

STATION, RADIO, A13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Production changes

1. Tels F 142 Part 1, Issue, 1 was produced and issued before the actual equipment went into production. In the early production phases of the equipment a number of changes have been incorporated which result in a number of minor errors in the test and figures.
2. These errors will be corrected by the issue of Errata sheets in due course, meanwhile the main body of the regulation is substantially correct but minor variations will be found when comparing it with an equipment or with Tels F 142 Part 2, the latter regulation will include all changes notified up to the date of publication.

END

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ELECTRICAL AND MECHANICAL
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TELECOMMUNICATIONS
F 149 Misc Instr No 2

STATION, RADIO, A13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Undersized carrier locating dowel holes on Transmitter-receiver, radio, A13 (TRA13)

1. SUMMARY

A small number of TRA13 equipments may have dowel holes on the underside of the case too small due to a missed operation in the factory. The dowel holes are necessary to locate the TRA13 on its carrier. This regulation gives details of action to be taken if it is found that the dowel holes are too small.

2. ACTION

(a) Using a 3/16 in. twist drill enlarge the two dowel holes referred to in para 1.

(b) Check that the equipment locates correctly on its carrier.

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Low output power on certain equipments

SUMMARY

1. It has been found that certain Transmitter-receivers, radio, A13 will not meet the specification figures for r.f. power output on phase modulation and c.w. at the high end of their frequency range. Sets affected can be identified by a blue paint spot on the plate carrying the set serial number. The specification calls for a minimum output of 1.5W over the whole frequency range (see Tels F 144 para 67). As a temporary concession equipments leaving the factory need have a minimum output of only 1.25W within the frequency range 6.75 - 8Mc/s.

ACTION

2. Equipments marked with a blue spot beside the set serial number on which low r.f. power output on phase modulation and c.w. is found should be retained in service for the time being, provided the output is at least 1.5W (or 8.6V across a 50Ω load) up to 6.75Mc/s and 1.25W (or 7.9V across a 50Ω load) between 6.75Mc/s and 8Mc/s. As soon as a satisfactory solution to this defect is found, details will be published as a modification instruction.

T/61136/19

END

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F 149 Misc Instr No 4

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Panels, electronic circuit-marking after repair

1. In order that a check may be kept on the number of times a printed circuit board or similar sub-assembly is repaired and/or modified a marking system is to be introduced.
2. In future when any such sub-assembly is repaired and/or modified a small yellow dot will be painted on a convenient edge or surface of the assembly. Where such repairs are to multiple board assemblies, eg board No 1 (receiver r.f. amplifier) the particular sub-board on which repair took place will be marked.
3. This action is only to be applied to boards on which work is actually carried out; where boards are merely exchanged for serviceable ones no marking will take place except to the unserviceable board when it is repaired.

EMESc/2185

END

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Measurement of r.f. output power at 8Mc/s

Information

1. The instrument specified for measurement of r.f. power output of the Transmitter-receiver, radio, A13 is Voltmeter, electronic, TF2600 (6625-99-103-3116). At frequencies exceeding 5Mc/s, the accuracy of this instrument is reduced, and an error of -20% is to be expected at 8Mc/s but at 6.4Mc/s the error is insignificant.
2. This regulation gives amended figures for Table 6 of Tels F 144 both for:-
 - (a) Equipments which give the specified power over the whole frequency range (normal output power).
 - (b) Equipments which give a reduced output power at certain frequencies (low output power). Tels F 149 Misc Instr No 3 refers.

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3. Table 6 amended figures when using Voltmeter, electronic, TF2600.

Normal output power

(a)	(b)	(c)	(d)	(e)
8.0	7.0	4.8	7.0	12
8.0	5.8	4.0	5.8	10

Low output power

(a)	(b)	(c)	(d)	(e)
8.0	6.5	4.5	6.5	12
8.0	5.2	3.5	5.2	10

4. Where any doubts exist, the Voltmeter, electronic, TF2600 should be checked against a Voltmeter, valve, No 3 or Voltmeter, valve, type CT429.

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END

STATION, RADIO, A13TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

Note: This Issue 2, Page 1 supersedes Issue 1, Page 1, dated 29th Sep 66.
The regulation has been revised.

SUB-TITLE: Introduction of an alternative band-pass filter

1. Summary

The band-pass filter manufactured by Collins as originally fitted to the TRA13 has, in some equipments, been replaced by a Kokusai filter. As the filters differ in shape and size it has been necessary to re-design the diode switch and 2nd i.f. filter module. This regulation details the items associated with the original and new band-pass filters, and the action required on replacement.

2. Action

- a. On failure of any item listed in f. (1) or (2) demand and fit the item to the Filter, band-pass (105-5970) or (105-5971).
- b. If the required item is not available demand either the complete Filter, band-pass (105-5970) or (105-5971).
- c. Secure the serviceable Filter, band-pass to the Bracket, electronic circuit panel (5820-99-102-2787).
- d. Replace the bracket on the film scale casting.
- e. Reconnect and solder the wire links.
- f. (1) Module fitted with Collins filter
Filter, band-pass (diode switch and 2nd i.f. filter module)
(5915-99-105-5970), comprising one each of the following:-
Filter, band-pass (5915-99-102-0451)
Panel, electrical circuit, diode switch (5820-99-101-8599)
Panel, electrical circuit (5820-99-101-8609)
Terminal board (5820-99-102-0436)
Cover, panel (5820-99-102-0441)
Spacer block (5820-99-102-2777)
Plate, washer, plain (5310-99-102-0420)
- (2) Module fitted with Kokusai filter
Filter band-pass (diode switch and 2nd i.f. filter module)
(5915-99-105-5971), comprising one each of the following:
Filter, band-pass (5915-99-105-5972)
Panel, electrical circuit (5820-99-105-5973)
Spacer sleeve (5820-99-105-5974)
Nut, plain, hexagon (5310-99-105-5975)

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F 149 Misc Instr No 7

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Chassis assembly - tab removal of relay washer

1. SUMMARY

The key washer (Z1/5310-99-101-9386) has a tab to provide additional locking of the armature relay (Z/5945-99-012-0008) when fitted to the relay bracket (Z1/5820-99-101-9351) in position RLC. The specification for the relay permits a variation in bobbin check dimensions and the tab of the key washer fouls the cheeks of some manufacturers relays. This instruction details the action to be taken if the tab of the key washer does foul the cheek of the relay.

2. ACTION

When replacement is to be made of the armature relay in position RLC and the key washer is fouling, cut off the tab and coat the unplated surface with electrical varnish (H1/8010-99-943-3454). The washer will still prevent relay rotation in the bracket.

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F 149 Misc Instr No 8

STATION, RADIO, A 13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Key telegraph - Failure to operate

SUMMARY

1. Reports have been received that the contact gap on some Keys telegraph 5805-99-949-9618 does not close.

Investigation showed that the operating arm was hitting the base moulding before the contacts touched. Keys manufactured after December, 1965 have had the height of the bottom contact adjusted to avoid this. As this contact is moulded in the base and therefore not adjustable, this instruction details the fitting of a washer to the upper contact, to correct the trouble on any keys exhibiting this defect.

ACTION

2. a. Make a washer 0.010 in. thick, external diameter 3/8 in., hole diameter 0.255 +0.01 -0 in. of brass or phosphor bronze. Refer to, Tels F 142, Part 2, page 1122, Fig - 2597, for component numbers shown in brackets below.
- b. Unscrew knob (9), withdraw 3 machine screws (12) and remove clamp plate (15).
- c. Remove two 4BA nuts (10) and D hole washer (11).
- d. Carefully remove rubber diaphragm (13).
- e. Remove four machine screws (b), cover plate (5) and gasket (16).
- f. Remove locknut (8) and setting nut (7) of gap adjuster.
- g. Remove the two operating arm retaining screws (3), plate (2) and operating arm (4).
- h. Remove the spacing nut securing the top contact to the operating arm and release the contact screw.
- j. Re-assemble the contact screw with the new washer (produced at a. above) between the contact flange and the operating arm ensuring that the shouldered part partly enters the double flatted hole. Fit spacing nut and tighten.
- k. Re-assemble the key in the reverse order g. to b. above, but note that on fitting the special nut (7) to set this so that the operating arm gap is 0.013 - 0.014 in. The tensioning device operating the spring (14) should need no adjustment unless it has been inadvertently moved. If so, it should be set to operate between 10 and 12 ozs.
- l. When replacing diaphragm (13), ensure it is the correct way up i.e. with the largest raised circle uppermost.

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Battery retaining clip - assembly method change

1. Summary

It has been reported that the battery retaining clip opens too easily, and so releases the battery. For future production a spring-type clip has been introduced, but for stores at present in service this instruction details a method of assembly of the existing straps to overcome the difficulty.

2. Action

a. Remove the battery.

b. The webbing strap fitted to the retaining clip is to be repositioned; remove the adjusting buckle from this strap and refit the strap as follows:-

(1) Pass the strap from the inside through the slot in the side of the battery compartment, ensuring the retaining clip is the correct way round, and around the centre bar of the buckle (with the outer bars raised away from the box). Pass the strap back through the slot in the box so that the free end of the strap is next to the side of the box.

(2) Adjust the buckle so that the riveted part of the clip is flush with the top edge of the battery compartment.

(3) Fit a battery and adjust the other strap so that the hook of the retaining clip fits on to the outer bar of the buckle ensuring that the strap is turned if necessary to raise the centre bar of the end buckle away from the battery.

(4) Tighten the strap, and if necessary adjust the length of hook to ensure that the straps are quite tight when the clip is closed.

(5) Position the free end of the strap holding the clip so that it passes over the retaining clip and tuck the end through the buckle and under the other strap.

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F 149 Misc Instr No 10

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Cableform - damage due to incorrect supply voltage and/or handset

1. SUMMARY

- a. Serious damage can be caused to the TRA13 by the use of the wrong type of handset and/or the application of the wrong supply voltage.
- b. Damage may be caused to both the handset and the internal cableform of the TRA13, which becomes badly burned and requires the attention of a base workshop.
- c. The aim of this instruction is to minimise the chance of causing damage by making known, to all users, the method of identifying the correct handset, and indicating the correct voltage to be used.

2. DETAIL

- a. The handset used with the TRA13 is the Y1/5965-99-949-8135 Handset, SI type, and is almost identical in appearance with those issued for use with the TRA41 No 2 and the TRA43. However, the connections and microphone/receiver inserts are different.
- b. The TRA13 handset can be identified by the lapel clip and clamp, which is not fitted to either the TRA41 No 2 or the TRA43 handsets.
- c. A comparison of the three types of handset is given in the following table.

Table 1 - Handset comparison

Equipment	Microphone insert colours	Handset cords	Lapel clip
A13	RED/WHITE	Green nylon, straight	YES
A41 } No 2	RED/BLACK	Green nylon, straight	NO
A42 }			
A43	RED/BLACK	Black rubber, coiled spring	NO

- d. The correct supply voltage to be connected to the TRA13 is 12V d.c.; application of any larger voltage will result in damage to the equipment.

3. ACTION

- a. It is imperative that this instruction is fully publicised to all user units, and that all operators are fully conversant with it.

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b. A warning notice must be painted in 3/8 in. lettering stating '12V ONLY'; this warning must be painted in red on the front panel of the TRA13 just above the external power supply connector, with the bottom of the warning to the connector.

c. A further warning in 1/4 in. lettering is to be painted in red to the effect:-

USE ONLY
A13
HANDSET

This warning is to be painted at 90° to the 12V warning in the space on the front panel below the modification record plate. The bottom of the lettering is to be directly above the handset socket.

d. The above instructions are to be carried out by units and establishments holding the equipments, and by field and base workshops on all equipments undergoing repair or overhaul.

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END

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F 149 Misc Instr No 11

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Carrying frame, electrical equipment - repositioning of shoulder straps

1. SUMMARY

- a. Cases of the canvas shoulder straps breaking away from the carrying frame have been reported. This failure is due to the rusting of the four screws, holding the backrest to the frame, which rot the canvas between the backrest and frame.
- b. This instruction details the action to be taken as a temporary measure, in operational areas where high humidity is likely to cause this failure or where the failure has already occurred.
- c. It should be noted that carrying out this instruction causes the straps to become part of the frame whereas they are catalogued as part of the webbing. In current production, provision is made for the straps to be fitted in the same position as detailed below but removable from the frame (see Fig 2).

2. ACTION

- a. Remove the four screws and washers securing the padded waist support to the frame assembly and retain for re-fitting.
- b. This action releases the ends of the buckled shoulder straps, (5340-99-103-7359) from between the waist support and the frame.
- c. Leaving the ends of the straps free, reverse operation (a) after applying a thin coat of varnish DEF 32 (H1/8010-99-943-3454) or similar to the screw threads.
- d. Wrap the end of the shoulder straps around the frame, positioned round the curved part of the frame in front of the welded plate, and secure by stitching using rotproofed thread, or by suitable rivets and washers, (see Fig 1).

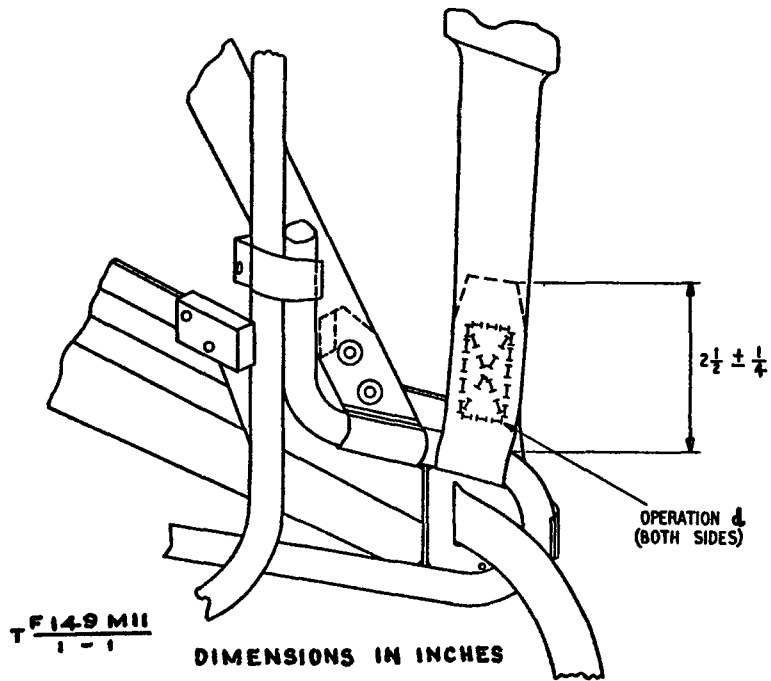


Fig 1 - Temporary modification assembly

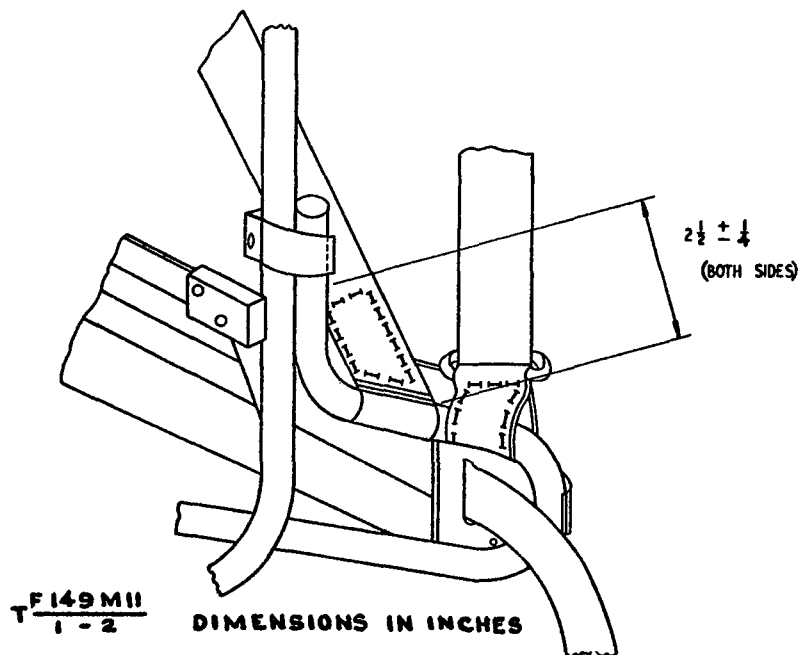


Fig 2 - Current production assembly

END

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Board 21 - fitting of diodes

1. SUMMARY

In production prior to June 1966, the holes in board 21, which hold diodes CV7071 and CV7050, are too small to permit the fitting of diodes with the maximum specified body size. This instruction details action to be taken when spare diodes cannot be fitted because of this.

2. ACTION

If when fitting spare diodes CV7071 and CV7050 to Board 21 the holes in the board are found to be too small, they should be reamed to approximately 0.240 in. diameter.

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END

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Board 16 - fouling of tagstrip TSC

1. SUMMARY

During production, under conditions of adverse tolerance build-up, instances have occurred of the panel, electronic circuit (5820-99-101-9807), board 16, fouling tagstrip TSC. This instruction details the procedure to be adopted when replacing panels on which this problem is encountered.

2. ACTION

If it is found on replacement of board 16 that it fouls tagstrip TSC, refer to Fig 1 and remove the shaded area indicated. Apply a thin coat of varnish insulating (8010-99-943-3454) to the cut edges of the board.

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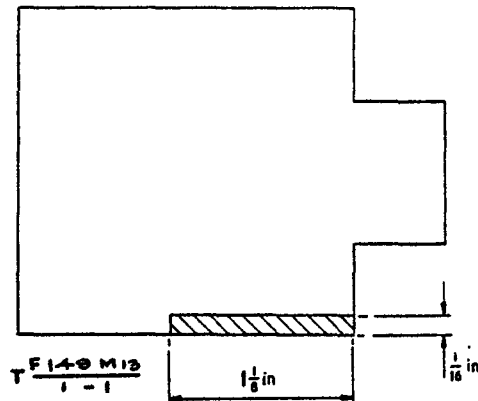


Fig 1 - Board 16, modification

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F 149 Misc Instr No 14

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Tuner r.f. antenna

1. Introduction

- a. During the manufacture of Tuner r.f. coil deck assembly Z1/5820-99-949-5664 the securing nuts of the rack-assembly (L1 to L4 in Tels F 142 Fig 2574) may have been tightened to a degree which reduces its resistance to mechanical shock.
- b. A controlled torque of 6 ozf. in. was introduced at all serial number codes subsequent to XK.
- c. This instruction details a method of adjusting the torque to approximately 6 ozf. in.

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Board 19 - Repositioning of R7

1. Introduction

Considerable damage has been caused to the printed wiring board due to the failure of R7. The heat generated during failure causes the board to become charred. This instruction details the action to be taken pending the issue of a modification instruction. It is important that this work is carried out at the earliest opportunity.

2. Action

- a. Remove the equipment from its case and locate board 19.
- b. Disconnect the links and remove the four screws clamping the board. Raise the board and locate R7 on the underside.

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2. Action

- a. On receiving subject items whose serial number is preceded by a letter code prior to XL (eg WA to WM, XA to XK) the securing nuts must be slackened off and re-set at 6 ozf. in.
- b. As a rough guide this is equivalent to finger tightening the nuts and then, using a suitable spanner, rotating the nut through a further 270° clockwise.

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- c. Remove R7 carefully, reform its wire ends so that it can be resoldered into the circuit leaving 3/16 in. clearance between the resistor and the board.
- d. Resolder R7 and re-assemble the equipment.
- e. Mark board 19 by painting the top of T1 white.
- f. When a replacement board 19 is fitted ensure that R7 is repositioned as detailed above.

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F 149 Misc Instr No 16

STATION, RADIO, A13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: H.A.U. - Failure of b.f.o. to provide required specification voltage

1. SUMMARY

It has been found in some instances that the b.f.o. fails to produce the required voltage for the specification tests detailed in EMER Tels F 144. Issue 1, para 271.

2. ACTION

When under normal conditions, 2.75V is not obtained from the b.f.o. (para 271 (b) (iv)) connect a 47 Ω resistor (Z30/5905-99-198-3840) in parallel with R₄ in the Interconnecting box, testing, harness adaptor unit (see Tels M 182, page 1003, Fig 2003). This will make sufficient voltage available.

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

Note: This Issue 2, Page 1, supersedes Issue 1, Page 1, dated 16 May 69. The regulation has been revised.

SUB-TITLE: Voltage stabilizer - dirty relay contacts

Summary

1. Many cases have occurred of the stabilizer giving low output. In the majority of cases this has been found to be due to the contacts of relay RLA becoming dirty. This regulation details the method of cleaning these contacts.

Action

2. a. Clean the contacts with either of the following contact cleaners using a soft brush.

H1(b) 6850-99-220-1589 Electrolube 2AX
(issued overseas only)

H1(b) 6850-99-220-1930 Electrolube No 2

b. Care must be taken to avoid any of the cleaner coming into contact with polystyrene or thermo-plastic.

c. Using the burnisher supplied in the telecommunication technicians tool kit carefully burnish the contacts. Extreme care must be taken to avoid bending the springs.

T/61136/89(TELS)

END

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TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: Incorrect marking of indicator plates

1. SUMMARY

It has been found that on indicator plates Z/5820-99-103-9279 the markings for board 18 are incorrect. Components marked 25C5 and 25T1 should read 18C5 and 18T1 respectively. This instruction details the action to correct this error during base repair overhaul.

2. ACTION

Remove the plate from the transmitter-receiver cover. Carefully erase or obliterate the markings 25C5 and 25T1 and engrave, or using figure and letter punches, mark the plate 18C5 and 18T1. Fill in the figures and letters using Filler, dent, white (H1/8010-99-220-2644). Refit the plate.

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END

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUB-TITLE: TRA13, Board 1a - change of core adjuster

1. SUMMARY

It has been found that adjustment of various tuned circuits may be made difficult or impossible by the fact that resonance tends to occur at or close to the maximum inductance position of the adjustable core of the coils concerned. To obviate this it is necessary to replace the existing core by a new type having characteristics such that resonance occurs at or near the centre of the adjustment range. This instruction details the action to be taken when satisfactory adjustment of the existing cores cannot be achieved.

2. ITEMS AFFECTED

Transformer r.f.	Z1/5950-99-102-0446	L1
Transformer r.f.	Z1/5950-99-102-0486	L2
Transformer r.f.	Z1/5950-99-102-0487	T1
Transformer r.f.	Z1/5950-99-102-0488	T2
Transformer r.f.	Z1/5950-99-102-0489	T3
Transformer r.f.	Z1/5950-99-102-0490	T4

3. ACTION

a. Examine the coil concerned.

b. If the core is colour-coded green at the slotted end, remove and replace with:-

Core, adjustable, tuning Z1/5950-99-102-3917 (which is not colour-coded)

c. If the new type core is found to be already fitted, the complete coil assembly should be replaced. Before fitting, action as in 3.b. should be taken

if necessary.
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END

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R E S T R I C T E D

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STATION, RADIO, A13

TECHNICAL HANDBOOK - MISCELLANEOUS INSTRUCTION

SUBJECT: Distortion of main gang capacitor (C1)

1. INFORMATION

It has been found that the method of fitting a gang capacitor in an equipment can distort the vanes. This instruction details the action to be taken when replacing the main gang capacitor.

2. ACTION (Fig 1)

- a. Locate the rear mounting bracket on the gang capacitor and insert screws number 1 and 2 leaving them loose.
- b. Insert the gang capacitor into the front retaining hole and insert screws 3, 4 and 5 just taking up the slack. Ensure the gang is located correctly and tighten screws numbered 3, 4 and 5 sequentially.
- c. Insert screws numbered 6 and 7 leaving them loose.
- d. Lightly hold the rear mounting bracket simultaneously against the rear of the gang and the chassis at the positions of screws numbered 6 and 7 then tighten these screws.
- e. Finally tighten screws numbered 1 and 2.

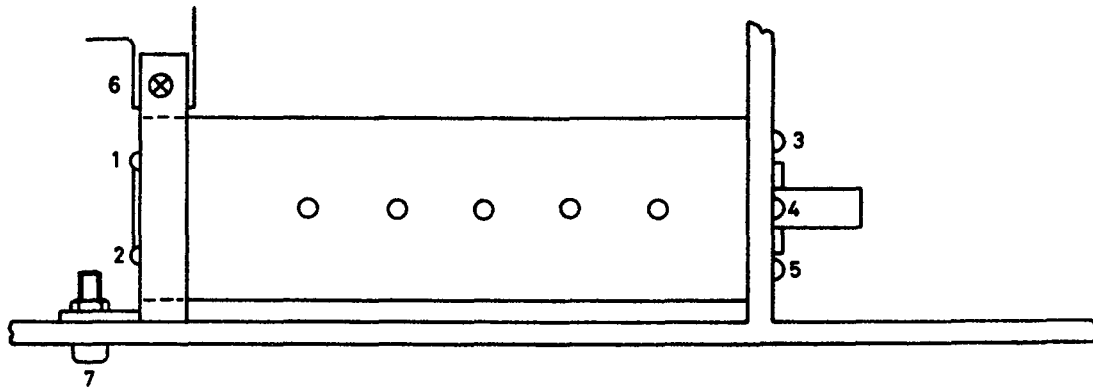


Fig 1 - Location of screws

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