

STATION, RADIO, A13

TECHNICAL HANDBOOK - INDEX OF MODIFICATIONS

EMER Mod No	No struck off Mcā record plate		Title	Embodiment	
	Main ecpt	Sub-unit		Production (P)	Retrospective Priority Group
1	6	1 (Board 1B)	Reduction of r.f. amplifier cross modulation	P	B
2	1	-	Wiring corrections to tag strip TSO	P	B
3	5	1 (Board 5)	Correction of frequency instability in second local oscillator (issue 2)	P	C
4	10	1 (Board 21)	Alteration in value of resistor 21R7	P	B
5	12	1 (Board 24)	Change in value of resistor 24R5	P	C
6	4	-	Change of PLA and SKA spacers	P	-
7	3	1 (Board 17)	Improvement of Phase Mod sensitivity	P	B
8	2	-	Film scale unit - replacement of guide plate for MHz film blind	P	C
9	11	-	Replacement of capacitor 28C3 by a semi-conductor device, diode, CV7040	P	B
10	1	1 (P.E.C. 102-2511)	Generator, d.c., addition of semi-conductor device, diode, types CV7324 and CV7040	P	-
11	9	-	Addition of bushes to prevent movement of film scales	P	B
12	13	2 (Board 19)	Panel, electronic circuit- replacement of transistors	P	B

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EMER Mod No	No struck off Mod record plate		Title	Embodiment	
	Main eqpt	Sub-unit		Production (P)	Retrospective Priority Group
13	8	1 (Board 19)	P.E.C. (5820-99-101-8591) - Improved power output	P	B
14	19	1 (Board 18)	TRA13 - board 18 - a.m. dis- tortion in the vicinity of 8Mc/s	P	C
15	1	1 (P.E.C. 105-9914)	Amplifier, r.f. No 12, Mk 2 - addition of CV7040	P	B
16	-	-	Fitting of heat shrunk sleeves	P	B
17	7	-	TRA13 - Roll pin replacement by spring pin	P	C
18	1 (RFA No 12) 2 (TRF ant)	-	RFA No 12 Mk 1 and TRF antenna - replacement of control knobs	P	-
19	21	3 (Board 19) 1 (Board 1)	Printed circuit, replacement of connectors	P	-
20	23	2 (Board 18)	Replacement of adjustable tuning core in the m.o. coil	P	-
21	22	-	Replacement of battery secur- ing straps	P	-
22	20	1 (Board 22)	Printed circuit board No 22 - replacement of resistor 22 R8	P	C
23	14	1 (Board 11)	Panels, electronic circuit addition of capacitors	P	B
	18	1 (Board 13)			
24	1 3	-	Stabilizer voltage, improved stabilization and seating of TR5	P	C

* To be published

EMER Mod No	No struck off Mod record plate		Title	Embodiment	
	Main eqpt	Sub-unit		Production (P)	Retrospective Priority Group
*25	1	-	Harness Adaptor, change of fuse circuit	P	B
*33	15	-	Transmitter-receiver, replacement of control knobs	P	B
26	17	-	Fitting of an instruction and extended mod record plates	P	B
*31	16	- 2 (Board 13)	Replacement of 13 TR2 and 3 by CV9259	P	C
*30	24	-	Addition of resistor to obviate damage to cable loom	P	C
*27	-	-	Antenna and frame assembly, addition of strain relief device	P	B
*37	25	-	Failure to capture at 8MHz (specified eqpts only)	P	B
*28	2	-	Generator d.c., fitting of collar, shaft assembly	P	-
*32	2	-	Harness adaptor Unit MKII - addition of seating washers to TR5, 6 and 7	P	C
*	26	-	TRA13 - addition of warning label to front panel	P	-
*29	27	3 (Board 18)	TRA13 - Board No 18 - exchange of capacitor C6	P	C

T/61136/D&M/Tels

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Reduction of r.f. amplifier cross modulation

1. Introduction

Cross modulation of the r.f. amplifier can be reduced by the addition of a resistor in parallel with R13 in the r.f. amplifier. This regulation details the action required to fit the additional resistor.

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

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

4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353
Panel, electronic circuit (Board 1B) 5820-99-101-8594

5. Action required by:-

(a) Units and establishments holding the equipment

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 carry out this modification.
- (ii) Carry out modification of all equipments received for repair or overhaul.
- (iii) Ensure that the figure 6 is struck off the modification record label of the Transmitter-receiver, radio, A13. The figure 1 is to be struck off the modification record label of the Panel, electronic circuit (Board 1A) ONLY when the label becomes accessible during repairs or other modifications.

Note: If it is found that the Transmitter-receiver, radio, A13 modification record plate has the figure 6 struck through, the modification will have been completed either by the addition of a 3.3k Ω resistor in the position shown in Fig 1, and in some cases temporarily recorded by a red spot on board 1B; or by fitting a 1.8k Ω resistor in position R13 on board 1B, this being the value of the original resistor R13 (4.7k Ω) and the additional resistor (3.3k Ω) in parallel. In the latter case the modification will have been recorded on board 1B record label; in the former case, permanent recording must be done when the record label is accessible.

6. Stores, tools and equipment

Stores to be demanded

The following item is to be demanded through normal Ordnance channels quoting this modification instruction number as the authority on all indents.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5905-99-012-4727	Resistor, fixed, oxide film insulated, 3.3k Ω \pm 5%, 0.5W	1

7. Sequence of operations

- (a) Refer to Tels F 144 para 22 to 24 and remove the equipment from its case.
- (b) With the equipment front panel downwards unscrew the six cross-head screws which secure the rear hinged flap. Open the flap.
- (c) Refer to Figure 1 of this instruction which illustrates the position that the additional resistor will occupy.
- (d) Identify the two solder tags indicated by the twin arrow in Fig 1.
- (e) Solder the 3.3k Ω resistor across the two tags referred to in (d), observing the precautions and following the techniques detailed in Tels A 522 (Miniature repair techniques).
- (f) Strike through the figure 6 on the transmitter-receiver modification record plate. Figure 1 on the modification record label of the Panel, electronic circuit (Board 1A) will be struck through ONLY when the label becomes accessible during repairs or other modifications.
- (g) Replace the equipment in its case.

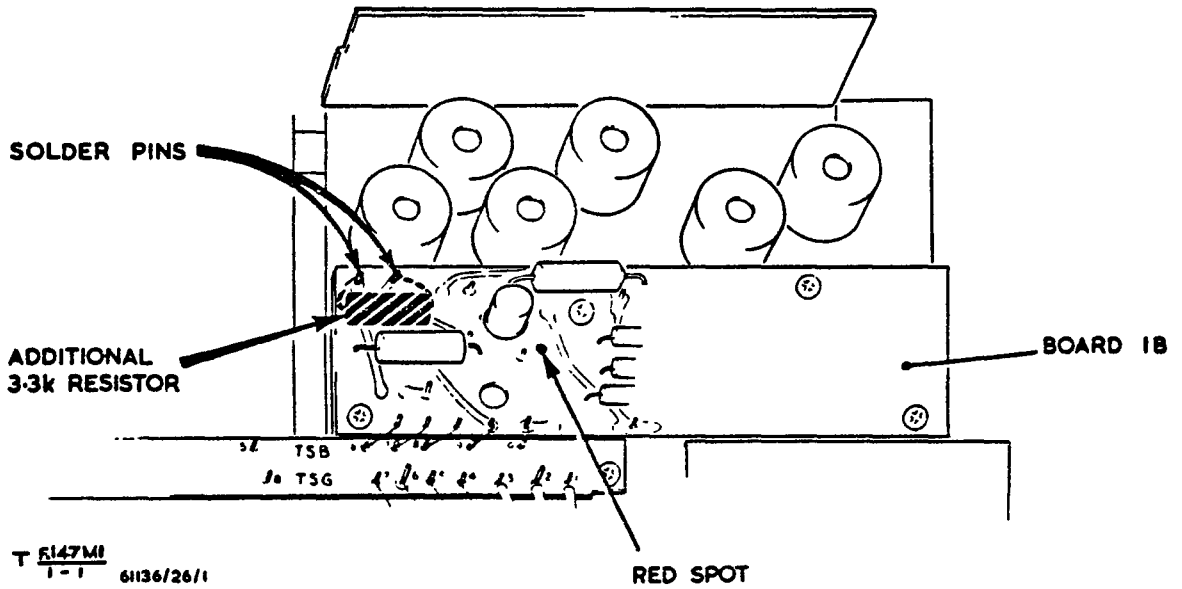


Fig 1 - Location of additional resistor on board 1B

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END

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(By Command of the Defence Council)

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TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Wiring corrections to tag strip TS.0.

1. Introduction

In the early stages of production, a number of Transmitter-receiver, radio, A13 equipments were issued with incorrect cable connections to TS.0., causing a defect which is only apparent when using the Amplifier, r.f., No 12. This regulation gives details of the action required to correct the defect by interchanging two cables, and lists the equipment serial numbers affected.

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

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

4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353

Tag strip TS.0.

Serial numbers 0101 to 0121 inclusive, 0122, 0124, 0125, 0126, 0128 to 0145 inclusive, 0147, 0148, 0150, 0152, 0153, 0154, 0155, 0156, 0160, 0163, 0164, 0169, 0170, 0171, 0176, 0177, 0179, 0182, 0190, 0196.

5. Action required by:-

(a) Units and establishments holding the equipment

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, carry out this modification.
- (ii) Carry out this modification on all equipments received for repair or overhaul.
- (iii) Ensure that the figure 1 is struck through on the modification record plate of the Transmitter-receiver, radio, A13.

6. Stores, tools and equipment

Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-943-3454	Varnish, finishing, with fungicide, air drying, brushing	As reqd

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7. Sequence of operations

- (a) Refer to Tels 144 para 22 to 24 and remove the equipment from its case.
- (b) Identify board 20 and the adjacent strip TS.0. The connections affected are on the underside of TS.0.
- (c) Unscrew the six cross-head screws securing board 20 and TS.0.
- (d) Carefully lift board 20 and TS.0. together, sufficient only to expose the solder tags underneath TS.0.
- (e) Interchange the cables connected to pins 10 and 11 of TS.0.
- (f) Refix board 20 and TS.0. applying a thin coat of varnish to the underside of all screw heads.
- (g) Replace the equipment in its case.
- (h) Strike through the figure 1 on the Transmitter-receiver, radio, A13 modification record plate.

T/61136/1

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Correction of frequency instability in second local oscillator

Note: This Issue 2, supersedes Pages 1 to 2, Issue 1, dated 31 Dec 65. The instruction having been revised throughout.

1. Introduction

a. During a stage in production, the frequency stability of the second local oscillator was found to be failing to meet the required specification. Investigation showed that the instability would be rectified by stabilizing the currents in 5TR2 and 5TR3. It was found most practical to supply the bias potentiometer 5R5/5R6 and the collector of 5TR2 from the stabilized 7.8V line. The regulation details the action necessary on board 5 failure.

b. The above changes constitute a modification to Panel, electronic circuit (Z1/5820-99-101-9808 - board 5) being part of the TRA13. This modification has been incorporated in production and any equipments or spare panels so modified will have the following figures struck through on the respective modification record plates:-

Transmitter-receiver, radio A13 - figure 5
Panel electronic circuit (board 5) - figure 1

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

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

4. Items affected

Transmitter-receiver, radio A13 (Z1/5820-99-949-6353)
Panel, electronic circuit (Z1/5820-99-101-9808)

5. Action required by

a. Units authorized to carry out field repairs

(1) On failure of board 5 demand a replacement board in accordance with the instructions in para 6.

(2) On receipt of stores, examine the replacement board to see if it has been modified in accordance with mod strike-off 1 action.

(3) If the board is not modified, carry out the operations detailed in para 7.

(4) Replace faulty board 5 with the modified board.

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

Transmitter-receiver, radio A13 - No 5
Panel electronic circuit (board 5) - No 1

(6) Dispose of the faulty board as instructed in para 6.c.

b. Units authorized to carry out base repairs

(1) On repair or overhaul of equipments carry out the action detailed in para 5.a. (1) to (5) inclusive.

(2) Repair and modify the faulty board prior to return to Ordnance.

(3) Carry out the modification, when necessary, on all Panels electronic circuit (board 5) received for repair, ensuring that figure No 1 on the board modification record plate is struck through with a diagonal line on completion of the modification.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels as a normal repair replacement item.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5820-99-101-9808	Panel, electronic circuit (board 5)	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-943-3454	Varnish, finishing with fungicide, air drying, brushing	As reqd
Y3	6145-99-943-7886	Wire, electrical equipment, type 2	As reqd

c. Stores to be returned

Faulty Panels, electronic circuit (board 5) are to be returned by field workshops through normal Ordnance channels for base repair action.

7. Sequence of operations

a. Remove the set from its case in accordance with Tels F 144, para 22 to 24 inclusive.

b. Remove the faulty board in accordance with Tels F 144 para 35 and 36.

- c. Examine the new board and if unmodified proceed as in d. to f.
- d. Using a sharp knife remove the printed circuit as detailed in Fig 1 and 2, taking care not to damage any neighbouring printed circuit or components.
- e. Locate and solder in place the wiring as shown in Fig 2.
- f. Ensure that the figure 1 is painted through, without obliterating, on the modification label of the Panel electronic circuit (board 5).
- g. Replace the modified board 5 in the equipment, coating the fixing screws with varnish (8010-99-943-3454) before fastening.
- h. Replace the set into its case, carrying out drying and sealing instructions detailed in Tels F 144, para 11 to 17 inclusive.
- j. Ensure that figure 5 is struck through, without obliterating, on the equipment modification record plate.

8. EMER amendments

To be issued later.

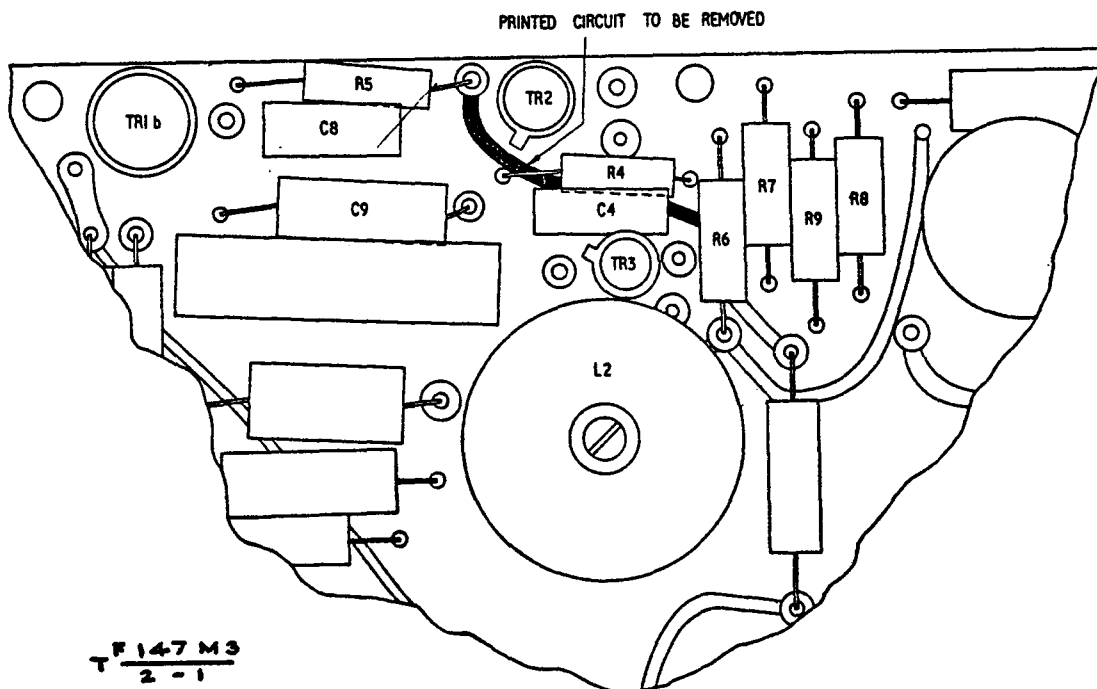


Fig 1 - Wiring changes, top of panel

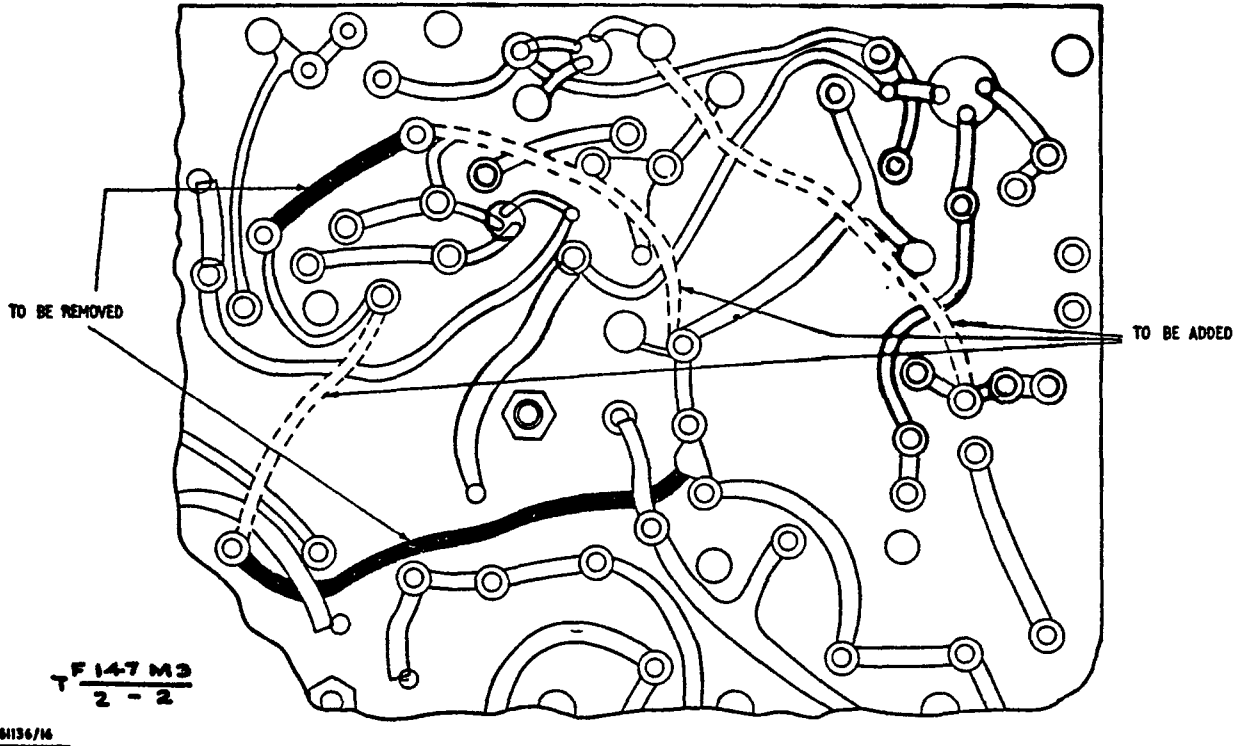


Fig 2 - Wiring changes, underside of panel

T/61136/24/Tels

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Alteration in value of resistor 21R7

1. Introduction

In order to ensure that the battery voltage indication specification of Tels F 144, para 91 is met without difficulty, the value of resistor 21R7 in the Transmitter-receiver, radio, A13 is to be changed in production from 12k Ω to 10k Ω . Existing equipments will not be modified unless it becomes necessary because of failure of 21R7, but all spare panels (board 21) will be modified. This regulation gives details of the action to be taken to modify all spare panels (board 21) and any equipments in which 21R7 has failed.

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

3. Estimated time required: 1/2 man-hour (excluding testing).

4. Items affected

Panel, electronic circuit - board 21 5820-99-102-0518

part of

Transmitter-receiver, radio, A13 5820-99-949-6353

5. Action required by:-

a. Units and establishments holding the equipment

(1) Request the unit responsible for field repair of the equipment to modify all spare panels (board 21) and any equipments failing to indicate the correct battery voltage.

b. Units authorized to carry out field or base repairs

- (1) When requested by units, carry out this modification on all spare panels (board 21) and on equipments in which 21R7 has failed.
- (2) If necessary, carry out this modification on equipments received for repair or overhaul.
- (3) On completion of the modification either by changing 21R7 in the equipment or by replacing board 21 with a modified board, ensure that the following figures are struck through on the respective modification record plate as necessary:-

Panel, electronic circuit (board 21)	No 1
Transmitter-receiver, radio, A13	No 10

6. Stores, tools and equipment

a. Stores to be demanded

The following item is to be demanded through normal Ordnance channels quoting this EMER as the authority.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z	5905-99-012-4751	Resistor, metal oxide, 10k Ω \pm 5%, 1/2W	1

b. Stores to be discarded

Resistor 12k Ω removed at para 7.c.

c. Tools

Austen 'Soldermaster' or similar device.

7. Sequence of operations

a. Refer to Tels F 144, para 22 to 24 inclusive and remove the Transmitter-receiver, radio, A13 from its case.

b. Locate and remove board 21 following the instructions of Tels F 144, para 35.

c. Locate and remove resistor 21R7 and replace with the new 10k Ω resistor, using the special solder removing iron, and the minimum of heat.

d. Strike through the figure 1 on the modification record plate of board 21.

e. Replace board 21 in the equipment applying a thin coat of varnish to the underside of all screwheads and set up 21RV1 according to Tels F 144, para 91 and 111.

f. Replace the equipment in its case and strike through the figure 10 on the modification record plate of the Transmitter-receiver, radio, A13.

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END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Change in value of resistor 24R5

1. Introduction

The output of phase modulation sidetone has been improved by a production change of resistor 24R5 from 12kΩ to 10kΩ. Equipments already in service or in store with 24R5 of value 12kΩ will be modified only on failure of this resistor. This regulation details the action necessary to change 24R5 if the component fails in service.

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

3. Estimated time required: 1/2 man-hour (excluding testing).

4. Items affected

Panel, test, electrical equipment (board 24) 5820-99-102-0431
part of
Transmitter-receiver, radio A13 5820-99-949-6353

5. Action required by:-

a. Units authorized to carry out field or base repairs

- (1) If necessary, carry out this modification on equipments received for repair or overhaul.
- (2) On completion of the modification ensure that the following figures are struck through on the respective modification record plates:-
 - Panel, test, electrical equipment (board 24) No 1
 - Transmitter-receiver, radio, A13 No 12

6. Stores, tools and equipment

a. Stores to be demanded

If required, the following item is to be demanded through normal Ordnance channels, quoting this EMER as the authority:-

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5905-99-012-4751	Resistor, metal oxide, 10kΩ ±5%, 1/2W	1

b. Stores to be discarded

Resistor 12k Ω removed at para 7.d.

c. Tools

Austen 'Soldermaster' or similar device.

7. Sequence of operations

a. Refer to Tels F 144, para 22 to 24 inclusive and remove the Transmitter-receiver, radio, A13 from its case.

b. Locate board 24, unscrew and remove the four cross-head screws which secure the panel to the main frame assembly.

c. Using extreme care not to place any strains on the cable looms, lift the board away from the frame so as to expose the underside of the board.

d. Locate and remove resistor 24R5, and replace with the new 10k Ω resistor, using the special solder removing iron and the minimum of heat.

e. Strike through the figure 1 on the modification record plate of board 24.

f. Secure board 24 to the frame, applying a thin coat of varnish to the underside of all screw heads.

g. Replace the equipment in its case and strike through the figure 12 on the modification record plate of the Transmitter-receiver, radio, A13.

h. Carry out the specification test of Tels F 144, para 69.

T/61136/39/TELS

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Change of PLA and SKA spacers

1. Introduction

The cable loom which traverses immediately under plug PLA on the film scale casting was found to be excessively cramped. In order to ease the cable loom whilst maintaining the original overall dimensions of plug PLA and socket SKA, the mounting spacers of the plug have been increased in length and those of the socket reduced in length.

2. Information

The above changes will be incorporated in production and the modification recorded by striking through the figure 4 on the modification record plate of the

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Distribution - Class 333. Code No 3

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Transmitter-receiver, radio, A13.

3. This regulation is for information only. There is at present no intention of modifying existing equipment.

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END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Improvement of phase modulation sensitivity

1. Introduction

An improvement of phase modulation sensitivity has been achieved by changes in the values of certain resistors in the master oscillator sensitivity control circuit. The changes are embodied in current production. This regulation details the action required to modify the Transmitter-receiver, radio, A13 and panels held as spares.

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

3. Estimated time required 1.1/2 man-hours (excluding testing)

4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353
Panel, electronic circuit (board 17) 5820-99-101-8595 as fitted in the
equipment, OR as a spare panel, OR as part of a spare panel assembly
electronic circuit 5820-99-102-0024

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 on equipments and spare units.

b. Units authorized to carry out field or base repairs

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

(2) Carry out this modification on all equipments and spare units received for repair or overhaul.

(3) On completion of this modification, ensure that the following figures are struck through on the respective modification record plates.

Transmitter-receiver, radio, A13 figure 3
Board 17 figure 1

6. Stores, tools and equipment

a. Stores to be demanded

The following items are to be demanded through normal Ordnance channels quoting this EMER as the authority.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5905-99-012-8323	Resistor, fixed, oxide film insulated 68Ω ±5%, 1/2W	1
Z	5905-99-012-4671	Resistor, fixed, oxide film insulated 100Ω ±5%, 1/2W	1
Z	5905-99-012-4678	Resistor, fixed, oxide film insulated 200Ω ±5%, 1/2W	1
Z	5905-99-012-4673	Resistor, fixed, oxide film insulated 120Ω ±5%, 1/2W	1
Z	5905-99-012-4675	Resistor, fixed, oxide film insulated 150Ω ±5%, 1/2W	1
Z	5905-99-012-4683	Resistor, fixed, oxide film insulated 330Ω ±5%, 1/2W	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-943-3454	Varnish, finishing, with fungicide, air drying, brushing	as reqd

c. Stores to be discarded

The six resistors removed as detailed in 7.h. are to be disposed of locally.

d. Tools required

(1) Austen 'Soldermaster' or similar device.

(2) Special jig to be manufactured in workshops. Constructional details are shown in Fig 1 of this instruction.

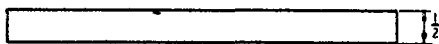
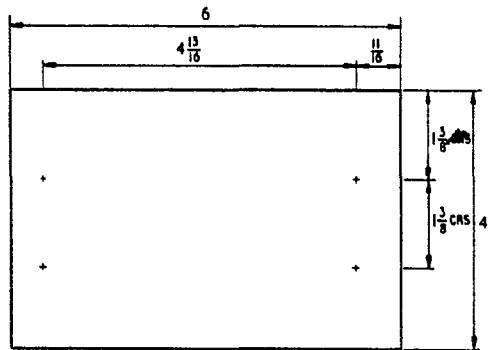
7. Sequence of operations

Note: Only certain of these operations will be necessary when dealing with spare units.

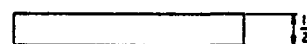
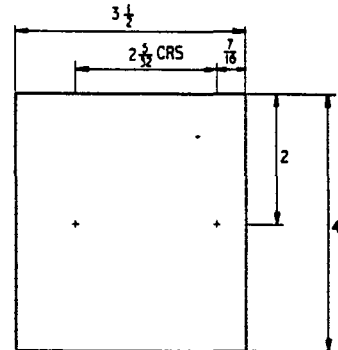
a. Refer to Tels F 144, para 22-24, and remove the equipment from its case. Adjust RANGE Mc/s switch (S1) to 2-2.5Mc/s position.

b. With the equipment face downwards, remove the six cross-head screws which secure the hinged flap. Open the flap.

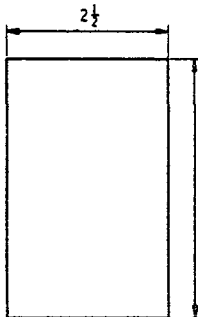
c. Refer to Tels F 144, para 35 and 36, for general instructions on removal of printed boards.



ITEM 1 BASE
ONE OFF

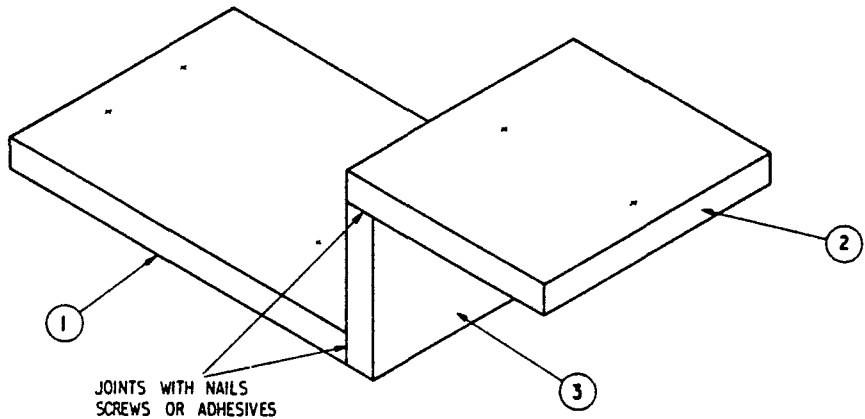


ITEM 2 PLATFORM
ONE OFF



ITEM 3 RISER
ONE OFF

LOCATING PEGS
INSERT NAILS OR PINS OF $\frac{3}{32}$ " DIA AND
PROTRUDING $\frac{3}{4}$ " AT POINT MARKED X
ON BASE AND PLATFORM



MATERIAL TIMBER AS AVAILABLE
DIMENSIONS IN INCHES
T F 147 M 7
1 - 1

Fig 1 - Support jig constructional details

d. Panel, electronic circuit (board 17) is part of the panel assembly comprising boards 2, 3, 4 and 17. The panel assembly is located in a separate compartment of the equipment case and connected by links to terminal strips TS.C. (5 links) and TS.D. (3 links). Disconnect these links, also remove the three cross-head screws and one pillar which secure the panel assembly.

e. Carefully withdraw the panel assembly from the compartment and place it on the pins of the special jig mentioned in 6.d. (2). The jig is designed to maintain the panel assembly in an upright position and to prevent unnecessary flexing of the leads connecting board 17 to board 3.

Note: In order to ensure that the panel assembly can be replaced without difficulty, care must be taken to avoid moving the switch wipers of boards 3 and 17 during this and subsequent operations.

f. Unscrew the two cross-head screws which secure board 17 to board 3, and without disconnecting the leads to board 17, turn it over and fit it to the jig platform.

WARNING: Two types of board 17 exist. They are clearly illustrated in Fig 2 (a) and (b) for comparison. The differences are as follows:

1. R3 and R5 are interchanged.
2. A printed wiring connection.

Notes:

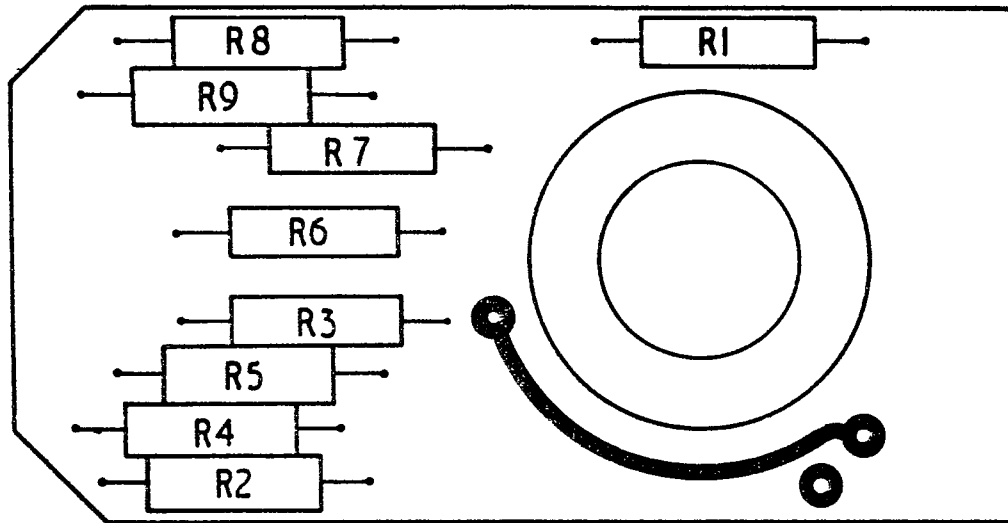
1. Tels F 142 Part 2, pages 1036 and 1037, Figs 2531 and 2532 illustrate the earlier type wiring of board 17 and will be amended.
2. The schematic references printed on the earlier type of board 17 are to be ignored. The references were later changed to conform to the circuit diagrams.

g. Refer to Fig 2 to determine which type of board 17 is being dealt with, then identify resistors R2, R3, R5, R6, R7 and R9 from either Fig 2 (a) or (b).

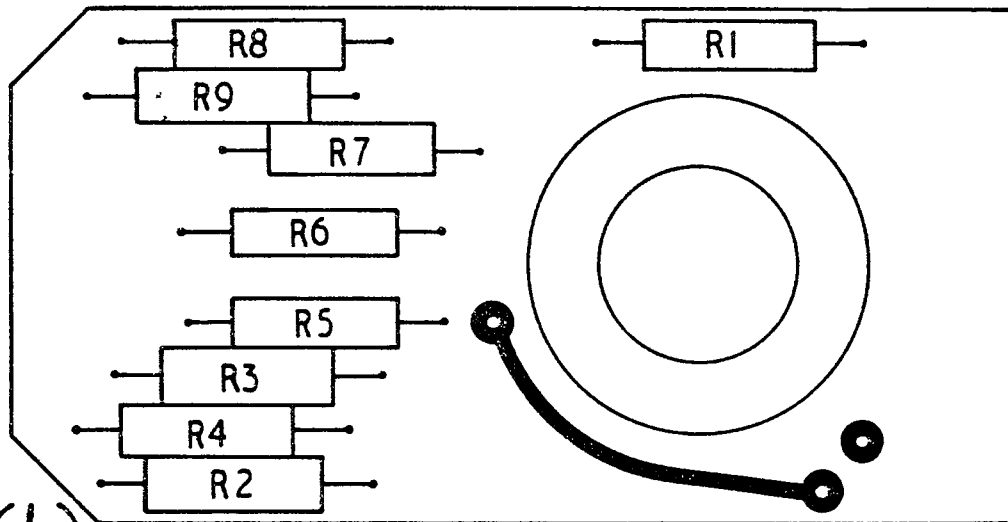
h. Using the 'Soldermaster' or a similar type of iron, remove R2, R3, R5, R6, R7 and R9 and replace them with the new resistors listed as follows:

<u>Reference</u>	<u>Existing value</u>	<u>New value</u>
17R2	82Ω	100Ω
17R3	100Ω	120Ω
17R5	120Ω	150Ω
17R6	150Ω	200Ω
17R7	270Ω	330Ω
17R9	56Ω	68Ω

j. If board 17 is of the earlier type, it should be marked for future ease of reference by a small dab of red enamel paint on the board adjacent to the number 17.



(a) EARLY TYPE PANEL



(b)

T $\frac{F147M7}{1-2}$

CURRENT PRODUCTION PANEL

Fig 2 - Board 17 modified component layout

k. Strike through with a diagonal line the figure 1 on board 17 modification record label, and the figure 3 on the Transmitter-receiver, radio, A13 modification record plate.

l. Refit board 17 to board 3 and replace the panel assembly, following the instructions as detailed in sub-para d. and e. in the reverse order, applying a thin coat of varnish to the underside of all screw heads.

m. Refix the hinged flap and replace the set in the case.

n. Carry out a functional check of the equipment.

8. EMER amendments

Tels F 142 Part 2, pages 1036 and 1037, Figs 2531 and 2532: new values of 17 R2, R3, R5, R6, R7 and R9 are now as given in para 7.h. of this instruction.

T/61136/25(TELS)

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Film scale unit - replacement of guide plate for Mc/s film blind

1. Introduction

The original guide plate for the Mc/s film blind was found to scratch the film as it traversed the plate, so hand finishing of the plate was resorted to but did not prove fully satisfactory. Later a new plate was designed and incorporated in manufacture. This regulation details the replacement of the original guide plate ONLY when the kc/s film detail is obscured by the Mc/s film scratches to such an extent that accurate tuning is made difficult.

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

3. Estimated time required 1 man-hour

4. Items affected

Transmitter-receiver, radio, A13 (5820-99-949-6353)
Film scale unit

5. Action required by:-

a. Units and establishments holding the equipment

(1) If modification action is considered to be necessary (see introduction), 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) Carry out this modification to equipments received for repair or overhaul if the film scale unit is exposed for other purposes. Otherwise modification action should be taken only if considered to be necessary.

(3) On completion of this modification, strike out the figure 2 on the modification record plate of the Transmitter-receiver, radio, A13.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a kit, and NOT as an individual item.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	00000-02856	Kit, modification electronic equipment	1

Comprising:-

Z1	5820-99-104-8999	Guide flexible tuning scale	(1)
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b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-943-3454	Varnish finishing with fungicide, air drying, brushing	as reqd

c. Stores to be discarded

Guide flexible tuning scale removed in sub-para 7.b.

7. Sequence of operations

a. Separate the front panel from the film scale unit following the instructions of Tels F 144, Page 11, Paras 25 to 29 inclusive. Note that para 26 is in error. 'SYSTEM SWITCH' should be substituted for 'CURSOR ADJ'.

WARNING Before removal of the Mc/s film guide plate, note that there may be a number of thin washers fitted under the plate to act as shims. Any such washers must be retained and fitted under the new plate exactly as they were found under the original plate.

b. The Mc/s film guide plate may be removed as follows:-

- (1) Remove the two cross-head screws which secure the plate, then inspect underneath the plate for any shims which should be removed and the quantities noted.
- (2) Using the fingers of one hand applied to the Mc/s film spool nearest the tuning dial, wind back the film until it is well clear of the guide plate.
- (3) Slide the guide plate towards board 5 until it is clear of the film. Release the film spool slowly.

- c. Fit the new guide plate following the instructions as detailed in sub-para b. in reverse, and ensuring that the plate engages correctly with the two dowels on the casting and that the shims (if any) are replaced. Apply a thin coat of varnish to the underside of the two cross-head screws before fitting.
- d. Check that the Mc/s film slides freely over the guide plate.
- e. Fit the front panel to the film scale unit applying a thin coat of varnish to the underside of all screw heads. Replace control knobs removed in sub-para a.
- f. Strike through with a diagonal line figure 2 on the modification record plate of the Transmitter-receiver, radio, A13.

T/61136/5(TELS)

END

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 9
Army Modification Code M 00088

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 30 Mar 67.

1. The following amendments must be made to the regulation.
2. Page 1, para 6.a., line 3

After: 'the authority'

Add: 'and Earmark No F16496 on all indents'

T/61136/38(Tels)

Issue 1, 21 Oct 68

Distribution - Class 333. Code No 3

Page 0

STATION, RADIO, A13TECHNICAL HANDBOOK - MODIFICATION INSTRUCTIONSUB-TITLE: Replacement of capacitor 28C3 by a semi-conductor device, diode, CV70401. Introduction

A production change has been introduced involving the replacement of capacitor 28C3 by a semi-conductor device, diode, CV7040, to obviate the complete failure of the power supply due to the short circuit of 28C3, which is caused by voltage pulses of reverse polarity. This regulation details the action necessary to replace 28C3 by a diode CV7040 and should be embodied at the earliest opportunity.

2. Priority Group B (Gen H 097 refers).3. Estimated time required 1 man-hour (excluding testing).4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353

5. Action required by:-a. Units and establishments holding the equipment

(1) If the figure 11 (eleven) has not been struck off the modification record plate, demand stores in accordance with 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 equipments, demand stores and carry out this modification.

(3) Ensure that the figure 11 on the equipment modification record plate is struck through with a diagonal line on completion of this modification.

6. Stores, tools and equipmenta. Stores to be demanded

The following item is to be demanded through normal Ordnance channels quoting this EMER as the authority

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5960-99-037-2016	Semi-conductor device, diode, CV7040	1

b. Stores to be obtained locally

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

c. Stores to be discarded

Z1/5910-99-103-6340 Capacitor, electrolytic 10 μ F \pm 20%, 20V,
(removed at para 7.d.)

d. Tools

Austen Soldermaster or similar device.

7. Sequence of operations

a. Refer to Tels F 144, para 22 to 24 inclusive and remove the transmitter-receiver, from its case.

b. Locate and remove board 18, Panel, electronic circuit (5820-99-101-9911) following the instructions of Tels F 144, para 35, and reference to Tels F 142 Part 2, Fig 2555.

c. Remove the hexagonal board fixing pillar located just above the capacitor 28C3 (see Tels F 142 Part 2, Fig 2522).

d. Remove and discard the Capacitor, electrolytic, 10 μ F (28C3) by cutting the terminations as near to the relay armature terminals (a. and b.) as possible.

e. Use the sleeves from the terminations of 28C3 and fit them to the new diode (CV7040) trim the terminations of the diode to the required length.

f. Move the cable loom aside from the immediate area of the relay armature terminals, as a precautionary measure to obviate damage to the wiring when soldering.

g. Using a heat shunt to protect the component, solder the diode (CV7040) in the position vacated by the capacitor 28C3, ensuring that the cathode end (positive) is soldered to the relay armature terminal a. to which is connected a pink lead with blue/slate markers.

h. Reverse operations a. to c., applying a thin coat of Dulux red, varnish insulating, anti-tracking (8010-99-942-8917) to the underside of all screws heads before assembly.

j. Reseal the equipment in accordance with Tels F 144, para 13 to 17 inclusive, paying particular attention to the seating of the Hyclad gasket of the front panel.

k. Record the embodiment of this modification by striking through, without obliterating, the figure 11 (eleven) on the modification record label fitted to the front panel of the transmitter-receiver, radio A13.

l. Carry out a functional test of the equipment.

8. EMER amendments

EMER Tels F 142 Part 2, Fig 2522, amend C3 to read D1.

T/61136/38/TELS

END

STATION, RADIO, A13TECHNICAL HANDBOOK - MODIFICATION INSTRUCTIONSUB-TITLE: Generator, d.c., addition of semi-conductor device, diode, types
CV7324 and CV70401. Introduction

Early production models of the Generator, d.c. (6115-99-949-8134) did not always indicate during charge, even when the correct output was present. The inclusion of two additional diodes and associated circuit changes was introduced to ensure correct battery charging facilities under all conditions.

2. Information

These changes have been introduced by the manufacturer, by retrospective action on those equipments up to and including serial number 220, and in production from serial number 221 onwards. The modification has been recorded by striking through the following figures on the respective modification record plates:

Panel, electronic circuit (6115-99-102-2511) Figure 1
Generator, d.c. (6115-99-949-8134) Figure 1

3. EMER amendments

Pending publication of EMER Tels F 142, Part 2, Fig 2587, Issue 2, the following amendments apply to Issue 1, Page 1110, dated 1 Mar 65.

- a. Delete connection between R28 and D14 (grid ref M1) and insert diode CV7324 (cct ref D18, cathode to D14).
- b. Delete connection between TR12 collector and common negative line (grid ref L5/8) and also between R30 and common negative line (grid ref M7/8). Insert connection between TR12 collector, free end of R30 and terminal 1 (grid ref O8).
- c. The junction of R31 and the negative line is designated, terminal 5 (grid ref N8).
- d. The junction of the connection from terminal 25 (LP1) and the negative line (grid ref J8) is designated terminal 6, and the connection between this point and the junction of TP16/R34 is deleted (grid ref J8).
- e. Insert a direct connection between the junction TP16/R34 (grid ref H8) and terminal 32 (grid ref N8).
- f. Delete the connection between terminals 2 and 6 (grid ref J/K8), insert diode CV7040 (cct.ref.D19), cathode connection to terminal 2.

T/61136/3/TELS

END

Issue 1, 20 Apr 67

Distribution - Class 333. Code No 3

Page 1

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 11.
Army Modification Code M 00100

STATION, RADIO, A 13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Addition of bushes to prevent movement of film scale

1. Introduction

A production change has been introduced adding a bush to each of the inner kc/s spools of the film scale assembly. This prevents movement of the film scale when the film scale lock is applied. This regulation details the work necessary to add these bushes.

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

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

4. Items affected:

Transmitter-receiver, radio, A13 - 5820-99-949-6353

5. Action required by

a. Units and establishments holding equipment

(1) If the figure 9 has not been struck off the equipment modification record plate, demand stores in accordance with para 6.a.

(2) On receipt of stores, request the unit responsible for field repair 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 if necessary, demand stores and carry out this modification.

(3) Ensure that the figure 9 on the Transmitter, receiver, radio, A13 modification record plate is struck through with diagonal line on completion of this modification.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores must be demanded as a kit, and NOT as individual items.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	00000-02864	Kit, modification, electronic equipment	1

Comprising:-

Z1	5820-99-105-7883	Bearing, sleeve	(2)
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b. Stores to be demanded locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Dulux red, varnish, insulating, anti-tracking	A/R
	9150-99-910-5057	Grease XG290	A/R

7. Sequence of operations

- a. Remove the transmitter-receiver from its case, and the front panel from the film scale assembly in accordance with Tels F 144, para 22 to 29.
- b. Rotate RANGE MC/S switch fully anti-clockwise.
- c. Remove MC/S film blind and KC/S film in accordance with instructions of Tels F 144, para 31 and 32, removing also printed circuit boards No 5., in addition to board No 6, and MC/S spool (3) in addition to spool (2) as detailed in para 32(c) and (e) respectively.
- d. When removed, the MC/S and KC/S film should be stowed separately in a polythene bag to prevent them being damaged.
- e. Remove KC/S spools (14) and (15) after carefully noting in which positions they are fitted, it being essential to refit them in their existing locations, by removing the retaining rings (17) and (18) and withdrawing the spindles in direction B (see Fig 1)
- f. Dismantle KC/S spool assemblies by disengaging the springs from outer spools and removing inner spools (see Fig 2).
- g. Fit new bearings sleeve (5820-99-105-7883), supplied, to each inner spool and reassemble the spools. (see Fig 2).
- h. Refit KC/S spools (14) and (15) in their correct locations, reversing the procedure of e.
- j. Replace KC/S film in accordance with Tels F 144, para 33. (a) to (g).
- k. Assemble and fit MC/S spools (2) and (3) by inserting pulleys (7) and (8) and their spindles through the spools, after first removing, if necessary, any burrs caused by the set screws biting into the shaft, by the minimum use of fine grade abrasive cloth/paper, thoroughly cleaning and lightly smearing with grease XG290 (9150-99-910-5057).
- l. Replace MC/S film blind in accordance with Tels F 144 para 34.

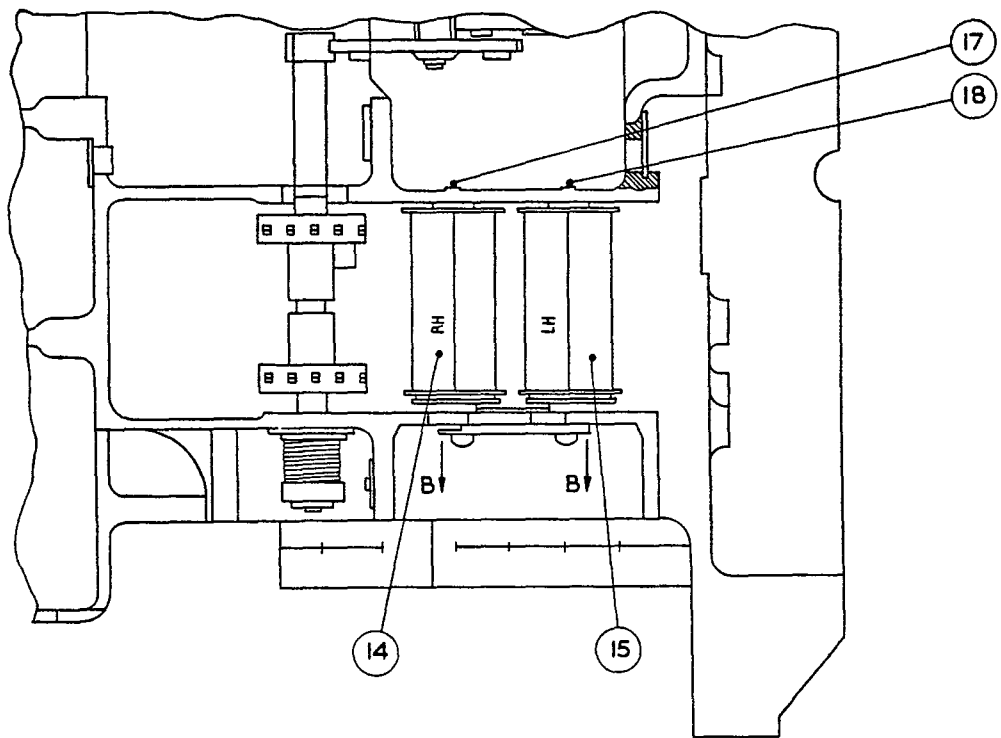
m. Refit printed circuit boards No 5 and 6, ensuring that all securing screw threads are coated with Dulux red insulating varnish before reassembly.

n. Reverse sequence of operation a. and reseal the equipment in accordance with Tels F 144, para 13 to 17, paying particular attention to the seating of the Hyclad gasket on front panel.

o. Strike through without obliterating, the figure 9 on the modification record plate of the Transmitter-receiver, radio, A13.

8. EMER Amendments

None



T F147M00
1-1 61136/3

Fig 1 - Section of film scale assembly

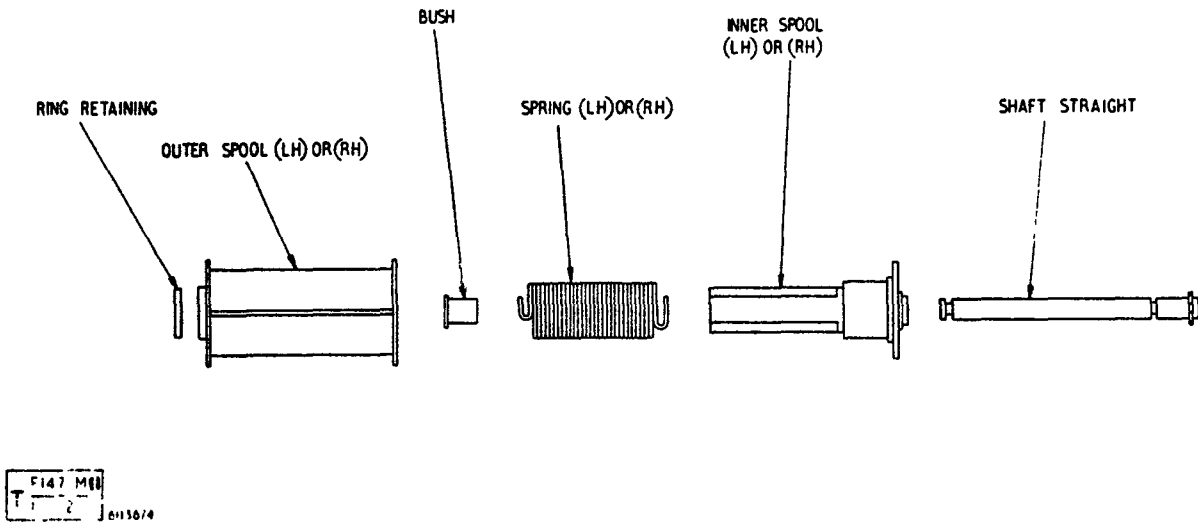


Fig 2 - Method of assembly of KC/S spool (LH) or (RH)

T/61136/15/TELS

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Panel, electronic circuit 5820-99-101-8591 - improved power output

1. Introduction

A certain number of Transmitter-receivers, radio A13, were found on production to have low power output, and concession was given to allow these sets into service. This regulation details the work necessary to replace and also change the values of certain components to effect an improvement in the power output of these equipments.

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

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

4. Items affected

Transmitter-receiver, radio, A13			5820-99-949-6353	serial numbers:-	
03 16	04 90	05 33	05 80	06 15	06 50
60	91	36	82	20	51
72	92	37	83	23	52
79	05 00	38	84	25	53
04 21	03	39	85	26	54
32	04	40	86	27	58
51	07	41	88	28	59
52	10	44	89	31	60
53	11	45	91	32	61
55	13	48	93	34	63
56	15	50	94	35	65
59	17	53	95	36	66
67	18	61	96	37	68
68	19	63	97	38	69
72	21	69	99	40	70
80	23	70	06 02	43	71
84	25	71	03	44	72
85	26	73	06	45	73
86	29	75	07	47	74
87	31	76	10	48	75
89	32	79	12	49	76

06 77	07 01	07 26	07 43	07 66	08 02
83	04	27	45	68	06
84	05	28	46	69	07
85	07	30	51	76	15
86	12	31	52	78	19
89	14	34	58	85	39
90	16	35	59	87	51
92	22	36	60	95	56
93	23	37	62	98	
99	25	38	65	08 01	

Panel, electronic circuit (board 19) 5820-99-101-8591

5. Action required by:-

a. Units and establishments holding the equipment

(1) If the figure 8 has not been struck off the equipment modification record plate, demand stores in accordance with the instructions in para 6 below.

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

b. Units authorised to carry out field or base repairs

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

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

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

Transmitter-receiver, radio, A13 figure 8

Panel, electronic circuit (board 19) - figure 1

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 Transmitter-receiver, radio, A13 serial number on the indent. The stores are to be demanded as a complete kit, and NOT as individual items.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	00000-02861	Modification kit, A13	1
		Comprising:-	
	5950-99-105-3379	Transformer, radio frequency	(1)
	5905-99-012-4679	Resistor, fixed, oxide film, insulated, 220Ω ±5%, 1/2W	(1)
	5930-99-946-9500	Insulation sleeving, electrical, (1.1/2 in.) pink	
	5910-99-012-0119	Capacitor, fixed, metallised paper dielectric, 0.001μF ±20%, 500V	(1)
	5910-99-012-0108	Capacitor, fixed, metallised paper dielectric, 0.002μF ±20%, 250V	(1)
	5905-99-012-4677	Resistor, fixed, oxide film insulated, 180Ω ±5%, 1/2W	(1)
	6145-99-910-2378	Wire, electrical, 26 s.w.g.(1 in.)	
	5960-99-037-4298	Valve, electronic CV9021	(1)

b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, air drying, red	As reqd
H1	8010-99-910-7033	Paint, finishing, general service, red	As reqd

c. Stores to be returned

The following items are to be returned to Ordnance through the normal channels:-

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	5950-99-102-0442	Transformer, radio frequency	1
Z	5960-99-037-3118	Valve, electronic, CV7362	1
Z	5905-99-012-4671	Resistor, fixed, oxide film, 100Ω ±5%, 1/2W	2
Z	5910-99-012-0108	Capacitor, fixed, metallised paper dielectric, 0.002μF ±20%, 250V	1

d. Special tools and test equipment

Special tools and test equipment are not required.

7. Sequence of operations

a. Remove the Transmitter-receiver, radio, from its case in accordance with Tels F 144 para 22 to 24 inclusive.

b. Unscrew and remove the six Phillips round head screws securing the hinged back plate to the film scale casting. Lift the back plate exposing the printed circuit boards underneath.

c. Remove the panel, electronic circuit, board 19, in accordance with Tels F 144, para 35 and 36, ensuring that the board is handled with extreme care so as not to damage the slider switch on the board.

d. On the underside of the board unsolder all the wires to the input transformer T2 coded with the reference number 5950-99-102-0442 (see Fig 1 (a) and (c)).

e. Remove the hexagonal nut securing the transformer to the panel, electronic circuit, and remove the transformer.

f. Unsolder and remove capacitor C7 (see Fig 1(a)).

g. Solder the 0.001 μ F capacitor, fixed, metallised paper dielectric (5910-99-012-0119) in lieu of capacitor C7 removed as detailed in operation f.

h. Utilising the hexagonal nut quoted in operation e., secure the replacement radio frequency, T2 transformer, (5950-99-105-3379), in lieu of the transformer removed as detailed in operation e.

j. Solder the wires unsoldered as detailed in operation d. to the corresponding terminations on the replacement transformer.

k. Unsolder and remove resistor R2 from the underside of the board (see C2, Fig 1(b)).

l. Remove the sleeving from the terminations of resistor R2 and fit them to the terminations of the 0.002 μ F capacitor, fixed, metallised paper dielectric (5910-99-012-0108). Solder this capacitor in lieu of resistor R2 removed as detailed in operation k. The new capacitor becomes identified as C2.

m. Unsolder and remove resistor, R1, and fit the 180 Ω resistor, fixed, oxide film insulated (5905-99-012-4677), in lieu (see Fig 1(a)).

n. Unsolder the white, green and red sleeved terminations of transistor TR1 on the panel, electronic circuit; remove the transistor (see Fig 1(a)).

o. Remove the sleeves from the terminations of the transistor and fit them to the replacement valve, electronic (5960-99-037-4298) as follows:-

- (1) Red to emitter termination.
- (2) Green to base termination.
- (3) White to collector termination.

- p. Thread the terminations and the replacement transistor through the holes vacated as detailed in operation n.
- q. Solder the terminations to the appropriate pins marked E, B, and C on the panel, electronic circuit (see Fig 1 (a)).
- r. Fit a 1/4 in. length of insulation sleeving, electrical, pink (5930-99-946-9500), to each termination of the 22Ω resistor, fixed oxide film insulated (5905-99-012-4679).
- s. Solder one termination of the resistor quoted in operation r., to that pin already carrying the two blue leads from diodes D1 and D2 (see Fig 1 (a)).
- t. Solder the second termination to the vacant pin adjacent to transformer T1 (see Fig 1 (a)).
- u. Fit the remaining length of insulation sleeving, electrical, to the 1 in. length of 22 s.w.g. tinned copper wire (6145-99-910-2378).
- v. Solder one end of the 22 s.w.g. wire to that pin quoted in operation t. (see Fig 1 (a)).
- w. Solder the remaining end of the 22 s.w.g. wire to the pin adjacent to potentiometer RV1 and the transistor TR1 (see Fig 1 (a)).
- x. Record the embodiment of this modification by striking through, with red paint, without obliterating, the figure 1 on the modification record plate fitted to the electronic circuit panel (board 19).
- y. Reverse operation a. to c. applying a thin coat of insulating varnish (8010-99-942-8917) to the underside of all board retaining screw-heads before assembly. Reseal the equipment in accordance with Tels F 144 para 13 to 17 inclusive, paying particular attention to the seating of the Hyclad gasket in the front panel.
- z. Record the embodiment of this modification by striking through with a diagonal line, the figure 8 on the equipment modification plate.

8. Testing after embodiment

Carry out applicable specification tests as detailed in Tels F 144.

9. EMER amendments

Amendments must be made to Tels F 142 Part 2, Issue 1, dated 1st March 1965, as follows:-

a. Page 1058, Fig 2556

- (1) Grid reference B5, below resistor reference R1

Delete: '100' Insert: '180'

- (2) Grid reference B4, below resistor reference R2

Delete: '100' Insert: '200'

- (3) Grid reference B4 above R2 symbol

Add: capacitor symbol and designation 'C2, 0.002' in parallel with R2 as shown in Fig 1 (c).

- (4) Grid reference E4 below capacitor reference C7

Delete: '0.002' Insert: '0.001'

- (5) Grid reference D4 below transistor reference TR1

Delete: 'CV7362' Insert: 'CV9021'

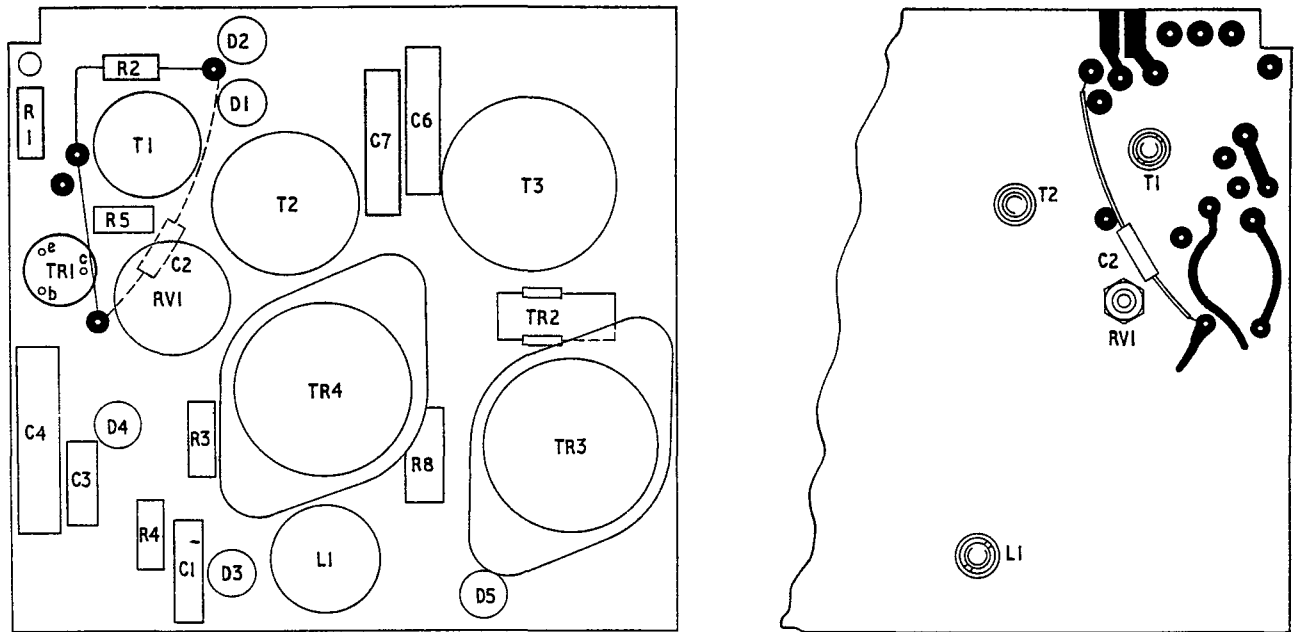
b. Page 1059, Fig 2557

- (1) Grid reference B4

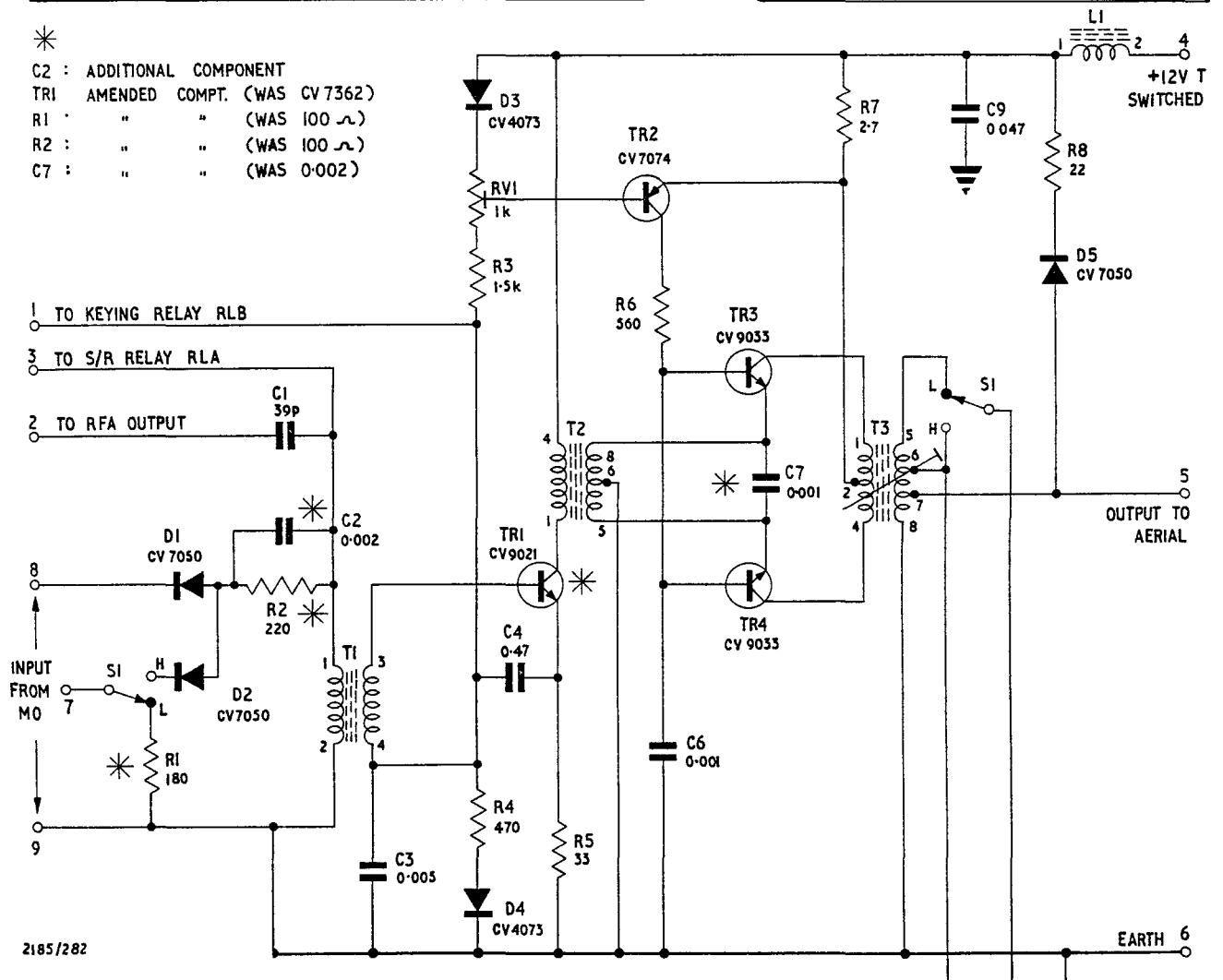
Delete: 'R2' Insert: 'C2'

- (2) Grid reference B3

Add: R2 symbol and reference as shown in Fig 1 (a).



- *
 C2 : ADDITIONAL COMPONENT
 TR1 AMENDED COMPT. (WAS CV 7362)
 R1 : " " (WAS 100 Ω)
 R2 : " " (WAS 100 Ω)
 C7 : " " (WAS 0.002)



2185/282

Fig 1 - Modification detail

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: TRA13 - board 18 - a.m. distortion in the vicinity of 8Mc/s

1. Introduction

Circuit changes have been introduced in production to obviate distortion on a.m. in the region of 8Mc/s. These changes involve minor alternations to the printed circuit board No.18 and the wiring to relay RLB. Parts of this modification have been incorporated in production on certain equipments, without the necessary strike-off action being taken on the modification record plate. This regulation details the action to be taken on those equipments partially modified, and on those equipments exhibiting the characteristics of distortion on a.m. and failing to meet the specification whilst undergoing field repair, or during base overhaul.

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

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

4. Items affected

Transmitter-receiver, radio, A13 Z1/5820-99-949-6353

Panel, electronic circuit (board 18) Z1/5820-99-101-9911

5. Action required by:-

a. Units and establishments holding the equipment

No action is required by units and establishments holding the equipment.

b. Units authorised to carry out field and base repairs

(1) On equipments exhibiting distortion on a.m. in the vicinity of 8Mc/s, carry out the full embodiment of this modification detailed in sequence of operations.

(2) On all equipments received for base overhaul, carry out this modification.

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

Transmitter, receiver, radio, A13 - 19

Panel, electronic circuit (Board 18) - 1

6. Stores, tools and equipment

a. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Y3	5340-99-954-3466	Sleeve, identification, pink	3/4 in.
Y3	6145-99-910-2378	Wire, electrical, 26 s.w.g.	1 in.
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, red	As reqd
H1	8010-99-910-7033	Paint, finishing, red	As reqd

7. Sequence of operations

a. Remove the Transmitter, receiver, radio A13 from its case in accordance with Tels F 144 para 22 to 24 inclusive.

b. Locate and remove the screws securing the electronic circuit panel (board 18) following the instructions detailed in Tels F 144 para 35.

c. Unsolder the sleeved wire from pin 11 on board 18. Cut back the wire and sleeving to a point adjacent to the tag of the screening can of T1. Solder the wire to the tag as shown in Fig 1.

d. Sleeve the 26 s.w.g. electrical wire with the pink identification sleeve.

e. Solder one end of the wire to the tag of the screening can of T1 and the other end to pin 11 on board 18 (see Fig 1).

f. Record the embodiment of this modification by painting a diagonal line through, without obliterating, the figure 1 on the modification record label on the electronic circuit panel (Z1/5820-99-101-9911), with paint finishing, red.

g. Reverse operation (b), applying a thin coat of varnish, insulating, anti-tracking, red, to the underside of the screwheads before re-assembly.

h. Locate relay 'RLB' on the film scale casting and unsolder the wires numbered 202 and 212 connected to the relay tags 22 and 23 respectively.

j. Twist the wires numbered 202 and 212 together until all the slack has been taken up. The wires must have a minimum of at least one twist embodied. Resolder the wires to their respective tags.

k. Reverse operation (a), resealing the equipment in accordance with Tels F 144 paras 13 to 17 inclusive, paying particular attention to the seating of the Hyclad gasket in the front panel.

l. Record the embodiment of this modification by striking through, without obliterating, the figure 19 on the overall modification record plate fitted to the front panel of the Transmitter, receiver, radio A13.

8. Testing after embodiment

Carry out applicable specification tests as listed in Tels F 144.

9. EMER amendments: Nil.

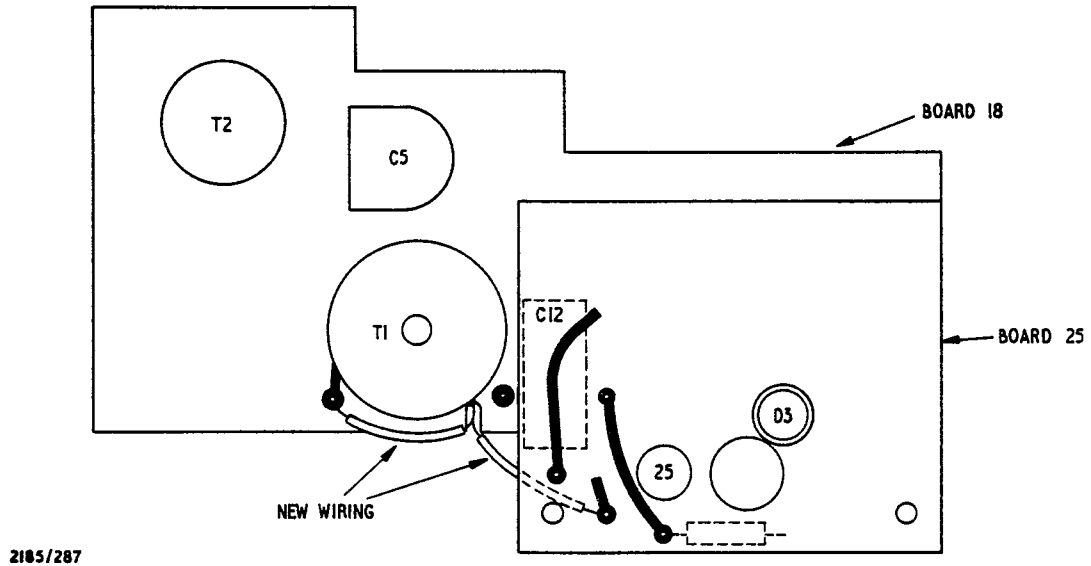


Fig 1 - Wiring modification detail

T/61136/68/Tels

END

STATION. RADIO. A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Amplifier, r.f., No 12, Mk 2 - addition of CV7040

1. Introduction

This regulation details the work necessary to add a semi-conductor type CV7040 into the circuit to prevent excessive negative voltage transients on the +12V d.c. supply to the TRA13.

2. Priority: Group 'B' (Regat N 097 refers).

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

4. Items affected

Amplifier, r.f., No 12, Mk 2 Z1/5820-99-105-3153

Panel, electronic circuit (coded 604/1/01156) Z1/5820-99-105-9914

5. Action required by:-

a. Units and establishments holding the equipment

(1) If the figure 1 has not been struck off the equipment modification record plate, demand stores in accordance with the instructions in para 6 below.

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

b. Units authorised 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 the appropriate figures on the respective modification record plates are struck through with a diagonal lines on completion of this modification as follows:-

Amplifier, r.f., No 12, Mk 2 - figure 1

Panel, electronic circuit (coded 604/1/01156) - figure 1

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 amplifier unit serial number on the indent.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5960-99-037-2016	Semi-conductor device, diode	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, red	as reqd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	as reqd

c. Special tools and test equipment

The following item of test equipment is required to check the voltage waveform at pin E after modification.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z4	6625-99-913-8618	Oscilloscope set, CT436	1

7. Sequence of operations

a. Release the eight screws on the front panel and remove the amplifier from its case.

b. Locate and remove the electronic circuit panel (coded 604/1/01156) by removing the four panel securing screws and unsoldering the leads from terminals 1, 2, 3 and 4.

c. Using a miniature soldering iron and a heat sink to give the minimum of heat required, solder the semi-conductor device, diode, CV7040, (Circuit ref D7) on the underside of the panel: the cathode end of the diode (marked with a grey band) to pin E (the positive end of C25), and the anode of the diode connected to pin C (collector of TR3).

d. Reverse operation b, applying a thin coat of varnish, insulating, anti-tracking, red (H1/8010-99-942-8917) to the underside of all screwheads before assembly.

e. Record the embodiment of this modification by painting a diagonal line through, without obliterating, the figure 1 on the modification record label on the electronic circuit panel (coded 604/1/01156), with paint, general purpose, finishing, red.

f. Reverse operation a. Reseal the equipment paying particular attention to the seating of the Hyclad gasket in the front panel.

g. Record the embodiment of this modification by striking through, without obliterating, the figure 1 on the overall modification record plate fitted to the front panel of the amplifier r.f., No 12, Mk 2.

8. Testing after embodiment

a. Assemble the amplifier into a Station, radio, A13, high power man-pack. Transmit (at any frequency) and ensure that the r.f. output of the amplifier is at least 15W when operating in the phase modulation mode.

b. Disconnect the amplifier from the man-pack. Short circuit pins 'C' and 'D' of either of the two 6-way sockets.

c. Connect the oscilloscope, set, CT436, or a similar c.r.o. with a sensitivity of about 5V/cm., to pin E of that socket having the short-circuit applied to pins C and D, and observe the voltage waveform. The maximum negative peak shall not be more than 1V below earth potential.

9. EMER amendments: Nil.

T/61136/78/Tels

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Fitting of heat shrunk sleeves

1. Introduction

It has been found that the plug is becoming detached from the leads of the 2 ft and 50 ft cable assemblies in many instances. This regulation details the action required to fit heat shrunk sleeves to the terminations of the 2 ft and 50 ft cable assemblies to effect an improvement in locking the clamp nut. This modification is to be implemented at the earliest opportunity.

2. Priority Group B (Mgmt N 097 refers)

3. Estimated time required 3/4 man-hour

4. Items affected

Cable assembly, r.f., 2 ft	Z1/5995-99-949-6770
Cable assembly (50 ft) part of	Z1/5995-99-949-6775
Cable assembly r.f., 50 ft	Z1/5820-99-101-9805

5. Action required by

a. Units and establishments holding equipment

(1) Examine cable assemblies, and if sleeves have not been fitted demand stores in accordance with the instructions in para 6.

(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, if necessary demand stores and carry out this modification.

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Y3	5970-99-193-1392	Sleeve, shrink fit, 3/8 in. dia	3 in.
Y3	5975-99-955-6605	Sleeve, shrink fit, 3/16 in. dia	3 in.

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
		Methyl, ethyl, ketone or an approved equivalent	As reqd
	5350-99-942-6816	Cloth, abrasive, emery fine	As reqd

7. Sequence of operations

a. Remove one plug only from the cable assembly. Refer to EMER Tels F 142, Part 2, Fig 2598 and reverse operations A to D, applying only those parts necessary.

b. Cut two 3/4 in. lg. lengths of sleeve (Y3/5970-99-193-1392) and two 3/4 in. lg. lengths of sleeve (Y3/5975-99-955-6605). Slide the sleeves over the cable.

c. Reverse operation a. and check electrically. Ensure that the clamp nut is tight. Plug to be tightened to a torque of 4.1/2 lb. in.

d. Position the 3/16 in. dia sleeve to abut against the rear of the clamp nut (see Fig 1). Shrink sleeve by applying heat, using a torch, hot air blower (heat gun) or other heat source. The sleeve starts to shrink at 250-275°F. As heat is applied move heat source back and forth over the part to be shrunk. When the sleeve has shrunk to the cable, discontinue heating. Additional heating will NOT make the sleeve shrink more tightly.

e. Carefully and evenly abrade the surfaces to be bonded, using a fine emery cloth (Fig 2).

f. Thoroughly degrease the two surfaces to be bonded, using clean Methyl, Ethyl, Ketone or an approved equivalent.

g. Slide one 3/8 in. dia sleeve forward and position as shown in Fig 2. Shrink sleeve as detailed in d. When the sleeve has assumed the configuration of the item covered, discontinue heating. Additional heating will NOT make the sleeve shrink more tightly.

h. Repeat operations d. to g. at the opposite end of the cable assembly.

j. The sleeved joints should not be severely flexed until at least 4 hours at room temperature have elapsed.

8. EMER amendments

NIL

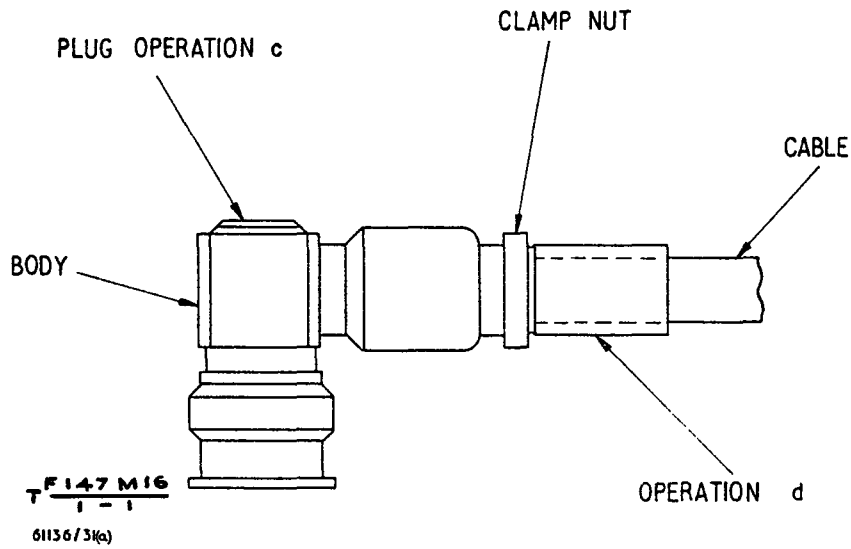


Fig 1 - Position of 3/16 in. sleeve

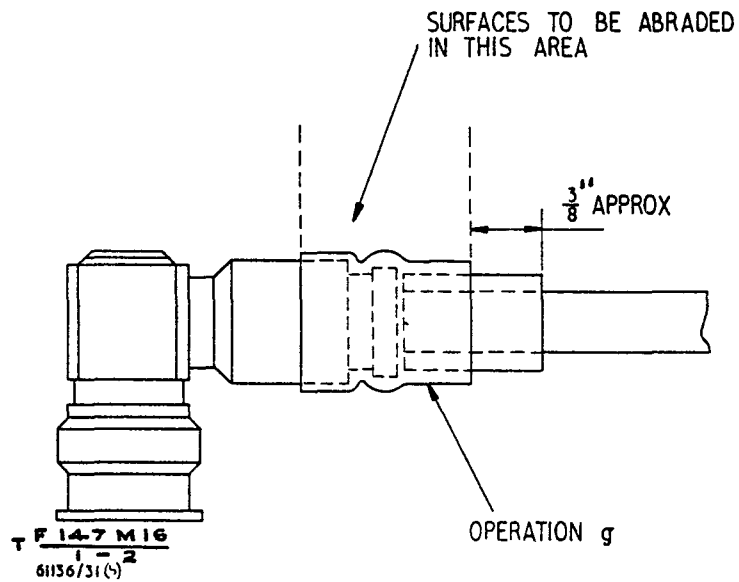


Fig 2 - Position of 3/8 in. sleeve

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: TRA13 - Roll pin replacement by spring pin

1. Introduction

It has been noted on some sets that the channel frequency marker points are covered up to a varying degree when operating the Mc/s switch. This regulation details the work necessary to replace roll pins by spring pins to prevent movement of the Shaft on the Gear and Shaft Assembly (Z1/5820-99-102-4559) and Gear, Spur and Shaft Assembly (Z1/5820-99-102-0770).

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

3. Estimated time required: 2 man-hours

4. Items affected

Transmitter receiver, radio A13 Z1/5820-99-949-6353

5. Action required by:-

a. Units authorized to carry out base repairs

(1) If necessary, carry out the modification on equipments received for repair or overhaul.

(2) On completion of the modification ensure that figure 7, on the TRA13 mod record plate is struck through with a diagonal line.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER No as the authority.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	5315-99-106-2796	Spring pin	3
Z1	5820-99-911-0835	Retaining ring	1

b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Dulux red, varnish insulating	as reqd

7. Sequence of operations

- a. Remove the transmitter receiver, radio, A13 (TRA13) from its case in accordance with Tels F 144, page 11, para 22-24 inclusive.
- b. Remove the front panel from the film scale assembly in accordance with Tels F 144, page 11, para 25-30 inclusive.
- c. Locate the RANGE Mc/s switch and, taking extreme care not to damage the switch screw threads, carefully remove the retaining ring (Z1/5820-99-911-0835) from the switch shaft.
- d. Unscrew the 4 Phillips securing screws on the switch mounting plate and carefully remove the plate. Make a note of the position and quantity of shims under each corner of the mounting plate and retain for use later. Refer to Fig 1a and 1b for this and subsequent operations.
- e. Locate and remove the two securing screws retaining the transformer A.F. (Z1/5950-99-102-0715) to the film scale assembly. Lay the transformer to one side, ensuring no undue strain is placed on the wires connected to it.
- f. Remove the panel electronic circuit (Z1/5820-99-101-9808) located on board 5.
- g. Rotate the RANGE Mc/s switch to a position whereby the cam on the end of the cam and gear assembly is not in contact with the actuator arm.
- h. Remove the roll pin securing the cam and gear assembly to the shaft using a suitable pin extractor.
- j. Carefully withdraw the gear and shaft assembly (Z1/5820-99-102-4559), locate and remove the roll pin using a pin extractor and replace with a spring pin (Z1/5315-99-106-2796) as provisioned.
- k. After removal of the gear and shaft assembly in operation j. it will be found that the cam and gear assembly will be left loosely meshed to the inner (Mc/s) pulley gear on the film scale casting. Locate the detent switch (Z1/5820-99-102-0784) and gently ease the helical extension spring sufficiently to allow removal of the RANGE Mc/s switch shaft, gear and index plate assembly. Note the position of the assembly on removal.
- l. Remove the roll pin from the shaft with a pin extractor and replace with a spring pin (Z1/5315-99-106-2796) as provisioned.
- m. Refit the gear and shaft assembly locating it into the cam and gear assembly. Align the hole in the cam and shaft, but before pinning with the spring pin (Z1/5315-99-106-2796) as provisioned, carry out the following check:- Use a No 4 UNC socket-head set-screw to lock the cam to the shaft. With the RANGE Mc/s switch in the fully clockwise position, turn the switch seven clicks anti-clockwise and on the next turn of the switch it should move the actuator arm. If this condition is achieved, fit the spring pin as provisioned.

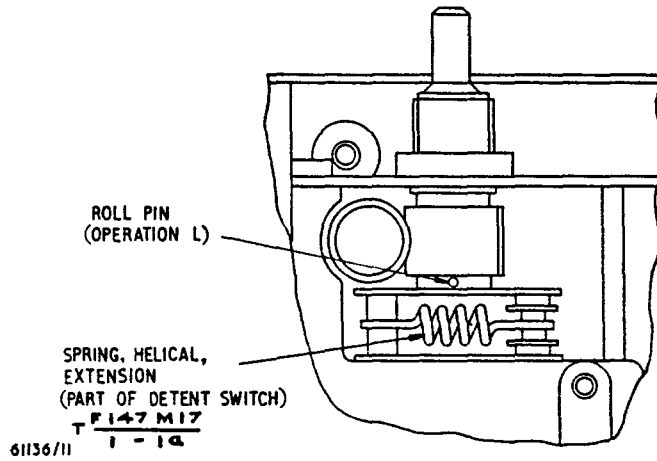


Fig 1a - Modification detail

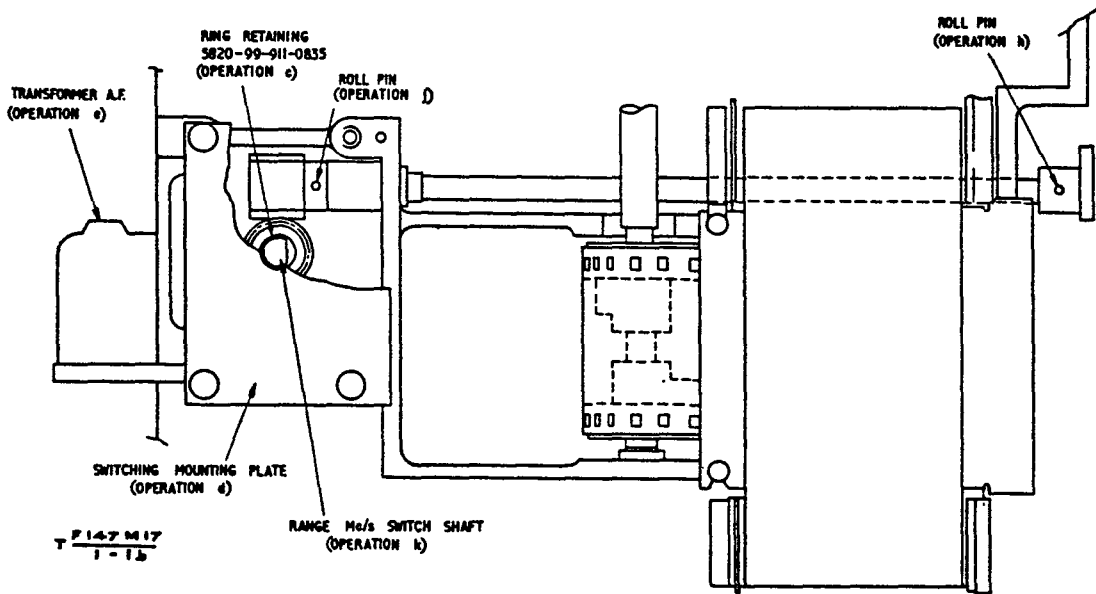


Fig 1b - Modification detail

- n. If the condition in m. is not achieved, repeat operation m., checking that the gear and shaft assembly has not been inserted 180° out of alignment.
- o. Ensure that the pin fitted in operation m. is flush with the cam surface, filing off any excess pin protrusion. Extreme care must be taken to minimise the amount of swarf deposit. It may be found expedient to apply a thin coating of heavy grease to the cutting surface of the file to retain the filings. On completion, remove any loose swarf and clean off any grease deposited on the cam surface.
- p. Reverse operations b. to f. inclusive, ensuring that the shims removed in operation d. are replaced in their original positions and that a new retaining ring (Z1/5820-99-911-0835) as provisioned is fitted, in reversing operation c. All securing screws, before replacement, are to be coated on the threads with Dulux red, varnish insulating (H1/8010-99-942-8917).
- q. Reverse operation a., resealing the equipment in accordance with Tels F 144, page 10, para 13-17 inclusive, paying particular attention to the seating of the Hyclad gasket on the front panel.
- r. Record the embodiment of the modification by striking through with a diagonal line the figure 7 on the mod record label of the Transmitter receiver, radio A13 (Z1/5820-99-949-6353).

T/61136/9/Tels

END

STATION, RADIO, A13TECHNICAL HANDBOOK - MODIFICATION INSTRUCTIONSUB-TITLE: RFA No 12 Mk 1 and TRF antenna, replacement of control knobs1. Information

The existing knobs on the Amplifier, r.f. No 12 Mk 1 (Z1/5820-99-949-6158) and the Tuner, r.f., antenna have been declared obsolescent but will only be replaced, by an improved type having two fixing screws, when it becomes necessary due to loss or inability to secure tightly.

Note: This instruction does not affect the Amplifier, r.f., No 12, Mk 2 (Z1/5820-99-105-3158).

2. Items affected

a. Amplifier, r.f. No 12 Mk 1

<u>Function</u>	<u>Existing knob</u>	<u>Replacement knob</u>
Tune PA	Z1/5355-99-949-9032	Z1/5355-99-105-9659
Range Mc/s	Z1/5355-99-949-9032	Z1/5355-99-105-9659
Tune	Z1/5355-99-949-9024	Z1/5355-99-106-0792
Lock	Z1/5355-99-949-6085	Z1/5355-99-105-9656

b. Tuner, r.f., antenna

<u>Function</u>	<u>Existing knob</u>	<u>Replacement knob</u>
Range S1	Z1/5355-99-949-9032	Z1/5355-99-105-9659
Tune	Z1/5355-99-949-9024	Z1/5355-99-106-0792
Lock	Z1/5355-99-949-9151	Z1/5355-99-106-1383

3. Action

a. When all four knobs on the r.f. amplifier have been replaced with the new type, strike through with a diagonal line the figure 1 on the overall modification record plate of the Amplifier, r.f., No 12, Mk 1.

b. When all three knobs on the t.r.f. have been replaced with the new type, strike through with a diagonal line the figure 2 on the overall modification record plate of the Tuner, r.f., antenna.

T/61136/48,50/Tels

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Printed circuit, replacement of connectors

1. INFORMATION

- a. Cases of printed circuit connector failure, due to bad tracking of the switch contacts, have been reported. This is obviated by replacement of the existing connectors with similar items having improved switch contacts.
- b. In future production, connector, printed circuit (Z1/5935-99-103-0892) is replaced by connector, printed circuit (Z1/5935-99-106-3576). The embodiment of this item is recorded by figure 3 being struck from the mod record plate on the panel, electronic circuit (Z1/5820-99-101-8591 board 19).
- c. Connector, printed circuit (Z1/5935-99-103-0891) is replaced by connector, printed circuit (Z1/5935-99-106-3577). The embodiment of this item is recorded by figure 1 being struck from the mod record plate on panel, electronic circuit (Z1/5820-99-101-9809 board 1).
- d. The embodiment of both these items is recorded by figure 21 being struck from the mod record plate fitted to the transmitter, receiver, radio A13.

2. ACTION

- a. Replacement of unmodified items on failure will be made from existing old stocks until these stocks are exhausted. Indents for stores are therefore to carry the part number and designation for the old type of item, except in cases where strike-off action indicates otherwise.
- b. When new type items are eventually used for replacement, the strike off action above is to be embodied. Figure 21 on the overall mod record plate, fitted to the transmitter, receiver, radio A13 is only to be struck through on completion of both item replacements.

T/61136/80/TELS

END

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 20
Army Modification Code M 00162

STATION, RADIO, A13

TECHNICAL HANDBOOK -- MODIFICATION INSTRUCTION

SUB-TITLE: Replacement of adjustable tuning core in the m.o. coil

1. INFORMATION

During late production of the transmitter, receiver, radio A13 difficulty was experienced in the alignment of the m.o. coil 18T1 to the specified tracking frequency, due to insufficient inductance. This difficulty was eliminated by changing the core adjuster in the m.o. coil (transformer, r.f. 5950-99-102-0548) so enabling the required value of inductance to be obtained.

Issue 1, 13 Mar 68

Distribution - Class 333. Code No 3

Page 1

R E S T R I C T E D

TELECOMMUNICATIONS
F 147 Mod Instr No 20

ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS

2. ACTION

The adjustable tuning core, (5950-99-102-3919) in the transformer r.f. (5950-99-102-0548) which is fitted on board 18 (PEC 5820-99-101-9911) has been replaced by adjustable tuning core, (5950-99-107-8337). The embodiment of this item has been recorded by figure 2 being struck from the mod record plate on the panel electronic circuit board 18 and figure 23 being struck from the mod record plate fitted to the transmitter, receiver, radio A13.

T/61136/60 (Tels)

END

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 21
Army Modification Code M 00163

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Replacement of battery securing straps

1. Summary

It has been reported from the users that the existing TRA13 battery retaining straps do not secure the battery adequately.

2. Detail

a. If the TRA13 is fitted with:-

- (1) Strap, webbing Z1/5820-99-102-8366
- (2) Strap, webbing Z1/5820-99-102-8374
- (3) Buckle CN/5340-99-973-6841

reference must be made to EMER Tels F 149 Misc Inst No 9.

b. Future production of the TRA13 will incorporate new and improved types of straps and strap retainer in place of those listed in para 2. a. above. These straps will be respectively:-

- (1) Strap, webbing Z1/5820-99-106-1934
- (2) Strap, webbing Z1/5820-99-106-1955
- (3) Strap, retainer Z1/5820-99-105-9915

c. The embodiment of the items listed at para 2. b. will be recorded as the strike-off action of figure 22 on the overhaul mod record plate fitted to the Transmitter-receiver, radio A13.

T/61136/34/Tels

END

Issue 1, 21 Mar 68

Distribution - Class 333. Code No 3

Page 1

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Printed circuit board No 22 - replacement of resistor 22R8

1. Introduction

The calibrator oscillator output has been increased, and the operation of the calibrator divider at 10V supply improved by a production change of resistor 22R8 from 820Ω 1/4W, to 560Ω 1/2W. This regulation details the action to be taken on failure of 22R8, or on base overhaul of the panel electronic circuit and/or the equipment.

2. Priority: Group 'C' (Mgmt N097 refers).

3. Estimated time required: 1/4 man-hour (excluding testing).

4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353
Panel, electronic circuit 5820-99-101-8607

5. Action required by:-

a. Units authorized to carry out field repairs

(1) On failure of 22R8, demand the stores and carry out this modification.

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

Transmitter-receiver, radio, A13 - figure 20
Panel, electronic circuit (Board 22) - figure 1

b. Units authorized to carry out base repairs

(1) On repair of board No 22, or on overhaul of equipment, demand the stores and carry out this modification.

(2) On completion of this modification, ensure that the following figures are struck through on the respective modification record plates.

Transmitter-receiver, radio, A13 - figure 20
Panel, electronic circuit (Board 22) - figure 1

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER No as the authority.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5905-99-012-4689	Resistor, metal oxide, 560Ω ±5%, 1/2W	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Dulux, red, varnish, insulating	as reqd
H1	8010-99-910-7033	Paint, finishing, red	as reqd

c. Stores to be discarded

Resistor 820Ω, 1/4W, removed as indicated in para 7. e.

7. Sequence of operations

a. Refer to Tels F 144, para 22-24, and remove the equipment from its case.

b. With the equipment face downwards, remove the six cross-head screws which secure the hinged back-plate, and carefully lift the plate exposing the printed circuit boards underneath.

c. Refer to Tels F 142, Part 2, Fig 2565, locate and remove the seven cross-head screws securing the printed-circuit board No 22 (5820-99-101-8607) to the hinged back plate.

d. Using extreme care not to place any undue strain on the cable-loom, lift the printed board clear of the back-plate.

e. Refer to Tels F 142, Part 2, Fig 2561, grid ref B5, locate and remove resistor R8 (820Ω) and replace with the new resistor 560Ω, 1/2W, after first trimming the terminations to the required length.

f. Record the embodiment of this modification by striking through with a diagonal line the figure 1 on the modification record label on the electronic circuit panel (5820-99-101-8607) with red finishing paint (8010-99-910-7033).

- g. Reverse operations b. to d. inclusive.
- h. Carry out specification tests as detailed in Tels F 144 para 93 and 103.
- j. Replace the equipment in its case, resealing it in accordance with Tels F 144 para 13-17, paying particular attention to the seating of the Hyclad gasket on the front panel. Apply a thin coat of Dulux red insulating varnish to the underside of all screw-heads before assembly.
- k. Record the embodiment of this modification by striking through with a diagonal line the figure 20 on the modification record label fitted to the front panel of the Transmitter-receiver, radio, A13.

8. EMER amendments

Tels F 142, Part 2, Fig 2562, Issue 1, Page 1063, grid ref D1: value of R8 is now 560Ω.

T/61136/56/Tels

END

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ELECTRICAL AND MECHANICAL
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TELECOMMUNICATIONS
F 147 Mod Instr No 23
Army Modification Code M 00167

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Panels, electronic circuit, addition of capacitors

1. Introduction

a. During production the Transmitter, receiver, radio, A13, exhibited the following two forms of instability (spurious modulation) at the top end of the high band (around 8Mc/s).

(1) A dual note in the sidetone on c.w. transmit.

(2) Inability to tune to zero beat, using a good receiver, on air to air test.

b. Investigation has shown that this instability can be rectified by the addition of a capacitor in each case. This regulation details the work necessary to add these capacitors.

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

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

4. Items affected

Transmitter, receiver, radio, A13	Z1/5820-99-949-6353
Panel, electronic circuit, (board 11)	Z1/5820-99-101-9882
Panel, electronic circuit, (board 13)	Z1/5820-99-101-9812

5. Action required by:-

a. Units and establishments holding the equipment

(1) If figures 14 and 18 have not been struck off the equipment mod record plate, demand stores in accordance with the instructions in para 6. a. below.

(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 equipments, demand stores and carry out this modification.

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

Transmitter, receiver, radio, A13 - figure 14 and 18
Panel, electronic circuit, (board 11) - figure 1
Panel, electronic circuit, (board 13) - figure 1

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 Panels, electronic circuit serial numbers on the indent. The stores are to be demanded as a complete kit, and NOT as individual items.

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	5999-99-00000-02882	Modification kit TRA13	1
Comprising:-			
Z1	5910-99-999-1867	Capacitor, fixed, mica dielectric, 1000pF ±10%	(1)
Z	5910-99-012-0113	Capacitor, fixed, paper metallic, 0.01µF ±10%	(1)
Y3	5340-99-954-3566	Sleeve, identification 1 m.m. i.d. x 0.02 in. wall	(1 in.)

b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
-	-	Any approved black water-proof drawing ink	as reqd
H1	8010-99-943-3454	Varnish, electrical insulating, with fungicide, air drying	as reqd
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, air drying, red	as reqd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	as reqd

7. Sequence of operations

a. Remove the Transmitter, receiver, radio A13 from its case as detailed in Tels F 144 para 22 - 24.

- b. Locate and remove the Panel, electronic circuit, (board 11) Z1/5820-99-101-9882, following the instructions detailed in Tels F 144 para 35.
- c. Solder the capacitor, fixed, mica dielectric, 1000pF (Z1/5910-99-999-1867), new circuit designation 11C14, between pins 4 and 5 on the Panel, electronic circuit (see fig 1).

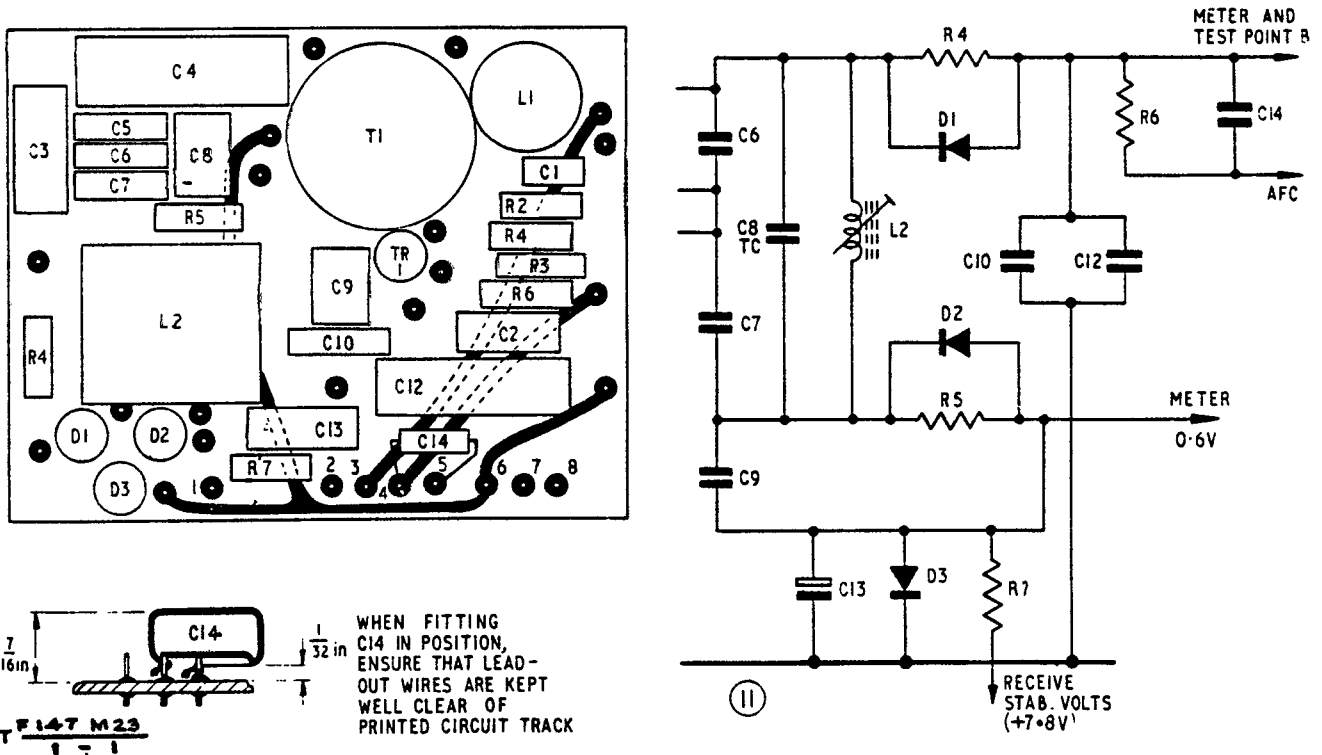


Fig 1 - Board 11, modification detail

- d. Using an approved black waterproof drawing ink, add the coding 'C14' adjacent to the new component, and when coding is dry, cover it with a thin coat of varnish (H1/8010-99-943-3454), ensuring that the ink and/or varnish does not encroach on the printed circuit or terminals.
- e. Record the embodiment of this modification by painting through, with a diagonal line the figure 1 on the mod record label of board 11 with paint, finishing, red (H1/8010-99-910-7033).
- f. Replace board 11 applying a thin coat of Varnish, insulating, red (H1/8010-99-942-8917) to the underside of the screw heads before assembly.
- g. Record the embodiment of this modification by striking through, with a diagonal line the figure 14 on the Transmitter, receiver, radio A13 (Z1/5820-99-949-6353) equipment mod record plate.

h. Locate and remove the Panel, electronic circuit (board 13) Z1/5820-99-101-9812 following the instructions detailed in Tels F 144 para 35.

j. Trim the terminations of the capacitor, fixed, paper metallic, $0.01\mu\text{F}$ (Z/5910-99-012-0113) to $3/8$ in. and $1.1/4$ in. respectively, sleeving the $1.1/4$ in. end with the sleeve, identification (Y3/5340-99-954-3566) as supplied.

k. Solder the capacitor, new circuit designation 13C16, between capacitor C6 and pin 12 on the Panel, electronic circuit (see Fig 2).

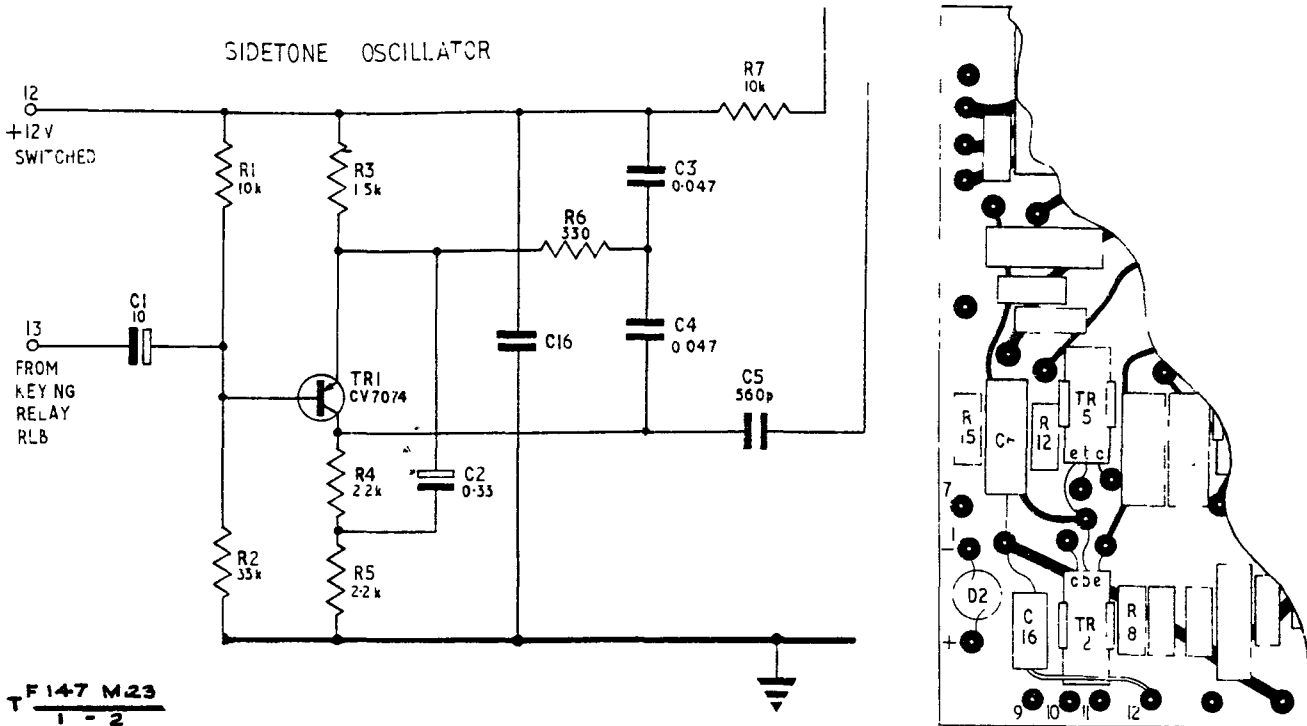


Fig 2 - Board 13, modification detail

l. Using an approved black waterproof drawing ink add the coding 'C16' adjacent to the new component and when the coding is dry, cover it with a thin coat of Varnish (H1/8010-99-943-3454), ensuring that the ink and/or varnish does not encroach on the printed circuit or terminals.

m. Record the embodiment of this modification by painting through, with a diagonal line the figure 1 on the mod record label of board 13 with paint, finishing red (H1/8010-99-910-7033).

n. Reverse operations (h) and (a) resealing the equipment in accordance with Tels F 144 paras 13 - 17 paying particular attention to the seating of the Hyclad gasket in the front panel. Apply a thin coat of Varnish, insulating, red (H1/8010-99-942-8917) to the underside of the board retaining screw heads before assembly.

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o. Record the embodiment of this modification by striking through, with a diagonal line, the figure 18 on the Transmitter, receiver, radio, A13 (Z1/5820-99-949-6353) equipment mod record plate.

p. Carry out the applicable specification tests as listed in Tels F 144.

8. EMER amendments

a. The following amendments are to be made to Tels F 142, part 1.

- (1) Page 29, fig 13, Issue 2, dated 14 Feb 66
Insert new 11C14 in the position shown in fig 1.
- (2) Page 30, fig 14, Issue 2, dated 14 Feb 66
Insert new C14 as shown in fig 1.

b. The following amendments are to be made to Tels F 142, part 2.

- (1) Page 1048, fig 2545, Issue 1, dated 1 March 65
Insert new C14 as shown in fig 1.
Below new C14, add '0.001'
- (2) Page 1049, fig 2546, Issue 1, dated 1 March 65
Insert new C14 as shown in fig 1
- (3) Page 1052, fig 2549, Issue 1, dated 1 March 65
Insert new C16 as shown in fig 2
Below new C16, add '0.01'
- (4) Page 1053, fig 2550, Issue 1, dated 1 March 65
Insert new C16 as shown in fig 2.

T/61136/43 (Tels)
T/61136/44 (Tels)

END

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ELECTRICAL AND MECHANICAL
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TELECOMMUNICATIONS
F 147 Mod Instr No 24
Army Modification Code M 00177

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 30 Apr 68.

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

2. Page 1, para 5.a.(2) last line

Delete: 'k'
Insert: 'm'

3. Page 1, para 6.a., second item

Delete: '5310-99-107-5207'
Insert: 'Z2/4820-99-107-5207'

4. Page 2, para h., first line

Delete: '5310-99-107-5207'
Insert: 'Z2/4820-99-107-5207'

T/61136/85(TELS)

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TELECOMMUNICATIONS
F 147 Mod Instr No 24
Army Modification Code M 00177

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Stabilizer voltage, improved stabilization and seating of TR5

1. Introduction

The voltage stabilization has been improved by a production change of the semi-conductor device CV7527, circuit reference TR5, to a CV7529. This regulation details the action necessary to replace TR5 only on failure of the existing component, and includes fitting instructions of two additional washers or alternatively the reduction in length of the insulating bushes to ensure adequate seating of the semi-conductor device.

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

3. Estimated time required 1/2 man-hour

4. Items affected

Station, radio, A13
Stabilizer, voltage 5820-99-949-6111

5. Action required by

a. Units authorized to carry out field or base repairs

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

(2) Ensure that relevant figures (1 and 3) on the stabilize voltage modification record plate are struck through with a diagonal line on completion of this modification in accordance with para 7.k.

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5960-99-037-3776	Semi-conductor device, CV7529	1
Z1	5310-99-107-5207	Washer, flat	2
b. <u>Stores to be obtained locally</u>			
H1	6850-99-220-2421	Grease, silicone compound, MS4	As req.
H1	8010-99-942-8917	Dulux red, varnish, insulating	As req.

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c. Stores to be returned

Items made redundant by the modification are to be disposed of in accordance with current regulations.

7. Sequence of operations

a. Remove the baseplate by unscrewing ten No 6 UNC x 3/8 in. long socket-headed screws.

b. Refer to Tels F 142 Part 2 Issue 1, Fig 2577 and 2578; locate and remove four cross-head screws which secure the Panel, electronic circuit (5820-99-101-9913) to the main frame assembly.

c. Manoeuvre the panel clear of the output terminals taking care not to place any strain on the cable loom.

d. Locate semi-conductor device CV7527, cct ref TR5, and remove its fixing items, retaining the two screws, pan. hd., recess, 4.40 UNC x 3/8 in. (5305-99-948-0203) and two washers, plain, small, UNC (5310-99-943-7757) for subsequent reassembly on the new device. The No 2 BA solder tag with leads still connected is to be moved to one side.

e. Unsolder leads connected to the base and emitter of the semi-conductor device and discard together with associated insulator plate (5970-99-914-5516) and two insulators, bushing (5970-99-914-8223).

f. Before assembly of items of the new semi-conductor device, CV7529, ensure that all mating surfaces are cleaned. Using extreme care when handling, coat both sides of the new insulator plate with a thin film of silicone grease compound in order to give an improved heat transfer path.

g. Position and secure the semi-conductor, reversing operation d. but add the washer, flat (5310-99-107-5207) between the lip of the insulator bushing (5970-99-914-8223) and the top side of each flange of the transistor case, to ensure that the bushing does not protrude through the case of the transistor and damage the insulator plate.

h. Alternatively if the washers, flat (5310-99-107-5207) are not available the two insulator, bushing are to be reduced in length, by revolving them on a No 6 BA screw and cutting approximately 1/16 in. off the straight ends of each bush.

j. Resolder the connections to the base and emitter, using a heat shunt.

k. Position and secure the electronic panel to the main frame assembly, applying a thin coat of insulating varnish to the underside of the screw heads, and refit the baseplate.

l. Carry out the instructions for drying and sealing as detailed in Tels F 144 Issue 1, para 237 to 243 inclusive.

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m. Record the embodiment of this modification by striking through, without obliterating, the figure 1 (one) for the fitting of semi-conductor device CV7529, and figure 3 (three) for the inclusion of the washers flat (5310-99-107-5207), on the modification record plate fitted to the front panel of the stabilizer, voltage (5820-99-949-6111).

n. Carry out the necessary specification tests as detailed in Tels F 144 Issue 1, para 244 to 256 inclusive.

8. EMER amendments

Tels F 142 Part 2 Issue 1, Page 1092, Fig 2577: Amended to show TR5 as CV7527 or CV7529.

T/61136/8/Tels

END

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ELECTRICAL AND MECHANICAL
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(By Command of the Defence Council)

TELECOMMUNICATIONS
F 147 Mod Instr No 25
Army Modification Code M 00198

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Harness adaptor, change of fuse circuit

1. Introduction

When the Amplifier r.f. No 12, Mk 2 (5820-99-105-3158) is used in conjunction with the harness adaptor unit (HAU), it has been found that certain defects in the former result in a virtual short circuit on SK4 of the latter. This results in burning of the cableforms in both units. This regulation details the action required to change the wiring in the HAU to ensure that fuse FS1 provides adequate protection against such damage. After the embodiment of the modification, the Wiring harness, branched (5820-99-102-0482) is re-identified as Wiring harness, branched (5820-99-195-1988).

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

3. Estimated time required 1/2 man-hour

4. Items affected

Harness adaptor unit Mk 2 - Z1/5820-99-105-3155

5. Action required by

a. Units and establishments holding the equipment

If the figure 1 has not been struck off the equipment modification record plate, 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, obtain stores and carry out this modification.

(3) Ensure that figure 1 on the Harness adaptor unit Mk 2 modification record plate is struck through with a diagonal line on completion of this modification.

6. Stores, tools and equipment

a. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Y3	6145-99-910-0230	Wire, elect. equip., pink	20 in.
Y3	5970-99-901-8032	Insulating sleeving, elect. yellow	1.1/4 in.
Y3	4020-99-011-9481	Cord lacing	As reqd.

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<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, air drying, red	As reqd
H1	8010-99-943-3454	Varnish, electrical, insulating with fungicide, air drying	As reqd
H1	6850-99-220-2421	Grease, silicone compound	As reqd
		White, waterproof drawing ink	As reqd
		Black, waterproof drawing ink	As reqd

7. Sequence of operations

- a. Remove the anti-tamper cap and slacken to their full extent the twenty-seven socket-headed screws securing the Cover, harness adaptor (5820-99-949-6099) to the base of the H.A.U. Remove the cover and its associated gasket and lay to one side for refitting later.
- b. Remove the anti-tamper cap and slacken to their full extent the ten socket-headed screws, securing the Font panel assembly (5820-99-949-6084), mounting LP1, FS1, S1 etc., to the H.A.U.
- c. Remove and retain the four recessed-headed screws and associated washers, securing the plug, PL1, to the front panel assembly (See Tels F 142 Part 2, Fig 2583, 2584 and 2586 for this and subsequent operations).
- d. Withdraw plug PL1, pull back the binding sleeve and unsolder the wire connected to pin A. Lift the front panel and place it in such a position as not to put any strain on the attached wires.
- e. Unsolder the other end of the wire (disconnected in d.) connected to the stand-off terminal of L1 on terminal board TB3. Discard the wire but retain the binding sleeve.
- f. Unsolder, at the termination of fuse FS1, the wires numbered No 16 and No 19. Remove the marker sleeve No 19 and retain. Carefully cut back, as far as possible into the cableform, the two wires removed ensuring that no damage is caused to existing cables.
- g. Cut two 7 inch lengths of wire, elect equip., pink (6145-99-910-0230) Prepare the ends of the wire for soldering by removing 1/8 inch of insulation.
- h. Fit the binding sleeve retained at e. to one of the 7 inch lengths of wire and solder to pin A of plug PL1. Route the remaining end along the underside of the front panel and solder to fuse FS1-1 centre termination.
- j. Solder the other 7 inch length of wire to the stand-off terminal of L1, vacated in e. Route the remaining end along the underside of the front panel and solder to fuse FS1-2 outer termination.
- k. Unsolder the wires from the components as follows:-
 - (1) Wire with marker sleeve No. 01 connected to tag 5 of S1
 - (2) Wire with marker sleeve No. 24 connected to tag 2 of TB3
 - (3) Wire with marker sleeve No. 45 connected to tag adjacent to tag 2 on TB3.

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Release the cable clamp adjacent to fuse FS1 and remove the three wires.

l. Remove and discard the yellow identification marker sleeve coded 5820-99-102-0482 fitted to the wires removed in f. and k.

m. Using an approved black waterproof drawing ink, legibly mark the new Ref. No. '5820-99-195-1988' on the insulating sleeving, electrical. Slide the sleeving over the wires removed in operation k. and position it approximately in the same position as that removed in operation l.

n. Using an approved white waterproof drawing ink, legibly code the figure 4 on TB3, above the stand-off terminal utilised in j. When dry apply a thin protective coat of varnish electrical, fungicide (8010-99-943-3454).

c. Reverse operation k.

p. Replace the front panel and reverse operation b.

q. Lightly smear the sealing gasket of plug PL1 with grease (9150-99-910-5057) before reassembly.

r. Reverse operation c. applying a thin coat of Dulux red varnish (8010-99-942-8917) to the underside of all screw heads before reassembly.

s. Locate the semi-conductor device, CV7529 (TR 7) and remove its fixing items as follows; the two Screws, pan hd., recess 4-40 UNC x 3/8 in. (5305-99-948-0203), two Washers, plain, small 4 UNC (5310-99-943-7757), two Insulators, bushing (5970-99-914-8223) and the two Washers, flat (5310-99-107-5207). The 2 BA solder tag with the lead still connected is to be moved aside.

t. Lift the semi-conductor clear of the chassis, taking care not to damage its associated insulator plate.

u. Locate wire No 16 connected to pin e, pull back the binding sleeve and unsolder the wire. Cut back the wire as far as possible into the cableform, ensuring that no damage is caused to existing cables.

v. Before reassembly of the items in the next operation, ensure that all mating surfaces are cleaned. The insulator plate should then be coated on both sides with a thin film of grease silicone compound (6850-99-220-2421).

w. Reverse operation s.

x. Locate resistor R13 and unsolder at the termination the wire numbered No 19. Remove and retain the marker sleeves. Carefully cut back the wire as far as possible into the cableform, ensuring that no damage is caused to existing cables.

y. Fit the marker sleeves retained in f. and x. so that the remaining length of Wire elect equip., pink (6145-99-910-0230) is coded No 19. Prepare the ends of the wire for soldering by removing 1/8 in. of insulation.

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- z. Locate the semi-conductor CV7529 (TR6) and remove its fixing items as described for TR7 in s.
- a.a. Lift the semi-conductor clear of the chassis, taking care not to damage its associated insulator plate.
- a.b. Locate wire No 18 connected to pin e, pull back the sleeve binding and unsolder the wire. Remove and retain the marker sleeve.
- a.c. Carefully withdraw wire No 18 back through the cableform to the breakout point adjacent to resistor R13. Cut back the wire to a length sufficient for soldering to the termination of resistor R13 with the wire No 20 connected to it.
- a.d. Fit the marker sleeve retained in operation a.b. and solder the wire to the termination of resistor R13 with the wire No 20 connected to it.
- a.e. Solder one end of the wire prepared in operation y. to pin e. Feed the remaining end of the wire through the sleeve binding, along the existing cableform and solder it to that termination of resistor R13 with the wire No 20 connected to it. Lace the wire to the existing cableform, where possible, with cord lacing (4020-99-011-9481).
- a.f. Reverse operation z. and refer to operation v.
- a.g. Reverse operation a. Carry out drying and sealing instructions as detailed in Tels F 144, para 257 to 262.
- a.h. Record the embodiment of this modification by striking through with a diagonal line the figure 1 on the modification record plate fitted to the harness adapter unit.

8. EMER amendments

EMER Tels F 142 Part 2, Pages 1101, 1104 and 1105, Issue 2

- a. Fig 2582: Delete 'FS1 7A' between TR5 and R13 at grid ref J2 and insert a line indicating continuity; insert 'FS1 7A' between PL1-A and L1 at grid ref B2.
- b. Fig 2585: Locate TR5-E (top left) and delete '(23) TR6-E BN/S 18' and insert '(3) R13-2 BN/S 18'.
- c. Fig 2586
- (1) Top right, above LP1, insert:-
'(Numerals in brackets indicate cableform breakout points - see Fig 2585, bottom centre)'
 - (2) Locate R13-2 lead No 19(top left corner) and delete 'FS1-2(6)'
and insert 'TR6-E (23)'. Add a new lead from R13-2 designated
'18 BN/S TR5-E (1)'.

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- (2) Locate TR6-E (middle left side) and add a new lead '19 BN/W R13-2 (3)'. Delete entirely lead '18 BN/S TR5-E (1)'.
- (3) Locate TR7-E (top centre) and delete entirely lead '16 BN/B FS1-1 (6)'.
- (4) Locate FS1-1 (near top, right side) and delete '16 BN/B TR7-E (5)' and insert 'PL1-A'.
- (5) Locate FS1-2 (near top, right side) and delete '19 BN/W R13-2(3)' and insert 'TB3-4'.
- (6) Locate the lead connected between PL1-A and TB3 (bottom right corner), break the lead and arrow the PL1-A end and mark 'TS1-1'. Arrow the TB3 end and mark 'FS1-2' and the terminal on the board to be coded '4'.

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END

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F 147 Mod Instr No 26
Army Modification Code M 00244

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Fitting an instruction and extended mod record plates

1. Introduction

This regulation details the work necessary to fit an instruction plate and an extended modification record plate to the TRA13. The instruction plate which is fitted to the cabinet tabulates frequencies against dipole element length to allow the TRA13 to be used without the Tuner, r.f. antenna (5820-99-949-6154). The extended modification record plate provides strike-off numbers 21 to 40 inclusive and is fitted to the front panel assembly.

2. Priority B (Mgmt N 097 refers)

3. Estimated time required 1/2 man-hour

4. Items affected

Transmitter-receiver, radio, A13 5820-99-949-6353.

5. Action required by

a. Units and establishments holding the equipment

(1) If the figure 17 has not been struck off the equipment modification record plate demand stores in accordance with instructions in para 6.

(2) On receipt of stores, request units 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 equipments, demand stores and carry out this modification.

(3) Ensure that figure 17 is struck through on the modification record plate of TRA13 on completion of this modification.

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6. Stores, tools and equipment

a. Stores to be demanded

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	00000-02884	Modification kit, TRA13	1
		Comprising:-	
Z1	5820-99-106-0434	Plate, instruction	(1)
	SD/A 199597/1	Screw, drive 3/32 in. long ST.	(8)
	9905-99-105-9508	Plate, modification record	(1)

b. Stores to be discarded Nil

c. Special tools and equipment Nil

7. Sequence of operations

- a. Remove the Battery, secondary, alkaline (6140-99-949-6145) from the battery compartment of the Cabinet, electrical equipment (5820-99-949-6162).
- b. Drill four 0.052 in. diameter holes (No 55 drill) in the side of the battery compartment to the dimensions detailed in Fig 1.
- c. Fit and secure in position the Plate, instruction (5820-99-106-0434) by means of four Screws, drive (SD/A 199597/1) as provisioned in the mod kit.
- d. Remove burrs and swarf from the interior of the battery compartment.
- e. Drill four 0.052 in. diameter holes (No 55 drill) in the bottom flange of the front panel of the TRA13 (see Fig 2).
- f. Fit and secure in position the Plate, modification record (9905-99-105-9508) by means of four screws, drive (SD/A 199597/1) as provisioned in the mod kit.
- g. Record the embodiment of this modification by striking through, without obliterating, the figure 17 (seventeen) on the TRA13 overall modification record plate.
- h. Replace the battery in the battery compartment.

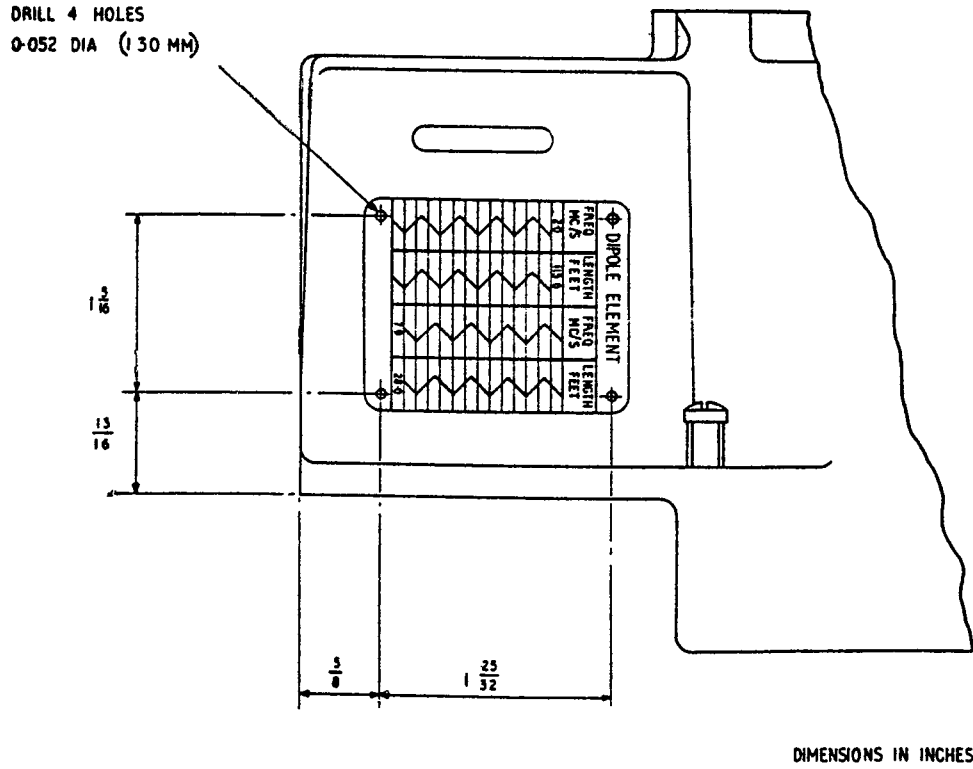
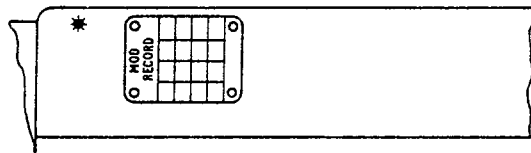
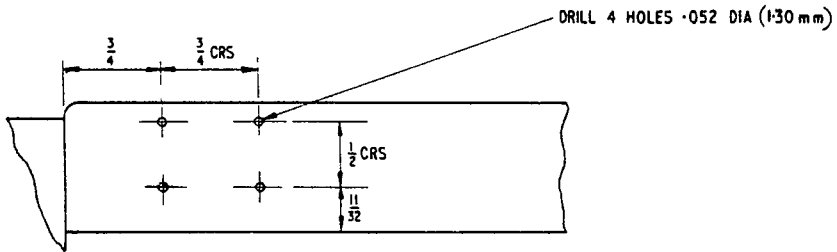
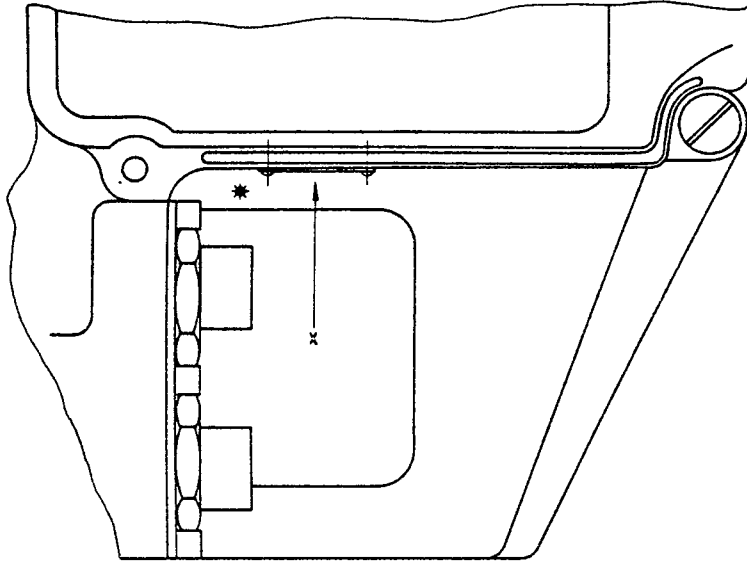


Fig 1 - Instruction plate detail

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TELECOMMUNICATIONS
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ELECTRICAL AND MECHANICAL
ENGINEERING REGULATIONS



VIEW IN DIRECTION X WITH MOD RECORD PLATE
(9905-99-105-9508) IN POSITION

DIMENSIONS IN INCHES
UNLESS OTHERWISE STATED

Fig 2 - Record plate detail

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTIONS

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, 6 Dec 68.

1. The following amendment must be made to the regulation.
2. Page 2, after para 7.b. add the following note:-

Note: Check that the hook supplied fits through the hole in the clip as shown in Fig 1. If not, enlarge the hole using a No 47 drill.'

T/61136/28(TELS)

END

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 27
Army Modification Code M 00240

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTIONS

SUB-TITLE: Antenna and frame assembly, addition of strain relief device

1. Introduction

This regulation details the work necessary for fitting a strain relief device to the 150 foot braid antenna, at the equipment connection end, to prevent the antenna working loose from the equipment and also to obviate breakage of the connecting plug.

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

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

4. Items affected

Antenna and frame assembly 5820-99-101-9312

5. Action required by:-

a. Units and establishments holding the equipment

(1) Demand stores as detailed in para 6.

(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 equipments, demand stores and carry out this modification.

(3) No strike-through action is required on this modification.

6. Stores, tools and equipment

a. Stores to be demanded

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

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<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z11	5820-99-106-8726	Kit, modification, electronic equipment	1
Comprising:-			
	Plessey 640/2/10479	Hook	(1)
	Plessey 640/2/10478	Clip	(1)
	Plessey 70/9196	Sleeve binding (1 in.)	(1)

7. Sequence of operations

- a. Uncoil the 150 foot braid antenna from the frame for a distance of approximately two feet.
- b. Fit the sleeve binding, Plessey part number 70/9196 supplied in the modification kit, over the antenna and position it such that its centre is 11 in. from the plug end of the antenna (Fig 1).
- c. Fit and securely crimp the clip, Plessey part number 640/2/10478 supplied in the modification kit, to the centre of the sleeving fitted in operation b. (Fig 1).
- d. Fit the hook, Plessey part number 640/2/10479 supplied in the modification kit, to the clip fitted in operation c, by means of the smaller of the two eyes. Close the eye so that the hook will not become detached from the clip (Fig 1).
- e. Reverse operation a.

8. EMER amendments

There are no amendments to the EMER required.

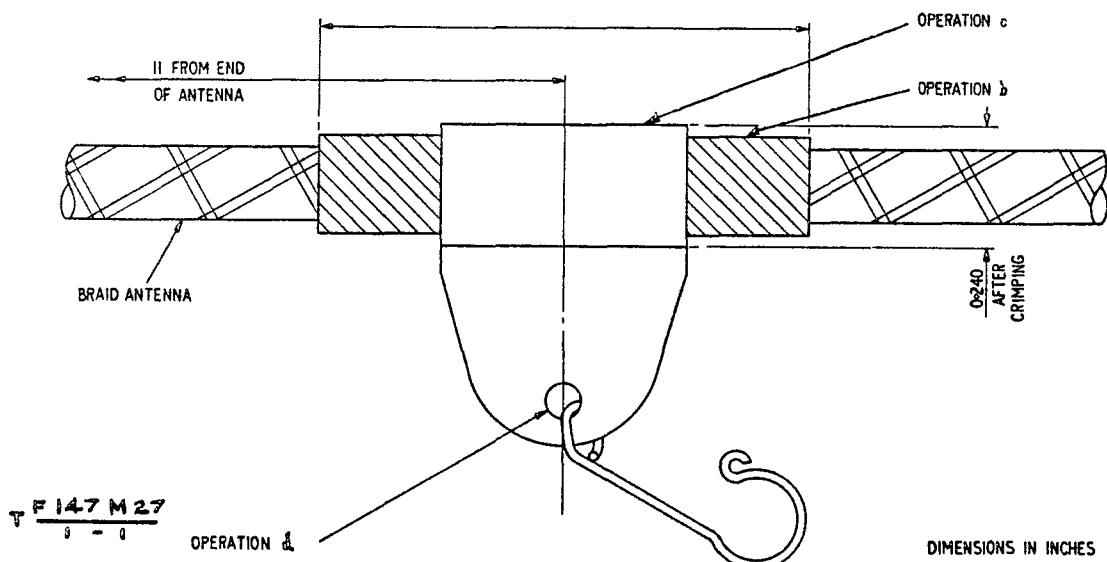


Fig 1 - Strain relief device
END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Generator, d.c., fitting of collar, shaft assembly

1. Introduction

Breakage of the lens, indicator light, may occur when the generator handle is in its stowed position. This possibility has been eliminated by fitting a Collar, shaft assembly (6115-99-106-9857) on the hand crank arm to prevent the handle striking the lens when the handle is stowed.

2. Action

Production of the Generator, d.c. (6115-99-949-8134) incorporating this modification will be identified by the figure 2 on the modification record plate being struck through. No retrospective action is required.

/61136/3(Tels)

END

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 29
Army Modification Code M 00219

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Board No 18, exchange of 18C6

1. Introduction

This regulation details the work necessary to change capacitor 18C6 from 0.001 μ F to 0.002 μ F, to prevent squegging of the oscillator, when using a CV7050 of other than Mullard manufacture. Once embodied the modification allows all makes of CV7050 to be used. The modification is to be embodied during base overhaul if replacement of TR1 or D1 is found necessary.

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

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

4. Items affected

Transmitter-receiver, radio, A13	5820-99-949-6353
Panel, electronic circuit	5820-99-101-9911 (Board No 18).

5. Action required by

a. Units and establishments holding the equipment

Nil

b. Units authorized to carry out base repairs

(1) During repair of board 18 if TR1 or D1 require replacing, carry out the modification.

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

Transmitter-receiver, radio A13	- figure 27
P.E.C. (5820-99-101-9911)	- figure 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 and the Panel, electronic circuit serial number.

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<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z	5910-99-012-0108	Capacitor, fixed 0.002 μ F \pm 20%	1

b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Dulux red, varnish insulating	as reqd
	8010-99-910-7033	Paint, finishing, red	as reqd

c. Stores to be disposed of locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z	5910-99-012-0119	Capacitor, fixed 0.001 μ F \pm 20%	1

7. Sequence of operations

- a. Remove the TRA13 from its case in accordance with Tels F 144, para 22 to 24.
- b. Locate and remove the screws securing board 18 following the instructions detailed in Tels F 144 para 35 and reference to Tels F 142 Part 2, Fig 2555.
- c. Locate and remove capacitor 18C6 and replace with the 0.002 μ F capacitor.
- d. Record this modification by painting a diagonal line through, without obliterating, the figure 3 (three) on the modification record plate on board 18 with red paint.
- e. Reverse operation b. applying a thin coat of Dulux red varnish to the undersides of the screw-heads before re-assembling.
- f. Reseal the equipment in accordance with Tels F 144 para 13 to 17.
- g. Record this modification by striking through, without obliterating, the figure 27 (twenty seven) on the overall modification record plate on the TRA13.

8. EMER amendments

Tels F 142 Part 2, Fig 2554; amend the value of 18C6 to read 0.002 μ F.

T/61136/60/Tels

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1, Issue 1, dated 6 Jan 69.

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

2. Page 1, Para 2

Delete: 'C'
Insert: 'B'

3. Page 1, Para 5

Delete existing sub-para a. and b.

Insert the following:-

a. Units and establishments holding the equipment

(1) Examine the equipment to determine whether the figure 24 has been struck through on the modification record plate attached to the TRA13.

(2) If the figure 24 has not been struck through, demand the modification kit as detailed in para 6.

(3) On receipt of the modification kit, 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, if necessary demand the modification kit and carry out this modification.

(3) On completion of this modification strike through with a diagonal line the figure 24 on the modification record plate attached to the TRA13.'

R E S T R I C T E D

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

TELECOMMUNICATIONS
F 147 Mod Instr No 30
Army Modification Code M 00245

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: TRA13 - Addition of resistor 27R25

1. Introduction

A number of cases have been reported of failure and damage to the Transmitter-receiver A13 (TRA13) cable loom. This regulation details the action necessary to obviate this type of failure, by the addition of a 56Ω resistor, 27R25, between TSR-3 and SKA-3.

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

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

4. Items affected

Transmitter-Receiver, Radio A13	Z1/5820-99-949-6353
Panel, Electrical Equipment	Z1/5820-99-949-6007

5. Action required by:-

a. Units authorized to carry out field or base repairs

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

(2) On completion of this modification strike through with a diagonal line the figure 24 on the modification record plate for the TRA13.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a complete kit and NOT as individual items.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5820-99-193-1868	Modification kit	1
		Comprising:-	
Z	5905-99-011-3225	Resistor, fixed, wirewound 56Ω ±10%	(1)
Z	5970-99-106-8253	Insulator, stand-off	(1)
		Sleeving, silicone elastomer	(5/8 in.)

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b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Dulux, red, varnish, insulating	as reqd

7. Sequence of operations

- a. Remove the TRA13 from its case in accordance with Tels F 144 para 22 to 24.
- b. Remove the front panel assembly from the film scale unit in accordance with Tels F 144 para 25 to 29.
- c. Remove and dispose of the board securing screw on the left hand side of terminal board TSR. See Fig 1.
- d. Apply a thin coat of Dulux, red, varnish, insulating (H1/8010-99-942-8917) to the threads of the Insulator, stand-off (Z/5970-99-106-8253) provisioned in the mod kit and fit the stand-off insulator in place of the screw removed in operation c.
- e. Locate and unsolder wire No 137 from TSR-3 and resolder to the stand-off insulator. See Fig 1 and 2.
- f. Sleeve one lead of the Resistor, fixed, wirewound 56Ω (Z/5905-99-011-3225) circuit ref 27R25 with the Sleeving, silicone elastomer provisioned in the mod kit.
- g. Solder the sleeved lead of the resistor to TSR-3 and the remaining lead to the stand-off insulator. See Fig 2.
- h. Reverse operations a. and b., resealing the equipment in accordance with EMER Tels F 144 para 13 to 17, paying particular attention to the seating of the Hyclad gasket in the front panel.
- j. Record the embodiment of this modification by striking through, without obliterating, the figure 24 on the modification record plate fitted to the front panel of the TRA13.

8. EMER amendments

Tels F 142, Part 2, Issue 1, 1 Mar 65

- a. Page 1009, Fig 2504: Add the additional resistor R25 as illustrated in Fig 3 of this instruction.
- b. Page 1029, Fig 2524: Show changes as illustrated in Fig 2 of this instruction.
- c. Page 1030, Fig 2525: Wire No 137 on SKA
Delete: 'TSR-3'
Insert: 'R25'

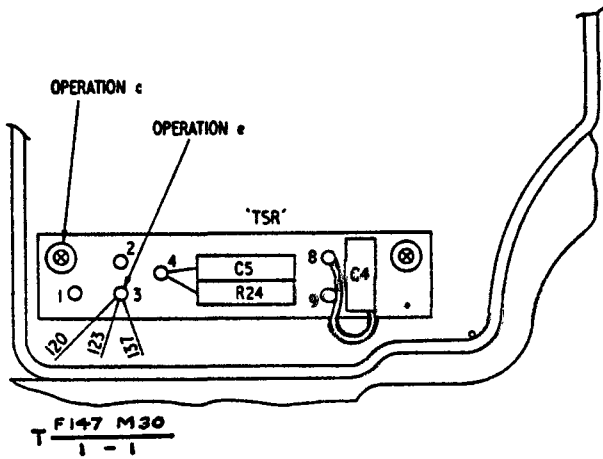


Fig 1 - Part of front panel, component layout, before modification

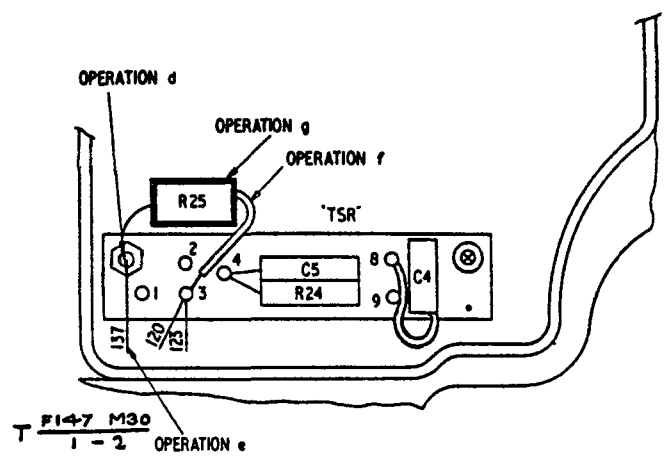


Fig 2 - Part of front panel, component layout, after modification

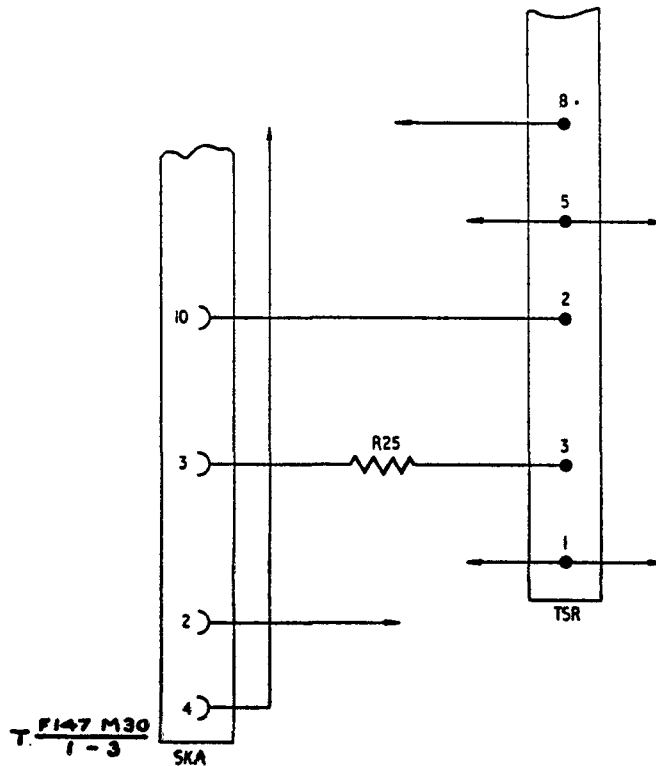


Fig 3 - Part of front panel circuit, after modification

T/61136/42/Tels
ATMC No 00310

END

R E S T R I C T E D

ELECTRICAL AND MECHANICAL
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(By Command of the Defence Council)

TELECOMMUNICATIONS
F 147 Mod Instr No 31
Army Modification Code M 00246

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Board 13 - replacement of transistor

1. Introduction

The transistor CV7074 made by some manufacturers has a high inverse transfer admittance causing a reduction in headphone amplifier gain. This regulation details the work necessary to replace the transistors CV7074 on failure (circuit reference 13TR2 and 13TR3) by CV9259 (Z/5960-99-037-4482) in order to maintain the amplifier gain at the specified level.

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

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

4. Items affected

Transmitter-receiver, radio, A13 (TRA13) Z1/5820-99-949-6353
Panel, electronic circuit (board 13) Z1/5820-99-101-9812

5. Action required by:-

a. Units authorized to carry out field and base repairs

(1) On failure of CV7074 used in either or both transistor locations 13TR2 and 13TR3, demand stores and carry out replacement of the faulty transistor(s) with CV9259.

(2) Only when BOTH transistors have failed and have been replaced will strike-off action be carried out.

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

TRA 13 - figure 16

Panel, electronic circuit (board 13) - figure 2

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority and earmark No F21712.

R E S T R I C T E D

TELECOMMUNICATIONS
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<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5960-99-037-4482	Valve, electronic CV9259	as reqd

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Varnish, insulating anti-tracking, air drying, red	as reqd
H1	8010-99-910-7033	Paint, finishing, general service, red	as reqd

7. Sequence of operations

a. Remove the TRA 13 from its case in accordance with EMER Tels F144 para 22 to 24.

b. Locate and remove the Panel, electronic circuit (board 13) following the instructions detailed in EMER Tels F144 para 35.

c. Refer to EMER Tels F142 Part 2, Page 1053, Fig 2550. Locate the defective transistor(s) CV7074, TR2 and/or TR3, and unsolder the terminations from the pins coded e, b and c.

d. Remove the transistor(s) from the retaining clip(s) and remove the insulation sleeves from each of the electrode wires. Retain these for refitting later.

e. Fit the insulation sleeves, retained in sub-para d. to each of the terminations of the CV9259 as follows:-

Emitter	-	Red
Base	-	Green
Collector	-	White

Fit the transistor(s) in the retaining clip(s) and solder the terminations to pins coded e, b and c respectively.

f. If one CV7074 is still in service in 13TR2 or 13TR3 positions, carry out operations j. and k.

g. If both 13TR2 and 13TR3 have been replaced using CV9259 carry out operations h. and onwards.

h. Record the embodiment of this modification by painting a diagonal line through, without obliterating, the figure 2 on the modification record label on board 13 with red finishing paint.

j. Reverse operation b. applying a thin coat of red anti-tracking insulating varnish to the underside of all the board retaining screw heads before assembly.

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ELECTRICAL AND MECHANICAL
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F 147 Mod Instr No 31

k. Reverse operation a. resealing the equipment in accordance with EMER Tels F144 para 13 to 17, paying particular attention to the seating of the Hy-clad gasket in the front panel.

l. Carry out specification tests as detailed in EMER Tels F 144 para 80 and 81.

m. Record the embodiment of the modification by striking through without obliterating the figure 16 on the modification record plate fitted to the front panel of the TRA 13.

8. Testing after embodiment

Carry out specification tests as detailed in EMER Tels F 144 para 80 and 81.

9. EMER amendments

Tels F 142 Part 2, Page 1052, Fig 2549

Under TR2, grid reference D3, and TR3 grid reference F3

Insert: 'or CV 9259'

T/61136/67/Tels
ATMC No 00273

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Note: This Issue 2, Pages 1 and 2, supersedes Issue 1, Pages 1 and 2, dated 11 Apr 69. The regulation has been revised.

SUB-TITLE: Harness adaptor unit Mk 2 - addition of protective washers

1. Introduction

a. This regulation details the work necessary to add washers to each of transistors TR5, TR6 and TR7, to prevent the insulating bush damaging the mica insulating disc and also to prevent the soldering tag shorting on the case of the transistor.

b. This modification is only to be embodied on failure of the existing transistors TR5, TR6 or TR7.

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

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

4. Items affected

Station, radio, A13

Harness adaptor unit Mk 2 Z1/5820-99-105-3155

5. Action required by:-

a. Units authorized to carry out field or base repairs

(1) On repair or overhaul examine the equipment to determine whether the figure 2 has been struck through on the modification record plate attached to the harness adaptor unit.

(2) If the figure 2 has not been struck through, demand the stores as detailed in para 6 and carry out this modification.

(3) On completion of this modification strike through with a diagonal line the figure 2 on the modification record plate attached to the harness adaptor unit.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this Mod Instr number on the indent.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z2	Z2/4820-99-107-5207	Washer, flat	2, 4 or 6 as reqd (6 max)
b. <u>Stores to be obtained locally</u>			
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, air-drying, red	as reqd

7. Sequence of operations

a. Remove the 27 socket-head screws securing the cover to the base of the harness adaptor unit. Remove the cover and retain the screws.

b. Locate the faulty transistor(s) and remove the fixing items as follows:-

- (1) Two screws, pan-head, recess, 4.40 UNC x 3/8 in. (5305-99-948-0203);
- (2) Two washers, plain, small, 4 UNC (5310-99-943-7757);
- (3) Two insulators, bushing (5970-99-914-8223);

and the No 2 BA solder-tag with the lead still connected is to be moved aside.

c. Unsolder the leads to the transistor(s) and fit the replacement transistor(s), using an appropriate heat shunt.

d. Reverse operation b., but introduce the flat washer (Z2/4820-99-107-5207) provisioned, between the lip of the insulator bushing (removed in operation b.) and the transistor case. Apply a thin coat of varnish (8010-99-942-8917) to the underside of the screw-heads before re-assembly. Alternatively if the flat washers (Z2/4820-99-107-5207) are not available, the two insulator bushings should be reduced in length by revolving them on a No 6 BA screw and cutting 1/16 in off the straight ends of each bush.

e. Reverse operation a., and dry and seal the equipment in accordance with Tels F 144 para 258 to 262 inclusive.

f. When all three transistors have been replaced, record the embodiment of this modification by striking through with a diagonal line the figure 2 on the harness adaptor unit modification plate.

8. EMER amendments - Nil

ATMC No 00357
T/61136/85/TELS

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Control knobs - replacement

1. Introduction

The six control knobs on the front panel assembly are to be replaced by an improved type, which uses two fixing screws instead of one. This regulation details the work necessary to replace the knobs.

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

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

4. Items affected

Transmitter-receiver, radio, A13 Z1/5820-99-949-6353

5. Action required by:-

a. Units and establishments holding the equipment

(1) Examine the equipment to determine whether the figure 15 has been struck through on the modification record plate attached to the equipment.

(2) If the figure 15 has not been struck through, demand the modification kit as detailed in para 6.

(3) On receipt of the modification kit request REME 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, if necessary, demand the modification kit and carry out this modification.

(3) On completion of this modification strike through with a diagonal line the figure 15 on the modification record plate attached to the transmitter-receiver, radio, A13.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a complete kit and NOT as individual items.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5999-99-000-02874	Kit, modification, TRA13	1
		Comprising:-	
Z1	5355-99-105-9657	Knob	(1)
Z1	5355-99-105-9656	Knob	(2)
Z1	5355-99-105-9658	Knob	(1)
Z1	5355-99-105-9659	Knob	(2)

b. Stores to be returned

Items made redundant by the modification are to be disposed of in accordance with current regulations.

7. Sequence of operations

a. Using a 1/16 in AF wrench (Allen Key), slacken the set screws in the knobs to be removed in operations b. to e. The same tool should be used for tightening the set screws in the replacement knobs.

b. Remove the 'RANGE Mc/s' and 'CURSOR ADJ' knobs and replace with the two knobs (5355-99-105-9659).

c. Remove the 'CW TONE' and 'LOCK/RF FREE/CHANNEL FREE' knobs and replace with the two knobs (5355-99-105-9656).

- d. Remove the 'GAIN' knob and replace with the knob (5355-99-105-9658).
 - e. Remove the 'CURSOR' knob and replace with the knob (5355-99-105-9657).
 - f. Record the embodiment of this modification by striking through, without obliterating, the figure 15 on the transmitter-receiver, radio, A13 overall modification record plate.
8. EMER amendments: NIL

ATMC No 00222
T/61136/30(TELS)

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Board 11 - replacement of CV7050 on failure

1. Introduction

Diodes CV705) produced by some manufacturers have been found to be unsuitable for use in the discriminator circuit. This regulation details the action necessary to replace both diodes CV7050 by diodes CV7368, if either 11D1 or 11D2 fail.

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

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

4. Items affected

Transmitter-receiver, radio, A13 Z1/5820-99-949-6353

Panel, electronic circuit (board 11) Z1/5820-99-101-9882

5. Action required by:-

a. Units and establishments holding the equipment

Nil.

b. Units authorized to carry out field or base repairs

(1) On repair or overhaul, if necessary, demand the stores and carry out this modification.

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

Transmitter-receiver, radio, A13 - figure 30
Panel, electronic circuit (board 11) - figure 2

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5961-99-037-3170	Valve, electronic, CV7368	2

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Dulux, red, varnish, insulating	As reqd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	As reqd

7. Sequence of operations

- a. Check that the faulty diode(s) 11D1, 11D2 are of the CV7050 type; if they are remove and discard both diodes.
- b. Using a heat shunt, fit and solder the two diodes CV7368 (Z1/5961-99-037-3170) across the terminations vacated in operation a. Ensure that the correct polarity is observed (Tels F 142, Part 2, Figures 2545 and 2546 refer).
- c. Record the embodiment of this modification by diagonally painting through, with red paint the figure 2 on the modification record label of board 11.
- d. Replace board 11, applying a thin coat of red insulating varnish to the underside of the screw-heads before assembly.
- e. Carry out a functional check of the equipment.
- f. Reseal the equipment as detailed in Tels F 144, para 13 to 17 inclusive.
- g. Record the embodiment of the modification by striking through with a diagonal line the figure 30 on the overall modification record plate of the TRA13.

8. EMER amendments

The following amendment is to be made to Tels F 142, Part 2, Page 1048, Fig 2545 grid references E1 and E2:-

At the side of 'D1' and 'D2' add an asterisk

At the bottom of Page 1048 add:-

'Note: D1 and D2 may be type CV7368 - see mod instr No 34'

ATMC No 00499
T/61136/63(TELS)

END

Issue 1, Dec 69

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Panel, electronic circuit (board 12) - replacement of CV7238

1. Introduction

Difficulties are being experienced in meeting the output current limit specification for board 12. This regulation details the action to be taken to replace 12TR3 (CV7328) where necessary, with a new type transistor (CV7493).

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

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

4. Items affected

Transmitter-receiver, radio, A13 Z1/5820-99-949-6353

Panel, electronic circuit (board 12) Z1/5820-99-101-9881

5. Action required by:-

a. Units and establishments holding the equipment

Nil

b. Units authorized to carry out field or base repairs

(1) On repair or overhaul, if necessary, demand the stores and carry out this modification.

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

Board 12 - figure 1
TRA13 - figure 29

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5960-99-037-3704	Valve, electronic, CV7493	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-9817	Dulux, red, varnish, insulating	As req'd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	As req'd

7. Sequence of operations

a. If fitted, remove panel, electronic circuit (p.e.c.) (board 29) Z1/5820-99-107-9610 by removing the two cross-headed screws securing the board to the film scale casting, and the wire links as follows:-

<u>Board 29</u>	<u>TSS</u>
Pin 4	Pin 4
Pin 5	Pin 5
Pin 6	Pin 6
Pin 7	Pin 7
	<u>TSB</u>
Pin 8	Pin 5

b. Locate and remove the p.e.c. (board 12) Z1/5820-99-101-9881 (Tels F 144, para 35 refers).

- c. Unsolder the terminations of transistor 12TR3 on board 12; remove and discard the transistor, retaining the coloured sleeves.
- d. Fit the sleeves to the new transistor (CV 7493) as follows:-
 - (1) Red to emitter
 - (2) Green to base
 - (3) White to collector
- e. Fit the new transistor in the position previously occupied by the CV7328 and, using a heat shunt, solder the terminations of the CV7493 to the appropriate positions (marked E, B, and C on board 12).
- f. Record the embodiment of this modification by diagonally painting through with red paint the figure 1 on the modification record label of board 12.
- g. Reverse operations a. and b. applying a thin coat of insulating varnish to the underside of all board retaining screw-heads before assembly.
- h. Reseal the equipment in accordance with the instructions given in Tels F 144, para 13 to 17 inclusive.
- j. Carry out a functional check of the equipment.
- k. Record the embodiment of this modification by striking through, with a diagonal line, the figure 29 on the overall modification record plate of the TRA13.

8. EMER amendments

The following amendment must be made to Tels F 142, Part 2.

Page 1050, Fig 2547, grid ref 7E

At the side of TR3 add an asterisk.

In space below TR6 add the following note:-

* Note: TR3 may be a CV7493, see mod instr No 35'

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T/61136/57(TELS)

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Voltage stabilizer - addition of R11

1. Introduction

In order to prevent excessive dissipation and consequent destruction of TR5 (CV7525), it has been found necessary to limit the output current capability to about 2A. This limitation enables the stabilizer to accept inputs of up to 50V d.c. under normal conditions, and up to 35V when the output terminals are short circuited. The limiting action is achieved by the inclusion of a 10k Ω feedback resistor between the base of TR3 and the collectors of the series stability elements TR4/TR5.

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

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

4. Items affected

Stabilizer, voltage Z1/5820-99-949-6111
Panel, electronic circuit Z1/5820-99-101-9913

5. Action required by:-

a. Units and establishments holding the equipment

(1) Examine the equipment to determine whether the figure 2 has been struck through on the modification record plate attached to the voltage stabilizer.

(2) If the figure 2 has not been struck through, demand the stores as detailed in para 6.

(3) On receipt of the 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, if necessary, demand the stores and carry out this modification.
- (3) Ensure that the relevant figures on the respective modification record plates are struck through with a diagonal line on completion of this modification as follows:-

Voltage stabilizer - figure 2
Electronic circuit panel - figure 1

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5905-99-012-4751	Resistor, fixed, film, 10kΩ ±5%, 1/2W	1

b. Stores to be obtained locally

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5970-99-901-3285	Sleeving, insulating	1.1/2 in.
H1	8010-99-942-8917	Dulux, red, varnish, insulating	as reqd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	as reqd

7. Sequence of operations

- a. Remove the ten socket-head screws securing the base plate to the assembly and remove the base plate.
- b. Cut the insulating sleeving into two 3/4 in. lengths and fit to the terminations of the 10kΩ resistor (supplied).
- c. Locate and remove the four cross-head screws which secure the electronic circuit panel (Z1/5820-99-107-9913) to the main frame assembly.
- d. Lift the panel clear of the output terminals taking care not to place any strain on the cable loom.

- e. Solder the 10k Ω resistor between the pin connected to the base of TR3, and the pin adjacent to the terminals of RV1 which is connected to the positive side of D2 (Tels F 142, Part 2, Page 1093, Fig 2578 refers).
- f. Record the embodiment of this modification by diagonally painting through with red paint the figure 1 on the modification record label of the electronic circuit panel.
- g. Refit the electronic circuit panel, applying a thin coat of insulating varnish to the underside of the screw-heads before assembly.
- h. Carry out a functional check of the equipment.
- j. Dry and reseal the voltage stabilizer unit as detailed in Tels F 144, Page 74, para 237 to 243 inclusive.
- k. Record the embodiment of this modification by striking through without obliterating, the figure 2 on the modification record plate, fitted to the front panel of the voltage stabilizer.

8. EMER amendments

Tels F 142, Part 2.

a. Page 1092, Fig 2577

Insert a new resistor between TR3 base and the junction of D2/R1.
Label the resistor as 'R11, 10k Ω '.

b. Page 1093, Fig 2578

Show the new resistor R11 connected between TR3 base pin, and the pin adjacent to RV1 which is connected to the positive side of D2.

ATMC No 00509
T/61136/46(TELS)

END

STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Erratum

Note: This Page 0 must be filed immediately in front of page 1, Issue 1, Jan 71.

1. The following amendment must be made to the regulation.
2. Page 4, sub-para 1, line 2.

Delete: 'TSW'
Insert: 'TSN'

T/61136/84/Tels

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Intermittent failure to capture at 8MHz - elimination

1. Introduction

In order to overcome the failure of the equipment to capture in the presence of an interfering signal and/or self generated spuri, it is necessary to delay the discriminator output to the a.f.c. circuit until the master oscillator is within the intermediate frequency passband. This regulation details the action required to fit a new p.e.c. (a.f.c. delay circuit), board 29, and associated circuit wiring. After embodiment of the modification, wiring harness, branched 5820-99-102-0033 is redesignated wiring harness, branched 5820-99-107-9608.

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

3. Estimated time required: 3 man-hours.

4. Items affected

Transmitter/receiver, radio A13 5820-99-949-6353 Serial No:-
1711, 1737, 1913, 1969, 1973, 1977, 2047, 2033, 2059, 2092, 2096, 2119,
2130, 2131, 2132, 2137, 2144, 2145, 2155, 2160, 2161, 2164, 2165, 2168,
2179, 2184, 2186, 2187, 2190, 2193, 2194, 2200, 2201, 2204, 2206, 2208,
2211, 2213, 2215, 2217, 2220, 2224, 2226, 2230, 2232, 2234, 2238, 2240,
2243, 2244, 2247, 2253, 2255, 2257, 2258, 2261, 2262, 2263, 2268, 2269,
2272, 2273, 2274, 2275, 2277, 2278, 2280, 2283, 2284, 2286, 2289, 2291,
2292, 2300, 2307, 2308, 2310, 2317, 2318, 2320, 2324, 2325, 2339, 2343,
2355, 2356, 2358, 2359, 2361, 2364, 2369, 2374, 2379, 2386, 2400, 2413,
2418, 2426, 2433, 2437, 2441, 2470, 2483, 2493, 2499, 2510, 2512, 2530,
2531, 2571, 2576, 2614, 2652, 2662, 2663, 2695, 2697, 2712, 2752, 2797,
2818, 2848, 2849, 2875, 2891, 2903, 2983, 3007, 3029, 3047, 3051, 3089.

5. Action required by:-

a. Units and establishments holding the equipment

(1) If the figure 25 has not been struck off the equipment modification record plate, demand stores in accordance with the instructions in para 6.

(2) On receipt of the 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, if necessary, demand the stores and carry out this modification.

(3) On completion of this modification strike through with a diagonal line the figure 25 on the modification record label attached to the TRA13.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a complete kit and NOT as individual items.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5820-99-106-9893	Kit modification	1
		Comprising:-	
Z2	5820-99-107-9610	Panel, electronic circuit	(1)
Z2	5820-99-107-9609	Plate, designation	(1)
Z	5905-99-013-4107	Resistor, fixed, metal oxide 560Ω ±5% 1/2W	(1)
Y3	5970-99-954-3149	Sleeving, silicone elastomer	(7 in.)
Y3	6145-99-910-2378	Wire, electrical	(7 in.)
Z2	5305-99-948-0204	Screw, pan head (recess)	(4)
Z2	5310-99-120-1875	Washer, plain small	(4)
Y3	5340-99-910-7072	Sleeve, identification	(2)
Y3	5340-99-910-7098	Sleeve, identification	(4)
Y3	5340-99-910-7150	Sleeve, identification	(2)
Y3	5340-99-910-7163	Sleeve, identification	(4)
	Plessey 70/7426	Wire, electrical equipment pink 7/0.0048	(3 ft)
	Plessey 640/1/ 13516	Tag strip assembly	(1)
	Plessey 640/2/ 10490	Spacer	(1)
	Plessey 640/1/ 13532	Screened lead assembly	(1)

b. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-8917	Dulux, red, varnish, insulating	as reqd

7. Sequence of operations

a. Refer to Tels F 144 para 22-24 and remove the transmitter/receiver from its case.

b. With the equipment front panel downwards unscrew the six cross-headed screws which secure the rear hinged cover. Open the cover.

c. Locate and remove the two cross-headed screws and washers securing the retainer, electronic circuit panel (5820-99-102-4527) to the film scale casting. Discard the screws and retain the washers (see Fig 1).

d. Remove the cross-headed screws and washers, securing terminal strip TSB/TSG and TSM, located adjacent to each other. Discard the screws and retain the washers.

e. Assemble the p.e.c. (5820-99-107-9610), board 29, across the retainer fixing holes vacated in operation c. by fitting a washer, plain small (5310-99-120-1875) at each end, above and below the panel. Two of the washers are supplied in the modification kit and two are those retained as detailed in sub-para c. Secure the panel by means of the two screws, pan-head (5305-99-948-0204) supplied.

f. Locate and remove board 1, and board 19 Tels F 144, para 35 and Tels F 142, Part 2, Fig 2530 refer.

g. Cut the electrical equipment wire (Plessey 70/7426) supplied into three 12 in. lengths and fit the identification sleeves supplied so that the wires are numbered 26, 27 and 70 respectively. Prepare the wires for soldering by removing 1/4 in. of the insulation.

h. Assemble the tag strip (Plessey 640/1/13516) across the holes vacated in operation d. by fitting a washer at each end, above and below the tag strip, and a spacer (Plessey 640/1/13532), supplied, under the washer at the tagboard TSB/TSG end only. Two of the washers are supplied in the mod kit and two are those retained as detailed in sub-para d. Secure the tag strip by using two screws, pan-head (5305-99-948-0204) supplied.

j. Solder the wires prepared as detailed in sub-para g. and the screened lead assembly (wire No 73 - Plessey 640/1/13532) supplied to the tag strip TSS fitted as detailed in sub-para h. (See Fig 2).

k. Route the wires numbered 26, 27 and 73 fitted as detailed in sub-para j. down through the film scale casting along the existing cable-form to terminal strip TSH and solder to pins 6, 3 and 4 respectively of TSH and the braiding of wire 73 to pin 1 as shown in Fig 2.

- l. Route the remaining wire numbered 70 underneath terminal strip TSB to terminal strip TSW and solder to pin 4.
- m. Unsolder and discard the link wire connected between terminal strip TSH pin 4 and board 11 pin 4.
- n. Cut the electrical equipment wire (6145-99-910-2378) and sleeving, silicone elastomer (5970-99-954-3149) into four 1.1/2 in. lengths and one 1 in. length. Trim the sleeving to suit and slide the appropriate lengths of sleeving over each wire. Solder the wires as follows:-

<u>Length</u>	<u>From</u>	<u>To</u>
1.1/2 in.	Board 29 pin 5	TSS pin 5
1.1/2 in.	Board 29 pin 6	TSS pin 6
1.1/2 in.	Board 29 pin 7	TSS pin 7
1.1/2 in.	Board 29 pin 8	TSB pin 5
1 in.	Board 29 pin 4	TSS pin 4

- o. Solder the resistor, fixed, metal oxide (5905-99-013-4107) supplied, between pins 4 and 6 of TSD.
- p. Reverse operation f. applying a thin coat of insulating varnish to the underside of all screw heads before reassembly.
- q. Remove the cross-headed screws securing boards 22, 23A and 23B to the rear hinged cover.
- r. Using extreme care not to impose any strain on the cable looms, lift the boards away from the cover so as to expose the underside of the cover.
- s. Remove the five cross-headed screws, nuts and washers securing the plate, designation (5820-99-103-9279) to the rear hinged cover. Replace with the plate, designation (5820-99-107-9609) supplied and resecure applying a thin coat of varnish to the underside of all screw leads before reassembly.
- t. Reverse operations a. b. and q, applying a thin coat of varnish to the underside of all screwheads before reassembly.
- u. Carry out a functional test of the equipment.
- v. Reseal the equipment in accordance with Tels F 144 para 13 to 17 inclusive, paying particular attention to the seating of the hyclad gasket of the front panel.
- w. Record the embodiment of this modification by striking through, without obliterating the figure 25 on the modification record plate fitted to the front panel of the TRA13.

8. EMER amendments

Incorporated in new issue of Tels F 142 Part 1 and 2.

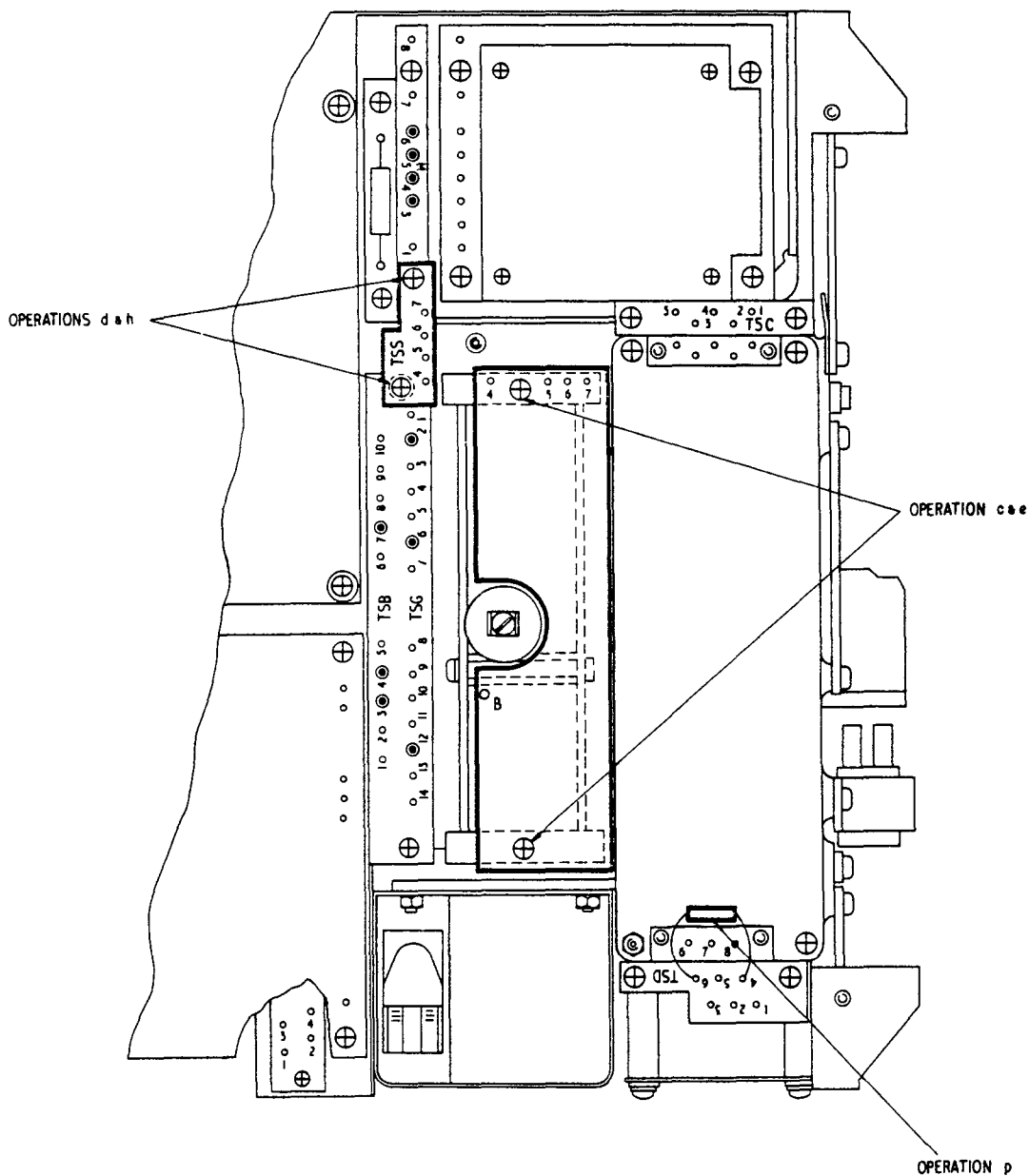


Fig 1 - Section of film scale assembly after modification

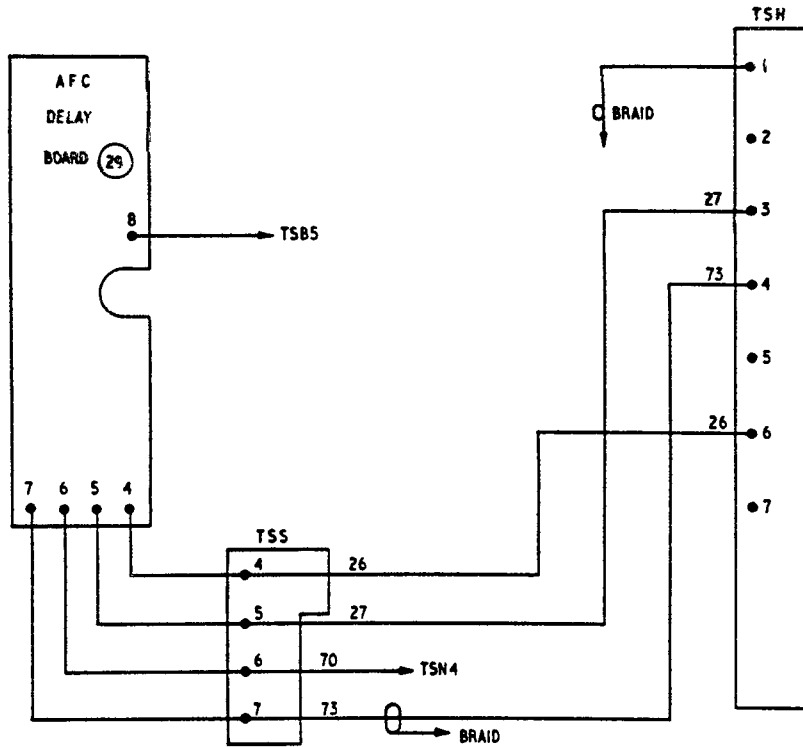


Fig 2 - Wiring diagram, p.e.c. 29 connections
to terminal strips

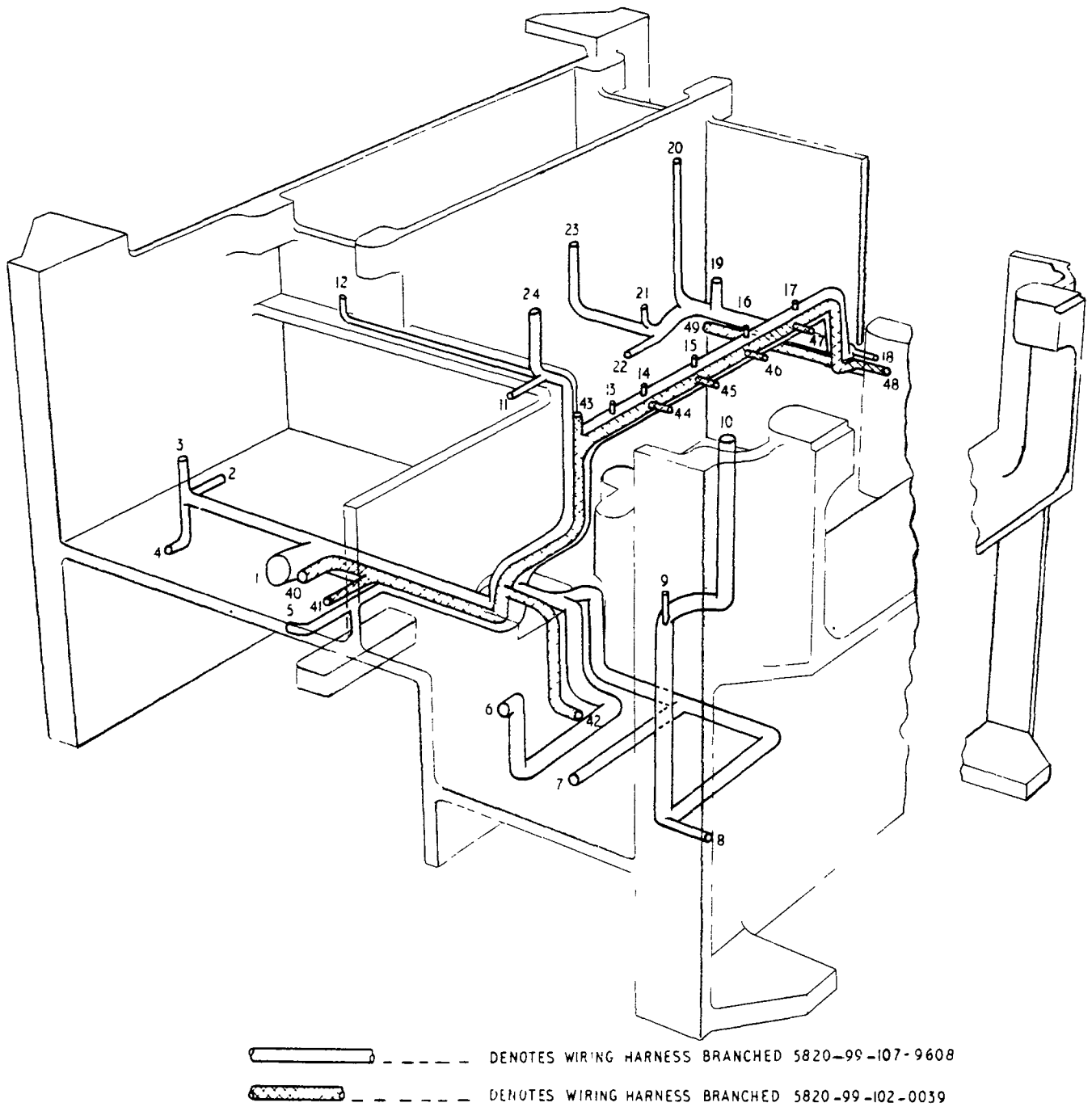


Fig 3 - Film scale unit, cableform layout, modified

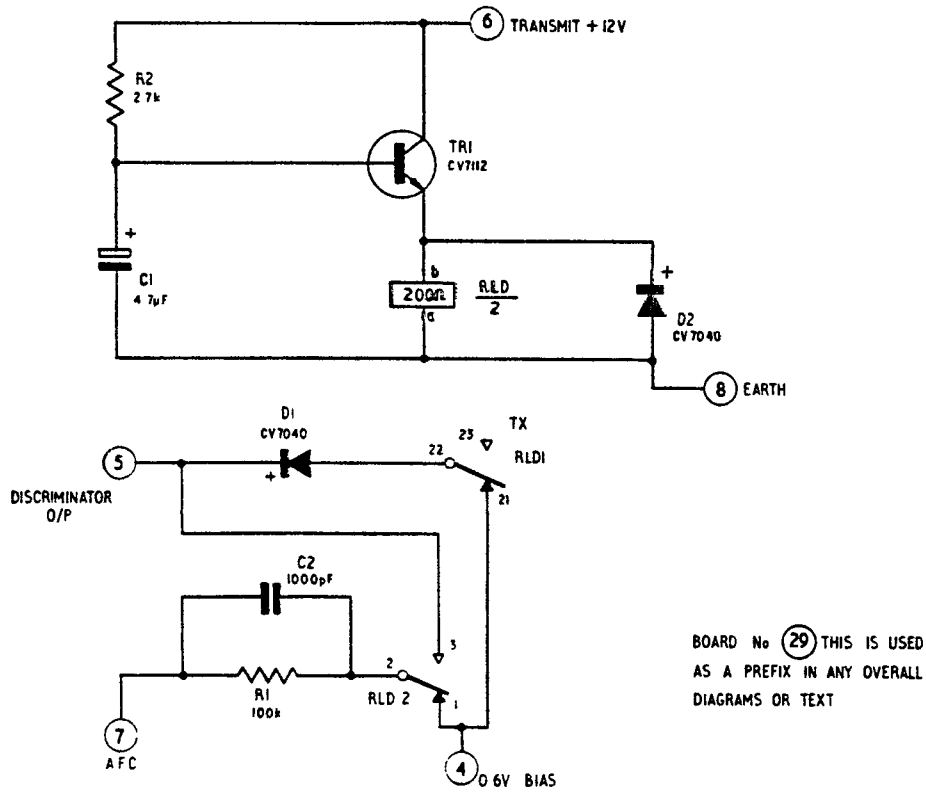


Fig 4 - P.E.C. 29 circuit diagram

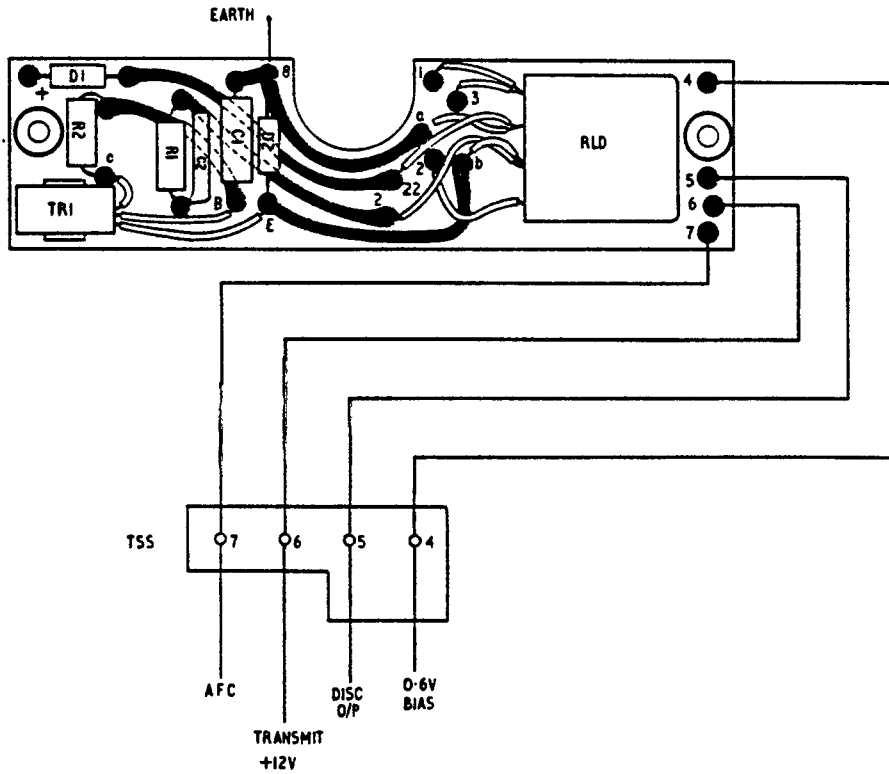


Fig 5 - P.E.C. 29 layout

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Replacement of capacitor 27C1

1. Introduction

Under certain operating conditions the current rating of the antenna coupling capacitor 27C1 can be exceeded thereby causing the component to break down. This regulation details the action required to replace the capacitor.

2. Priority Group C (Mgmt N 097 refers)

3. Estimated time required 1 man-hour

4. Items affected

Transmitter-receiver, radio A13 Z1/5820-99-949-6353

5. Action required by

Units authorized to carry out field or base repairs

a. On failure of 27C1 or on overhaul of equipment demand stores and carry out this modification.

b. Ensure that figure 32 on the TRA13 modification record plate is struck through with a diagonal line on completion of this modification.

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z	5910-99-011-9825	Capacitor, fixed metallised, 0.05 μ F, $\pm 20\%$, 250V wkg	1

b. Stores to be obtained locally

H1	8010-99-942-8917	Dulux Red, varnish insulating	as reqd
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c. Stores to be returned

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

7. Sequence of operations

- a. Remove the A13 from its case as detailed in F 144 para 22-24.
- b. Remove the front panel from the film, scale unit as detailed in F 144 para 26-29.
- c. Unsolder and remove capacitor 27C1, located on the underside of the front panel.
- d. Solder the new 0.05 μ F capacitor in lieu of the capacitor removed in operation c.
- e. Reverse operation b. Apply a thin coat of Dulux red to the underside of all screw heads before assembly.
- f. Reverse operation a., resealing the equipment in accordance with F 144 para 13-17 inclusive, paying particular attention to the seating of the Hyclad gasket on the front panel.
- g. Strike through, without obliterating, figure 32 (thirtytwo) on the modification record plate fitted to the front panel of the A13.
- h. Carry out a functional check of the equipment.

8. EMER amendments

Tels F 142 Part 2 Issue 1

Page 1009, Fig 2504; amend C1 to read '0.05'.

Page 1078, Table 2504, 5th item; amend Cat No to read '5910-99-011-9825' and Designation to read '0.05 ±20% 250V wkg'.

T/61136/20/Tels
ATMC No 00540

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Board No 19 - replacement of transistors 19TR3 and 19TR4

Note: This Mod Instr No 39 supersedes Mod Instr No 12 Issue 1 in its entirety.

1. Introduction

Reports have been received that the TRA13 is still exhibiting the same fault condition after the embodiment of Mod Instr No 12. This regulation details the work necessary to replace transistors 19TR3 and 19TR4 (CV 9033 or CV 7361) by type BUY 24 (Z42/5961-99-118-0007) which has a higher Vce, to obviate a secondary failure of 19R7 which overheats and burns a hole in board 19, rendering the board irreparable.

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

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

4. Items affected

Transmitter-receiver, radio, A13 Z1/5820-99-949-6353
Panel, electronic circuit (board 19) Z1/5820-99-101-8591

5. Action required by:-

a. Units and establishments holding the equipment

(1) Examine the equipment to determine whether the figure 31 has been struck through on the modification record label attached to the TRA13.

(2) If the figure 31 has not been struck through, demand the stores detailed in para 6.

(3) On receipt of the 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 if necessary, demand the stores and carry out this modification.
- (3) On completion of this modification ensure that relevant figures on the respective modification record plates are struck through with a diagonal line as follows:-

Transmitter-receiver, radio A13	figure 31 and 13
Panel, electronic circuit (board 19)	figure 4 and 2

6. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS</u> <u>section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z42	5961-99-118-0007	Valve, electronic (BUY24)	2

b. Stores to be obtained locally

<u>VAOS</u> <u>section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
H1	8010-99-942-8917	Varnish, insulating, anti-tracking, air drying, red	As reqd
H1	8010-99-910-7033	Paint, finishing, general service, red	As reqd

7. Sequence of operations

- a. Remove the TRA13 from its case as detailed in Tels F 144, para 22-24.
- b. Locate and remove the p.e.c. (board 19) Tels F 144, para 35 refers.
- c. Locate and unsolder the red and green sleeved wires connected to the terminations of the transistors 19TR3 and 19TR4.
- d. Remove the transistors 19TR3 and 19TR4, retain the fixing items for use on the new transistors, Fig 1 shows fitting detail.
- e. Fit and secure the replacement transistors (BUY24) in lieu of those removed as detailed in sub-para d. Using a heat shunt, solder the red and green sleeved wires, removed as detailed in sub-para c., to the terminations of the replacement transistors as shown in Fig 2.
- f. Record the embodiment of this modification by diagonally painting through with paint, general purpose, finishing, red the figure 4 on the modification record label of board 19.

- g. Replace board 19 applying a thin coat of insulating varnish to the underside of the screw heads before assembly.
- h. Carry out a functional check of the equipment.
- j. Fit the set in its case and reseal in accordance with Tels F 144, para 13 to 17 inclusive, paying particular attention to the seating of the Hyclad gasket in the front panel.
- k. Record the embodiment of this modification by striking through without obliterating, the figure 31 on the overall modification record label of the TRA13.

8. EMER amendments

- a. The following amendments are to be made to Tels F 142, Part 2:-

Page 1058, Fig 2556, TR3 and TR4

Delete: 'CV 7361 or CV 9033'

Insert: 'BUY24'

NOTE :-

THREADS TO BE COATED WITH DULUX RED, VARNISH INSULATING,
(8010-99-942-8917) AND ASSEMBLED WET. EXCEPT THOSE INDICATED
THUS *

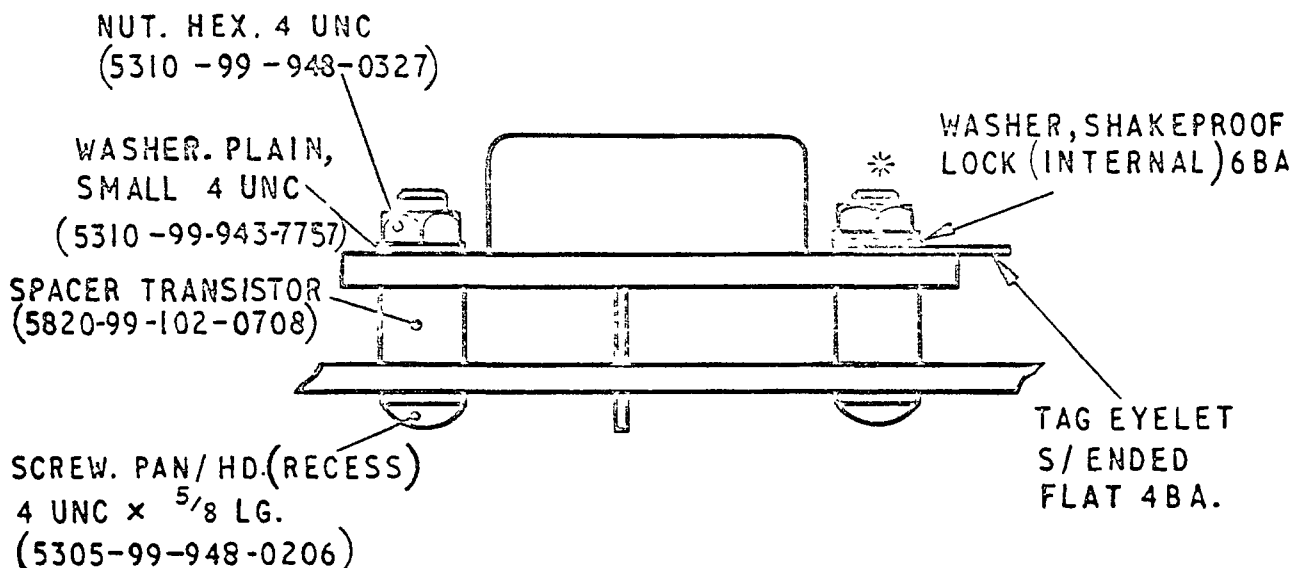


Fig 1 - Transistor fitting detail

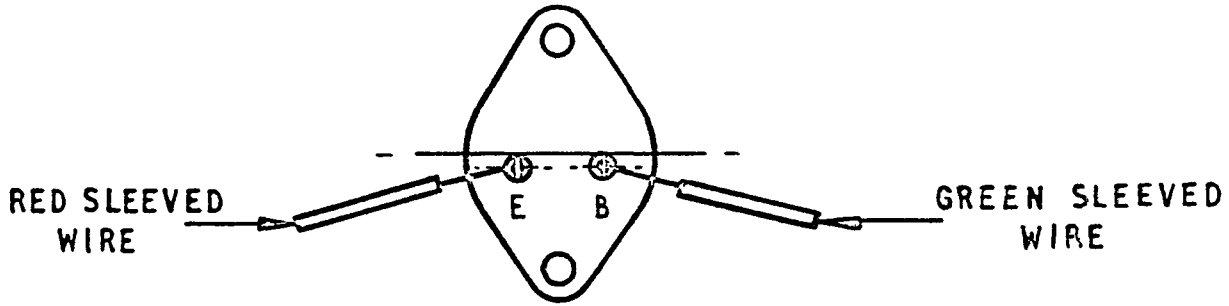


Fig 2 - Underside view of TR3 and TR4

ATMC No 00518
T/61136/81 (TELS)

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Headset, microphone, SI type, junction box and switch unit - replacement of plunger bush and push-button

1. **Introduction**

To ensure reliable operation of the micro-switch within the junction box, it is necessary to fit a modified plunger bush and push-button. This instruction details the action required to carry out this modification.

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

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

4. **Items affected**

Headset, microphone, SI type Y1/5965-99-949-8136
Junction box and switch assembly Y1/5965-99-102-0174

5. **Action required by:-**

a. **Units and establishments holding the equipment**

(1) Since the headset does not carry a modification record plate the only means of ascertaining whether or not this modification has been implemented is by the colour of the push-button. If the push-button is black in colour, demand the modification kit in accordance with the instructions given in para 6.

(2) On receipt of the modification kit, 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 if necessary, demand the modification kit and carry out this modification.

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a complete kit and NOT as individual items.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Y1	5965-99-193-8051	Kit, modification, electronic equipment	1
Comprising:-			
Y1	5965-99-220-5968	Plunger bush	(1) (1)
Y1	5965-99-220-5967	Push-button, olive drab	

b. Stores to be obtained locally

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

7. Sequence of operations

- a. Remove the four screws securing the terminal box cover, carefully remove the cover and sealing gasket.
- b. Remove the two screws securing the micro-switch.
- c. Unsolder the micro-switch connections and remove the micro-switch from the moulding.
- d. Unscrew the push-button (coloured black) and discard.
- e. Remove the two screws from the plunger cover plate, lift off the plate and carefully remove the gasket.
- f. Remove the screw from the plunger bush and discard the plunger bush.
- g. Fit the new plunger bush and replace the cover plate and gasket, applying varnish to the threads of the securing screws.

- h. Fit the new push-button, applying varnish to the thread of the plunger bush.
- j. Resolder the micro-switch connections and refit the micro-switch to the moulding.
- k. Replace the terminal box cover and gasket.
- l. Carry out a functional check.

8. EMER amendments

Nil.

ATMC No 00451
T/60521/49 (TELS)

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STATION, RADIO A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Erratum

Note: This Page 0, must be filed immediately in front of Page 1, Issue 1, dated Jul 72.

1. The following amendment must be made to the regulation.
2. Page 4, para 7.x. add note:-

Note: Fit the fuse holder bracket above the sub-chassis, and not between the sub-chassis and front panel as shown in Fig 5'.

T/61136/73/Tels

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: Relay and supply sub-assembly - voltage protection device

1. Introduction

This instruction details the necessary work to include additional components so that the amplifier is protected from the application of voltages in excess of 32V.

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

3. Estimated time required: 1.1/4 man-hours

4. Items affected:-

Amplifier RF No 12 Mk 2 Z1/5820-99-105-3158
Relay and Supply sub assy Z1/5820-99-106-0557

5. Action required by:-

a. Units and establishments holding the equipment

(1) If the figure 2 has not been struck off the equipment modification record plate, demand stores in accordance with the instructions in para 6.

(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, if necessary demand stores and carry out this modification.

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

RF Amplifier No 12 Mk 2	Figure 2
Relay and Supply sub assy	Figure 1

6. Stores, tools and equipment

a. Stores to be demanded

Stores are to be demanded through normal Ordnance channels quoting this EMER as the authority. The stores are to be demanded as a complete kit and NOT as individual items.

<u>VAOS</u> <u>Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty</u> <u>per eqpt</u>
Z1	5820-99-117-3911	Modification kit, electronic	1
		Comprising:-	
	(Plessey 604/2/00056)	Bracket	(1)
		Insulator	(1)
		Fuse holder	(1)
	Plessey	Screw machine	(1)
	Plessey 415/9/98243/ 003	Diode IN4002	(1)
Z32	5905-99-911-4115	Fuse link	(1)
Z30	5905-99-014-0287	Resistor fixed 6.8 ohm	(2)
Y3	6145-99-910-0185	Wire, electrical	(24 in.)
Z42	5970-99-106-8851	Insulator, stand off	(3)

b. Stores to be obtained locally

H1	8010-99-942-8917	Dulux red, Varnish insulating	As reqd
H1	8010-99-943-3454	Varnish, Electrical, Fungicide	As reqd
		Black, Waterproof drawing ink	As reqd
Y3	4020-99-011-9481	Cord, Nylon lacing	As reqd

7. Sequence of operations

a. Remove the Amplifier Radio Frequency (5820-99-105-3158) (Tels F 144 para 175-177).

b. Remove top tray (Tels F 144 para 178-179).

c. Drill three holes 5/32 in. diameter in the top tray (Fig 1). Apply a thin coat of Varnish (H1/8010-99-943-3454) to the cut surfaces.

- d. Fit the three stand off insulators (Z42/5970-99-106-8851) into the holes drilled at operation 7.c.
- e. Connect the two 6.8Ω resistors (Z30/5905-99-104-0287) to the stand off insulators (Fig 2). These will be known as R23 and R24.
- f. Connect a 2 in. length of wire, electrical (Y3/6145-99-910-0185) between the free ends of R23 and R24 running beneath top side of the tray (Fig 2).
- g. Connect a 5 in. length of wire, electrical between the junction of R23, R24 and the negative junction of C23, C24 (Fig 2).
- h. Remove the relay and equaliser sub-assembly (Tels F 144 para 180-185).
- j. Remove the phillips screw from the bracket securing Relay RLB to the sub assembly. Access to the relay tags is now possible.
- k. Unsolder the wire (Bk/S) from tag 1 of relay RLB (Tels F 142 Pt 2 Fig 2611 refers). Cut this wire back as near to the break out point of the cableform as possible.
- l. Connect a 13 in. length of the wire, electrical on to tag 1 of relay RLB.
- m. Reverse operation 7.j. Apply a thin coat of Dulux red, Varnish (H1/8010-99-942-8917) to the screw thread before completing assembly.
- n. Run the wire, electrical connected in operation 7.l. along the cableform that terminates on the top tray. Solder the free end to R24 (Fig 2).
- o. Using the nylon lacing cord secure the wire to the cableform.
- p. On the rear of the front panel locate the semi-conductor devices D5 (CV7214) and D6 (CV7015). (Tels F 142 Pt 2, Fig 608). Unsolder and discard the link between D5 and D6.
- q. Unsolder the orange/white wire from D5 and reconnect it to D6 (Fig 3)
- r. Assemble the fuse holder, insulator, bracket and screw (Fig 4). Reduce the length of both the soldering lugs on the fuse holder by $1/8$ in.
- s. Unsolder the orange/red wire (Tels F 142 Pt 2 Fig 2608), from D6 and connect it to the bottom tag of the fuse holder (Fig 5).
- t. Connect a 4 in. length of the wire electrical from the top tag of the fuse and terminate it at the positive side of D6 figures 3 and 5 refer.
- u. With a suitable heat shunt fit the new semi-conductor device (IN4002) between the negative of D5 and positive of D6, (Fig 3), ensuring the negative of the new diode marked by a blue band is connected to the negative of D5. The new diode becomes D8.

- v. Using the black waterproof drawing ink re-mark, adjacent to the various components, to read 'D5', 'D8' and 'D6'.
- w. Using the black waterproof drawing ink add the coding adjacent to the resistors fitted in operation 7.e. to read 'R23' and 'R24' (Fig 2). When the markings in operations 7.v. and 7.w. have dried apply a thin coat of varnish.
- x. Reverse operation 7.h. securing the fuse holder bracket assembly in the process (Fig 5), ensuring the wires to the fuse holder do not become trapped. Apply a thin coat of the Dulux red, Varnish to the screw threads before assembly.
- y. Reverse operation 7.b.
- z. Fit the fuse link supplied.
- aa. On the rear of the front panel immediately below the fuse link mark coding 'FS1' using the black waterproof drawing ink, when dry cover with a coat of varnish.
- ab. Record the embodiment by striking through the figure 1 of the modification record label located on the top tray of the Relay and supply assembly and the figure 2 of the modification record label located on the front panel of the Amplifier Radio Frequency No 12 Mk 2.
- ac. Carry out tests in Tels F 144 para 198.
- ad. Reverse operation 7.a.
- ae. Carry out Drying and Sealing instructions in Tels F 144 para 165-174.

8. EMER amendments

Incorporation of this modification amends the following:-

Tels F 142 Pt 2 Issue 4

- a. Page 1136, Fig 2606, at foot of page
Add: Note: Alteration to circuit on embodiment of Mod Instr No 41. (Fig 6).
- b. Page 1138, Fig 2608, at foot of page
Add: Note: Alteration to serial 8 top right hand corner on embodiment of Mod Instr No 41. (Fig 3).
- c. Page 1140, Fig 2610, at foot of page
Add: Note: Addition of R23 and R24 in cct ref DE 2, 3, on embodiment of Mod Instr No 41. (Fig 2).

d. Page 1141, Fig 2611, at foot of page

- Add: Notes:
1. Addition of fuse holder to centre layout
RLD, RLB on embodiment of Mod Instr No 41.
(Fig 5).
 2. RLB tag layout. On embodiment of Mod
Instr No 41. Tag 1 to read, 'P R24.'
 3. C23, C24 tag 1. On embodiment of Mod
Instr No 41. Add: 'P jctn R23, R24.'

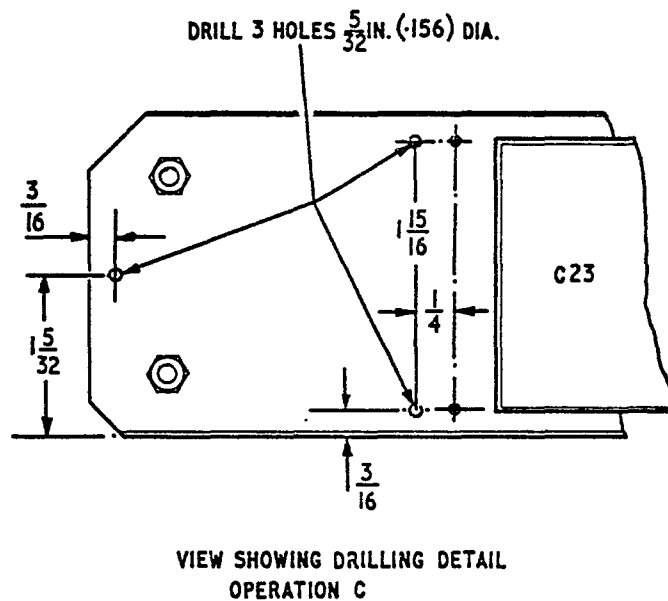
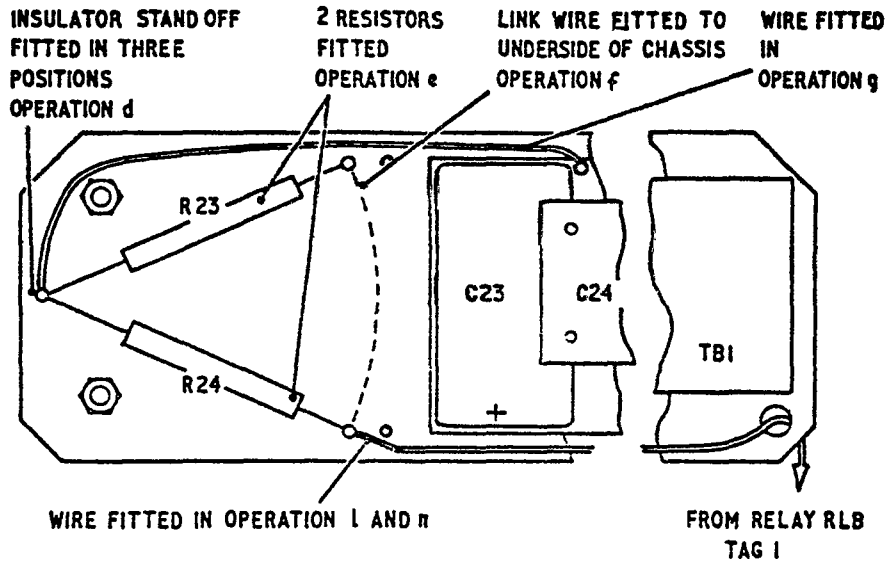


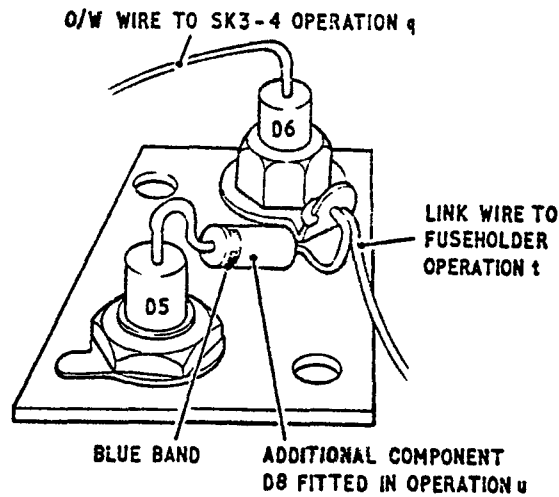
Fig 1 - Top tray drilling detail



VIEW SHOWING FITTING OF INSULATOR STAND OFF, RESISTORS R23, R24, AND LINK WIRES

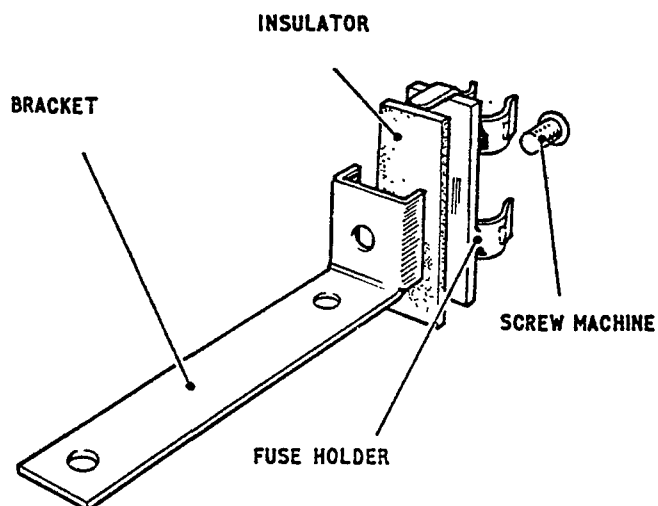
61136/35

Fig 2 - Fitting of resistors and link wires



VIEW SHOWING ADDITION OF COMPONENT (D8) AND CODING, ALSO LINK WIRE

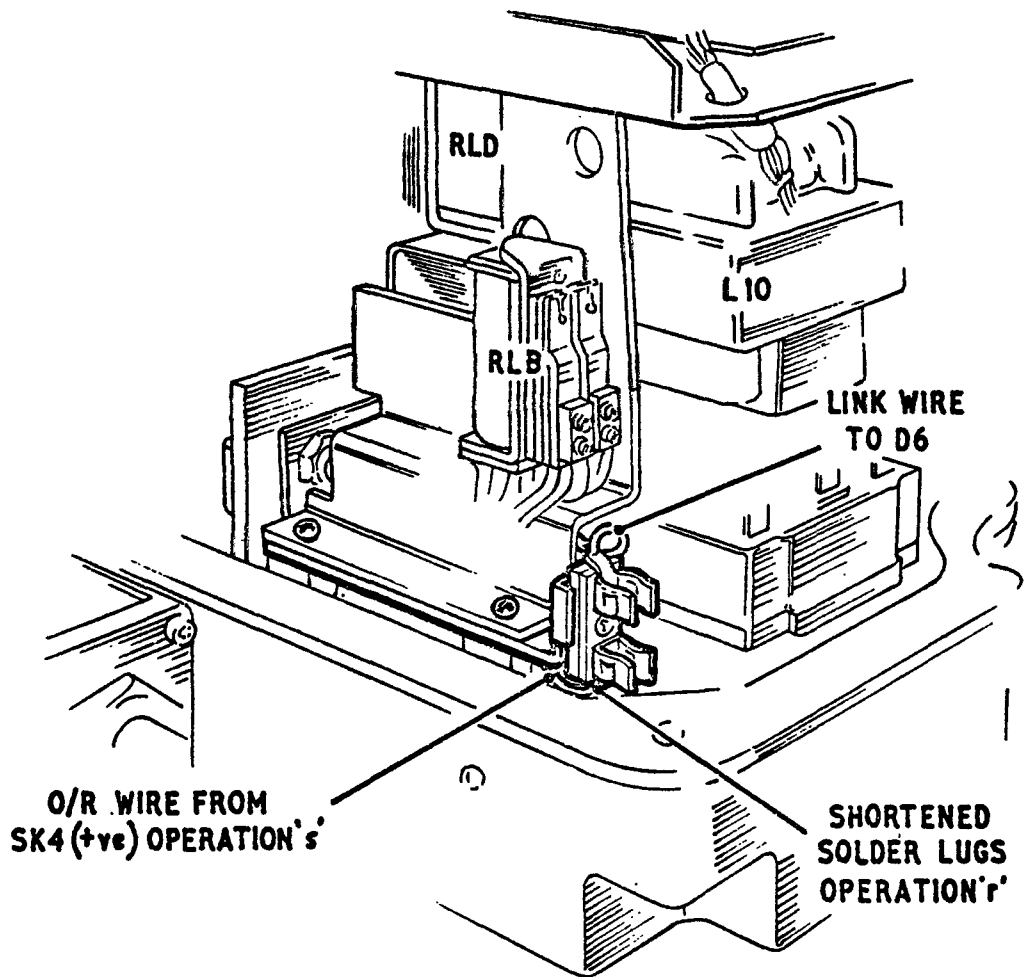
Fig 3 - Fitting of diode (D8)



EXPLODED VIEW SHOWING ASSEMBLY OF
BRACKET, INSULATOR AND FUSEHOLDER

61136/38

Fig 4 - Assembly of bracket, insulator and fuseholder



VIEW SHOWING FITTING OF
FUSE HOLDER AND BRACKET, OPERATION (x)

61136/36

Fig 5 - Fitting of bracket and fuseholder

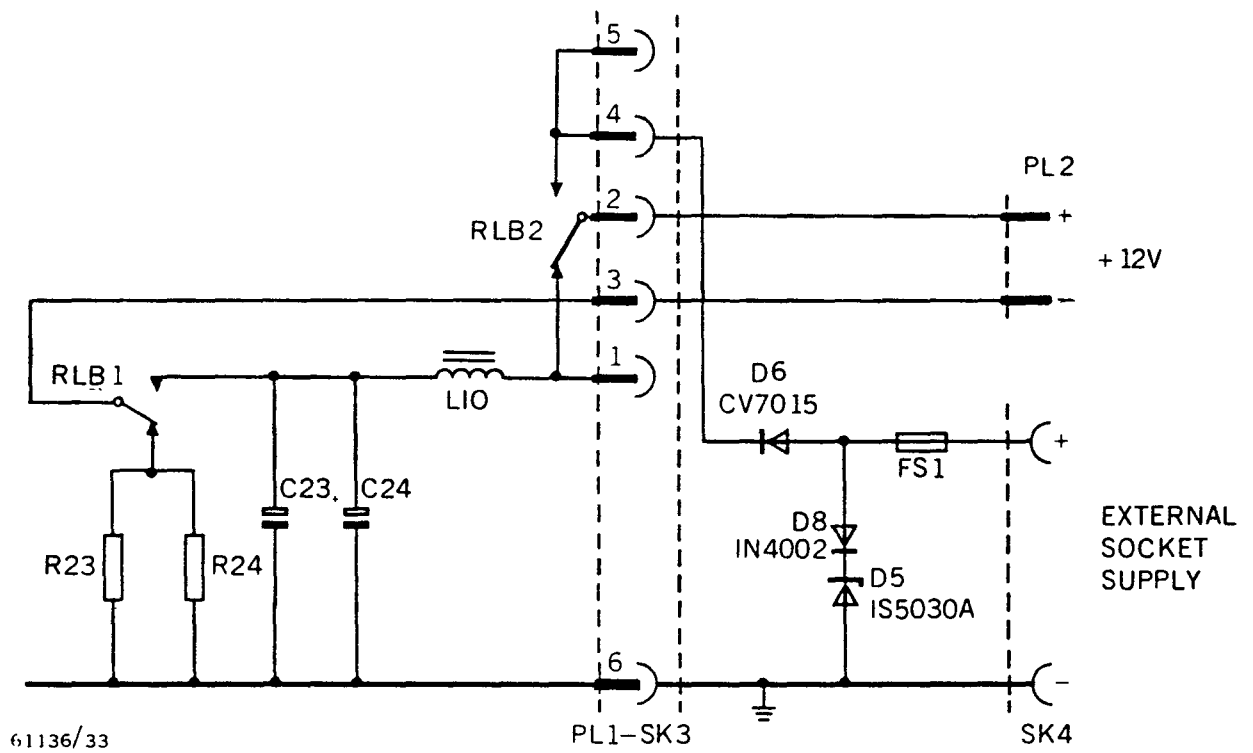


Fig 6 - Part of circuit diagram after modification

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT - Boards 1, 3, 5 and 9 - Replacement of CV7390

1. INTRODUCTION

Valve, electronic CV7390 (5960-99-037-3360) is no longer manufactured and a direct replacement cannot be found. A replacement has been established, namely a Transistor AF124, modified by having the screened lead clipped off. This device then becomes identified as Transistor (5961-99-118-4670). No limitations on use are necessary without this modification incorporated.

2. APPLICABILITY

Transmitter, radio A13	Z1/5820-99-949-6353
Panel, electronic circuit board 1	Z1/5820-99-101-8594
Panel, electronic circuit board 3	Z1/5820-99-101-8596
Panel, electronic circuit board 5	Z1/5820-99-101-9808
Panel, electronic circuit board 9	Z1/5820-99-102-1446

3. REASON FOR MODIFICATION

Code 5: to conform to changes in pattern of commercial stores.

4. PRIORITY

Routine (Mgmt N 097 refers)

5. ESTIMATED TIME REQUIRED

Embodiment 2 man-hours

6. MODIFICATION IMPLEMENTATION PLAN

- a. This modification may be carried out by units authorised to carry out field or base repairs.
- b. To be carried out on failure only.
- c. No strike off action is required.

7. a. Units and establishments holding equipment

No action required.

b. Units authorised to carry out field or base repairs

On failure of CV7390 demand stores and carry out this modification. Complete AF G1084A when reporting completion of the modification to the Data Centre. The exact forward coding to be used is as follows:

EQUIPMENT CODE	K100N400
ARMY MODIFICATION CODE	M 00871

8. Stores, tools and equipment

a. Stores to be demanded

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

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per egpt</u>
Z42	5961-99-118-4670	Transistor	2 (Board 1) 1 (Board 3) 2 (Board 5) 1 (Board 9)

b. Stores to be obtained locally

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

c. Stores to be removed and discarded

Z	5960-99-037-3360	Valve, electronic (CV739)	2 (Board 1) 1 (Board 3) 2 (Board 5) 1 (Board 9)
---	------------------	---------------------------	--

9. Sequence of operations

- a. Remove the transmitter-receiver, from its case in accordance with Tels F 144 para 22-24 inclusive.
- b. Unscrew and remove the six phillips round head screws securing the hinged back plate to the film plate casting. Lift the back plate exposing the printed circuit boards underneath.
- c. Remove boards 1, 3, 5 and 9 in accordance with Tels F 144 para 35 and 36 as appropriate.
- d. Unsolder and remove valves CV7390 from the boards.
- e. Remove sleeves from the valve terminations and fit them to the replacement transistor as follows:
 - (1) Red to emitter termination
 - (2) Green to base termination
 - (3) White to collector termination (See Fig 1)
- f. Using a heat shunt to protect the component, solder the terminations to the appropriate pins marked E, B and C on boards 1, 3, 5 and 9.
- g. Reverse operations a. b. and c. applying a thin coat of Dulux red varnish to the underside of all board retaining screwheads, before assembly. Reseal the equipment in accordance with Tels F 144 para 13 to 17 inclusive.
- h. Carry out a functional check of the equipment.

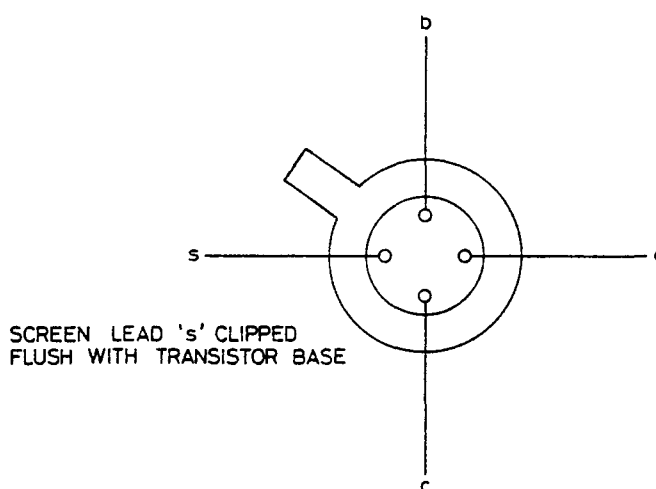


Fig 1

10. EMER AMENDMENTS

Embodiment of this modification necessitates the following alterations to Tels F 147 Part 2:

a. Insert '*' against:

TR1 & TR2 in Fig 2532 Page 1037
3TR1 in Fig 2534 Page 1039
TR1 & TR4 in Fig 2537 Page 1042
TR1 & TR4 in Fig 2539 Page 1044
TR1 in Fig 2546 Page 1049

b. Insert the following note at bottom of each of the above Figs:

'Note: See Mod Instr No 42'

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUB-TITLE: BOARD 19 - Removal of D3

1. Introduction

This regulation details the work necessary to replace diode D3 by a shorting link. The modification is to be embodied at Base Workshops only, on failure to meet the current consumption specification detailed in the Plessey Manual TM19 para 3.2.3.2., 3.2.3.4., 3.2.3.6., 3.2.3.8., and 3.2.4.

2. Priority Routine (Mgmt N 097 refers)

3. Estimated time required 1/4 man-hour

4. Items affected

Transmitter, receiver radio A13	Z1/5820-99-949-6353
Panel, electronic circuit (Board 19)	Z1/5820-99-101-8591

5. Action required by

a. Units authorized to carry out Base repairs

- (1) On repair or overhaul of equipment, if necessary, demand stores and carry out this modification.
- (2) Ensure that figure 5 on the modification record plate of board 19 is struck through with a diagonal line on completion of this modification.

6. Stores, tools and equipment

a. Stores to be obtained locally

<u>VAOS Section</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Y3	6145-99-910-2376	Wire, electrical	1/2 in.
H1	8010-99-942-8917	Dulux, red, varnish insulating	as reqd

b. Stores to be returned

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

7. Sequence of operations

a. Remove set from its case in accordance with Tels F 144 para 22-24 inclusive.

b. Remove and retain six Phillips round-head screws securing the hinged back plate to the film plate casting. Lift the back plate to expose the printed circuit boards.

c. Remove board 19 in accordance with Tels F 144 para 35 and 36. Extreme care is to be taken to avoid damage to the slider switch on the board.

d. Locate diode D3 unsolder and remove.

e. Solder the wire electrical (para 6.a.) in place of the diode D3.

f. Record embodiment of this modification by striking through, with a diagonal line, figure 5 on the modification record plate of board 19.

g. Reverse operations 7.a.-7.c. applying a thin coat of Dulux red varnish to the underside of all board retaining screw heads before assembly.

h. Reseal the equipment in accordance with Tels F 144 para 13-17 inclusive.

8. EMER amendments

Tels F 142 Pt 2.

a. Page 1063 Fig 2561 cct ref C1 alongside diode D3 Insert '***'. At the foot of the page insert '***'. See Mod Instr No 43'.

b. Page 1064 Fig 2562 cct ref C5 alongside diode D3 Insert '*' At the foot of the page insert '*See Mod Instr No 43'.

T/61136/58/Tels
ATMC No 00961

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT: Panel, electronic circuit - addition of 2 resistors and 1 capacitor

INTRODUCTION

1. Despite, the embodiment of modification strike off 25 (Mod Instr No 37) certain Transmitters-Receivers still fail to capture at 8MHz. To obviate this, three new components have been added to Panel Electronic Circuit (Board 25). This modification is to be embodied concurrently or after Mod Instr No 37. No limitations on use are necessary without this modification incorporated.

APPLICABILITY

2. PANEL, ELECTRONIC CIRCUIT (BOARD 25) Z1/5820-99-101-8598 part of TRANSMITTER RECEIVER RADIO A13 Z1/5820-99-949-6353

REASON FOR MODIFICATION

3. Code 3 - to improve reliability.

PRIORITY

4. Routine (Mgmt N 097 refers).

ESTIMATED TIME REQUIRED

5. Embodiment: 3/4 man-hour.

MODIFICATION IMPLEMENTATION PLAN

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

- b. Only to be carried out on failure to capture at 8MHz.
- c. Modification strike off number 1 (one) on board 25 and modification strike off number 28 (twenty eight) on main equipment must be struck through on completing this modification.
- d. Must be carried out concurrently or immediately after Modification instruction No 37.

7. Action required by:-

Units authorized to carry out field and base repairs

- a. During repair or overhaul, if the equipment fails to capture at 8MHz, demand stores and carry out this modification.
- b. Strike off the figure 1 on the modification record plate on board 25 and figure 28 on the modification record plate on the A13.
- c. Complete AF G1084A (Mgmt J O20 refers) when reporting completion of this modification to DATA CENTRE. The exact forward coding to be used is as follows:-

EQUIPMENT CODE: K100N400

ARMY MODIFICATION CODE: MO0886

8. Stores, tools and equipment

a. Stores to be demanded

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

<u>Item No</u>	<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
1	Z31	5910-99-013-0506	Capacitor Fixed Electrolytic	1
2	Z30	5905-99-013-5896	Resistor fixed	1
3	Z30	5905-99-013-5924	Resistor fixed	1
4	Y3	5930-99-946-9500	Sleeving electrical	2.1/2 in.
5	Y3	6145-99-910-2378	Wire, electrical 26 S.W.G.	3 in.
6	Y3	5940-99-100-5674	Stand off insulator	2

b. Stores to be obtained locally

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1	8010-99-942-9817	Dulux Red Varnish Insulating	A/R
H1	8010-99-910-7033	Paint GP finishing Red	A/R
H7	6810-99-022-0823	150 - Propyl Alchohol	A/R
H1A	5970-99-224-2293	Varnish anti tracking air drying	A/R
		White marking ink	A/R

9. Sequence of operations

- a. Remove the Transmitter Receiver from its case in accordance with Tels F 144 paras 22-24 inclusive.
- b. Locate and remove the screws securing the Panel, Electronic Circuit (5820-99-101-8598) Board 25 to Panel, Electronic Circuit (5820-99-101-9911) board 18.
- c. Lift the board forward (do not place undue strain on the wiring), to allow access to the components.
- d. Unsolder the wire at T1 case connecting T1 case (board 18) to pin 14 (board 25).
- e. Unsolder the wire at pin 4 connecting pin 4 (board 18) to pin 15 (board 25).
- f. Unsolder the wire at TR1 connecting TR1 (board 18) to TR6 (board 25).
- g. Remove board 25.
- h. Mark out and drill two holes in board 25, to the dimensions as detailed in Fig 1.
- j. From the underside of the board, push and fit the two Stand Off Insulators (Item 6) into the holes identified 'A' in Fig 1. Drive the pin to the correct depth using a light hammer. See Tels A 414 para 57.a. to e.
- k. Clean and lightly tin the stand off insulators.
- l. Solder the Capacitor, Fixed, 1 μ F (Item 1) between the stand off insulator 'A' (pin 16) and 'B' as indicated in Fig 2. Negative end to pin 16.
- m. Use a suitable heat shunt when soldering to the printed track for this and operation n. Solder the Resistor, Fixed, 8.2k Ω (Item 2) between the stand off insulator 'B' and the track as indicated in Fig 2.

n. Solder the Resistor, Fixed 120k Ω (Item 3) between the stand off insulator 'B' and the track as indicated in Fig 2.

o. Fit the Insulation Sleeving Electrical (Item 4) over the Wire Electrical 26 s.w.g. (Item 5) and solder one end to the stand off insulator 'A' (pin 16) as indicated in Fig 2.

p. On completion, clean the printed circuit track with Iso-propyl alcohol to remove any flux residue.

WARNING: USO-PROPYL IS POISONOUS AND INFLAMMABLE AND SHOULD BE HANDLED WITH CARE.

q. Using a suitable white marking ink, add the coding C13, R14, R15 and 16 adjacent to the new components, and when the coding is dry, cover it with a thin coat of Varnish, insulating (5970-99-224-2293) provisioned.

r. Record the embodiment of this modification by diagonally painting through with paint, red (H1/8010-99-910-7033) the figure 1 on the modification record label on the Panel, Electronic Circuit (Z1/5820-99-101-8598) board 25.

s. Reverse operation b, c, d and e, applying a thin coat of Dulux, red varnish insulating to the underside of the screw heads before assembly.

t. Solder the remaining end of Wire Electrical 26 s.w.g., fitted in operation o, to pin 1 (board 18) as indicated in Fig 2.

u. Reverse operation a. resealing the equipment in accordance with Tels F 144 paras 13 to 17 inclusive.

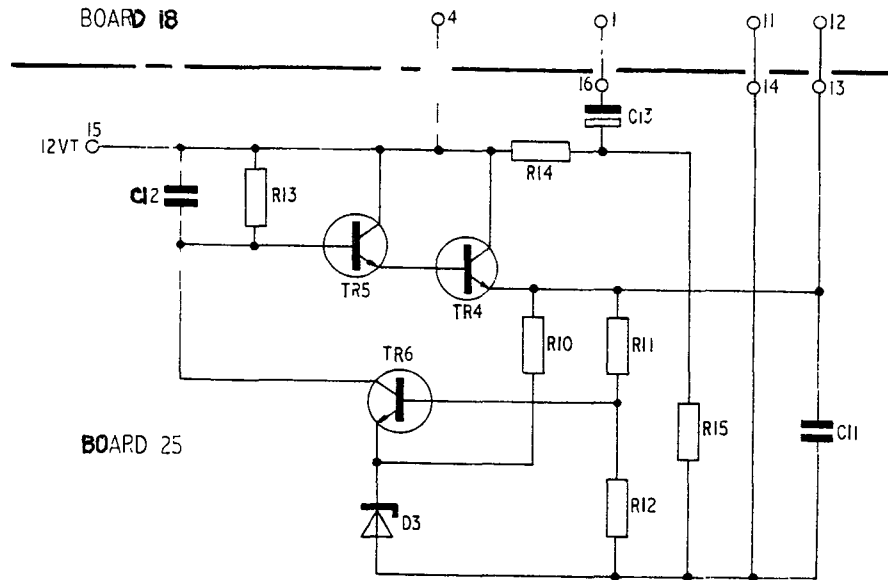
v. Record the embodiment of this modification by striking through without obliterating the figure 28 on the Transmitter-Receiver Radio A13 (5820-99-949-6353) modification record plate.

w. Carry out specification tests as detailed in Tels F 144 paras 37 to 93.

10. EMER amendments

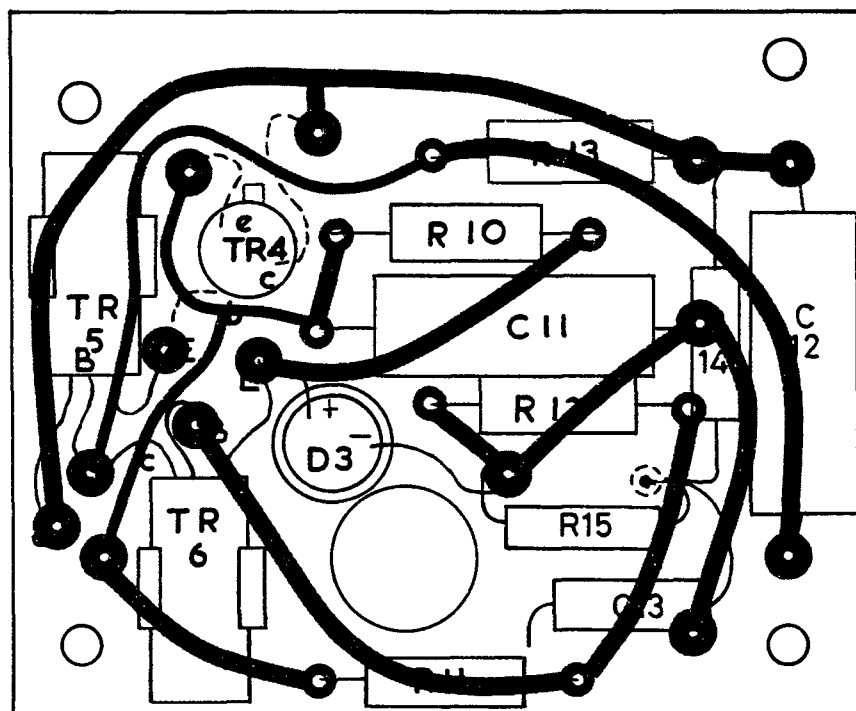
Embodiment of this modification necessitates amendments to Tels F 143 Part 2 Page 1061:

- a. Fig 2559 to be amended to show additional capacitor C13 and resistors R14, R15 and Pin 16 as follows:-

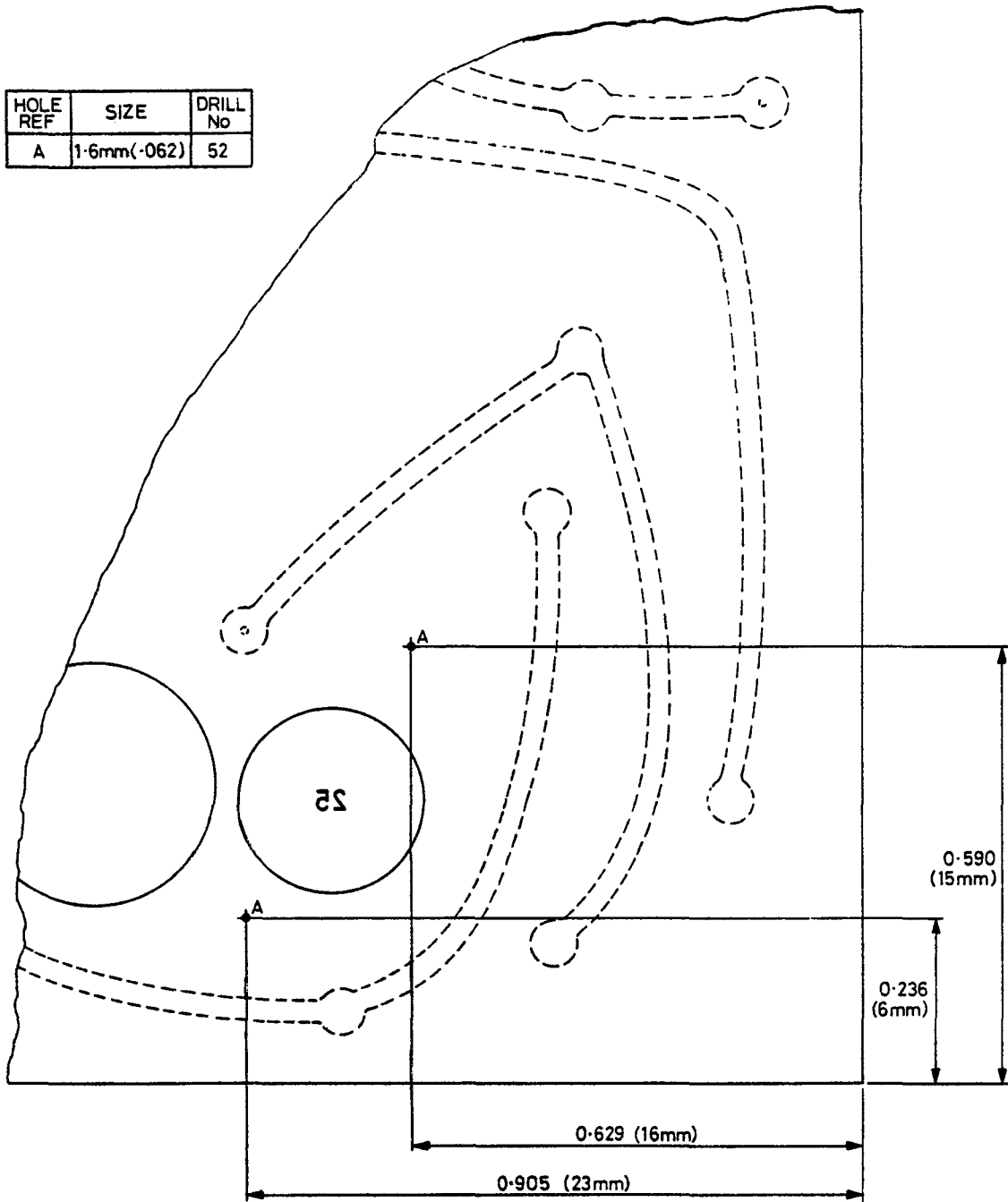


011507 59 >

- b. Page 1062 Fig 2560. Amend to show additional components as follows:

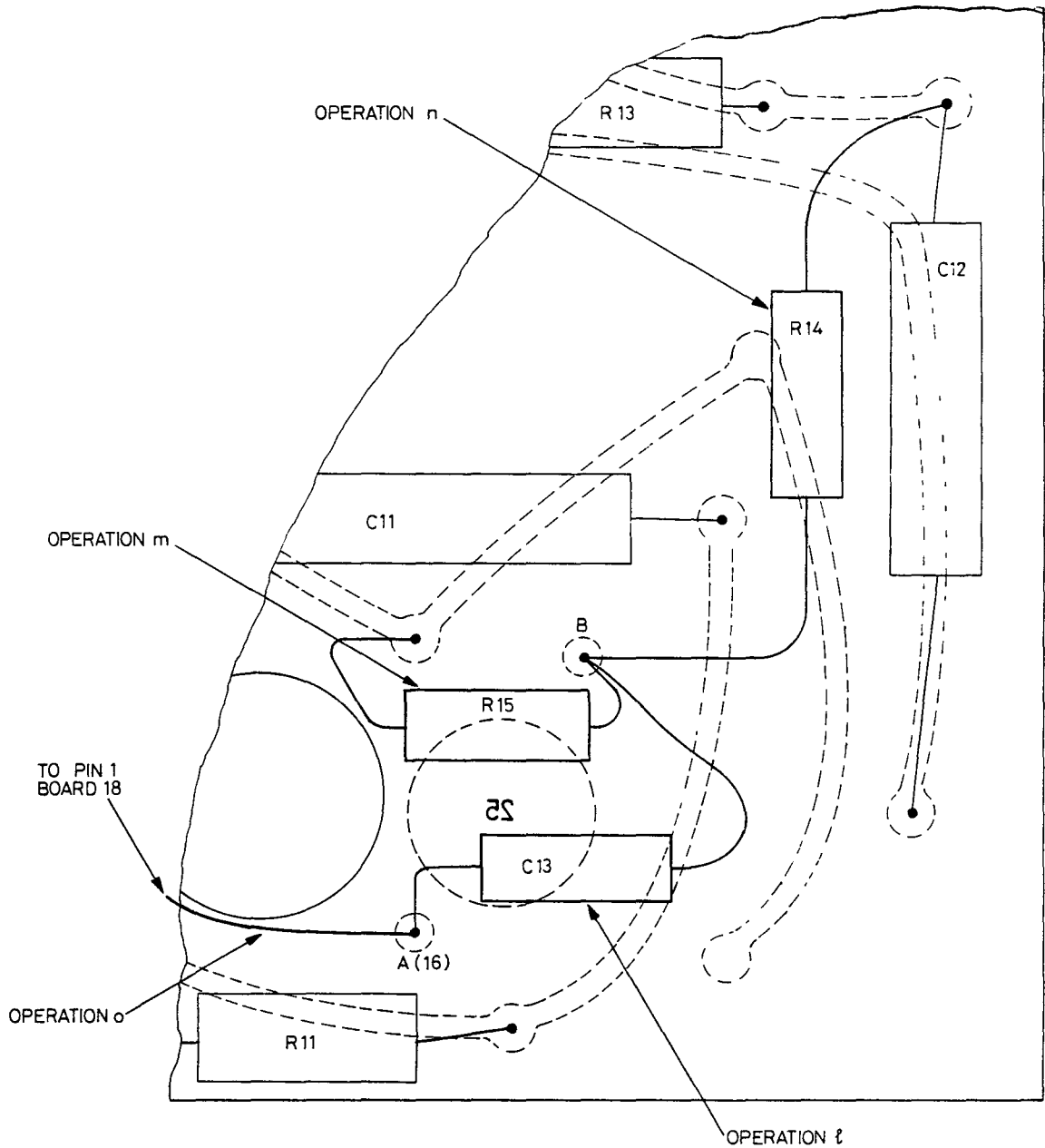


HOLE REF	SIZE	DRILL No
A	1.6mm(.062)	52



61136/40

Fig 1 - Drilling Details



61136/41

Fig 2 - Board 25 after modification

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ATMC No 00488

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT: Board 26 - replacement of capacitor 26C1

INTRODUCTION

1. a. Reports have been received from the user that spurious signals are present on the 'TUNE RF' level meter of the transmitter when off tune, and in consequence the meter does not return to zero. This is caused by an interference signal being fed back to the power supply from the neon oscillator circuit of board 26. The signal is subsequently fed into the second i.f. amplifier via the diode switch to cause the spurious signal. This defect is obviated by increasing the value of 26C1 from a 4.7 to 10 μ F to improve decoupling.
- b. No limitations apply on the use of the equipment.

APPLICABILITY

2. Panel, Electronic Circuit: Z1/5820-99-101-9909
Transmitter Radio A13: Z1/5820-99-949-6353

REASON FOR MODIFICATION

3. Code 3 - to improve reliability.

PRIORITY

4. Routine (Mgmt N 097 refers) on failure.

ESTIMATED TIME REQUIRED

5. Embodiment: 1/4 man-hour
Testing: 1/4 man-hour

MODIFICATION IMPLEMENTATION PLAN

- 6. a. This modification may be carried out by units authorized to carry out field or base repairs.
- b. There are no associated modifications.
- c. To be carried out on failure only.
- d. No strike off action is required.

Action required by:-

- 7. a. Units and establishments holding the equipment

No action required.

- b. Units authorized to carry out unit, field and base repairs

When spurious signals are present on 'TUNE RF' demand stores and carry out this modification. Complete AF G1084A when reporting completion of this modification to Data Centre. The exact forward coding to be used is as follows:-

EQUIPMENT CODE: K109N400

ARMY MODIFICATION CODE: M 00908

- c. All recipients of this EMER

Add particulars of the modification to TELECOMMUNICATIONS F 147 Mod Instr Index.

Stores, tools and test equipment

- 8. a. Stores to be demanded

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z	5910-99-013-0395	Capacitor, Fixed, Electrolytic 10µF ± 20%	1

- b. Stores to be obtained locally

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
H1A	5970-99-224-2293	Varnish, Insulating, Anti-tracking, air drying, red	as reqd
H1	8070-99-910-7022	Paint, Finishing, red	as reqd

c. Stores to be removed and discarded

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Z1	5910-99-970-6650	Capacitor, Fixed 4.7 μ F	1

Sequence of operations

9. a. Remove the set from its case in accordance with Tels F 144, para 22 to 24 inclusive.
- b. Remove the front panel from the film scale unit in accordance with Tels F 144, para 25 to 30 inclusive.
- c. Locate and remove the screws securing the printed circuit board No 26 (Z1/5820-99-101-9909) to the front panel.
- d. Refer to Tels F 142, Part 2, Fig 2572, locate and remove capacitor C1 (4.7 μ F) and replace with the new capacitor 10 μ F.
- e. Record the embodiment of this modification by diagonally painting through with red paint, the figure 1 on the modification record label, of the panel, electronic circuit, board 26.
- f. Reverse operations b. and c., applying a thin coat of varnish to the underside of the screw heads before assembly.
- g. Replace the equipment in its case, resealing it in accordance with Tels F 144 para 13-17, paying particular attention to the seating of the Hyclad gasket on the front panel. Apply a thin coat of varnish to the underside of all screw heads before assembly.

Testing after embodiment

10. Carry out specification testing as detailed in Tels F 144 para 55-62.

EMER amendments

11. Embodiment of this modification necessitates amendments to Tels F 142, Part 2 as follows:-

Page 1072, Fig 2572, grid ref 2c
At the side of C1 add an asterisk.

In space below circuit diagram add the following note:

*Note: C1 may be a 10 μ F (Mod Instr No 45)

T/61136/D&M
ATMC No 01227

END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

SUBJECT: Board 5 - Reduction of instability in 2nd l.o.

INTRODUCTION

1. Investigation into the instability of the 2nd local oscillator showed that it was being pulled off frequency when the input of the 1st i.f. amplifier increased above a certain level. To obviate this, certain wiring changes were made in the 2nd l.o. circuit. This regulation details the action required to embody the wiring changes. No limitations apply on the use of the equipment without this modification.

APPLICABILITY

- | | | |
|----|---------------------------------|---------------------|
| 2. | Transmitter-receiver, radio A13 | Z1/5820-99-949-6353 |
| | Panel electronic circuit | Z1/5820-99-101-9808 |

REASON FOR MODIFICATION

3. Code 2 - to improve operational performance.

PRIORITY

4. Routine (EMER Mgmt N 097 refers)

ESTIMATED TIME REQUIRED

- | | | |
|----|------------|--------------|
| 5. | Embodiment | 1/2 man-hour |
| | Testing | 1/2 man-hour |

MODIFICATION IMPLEMENTATION PLAN

- 6. a. This modification may be carried out by units authorised to carry out field and base repairs.
- b. Modification Instruction No 3 is to be incorporated concurrently.

ACTION REQUIRED BY

- 7. a. Units and establishments holding the equipment
Nil.
- b. Units authorised to carry out unit, field and base repairs
 - (1) On failure or repair of the 2nd l.o. implement this modification..-
 - (2) Strike off figure 2 (Two) on the modification record plate of Board 5.
 - (3) Complete AF G1084A when reporting completion of the modification to the Data Centre. The exact FORWARD coding to be used is as follows:

EQUIPMENT CODE K110N400

ARMY MODIFICATION CODE M 00926

- c. All recipients of this EMER

Add particulars of the modification to the EMER Telecommunications F 147 Mod Instr Index.

Stores, tools and test equipment

- 8. a. Stores to be demanded
Nil.
- b. Stores to be obtained locally

<u>VAOS Sect</u>	<u>Part No</u>	<u>Designation</u>	<u>Qty per eqpt</u>
Y3 H1A	6145-99-910-2373	Wire, electrical	As reqd
	5970-99-224-2293	Varnish, insulating, anti-tracking, air drying, red	As reqd
Y3 H1A	5970-99-954-3149	Insulation sleeving, electrical	As reqd
	5970-99-943-3454	Insulating varnish, electrical finishing	As reqd
H1	8010-99-910-7033	Paint, general purpose, finishing, red	As reqd

Sequence of operations

9. a. Remove the set from its case in accordance with Tels F 144, para 22 to 24 inclusive.
- b. Locate and remove the board 5 (Z1/5820-99-101-9808) in accordance with Tels F 144, para 35 and 36.
- c. Locate, unsolder and remove the link wire as indicated in Fig 1.
- d. Using a sharp knife remove the printed circuit track as indicated in Fig 1, taking care not to damage any neighbouring printed circuit track. Apply a thin coat of insulating varnish to the board whence the track was removed.
- e. Measure and cut two lengths of wire, and sleeve with insulation sleeving (see Fig 2).
- f. Locate and solder in position the two wires prepared in e. as indicated in Fig 2.
- g. Record the embodiment of this modification by diagonally painting through with the red paint figure 2 (Two) on the modification record label of board 5.
- h. Reverse operation b., apply a thin coat of red air drying varnish, to the underside of all screw heads before assembly.
- j. Reverse operation a., carrying out drying and sealing instruction as detailed in Tels F 144 para 11-17 inclusive.

Testing after embodiment

10. Carry out specification testing as detailed in Tels F 144 para 79.

EMER AMENDMENTS

11. None.

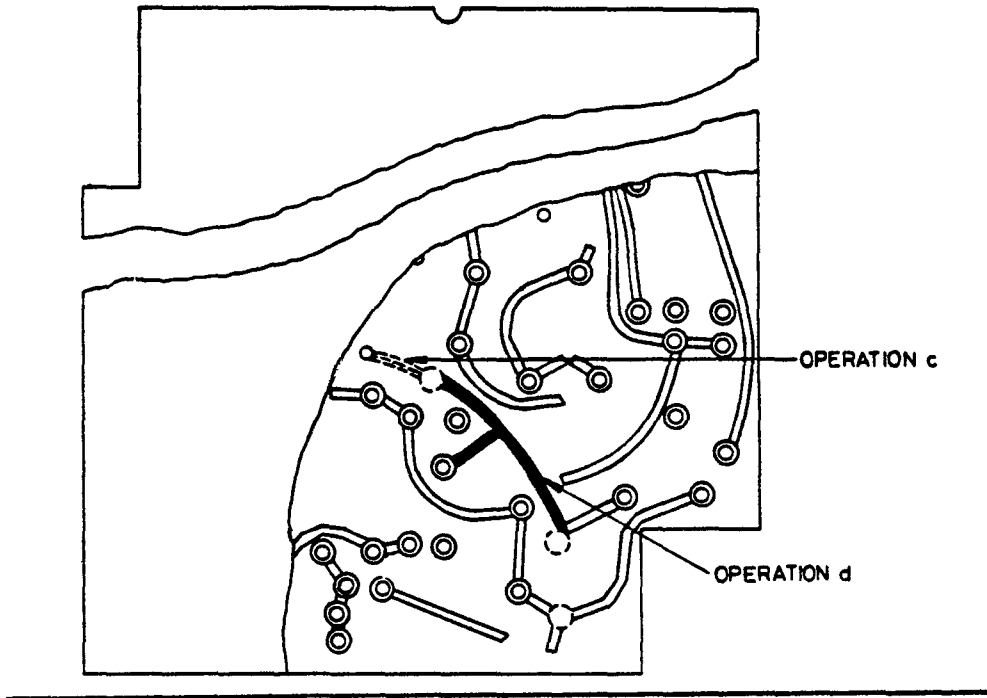


Fig 1 - Operation c. and d.

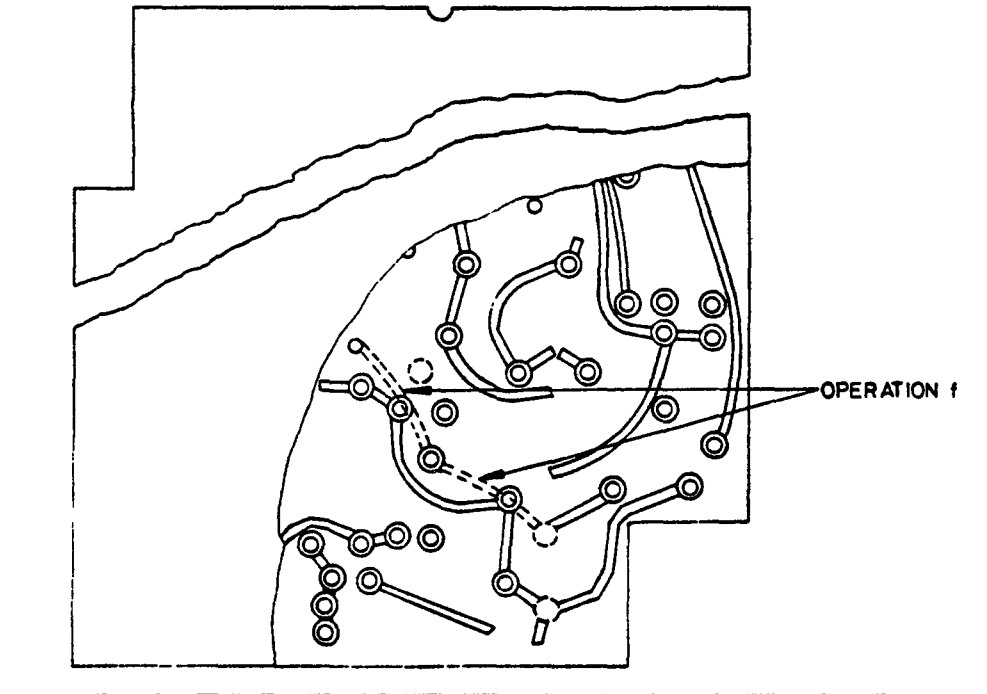


Fig 2 - Operation f.

T/61136/24/Tels
ATMC 01228

END