ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 1

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Serial number plate rivets

SUMMARY

1. The aluminium rivets securing the serial number plate are very easily sheared. This Regulation details the replacement of these by brass rivets.

Estimated time required to complete this modification: 1/4 man-hour

2. Items affected:-

Wireless set C42

3. Action required by:-

(a) Units affected:-

(i) When serial number plates break off, or equipment is otherwise in need of repair, submit AF G1045 to REME requesting this instruction to be carried out.

(b) Units authorized to carry out field or base repairs:-

(i) Indent for stores
(ii) Carry out the detail of this instruction on all equipments undergoing repair or overhaul.

4. Priority: Group 'B' (ACI 96/54 refers)

5. Stores required:-

Part No	Designation	Qty per eqpt
G1/5320-99-942-9658	Rivets, semi-tubular, oval head, No 16 x 7/32 in. long, DNP brass, to BS 1855	1

Stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) T/W/HL/11.

DETAIL

6. If the rivets securing the serial number plate to the top front ledge of the Wireless set C42 are of aluminium carefully remove them by drilling or punching them out (if they are not already broken off) and refix the plate by means of the 7/32 in. brass rivets provided.

57/Maint/6021

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 2

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Erratum

Note: These Pages 0 and 01 will be filed immediately in front of Page 1, Issue 1, dated 30 May 58.

1. The following amendment will be made to the Regulation:-

Page 2, para 6(c)

Delete: All detail
Insert: Strike through the figures 1, 2, 3 on the plate as appropriate. Details of these modifications, which were introduced at different stages in production, and the corresponding unit modification record plate numbers which will have been struck through, are as indicated below:-

Distribution - Class 870. Code No 3

(i) No 1 - D.C. heater wiring change (Number 1 on 1st i.f. unit, a.m.c. unit, and main tray mod record plates)

(ii) No 2 - Addition of a low-pass filter to the i.c. amplifier (Number 1 on the i.c. unit mod record plate)

(iii) No 3 - Modification to ensure operation of squelch relay at low battery voltage (Number 1 on the squelch unit mod record plate)

57/Maint/6021

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 2

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Fitting of modification record plate

SUMMARY

1. This instruction details the procedure for the fitting of an external modification record plate to the Wireless set C42 (W.S. C42). It will be carried out on the first suitable occasion when a set has been withdrawn from service for other reasons.

Estimated time required to complete the modification: 1/4 man-hour.

2. Items affected:-

Wireless set C42 Cat No ZA 43207

3. Action required by:-

(a) Units affected:-

(i) When equipment is withdrawn from service for any reason submit AF G1045 to REME requesting this modification to be carried out.

(b) Units authorized to carry out field or base repairs:-

(i) Indent for stores
(ii) When stores are received, carry out this modification.

4. Priority: Group 'B' (ACI 96/54 refers)

5. Stores required:-

Cat No	Designation	Qty per eqpt
YA 9980	Modification record plate	1
G1/5320-99-942-9658	Rivets, semi-tubular, oval head, No 16, x 7/32 in. long, DNP brass, to B.S. 1855	1
G1/5320-99-942-9659	Rivets, semi-tubular, oval head, No 16, x 9/32 in. long, DNP brass, to B.S. 1855	1

Stores will be demanded through the normal Ordnance channels.

Authority for demand (to be quoted on all indents) T/W/HL/28

DETAIL

6. Referring to Fig 1:-

(a) Drill two 0.07 in. diameter holes (No 50 drill) in the bottom ledge of the front of the wireless set to the dimensions shown.

(b) Fit the modification record plate (YA 9980) as shown, by means of the two rivets provided, using the shorter (7/32 in.) rivet nearest the front edge.

(c) Strike through the numbers 1, 2 and 3 on the plate; these correspond to the following production modifications:-

(i) No 1 - D.C. heater wiring change (Mod 1 on 1st i.f. unit, a.m.c. unit and main tray)

(ii) No 2 - Addition of a low-pass filter to the i.c. amplifier (Mod 1 on the i.c. unit)

(iii) No 3 - De-sensitising of squelch circuit (Mod 1 on the squelch unit)

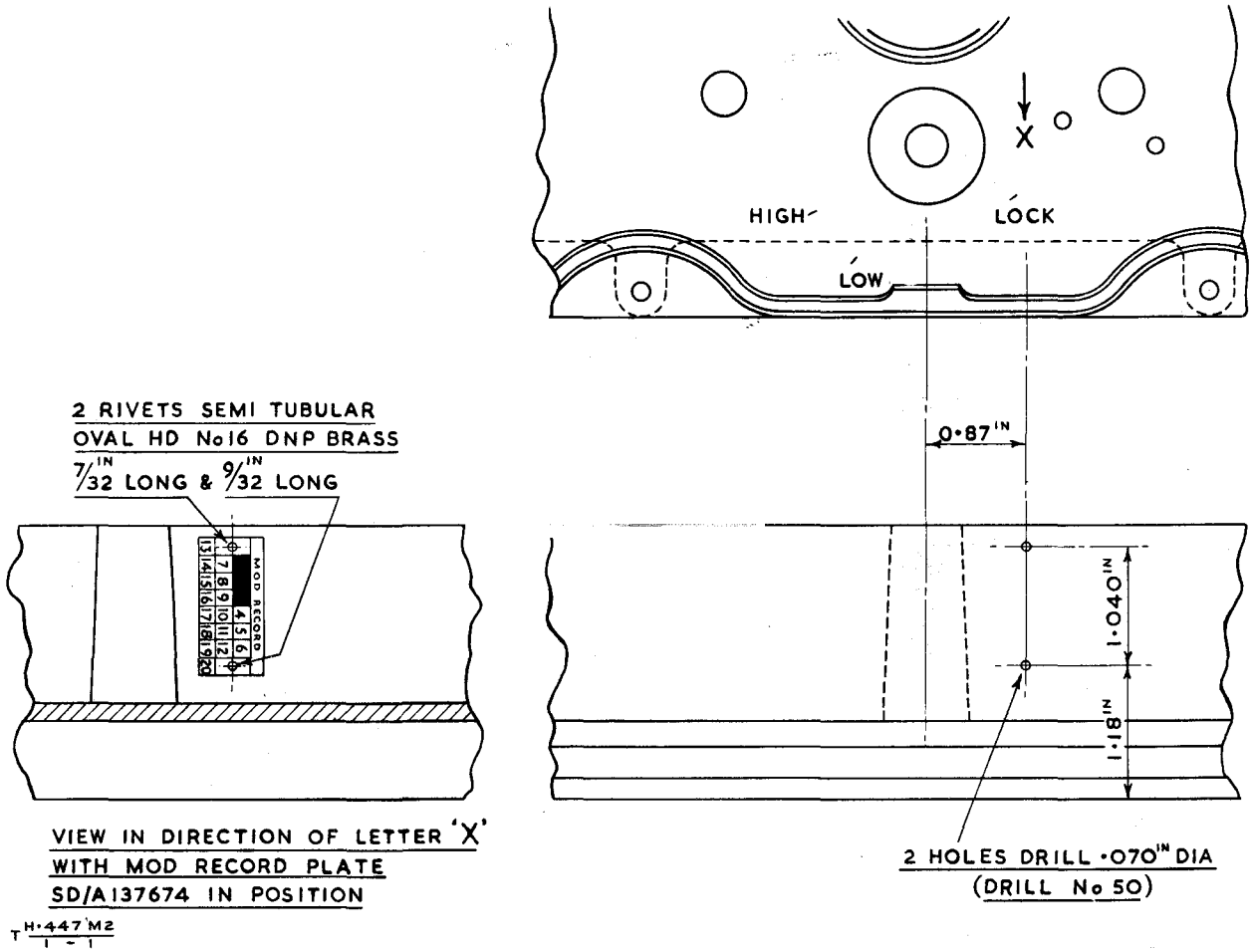


Fig 1 - Position of modification record plate

57/Maint/6021

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 3

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Operation of squelch relay at low battery voltage

SUMMARY

1. The squelch relay has been found to operate in an unsatisfactory manner when the battery voltage is at its lower limit (21V on 24V units and 10.5V on 12V units). This regulation details the method of overcoming this defect by increasing the standing anode current on V24.

Estimated time required to carry out this modification - 1/4 man-hour.

2. Items affected:-

Wireless set C42, Serial Nos 1001-1116 and 2101-3020	-	ZA 43207
Units, squelch	-	ZA 43428

3. Action required by:-

(a) Units affected:-

(i) Submit AF G 1045 to REME requesting this modification to be carried out.

(b) Units authorised to carry out field or base repairs:-

(i) Demand stores from Ordnance
(ii) Carry out the detail of this instruction

4. Priority: Group 'B' (ACI 96/54 refers)

5. Stores required:-

Part No	Designation	Qty per equip
Z 222194	Resistors, fixed, composition, grade 2, insulated, 33kΩ ±10%	1

Stores to be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) T/W/HL/1.

DETAIL (Refer to Tels H 442, Part 2, Figs 2007 and 2017)

6. (a) Remove the wireless set from its case (refer to Tels H 443, paras 5 - 7 and H 444, Part 1, paras 4 - 14).

(b) Locate the squelch unit. Unsolder and withdraw the pins connecting it to the terminal blocks at the ends and remove the unit from the set.

(c) Remove resistor R129 (10kΩ) from the tag panel on the top of the chassis and replace by a wire strap.

(d) Remove resistor R128 (68kΩ) from the tag panel on the underside of the chassis and fit the new resistor (33kΩ) in its place.

(e) Strike through the figure 1 on the squelch unit modification record plate.

(f) Replace the squelch unit in the set. Replace fixing screws and resolder the pin connections.

(g) Strike through the figure 3 on the wireless set modification record plate.

(h) Replace the wireless set in its case. (Refer to Tels H 443, paras 5 - 7 and H 444, Part 1, paras 4 - 14).

(j) Adjust the setting of the squelch unit preset potentiometer so that the SIGNAL lamp just lights in the absence of a signal with the front panel SQUELCH control rotated clockwise two-thirds of its travel.

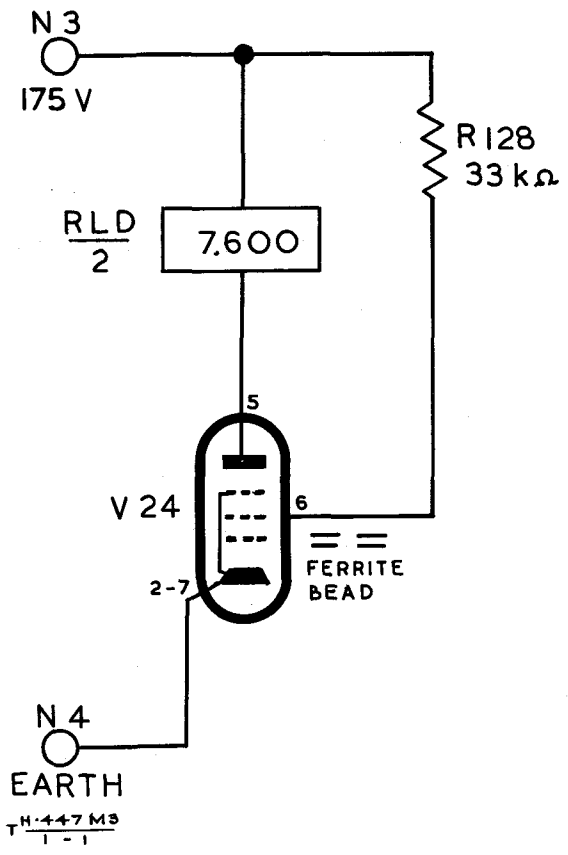


FIG 1 - MODIFIED CIRCUIT OF V 24

Fig 1 - Modified anode and screen circuit of V24

END

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 4

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Units, R.F., No 8 - Improvement of performance

SUMMARY

1. This instruction describes the modification necessary to reduce the degradation of receiver performance at the channel frequencies corresponding to the 5th, 6th and 7th harmonics of the second local oscillator.

Estimated time required to perform this modification: 1/2 man-hour.

2. Items affected:-

Wireless set C42	-	ZA 43207
Units, R.F., No 8	-	ZA 43969

3. Action required by:-

(a) Units affected:-

(i) Submit AF G 1045 to REME requesting modification to be carried out

(b) Units authorised to carry out field or base repairs:-

(i) Indent for stores
(ii) When stores are received carry out the detail of this instruction

4. Priority: Group 'B' (ACI 96/54 refers).

5. Stores required:-

Cat No	Designation	Qty per eqpt
Z 124019	Capacitors, fixed, mica dielectric, 0.001µF ±10%, 350V d.c.	1

Stores will be demanded through normal Ordnance channels. Authority for demand (to be quoted on all indents) T/W/HL/29

DETAIL

6. (a) Remove the wireless set from its case (Refer to Tels H 443, paras 5 - 7 and H 444, Part 1, paras 4 - 14).

(b) Open the bottom tray containing Units, R.F., No 8, having first turned the r.f. scale to DATUM (60Mc/s end) and unplugged the c.f.o. lead. Lock the bottom tray in a vertical position.

(c) Unplug SK7 and unsolder and withdraw all pins connecting A and B terminal block plugs and sockets.

(d) Remove r.f. unit from the tray by unscrewing the chromium-plated fixing screws. To prevent damage to the fingers of the law-corrector fork move it out of the way by turning it through 90 degrees.

(e) Remove the unit baseplate from the end section containing the tag blocks A and B.

(f) Fit the new capacitor (C28) between tag A1 and the adjacent earth tag as shown in Fig 1.

(g) Replace baseplate on the r.f. unit.

(h) Strike through the figure 1 on the r.f. unit modification record plate.

(j) Replace the r.f. unit in the set and reverse the sequence of operations at sub-paras (a) to (c) having first set the law-corrector fork in a vertical position so that it engages correctly with the drive without shock as the tray is closed up.

(k) Reseal the wireless set in its case (see Tels H 443 paras 5 and 7 and H 444, Part 1, paras 4 - 14)

(l) Stike through the figure 4 on the wireless set modification record plate.

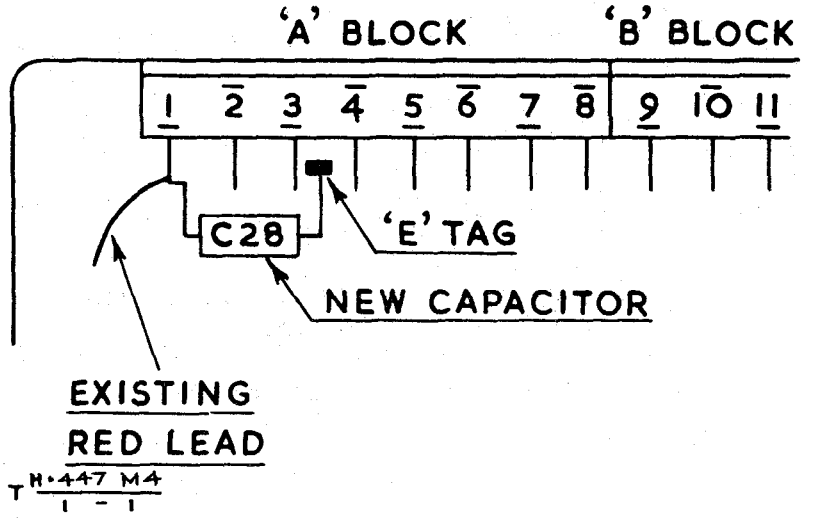


Fig 1 - Position of new capacitor C28

57/Maint/6021

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 5

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Change of capacitor C51

SUMMARY

1. The capacitor C51, which is connected to the anode of V8, is rated for a temperature of 70°C, but in practice is subjected to nearly 90°C. It is also shown in the parts list as being 500V d.c. working but is actually only 350V d.c. working. This Regulation details the replacement of C51 by a capacitor of higher voltage and temperature rating.

Estimated time required to perform this modification: 1/2 man-hour.

2. Items affected:-

Wireless set C42 - ZA 43207
Units, r.f., No 8 - ZA 43425

3. Action required by:-

(a) Units affected:-

(i) Submit AF G1045 to REME requesting this instruction to be carried out.

(b) Units authorized to carry out field or base repairs:-

(i) Indent for stores
(ii) When stores are received carry out the detail of this instruction

4. Priority: Group 'B' (ACI 96/54 refers).

5. Stores required:-

Part No	Designation	Qty per eqpt
Z 123949	Capacitors, moulded, silvd mica, 470pF ±10%, 750V d.c. wkg.	1

Stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) T/W/HL/20.

DETAIL

6. (a) Remove the wireless set from its case (See Tels H 443, paras 5-7 and H 444 paras 4-14)

(b) Tune the r.f. scale to DATUM (60Mc/s end) and unscrew the four screws securing the bottom tray. Open the tray slightly and unplug the co-axial lead connecting the c.f.o. and r.f. units.

(c) Open the tray to its full extent and ensure that the lock engages.

(d) Turn the law-corrector fork through 90° to prevent it getting damaged.

(e) Remove the socket SK7 from the fixed plug on the chassis of the r.f. unit. Unsolder and withdraw all the connecting links on the A and B terminal blocks.

(f) Remove the six chromium-plated screws which secure the r.f. unit to the tray and remove the unit.

(g) Remove the base-plate from the end section of the r.f. unit, ie that section which contains the terminal blocks A and B.

(h) Locate the capacitor C51 (See Tels H 442, Part 2, Fig 2010). Unsolder and remove this capacitor.

(j) Using similar lengths of lead and similar positioning fit the new capacitor (Z 123949) supplied and solder the connections.

(k) Replace the baseplate on the r.f. unit.

(l) Strike through the figure 3 on the modification record plate of the r.f. unit.

(m) Replace the r.f. unit into the bottom tray, reconnect the soldered links and replace the socket SK7.

(n) With the r.f. scale at DATUM and the law-corrector fork vertical to engage correctly with the drive, close the trays together. Replace the co-axial lead and ensure that the drive engages with the law-corrector fork without shock as the trays come together.

(o) Strike through the figure 7 on the wireless set modification record plate.

(p) Replace the set into its case (See Tels H 443 paras 5-7 and H 444 paras 4-14).

57/Maint/6021

END

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 6

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Replacement of capacitor C48

Note: This Mod Instr No 6 should, if possible, be carried out at the same time as Mod Instr No 5, as many of the operations are identical.

SUMMARY

1. The capacitor C48 which is fitted in the Units, RF, No 8, is rated for 350V d.c. This regulation details the replacement of this capacitor by two others, of 750V d.c., wired in parallel.

Estimated time required to complete this modification: 1/2 man-hour.

2. Items affected:-

Wireless Set C42 - ZA 43207
Units, RF, No 8 - ZA 43969

3. Action required by:-

(a) Units affected:-

(i) Submit AF G1045 to REME requesting modification to be carried out

(b) Units authorized to carry out field or base repairs:-

(i) Indent for stores
(ii) When stores are received carry out the detail of this instruction

4. Priority: Group 'B' (ACI 407/58 refers).

5. Stores required:-

Joint Services Cat No	Designation	Qty per eqpt
Z/5910-99-012-3949	Capacitor, fixed, mica dielectric, 470pF ±10%, 750V d.c.	2

Stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) T/W/HL/30.

6. Stores to be removed:-

Cat No	Designation	Qty per eqpt
Z 124019	Capacitor, fixed, mica dielectric, 0.001mF ±10%, 350V d.c.	1

This item to be disposed of locally.

Distribution - Class 1195. Code No 3

DETAIL

7. (a) Remove the wireless set from its case (refer to Tels H 443, paras 5, 6 and 7 and H 444 Part 1, paras 4-14).

(b) Open the bottom tray containing Units, RF, No 8, having first tuned the r.f. scale to DATUM (60 mc/s end) and unplugged the c.f.o. lead. Lock the bottom tray in a vertical position.

(c) Unplug SK7 and unsolder and withdraw all pins connecting 'A' and 'B' block plugs and sockets.

(d) Remove the r.f. unit from the tray by unscrewing the chrome-plated fixing screws. (Note: To prevent damage to the fingers of the law-corrector fork turn it through 90 degrees).

(e) Remove the unit base plate from the end section containing the tag blocks 'A' and 'B'.

(f) Remove the existing capacitor C48 (0.001mF) from the tag panel (Fig 1).

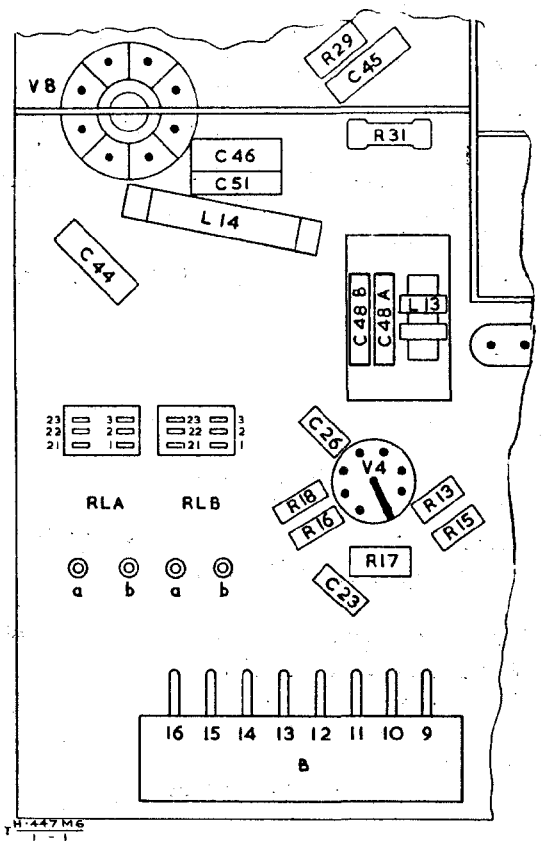


Fig 1 - Underside view of Units, RF, No 8

(g) Fit the two capacitors supplied (C48A and C48B of 470pF each) to the tag panel as shown in Fig 1.

(h) Replace the base plate on the r.f. unit.

(j) Strike through the figure 2 on the r.f. unit modification record plate.

(k) Replace the r.f. unit into the set and reverse the sequence of operation at sub-paras (a) to (c) having first set the law-corrector fork in a vertical position so that it engages correctly with the drive without damage as the tray is closed up.

(l) Reseal the wireless set into its case (see Tels H 443 paras 5 and 7).

(m) Strike through the figure 5 on the wireless set modification record plate.

57/Maint/6021

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 7

TRANSMITTER-RECEIVER, RADIO, C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Control knobs

Note: This Issue 3, Pages 1-2 supersedes Issue 2, Page 1, dated 10 Dec 59. It has been amended throughout.

1. Introduction

The various control knobs on the Transmitter-receiver, radio, C42, are secured by a collet assembly. In order to prevent any slackness of the knobs on their collets a special spring washer will be fitted under the domed cap of each knob. This regulation gives the necessary detail.

2. Priority: Group 'B' (ACI 407/58 refers)

3. Estimated time required: 1/4 man-hour

4. Items affected

Transmitter-receiver, radio, C42

5. Action required by:-

(a) Units and establishments holding equipment

(i) Request REME to modify equipment.

(b) Units authorized to carry out field or base repairs

(i) When requested by units demand stores and carry out modification.
(ii) Demand stores and carry out modification on all equipment received for repair or overhaul.

6. Stores, tools and equipment

(a) Stores to be demanded

VAOS, Section	Part No	Designation	Qty per eqpt
Z1	ZA 52521	Washers, spring, tension, beryllium copper, 0.476 in. i.d. x 0.750 in. o.d.	7

Stores to be demanded through the normal Ordnance channels.
Authority for demand (to be quoted on all indents) T/W/HL/47

7. Sequence of operations (Refer to Tels H 444, Part 1, Fig 4032 and Tels H 443, Page 2, para 8 and 9)

(a) Remove the securing cap from each of the collet-type knobs in turn. Fit one of the special spring washers provided on the shank of the cap with the domed side of the washer up against the underside of the cap. The serrated edge of the washer will rest against the top face of the knob.

(b) Position the spindle of the component concerned so that the moving element is well away from the end stops (if any) and replace the securing cap with washer on to the knob. When tightening the cap the knob will be securely held by the special tool mentioned at para 8 of Tels H 443. The end stops of the component will, in no case be used to resist the torque exerted by the screwdriver, as this is usually sufficient to break off the stops or otherwise damage the component.

T/61503/50

END

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 8

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Tuning knob of simulator unit

Note: This Issue 2 supersedes Issue 1, Page 1, dated 20 Sep 59. The regulation has been amended throughout.

SUMMARY

1. The tuning knob of the Wireless set C42 simulator unit is secured by means of a collet assembly. In order to prevent any slackness of the knob upon its collet a special spring washer is to be fitted under the cap of the knob. This regulation gives the necessary detail.

Estimated time required to carry out this modification: 1/4 man-hour.

2. Items affected:-

Wireless set C42
Simulator unit, aerial tuning

3. Action required by:-

(a) Units affected:-

(i) Demand stores for, and carry out the detail of this instruction on all equipments which are not fitted with a special spring washer under the cap of the tuning knob.

(b) Units authorized to carry out unit, field or base repairs:-

(i) Carry out the detail of this instruction on all equipments undergoing repair, overhaul or inspection which are not fitted with a special spring washer under the cap of the tuning knob.

4. Priority: Group 'B' (ACI 407/58 refers).

5. Stores required:-

VAOS, Section	Part No	Designation	Qty per eqpt
Z11	ZA52521	Washer, spring, tension, beryllium copper, 0.476 in. i.d. x 0.750 in. o.d.	1

Stores to be demanded through the normal Ordnance channel. Authority for demand (to be quoted on all indents) - T/W/CX/1.

DETAIL (Refer to Tels H 444, Part 1, Fig 4032)

6. Remove the securing cap from the tuning knob and replace it with the special spring washer supplied, on its shank. The domed side of the washer is to be against the underside of the cap and its serrated edge against the top face of the knob. Tighten the cap and ensure that there is then no slackness of the knob on its collet.

57/Maint/7959

END

Distribution - Class 1195. Code No 3

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 9

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Reduction of harmonic strength in second local oscillator

1. Introduction

The harmonics, generated by the second local oscillator circuit, which are within the r.f. tuning range of the Wireless set C42, are sufficiently strong seriously to affect the receiver sensitivity at 42, 50.4 and 58.8Mc/s. To reduce the amplitude of these harmonics the value of resistor R61, in the anode circuit of the second local oscillator valve V13b, is to be increased from 22kΩ to 100kΩ. This regulation gives the nessary modification detail.

2. Priority: Group 'B' (ACI 407/58 refers)

3. Estimated time required:

To complete the modification, excluding drying and sealing: 1/2 man-hour

4. Items affected

Wireless set C42 - ZA 43207
Units, 1st i.f. - ZA 43424

5. Action required by:-

(a) Units and establishments holding equipment

(i) Request REME to modify equipment.

(b) Units authorized to carry out field or base repairs

(i) When requested by units, demand stores for and carry out this modification.
(ii) Demand stores for, and carry out, this modification on all equipments received for inspection, repair or overhaul.

6. Stores, tools and equipment

(a) Stores to be demanded

The following stores will be demanded through the normal Ordnance channels. This EMER number is authority for the demand.

VAOS, Section	J.S. Part No	Designation	Qty per eqpt
Z	5905-99-022-3039	Resistor, fixed, comp., grade 2, ins., 100kΩ ±10%, 1/2W	1

(b) Stores to be discarded

The following item will be disposed of locally.

VAOS, Section	Part No	Designation	Qty per eqpt
-	-	Resistor, carbon, 22kΩ 3/4W	1

7. Sequence of operations

(a) Remove the set from its case (See Tels H 443 para 5-7 and Tels H 444, Part 1, para 4-14).

(b) Tune the r.f. scale to DATUM (60Mc/s end).

(c) Unplug the coaxial lead from the 1st local oscillator (1st l.o.) unit.

(d) Unscrew the four captive screws which secure the bottom wiring tray to the frame and hinge the tray back to the 'lock' position. Place the set face downwards on its front panel.

(e) Locate the 1st i.f. sub-unit (see Tels H 442 Part 2 Fig 2007). Unsolder the pins on tag blocks F and E and withdraw them to the rear of the blocks. Remove the socket SK4 from plug PL4.

(f) Unscrew the three chrome-headed slotted screws which secure the 1st i.f. sub-unit and remove the unit from the set.

(g) Remove the cover of the second local oscillator (2nd l.o.) compartment on the 1st i.f. sub-unit and locate resistor R61 (see Tels H 442, Part 2, Fig 2011).

(h) Remove the existing resistor R61 and solder the 100kΩ resistor, provided, in its place.

(j) Strike through the figure 2 on the 1st i.f. sub-unit modification record plate.

(k) Replace the cover (removed at (g)) on the 2nd l.o. compartment and refit the 1st i.f. sub-unit back into the set. Resolder the pins on tag blocks F and E to their respective connections. Plug socket SK4 back on to plug PL4.

(l) Close up the tray to the chassis (opened at (d)) after ensuring that the law corrector fork is in a vertical position for smooth engagement with the drive. Secure the tray with its captive screws.

(m) Reconnect the coaxial lead (unplugged at (c)).

(n) Strike through the figure 10 on the wireless set modification record plate.

Note: This Page 3, Issue 2, supersedes Page 3, Issue 1, dated 6 Dec 60. The test detail at para 7(o) has been revised.

(o) Apply a signal of 5kc/s deviation modulated at 300c/s at each of the frequencies 42, 50.4 and 58.8Mc/s in turn. The input required for a 10dB signal/noise ratio at each of these frequencies must not exceed by more than 2dB the input required for the same S/N ratio at frequencies 100kc/s above and below the particular frequency being checked. When the inputs at the two side frequencies are being determined, both set and signal generator must be correctly tuned to these side frequencies. For this test the battery voltage must be 11.5V for a 12V power supply unit (p.s.u.) or 23V for a 24V p.s.u., and pin C of the socket SKT-B on the p.s.u. must be earthed (as it would be by the voltage control relay in a harness installation at these voltages). Remove this temporary earth after completion of the test.

(p) Dry out and re-seal the wireless set into its case (See Tels H 443 para 5 and 7 and Tels H 444, Part 1, para 4 - 14).

END

Distribution - Class 334. Code No 3

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 10

TRANSMITTER-RECEIVER, RADIO, C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Temperature compensation of a.f. discriminator

Errata

Note: These Pages 0 - 01, Issue 2, supersede, Pages 0 - 01, Issue 1 dated 24 Oct 61. The title has been amended.

1. The following amendments will be made to the regulation.

2. Page 2, para 7(f)

Delete: all detail
Insert: 'Solder and position the 47pF capacitor supplied (Cat No Z1 5910-99-940-8513) as shown at Fig 1: the top lead of the capacitor being connected to the top end of capacitor C89a and the lower lead to the bottom end of the straight-through wire which lies behind capacitor C90b. The new capacitor is designated C97.

3. Fig 1(d)

Delete: the black spot (which wrongly indicates that the lower lead of C97 is connected to the straight-through wire visible to the left centre of diagram)

T/61503/51

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 10

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Temperature compensation of a.f. discriminator

1. Introduction

During production of the Wireless set C42 it was found that changes of temperature caused excessive variations in the resonant frequency of the a.f. (narrow-band) discriminator tuned circuit in the 2nd i.f. unit. The cause of the variations was traced to the characteristics of the core material used in coil L35 of this circuit. To compensate for the effect, capacitors C89b and C90a were replaced by a single, temperature-compensated type in later production. This regulation gives detail for modifying the earlier equipments.

2. Priority: Group 'B' (ACI 407/58 refers)

3. Estimated time required: 1.1/2 man-hours

4. Items affected

Wireless set C42, Serial numbers 1001-4752 ZA 43207
Units, 2nd i.f.
Inductor units, discriminator

5. Action required by:-

(a) Units and establishments holding equipment

(i) Request REME to modify the equipment

(b) Units authorized to carry out field or base repairs

(i) When requested by units, demand stores for and carry out this modification
(ii) Demand stores and carry out this modification on all equipments received for repair or overhaul.
(iii) On completion of this modification ensure that the figure 1 on the 2nd i.f. unit and the figure 9 on the wireless set modification record plates are struck through with a diagonal line.

6. Stores, tools and equipment

(a) Stores to be demanded

The following stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) - T/W/HL/51.

VAOS. Section	Part No	Designation	Qty per eqpt
Z1	5910-99-940-8513	Capacitor, fixed, ceramic, tubular, insulated, 47pF ±0.5pF, temp, coeff. N150, style KLM	1

Distribution - Class 1195. Code No 3

(b) Stores to be discarded

The following items will be disposed of locally.

VAOS Section	Part No	Designation	Qty per eqpt
-	-	Capacitor, fixed, ceramic, 100pF ±2% (circuit ref C89b and C90a)	2

7. Sequence of operations

(a) Remove the set from its case (see Tels H 443 para 5-7 and Tels H 444 Part 1, para 4-14). Apparatus, seal testing (see Tels M 630-639) must be available for subsequent resealing operations.

(b) Remove the second i.f. unit from the set (see Tels H 444, Part 1, para 15-21).

(c) Locate the a.f. discriminator can assembly containing L35 (see Tels H 442, Part 2, Fig 2013) and remove the two No 2 BA securing screws from the underside of the unit.

(d) Raise the discriminator assembly (located at (c)) just clear of the chassis. Prise out the two tabs on each side of the can and remove the can from the assembly.

(e) Locate and carefully remove the two 100pF capacitors C89b and C90a from the discriminator assembly (see Tels H 442, Part 2, Fig 2012).

(f) Solder and position the 47pF capacitor supplied (Z1 5910-99-940-8513) as shown at Fig 1; ie with one lead of the capacitor connected to the top end of capacitor C89a and the other to the bottom end of the straight-through wire which is revealed by the removal of C89b. The new capacitor is designated C97.

(g) Refit the can to the discriminator assembly taking care not to break the locking tabs when bending them back.

(h) Position the discriminator assembly and replace the two screws removed at (c).

(j) Refit the 2nd i.f. unit into the main chassis.

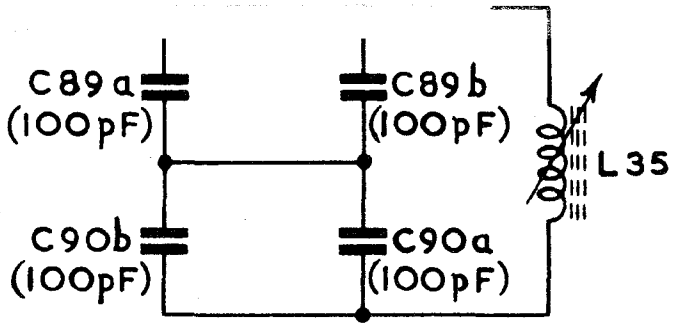
(k) Realign the a.f. discriminator (see Tels H 444, Part 1, Table 9)

(l) Strike through the figure 1 on the 2nd i.f. unit and through the figure 9 on the wireless set modification record plates.

(m) Carry out a complete functional check of the equipment.

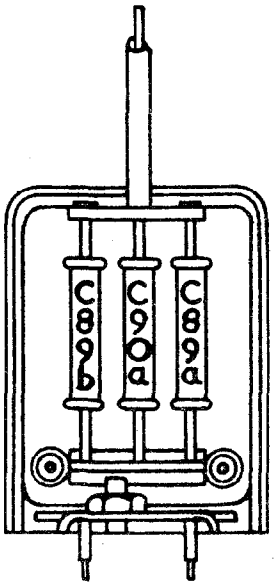
(n) If the functional check is satisfactory replace the set in its case and carry out complete drying and re-sealing procedure. (see Tels H 444, Part 1, para 4-14).

(o) Finally, repeat the functional check.



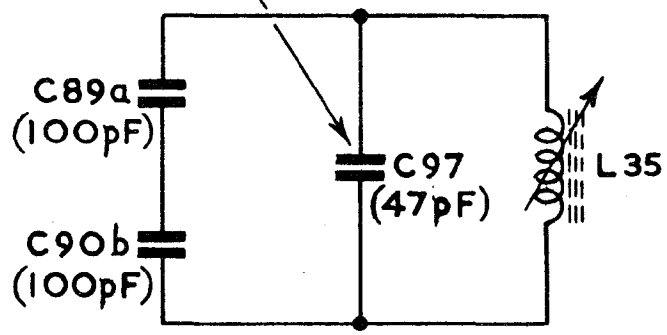
(a)

ORIGINAL CIRCUIT



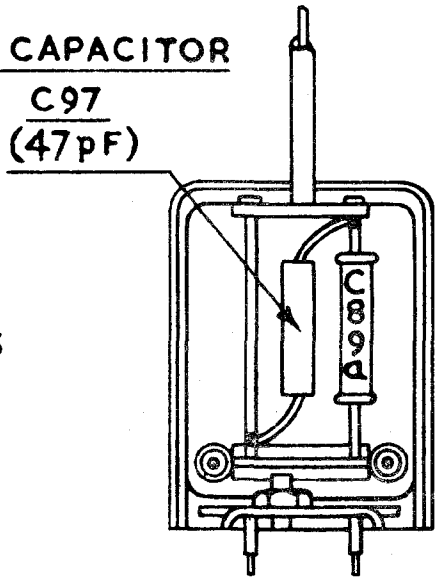
(b)

VIEW OF END OF ASSEMBLY
BEFORE MODIFICATION



(c)

MODIFIED CIRCUIT



(d)

VIEW OF END OF ASSEMBLY
AFTER MODIFICATION

T H·447 M10 1-1

Fig 1 - Circuit and assembly before and after modification

END

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 11

WIRELESS SET C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Improvement of r.f. unit temperature compensation

1. Introduction

The performance of sender and receiver in the Wireless set C42 falls off considerably at high ambient temperatures where the original types of temperature-compensating capacitors are fitted in the r.f. unit. This regulation details the fitting of types of temperature-compensating capacitors which allow normal performance to be maintained over the specified temperature range of the equipment.

2. Priority: Group 'B' (ACI 407/58 refers)

3. Estimated time required: 2 man-hours

4. Items affected

Wireless set C42 - Serial numbers 1001-4752	Part No ZA 43207
Units, r.f., No 8	Part No ZA 43425

5. Action required by:-

(a) Units and establishments holding equipment

(i) Request REME to modify the equipment.

(b) Units authorized to carry out field or base repairs

(i) When requested by units, demand stores for and carry out this modification.
(ii) Demand stores for and carry out this modification on all equipments received for repair or overhaul.
(iii) On completion of this modification ensure that the figure 4 on the r.f. unit and the figure 8 on the wireless set modification record plates are struck through with a diagonal line.

6. Stores, tools and equipment

(a) Stores to be demanded

The following stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) - T/W/HL/52.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	5910-99-940-8472	Capacitor, fixed, tub., ins., 3.3pF ±0.5pF, temp. coeff. N2200, style AD	1
Z	5910-99-011-8683	Capacitor, fixed, tub., ins., 6.8pF ±0.5pF, temp. coeff. N750, style K	1

VAOS Section	Part No	Designation	Qty per eqpt
Z	5910-99-011-8305	Capacitor, fixed, tub., ins., 22pF ±0.5pF, temp. coeff. N750, style K	1
Z	5910-99-011-8297	Capacitor, fixed, tub., ins., 10pF ±0.5pF, temp. coeff. N750, style K	1

(b) Stores to be discarded

The following stores will be disposed of locally.

VAOS Section	Part No	Designation	Qty per eqpt
-	-	Capacitor, fixed, tub., ins., 3.3pF ±0.5pF (C5)	1
-	-	Capacitor, fixed, tub., non-ins., 6.8pF ±0.5pF (C12)	1
-	-	Capacitor, fixed, tub., non-ins., 22pF ±1pF (C54)	1
-	-	Capacitor, fixed, tub., non-ins., 6.8pF ±0.5pF (C55a)	1
-	-	Capacitor, fixed, tub., non-ins., 3.3pF ±0.5pF (C55b)	1

7. Sequence of operations

(a) Remove the set from its case (see Tels H 443, para 5-7 and Tels H 444 Part 1, para 4-14). Apparatus, seal testing (Tels M 630-639) must be available for subsequent resealing operations.

(b) Remove the Units, r.f., No 8 (r.f. unit) from the main chassis (see Tels H 444, Part 1, para 15-21).

(c) Remove the existing capacitors C5 and C12 from the top of the ganged tuning capacitor (see Tels H 442, Part 2, Fig 2010).

(d) Fit the 3.3pF capacitor (Z1/5910-99-940-8472) in the place of the capacitor C5 removed at (c) and also fit the 6.8pF capacitor (Z/5910-99-011-8683) in the place of the original capacitor C12 removed. The leads of the capacitors should be kept as short as possible and while soldering the connections the leads should be held by long-nose pliers between the capacitor and the joint being soldered so as to provide a form of heat shunt.

(e) Locate and remove capacitor C54 which is on top of the gang capacitor (see Tels H 442, Part 2, Fig 2010). Fit the 22pF capacitor (Z/5910-99-011-8305) in place of the one removed, observing the soldering precaution given at (d).

(f) Remove the four No 4 BA screws from the master oscillator (m.o.) compartment baseplate and remove this plate (see Tels H 442, Part 2, Fig 2010 - top l.h. corner).

(g) Locate, unsolder and remove capacitors C55a and C55b from the m.o. compartment. Fit the single 10pF capacitor (Z/5910-99-011-8297) in place of these two capacitors, observing the precaution given at (d) while soldering.

(h) Replace the m.o. baseplate and secure it with its original screws. Refit the m.o. unit back into the main chassis.

(j) Realign the sender and receiver r.f. circuits (see Tels H 444, Part 1, Tables 12 and 13).

(k) Screw down the top tray of the set after first replacing the desiccator.

(l) Strike through the figure 4 on the r.f. unit and the figure 8 on the wireless set modification record plate.

(m) Carry out a complete functional check of the wireless set.

(n) If the functional check is satisfactory replace the set in its case and carry out complete drying and resealing procedure.

(o) Finally, repeat the functional check.

T/61503/52

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Inst No 12

TRANSMITTER-RECEIVER, RADIO, C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Correction of sidetone circuit instability

1. Introduction

There is a tendency to sidetone instability in the Transmitter-receiver, radio, C42(TR C42), the cause of this being the nearness of the microphone and receiver leads in the headset assembly which results in the introduction of positive feedback. This regulation details the reversal of the secondary leads of the a.f. transformer to remove this tendency.

2. Priority: Group 'B' (ACI 407/58 refers)

3. Estimated time required: 1/2 man-hour (Exclusive of drying and resealing time)

4. Items affected

Transmitter-receiver, radio, C42 - Part No Z1/5820-99-943-9362
Serial No 1001-7172 and 20,000-20,030 inclusive
Amplifier and motor assembly - Part No Z1/5820-99-949-0586

5. Action required by:-

(a) Units and establishments holding equipment

(i) Request REME to modify the equipment.

(b) Units authorized to carry out field or base repairs

(i) When requested by units carry out this modification.
(ii) Carry out this modification on all equipments received for repair or overhaul.
(iii) Ensure that the figure 2 on the a.f. unit and the figure 11 on the radio set modification record plates are struck through with a diagonal line on completion of this modification.

6. Stores, tools and equipment

(a) Stores to be provided locally

VAOS Section	Part No	Designation	Qty per eqpt
Y3	6145-99-910-0168	Wire, equipment, type 2, 7/0.0076, P.V.C. covered, black	4.1/2 in.

7. Sequence of operations

(a) Remove the set from its case (see Tels H 443, para 5 to 7 and Tels H 444, Part 1, para 4 to 14). Apparatus, seal testing (see Tels M 630-639) must be available for subsequent resealing operations.

(b) Unscrew the four screws securing the top tray and lock the tray into the open position.

(c) Locate the a.f. unit and unsolder the pins connecting the unit to terminal blocks L and M (see Tels H 442, Part 2, Fig 2007 and 2015).

(d) Unscrew the four chromium plated screws securing the a.f. unit to the chassis and withdraw the unit from the set.

(e) Unsolder and remove the black wire connected between terminal 2 on terminal block L (L/2) and terminal 2 of the a.f. transformer TR1 (TR1/2).

(f) Unsolder the slate coloured lead from TR1/1 and resolder it to TR1/2.

(g) Solder the length of black equipment wire provided between L/2 and TR1/1.

(h) Strike through the figure 2 on the a.f. unit modification record plate and the figure 11 on the radio set modification record plate.

(j) Replace the a.f. unit onto the chassis and secure with the four chromium plated screws. Resolder the pins connecting the unit to terminal blocks L and M.

(k) Close the top tray to the chassis and secure it with its four screws.

(l) Carry out a complete functional check of the radio set.

(m) If the functional check is satisfactory replace the set in its case and carry out complete drying and resealing procedure (see Tels H 443 para 7 and Tels H 444, Part 1, para 4 to 14).

(n) Finally, repeat the functional check.

T/61503/75

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Army Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 13

TRANSMITTER-RECEIVER, RADIO, C42

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Frequency stability of c.f.o. unit

1. Introduction

To improve the frequency stability of the first local oscillator (c.f.o.) unit, in the Transmitter-receiver, radio, C42, so as to enable it to meet the specification and work equally well using a CV 2209 valve or the ruggedised version CV 4064, it has been found necessary to change the value of valve V31 screen resistor (R171) in the c.f.o. unit from 10kΩ to 68kΩ. This regulation gives the necessary modification detail.

2. Priority: Group 'B' (ACI 407/58 refers).

3. Estimated time required: 1 man-hour.

4. Items affected

Transmitter-receiver, radio, C42 - Part No Z1/5820-99-943-9362
Oscillator and scale assembly (c.f.o. unit) - Part No 5820-99-949-0659

5. Action required by:-

(a) Units and establishments holding the equipment

(i) Request REME to modify the equipment.

(b) Units authorized to carry out field or base repairs

(i) When requested by units, demand stores and carry out this modification.
(ii) Demand stores and modify all equipments received for repair or overhaul.
(iii) On completion of this modification, ensure that the figure 1 on the c.f.o. unit and the figure 12 on the radio set modification record plates are struck through with a diagonal line.

6. Stores, tools and equipment

(a) Stores to be demanded

VAOS, Section	Part No	Designation	Qty per eqpt
Z	5905-99-022-3017	Resistor, fixed, comp., ins., 68kΩ ±10%, 1/4W	1

Stores are to be demanded through normal Ordnance channels quoting this Mod Instr and Donnington earmark No 002178 as authority.

7. Sequence of operations

(a) Remove the set from its case (Tels H 443, para 5-7 and Tels H 444, Part 1, para 4-14). Apparatus, seal testing (Tels M 630-639) must be available for subsequent resealing operations.

(b) Tune the r.f. dial to datum at the 60Mc/s end, partially open the lower tray and remove plug PL5 from its socket on the c.f.o. unit. Open the tray completely and remove socket SK6 from the unit.

(c) Turn the CHANNEL knob on the panel until the film scale reads 60Mc/s.

(d) Remove the three screws which secure the c.f.o. unit to the film scale unit and remove it from this unit. Note the position of the fork arm while doing this and do not thereafter rotate the inductuner spindle of the c.f.o. unit, otherwise it could be one or more turns from its original position on reassembly. (see also Tels H 444, Part 1, para 23).

(e) Remove the baseplate of the c.f.o. unit (6 screws).

(f) Remove the valve screen and valve from the c.f.o. unit. Remove the three screws securing the inductuner to the side of the case. Remove the two screws which secure the assembly in the case. Withdraw the assembly from the case sufficiently to expose the 10kΩ resistor R171: care must be exercised while doing this, so as not to damage or displace any of the components (any items which have to be moved aside to get at the two internal fixing screws must subsequently be returned to their original positions).

(g) Unsolder, remove and discard the 10kΩ resistor R171.

(h) Suitably shorten the leads of the 68kΩ resistor supplied and solder it between the two tags from which the 10kΩ resistor was removed at (g). A heat shunt will be used while doing this (see Tels A 522) so as to avoid damage to the resistor due to overheating.

(j) Strike through the figure 1, on the c.f.o. unit modification record plate, with a diagonal line.

(k) Reassemble the c.f.o. unit by reversing the procedure given at (e) and (f).

(l) Replace and secure the c.f.o. unit on to the film scale unit noting that, when re-engaging the coupling, the small peg at the centre must engage in its appropriate recess besides the outer peg entering the slot at the circumference. If this is not so, the c.f.o. unit cannot

be properly secured to the film scale unit and, if the screws are screwed fully home, damage to the coupling or inductuner will ensue. (see sub-para (d)).

(m) Strike through the figure 12 on the radio set modification record plate.

(n) Replace the socket SK6 on the c.f.o. unit. Close the trays together (replacing plug PL5 while doing this) and secure them (see Tels H 449, Misc Instr No 5, for precautions to be observed).

(o) Carry out the quieting and frequency stability tests as given at para 63 and 88 respectively of Tels H 444, Part 1, Carry out also, a complete functional check.

(p) If the results of the checks at (o) are satisfactory carry out drying procedure and reseal the set into its case. (see Tels H 443, para 5-7 and Tels H 444, Part 1, para 4-14).

T/61503/87

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 14

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Control modulator, reduction of sidetone hum on transmit

1. Introduction

In order to improve the screening and decoupling of the Control, modulator, (5820-99-949-0705) of Transmitter-receiver, radio, C42, No 1, it has been found necessary to fit a top-cap type of valve retainer to valve V27; to change the values of resistors R146, 147 and 149, and replace capacitor C143 by one of higher value. This regulation gives details for carrying out the modification action required.

2. Priority: Group 'B' (Gen H 097 refers).

3. Estimated time required: 2.3/4 man-hours.

4. Items affected:-

Transmitter-receiver, radio, C42, No 1 - Cat No Z1/5820-99-943-9362

Control, modulator - Cat No Z1/5820-99-949-0705

5. Action required by:-

(a) Units and establishments holding the equipment:-

(i) Request the unit responsible for field repair of the equipment to carry out this modification.

(b) Units authorized to carry out field or base repairs:-

(i) When requested by units, demand stores and carry out this modification.
(ii) Demand stores and carry out this modification on all equipments received for repair or overhaul.
(iii) Ensure that figures on the respective modification record plates are struck through with diagonal lines on completion of this modification, as follows:-

TRC42, No 1 - No 13

Control, modulator - No 2

6. Stores, tools and equipment:-

(a) Stores to be demanded:-

Stores are to be demanded through normal Ordnance channels as a complete modification kit quoting this EMER No as authority for the demand on all indents.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	00000-02821	Kit, modification, electronic equipment	1
		Comprising:-	
Z	5905-99-022-2173	Resistor, fixed, comp, 22kΩ±10%,1/4W	(1)
Z	5905-99-022-2206	Resistor, fixed, comp, 39kΩ±10%,1/4W	(1)
Z	5905-99-022-3039	Resistor, fixed, comp, 100kΩ±10%,1/4W	(1)
Z	5910-99-011-9833	Capacitor, fixed, paper dielectric,0.5μF ±25%,150V d.c. wkg	(1)
Z	5960-99-097-0290	Retainer, valve	(1)
		Screened lead assembly	(1)
		Solder tag	(1)
		Insulation sleeving, electrical, 2 mm x 3/8 in., black, BS2848, class 105T	(1)
		Wire, tinned copper, 22 s.w.g.	(1/2 in.)

(b) Stores to be discarded:-

The following items are to be disposed of under local arrangements:-

VAOS Section	Part No	Designation	Qty per eqpt
Z	5960-99-056-3003	Shield, electronic valve	1
Z	5905-99-022-2131	Resistor, fixed, comp, 10kΩ,±10%	1
Z	5905-99-022-2173	Resistor, fixed, comp, 22kΩ,±10%	1
Z	5905-99-022-2216	Resistor, fixed, comp, 47kΩ,±10%	1
Z	5910-99-011-5506	Capacitor, fixed, 0.1μF±20%	1

7. Sequence of operations

(a) Remove the set from its case (see Tels H 443, para 5-7 and Tels H 444 Part 1, para 4-14). Ovens, drying, telecommunications, 240V a.c. (see Tels M 600) and Apparatus, seal testing (see Tels M 630) must be available for subsequent drying and resealing operations.

(b) Identify and remove the Control, modulator (a.m.c.unit) from the tray on which it is mounted (see Tels H 442 Part 2, Fig 2506 and Tels H 444 Part 1, para 24-25).

(c) Locate and remove resistors R146 (47kΩ, 1/2W), R147 (10kΩ, 1/4W) and R149 (22kΩ,1/4W). Remove and retain the sleeving from resistor R147 for use as detailed in the next sub-para.

(d) Fit the sleeving retained at (c) to one lead of the 22kΩ resistor (5905-99-022-2173) supplied.

(e) Fit the replacement resistors, supplied, in place of the resistors removed at (c) as follows:-

(i) R146 - Resistor, 100kΩ (Z /5905-99-022-3039)
(ii) R149 - Resistor, 39kΩ (Z /5905-99-022-2206)
(iii) R147 - Resistor, 22kΩ (Z /5905-99-022-2173)

The resistor leads should be trimmed as necessary and the joints soldered. When soldering, a heat shunt (see Tels A 522, para 5-6 and Fig 1) should be used between the resistor body and the joint being soldered so as to avoid damage to the component.

(f) Locate, unsolder and remove capacator C143 from the screening can fitted on the top side of the chassis, immediately adjacent to valve V27.

(g) Fit the Insulation sleeving, electrical, supplied, to one of the leads of the capacitor (5910-99-011-9833) supplied. Trim the leads as necessary and solder this capacitor in position in place of the item removed at (f), the insulated termination being soldered to pin 7 of V27 valveholder. A heat shunt must be used as detailed at (e) while soldering.

(h) Remove and discard the shield (Z/5960-99-056-3003) from valve V27. Remove the valve from its holder.

(j) Slacken off the cheese-head screw and nut securing the valveholder of V27 and which is nearest to the assembly containing T4. Completely remove the cheese-head screw and nut securing the other side of this valveholder.

(k) Fit the new valve retainer (Z/5960-99-097-0290) to the V27 valveholder, securing the hooks of the springs under the heads of the original cheese-head screws of the holder. The solder tag supplied is to be positioned under the nut of the valveholder securing screw furthest from the assembly containing T4, and on the underside of the chassis and bent up to an angle of 45° to the chassis. Treat the screws with Varnish, Dulux, anti-tracking F338-2026, air-drying (Dulux red) and tighten whilst wet.

(l) Unsolder and remove the lead which connects between pin 1 (grid) of valveholder V27 and resistor R148.

(m) Solder the centre conductor of the screened lead assembly, supplied, between pin 1 of V27 valveholder and resistor R148, in place of lead removed at (l).

(n) Solder the screen of the screened lead assembly (m), at the valveholder end, to pin 2 of V27 valveholder.

(o) Solder the 1/2 in. length of 22 s.w.g. tinned copper wire between the solder tag fitted at (k) and pin 3 of V27 valveholder.

(p) Strike through the figure 2 on the Control, modulator, (5820-99-949-0705) modification record plate and the figure 13 on the TRC42, No 1 modification record plate, using diagonal lines.

(q) Reverse the sequence of operations previously carried at (a) and (b).

(r) Carry out a complete functional check of the equipment.

(s) If the functional check is satisfactory, dry out the equipment and reseal it into its case, fitting a fresh desiccator.

T/61503/4(Tels)

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 15

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Prevention of mechanical damage to wiring harness

1. Introduction

It has been found in service that obstruction of the Wiring harness, branched, in Transmitter-receiver, radio, C42, No 1 (TRC42, No 1), equipments by the A frames, may prevent the front panel assembly from being seated, without some difficulty, on to the case. Investigation has revealed that the part of the wiring harness which loops out from the existing retaining strap can become compressed between the corner of the A frame and the bottom of the case when the latter is being fitted. In time, such compression could lead to damage to the wiring harness.

Distribution - Class 334. Code No 3

2. A modification has now been approved for incorporation during any future production of TRC42, No 1, so as to avoid the defect described at para 1. It consists in the fitting of a retaining strap of improved design (Part No 5340-99-105-4662) and an increase in the radius of the 'notched-out' portion on each side of the A frames. On equipments so modified, the wiring harness will dress down in the notches and the fouling which previously occurred will be avoided. Equipments incorporating the modification will have the figure 16 struck through on their modification record plates.

3. This instruction is for information only. Restrospective modification of existing equipments is not contemplated.

T/61503/60/TELS

E N D

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 16

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Amplifier, a.f. - change of value of resistor R135 to improve sensitivity

1. Introduction

This regulation details the action necessary to replace the original 270kΩ resistor, used in circuit position R135 of the Amplifier, audio frequency (a.f. amplifier) of Transmitter-receiver, radio, C42, No 1 (TRC42, No 1) by a 330kΩ component, so as to improve the sensitivity of the amplifier. It is to be carried out only when R135 requires replacement.

2. Priority: Group 'C' (Gen H 097 refers).

3. Estimated time required: 1 man-hour (exclusive of drying and sealing time).

4. Items affected

Transmitter-receiver, radio, C42, No 1 - Z1/5820-99-943-9362
Amplifier, audio frequency - Z1/5820-99-949-0768

5. Action required by:-

(a) Units authorized to carry out field or base repairs

(i) Demand stores and carry out this modification when resistor R135 in the a.f. amplifier of equipments received for repair or overhaul requires replacement.

(ii) Ensure that the figure 2 on the modification record plate of the a.f. amplifier and the figure 15 on the corresponding plate of the TRC42, No 1 equipment, are each struck through with a diagonal line when this modification has been completed.

6. Stores, tools and equipment

(a) Stores to be demanded

The following store is to be demanded as the maintenance item for resistor R135:-

VAOS Section	Part No	Designation	Qty per eqpt
Z	5905-99-022-3101	Resistor, fixed, comp, 330kΩ ±10%, 1/4W	1

(b) Stores to be discarded

The following item is to be disposed of locally:-

VAOS Section	Part No	Designation	Qty per eqpt
Z	5905-99-022-3092	Resistor, fixed, comp, 270kΩ ±10%, 1/4W	1

7. Sequence of operations

It is assumed that the equipment has already been removed from its case and that tests have shown R135 in the a.f. amplifier (Tels H 442 Part 2, Fig 2506, ref D/6) to be faulty.

(a) Remove the a.f. amplifier from the equipment tray (Tels H 444 Part 1, para 24 and 25).

(b) Locate, unsolder, remove and discard the original 270kΩ resistor R135, on the underside of the a.f. amplifier chassis (Tels H 442 Part 2, Fig 2520, ref E/7).

(c) Trim the leads of the 330kΩ resistor (5905-99-022-3101) supplied as a maintenance item, to a suitable length and solder it in the place previously occupied by the item removed at (b). A heat shunt (see Tels A 522, para 5-6 and Fig 1) must be used between the resistor body and the joint being soldered to prevent heat damage to the component.

(d) Strike through the figure 2 on the modification record plate of the a.f. amplifier (5820-99-949-0768), using a diagonal line.

(e) Replace and reconnect the a.f. amplifier back on to the tray and carry out a functional check of the equipment.

(f) If the functional check is satisfactory, dry out the equipment and reseal it into its case (Tels H 443, para 6 and Tels H 444 Part 1, para 7 to 14).

(g) Strike through the figure 15 on the TRC42, No 1 equipment modification record plate, using a diagonal line.

(h) Finally, repeat the functional check.

T/61503/57/TELS

END

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: These Pages 0 and 01, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 1 Sep 66

1. The following amendments must be made to the regulation.

2. Page 1, para 2, immediately after 'Group 'B' ('

   Delete: 'Gen H' Insert: 'Mgmt N'

3. Page 2, para 7. a., line 1, immediately after 'H 443, para'

   Delete: '5 - 7' Insert: '4 - 6'

4. Pages 2 and 3, para 7. d.

   a. Line 1, immediately after 'connections detailed'

      Delete: 'as follows' Insert: 'at (1) to (5)'

   b. Sub-para (2)

      Delete existing sub-para

      Insert: 'The lead connecting inductor L18 and L12 from the L12 tag only.'

   c. Sub-para (3)

      (1) Line 1, immediately after 'lead, connecting'
      Insert: 'through a hole in the chassis'

      (2) Line 2, immediately after 'C3E'
      Delete: '(unsolder ..... lead).'
      Insert: ', from L12 tag only (if this lead has been previously removed it must be reconnected to C3E).'

   d. Sub-para (4)

      Delete existing sub-para.

   e. Sub-para (5)

      (1) Line 1
      Delete: '(5)' Insert: '(4)'

      (2) Line 2, immediately after 'for refitting'
      Delete: '.' Insert: '(see sub-para h.).'

f. Sub-para (6)
Delete: '(6)' Insert: '(5)'

5. Page 3, Fig 1, top right-hand corner, adjacent earth tag

Delete: 'W'

6. Page 4

a. Para 7. g., line 1, immediately after 'inductor L18,'

Insert: 'capacitor C3E,'

b. Fig 2, Modified component layout

(1) Top right-hand corner, adjacent earth tag

Delete: 'W'

(2) From lower tag of L12 to chassis hole below C42 sketch in a sleeved lead similar to that shown in Fig 1 - Component layout.

7. Insert pages 5 and 6, Issue 2, attached.

T/61503/53/Tels

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 17
Army Modification Code M 00044

STATION, RADIO, C42 NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Improvement of power output

1. Introduction

In order to meet the frequency drift specification of not more than 50kc/s at 36Mc/s in the r.f. unit (transmitter-receiver, sub-assembly) of Transmitter-receiver, radio, C42 No 1, and hence to maintain the power output, it has been found necessary to improve the tracking of the gang capacitor and the temperature compensation of the tuned circuits. This regulation details the modification action required to effect this on existing equipments.

2. Priority Group 'B' (Mgmt N097 refers)

3. Estimated time required 3 man-hours

4. Items affected

Transmitter-receiver, radio, C42, No 1 5820-99-943-9362
Transmitter-receiver sub-assembly 5820-99-949-0657

5. Action required by:-

a. Units and establishments holding the equipment

(1) Request the unit responsible for field repair of the equipment to carry out this modification if the figure 14 on the modification record plate of the TRC42, No 1 equipment is not struck through.

b. Units authorized to carry out field or base repairs

(1) When requested by units, demand stores and carry out this modification.

(2) Demand stores and carry out modification of all equipments received for repair or overhaul.

(3) Ensure that the figure 5 on the modification record plate of the transmitter-receiver sub-assembly (5820-99-949-0657) and the figure 14 on the modification record plate of the corresponding TRC42 No 1, equipment are each struck through with a diagonal line on completion of the modification.

6. Stores, tools and equipment

a. Stores to be demanded

The following stores are required and are to be demanded as a complete kit and NOT as individual items through normal Ordnance channels, quoting this EMER as authority for the demand on all indents:

Distribution - Class 334. Code No 3

VAOS Section	Part No	Designation	Qty per eqpt
Z1	00000-02854	Modification kit, electronic equipment	1
		Comprising:-	
Z	5910-99-012-4704	Capacitor fixed, mica, 0.0015μF ±5%, 350V d.c. wkg (1)	
Z	5910-99-012-7086	Capacitor fixed, ceramic, 5.6pF ±0.5pF, 750V d.c. wkg (1)	
Z1	5910-99-102-9058	Capacitor fixed, ceramic, 6.8pF ±0.5pF (1)	
Z1	5950-99-949-3428	Inductor, r.f. (1)	

b. Stores to be discarded

VAOS Section	Part No	Designation	Qty per eqpt
Z	5910-99-011-8275	Capacitor fixed, ceramic diel, 5.6pF ±0.5pF	1
Z	5910-99-011-8305	Capacitor fixed, ceramic diel, 22pF ±-.5pF	1
Z1	5950-99-949-0662	Transformer, r.f.	1

These items to be disposed of under local arrangements.

7. Sequence of operations

a. Remove the set from its case (see Tels H 443, para 4 - 6 and Tels H 444, Part 1, para 4-14). Telecommunications drying oven, 240V a.c. (see Tels M 600-609) and seal testing apparatus, (now redesignated Leak locator - Tels M 630-639) must be available for subsequent drying and resealing operations.

b. Turn the RF dial to DATUM (60Mc/s end) and unplug the coaxial lead from socket SKT5. Open the tray bearing the transmitter-receiver sub-assembly and lock it in a vertical position. Unsolder and withdraw the connecting links and unscrew and remove the r.f. unit from the tray.

c. Remove the baseplate of the compartment on the r.f. unit that contains inductor L12 (see Tels H 442, Part 2, Issue 2, Fig 2509, ref B-C/4-5).

d. Unsolder the connections detailed at (1) to (5) using a heat shunt (see Tels A 522, para 5 and 6 and Fig 1) between the bodies of capacitors and resistors and the joints being unsoldered, in order to prevent heat damage to components (a heat shunt is also to be used when resoldering them and the new capacitors supplied in position, as subsequently detailed). Refer to Fig 1 for identification of components:-

(1) The lead of capacitor C42 from a tag of inductor L12.

(2) The lead connecting inductor L18 and L12 from the L12 tag only.

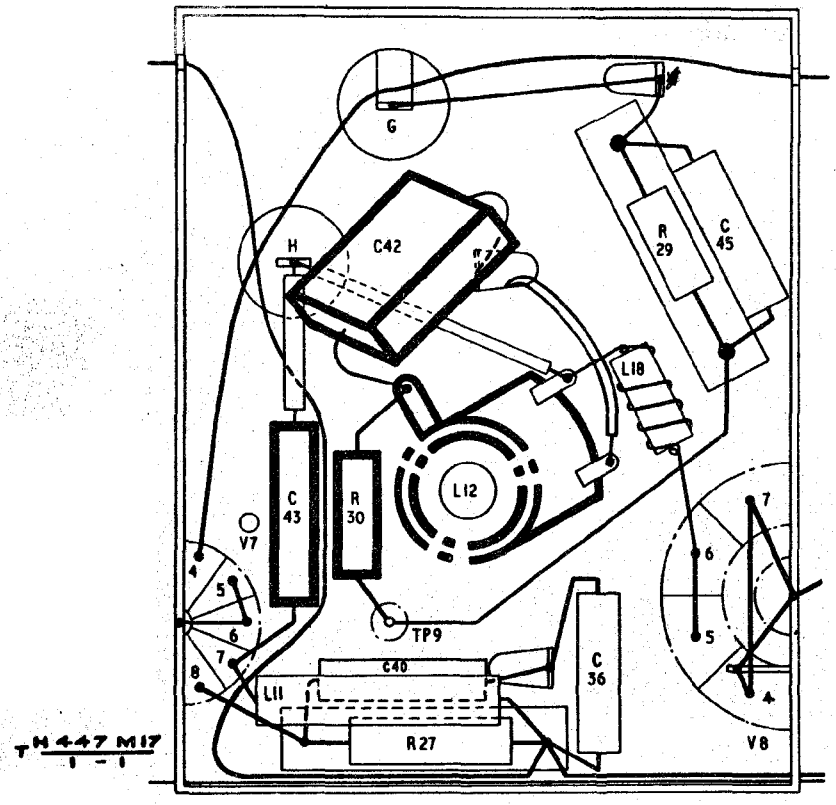


Fig 1 - Component layout

(3) The sleeved lead, connecting a tag of L12 to capacitor gang section C3E (~~unsolder at both ends, remove and discard this lead~~).

(4) ~~The sleeved lead connecting a tag of L12 to the lower half of the neutralizing capacitor C3G (unsolder at both ends and discard this lead).~~

(~~4~~) The resistor R30 from a tag of L12 and test point TP9 - remove and retain this resistor for refitting.

(6) The lead of capacitor C43 from the stator tag connection of the gang capacitor section C3E.

e. Remove and retain the locknut and washer which secures the existing inductor L12. Remove and discard the inductor.

f. Fit the Inductor, radio frequency (5950-99-949-3428) supplied, in place of the item removed in sub-para e., orienting it in the same manner as was the original. Secure it with the nut and washer retained in sub-para e.

capacitor C3E.

g. Resolder the free leads of inductor L18, capacitor C42, and capacitor C43, to the appropriate tag of the newly fitted inductor L12, positioning and connecting them as shown at Fig 2.

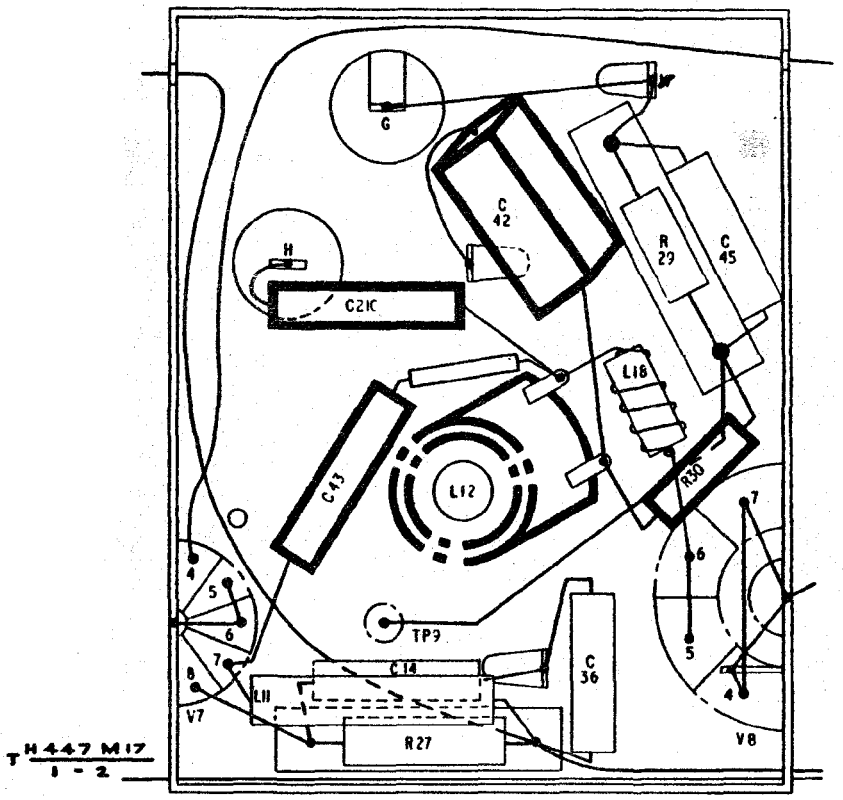


Fig 2 - Modified component layout

h. Resolder and position resistor R30 (retained in d.(5)) between the appropriate tag of L12 and the junction of resistor R29 and capacitor C45, as shown in Fig 2.

j. Solder the 1500pF capacitor (5910-99-012-4704) supplied, between the stator tag of capacitor gang section C3E and the tag of L12 to which L18 and C43 are soldered (Fig 2). This capacitor becomes C210.

k. Replace the baseplate removed in sub-para c.

l. Remove the upper half of the neutralizing capacitor C3G from the tie-bar of the gang capacitor and discard this item.

Note: These Pages 5 and 6, Issue 2, supersede Pages 5 and 6, Issue 1, dated 1 Sep 66. Para 8 and Fig 3 contain additional information.

m. Remove and discard the lead which connects the junction of the rotor of trimmer capacitor C49 and capacitor C54 to the rotor of capacitor gang section C3E (see Tels H 442, Part 2, Fig 2510, ref D-E/4).

n. Remove the existing 22pF capacitor C54 and solder the 6.8pF capacitor (5910-99-102-9068) supplied, in its place. Solder the rotor of C49 direct to the centre frame of the capacitor gang assembly.

o. Unsolder, remove and discard the existing 5.6pF capacitor C50 (see Tels H 442, Part 2, Fig 2510, ref D-E/5). Solder the 5.6pF capacitor (5910-99-012-7086) supplied, in its place.

p. Strike through the figure 5 on the modification record plate of the transmitter-receiver sub-assembly (5820-99-949-0657), using a diagonal line.

q. Replace and secure the transmitter-receiver sub-assembly in the main equipment chassis after ensuring that the law-corrector fork is correctly set for smooth engagement and that the r.f. tuning dial is at DATUM at the 60Mc/s end. Replace the coaxial socket SKT5 and close up the tray to the equipment.

r. Carry out the alignment procedure detailed in Tels H 444, Part 1, Issue 3, Table 12, Page 38 and Issue 4, Table 12, Page 39.

s. Strike through the figure 14 on the modification record plate of the TRC42, No 1, using a diagonal line.

t. Carry out a functional check of the equipment.

u. If the functional check is satisfactory, dry out the equipment, fit fresh desiccators and reseal it into its case.

8. EMER Amendments

The modified circuit of the TRC42, No 1, driver stage is shown at Fig 3 and Tels H 442, Part 2, Issue 4, Fig 2508 and 2509 must be amended as follows:-

a. Page 1010, Fig 2508, lower right centre:-

(1) Insert capacitor symbol and reference for C210.
(2) Delete connection between C3E and C49.
(3) Delete centre-tap connection to L12.
(4) Insert connection from R30 to L12/C3E.
(5) Delete C39.
(6) Insert connection from C54 to earth.
(7) Amend C54 reference to '6.8p'.

} As detailed in Fig 3 (Mod Instr No 17)

b. Page 1011, Fig 2509, centre left:-

(1) Delete: R30, grid reference 4C.
Insert: R30 between V8 and L18.

(2) Grid reference 4C.

Insert symbol representing new capacitor C210 in a vertical position above C42.

As detailed in Fig 2 (Mod Instr No 17)

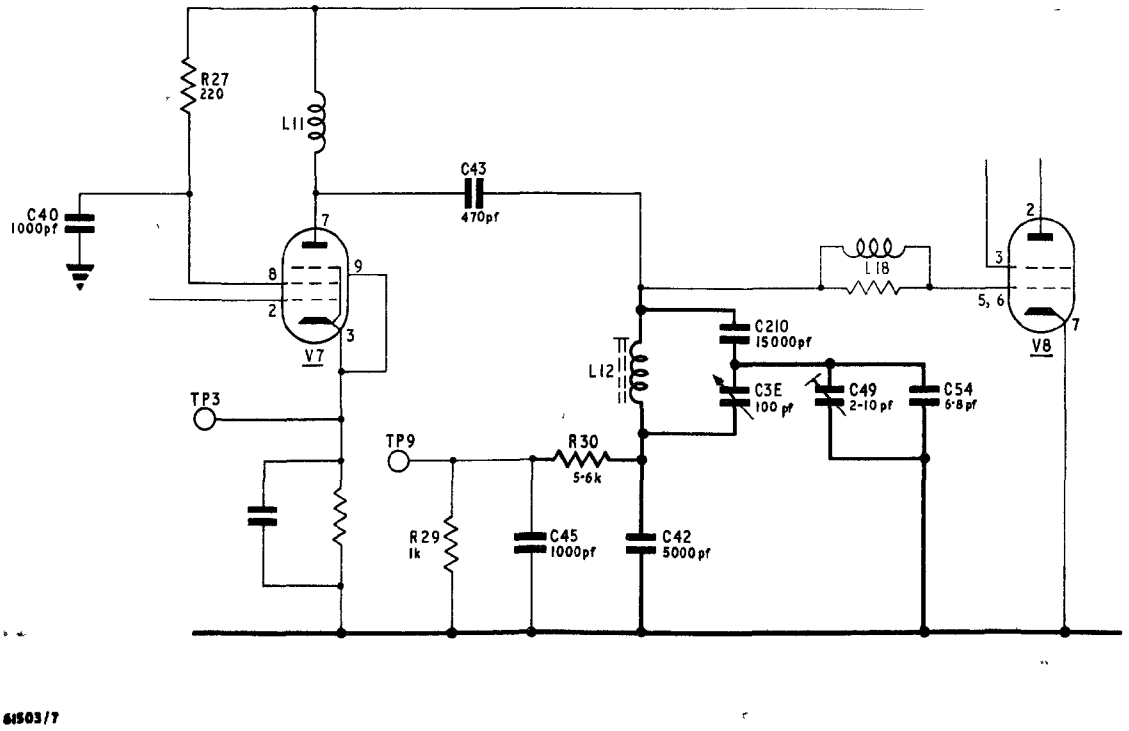


Fig 3 - Modified circuit diagram

T/61503/53/Tels

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 18
Army Modification Code M 00075

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Identification plates

1. Introduction

The identification plate on the original version of Transmitter-receiver, radio, C42 (TRC42), which has now been redesignated TRC42, No 1, is rivetted to the upper surface of the top flange of the front panel. In this position it is liable to accidental defacement, or to becoming detached and lost. A plate bearing the new designation (TRC42 No 1), and of dimensions 2 in. x 1.1/4 in., is now provided as the maintenance item, and this is small enough to fit on the inside of a flange and so be protected from the hazards mentioned. This regulation details the fitting of this redesigned plate in the new position on all TRC42 No 1 equipments.

2. Priority: Group 'B' (Gen H 097 refers).

3. Estimated time required: 1/2 man-hour.

4. Items affected

Transmitter-receiver, radio, C42, No 1 Z1/5820-99-943-9362

5. Action required by:-

a. Units and establishments holding the equipment

(1) Request the unit responsible for field repair of the equipment to carry out this modification.

b. Units authorized to carry out field or base repairs

(1) When requested by units, demand stores and carry out this modification.

(2) Demand stores and carry out this modification on all equipments received for repair or overhaul.

6. Stores, tools and equipment

a. Stores to be demanded

The following stores are to be demanded through normal Ordnance channels, quoting this EMER No and Donnington earmark No 14529 on all indents.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	5820-99-949-5179	Plate, identification, aluminium, inscribed TRANSMITTER-RECEIVER, RADIO, C42, No 1 - 5820-99-943-9362, 2 in.lg x 1.1/4 in. wide x 0.032 in. thick	1
G1	5320-99-999-2788	Rivet, solid aluminium, rd hd, 1/16 in. dia x 7/32 in. lg	2

7. Sequence of operations

a. Lay the new identification label on the largest flat face of the inside surface of the right-hand front panel flange of the equipment: this is adjacent to the CHANNEL window. Mark off on the flange the position for the fixing holes of the plate and drill two holes of 1/16 in. diameter each on the flange at these points.

b. Indent the serial number of the particular equipment on the new label, using suitable figure punches.

c. Locate the new label on the two holes, drilled as detailed at a., and secure using the two 1/16 in. dia. rivets supplied.

d. Remove the original identification label from the outer side of the upper front panel flange and discard it.

T/61503/23(TELS)

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 19
Army Modification Code No M 00132

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 29 Dec 67.

1. The following amendments must be made to the regulation.

2. Page 1, para 5

   a. Immediately below heading insert new para a.:-

      'a. Units authorised to carry out field repairs

      (1) On failure of an existing CV469 valve, demand the modification kit and carry out this modification. Record the embodiment of the modification as detailed in para b.(2).'

   b. Original para a, line 1

      Delete: 'a'
      Insert: 'b'

T/61514/21(TELS)

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 19
Army Modification Code M 00132

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Squelch unit - replacement of V23 by a semiconductor diode

1. Introduction

In order to eliminate inherent hum and noise from the squelch unit of Transmitter-receiver, radio, C42, No 1 (TRC42 No 1), the existing CV469 valve in circuit position V23 is to be replaced by a semiconductor diode when next the equipment is undergoing base overhaul. This regulation details the modification action required.

2. Priority: Group 'C' (Mgmt N 097 refers).

3. Estimated time required: 1.1/4 man-hours (exclusive of drying, sealing and testing).

4. Items affected

Transmitter-receiver, radio, C42, No 1 Z1/5820-99-943-9362
Squelch unit Z1/5820-99-949-0587

5. Action required by:-

a. Units a

'a. Units authorised to carry out field repairs

β

(1) Or this mc

(1) On failure of an existing CV469 valve, demand the modification kit and carry out this modification. Record the embodiment of the modification as detailed in para b.(2).'

(2) Ensure that the figures on the respective modification record plates are struck through with diagonal lines on completion of this modification, as follows:-

Squelch unit - figure 2
TRC42 No 1 - figure 17

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels, quoting this modification instruction number as authority for the demand on the indent. Stores are to be demanded as a complete kit and NOT as individual items.

VAOS Section	Part No	Designation		Qty per eqpt
Z1	00000-02878	Kit, modification, T.C42 (No 1)		1
		Comprising:-		
Z	5960-99-037-2000	Valve, electronic, CV7013	(1)	
Z	5905-99-011-3223	Resistor, fixed, w.w., vitreous enamel coating, 47Ω ±5%, 1.5W	(1)	

b. Stores to be discarded

The following items are to be disposed of under local arrangements:-

Part No	Designation	Qty per eqpt
5960-99-000-0469	Valve, electronic, CV469	1
5905-99-911-4803	Resistor, fixed, w.w., 8.2Ω ±5%, 1.5W	1
5970-99-949-0619	Insulator disc	1

7. Sequence of operations

(The four-figure numbers refer to Tels H 442, Part 2)

(It is assumed that the equipment has already been removed from its case)

a. Place the set face downward on its front panel and locate the squelch unit (Fig 2506, Page 1008, Issue 3, grid ref E8).

b. Unsolder and withdraw all the connecting links from terminal blocks N and P (Fig 2518, Page 1028, Issue 2, grid ref G8 and A8 respectively).

c. Release the four captive screws securing the top wiring tray, and hinge the tray back to the 'look' position.

d. Release the four chromium-plated captive screws securing the squelch unit to the wiring tray, and remove the unit from the tray.

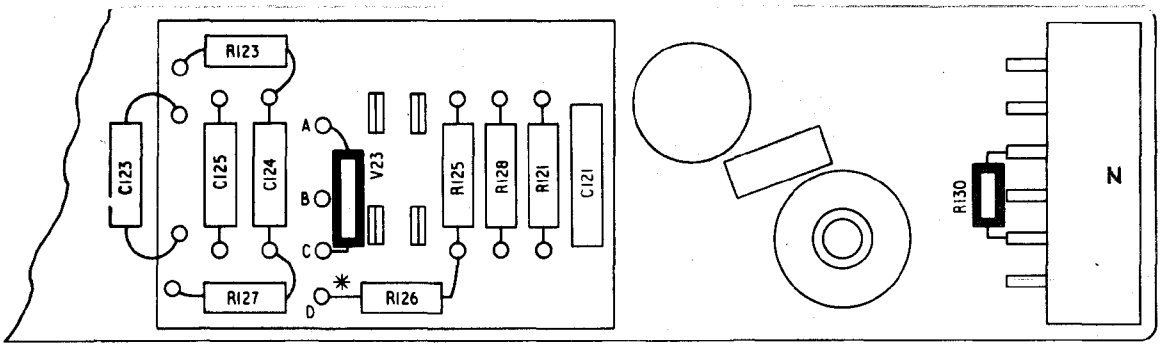
e. Locate and cut back as far as possible to the soldering lugs, the sleeved terminations of valve V23, on the underside of the squelch unit (Fig 2518, Page 1028, Issue 2, grid ref D8). Remove the valve from the clips and discard it, together with its associated insulator disc.

f. Locate resistor R130 on the underside of the squelch unit (Fig 2518, Page 1028, Issue 2, ref D8). Cut the leads of this resistor as closely as possible to the soldering lugs, and remove and discard it.

g. Using a heat shunt (Tels A 522, para 5-6 and Fig 1) between the diode body and the joint being soldered, and the minimum of heat consistent with good joints, solder the CV7013 semiconductor diode (supplied) between terminals A and C on the underside of the squelch unit (Fig 2525, Page 1040, Issue 3, third diagram down left-hand side), and positioned as shown in Fig 1 herein. The cathode end of the diode is identified with a violet/black/brown/orange band, and this must connect to terminal C.

h. Trim the leads as necessary of the 47Ω resistor supplied, and solder the resistor between terminals 2 and 4 of terminal block N, as shown in Fig 1.

j. Strike through with a diagonal line the figure 2 on the modification record plate of the squelch unit (5820-99-949-0587).



T H447MJ9 1-1

NOTE ✳ INDICATES CATHODE END OF DIODE (MARKED WITH A VIOLET, BLACK, BROWN, ORANGE BAND)

Fig 1 - Scrap layout diagram, showing modified locations

k. Replace and secure the squelch unit to the wiring tray, close up the tray, and re-solder all the connecting links into the terminal blocks N and P on the unit.

l. Place the set right way up, connect it to its power supplies etc., and switch on (refer Tels H 444, Part 1, Issue 3, para 46-53). Carry out the following procedure:-

(1) Tune the set to 46Mc/s.

(2) Adjust the front panel squelch control RV4 two-thirds of the fully clockwise position (approx 180° from the fully anti-clockwise position).

(3) Adjust RV2 on the squelch unit deck until the SIGNAL lamp ILP2 just lights. (This is the same procedure as is detailed in para 57 and para 118-120 of Tels H 444, Part 1, Issue 3).

m. Strike through with a diagonal line the figure 17 on the modification record plate of the TRC42 No 1 equipment.

n. On completion of any other work on the equipment, replace it in its case, ensure that the sealing gasket around the front panel of the equipment is correctly seated, and carry out complete drying and resealing procedure, fitting fresh desiccators (Tels H 444, Part 1, para 4-14).

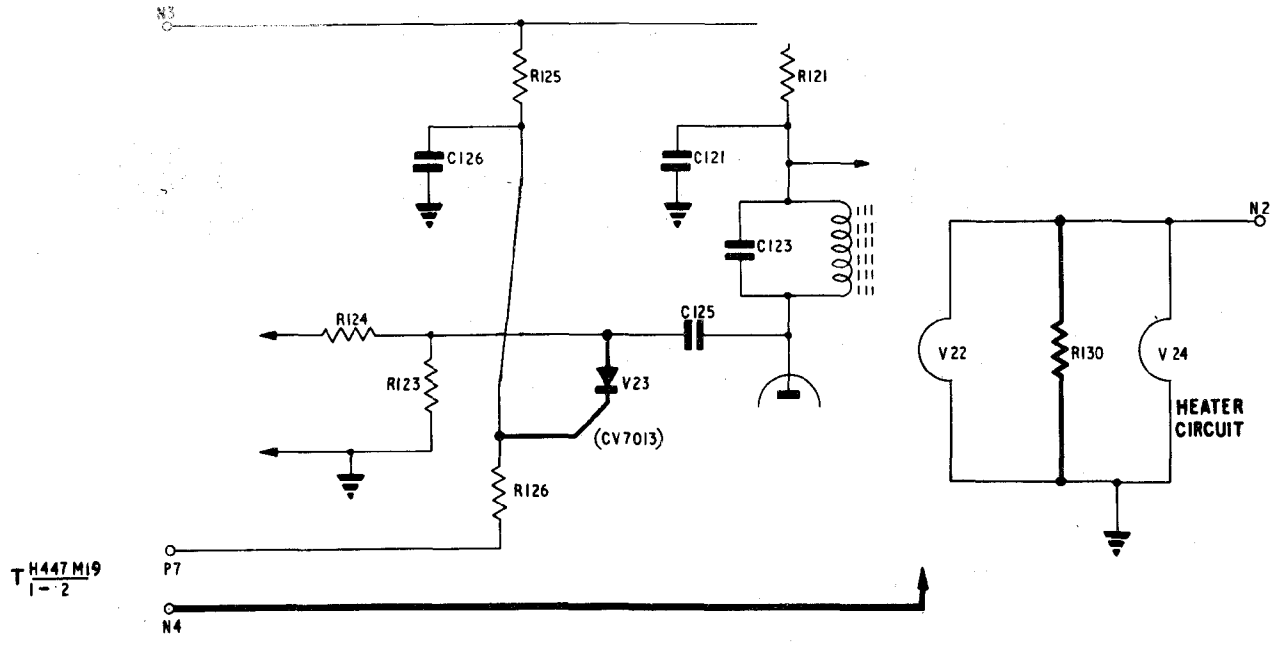


Fig 2 - Scrap circuit diagram, showing modification

8. EMER amendments

The circuit alterations effected by carrying out the action detailed in para 7, are as shown at Fig 2. The following amendments to EMERs will therefore be necessary, and these will be published in due course:-

a. Tels H 442, Part 1, Issue 2, para 50, first line: The designation 'type CV469' to be replaced by 'type CV7013'.

b. Tels H 442, Part 2, Page 1004, Fig 2502, Issue 2, grid ref D8: The symbols shown for R130 and the heater of valve V23 to be replaced by a single resistor symbol labelled 'R130' of value 47Ω connected across the feed points.

c. Tels H 442, Part 2, Page 1007, Fig 2505, Issue 3, grid ref U7: The diode valve symbol shown for V23 to be replaced by a semiconductor diode symbol with corresponding electrode connections.

d. Tels H 442, Part 2, Page 1028, Fig 2518, Issue 2

(1) Resistor R130 to be removed from grid ref D8 position and placed in grid ref G8 position between terminals 2 and 4 of terminal block N.

(2) The position vacated by R130 as detailed in sub-para (1) to be occupied by a symbol for the new semiconductor diode labelled 'V23'.

(3) The existing symbol for V23 at grid ref D8 to be deleted.

(4) The symbol for the heater of V23 at grid ref F3 to be replaced by a short-circuit and the value of R130 amended to read '47'.

(5) The symbol shown for V23 at grid ref D2 to be replaced by a semi-conductor diode symbol with corresponding electrode connections.

e. Tels H 442, Part 2, Page 1029, Table 2506, Issue 2

(1) The line giving the details of R130 to be amended to read:-

'R130 2E8 F3 G8 47 1.5W w.w.±5% 5905-99-011-3223'

(2) The line giving the details of V23 to be amended to read:-

'V23 5V7 D3 D8 Valve, electronic, CV7013 5960-99-037-2000'

f. Tels H 442, Part 2, Page 1040, Fig 2525, Issue 3

(1) Third diagram down left-hand side of page - V23 to be deleted from its present position and a symbol representing the new semi-conductor diode to be shown positioned between the left-hand side of the valve clips and the terminals A and B, with its cathode connected to terminal C and its anode to terminal A. Resistor R130 to be deleted from between terminals A and B.

(2) Fourth diagram down left-hand side of page - to be omitted or replaced by a diagram of the new CV7013 diode with its electrodes suitably identified.

T/61503/65/Tels

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 20
Army Modification Code M 00139

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 8 Dec 67.

1. The following amendments must be made to the regulation.

2. Page 1, para 6.a., line 2

   Delete: 'and Donnington earmark No 02376'

3. Page 2, para 6.a., mod kit part No, col 2

   Delete: '00000-02376'

   Insert: '00000-02876'

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 20
Army Modification Code M 00139

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Second i.f. unit - replacement of valves V18 and V19 by semiconductor diodes

1. Introduction

In order to eliminate inherent hum and noise in the second i.f. amplifier of Transmitter-receiver, radio, C42, No 1 (TRC42 No 1) the existing CV469 valves, used in positions V18 and V19, are to be replaced by semiconductor diodes, and the two 8.2Ω resistors R93a and b replaced by 47Ω items to compensate for the removal of the valve heaters from the circuit. This regulation provides the necessary modification detail.

2. Priority: Group 'C' (Mgmt N 097 refers).

3. Estimated time required: 1.3/4 man-hours (exclusive of drying, sealing and testing time).

4. Items affected

Transmitter-receiver, radio, C42, No 1	Z1/5820-99-943-9362
Intermediate frequency unit, 2.4Mc/s	Z1/5950-99-949-0839

5. Action required by:-

a. Units authorized to carry out base repairs

(1) On overhaul of the equipment, demand stores and carry out this modification.

(2) On completion of this modification ensure that the following figures on the respective modification record plates are struck through each with a diagonal line.

TRC42 No 1 - figure 20
Intermediate frequency unit, 2.4Mc/s (5950-99-949-0839) - figure 2

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER ~~and Donnington earmark No 02376.~~ The stores are to be demanded as a complete kit and NOT as individual items.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	00000-02876	Kit, modification, TC42 (No 1)	1
		Comprising:-	
Z	5960-99-037-4633	Semiconductor device, diode, type CV9374 (Texas Y228 or Hughes HAX26)	(2)
Z	5905-99-011-3223	Resistor, fixed, w.w., vitreous enamel coating, 47Ω ±5%, 1.5W	(2)
Y3	6145-99-910-2376	Wire, elect., 22 s.w.g., tinned copper	(1 in.)
Y3	5970-99-914-7746	Insulation sleeving, electrical, to BS2848, type 3, class 105T, pink, 1/2 mm i.d.	(3 in.)

b. Stores to be obtained locally

VAOS Section	Part No	Designation	Qty per eqpt
H1	8010-99-942-8917	Dulux, red, varnish, insulating, anti-tracking, air drying	as reqd

c. Stores to be discarded

The following items are to be disposed of under local arrangements:-

Part No	Designation	Qty per eqpt
5960-99-000-0469	Valve, electronic, CV469	2
5970-99-949-0619	Insulator disc	2
5905-99-911-4803	Resistor, fixed, w.w., 8.2Ω ±5%, 1.1/2W	2

7. Sequence of operations

(The four-figure numbers refer to Tels H 442, Part 2)

(It is assumed that the equipment has already been removed from its case.)

a. Place the set face downwards on its front panel and locate the second i.f. unit (Page 1008, Fig 2506, ref BC6-8).

b. Unsolder and withdraw the connecting links from terminal blocks H and J, and remove socket SK3 from the fixed plug PL3 (Page 1021, Fig 2514, grid ref F/8, E/6 and EF/1 respectively).

c. Release the four captive screws which secure the top wiring tray to the main frame, and hinge the tray back to the 'lock'position. Release the four chromium-plated securing screws of the second i.f. unit, and remove the unit from the tray.

Note: These Pages 3 and 4, Issue 2, supersede Pages 3 and 4, Issue 1, dated 8 Dec 67. Para 7h. and Fig 1 have been amended.

d. Locate the discriminator assembly on the second i.f. unit chassis (L35 coil assembly - Page 1021, Fig 2514, grid ref B7-8). Unsolder the following:-

(1) The leads from the spills of the assembly on the underside of the chassis.

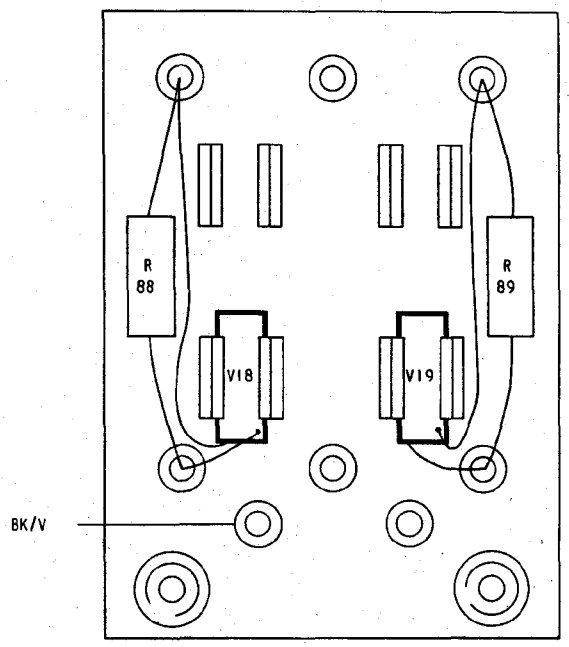
(2) The brown lead from the junction of the 8.2Ω resistors R93a and b.

(3) The black lead from the earth terminal adjacent to resistor R92.

e. Remove and retain the two No 4 BA screws securing the discriminator assembly, and remove it from the second i.f. unit chassis. Carefully bend back the lugs securing the cover of the assembly, and remove the latter.

f. Carefully remove the coding 'CV469' from the two positions where it occurs on the discriminator assembly cover, taking care not to damage the surface of the cover.

g. Locate and unsolder the sleeved terminations of valves V18 and V19 in the discriminator assembly. Remove both valves and their associated insulator discs from the clips, and discard these items.



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61503/9

Fig 1 - Scrap layout diagram, showing modified V18 and V19 locations

h. Fit the two semiconductor diodes (supplied) into the lower clips of V18 and V19 (Fig 1). Cut the cathode lead of V18 diode and the anode lead of V19 diode to 5/8 in. each. Some diodes are incorrectly marked. Before the leads are cut, check the polarity with a multimeter. Normally the cathode is identified by a white spot on the diode body. If the marking is incorrect, carefully scrape off the white paint before cutting the leads. Fit each of the cut leads with a 3/8 in. length of pink sleeving and solder each to the terminal nearest to its particular clip (these are the terminations of the 82kΩ resistors R88(V18) and R89 (V19) respectively). A heat shunt (see Tels A 522, para 5-6 and Fig 1) must be used on the diode leads while soldering, using the minimum of heat consistent with good joints.

j. Cut the anode lead of the V18 diode and the cathode lead of the V19 diode to a length of 1.3/8 in. each. Fit each of these leads with a 1.1/8 in. length of pink sleeving, and solder them to the terminals at the remote ends of R88 and R89 respectively, observing the same soldering precautions as indicated in sub-para h. (see Fig 1).

k. Unsolder, remove and discard the brown lead connected to the discriminator assembly terminal board.

l. Unsolder, remove and discard the two 8.2Ω resistors R93a and b (identified as detailed in sub-para d.); replace these with the two 47Ω resistors supplied.

m. Solder the 1 in. length of No 22 s.w.g. tinned copper wire (supplied) between the free junction of the two 47Ω resistors fitted as detailed in sub-para 1. and the earth terminal adjacent to resistor R92 (see Fig 2).

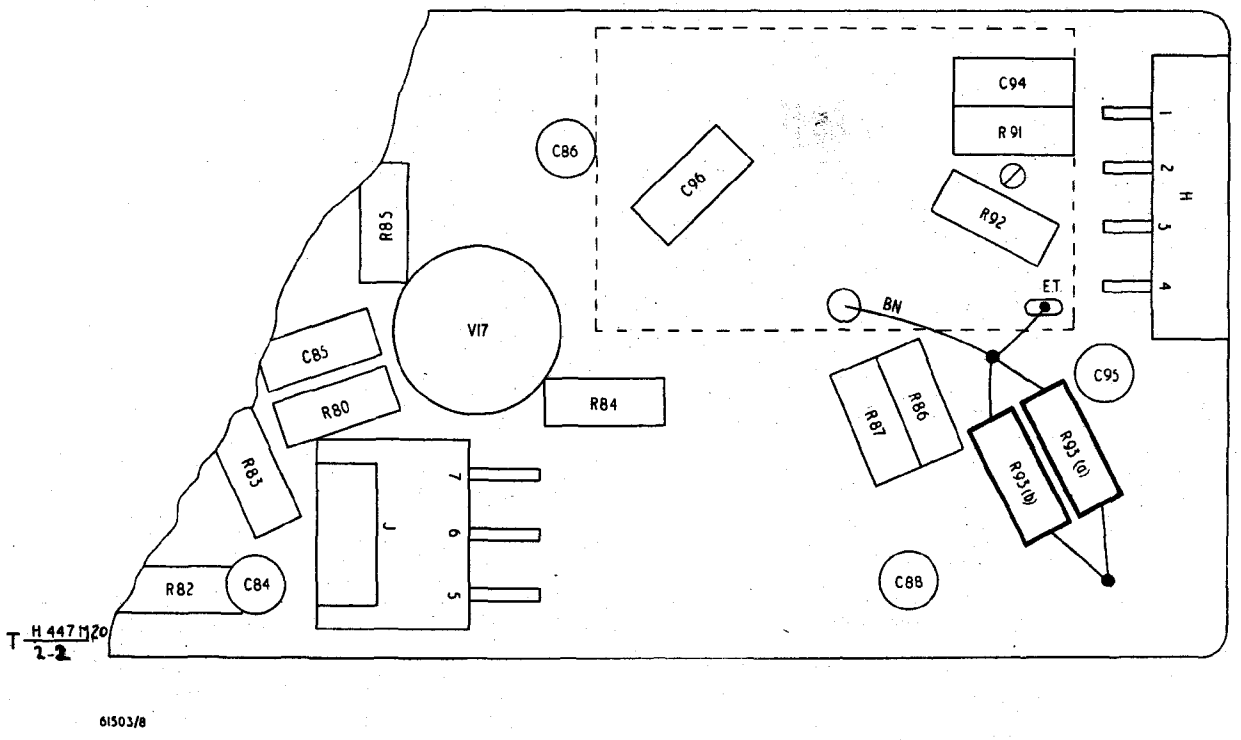

Fig 2 - Scrap layout diagram, showing location of R93a and R93b

n. Refit the cover of the discriminator assembly, and secure it by carefully bending back the lugs. Replace the assembly on the second i.f. unit chassis and secure it using the original No 4 BA screws. Lock the heads of the screws with Dulux red varnish.

o. Resolder the black lead (unsoldered as detailed in sub-para d. (3)) to the earth terminal adjacent to R92, and the leads unsoldered as detailed in sub-para d.(1) back on to the respective spills.

p. Strike through with a diagonal line the figure 2 on the modification record plate of the second i.f. unit (5950-99-949-0839).

q. Replace the second i.f. unit on the wiring tray, and secure it with the captive screws. Close up the tray, resolder the links (unsoldered as detailed in sub-para b.), and refit the socket SK3 to the plug PL3.

r. Carry out the alignment checks and tests detailed in Tels H 444, Part 1, Tables 9 and 10.

s. Strike through with a diagonal line the figure 20 on the modification record plate of the TRC42 No 1 equipment.

t. On completion of this and any other work on the complete TRC42 No 1 equipment, re-assemble it in its case, ensure that the rubber gasket around the front panel is correctly seated, and carry out the drying and sealing procedure, including fitting re-activated desiccators (Tels H 444, Part 1, para 4-14).

8. EMER amendments

The circuit alterations effected by carrying out the action detailed in para 7 are represented in Fig 3. The following amendments to Tels H 442, Part 1, and Tels H 442 Part 2, will therefore be published in due course:-

a. Tels H 442, Part 1, Issue 1, para 47, second line, the words 'two CV469 type diodes' to be amended to 'two semiconductor diodes CV9374'.

b. Tels H 442, Part 2:

(1) Fig 2502, Page 1004, Issue 2, grid ref DE6-7, R93a and b to be shown as 47Ω, and the symbols representing the heaters of valves V18 and V19 to be deleted, and replaced by a line indicating a short-circuit.

(2) Fig 2505, Page 1007, Issue 3, grid ref W3-4, the valve symbols for the diodes V18 and V19 to be replaced by semiconductor diode symbols.

(3) Fig 2513, Issue 2, Page 1020

(a) Grid ref G2-3: the valve symbols shown for the diodes V18 and V19 to be replaced by semiconductor diode symbols.

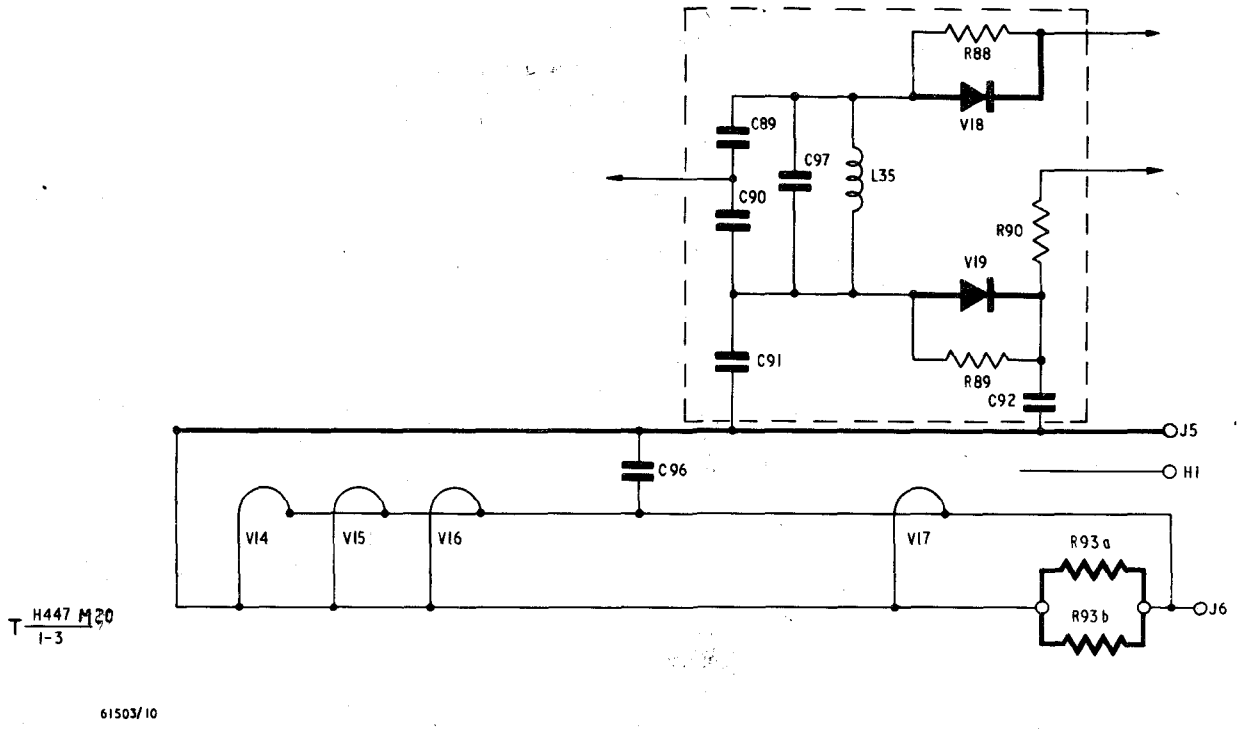

Fig 3 - Scrap circuit diagram, after modification

(b) Ref FG5: the heaters of valves V18 and V19 to be deleted and replaced by a short-circuit.

(4) Table 2503, Issue 2

(a) Page 1022: The lines giving details for R93a and b to be amended to:-

'93a 2E6 G5 E8 47 1.1/2W w.w. ±5% 5905-99-011-3223'

and

'93b 2E6 G5 E8 47 1.1/2W w.w. ±5% 5905-99-011-3223'

respectively

(b) Page 1023: The lines giving details for V18 and V19 to be amended to:-

'V18 5W3 G2 B7 Semiconductor diode CV9374 Z/5960-99-037-4633'

and

'V19 5W4 G3 B7 Semiconductor diode CV9374 Z/5960-99-037-4633'

respectively

(5) Fig 2525, Issue 3, Page 1040: The top right-hand illustration - V18 and V19 to be deleted, and symbols representing the new semiconductor diodes to be inserted in the right-hand side of the valve clips (see Fig 1); the illustrations below of V18 and V19 to be deleted.

T/61503/63/Tels

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 21
Army Modification Code No M 00140

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 29 Dec 67.

1. The following amendments must be made to the regulation.

2. Page 1, para 5

a. Immediately below heading insert new para a.:-

'a. Units authorised to carry out field repairs

(1) On failure of an existing CV469 valve, demand the modification kit and carry out this modification. Record the embodiment of the modification as detailed in para b.(2).'

b. Original para a, line 1

Delete: 'a'
Insert: 'b'

T/61514/21 (TELS)

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 21
Army Modification Code M 00140

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: 1st i.f. unit - replacement of valves V11 and V12 by semiconductor diodes

1. Introduction

In order to eliminate inherent hum and noise in the 1st i.f. amplifier of Transmitter-receiver, radio, C42, No 1 (TRC42 No 1), the existing CV469 valves used in positions V11 and V12 are to be replaced by semiconductor diodes, and an 82Ω resistor fitted to take the place in the circuit previously occupied by the heaters of these valves. This regulation gives the necessary modification detail.

2. Priority: Group 'C' (Mgmt N 097 refers).

3. Estimated time required: 1.3/4 man-hours.

4. Items affected

Transmitter-receiver, radio, C42 No 1 Z1/5820-99-943-9362
Amplifier, i.f. Z1/5950-99-949-0835

5. Action required by:-

α. Units'a. Units authorised to carry out field repairs
β

(1) modif (1) On failure of an existing CV469 valve, demand the modification kit and carry out this modification. Record the embodiment of the modification as detailed in para b.(2).'

(2) On completion of this modification ensure that figures on the respect respective modification record plates are struck through, each with a diagonal line, as follows:-

TRC42 No 1 - figure 19
Amplifier, i.f. (5950-99-949-0835) - figure 3

6. Stores, tools and equipment

a. Stores to be demanded

The following stores are to be demanded through normal Ordnance channels, as a complete kit and NOT as individual items, quoting this EMER No and Donnington earmark No 02875 as the authority on all indents:-

VAOS Section	Part No	Designation	Qty per eqpt
Z1	00000-02875	Kit, modification, TRC42 No 1	1
		Comprising:-	
Z	5960-99-037-4633	Semiconductor device, diode, type CV9374 (Plessey 640/4/10281) (Texas Y228 or Hughes HAX26)	(2)

Distribution - Class 334. Code No 3

VAOS Section	Part No	Designation	Qty per eqpt
Z	5905-99-011-3294	Resistor, fixed, w.w., 82Ω ±5%, 3W	(1)
Z1	5970-99-972-6026	Insulator, stand-off	(1)
Y3	6145-99-910-0170	Wire, elect. equip., type 2, 7/0.0076 in., brown	(10 in.)
Y3	5970-99-914-7746	Insulation sleeving, elect., to BS 2848, type 3, Class 105T, pink, 1/2 mm i.d.	(3 in.)

b. Stores to be obtained locally

VAOS Section	Part No	Designation	Qty per eqpt
H1	8010-99-943-3454	Varnish, electrical insulating, with fungicide, air drying	As reqd
H1	8010-99-942-8917	Dulux, red, varnish, anti-tracking, air drying	As reqd
-	-	Black waterproof drawing ink (of any approved type)	As reqd

c. Stores to be discarded

The following items are to be disposed of under local arrangements

VAOS Section	Part No	Designation	Qty per eqpt
Z	5960-99-000-0469	Valve, electronic, CV469	2
Z1	5970-99-949-0619	Insulator disc	2

7. Sequence of operations

(The four-figure numbers refer to Tels H 442 Part 2)

(It is assumed that the equipment has already been removed from its case)

a. Place the set face downwards on its front panel and locate the 1st i.f. unit (Page 1008, Fig 2506, Issue 3, grid ref C3-4). Unsolder and withdraw all the connecting links from terminal blocks F and E, and withdraw socket SK4 from the fixed plug PL4 (Page 1017, Fig 2512, Issue 2, grid ref A8, DE5 and D8 respectively).

b. Release the four captive screws securing the bottom wiring tray to the main frame, lift the tray sufficiently to unplug the c.f.o. lead, and open the tray to the lock position.

c. Release the three chromium-plated captive screws securing the 1st i.f. unit to the wiring tray, and remove the unit from the tray.

d. Locate the discriminator unit (L23 assembly) on the 1st i.f. unit chassis (Page 1017, Fig 2512, Issue 2, grid ref DE4). Unsolder the following from the underside of the unit:-

(1) The leads from the spills.

(2) The blue lead from the termination of resistor R64 (Page 1017, Fig 2512, grid ref D6-7).

Note: These Pages 3 and 4, Issue 2, supersede Pages 3 and 4, Issue 1, dated 29 Dec 67. Para 7. j. has been amended.

(3) The green lead from terminal 4 of terminal block E.

(4) The brown lead from terminal 8 of terminal block E.

(5) The black lead from the earth terminal adjacent to resistor R51 (Page 1017, Fig 2512, Issue 2, grid ref E6)

e. Remove and retain the two screws securing the discriminator assembly to the 1st i.f. unit chassis, and remove the assembly.

f. Carefully bend back the lugs securing the cover of the discriminator assembly and remove this cover. Carefully delete the coding 'CV469' from the two positions on this cover where it occurs, using any suitable method which does not damage the surface of the cover.

g. Locate and unsolder the sleeved connections of valves V11 and V12. Remove from the clips and discard both of these valves and their associated insulator discs.

h. Fit the two semi-conductor devices supplied, one into the inner clip of V11 and the other into the inner clip of V12, as shown in Fig 1.

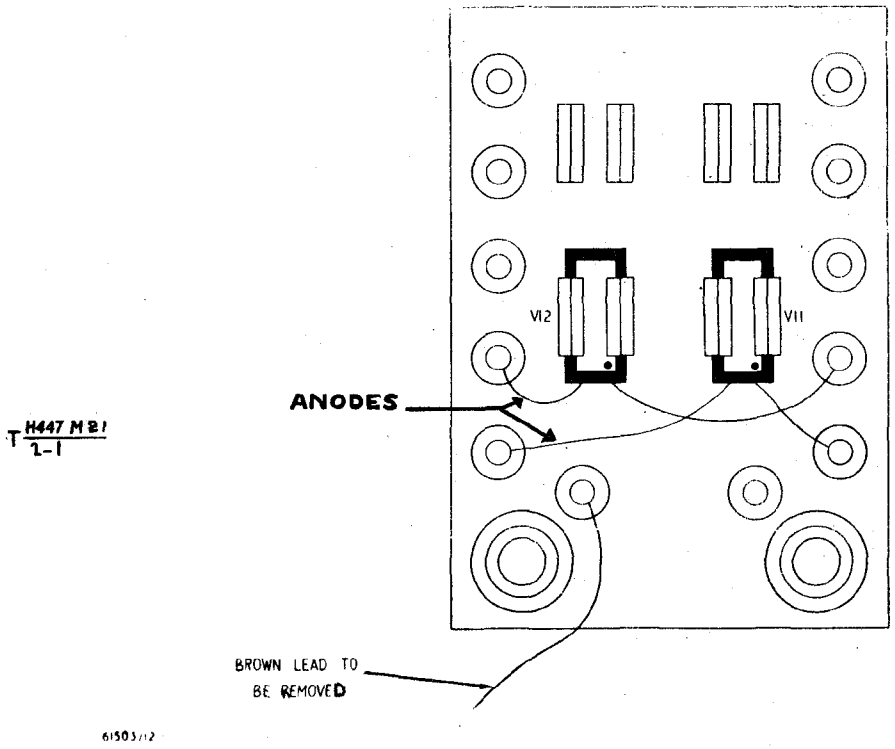

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Fig 1 - Scrap layout diagram, showing modified V18 and V19 locations

j. Cut the cathode lead of V11 diode and the anode lead of V12 diode to 5/8 in. each. Some diodes are incorrectly marked. Before the leads are cut, check the polarity with a multimeter. Normally the cathode is identified by a white spot on the diode body. If the marking is incorrect, carefully scrape off the white paint before cutting the leads. Fit each of the cut leads

with a 3/8 in. length of pink sleeving and solder them to the discriminator terminals indicated in Fig 1. A heat shunt (see Tels A 522 para 5-6 and Fig 1) must be used on the leads while soldering, using the minimum of heat consistent with good joints.

k. Cut the anode lead of the V11 diode and the cathode lead of the V12 diode each to a length of 1.3/8 in. and fit each with a 1.1/8 in. length of pink sleeving. Solder these two leads to the terminals indicated in Fig 1, taking the same precautions as previously while soldering.

l. Unsolder and discard the brown lead which is connected to a terminal of the discriminator unit adjacent to the bottom end of the inner clip of V12 (see Fig 1)

m. Mark out the position (as shown in Fig 2) and drill a hole using a 3/32 in. or No 42 drill. After removing any burrs etc, apply a thin coat of electrical insulating varnish (8010-99-943-3454) to the cut edges of the hole.

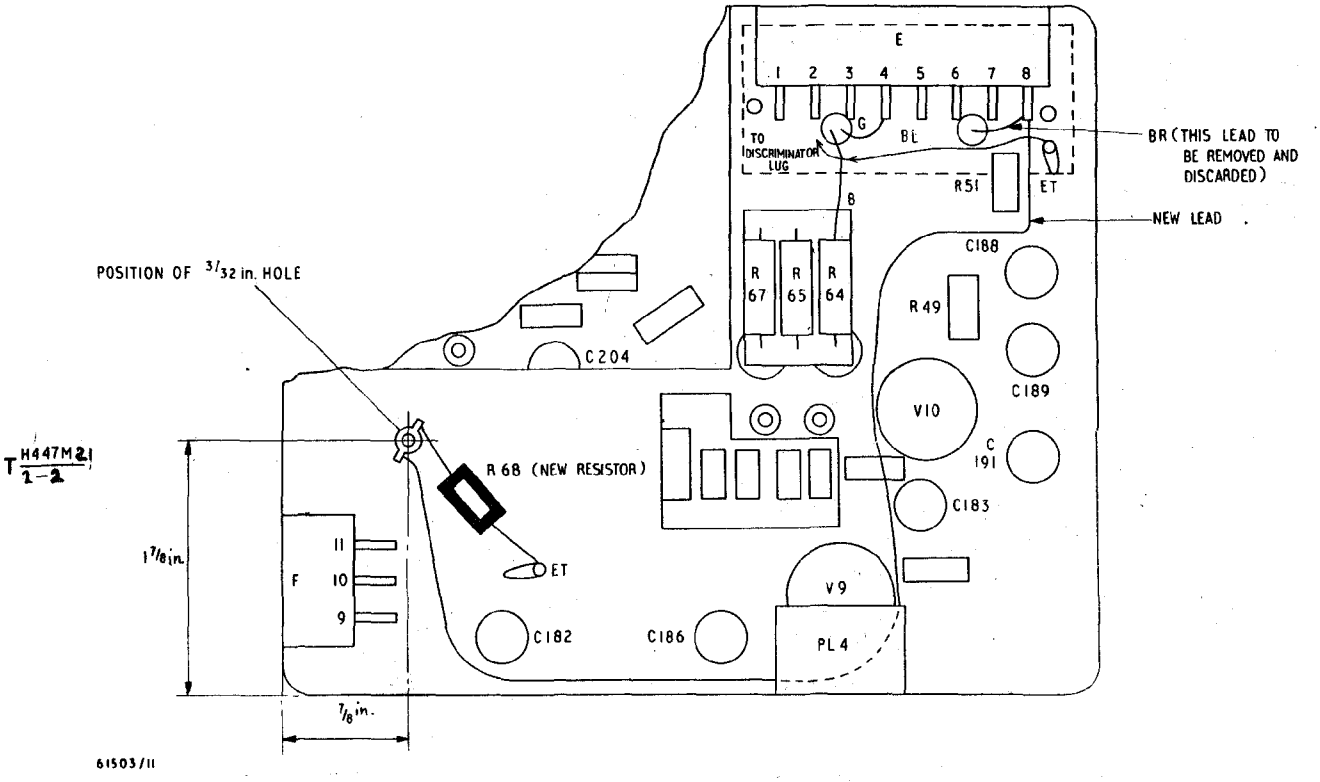

Fig 2 - Scrap layout diagram, showing location of R68 and wiring modification

n. Wet the threads of the stand-off insulator (supplied) with varnish, fit it on the underside of the discriminator chassis in the hole drilled as indicated in sub-para m., and secure it by means of its No 6 BA nut.

o. Trim the leads of the 82Ω resistor (supplied) as necessary, and solder it between the terminal of the stand-off insulator (fitted as detailed in sub-para n.) and the earth terminal adjacent to capacitor C 182, as shown

in Fig 2. This resistor assumes the circuit designation R68.

p. Inscribe the coding 'R68' on the chassis of the discriminator unit adjacent to the resistor fitted as detailed in sub-para o, using black waterproof ink, and when the ink is dry give this coding one coat of insulating varnish (H1/8010-99-943-3454).

q. Solder one end of the 10 in. length of brown equipment wire to the terminal of the new stand-off insulator, routing this lead as indicated in Fig 2, and solder the far end to terminal 8 on terminal block E.

r. Replace the cover of the discriminator unit and carefully bend the lugs back in position to secure it. Replace the unit in position on the 1st i.f. unit chassis and secure it by the two No 4 BA screws retained as detailed in sub-para e. The heads of the screws are to be locked with Dulux red varnish.

s. Resolder the leads dealt with as detailed in sub-para d. to the points from which they were unsoldered. Note that the brown lead has since been removed from the discriminator unit and discarded.

t. Strike through with a diagonal line the figure 3 on the modification record plate of the 1st i.f. unit (Z1/5950-99-949-0835).

u. Replace the 1st i.f. unit on the wiring tray and secure it thereon by its three captive screws.

v. Resolder the connecting links into terminal blocks F and E on the 1st i.f. unit, and refit socket SK4 to plug PL4.

w. Close the bottom wiring tray, plugging in the co-axial c.f.o. lead in the process of doing this, and secure it by the captive screws. Restore the set to its normal working position.

x. Connect the equipment to its power supplies etc, and carry out the alignment checks and tests as detailed in Tels H 444, Part 1, Tables 8 and 11.

y. Strike through with a diagonal line the figure 19 on the TRC42 No 1 equipment.

z. On completion of this and any other work on the equipment, reseal it in its case, ensure that the sealing gasket around the front panel is correctly seated, and carry out the drying and sealing procedure, including fitting re-activated desiccators (Tels H 443 para 4-6, and Tels H 444 para 4-14).

8. EMER amendments

The circuit alterations effected by this modification are represented in Fig 3. The following amendments to Tels H 442, Part 2 will be required as a result of this modification, and will be published in due course:-

a. Fig 2502, Issue 2, Page 1004, grid ref BC6: the heater symbols for valves V11 and V12 to be replaced by a resistor symbol labelled 'R68' showing the value '82'

b. Fig 2507, Issue 4, Page 1009, grid ref G7-8: the diode symbols for V11 and V12 to be replaced by semiconductor diode symbols.

c. Fig 2511, Issue 2, Page 1016

(1) Grid ref CD6 - the valve symbols for V11 and V12 to be replaced by semiconductor diode symbols.

(2) Grid ref BC8 - the two symbols for the heaters of V11 and V12 to be replaced by a resistor labelled R68 and showing a value of 82Ω.

d. Fig 2512, Issue 2, Page 1017

(1) Grid ref B8 - an oblong symbol to be inserted, sloping diagonally downward to the right, above the existing symbol for C182, to represent and be labelled 'R68'.

(2) Grid ref FG5 - the symbol representing diode CV469 (V11) to be deleted, and a symbol representing the semiconductor diode to be inserted.

e. Table 2502, Issue 2

(1) Page 1018 - details of the new resistor, designated R68, to be inserted after the line for R67, as follows:-

'R68 - B8 B8 82 3 w.w. ±5% 5905-99-011-3294'

(2) Page 1019 - details of valves V11 and V12 to be amended to read:-

'V11 7H7 C6 D4 Semiconductor diode type CV9374 5960-99-037-4633'
and
'V12 7H8 C6 E4 Semiconductor diode type CV9374 5960-99-037-4633'
respectively.

f. Fig 2525, Issue 3, Page 1040: the two top left-hand figures (for 1st i.f. unit) to be replaced by one figure showing the new semiconductor diode connections.

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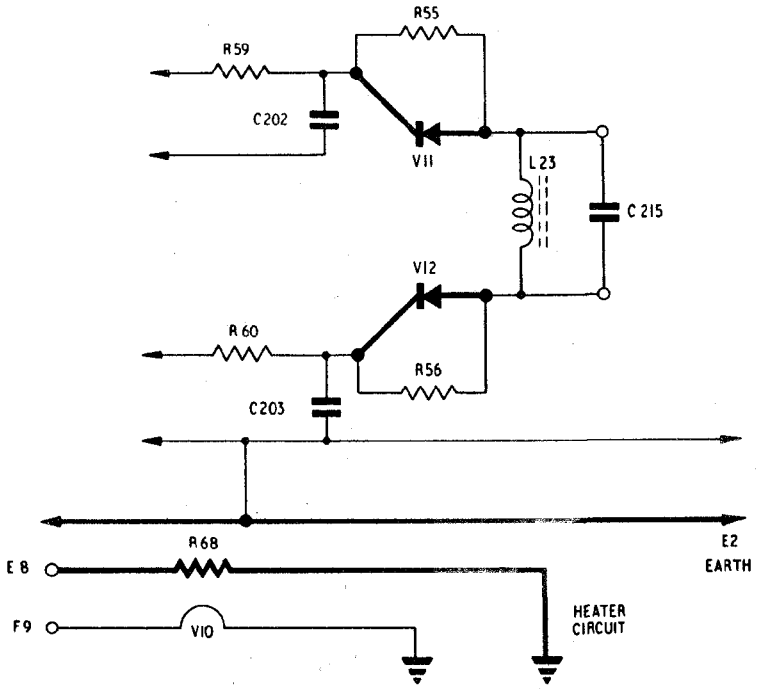

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Fig 3 - Scrap circuit diagram, after modification

T/61503/33/Tels

END

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Note: This Issue 2, supersedes Issue 1, Pages 0-01, 02, 1-5 dated 27 Sep 68, Jan 70 and 28 Jun 68 respectively. The regulation has been revised.

SUB-TITLE: Control, modulator - replacement of V29 by a semiconductor diode

1. Introduction

In order to eliminate inherent hum and noise from the modulator control unit of Transmitter-receiver, radio, C42, No 1 (TRC42 No 1) the CV469 valve used in circuit position V29 is to be replaced by a semiconductor diode. This regulation details the modification action required when the equipment is undergoing base overhaul or field repairs.

Note: Since the introduction of this modification the semiconductor diode CV8852 has become obsolete, and has been replaced by three semiconductor diodes ITT3002 (5961-99-118-1169). Modification kits demanded for implementation of this instruction may therefore include either the CV8852 or the three diodes. To embody the latter requires that operations a. to f., h. to k. and p. of this instruction be performed concurrently with Mod Instr No 25.

2. Priority: Group C (Mgmt N 097 refers).

3. Estimated time required 1.1/2 man-hours (exclusive of drying, sealing and testing time).

4. Items affected

Transmitter-receiver, radio, C42, No 1 Z1/5820-99-943-9362
Control, modulator Z1/5820-99-949-0705

5. Action required by:-

a. Units authorized to carry out field repairs

(1) On failure of an existing CV469 valve, demand the modification kit and carry out this modification. Record the embodiment of the modification as detailed in para b.(2).

b. Units authorized to carry out base repairs

(1) Demand the stores and carry out this modification on all TRC42 No 1 received for base overhaul.

(2) Ensure that the figures are struck through on the respective modification record plates on completion of this modification, as follows:-

Control, modulator (5820-99-949-0705)	- No 3
TRC42, No 1	- No 18

Note: When the three diodes are fitted (para 1 note) strike action in accordance with this modification and modification instruction No 25 is required.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels, quoting this modification instruction number on the indent. The stores are to be demanded as a complete kit and NOT as individual items.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	00000-02877	Kit, modification TRC42 No 1	1
		Comprising:-	
Z	5960-99-037-4144	Valve, electronic, CV8852 (Texas, 1S-144, or Plessey 640/4/13534)	(1)
Z	5905-99-011-3223	Resistor, fixed, w.w., vitreous enamel coating, 47Ω ±5%, 1.1/2W	(1)
Y3	6145-99-910-0170	Wire, elect. equip., type 2, 7/0.0076 in., brown	(2 in.)

b. Stores to be discarded

The following items are to be disposed of under local arrangements:-

Part No	Designation	Qty per eqpt
5960-99-000-0469	Valve, electronic, CV469	1
5905-99-911-4803	Resistor, fixed, w.w., 8.2Ω ±5%, 1.1/2W	1
5970-99-949-0619	Insulator disc	1

7. Sequence of operations

Note: The four figure numbers refer to Tels H 442, Part 2 and it is assumed that the equipment has already been removed from its case.

a. Place the set face downward on its front panel and locate the modulator control unit (Fig 2506, Page 1008, Issue 3, grid ref CD6/8).

b. Unsolder and withdraw all the connecting links from terminal blocks S and T (Fig 2519, Page 1030, Issue 2, grid refs G5 and E6 respectively).

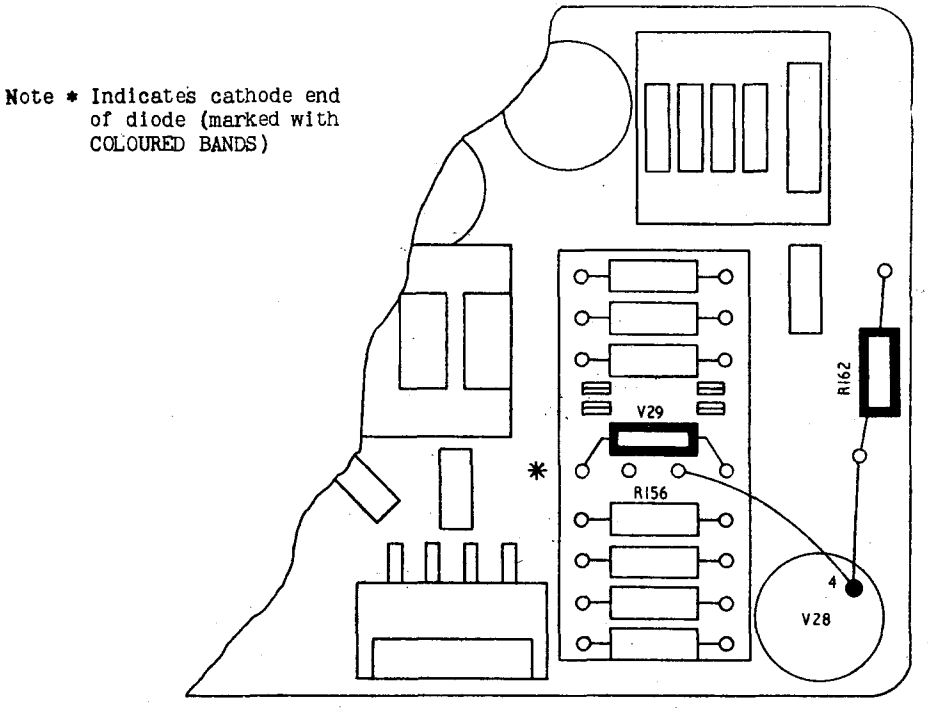
c. Release the four captive screws securing the top wiring tray to the frame, and hinge the tray back to the 'lock' position.

d. Release the four chromium-plated captive screws securing the modulator control unit, and remove the unit from the wiring tray.

e. Locate valve V29 on the underside of the modulator control unit chassis (Fig 2519, Page 1030, Issue 2, grid ref E7). Unsolder the sleeved terminations of this valve, remove it and its associated insulator disc from the clips and discard both of these items.

f. Locate the brown lead which connects terminal 4 of valve V28 to a terminal lug adjacent to resistor R156; unsolder, remove and discard this lead (see Fig 1).

g. Using a heat shunt (Tels A 522, para 5-6 and Fig 1) and the minimum of heat consistent with good joints, solder the semiconductor diode (supplied) to the terminal lugs as indicated in Fig 1. Note that the cathode of the diode is identified with a coloured band and is to be connected to the terminal lug on the side of the tagboard remote from V28 and R162 (Fig 1).



h. Locate, unsolder, remove and discard, the 8.2Ω resistor R162 (Fig 2519, Issue 2, ref F8 and Fig 1 herein). Trim the leads of the 47Ω resistor (supplied) as necessary, and solder it in the place of the resistor removed.

j. Solder the length of 7/0.0076 in. brown equipment wire between terminal 4 of valve holder V28 and the nearest termination of the new resistor R162 fitted as detailed in sub-para h., as shown in Fig 1.

k. Strike through with a diagonal line the figure 3 on the modification record plate of modulator control (5820-99-949-0705).

l. Replace the modulator control unit on the wiring tray and secure it with its four captive screws. Close up the wiring tray to the main frame and secure this with its captive screws.

m. Resolder the connecting links into terminal blocks S and T on the modulator control unit.

n. Replace the set right way up, connect it to its power supplies etc, and switch on.

o. Set up the modulator control unit as detailed in Tels H 444, Part 1, Page 42, Issue 3, para 113-117.

p. Strike through with a diagonal line the figure 18 on the TRC42 No 1 modification record plate.

q. On completion of any other work on the equipment, carry out the drying and sealing procedure (Tels H 444, Part 1, para 4-14).

8. EMER amendments

The circuit alterations made by carrying out the action detailed in para 7, are as shown in Fig 2. The following amendments to Tels H 442, Part 2 will therefore be published in due course:-

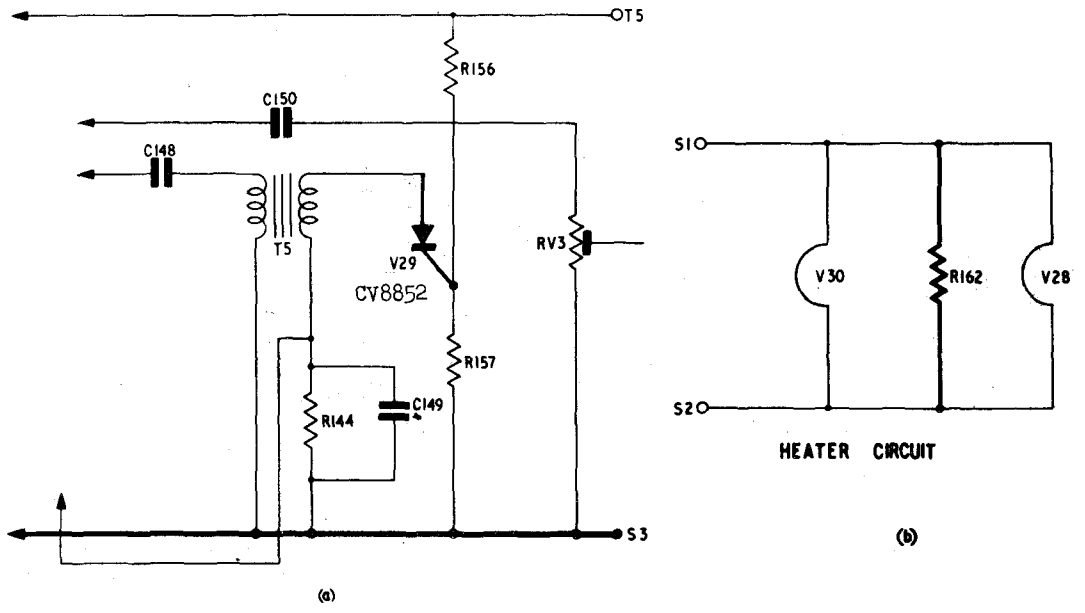


Fig 2 - Scrap circuit diagram, after modification

a. Fig 2502, Page 1004, Issue 2, grid ref C7: the symbol representing the heater of valve V29 to be deleted and resistor R162 to be amended in value to 47Ω, and shown in parallel with the heaters of V28 and V30.

b. *Fig 2507, Page 1009, Issue 4, grid ref C8: the symbol shown for V29 to be replaced by a semiconductor diode symbol with corresponding electrode connections.

c. Fig 2519, Page 1030, Issue 2

(1) *Grid ref F2: the symbol shown for V29 to be replaced by a semiconductor diode symbol with corresponding electrode connections.

(2) Grid ref B3/4: R162 to be shown connected in parallel with V28 and V30 and to be of 47Ω (instead of 8.2Ω). The symbol for the heater of V29 to be deleted.

(3) Grid ref EF7: the rectangular figure representing V29 to be moved approximately 3/16 in. to the left and shortened, to represent the new semiconductor diode.

d. Table 2507, Page 1031, Issue 2

The lines giving details of R162 and V29 to be amended to read as follows:-

'R162 2C7 B4 47 1.1/2W w.w. 5 5905-99-011-3223'
*'V29 7C8 F3 E7 Valve, electronic, CV8852 5905-99-037-4144'

e. *Fig 2525, Page 1040, Issue 3

(1) Tagboard bearing V29, lower right: the representation of V29 as a thermionic valve to be deleted and a representation of the new semiconductor diode to be inserted to the left of the valve clips, the cathode end being adjacent to the terminal 'C' on the board.

(2) Bottom right: the figure showing the CV469 electrode connections and labelled 'V29' to be deleted entirely or replaced by a diagram representing the new semi-conductor diode.

*Note: When three diodes are fitted (Para 1 note) these amendments are to be in accordance with Mod Instr No 25 para 8 and Fig 1.

T/61503/64/Tels

END

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 23

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Erratum

Note: This Page 0 is to be filed immediately in front of Page 1, Issue 1, dated 28 Jun 68.

1. The following amendment is to be made to the regulation.

2. Page 2

   a. Para 6.a. (second stores item)

      Delete: 'Y1'

      Insert: 'Z1'

   b. Para 6.b. (second stores item)

      Delete: '6145-99-910-0165'

      Insert: '6145-99-910-0166'

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS
(By Command of the Defence Council)

TELECOMMUNICATIONS
H 447 Mod Instr No 23
Army Modification Code M 00191

STATION, RADIO, C42 NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Addition of a capacitor and a mod record plate

1. Introduction

This regulation details the work necessary to add a capacitor, (C129), the action of which is to apply a 'speed up' pulse from the h.t. of the transmitter section of the r.f. unit to the grid of valve V24, rapidly removing the residual charge from the squelch circuit, and thus ensuring a rapid operation of the squelch unit relay, and also the addition of a wire to the A frame Wiring harness, branched. This instruction also details the procedure for the fitting of an extended (figures 21 to 40 inclusive) modification record plate, to the front panel assembly of the TRC42 No 1.

2. Priority Group B (Mgmt N 097 refers).

3. Estimated time required 3/4 man-hour

4. Items affected

Transmitter-receiver, radio, C42 No 1 5820-99-943-9362
Squelch unit 5820-99-949-0587

5. Action required by

a. Units and establishments holding the equipment

(1) If an extended (figures 21 to 40 inclusive) modification record plate is not fitted, demand stores in accordance with the instructions in para 6.a.

(2) On receipt of stores, request the unit responsible for field repair of the equipment to carry out this modification.

b. Units authorized to carry out field or base repairs

(1) When requested by units, carry out this modification.

(2) On repair or overhaul of equipment, demand stores and carry out this modification.

(3) Ensure that relevant figures on the respective modification record plate are struck through with a diagonal line on completion of this modification as follows:

Squelch unit: figure 3
TRC42 No 1: figure 21.

Distribution - Class 334. Code No 3

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this modification instruction number as the authority.

VAOS Section	Part No	Designation	Qty per eqpt
Z1	5910-99-012-0122	Capacitor, metallised, paper dielectric 0.005μF ±20% 500V d.c.	1
Z1	9905-99-105-9508	Plate, modification record	1

b. Stores to be obtained locally

VAOS Section	Part No	Designation	Qty per eqpt
Y3	6145-99-910-0164	Wire, electrical equipment, type 2, red	14.1/2 in.
Y3	6145-99-910-0166	Wire, electrical equipment, type 2, green	6 in.
Y3	5340-99-910-7138	Sleeve, identification green	2
Z1	6305-99-120-1821	Screw, drive	4
H1	8010-99-942-8917	Dulux red, varning insulation	as req.
-	4020-99-011-9481	Cord, lacing	as req.

7. Sequence of operations

a. Remove the equipment from its case (Tels H 443), Dehumidifiers, desiccant, electric (Tels M 600-609) and Leak locator (CT509) (Tels M 630-639) must be available for subsequent drying and resealing operations.

b. Locate and remove squelch unit from the tray on which it is mounted (Tels H 444, Part 1). See also circuit and layout diagrams of squelch unit (Tels H 442 Part 2).

c. Solder the 0.005μF capacitor between the spare tags on tagboard assembly, adjacent to capacitor C122 (Fig 1). The new capacitor becomes identified as C129.

d. Remove and retain two No 6 BA screws, securing the tagboard assembly.

e. Solder the 6 in. length of green wire to the tag of C129 on the underside of tagboard assembly adjacent to RV 2. Route this wire through the hole in the chassis, adjacent to tagboard, and solder it to the junction of R124 and R127 (Fig 1).

f. Cut a 3 in. length of red wire and solder it to the remaining tag of C129. Route this wire through the adjacent hole in the chassis and solder it to tag 6 of tagboard N.

g. Reverse operation d. Apply a thin coat of Dulux red to the underside of both screw heads before assembly.

h. Record the embodiment of this modification by striking through, without obliterating, the figure 3 (three) on the modification record plate fitted to the squelch unit.

j. Refit the squelch unit.

k. Fit to each end of the remainder of the red wire a green identification sleeve.

l. Solder one end of the wire to tag 6 on tagboard N fitted to the upper wiring tray and, routing wire along existing wiring harness, and through the adjacent plastic clip, solder the other end to tag 12 of tagboard M (Tels H 442 Part 2, Fig 2524).

m. Lace the wire, where necessary, to the existing branched wiring harness, using the lacing cord.

n. Remove the knobs from front panel controls SB and RF tuning drive (Tels H 442, Part 1, and Tels H 443).

o. Drill four 0.067 in. diameter holes (No 51 drill) in the bottom flange of the front panel of the TRC42 No 1 to the dimensions detailed in Fig 4.

p. Fit and secure the modification record plate by means of the four Screws, drive inserted from the inside of the flange.

q. Refit the knobs on the front panel.

r. Record embodiment of this modification by striking through, without obliterating, the figure 21 (twenty one) on the modification record plate fitted to the TRC42, No 1.

s. Refit the equipment in its case.

t. Carry out a complete functional check of the equipment.

u. Dry out the equipment and reseal it into its case, fitting a fresh desiccator.

8. EMER amendments

a. Tels H 442, Part 2, Issue 3, dated 29 May 65

(1) Fig 2505 to show changes illustrated in Fig 3.

(2) Table 2511 to show wiring details for terminal N6 to M12.

b. Tels H 442, Part 2, Issue 2, dated 9 Mar 62

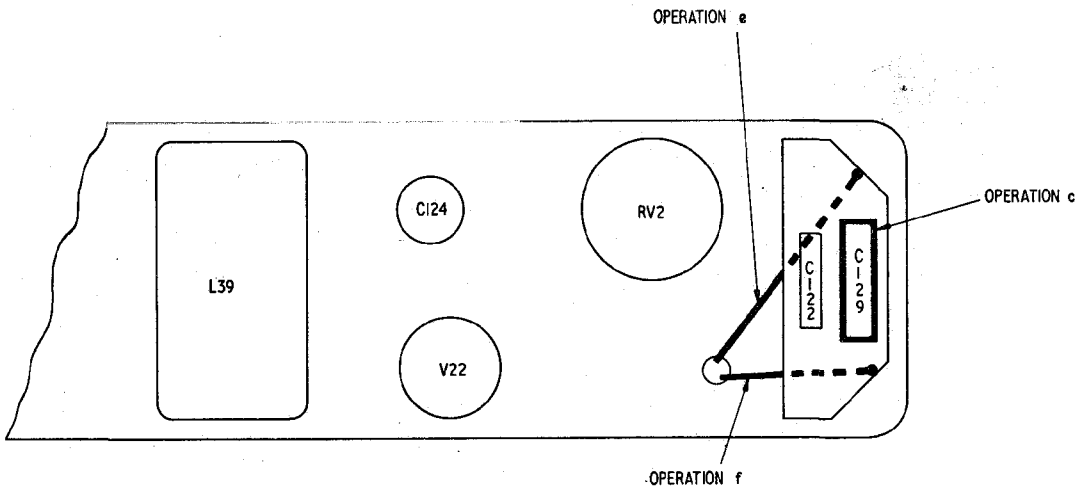
(1) Fig 2518 to show the changes illustrated in Fig 1 and 3.

(2) Table 2506 to show new capacitor C129 details added to the component schedule.

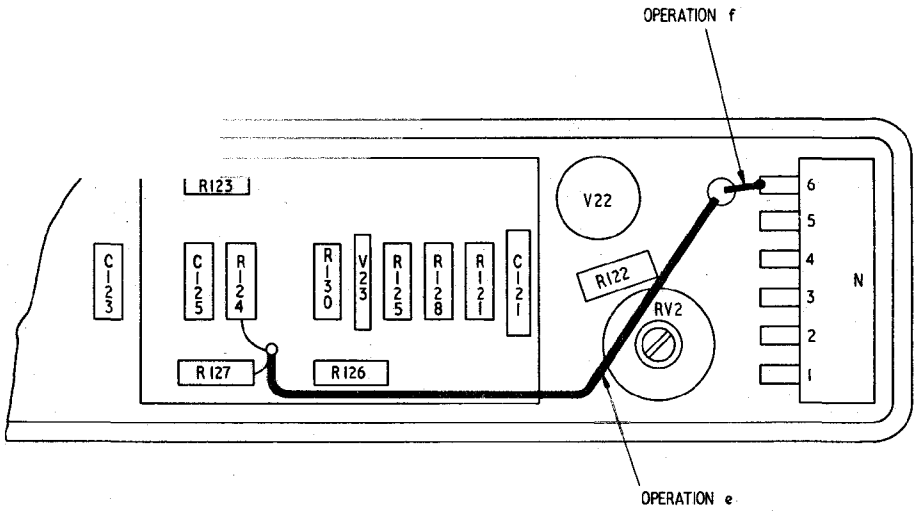
c. Tels H 442 Part 1, Issue 2, dated 9 Mar 62

(1) Page 11 para 54. Add the following sentence:-

'C129 ensures a rapid energization of relay RLD when switching from receive to send and rapid de-energization when switching from send to receive'.



(a) TOP VIEW OF SQUELCH UNIT



T H 447 M23
1 - 1

(b) UNDERSIDE OF SQUELCH UNIT

Fig 1 - Squelch unit layout

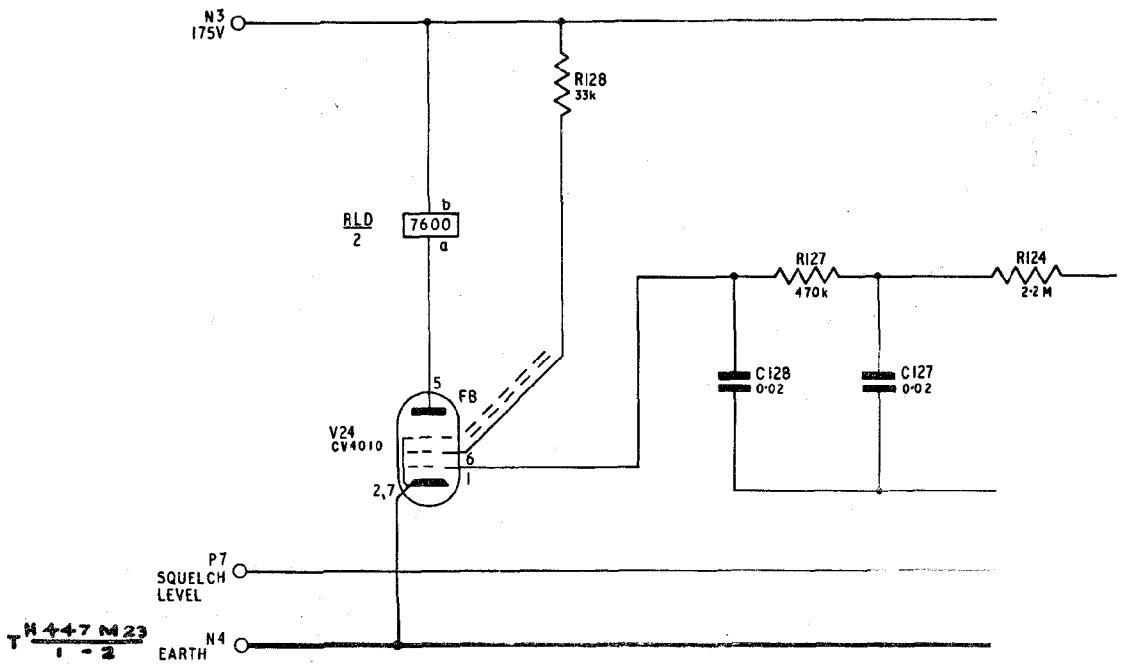


Fig 2 - Circuit before modification

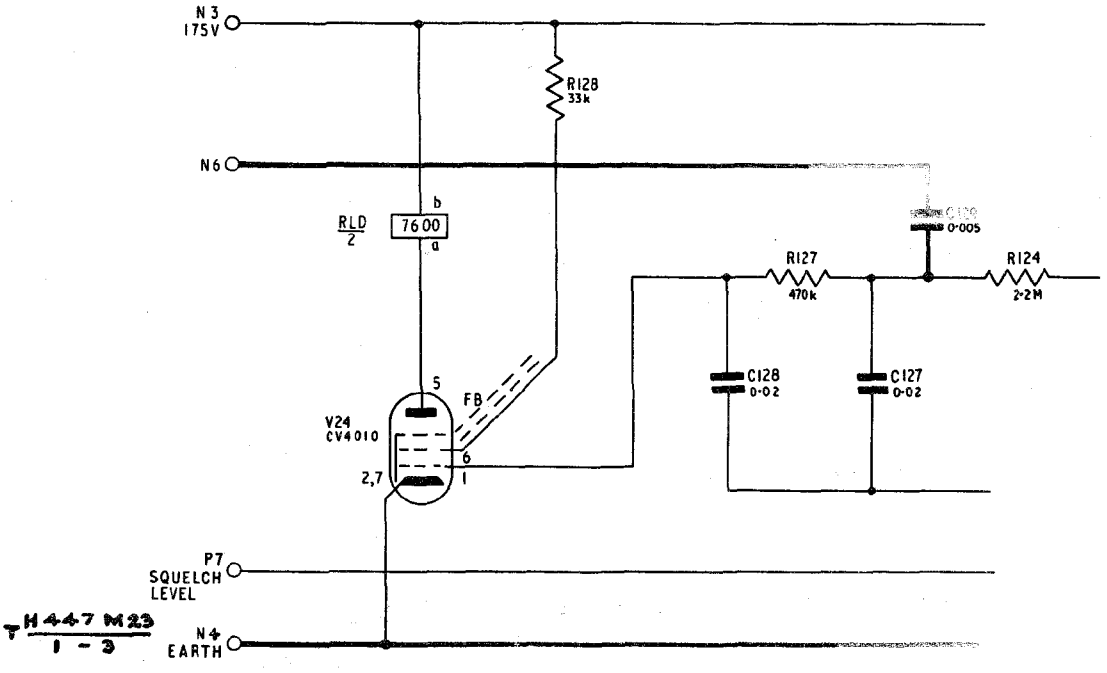


Fig 3 - Circuit after modification

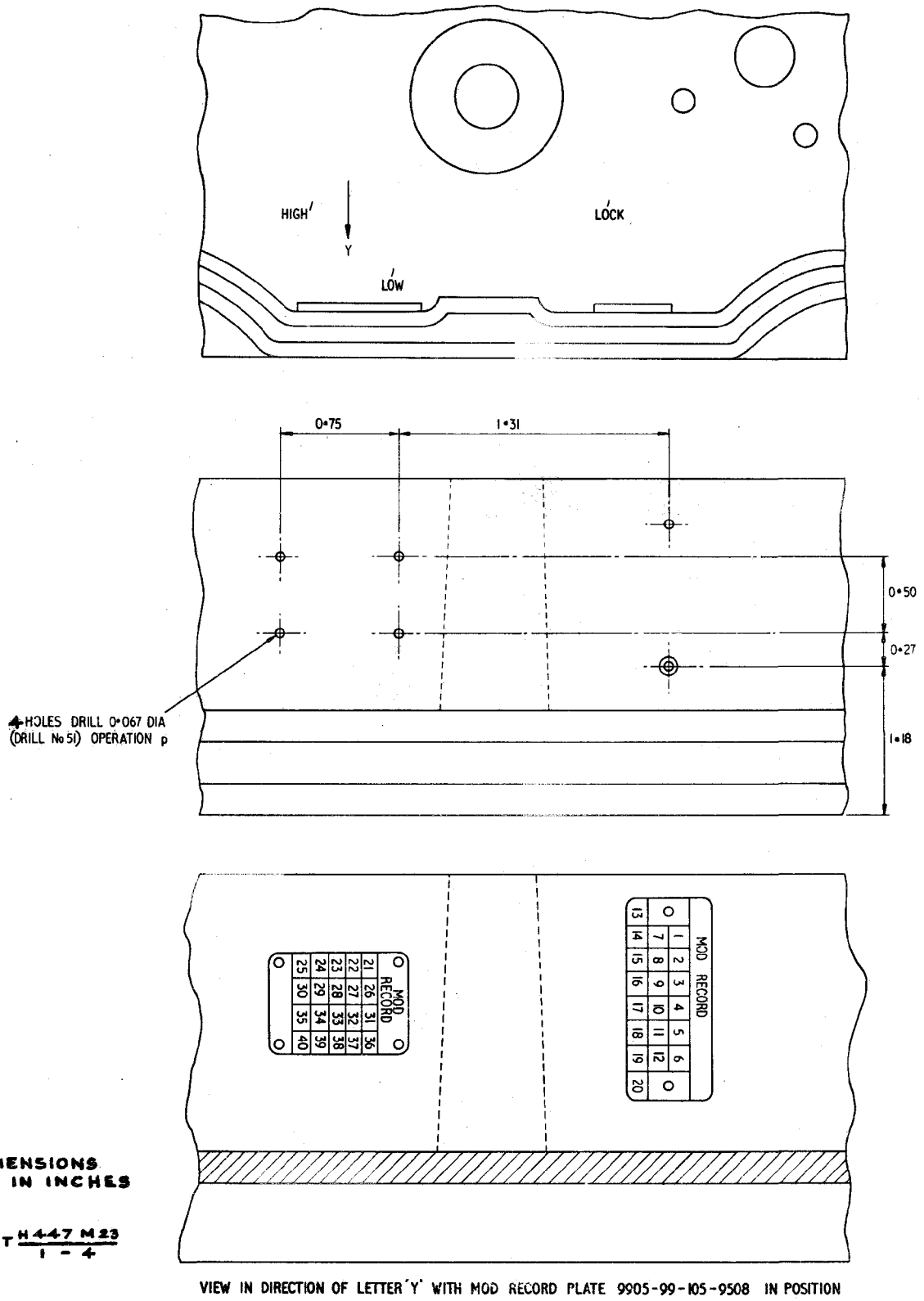


Fig 4 – Drilling detail for mod record plate

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Dummy load electrical (5985-99-949-1025)

INFORMATION

The arbitrary scale meter 6625-99-103-9201 fitted to the dummy load (5985-99-949-1025) (S.A.T. No 1 ZA46625) has been replaced by the arbitrary scale meter 6625-99-106-6194. To facilitate the fitting of the new meter the tag panel and clip assembly (ZA47150) has been modified and is redesignated as terminal board (5940-99-194-1717).

ACTION

This instruction is issued for information only as the modification was approved for embodiment during production. Modified equipments are identified by the figure 1 being struck through on the modification record plate.

ATMC No 00389
T/61503/13(TELS)

END

STATION, RADIO, C42, NO 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Control, modulator - replacement of CV8852 by three semiconductor diodes

1. Introduction

This regulation details the action required to replace the CV8852, which is no longer manufactured, by three semiconductor diodes ITT 3002, new circuit designations 7V33, 7V34 and 7V35. The modification is to be embodied only on failure of the CV8852 in the 7V29 circuit position.

2. Priority: Group C (Mgmt N 097 refers)

3. Estimated time required 1/2 man hour

4. Items affected

Transmitter-receiver, radio C42, No 1 Z1/5820-99-943-9362
Control, modulator Z1/5820-99-949-0705

5. Action required by

Units authorized to carry out field or base repairs

a. On repair or overhaul of equipment, if necessary, demand stores and carry out this modification.

b. Ensure that relevant figure on the respective modification record place is struck through with a diagonal line on completion of this modification as follows:-

Control, modulation	-	Figure 4
TRC42, No 1	-	Figure 22

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this modification instruction number and the Control Modulator serial number on the indent. The stores are to be demanded as a complete kit, and NOT as individual items.

VAOS Section	Part No	Designation		Qty per eqpt
Z1	5820-99-111-5562	Modification kit, electronic equipment		1
		comprising:		
	5961-99-118-1169	Semiconductor device, diode (ITT 3002)	(3)	
Y3	5940-99-100-5674	Terminal post	(2)	

b. Stores to be obtained locally

H1	8010-99-942-8917	Dulux red, varnish insulating	as reqd

7. Sequence of operations

(Unless otherwise stated all EMER references quoted in the sequence of operations apply to EMER Tels H 442 Part 2).

a. Remove the equipment from its case.

b. Place the set face downward on its front panel and locate the modulator, control unit (Fig 2506, Page 1008, Issue 3, grid ref CD6/8).

c. Unsolder and withdraw all the connecting links from terminal blocks S and T (Fig 2519, Page 1030, Issue 2, grid ref G5 and E6 respectively).

d. Release four captive screws securing the top wiring tray to the frame; hinge the tray back to the 'lock' position.

e. Release four chromium-plated captive screws securing the modulator control unit; remove the unit from the wiring tray.

Note: On those equipments with the original terminal board fitted ie with four terminal posts adjacent to R156 subsequent operations f, p. and s. to w. only apply.

f. Locate V29 on the underside of modulator control unit chassis (Fig 2519, Page 1030, Issue 2, grid ref E7). Unsolder and discard V29 and delete the coding '7V29' from the terminal board.

g. Using a suitable heat shunt (see Tels A 522) unsolder the connections detailed as follows (Refer to Fig 2 in this instruction for identification of components):

(1) Blue lead of C149 from tag connection of R144.

(2) Wire link connecting R159 and R144 from tag connection of R144.

(3) Wire link connecting R144 to chassis point from chassis point.

(4) White lead connecting a tag of R145 from tag connection of R148.

(5) White lead connecting a tag of R145 from tag connection of TR5.

(6) Blue lead connecting a tag of V29 from tag connection of TR5.

(7) Blue lead connecting a tag of R155 from point 5 of V28 valveholder.

(8) Wire link connecting a tag of R152 to V28 pin 1 from pin 1 of V28 valveholder.

(9) Orange lead connecting R153 to V28 pin 6 from pin 6 of V28 valveholder.

(10) Red lead connecting a tag of R156 from terminal block 'T' pin 5.

(11) Green lead connecting a tag of R152 from tag connection of C146.

h. Remove and retain three 4BA screws securing terminal board from which V29 was removed; carefully remove the board from modulator control unit chassis.

j. Mark out and drill two holes in the board using a 1/16 in. or No 52 drill. Refer to Fig 3.

k. Fit and push a Terminal post (5940-99-100-5674), supplied in the modification kit, into each hole as far as possible by hand.

l. Use a solid anvil and rest the board on it so that the anvil is central under each terminal post. Take care not to damage any of the existing components.

m. Using a punch and light hammer, drive the terminal posts into the board, so that the serrated edges of the posts fully grip the board.

n. Clean and lightly tin the terminal posts.

p. Using a suitable shunt (Tels A 522) and the minimum of heat consistent with good joints, solder the three semiconductors (supplied) to the terminals as indicated in Fig 2. Note that the cathode of the diode is identified by an adjacent band.

q. Reverse operation h. applying a thin coat of Dulux red to underside of all screw heads before assembly.

r. Resolder all leads, other than those of the discarded V29 detailed in operation f, to the points from which they were unsoldered.

s. Strike through, without obliterating, figure 4 (four) on the modification record plate fitted to the modulator control unit.

t. Reverse operation b. to e.

u. Set up the modulator control unit in accordance with Tels H 444 Part 1, Page 42, Issue 3, para 113-117.

v. Refit the equipment into its case and carry out the drying and sealing procedure in accordance with Tels H 444 Part 1, Page 4, Issue 3, para 4-14.

w. Strike through, without obliterating, figure 22 (twenty two) on the modification record plate fitted to the front panel of the TRC42 No 1.

EMER amendments

Tels H 442 Part 2

8. Amend the following circuit and layout diagrams by putting asterisk against V29 and adding the following foot note: '*see Modification Instruction No 25':-

a. Page 1009, Issue 4, Fig 2507 grid ref C8.

b. Page 1030, Issue 2, Fig 2519.

(1) grid ref F2

(2) grid ref EF7

c. Page 1040, Issue 3, Fig 2525.

d. Page 1031, Issue 2, Table 2507 under MISCELLANEOUS.

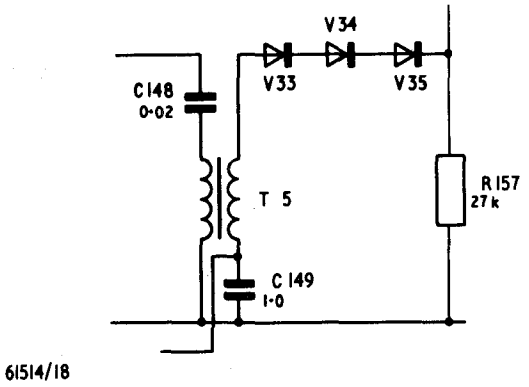


Fig 1 - Modified circuit diagram

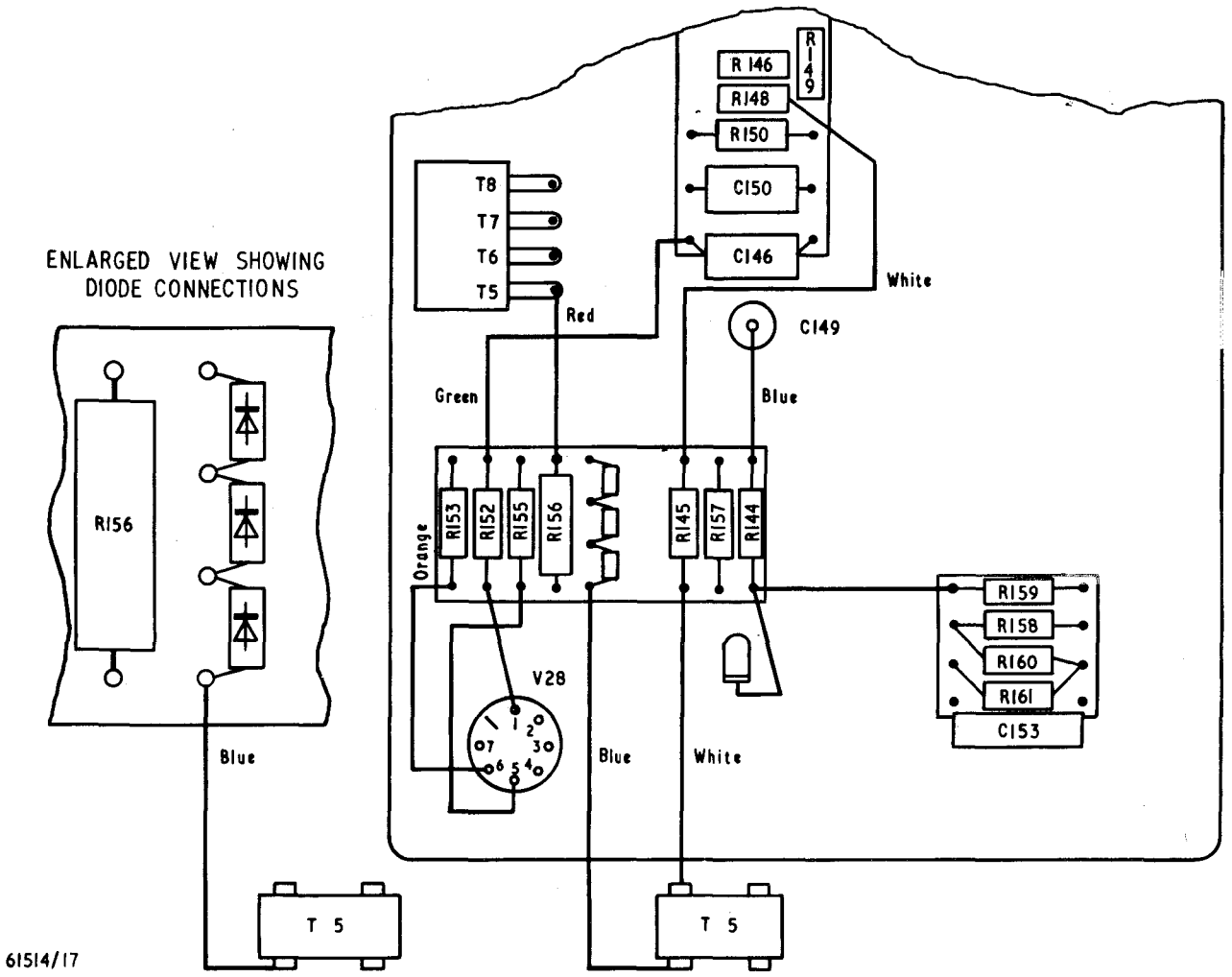


Fig 2 - Underside of control modulator after modification

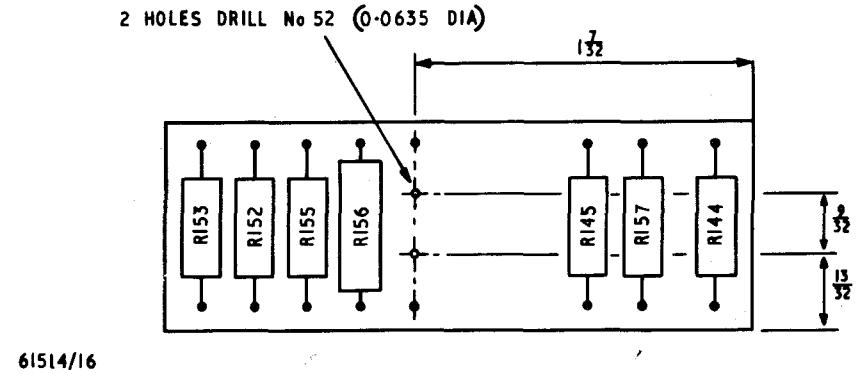


Fig 3 - Drilling of terminal board

T/61503/64/Tels
ATMC No 00594

END

STATION, RADIO, C42, No 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

(Army Modification Code MO1137)

SUBJECT: Antenna simulator - replacement of obsolete resistors

INTRODUCTION

1. Resistors 680Ω, 5905-99-027-1216 used in circuit positions R3 to R11 are no longer available for new production antenna simulators. Twelve resistors 910Ω, ±5%, 2W, Z30/5905-99-646-0707, are being fitted by the manufacturer instead of the nine 680Ω resistors. The new resistors will be identified by circuit references R3 to R11 and R13 to R15 and are mounted on a new PCB. Simulator units embodying the new resistors are identified by having the figure 3 struck through on the modification record plate. There is no provision for modifying simulators not modified in production. The modified layout and circuit diagram are given in Fig 1.

APPLICABILITY

2. Simulator, antenna (Dummy load elect) No 1 Z1/5985-99-949-1025.

REASON FOR MODIFICATION

3. Code 6 - replacement of obsolete components.

EMER AMENDMENTS

4. Tels H 442.

a. Part 1, Page 19, Issue 2, 9 Mar 62:

(1) Para 94, line 4, insert asterisk * in left-hand margin.

(2) Para 96, line 2, insert asterisk * in left-hand margin.

(3) At foot of page insert:

'* Twelve resistors of different value fitted in latest simulators. Refer to Tels H 447 Mod Instr No 26.

b. Part 2, Page 1049, Issue 2, 9 Mar 62, Table 2518, RESISTORS:

(1) In left-hand margin against R3-R11 insert asterisk*.

(2) At foot of page insert:

'* In latest simulators twelve resistors fitted R3-R11 and R13-R15, 910Ω, 2W, ±5%, 5905-99-646-0707. Refer to Tels H 447 Mod Instr No 26.'

c. Part 2, Page 1050, Issue 2, 9 Mar 62, Fig 2528:

(1) Layout diagram. Adjacent to R3-R7 insert: 'See NOTE 1'.

(2) Circuit diagram. Adjacent to R3-R11 insert: 'See NOTE 1'.

(3) Below circuit diagram insert:
'NOTE 1: In latest simulators twelve resistors fitted, R3-R11 and R13-R15, 910Ω. Refer to Tels H 447 Mod Instr No 26, Fig 1, for modified circuit diagram and layout.'

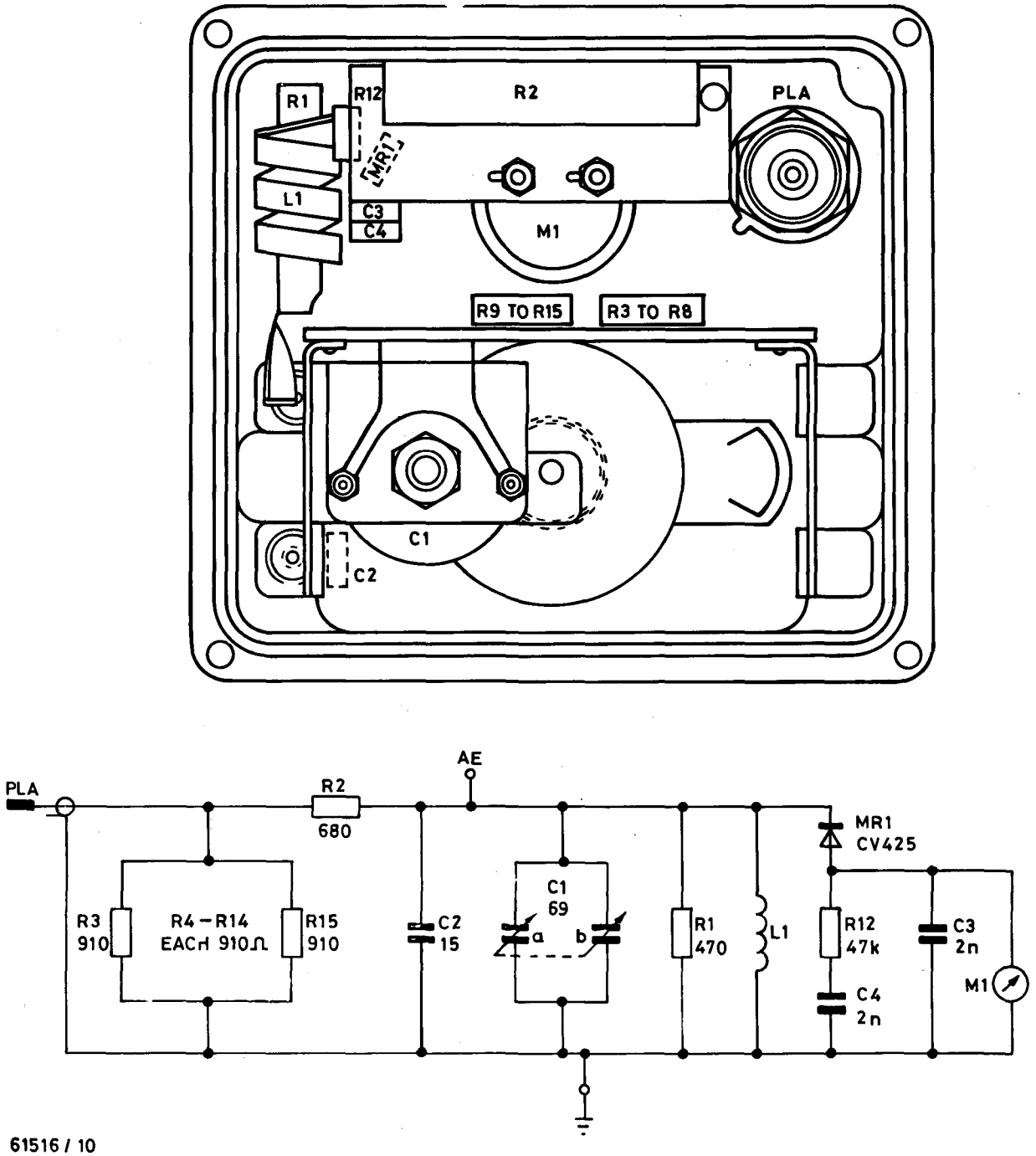


Fig 1 - Simulator, antenna, modified circuit diagram and layout

T/61503/D&M/Tels
ATMC Mod No 01584

END

STATION, RADIO, C42, No 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT: Control, modulator - resistor change to permit use of sub-standard CV4015

INTRODUCTION

1. If the first microphone amplifier valve, V27, (CV4015) is marginally outside CV specification the A.M.C. unit will fail to meet the deviation specification test requirements. To permit the use of such valves the values of R 147 and R 156 are changed when the A.M.C. unit fails this test. It should be noted that even with this modification embodied some Valves CV4015 will still give rise to this test failure.

APPLICABILITY

2. Control, modulator — Z1/5820-99-949-0705
part of
Transmitter-receiver radio C42 No 1 — Z1/5820-99-943-9362

REASON FOR MODIFICATION

3. Code 3 - to improve reliability.

PRIORITY

4. Routine - on failure to meet test specification (Mgmt N 097 refers).

ESTIMATED TIME REQUIRED

5. 1 man-hour.

MODIFICATION IMPLEMENTATION PLAN

6. a. This modification may be carried out by units authorised to carry out field or base repairs.

b. There are no associated modifications.

c. On completion of this modification strike through the figure 5 on the modification record plate.

d. There is no limitation on use of equipment without this modification embodied.

Action required

7. a. Units and establishments holding the equipment

None

b. Units authorised to carry out field or base repairs

(1) On failure to meet specification test requirements of Tels H 444, Part 1, paras 70 and 71, examines the equipment to determine whether the figure 5 has been struck through on the A.M.C. unit modification record plate.

(2) If the figure 5 has not been struck through demand the stores as detailed in para 8a and carry out this modification.

(3) On completion of the modification ensure that figure 5 is struck through on the A.M.C. unit modification record plate.

(4) Complete AF G 1084A when reporting completion of this modification to REME Data Centre. For the Equipment Code refer to Mgmt J 022.

ARMY MODIFICATION CODE MO1141

Stores, tools and equipment

Note: Refer to Army General and Administration Instructions (AGAI) Chapter 90, Section 2.

8. a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority.

Item	COSA Section	Part No	Designation	Qty per eqpt
1	Z30	5905-99-013-6033	Resistor, fixed, 39kΩ, ±2%, 1/4W	1
2	Z30	5905-99-013-6045	Resistor, fixed, 120kΩ, ±2%, 1/4W	1

b. Stores to be removed

Items made redundant by the modification are to be disposed of locally.

Z30/5905-99-022-2173	Resistor fixed, 22kΩ, ±10%, 1/4W	Qty 1
Z30/5905-99-022-3039	Resistor fixed, 100kΩ, ±10%, 1/4W	Qty 1

Sequence of operations

9. a. Remove set from case and place face downwards on front panel.

b. Referring to Tels H 442, Part 2, Page 1008, Fig 2506, grid ref C6/8, D6/8, locate the A.M.C. unit.

c. Refer to Tels H 442, Part 2, Page 1030, Fig 2519, grid refs G5 and E6, and identify terminal blocks S and T. Note the connections for re-assembly, unsolder and withdraw all connecting links from the blocks.

d. Release the four captive screws securing the top wiring tray to the frame and hinge the tray to the lock position.

e. Release the four chromium plated captive screws securing the A.M.C. unit and remove it from the tray.

f. Referring to Fig 2519, grid ref E6, identify R147, unsolder and discard it. Fit the new 39kΩ resistor, Para 8a, item 1, in R147 position.

g. Similarly locate, grid ref E7, unsolder and discard R156. Fit new 120kΩ resistor, para 8a, item 2, in R156 position.

h. Record the embodiment of this modification by striking through, without obliterating, the figure 5 on the A.M.C. unit modification record plate.

j. Re-assemble the set by reversing operations c to e.

k. Set up the A.M.C. unit in accordance with Tels H444, Part 1, Page 42, Paras 113 to 117, and ensure that the unit will meet the requirements of Page 22, paras 70 and 71 before proceeding with operation l.

l. Refit the set in the case in accordance with Tels H444, Part 1, Pages 49 and 50, paras 7 to 14.

Testing after embodiment

10. Carry out specification tests detailed in Tels H 444 Part 1, Page 22, Paras 70 and 71.

EMER AMENDMENTS

11. Tels H 442, Part 2.

a. Page 1009, Issue 4, 29 May 65.

(1) Fig 2507 Adjacent to 'A.M.C. UNIT', grid ref B3, insert: 'SEE NOTE 1'.

(2) At foot of page insert: 'NOTE 1: Values of R147 and R156 in A.M.C. unit may be changed. Refer to Tels H 447 Mod Instr No 27'.

b. Page 1030, Issue 2, 9 Mar 62, Fig 2519

Insert beneath circuit diagram: 'NOTE: Values of R147 and R156 may be changed. Refer to Tels H 447 Mod Instr No 27'.

c. Page 1031, Issue 2, 9 Mar 62, Table 2507

(1) In left-hand margin against R147 and R156 insert an asterisk*.

(2) At foot of page insert:

'*R147 and R156 values may be changed. Refer to Tels H 447 Mod Instr No 27.'

T/61503/5/Tels
ATMC Mod No 01551

END

STATION, RADIO, C42, No 1

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT: 1st i.f. unit - replacement of crystal unit

INTRODUCTION

1. Crystal Unit (Z1/5955-99-949-0852) used in position XL3 in the 1st i.f. unit has become obsolete. As no direct replacement is available Crystal Unit Quartz, ZDKA (Z1/5820-99-659-0094) is to be fitted on failure of the existing crystal unit after stocks of Z1/5955-99-949-0852 are exhausted.

APPLICABILITY

1. 1st Intermediate Frequency Unit — Z1/5950-99-949-0835

Part of:

Transmitter-receiver, Radio C42, No 1 — Z1/5820-99-943-9362

REASON FOR MODIFICATION

3. Code 6 - to replace obsolete component.

PRIORITY

4. Routine (Mgmt N 097 refers) on failure of crystal unit.

ESTIMATED TIME REQUIRED

5. 1.3/4 man hours.

MODIFICATION IMPLEMENTATION PLAN

6. a. This modification may be carried out by Units authorized to carry out Field or Base repairs.

b. This modification is only to be carried out on failure of the existing crystal unit after stocks of spares have been exhausted.

c. There are no associated modifications.

d. There is no limitation on the use of equipment without the modification embodied.

e. On completion of the modification the Figure 4 is to be struck through on the 1st i.f. unit Modification Record Plate.

Action required

7. a. Units and establishments holding the equipment

None.

b. Units authorized to carry out Field or Base repairs

(1) On repair or overhaul of the crystal unit after stocks of spares have been exhausted examine the 1st i.f. unit to determine whether the Figure 4 has been struck through on the Modification Record Plate.

(2) If the Figure 4 has not been struck through demand the stores as detailed in Sub para 8.a. and carry out this modification.

(3) On completion of the modification ensure that Figure 4 is struck through on the Modification Record Plate.

(4) Complete AF G 1084A when reporting completion of this modification to REME Data Centre. For the Equipment Code refer to Mgmt J 022.

ARMY MODIFICATION CODE Y 00301

Stores, tools and equipment

Note...
Refer to Army General and Administrative Instructions (AGAI) Chapter 90, Section II, Issue 9/75.

8. a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this regulation as the authority. Items 1 to 7 are to be demanded as a complete kit and NOT as individual items.

Item	VAOS Sect	NSN	Designation	Qty per eqpt
-	Z32	5935-99-932-4632	Socket, Quartz Crystal	1
-	-	5820-99-661-3761	Modification Kit comprising:	1
1	-	5820-99-659-0094	Crystal Unit, Quartz, ZDKA 8400 kHz (1)	
2	-	5820-99-659-0095	Base Plate (1)	
3	-	-	Crystal Retainer Assy SD/A192171 comprising: (1)	
4	Y3	5940-99-901-3331	Terminal Lug (2)	
5	Z1	5820-99-949-3414	Spring, Helical Extension (2)	
6	G1	5305-99-120-0192	Screw, Machine, 6 BA x 7/16 in. BS57 Ch Hd (1)	
7	G1	5310-99-941-8216	Nut, Self locking, Hex 6BA, MS AGS 2001/A/1 (3)	

b. Stores to be removed

Items made redundant by the modification are to be disposed of locally

Z1/5955-99-949-0852 Crystal Unit Qty 1

Sequence of operations

9. a. Remove the transmitter-receiver, from its case as detailed in Tels H 443 Paras 4 and 5.

b. Place the set face downwards on its front panel and locate the 1st i.f. sub assembly (see Tels H 442, Part 2, Fig 2506).

c. Unsolder and withdraw all the connecting links from Terminal Blocks F and E. Remove Socket SK4 from the fixed plug (PL4).

d. Release the four captive screws securing the bottom hinged wiring tray to the frame and list the tray sufficiently to unplug the coaxial lead from the c.f.o. unit. Finally, fully open the tray, ensuring that the lock engages.

e. Release the three chromium plated captive screws securing the 1st i.f. sub assembly to the bottom tray and remove the sub assembly.

f. Identify, remove and retain the four cheese head screws securing the oscillator screen to the underside of the i.f. sub assembly chassis Remove and retain the screen.

g. Unclip the crystal retainer, remove the crystal (2XL3) from its socket and discard.

h. Unsolder and remove the connections from the crystal socket base.

j. Remove and retain the two 6 BA screws holding the crystal socket on the chassis. Remove and discard the socket.

k. Referring to Fig 1 assemble the new quartz crystal socket with the Base Plate, Sub para 8.a., Item 2, and the Crystal Retainer Assembly, Item 3, using Item 4, two Terminal Lugs, Item 5, two helical springs, Item 6, one 6 BA screw and Item 7, one self locking nut.

l. Fit the components assembled in Sub para k to the i.f. unit chassis in the position vacated by the old crystal socket removed in Sub para j., using the two 6 BA screws retained from that operation and two self locking nuts, Sub para 8.a., Item 7.

m. Connect and resolder the leads removed in Sub para h. to the base of the new quartz crystal socket.

n. Reverse the procedure of Sub para f. replacing the oscillator scren.

o. Fit the new quartz crystal unit, Sub para 8.a., Item 1 and secure with the new crystal retainer assembly.

p. Reverse the operation at Sub para e. securing the 1st i.f. sub assembly to the tray.

q. Reverse the operation at Sub para c., replacing SK4 and resoldering the links to Terminal Blocks F and E.

r. Record the embodiment of this modification by striking through, without obliterating, the Figure 4 on the 1st i.f. amplifier Modification Record Plate.

s. Reverse the operations at Sub paras a. b. and d. sealing the equipment in accordance with Tels H 443 Paras 14 and 15 paying particular attention to the sealing of the rubber gasket in the front panel in accordance with Tels H 443 Para 6.

Testing after embodiment

10. Carry out a full functional test.

EMER AMENDMENTS

11. Tels H 442 Pt 2 will be amended.

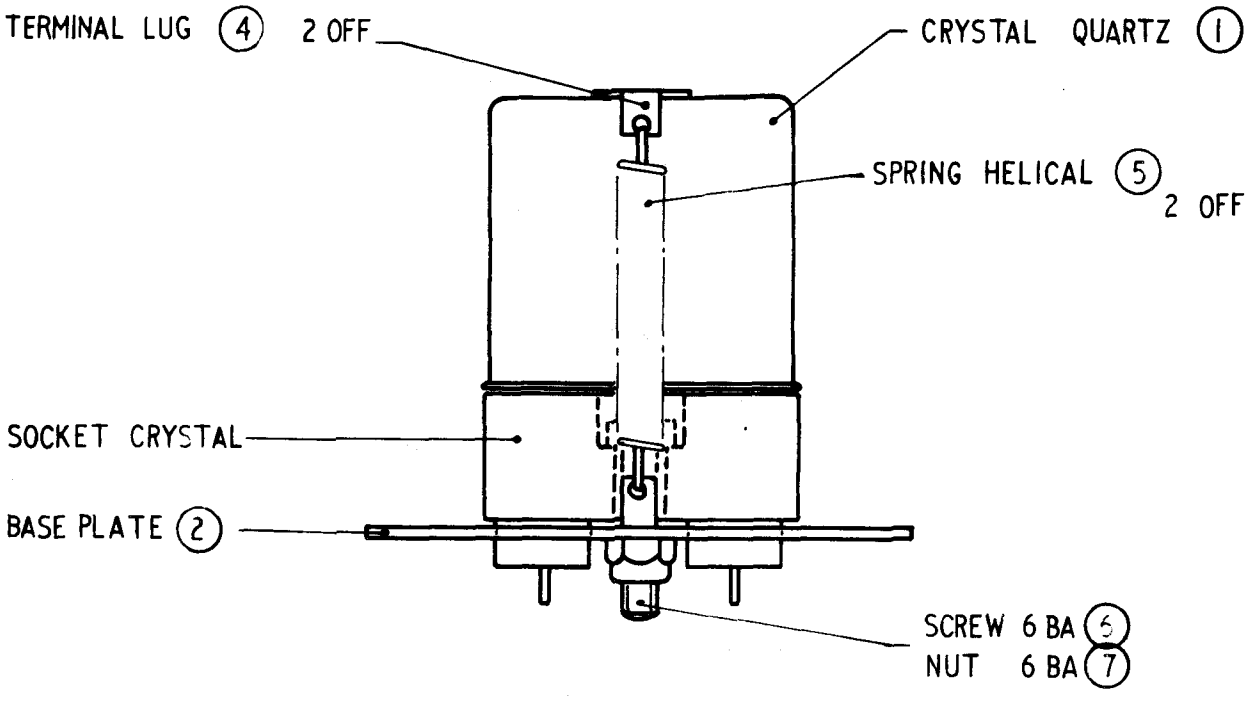


Fig 1 - Crystal unit assembly showing the new socket and the modification kit item numbers.

T/61503/D & M/Tels

ATMC Mod No 02058

END