RECEPTION SET R 206, MK. 2 AND POWER SUPPLY UNIT NO. 33

FIRST ECHELON WORK

CONTENTS

Note: This information is provisional and is supplied for guidance pending the issue of more complete instructions. All errors of a technical nature should be notified in accordance with Tels. A 009.

LIST OF TABLES

LIST OF FIGURES

GENERAL

1. Regular and careful maintenance is essential for keeping the receiver in good working order.

2. The maintenance described herein should be carried out by a Signals electrician as often as laid down in Tables 1 and 2. Whenever he maintains the receiver, he should fill in the unit maintenance log which is kept by the Signals officer for each set under his control.

3. When handling components, especially those on the R.F. chassis and the rear part of the I.F./A.F. chassis, great care must be taken not to disturb their relative positions. Any earth leads that have to be unsoldered must be replaced exactly in their original positions, and two earth leads must never be replaced by a single lead since this may cause instability.

4. As this receiver is specially finished for use under tropical conditions, great care must be taken when handling the set not to scratch paint or plating, nor to disturb any wax.

INSPECTION AND LUBRICATION

Range control

5. Clean off all old grease with a rag and carbon tetrachloride. Relubricate the nipple on the control shaft with a grease gun charged with Grease, wide temperature range for normal use, Grease G.S. in the tropics, or Grease No. 0 in arctic regions.

Turret

6. Most turrets are mounted on ball bearings which do not normally require lubrication. Early models were not so fitted and require to be lubricated with a grease gun charged with grease as above at the nipple on the end bearings of the turret. The grease should be forced in until the old grease is exuded, and then all surplus grease should be wiped away.

Maint tuning control

7. Remove the small knob by undoing the two grubscrews which hold it on to the shaft. Then remove the large knob, by first removing the small setscrew in the large hexagonal locking nut. Then the nut, with its washer, can be unscrewed, and the large knob will spring off. The main tuning dial can be removed now by undoing its two setscrews.

8. Clean off all old grease from the parts with a rag and carbon tetrachloride. Replace any defective parts. It must be specially noted that the slow-motion drive, in no circumstances, should be dismantled. If any fault develops in the drive, it should be replaced complete.

9. After regreasing, assemble the control in the opposite order to that described in para. 7. When assembling, it is essential to obtain the correct slipping torque; this should be 50-60 in./ozs., but it can be checked simply by the following method. Before putting on the small knob, set the TUNING SPEED CONTROL to the SLOW position; it should then be possible to rotate the large knob slowly without moving the main tuning dial. Torque adjustment can be effected by means of the large hexagonal nut, and by greasing behind the four spring-loaded plungers. When the slipping torque has been correctly adjusted, the small knob can be replaced.

B.F.O. and OSC. VERNIER controls

10. Normally, these cannot be lubricated, and, if the drive fails, they should be replaced.

Cleaning

11. Clean the interior of the receiver and inspect for loose or dirty connections; dry out if necessary.

12. Inspect the 6-point plug-ended lead and the screened lead connecting the R.F. and I.F./A.F. portions of the receiver. See that the plugs on these leads are clean and that they make good contact in their sockets. Ensure that the crystal filters are firmly plugged on to the I.F./A.F. chassis and that their securing plate is screwed down tightly. Tighten any loose securing bolts or screws.

Controls

13. Check the mechanical action of all controls on the front panel.

(a) A.F. and R.F. GAIN controls
These controls should turn smoothly and stop with the zero mark on the control in line with the reference mark on the front panel. Check for electrical efficiency as follows: With the set switched on but no aerial connected, set the A.F. GAIN at 10, the C.W./R.T. switch to R.T./A.V.C. OFF, and the BANDWIDTH switch to WIDE. Rotate the R.F. GAIN control slowly from 0 to 10. The set noise should increase uniformly and no clicks or crashes should be heard. Similarly, with R.F. GAIN at 10, rotate the A.F. GAIN from 0 to 10, and observe if similar results are obtained. If only a few clicks are heard, rapid rotation of the appropriate control about a dozen times should clear the trouble. If it cannot be cleared, replace the component.

(b) B.F.O. and OSC. VERNIER controls
These are fitted with slow-motion dials and should turn stiffly but smoothly through 360°. Check for electrical efficiency as follows: With the set switched on but no aerial connected, set the A.F. and R.F. GAIN controls at maximum, and BANDWIDTH switch at WIDE. Put the C.W./R.T. switch to R.T./A.V.C. OFF and slowly rotate the OSC. VERNIER control. If there is a series of crashes which repeat at the same anular setting, the condenser is probably faulty. Try rotating the condenser rapidly about a dozen times and check the tightness of the earthing prong. Similarly, check the B.F.O. control, with the C.W./R.T. switch at C.W./A.V.C. OFF for similar symptoms.

(c) MAIN TUNING control
This should turn smoothly with constant stiffness through 360°. See that the locking device firmly clamps the outer race of the slow-motion, behind the TUNING SPEED CONTROL and thereby brings the slow-motion drive into action. Check that the large tuning knob has the correct SLIPPING torque as described in para. 9. Note that the tuning pointer and main tuning dial move in response to any movement of the MAIN TUNING control. No backlash whatsoever is permissible in this drive, and the presence of any should be reported and the set returned to second or fourth echelon workshops.

(d) A.E. TRIMMER
Check that this control turns smoothly through 360°. Check the electrical performance of the condenser, using the method described in (b) for the B.F.O. control.

(e) Switches
Check for positive action.

(f) Knobs and handles.
Check the tightness of the securing screws and nuts, including those behind the front panel.

(g) Plugs, sockets and jacks.
Clean with carbon tetrachloride and see that good contact is made with the respective fittings.

Valves

14. Check that the valves are held firmly in their sockets. When withdrawing valves especially ARP 35's, pull them vertically upwards with no sideways movement, otherwise they will be damaged. Take similar precautions when inserting new valves. Ensure that the clips fit tightly on the top caps of the valves and that the top caps are secure.

15. Valves should be changed as soon as they show signs of failure, i.e., when readings in the valve tables show a continued falling off.

Frequency calibration

16. Connect a 100Ω dummy aerial to the receiver and check the frequency calibration by tuning the receiver in, with the B.F.O. switched on, to a Wavemeter Class D. Only very loose coupling is required between the wavemeter and the receiver and no metallic connection should be made between them. The frequency should be checked at 1Mc/s intervals throughout the range of the receiver, and the calibration should be accurate to within ± 0.5%. This calibration should be checked at weekly intervals when new inductors are in use in the receiver, but after a few months use the calibration check may be carried out less often.

Power supply unit No. 33

17. (a) Clean the interior and inspect for loose or dirty connections; dry out if necessary. Ensure that input tappings on the power transformer are made tightly and that any loose securing screws or bolts are tightened.
(b) Ensure that valves and vibrators are held firmly in their holders.
(c) See that the Slydlok type fuse is wired correctly to blow at 5A. Unscrew the cartridge type fuses and see that they are of the correct rating (250mA). Clean the ends of the fuse cartridges and replace the fuses.
(d) Check switches for positive action. Check the tightness of the securing screw on the handle of the A.C. - D.C. switch. Clean the contacts of this switch with a contact burnisher and coat lightly with petroleum jelly.
(e) Clean plugs on the front and rear panels and see that good contact is made with their respective sockets. Remove the baseplate and inspect the interior, replacing loose nuts, etc.
(f) See that no metallic particles, such as iron filings, fall near the loudspeaker.

Connectors and phone leads

18. Examine these for kinking and external fraying. Inspect the anchoring of leads to headphones.

Operation

19. Carry out tests for daily maintenance given in the Working Instructions, Z.A. 24287.

20. If it is inspected that the setting of the B.F.O. trimmer C69 is incorrect tune in to a strong C.W. signal with the BANDWIDTH switch set to NARROW and the C.W./R.T. switch set to C.W./A.V.C. ON. Having found the signal, set the C.W./R.T. switch to R.T./A.V.C. ON. Tune the signal for minimum noise, i.e., ensure that it is in the centre of the pass band of the filter. Set the C.W./R.T. switch to C.W./A.V.C. ON and, with the B.F.O. control set to zero, adjust the B.F.O. trimmer C 69 for zero beat note. This trimmer may be reached through the hole in the front panel below the B.F.O. control.

Reception set R 206	
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3. R.F. GAIN	13(a)
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5. OSC. VERNIER	13(b)
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P.S.U. No. 33	
Task	Para.
13. Interior	17(a)
14. Valves	17(b)
15. Fuses	17(c)
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17. Plugs	17(e)
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Table 1 - Weekly maintenance tasks

Task	Para.
1. RANGE CONTROL	5
2. Turret	6
3. Main tuning	7, 8 and 9

Table 2 - Monthly maintenance tasks

MECHANICAL REPLACEMENTS

B.F.O. box

21. To remove the B.F.O. box, proceed as follows:-
(a) Remove the 6-point socket from the top of the box.
(b) Unsolder the two leads to the tagboard underneath the box.

(c) Remove three screws (reached from below the chassis) holding the B.F.O. box to the chassis.
(d) Slacken the grubscrews holding the shaft of C 68 (mounted in the B.F.O. box) to the control shaft from the front panel.
(e) Remove V2D and slide the B.F.O. box off the chassis.

22. When refixing the B.F.O. box in position, remove the lid of the box, set the condenser vanes of C 68 halfway, i.e., with the edge of the rotor vanes at 90° to the edge of the stator vanes. Set the B.F.O. dial to zero and tighten the grubscrews holding the condenser shaft to the control knob shaft.

Crystal filter unit

23. If it is necessary to replace a crystal filter unit, the set should be forwarded to second or fourth echelon as soon as possible for realignment.

FAULT LOCATION

Component faults

24. Table 3 should be used in conjunction with the daily maintenance test table given in the Working Instructions. When measuring a resistor be sure that no other resistor is in parallel with it; if necessary, unsolder one end of the resistor to be checked. Condensers should be similarly tested, using a Megger of suitable voltage rating. Check the insulation of coils and transformers by measuring the resistance between the coil and chassis with a Megger. Coil resistances are given in para. 29.

Table 3 - Fault location

Part of set tested	Test	Correct result	Incorrect result	Action
(a) Power supply unit	Connect up for D.C. or A.C. working and switch on	Tuning scale should light up when DIAL LIGHTS switch is put to ON. After 30 sec. neon valve should strike. For D.C. working vibrator should be heard		Remove P.S.U. from its case, remove the baseplate and inspect. If faulty component is obvious, replace it, first ascertaining the cause of the breakdown. Other faults may be found, using Avo model 7 and circuit diagram. Test transformer T1 with all its leads disconnected, checking resistance and insulation of all windings (para. 29). Check inductors for continuity and insulation, and condensers for short-circuit. Replace any faulty or suspected component

Table 3 - Fault location (contd.)

Part of set tested	Test	Correct result	Incorrect result	Action
(b) Loud-speaker (L.S.)	Tune to strong R.T. station	Reception in headphones and L.S.	Reception in head-phones only	Check continuity of 10Ω winding (2ΩD.C.) of T2 on R206 Mk. 2; check connections to it. Check continuity of lead between PL3 and S3, and between L.S. and earth; check S3. Test L.S. voice coil (13Ω)
(c) AE TRIMMER (C5)	Adjust RANGE CONTROL handle to any range between 3 and 6 and with the main tuning at the upper end of the range, rotate AE. TRIMMER knob.	General noise level of output should vary.	Noise level constant	Remove R.F. chassis platform and inspect vanes and earth prong. Check leads to condenser
(d) A.F. GAIN (R 36)	Tune in to R.T. signal and rotate A.F. GAIN control	Volume should vary according to direction of rotation	Volume does not vary	Unsolder leads to R36 and test between outer tags for continuity. Check between centre tag and each outer tag in turn for variation of resistance with rotation
(e) R.F. GAIN (R 44)	While tuned in to R.T. signal, put C.W./R.T. switch to R.T./A.V.C. OFF and rotate R.F. GAIN control	Volume should vary according to direction of rotation	Volume does not vary	Check C79, R43 and R44 as for R36 in (d)
(f) BAND-WIDTH (S1-6)	While tuned to a strong R.T. station, set BANDWIDTH switch from WIDE to MEDIUM and then to NARROW	Signals remain at almost constant strength with high notes progressively disappearing	Signals still heard but only faintly with switch in certain positions	Check condensers, resistors, and wafer switches. Further tests should be carried out in 2nd. to 4th. echelons. To check crystal filters, replace suspected filter by 20kΩ resistor, connected between filter sockets Nos. 1 and 2, when the signal strength will rise to the correct working level if the filter was at fault. To replace filter see para. 23

Table 3 - Fault Location (contd.)

Part of set tested	Test	Correct result	Incorrect result	Action
(g) LIMITER (S11)	While tuned to a strong R.T. signal, put LIMITER switch IN	Output decreases and becomes distorted	No alteration in output	Check action of, and connections to switch. Check 10Ω winding (2ΩD.C.) of T2. Remove and check MR1 (para. 29)
(h) C.W./R.T. switch (S7-9)	Tune to strong unfading R.T. signal with C.W./R.T. switch at R.T./A.V.C. OFF and R.F. GAIN at max. Then switch to R.T./A.V.C. ON	Output should be loud and distorted and then quickly reduced to normal and undistorted	Output unchanged	Check resistors, condensers and C.W./R.T. switch. Check A.V.C. feeds to valves V1A, V2A, V2B, V2C. Further tests to be carried out in 2nd. - 4th. echelons
(j) C.W. reception	Tune to C.W. signal and rotate B.F.O. control	Whistle should be heard, varying in pitch as control is moved	No whistle heard or whistle does not vary	Check R47, C71, If these components are correct, replace B.F.O. box (paras. 21 and 22)
(k) FILTER switch (S10)	Tune to a C.W. signal and put FILTER switch to IN. Rotate B.F.O. control	Maximum output with beat note of about 900c/s	Set goes dead or there is NO peak frequency	Disconnect filter leads and check switch S10. If switch is correct, replace filter

Valve circuit testing

25. The operator can test valves by comparing their performance with that of new ones, in the order V5A, V4A, V2C, V2B, V1B, V3A, V2A, V1A, V2E, V6A and V2D.

26. Receiver valve stages V5A, V4A, V2C, V2B and V3A can be tested very simply by tapping the top cap (i.e., the control grid) of the valves with a wet finger, in this order when a buzz or plop should be heard if all stages between the point touched and the headphones or L.S. are working (though not necessarily correctly). For this test no aerial is connected, the C.W./R.T. switch is at R.T./A.V.C. OFF, the A.F. and R.F. GAIN controls are at maximum, the BANDWIDTH switch is at WIDE and RANGE 3 is in use.

Valve tests

27. By noting the performance of certain valve stages at regular intervals, the Signals electrician can detect when any one of these stages begins to lose

efficiency and can thereby keep the general peformance of the receiver at a high level. Test figures for the valves are given in Tables 4 and 5, voltages being measured from the pins to the chassis. The value of the test figures depends upon their being taken under the same conditions on each occasion; variations in mains supply voltages can lead to different results. These conditions are:-

(a) The Reception set R 206, Mk. 2 should be used with the Power supply unit No. 33. The unit should be run from A.C. mains and the power transformer tap should be adjusted to suit the supply voltages.
(b) The range turret should be set to range 6.
(c) An Avometer, model 77 should be used for all tests, if available, and should be set to an appropriate range.
(d) When making resistance measurements, the P.S.U. No. 33 must be switched off.
(e) All tests should be done under no-signal conditions, with A.F. and R.F. GAIN controls set at minimum, except where otherwise stated. The position of other controls is not important, but due regard should be paid to the remarks column.
(f) Tests on valves of the R.F. chassis must be carried out from above as the base tags are inaccessible while the set is working.
(g) On the R 206, Mk. 2, heater measurements are A.C. if the mains supply is A.C.; all other voltages are D.C.
(h) On the P.S.U. No. 33 the following precautions should be taken. When V1 and V2 are removed and the load disconnected from the unit, tests must be done in the shortest possible time, and the unit switched off as soon as possible, as the no-load voltage is high. Well-insulated test leads must be used.
(j) Other test conditions to be complied with are set out for each valve under the heading Conditions of test.
(k) Voltage tolerances ± 10%. Resistance tolerances ± 20%.

28. Other voltages are measured at certain pins of valves on the I.F./A.F. chassis under no-signal conditions similar to the above, except that no valve is removed from the chassis and the Avometer is connected with its positive lead to the pin under test beneath the chassis, and the negative lead is connected to chassis. For these tests the H.T. voltage is 200V and the L.T. voltage is 6.2V A.C. The figures for these tests are given in Table 4 under the heading V(2).

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2

V1A, ARP 35 - Conditions of test, V1A removed, V2A plugged in					
Pin	Electrode	V	Resistance		Remarks
			To	Ω	
1	H	6	Chassis	6	
2	G2	200	H.T. +	1k	
3	A	200	"	1.6k	
4	G3	-	Cathode pin 6	0	
5	Internal screening	-	Chassis	0	

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

Pin	Electrode	V	Resistance		Remarks
			To	Ω	
6	C	-	Chassis	(a) 390 (b) 1.39k	(a) C.W./R.T. switch at R.T./A.V.C. ON (b) C.W./R.T. switch at R.T./A.V.C. OFF
7	G1	-	"	2.2M	C.W./R.T. switch at R.T./A.V.C. OFF R.F. GAIN at 0
8	Internal screening	-	"	0	
9	H	6	"	0.1	
V2A, ARP 34 - Conditions of test, V2A removed, V1A plugged in					
1	M	-	Chassis	0	
2	H	4	"	6	
3	A	200	H.T. +	940	
4	G2	180	H.T. +	68k	
5	G3	-	Cathode pin 8	0	
6	Blank	-	-	-	
7	H	6	Chassis	0	
8	C	-	"	(a) 390 (b) 1.39k (b) 1.39k	(a) C.W./R.T. switch at R.T./A.V.C. ON (b) C.W./R.T. switch at R.T./A.V.C., OFF R.F.
T.C.	G1	-		220k	C.W./R.T. switch at R.T./A.V.C. OFF R.F. GAIN at 0

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

Pin	Electrode	V	Resistance		Remarks
			To	Ω	
V3A, ARTH 2 - Conditions of test, V3A removed, V1B plugged in					
1	M	-	Chassis	0	
2	H	6	"	6	
3	Hex A	200	H.T. +	6.5k	
4	Hex G_2 and G_4	100	(a) H.T. + (b) Chassis	(a) 27k (b) 27k	
5	Tri G_1 Hex G_3	-	(a) Pin 8 (b) Chassis	(a) 47k (b) 47k	
6	Tri A	200	H.T. +	10k	
7	H	6	Chassis	0.5	
8	C	-	"	350	± 10%
T.C.	Hex G_1	-	"	0	
V1B, ARP 35 - Conditions of test, V1B removed, V3A plugged in					
1	H	6	Chassis	3.5	
2	G2	120	H.T. +	15k	
3	A	210	"	470	
4	G3	-	Pin 6	0	
5	Internal screening	-	Chassis	0	
6	C	-	"	0	
7	G	-	"	47k	
8	Internal screening	-	"	0	
9	H	6	"	0.5	

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

Pin	Electrode	V	Resistance		Remarks
			To	Ω	
V2B, ARP 34 - Conditions of test, V2B removed, V2C plugged in					
1	M	-	Chassis	0	
2	H	6	"	0.5	
3	A	200	H.T. +	11k	
4	G2	170	"	100k	
5	G_3	-	(a) Pin 8 (b) Chassis	(a) 0 (b) 390	C.W./R.T. switch at R.T./A.V.C. ON
6	Blank	-	-	-	
7	H	6	Chassis	0.5	
8	C	-	" "	(a) 390 (b) 1.39k	C.W./R.T. switch at R.T./A.V.C. ON C.W./R.T. switch at R.T./A.V.C. OFF. R.F. GAIN at 10
T.C.	G_1	-	"	440k	C.W./R.T. switch at R.T./A.V.C. OFF R.F. GAIN at 0
V2C, ARP 34 - Conditions of test, V2C removed, V2B plugged in					
1	M	-	Chassis	0	
2	H	6	"	0.5	
3	A	200	H.T. +	11k	
4	G_2	180	"	100k	
5	G_3	-	(a) Pin 8 (b) Chassis	(a) 0 (b) 390	C.W./R.T. switch at R.T./A.V.C. ON
6	Blank	-	-	-	
7	H	6	Chassis	5.5	

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

V2C, ARP 34 - Conditions of test, V2C removed, V2B plugged in (contd.)

Pin	Electrode	V	Resistance		Remarks
			To	Ω	
8	C	-	Chassis	(a) 390 (b) 1.39k	(a) C.W./R.T. switch at R.T./A.V.C. ON (b) C.W./R.T. switch at R.T./A.V.C. OFF R.F. GAIN at 10
T.C.	G_1	-	"	220k	C.W./R.T. switch at R.T./A.V.C. OFF R.F. GAIN at 0

V4A, AR21 - Conditions of test, V4A removed, V2D plugged in

Pin	Electrode	V	Resistance		Remarks	V(2)
			To	Ω		
1	M	-	Chassis	0		
2	H	6	"	5		0.2
3	Tri A	200	H.T. +	58k		80
4	D_1A	-	(a) Pin 5 (b) Chassis	0 331k		
5	D_2A	-	(a) Pin 4 (b) Chassis	0 331k		
6	Blank	-	-	-		
7	H	6	Chassis	0.5		6.2
8	C	-	"	1k		
T.C.	G	-	"	(a) 0 (b) 1M (c) 100k	A.F. GAIN at 0 A.F. GAIN at 10 A.F. GAIN at 5	

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

Pin	Electrode	V	Resistance		Remarks	V(2)
			To	Ω		
V5A, V.T.52 - Conditions of test, V5A removed						
1	Blank	-	-	-		
2	H	6	Chassis	25		0
3	A	220	H.T. +	1.2k		180
4	G_2	220	"	0		200
5	Blank	-	-	-		
6	Blank	-	-	-		
7	H	6	Chassis	0		6
8	C		"	(a) 1k (b) 2k	(a) C.W./R.T. sw switch at R.T./A.V.C. ON (b) C.W./R.T. switch at R.T./A.V.C. OFF	
T.C.	G_1	-	"	(a) 5.2k (b) 6.2k	(a) C.W./R.T. switch at R.T./A.V.C. ON (b) C.W./R.T. switch at R.T./A.V.C. OFF	
V2E, ARP 34 - Conditions of test, V2E removed, V6A plugged in						
1	M	-	Chassis	0		
2	H	6	"	0.5		6.2
3	A	200	H.T. +	10.5k		150
4	G_2	180	"	100k		60
5	G_3	-	(a) Pin 8 (b) Chassis	(a) 0 (b) 390		
6	Blank	-	-	-		
7	H	6	Chassis	5.5		0.2
8	C	-	"	390		
T.C.	G_1	-	"	470k	C.W./R.T. switch to R.T./A.V.C. ON	

Table 4 - Valve voltages and resistances for Reception set R 206, Mk. 2 (contd.)

V6A, A RDD5 - Conditions of test, V6A removed, V2E plugged in					
Pin	Electrode	V	Resistance		V(2)
			To	Ω	
1	M	-	Chassis	0	
2	H	6	"	0	6.2
3	A_2	-	(a) Pin 5 (b) Chassis	(a) 0 (b) 470k	
4	C_2		(a) Pin 8 (b) Chassis	(a) 0 (b) 390	
5	A_1	-	Chassis	470k	
6	Blank	-	-	-	
7	H	6	Chassis	5.0	0.2
8	C_1	-	"	390	
V2D, ARP 34 - Conditions of test, V4A plugged in, V2D removed, C.W./R.T. switch set to C.W./A.V.C. ON or C.W./A.V.C. OFF					
1	M	-	Chassis	0	
2	H	6	"	5	0.2
3	A	200	H.T. +	35k	50
4	G_2	200	"	221k	
5	G_3	-	Chassis	0	
7	H	6	"	0	6
8	C	-	"	0	
T.C.	G_1		"	47k	

Note: For meaning of V(2) see para. 28.

Table 5 - Valve voltages and resistances for P.S.U. No. 33

Pin	Electrode	V	Resistance	
			To	Ω
V1, 6 x 5G				
1	Blank	-	-	-
2	H	6	Chassis	0
3	A_1	200 A.C.	Chassis	88
4	Blank	-	-	-
5	A_2	200 A.C.	Chassis	88
6	Blank	-	-	-
7	H	6 A.C.	Chassis	0
8	C		To pin 8 of V2	0
V2, 6 x 5G				
1	Blank	-	-	-
2	H	6 A.C.	Chassis	0
3	A_1	200 A.C.	Chassis	88
4	Blank	-	-	-
5	A_2	200 A.C.	Chassis	88
6	Blank	-	-	-
7	H	6 A.C.	Chassis	0
8	C		To pin 8 of V1	0

Note: Conditions of test: V1 and V2 removed, P.S.U. disconnected from R 206, Mk. 2. Voltage tests should be done as quickly as possible and power then switched off.

GENERAL DATA

29. The following figures will facilitate the checking of individual components:-

Transformers

L.F. inter-valve transformer, T1.

Resistance, primary = 300Ω
" secondary = 2,000Ω

Output transformer, T2.

Resistance, primary tags 6 and 7 = 600Ω
" , half secondary, tags 3 and 4 or 4 and 5 = 35Ω ± 10%
" , 10Ω " , tags 1 and 2 = 2Ω ± 10%

Mains transformer, T1 - P.S.U. 33

Resistance, primary, between 20 and 10 = 1.25Ω
" " " 10 " 0 = 1.25Ω
" " " 0 " 100 = 12.5 Ω
" " " 100 " 150 = 5.7 Ω
" " " 150 " 200 = 6.0 Ω
" " " 200 " 230 = 3.5 Ω
Resistance, H.T. secondary between H.T. and C.T. = 80 Ω
" L.T. heaters . " L.T. and E. = 0.1Ω
" Vibrator winding " V1B and E = 0.4Ω

Chokes (in P.S.U. No. 33) - Resistance values.

L7 = 0.5Ω; L8 = 220Ω ± 20%; L12 = 220Ω ± 20%

Loudspeaker voice coil - Resistance = 13Ω

Rectifier MR1

With 1.4V across two sections in forward direction, the current should be not less than 100mA. With 12V across two sections in reverse direction, the current should be not greater than 4mA.

H.T. and L.T. voltages

The average H.T. voltage, with the set running on A.C. or D.C. input and no signal, will be at least 200V. The average L.T. voltage should be under the same conditions, on D.C. (input 12V) - 11.5V; on A.C. - 12.5V.

R.F. chassis voltage test panel (Fig. 1)

With the set operating under no-signal conditions, C.W./R.T. switch at R.T./A.V.C. OFF, and R.F. GAIN at 10, voltages should be recorded as follows:-

Between tags labelled HT+ and V1A = 1.65V
" " " " " V2A = 1.7V
" " " " " V3A = 2.7V

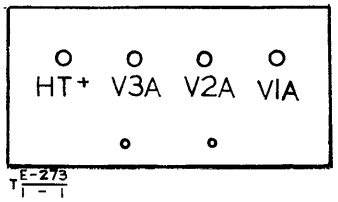


Fig. 1 - R.F. chassis voltage test panel

I.F./A.F. chassis voltage test panel (Fig. 2)

With the set operating under no-signal conditions, C.W./R.T. switch at R.T./A.V.C. OFF, and R.F. GAIN at 10, voltages should be recorded as follows:-

Between	points	labelled	HT+	and	V2B	=	2.8V
"	"	"	"	"	V2C	=	3.5V
"	"	"	"	"	V4A	=	1.9V
"	"	"	"	"	V5A	=	6.2V
"	"	"	"	"	V2D	=	0V
"	"	"	"	"	V2E	=	4.1V
"	"	"	"	"	V1B	=	3.3V

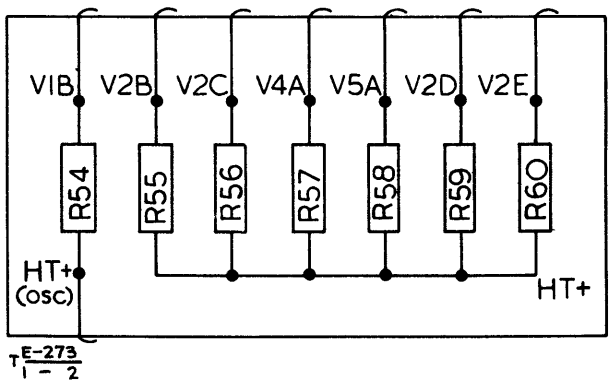


Fig. 2 - I.F./A.F. chassis voltage test panel

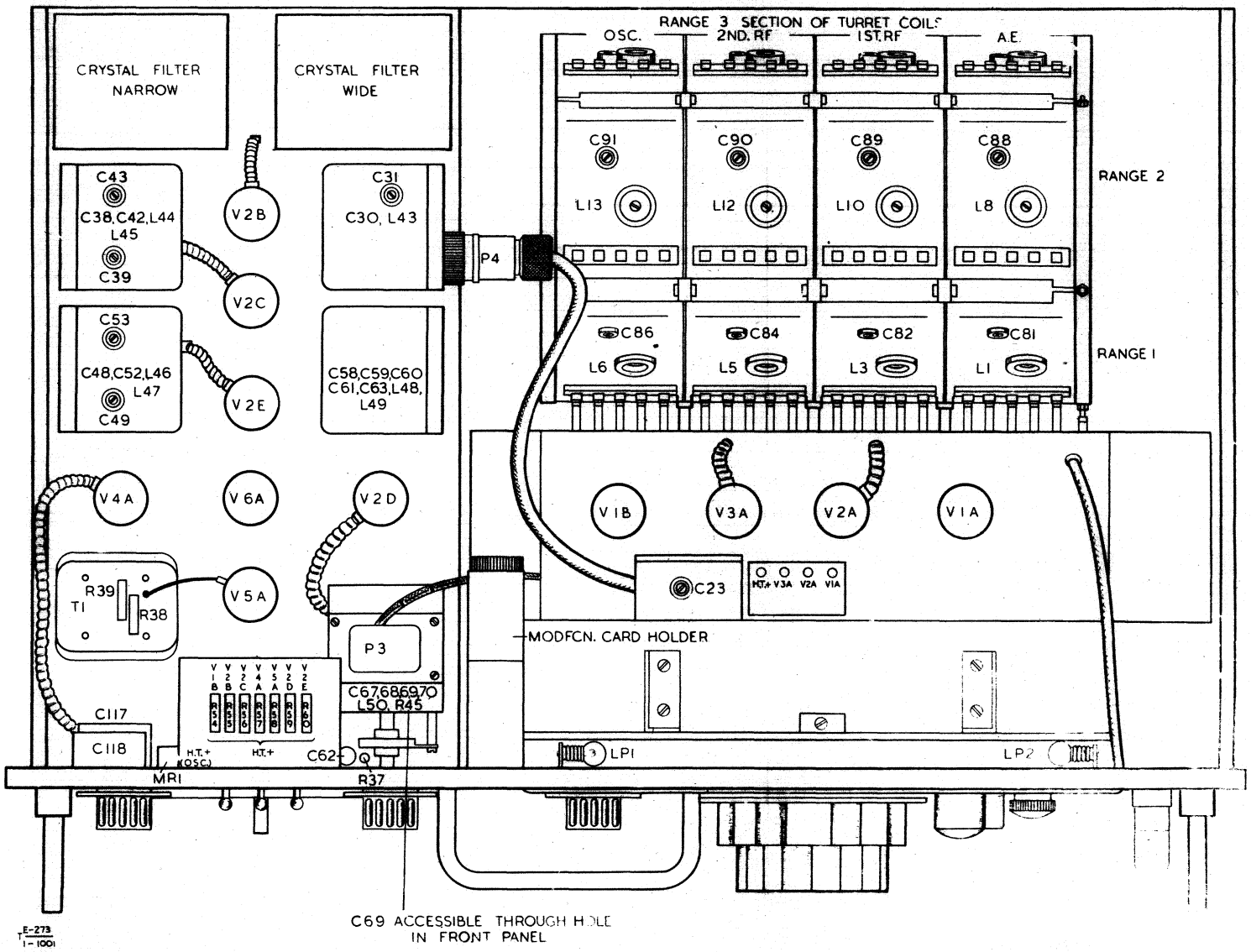


Fig. 1001 - Above chassis component layout

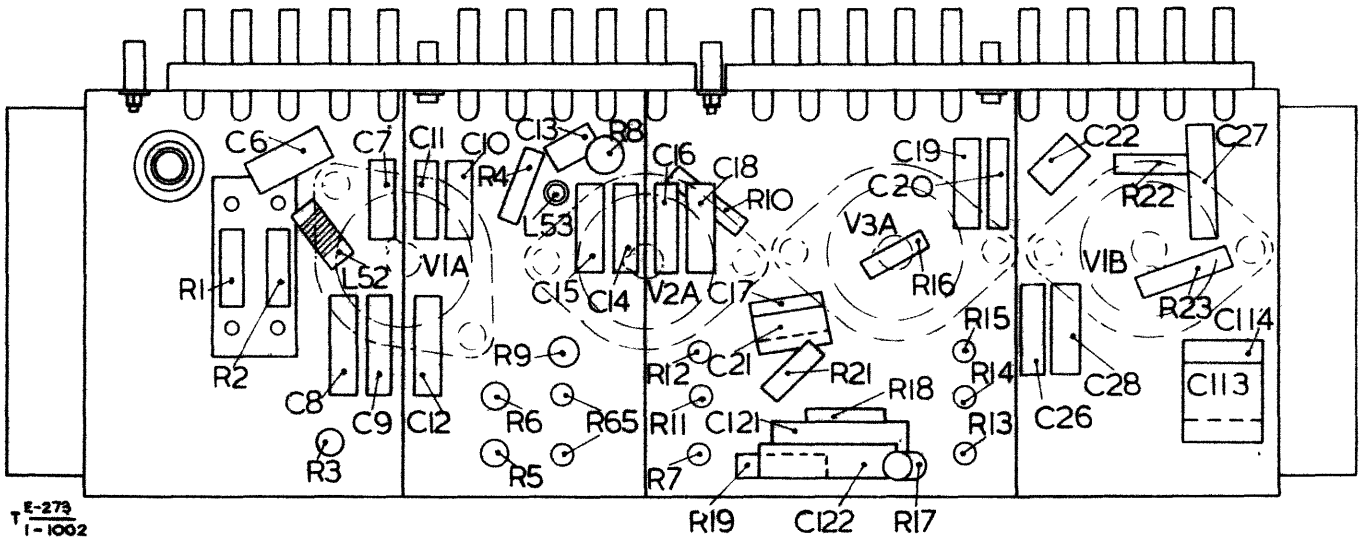


Fig. 1002 - R.F. below chassis component layout

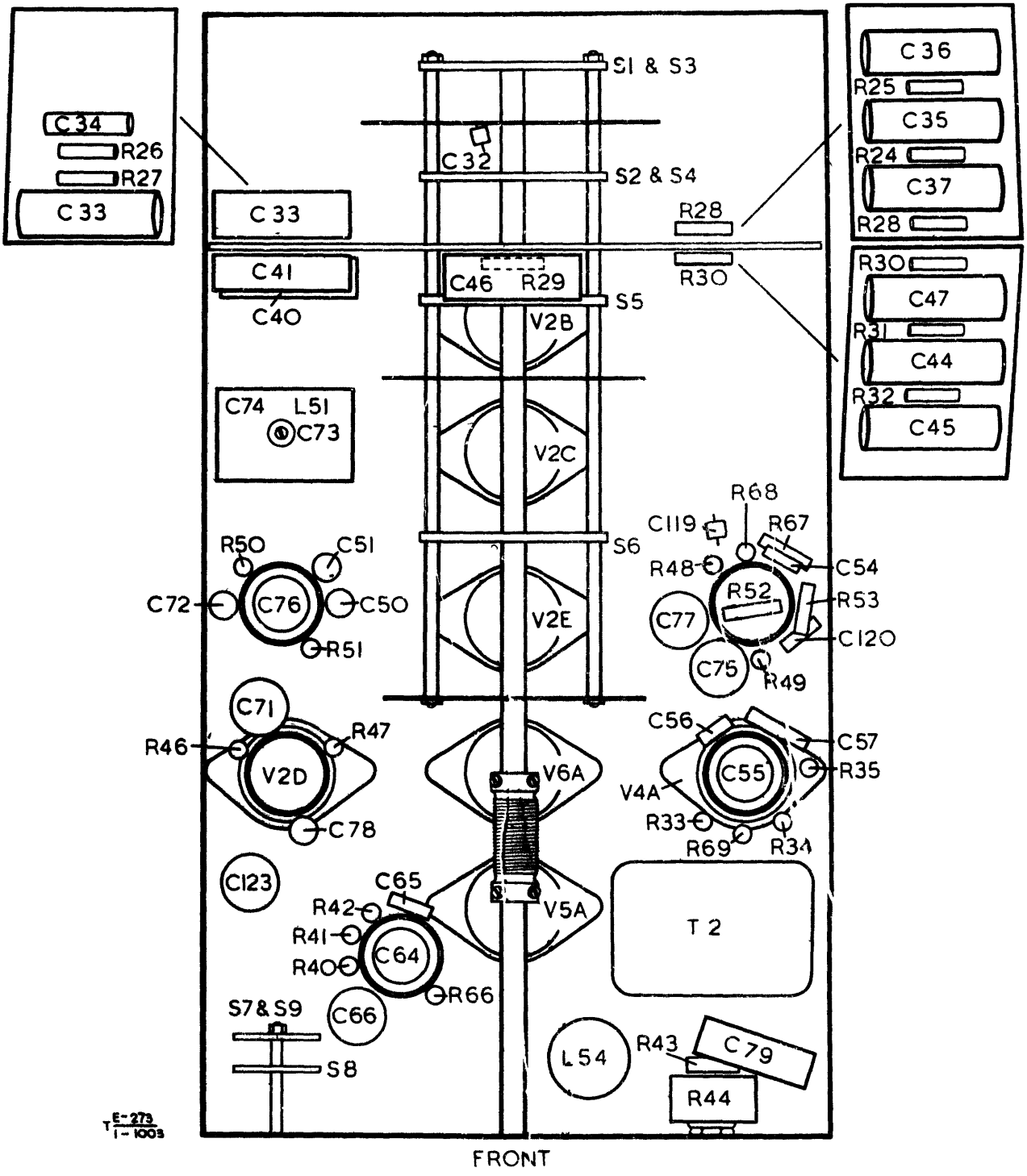
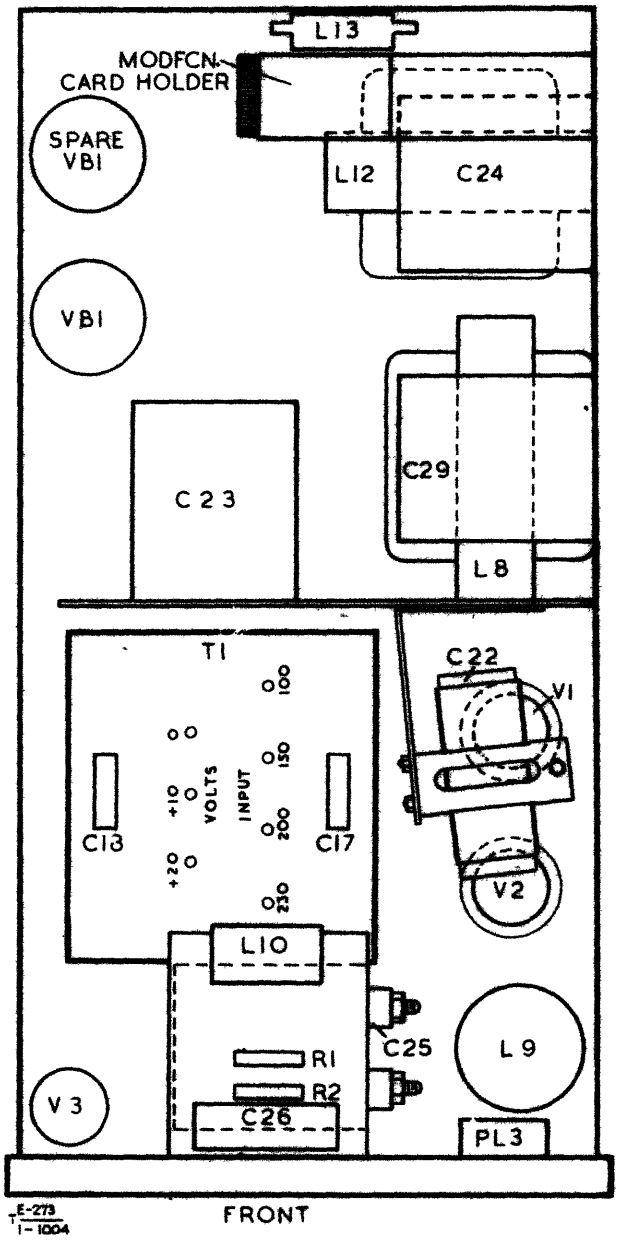


Fig. 1003 - I.F./A.F. below chassis component layout



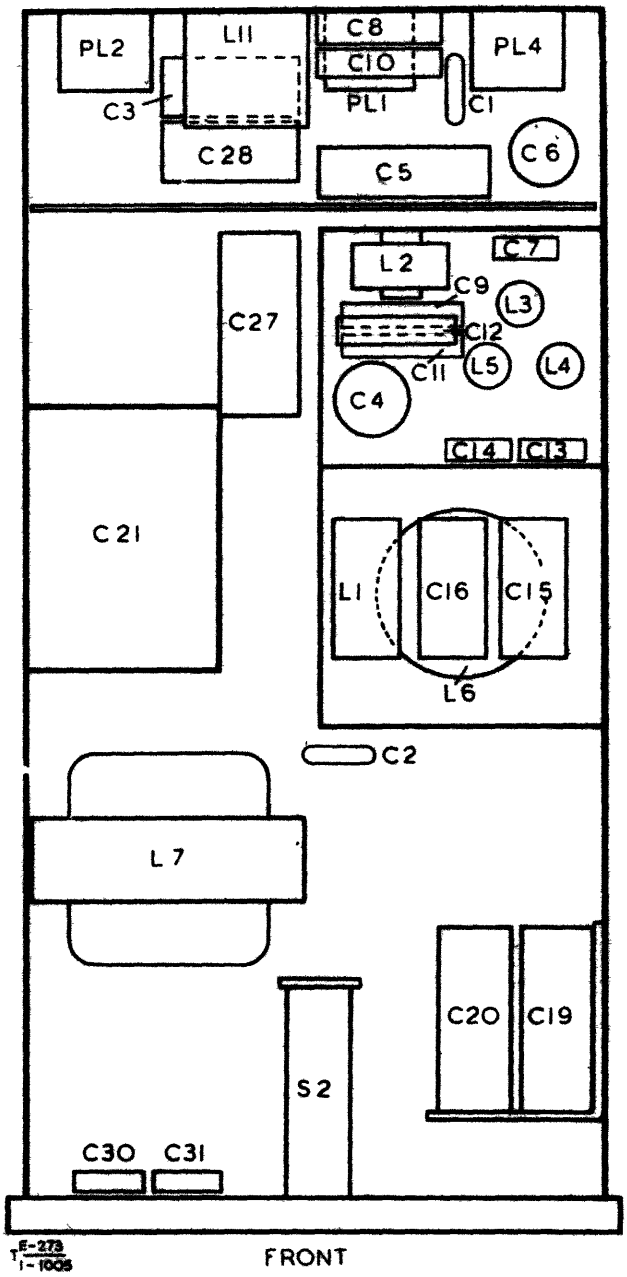


Fig. 1004 - P.S.U. No. 33 ~~below~~ ABOVE chassis component layout

Fig. 1005-P.S.U. No. 33 ~~above~~ BELOW chassis component layout

END