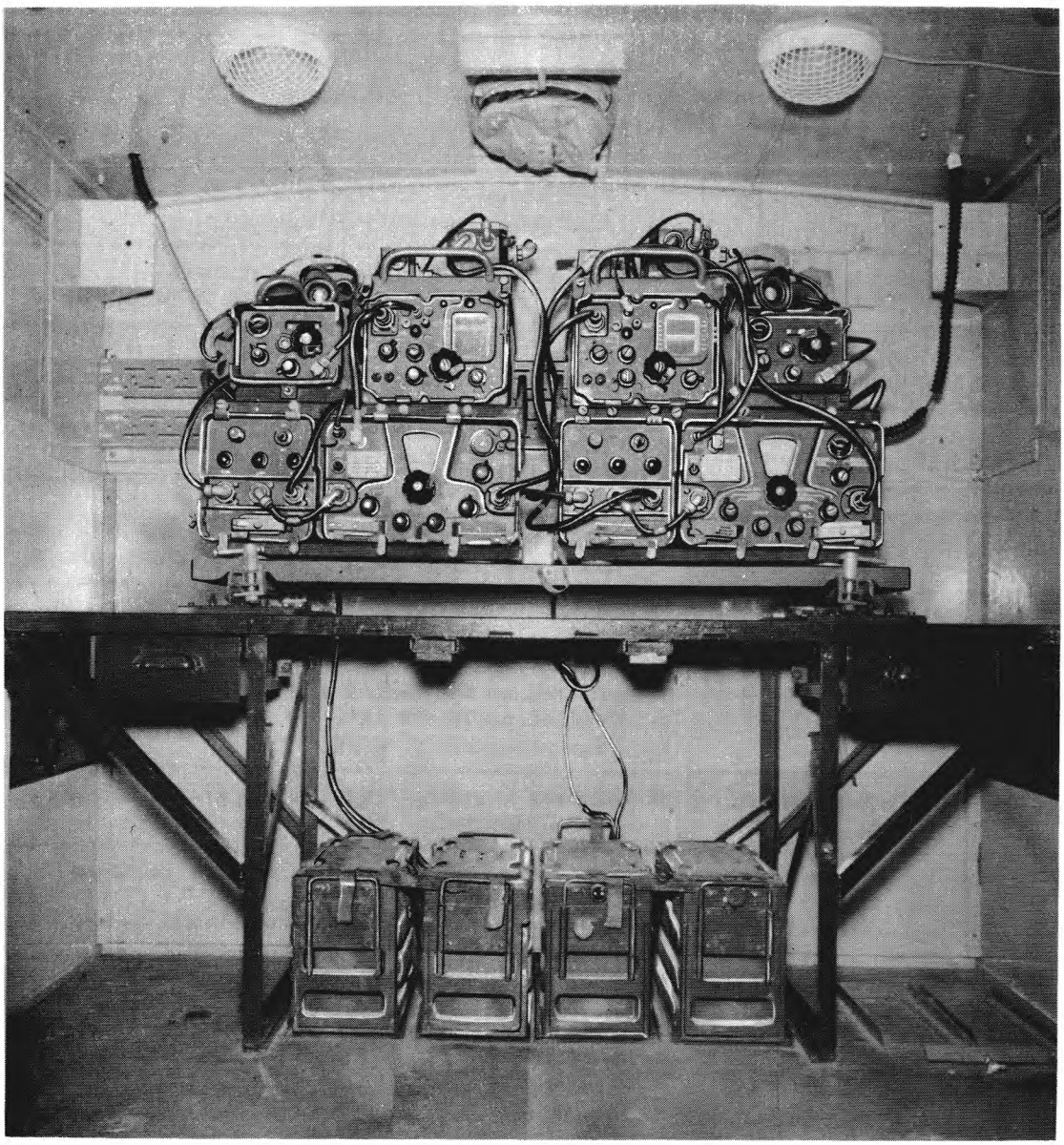


FIG. 62 INTERIOR WITH C11-R210/C11-R210 INSTALLED

Item	Description	Remarks	Fig.
14	Spacer assy. plywood (Z2/5820-99-949-3304)	Three spacers. Fitted under carrier battery in RH rear corner. Includes wood screws to secure carrier to floor.	63
15	Spacer plate plywood, 17 x 8 x 55/64 (Z2/5820-99-949-3332) (two)	Fitted between the runner assemblies and the top of the vehicle table.	62
16	Support elec. cable 55 x 9⅜ x 2.13/16 (Z2/5975-99-949-3305)	Slotted angle framework, bolted to front wall above table. For control units, rejector units, etc.	62
17	Table top, 50 x 16½ x 3⅛ (ZB14899)	50-in. table, clamped to runner assemblies	62
18	Table, 23 x 13½ (Z2/5820-99-949-3373)	23-in. table, bolted to frame in RH rear corner	63
19	Tool kit (See part 1 page 20)	Spanner, open end, 7/16 x ½ 9/16 x ⅝ Spanner, tubular, ⅜ x 7/16 ½ x 9/16 Tommy bars, ⅜ x 6 3/16 x 4	
20	Washers flat, ¼-in. (G1/5310-99-999-8599) (12)	Used with screws UNF (see note below)	

NOTE - Items 10, 12 and 20 are provided to allow two HF aerial bases No. 31 to be fitted. If they are not used, they should be packed and labelled and stowed on the truck.

Section 4 TRANSFERRING TO OTHER VEHICLES

(1) Transfer to an FFR vehicle

A radio station installed with the aid of a set installation kit and a multi-purpose kit in a Truck Radio FFR 1-ton Austin K9 can be transferred readily into any other FFR vehicle. It cannot be transferred to any non-FFR vehicle.

Retain all surplus items for use if the station is transferred later to a different type of truck.

(2) Seal the aerial mounting in the roof

When any aerial base is removed from the roof of the Truck 1-ton Radio, ensure that the inlet hole is effectively re-sealed to prevent rain entering. If possible, use the original plate for this purpose, coating the underside of the plate with sealing compound to ensure a good seal prior to bolting down with six screws. If the original plate is not available, seal the hole with a canvas patch. Do not allow the vehicle to remain with the hole in the roof uncovered.

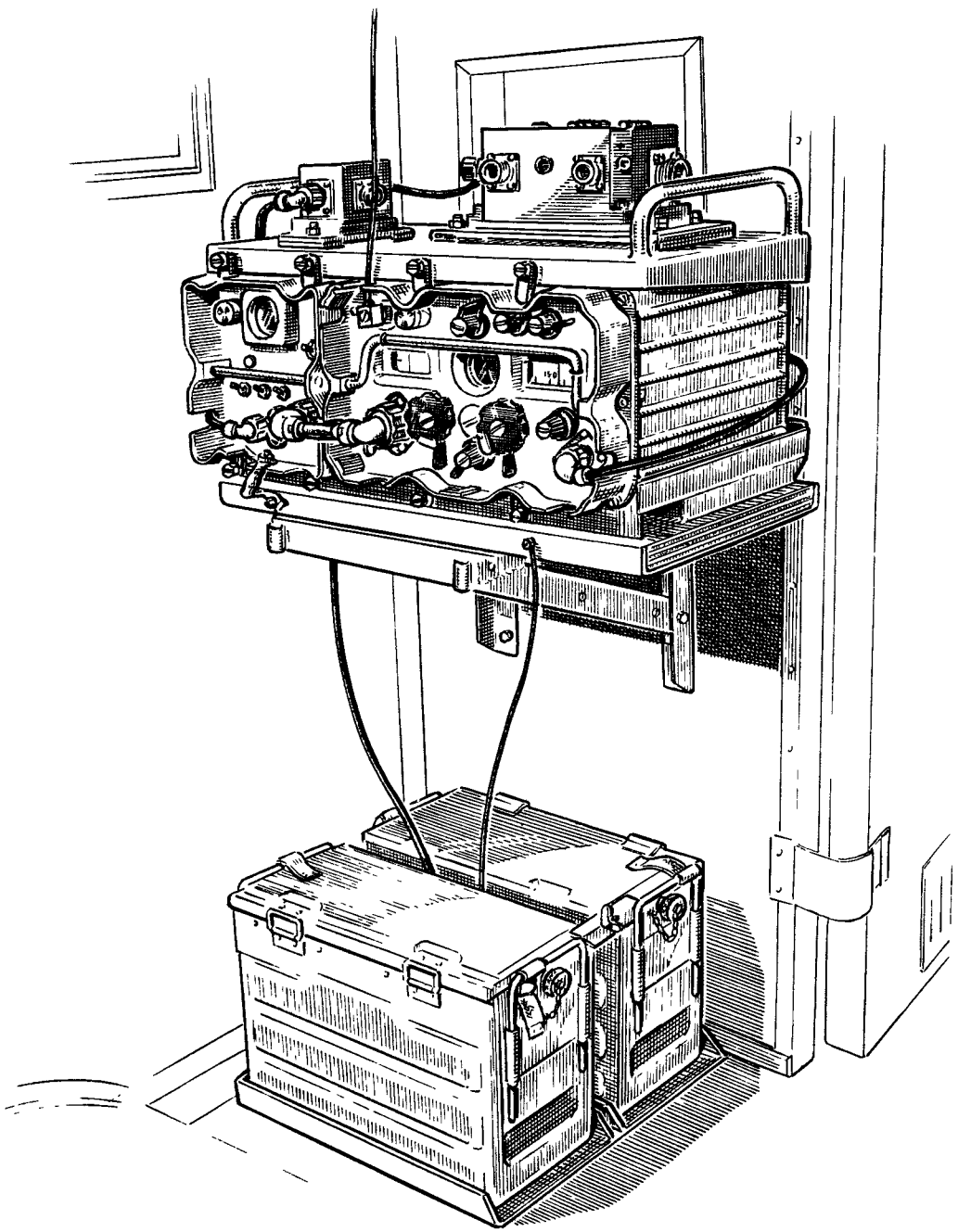


FIG. 63 RADIO SET POSITION IN RH REAR CORNER

Section 5 RADIO SETS AND AERIALS

After the vehicle fitting kit has been installed, mount the radio set or sets on the table as instructed in the relevant radio set chapter in part 3. Positions of sets are shown below and in fig. 64.

Radio sets	Set positions			Aerial positions			
	1	2	3	A	B	C	D
Single HF set	HF			HF			
Single VHF set		VHF			VHF		
C11-R210/C11-R210 (See fig. 62)	A set	B set		A set	B set		
C11-R210/C42	C11	C42		C11	C42		
C13/C42	C13	C42		C13	C42		
C13/C45/B48	C45	B48	C13	C45	B48	C13	
C42/C45/B48	C45	B48	C42	C45	B48	C42	
C45/C45/R209	A set	B set	R209	A set	B set	R209	

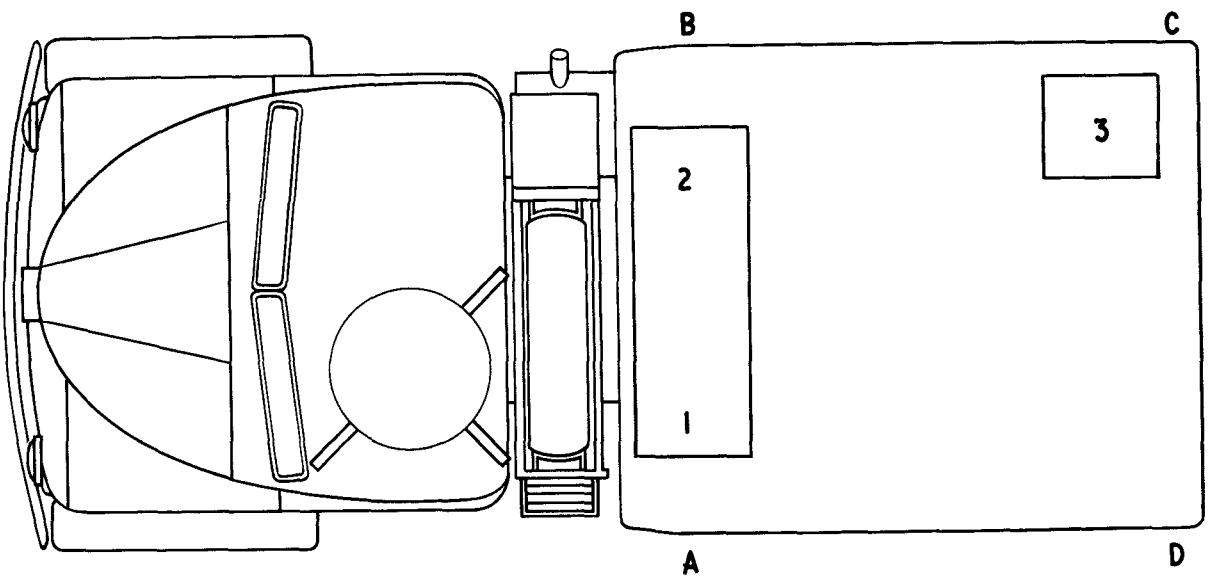


FIG. 64 PLAN OF TRUCK SHOWING SET AND AERIAL POSITIONS

Section 6 MODIFICATION TO MAST STOWAGE BRACKETS

(1) External mast brackets

As issued the Truck Radio 1-ton Austin is fitted with external brackets to carry 4-ft. 6-in. mast sections but many of the 36-ft. masts in use are constructed from tubular sections 6-ft. 8-in. overall length. If it is necessary to stow the 6-ft. 8-in. sections on the truck, each pair of brackets should be repositioned on two of the undermentioned adapters.

(2) Adapters mast bracket assy., 6-ft. 8½-in. (ZA54095)

Remove two mast brackets from the vehicle wall. Each is secured by means of two screws. Fit two adapters horizontally to the side wall using the screws by which the brackets were originally fastened. Then remount the brackets at the ends of the adapters, where they are suitably spaced to accommodate the 6-ft. 8-in. mast sections.

Section 7 RADIO BATTERIES

(1) Installing batteries for one or two sets

For one radio set, stow two 12V 75 Ah batteries in the LH battery carrier under the table. Position them so that the lids open outwards and fasten the clamp after the leads are connected. For a two-set installation, both sets should be powered by the same pair of batteries. For two separate one-set installations, fit a second pair of batteries in the RH carrier so that each set has its own independent power supply.

(2) Installing batteries for the third set when fitted

Stow two 12V 75 Ah batteries in the carrier in the RH rear corner when a set is to be used in this position.

(3) 12V supply

For a 12V radio set, one 12V or two 6V batteries may be provided. If 12V batteries are issued, do not connect them in series.

(4) Spare batteries

An external locker is provided for the carriage of a reserve bank of four 12V 75 Ah batteries.

(5) Battery earth leads

The negative terminal on each pair of batteries must be earthed before the equipment is connected. One 3-ft. battery earth lead is supplied in each multi-purpose kit. Before installing batteries, connect one end of the earth lead to the vehicle as follows:-

(a) When one pair of batteries is installed, fit the battery earth lead to the bolt at the foot of the LH table support. See fig. 50.

(b) When two pairs of batteries are installed, fit the second battery earth lead to the foot of the RH table support. See fig. 50.

(c) When three pairs of batteries are installed, fit the third battery earth lead to the spare earth terminal on the front of the 23-in. table. See fig. 63.

(6) Battery connectors

To minimise the risk of short circuits, always fit battery connectors in the following order:-

(a) First fit the series connector between the negative terminal on one battery (1 in fig. 65) and the positive terminal on the other (2 in fig. 65). The terminals to which the series connector is fitted must not now be used for any other connections.

(b) Fit the free end of the 3-ft. earth connector to the vacant negative terminal (3 in fig. 65).

(c) Then fit the negative lead of the power supply connector to the same battery terminal as the earth connector (3 in fig. 65).

(d) Finally fit the positive lead of the power supply connector to the vacant positive terminal (4 in fig. 65).

(e) Disconnect batteries in the reverse order.

Section 8 INTERIOR LIGHTING AND FAN

Installed fan and lights wiring is terminated at a round terminal box on the front wall. When fan or lights are required, users should connect these terminals to a pair of radio batteries by means of a length of suitable twin cable.

NOTE - Mk. 2 trucks are fitted with 24V lamps and fan but certain Mk. 1 trucks may have 12V equipment. Check the rating before connecting batteries.

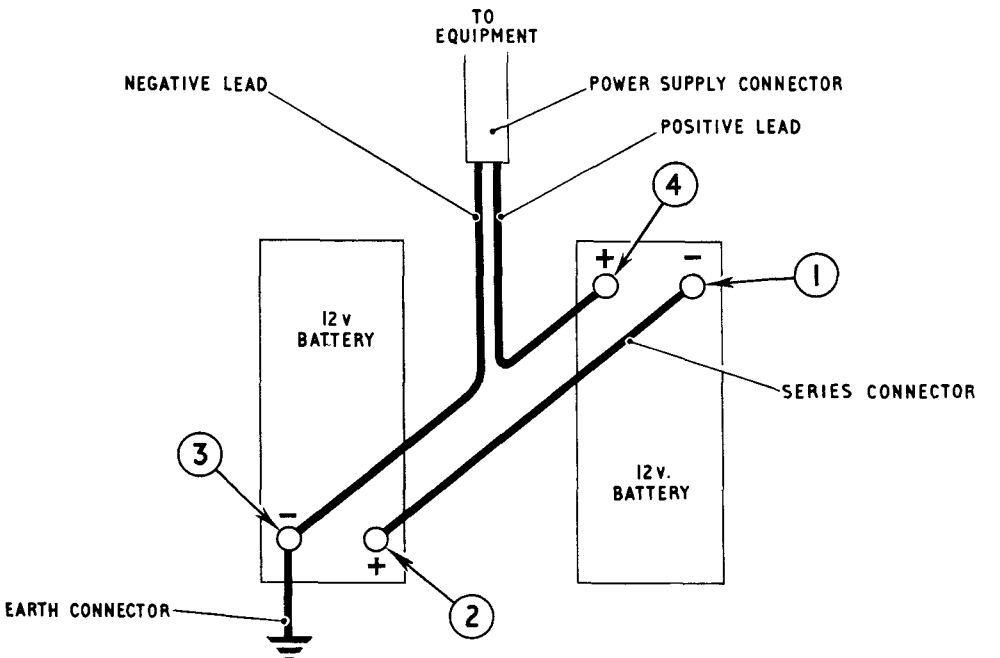


FIG. 65 METHOD OF FITTING CONNECTORS TO TWO BATTERIES

Section 9 VHF AERIAL BASE

(1) Cover plate sealing the aerial mounting

Remove the plate at the selected position. Pack and label plate and screws.

(2) Lead elec. 16-in.

This aerial connector and the aerial base are supplied in the radio set installation kit. Fit the aerial connector to the terminal inside the aerial base. Do not use any other connector as its length must not exceed 16-in.

(3) Gasket rubber

This gasket and six screws UNF $\frac{1}{4}$ x $\frac{3}{4}$ with spring washers are supplied in the multi-purpose kit. Fit the gasket between aerial base and mounting.

(4) Fitting the aerial base on the roof

Thread the aerial connector down through gasket and aerial inlet hole. Secure the aerial base with the six $\frac{3}{4}$-in. screws, fitting the washers under the heads.

IMPORTANT - Do not use screws longer than $\frac{3}{4}$-in. with this fitting or the roof will be damaged.

(5) Earth bonding on the roof

Secure the braid forming part of the aerial base under one of the screws. See that the free end of the braid from the roof is secured to the mounting.

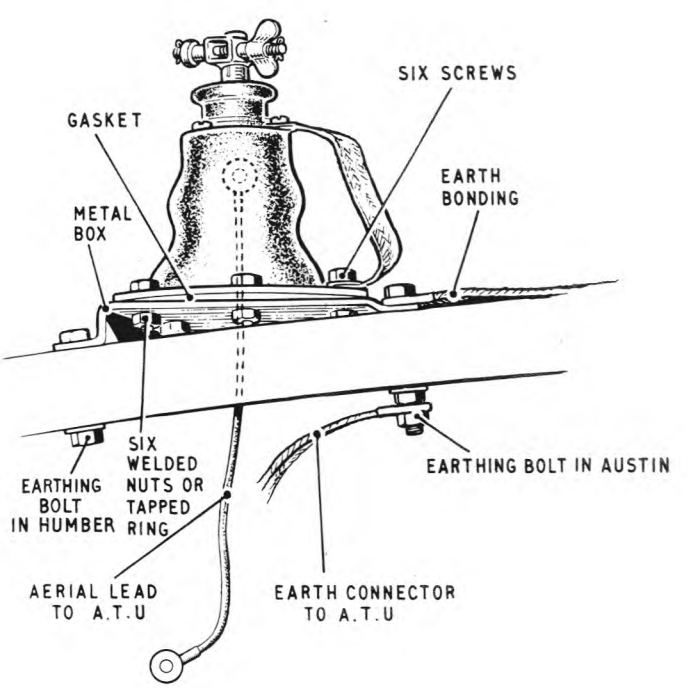


FIG. 66 VHF AERIAL BASE AND LEAD FITTED ON MK. 2 BODY

Section 10 VHF ATU ASSEMBLY

(1) Dismountable ATU assembly

At the position chosen for the VHF aerial, fit the dismountable ATU assembly as shown in fig. 67. Disconnect the fitted aerial connector and earth braid from the terminals on the ATU and tuck them into the side of the case. Fit No. 2BA and No. 4BA wing nuts to the ATU aerial and earth terminals respectively in place of the nuts normally used there. These wing nuts are supplied in the set installation kit.

(2) Lead elec. 16-in.

This aerial connector has already been fitted to the external aerial base and protrudes through the roof. Fit it to the ATU aerial terminal.

(3) Copper braid, 10¾-in.

In Mk. 2 trucks with aerial mountings as shown in fig. 66, fit this earth connector between the ATU earth terminal and the earthing bolt indicated.

(4) Connector and plate assembly (Mk. 1 only)

In the Mk. 1 body, which has a different type of aerial mounting, fit the ring on one end of this connector under the hexagon lock nut on the inside of the aerial mounting. Fit the other end to the ATU earth terminal.

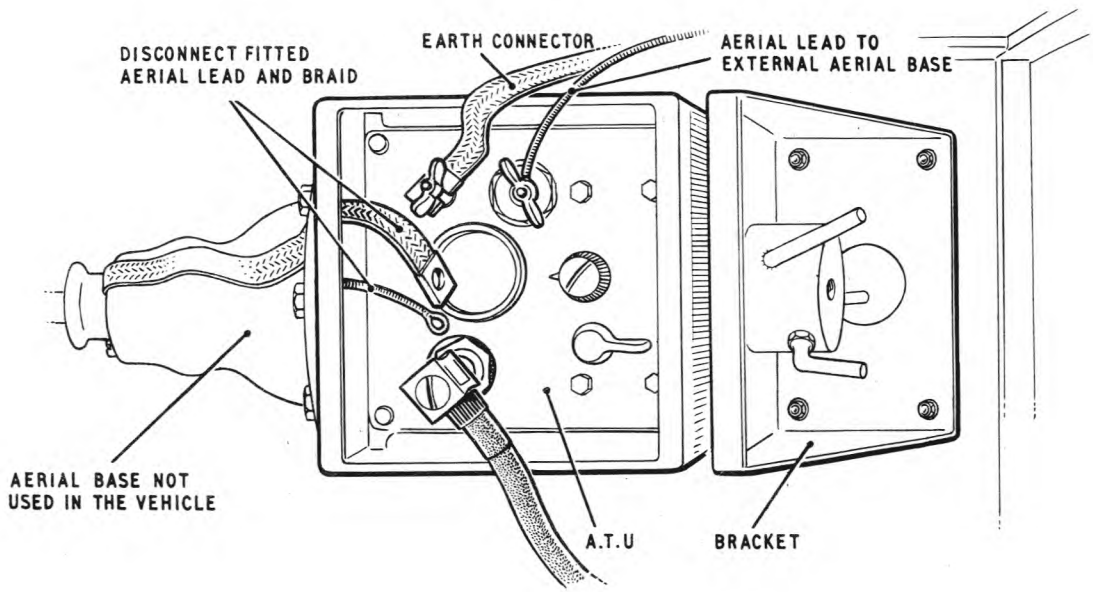


FIG. 67 DISMOUNTABLE VHF ATU ON THE WALL BRACKET

Section 11 HF AERIAL BASE

(1) Aerial connector

Users should make up an aerial connector of the exact length to reach between aerial base and ATU. This connector must be fitted at the same time as the aerial base. The following equipment is supplied in the HF set installation kit.

Aerial base No. 31 with adjusting tool to tighten the gland nut
Cable electric P11
Gland nut with washer
Insulating beads (50) with four rubber clamps
Lug special
Mounting aerial base No. 3
Plate plastic, $\frac{1}{4}$-in. ID x 5-in. OD x $\frac{1}{8}$-in. thick
Screws UNF, $\frac{1}{4}$-in. x$1\frac{1}{4}$-in. (6)

(2) Removing the sealing plate

Ascertain the aerial position to be used. See page 93. On the roof of the truck, remove the cover plate from the selected aerial position. Retain it with its screws in order to re-seal the aerial mounting if the aerial base is taken off the truck.

(3) Gland assembly, $\frac{1}{4}$-in. ID x $2\frac{1}{2}$-in. OD x 7-in. long

The aerial connector passes down through the roof and a gland is fitted there to prevent it coming into contact with the metal. See fig. 68. In Mk. 1 trucks the sealing plate cannot be fitted with the gland in place. Consequently in these trucks the mounting may be sealed in a different way or the gland may be left for the user to fit.

(4) Fitting the cable to Aerial base No. 31

Strip the insulation back for half an inch at one end of the cable. Thread this end through the gland nut and the washer. Splay the wires out over the washer. Tuck them under it to retain them and slide the gland nut up to the washer. Screw the gland nut into the aerial base using the adjusting tool.

(5) Fitting Aerial base No. 31 on the roof of the truck

(a) Place the 15/16-in. rubber mounting (Mounting aerial base No. 3) on the aerial mounting as in fig. 68. Then place the plate plastic on the rubber mounting.

(b) Thread the free end of the cable through the centre of the plate plastic and down through the gland to the inside of the truck. Do not leave any slack cable inside the aerial base. Line up the six bolt holes in the aerial base, plate plastic, rubber mounting and aerial bracket. Position the copper braid earth connector from the roof ready to secure under one of the screws as shown in fig. 68.

(c) Bolt the assembly down using six screws $1\frac{1}{4}$-in. long. Do not use screws longer than $1\frac{1}{4}$-in. with this fitting or the roof will be damaged.

NOTE - Fig. 68 shows the aerial mounting on the Mk. 2 truck. This consists of a hollow square metal box with six nuts welded inside. In the Mk. 1 truck the mounting consists of a solid round block and the assembly is secured by means of $\frac{1}{4}$-in. BSF screws $1\frac{1}{4}$-in. long inserted into blind holes in the Mounting block.

(6) Fitting the insulating beads on the cable

Thread on the cable one rubber clamp, 25 beads, two rubber clamps, the remaining beads and the final rubber clamp.

(7) Cutting the cable to the required length

Do not cut the cable before the HF set and its ATU are installed. After fitting the ATU, offer the cable up to the installation to ascertain the length required to reach from the set to the ATU aerial terminal. Keep the connector as short as possible.

Allow approximately 4-in. free movement in the centre of the cable so that the flexing of the aerial base does not strain it. Add 1-in. to the cable to allow for the loop inside the lug and cut it through.

NOTE - The connector is an effective part of the aerial and must be kept as short as possible or the ATU tuning calculations will be upset and there will be a loss of output.

(8) Fitting the lug to the cable

At the end of the cable, strip the insulation back for 1½-in. and twist the wire strands firmly together. Remove the bush from the body of the lug. Slip the bush onto the cable and bend the wire round to fit the groove in the side of the lug. Screw the bush firmly onto the lug to grip the wire. See fig. 68.

(9) Fitting the connector to the ATU

Fit the lug to the aerial terminal on the rear of the ATU. Finally, group the insulating beads between the rubber clamps and slide them along the cable to the ATU end, or to any point where there is a risk of the cable touching any metal parts.

NOTE - If the cable should touch any metal parts when the set is transmitting, the rubber insulation would be burnt off.

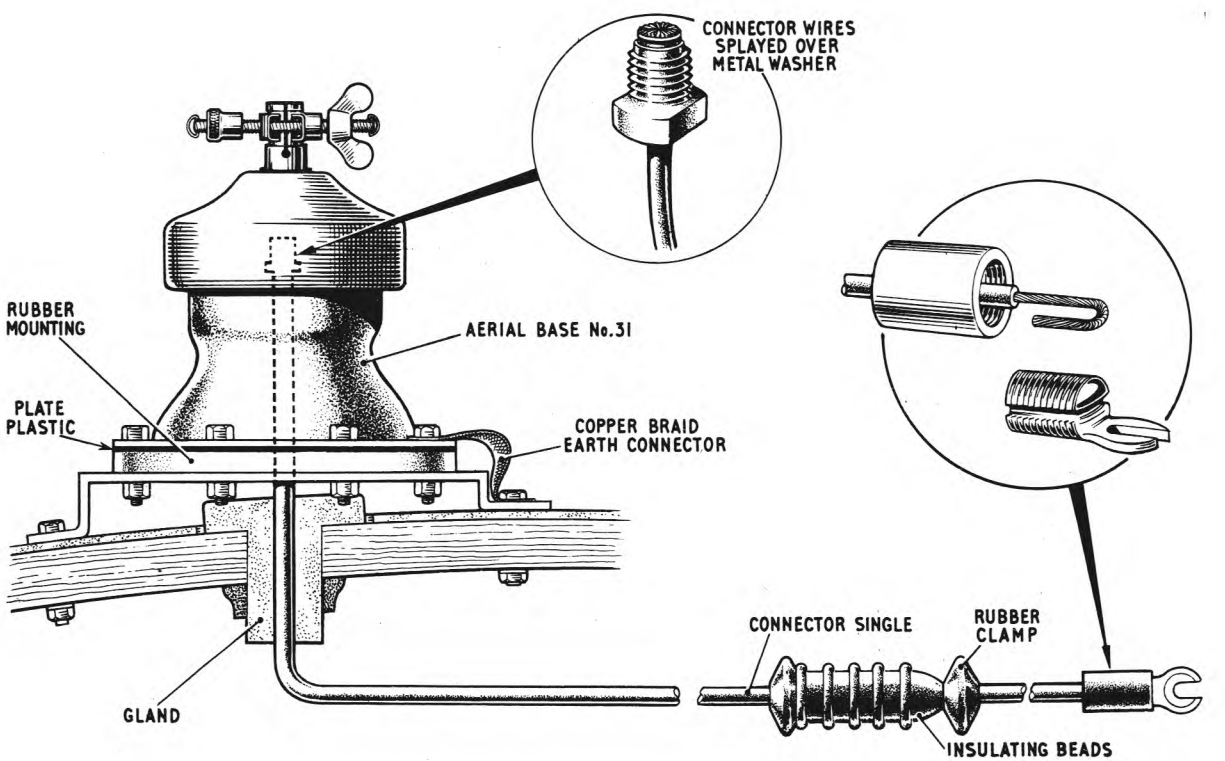


FIG. 68 HF AERIAL BASE AND LEAD FITTED ON MK. 2 BODY

Section 12 ADDITIONAL EQUIPMENT

When any of the kits shown in column 1 are to be installed the items shown against them are required.

Kit	Equipment required	Remarks	Fig.
'E' box harness	'C' box 'E' box MRRB box	Bolt to slotted angle framework.	
	'C' box for intercomm and to operate sets from cab	Bolt the 'C' box upside down to the front of a metal bin in the cab. Screws, etc., are supplied in the harness kit.	60
	Cable assy. 12-condr., 11-ft.6-in.	Fit between 'C' box and J1 or J2. Pass it through the conduit on Mk. 1 bodies or through the cab rear window on Mk. 2.	
B48	Carrier battery No. 34	Screw down to floor under RH end of vehicle table. Screws provided in vehicle fitting kit.	62
	Batteries, 12V 22 Ah (two)	Fit into carrier. These batteries are used when the B48 is dismounted and operated as a remote ground station.	
C42/B47 C45/B48	Rejector (see part 3 page 47)	Bolt to slotted angle framework.	
Two VHF sets	Rejector unit No. 3 (see part 3 page 47)	Bolt to slotted angle framework.	
Charging set	Charging set 300W	Stow inside the locker behind the cab.	
	Connector twin No. 53	Stow in the vehicle.	
ALS	Amplifier Loudspeaker 'T' box	Bolt to slotted angle framework.	

IMPORTANT

Make sure that power leads are connected positive to positive and negative to negative throughout.

If polarity is reversed the equipment will be damaged.

PART 3
RADIO SETS

C O N T E N T S

Reprinted October 1963 incorporating amendment list No. 1

CHAPTER I
C11-R210

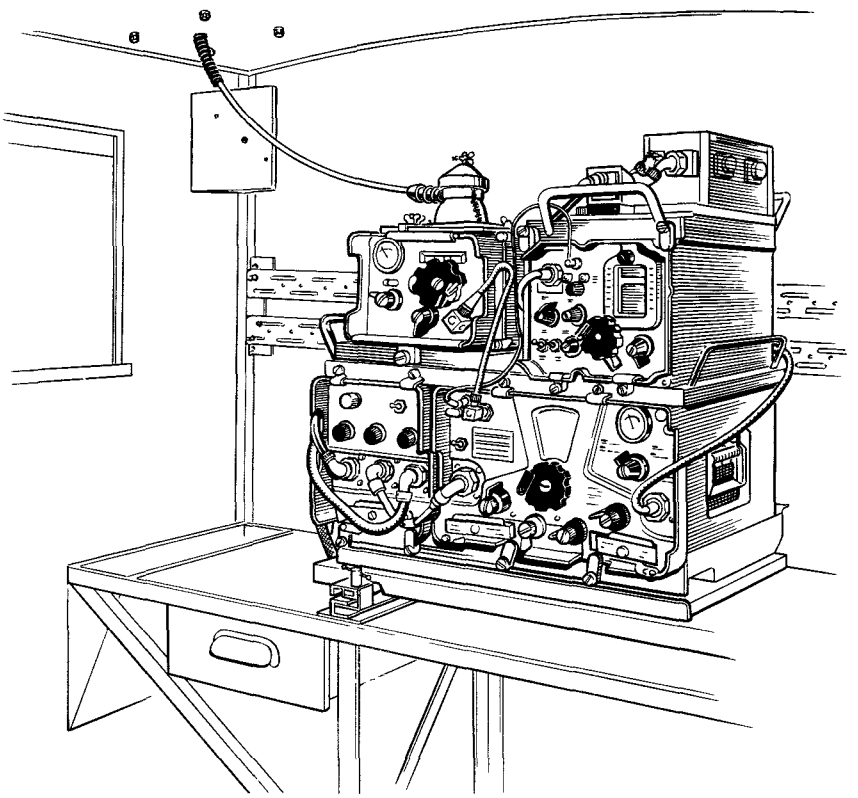


FIG. I TYPICAL INSTALLATION C11-R210

C O N T E N T S

Section 1 SET DATA

Type of set	Separate transmitter and receiver. C11 is an HF transmitter for voice or morse telegraphy. R210 is designed for use with C11 but it can be operated alone.
Frequency	2-16 Mc/s
Range	Rod aerial - up to 25 miles voice or 50 miles morse. Wire aerial - skywave.
Power supply	24V battery and separate PSU. Two 12V 75 Ah batteries in series give approximately 5½ hours on a send-receive ratio of 1 : 5.
Aerials	Normally a 12-ft. rod, on the vehicle or remotely within 150 ft. At the halt a 16-ft. rod, a vertical radiator, open wire or wire dipole can be used.

Section 2 C11 - R210 KITS

(1) T C11 set kit No. 1 (ZA 46319/1) For details see CES No. 42456

C11 (Z1/5820-99-911-0849)	
Connector 12 pt. No. 90, 7-in.type HB (ZA 46824)	Set to PSU (angle each end) Connector No. 35
Supply unit transformer rotary 24V (ZA 46320)	
User handbook for C11	W.O. Code No. 12052

(2) R210 set kit No. 1 (ZA 46729/1)

Reception set R210 (ZA 46729)	
User handbook for R210	W.O. Code No. 12051

NOTE - If the C11-R210 station is being made up by converting an old type "made to measure" installation, the items in paragraphs 1 and 2 above are required from the old kit.

(3) Installation kit electronic equipment C11-R210 (Z1/5820-99-949-2923)

For details see CES No. 42902

Description	Remarks	Fig.
Aerial base No. 31 (ZA 49827)		11
Aerial base and bracket assy. No. 3 (ZA 53000)	For remote aerial	2
Aerial element, 4-ft. (Z1/5820-99-949-1166) (ZA 44684) (two)	Antennae rod 'F' (top section)	
Aerial tuning unit No. 7 (ZA 46321)		2
Beads plastic (ZA 50359) (50)	For HF aerial connector	
Cable assy. co-axial, 2-ft. Z1/5995-99-949-1230) (ZA 54390)	C11 to ATU. Connector No. 18	5

Description	Remarks	Fig.
Cable assy. co-axial 50-ft. (Z1/5995-99-949-1016) (ZA 47041)	C11 to remote ATU	
Cable assy. 4-condr. 3-ft. (Z1/5995-99-949-3037)	LT box to PSU (angle each end) Connector No. 40	5
Cable assy. 12-condr. 3-ft. (Z1/5995-99-949-1478)	PSU to R210 (angle each end) Connector No. 36	5
Cable elec. P11 (Y3/WB 1042) (4 yds.)	HF aerial connector (Conn. 1)	5
Carrier fixed (ZB 15000) and free (ZB 15001)	For 'K' box	
Carrier set No. 82 Mk.2 (ZB 14992)		2
Clamp aerial base (Z1/5820-99-949-3038)	See part 2 page 11	
Clamp MS, 1 x 1 x 1¼ x 11/32 (ZB 14904)	10 used on carrier and tray	2
Clamp rubber, 3/16-in. grip (ZA 50363)	For aerial connector (eight)	
Connector co-axial, 27-in. (ZA 55289) (ZA 51333)	C11 to R210 (Conn. No.19)	5
Connector copper braid, 21-in. (ZA 47169)	ATU to table (Conn. No. 12)	5
Connector single No. 228, 12-in. (ZA 53546)	On remote aerial (part 4 page 27)	
Connector 4/2-pt. No. 3, 6-ft. type C (ZA 51321)	LT box to battery (4-way angle socket - two lugs) (Conn.No. 69)	5
		5
Coupler plug and chain assy. (two) (ZA 14946)	Join cables co-axial 50-ft.	
Frame metal, 13.7/16 x 7.13/16 x 1.7/16 (ZA 51335)	Mounts ATU on tray metal	2
Fuse link cartridge, 500 mA 440V (X2/5920-99-059-0108)	4 spare	
Fuse link cartridge, 2A 440V (X2/5920-99-059-0110)	4 spare	
Fuse link cartridge, 3A 440V (X2/5920-99-059-0111)	4 spare	
Fuse link cartridge, 5A 440V (X2/5920-99-059-0112)	4 spare	
Interconnecting box 4-way No. 1 (Z1/5820-99-949-1173) (ZA 51311)	LT box with 4-pt. input (See note on page 7)	4
Key telegraph (Z1/5820-99-949-1174) (ZA 51445)	'K' box	
Lamp fil. 8V 1.2W MES (X5/6240-99-995-1148)	3 spare	
Lamp fil. 12V 3.6W MES (X5/6240-99-995-1246)	3 spare	
Lead counterpoise 25-ft. (ZA 51453)	See part 4 page 26	
Lug special No. 1 (ZA 4551)	See part 2 page 10	
Nut gland and washer set (ZA 50365)	See part 2 page 10	
Plate plastic, ½ x 5 x ⅛-in. thick (ZA 50358)	Under aerial base No. 31	
Rod earth MS, 36-in. (Y1/5975-99-943-9502)	See part 4 page 26	
Tray assy. MS, 13 x 10⅝ x 1.15/16 (ZB 14941)	Mounts boxes on R210	4
Tray metal, 22¾ x 13⅛ x 5⅛ (ZB 14927)	Mounts ATU, etc., on C11	2
Tool adjusting (ZA 50362)	Screws lead into aerial base	
Washer assy. 2-in. dia (Z1/5820-99-949-3044)	6 secure carrier to table	2
Wrench keys, 1/16-in. and 5/64-in.	For control knob set screws	

Stow fuses, lamps and wrench keys in the case maintenance kit

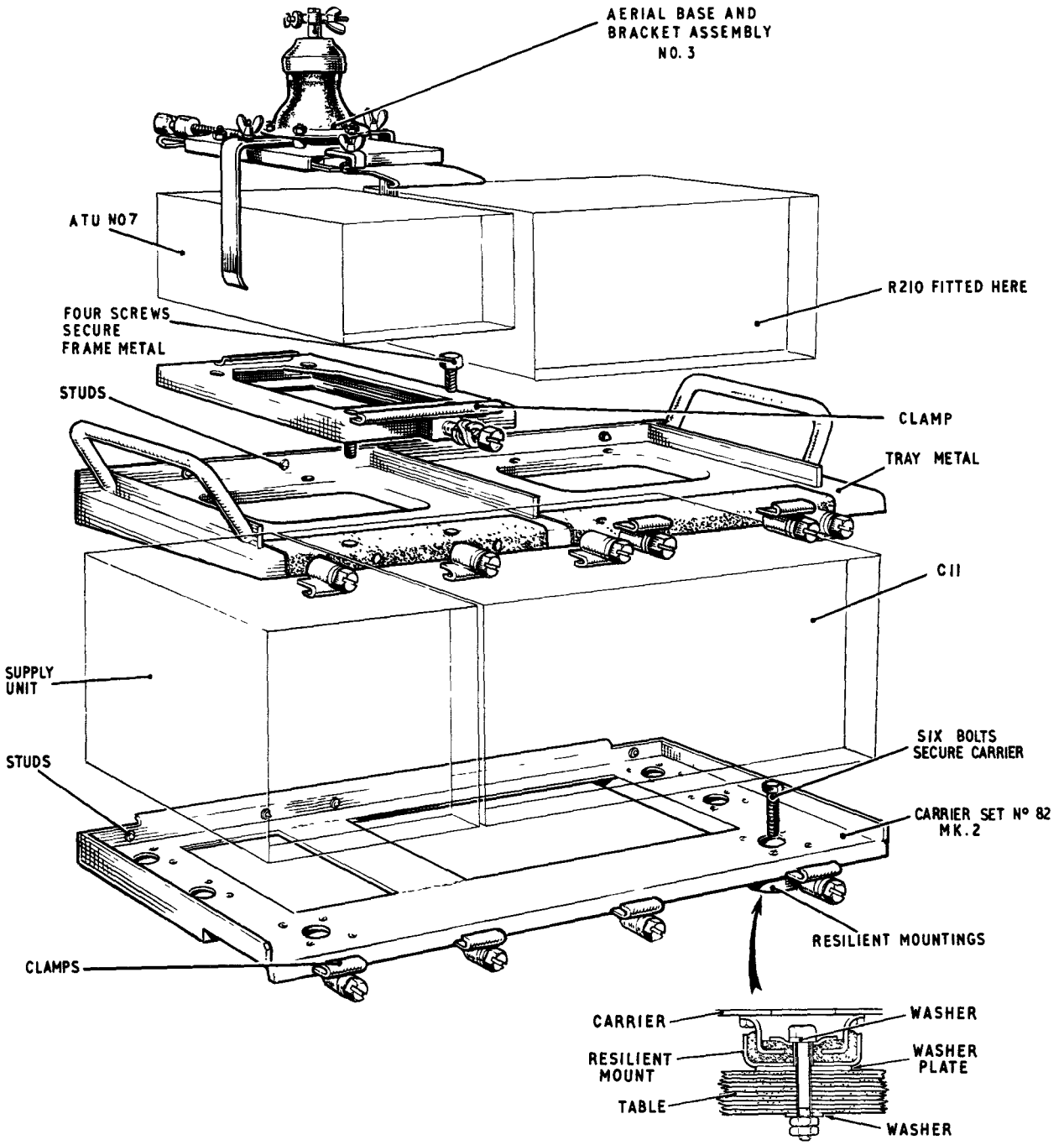


FIG. 2 FITTING C11

Section 3 INSTALLING C11 ASSEMBLY

(1) Position on the table

C11 is normally fitted at the LH end of the table. Ascertain the position to be used by referring to the layout diagram in the relevant vehicle chapter of part 2.

(2) Washer assembly, 2-in. dia.

This consists of a 2-in. dia. washer plate, a 2½-in. bolt, four small washers and two nuts. Six washer assemblies are required for the C11. A washer plate is fitted under each resilient mount to prevent it being drawn into the wood as the bolt is tightened. Two of the small washers are provided to compensate for variations in the thickness of the table top and on a thick table they will not be required.

(3) Carrier set No. 82 Mk. 2

Install the C11-R210 with the receiver on the top of the transmitter as in fig.2 opposite. In this arrangement, for which a Mk. 2 Carrier set No. 82 with six mounts is essential, receiver and ATU can be transposed in order to bring the ATU as near as possible to the aerial base. Do not use a Mk. 1 Carrier set No. 82, which has only four mounts and cannot carry the combined weight of transmitter and receiver.

Before fitting the carrier to the 50-in. table, remove the table from the runners. Place the carrier on the table in the required position and line up the fixing holes. Fig. 3 shows the holes for the C11 carrier at the LH end of the table. Fit the securing bolts as shown in the inset to fig. 2, with one, two or three small washers under the bolt head, a 2-in. dia. washer plate between resilient mount and table, and a small washer and two lock nuts against the underside of the table. If a second radio set is to be installed, fit the carrier for it at the same time as the C11 carrier. Then replace the table on the runners and tighten the clamps.

If the C11 is to be mounted on the 23-in. table, that table must be bolted to its bearers before the carrier is fitted.

(4) C11

Fit the C11 into Carrier set No. 82, engaging two studs on the rear frame of the carrier with two corresponding sockets in the rear of the set.

(5) Supply unit transformer rotary

Fit the PSU into Carrier set No. 82.

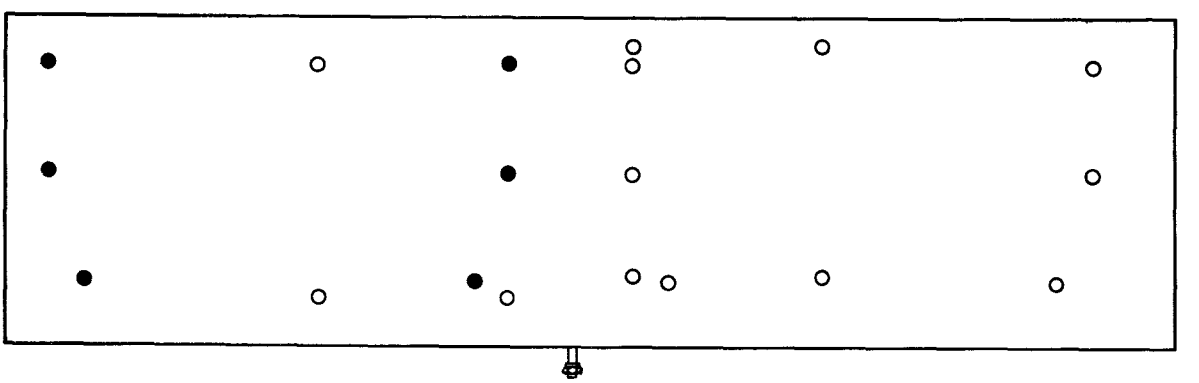


FIG. 3 PLAN OF 50-IN. TABLE SHOWING HOLES FOR C11 CARRIER

(6) Clamps MS, 1 x 1 x 1½ x 11/32-in. grip

Fit four clamps to the front of the carrier as shown in fig. 2. Hook them over the lower edges of C11 and PSU and tighten the screws to retain the assembly. Four more similar clamps secure the tray (paragraph 7) to the C11 and two secure the R210 to the tray.

(7) Tray metal, 22¾ x 13⅛ x 5⅛-in. (See section 4 below)

Fit the tray to the top of C11 and PSU, engaging studs and sockets. Secure it by means of four clamps hooked over the flange on the front panel of C11 and PSU and screwed down. Make sure that the tray is firmly attached, but do not over-tighten the clamp screws. The top of this tray is divided. The ATU is to be fitted in the side nearer the aerial, normally the LH side, to reduce the length of the aerial connector. The R210 is to be fitted in the other side.

Section 4 MODIFYING THE TRAY ON C11

If two C11 or C11/C13 are fitted side by side on the table the handles, being set at an angle, may come into contact with handles on the adjacent tray. Trays metal, 22¾ x 13⅛ x 5⅛-ins. can be modified by workshops in accordance with EMER Comm. Inst. Z.027 Mod.Instr. No. 2, under which the handles are moved to an upright position to provide more clearance between two assemblies on the table.

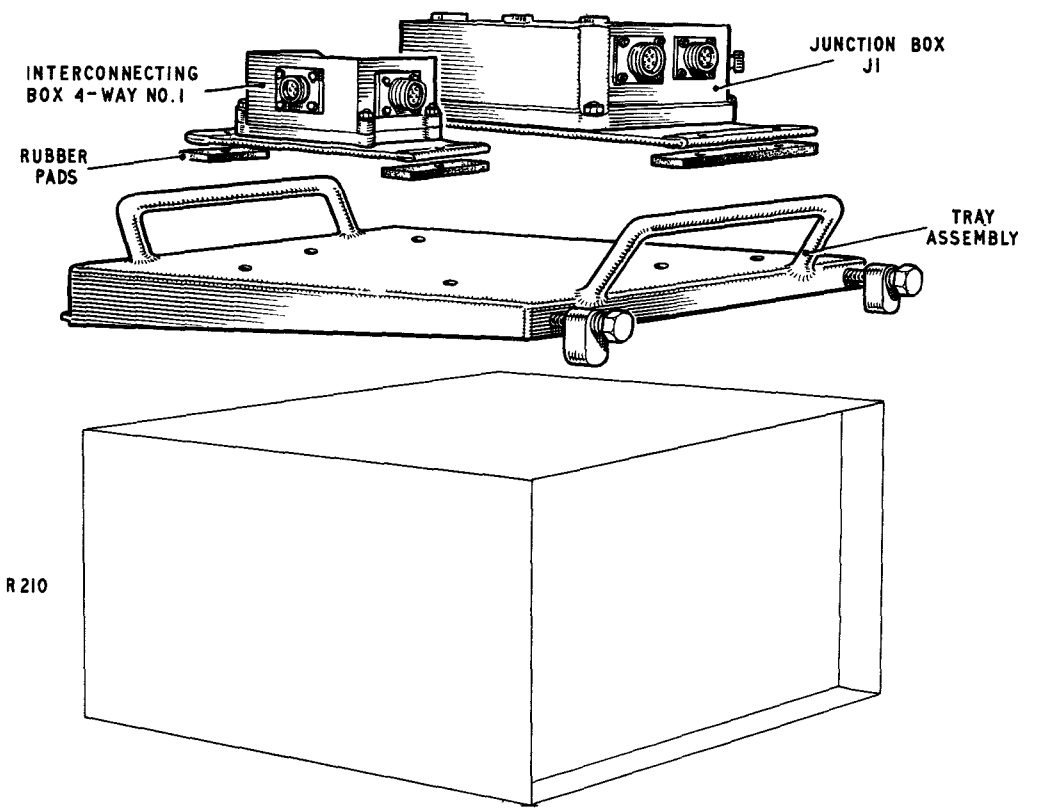


FIG. 4 FITTING THE J1, ETC., ON THE TOP OF THE R210

Section 5 INSTALLING ATU NO. 7

(1) Frame metal, 13.7/16 x 7.13/16 x 1.7/16

This frame carries the ATU. Mount it in the aerial side of the tray on the C11 as shown in fig. 2, with the screw clamp towards the front of the tray. Engage two sockets in the rear of the frame with two studs on the tray. Secure it by means of four screws $\frac{1}{4}$-in. x $\frac{1}{2}$-in. long, inserted into tapped holes in the tray.

(2) ATU No. 7

Mount the ATU on the frame with the rear panel flange engaging in the projecting flap on the frame. Secure it by means of the clamp, which hooks over the front panel flange.

(3) Aerial base and bracket assembly No. 3

Mount this on the ATU by hooking it to the front panel flange and securing it with a clamp hooked over the rear panel flange. Tighten the side supports in the inward position. Connect the earth braid to the ATU earth terminal. Fit the aerial lead, which forms part of the assembly, between the top of the aerial base and the ATU aerial terminal. This aerial lead is not used in the vehicle.

Section 6 INSTALLING R210 ASSEMBLY

Fit the R210 into the vacant part of the tray metal on the C11, engaging two studs with sockets in the rear of the set. Fit two screw clamps as in paragraph 6 on page 6 to the front of the tray metal as shown in fig. 2. Hook the clamps over the flange along the lower edge of the R210 control panel and tighten the two screws to retain the assembly.

Section 7 INSTALLING J1 AND LT BOX

(1) J1

Before mounting the tray assembly on the R210, bolt the J1 to it by means of four screws with nuts and washers. Place two rubber pads between the metal ends of the webbing base on the J1 and the tray. See fig. 4.

(2) Interconnecting box 4-way No. 1

Bolt this LT box to the tray by means of two screws with nuts and washers, as shown in fig. 4, with two rubber pads between box and tray and the cut-away side of the box towards the J1.

NOTE - Three different LT boxes are used in the installations described in this handbook. See Part 1 page 9. The box for the C11 has three 4-way connections and one 2-way.

(3) Tray assembly MS, 13 x 10$\frac{5}{8}$ x 1.15/16-in.

After bolting the above two boxes to this tray, mount the tray on the top of the R210. Engage two studs with sockets in the rear of the set and secure two clamps over two corresponding screw heads in the upper corners of the set front panel. Ensure that the tray is firmly attached.

(4) 'E' box in two-set installations

If two sets are installed, the two J1s can be connected to an 'E' box and controlled by one operator. See part 4 page 4. Bolt 'E' and MRRB boxes to the slotted angle framework.

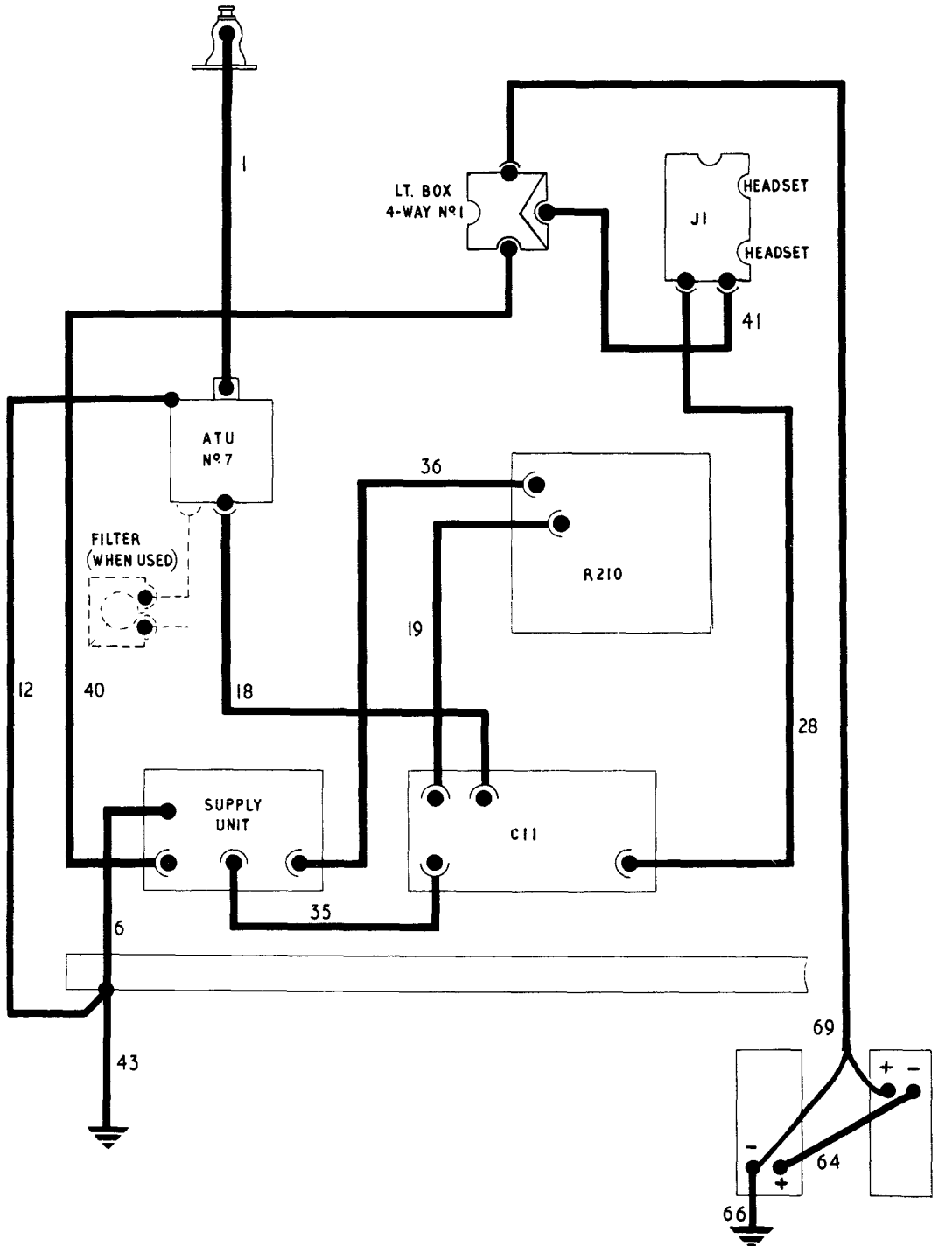


FIG. 5 CONNECTOR DIAGRAM C11-R210

Section 8 CONNECTORS

As shown in the typical installation in fig. 1 and the ground station in fig. 6.

No. See Fig.5	Connector	Position	Kit See note below
1	HF aerial connector (Made up to suit the truck). See the relevant vehicle chapter).	External aerial base to ATU	I
6	Copper braid, 10¾-in. (Z1/5995-99-949-1055) (ZA 46904)	PSU to bolt in LH end of table frame	M
12	Copper braid, 21-in. (ZA47169)	ATU to bolt in table frame	I
18	Coaxial, 2-ft. (Z1/5995-99-949-1230)	ATU to C11	I
19	Coaxial, 27-in. (ZA51333)	C11 to R210	I
28	12-condr., 3-ft.6-in. (Z1/5995-99-949-1477)	C11 to J1	M
32	12-condr., 2-ft.6-in. (Z1/5995-99-949-2969)	J1 to 'E' box when fitted	E
35	12-pt., 7-in. (ZA46824)	C11 to PSU	I
36	12-condr., 3-ft. (Z1/5995-99-949-1478)	R210 to PSU	I
40	4-condr., 3-ft. (Z1/5995-99-949-3037)	PSU to LT box	I
41	Twin, 3-ft. (ZA54389)	LT box to J1	M
43	Copper braid (part of table)	Table to vehicle body	V
64	Single, 2-ft.6-in. (Z1/5995-99-949-1068) (ZA 0781)	Battery series connector (Not used on Rover 8 and 9)	M
66	Single, 3-ft. (Z1/5995-99-949-1000) (ZA47089)	Battery negative to vehicle chassis. (Not used on Rover 8 and 9).	M
68	4/2-pt., 5-ft. (ZA 51401)	LT box to batten terminal in Rover 8 and 9 and in 1-ton Armoured	M
69	4/2-pt., 6-ft. (ZA51321) (alternative to Connector No.68)	Battery to LT box on set in ¼-ton Austin and trucks without power take-off	I

NOTE - Column 4 shows the kits in which connectors are supplied:
E - 'E' box kit, I - Installation kit (see page 2), M - multi-purpose kit,
V - vehicle fitting kit.

Section 9 FILTER UNIT RF No. 15

This filter unit reduces interference between C42 and R210 when these two sets are installed in the same vehicle. On installations in which it is required, mount it on the slotted steel angle framework and connect it between C11 and ATU No. 7 as in fig. 5. Filter unit RF No. 15 does not require any adjustment in use.

The filter unit is contained in a case similar to the LT box. It is supplied in a separate kit, together with two coaxial cables.

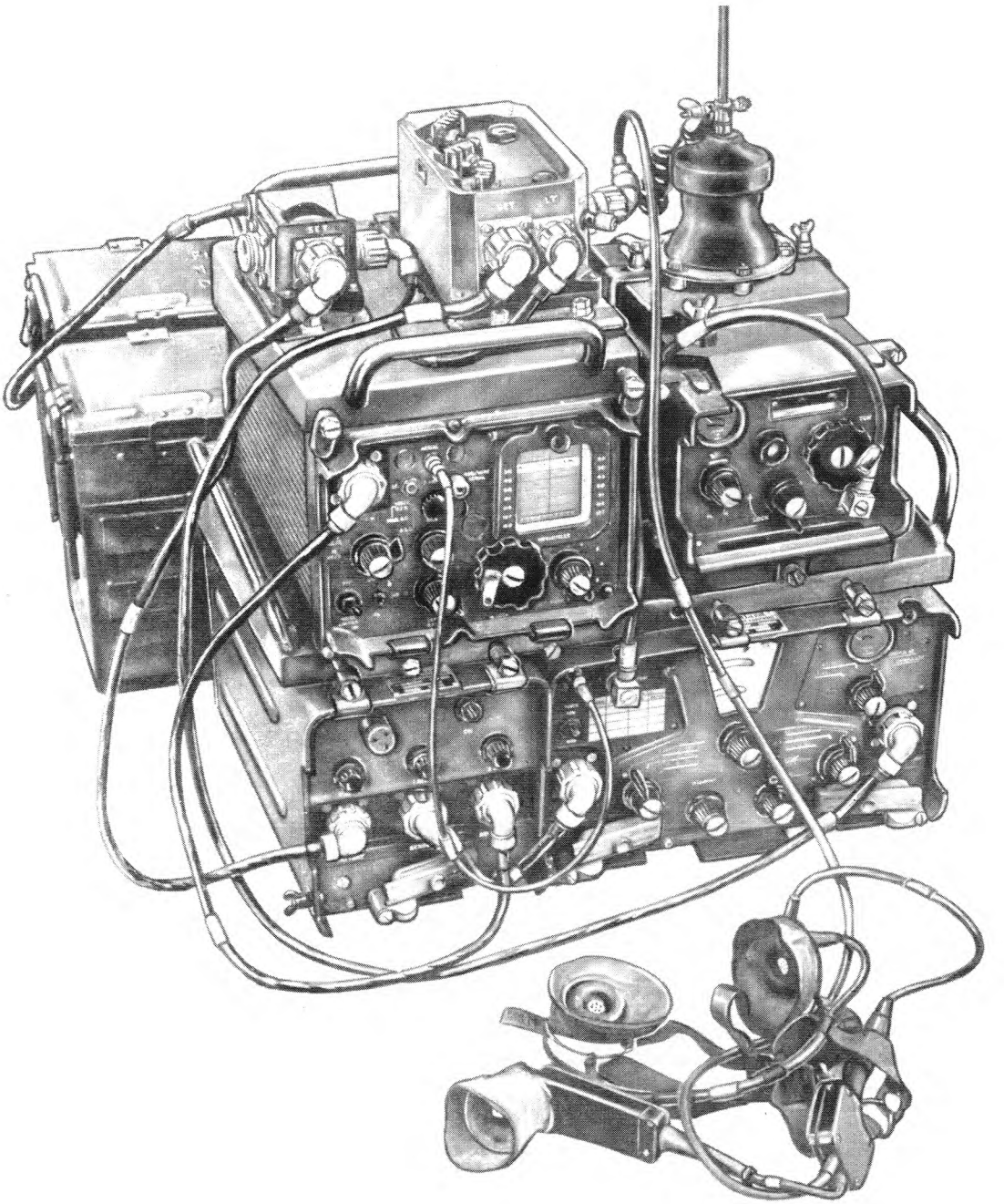


FIG. 6 TYPICAL GROUND STATION C11–R210

CHAPTER 2
C12

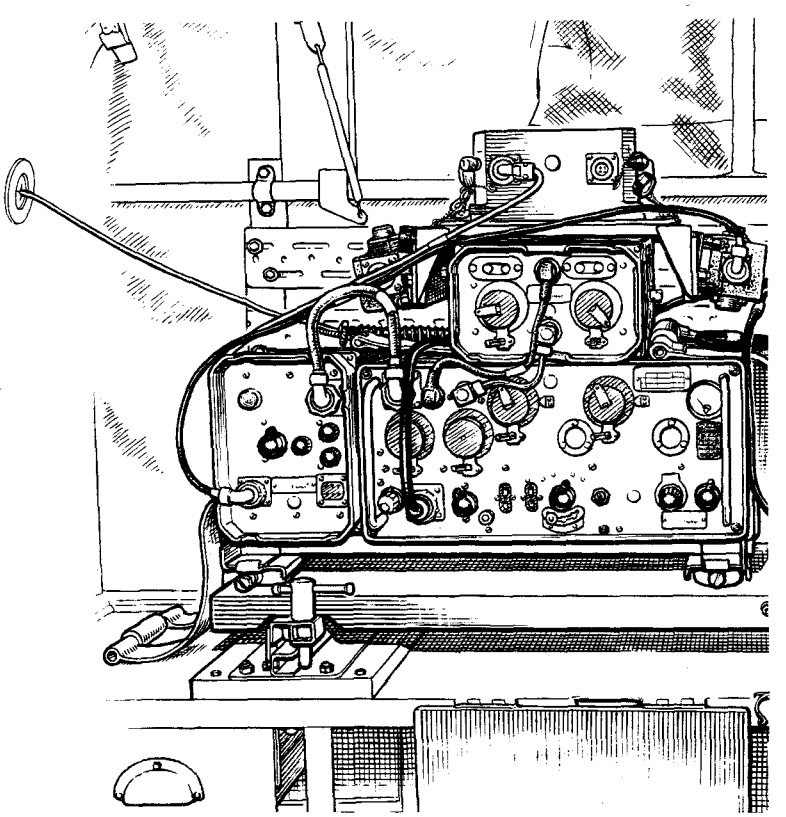


FIG. 7 TYPICAL INSTALLATION C12

C O N T E N T S

Section 1 SET DATA

Type of set	HF transmitter-receiver for voice or morse telegraphy
Frequency	1.6 to 10 Mc/s
Range	Rod aerial - up to 15 miles voice, 40 miles morse Wire aerial - skywave
Power Supply	Separate PSU for 12V or 24V
Aerial	8-ft. or 12-ft. rod. Horizontal wire aerials

Section 2 C12 KITS

(1) Station kit, radio, C12, Kit No. 3 (Z1/5820-99-949-4921)

Details of this C12 kit are given in CSL 112/44. To this must be added the appropriate PSU with spares, as listed in kit No. 1 supply unit transformer rotary, 12V, ZA53426 (CSL 112/31) or 24V, ZA53427 (CSL 112/32).

(2) Other kits

A number of other C12 kits are in existence, including set kits and old type "made to measure" installation kits. Whichever kit is to be converted to an installation in an FFR vehicle, the items in paragraph 3 below are required from it. Many items in the old kit are not required as they are now supplied in the new C12 installation kit shown opposite. Remaining items to complete the C12 station are supplied in the multi-purpose kit. Users should retain all spares and surplus equipment for possible future use in different arrangements.

(3) Items required from the kits in paragraph 1 or from the old C12 kit

Description	Remarks	Fig.
ATU No. 5 (ZA43051)		8
C12 (ZA43050)		7
Case spare valves No. 4P (ZB14828)	Containing CV 131(2), CV 136, CV 287, CV 428 (2), CV 452, CV 492, CV 2128, CV 4005, CV 4014 (2)	
Connector 12-pt. No. 85, 12-in. type EA (ZA43134)	Set to PSU (angle each end) Connector No. 37	9
Cradle metal, 9 x 8½ x 5½ expanded (ZA44660)	Holds ATU on top of set	8
Fuse link cartridge, 250 mA 440V (X2/5920-99-059-0107)	Four spare	
Fuse link cartridge, 3A 440V (X2/5920-99-059-0111)	Two spare	
Instructions working C12 (ZA46232)		
Lamp fil. 14V 0.75W LES (X5/6240-99-995-1903)	Six spare	
Screws BSF steel, 1/4 x 3/8 (four) with washers	To fasten cradle to top of set	8

Description	Remarks	Fig.
Signal equipment card No. 229		
Supply unit transformer rotary, 24V input (ZA43064) or 12V input (ZA43063)	12V or 24V PSU as required	8
User handbook for C12	W.O. Code No. 11562	

(4) Installation kit electronic equipment SR C12 (Z1/5820-99-949-2924)
For details see CES No. 42911

Description	Remarks	Fig.
Aerial base No. 31 (ZA49827)	See relevant vehicle chapter	11
Aerial element, 4-ft. (two) (Z1/5820-99-949-1166) (ZA44684)	Antennae rods	
Beads plastic (ZA50359) (50)	For aerial connector	
Cable elec. P11 (Y3/WB1042) (4 yds.)	For aerial connector (Conn. 1)	9
Carrier fixed (ZB15000) and free (ZB15001)	For 'K' box	
Carrier set No. 25 Mk. 1/1 (ZA27667)		
Clamp aerial base (Z1/5820-00-949-3038)	See part 2 page 11	
Clamp rubber, 3/16-in. grip (ZA50363)	For aerial connector (4 plus 4 spare)	
Connector co-axial No. 124, 6-in. (ZA47088)	ATU to C12 (angle end)(Conn. 20)	9
Connector copper braid No. 23 14-in. (ZA46908)	ATU to earth (Conn. 13)	9
Connector 3-pt. No. 110, 10-in. (ZA47093)	ATU to C12 (angle end)(Conn. 21)	9
Interconnecting box 4-way No. 4 (Z1/5820-99-949-0960) (ZA46982)	IT box	8
Key telegraph (Z1/5820-99-949-1174)	'K' box Mk. 2	
Lug special No. 1 (ZA4551)	For aerial connector	
Mounting carrier, $12\frac{1}{2}$ x $2\frac{7}{8}$, 30 lb. loading (ZB14901)	Two mountings for Carrier set No. 25	8
Nut gland and washer set (ZA50365)	For aerial connector	
Plate plastic, $\frac{1}{4}$ x 5 x $\frac{1}{8}$ (ZA50358)	Under aerial base	
Strap assy. 51.7/16-in. (ZA10464)	To secure set in carrier	8
Support interconnecting box, $12\frac{3}{8}$ x $7\frac{1}{4}$ x $3\frac{3}{8}$ (Z1/5820-99-949-3106)	To carry J1, etc., on top of set	8
Tool adjusting (ZA50362)	Screws lead into aerial base	
Washer assy. 2-in. dia. (Z1/5820-99-949-3044)	Four secure mountings to table	8
Wrench key, 1/16-in. (F1/5120-99-910-6058) 5/64-in. (F1/5120-99-910-6059)	For control knob set screws	

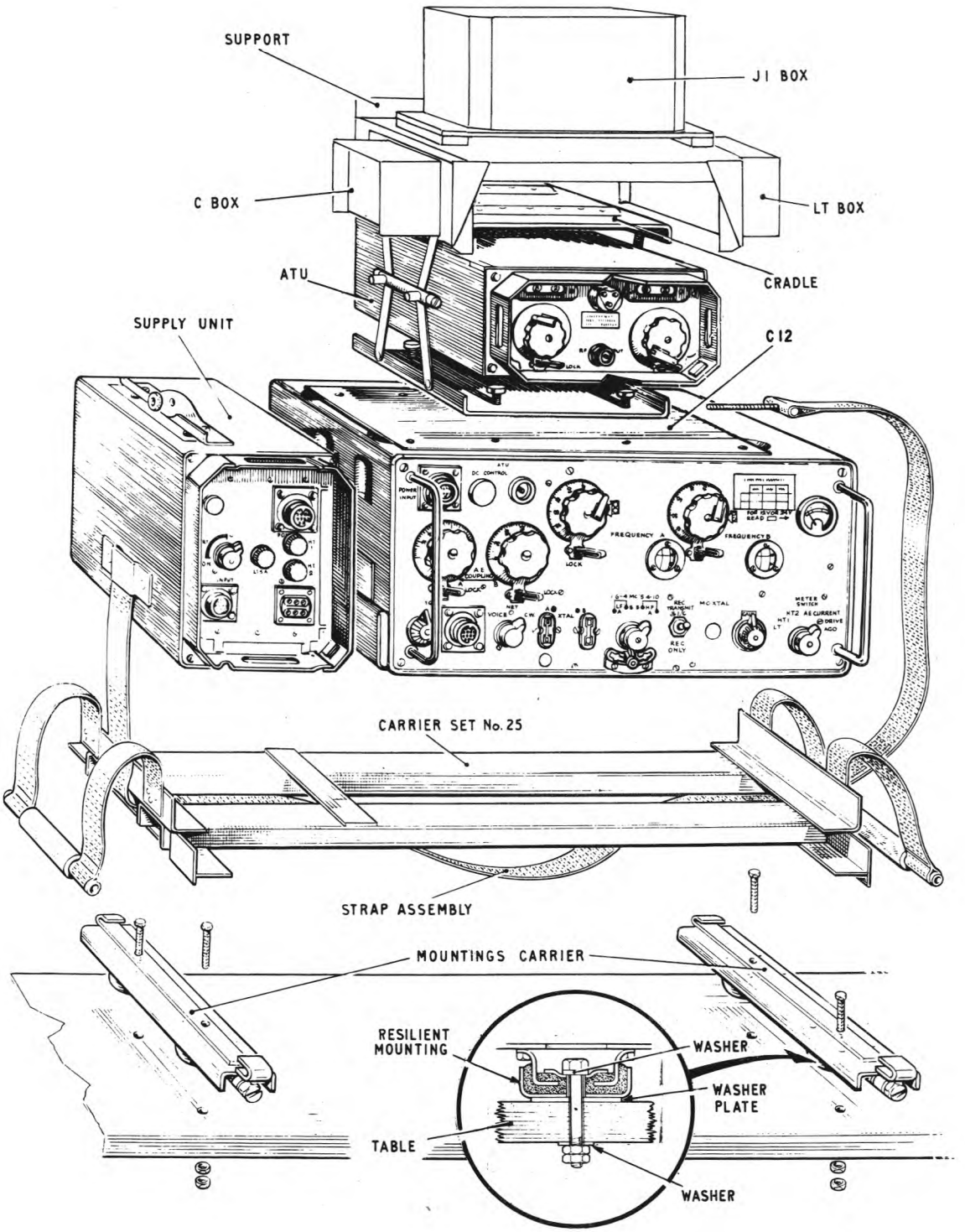


FIG. 8 FITTING C12

Section 3 INSTALLING C12 ASSEMBLY

NOTE - The table top must be drilled as shown on page 18 before the C12 carrier can be fitted.

(1) Washer assembly, 2-in. dia.

This consists of a 2-in. dia. washer plate, a $2\frac{1}{4}$-in. bolt, four small washers and two nuts. Four washer assemblies are required for the C12. A washer plate is fitted under each resilient mount to prevent it being drawn into the wood as the bolt is tightened. Two of the small washers are provided to compensate for variations in the thickness of the table top and on a thick table they will not be required.

(2) Mounting carrier, $12\frac{1}{2}$ x $2\frac{7}{8}$

Before fitting the mountings to the 50-in. table, remove the table from the runners. Locate four holes specially drilled in the LH end of the table (see page 18). Position the two mountings with the screw clamps to the front. Fit four securing bolts with one, two or three small washers under the bolt head, the washer plate between mount and table, and a small washer with two nuts under the table.

If a second radio set is to be installed on the 50-in. table, fit the carrier for it at the same time as the C12 carrier. Then replace the table on the runners.

(3) Carrier set No. 25

Position the carrier with the radio set holder at the RH end as shown in fig. 8. Fit the carrier in the hooks on the rear ends of the mountings. Retain it by means of the hooks on the front ends of the mountings and secure the screw clamps. Fit the strap under the carrier end angles with the adjuster at the RH end.

(4) C12

Fit the radio set into the carrier.

(5) Supply unit

Fit the PSU into the carrier at the side of the C12.

(6) Strap assembly, 51.7/16-in.

Fit the lugs on the plain end of the strap into the slots in the side of the PSU. Draw the adjuster end of the strap tightly under the carrier and up across the top of the set. Fit the lugs on the adjuster end of the strap into the slots in the top of the PSU and tighten the knurled nut to retain the set and PSU.

Section 4 INSTALLING ATU NO. 5

(1) Cradle metal, 9 x $8\frac{1}{2}$ x $5\frac{1}{2}$-in. expanded

Position the cradle centrally on the top of the C12 with the heads of the clamping screws to the front. See fig. 8. Secure it with four screws BSF steel hex. hd. $\frac{1}{4}$ x $\frac{3}{8}$-in., inserting these screws into tapped holes in the top of the C12 case.

NOTE - Before fitting ATU No. 5, mount the support interconnecting box on the top of the cradle. See section 5 on page 17.

(2) ATU No. 5

Insert the ATU in the cradle and tighten the two side screws to clamp it between the rubber-faced top and bottom plates.

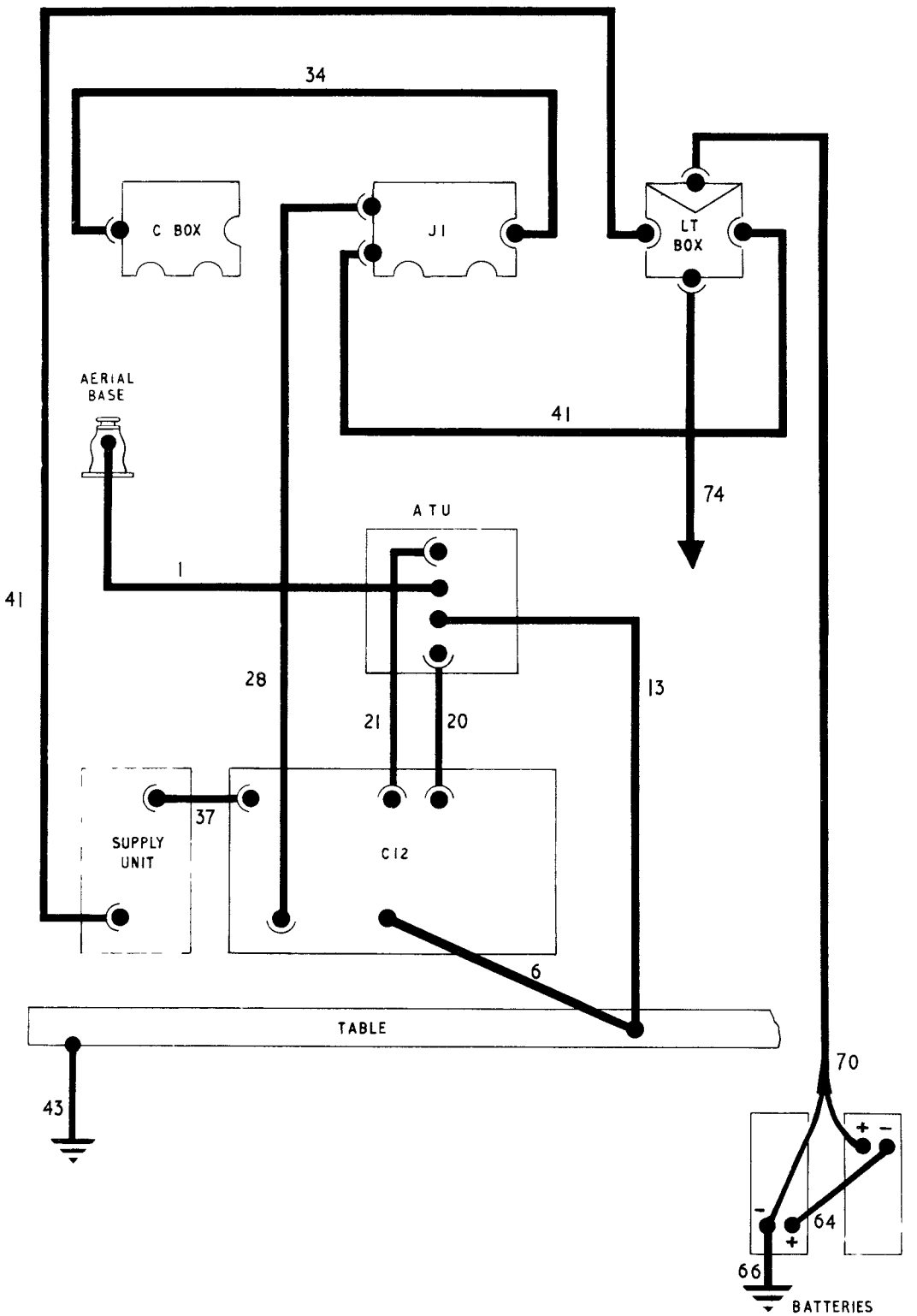


FIG. 9 CONNECTOR DIAGRAM C12

Section 5 INSTALLING J1, LT AND 'C' BOXES

(1) Support interconnecting box

Fit the undermentioned boxes to it before mounting this support on the C12 assembly. After fitting the boxes, place the support on the ATU cradle with the angle carrying the LT box to the RH side. Secure it by means of four screws with nuts and washers, fitting the heads of the screws inside the swaging on the top of the cradle. See fig. 8.

(2) J1

Bolt the J1 to the top of the support. Mount it on two rubber pads with the headset sockets towards the front of the set.

(3) LT box 4-way No. 4

This is the LT box with three 2-pt. connectors and one 4-pt. Bolt it to the RH angle of the support with the cut-away side to the top. Mount it on two rubber pads.

(4) 'C' box

When a 'C' box is required, bolt it to the LH angle on the support, with the headset sockets to the top. Mount it on two rubber pads.

Section 6 CONNECTORS

As shown in the typical installation in fig. 7.

No. See Fig. 9	Connector	Position	Kit See note
1	HF aerial connector to suit truck	External aerial base to ATU	I
6	Copper braid, 10¾-in. (Z1/5995-99-949-1055)	C12 to bolt in table frame	M
13	Copper braid, 14-in. (ZA46908)	ATU to table frame	I
20	Co-axial, 6-in. (ZA47088)	ATU to C12	I
21	3-pt., 10-in. (ZA47093)	ATU to C12	I
28	12-condr., 3-ft. 6-in. (Z1/5995-99-949-1477)	C12 to J1	M
32	12-pt., 2-ft. 6-in. (Z1/5995-99-949-2969)	To 'C' box when required	J2
34	12-pt., 11-ft. 6-in. (ZA47098)	To 'C' box in cab when fitted	J2
37	12-pt., 12-in. (ZA43134)	C12 to PSU	S
41	Twin, 3-ft. (ZA54389)	PSU to LT box	M
41	Twin, 3-ft. (ZA54389)	LT box to J1	M
43	Copper braid (part of table)	Table frame to vehicle body	V
64	Single, 2-ft. 6-in. (Z1/5995-99-949-1068)	Battery series connector (Not used on Rover 8 and 9)	M
66	Single, 3-ft. (Z1/5995-99-949-1000)	Battery negative to earth (Not used on Rover 8 and 9)	M
70	Twin, 6-ft. 6-in. (Z1/5995-99-949-1001)	Battery to LT box on set	M
74	4-pt. (part of FFR equipment in ¼-ton Austin)	LT box to power take off (¼-ton Austin only)	V

NOTE - I - Installation, J2 - J2 harness, S - set, M - multi-purpose, V - vehicle fitting.

Section 7 DRILLING THE TABLE FOR C12

The table top is drilled to accept various set carriers but not that used with C12. When a C12 is to be installed, drill four holes at the LH end of the table as shown in fig. 10. Fig. 7 on page 11 shows a C12 in this position.

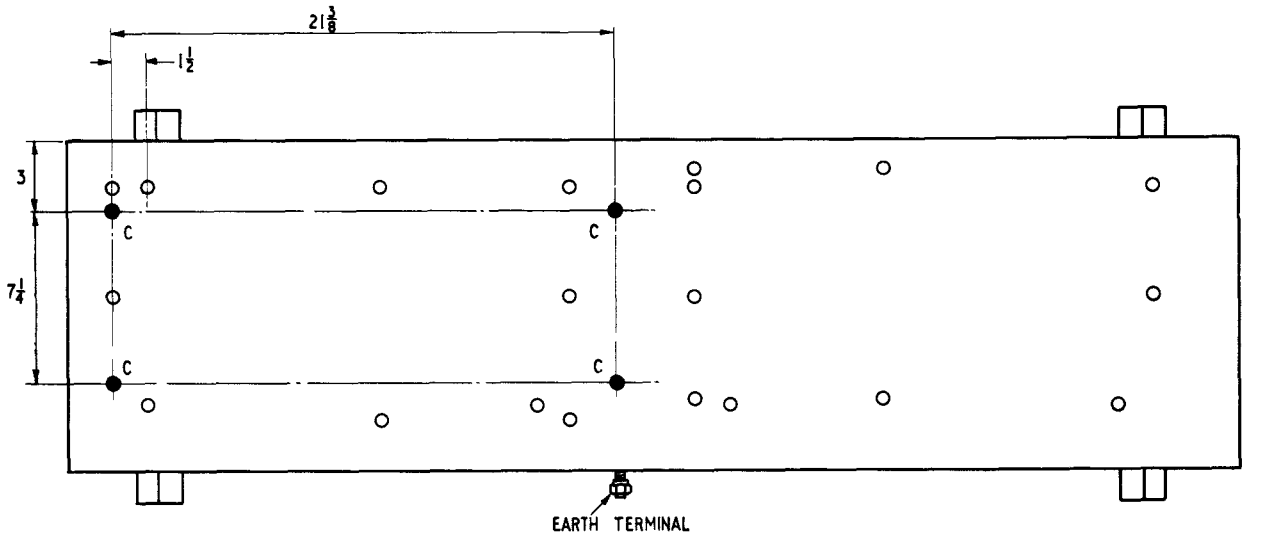


FIG. 10 PLAN OF 50-IN. TABLE SHOWING DRILLING FOR C12

CHAPTER 3
C13

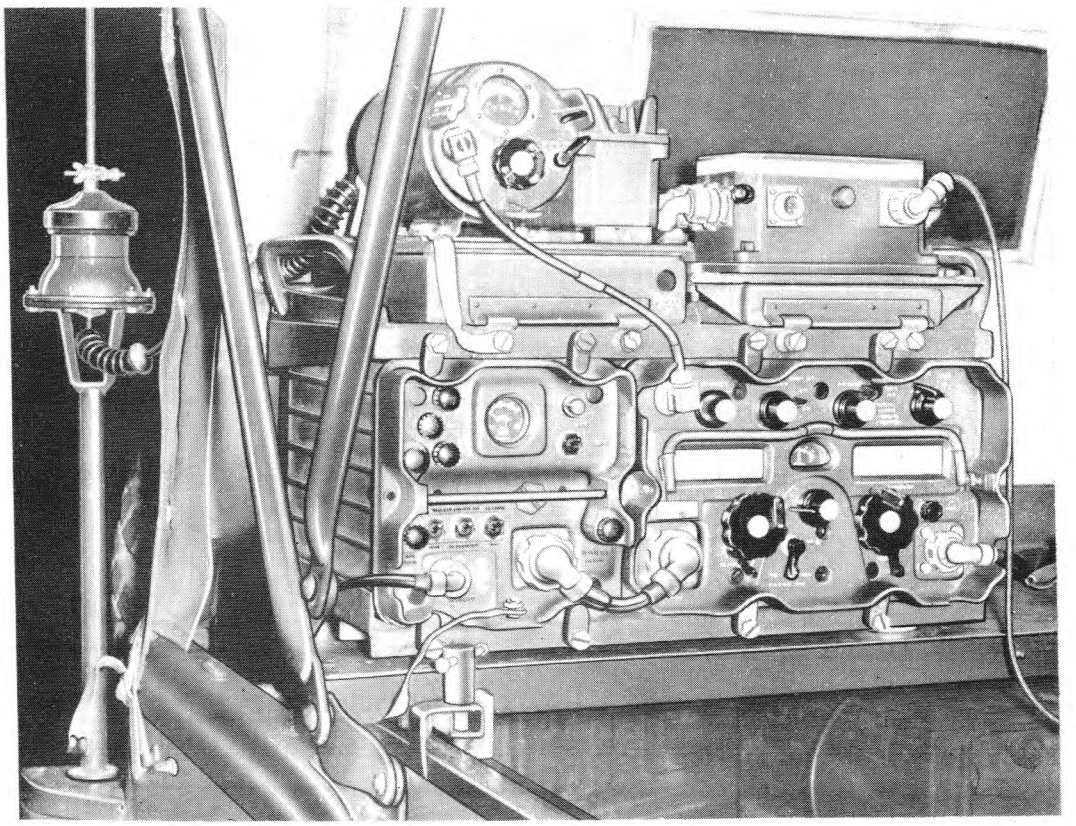


FIG. 11 TYPICAL INSTALLATION C13

C O N T E N T S

Section 1 SET DATA

Type of set	HF transmitter-receiver for voice or morse telegraphy.
Frequency	1.5 to 12 Mc/s
Range	Between moving vehicles, with sets switched to HP, up to 20 miles (voice) or 40 (morse) can be expected. On LP these ranges are approximately halved. These are day-time figures and at night they will be much reduced.
Power supply	24V battery. Two 12V 75 Ah batteries in series give approximately 12½ hours operation on a send-receive ratio of 1 : 5.
Aerial	12-ft. rod. At the halt this can be extended to 16-ft. A rod aerial can be used remotely within 150-ft. A vertical radiator or wire aerial can also be used.

Section 2 C13 KITS

(1) Set kit No. 1, TR C13, 24V (Z1/5820-99-949-0506) (For details see CES No. 42836)

C13 (Z1/5820-99-949-0505)	
Connector 18-condr. 5⅞-in. type HB (Z1/5995-99-949-0504)	C13 to PSU (angle each end) (Conn. 38)
Power supply vibratory (Z1/5820-99-949-0508)	
Tuner RF No. 11 (Z1/5820-99-949-0507)	
User handbook for C13	W.O. Code No. 12289

(2) Installation kit electronic equipment SR C13 (Z1/5820-99-949-2925)

For details see CES No. 42898

Description	Remarks	Fig.
Aerial base No. 31 (ZA49827)		11
Aerial base and coupling unit assy. (Z1/5820-99-949-0503)	For remote aerial	14
Aerial element, 4-ft. (Z1/5820-99-949-1166) (two)	Top section	
Beads plastic (ZA50359) (50)	For aerial connector	
Blocks clamping MS (Z2/5820-99-949-0959) (ZB14906)	8 secure set to rack and tray	12
Cable assy. co-axial, 2-ft. (Z1/5995-99-949-1230) (ZA54390)	For remote ATU	13
Cable assy. co-axial, 50-ft. (Z1/5995-99-949-1016) (ZA47041)	C13 to remote ATU	
Cable elec. P11 (Y3/WB 1042) (4 yd.)	For aerial connector	
Carrier fixed (ZB15000) and free (ZB15001)	For 'K' box	
Carrier set No. 82, Mk. 2 (ZB14992)		12
Clamp aerial base (Z1/5820-99-949-3038)	See part 2 page 11	
Clamps MS, 1 x 1 x 1¼ x 11/32-in. grip (ZB14904)	four	12

Description	Remarks	Fig.
Clamps rubber, 3/16 grip (ZA50363) (four)	For aerial connector	
Connector co-axial, 18-in. (ZA54394)	C13 to ATU (straight socket each end) (Conn. 22)	17
Connector single No. 10, 4-in. (ZA54387)	ATU to aerial base on remote ATU assembly (lug-loop end)	14
Couplers plug and chain assy. (ZB14946) (two)	To join 50-ft. co-axial cables	
Fuse link cartridge ceramic, 5A 440V (X2/5920-99-059-0112)	3 spares	
Fuse link cartridge ceramic, 10A 440V(X2/5920-99-011-9925)	3 spare	
Fuse link cartridge glass, 4A 250V (X2/5920-99-911-4115)	3 spare	
Interconnecting box 4-way No. 4 (Z1/5820-99-949-0960) (ZA46982)	LT box	15
Key telegraph (Z1/5820-99-949-1174) (ZA51445)	'K' box. See part 4 page 8	
Lamp filament, 12V 1.2W midget (X5/6240-99-995-9120)	3 spare	
Lug special No. 1 (ZA4551)	For the aerial lead	
Mount assy. $12\frac{3}{4}$ x $10\frac{3}{4}$ x $1\frac{3}{8}$-in. (Z2/5820-99-949-1985) (ZB15056)	Carries control boxes. Includes screws, nuts and rubber blocks.	15
Nut gland and washer set (ZA50365)	To fit aerial connector to base	
Plate plastic, $\frac{1}{4}$ x 5 x $\frac{1}{8}$-in. thick (ZA50358)	Under aerial base	
Screws UNF, $\frac{1}{4}$ x $1\frac{1}{4}$ (six)	Secures aerial base in Truck radio 1-ton	
Tool adjusting (ZA50362)	Screws lead into aerial base.	
Tray metal, $22\frac{3}{4}$-in. x $13\frac{1}{8}$-in. x $5\frac{1}{8}$-in. (ZB14927)		12
Washer assy. 2-in. dia. (Z1/5820-99-949-3044) (six)	Secures carrier to table	12
Wrench keys, 1/16-in. and 5/64-in.	For control knob set screws	

Stow fuses, lamps and wrench keys in the case maintenance kit.

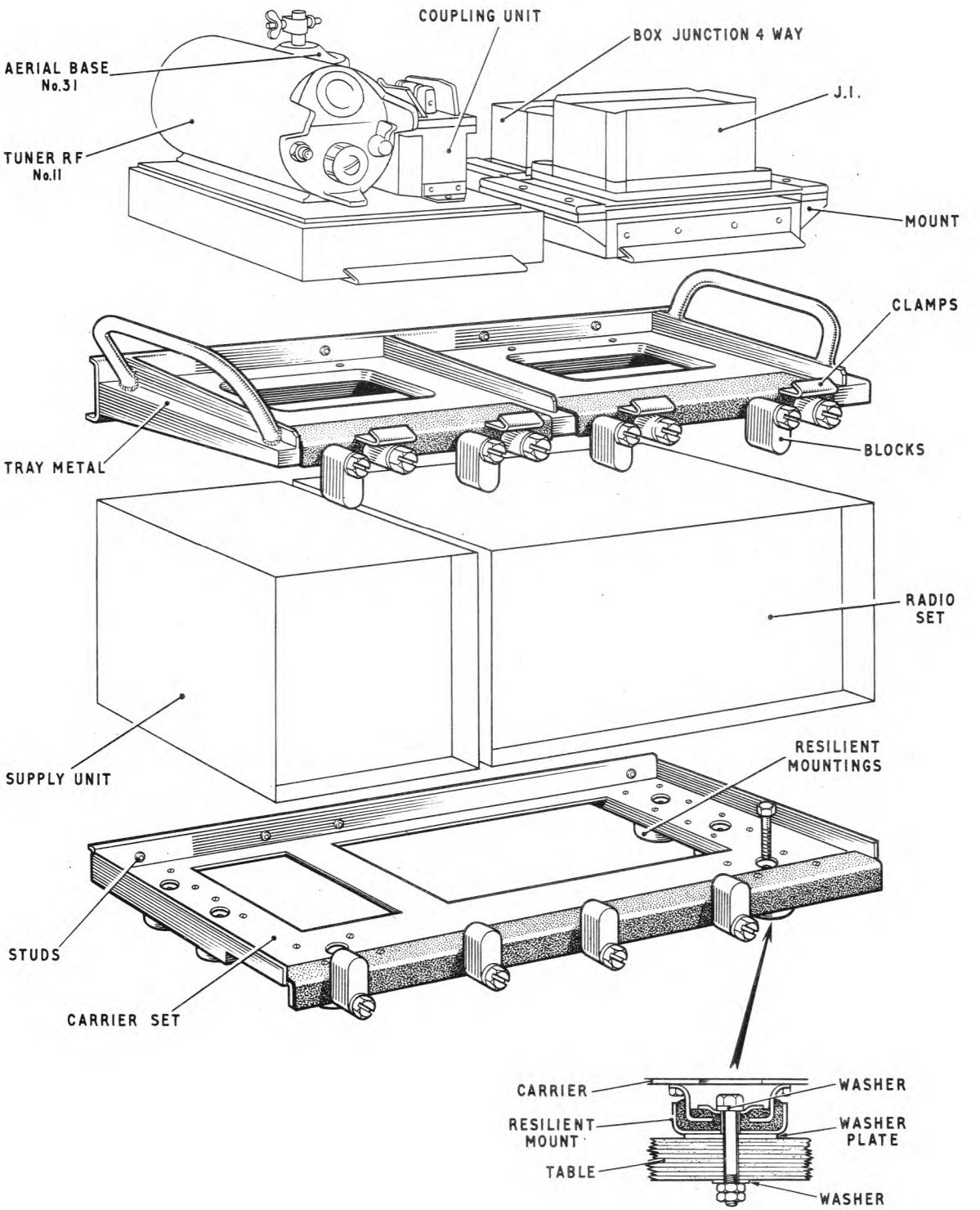


FIG. 12 FITTING C13

Section 3 INSTALLING C13 ASSEMBLY

(1) Position on the table

C13 is normally fitted at the LH end of the 50-in. table. See the layout diagram in the relevant vehicle chapter, and fig. 3 on page 5.

(2) Washer assembly, 2-in. dia.

This consists of a 2-in. dia. washer plate, a $2\frac{1}{4}$-in. bolt, four small washers and two nuts. Six washer assemblies are required for the C13. A washer plate is fitted under each resilient mount to prevent it being drawn into the wood as the bolt is tightened. Two of the small washers are provided to compensate for variations in the thickness of the table top and on a thick table they will not be required.

(3) Carrier set No. 82 Mk. 2

Before fitting the carrier to the 50-in. table, remove the table from the runners. Place the carrier on the table in the required position and line up the fixing holes. Fit the securing bolts as shown in the inset to fig. 12, with one, two or three small washers under the bolt head, the 2-in. washer plate between resilient mount and table, and a small washer and two lock nuts against the underside of the table. If a second set is to be installed, fit the carrier for it at the same time as the C13 carrier, then replace the table on the runners and tighten the clamps.

If the C13 is to be mounted on the 23-in. table, that table must be mounted on its bearers before the carrier is fitted.

(4) C13

Fit the C13 into the carrier, engaging two tapered studs on the rear frame of the carrier with two corresponding sockets in the rear of the set.

(5) Power supply vibratory No. 16

Fit the PSU into the carrier on the LH side of the C13.

(6) Blocks clamping MS, 1.13/32 x 5/8 x 1/2-in.

Fit four blocks to the carrier as shown in fig. 12, using screws provided on the carrier. Fit these blocks over screw heads on the front of set and PSU and tighten them to retain the assembly. Four more blocks are provided to secure the tray metal to the tops of the two units.

(7) Tray metal, $22\frac{3}{4}$ x $13\frac{1}{8}$ x $5\frac{1}{8}$-in. (See section 4 below)

Place the tray on the top of the set and PSU, engaging studs in the tray with sockets in the rear of each case. Secure by means of four blocks as in paragraph 6.

The top of this tray is divided. The Tuner RF No. 11 is to be fitted in the side nearer the aerial, normally the LH side, so that the length of the aerial connector between tuner and external aerial base can be reduced to a minimum.

Section 4 MODIFYING THE TRAY ON C13

If two C13, or C13/C11, are fitted side by side on the table the handles, being set at an angle, may come into contact with handles on the adjacent tray. Tray metal, $22\frac{3}{4}$ x $13\frac{1}{8}$ x $5\frac{1}{8}$-in. can be modified by workshops in accordance with EMER Comm. Inst. Z.027 Mod Instr. No. 2, under which the handles are moved to an upright position to provide more clearance between two assemblies on the table.

Section 5 INSTALLING TUNER RF NO. 11

(1) Aerial base and coupling unit assembly

In addition to mounting the Tuner RF No. 11, this assembly consists of components used with a remote aerial, including a coupling unit and aerial base. Inside it are an earth pin and counterpoise earth leads. Before attaching it to the tray metal on the C13, temporarily remove the coupling unit to facilitate the fitting of the Tuner RF.

(2) Cable assembly co-axial, 2-ft.

Fit this cable in two cable clamps on the hinged top of the aerial base and coupling unit assembly as shown in fig. 13. Arrange both clamps so that the cable runs nearer the coupling unit than the tuner. Position it so that it projects 11-in. from the clamp near the hinge.

(3) Tuner RF No. 11

Mount the tuner on the hinged top, using the four screws, washers and nuts provided on the assembly. Position it with the controls over the hinge. See fig. 14.

(4) Coupling unit

Refit the coupling unit in its original position on the hinged top. Secure it with the original two screws, nuts and washers. Fit both ends of the 2-ft. coaxial cable to the coupling unit as shown in fig. 14. This cable is not used in the vehicle. When the tuner is used with a remote aerial the C13 is connected to the coupling unit SET plug and this cable then joins the coupling unit ATU plug to the tuner RF No. 11.

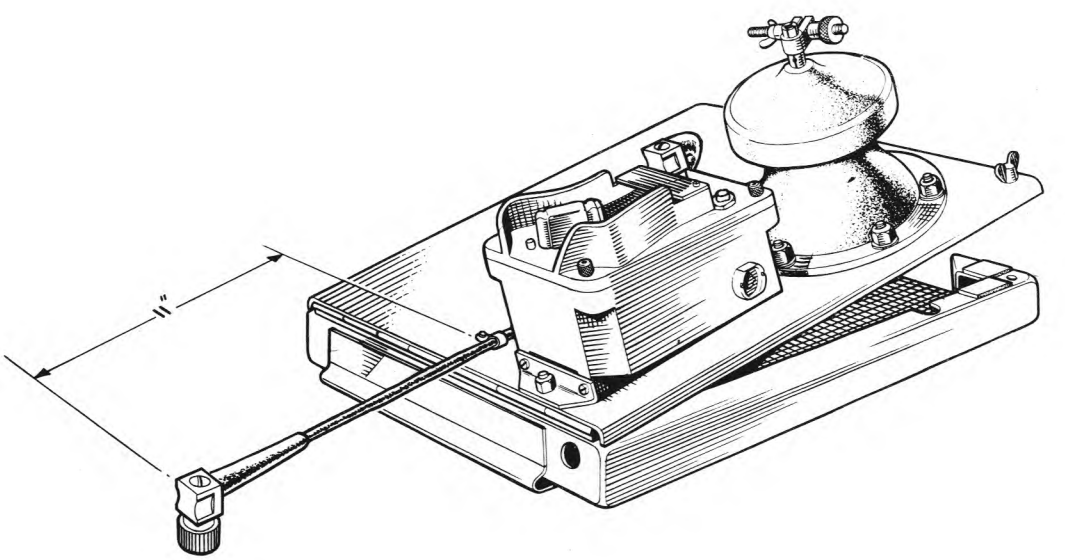


FIG. 13 AERIAL BASE AND COUPLING UNIT ASSEMBLY WITH CABLE

(5) Fit the aerial base and coupling unit assembly

With the units mounted, close and fasten the hinged top. Fit the assembly into the aerial side of the tray metal, engaging two holes in the rear of the assembly with two studs on the tray. See fig. 12.

(6) Clamps MS, 1 x 1 x 1¼ x 11/32-in. grip

Fit two of these clamps to the tray metal on the C13, using screws provided on the tray. Tighten the screws to retain the aerial base and coupling unit assembly. Note that the screw securing the LH clamp also retains the copper braid in paragraph 7. The other two clamps provided in the installation kit are to secure the mount assembly to which control boxes are fitted. See page 26 or 27.

(7) Copper braid connectors

Fit the free end of the front braid under the head of the screw holding the LH clamp MS to the tray metal. See figs. 12 and 14. Fit the free end of the braid at the rear to the earth terminal on the rear of the tuner RF No. 11.

(8) Connector single No. 10, 4-in.

Remove the captive terminal at the top of Aerial base No. 31 and fit the drilled end of this connector. Tighten the terminal and refit the 'D' ring or locking wire through the hole in the end of the stud. To retain the connector, loop it round and fit the slotted lug to the wing nut terminal on Aerial base No. 31. When the assembly is used remotely, this connector is fitted between Aerial base No. 31 and the Tuner RF No. 11.

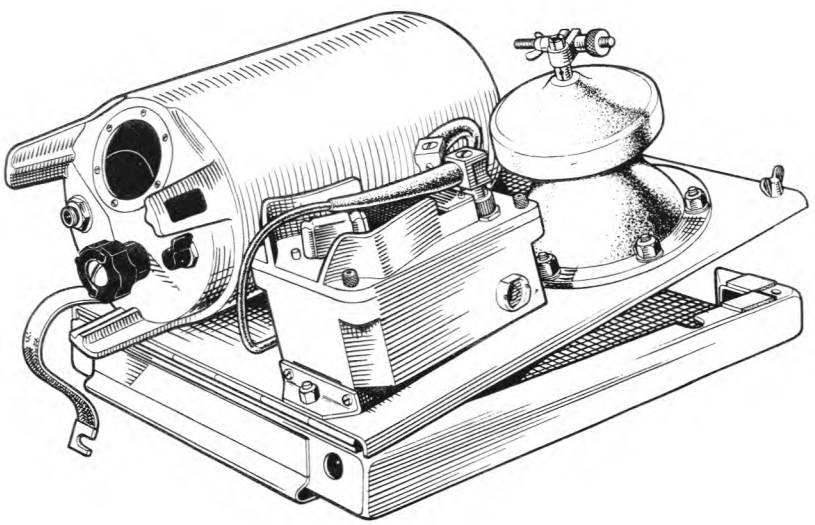


FIG. 14 AERIAL BASE AND COUPLING UNIT ASSEMBLY WITH TUNER RF

Section 6 INSTALLING J1 AND LT BOX

(1) Mount assembly, 12¾ x 10¾ x 1⅜-in.

This carries the J1 and LT box and is mounted on the tray as shown in fig. 12. Before it is fitted to the tray, bolt the J1 and the LT box to it. See paragraphs 2 and 3 below. After fitting the boxes, fit the assembly in the RH compartment of the tray, engage two sockets in the rear of the assembly and secure it by means of two clamps as in paragraph 6 on page 25.

(2) J1

Bolt the J1 to the mount as shown, with two rubber pads under the metal ends of the webbing base strap. The headset sockets must be towards the front.

(3) LT box 4-way No. 4

This is the LT box with three 2-pt. connections and one 4-pt. Bolt it to the mount with the cut-away side towards the J1. Fit a rubber pad under each end.

(4) 'E' box in a two-set installation

If two sets are installed in one vehicle, the two J1s can be connected to an 'E' box and controlled by one operator. See part 4 page 4.

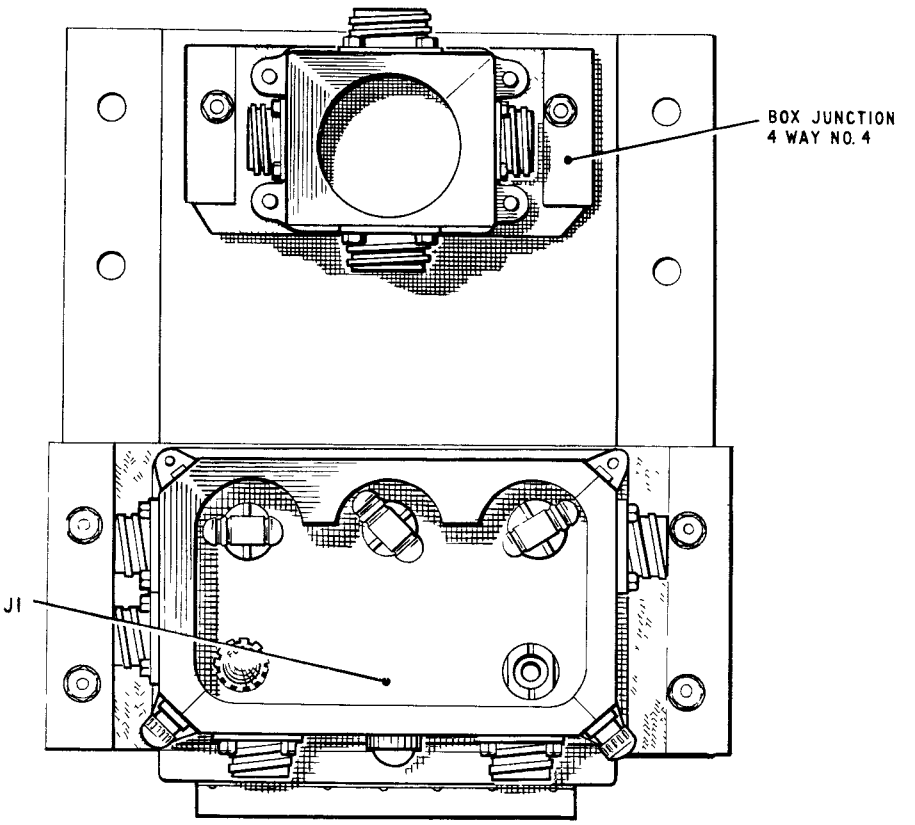


FIG. 15 MOUNT ASSEMBLY WITH J1 AND LT BOX FITTED

Section 7 INSTALLING J2 AND 'C' BOX

(1) Alternative control boxes on C13

Fig. 15 shows the mount assembly with J1 and LT box as this is the usual arrangement. The top is drilled to accept alternative arrangements, for example LT and 'C' box or J2 and 'C' box. Fig. 16 shows the latter combination and when required these two boxes can be fitted as follows:

(2) J2

Bolt the J2 to the rear position, with two rubber packings under the base. The 'A' and 'B' set plugs must be towards the rear.

(3) 'C' box

Bolt the 'C' box to the assembly as shown. If it is fitted, remove the stop screw which prevents the 'C' box selector switch turning to position 'A'.

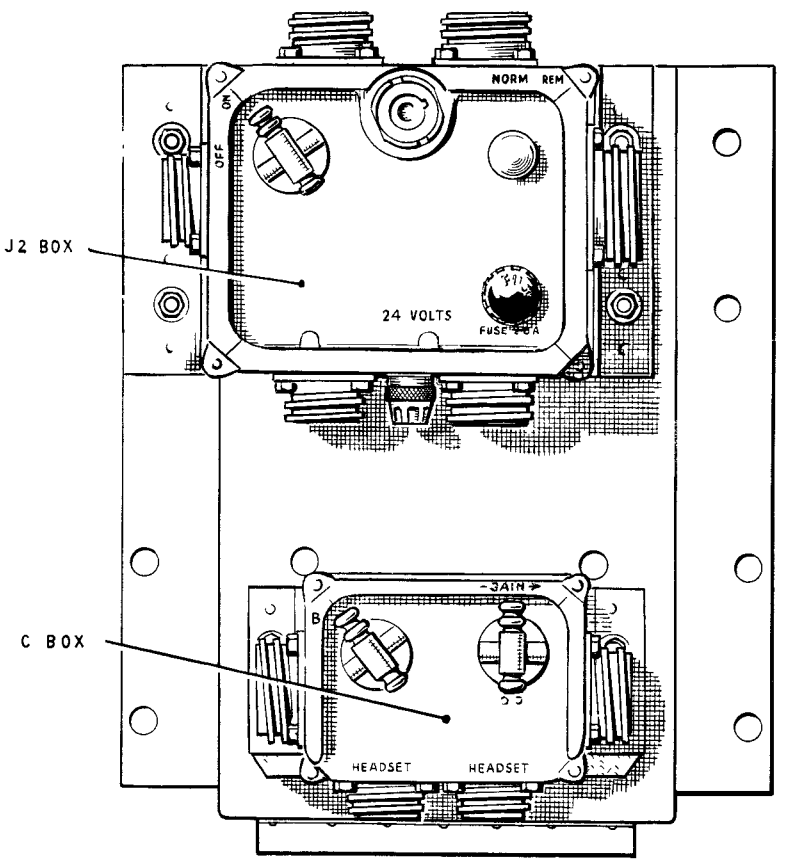


FIG. 16 MOUNT ASSEMBLY WITH J2 AND 'C' BOX FITTED

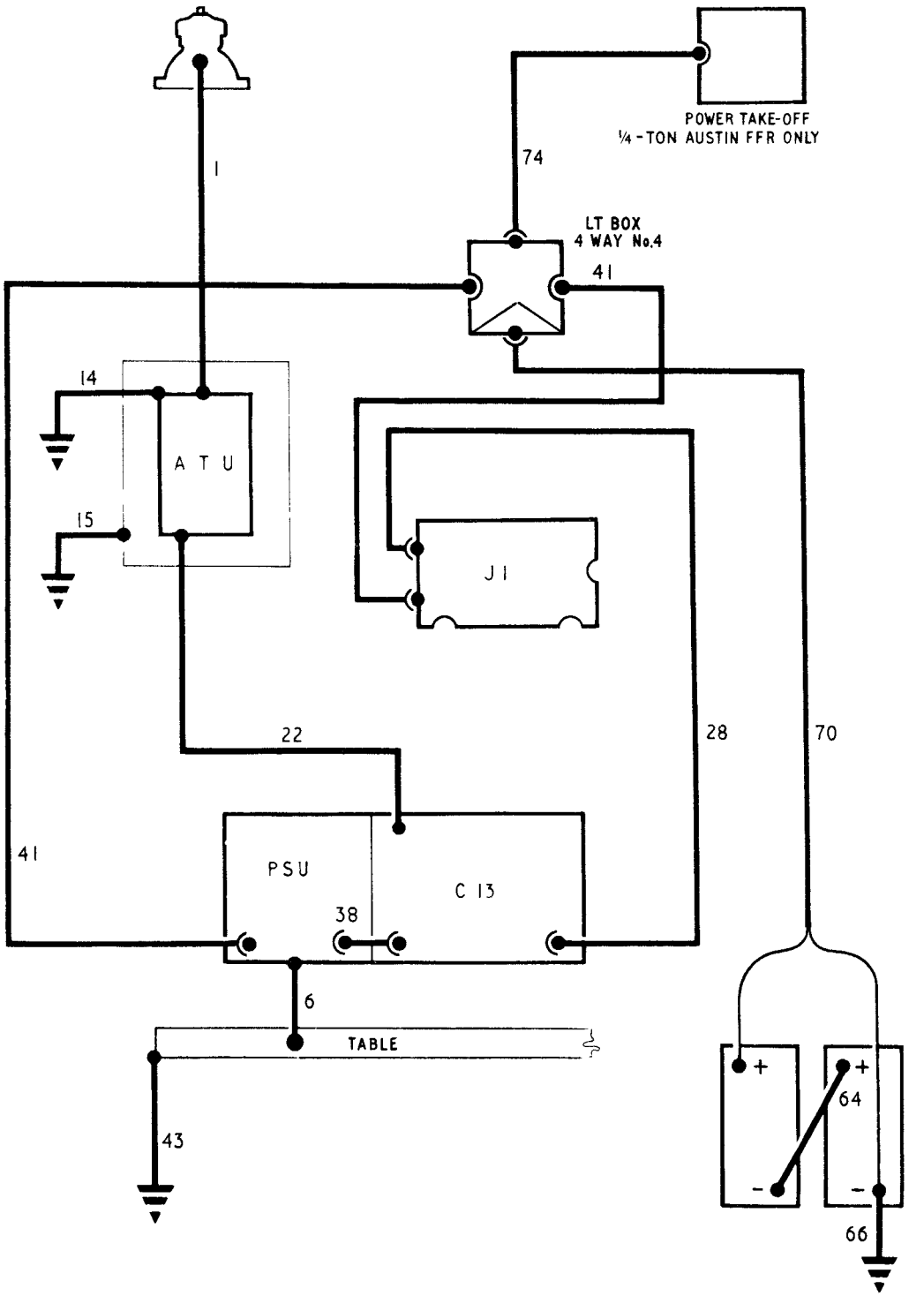


FIG. 17 CONNECTOR DIAGRAM FOR C13 WITH J1

Section 8 CONNECTORS

Fig. 17 shows C13 in a one-set harness with J1. See the typical installation in fig. 11. Fig. 18 shows C13 in a two-set harness with C42 or C45. A pictorial view of this arrangement is given in part 2 page 21. The same connectors are used in both arrangements except where noted below. When two C13 are connected as a two-set harness with J2, mount J2 and 'C' box on one set as in fig. 16, and LT and 'C' box on the other.

No. See fig. 17 or 18	Connector	Position	Kit see note below
1	HF aerial connector (made up to suit the vehicle, see the relevant vehicle chapter)	External aerial base to ATU	I
6	Copper braid, 10¾-in. (Z1/5995-99-949-1055) (ZA46904)	PSU to earth terminal on table. For LH set use a bolt in the LH end of the table frame	M
14	Copper braid (part of assembly)	ATU to frame of assembly	I
15	Copper braid (part of assembly)	Frame to top tray(see page 25)	I
22	Coaxial, 18-in. (ZA54394)	ATU to C13 (fit end with red sleeve to ATU)	I
28	12-condr., 3-ft.6-in. (Z1/5995-99-949-1477)	C13 to J1 or J2	M
32	12-condr., 2-ft.6-in. type CE (Z1/5995-99-949-2969)	J1 harness - J1 to 'E' box when fitted J2 harness - J2 to 'C' box when fitted	E J2
34	12-pt., 11-ft.6-in. type EC (ZA47098)	To 'C' box in cab when required	J2
38	18-condr.,5⅞-in. (Z1/5995-99-949-0504)	C13 to PSU	S
41	Twin, 3-ft. (ZA54389)	PSU to LT box on C13	M
41	Twin, 3-ft. (ZA54389)	J1 harness (fig.17) LT box on C13 to J1 J2 harness (fig.18) LT box on C13 to LT box on VHF set	M
43	Copper briad (part of table)	Table to vehicle body	V
64	Single, 2-ft.6-in. (Z1/5995-99-949-1068) (ZA0781)	Battery series connector (Not used on Rover 8 and 9)	M
66	Single, 3-ft. (Z1/5995-99-949-1000) (ZA47089)	Battery negative terminal to earth (Not used on Rover 8 & 9	M
68	4/2-pt. No. 4, 5-ft. (ZA51401) (Not shown)	LT box on C13 to Batten terminal in Rover 8 and 9 and 1-ton armoured. Fit in place of No. 74.	M
70	Twin, 6-ft.6-in. (Z1/5995-99-949-1001) (ZA47108) Alternative to 68	Battery to LT box on C13 for vehicles not covered by No.68	M
74	4-pt. (part of FFR equipment in ¼-ton Austin)	LT box on C13 to power take-off (¼-ton Austin only)	V

NOTE - Column 4 shows the kit in which the connectors are supplied:
I - installation, J2 - J2 harness, S - set, M - multi-purpose,
V - vehicle fitting, E - E box.

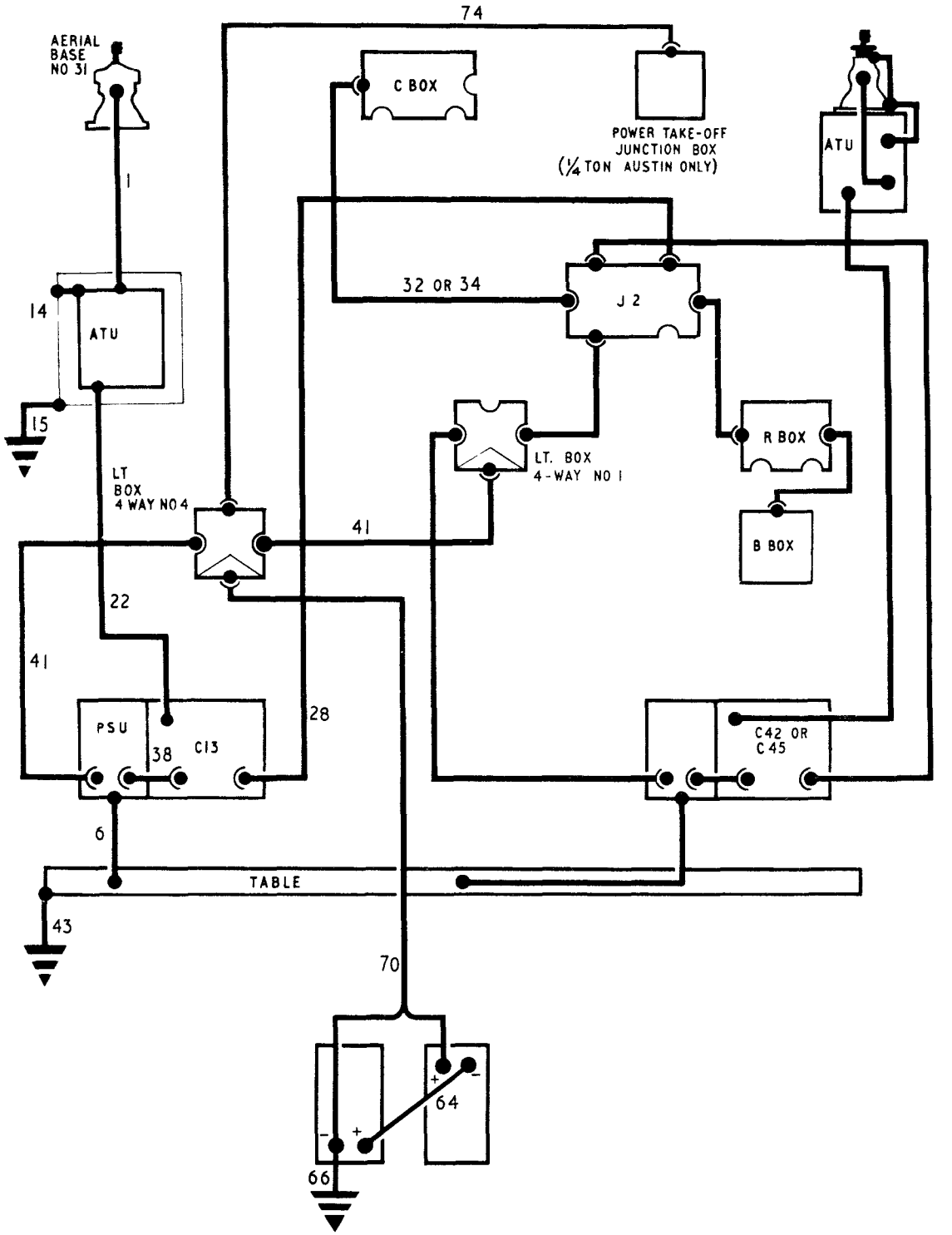


FIG. 18 CONNECTOR DIAGRAM FOR C13 WITH J2

CHAPTER 4
R209

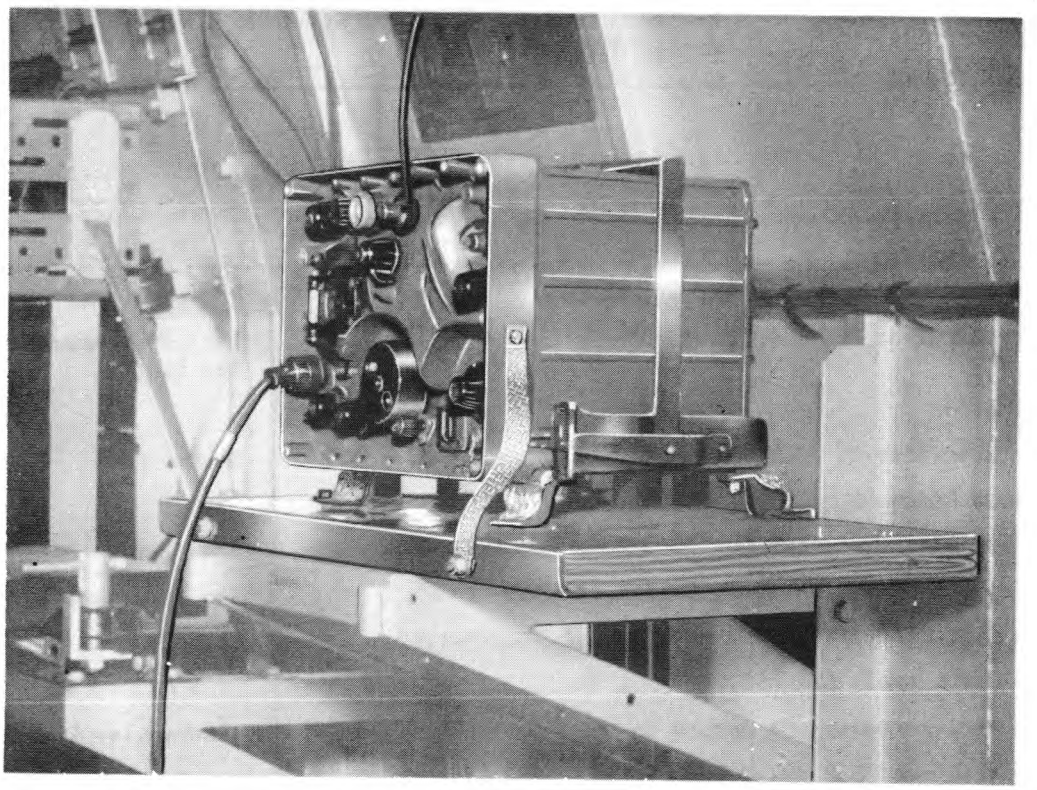


FIG. 19 TYPICAL INSTALLATION R209

C O N T E N T S

Section 1 SET DATA

Type of set	HF receiver
Frequency	1 to 20 Mc/s
Power supply	12V battery. Do not connect the R209 to an installation on float charge as it is not fitted with a VCR
Aerial	12-ft. rod or horizontal wire
Output	Built-in loudspeaker. Earphones as supplied with it can be fitted direct to the set

Section 2 R209 KITS

(1) R209 Mk. 2, set kit No. 1 (ZA41981/1) For details see CES No. 42376

Case spare valve No. 16 Mk. 2 (ZA42589)	
Connector twin No. 282 (ZA29060)	Battery connector See fig. 21
Desiccator	
Fuse link size 0, 250V AC 3A (ZA27687)	Spare
Haversacks No. 1	Two
Headset electrical ITE No. 1B (Y1/5965-99-940-0046)	Two
Insulators WT chain small, 2-link (ZA4589)	For wire aerial
Lamp fil. 6V 0.35W MES clear (X5/6240-99-995-1112)	Spare
Pins earth small (YA1152)	
Receivers headgear DCR double No. 5L (Y1/ZA28658)	Alternative headphones
Reception set R209 Mk. 2 (ZA41981)	See fig. 19
User handbook for R209 Mk. 2	W.O. Code No. 10710
Valves electronic CV 131 (1) CV 784 (2) CV 284 (1) CV 785 (2) CV 782 (1)	Spare
Vibrator non-sync shunt driven, 12V (Z/6130-99-073-0004)	Spare
Wire electric R4 Mk.1 (Y3/WB 1057)	41 yds.
Wire electric R5 Mk. 1 (Y3/WB 1059)	20-ft.

NOTE - R209 MK. 2 IS A 12V SET

(2) Installation kit electronic equipment SR R209 (Z1/5820-99-949-2926) See CES No. 42912

Description	Remarks
Aerial base No. 31 (ZA49827)	See relevant vehicle chapter
Aerial element, 4-ft. (two) (Z1/5820-99-949-1166) (ZA44684)	Antennae rod (top section)
Aerial element, 4-ft. (two) (Z1/5820-99-949-0985) (ZA44683)	Antennae rod (centre section)
Aerial element, 4-ft. (two) (Z1/5820-99-949-0995) (ZA44682)	Antennae rod (bottom section)
Cable elec. P11 (WB1042) (4 yd)	Aerial connector. See fig. 21
Carrier battery No. 34 (ZB14966)	For 12V 22Ah batteries
Carrier set No. 48 (ZB30242)	For R209. See fig. 19
Clamp aerial base (Z1/5820-99-949-3038)	To fasten Aerial base No. 31
Lead elec. 10¾-in. (Z1/5995-99-949-1055)	Copper braid to earth R209
Nut gland and washer set (ZA50365)	To fit connector to aerial base
Plate plastic, ¼ x 5 x ⅛ (ZA50358)	Fitted under aerial base
Screws UNF, ¼ x ⅝ (6). With nuts and washers	For aerial base
Screws UNF, ¼ x 1½ (4). With nuts and washers	For carrier set

Section 3 DRILLING THE TABLE FOR R209

Table tops are not drilled to accept the R209 carrier. The R209 is normally fitted to the 23-in. table. When necessary, drill four holes in this table as shown in fig. 20. If the R209 has to be fitted on the 50-in. table, drill the holes at the LH end of the table.

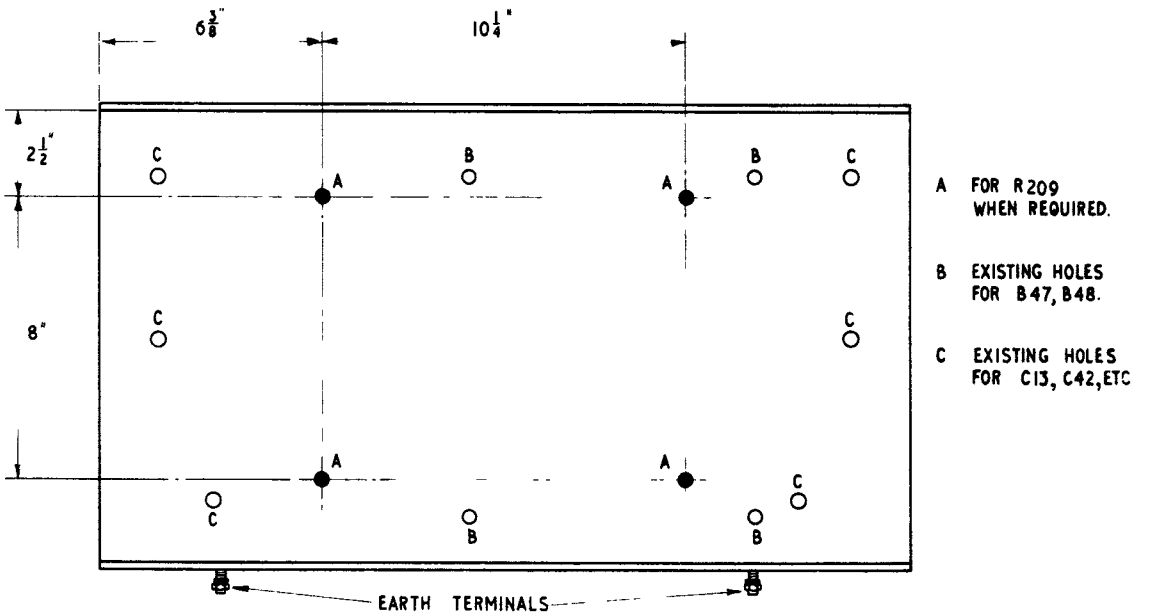


FIG. 20 PLAN OF 23-IN. TABLE SHOWING DRILLING FOR R209

Section 4 INSTALLING R209

(1) Aerial base No. 31

Make up an HF aerial connector but do not fit a lug to it. Mount the aerial base on the appropriate bracket as in the relevant vehicle chapter.

(2) R209

Bolt Carrier set No. 48 to the table top. Four $1\frac{1}{2}$-in. screws are provided in the installation kit. Fit the R209 into the carrier and fasten the two side retaining clamps.

(3) Carrier battery secy. port No. 34

Bolt to the floor as instructed in the relevant vehicle chapter in part 2 and fit two 12V 22 Ah batteries.

Section 5 CONNECTORS

Connector	Position
Aerial connector to suit the truck (see the relevant chapter	Set to external aerial base. Flatten the set end to fit the spring loaded aerial terminal.
Lead elec. $10\frac{3}{4}$	Set to earth terminal on front of table
Connector twin No.282	Set to 12V battery. Do not connect R209 to power take-off terminals

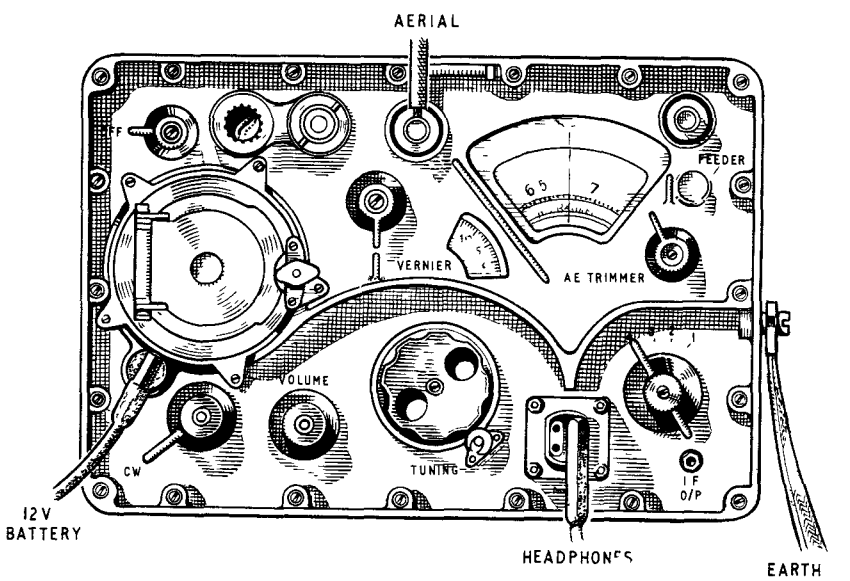


FIG. 21 CONNECTING R209

CHAPTER 5
A 41

FIG. 22 SR A 41

CONTENTS

Section 1 SET DATA

Type of set	VHF FM manpack transmitter-receiver for voice operation.
Frequency	38-55 Mc/s
Range	Approximately three miles.
Power supply	Internal dry battery. No provision is made for operating the A41 on the same power supply as other sets in the vehicle.
Aerial	In vehicles use an ATU No. 8 with an 8-ft. rod aerial fitted in the normal vehicle mounting.

Section 2 A41 KITS

(1) SR A41 manpack-ground kit No. 1 (Z1/5820-99-949-0554)

For full details see CES No. 42343

Description	Remarks
A41 (Z1/5820-99-949-0295)	
Aerial mast, 5-section, 4-ft. (Z1/5985-99-911-0957) (ZA47360)	
Aerial mast, 7-section, 10-ft. (Z1/5985-99-911-0960) (ZA47707)	
Cable assy. coaxial, 4-ft. 6. (Z1/5935-99-911-0955)	Set to remote aerial
Cable assy. coaxial, 25-ft. (Z1/5935-99-911-0956) (two)	Set to remote aerial
Case aerial webbing, 27 x 4 x $\frac{3}{8}$ (Z1/5985-99-911-0964)	
Connector aerial flexible, 8.11/16 x 7/8-in. (Z1/5985-99-949-0293)	
Coupler aerial 50-ohm type A (ZA53400)	
Haversack No. 1 (Z1/8465-99-940-0047) (two)	
Holder aerial coupler (Z1/5820-99-911-0959)	
Indicator condition A41/42 (Z1/5820-99-949-0294)	
Plate instruction (Z1/5820-99-911-0559)	
Microphone and receiver headgear assy. SI No. 1A (YA10717) Telephone hand SI No. 4G (YA10708)	

(2) Items to be supplied separately

Battery dry, 135/67.5/6/1.5V No. 1 (Y3/YC01873)
Carrier manpack GS or Carrier radio station manpack
User handbook for A41 (W.O. Code No. 12336)

(3) Installation kit electronic equipment SR A41 (Z1/5820-99-949-2918)

For full details see CES No. 42904

Description	Remarks
Aerial element, 4-ft. (two) (Z1/5820-99-949-0985) (ZA44683)	Antennae Rod 'F' Section No. 2 (upper section)
Aerial element 4-ft. (two) (Z1/5820-99-949-0995) (ZA44682)	Antennae Rod 'F' Section No. 3 (lower section)
Aerial base and tuning unit No. 8 assy. (ZA47826)	See part 3 page 46
Base aerial support (Z1/5820-99-949-0981) (ZA41843)	Formerly Aerial base No. 28. External aerial base for 1-ton trucks.
Case aerial (Z1/5985-99-949-1061) (ZA11550)	To hold the 4-ft. antennae rods
Lead elec. 16-in. (Z1/5995-99-949-1083) (ZA46701)	ATU to external aerial base (eyelet each end) (Connector No. 3)
Nuts, UNF $\frac{1}{4}$-in. (G1/5310-99-941-1307) (six)	For base aerial support
Nut wing 2BA (ZB13484)	For ATU aerial terminal
Nut wing 4BA (Z2/5310-99-101-3425)	For ATU earth terminal
Screws UNF $\frac{1}{4}$ x $\frac{3}{4}$ (G1/5305-99-941-1068) (six)	For base aerial support
Washer spring $\frac{1}{4}$-in. (G1/XB10751) (six)	For base aerial support
Washer spring 2BA (Z2/5310-99-941-6672)	For ATU aerial terminal
Washer spring 4BA (Z2/5310-99-941-6671)	For ATU earth terminal

NOTE - A multi-purpose kit is not required for A41.

Section 3 INSTALLING ATU NO. 8

This ATU can be mounted in any VHF aerial position. In $\frac{1}{4}$-ton and $\frac{3}{4}$-ton FFR trucks, use the coaxial ATU connector provided on the vehicle, joining it to the A41 with the 4-ft. 6-in. connector issued with the A41. In other types of vehicle, mount the ATU No.8 assembly and an external aerial base in the normal way, and fit the 4-ft. 6-in. connector between A41 and ATU.

Section 4 INSTALLING A41

No provision is made for fitting the A41 in any of the FFR vehicles.

CHAPTER 6
B47 AND B48

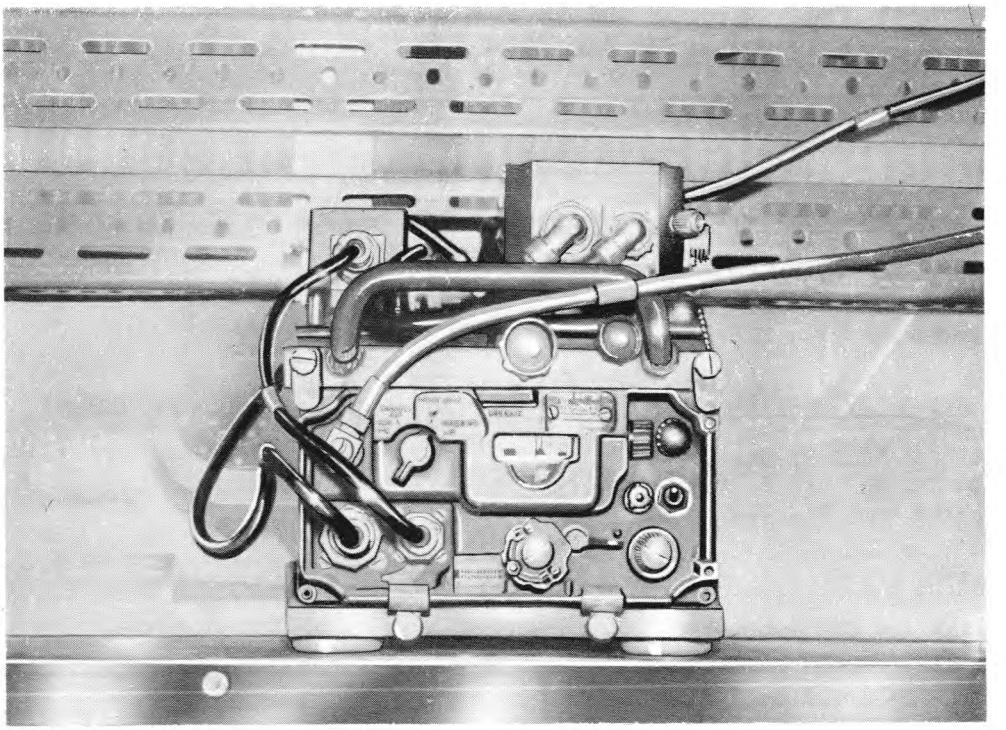


FIG. 23 TYPICAL INSTALLATION B48

CONTENTS

Section 1 SET DATA

Type of set	VHF FM transmitter-receiver for voice operation. Normally the 'B' set in a two-set installation.
Frequency	B47: 38-56 Mc/s. B48: 26-38 Mc/s
Range	On HP, up to five miles can be expected between moving vehicles. On LP, approximately two miles.
Power supply	Separate sets for 12V and 24V. On 24V set, 12V 75 Ah batteries in series give approximately 36 hours operation at send-receive ratio of 1 : 5.
Aerial	8-ft. rod. Separate ATU for each set; ATU No. 8 for B47, ATU No. 10 for B48. ATU can be used remotely within 50 ft.

Section 2 B47 KITS

(1) TR B47, input 24V, set kit No. 1 (ZA47019) (For details see CES No. 42819)

B47 input 24V (Z1/5820-99-911-0848
User handbook for B47 (W.O. Code No. 11791)
Signal equipment card No. 2481

(2) TR B47, input 12V, set kit No. 1 (ZA47018) (For details see CES No. 42820)

B47 input 12V (Z1/5820-99-911-0893)
User handbook for B47 (W.O. Code No. 11791)
Signal equipment card No. 2480

(3) Installation kit electronic equipment SR B47 (Z1/5820-99-949-2921)

For details see CES No. 42899

Description	Remarks	Fig.
Aerial base and tuning unit No. 8 assy. (ZA47826)	Dismountable ATU	26
Base aerial support rubber/steel (Z1/5820-99-949-0981) (ZA41843)	Formerly aerial base No. 28 Fitting instructions in the relevant vehicle chapter.	

Description	Remarks	Fig.
Cable assy. 2-condr. 15-in. (Z1/5995-99-949-1014) (ZA50163)	LT box to B47. Connector No.44 (angle plug - straight socket)	28
Carrier set No. 81 (ZB14892)		24
Connector twin No. 397, 16-in. type FF (ZA50164)	LT box to J1 (angle each end) Connector No. 45	28
Interconnecting box 4-way No. 4 (Z1/5820-99-949-0960) (ZA46982)	LT box	24
Lead elec. 16-in. (Z1/5995-99-949-1083) (ZA46701)	ATU to external aerial base (eyelet each end). Not used with ATU on front wing.	
Nut wing 2BA with spring washer	For ATU aerial terminal	
Nut wing 4BA with spring washer	For ATU earth terminal. Not used with ATU on front wing.	
Support aerial MS (Z1/5820-99-949-1022) (ZA29831)	Ground spike for dismounted ATU. See part 4 page 23.	
Tray assy. MS, 13 x 10⅝ x 1.15/16 (ZB14941)	Mounts boxes on top of set	24
Washer assy. 2-in. dia.(Z1/5820-99-949-3044)	Secures carrier to table	24
Wrench key, 1/16-in. A/F (F1/5120-99-910-6058)	For control knob set screws	
Wrench key, 5/64-in. A/F (F1/5120-99-910-6059)	For control knob set screws	

Section 3 B48 KITS

(1) TR B48, input 24V, set kit No. 1 (Z1/5820-99-949-0461) (For details see CES No.42628)

B48 input 24V (Z1/5820-99-949-0460)

User handbook for B48 (W.O. Code No. 12275)
Signal equipment card No. 2729

(2) TR B48, input 12V, set kit No. 1 (Z1/5820-99-949-0459) (For details see CES No.42625)

B48 input 12V (Z1/5820-99-949-0490)

User handbook for B48 (W.O. Code No. 12275)
Signal equipment card No. 2728

(3) Installation kit electronic equipment SR B48 (Z1/5820-99-949-2922)

For details see CES No. 42936

Description	Remarks	Fig.
Aerial base and tuning unit No. 10 assy. (ZA47824)	Dismountable ATU	26
Base aerial support (Z1/5820-99-949-0981) (ZA41843)	Formerly aerial base No. 28. See VHF aerial base in relevant vehicle chapter.	
Carrier battery No. 34 (ZB14966)	Holds two 12V 22 Ah batteries for use when B48 is dismounted as a ground station.	
Cable assy. 2-condr., 15-in. (Z1/5995-99-949-1014) (ZA50163)	LT box to B48 (angle each end) Connector No. 44	28
Carrier set No. 81 (ZB14892)		24
Connector single, 18-in. (ZA54241)	Battery series connector (lug each end) for use with 12V 22 Ah batteries (Connector No. 65)	
Connector twin No. 397, 16-in. type FF (ZA50164)	LT box to J1 (angle each end) Connector No. 45	28
Interconnecting box 4-way, No. 4 (Z1/5820-99-949-0960) (ZA46982)	LT box with three 2-pt. connections and one 4-pt.	24
Lead elec. 16-in. (Z1/5995-99-949-1083) (ZA46701)	ATU to external aerial base (eyelet each end) (Connector No. 3) Not used with ATU on front wing.	
Nut wing 2BA with spring washer	For ATU aerial terminal	
Nut wing 4BA with spring washer	For ATU earth terminal Not used with ATU on front wing.	
Support aerial MS (Z1/5820-99-949-1022) (ZA29831)	Ground spike for dismounted ATU. See part 4 page 23.	
Tray assy. MS, 13 x 10$\frac{5}{8}$ x 1.15/16 (ZB14941)	Carries boxes on top of set	24
Washer assy., 2-in. dia. (Z1/5820-99-949-3044)	To secure carrier to table	24
Wrench key, 1/16-in. A/F (F1/5120-99-910-6058)	For control knob set screws.	
Wrench key, 5/64-in. A/F (F1/5120-99-910-6059)	For control knob set screws. Stow wrench keys in the case maintenance kit.	

Section 4 REJECTOR UNIT KITS

(1) Installation kit electronic equipment rejector unit B47 or B48 (Z1/5820-99-949-2916)

Description	Remarks	Fig.
Cable assy. co-axial, 3-ft. (Z1/5995-99-949-0999) (ZA46971)	Rejector to ATU (angle socket each end) Connector No. 16	28
Lead elec. 8 3/4-in. (Z1/5995-99-949-1002) (ZA46909)	Rejector to earth (braid with lug each end). Connector No. 11	28
Screws UNF hex., 5/16 x 7/8 with nuts and washers (4)		

(2) Items to be supplied separately for B47

Rejector unit B47 (ZA53557)
User Handbook for rejector unit B47 (W.O. Code No. 12435)

(3) Items to be supplied separately for B48

Rejector unit B48 (ZA53558)
User Handbook for rejector unit B48 (W.O. Code No. 12436)

(4) Rejector unit No. 3

A similar kit of parts will be supplied for the new Rejector unit No. 3

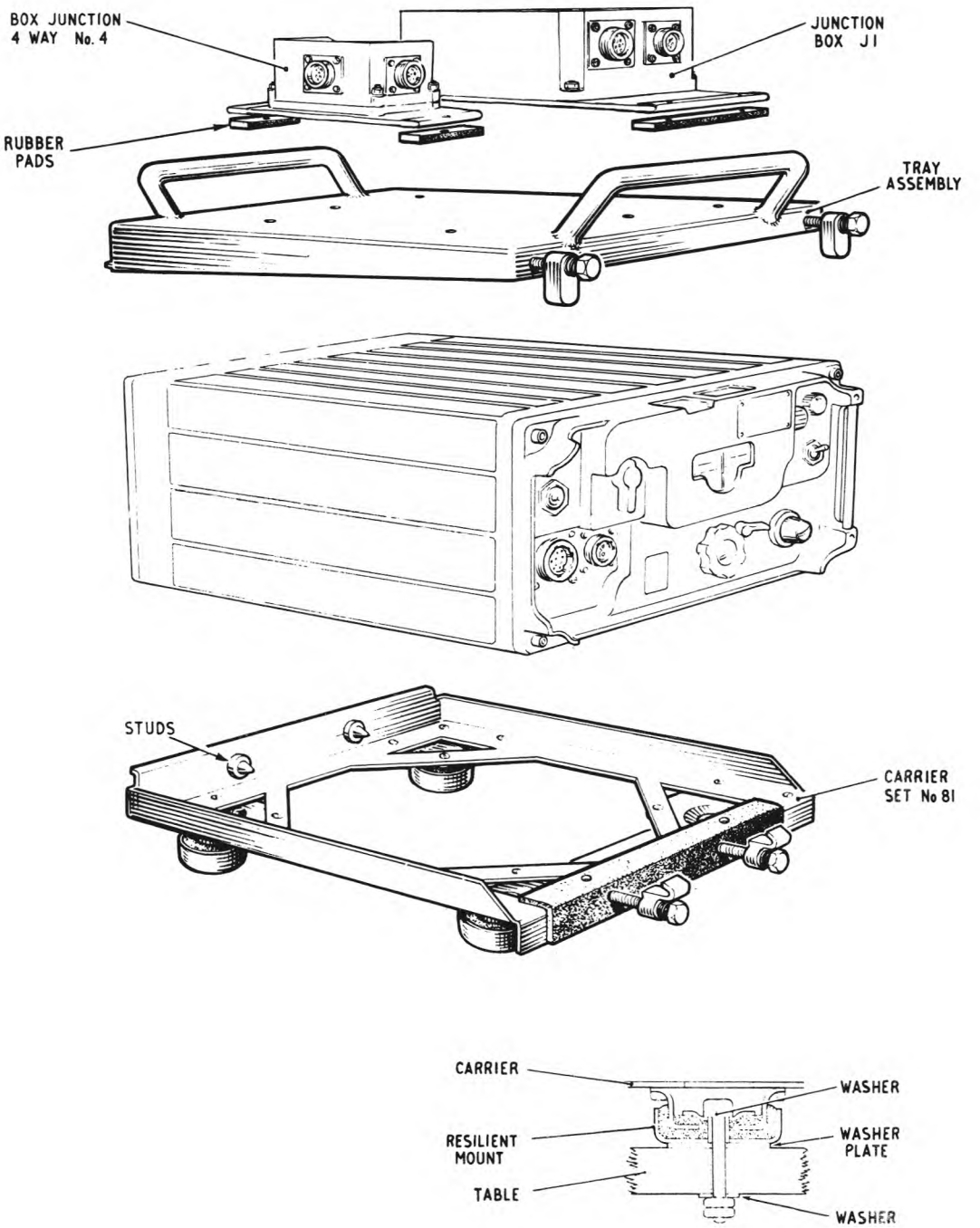


FIG. 24 FITTING B47 OR B48

Section 5 INSTALLING B47 OR B48

(1) Position on the table

Alternative positions are provided on the 50-in. table but the RH position should normally be used. Fig. 25 shows the holes for the carrier. Fig. 23 on page 39 shows the set in this position. Refer also to the layout diagram in the relevant vehicle chapter.

(2) Washer assembly, 2-in. dia.

This consists of a 2-in. dia. washer plate, a $2\frac{1}{4}$-in. bolt, four small washers and two nuts. Four washer assemblies are required for B47 or B48. A washer plate is fitted under each resilient mount to prevent it being drawn into the wood as the bolt is tightened. Two of the small washers are provided to compensate for variations in the thickness of the table top and on thick tables they will not be required.

(3) Carrier set No. 81

Place the carrier on the table in the required position and line up the fixing holes. Fit the securing bolts as shown in the inset to fig. 24 with one, two or three small washers under the bolt head, a 2-in. dia. washer plate between resilient mount and table, and a small washer and two lock nuts against the underside of the table.

NOTE - If a second set is to be fitted on the 50-in. table the carrier for it should be fitted before carrier set No. 81, as other carriers cannot be fitted when the table is mounted on the runners. See the fitting instructions for the second set.

(4) Radio set

Mount the radio set on the carrier, engaging studs on the carrier with sockets in the rear of the set. Fit two clamps over the flange along the lower edge of the control panel. Do not over-tighten the screws.

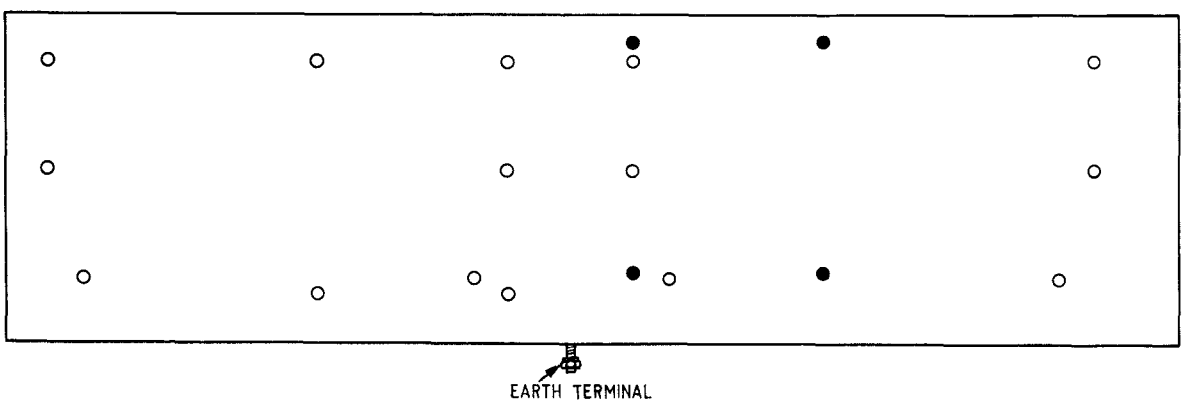


FIG. 25 PLAN OF 50-IN. TABLE SHOWING B47 OR B48 POSITION

Section 6 INSTALLING J1 AND LT BOX

(1) Tray assembly MS, 13 x 10⅝ x 1.15/16-in.

Before fitting this tray, bolt the J1 and LT box to it as shown in fig. 24. Rubber pads, screws, nuts, washers and blocks clamping are supplied on the tray.

(2) J1

Bolt the J1 to the top of the tray with the headset sockets to the right. Secure it by means of four screws with nuts and washers, placing two rubber pads between the metal ends of the webbing base strap and the tray.

(3) LT box 4-way No. 4

This is the LT box with three 2-pt. connections and one 4-pt. Bolt it to the tray by means of two screws, nuts and washers, with rubber pads between the box and the tray. The cut-away side of the box must be towards the J1.

(4) Fitting the top tray

After fitting the boxes, mount the tray on the radio set, engaging studs and sockets at the rear and secure two clamps over two screw heads in the upper corners of the control panel. Tighten the two hexagon screws to retain the tray on the set.

Section 7 INSTALLING THE ATU

Fit the VHF ATU as instructed in the relevant vehicle chapter in part 2. Use ATU No. 8 for B47 and ATU No. 10 for B48. Fig. 26 shows the ATU on the front wing of a truck FFR ¼-ton Rover Mk. 8.

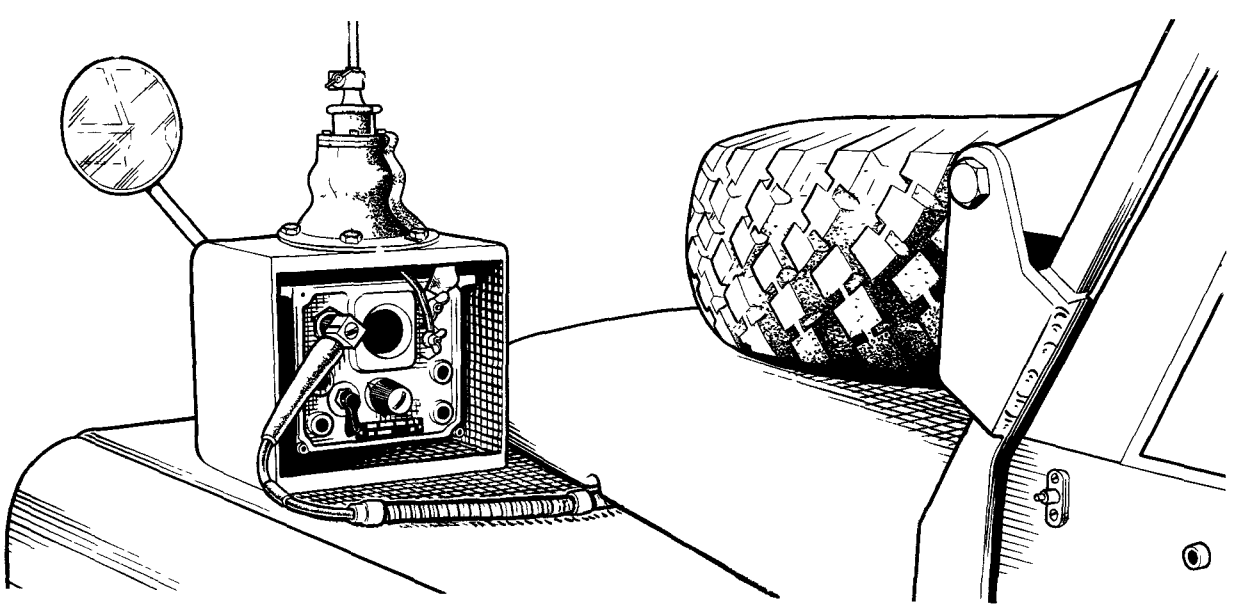


FIG. 26 VHF ATU ON ROVER MK. 8

Section 8 INSTALLING REJECTOR UNIT

(1) Where a rejector unit is required

Where B47 or B48 forms the second or third set in an installation, a rejector unit should be fitted to enable the sets to work on adjacent frequencies without undue interference. Separate units are available, Rejector unit B47 and Rejector unit B48, which are similar except for frequency coverage. Rejector unit No. 3 may be issued instead of one of the above special rejector units. This is similar in appearance. See fig. 27. Rejector unit No. 3 is a common unit for any VHF set. It can also be used with C42 and C45, as well as B47 and B48.

Rejector units and associated items are made up into kits for issue when required. See page 43. Instructions for fitting the rejector unit in the Truck Armoured FFR 1-ton are given in part 2 chapter 5. In other vehicles, where no special provision is made for mounting the unit, it should be bolted to the slotted angle framework near the set.

(2) Connecting rejector units B47 and B48

Rejector units B47 and B48 are connected between set and ATU on installation. See fig. 28. Adjust the tuning as instructed in the user handbook supplied with the rejector unit.

(3) Connecting Rejector unit No. 3

This unit should not be connected into the aerial circuit until interference becomes intolerable. Then connect it between set and ATU, for which an additional coaxial cable is supplied with it. Adjust the tuning as instructed in the user handbook supplied with the rejector unit.

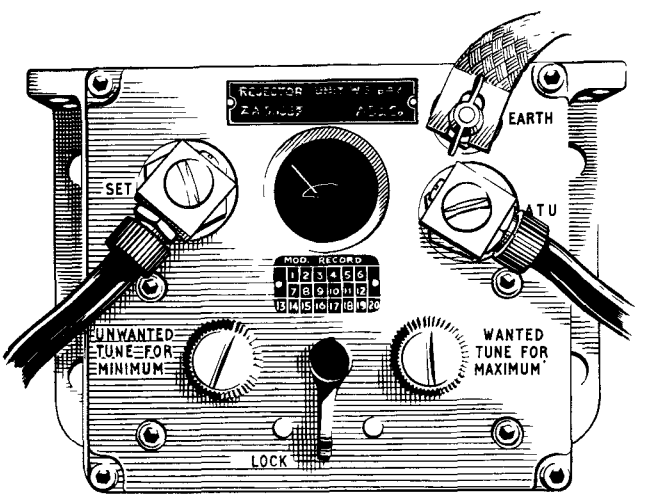


FIG. 27 REJECTOR UNIT

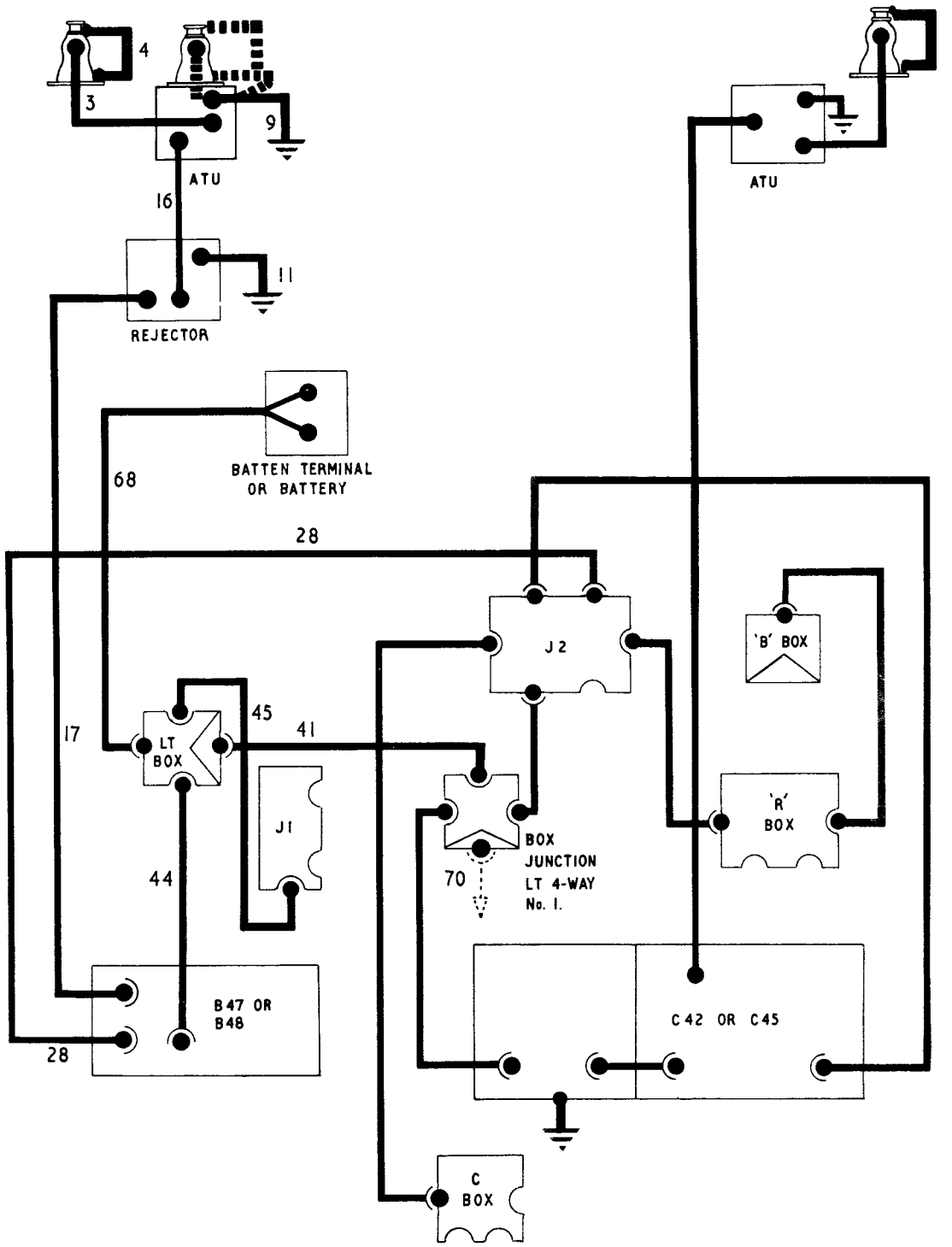


FIG. 28 CONNECTOR DIAGRAM B47 OR B48 WITH J2 HARNESS

Section 9 CONNECTORS FOR SET AND J1 HARNESS

As shown in the typical ground station arrangement in fig. 29.

No.	Connector	Position	See note below
2	Lead aerial (part of ATU assembly)	ATU to aerial base on assy.	I
16	Coaxial, 3-ft. (Z1/5995-99-949-0999)	Radio set to ATU	M
	Coaxial, 50-ft. (Z1/5995-99-949-1016) Alternative to connector No. 16	Radio set to dismounted ATU	M
28	12-condr.,3-ft.6-in. (Z1/5995-99-949-1477)	Set to J1	M
44	2-condr.,15-in. (Z1/5995-99-949-1014)(ZA50163)	Set to LT box	I
45	Twin, 16-in. (ZA50164)	LT box to J1	I
65	Single, 18-in. (ZA54241)	Series connector for 12V 22 Ah batteries	I
70	Twin, 6-ft. 6-in. (Z1/5995-99-949-1001)	Batteries to LT box on set	M

Section 10 CONNECTORS FOR SET AND J2 HARNESS

As shown in the typical installation in fig. 31.

No. See Fig.28	Connector	Position	See note below
3	Lead aerial, 16-in. (Z1/5995-99-949-1083)	ATU to external aerial base (not used with ATU on front wing)	I
4	Copper braid (part of ATU assembly)	Top to bottom of aerial base	I
9	Copper braid (part of ATU bracket)	ATU earth terminal to vehicle	V
11	Copper braid, 8¾-in. (Z1/5995-99-949-1002) (ZA46909)	Rejector to earth	R
16	Coaxial, 3-ft.(Z1/5995-99-949-0999)(ZA46971)	Rejector to ATU	R
17	Coaxial, 9-ft. (ZA50413)	Rejector to radio set	M
28	12-condr.,3-ft.6-in. (Z1/5995-99-949-1477)	Set to J2 (use the 'B' set socket)	M
41	Twin, 3-ft. (ZA54389)	LT box on 'B' set to LT box on 'A' set	M
43	Copper braid (part of table)	Table to vehicle body	
44	2-condr.,15-in. (Z1/5995-99-949-1014) (ZA50163)	Set to LT box on the 'B' set	I
45	Twin, 16-in. (ZA50164)	LT box to J1 when a J1 is fitted on the 'B' set for remote rebroadcasting.	I
68	4/2-pt., 5-ft. (ZA51401) (not shown)	LT box to batten terminal in Rover Mk. 8 and 9 and in 1-ton Armoured.	M
70	Twin, 6-ft. 6-in. Z1/5995-99-949-1001) (ZA47108) Alternative to Connector No. 68.	Batteries to LT box in ¼-ton Austin and in vehicles without power take-off.Fig. 35 shows this connector fitted.	M

I - Installation kit. M - Multi-purpose kit. R - Rejector kit. V - Vehicle fitting kit.

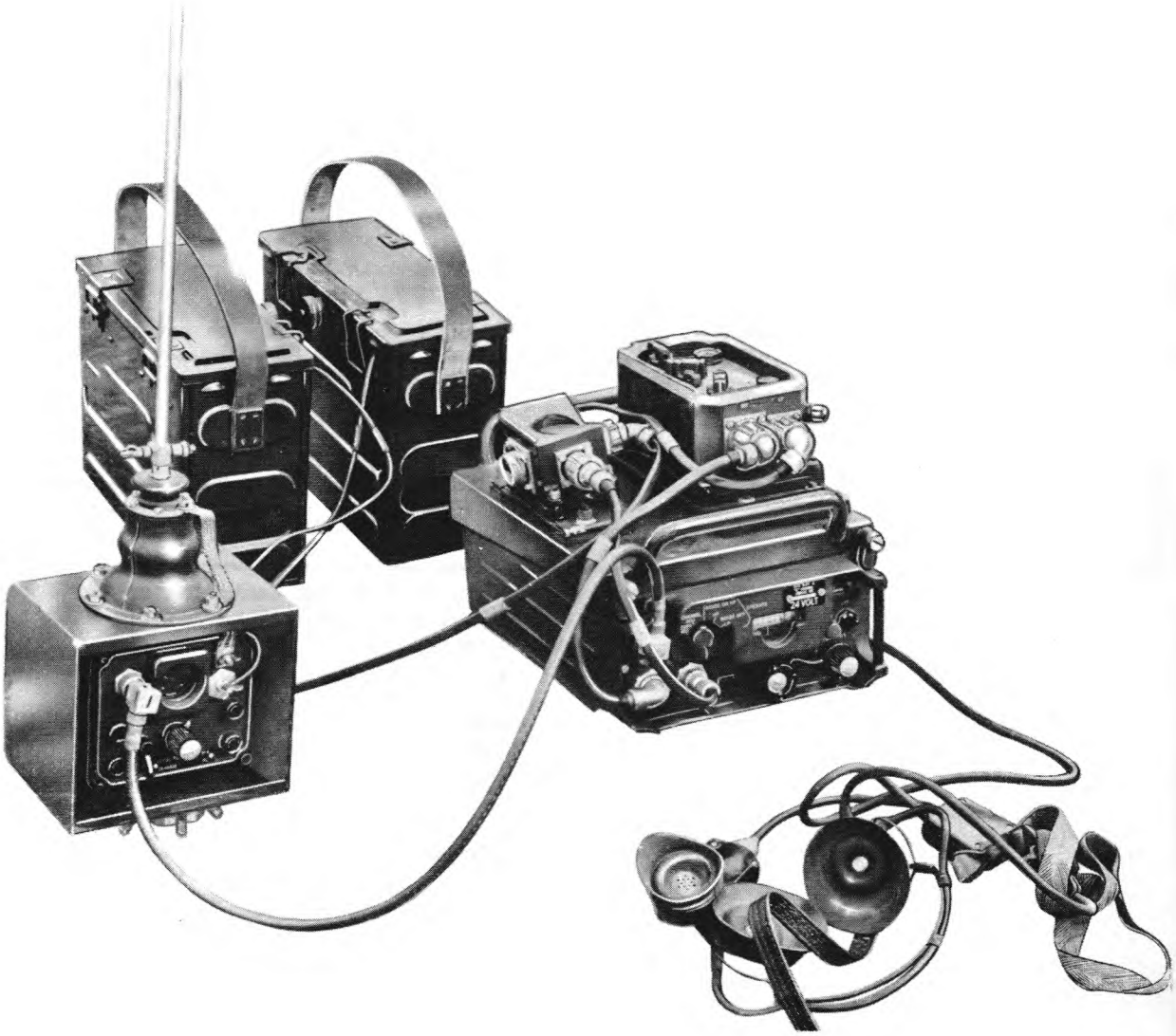


FIG. 29 TYPICAL GROUND STATION B47

CHAPTER 7
C42 AND C45

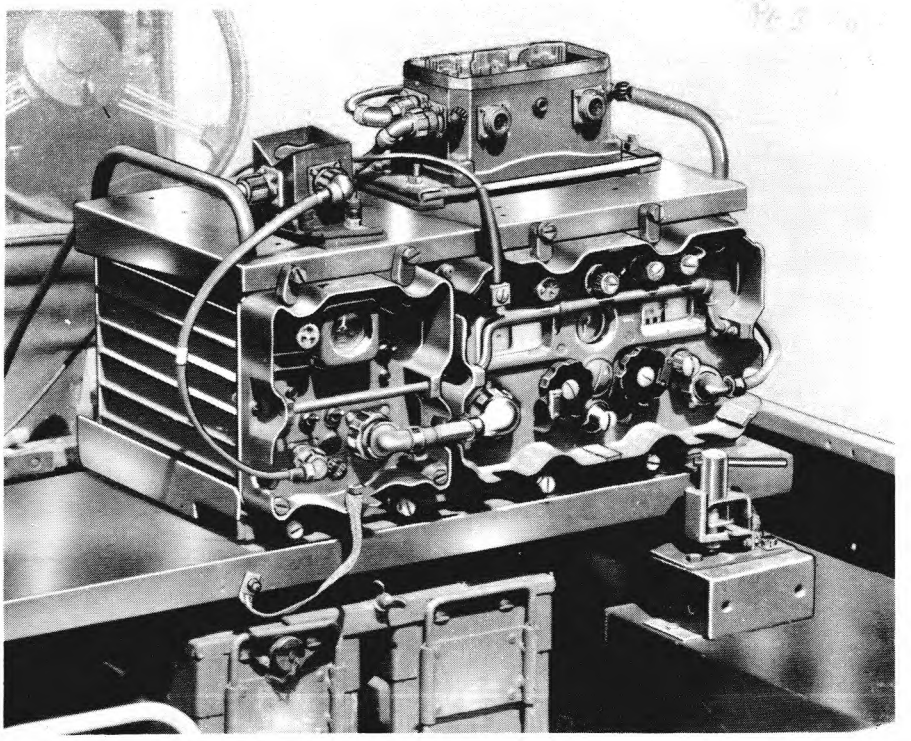


FIG. 30 TYPICAL INSTALLATION C42

CONTENTS

Section 1 SET DATA

Type of set	VHF FM transmitter-receiver for voice operation
Frequency	C42 : 36-60 Mc/s. C45 : 23-38 Mc/s
Range	On HP, up to ten miles can be expected between moving vehicles. On LP, approximately five miles.
Power supply	Separate PSU for 12V and 24V. Two 12V 75 Ah batteries in series give approximately 12½ hours at send-receive ratio of 1 : 5.
Aerial	8-ft. rod. Separate ATU for each set, No. 6 for C42, No. 9 for C45. ATU can be used remotely within 50 ft.

IMPORTANT

DO NOT SWITCH THE SET ON WHEN
IT IS NOT CONNECTED
TO THE AERIAL

Section 2 C42 KITS

(1) TR C42 set kit No. 1, 24V (ZA43207/1)

C42 (Z1/5820-99-943-9362) (ZA43207)	
Power supply vibratory No. 12 Mk. 2, 24V input (Z1/5820-99-949-1086) (ZA50544)	
Cable assy. 25-condr., 5⅜-in. (Z1/5820-99-949-0788) (ZA43206)	Set to PSU (angle each end). Connector No. 39
User handbook for C42	W.O. Code No. 11197

(2) TR C42 set kit No. 1, 12V (ZA43207/3) For details see CES No. 42824

C42 (Z1/5820-99-943-9362)	
Supply unit vibratory No. 12, 12V input (ZA46961)	
Connector 25-pt. No. 1, 5⅜-in. type GB (ZA43206)	Set to PSU (angle each end). Connector No. 39
User handbook for C42	W.O. Code No. 11197

(3) TR C42 set kit No. 2 (ZA51357) For details see CES No. 42993

This kit does not include a supply unit.

C42 (Z1/5820-99-943-9362)	
Cable assy. 25-condr. $5\frac{3}{8}$-in. (Z1/5820-99-949-0788) (ZA43206)	Set to PSU (angle each end). Connector No.39
User handbook for C42	W.O. Code No. 11197

(4) Supply units issued separately for set kit No. 2

Power supply vibratory No. 12 Mk. 2 24V input (Z1/5820-99-949-1086)
OR
Supply unit vibratory No. 12, 12V input (ZA46961)

(5) Installation kit electronic equipment SR C42 (Z1/5820-99-949-2919)

For details see CES No. 42896

Description	Remarks	Fig.
Aerial base and tuning unit No. 6 assy. (Z1/5985-99-949-1015)	Dismountable ATU assembly	37
Base aerial support (Z1/5820-99-949-0981)	Formerly aerial base No. 28. See relevant vehicle chapter.	
Blocks clamping MS (Z1/5820-99-949-0959)	8 secure set to carrier and tray	32
Fuse links cartridge ceramic 2A 440V (X2/5920-99-059-0110)	Six spares	
Interconnecting box 4-way No. 4 (Z1/5820-99-949-0960) (ZA46982)	LT box	32
Lamps filament 12V 2.2W MES (X5/6240-99-995-1219)	Three spares	
Lead elec. 16-in. (Z1/5995-99-949-1083) (ZA46701)	ATU to external aerial base (eyelet each end). Connector No.3. Not used with ATU on front wing.	35
Nut wing 2BA with spring washer	) For ATU terminals.	
Nut wing 4BA with spring washer	) Not used with ATU on front wing	
Carrier set No. 82 Mk. 2 (ZB14992)		32
Support aerial MS (Z1/5820-99-949-1022) (ZA29831)	Ground spike for dismounted ATU. See part 4 page 23	
Tray electronic equipment, $22\frac{3}{4}$ x 14 x $4\frac{1}{2}$ (Z2/5820-99-949-1008) (ZB14936)		
Washer assy., 2-in. dia. (Z1/5820-99-949-3044)	Six to secure carrier to table	
Wrench keys, 1/16-in. and 5/64-in.	For control knob set screws	

Section 3 C45 KITS

(1) TR C45 set kit No. 1 (ZA44047/1) For details see CES No. 42823

C45 (Z1/5820-99-943-9363) (ZA44047)	
Cable assy. 25-condr., $5\frac{3}{8}$-in. (Z1/5820-99-949-0788) (ZA43206)	Set to PSU (angle each end). Connector No. 39.
User handbook for C45	W.O. Code No. 11792

(2) Supply units issued separately for C45

Power supply vibratory No. 12 Mk. 2, 24V input. (Z1/5820-99-949-1086) (ZA50544) OR Supply unit vibratory No. 12, 12V input. (ZA46961)

(3) Installation kit electronic equipment SR C45 (Z1/5820-99-949-2920)

For details see CES No. 42897

Description	Remarks	Fig.
Aerial base and tuning unit No. 9 assy. (ZA47825)	Dismountable ATU assembly	37
Base aerial support (ZA/5820-99-949-0981)	Formerly Aerial base No. 28	
Blocks clamping MS (Z2/5820-99-949-0959)	8 secure set to carrier and tray	32
Interconnecting box 4-way No. 4 (Z1/5820-99-949-0960) (ZA46982)	LT box	32
Fuse link cartridge, 2A 440V (X2/5920-99-059-0110)	Six spare	
Lamps fil. 12V 2.2W MES (X5/6240-99-995-1219)	Spare	
Lead elec. 16-in. (Z1/5995-99-949-1083) (ZA46701)	ATU to external aerial base (eyelet each end). (Note that the lead between ATU and external aerial base must not be longer than 16-in.)	35
Support aerial MS (Z1/5820-99-949-1022) (ZA29831)	Ground spike for dismounted ATU. See part 4 page 23.	
Carrier set No. 82 Mk. 2 (ZB14992)		32
Tray electronic equipment, $22\frac{3}{4}$ x 14 x $14\frac{1}{2}$ (Z2/5820-99-949-1008) (ZA14936)	Mounts boxes on top of set	32
Washer assy. 2-in. dia. (Z1/5820-99-949-3044)	Secures carrier to table	32
Nut wing 2BA with spring washer	For ATU terminals.	
Nut wing 4BA with spring washer	Not used with ATU on front wing.	
Wrench key, 1/16-in. and 5/64-in.	For control knob set screws	

Stow fuses, lamps and wrench keys in the case maintenance kit supplied in the multi-purpose kit.

VHF AERIALS

Remember these rules

1 - Connector between ATU and aerial base must not exceed 16-in.

2 - Rod aerial must not exceed 8-ft.

3 - Rod aerial must not be tied down to the truck.

4 - Do not erect aerials near overhead wires.

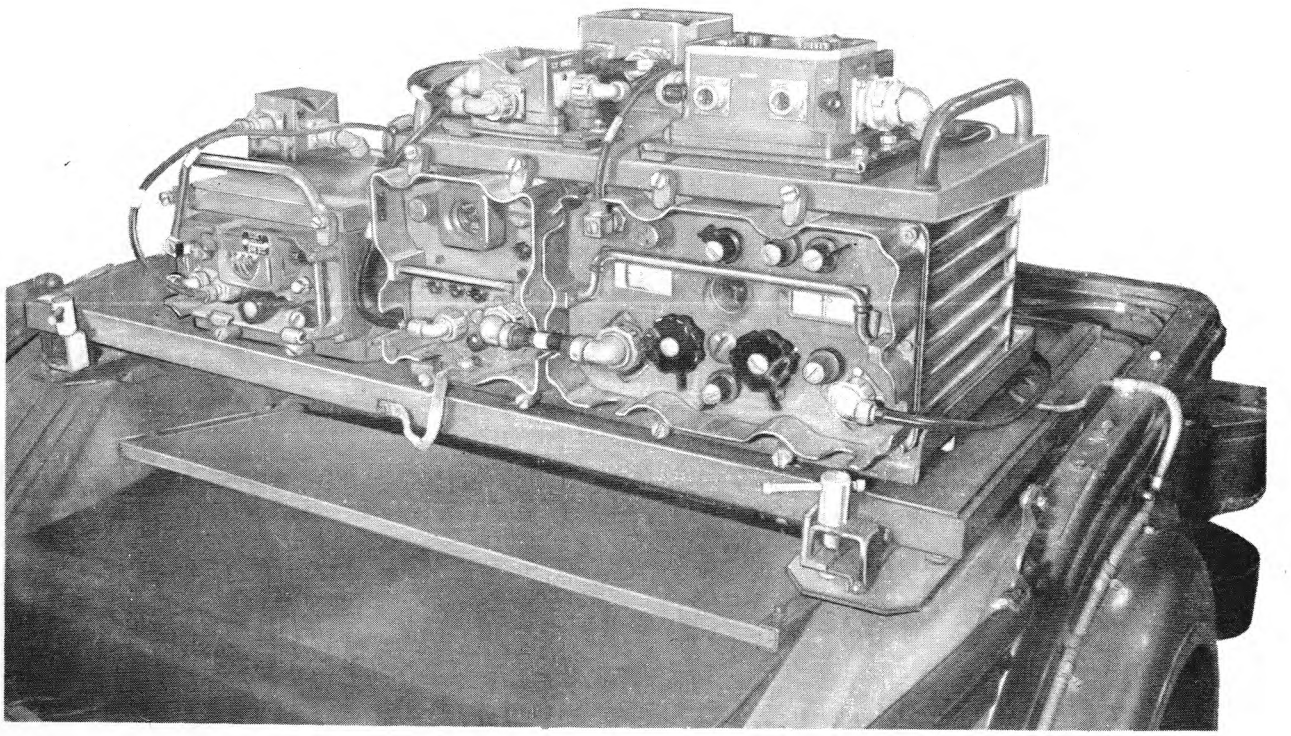


FIG. 31 C42 WITH B47 AND J2 HARNESS

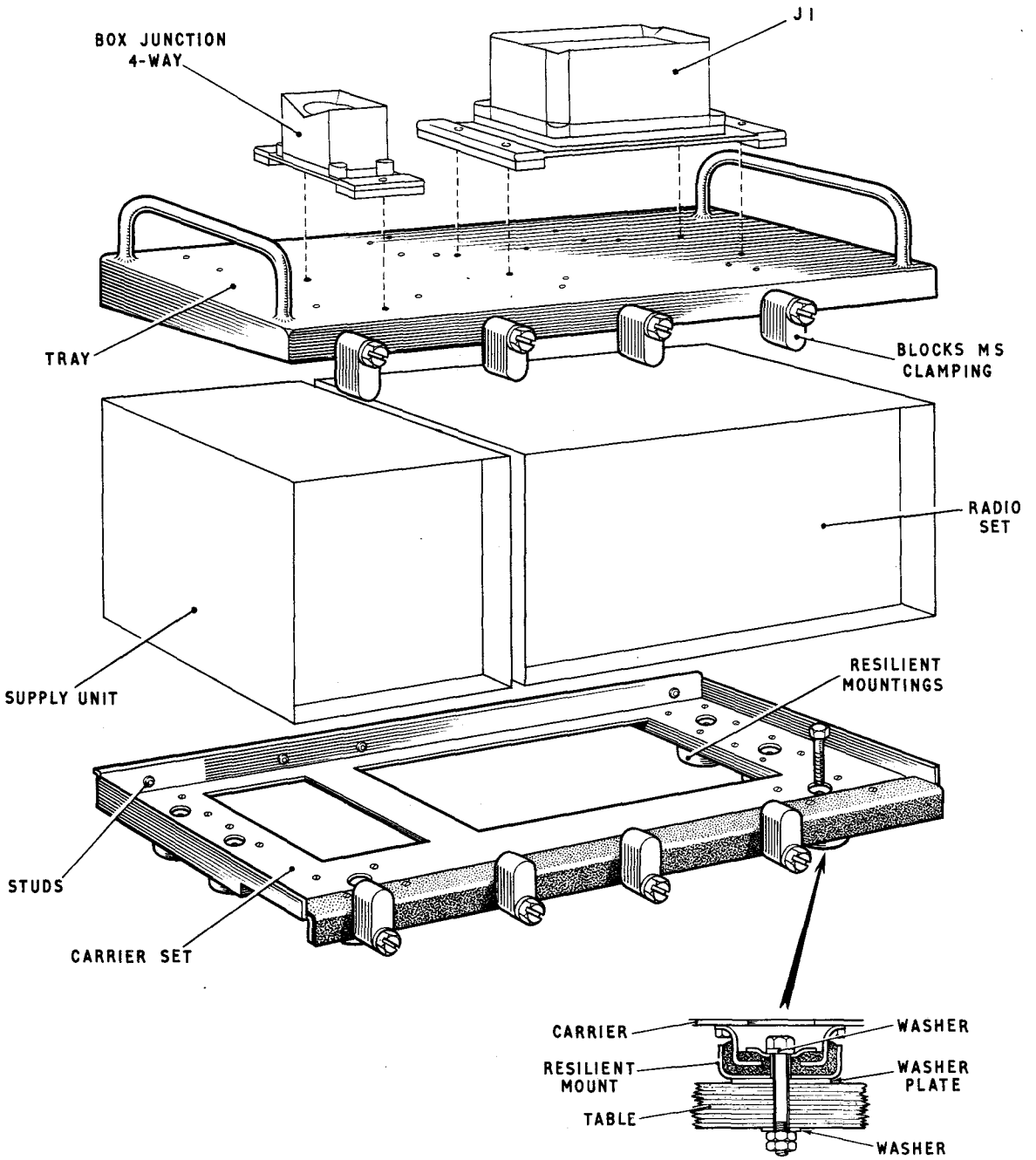


FIG. 32 FITTING C42 OR C45

Section 4 INSTALLING C42 OR C45

(1) Position on the table

Alternative positions are provided on the 50-in. table. The RH position as shown in fig. 30 should normally be used, except when a B47 or B48 is also to be installed. See the layout diagram in the relevant vehicle chapter of part 2.

(2) Washer assembly, 2-in. dia.

This consists of a 2-in. dia. washer plate, a $2\frac{1}{4}$-in. bolt, four small washers and two nuts, and six washer assemblies are required for each carrier set No. 82 Mk. 2. A washer plate is fitted under each resilient mount to prevent it being drawn into the wood as the bolt is tightened. Two of the small washers are provided to compensate for variations in the thickness of the table top and on a thick table they will not be required.

(3) Carrier set No. 82 Mk. 2

Before fitting the carrier to the 50-in. table, remove the table from the runners. Place the carrier on the table in the required position and line up the fixing holes. Fit six securing bolts as shown in fig. 32 with a small washer under the bolt head, the washer plate between mount and table, and one, two or three small washers with two nuts under the table.

If a second radio set is to be installed on the 50-in. table, fit the carrier for it at the same time as this carrier. Then replace the table on the runners.

If the set is to be mounted on the 23-in. table, that table must be bolted to its bearers before the carrier is fitted.

(4) Radio set

Fit the set into the carrier, engaging two studs on the rear frame of the carrier with two corresponding sockets in the rear of the set.

(5) Supply unit

Fit the PSU into the carrier at the LH side of the radio set.

(6) Blocks clamping MS, 1.13/32 x $\frac{5}{8}$ x $\frac{1}{2}$-in.

Four of these blocks secure set and PSU to the carrier and four secure the top tray. Fit four to the carrier as shown. Clamp them over screw heads on set and PSU to retain the assembly.

(7) Control harness

In all C42 and C45 installations, control harness boxes are bolted to the top tray (paragraph 9 below) which is mounted on the top of the set. Before fitting this tray, bolt the control boxes to it. Fig. 32 shows the J1 on the tray as this is the normal arrangement. See page 58. If a J2 harness is to be used, bolt the boxes to the tray as on page 59. Make sure that the control harness boxes are of the same voltage rating as the radio set.

(8) LT box

Fit the appropriate LT box to the tray. See page 58 or 59.

(9) Tray electronic equipment, $22\frac{3}{4}$ x 14 x $4\frac{1}{2}$-in.

After bolting the boxes to the tray, fit the tray to the set and PSU, engaging four studs with corresponding sockets. Fit four blocks clamping over four corresponding screw heads to secure the tray. Make sure that it is firmly attached.

Section 5 INSTALLING J1 AND LT BOX

(1) When to fit a J1

If it is available, always use the J1 in preference to a J2 harness. In all new installations a J1 is provided in the multi-purpose kit. In stations made up by converting an old type one-set "made to measure" kit, the J1 can be obtained from the old installation.

(2) Tray electronic equipment, $22\frac{3}{4}$ x 14 x $4\frac{1}{2}$-in.

Before this tray is mounted on the set, bolt the J1 and the LT box to it. Fig.33 shows the position of the units on the tray and the fixing holes to be used. Screws, nuts, etc., are provided with the tray and those not used should be removed and retained in stores.

(3) J1

Bolt the J1 to the tray, placing two rubber packing pieces under the metal ends of the webbing base strap. Headset sockets must be towards the front of the tray. See that the box is switched off.

(4) LT box 4-way No. 4

This is the LT box with three 2-pt. connections and one 4-pt. Bolt it to the tray as shown. Fit two rubber pads under the base plate and secure by means of two screws. Note that the cut-away side of the box must be away from the J1.

(5) Fitting the tray

Fit the tray to the top of the set as instructed in paragraph 9 on page 57. Fig. 37 on page 64 shows the radio set with J1 and LT box installed.

(6) 'E' box in a two-set installation

If two sets are installed in one vehicle, the two J1s can be connected to an 'E' box and controlled by one operator. See part 4 page 4. When possible, bolt the 'E' box and the MRRB box to the slotted angle framework. In vehicles not equipped with the framework use an improvised mounting, possibly on the tray with the J1 and the LT box.

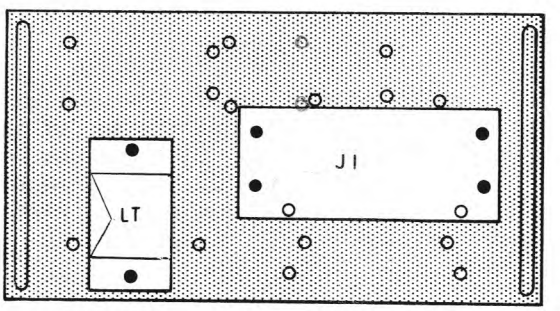


FIG. 33 PLAN OF TOP TRAY WITH J1 AND LT BOX FITTED

Section 6 J2 HARNESS

(1) When to fit a J2 harness

If the station is being made up by converting an old type "made to measure" kit which included a J2 harness, a J1 for the C42 or C45 may not be available. Certain such kits contained a J1 but it was provided to give remote rebroadcasting when one of the sets was dismounted. Fit the J2 harness boxes to the tray as follows, referring to fig. 34.

(2) Fitting the J2

Position the J2 with the 'A' SET and 'B' SET plugs towards the edge of the tray and secure it with four screws, nuts and washers, placing two rubber packing pieces between the webbing base strap of the junction box and the tray.

(3) Selector switch on the J2

When a 'B' box is fitted, turn the RH screwdriver-operated switch on the J2 to REB. If the 'B' box is not included in the harness, turn this switch to NORMAL.

(4) 'R' box

Bolt the 'R' box to the tray with the headset sockets away from the J2.

(5) 'B' box

When it is supplied, bolt the 'B' box to the tray with the cut-away side towards the 'R' box.

(6) LT box 4-way No. 1

This is the LT box with four 2-pt. connections. Bolt it to the tray with the cut-away side away from the J2.

(7) Fitting the tray

Fit the tray as instructed in paragraph 9 on page 57. Fig. 31 on page 55 shows the radio set with the J2 harness mounted on the tray.

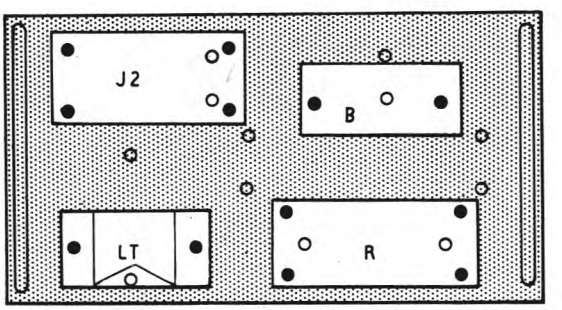


FIG. 34 PLAN OF TOP TRAY WITH J2 HARNESS

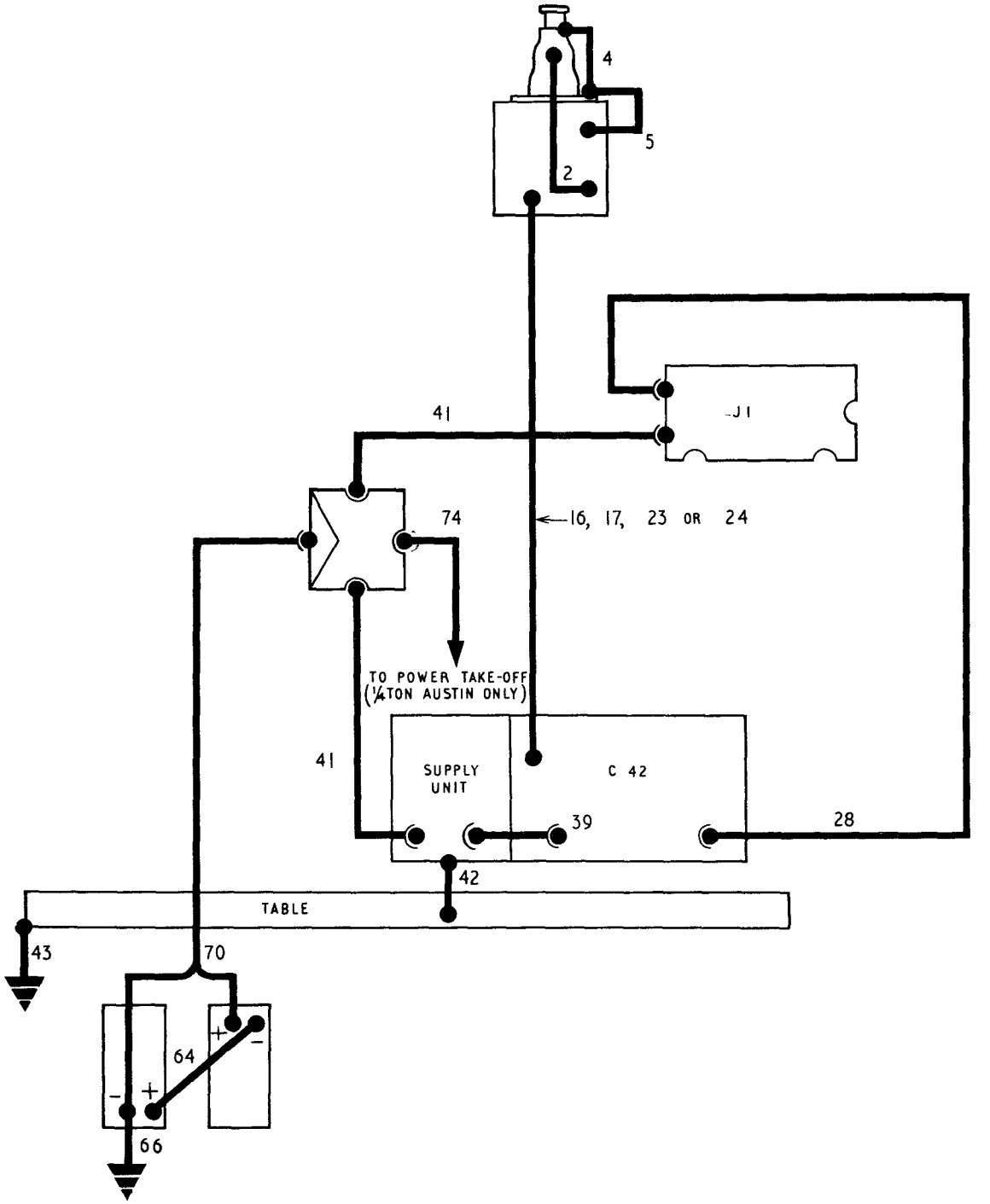


FIG. 35 CONNECTOR DIAGRAM C42 OR C45 WITH J1

Section 7 INSTALLING THE ATU

Fit the VHF ATU as instructed in the relevant vehicle chapter in part 2. Use ATU No. 6 for C42 and ATU No. 9 for C45. Fig. 26 shows a VHF ATU.

Section 8 REJECTOR UNIT NO. 3

This rejector unit and its associated items are made up into a small kit for issue when required. See page 43. Instructions for fitting the rejector unit in the Truck Armoured FFR 1-ton are given in part 2 chapter 5. In other vehicles, where no special provision is made for mounting the unit, it should be bolted to the slotted angle framework near the set. Rejector unit No. 3 should not be connected to the aerial circuit until the interference becomes intolerable. Then connect it between set and ATU, for which an additional coaxial connector is supplied with it. Adjust the tuning as instructed in the user handbook supplied with the unit.

Section 9 CONNECTORS FOR SET AND J1 HARNESS

As shown in the typical installation in fig. 30, with the ATU mounted on the front wing.

No. See Fig.35	Connector	Position	See note on page 63
2	Lead aerial (part of ATU assembly)	ATU to aerial base on assy.	I
4	Copper braid (part of ATU assembly)	Top to bottom of aerial base	I
5	Copper braid (part of ATU assembly)	ATU earth terminal to case of assembly	I
23, 24	Coaxial, 14-ft. or 20-ft.	Set to ATU on the front wing as in fig. 26. See note below.	V
28	12-condr., 3-ft.6-in. (Z1/5995-99-949-1477)	Set to J1	M
32	12-condr., 2-ft.6-in. (Z1/5995-99-949-2969)	J1 to 'E' box when fitted	E
39	25-condr., $5\frac{3}{8}$-in. (Z1/5820-99-949-0788)	Set to PSU	S
41	Twin, 3-ft. (ZA54389)	PSU to LT box	M
41	Twin, 3-ft. (ZA54389)	LT box to J1	M
42	Copper braid, $8\frac{3}{4}$-in. (Z1/5995-99-949-1075)	PSU to centre earth terminal on table	M
43	Copper braid (part of table)	Table to vehicle body	V
64	Single, 2-ft.6-in. (Z1/5995-99-949-1068)	Battery series connector (not used on Rover 8 & 9)	M
66	Single, 3-ft. (Z1/5995-99-949-1000)	Battery negative terminal to earth. (Not used on Rover 8 and 9)	M
70	Twin, 6-ft.6-in. (Z1/5995-99-949-1001)	Battery to LT box on set	M
74	4-pt. (part of $\frac{1}{4}$-ton Austin vehicle fitting kit)	LT box to power take-off ($\frac{1}{4}$-ton Austin only)	V

NOTE - Fig. 35 shows the layout with the ATU on the front wing. If the ATU is mounted inside the vehicle and connected to an external aerial base, use connectors 3 to 16 or 17 as on page 63.

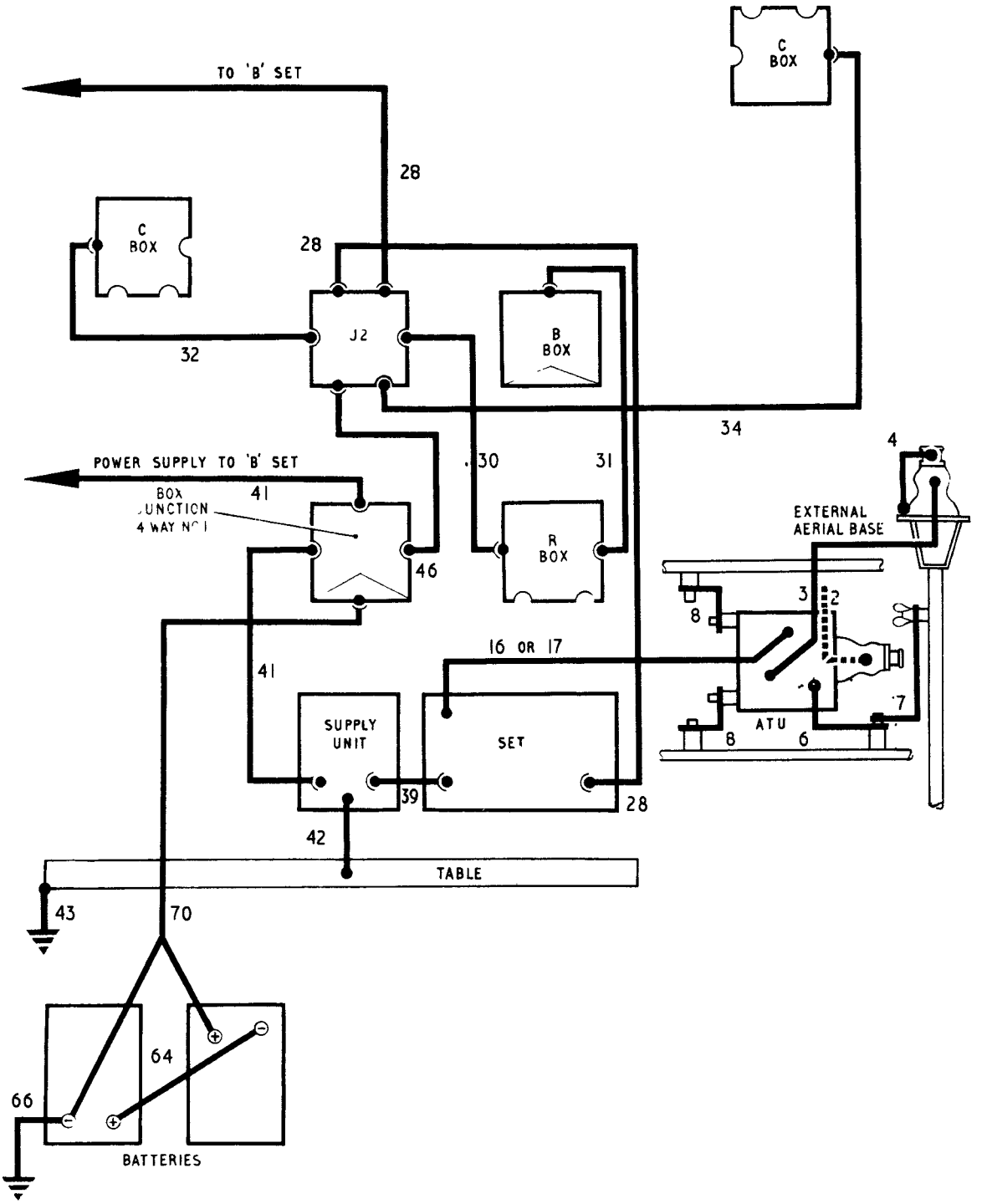


FIG. 36 CONNECTOR DIAGRAM C42 OR C45 WITH J2 HARNESS

Section 10 CONNECTORS FOR SET AND J2 HARNESS

As shown in the typical installation in fig. 31.

See Fig.36	Connector	Position	See note below
2	Lead aerial (part of ATU assembly)	ATU to aerial base (not used when ATU is connected to external aerial base)	I
3	Lead aerial, 16-in. (Z1/5995-99-949-1083) Alternative to connector No. 2	ATU to external aerial base (not used with ATU on wing).	I
4	Copper braid (part of ATU assembly)	Top to bottom of aerial base	I
6	Copper braid 10¾-in. (Z1/5995-99-949-1055) (on vehicle)	ATU earth to tilt frame (only on 1-ton FFR truck)	V
7	Copper braid 5-in. (ZA46975) (on vehicle)	Tilt frame to aerial mounting(only on 1-ton FFR truck)	V
8	Copper braid (part of ATU bracket) (two)	ATU bracket to tilt frame (only on 1-ton FFR truck)	V
9	Copper braid (part of ATU bracket)	ATU earth terminal to vehicle(1-ton Armoured only)	V
16, 17	Coaxial, 3-ft. or 9-ft.	Set to ATU inside the truck	M
28	12-condr.,3-ft.6-in. (Z1/5995-99-949-1477)	J2 to 'A' set	M
28	12-condr.,3-ft.6-in. (Z1/5995-99-949-1477)	J2 to 'B' set (in multi-purpose kit for 'B' set)	M
30	25-condr., 7½-in. (Z1/5995-99-949-0963)	J2 to 'R' box	J2
31	25-condr.,14-in. (Z1/5995-99-949-0964)	'R' box to 'B' box	J2
32	12-condr.,2-ft.6-in. (Z1/5995-99-949-2969)	J2 to 'C' box	J2
34	12-pt. 11-ft.6-in. (ZA47098)	J2 to 'C' box in cab	J2
39	25-condr. 5⅜-in. (Z1/5820-99-949-0788)	Set to PSU	S
41	Twin, 3-ft. (ZA54389)	PSU to LT box	M
41	Twin, 3-ft. (ZA54389)	LT box 4-way No. 1 to LT box 4-way No.4 on 'B' set	J2
42	Copper braid, 8¾-in. (Z1/5995-99-949-1075) (ZA46905)	PSU to centre earth terminal on table	M
43	Copper braid (part of table)	Table to vehicle body	V
46	Twin, 3-ft. (ZA54389)	J2 to LT box 4-way No. 1	J2
64	Single, 2-ft.6-in. (Z1/5995-99-949-1068)	Battery series connector (Not used on Rover 8 & 9)	M
66	Single, 3-ft. (Z1/5995-99-949-1000) (ZA47089)	Battery negative to earth (Not used on Rover 8 & 9)	M
70	Twin, 6-ft.6-in. (Z1/5995-99-949-1001) (ZA47108)	Battery to LT box on set	M
71	Twin, 2-ft. 6-in. (ZA49067) (Alternative to Connector No. 70)	LT box to power supply	J2

NOTE - Column 4 shows the kits in which connectors are supplied.

E - E box kit, I - installation kit, J2 - J2 harness kit, S - set kit, M - multi-purpose kit, V - vehicle fitting kit.

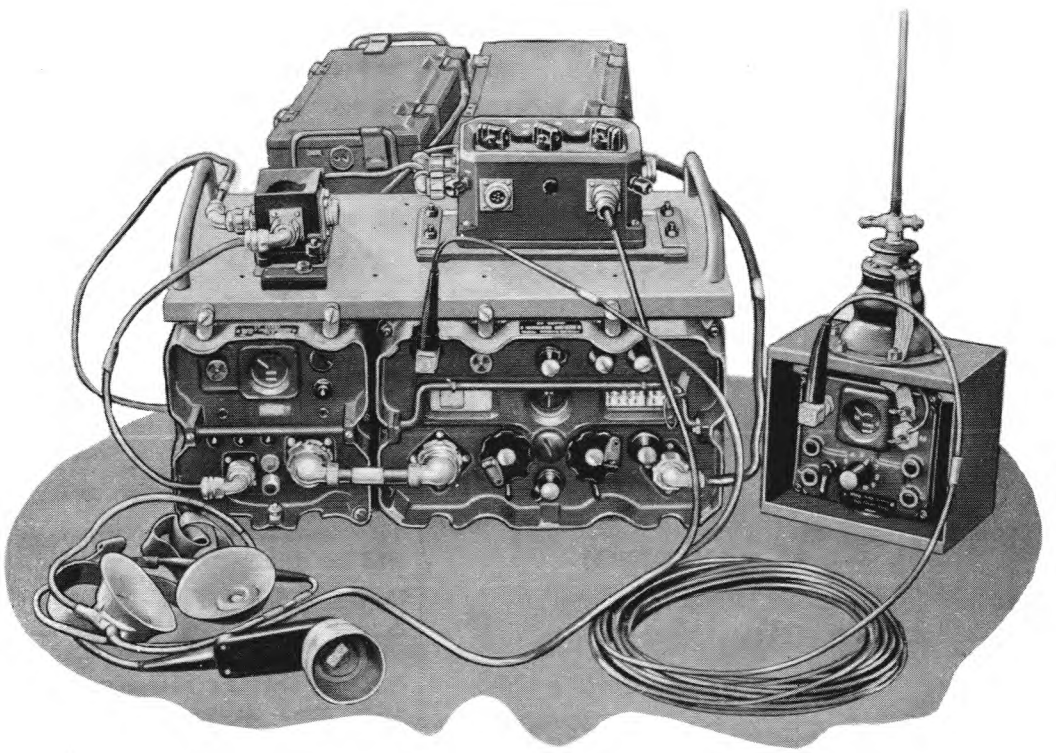


FIG. 37 TYPICAL GROUND STATION C42

WARNING

DANGEROUS VOLTAGE ON THE AERIAL

There is very high voltage on all parts of the aerial when an HF set is transmitting on high power. This applies particularly to C11 and C13 high power.

(1) Do not touch the antennae rod, nor any aerial connections when the set is transmitting, or you will receive a severe RF burn.

(2) Do not allow the aerial connector to touch any metal parts, or the rubber insulation may be burnt off. This connector is protected by plastic insulators to keep it clear of metal parts.

(3) Do not climb on to the top of the vehicle while the transmitter is switched on, owing to the risk of touching the antennae rod.

(4) Do not pour petrol into the vehicle tank when the set is transmitting. An RF potential difference may cause an arc resulting in an explosion.

WARN ALL PERSONNEL WHO MAY BE EXPOSED TO THESE DANGERS

PART 4
OPERATING

C O N T E N T S

RADIO SETS

Operating instructions for radio sets are given in the user handbooks issued with the sets. These are listed at the end of part 1.

REMEMBER THAT THE RADIO SET
MUST NOT BE SWITCHED ON
UNLESS IT IS CONNECTED
TO A SUITABLE AERIAL.

CHAPTER I
CONTROL HARNESS

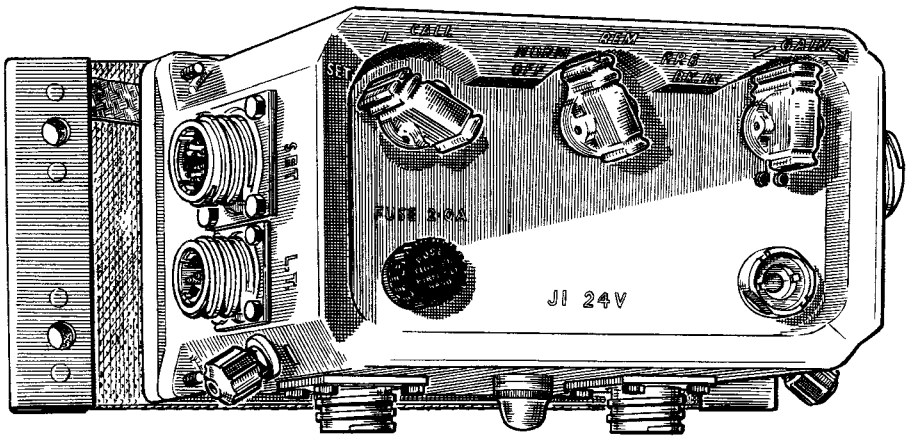


FIG. I J1

The J1 must be of the same voltage rating as the radio set with which it is used.

C O N T E N T S

Section 1 LOCAL CONTROL OF ONE SET

(1) Facilities provided by the J1

J1 is the normal control unit for one radio set. Two headsets can be connected to it. The LH switch selects set or intercomm, and has a spring-loaded intercomm call position. The centre switch has five positions; OFF, NORMAL, REMOTE and two positions used in remote rebroadcasting. The RH knob is a gain control adjusting the level in the earphones connected to the J1. The J1 contains a voltage control relay (VCR) for use with sets which do not have a VCR in their PSU. 12V and 24V versions are available.

(2) Headsets

A headset assembly consists of a microphone with neckband snatch harness to which is connected a pair of earphones. See fig. 21. It can be plugged into the J1 by means of its 6-pt. connector. It can also be connected to the 30-ft. headset extension cable. The neckband harness incorporates a snatch release plug and stud fasteners which part if given a sharp pull. In an emergency the wearer can quickly free himself from the harness, apart from the earphones which remain on his head.

(3) J1 switches

Turn the LH switch to SET and the centre switch to NORMAL. The indicator lamp on J1 should glow. If necessary rotate the lamp cover. If the lamp does not light, check the 2A fuse and the lamp. Note that it is possible to operate the radio set if the fuse has blown, or even with the J1 switched off, but this should not be done as a VHF set is then deprived of the assistance of the VCR and there will be no calling buzz on intercomm.

(4) Operating the radio set

Adjust the radio set as instructed in the user handbook supplied with the set.

(5) 'C' box

If a 'C' box is fitted in the cab to give intercomm facilities it can also be used to operate the set. Turn the set switch to position 'B' when the 'C' box is used in a J1 installation. A 'C' box is shown in fig. 3.

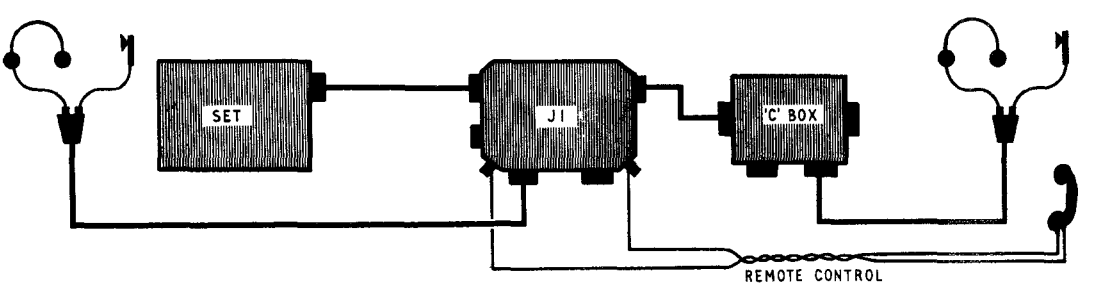


FIG. 2 A ONE SET HARNESS WITH J1 AND 'C' BOX

Section 2 REMOTE CONTROL

(1) Remote control telephone

The remote operator uses a telephone handset connected to the J1. It has a pressel send-receive switch and a call button. See fig. 22.

(2) D10 cable

Fit D10 twisted pair cable between the terminals on the J1 and the remote control telephone. These terminals are so designed that they pierce the cable insulation, thus avoiding the necessity for cutting and stripping cable terminations. Screw the terminals down firmly by hand. For remote control, correct polarity is not essential and either wire can be attached to either terminal. At the radio set end, do not allow the free ends of the cable to protrude from the terminals, or bare strands of wire may come into contact with the metal case or with the metal ends of other connectors.

NOTE - Maximum length of the D10 cable should not exceed 1,000 yards.

(3) J1 switches

On the J1 turn the centre switch to REMOTE and the LH switch to SET. The remote operator can then listen to normal operation of the radio set by the local operator and can break in and transmit at any time by pressing the pressel switch on the telephone handset.

(4) Calling

To call the local operator from the remote control point, press the button on the telephone. This causes a buzz on all headsets connected to the control harness. To call the remote operator, turn and hold the LH switch on J1 to CALL.

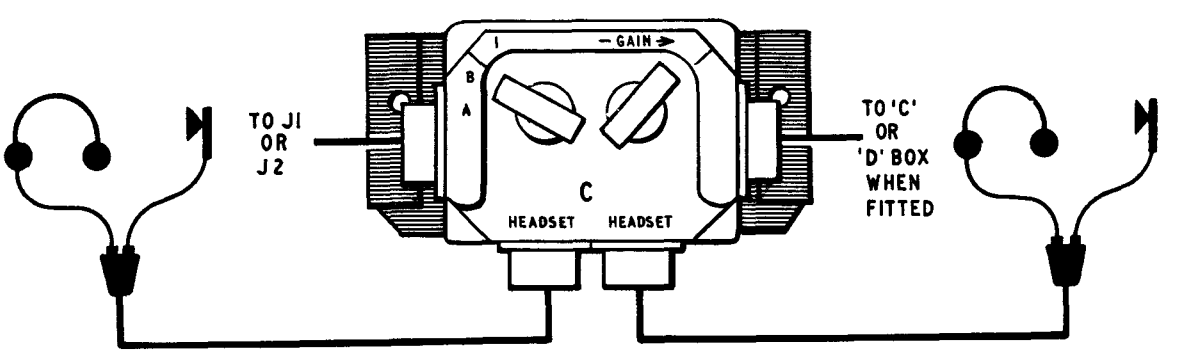


FIG. 3 CONNECTORS AND SWITCHES ON 'C' BOX

Section 3 TWO RADIO SETS CONTROLLED BY ONE OPERATOR

(1) Purpose of the 'E' box

The 'E' box enables two radio sets fitted with J1 to be controlled by one operator through a 'C' box or a 'B' harness commander's microphone.

(2) Installation

Bolt 'C' and 'E' boxes to the slotted angle framework within reach of the sets. In vehicles not equipped with the framework, bolt the boxes to improvised mountings. Fit a Cable assy. 12-condr. 2-ft. 6-in., between each J1 and the 'E' box as shown in fig. 5. Fit a Cable assy. 12-condr. 3-ft. 6-in., between 'E' box and 'C' box. A connector 11-ft. 6-in. long is supplied to connect a second 'C' box when required.

(3) Headsets

Connect a headset to the 'C' box to operate either set. If it is available the 'B' harness commander's microphone can be fitted to the 'C' box or direct to the 'E' box in place of the 'C' box and this also can be used to operate either set.

A headset can be fitted to either J1 but it will control only the set connected to that J1.

(4) Operation

Switch each J1 to SET and NORMAL. On 'C' box or commander's microphone, switch to 'A' for the set on the left of the 'E' box or to 'B' for the set on the right. Adjust the two sets for operation. For intercomm, switch both J1s to 'I'. Intercomm connections and calling are described on page 12. The intercomm amplifier in either set can be used.

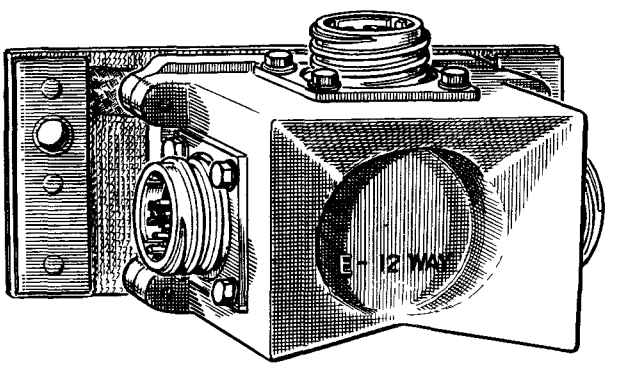


FIG. 4 'E' BOX

Section 4 MANUAL REBROADCASTING WITH MRRB BOX

(1) Purpose of the MRRB box

With an MRRB box connected between two J1s as in fig. 6, a manually controlled rebroadcast link can be operated between two HF sets, or between an HF and a VHF set, or if necessary between two VHF sets on which automatic rebroadcasting is difficult due to bad radio conditions. The MRRB box can also be fitted between J1 and 'R' box, or between two 'R' boxes.

(2) Installation

The MRRB box must be within easy reach of an operator at one of the sets. Bolt it to the slotted angle framework in a convenient position. In vehicles not equipped with the framework, bolt it to an improvised mounting. Fit D10 twisted pair cable from the MRRB box to each J1 as shown in fig. 6. Terminals are marked '+' and '-' and correct polarity must be ensured in all connections. If polarity is reversed, both sets go to 'send' at the same time. If one of the sets is dismounted for remote operation, maximum distance between it and the MRRB box must not exceed 1,000 yards.

(3) Tune the sets

Connect the operator's headset to the J1 adjacent to the MRRB box, or to a 'C' box connected to this J1. If both J1s are within easy reach, either can be used. Switch the two J1s to NORMAL and adjust the two sets for operation.

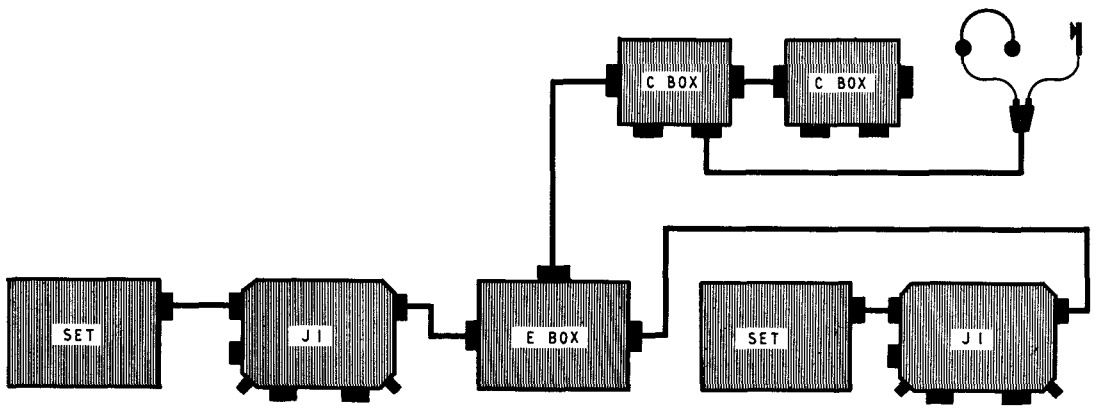


FIG. 5 TWO ONE-SET HARNESSES WITH J1, 'E' AND 'C' BOXES

(4) Rebroadcast switching

Switch both J1s to RRB. Switch the MRRB box to MANUAL. The centre switch on the MRRB box has three positions and is spring-loaded to rest in the centre. When it is turned to the left the set connected to the left of the box is switched to 'send' and when it is turned to the right the set on the right is switched to 'send'.

With the centre switch at rest, both sets are at 'receive' and any reception is heard by the operator. On receiving a message to be rebroadcast, turn the centre switch to left or right according to which set is to be switched to 'send' and hold it until the message ends. Use normal voice procedure and turn the centre switch to reverse the direction of transmission as required.

(5) Break in on manual rebroadcasting

Use one of the following methods:

(a) If the headset is connected to the J1 on the left of the MRRB box, as in fig. 6, turn the centre switch on the MRRB box to the right, or when using the RH J1, turn the MRRB box switch to the left. Thus with the switch turned away from the J1 in use, press the microphone pressel and speak. This method requires two hands.

OR

(b) Alternatively, switch to BK IN on the J1 to which the headset is connected and move the auto-manual switch on the MRRB box to AUTO. Press the pressel and speak. To restore the manual rebroadcast link, switch the J1 back to RRB and the MRRB box to MANUAL.

(6) Automatic rebroadcasting with MRRB box in circuit

If two VHF sets are connected as shown in fig. 6, automatic rebroadcasting can be worked without removing the MRRB box. See section 5 paragraph 4(a) opposite.

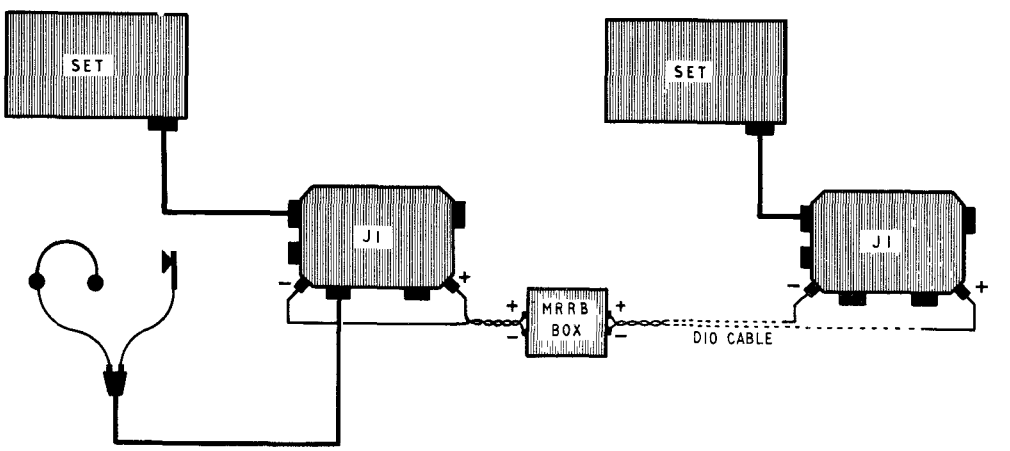


FIG. 6 REBROADCASTING WITH TWO J1s AND MRRB BOX

Section 5 AUTOMATIC REBROADCASTING

(1) Installations in which this can be worked

Use any two VHF sets, B47, B48, C42 or C45, each with a J1. The two sets are joined by D10 cable through the two J1s.

(2) Connections

Fit twisted pair D10 cable between the two J1s, ensuring correct polarity. This cable must not exceed 1,000 yards. If MRRB and 'E' boxes are already connected, automatic rebroadcasting can be worked without disconnecting them. If necessary, either set with its J1 can be dismounted for remote operation.

(3) Tune the sets

Switch both J1s to NORMAL and tune the sets for operation, paying particular attention to the adjustment of squelch controls. With the J1s switched to NORMAL the rebroadcast facility is not connected and the two sets can be controlled in the normal way.

(4) Rebroadcast switching

(a) Switch both J1s to RRB. If the MRRB box is in circuit, switch it to AUTO. This puts the D10 connection straight through the box. The centre switch on the MRRB box is not used on AUTO. To monitor automatic rebroadcasting, connect a headset to either J1, or to a 'C' box connected to either J1. At RRB the microphone does not function.

(b) When a signal is received on the 'A' set, the 'B' set goes to "send" to rebroadcast it. At the end of the signal the 'B' set reverts to "receive". Similarly, reception of a signal on the 'B' set automatically switches the 'A' set to "send". While no signals are being received, both sets remain on "receive".

(5) Break in

Turn to BK IN on the J1 to which the headset is connected. This disconnects rebroadcasting and switches both sets to "receive". Then by operating his pressel the operator switches both sets to "send".

NOTE - If spurious signals upset automatic rebroadcasting, resort to manual rebroadcasting with the MRRB box as on page 6.

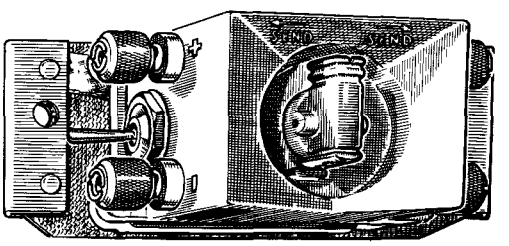


FIG. 7 MRRB BOX

Section 6 MORSE TELEGRAPHY

(1) Installations in which this can be used

For HF sets C11-R210, C12 or C13, operated through J1 or 'R' box. In the instructions here the 'K' box is connected to the J1 but it can be connected to the 'R' box in the same way. Morse cannot be worked on VHF sets.

(2) Methods of connection

There are two methods of connecting the 'K' box. For local operation it is joined by special connector to a headset socket. See paragraph 3(b) below. For remote operation it is joined by D10 cable to remote control terminals. The local method permits faster operation if the Mk. 1 J1 is in use. The Mk. 2 J1 was introduced to provide faster keying on remote operation.

(3) Local operation

(a) Mount the 'K' box in a convenient position. A carrier fixed with four wood screws is provided.

(b) Local keying requires a cable assembly 2-condr., 3-ft. (Z1/5995-99-949-3514). This cable has a 6-pt. plug and socket. Fit it between a J1 headset socket and the 'K' box input plug as shown in fig. 8. Do not use a normal 6-pt. cable here.

(c) Fit the operator's headset to the other headset socket on the J1. This enables the operator to hear his keying tone. If the headset is fitted to the 'K' box the operator only hears clicks as he presses the key.

(d) Switch the J1 to NORMAL and tune the radio set for CW operation as instructed in the set user handbook. Operate the 'K' box in the normal way. It is equipped with gap and tension adjusters.

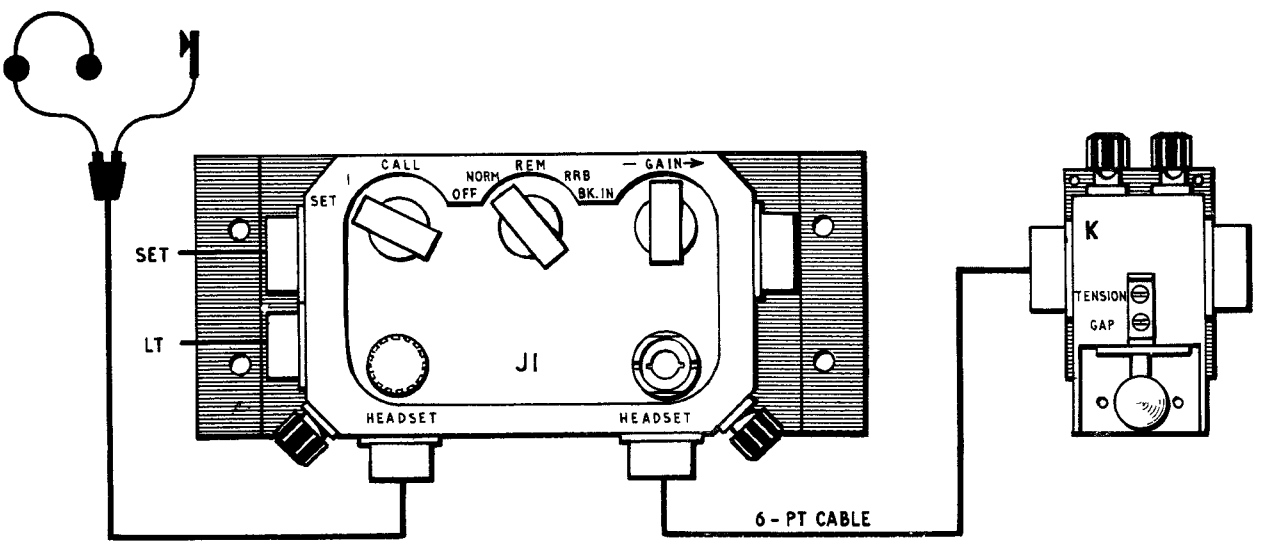


FIG. 8 LOCAL KEYING WITH J1 AND 'K' BOX

(4) Remote operation

(a) For remote working the 'K' box can be strapped to the operator's knee. A carrier with web straps is provided.

(b) Fit twisted pair D10 cable between the J1 and the 'K' box. See fig. 9. This cable can be up to 1,000 yards in length. Correct polarity is not essential.

(c) Tune the radio set for CW operation.

(d) Switch the J1 to REMOTE.

(e) Fit a headset to the 'K' box as shown in fig. 9. The operator will then hear keying tone in the earphones.

(f) If the remote operator wishes to call or talk to a local operator on intercomm he must use a remote control telephone handset connected to the 'K' box as shown by the dotted lines in fig. 9. The microphone on the headset connected to the 'K' box cannot be used over the remote control cable. When fitting the D10 cable, thread it through the terminals on the 'K' box, pull through approximately six feet and tighten the terminals to pierce the insulation. Then connect the telephone handset to the cable.

(g) To call the local operator from the remote end, press the CALL button on the telephone handset. To call the remote operator from the set, turn the LH switch on the J1 to CALL.

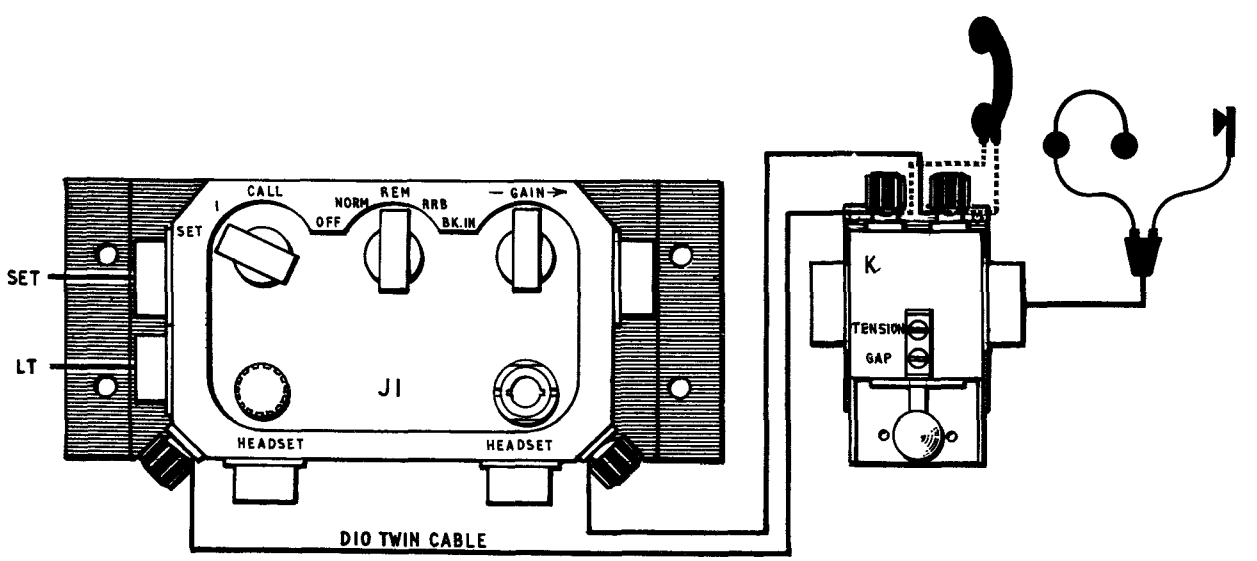


FIG. 9 REMOTE KEYING WITH J1 AND 'K' BOX

Section 7 APPARATUS LOUDSPEAKING

(1) Facilities

The ALS consists of an amplifier and a loudspeaker. When connected to the control harness it enables the radio set to be heard anywhere in the truck without the use of earphones. One or two 'T' boxes can be connected to the amplifier to give additional parallel headset sockets. The ALS is intended for use in 24V installations and it requires a small modification if it is to be connected to the audio output of a 12V radio set. See EMER Tels C409, Miscellaneous Instruction No. 3. The ALS kit is listed in part 1 page 19.

(2) Installation

Brackets are provided for the ALS equipment in the Truck 1-ton armoured FFR. See fig. 11 and part 2 pages 69 and 70. In other vehicles it can be mounted on the slotted angle framework. Fit the following connectors:

Fig.10	Connector	Position
A	Cable assy. 6-condr., 18-ft.	Amplifier to J1
B	Cable assy. 3-condr., 2-ft.	Amplifier to loudspeaker
C	Connector 6-pt. No. 36, 18-in.	Amplifier to 'T' box
D	Cable assy. 6-condr.,8-ft. 6-in.	Connects two 'T' boxes
E	Cable assy. 2-condr., 8-ft.	Amplifier to 24V battery
F	Connector single, 18-in.	Connects two 12V 22 Ah batteries in series

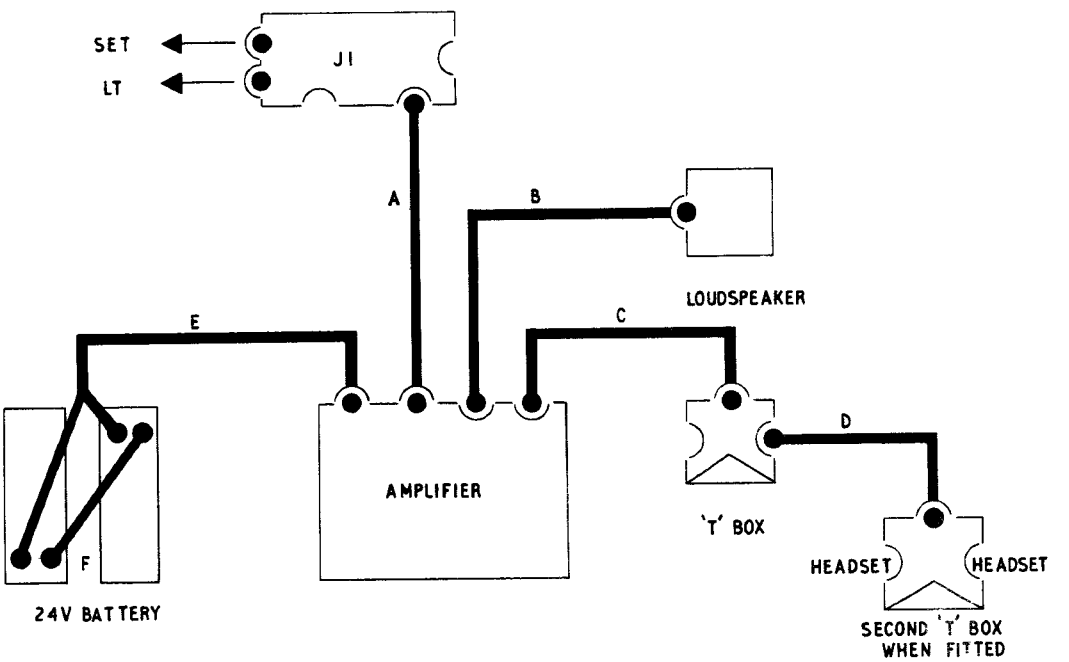


FIG. 10 HARNESS WITH J1, ALS AND 'T' BOXES

(3) Operating

Operating instructions are given in the separate user handbook supplied with the ALS but users should note the following variations between connections shown therein and connections used here.

(a) The amplifier is connected to a headset socket on the J1 and not to a Control unit No. 31. Control unit No. 31 is the loader-operator's unit in Control Harness Type 'A' and does not form part of the installations described in this handbook.

(b) Connect the operator's headset to the amplifier or to one of the 'T' boxes connected to the amplifier. In this way the loudspeaker is muted when the pressel is operated. Do not connect headsets to the J1 or other control unit connected to the J1.

(4) Loudspeaker outside the vehicle

The loudspeaker can be used outside the vehicle, for which a 23-ft. extension lead is provided. Fit it in place of connector 'B' in fig. 10.

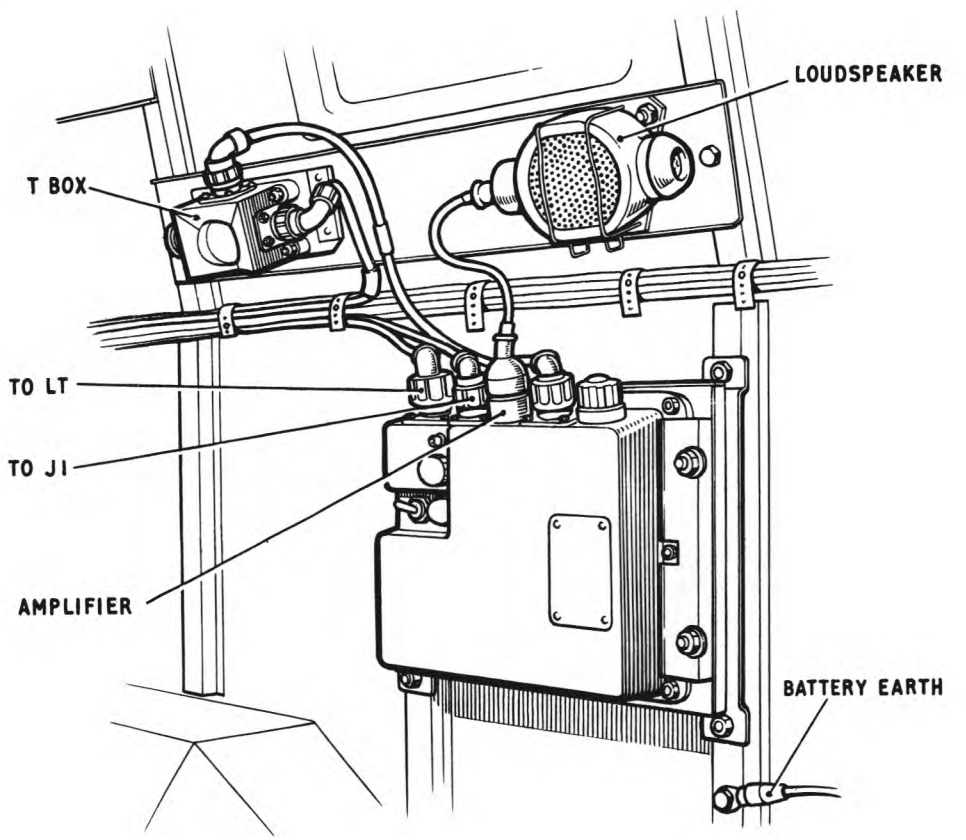


FIG. 11 ALS EQUIPMENT INSTALLED

Section 8 INTERCOMMUNICATION

(1) Intercomm to the driver's cab

If a 'C' box is fitted in the cab, intercomm facilities are available between the cab and the rear of the truck, with calling in both directions. 'C' boxes are supplied with the 'E' box kit and also with the J2 harness. If a 'C' box and a 12-pt. connector to join it to the control harness on the set are not available, the remote control telephone and D10 cable can be used. Alternatively the 30-ft. headset extension connector can be utilised but in this case the cab cannot call the rear of the truck on intercomm.

(2) Amplifiers in radio sets

Intercomm amplifiers are fitted in all radio sets except B47 and B48. In a control harness for two sets using the J2 box, the intercomm amplifier in the 'A' set is employed. Put the PSU POWER and IC switches ON.

(3) Calling

To call operators, turn and hold the LH switch on J1, 'C' or 'R' box to CALL. This causes an audible buzz in all headsets connected to the harness, including any in use. Operators then switch to 'I' and answer. The original caller allows his call switch to return to 'I' and speaks on intercomm.

(4) Intercomm with a remote operator

To connect the remote operator to intercomm, turn the J1 or 'R' box system selection switch to REMOTE. The remote operator can call on intercomm by pressing his telephone CALL button. This causes a buzz in all headsets.

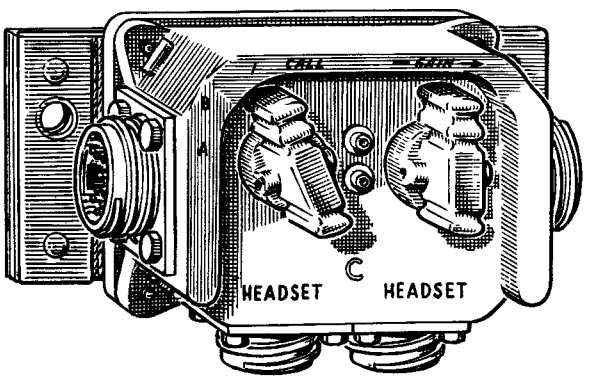


FIG. 12 'C' BOX

Section 9 OPERATING A RADIO SET THROUGH AN '0' BOX

(1) Normal operation of an HF set

If an HF set is dismounted and separated from the control harness, or if the control harness develops a fault, the set can be operated through an '0' box.

(2) Emergency operation of a VHF set

A VHF set can also be operated through an '0' box when the control harness is not available but such use should be confined to emergencies. When a VHF set is operated through an '0' box, that set is without the assistance of a VCR and its performance will suffer if the battery voltage is low.

(3) Connections and operation

The '0' box is not fitted in the vehicle but should be carried as a stowed item. When it is required for use, bolt it to the slotted angle framework near the radio set. Remove the radio set output connector from the J1 or J2 and fit it to the '0' box as shown in fig. 13. Connect one or two headsets as required. The '0' box has a gain control.

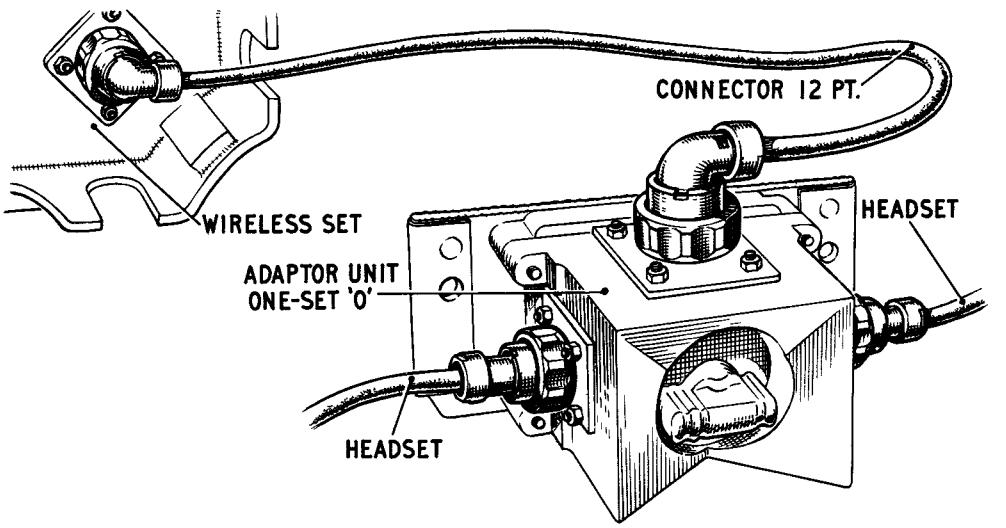


FIG. 13 OPERATING A RADIO SET WITH '0' BOX AND HEADSET

Section 10 CONTROL HARNESS WITH J2, 'R' AND 'B' BOXES

(1) J2 harness

Certain installations, mainly conversions from old type kits for two radio sets, include a control harness consisting of J2, 'R' and 'B' boxes which can be used instead of the normal harness with J1. This harness is available as the 'B' harness (J2) kit and is listed in part 1 page 18. It is normally mounted on the top of the C42 or C45 when either of these sets is installed. The J2 contains a VCR for use with VHF sets.

NOTE - J2 and 'R' boxes must be of the same voltage rating as the radio sets with which they are used.

(2) Facilities provided by the J2 harness

In a two set installation either set can be operated by switching the 'R' box to 'A' or 'B'. If a 'C' box is connected, one set can be operated on the 'R' box and the other on the 'C' box. Additional facilities with the J2 harness include remote control of either set (see page 16), automatic and manual rebroadcasting (see pages 17 to 20).

(3) J2 switches

If a 'B' box is installed and connected to the 'R' box, see that the RH switch on the J2 is at REB. If the 'B' box is not fitted, this switch must be at NORMAL. Turn the LH switch to ON and see that the indicator lamp lights, if necessary rotating the lamp cover. If the lamp does not light, check fuse and lamp. Note that it is possible to operate the radio sets if the fuse has blown, or even with the J2 switched off, but this should not be done as VHF sets are then deprived of the assistance of the VCR and there will be no calling buzz on intercomm.

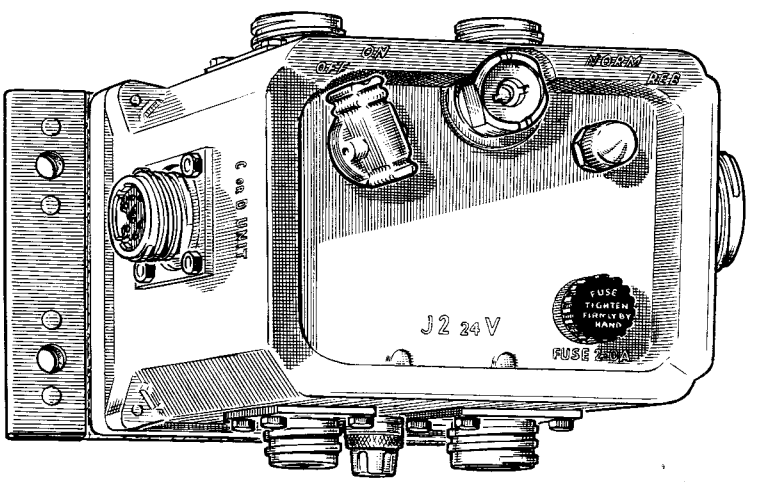


FIG. 14 J2

(4) 'B' box

Turn the switch to NORMAL.

(5) Operating through the 'R' box

Connect one or two headsets to the 'R' box and turn the switches as follows, referring to fig. 16.

System switch	:	NORMAL
Set switch	:	'A' or 'B' to select the radio set
Remote control switch	:	Disregard

(6) Operating through a 'C' box

Connecting one or two headsets to the 'C' box. Turn the set switch to 'A' or 'B' to select the required radio set. Note that when the 'C' box is used in a two-set installation a stop screw which prevents the set switch being turned to position 'A' should be removed.

(7) Operating the selected set

Switch on and tune the selected radio set as instructed in the separate user handbook for the set. Adjust the gain control on 'R' or 'C' box.

(8) Operating both sets

Headsets connected to 'C' box and 'R' box can be switched to the same radio set, or if necessary the two sets can be operated independently by turning the set switch on one box to 'A' and on the other box to 'B'. Both headsets connected to a control box are switched to the set selected on that box.

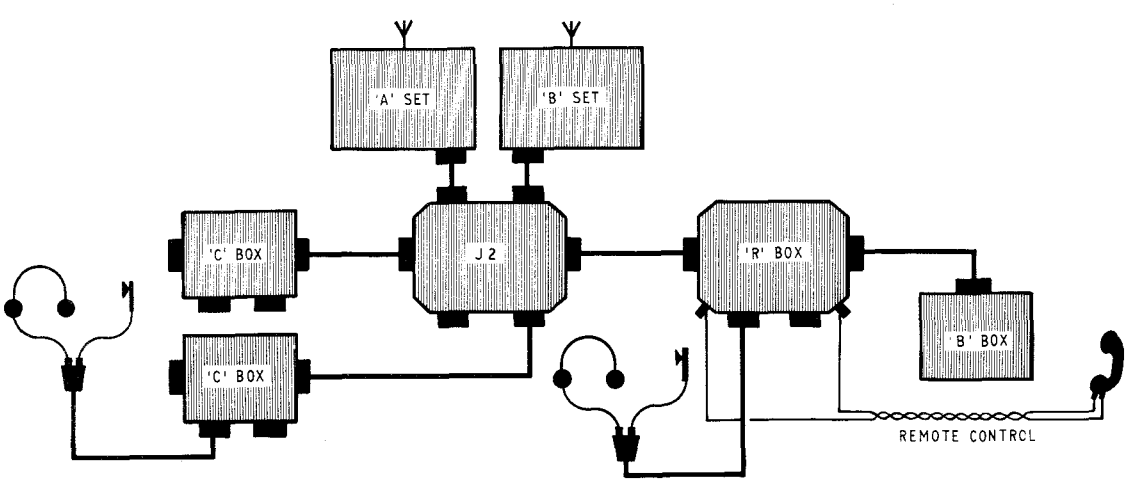


FIG. 15 A TWO-SET HARNESS WITH J2, 'R', 'B' AND 'C' BOXES

Section 11 REMOTE CONTROL WITH J2 HARNESS

(1) D10 cable

Fit D10 twisted pair cable between the terminals on the 'R' box and the remote control telephone. In remote control, polarity of the cable is of no importance and either wire can be attached to either terminal. Do not allow the free ends of the cable to protrude from the terminals at the 'R' box, or bare wires may come into contact with the metal case or with the metal ends of other connectors.

NOTE - Maximum length of the D10 remote control cable should not exceed 1,000 yards.

(2) 'B' box

Turn the switch to NORMAL.

(3) 'R' box

Remote control switch	:	Select the set to be remotely controlled
System switch	:	REM
Set switch	:	Can be disregarded but see paragraph 4.

(4) Operating the second set locally

When one set is being remotely operated, the other set can be controlled by the local operator. For example, if the 'B' set is selected by the remote control switch, the 'A' set can be selected by the set switch and operated with a headset attached to the 'R' box. This same set can also be selected and controlled through either of the 'C' boxes.

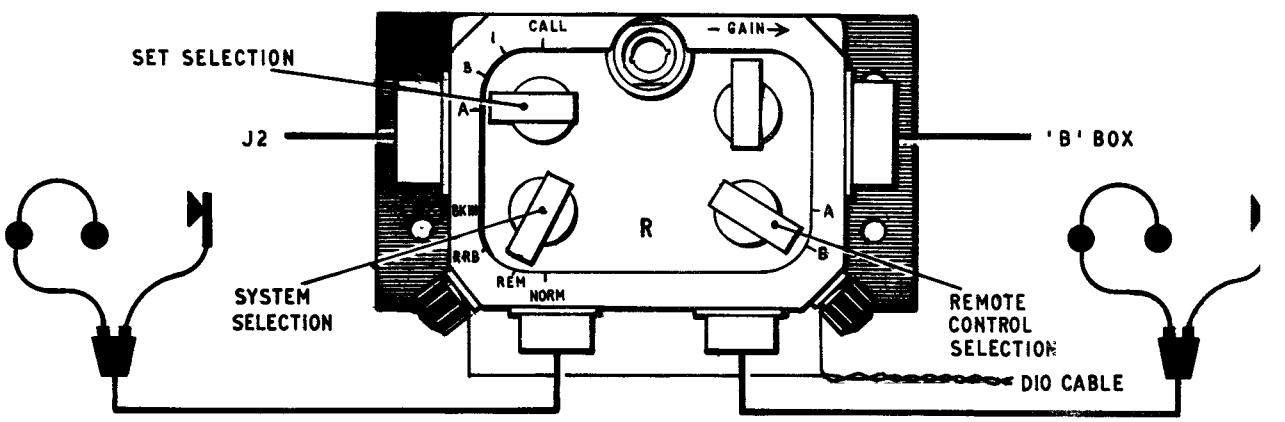


FIG. 16 CONNECTORS AND SWITCHES ON 'R' BOX

Section 12 AUTOMATIC LOCAL REBROADCASTING WITH J2 HARNESS

(1) Installations in which this can be worked

For installations consisting of two VHF sets, B47, B48, C42 or C45, and harness boxes J2, 'R' and 'B'. The two radio sets are connected to the J2. With the 'B' box switched to AUTO, rebroadcasting between the two sets is automatic as in paragraph 4(b) on page 7.

(2) Tune the sets

Connect a headset to 'R' or 'C' box. Switch the J2 ON and see that the screwdriver-operated switch is pre-set to REB. Switch the 'B' box to NORMAL and the 'R' box system switch to NORMAL. Turn the 'R' box set switch first to 'A' and then to 'B' when tuning the two sets. Leave the 'R' box switched to 'A' or 'B'.

(3) Rebroadcast switching

Switch the 'B' box to AUTO.

(4) Monitoring

Operators with headsets connected to 'R' box or 'C' box can listen on the rebroadcasting network but all microphones are inoperative.

(5) Break-in

Turn the switch on the 'B' box to BK IN. The operator can now switch both sets to "send" at the same time by pressing his microphone pressel switch and his speech is transmitted by both sets.

(6) Manual switching in an emergency

If spurious signals upset automatic rebroadcasting, resort to manual rebroadcasting with the 'B' box as on page 18.

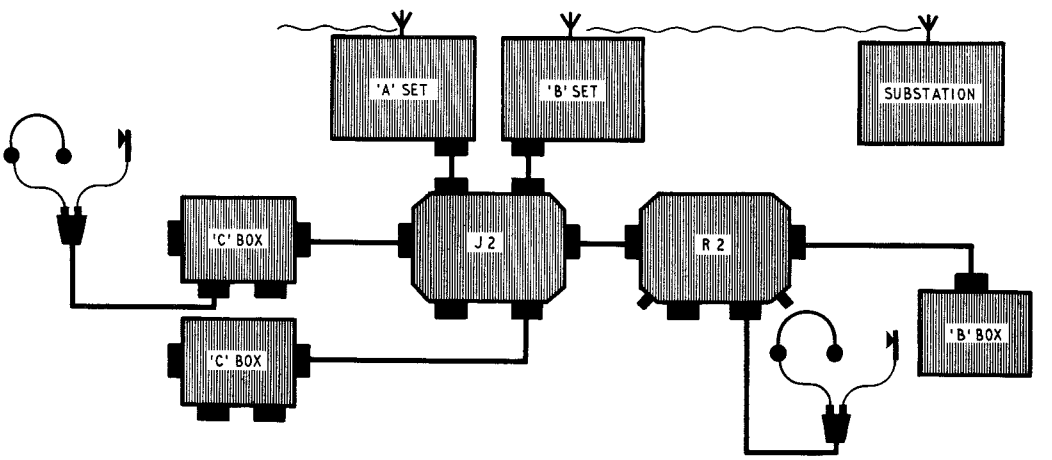


FIG. 17 LOCAL REBROADCASTING WITH 'B' BOX

Section 13 MANUAL LOCAL REBROADCASTING WITH J2 HARNESS

(1) Installations in which this can be worked

In any installation consisting of two HF sets, or of one VHF and one HF set, rebroadcasting must be manually controlled because HF sets are not equipped for automatic rebroadcasting. Manual control may also be necessary between two VHF sets if automatic rebroadcasting is difficult due to bad radio conditions. The installation must include the J2 harness, with J2, 'R' and 'B' boxes. Direction of rebroadcasting is controlled by the operator using the 'B' box.

(2) Tune the sets

Connect a headset to 'R' or 'C' box. Switch the J2 ON and see that the RH switch is at REB. Switch the 'B' box to NORMAL and the 'R' box system switch to NORMAL. Turn the 'R' box set switch first to 'A' and then to 'B' when tuning the two sets. Leave the 'R' box switched to 'A' or 'B'.

(3) Listening watch

Switch the 'B' box to BK IN. Both sets are at "receive" and reception on either set will be heard in the earphones. Do not press the pressel or both sets will switch to "send".

(4) Rebroadcast switching

On receiving a message on one set for transmission on the other, turn the 'B' box switch as follows:

(a) 'A-B' when signals received on the 'A' set are to be rebroadcast on the 'B' set. In this condition the 'A' set remains at "receive" and the 'B' set at "send".

(b) 'B-A' when signals received on the 'B' set are to be rebroadcast on the 'A' set. In this condition the 'B' set remains on "receive" and the 'A' set at "send".

(5) Monitoring

Any other operator with a headset connected to 'R' or 'C' box can listen to rebroadcasting. Microphones are inoperative with the 'B' box at A-B or B-A.

(6) To break in on manual rebroadcasting

Switch the 'B' box to BK IN. The operator can now switch both sets to "send" at the same time by operating his pressel.

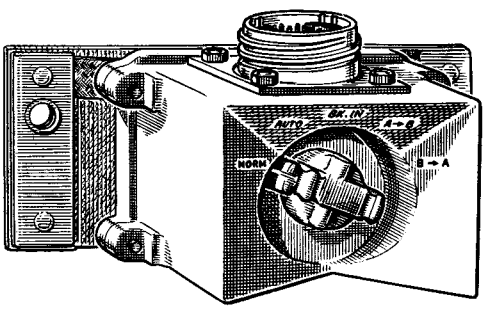


FIG. 18 'B' BOX

Section 14 AUTOMATIC REMOTE REBROADCASTING WITH J2 HARNESS

(1) Installations in which this can be worked

For installations consisting of two VHF radio sets, B47, B48, C42 or C45, one dismounted, or fitted in another vehicle, with harness boxes J2, 'R' and 'B' on the local set and J1 on the remote set. See Fig. 19.

(2) Remote set

The remote set is connected by D10 cable between 'R' box and J1 as in fig. 19. In this arrangement, as remote rebroadcasting cannot be manually controlled, pay careful attention to squelch adjustment on the radio sets. Reduced battery voltage affects the operation of relays and so the condition of the batteries used with the remote set should be watched. Note that if the 'B' set is removed from the vehicle the 'B' position on 'C' and 'R' box set switches is inoperative.

(3) Polarity of the D10 connection

The D10 cable should not exceed 1,000 yards in length. For remote rebroadcasting, ensure that the polarity is correct by connecting positive to positive and negative to negative. If polarity is reversed, both sets will go to "send" at the same time.

(4) Intercomm between vehicle and remote set

At the remote end, pass approximately six feet of D10 cable through each terminal on the J1 and connect the two terminations to the remote control telephone. For this connection, correct polarity is not essential.

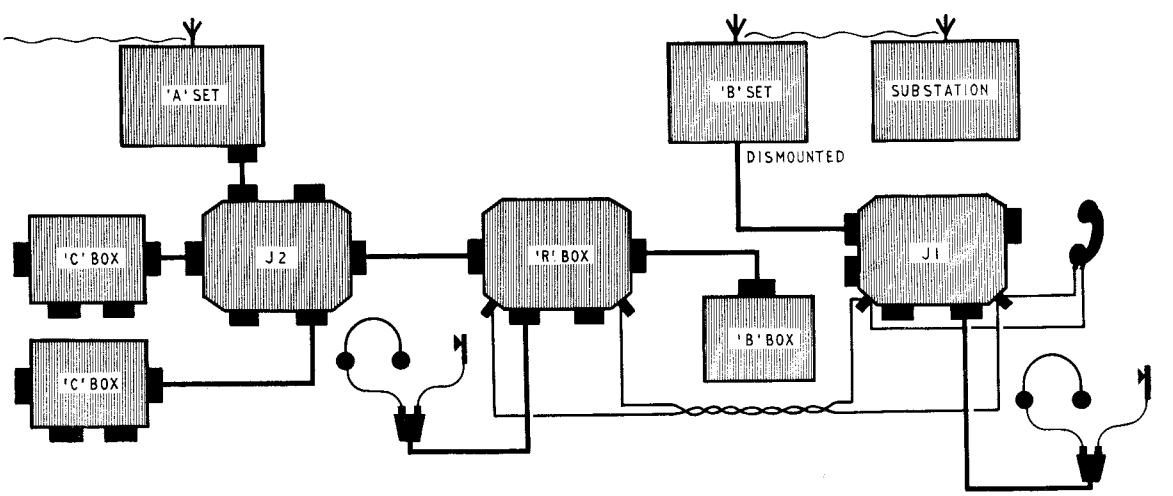


FIG. 19 REMOTE REBROADCASTING WITH 'R' BOX AND J1

To speak to the remote operator from the vehicle, turn the 'R' box set switch to 'I'. To call, turn this switch to CALL. To call the vehicle from the remote set, press the CALL button on the telephone handset. This circuit should only be used when setting up the remote station.

(5) Tune the remote 'B' set

On the J1, turn the LH switch to SET and the centre switch to NORMAL. Connect a headset to the J1 and tune the radio set as instructed in the separate user handbook. Then turn the centre switch on J1 to RRB.

(6) Tune the 'A' set

Switch the 'B' box to NORMAL. On the 'R' box, turn the set switch to 'A' and the system switch to NORMAL. Connect a headset to the 'R' box and tune the radio set as before, again paying careful attention to the squelch adjustment.

(7) 'R' box switching for remote rebroadcasting

System switch	:	RRB
Set switch	:	'A'
Remote control switch	:	'A'

(8) Monitoring

An operator with a headset fitted to J1 or 'R' box can listen on the remote rebroadcasting network but his microphone is still connected and if the pressel is operated the rebroadcasting will be interrupted. Headsets not required for monitoring should be disconnected from the harness.

(9) Break in

Switch the 'R' box or the J1 to BK IN. The operator who has turned to BK IN can now switch both sets to "send" at the same time by operating his microphone pressel switch.

NOTE - Spurious signals may upset automatic rebroadcasting. If an MRRB box is available, resort to manual rebroadcasting as on page 5.

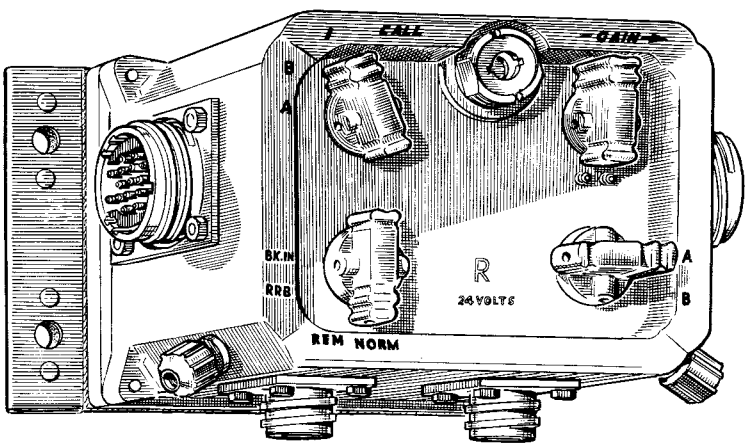


FIG. 20 'R' BOX

Section 15 MICROPHONE AND EARPHONE INSETS

(1) Standard microphone and earphone insets

If a microphone, earphone or handset is suspected of being faulty it is possible that one or both diaphragm insets have been damaged. These standard insets can be changed if suitable replacements are available. A suspected inset should have its resistance checked with a suitable meter and it should be renewed if it does not conform to the requirements shown.

(2) Microphone hand SI No. 6

The Inset standard microphone E/M No. 1 fitted in this microphone is colour coded red with white band and its DC resistance should be approximately 40 ohms. To remove a microphone inset, undo the binding or clip so that the rubber mouthpiece can be pulled off to reveal the inset contained in a broad metal clip. The clip opens when the securing bolt is released, thus freeing the inset, which only needs detaching from the terminals.

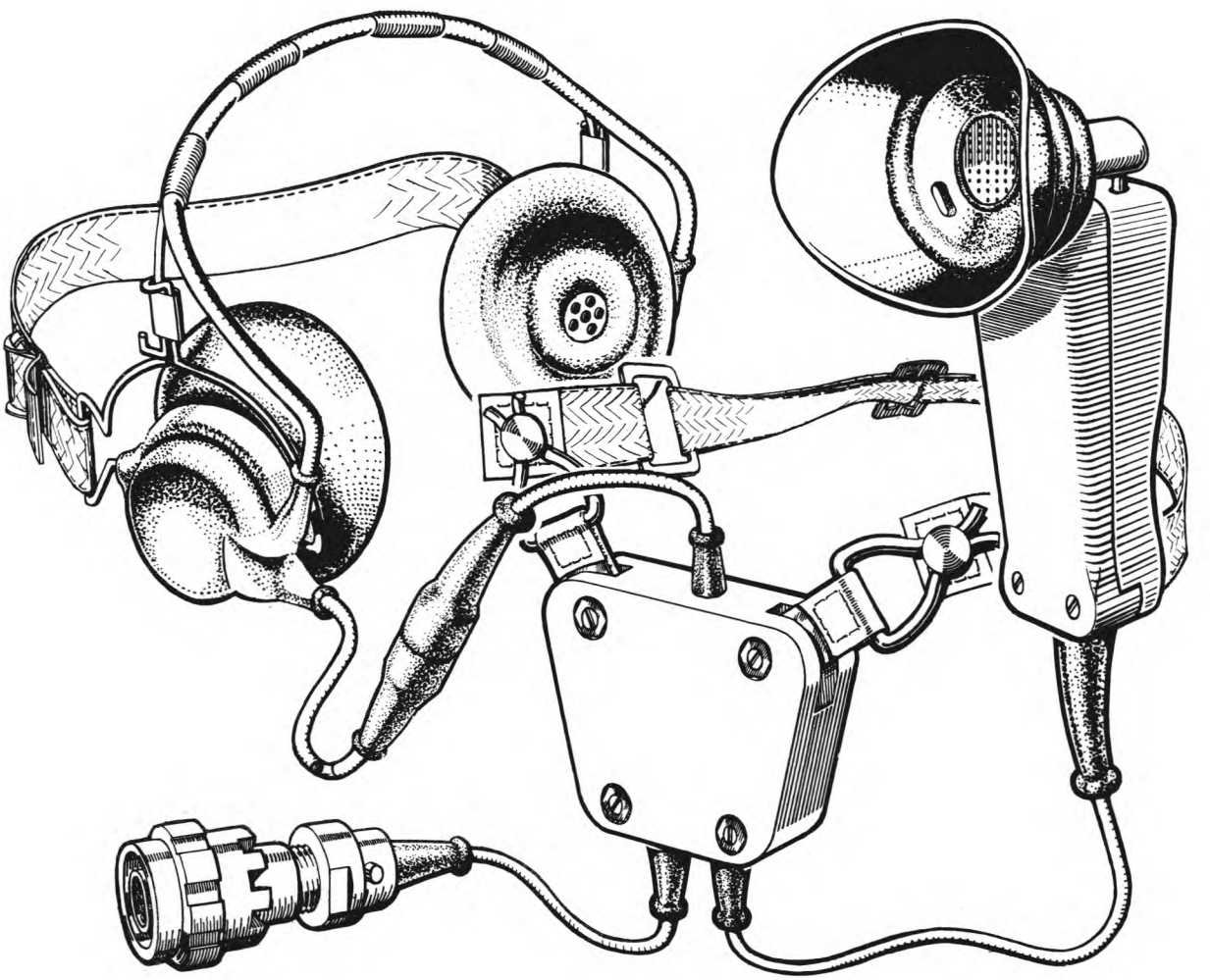


FIG. 21 OPERATOR'S STANDARD MICHROPHONE AND EARPHONE ASSEMBLY

(3) Receiver headgear SI double No. 1A

Insets standard receiver E/M No. 1, colour coded green with white band and having a DC resistance of approximately 40 ohms, are fitted in the headgear assembly. To remove an inset from an earpad, detach the wire frame, then stretch the rubber until the aperture is large enough for the inset to pass through and finally release the inset from the terminals.

(4) Interchangeability

A headset assembly functions when similar insets are used for earpiece and mouthpiece but the performance may not be up to normal standard. Consequently if the correct replacement inset is not available, either type can be used in lieu of the other as a temporary measure only.

(5) Telephone hand SI remote control No. 1

To remove the insets from the handset, unscrew the cap retaining each one in position and detach it from its pair of terminals. Insets used in the remote control telephone are as follows:

(a) Microphone

Inset standard microphone carbon No. 1, colour coded red with black band and having a resistance varying between 100 ohms and 200 ohms when gently shaken.

(b) Earphone

Inset standard receiver E/M No. 1, colour coded green with white band and having a resistance of approximately 40 ohms.

(6) Pressel switches

If a microphone or handset pressel switch is found to be faulty the complete assembly should be changed for a serviceable replacement.

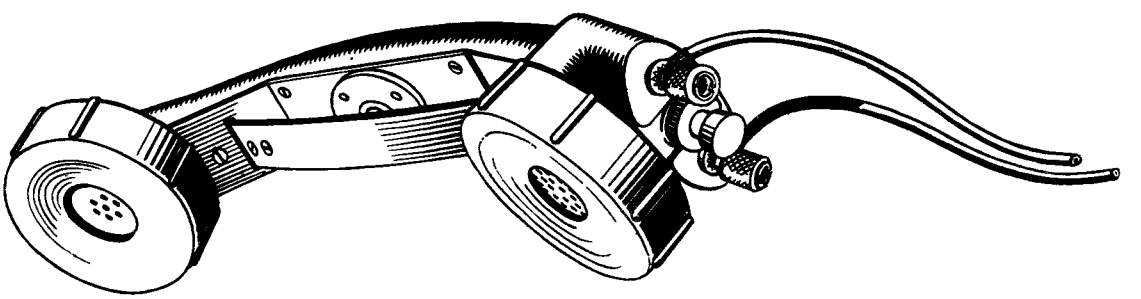


FIG. 22 REMOTE CONTROL TELEPHONE

CHAPTER 2
REMOTE AERIALS

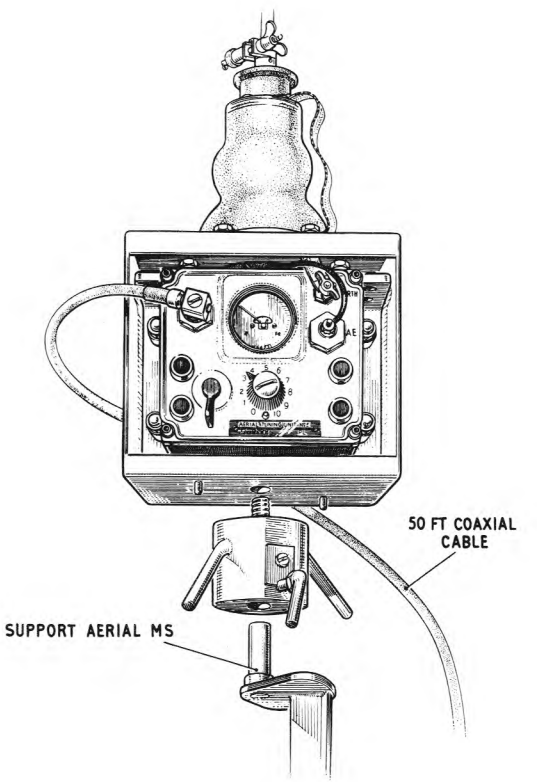


FIG. 23 DISMOUNTABLE VHF ATU

C O N T E N T S

Remote aerials for other radio sets are described in the user handbooks supplied with the sets.

Section 1 REMOTE AERIALS FOR B47, B48, C42 AND C45

(1) Remote rod aerials

ATUs for use with the above VHF sets are fitted into a case with an aerial at the top as shown in fig. 24. At the halt the complete ATU assembly can be dismounted and set up within 50 feet of the radio set. Guidance on siting aerials for VHF radio sets is given in the user handbooks for C42 and C45. Having chosen a site for the aerial, erect it as follows:

(2) Equipment required

Dismountable ATU to suit the radio set
Support aerial
Cable assembly RF coaxial, 50-ft.
8-ft. rod aerial

(3) Support aerial

This ground spike is supplied in the radio set installation kit. At the site of the remote aerial, drive it firmly into the ground, keeping it upright.

(4) Dismountable ATU

This assembly forms part of the vehicle station and must be dismounted for use in a ground station. Disconnect the coaxial cable and the vehicle aerial and earth leads from the ATU. Dismantle the assembly from its mounting by unscrewing the heavy screw. Refit the screw into the assembly and tighten by hand. Mount the assembly on the ground spike as shown in fig. 23. Tighten the small locking screw on the side of the heavy screw to secure the assembly. Refit the original aerial lead and earth braid to the ATU aerial and earth terminals if these have been disconnected.

(5) Cable assembly RF coaxial, 50-ft.

Fit one of these cables between ATU and radio set. Do not join 50-ft. cables for these VHF sets.

(6) 8-ft. rod aerial

Fit the 8-ft. rod aerial in the aerial base on the top of the assembly and tighten the clamp. Ensure that it is vertical. The rod aerial for B47, B48, C42 or C45 must not exceed 8-ft. in length.

Section 2 ELEVATED AERIALS FOR VHF SETS

Two elevated aerials are available for use with VHF sets, one covering the frequency 23 to 38 Mc/s and the other 36 to 60 Mc/s. These aerials consist of telescopic rods which can be extended to suit the frequency. The assembly is mounted on the top of a 27-ft. mast and connected to the set by means of a 50-ft. coaxial cable. Full instructions are given in the user handbooks issued with these aerials.

Section 3 FITTING A VHF ATU INTO A DISMOUNTABLE CASE

(1) When to remove the ATU

In certain installations it is necessary to remove the ATU from its dismountable case in order to mount it in the vehicle. Two such examples are at the forward aerial positions in the truck 1-ton armoured, shown in part 2 pages 67 and 68. Apart from these installations the VHF ATU should always be kept in its case.

(2) To remove the ATU

To remove the ATU, first disconnect the aerial and earth leads from the terminals. Then unscrew the four nuts at the back of the case and take the ATU out. Keep the resilient mountings together ready for refitting.

(3) To refit the ATU

Before putting the ATU into the case, fit the four rubber mountings as shown in the inset to fig. 24. First fit the resilient mountings in the rear flange as shown and replace the square rubber washers to retain them. Then insert the four studs through the rubber mountings. Lift the ATU into the case and let the ends of the four studs project through the back of the case. Finally fit a spring washer and nut to each stud and tighten to secure the assembly. Connect the aerial and earth leads to the terminals on the ATU.

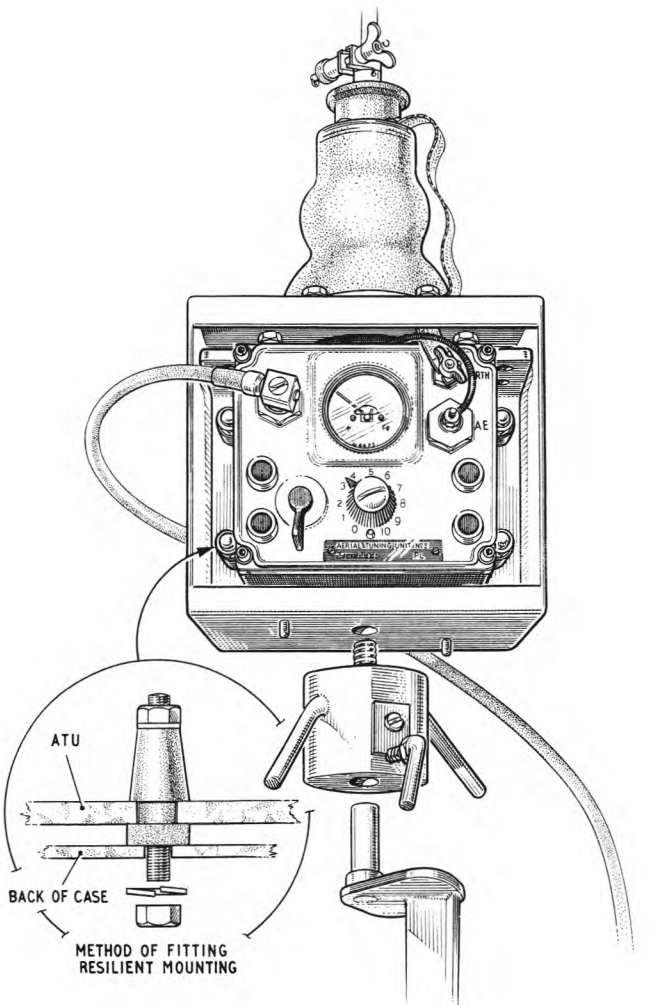


FIG. 24 FITTING A VHF ATU INTO ITS DISMOUNTABLE CASE

Section 4 REMOTE ROD AERIAL FOR C11-R210

(1) Equipment required

Rod earth, 36-in.
Lead counterpoise, 25-ft. (see fig. 25)
Dismountable ATU No. 7 assembly (see fig. 26)
Connector single No. 228, 12-in.
Cable assembly RF, 50-ft. (three)
Couplers plug and chain assembly (two)
Antennae rods sections No. 1, 2 and 3.

(2) Site

Select a suitable site within 150-ft. of the radio set. The ground must be clear of obstructions over a radius of some 25 feet in order that the counterpoise earth leads can be laid out. Level a space in the centre for the dismounted ATU No. 7. Clear away long grass, etc., which might interfere with aerial terminals and connections.

(3) Rod, earth, 36-in.

At the centre of the site, drive this earth rod firmly into the ground to form an earth connection for the dismounted ATU and the counterpoise.

(4) Lead, counterpoise, 25-ft. effective length

This counterpoise must always form a part of the remote aerial assembly. See fig. 25. Spread the eight leads out, equally spaced and flat on the ground so that they radiate from the base of the aerial like spokes from the hub of a wheel. Extend each lead to its full length and tread the end cap into the ground. Note that when

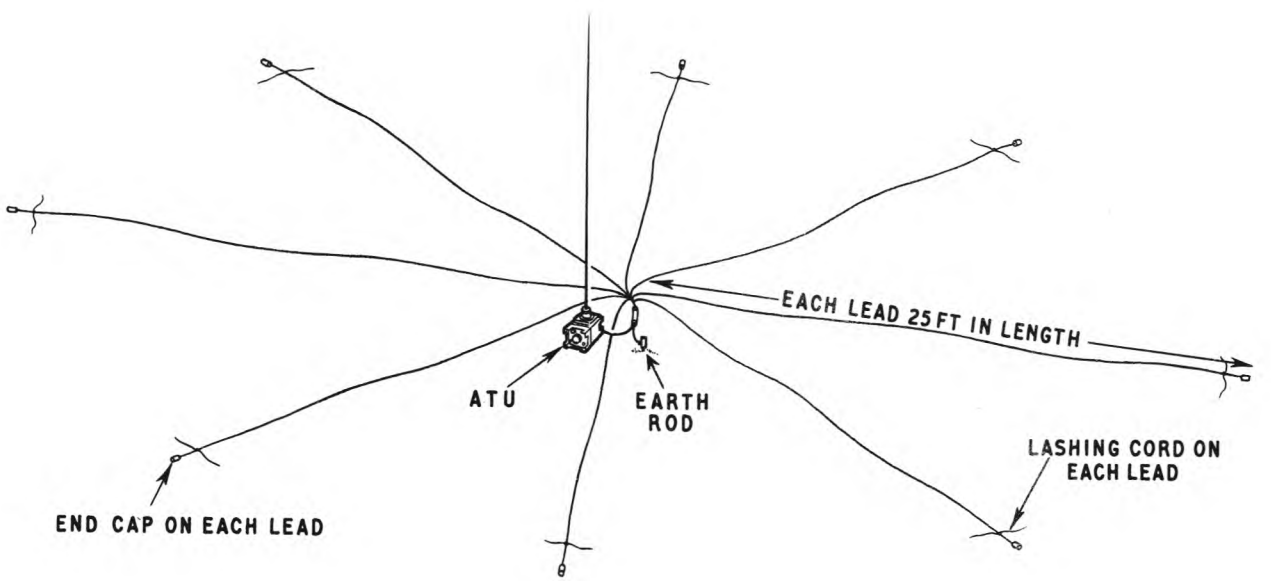


FIG. 25 COUNTERPOISE EARTH LEADS FOR REMOTE HF AERIALS

the counterpoise is being taken up each lead should be coiled separately. Start winding from the centre, otherwise the wire will curl and twist. Tie each coiled lead separately and then tie the coils together.

(5) Dismount the ATU No. 7

Disconnect and remove the ATU assembly from the top of the C11. Slacken two wing nuts on the aerial base and bracket assembly No. 3 and slide the two supports out to their full extent as shown in fig. 26. Then tighten the wing nuts. Place the ATU assembly on the ground and settle it firmly or it may heel over in a high wind. The earth pin fitted in the clamp on the top of the assembly is not required when a rod earth 36-in. is used.

(6) Connections

Fit the copper braid connector on the aerial base and bracket assembly No. 3 to the ATU earth terminal. Fit the counterpoise 3-ft. connector to the ATU earth terminal. Fit the counterpoise 18-in. connector to the top of the earth rod.

(7) Connector single No. 228, 12-in.

Fit this aerial connector between the ATU aerial terminal and the top of the aerial base on the assembly. See fig. 26. See that the insulating beads are spaced to prevent the connector touching the bracket or the ATU. This connector can remain on the assembly, although it is not required in the vehicle station.

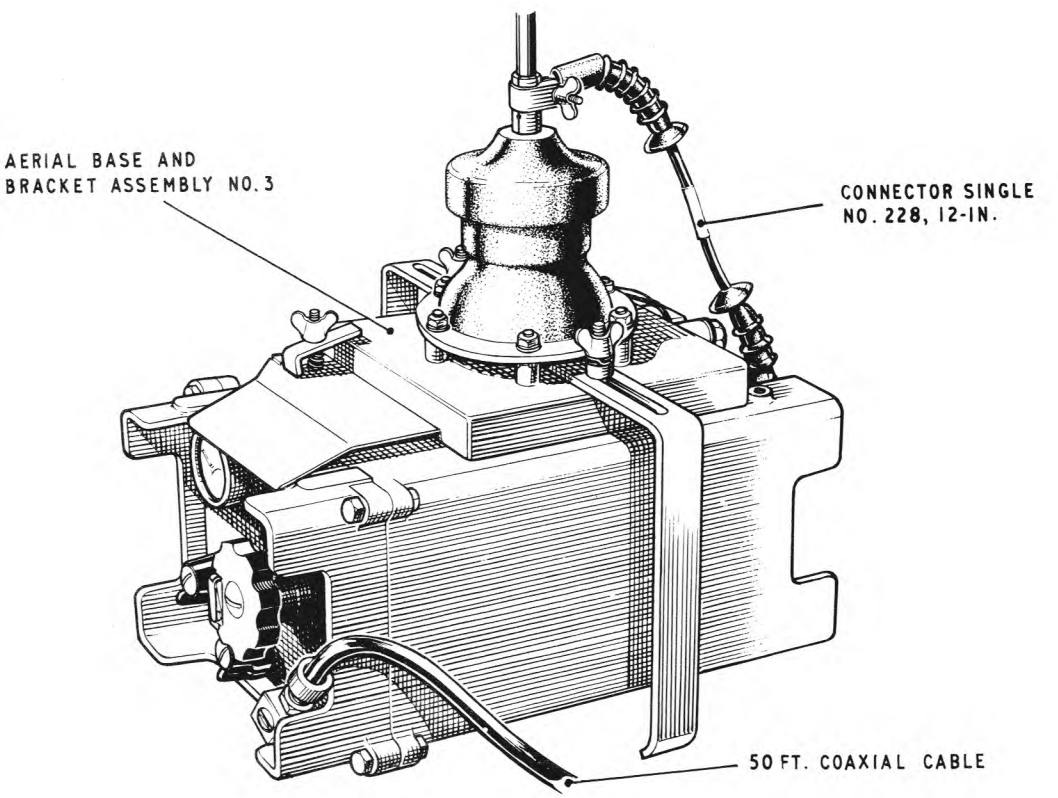


FIG. 26 DISMOUNTABLE ATU NO. 7 ASSEMBLY FOR C11–R210

(8) Cable assembly RF, 50-ft.

Fit one, two or three of these coaxial cables between the coaxial plug on ATU No. 7 and the C11. See paragraph (9) below.

(9) Couplers plug and chain assembly

If necessary, join two or three 50-ft. aerial feeders by means of couplers plug and chain assembly to make a maximum length of 150 feet.

(10) Antennae rods

Fit together the required number of 'F' sections and erect the aerial in the aerial base on the dismounted ATU assembly. Details of aerial lengths are given in the C11 user handbook.

Section 5 OTHER AERIALS FOR HF SETS

(1) Mast 27-ft. telescopic

This mast can be used as a vertical radiator for HF sets. Instructions for erecting the 27-ft. mast are included in the separate user handbook supplied with it.

Fully extended but without the addition of antennae rod 'F' sections, and mounted on its base insulator, the 27-ft. mast is suitable for use on frequencies between 2 and 7 Mc/s.

The ATU must be dismounted and placed at the foot of the aerial.

A counterpoise earth should always form part of the remote vertical aerial arrangement. Instructions for spreading the wire counterpoise for the C11 are given on pages 26 and 27.

(2) Braid aerials

Braid aerials, end-fed and dipole, are available for use on frequencies between 1.5 and 16 Mc/s. A length of braid to suit the frequency is unwound and erected between suitable supports. Full instructions are given in the user handbook issued with the aerials.

CHAPTER 3
BATTERY CHARGING

C O N T E N T S

IMPORTANT

Make sure that all power supply leads are connected positive to positive and negative to negative throughout. If this polarity is reversed the equipment will be damaged.

Section 1 FLOAT CHARGING

(1) Using vehicle dynamo and power take-off

With one exception, all radio sets can be operated on batteries that are at the same time being charged by the vehicle generator through a power take-off connection. They are safeguarded against a slight rise in input voltage above the nominal voltage of the equipment. The one exception is the R209 Mk. 2, which has no VCR and should not be connected to batteries which are being float charged. Operation of the VCR is explained in Part 1 page 8.

(2) Do not use the 300W charging set on float charge

The charging set output is not voltage regulated and the voltage can rise high enough to damage the radio set.

Section 2 ROUTINE SERVICING

(1) Connectors, etc.

Ensure that battery connectors are firmly attached. Remove any corrosion from terminals, connecting plugs, sockets, etc. Ensure that connectors are not frayed or chafed.

(2) Topping up

At regular weekly intervals, or more frequently if necessary, check the level of the electrolyte in each cell. Add distilled water to keep the level $\frac{1}{4}$-in. above the tops of the plates, following any special instructions where these are given with the battery. Dry off any spilt water. See that vent holes in filling plugs are clear.

When distilled water cannot be obtained, clean spring water or rain water taken from a clean catchment surface may be used. Boil it to dispel gases and remove suspended matter by filtering or settlement. Do not use chlorinated drinking water.

(3) Check the state of charge

Test the battery voltage with the J1 or J2 and the radio set PSU switched on, using the voltmeter on the PSU. Note that this voltmeter shows the voltage whether the PSU is switched on or off. If the voltage is below 22 for a 24V installation or 11 for a 12V installation the batteries need charging. A hydrometer gives a more reliable indication than the voltmeter and should be used if available to measure the specific gravity (SG) of the battery. An SG of approximately 1.285 at normal temperature of 60°F (15°C) shows a fully charged battery; at 1.180 the battery is flat and must be re-charged.

(4) Batteries not in use

Do not allow batteries to stand in a discharged condition. Batteries not in use should be charged at monthly intervals.

Section 3 BATTERY CONNECTORS

(1) Handle battery connectors carefully

It is very easy to short circuit the power supply when metal cased batteries are used in metal floored vehicles. This happens when loose connectors are allowed to come into contact with either the case of the battery or the metal floor or framework. Such a short circuit will cause severe damage to the radio equipment by allowing a very heavy current to flow in the negative lead. To minimise the risk of short circuits, always fit battery connectors as instructed.

(2) Battery connections on all FFR vehicles except Rover Mk. 8 and 9 FFR

(a) Before connecting batteries, see that one end of the earth connector is firmly secured to the vehicle chassis or framework.

(b) First fit the series connector from the negative terminal on one battery (1 in fig. 27) to the positive terminal on the other battery (2 in fig. 27)

The terminals to which the series connector is fitted must not now be used for any other connection

(c) Fit the earth connector to the vacant negative terminal. (3 in fig. 27).

(d) Then fit the negative lead of the power supply connector to the same terminal as the earth connector. (3 in fig. 27).

(e) Finally fit the positive lead of the power supply connector to the vacant positive terminal. (4 in fig. 27).

(f) Disconnect batteries in the reverse order.

(3) Battery connections on Rover Mk. 8 and 9 FFR

On these trucks the negative side of the battery is earthed in the vehicle wiring. The earth connector is not fitted direct to the battery negative terminal. Fit battery connectors as shown in part 2 page 35.

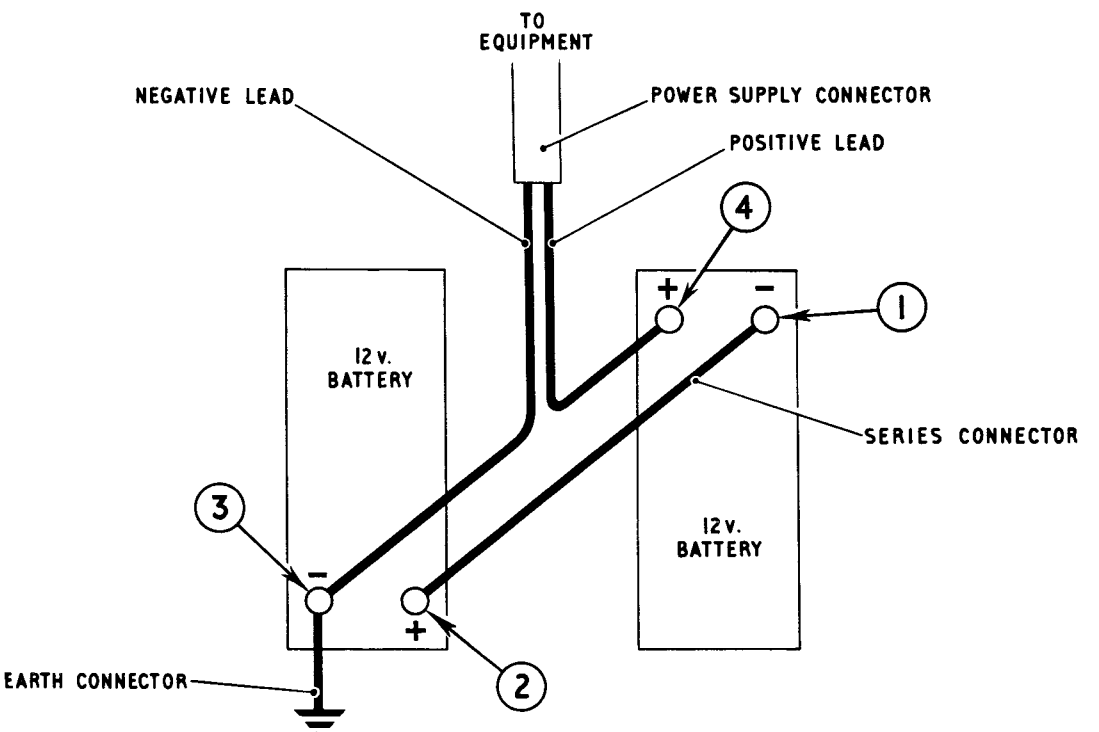


FIG. 27 METHOD OF FITTING CONNECTORS TO TWO BATTERIES

Section 4 VEHICLES WITH POWER TAKE-OFF

(1) Truck FFR ¼-ton Austin

Radio batteries are connected in parallel with the vehicle batteries and are automatically charged by the vehicle generator when the engine is running. The power take-off socket is fitted behind the LH seat. This connection cannot be switched off. As radio and vehicle batteries are connected in parallel, the lug on the positive battery lead is still "live" when removed from the radio battery, whether the engine is running or not.

WARNING - Always un-plug the battery lead from the LT box on the set before disconnecting the lugs from the battery.

(2) Rovers Mk. 8 and 9 FFR

Radio batteries are connected to the vehicle generator and are automatically charged when the engine is running. Charging current is shown by the radio ammeter on the vehicle dashboard. The power take-off terminals and the positive connector are not "live" when the engine is stationary but when the engine is running the positive terminal and connector are "live". This connection cannot be switched off.

WARNING - Always stow battery leads on the insulated terminals provided for this purpose when they are removed from batteries.

(3) Truck Armoured FFR 1-ton

Radio batteries can be charged by the vehicle generator when the engine is running. The power take-off terminal box is on the RH wall behind the driver's seat. Vehicle generator, radio equipment and two banks of batteries are connected to Panel power distribution No. 8, which controls the charging and use of these batteries. See page 33. While the engine is stationary the power take-off terminals are disconnected from vehicle batteries and generator. When the engine starts running a cut-out closes, connecting the generator to the power take-off terminals, and the power take-off positive lead is "live". If the panel is switched on, both battery positive leads will also be live. A fuse in the vehicle generator panel protects the generator if one of these leads touches the vehicle or equipment when the engine is started.

WARNING - Always stow battery connectors on the insulated terminals provided for this purpose when they are removed from batteries. See that power take-off connectors are firmly secured to Panel power distribution No. 8.

(4) Truck radio FFR 1-ton Humber

This truck is basically similar to the 1-ton armoured and is fitted with the same type of power take-off. See paragraph 3. Power take-off terminals are mounted on the front wall of the radio compartment. Panel power distribution No. 8 may also be fitted there.

IMPORTANT - Check batteries at regular intervals in case the vehicle is not running sufficiently to maintain them in good condition. If necessary, remove them for central charging.

Section 5 VEHICLES WITHOUT POWER TAKE-OFF

On Rovers Mk. 1, 2, 3 and 5, Austin 1-ton FFR and Radio, and on other vehicles without power take-off, batteries should be removed for central charging under unit arrangements.

Section 6 PANEL POWER DISTRIBUTION No. 8

(1) Working instructions

An instruction card is supplied in a holder at the LH end of the case.

(2) Voltage selector link

This enables the 24V vehicle generator to be used to float charge a 12V installation. Check that the link joins the centre stud to the 12V or 24V stud according to the voltage of the installed equipment.

WARNING - Do not connect a separate 24V charging set to a panel adjusted for a 12V installation.

(3) Battery selector (LH switch)

At DISC 1 - CHG 2, battery 1 is connected to the EQUIPT terminals to supply the equipment and battery 2 is connected for charging. At DISC 2 - CHG 1, battery 2 is connected to the EQUIPT terminals and battery 1 is connected for charging. At FLOAT CHG, both banks of batteries are connected in parallel to supply the equipment and to be float charged. The FLOAT CHG position should not be used when a separate charging set is connected to the panel. See the warning on page 34.

(4) Charging selector (RH switch)

When the vehicle generator is to be used to charge the batteries, turn the switch to VEH GENR HIGH or LOW depending upon the charging rate required. When a separate charging set such as the 300W set is to be used, turn the switch to CHG SET. Connect the charging set to the CHG SET terminals. See page 34. Press the meter switch to show the charging rate.

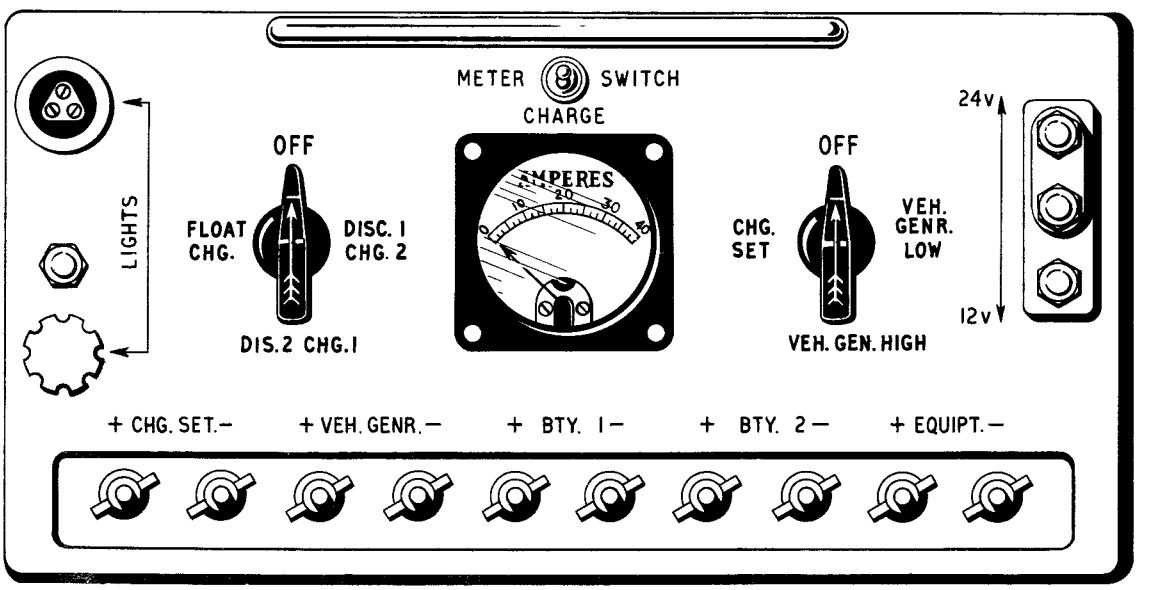


FIG. 28 TERMINALS AND CONTROLS ON PANEL POWER DISTRIBUTION NO. 8

Section 7 CHARGING SET 300W

(1) The charging set and its accessories are normally held by units. Operating instructions are supplied with it.

(2) On Austin K9 Mk. 2 FFR and Radio trucks, the charging set can be operated on the hinged flap of its locker as shown in fig. 29. On 1-ton Armoured FFR it can be operated in its stowage position on the RH front wing.

(3) A Connector twin No. 53 is supplied in the charging set kit. Fit it between the charging set and the CHG SET terminals on Panel power distribution No. 8 when this is installed. When the panel is not installed, connect the charging set direct to the batteries.

NOTE - Do not connect the charging set to Panel power distribution No. 8 if its voltage is not the same as that of the installed equipment. The voltage selector on the panel is not effective on a separate charging set.

WARNING - Do not use the charging set on float charge

The charging set output is not voltage regulated and the voltage can rise high enough to damage the radio equipment. When Panel power distribution No. 8 is being used, switch to CHG 1 or CHG 2 but not to FLOAT CHG.

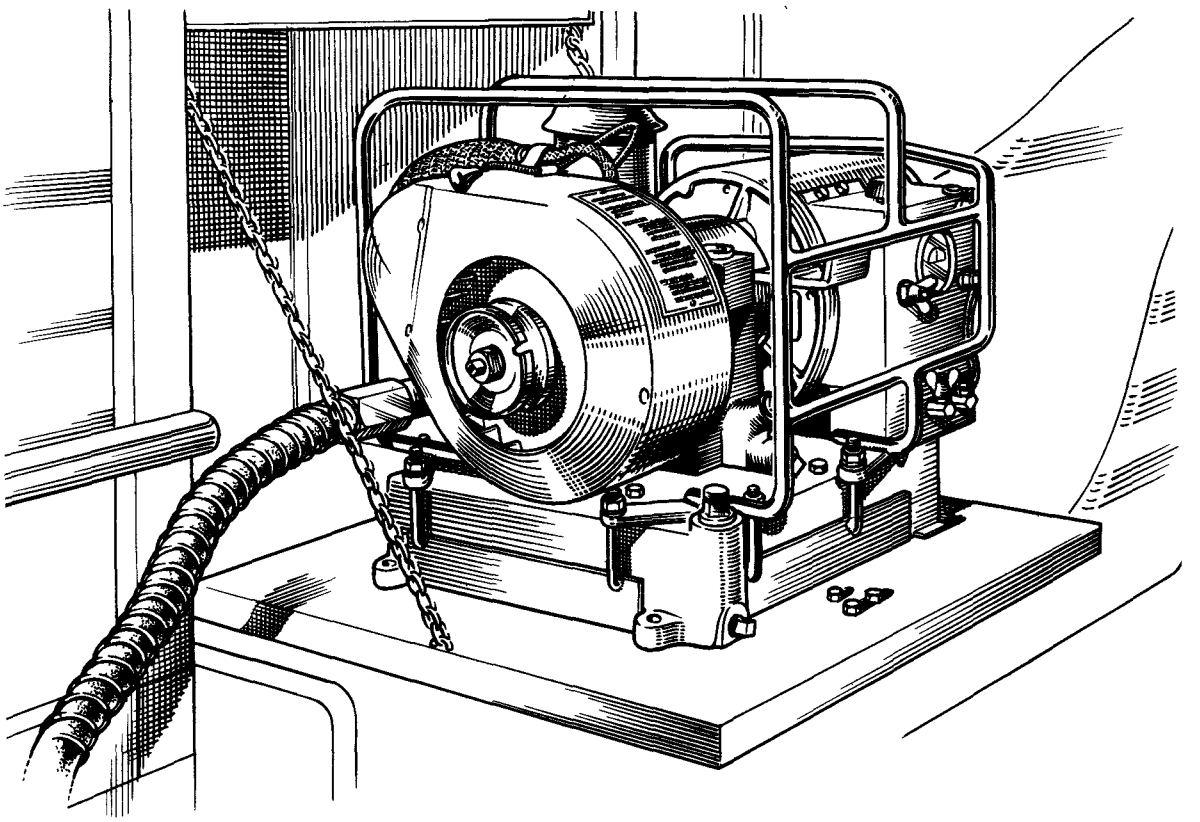


FIG. 29 CHARGING SET 300W IN A TRUCK 1-TON FFR

INDEX

Page numbers shown below are prefixed by part numbers.
For example : A 41, see part 3 page 35.