Instruction Manual

for

AND

MARINE RECEIVERS

(Type 1017 and Type 1018)

Ref R. 29/53

Published by
THE MARCONI INTERNATIONAL MARINE
COMMUNICATION COMPANY LTD.
Marconi House, Chelmsford
MARCONI'S WIRELESS TELEGRAPH COMPANY LTD.
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for

MARCONI 'MERCURY'
(Type 1017)

and

MARCONI 'ELECTRA'
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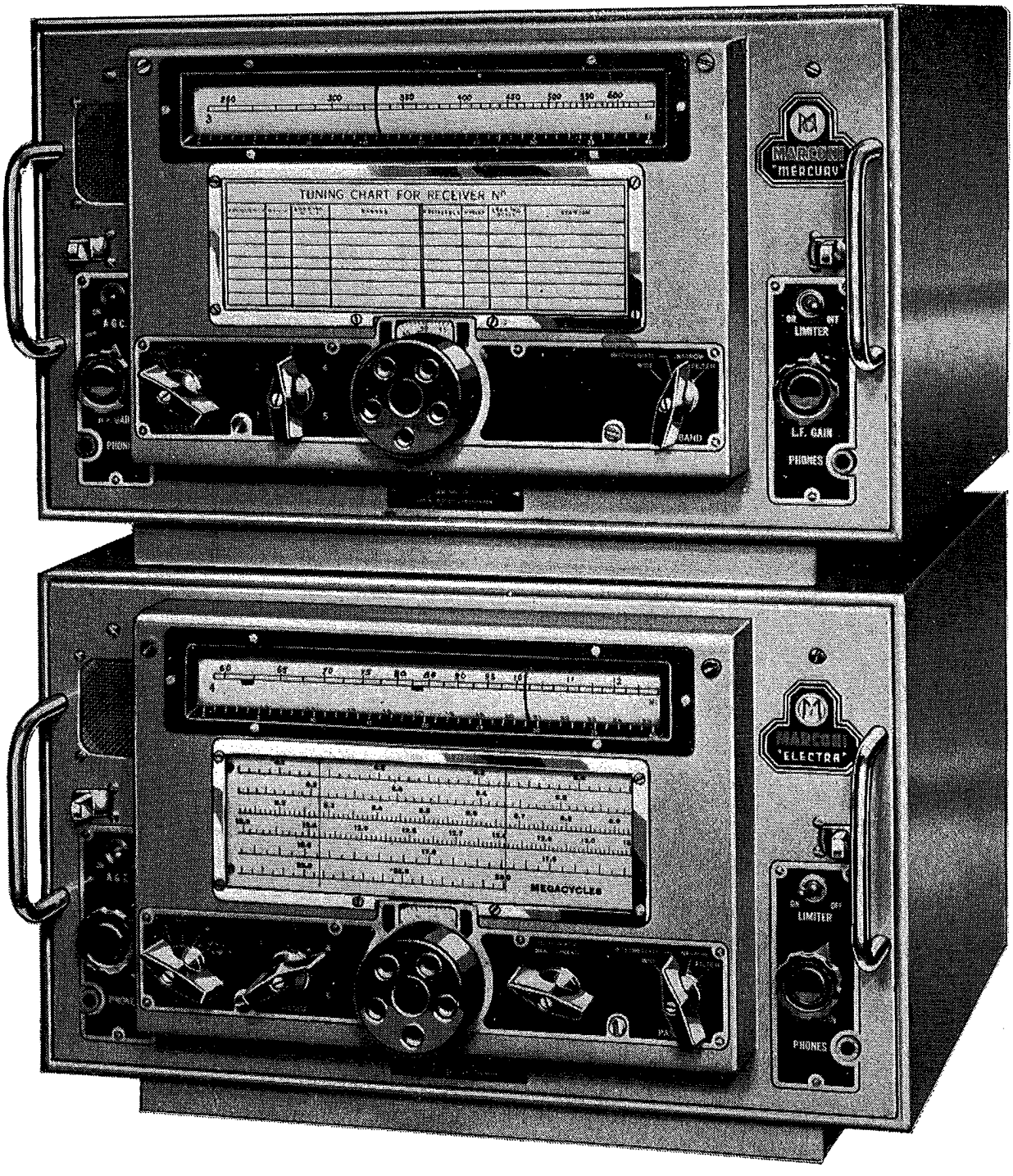
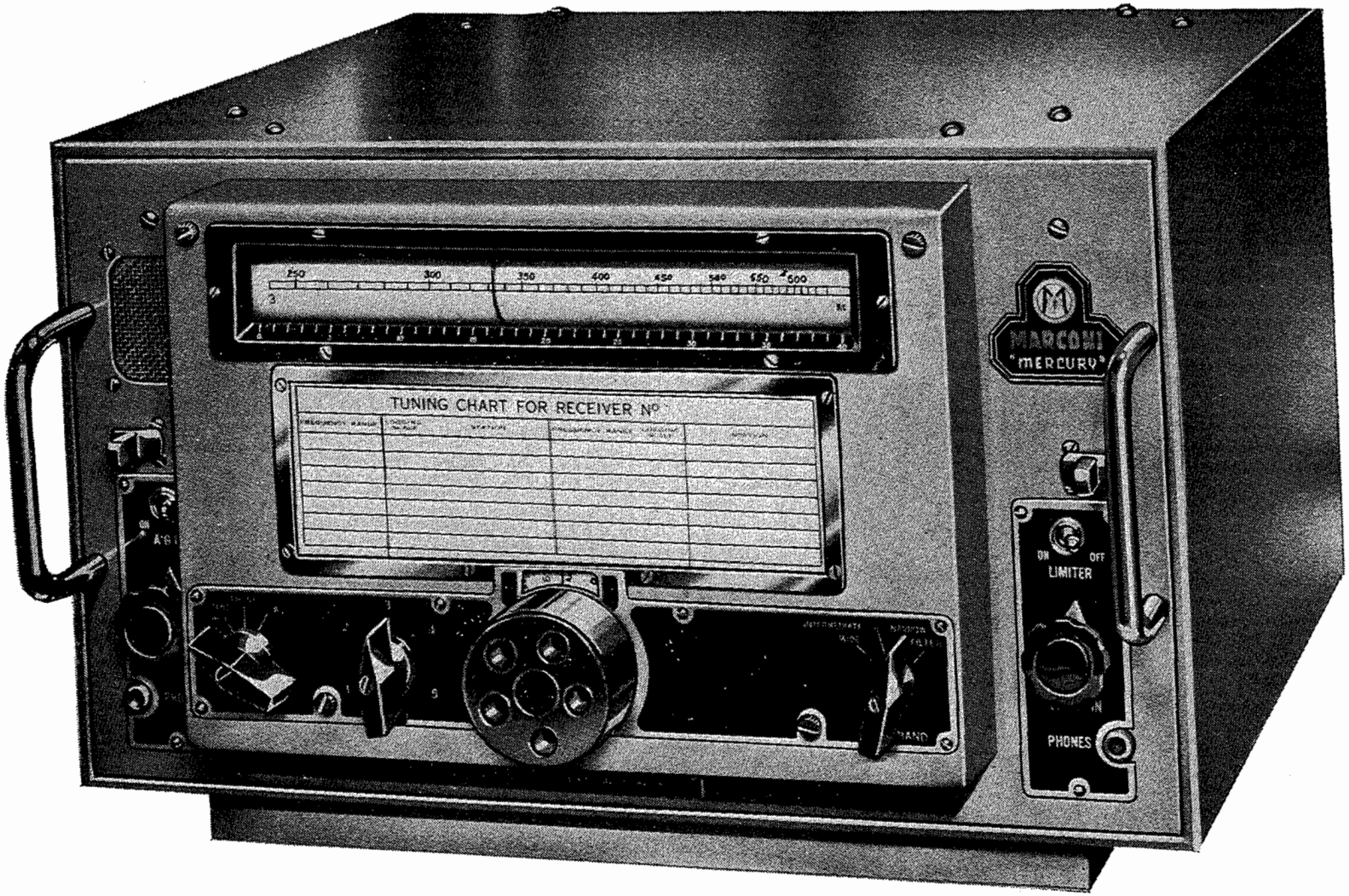
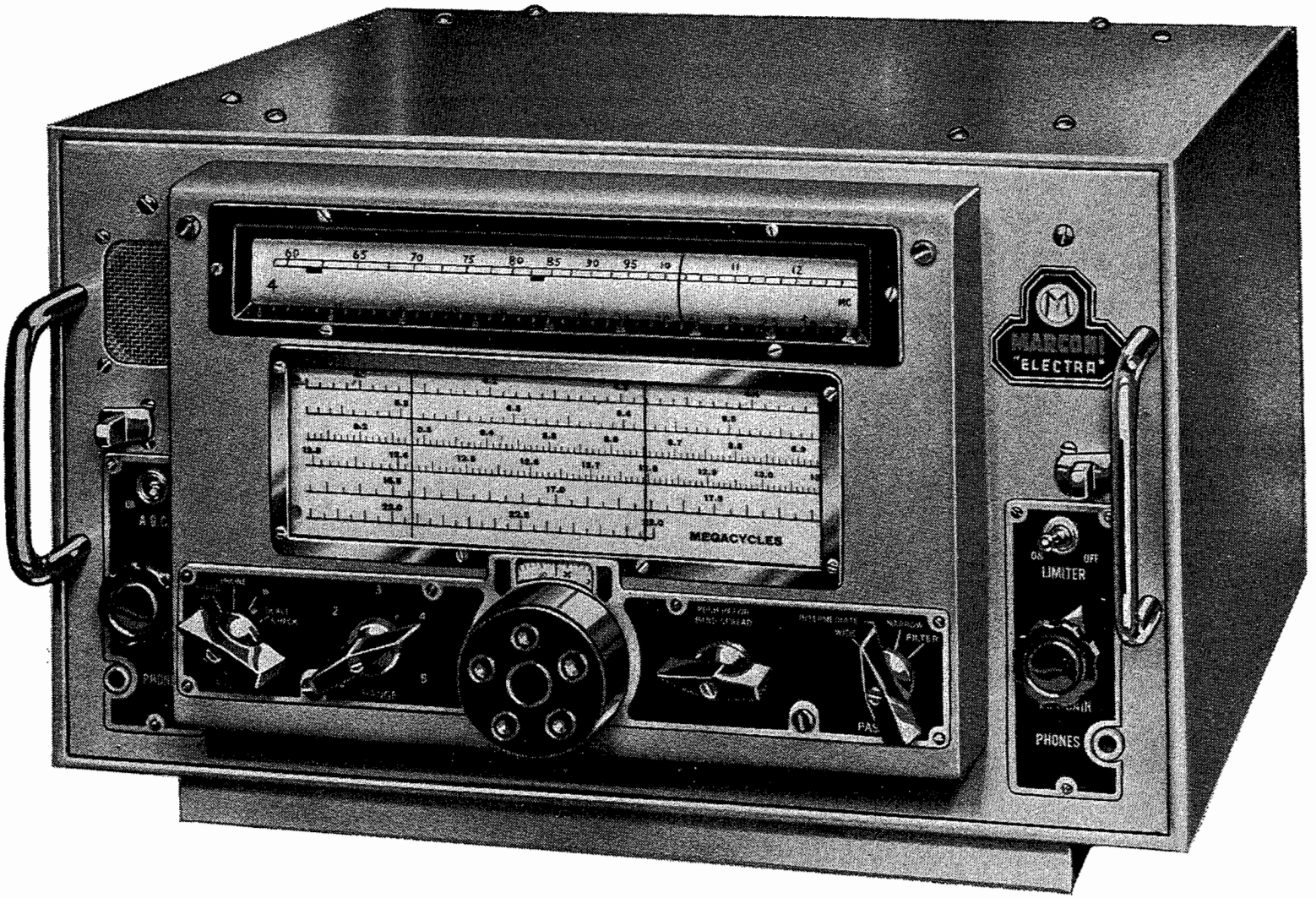


A COMBINED FITTING OF THE 'MERCURY'/'ELECTRA' MARINE RECEIVERS



MARCONI 'MERCURY' (TYPE 1017) COMMUNICATION RECEIVER



MARCONI 'ELECTRA' (TYPE 1018) COMMUNICATION RECEIVER

Instruction Manual

Ref R. 29/53

for

RCURY' (Type 1017) and 'ELECTRA' (Type 1018)

MARINE RECEIVERS

SUMMARY

'his instruction manual covers the technical information for the Marine General Purpose 's, 'Mercury' and 'Electra', type 1017 and 1018 respectively.

ın attempt has been made to present the information for both types of receiver in a common ›rk, using parallel vertical columns where the descriptive text differs appreciably for each type. s been facilitated by the fact that these two receivers, although differing radically in circuit ıave been planned to use almost identical mechanical design features.

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DESCRIPTION

AND

OPERATING INSTRUCTIONS

FOR

ECEIVERS 'MERCURY' (TYPE 1017) and 'ELECTRA' (TYPE 1018)

SECTION 1

INTRODUCTION

These receivers have been designed to fully comply with the 'Performance Specification for al Purpose Receivers for Merchant Ships' as laid down by the General Post Office.

The two receivers together cover the frequencies from 15 kc/s to 25 Mc/s. Each receiver has five and on the 'Mercury', type 1017, the frequencies of these ranges are: —15 to 40 kc/s, 100 to 250 250 to 640 kc/s, 640 to 1,600 kc/s and 1,600 to 4,000 kc/s. On the 'Electra' type 1018, the ncies of these ranges are: —250 to 520 kc/s, 1.5 to 3.0 Mc/s, 3.0 to 6.0 Mc/s, 6.0 to 12.0 Mc/s 2.0 to 25 Mc/s.

Both receivers are designed to work from a type 889A power unit which will operate off 24, 110 20 volts D.C. and 230 volts A.C. The type 889 power unit may also be used with both these ers.

Special features of both receivers include the following: —A high degree of electrical and thermal ty is ensured by the provision of a voltage stabilizer and a temperature compensator. A high- nination log scale is fitted to each receiver to supplement the normal frequency calibration. The er type 1018 also includes a set of bandspread scales to expand each of the six H.F. shipping ; when used in conjunction with the built-in crystal calibrator these scales permit the accurate ning of a hitherto unlogged station, knowing only the frequency of the latter.

Four degrees of selectivity are provided with bandwidths ranging from 8 kc/s to 150 c.p.s. circuit refinements include an automatically controlled pulse limiter.

Protection is afforded against possible damage of the receiver circuits from an associated trans- by the inclusion of high speed relays which can be operated by the back contacts of the itter key.

SECTION 2

DATA SUMMARY

2.1. Frequency Range

'Mercury' (type 1017): —15 kc/s-40 kc/s and 100 kc/s-4.0 Mc/s; the latter in four rang
'Electra' (type 1018): —250 kc/s-520 kc/s and 1.5 Mc/s-25.0 Mc/s; the latter in four ran

2.2. Supply Requirements

Both receivers operate from a type 889A or 966A supply unit. The input voltage to thes
24, 110 or 220 volts D.C. or 230 volts A.C. The approximate consumption is 65 watts.

2.3. Receiver Input

These receivers are designed to give the best performance with the following inputs: —

(*a*) Below 4.0 Mc/s—an aerial whose capacity including feeder is not greater than 600

(*b*) Above 4.0 Mc/s—an input impedance of 75 ohms.

2.4. Receiver Output

(*a*) Small built-in speaker handling up to 30 mW.

(*b*) Two 'phone jacks' on front panel for low impedance 'phones handling up to 10 mW

(*c*) Additional 'phones available at terminals on the case near the power socket.

(*d*) Extension 'phones available on tag 5 of power socket on the case.

2.5. Valves

Valve type	*Number required*	
	'Mercury' *Type* 1017	'Electra' *Type* 1018
KTW61	4	5
X61M	3	2
L63	1	2
DH63	1	1
D63M	2	2
VR150/30	1	1

2.6. Dimensions (Overall)

Width	$17\frac{7}{8}''$ ($+2\frac{3}{4}''$ for power plug con
Depth	$18\frac{1}{4}''$
Height	$11\frac{1}{4}''$

2.7. Weight

55 lbs. (Receiver)

21 lbs. (Power Supply Unit)

SECTION 3

DESCRIPTION

1. GENERAL DESCRIPTION

The receivers are of all steel construction and suitable for bench mounting. One receiver may ıo be mounted on top of the other. The panel and chassis may be withdrawn from the case by releas- g the two slide fasteners, mounted on the panel. The supply unit is a separate unit and is described lly in the Appendix on page 87.

A seven-way socket is fitted to the case to carry the receiver supplies and also the extra 'phone and sensitizing lines. Mounted beside this socket is a pair of additional 'phone terminals and an earthing ılt. A diagram showing the disposition of controls and other points mentioned is given on page 11.

The chassis is of the tray type with open sides. A narrow web divides the signal frequency rtion from the smaller intermediate frequency portion. The majority of minor components are fitted tagboards which make most components and wire junctions readily accessible.

Feed metering points are provided on a tag board which is accessible through one of the open les in the chassis tray. Each metering point is clearly labelled on the feed metering board.

All circuit trimmers can be adjusted while the receiver is in the upright position. A dust cover otects the signal frequency trimmers.

The majority of the drive components associated with the main tuning (and in the case of the pe 1018 receiver the bandspread drive) together with the mechanisms operating the scale pointer and libration drum are fitted in front of the panel in order to facilitate replacement. The whole of these rds and gears are protected by an easily removable cover.

The five ranges are calibrated on a $10\frac{1}{4}$ inch drum which rotates on a horizontal axis. This drum rotated by the range switch to show the appropriate scale. The type 1018 has also a flat band- read scale fitted below this drum. This scale can be brought into use by means of a handle on the nel.

An 80 to 1 gear reduction is used for the main tuning drive all the time. Quick transit from one rt of the scale to another is facilitated by the flywheel action of the knob.

A logging scale is provided. This consists of a calibrated disc mounted on the main tuning ındle used in conjunction with numbers engraved on the lower side of the calibration escutcheon nte.

2. TECHNICAL DESCRIPTION

For the complete circuit diagram of connections see pages 63, 81 and 83.

The valve sequence for both receivers is as follows: —

	'Mercury' *Type* 1017	'Electra' *Type* 1018
t S.F. Amplifier. V1	KTW61	KTW61
ıd S.F. Amplifier. V2	KTW61	KTW61
t Frequency changer. V3	X61M	X61M
t Frequency changer oscillator. V4	—	L63
ıd Frequency changer. V4	X61M	—
t I.F. Amplifier. V5	KTW61	KTW61
ıd I.F. Amplifier. V6	KTW61	KTW61
nal detector. V7	D63M	D63M
ıat Frequency oscillator. V8	X61M	X61M
ıise Limiter. V9	D63M	D63M
t L.F. Amplifier. V10	DH63	DH63
F. Output Amplifier. V11	L63	L63
ıllibrating oscillator. V12	—	KTW61
ıltage stabilizer. V13	VR150/30	VR150/30

A large part of the receivers follow the usual technique, but there are a number of points which quire special mention.

3.2.1. Signal Frequency Circuits

Interposed between the first tuned circuits and the aerial are two desensitizing relays, and various rejector circuits. The relays protect the first circuits from excessive transmitter voltages when used in conjunction with a transmitter and in order to do this, 24 volts must be applied to the relay coils while transmissions are in progress. One relay takes the aerial to earth via R1 and the other shorts the aerial coupling winding to earth and also reduces the gain of V1 and V5. The rejector circuits enable the intermodulation requirement set out in the G.P.O. specification to be met. On the type 1017 only, an I.F. rejector at 4.5 Mc/s is used as well. The frequencies of the various ranges are as set out in columns 2a and 2b of the tables on page 6.

3.2.2. Frequency Changer Circuits

'Mercury' (type 1017)

On the above receiver two triode hexode frequency changers are used. The 1st frequency changer (V3) is used on all ranges. On ranges 1, 2 and 3 the output from this valve is fed direct into the 85 kc/s I.F. circuits and V4 is not used. On ranges 4 and 5 the output from V3 is fed into two pairs of circuits at 4.5 Mc/s and these are fed into V4, the 2nd frequency changer whose output is fed direct into the 85 kc/s I.F. circuits. These circuits are switched by means of switches S6 and S7.

'Electra' (type 1018)

On the type 1018 receiver only one frequency changer is used. The oscillator consists of a separate triode V4 whose output is fed into the hexode part of V3 for mixing. The triode portion of V3 is not used.

A temperature compensator is fitted to the first oscillator of both receivers and this reduces the frequency drift due to temperature changes. A resistor R31, connected across the 24 volt heater line is mounted near the moving vane of the compensator so that heat from this resistor may accelerate the action of the bimetal vane of the compensator.

3.2.3. Intermediate Frequency Circuits

'Mercury' (type 1017)

In the type 1017 receiver two I.F. frequencies are used. The 85 kc/s I.F. is employed all the time and it is by these circuits that the various passbands are obtained. On ranges 4 and 5 a 4.5 Mc/s I.F. is employed in addition to the 85 kc/s. These two pairs of circuits do not affect the passband. On range 1 the I.F. gain is considerably reduced on 'Wide' and 'Intermediate' by reducing the inductive coupling between one of the coupled pairs of I.F. circuits. This is necessary in order to retain electrical stability.

'Electra' (type 1018)

On the type 1018 receiver a 690 kc/s I.F. is used throughout. To obtain the necessary passbands a twin crystal gate is used for the 'Narrow' passband while orthodox L.C. circuits are used for the others.

Both receivers are fitted with three passband positions in addition to the 1,000 c.p.s. note filter. The passbands are changed by varying the inductive coupling of two of the coupled pairs of I.F. circuits. The total bandwidths for 6 db. attenuation are approximately 8 kc/s for 'Wide', 3 kc/s for 'Intermediate' and 1 kc/s for 'Narrow'. Gain equalization for the various passband positions is brought about by adjusting the cathode bias of V6.

The final I.F. tuned circuit feeds into a double-diode valve. When the receiver is switched for C.W. reception these diodes act as a balanced demodulator; on M.C.W. reception one diode only is used while the other is held non-conducting by applying a positive potential to its cathode by means of the rear contacts on S15. (This balanced demodulator eliminates M.C.W. interference and interference produced by an adjacent unwanted carried beating with the wanted carrier.)

The B.F.O. valve V8 consists of a triode hexode, the triode portion containing the oscillator ned circuit. The oscillation is coupled into the hexode portion electronically and the final output is ken from across R67. C159 is employed to attenuate the higher frequency harmonics. The B.F.O. is jected into the centre of the final I.F. tuned circuit. In addition to the advantages of balanced modulation mentioned above this mode of injection minimizes the possibility of the B.F.O. voltage ing transferred back into the previous tuned circuit and so operating the A.G.C. system.

Following the final detector is a pulse noise limiter consisting of two diodes in series designed suppress both positive and negative pulses. The noise limiter derives its controlling bias from the otified output of one of the diodes of V10. The noise limiter may be switched out by means of S12 n front panel).

The A.G.C. system used controls V2 and V5 fully and V1 and V6 partially. This can be switched ff' or 'On' from the switch S13 on the front panel. The A.G.C. diode is contained in V10. An H.F. ln control (R113), operating on V1 and V5 only, is also fitted.

2.4. Low Frequency Circuits

The L.F. circuits are of the usual type. A small 'speaker is fitted in addition to the usual 'phone ske; the former will automatically operate when all 'phones are removed from the receiver.

2.5. Other Characteristics

Both receivers are fitted with a voltage stabilizing valve V13 stabilizing at 150 volts. This ilized line is used to feed the H.T. to the frequency changer oscillator, the B.F.O. valve and e screen grid of the first I.F. valve V5. All the other H.T. voltages are taken from the main 230 volt 'T' line.

'Mercury' (type 1017)

On the type 1017 receiver an L.F. filter choke 17 is included in the heater supply line. This is quired primarily for range 1 when 24 volts D.C. used on the heaters. This can be switched out means of the A.C./D.C. link PB1, which also moves the electrolytic condensers from the ater line when on A.C. working.

'Electra' (type 1018)

On the type 1018 receiver an A.C./D.C. link PB1 is provided and this removes the electrolytic condensers from the heater line on A.C. working.

This receiver is also fitted with a crystal calibrator unit working at 690 kc/s. With the system switch at 'Scale check' the harmonics of the 690 kc/s locate the main shipping channels while the fundamental replaces the B.F.O. The H.T. is removed from the anodes of V1 and V2 as well, thus removing any signals arriving from the aerial.

3. PERFORMANCE DATA

3.1. Sensitivity

In the table set out below the sensitivity for both receivers may be seen in columns 4a and 4b.

'Mercury' (type 1017)

The sensitivity on the 'Mercury' receiver is ven as the C.W. input via the appropriate mmy aerial (i.e. 200 pF for all ranges) for a nal noise ratio of 10 db. The passband is set at arrow'.

'Electra' (type 1018)

The sensitivity on the 'Electra' receiver is given as the C.W. input via the appropriate dummy aerial (i.e. 200 pF on ranges 1 and 2 and 75 ohms on all other ranges) for a signal/noise ratio of 20 db. The passband is set at 'Wide' for all ranges, except for range 1 where 'Intermediate' is used.

3.2. Image Protection

The amount by which the image signal is attenuated is shown in columns 5a and 5b in the tables llowing:

'MERCURY' RECEIVER TYPE 1017

(1a) *Range*	(2a) *Frequency*	(4a) *Sensitivity*	(5a) *Image Protection*
1	15 kc/s	30.0 μV	90 db.
	40 kc/s	4.0 μV	85 db.
2	100 kc/s	5.0 μV	110 db.
	250 kc/s	5.0 μV	110 db.
3	245 kc/s	4.0 μV	110 db.
	645 kc/s	4.0 μV	85 db.
4	635 kc/s	1.5 μV	110 db.
	1650 kc/s	1.0 μV	110 db.
5	1550 kc/s	1.0 μV	110 db.
	4000 kc/s	1.0 μV	100 db.

'ELECTRA' RECEIVER TYPE 1018

(1b) *Range*	(2b) *Frequency*	(3b) *Dummy Aerial*	(4b) *Sensitivity*	(5b) *Image Protection*
1	250 kc/s	200 pF	18.0 μV	100 db.
	500 kc/s	200 pF	30.0 μV	100 db.
2	1.5 Mc/s	200 pF	3.0 μV	100 db.
	3.0 Mc/s	200 pF	2.0 μV	90 db.
3	3.0 Mc/s	75 ohms	2.0 μV	100 db.
	6.0 Mc/s	75 ohms	2.0 μV	80 db.
4	6.0 Mc/s	75 ohms	2.5 μV	85 db.
	12.0 Mc/s	75 ohms	2.2 μV	55 db.
5	12.0 Mc/s	75 ohms	4.0 μV	70 db.
	25.0 Mc/s	75 ohms	5.0 μV	40 db.

3.3.3. Adjacent Channel Protection

Protection on both receivers is as set out in the table below. Column A gives the total passband for 6db. attenuation and column B gives the total passband for 40 db. attenuation.

Switch Position	*'Mercury' Type* 1017 A	*'Mercury' Type* 1017 B	*'Electra' Type* 1018 A	*'Electra' Type* 1018 B
Filter ...	100-150 c.p.s.	—	100-150 c.p.s.	—
Narrow ...	1.0 kc/s	5.0 kc/s	1.0 kc/s	7.0 kc/s
Intermediate ...	3.0 kc/s	8.0 kc/s	3.0 kc/s	12.0 kc/s
Wide ...	8.0 kc/s	16.0 kc/s	9.0 kc/s	20.0 kc/s

3.3.4. Fidelity

On the 'Filter' position frequencies above 1,200 c.p.s. and below 800 c.p.s. are attenuated by at least 20 db. When the passband switch is set to the other passband positions the overall fidelity is influenced by the I.F. circuits. The I.F. response curves are given on page 8 and the L.F. response curves on page 9.

3.5. A.G.C. Characteristics

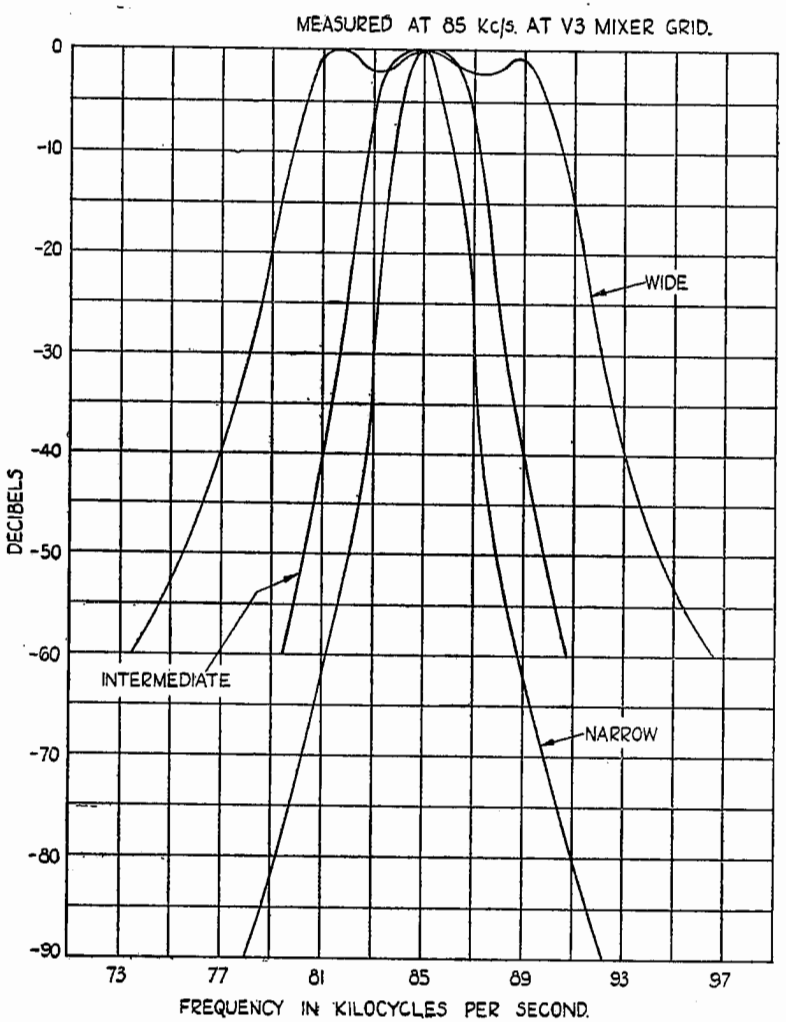
When the receiver is adjusted for a signal approximately 20 db. above the levels quoted in the ble of sensitivities (above), a subsequent increase in input of 60 db. produces a rise of output of:
—not more than 10 db. in the case of 'Mercury' (type 1017)
—not more than 10 db. in the case of 'Electra' (type 1018).

3.6. Thermal Drift

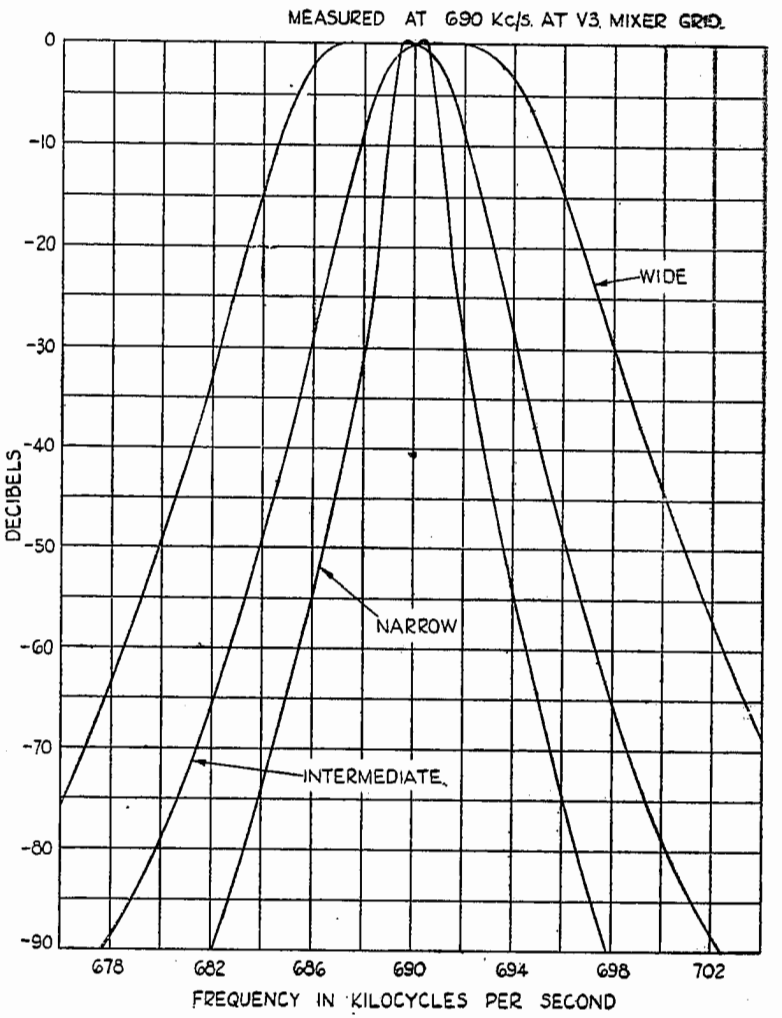
After allowing for a five minute warming-up period the drift in any subsequent five minute period not more than 3 parts in 10^4 for frequencies between 15 kc/s and 1,500 kc/s and not more than one ırt in 10^4 for frequencies between 1.5 Mc/s and 25.0 Mc/s.

3.7. Radiation

These receivers do not produce a field exceeding 0.1μV per metre at a distance of one nautical ile as laid down in the G.P.O. specification.



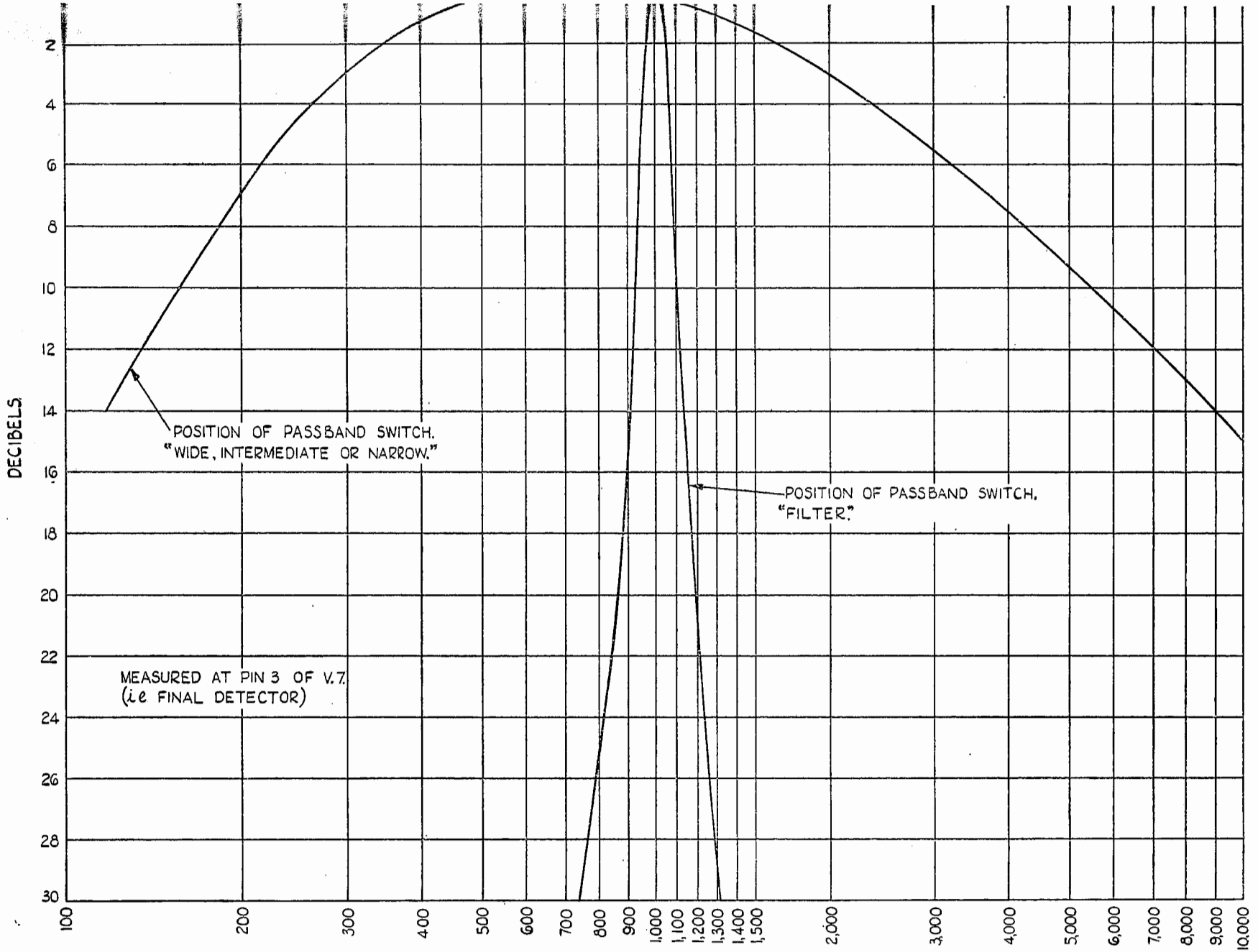
I.F. RESPONSE CURVES . FOR TYPE 1017 RECEIVER



I.F. RESPONSE CURVES FOR TYPE 1018 RECEIVER.

WZ.4259

I.F. RESPONSE CURVES



Sheet No. 1
Issue No. 1

L.F. RESPONSE CURVES

WZ.4260

SECTION 4
INSTALLATION

4.1. Unpacking

The valves and crystals for this equipment are packed separately. The correct position of the various valves and crystals can be seen from the lettering on the chassis. Top cap valve leads should be connected to their correct valves.

4.2. Mounting

An outline drawing of the receivers is shown on the opposite page.

The receivers may either be screwed to the bench separately or mounted one on top of the other. If the latter arrangement is adopted the type 1018 receiver should be the lower of the two as this is the one in more frequent use.

To mount the receivers on the bench first of all remove the hexagon-head screws securing the plinth to the bottom of the case. This will require the removal of the chassis from the case. The plinth is now screwed to the bench by the wood screws supplied and the receiver case screwed back on to the plinth.

If one receiver is to be mounted on top of the other receiver then mount the lower receiver as detailed above. Next remove the 2 BA screws from the top of the lower receiver case and screw the plinth of the upper receiver (which has previously been removed from the upper receiver), to the case of the lower receiver. The case of the upper receiver may now be screwed to its own plinth.

A direct earth must also be made to the earthing bolt near the power input socket.

4.3. Supply Connections

The power supply unit should first of all be set up to the correct supply voltage available. Details of the necessary changes to the power unit are given in the section on power supply starting on page 83. Similarly the A.C./D.C. plug switch on the chassis near the 5 pin power input socket must always be set to A.C. except when the primary supply voltage is 24 volts D.C.

A 7-core connector (such as type 795) can be used to connect the power supply unit and the receiver. This lead is the same as that used for the CR 300; the pin connections used are similar to the latter but the method of desensitizing is different (see below). Note that this lead may come away from its plug in one of three different directions (see page 11). This may be brought about by removing three C/SK screws in the plug and rotating the right angle cover of the plug to the desired position.

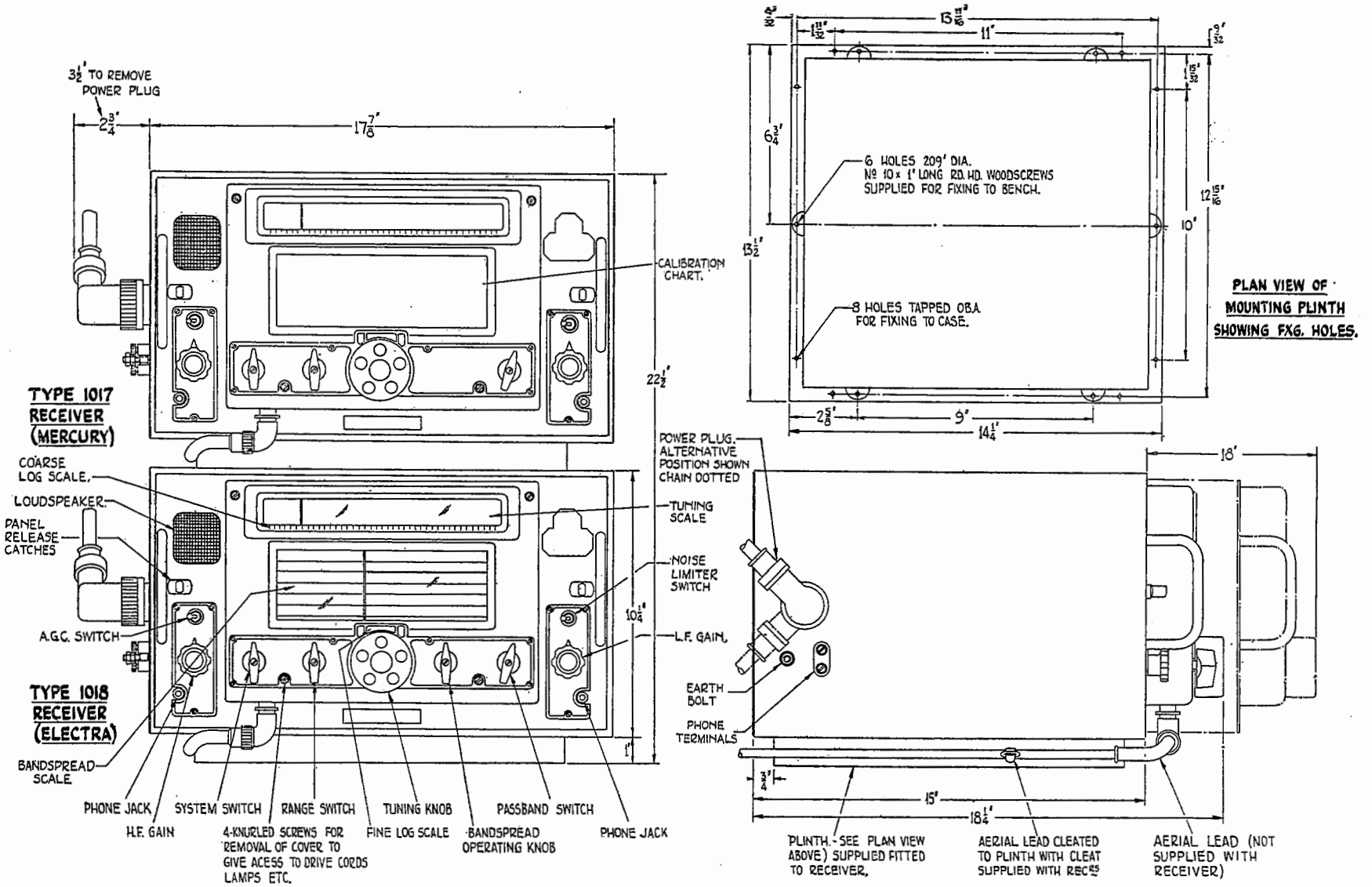
4.4. Aerial

The aerial need only consist of an open wire from 60 to 100 ft. long, placed as high as is convenient. The receiver end of the aerial should be screened for about 12 to 20 ft. This feeder should be terminated in the aerial plug provided or to a junction box type 799, care being taken to see that the braiding is connected to the plug case. A suitable cable is type PT.29.M. or A.S.42.M., etc. Details showing the method of connecting the screened cable to the aerial plug are given on drawing WZ.4261, page 12.

4.5. Preset Adjustments

To assist in locating the position of the desensitizing potentiometer see drawing WZ.4262/B on page 28. Great care must be taken not to confuse this potentiometer with the other potentiometer mounted on top of the chassis. If the latter is accidentally rotated then refer to section 6.3.4.

Before applying power to the equipment check that the desensitizing control is set fully anti-clockwise. The only exception to this is detailed in the section on 'Operation'. When the receiver is used by itself this desensitizing resistance is shorted out by means of contacts on the relay Z2. When used in conjunction with a transmitter the relays Z1 and Z2 must be connected (via pin 1 of the seven pin socket) to the back contact of the transmitting key and thence to the 24 volt supply via a 100 ohms resistor so that the relays are energized for 'key down' position.



1-1

Sheet No. 1
Issue No. 1

WZ.4257

OUTLINE DRAWING

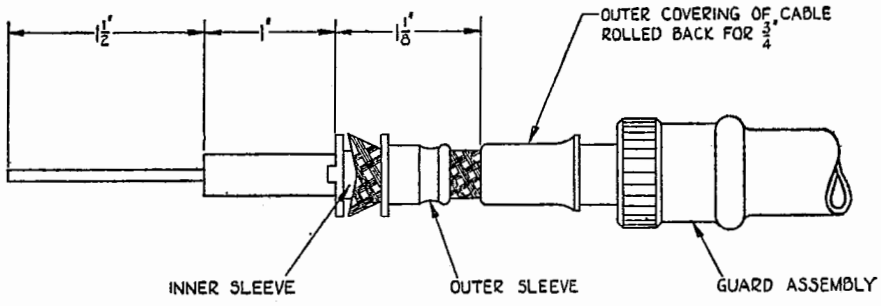


FIG. 1.

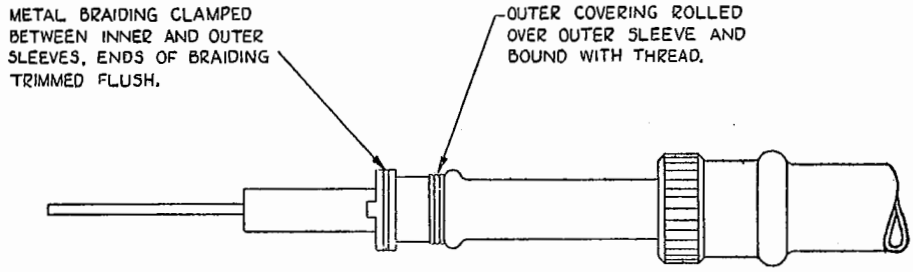
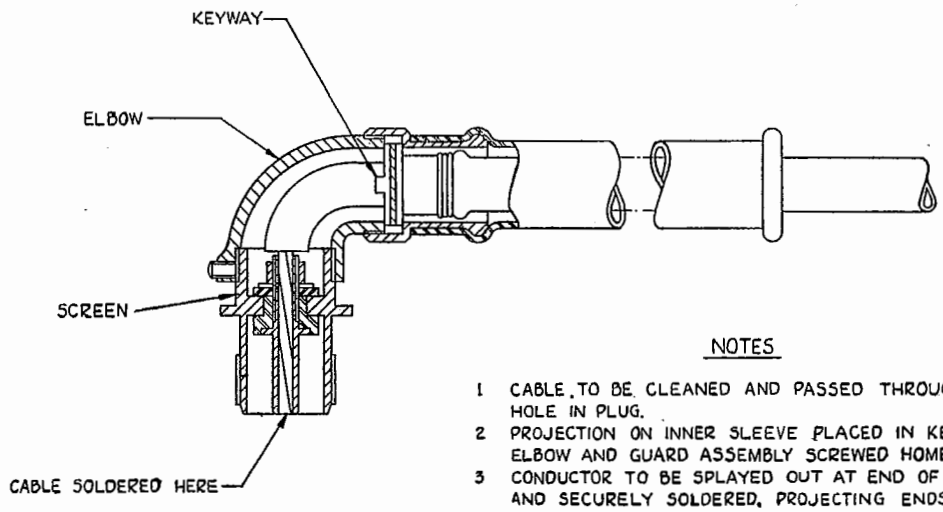


FIG. 2.



NOTES

1. CABLE TO BE CLEANED AND PASSED THROUGH HOLE IN PLUG.
2. PROJECTION ON INNER SLEEVE PLACED IN KEYWAY OF ELBOW AND GUARD ASSEMBLY SCREWED HOME.
3. CONDUCTOR TO BE SPLAYED OUT AT END OF PLUG AND SECURELY SOLDERED, PROJECTING ENDS TO BE TRIMMED FLUSH.

FIG. 3.

Sheet No. 1
Issue No. 1

WZ.4261

METHOD OF TERMINATING AERIAL FEEDER CABLE TO A.M. PLUG TYPE 161

SECTION 5

OPERATION

After the receiver has been installed as detailed in the section entitled 'Installation', the receivers e ready for use. In general the functions of the major controls will be obvious but the following narks may help to clarify some of the less obvious points. The positions of all front panel controls e shown on page 11. Details of operation of the power supply unit are given in the Appendix on power pply starting on page 87. The receivers take about one minute to warm up and are approximately stable ter five minutes.

1. System Switch

Four positions are provided on the 'Mercury' (type 1017) and five positions on the 'Electra' pe 1018).

The 'Off' position cuts off all power from the receiver, but does not affect the power supply it. The 'Stand by' position connects the valve heater circuits and the scale lamps and in this position e receiver is ready for instant use when required. The 'Phone' position puts the H.T. supply into use d makes the receiver suitable for the reception of M.C.W. signals. The 'CW' position brings into eration the beat-frequency oscillator.

'Electra' (type 1018)

The 'Scale check' position switches in a crystal oscillator. Details of its use are set out below in the paragraph on 'Bandspread'.

2. Range Switch

In all, five ranges are provided on both receivers. Details of the frequencies of each range can seen on the calibration drum at the top of the panel. This drum is rotated to its correct range by the nge switch. It will be seen that the frequencies between 250 kc/s and 520 kc/s and between 1.5 Mc/s d 4.0 Mc/s are covered on both receivers.

3. Passband Switch

Four positions are provided. The 'Wide' position is useful for searching and it also gives the st intelligibility of speech. It can only be used when little interference is present. The 'Intermediate' d 'Narrow' positions progressively narrow the passband and so reduce interference. More accurate ning is required as the passband is narrowed. The 'Filter' position can only be used for C.W. ception, as it switches in a 1,000 c.p.s. note filter. This position is most useful on the lower frequencies d especially those around 15-40 kc/s where the frequency spacing of the transmissions is small.

The total widths of the passbands, for db. attenuation are 'Wide'—8 kc/s, 'Intermediate'—3 /s, 'Narrow'—1 kc and 'Filter'—150 c.p.s.

4. Tuning Control

A reduction ratio of 80/1 in the tuning gives this control a sufficiently smooth action for accurate ning; rapid movements from one part of the scale to another are facilitated by the flywheel action of e knob. For general tuning operations the bandspread handle, where fitted, should be pulled outwards that it becomes disengaged from the main tuning drive.

Rotation of the tuning handle causes the main tuning pointer to move across the calibrated scale the calibration drum. It also rotates a logging scale disc fitted directly to the main tuning spindle. ote that the numbers on this logging scale increase as the tuning handle is rotated clockwise.

On the lower side of the main calibration escutcheon plate numbers from 1 to 40 are engraved. he main pointer moves from one of these numbers to the next for each rotation of the tuning handle. order to record the tuning setting of a transmission received the position of the pointer along this ale on the escutcheon plate and the angular setting of the logging scale disc should be recorded. When is is done the exact tuning point may be re-set quickly when required.

5. Bandspread Control

'Mercury' (type 1017)

A bandspread control is not provided on the ove receiver.

'Electra' (type 1018)

It will be noticed on this receiver that there is a black rectangular spot on the main scale

drum corresponding to each of the six H.F. shipping bands. The bandspread scales expand these shipping bands directly in kilocycles. The system switch is set to 'Scale check' and the receiver tuning pointer set on to one of these black spots. (A diagram illustrating this text is given on page 15.) Rotate the tuning handle until the calibrator oscillator is heard and tune this to the zero beat at the left hand end of the black spot. Rotate the bandspread handle until the bandspread pointer coincides with the vertical continuous line towards the left end of the bandspread scale. When this position is reached and with the calibrator signal tuned to the zero beat mentioned above the bandspread handle should be pushed in until it engages with the main tuning drive.

The system switch is now set to 'C.W.' and the bandspread is ready for use. The bandspread scales are calibrated directly in kilocycles and enable the accurate pre-tuning of a hitherto unlogged station, knowing only the frequency of the latter.

This setting remains accurate for some considerable time, but of course it will have to be set up again each time the receiver is switched on and also for each time a different bandspread scale is used.

It will be noticed that on 'Scale check' the receiver is 'dead' to any external signal and so cannot be used for reception in this setting.

5.6. Gain Controls

With the A.G.C. switched 'On' the H.F. gain control should normally be fully clockwise and the L.F. gain set to give a convenient audio output. With the A.G.C. 'Off' the L.F. gain should be nearly fully clockwise and the H.F. gain set to obtain a convenient audio output.

The A.G.C. should always be switched 'On' unless the wanted signal is weak and it is situated near a stronger interfering signal.

5.7. Noise Limiter

This can normally be left switched 'On' as it introduces negligible distortion except in the case of very deep modulation; the insertion loss is only a few dbs.

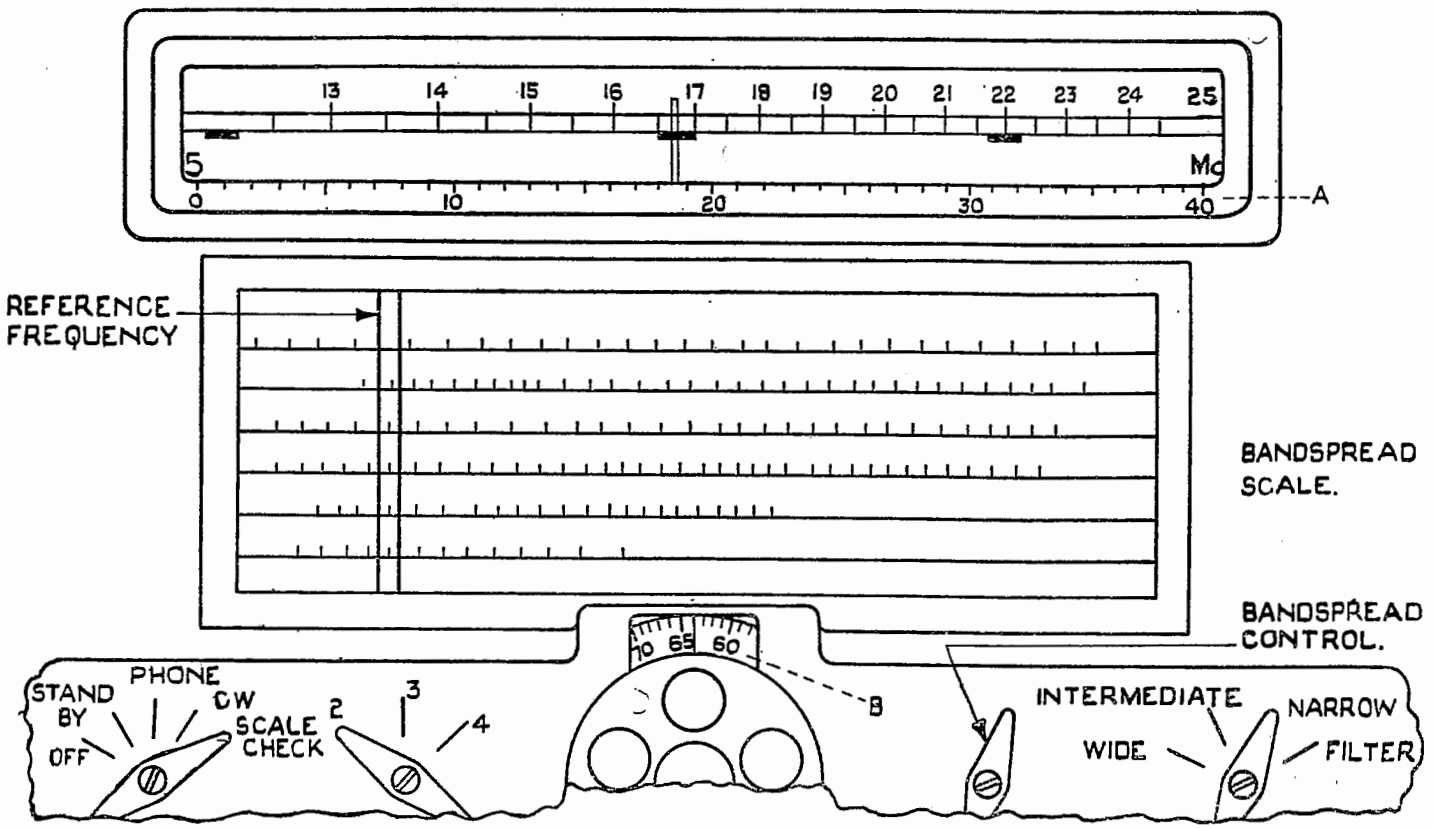
5.8. Audio Output

Two 'phone jacks are provided for low impedance 'phones. When these are removed from their jacks the receiver output is automatically switched to the small built-in 'speaker mounted on the front panel.

5.9. Pre-set Adjustments

[For the position of the desensitizing potentiometer see page 28. Great care must be taken not to confuse this potentiometer with the other potentiometer mounted on the right of the chassis. If the latter is accidentally rotated then refer to section 6.3.4.]

If when the desensitizing control is fully anticlockwise the recovery time of the receiver after it has been desensitized is too long, or it is desired to hear 'side tone' during transmission on a common frequency, then rotate the desensitizing control clockwise until the desired setting is obtained.



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WZ.4318

BANDSPREAD CALIBRATING SCALE

SECTION 6

MAINTENANCE AND SERVICING

This section has been divided into four sub-sections. These are:

(*a*) Routine maintenance and replacement of consumable components.
(*b*) Fault finding procedure.
(*c*) Full circuit alignment checks which will have to be carried out in a depot with proper equipment.
(*d*) Special servicing.

Note. With the System Switch set at 'Off', both H.T. and L.T. potentials are present in parts of the receiver wiring unless power is switched 'Off' at the Supply Unit (type 889A or 966A).

Access to valves and fuses can be obtained by releasing the two fasteners on the panel and withdrawing the receiver from its case. The scale lamps are accessible after removal of the cover which protects the calibration drum and the drive mechanisms. This requires the removal of most of the control knobs and the four retaining screws.

The receiver may be worked with the chassis withdrawn from the case as the power lead from the case is sufficiently long for this to be done. (For details of maintenance and servicing of the power supply unit see the appendix on Power Supply beginning on page 87.)

6.1. Routine Maintenance and Replacement of Consumable Components

Light lubrication of the bearings carrying the main tuning and bandspread is needed approximately every three months. Switch contacts should under no circumstances be lubricated.

6.1.1. Fuse Replacement

One fuse only is fitted in the receiver and this is in the 24 volt positive line. It is a 'Slydlok' pattern and is located on the top of the chassis near the power input socket. The correct size of fuse wire is No. 24 S.W.G. lead tin (or No. 38 S.W.G. bare copper if lead tin is not available).

6.1.2. Valve Replacements

The valve heaters are arranged in three groups of four valves and if one valve heater becomes open-circuited then the other three valves in that chain will not function. The three groups consist of V2, V1, V11, and V9; V3, V5, V10, and V7; V12, V6, V8 and V4. On the 1017 receiver V12 is replaced by R117 a 22 ohm resistor.

If loss of emission is suspected a substitution method of test may be carried out. The valve feeds may also be checked.

6.1.3. Scale Lamp Replacement

These lamps are fed from the 24 volt heater line via a resistor. A 14 volt 0.2 amp. lamp is the correct type required.

6.2. Fault Finding Procedure

If a fault in the receiver develops which is not cured by the replacement of a valve or fuse the following notes may be of some help:

6.2.1. Preliminary Checks

(*a*) Plugs, sockets and valves may not be making good contact or grid top cap clips may not be in position.

(*b*) A fault may have developed in the desensitizing relays. This may be checked by turning the desensitizing potentiometer control fully clockwise and placing the aerial on tag 5 of S1 or directly on the top cap of V1. If the receiver is restored to a normal working condition then check to see which relay is unsatisfactory.

(*c*) A fault may have developed in the noise limiter circuit in which case switching the noise limiter off should render the receiver workable.

2. Circuit Check (Where test equipment is not available)

(*a*) If no noise output is heard check if hum is audible when the finger is placed on the grid V10. Failure to obtain hum under these conditions indicates a failure in the H.T. of heater supply V10 or V11 or a failure of these valves.

(*b*) If noise is present with the system switch at 'C.W.' which is variable by means of the L.F. n control then the fault probably lies in the I.F. or frequency changer stages. If the noise is variable means of the H.F. gain and varies when the selectivity switch is changed from 'Narrow' to 'Wide' fault will probably lie in the frequency changer.

(*c*) If all these tests give satisfactory results an aerial should be put on to the grids of V3, V2 l V1 in turn. If on tuning to a powerful station a signal is received it may be assumed that the stages lowing are in order.

3. Circuit Check (requiring more elaborate equipment)

Any further diagnoses necessary will usually involve the measurements of circuit resistances, tages and valve feeds.

Resistance Tests

Resistance values can be checked to the table below and the tables on page 18. A tolerance of 5% may be assumed, unless otherwise stated.

The receiver should be switched 'On' but with the power plug and lamps removed. Set the tem switch at 'C.W.', the passband at 'Narrow' and all other controls fully clockwise, unless other- e stated. The noise limiter and A.G.C. to be switched 'Off' and the range switch to be set at '5'.

Since the valve heaters are in series groups it will be found convenient to use a set of 50 ohms 5% resistors mounted on valve bases, and to plug in these in place of the valves when checking heater ult continuity.

The resistance values in the tables below assume the use of such resistors in all valveholders, ept V13. In the case of tables on page 18 it is ssumed that an adaptor plug and switch is used, in ich case the 50 ohms resistance would be removed from the particular valve-holder being checked.

Input Power Plug Test 'Mercury' (type 1017) and 'Electra' (type 1018).

Test Points	*Resistance Value* (ohms)
Pin 1 and Earth	20,500±25%
Pin 2 „	infinite
Pin 3 „	63±10%
Pin 4 „	0
Pin 5 „	500±10%

(*b*) *Valveholder Resistances (ohms)*

'Mercury' (type 1017)

Test Points	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V13
H.T. positive to												
Valve pin 3	3,600	3,600	3,600	3,600	3,600	3,600	120,000	96,000	520,000	110,000	2,000	81,000
Valve pin 4	44,000	31,000	19,000	114,000	42,000	68,000	28,000	100,000	4.0 MΩ	1.0 MΩ	—	—
Valve pin 5	21,000	21,000	120,000	68,000	21,000	21,000	28,000	68,000	520,000	220,000	1.0MΩ	78,000
Earth to top cap	770,000	100,000	100,000	0	100,000	670,000	—	100,000	—	2 MΩ	—	—
„ „ Valve pin 5	0	0	100,000	47,000	0	0	6,800	47,000	500,000	200,000	1 MΩ	23,000
„ „ „ pin 8	470	470	330	330	680	680	100,000	0	4.0 MΩ	17,000*	680	—
„ „ „ pin 8	5,500	470	330	330	5,700	1,400	100,000	0	4.0 MΩ	17,000*	680	—
(H.F. gain control fully anti-clockwise and selectivity set at 'Intermediate')												
L.T. positive to pin 2	50	234	243	100	193	22	150	150	93	143	100	—
L.T. negative to pin 2	143	150	150	0	100	122	243	50	0	50	193	—

* Polarity must be observed for these readings, i.e. when using an 'Avometer' the positive lead must be connected to earth.

(*c*) *Valveholder Resistances (ohms)*

'Electra' (type 1018)

Test Points	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11**	V12	V13
H.T. positive to													
Valve pin 3	3,600	3,600	3,600	59,000	3,600	3,600	120,000	70,000	520,000	110,000	2,000	57,000	56,000
Valve pin 4	31,000	31,000	57,000	—	50,000	68,000	25,000	77,000	4.0 MΩ	1.0 MΩ	—	57,000	—
Valve pin 5	21,000	21,000	500,000	45,000	21,000	21,000	25,000	70,000	520,000	220,000	1.1 MΩ	21,000	55,000
Earth to													
Top cap	770,000	100,000	100,000	—	570,000	690,000	—	2.2 MΩ	—	2 MΩ	—	330,000	—
Valve pin 5	0	0	470,000	22,000	0	0	4,700	47,000	500,000	200,000	1 MΩ	0	35,000
Valve pin 8	470	470	330	0	330	680	100,000	0	4.0 MΩ	17,000*	680	1.6	—
Valve pin 8	5,500	470	330	0	5,500	1,150	100,000	0	4.0 MΩ	17,000*	680	1.6	—
(H.F. gain control fully anti-clockwise and selectivity set at 'Wide')													
L.T. positive to pin 2	50	250	250	100	200	50	150	150	100	150	100	0	67
L.T. negative to pin 2	150	150	150	0	100	150	250	50	0	50	200	100	0

* Polarity must be observed for these readings, i.e. when using an 'Avometer' the positive lead must be connected to earth.

** When measurements are taken on V12, the system switch should be set to 'Scale Check'.

Voltage Checks

For these tests all the valves and lamps shoul be fitted to the receivers: the power supply unit e connected to 230 volt A.C. mains: the H.F. and L.F. gain controls to be set fully clockwise: the in switch set at 'C.W.', unless otherwise stated and the passband switch set at 'Narrow': the e switch to be at '2', unless otherwise stated: the noise limiter and A.G.C. to be switched 'Off'. surements should be made with an 'Avometer' model 7, on range (0-400 V.).

Feed Metering Board 'Mercury' (type 1017) and 'Electra' (type 1018).

Test Points	*Voltage*
H.T. positive to earth	210 v. ± 10%
Stabilized voltage to earth	150 v. ± 5%

Valve Holders.

Test Points	*Valve*	*Range Switch*	*System Switch*	'Mercury' type 1017 *Voltage*	'Electra' type 1018 *Voltage*
Pin 4 to earth	V1	2	CW	80	70
,, ,,	V2	2	CW	85	70
,, ,,	V3	2	CW	60	60
,, ,,	V4	2	CW	50	—
,, ,,	V4	5	CW	85	—
,, ,,	V5	2	CW	70	70
,, ,,	V6	2	CW	95	90
,, ,,	V8	2	CW	45	65
,, ,,	V8	2	Phone	0	0
,, ,,	V12	2	Scale Check	—	90
Pin 8 to earth	V7	2	CW	0	0
,, ,,	V7	2	Phone	16	16
,, ,,	V10	2	CW	11	11

H.F. Gain Control 'Mercury' (type 1017) and 'Electra' (type 1018).

Test Point	*Control Setting*	*Voltage*
Slider to earth	Fully clockwise	0
,, ,,	Fully anti-clockwise	26

(iii) Valve Feeds

The valve feeds are most conveniently measured at the special metering board on the left ha side of the chassis.

Set the system switch at 'C.W.'; the passband at 'Narrow' and the range at '1'. Measuremer should be made with an 'Avometer' on the 0-10 mA range.

Valve	*Feed (mA)*±20% 'Mercury' type 1017	'Electra' type 1018
V1	4.2	5.8
V2	5.0	5.8
V3 (Hexode)	1.1	1.45
V3 (Triode)	4.3	—
V3 (Hexode range 4)	1.5	—
V3 (Triode range 4)	4.3	—
V4 (Hexode range 4)	2.6	—
V4 (Triode range 4)	3.1	6.8
V5	4.0	6.2
V6	4.5	6.6
V8	7.3	5.8
V10	0.65	0.65
V11	7.5	7.5

(iv) If a signal generator covering the required frequency range, an output meter and a t generator are available then the location of a fault should be considerably accelerated. Full details inter-stage levels are set out in section 6.3.7. but the summary below will be of value: —

Injection Point	*Frequency of Input Signal*	*Input levels required for 1 mW into 1,000 ohms* 'Mercury' type 1017	'Electra' type 1018
Grid of V11	400 c.p.s.	1.2 V.	1.2 V.
Grid of V10	400 c.p.s.	30.0 mV.	30 mV.
Grid of V6	85 kc/s	50.0 mV.	——
Grid of V6	690 kc/s	——	40 mV.
Grid of V5	85 kc/s	600.0 μV.	——
Grid of V5	690 kc/s	——	400 μV.
Grid of V4	85 kc/s on ranges 4 and 5	60.0 μV.	——
Grid of V3	4.5 Mc/s on ranges 4 and 5	20.0 μV.	——
Grid of V3	85 kc/s on ranges 1, 2 and 3	25.0 μV.	——
Grid of V3	690 kc/s	——	30 μV.

For the above tests the following conditions should be observed: —

(*a*) Selectivity at 'Narrow'.
(*b*) A.G.C. and noise limiter at 'On'.
(*c*) H.F. and L.F. gain controls fully clockwise.
(*d*) All signals except that applied to V10 and V11 grids to be modulated to 30% by 400 c.p.s.
(*e*) 0.1 μF condenser to be placed between the generator and the test injection point.

Full Circuit Alignment Check

The instructions that follow will cover the alignment of all the circuits in the receiver. For this k the following equipment and apparatus is required: —

(*a*) Tone generator giving audio frequencies up to 5 kc/s and fitted with an attenuator which will vary the final output continuously from 5 mV to 1 volt.
(*b*) Signal generator giving carrier frequencies from 15 kc/s to 25.0 Mc/s and capable of being modulated by 400 c.p.s. to a depth of 30%.
(*c*) Output meter matched to 1,000 ohms which will read levels from 0.1 mW to 10 mW.
(*d*) Meter to read resistances, voltages and currents, such as an 'Avometer' model 7.
(*e*) Isolating condenser of 0.1 μF for use with the above generators.

1. Circuit Tests

The resistances of the various circuits should be measured according to the tables given on pages and 18. The valve feeds and potentials at selected points should be measured and compared with figures given in the tables on page 20.

2. Low Frequency Tests

With the L.F. gain fully clockwise a tone generator connected via 0.1 μF at V11 and V10 grids urn should give 1.0 mW into 1,000 ohms for the following inputs: —

Grid V11 (pin 5) ...	...	... 0.8 volts at 1,000 c.p.s.
Grid V10 (top cap)	...	... 20.0 mV at 1,000 c.p.s.

3. Intermediate Frequency Tests

For these tests the system switch should be at 'Phone', the selectivity switch at 'Narrow', the A.G. and noise limiter 'Off', and all other controls fully clockwise.

(*a*) *Gain Check*

When a carrier modulated by 400 c.p.s. to a depth of 30% is injected at the various I.F. grids turn the inputs level for 1 mW output into 1,000 ohms after circuit alignment should be as iwi —

Injection Points	*Frequency of Input Signal*	*Input Levels required for 1 mW into 1,000 ohms* 'Mercury' type 1017	'Electra' type 1018
Grid of V6	85 kc/s all ranges	50 mV.	——
	690 kc/s range 1	——	40 mV.
Grid of V5	85 kc/s all ranges	600 μV.	——
	690 kc/s range 1	——	400 μV.
Grid of V3	4.5 Mc/s on ranges 4 and 5	20 μV.	——
	85 kc/s on ranges 1, 2 and 3	25 μV.	——
	690 kc/s range 1	——	30 μV.

(*b*) *Passband Check*

A generator should be connected at V3 grid and be modulated to 30% by 130 c.p.s. (400 c.p will do if 130 c.p.s. is not available). The range switch should be at '3'. Adjust the input so that t output at full gain is 1 mW. Set the input level to twice the above value and retune in each directi until the output falls to 1 mW.

The difference between these detune frequencies for the various passband positions should as given below: —

Passband Switch Position	*Total Passband* 'Mercury' type 1017	'Electra' type 1018
Wide	8.0 kc/s	9.0 kc/s
Intermediate	3.0 kc/s	3.0 kc/s
Narrow	1.0 kc/s	1.0 kc/s

(*c*) *Re-alignment*

If the above figures are not met then the I.F. circuits will have to be re-aligned. Alignm should only be undertaken if there are real grounds to justify it and if an accurate source of freque is available. After alignment all trimmers which have had their seals broken must be resealed by application of some 'Philityne' wax or any similar sealing wax.

A diagram showing the positions of the trimmers mentioned below may be seen on pages 28 and 3C

An alignment oscilloscope will facilitate the alignment of the type 1018 receiver.

Alignment may be undertaken as set out below: —

'Mercury' (type 1017)

Only the trimmer condensers need be adjusted as the inductances are set up and sealed before leaving the factory. Inject an 85 kc/s carrier modulated by 400 c.p.s. to a depth of 30% at the grid of V4 via a 0.1 μF blocking condenser. The selectivity should be at 'Narrow' and the range on '4'. In turn adjust trimmers C148 and C146, C139 and C136, C129 and C119 until maximum output is obtained. Alter the input frequency to 4.5 Mc/s and adjust trimmer C124 for maximum output. Alter the injection point of the generator to the grid of V3 and keep its frequency at 4.5 Mc/s. In this position adjust trimmers C86 and C82, C77 and C59 for maximum output. The I.F. should now be aligned correctly.

'Electra' (type 1018)

Without an Oscilloscope

Set the system switch to 'Phone' and selecti switch to 'Intermediate'. Short the live end of oscillator tuned circuit to earth. Modulate signal generator with 130 c/s tone and inject 690 kc/s modulated signal at the grid of V6 an isolating condenser of 0.1 μF and align C and C148 for maximum audio output. Move input to the grids of V5 and align C136 and C for maximum output.

Move the input to the grid of V3 and align C C62, C64 and C72.

The selectivity switch should now be set 'Narrow' and the crystal trimming condensers (and C69 (on underside of chassis) adjusted their safe minimum positions, i.e. about 3½ t from their maximum positions. Retune generator for maximum output, align C66 maximum output and retrim C59, C62, C72, C C139, C146 and C148.

Vary the frequency of the signal slightly to the dip in the response curve (if the dip canno found the frequency mid-way between the 6 down points should be used) and when on frequency retrim C64, C66 and C72 for maxin output. Retune the generator to the frequ mid-way between the 6 db. down points (6 down from larger peak). With the select

switch at 'Intermediate' retrim C59, C62, C72, C136, C139, C146 and C148. Reset the passband to 'Narrow' and adjust the input level so that the maximum response point brings the output to 1 mW. Tune the generator to a frequency 5 kc/s above the mid-band frequency and turn the input up by 60 db. Screw in the appropriate crystal trimmer C68 or C69 so that the output returns to 1 mW. Now tune the generator to a frequency 5 kc/s below the mid-band frequency and if the attenuation is not equal to 60 db. adjust the crystal trimmers so that the 60 db. down points are removed from the mid-band frequency by the same amount (which should be less than 5 kc/s).

Remove the lead shorting the oscillator coil.

With an Oscilloscope

If an alignment oscilloscope is available (such as M.I. type T.F. 852) then the alignment procedure mentioned above may be shortened considerably. The new procedure is as follows: —

[Should the alignment oscilloscope not be set up for 690 kc/s then this may be done briefly as follows: —Plug in the 600 kc/s coil and adjust the frequency by reducing C22 to approximately 68$\mu\mu$F. Next check the oscilloscope as laid down in paragraph 2.4 of the 'Operating Instructions' supplied with the oscilloscope.]

Set the system switch to 'Phone', the passband switch to 'Intermediate' and short the live end of the oscillator tuned circuit to earth. Inject a modulated signal to V3 grid via a 0.1 μF blocking condenser. Adjust trimmers C59, C62, C64, C72, C136, C139, C146 and C148 for maximum audio output.

Unscrew trimmers C68 and C69, to be found on the underside of the chassis, to their safe minimum positions, i.e. about 3½ turns from their maximum positions. Set the passband switch at 'Narrow'. Remove generator and inject from the alignment oscilloscope on to V3 grid. Clip the alignment oscilloscope input head on to pin 5 of the detector valve V7.

Adjust C66 so that a maximum response is obtained on the oscilloscope and the dip between the maximum points is smallest. Bring the response curve to a position symmetrically about the 0 kc/s vertical line by means of the tuning control on the oscilloscope.

Reset the passband to 'Intermediate' and retrim all the I.F. trimmer condensers except C66 so that the maximum response is obtained on the 0 kc/s line. Reset the passband to 'Narrow' and retrim C66 and C72 to minimize the dip in the response curve; this should be only a very small adjustment.

Remove the oscilloscope leads from V3 and replace the generator. Inject an unmodulated carrier at a frequency mid-way between the 6 db down points on 'Narrow' response curve (6 db down from the peaks) and note frequency. Adjust the generator level so that the maximum response point brings the trace on the oscilloscope to the —6 db. line.

Tune the generator to 5 kc/s above the frequency noted above, turn up the input by 60 db and screw in the appropriate crystal trimmer (C68 or C69) so that the trace is returned to the —6 db line. Tune the generator to 5 kc/s below the same frequency and if the attenuation is not equal to 60 db. adjust the crystal trimmer so that the 60 db attenuation points are removed from the mid-band frequency by the same amount—this should be less than 5 kc/s.

Remove the lead shorting the oscillator circuit

6.3.4. Balanced Demodulator Adjustments

(For a diagram of the position of the potentiometer R83 concerned see page 28.) The balancing is done by placing the system switch to 'C.W.' and replacing the B.F.O. valve V8 by a KTW61. A modulated signal set accurately to the I.F. frequency is applied to V5 grid with the passband at 'Narrow'. The potentiometer R83 is adjusted for minimum audio output. When this is done the X61M valve is restored to its position on the receiver.

6.3.5. Beat Frequency Oscillator Adjustments

Apply a C.W. signal at V5 grid and adjust C157 with the passband at 'Filter' until a 1,000 c.p.s. note is heard. If two positions of the trimmer can be found giving a 1,000 c.p.s. output then the one with the trimmer more screwed out is used.

6.3.6. Calibration Check

If the calibration of the receiver is not accurate then re-alignment of the 1st oscillator may have to be undertaken, but this should only be attempted if an accurate source of frequency is available and there are real grounds to justify it. (The alignment should not be affected sufficiently by valve replacement to justify re-alignment.) The signal from the generator should be injected at V3 grid and should be modulated by 400 c.p.s. to a depth of 30% The selectivity switch should be at 'Intermediate'.

The oscillators should be set up at frequencies corresponding to the extreme calibration marks of each range as indicated on the calibration drum. At the low frequency ends of the ranges the inductance trimmers L16 to L20 inclusive should be adjusted depending on the range. At the high frequency ends of the ranges the capacity trimmers C97, C98, C99, C101 and C102 should be adjusted, depending on the range.

On the type 1017 receiver on range 1 only a C.W. signal should be used and the selectivity switch set at 'Filter'.

6.3.7. Signal Frequency Tests

Set the selectivity switch at 'Narrow' and the system switch at 'Phone'. Inject a signal modulated by 400 c.p.s. to a depth of 30% at V3, V2 and V1 grids via 0.1 μF and at the aerial terminal via the appropriate dummy aerial. The intervalve gains and the aerial step-ups for a constant output should be as indicated in the tables on page 25. The H.F. gain control should be fully clockwise and the A.G.C. 'Off'.

(*a*) *'Mercury Receiver'* (type 1017)

Range	*Frequency*	*Gain V2-V3 grid V1-V2 grid*	*Dummy Aerial*	*Aerial Circuit Step-up*
1	15 kc/s	5 db	500$\mu\mu$F	—6 db
	40 kc/s	13 db		+13 db
2	100 kc/s	3 db	200$\mu\mu$F	4 db
	250 kc/s	12 db		4 db
3	250 kc/s	10 db	200$\mu\mu$F	2 db
	640 kc/s	15 db		8 db
4	640 kc/s	12 db	200$\mu\mu$F	13 db
	1,600 kc/s	16 db		15 db
5	1,600 kc/s	13 db	200$\mu\mu$F	11 db
	4,000 kc/s	11 db		11 db

(*b*) *'Electra' Receiver* (type 1018)

Range	*Frequency*	*Gain V2-V3 grid V1-V2 grid*	*Dummy Aerial*	*Aerial Circuit Step-up*
1	250 kc/s	9 db	200$\mu\mu$F	6 db
	520 kc/s	15 db		2 db
2	1.5 Mc/s	16 db	200$\mu\mu$F	18 db
	3.0 Mc/s	18 db		25 db
3	3.0 Mc/s	16 db	75 ohms	19 db
	6.0 Mc/s	16 db		20 db
4	6.0 Mc/s	13 db	75 ohms	14 db
	12.0 Mc/s	16 db		15 db
5	12.0 Mc/s	14 db	75 ohms	7 db
	25.0 Mc/s	17 db		—3 db

If the above figures are not met then the following procedure should be adopted.

(*c*) *Alignment of Signal Frequency Circuits*

The signal should be injected at the aerial via the appropriate dummy aerial. The setting up frequencies are as indicated in the tables over. At the low frequency end the inductance trimmers L1 to L5, L6 to L10 and L11 to L15 inclusive are adjusted, depending on the range, while at the high frequency end the capacity trimmers C8, C9, C11, C12 and C13; C27, C28, C29, C31 and C32; and C46, C47, C48, C49 and C51 are adjusted, again depending on the range. These tests are carried out with a modulated signal and with the selectivity switch at 'Intermediate'.

'Mercury' (type 1017)

For range 1 only on the 'Mercury' receiver the signal should be C.W. and the selectivity at 'Filter'.

'Electra' (type 1018)

On range 5, particularly at the H.F. end on the type 1018 receiver some 'pulling' of the 1st oscillator may be experienced. To counteract this the main tuning should be rocked slightly to restore maximum output after each adjustment of C51.

Range	'Mercury' (type 1017) Dummy Aerial	H.F. Alignment Frequencies	'Electra' (type 1018) Dummy Aerial	H.F. Alignment Frequencies
1	200μμF	15.8 kc/s	200μμF	255 kc/s
		37.3 kc/s		505 kc/s
2	200μμF	107 kc/s	200μμF	1.52 Mc/s
		235 kc/s		2.98 Mc/s
3	200μμF	265 kc/s	75 ohms	3.03 Mc/s
		595 kc/s		5.92 Mc/s
4	200μμF	680 kc/s	75 ohms	6.13 Mc/s
		1,535 kc/s		12.35 Mc/s
5	200μμF	1,600 kc/s	75 ohms	12.66 Mc/s
		3,700 kc/s		24.80 Mc/s

6.3.8. Overall Tests

If extensive re-alignment has been done it is desirable to follow up the above tests with certain overall tests such as sensitivity and image protection. The specification required for these tests are given in the section on Performance data, paragraph 3.3.

6.4. Special Servicing

6.4.1. Replacement of Calibration Drum Drive Cord

This will require reference to drawing WZ.4258 on page 46. The cover over the drive mechanisms will first of all have to be removed. The calibration drum is next taken off by removing the right hand bracket.

Inspect the spring inside the drum. This should be anchored to the left hand drum end cheek at one end and through a hole in the spindle at the other end.

Pass the loop end of the new drive cord over the anchor point on the inside of the left hand drum through the eyeletted hole in the left hand end cheek and fit it as shown in the figure. The calibration drum may now be put back in position, taking special care that the $\frac{1}{8}$ inch wide slot in the left end of the calibration drum locates with the plunged hole in the left end cheek. The right hand bracket should now be fitted. The cord is now made to pass over the two pulleys 'A' and 'B' as shown in the figure, and the nipple end of the cord is fitted into the slot on the wheel 'C' fitted on the range switch spindle.

It will be necessary now to introduce some tension into the cord. First of all release the spindle clamping screws and hold the calibration drum. Fit a screwdriver into the spindle slot and rotate the drum spindle eight times in an anti-clockwise direction, i.e. when looking from the left hand side of the panel towards the screwdriver slot provided. Finally the spindle clamping screw should be tightened.

The range indicated on the calibration drum should be lined up with the range indicated by the range switch by adjusting the position of pulley 'C' on its shaft.

6.4.2. Replacement of Calibration Pointer Drive Cord

This will require reference to page 46. First of all remove the cover over the drive mechanisms and in the case of the type 1018 receiver the bandspread calibration scale as well. Rotate the main tuning handle fully anti-clockwise.

Fit the looped part of the new cord over the spring on the large pulley 'D' driven from the main tuning. Take the shorter end of the cord and pass it through the slot in this pulley and wind it approximately once in an anti-clockwise direction around this pulley. The cord now passes around the upper left hand pulley 'E' and is fitted on to the pointer carriage.

The longer end of the cord is now wound around the large pulley 'D' for $\frac{3}{4}$ turn in a clockwise direction and passes over the jockey pulley 'G' and then around the right hand pulley 'F' and so to the pointer carriage.

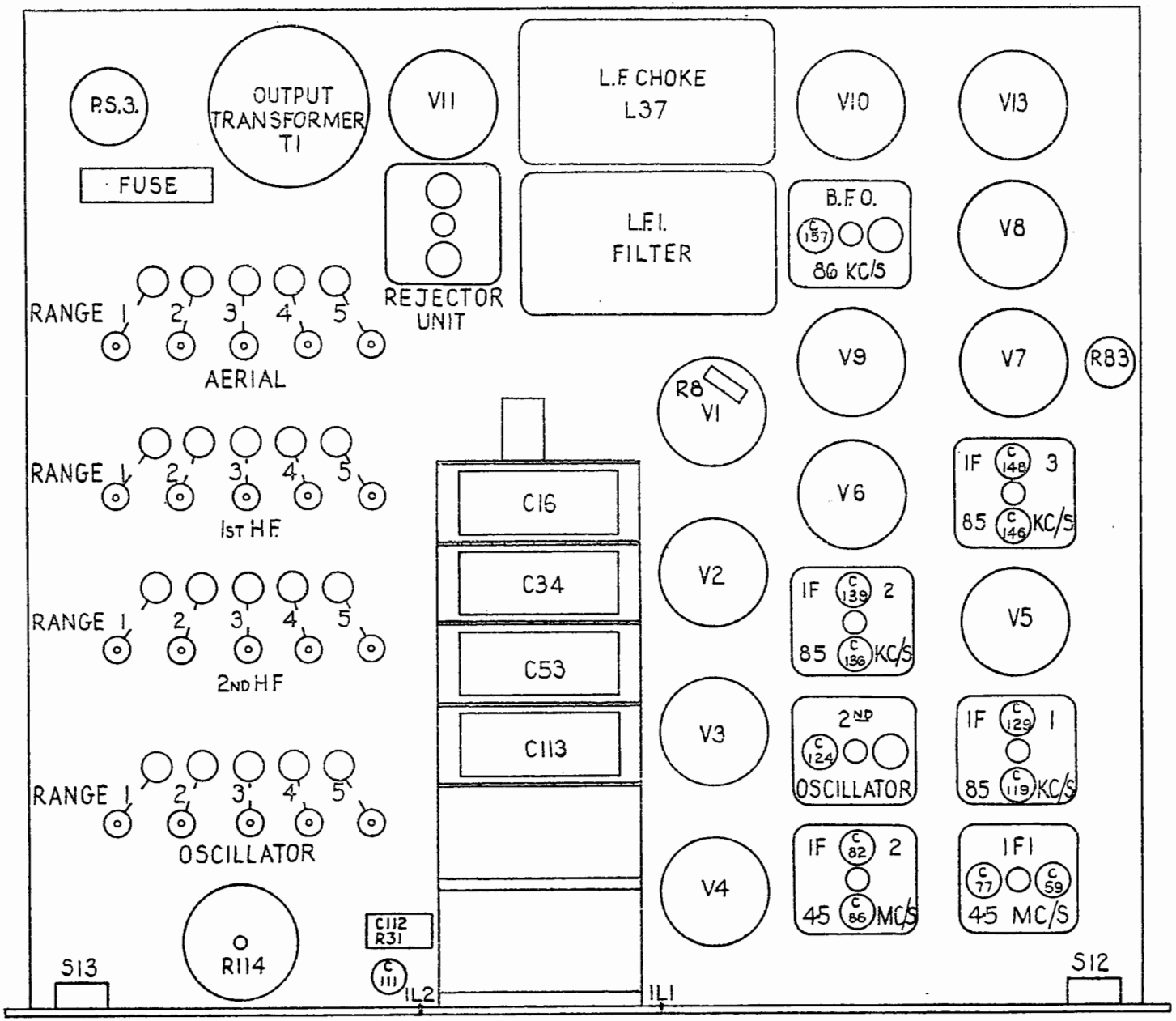
With the tuning set fully anti-clockwise see that the pointer coincides with the extreme left end of the calibration scales. This may be adjusted by rotating the pulley 'A' on its spindle in the necessary direction. See that the jockey pulley 'G' is low enough for the bandspread pointer to pass by (in the case of the type 1018 receiver) and high enough to get sufficient tension in the cord.

14.3. Replacement of Bandspread Pointer Drive Cord

'Electra' (type 1018)

This will require reference to page 46. Remove the cover over the drive mechanisms and also the bandspread calibration scale.

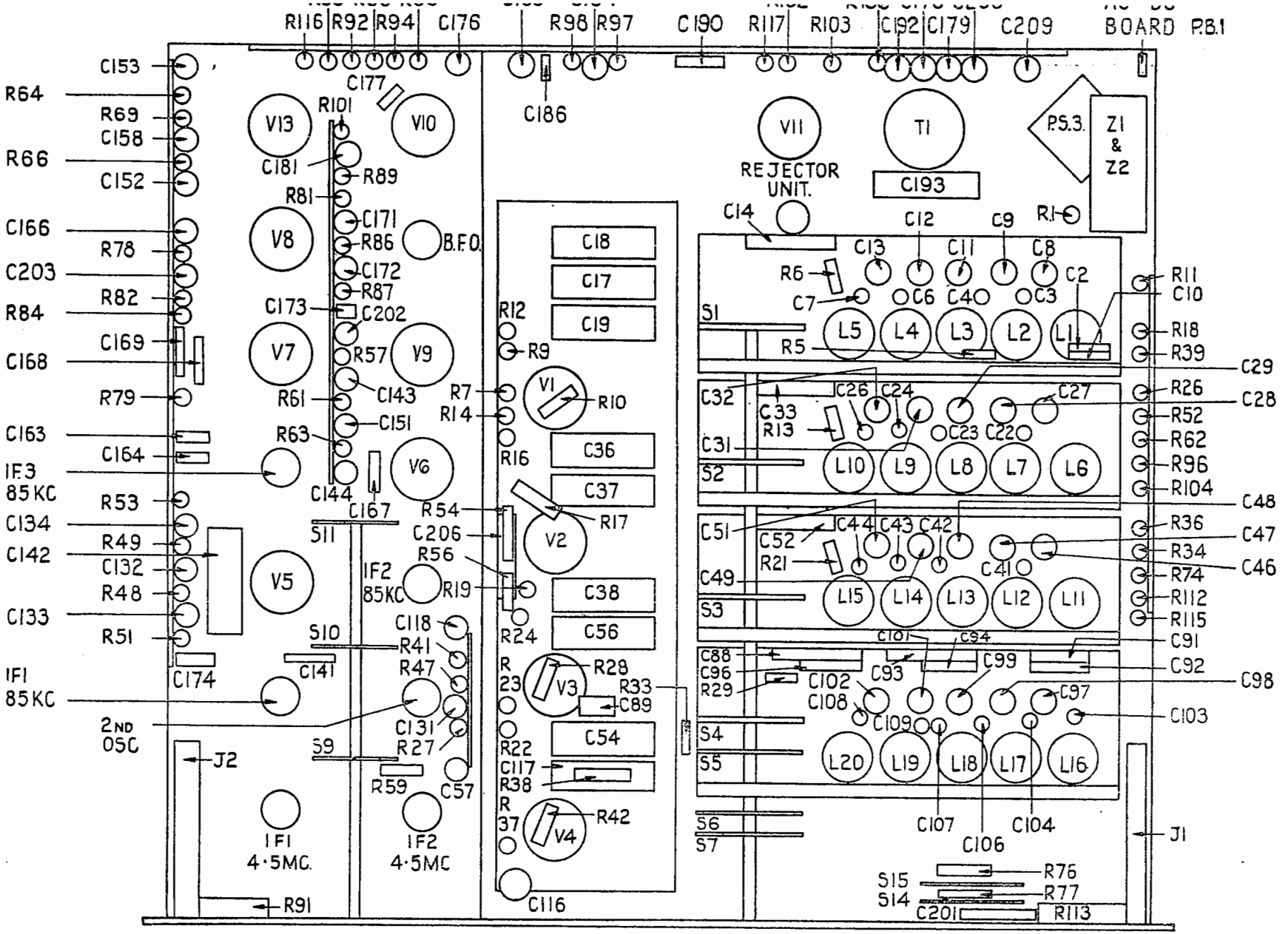
The new cord is fitted in almost the same way as the calibration drive cord. The bandspread control is first of all rotated fully anti-clockwise. Fit the loop in the cord over the spring in the bandspread pulley 'H' and pass the shorter cord through the slot in this pulley and up over the jockey pulley 'J' and under the right hand pulley 'K' and so it is fitted on to the pointer carriage. The longer cord is passed around the bandspread pulley 'H' approximately $2\frac{1}{2}$ times in a clockwise direction. It passes up over the centre pulley 'L' and under the left hand pulley 'M' and is then fitted to the pointer carriage. The jockey pulley 'J' should now be adjusted to obtain a reasonable tension in the cord. If the pointer travel does not correspond with the calibration scale then rotate the bandspread pulley 'H' on its spindle until the travel is correct.



Sheet No. 1 (continued on 2)
Issue No. 2

WZ.4262/B

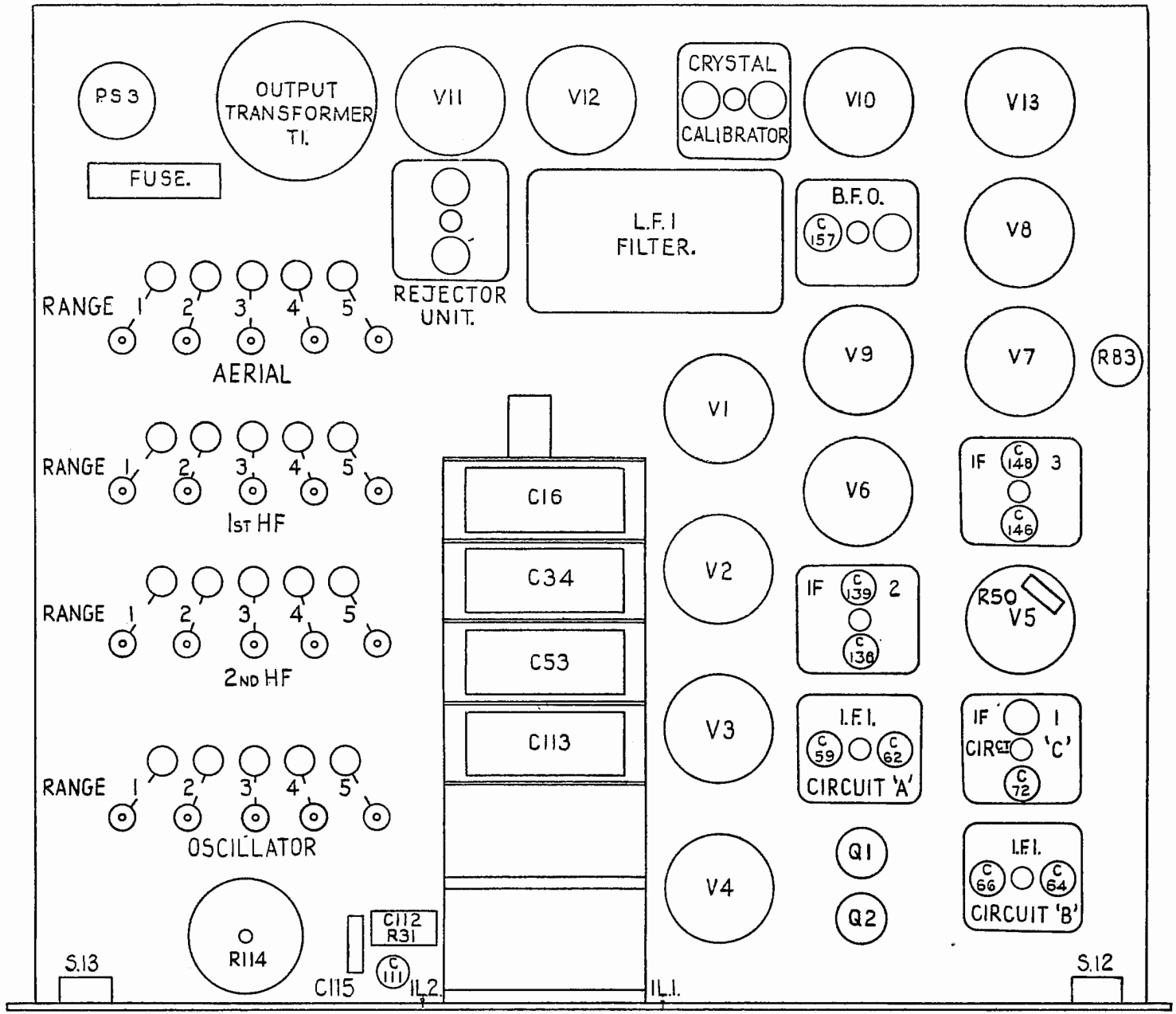
COMPONENT LOCATION (TOP) 'MERCURY' RECEIVER (TYPE 1017)



Sheet No. 2
Issue No. 3

WZ.4262/B

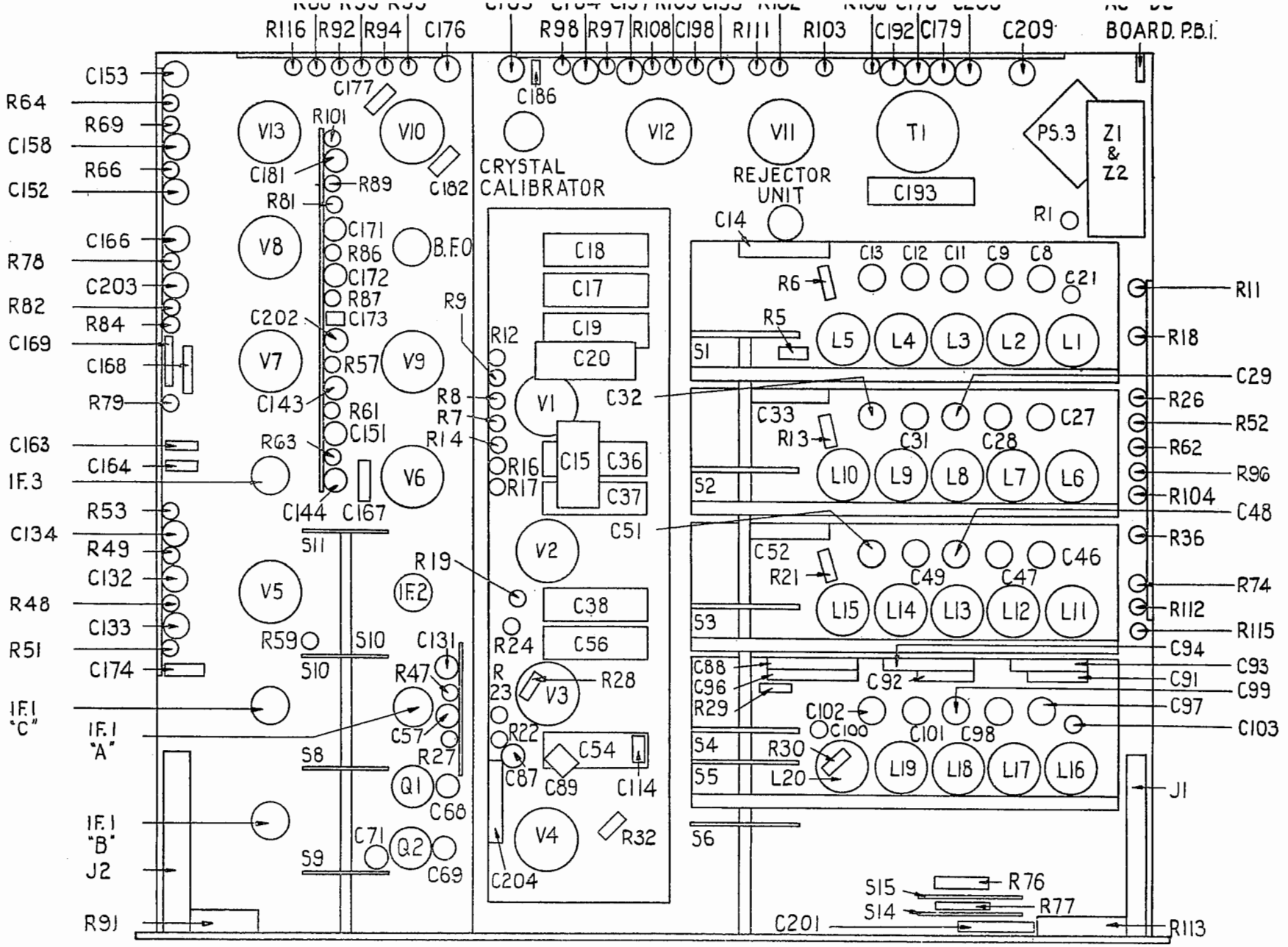
COMPONENT LOCATION (underside) 'MERCURY' RECEIVER (TYPE 1017)



Sheet No. 1 (continued on 2)
Issue No. 2

WZ.4263/B

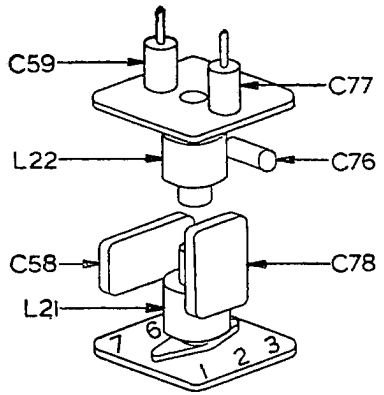
COMPONENT LOCATION (TOP) 'ELECTRA' RECEIVER (TYPE 1018)



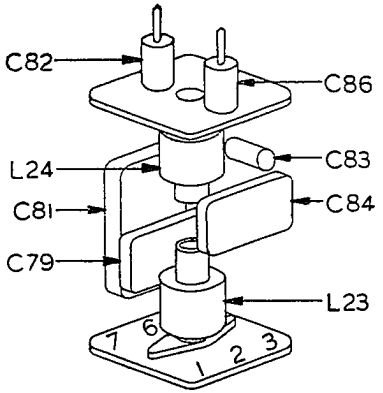
Sheet No. 2
Issue No. 3

WZ.4263/B

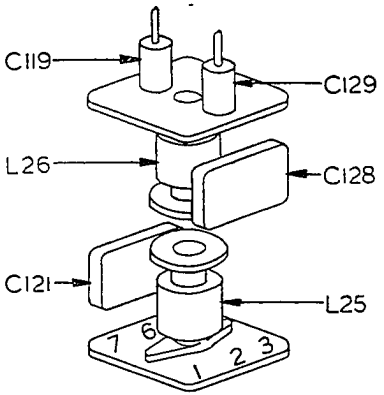
COMPONENT LOCATION (underside) 'ELECTRA' RECEIVER (TYPE 1018)



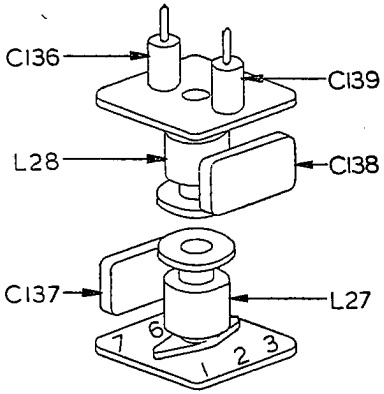
I.S.T. I.F. COIL ASSEMBLY
4·5 MC/S.



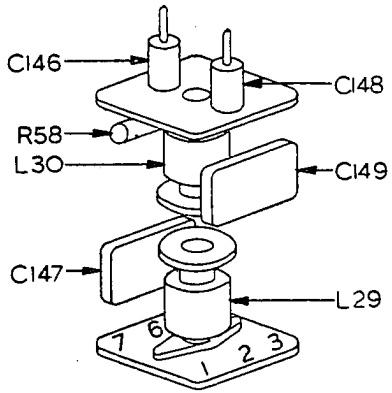
2ND. I.F. COIL ASSEMBLY
4·5 MC/S.



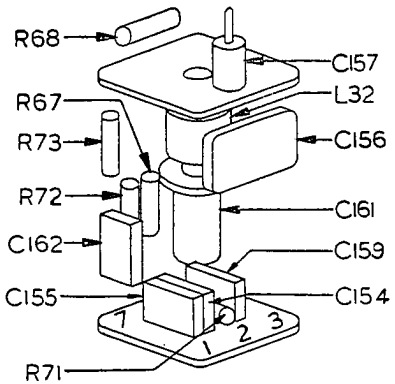
IST. I.F. COIL ASSEMBLY
85 KC/S.



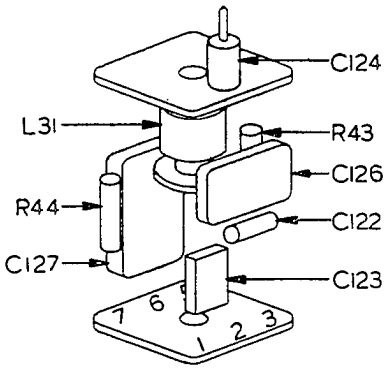
2ND. I.F. COIL ASSEMBLY
85 KC/S.



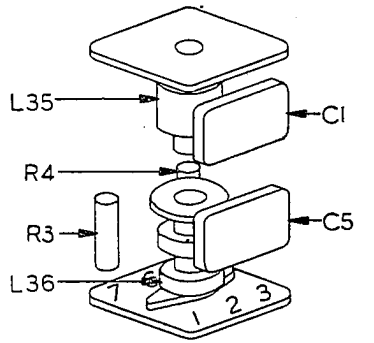
3RD. I.F. COIL ASSEMBLY
85 KC/S.



B.F.O. COIL ASSEMBLY



F.C. OSCILLATOR ASSEMBLY

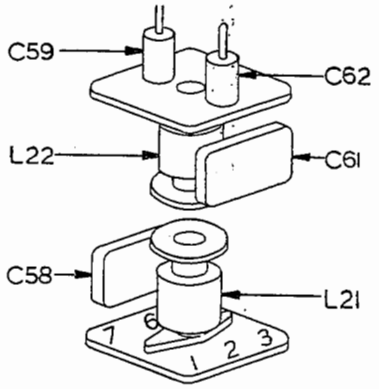


REJECTOR UNIT.

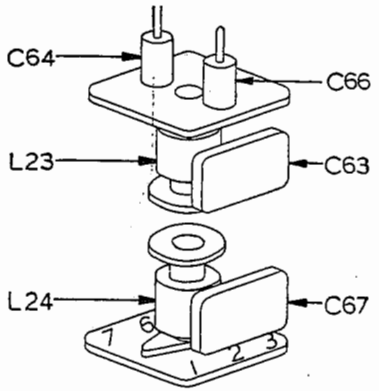
NOTE. COMPONENT SYMBOLS REFER TO THOSE ON CIRCUIT DIAGRAM WZ3870 & COMPONENT LIST WZ3871/C.

WZ.4265

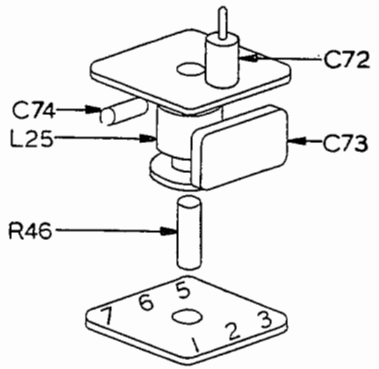
COMPONENT LOCATION (I.F. COIL UNITS) 'MERCURY' RECEIVER (TYPE 1017)



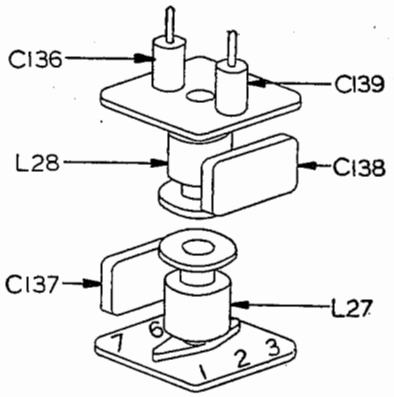
I.ST. I.F. COIL ASSEMBLY
CIRCUIT "A".



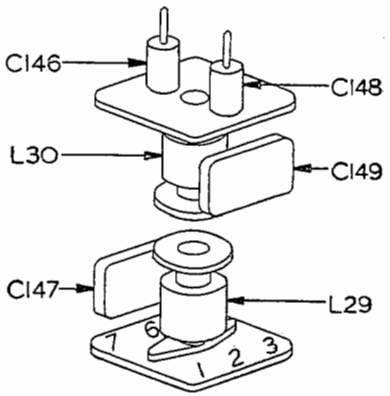
I.ST. I.F. COIL ASSEMBLY
CIRCUIT "B".



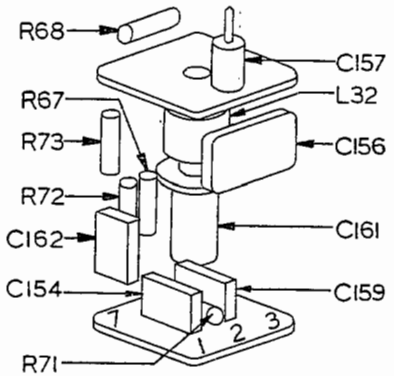
I.ST. I.F. COIL ASSEMBLY
CIRCUIT "C".



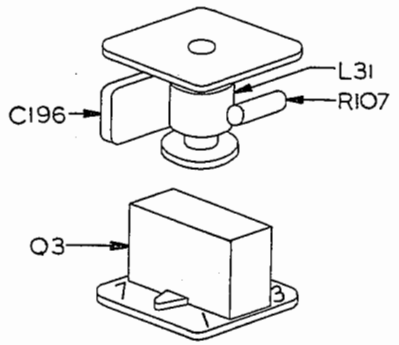
2ND I.F. COIL ASSEMBLY
690 KC/S.



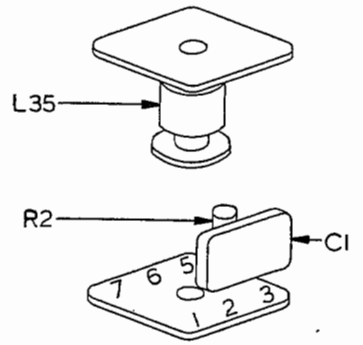
3RD. I.F. COIL ASSEMBLY
690 KC/S.



B.F.O COIL ASSEMBLY



CRYSTAL CALIBRATOR



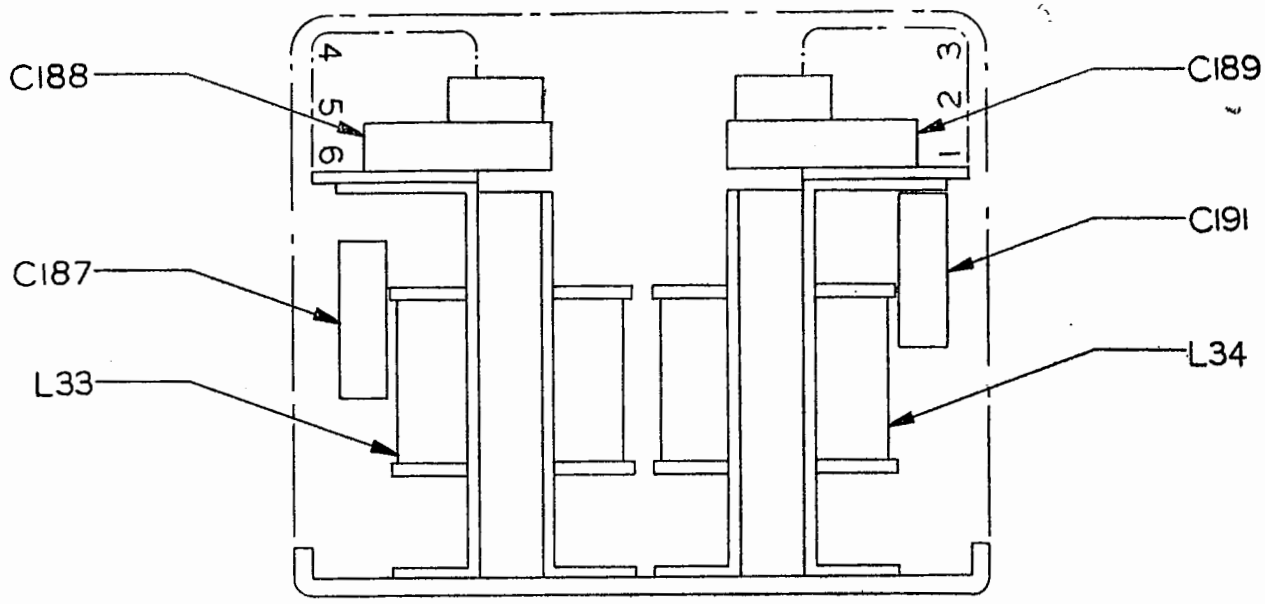
REJECTOR COIL ASSEMBLY

NOTE.
COMPONENT SYMBOLS REFER TO THOSE ON CIRCUIT DIAGRAM WZ3872 & COMPONENT LIST WZ3873/C.

Sheet No. 1
Issue No. 1

COMPONENT LOCATION (I.F. COIL UNITS) 'ELECTRA' RECEIVER (TYPE 1018)

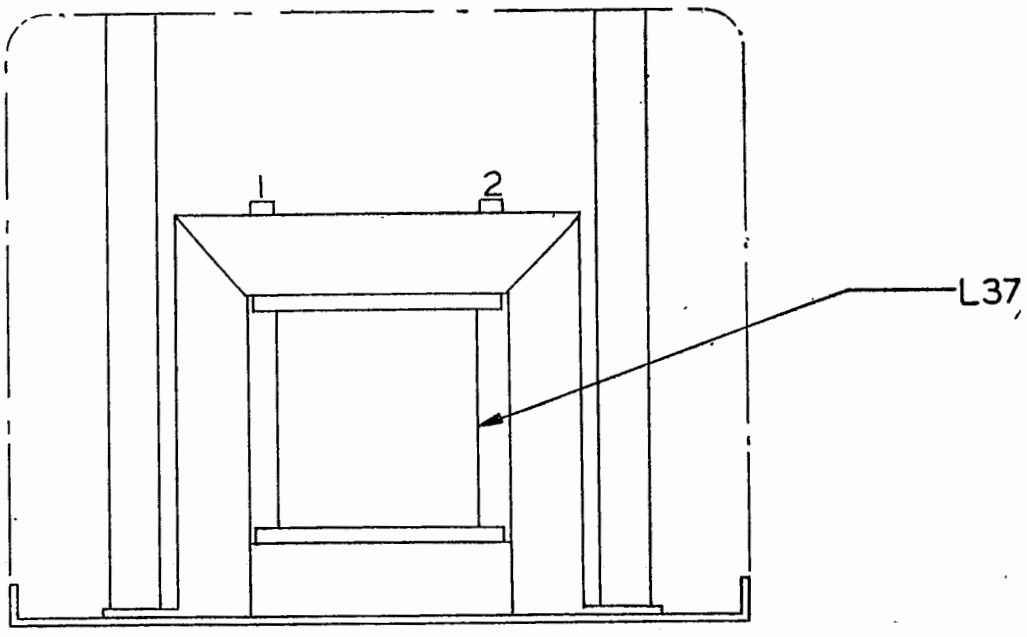
WZ.4266



NOTE.

1. COMPONENT SYMBOLS REFER TO THOSE ON CIRCUIT DIAGRAMS WZ3870 & WZ3872. ALSO COMPONENT LISTS WZ3871/C & WZ3873/C.
2. TAGBOARDS PROJECTED TO SHOW TAG POSITIONS.

L.F. FILTER UNIT.



NOTE.

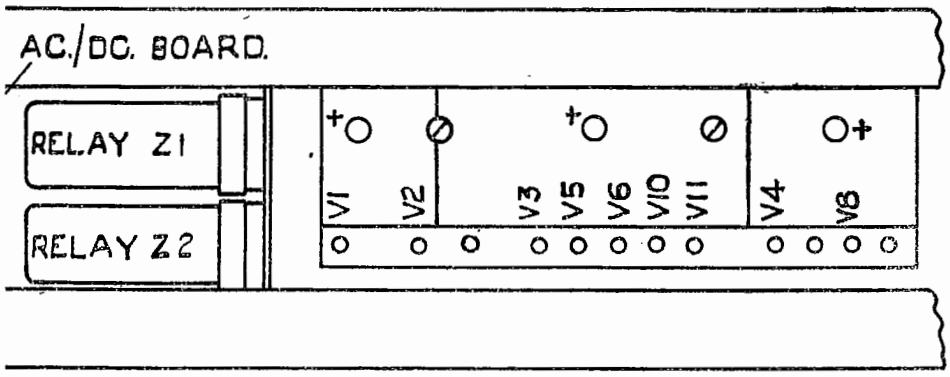
COMPONENT SYMBOL REFERS TO THAT ON CIRCUIT DIAGRAM WZ3870 & COMPONENT LIST WZ3871/C.

TYPE 1017 RECEIVER
24V. INPUT CHOKE.

Sheet No. 1
Issue No. 1

WZ.42

COMPONENT LOCATION (NOTE FILTER & MAINS FILTER)

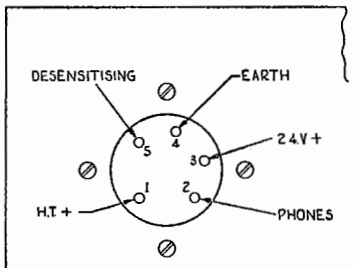


MEASUREMENT OF VOLTAGES & VALVE FEEDS

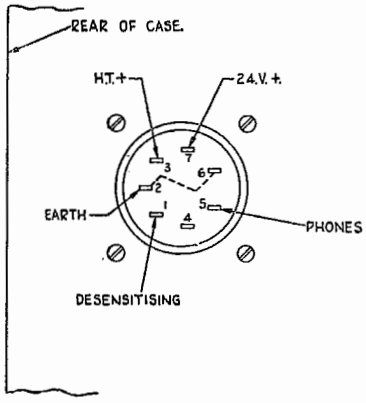
WHEN MEASURING VALVE FEEDS, ADVANCE ALL PANEL CONTROLS FULLY CLOCKWISE WITH THE EXCEPTION OF THE RANGE SWITCH. CONNECT THE POSITIVE SIDE OF THE METER TO THE + POINT IN THE DESIRED SECTOR, AND THE NEGATIVE POINT TO THE APPROPRIATE TAG.

. 1. Ref. 1
. 2

VALVE FEED METERING BOARD WZ.4318

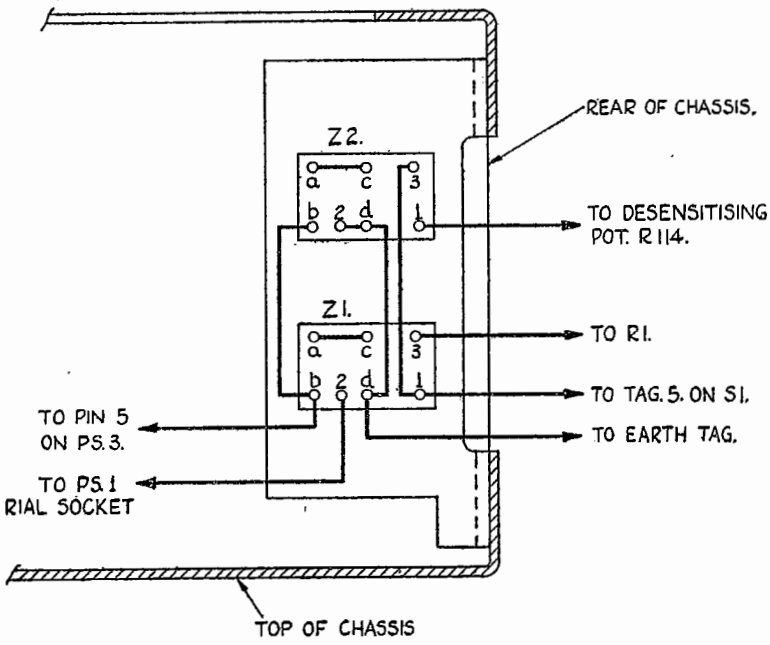


PLAN VIEW OF RECEIVER CHASSIS SOCKET PS.3.

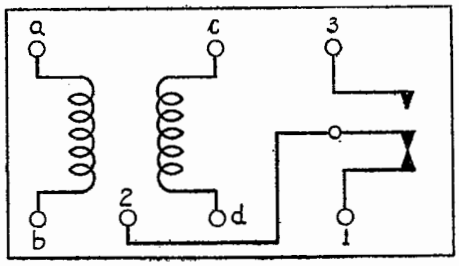


VIEW OF RECEIVER CASE SOCKET PS. 2.

POWER SOCKET CONNECTIONS



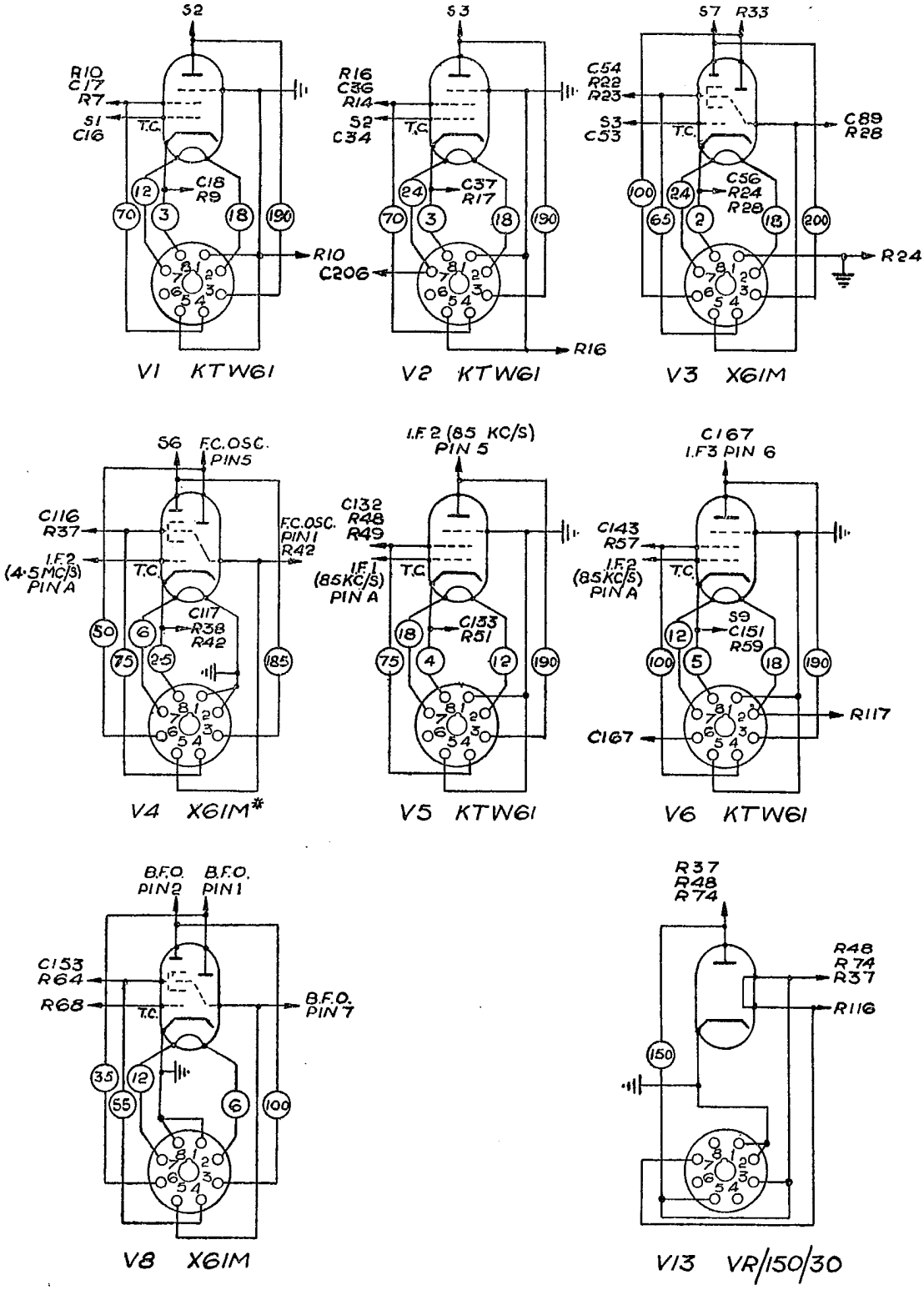
PART CROSS SECTION OF CHASSIS SHOWING CONNECTIONS TO RELAYS.



INTERNAL CONNECTIONS OF RELAYS.

. 1
. 2

CONNECTIONS TO AERIAL CIRCUIT RELAY WZ.4267



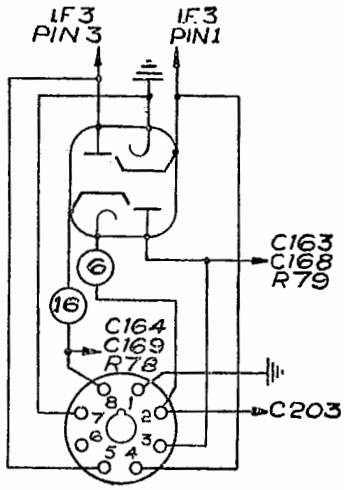
NOTES.

1. MEASUREMENTS TAKEN ON RANGE 2 WITH SYSTEM SWITCH AT "CW" & PASSBAND SWITCH AT "NARROW".
* 2. RANGE SWITCH AT "4". FOR V.A.
3. VOLTAGES MEASURED WITH RESPECT TO EARTH USING A HIGH RESISTANCE VOLTMETER & WITH GAIN CONTROLS FULLY CLOCKWISE.

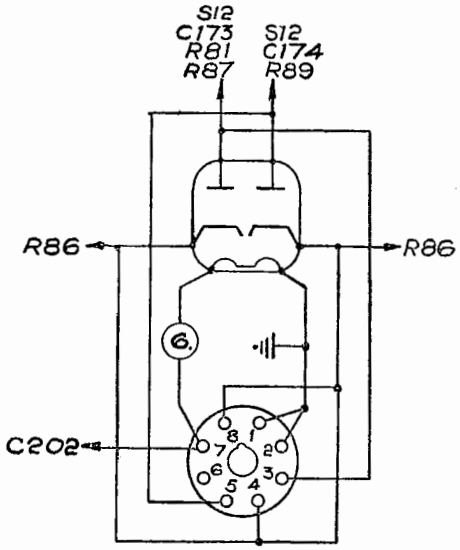
Sheet No. 1 (continued on 2)
Issue No. 1

WZ.4256/B

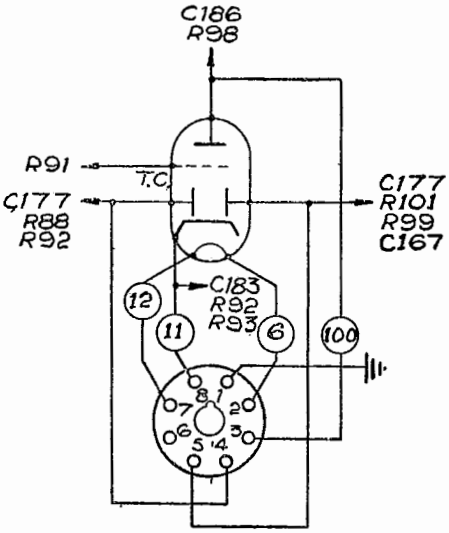
VALVE BASE CONNECTIONS FOR 'MERCURY' RECEIVER (TYPE 1017)



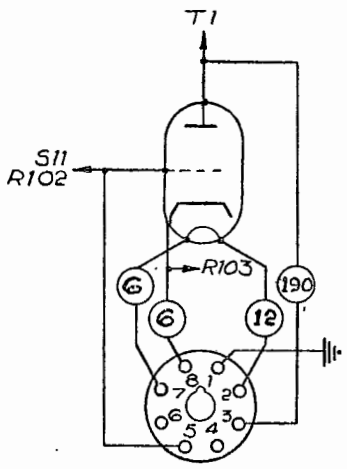
V7 D63M*



V9 D63M



V10 DH63



V11 L63

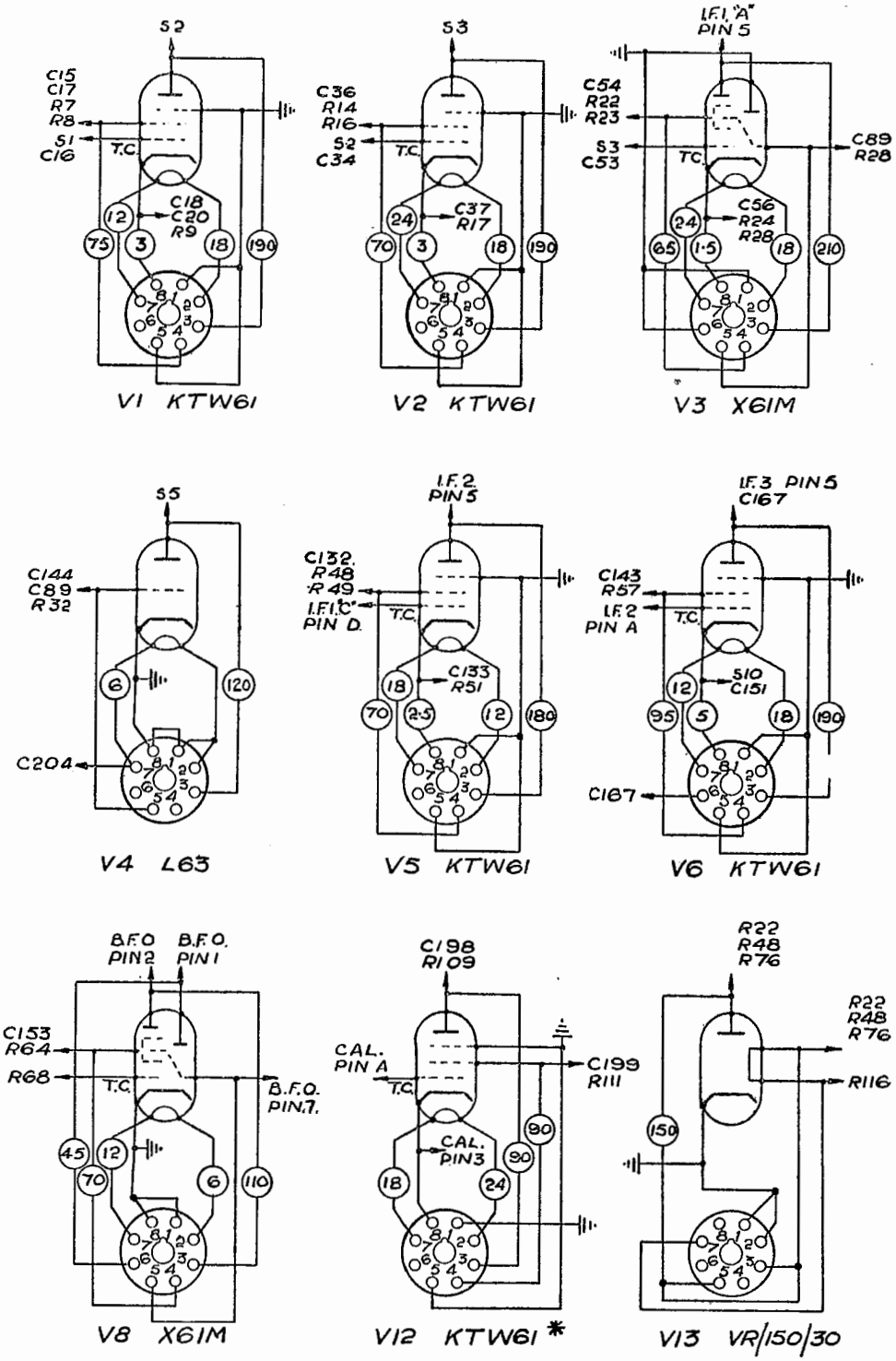
TES.

1. MEASUREMENTS TAKEN ON RANGE 2 WITH SYSTEM SWITCH AT "CW" & PASSBAND SWITCH AT "NARROW."
* 2. SYSTEM SWITCH AT "PHONE" FOR V7.
3. VOLTAGES MEASURED WITH RESPECT TO EARTH USING A HIGH RESISTANCE VOLTMETER & WITH GAIN CONTROLS FULLY CLOCKWISE.

(continued on 3)

WZ.4256/B

VALVE BASE CONNECTIONS FOR RECEIVERS (TYPE 1017 & 1018)



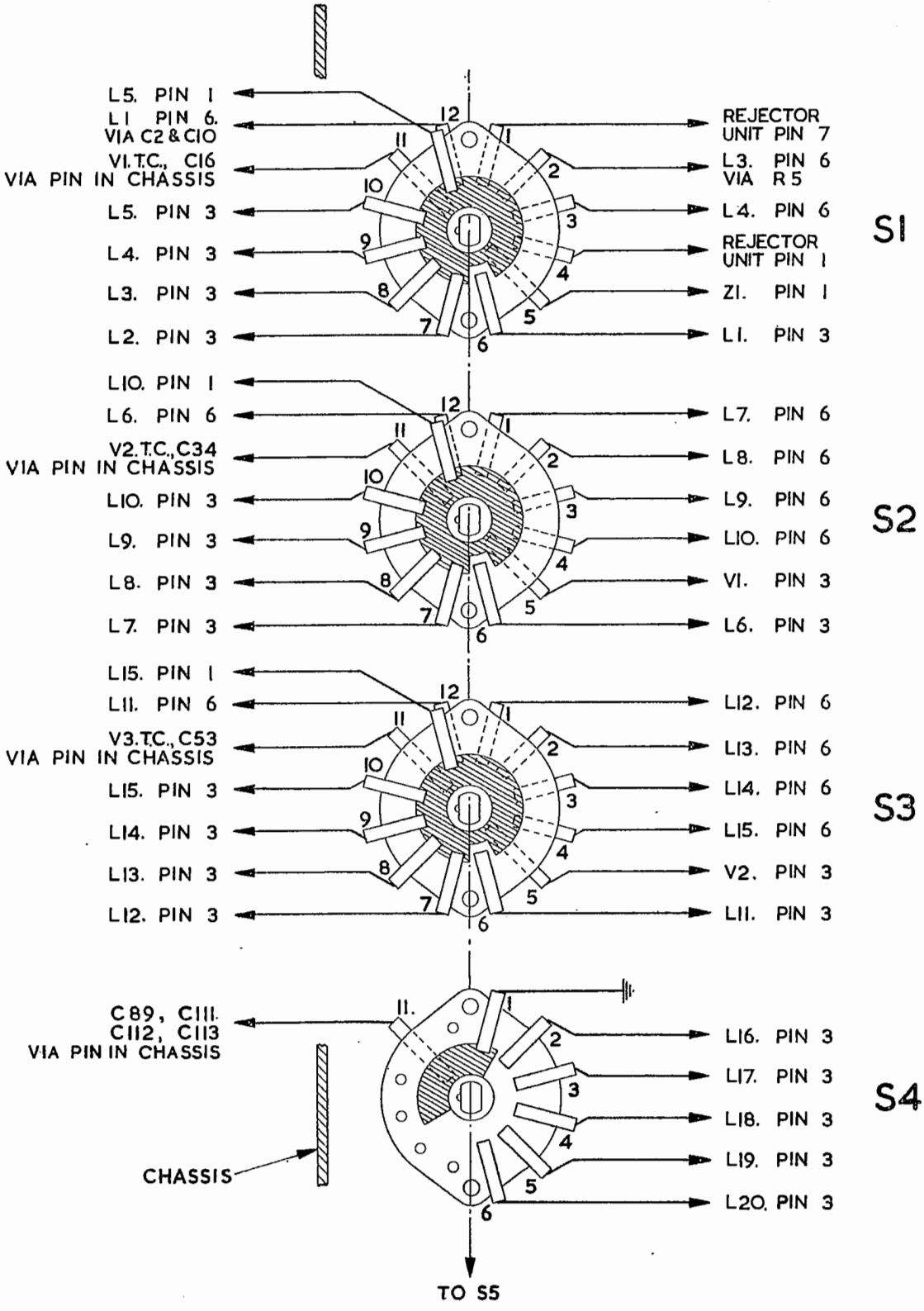
NOTES.

1. MEASUREMENTS TAKEN ON RANGE 2 WITH SYSTEM SWITCH AT "CW" & PASSBAND SWITCH AT "NARROW."
* 2. SYSTEM SWITCH AT "SCALE CHECK" FOR V12.
3. VOLTAGES MEASURED WITH RESPECT TO EARTH USING A HIGH RESISTANCE VOLTMETER & WITH GAIN CONTROLS FULLY CLOCKWISE.

Sheet No. 3
Issue No. 1

WZ.4256/B

VALVE BASE CONNECTIONS FOR 'ELECTRA' RECEIVER (TYPE 1018)

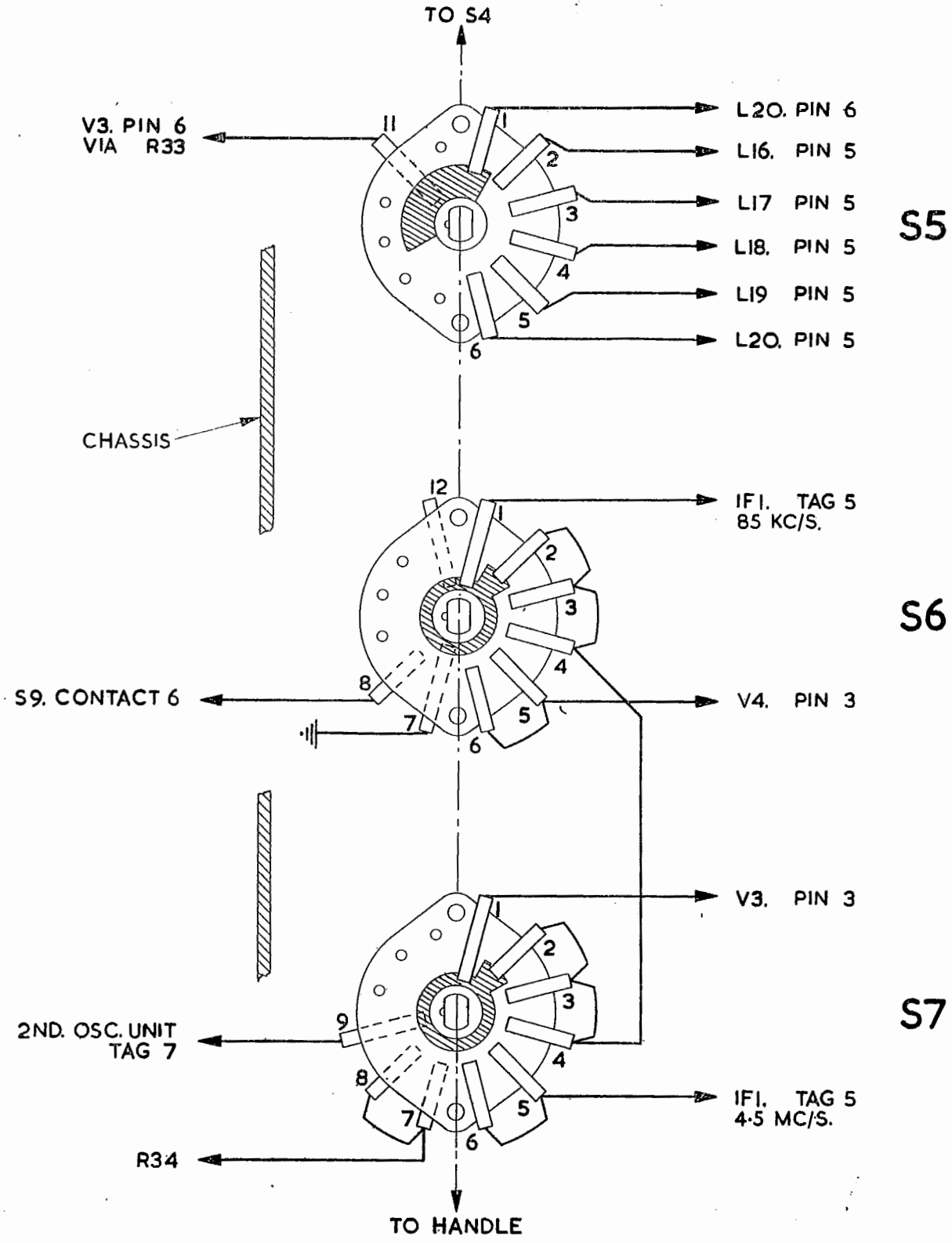


NOTE SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 1 (continued on 2)
Issue No. 2

WZ.4255

ROTARY SWITCH CONNECTIONS 'MERCURY' RECEIVER (TYPE 1017)



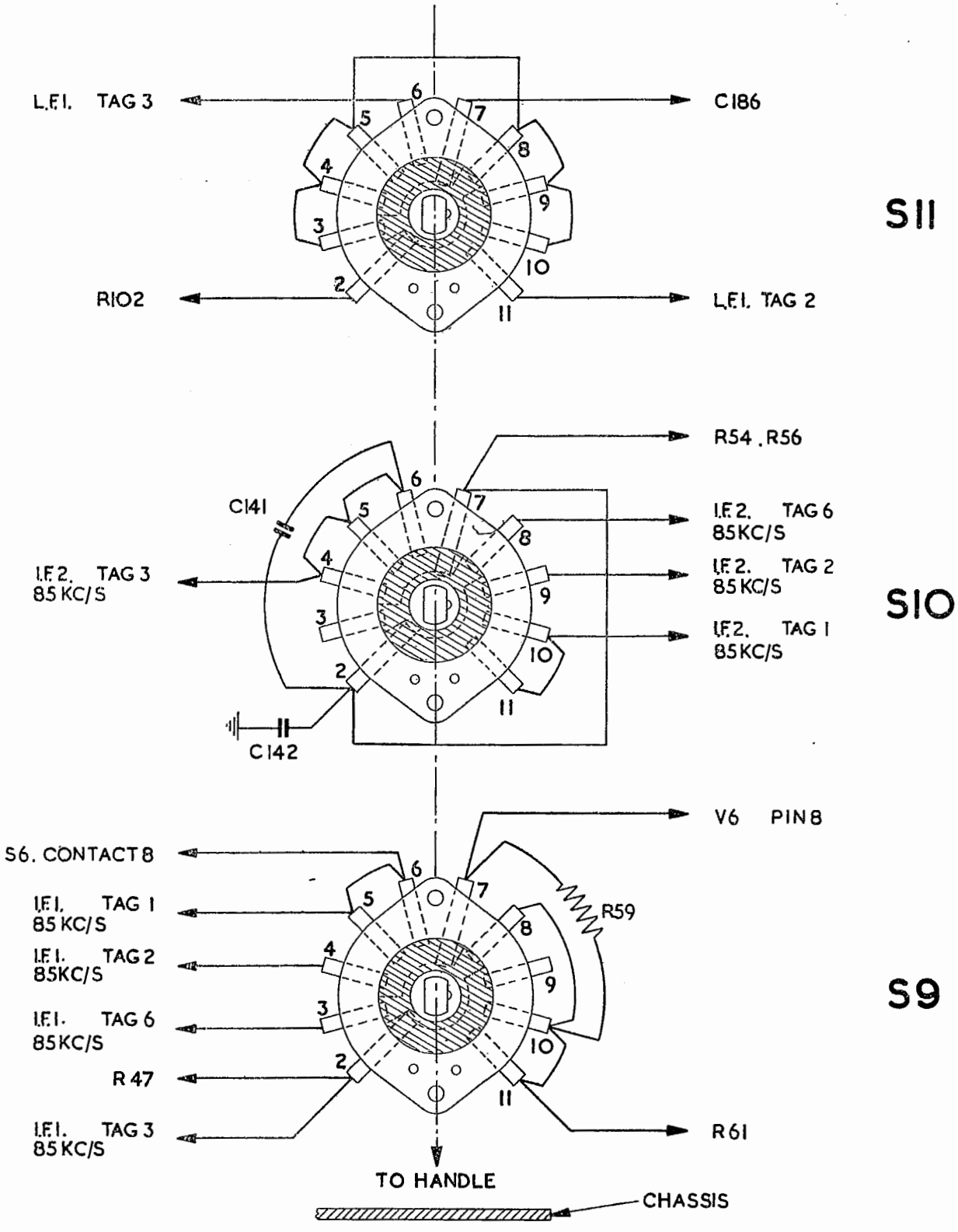
NOTE

SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 2 (continued on 3)
Issue No. 1

WZ.4255

ROTARY SWITCH CONNECTIONS 'MERCURY' RECEIVER (TYPE 1017)

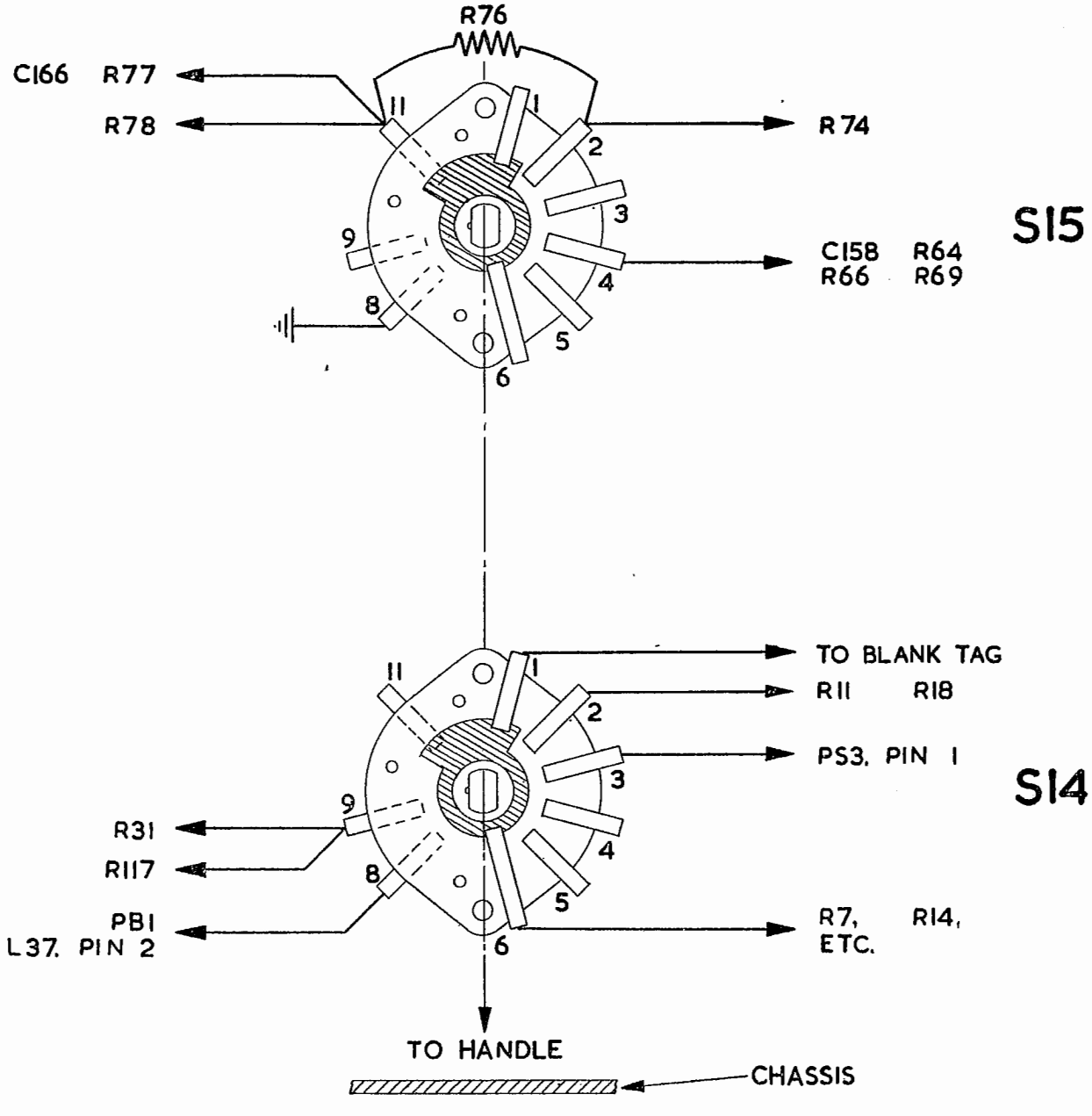


NOTE
SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 3 (continued on 4)
Issue No. 1

WZ.4255

ROTARY SWITCH CONNECTIONS 'MERCURY' RECEIVER (TYPE 1017)

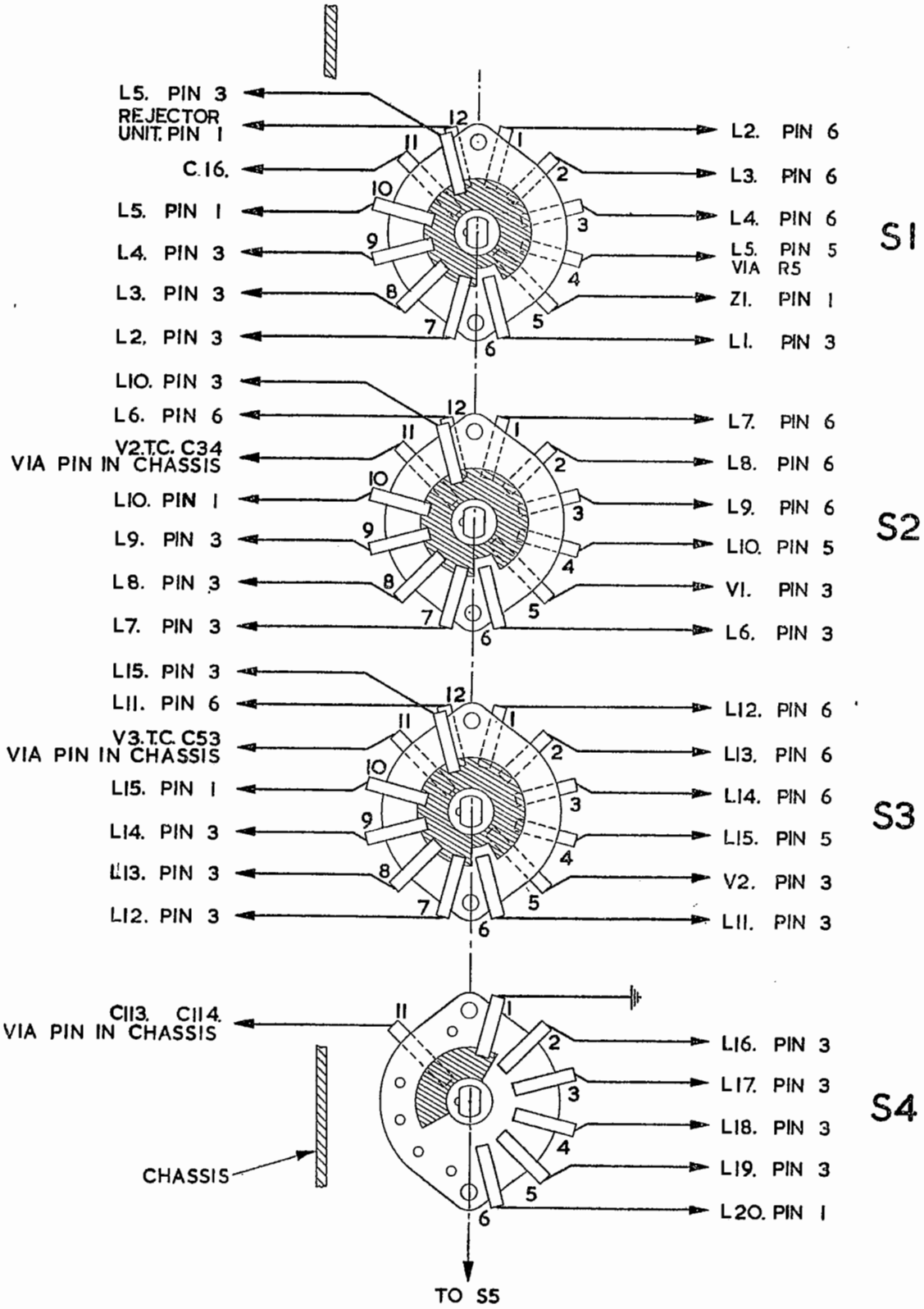


NOTE
SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 4
Issue No. 1

WZ.4255

ROTARY SWITCH CONNECTIONS 'MERCURY' RECEIVER (TYPE 1017)



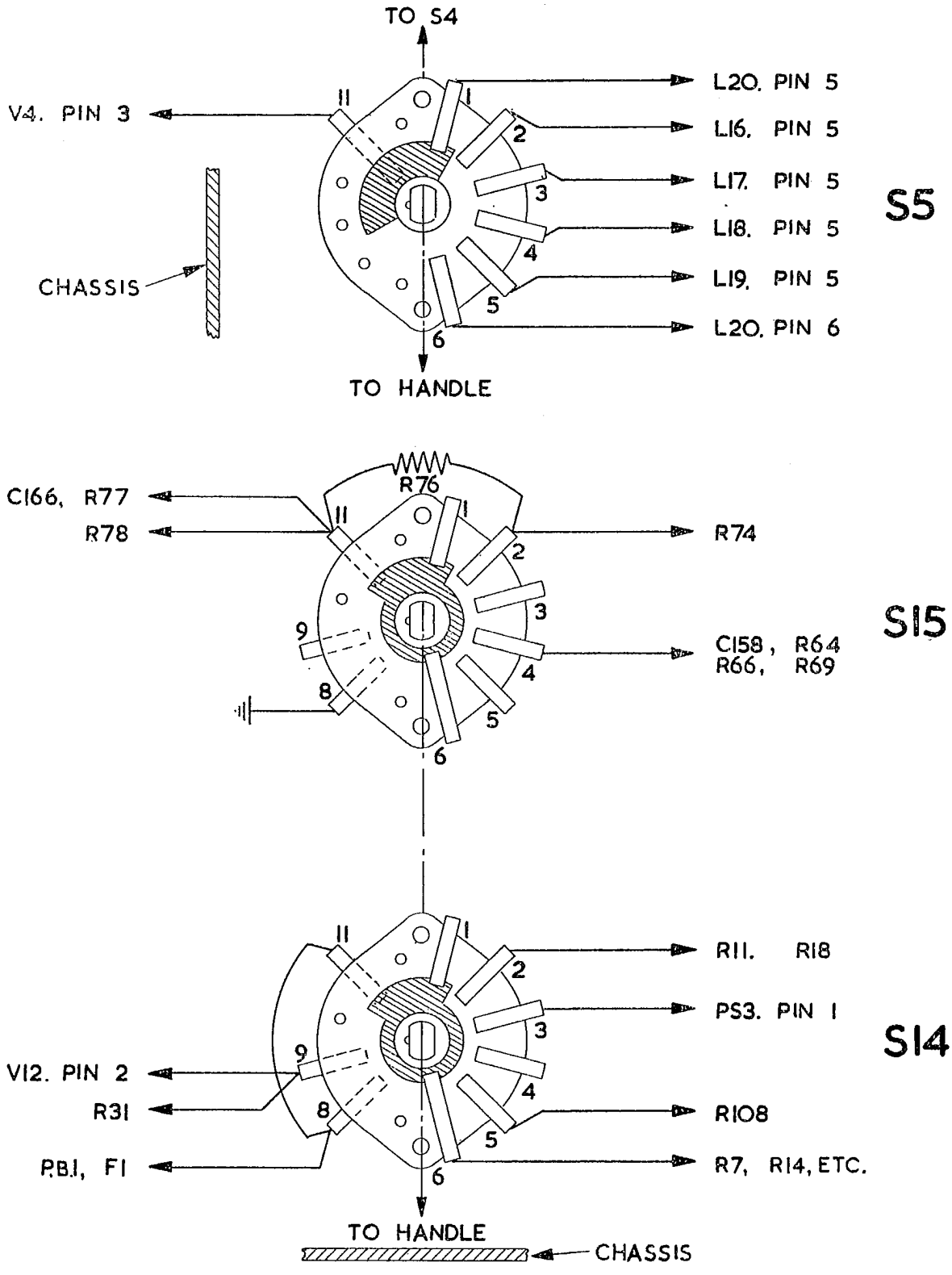
NOTE

SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 1 (continued on 2)
Issue No. 2

WZ.4254

ROTARY SWITCH CONNECTIONS 'ELECTRA' RECEIVER (TYPE 1018)



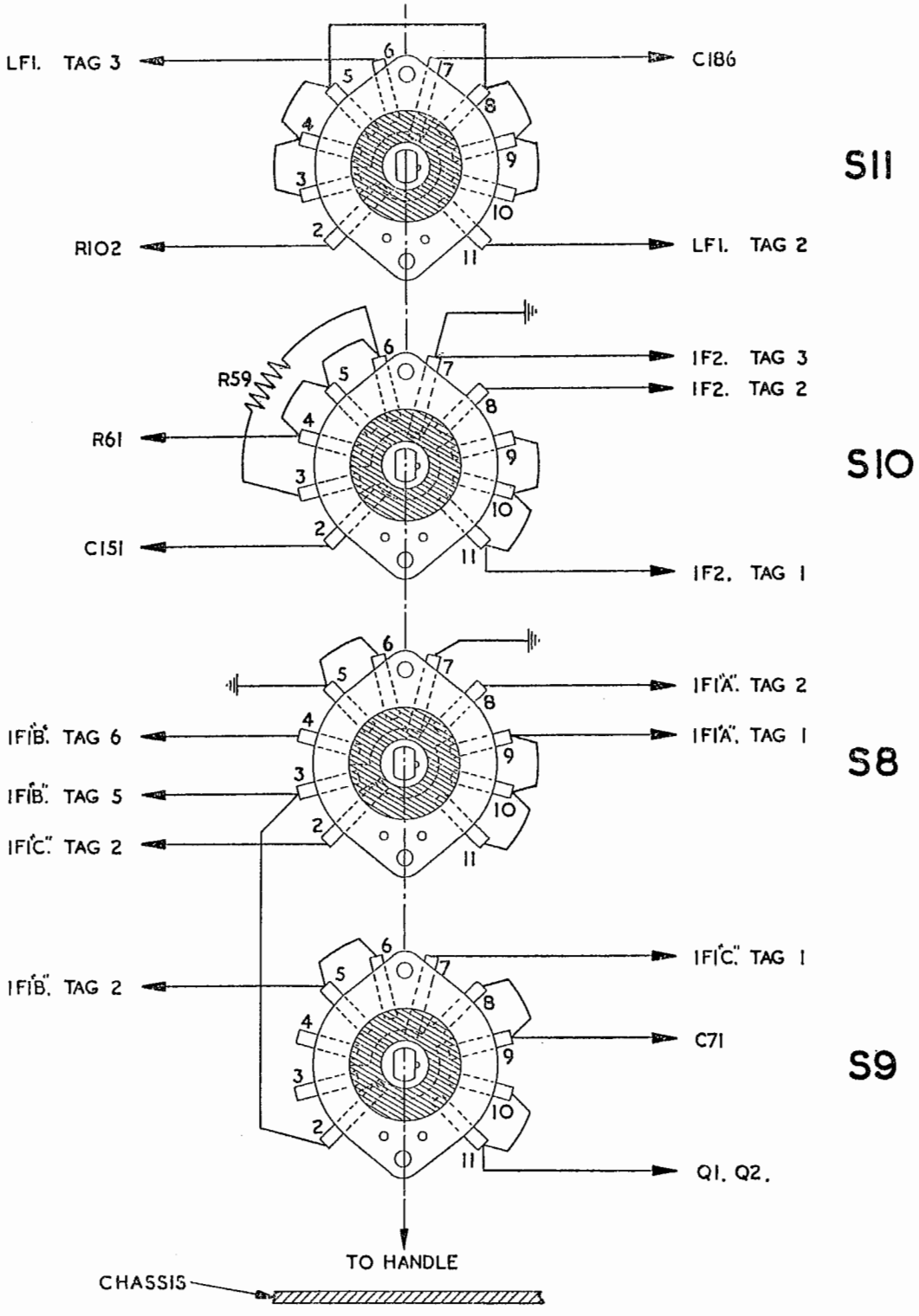
NOTE

SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 2 (continued on 3)
Issue No. 1

WZ.4254

ROTARY SWITCH CONNECTIONS 'ELECTRA' RECEIVER (TYPE 1018)



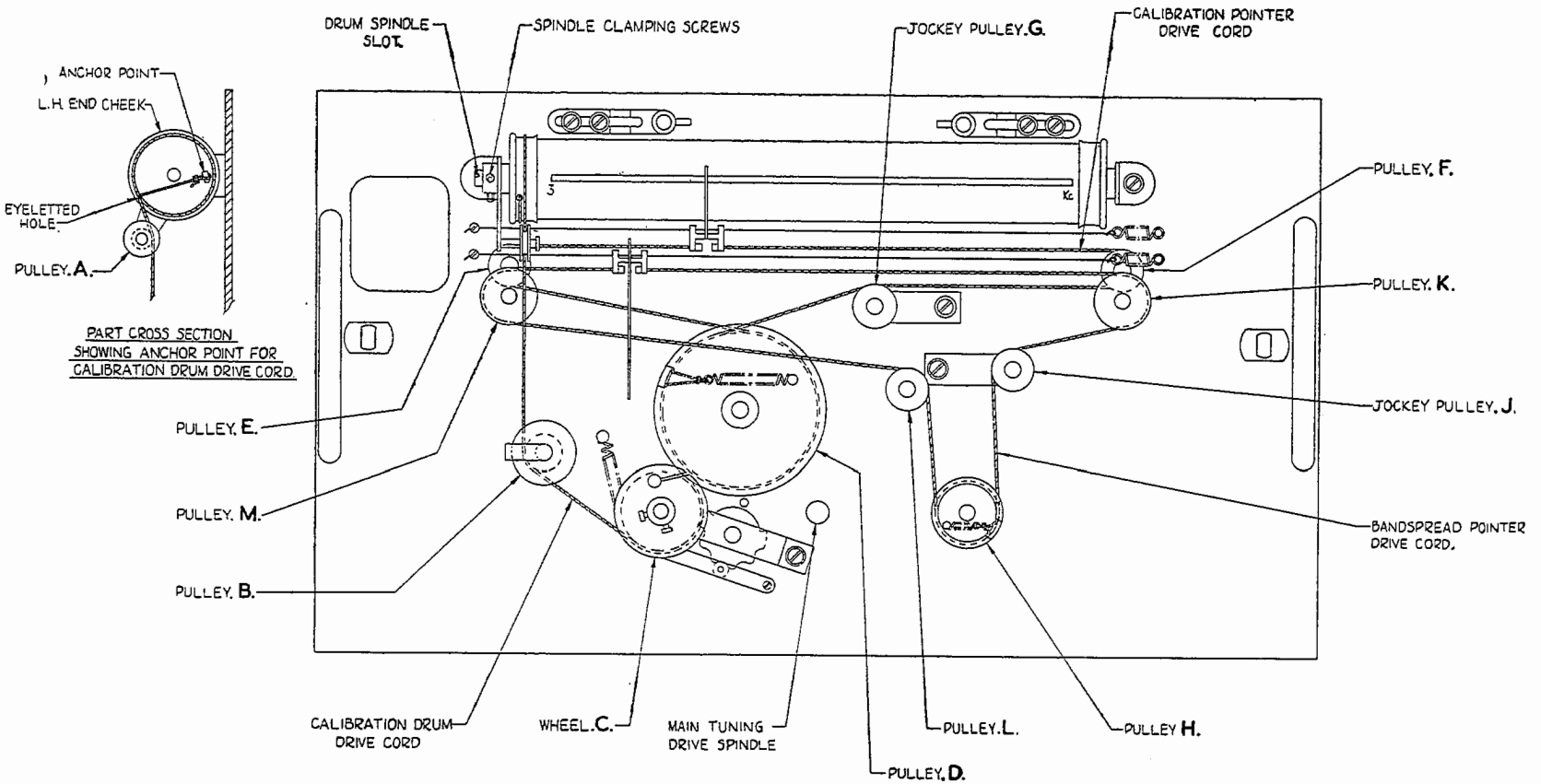
NOTE

SWITCHES SHOWN IN FULL COUNTER CLOCKWISE POSITION & ARE VIEWED FROM DRIVING END.

Sheet No. 3
Issue No. 2

WZ.4254

ROTARY SWITCH CONNECTIONS 'ELECTRA' RECEIVER (TYPE 1018)



FRONT PANEL WITH COVER REMOVED.

Sheet No. 1
Issue No 1

WZ.4258

DRIVE CORD REPLACEMENT DIAGRAMS FOR 'MERCURY' (TYPE 1017) AND 'ELECTRA' (TYPE 1018) RECEIVERS

'MERCURY' RECEIVER (Type 1017)

Symbols C1, C2, etc., correspond to those on Circuit Diagram WZ.3870/D and on Component Location Drawings.

When Ordering Spares Quote Ref. No., Value and Drawing No., e.g., C1.-470pF ± 5%. WIS.4483/B. Sh. 1, Ref. 1.

Ref.	Description	Value	Drawing No.	Remarks
	CAPACITORS			
C1	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C2	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C3	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C4	Capacitor	15pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
C5	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C6	Capacitor	10pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C7	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C8	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C9	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C10	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C11	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C12	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C13	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C14	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C15				
C16	Capacitor, Variable	532pF	WIS.4159/C Sh. 1. Ref. 1	Sweep with C34, C53 & C113
C17	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C18	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C19	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C20				
C21				
C22	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C23	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K

Ref.	Description	Value	Drawing No.	Remarks
C24	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C25				
C26	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C27	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C28	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C29	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C30				
C31	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C32	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C33	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C34	Capacitor, Variable	532pF	WIS.4159/C Sh. 1. Ref. 1	Sweep with C16, C53 & C113
C35				
C36	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C37	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C38	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C39				
C40				
C41	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C42	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C43	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C44	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C45				
C46	Capacitor, V Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C47	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C48	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C49	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C50				
C51	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C52	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N

Ref.	Description	Value	Drawing No.	Remarks
C53	Capacitor, Variable	532pF	WIS.4159/C Sh. 1. Ref. 1	Sweep with C16, C34, C113
C54	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C55				
C56	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C57	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C58	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C59	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C60				
C61				
C62				
C63				
C64				
C65				
C66				
C67				
C68				
C69				
C70				
C71				
C72				
C73				
C74				
C75				
C76	Capacitor	2.2pF ± .25pF	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
C77	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C78	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C79	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C80				
C81	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C82	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C83	Capacitor	2.2pF ± .25pF	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
C84	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C85				
C86	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C87				
C88	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N

Ref.	Description	Value	Drawing No.	Remarks
C89	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C90				
C91	Capacitor	100pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C92	Capacitor	650pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C93	Capacitor	1600pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C94	Capacitor	82pF ± 2%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C95				
C96	Capacitor	200pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C97	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C98	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C99	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C100				
C101	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C102	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C103	Capacitor	47pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C104	Capacitor	33pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C105				
C106	Capacitor	22pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C107	Capacitor	33pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C108	Capacitor	47pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C109	Capacitor	33pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C110				
C111	Capacitor, Trimmer	2-8pF	WIS.2848 Sh. 1. Ref. 2	
C112	Capacitor		W.20369/C Sh. 1. Ed. A	Temperature Compensator
C113	Capacitor, Variable	532pF	WIS.4159/C Sh. 1. Ref. 1	Sweep with C16, C34 & C53
C114				
C115				
C116	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C117	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N

Ref.	Description	Value	Drawing No.	Remarks
C118	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C119	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C120				
C121	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C122	Capacitor	33pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C123	Capacitor	100pF ± 15%	WIS.2442	Dubilier Type 635
C124	Capacitor, Trimmer	2-8pF	WIS.2848 Sh. 1. Ref. 2	
C125				
C126	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C127	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C128	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C129	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C130				
C131	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C132	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C133	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C134	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C135				
C136	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C137	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C138	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C139	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C140				
C141	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C142	Capacitor	0.1μF ± 20%	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C143	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C144	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C145				
C146	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	

Ref.	Description	Value	Drawing No.	Remarks
C147	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C148	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C149	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C150				
C151	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C152	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C153	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C154	Capacitor	500pF ± 15%	WIS.2442	Dubilier Type 635
C155	Capacitor	500pF ± 15%	WIS.2442 Sh. 1	Dubilier Type 635
C156	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C157	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C158	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C159	Capacitor	500pF ± 15%	WIS.2442 Sh. 1	Dubilier Type 635
C160				
C161	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C162	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C163	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C164	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C165				
C166	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C167	Capacitor	100pF ± 15%	WIS.2442	Dubilier Type 635
C168	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C169	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C170				
C171	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C172	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C173	Capacitor	500pF ± 15%	WIS.2442	Dubilier Type 635
C174	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N

Ref.	Description	Value	Drawing No.	Remarks
C175				
C176	Capacitor	25μF 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Electrolytic
C177	Capacitor	100pF ± 15%	WIS.2442	Dubilier Type 635
C178	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C179	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C180				
C181	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C182				
C183	Capacitor	25μF 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Electrolytic
C184	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C185				
C186	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C187	Capacitor	3,100pF ± 2%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C188	Capacitor, Trimmer	1,450 — 2,000pF	WIS.1588 Sh. 1. Ref. 12	
C189	Capacitor, Trimmer	1,450 — 2,000pF	WIS.1588 Sh. 1. Ref. 12	
C190	Capacitor	.005μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C191	Capacitor	3,100pF ± 2%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C192	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C193	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C194				
C195				
C196				
C197				
C198				
C199				
C200				
C201	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C202	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C203	Capacitor	0.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C204				
C205				
C206	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N

Ref.	Description	Value	Drawing No.	Remarks
Ref.	Description	Value	Drawing No.	Remarks
C207				
C208	Capacitor	25μF 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Electrolytic
C209	Capacitor	25μF 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Electrolytic
C210				
	CRYSTALS			
	FUSES			
F1	Fuse Holder		WIS.3142 Sh. 1. Ref. 7	Slydlok
	INDUCTANCES			
L1	Aerial Range 1		W.19534/B	
L2	Aerial Range 2		W.19535/B	
L3	Aerial Range 3		W.19536/B	
L4	Aerial Range 4		W.19537/B	
L5	Aerial Range 5		W.19538/B	
L6	Anode Range 1		W.19539/B	
L7	Anode Range 2		W.19540/B	
L8	Anode Range 3		W.19541/B	
L9	Anode Range 4		W.19542/B	
L10	Anode Range 5		W.19543/B	
L11	As L6		As L6	
L12	As L7		As L7	
L13	As L8		As L8	
L14	As L9		As L9	
L15	As L10		As L10	
L16	Oscillator Range 1		W.18765/B	
L17	Oscillator Range 2		W.18764/B	
L18	Oscillator Range 3		W.18763/B	
L19	Oscillator Range 4		W.18762/B	
L20	Oscillator Range 5		W.18761/B	
L21	I.F.1 Anode	4.5 Mc/s.	W.18778/B	
L22	I.F.1 Secondary	4.5 Mc/s.	W.18778/B	
L23	I.F.2 Primary	4.5 Mc/s.	W.18778/B	
L24	I.F.2 Grid	4.5 Mc/s.	W.18778/B	
L25	I.F.1 Anode	85 kc/s.	W.18780/B	
L26	I.F.1 Grid	85 kc/s.	W.18779/B	
L27	I.F.2 Anode	85 kc/s.	W.18780/B	
L28	I.F.2 Grid	85 kc/s.	W.18779/B	
L29	I.F.3 Anode	85 kc/s.	W.18782/B	
L30	I.F.3 Diode	85 kc/s.	W.18781/B	
L31	F.C. Oscillator	4.585 Mc/s.	W.18783/B	
L32	B.F.O	86 kc/s.	W.18784/B	
L33	Filter Choke	1000 c.p.s.	W.8132/C Sh. 3. Ed. H	Primary
L34	Filter Choke	1000 c.p.s.	W.8132/C Sh. 3. Ed. J	Secondary

Ref.	Description	Value	Drawing No.	Remarks
L35	I.F. Rejector	4.5 Mc/s.	W.20363/B	
L36	Rejector Range 2		W.20389/B	
L37	Supply Choke		W.15204/B Sh. 1. Ed. B	24V. D.C.
	JACKS			
J1	Jack	8 Point	WIS.3150/C Sh. 1. Ref. 1	
J2	Jack	As J1	As J1	
	LAMPS			
1L1	Scale Lamp	12V. 0.18 Amp.	WIS.3181/C Sh. 1. Ref. 9	
1L2	Scale Lamp	12V. 0.18 Amp.	As 1L1	
	LOUDSPEAKER			
LS1	Loudspeaker			Goodmans T4/201/3.2
	NOTE FILTER			
LF1	Note Filter	1000 c.p.s.	W.19590 Sh. 1. Ed. A	
	PLUGS AND SOCKETS			
P1	Plug Aerial		WIS.3495/B Sh. 1. Ref. 4	A.M. Type 161
PS1	Socket Aerial		WIS.3494/C Sh. 1. Ref. 1	A.M. Type 56
PS2	Socket Power		WSK.836 Sh. 1. Ed. L	7 Pin
PS3	Socket Power		WCP.393	5 Pin
PB1	Socket (AC/DC)		WIS.4286/C Sh. 1. Ref. 1	Belling Lee Type L506
	RELAYS			
Z1	Relay			Siemens H96D
Z2	Relay			As Z1
	RESISTORS			
R1	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R2	Resistor	220Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R3	Resistor	1,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R4	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R5	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R6	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R7	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R8	Resistor	1KΩ ± 20%	WIS.3903 Sh. 1. Ref. 6	Erie Type 9
R9	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R10	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R11	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R12	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R13	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R14	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R15				
R16	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R17	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R18	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R19	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R20				
R21	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R22	Resistor	33,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R23	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R24	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R25				
R26	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R27	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R28	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R29	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R30				
R31	Resistor	1,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R32				

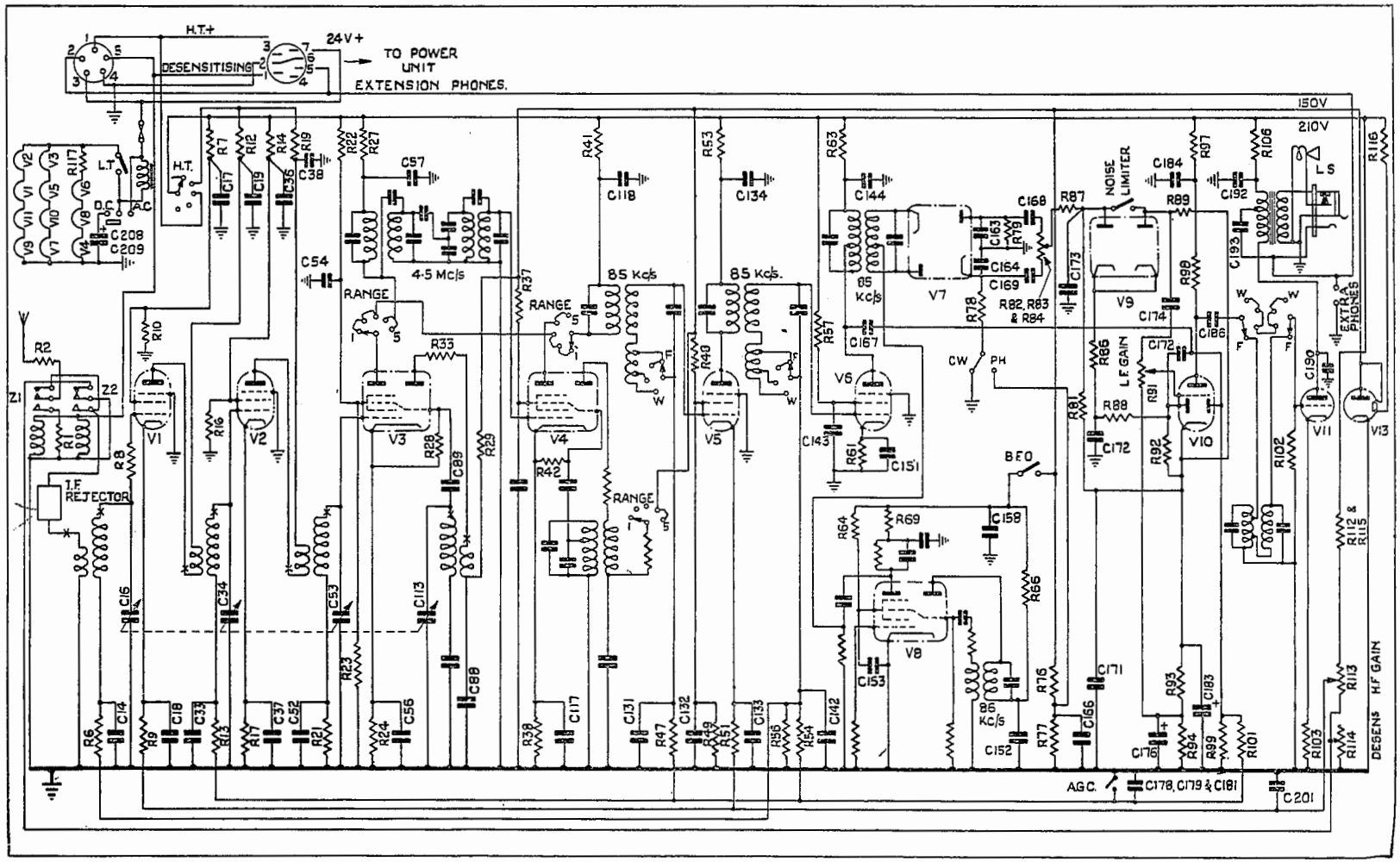
ef.	Description	Value	Drawing No.	Remarks
3	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
4	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
5				
6	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
7	Resistor	33,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
8	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
9	Resistor	330Ω ± 20%	WIS.3903	Erie Type 8
0				
1	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
2	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
3	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
4	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
5				
6				
7	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
8	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
9	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
0				
1	Resistor	680Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
2	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
3	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
4	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
5				
6	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
7	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
8	Resistor	150,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
9	Resistor	680Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
0				
1	Resistor	680Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R62	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R63	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R64	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R65				
R66	Resistor	150,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R67	Resistor	6,800Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R68	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R69	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R70				
R71	Resistor	4,700Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R72	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R73	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R74	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R75				
R76	Resistor	330,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R77	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R78	Resistor	100,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R79	Resistor	100,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R80				
R81	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R82	Resistor	470,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R83	Resistor, Variable	100,000Ω	WIS.3086 Sh. 1. Ref. 9	Morganite Stackpole Type LH Linear Potentiometer
R84	Resistor	470,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R85				
R86	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R87	Resistor	33,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R88	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R89	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R90				
R91	Resistor, Variable	2MΩ	WIS.3032 Sh. 4. Ref. 40	Morganite Stackpole Type H. Log. Potentiometer
R92	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R93	Resistor	2,200Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R94	Resistor	15,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R95				
R96	Resistor	330Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R97	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R98	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R99	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R100				
R101	Resistor	220,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R102	Resistor	1MΩ ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R103	Resistor	680Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R104	Resistor	330Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R105				
R106	Resistor	1,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R107				
R108				
R109				
R110				
R111				
R112	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R113	Resistor, Variable	5,000Ω ± 5%	WIS.4297/B Sh. 1. Ref. 1	Reliance Type T.W. Inverse Log Pot
R114	Resistor, Variable	20,000Ω ± 5%	WIS.4297/B Sh. 1. Ref. 2	Reliance Type T.W. Inverse Log Pot
R115	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1 Ref. 5	Erie Type 8
R116	Resistor	1,800Ω ± 5%	WIS.3336 Sh. 1. Ref. 1	Berco Type LW6
R117	Resistor	22Ω ± 5%	WIS.3336 Sh. 1. Ref. 1	Berco Type LW6
R118				
R119				
R120				

Ref.	Description	Value	Drawing No.	Remarks
	SWITCHES			
S1	Switch	HF.	WIS.1197/C Sh. 655	
S2-S3	Switch	HF.	WIS.1197/C Sh. 432	
S4-S7	Switch	HF.	WIS.1197/C Sh. 433	
S9-S11	Switch	IF.	WIS.1197/C Sh. 435	
S12	Switch	Noise Limiter	WIS.1012	Bulgin Type S259/CHR Less on-off plates
S13	Switch	A.G.C.	As S12	
S14-S15	Switch	Operational	WIS.1197/C Sh. 437	
	TRANSFORMERS			
T1	Output Transformer		WIS.5041 Sh. 3. Ref. 17	Parmeko Model No. 6000/35
	VALVES			
V1	Valve			KTW61
V2	Valve			KTW61
V3	Valve			X61M
V4	Valve			X61M
V5	Valve			KTW61
V6	Valve			KTW61
V7	Valve			D63M
V8	Valve			X61M
V9	Valve			D63M
V10	Valve			DH63
V11	Valve			L63
V13	Valve			VR/150/30
	SUB-ASSEMBLIES			
	Aerial		W.18767 Ed. A	
	1st & 2nd H.F.		W.18767 Ed. B	
	Oscillator		W.18760 Ed. A	
	IF1	4.5 Mc/s.	W.26732 Sh. 1. Ed. A	
	IF2	4.5 Mc/s.	W.18786 Sh. 1. Ed. A	
	IF1	85 kc/s.	W.26732 Sh. 1. Ed. B	
	IF2	85 kc/s.	W.26732 Sh. 1 Ed. C	

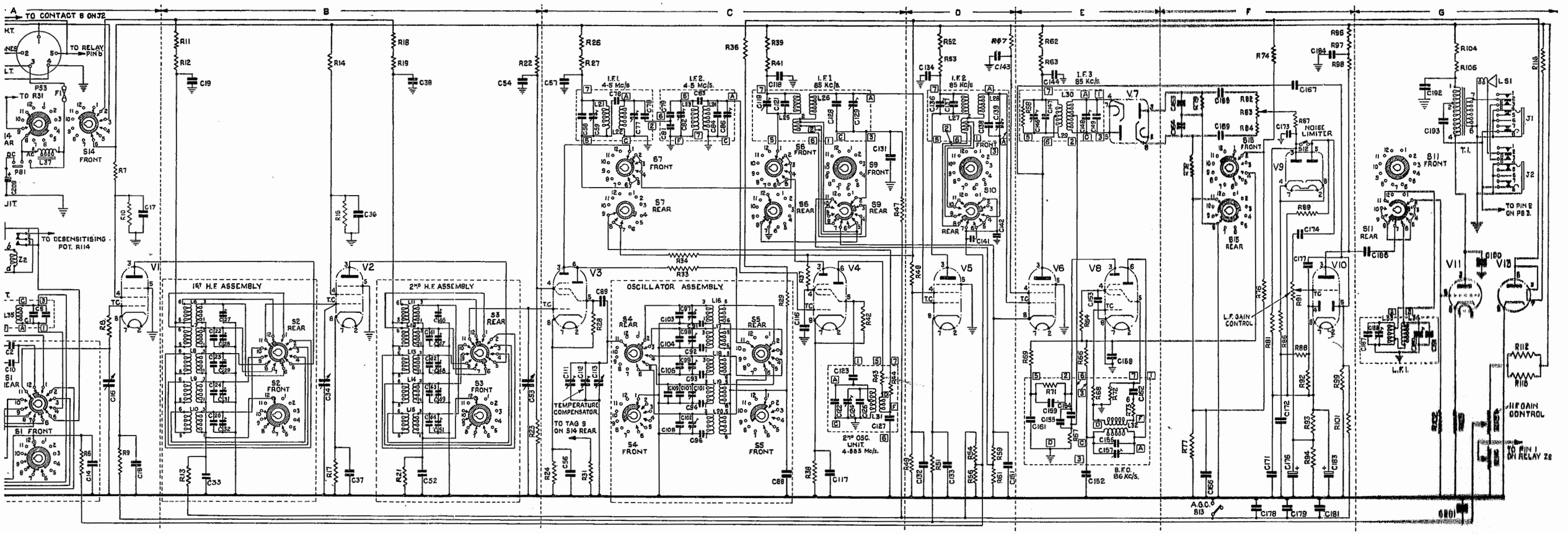
Ref.	Description	Value	Drawing No.	Remarks
	IF3	85 kc/s.	W.26732 Sh. 1. Ed. D	
	B.F.O.	86 kc/s.	W.26732 Sh. 1. Ed. F	
	F.C. Oscillator	4.585 Mc/s.	W.26732 Sh. 1. Ed. E	
	Rejector		W.26732 Sh. 1. Ed. G	
	MISCELLANEOUS ITEMS			
	Slow Motion Drive & Condenser Assembled		W.20000 Ed. A	
	Click Lever		W.19582/C Sh. 1. Ed. A	For Range Switch
	Spring		10/W.20020/C	For Click Lever
	Spring		10/W.20020/C	For Frequency Pointer
	Pointer Carriage		W.19985/C Sh. 1. Ed. A	For Calibration Drum
	Drive Cord		W.20004/C Sh. 1. Ed. A	For Range Switch
	Drive Cord		W.20008/C Sh. 1. Ed. A	For Frequency Pointer
	Lampholders		3/W.19587/C	
	Valveholders		WIS.1894	Octal
	Valve Screening Cans		WIS.2345 Sh. 1. Ref. 3	Body & Cap
	Top Cap Connectors		WIS.2412	For Valves
	Dust Iron Cores		WIS.3242/C Sh. 1. Ref. 8	For H.F. Coils
	Handle with Pointer		WSK.13614 Sh. 1. Ed. C	For Gain Controls
	Handle		WSK.15139 Sh. 1	For Range Switch, etc.
	Knob		W.20006/C Sh. 1. Ed. A	For Main Tuning



Sheet No. 1
Issue No. 3

WZ.4319

SIMPLIFIED CIRCUIT DIAGRAM FOR 'MERCURY' RECEIVER (TYPE 1017)



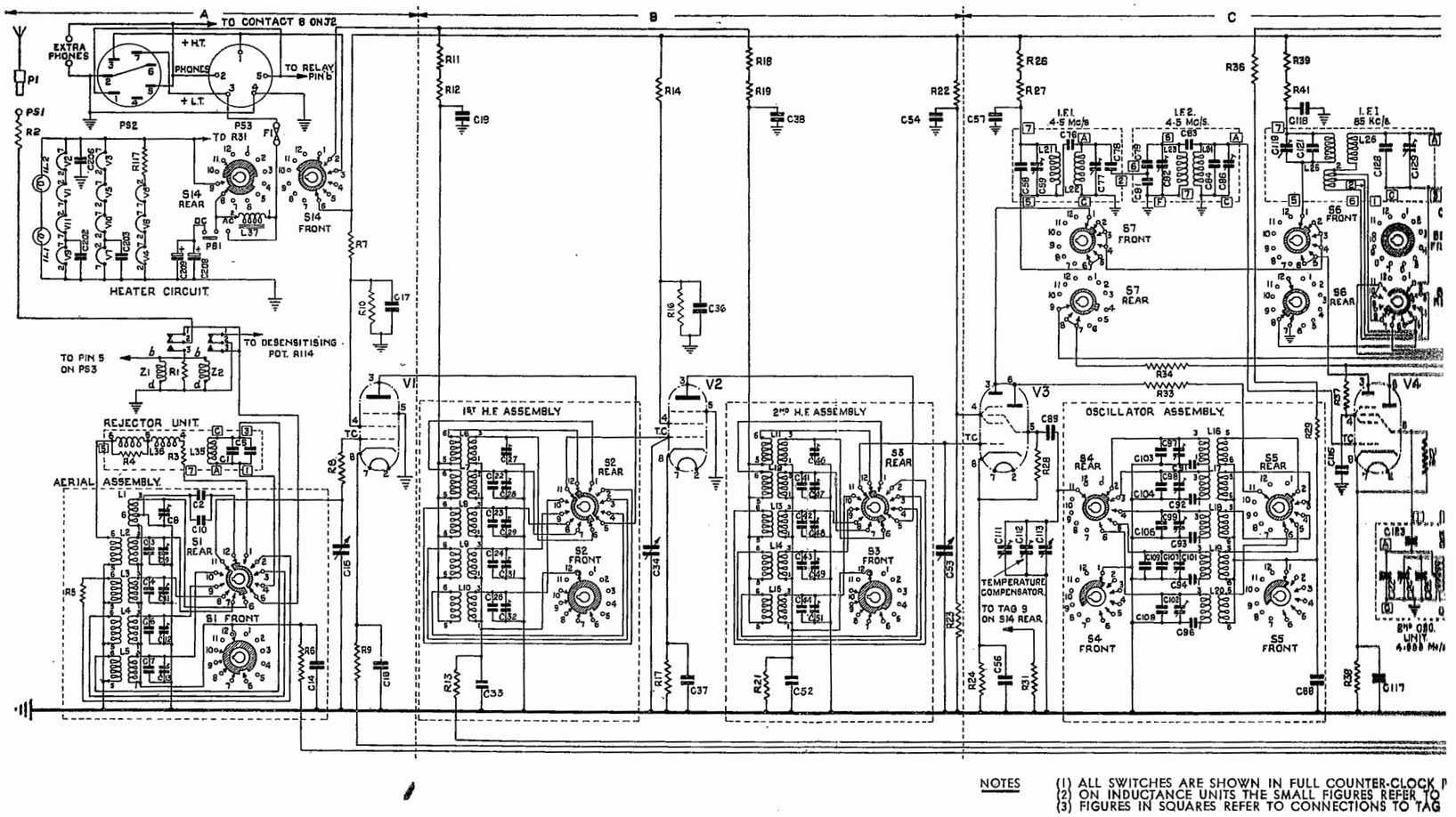
NOTES

(1) ALL SWITCHES ARE SHOWN IN FULL COUNTER-CLOCK POSITION.
(2) ON INDUCTANCE UNITS THE SMALL FIGURES REFER TO COIL PIN NUMBERS.
(3) FIGURES IN SQUARES REFER TO CONNECTIONS TO TAG BOARDS OF COIL ASSEMBLIES.
(4) SWITCHES S1, S2, S3, S4, S5, S6 & S7 ARE GANGED.
SWITCHES S9, S10 & S11 ARE GANGED.
SWITCHES S14 & S15 ARE GANGED.

CIRCUIT DIAGRAM FOR 'MERCURY' RECEIVER (TYPE 1017)

WZ.8870/D

03



NOTES
(1) ALL SWITCHES ARE SHOWN IN FULL COUNTER-CLOCK P
(2) ON INDUCTANCE UNITS THE SMALL FIGURES REFER TO
(3) FIGURES IN SQUARES REFER TO CONNECTIONS TO TAG

Sheet No. 1
Issue No. 3

CIRCUIT DIAGRAM FOR 'MERCURY' RECEIVER (TYPE 1017)

'ELECTRA' RECEIVER (Type 1018)

Is C1, C2, etc., correspond to those on Circuit Diagram WZ.3872/D and on Component Location Drawings.

Ordering Spares Quote Ref. No., Value and Drawing No., e.g., C1.-470pF ± 5%. WIS.4483/B. Sh. 1 Ref. 1.

Description	Value	Drawing No.	Remarks
CAPACITORS			
Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1 ...	
Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
Capacitor	.005μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
Capacitor, Variable	210pF	WIS.4159/C Sh. 1. Ref. 2	Ganged with C34, C53 & C113
Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
Capacitor	.005μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
Capacitor	10pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	

Ref.	Description	Value	Drawing No.	Remarks
C29	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C30				
C31	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C32	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C33	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C34	Capacitor, Variable	210pF	WIS.4159/C Sh. 1. Ref. 2	Ganged with C16, C53 & C113
C35				
C36	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C37	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C38	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C39				
C40				
C41				
C42				
C43				
C44				
C45				
C46	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C47	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C48	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C49	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C50				
C51	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C52	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C53	Capacitor, Variable	210pF	WIS.4159/C Sh. 1. Ref. 2	Ganged with C16, C34 & C113
C54	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C55				
C56	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C57	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C58	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMW
C59	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C60				

Ref.	Description	Value	Drawing No.	Remarks
C61	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C62	Capicator, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C63	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C64	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C65				
C66	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C67	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C68	Capacitor, Trimmer	2-8pF	WIS.2848 Sh. 1. Ref. 2	
C69	Capacitor, Trimmer	2-8pF	WIS.2848 Sh. 1. Ref. 2	
C70				
C71	Capicator	27pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C72	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C73	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C74	Capacitor	47pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C75				
C76				
C77				
C78				
C79				
C80				
C81				
C82				
C83				
C84				
C85				
C86				
C87	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C88	Capacitor	.01μF ± 10%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C89	Capacitor	.0005μF ± 15%	WIS.2442	Dubilier Type 635
C90				
C91	Capacitor	105pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C92	Capacitor	620pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N
C93	Capacitor	1,200pF ± 2%	WIS.4483/B Sh. 1. Ref. 2	T.C.C. Type SM2N

Ref.	Description	Value	Drawing No.	Remarks
C94	Capacitor	2,400pF ± 2%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C95				
C96	Capacitor	4,700pF ± 5%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C97	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C98	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C99	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C100	Capacitor	10pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
C101	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C102	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C103	Capacitor	15pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C104				
C105				
C106				
C107				
C108				
C109				
C110				
C111	Capacitor, Trimmer	2-8pF	WIS.2848 Sh. 1. Ref. 2	
C112	Capacitor		W.20369/C Ed. A	Temperature Compensator
C113	Capacitor, Variable	210pF	WIS.4159/C Sh. 1. Ref. 2	Ganged with C16, C34 & C53
C114	Capacitor	33pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type N750K
C115	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1 Ref. 4	T.C.C. Type M3N
C116				
C117				
C118				
C119				
C120				
C121				
C122				
C123				
C124				
C125				
C126				
C127				
C128				
C129				
C130				

Ref.	Description	Value	Drawing No.	Remarks
C131	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C132	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C133	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C134	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C135				
C136	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C137	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C138	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C139	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C140				
C141				
C142				
C143	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C144	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C145				
C146	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C147	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C148	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C149	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C150				
C151	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C152	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C153	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C154	Capacitor	.0005μF ± 15%	WIS.2442	Dubilier Type 635
C155				
C156	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C157	Capacitor, Trimmer	3-30pF	WIS.2848 Sh. 1. Ref. 1	
C158	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 1	T.C.C. Metal Pack Type CP45N
C159	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C160				

Ref.	Description	Value	Drawing No.	Remarks
C161	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C162	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C163	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C164	Capacitor	470pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C165				
C166	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C167	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C168	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C169	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C170				
C171	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C172	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C173	Capacitor	.0005μF ± 15%	WIS.2442	Dubilier Type 635
C174	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C175				
C176	Capacitor	25μF — 20%+50% 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Type CE32C
C177	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C178	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C179	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C180				
C181	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C182	Capacitor	.0001μF ± 15%	WIS.2442	Dubilier Type 635
C183	Capacitor	25μF — 20%+50% 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Type CE32C
C184	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C185				
C186	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C187	Capacitor	3,100pF ± 2%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C188	Capacitor, Trimmer	1,450 — 2,000pF	WIS.1588 Sh. 1. Ref. 12	

Ref.	Description	Value	Drawing No.	Remarks
C189	Capacitor, Trimmer	1,450 — 2,000pF	WIS.1588 Sh. 1. Ref. 12	
C190				
C191	Capacitor	3,100pF ± 2%	WIS.4483/B Sh. 1. Ref. 3	T.C.C. Type SM3N
C192	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C193	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C194				
C195				
C196	Capacitor	220pF ± 5%	WIS.4483/B Sh. 1. Ref. 1	T.C.C. Type SMWN
C197	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C198	Capacitor	10pF ± 10%	WIS.3450/B Sh. 1. Ref. 7	Erie Ceramicon Type P120K
C199	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C200				
C201	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C202	Capacitor	.1μF ± 20% 350V. Wkg	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C203	Capacitor	.1μF ± 20% 350V. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. Metal Pack Type CP45N
C204	Capacitor	.01μF ± 20%	WIS.4342/B Sh. 1. Ref. 4	T.C.C. Type M3N
C205				
C206				
C207				
C208	Capacitor	25μF — 20%+50% 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Type CE32C
C209	Capacitor	25μF — 20%+50% 25V. Wkg.	WIS.3201/C Sh. 1. Ref. 5A	T.C.C. Micro Pack Type CE32C
C210				
	CRYSTALS			
Q1	Crystal Resonator	690 kc/s.	Spec. MS200	Type B
Q2	Crystal Resonator	690 kc/s.	Spec. MS200	Type A
Q3	Crystal Calibrator	690 kc/s.	Spec. MS128	
	FUSES			
F1	Fuse Holder		WIS.3142/C Sh. 1. Ref. 7	Slydlok
	INDUCTANCES			
L1	Aerial Range 1		W.19544/B	
L2	Aerial Range 2		W.19545/B	
L3	Aerial Range 3		W.19546/B	
L4	Aerial Range 4		W.19547/B	
L5	Aerial Range 5		W.19548/B	

Ref.	Description	Value	Drawing No.	Remarks
L6	Anode Range 1		W.19549/B	
L7	Anode Range 2		W.19550/B	
L8	Anode Range 3		W.19551/B	
L9	Anode Range 4		W.19552/B	
L10	Anode Range 5		W.19553/B	
L11	As L6		As L6	
L12	As L7		As L7	
L13	As L8		As L8	
L14	As L9		As L9	
L15	As L10		As L10	
L16	Oscillator Range 1		W.19572/B	
L17	Oscillator Range 2		W.19573/B	
L18	Oscillator Range 3		W.19574/B	
L19	Oscillator Range 4		W.19575/B	
L20	Oscillator Range 5		W.19553/B	
L21	I.F.1 Anode	690 kc/s.	W.19554/B	Circuit A
L22	I.F.1 Secondary	690 kc/s.	W.19555/B	Circuit A
L23	I.F.1 Primary	690 kc/s.	W.19556/B	Circuit B
L24	I.F.1 Crystal	690 kc/s.	W.19557/B	Circuit B
L25	I.F.1	690 kc/s.	W.19558/B	Circuit C
L26				
L27	I.F.2 Anode	690 kc/s.	W.19559/B	
L28	I.F.2 Grid	690 kc/s.	W.19560/B	
L29	I.F.3 Anode	690 kc/s.	W.19561/B	
L30	I.F.3 Diode	690 kc/s.	W.19562/B	
L31	Calibrator Osc.	690 kc/s.	W.19584/B	
L32	B.F.O.	691 kc/s.	W.19563/B	
L33	Filter Choke	1,000 c.p.s.	W.8132/C Sh. 3. Ed. H	Primary
L34	Filter Choke	1,000 c.p.s.	W.8132/C Sh. 3. Ed. J	Secondary
L35	Rejector Range 1		W.19585/B	
L36				
L37				
	JACKS			
J1	Jack	8 Point	WIS.3150/C Sh. 1. Ref. 1	
J2	Jack	As J1	As J1	
	LAMPS			
1L1	Scale Lamp	12V. 0.18 Amp.	WIS.3181/C Sh. 1. Ref. 9	
1L2	Scale Lamp	12V. 0.18 Amp.	As 1L1	
	LOUDSPEAKER			
LS1	Loudspeaker			Goodmans T4/201/3.2
	NOTE FILTER			
LF1	Note Filter	1,000 c.p.s.	W.19590 Sh. 1. Ed. A	

Ref.	Description	Value	Drawing No.	Remarks
	PLUGS AND SOCKETS			
P1	Plug Aerial		WIS.3495/B Sh. 1. Ref. 4	A.M. Type 161
PS1	Socket Aerial		WIS.3494/C Sh. 1. Ref. 1	A.M. Type 56
PS2	Socket Power		WSK.836 Sh. 1. Ed. L	7 Pin
PS3	Socket Power		WCP.393	5 Pin
PB1	Socket (AC/DC)		WIS.4286/C Sh. 1. Ref. 1	Belling Lee Type L506
	RELAYS			
Z1	Relay			Siemens H96D
Z2	Relay			As Z1
	RESISTORS			
R1	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R2	Resistor	2,200Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R3				
R4				
R5	Resistor	100Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R6	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R7	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R8	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R9	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R10				
R11	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R12	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R13	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R14	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R15				
R16	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R17	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R18	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R19	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R20				

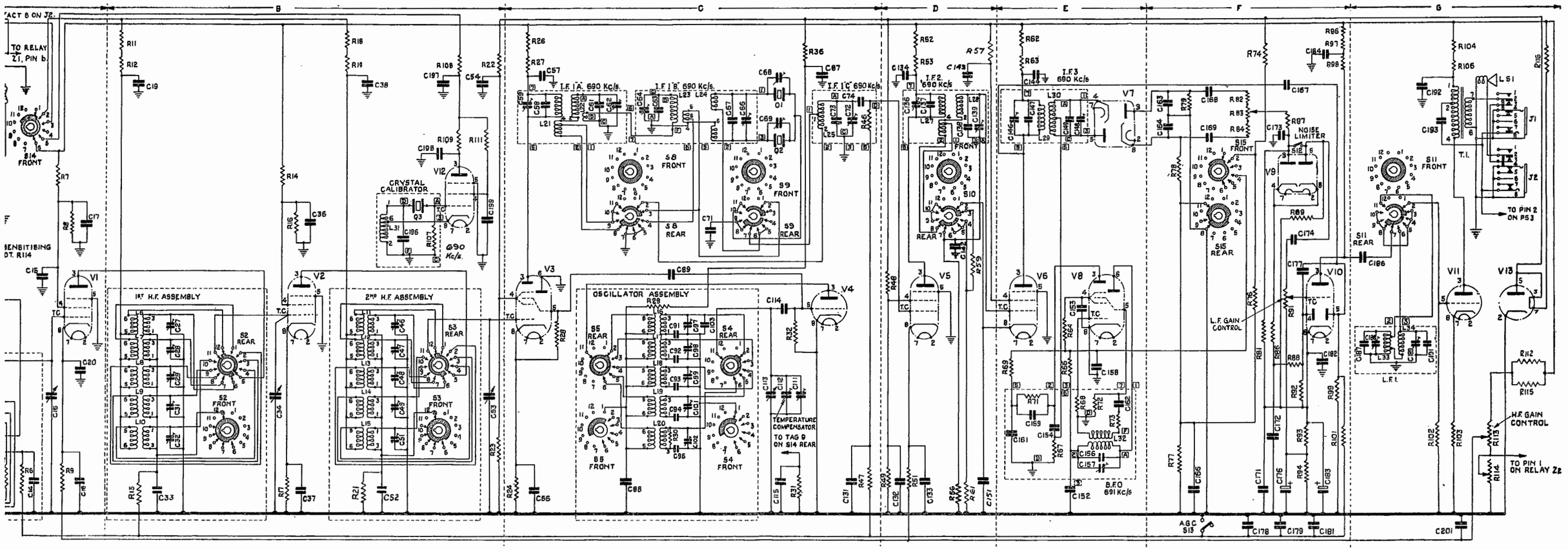
Ref.	Description	Value	Drawing No.	Remarks
R21	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R22	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R23	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R24	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R25				
R26	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R27	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R28	Resistor	470,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R29	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R30	Resistor	4,700Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R31	Resistor	1,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R32	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R33				
R34				
R35				
R36	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R37				
R38				
R39				
R40				
R41				
R42				
R43				
R44				
R45				
R46	Resistor	470,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R47	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R48	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R49	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R50	Resistor	1KΩ ± 20%	WIS.3903 Sh. 1. Ref. 6	Erie Type 9
R51	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R52	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R53	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R54				
R55				
R56				
R57	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R58				
R59	Resistor	470Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R60				
R61	Resistor	680Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R62	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R63	Resistor	3,300Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R64	Resistor	22,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R65				
R66	Resistor	150,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R67	Resistor	4,700Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R68	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R69	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R70				
R71	Resistor	4,700Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R72	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R73	Resistor	1,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R74	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R75				
R76	Resistor	330,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R77	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R78	Resistor	100,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R79	Resistor	100,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R80				
R81	Resistor	1.0MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R82	Resistor	470,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R83	Variable Resistor	100,000Ω	WIS.3086 Sh. 1. Ref. 9	Morganite Stackpole Type LH
R84	Resistor	470,000Ω ± 5%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R85				
R86	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R87	Resistor	33,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R88	Resistor	1.0MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R89	Resistor	1.0MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R90				
R91	Resistor, Variable	2.0MΩ	WIS.3032 Sh. 4. Ref. 40	Morganite Stackpole Type H. Log.
R92	Resistor	1.0MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R93	Resistor	2,200Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R94	Resistor	15,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R95				
R96	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R97	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R98	Resistor	100,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R99	Resistor	2.2MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R100				
R101	Resistor	220,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R102	Resistor	1.0MΩ ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R103	Resistor	680Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R104	Resistor	330Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R105				
R106	Resistor	1,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R107	Resistor	330,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R108	Resistor	10,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R109	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R110				
R111	Resistor	47,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8

Ref.	Description	Value	Drawing No.	Remarks
R112	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R113	Resistor, Variable	5,000Ω ± 5%	WIS.4297/C Sh. 1. Ref. 1	Reliance Type TW Inverse Log.
R114	Resistor, Variable	20,000Ω ± 5%	WIS.4297/B Sh. 1. Ref. 2	Reliance Type TW Inverse Log.
R115	Resistor	68,000Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R116	Resistor	1,800Ω ± 5%	WIS.3336 Sh. 1. Ref. 1	Berco Type LW6
	SWITCHES			
S1	Switch	H.F.	WIS.1197/C Sh. 655	
S2-S3	Switch	H.F.	WIS.1197/C Sh. 432	
S4-S6	Switch	H.F.	WIS.1197/C Sh. 434	
S8-S11	Switch	I.F.	WIS.1197/C Sh. 436	
S12	Switch	Noise Limiter	1/WIS.1012	Bulgin Type S259/ CHR less On-off plate
S13	Switch	A.G.C.	As S12	
S14-S15	Switch	Operational	WIS.1197/C Sh. 437	
	TRANSFORMERS			
T1	Output Transformer		WIS.5041 Sh. 3. Ref. 17	Parmeko Model No. 6000/35
	VALVES			
V1	Valve			KTW61
V2	Valve			KTW61
V3	Valve			X61M
V4	Valve			L63
V5	Valve			KTW61
V6	Valve			KTW61
V7	Valve			D63M
V8	Valve			X61M
V9	Valve			D63M
V10	Valve			DH63
V11	Valve			L63
V12	Valve			KTW61
V13	Valve			VR/150/30
	SUB-ASSEMBLIES			
	Aerial		W.18767 Ed. C	
	1st & 2nd H.F.		W.18767 Ed. D	
	Oscillator		W.18760 Ed. B	

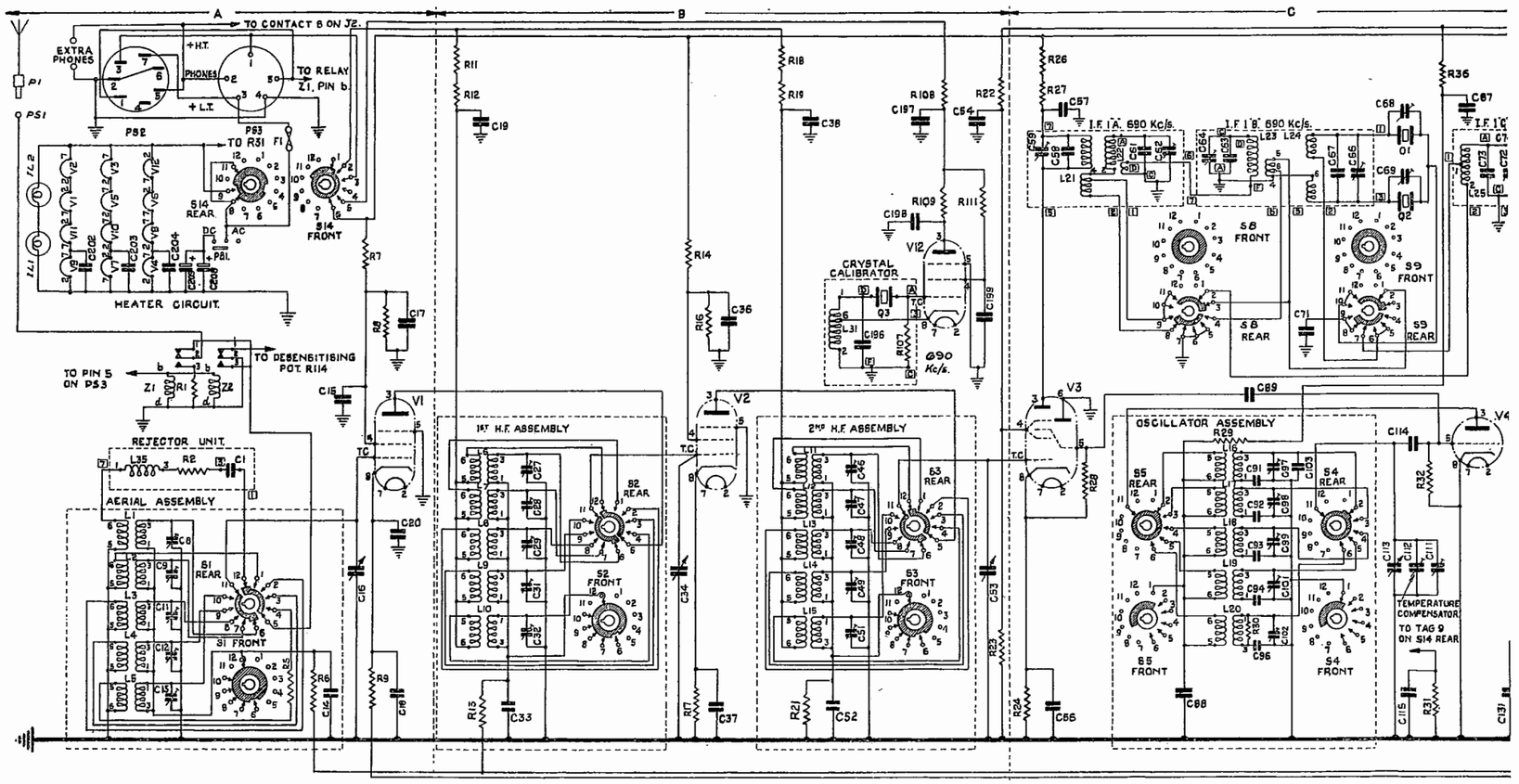
Ref.	Description	Value	Drawing No.	Remarks
	IF1 'A'	690 kc/s.	W.26731 Sh. 1. Ed. A	
	IF1 'B'	690 kc/s.	W.26731 Sh. 1. Ed. B	
	IF1 'C'	690 kc/s.	W.26731 Sh. 1. Ed. C	
	IF2	690 kc/s.	W.26731 Sh. 1. Ed. D	
	IF3	690 kc/s.	W.26731 Sh. 1. Ed. E	
	B.F.O.	691 kc/s.	W.26731 Sh. 1. Ed. H	
	Calibrator	690 kc/s.	W.26731 Sh. 1. Ed. F	
	Rejector		W.26731 Sh. 1. Ed. G	
	MISCELLANEOUS ITEMS			
	Slow Motion Drive & Condenser Assembled		W.20000 Ed. B.	
	Bandspread Drive Assembled		W.20017/B Sh. 1. Ed. A	
	Click Lever		W.19582 Sh. 1. Ed. A	For Range Switch
	Spring		10/W.20020/C	For Click Lever
	Spring		12/W.20020/C	For Bandspread Pointer
	Spring		10/W.20020/C	For Frequency Pointer
	Pointer Carriage		W.19985/C Sh. 1. Ed. A	For Calibration Drum
	Pointer Carriage		W.20002/C Sh. 1. Ed. A	For Bandspread Scale
	Drive Cord		W.20004/C Sh. 1. Ed. A	For Range Switch
	Drive Cord		W.20008/C Sh. 1. Ed. B	For Bandspread Pointer
	Drive Cord		W.20008/C Sh. 1. Ed. A	For Frequency Pointer
	Lamp Holders		3/W.19587/C	
	Valve Holders		WIS.1894	Octal
	Valve Screening Cans		WIS.2345 Sh. 1. Ref. 3	Body & Cap
	Top Cap Connectors		WIS.2412	For Valves
	Dust Iron Core		WIS.3242/C Sh. 1. Ref. 8	For H.F. Coils
	Handle with Pointer		WSK.13614 Sh. 1. Ed. C	For Gain Controls
	Handle		WSK.15139 Sh. 1	For Range Switch, etc.
	Knob		W.20006/C Sh. 1. Ed. A	For Main Tuning



NOTES
(1) ALL SWITCHES ARE SHOWN IN FULL COUNTER CLOCKWISE POSITION.
(2) SWITCHES S1, S2, S3, S4 & S5 ARE GANGED.
SWITCHES S8, S9, S10 & S11 ARE GANGED.
SWITCHES S14 & S15 ARE GANGED.
(3) ON INDUCTANCE UNITS, THE SMALL FIGURES REFER TO COIL PIN NUMBERS.
(4) FIGURES IN SQUARES REFER TO CONNECTIONS TO TAG BOARDS OF COIL ASSEMBLIES.

CIRCUIT DIAGRAM FOR 'ELECTRA' RECEIVER (TYPE 1018) SERIAL Nos. 107-1106

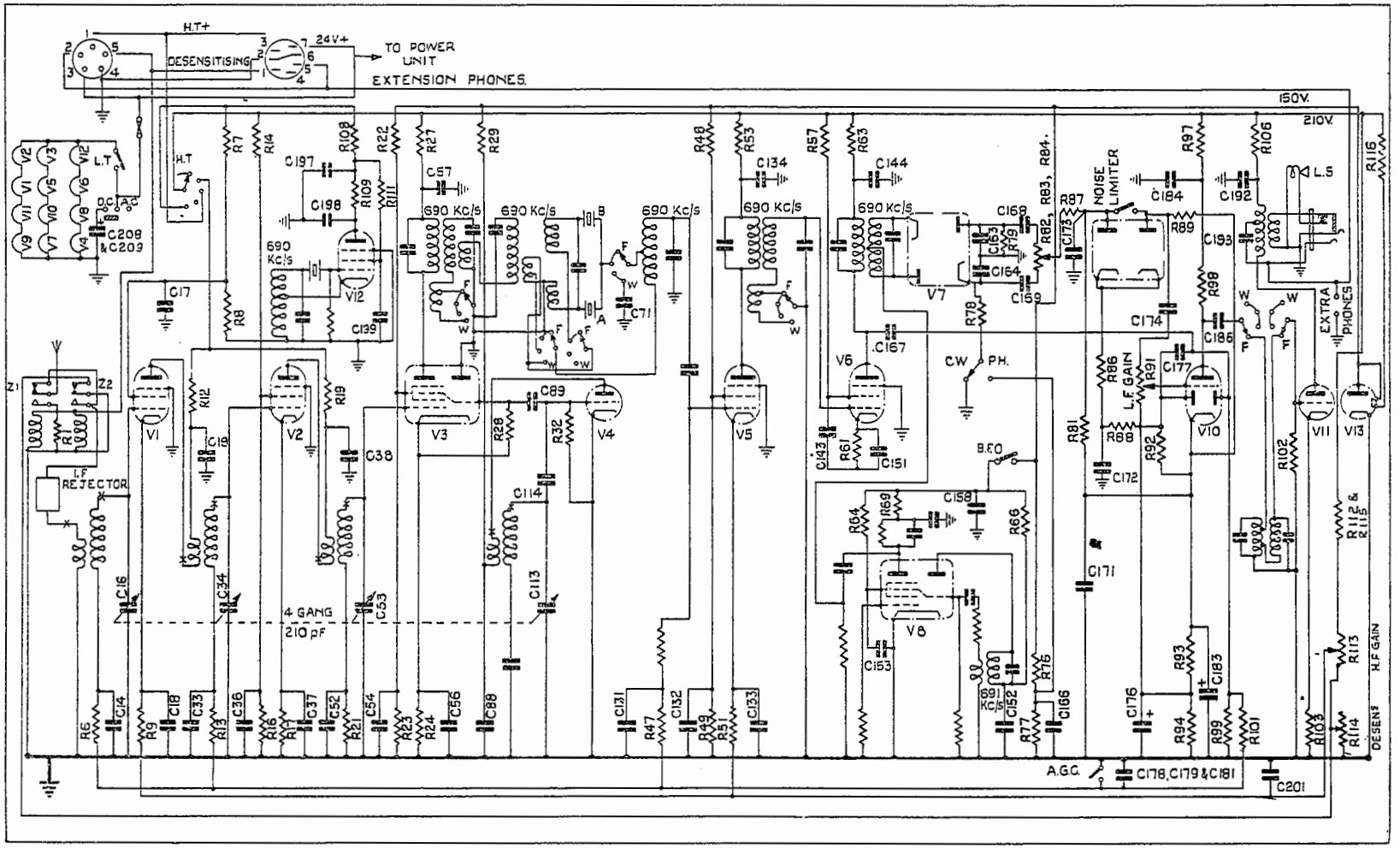
WZ.3872/D



NOTES
(1) ALL SWITCHE
(2) SWITCHES S1
SWITCHES S8
SWITCHES S1
(3) ON INDUCTA
(4) FIGURES IN S

Sheet No. 1
Issue No. 3

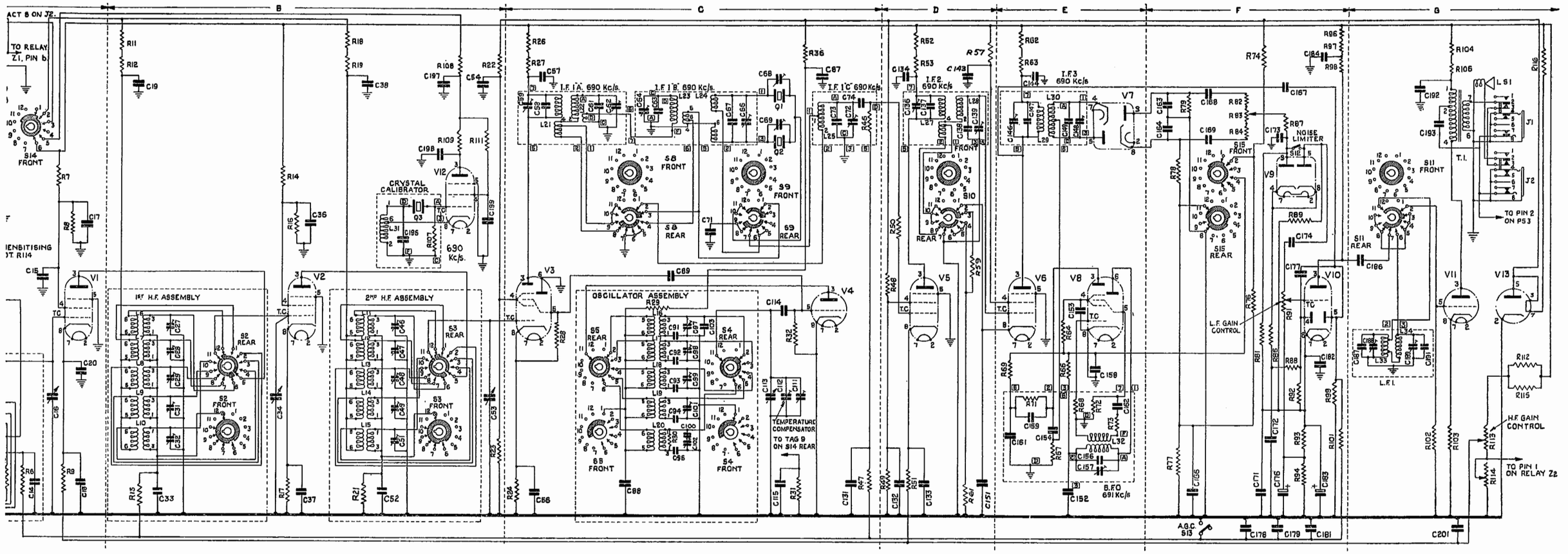
CIRCUIT DIAGRAM FOR 'ELECTRA' RECEIVER (TYPE 1018) SERIAL Nos. 107-1106



Sheet 1, Ref. 1
Issue No. 2

WZ.4318

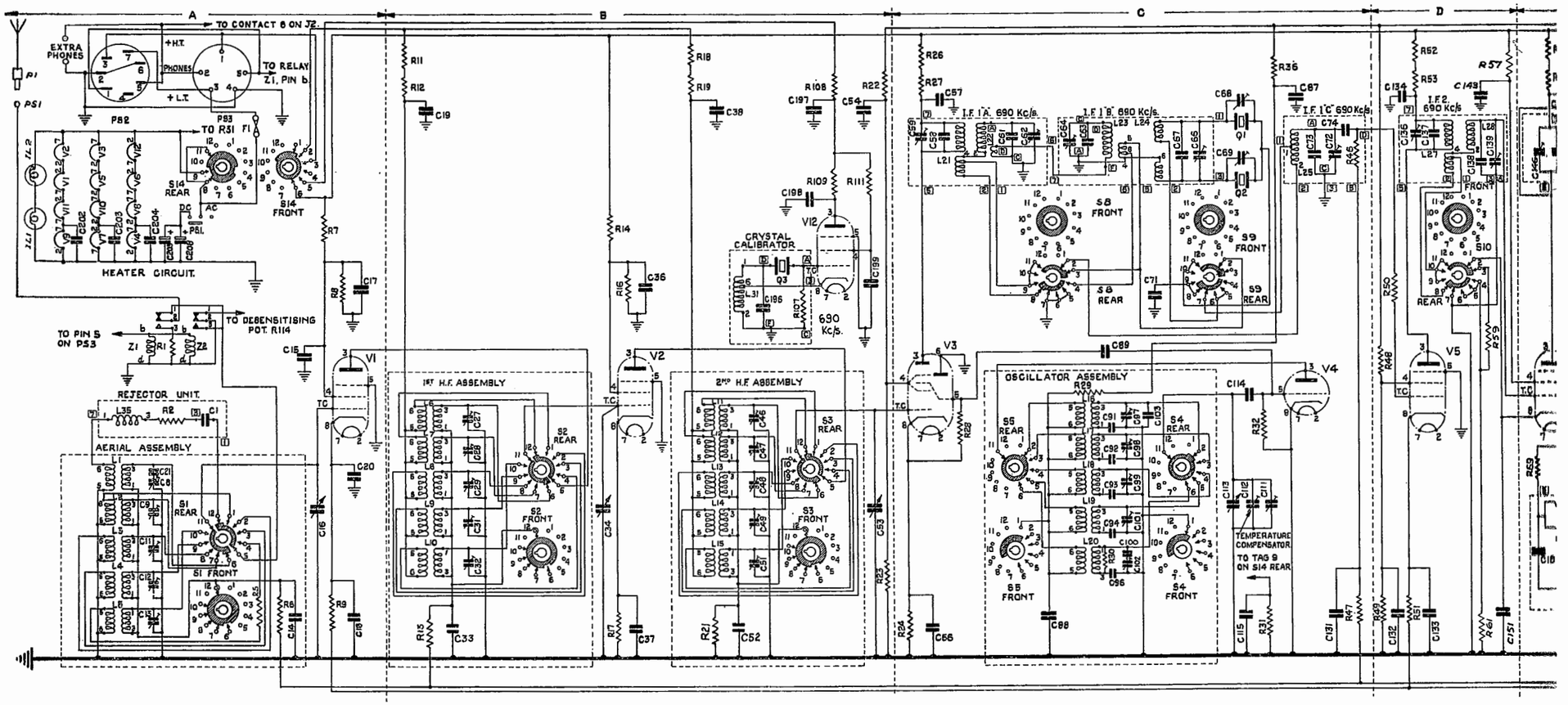
SIMPLIFIED CIRCUIT DIAGRAM FOR 'ELECTRA' RECEIVER (TYPE 1018)



NOTES
(1) ALL SWITCHES ARE SHOWN IN FULL COUNTER CLOCKWISE POSITION.
(2) SWITCHES S1, S2, S3, S4 & S55 ARE GANGED.
SWITCHES S8, S9, S10 & S11 ARE GANGED.
SWITCHES S14 & S15 ARE GANGED.
(3) ON INDUCTANCE UNITS, THE SMALL FIGURES REFER TO COIL PIN NUMBERS.
(4) FIGURES IN SQUARES REFER TO CONNECTIONS TO TAG BOARDS OF COIL ASSEMBLIES.

CIRCUIT DIAGRAM FOR 'MERCURY' RECEIVER (TYPE 1018) FOR SERIAL Nos. 1107 AND ON

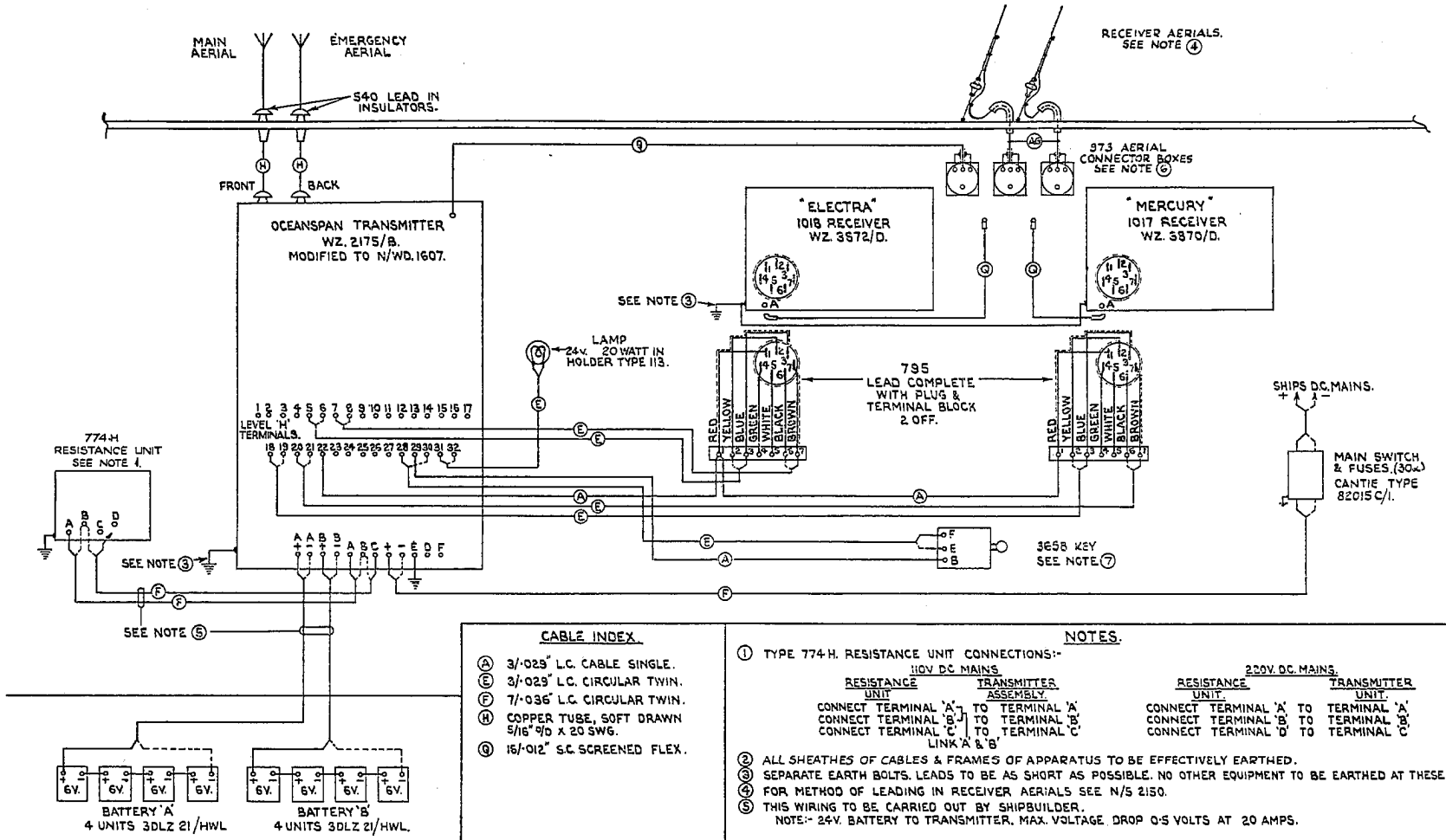
WZ.3872/D



NOTES
(1) ALL SWITCHES ARE SHOWN IN
(2) SWITCHES S1, S2, S3, S4 & S5
SWITCHES S8, S9, S10 & S11
SWITCHES S14 & S15 ARE GANG
(3) ON INDUCTANCE UNITS, THE
(4) FIGURES IN SQUARES REFER
ASSEMBLIES.

Sheet No. 2
Issue No. 1

CIRCUIT DIAGRAM FOR 'MERCURY' RECEIVER (TYPE 1018) FOR SERIAL Nos. 1107 AND ON



CABLE INDEX.

- (A) 3/·029" L.C. CABLE SINGLE.
- (E) 3/·029" L.C. CIRCULAR TWIN.
- (F) 7/·036" L.C. CIRCULAR TWIN.
- (H) COPPER TUBE, SOFT DRAWN 5/16" o/d x 20 SWG.
- (Q) 15/·012" S.C. SCREENED FLEX.

SCHEDULE N° I/180.

NOTES.

(1) TYPE 774-H. RESISTANCE UNIT CONNECTIONS:-

110V. D.C. MAINS.			220V. D.C. MAINS.	
RESISTANCE UNIT		TRANSMITTER ASSEMBLY.	RESISTANCE UNIT.	TRANSMITTER UNIT.
CONNECT TERMINAL 'A'	TO	TERMINAL 'A'	CONNECT TERMINAL 'A' TO	TERMINAL 'A'
CONNECT TERMINAL 'B'	TO	TERMINAL 'B'	CONNECT TERMINAL 'B' TO	TERMINAL 'B'
CONNECT TERMINAL 'C'	TO	TERMINAL 'C'	CONNECT TERMINAL 'D' TO	TERMINAL 'C'
LINK 'A' & 'B'				

(2) ALL SHEATHES OF CABLES & FRAMES OF APPARATUS TO BE EFFECTIVELY EARTHED.
(3) SEPARATE EARTH BOLTS. LEADS TO BE AS SHORT AS POSSIBLE. NO OTHER EQUIPMENT TO BE EARTHED AT THESE POINTS.
(4) FOR METHOD OF LEADING IN RECEIVER AERIALS SEE N/S 2150.
(5) THIS WIRING TO BE CARRIED OUT BY SHIPBUILDER.
NOTE:- 24V. BATTERY TO TRANSMITTER. MAX. VOLTAGE DROP 0·5 VOLTS AT 20 AMPS.
(6) TYPE 973 AERIAL BOXES TO BE AS CLOSE AS POSSIBLE TO RECEIVERS TO ALLOW COMPLETE INTERCHANGE BETWEEN AERIALS & RECEIVERS.
(7) ON 3658 KEY CHOKE CONNECTED BETWEEN BACK CONTACT 4 TERMINAL 'B' IS TO BE SHORTED OUT.

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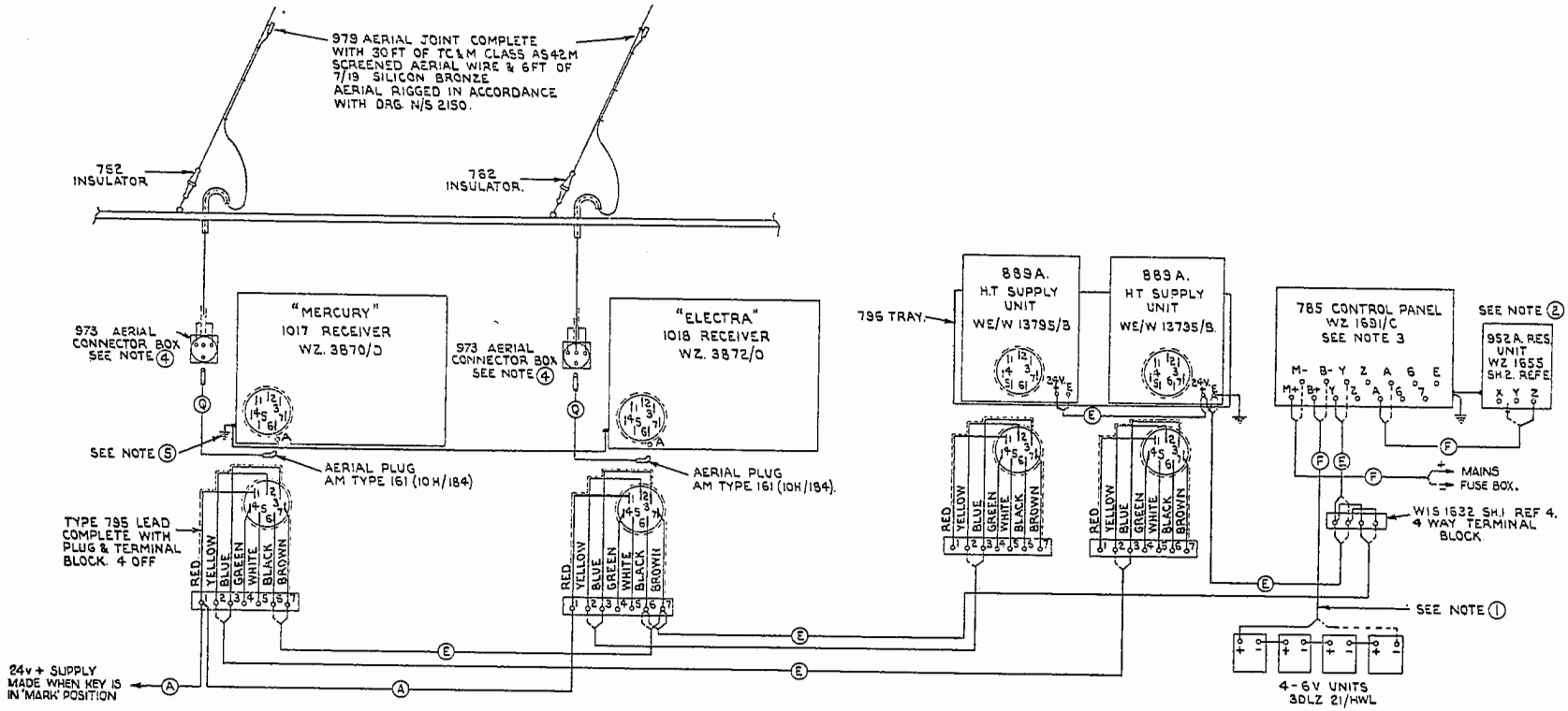
Issue No. 3

N/WD.1704

INSTALLATION DIAGRAM OF 'OCEANSPAN' TRANSMITTER WITH 'MERCURY' AND 'ELECTRA' RECEIVERS



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FUSE DATA.

785 CONTROL PANEL

F1 & F2 - 36 SWG (1/·0076") TINNED COPPER F.C. 10 AMPS.
F3 & F4 - 26 SWG. (1/·018") " " F.C. 30 AMPS.

MAIN SWITCH

26 SWG. (1/·0156") TINNED COPPER F.C. 20 AMPS.

RECEIVER.

F1. 24 SWG. (·022") LEAD TIN ALLOY F.C. 4 AMPS.

CABLE INDEX.

- (A) 3/·029" L.C. SINGLE.
- (E) 3/·029" L.C. CIRCULAR TWIN
- (F) 7/·036" L.C. CIRCULAR TWIN
- (Q) 16/·012" SINGLE SCREENED FLEX

SCHEDULE N° R.S. 29.

NOTES.

1. THIS LEAD SUPPLIED & RUN BY SHIPBUILDER IN CABLE AS STATED OR EQUIVALENT
2. FOR 110V. D.C. MAINS CONNECT TO TERMINALS 'Y' & 'Z' AND LINK 'X' & 'Z'. FOR 220V. D.C. MAINS CONNECT TO TERMINALS 'Y' & 'Z' AND REMOVE LINK.
3. 785 CONTROL PANEL IS SUPPLIED ARRANGED FOR 110V D.C. MAINS. FOR 220V D.C. MAINS WITHDRAW PANEL FROM CASE & REMOVE THE LINK WHICH SHORT CIRCUITS THE OUTER RESISTANCE IN BOTH CASES ENSURE THAT THE POSITIVE LEAD TO THE VOLTMETER IS CONNECTED TO THE 30V. TERMINAL
4. 973 AERIAL BOXES TO BE AS CLOSE AS POSSIBLE TO RECEIVERS TO ALLOW INTERCHANGE BETWEEN AERIALS & RECEIVERS
5. SEPARATE EARTH BOLT THIS LEAD TO BE AS SHORT AS POSSIBLE & NO OTHER APPARATUS TO BE EARTHED AT THIS POINT.

Sheet No. 1
Issue No. 2

N/WD.1559

INSTALLATION WIRING DIAGRAM OF 'MERCURY' AND 'ELECTRA' RECEIVERS

APPENDIX

POWER SUPPLY UNITS—TYPE 889A & TYPE 966A

As indicated earlier in this pamphlet, the 'Electra' and 'Mercury' receivers are designed to operate from the type 889A or 966A supply unit in conjunction with primary sources of 24 volts, 110 volts or 220 volts D.C., or from 230 volts 50 c.p.s. A.C.

The type 966A unit is a modified edition of the type 889A and is included as part of the 'Oceanspan' installation, where it may be used to operate additional receiving equipment such as the 'Vigilant' automatic alarm as well as the main receiver.

The two units differ only in minor details concerning the method of bringing out the external connections, the following description may be taken as referring to both types, unless otherwise stated.

The input voltages for which the units are designed can be any one of the following: —

D.C.	...	24, 100, 110, 200 or 220
A.C.	...	230 V. 50 c.p.s.

The outputs given are 240 volts at 60 mA. and 24 volts at 1.0 amp. The latter L.T. supply is connected directly across to the input line when the latter is 24 volts D.C., but on other supply voltages the heater output is A.C. at a frequency of 105 c.p.s. derived from an auxiliary winding on the transformer.

Reference to the circuit diagrams WE/W.13795B (or WE/W.15213/B in the case of the type 966A) shows that on D.C. inputs, a non-synchronous vibrator is used to convert this input to A.C. at a frequency of 105 c.p.s. By a system of taps on the primary of the transformer an approximately constant output is obtained for the various values of input supply voltage. Subsequent rectification and ripple filtering of the H.T. output is obtained by orthodox means.

It will be seen that the heater of the rectifier (type 6X5G) is supplied from an auxiliary heater winding on the transformer. Thus H.T. is not available until a few seconds after switching on.

When used normally with the CR.300 receiver, the H.T. negative output is earthed in the latter, but in the supply unit this line has been suitably filtered to enable it to be used with other equipment, such as the auto-alarm type 700, which requires an H.T. negative which is isolated from earth.

For 230 volts A.C. supplies, the vibrator is not used and the operation becomes identical to normal A.C. mains unit practice.

Referring again to the diagram, it will be noted that the links 'Y' and 'Z' are used to connect the heater output, either to the input line for 24 volt supply or to the auixiliary secondary for other inputs.

On A.C. inputs the 'on-off' switch interrupts both the input lines, but on D.C. inputs the switch and fuse only interrupt the 'live' side of the supply. Where an external earth appears on one side of the latter, care should be taken that this earthed side is connected up to the corresponding (non-switched) input terminal.

Mechanical Design

Although basically similar in construction to the type 889 unit, the following points of difference should be noted: —

(1) Tap changing for various supply voltages is effected by a link arrangement mounted on top of the transformer. No switches are used for this purpose.

(2) Instead of occupying a socket similar to that used for the working vibrator, the spare vibrator is mounted pins upwards in a clip.

(3) One pair of input terminals is used for all D.C. inputs instead of a separate line for each voltage.

In the type 966A the modifications introduced are similar to those made for the earlier type 966, and the new design can be used directly as a replacement for the latter without any external wiring alterations.

Installation

If the supply source is 24 volts D.C., care should be taken to check whether one side of the latter is earthed, either externally or by connection to other equipment; if so, the earthed side of the supply should be connected to the input terminal on the extreme right of the panel.

On A.C. supply and other D.C. inputs polarity is unimportant.

The correct settings of the links for each supply voltage are shown on the printed label on the side of the chassis. In the case of 24 volt D.C. supplies the condenser C.12 should be connected in circuit. With this exception the link settings are self-explanatory by the engraving on the board.

On A.C. supply the vibrator should be removed (or mounted pins upwards in its clip). In this case the links 'Y' and 'Z' should be connected to the 220/110 V. terminals, and all other links connected as for 24 volts D.C. supply.

Fuses (889A)

On D.C. supplies only the left hand fuse is in circuit, but it will be found convenient to wire *both* with the appropriate fuse wire, and thus have a spare available. On A.C. both fuses are in circuit. Correct gauge of wire is as follows: —

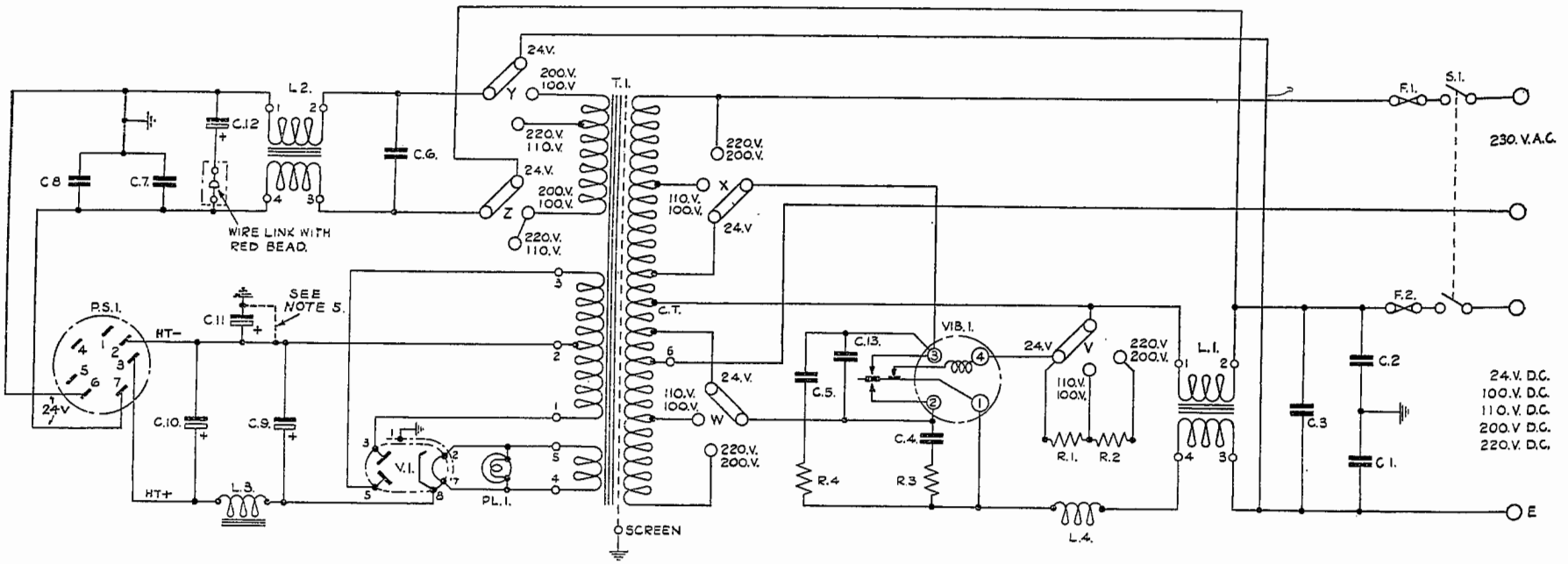
Supply Volts	*Fusing Current*	*Wire Gauge*	
		Lead Tin	*Copper*
230 volts A.C.			
220 „ D.C.	2.0 amps.	No. 29 SWG.	No. 43 SWG.
110 „ D.C.			
24 „ D.C.	5.0 amps.	No. 24 SWG.	No. 38 SWG.

A small stock of spare fuse wire is supplied inside the case.

Operation

Both on D.C. and A.C. supplies the pilot light should be illuminated immediately after switching on, but full H.T. output will not be available until several seconds have elapsed. It should be noted that the pilot light (on 889A only) is connected across the auxiliary heater winding supplying the rectifier; thus on D.C. supplies it gives an indication that the vibrator is functioning.

After approximately 1,500 hours of use the vibrator may require replacement. A spare unit is carried in a clip adjacent to the working unit.



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ALTERNATIVE INPUTS.

24.V. D.C.
100.V. D.C.
110.V. D.C.
200.V. D.C.
220.V. D.C.
230.V A.C. S.P. 50~

OUTPUT.

240.V. 60.MA. D.C.
24 V. 1.A

NOTES.

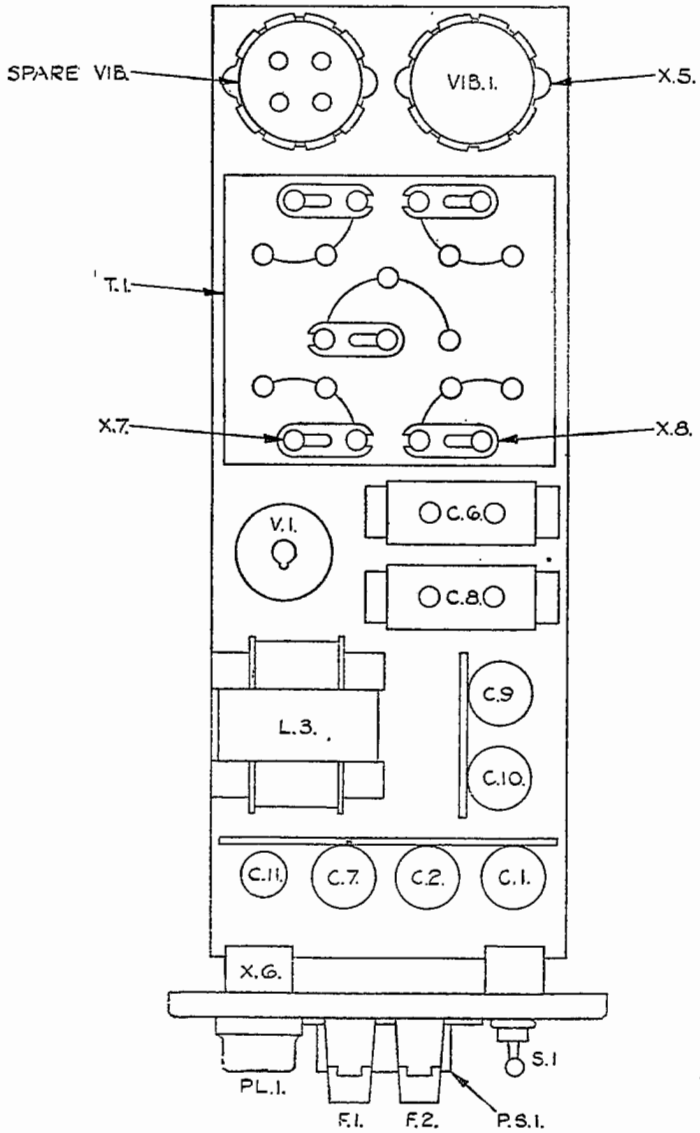
1. THE LINKS V,W,X,Y & Z ARE MOUNTED ON THE TERMINAL BOARD OF THE TRANSFORMER T.I. THE UNIT IS SUPPLIED WITH THESE LINKS CONNECTED FOR 24 V. D.C. WORKING AS SHOWN.
2. FOR THE OTHER D.C. SUPPLIES THE LINKS ARE TO BE CONNECTED TO THE APPROPRIATELY MARKED TERMINALS.
3. FOR 230. V. A.C. SUPPLY, THE LINKS Y & Z ARE TO BE CONNECTED TO THE 220/110 V TERMINALS; ALL OTHER LINKS TO REMAIN CONNECTED AS FOR 24 V. D.C.
4. WIRE LINK WITH RED BEAD TO BE REMOVED ON SUPPLY VOLTAGES OTHER THAN 24 V. D.C.
5. EARTH LINK ON HT- OUTPUT LINE TO BE REMOVED WHEN UNIT IS SUPPLYING HT TO RECEIVERS TYPE 579, 700 OR 1012.

COMPONENT SCHEDULE WE/W.13795/A
COMPONENT LIST REF. EI/T. 2162 No.2

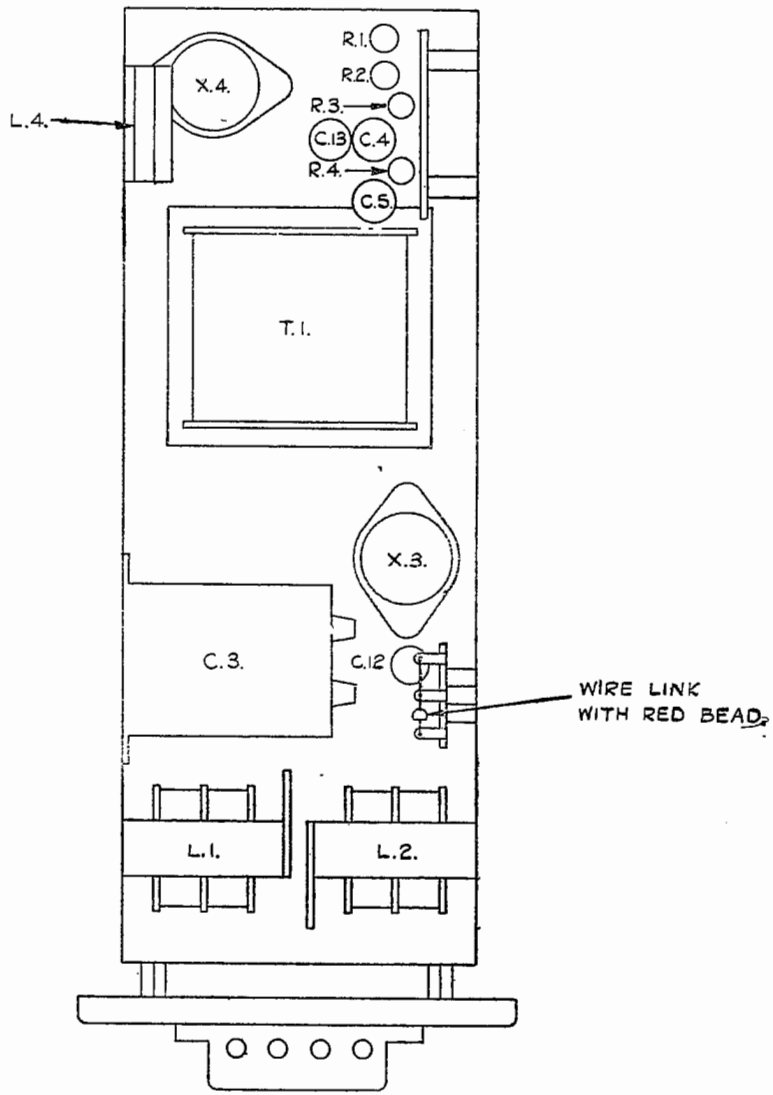
Sheet No. 1
Issue No. 4

CIRCUIT DIAGRAM FOR TYPE 889A POWER SUPPLY UNIT

WE/W.13795/B



PLAN.

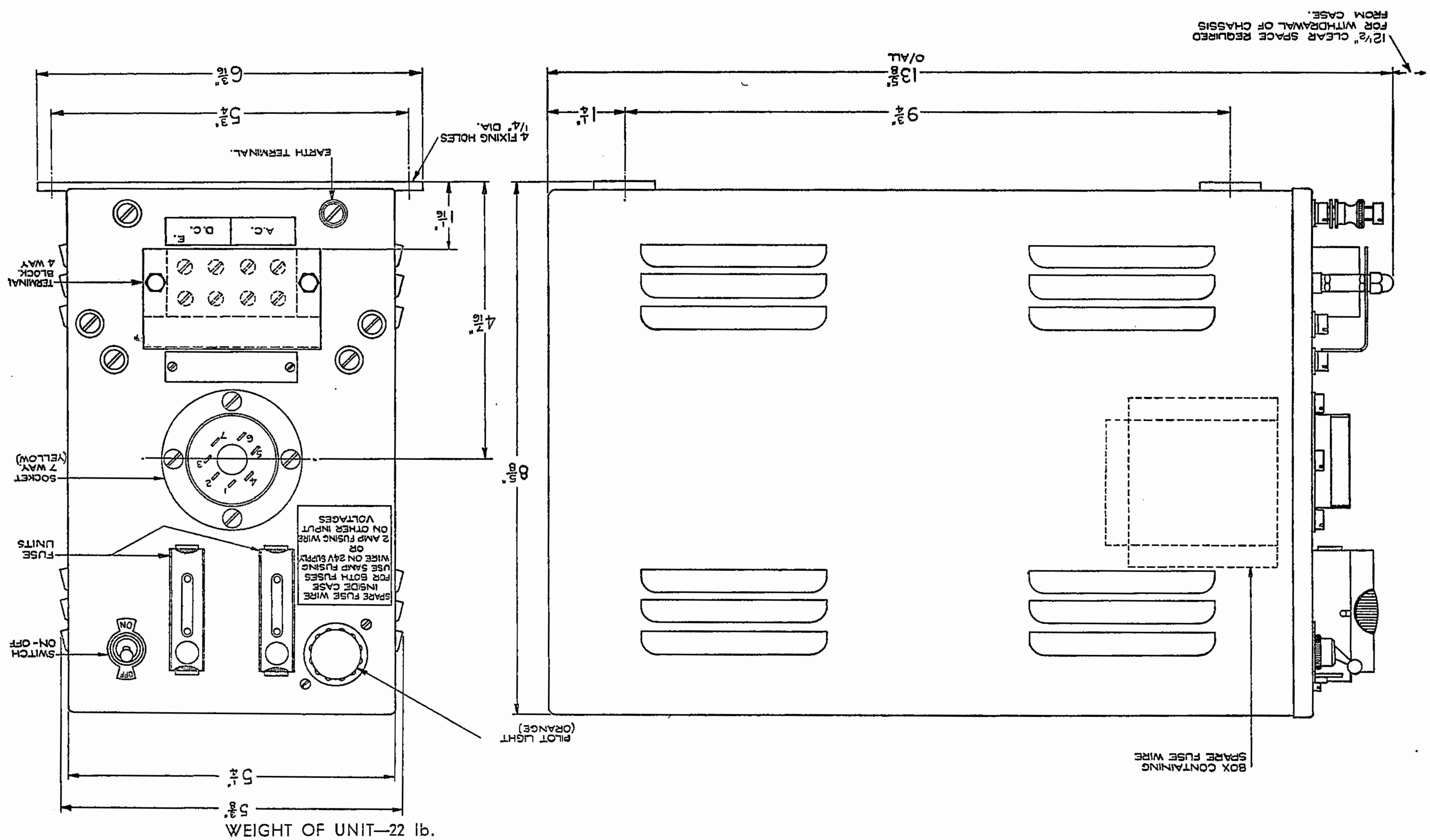


UNDERPLAN.

Sheet 1A

WE/W.13795/B

COMPONENT LOCATION FOR TYPE 889A POWER SUPPLY UNIT



WZ.3444

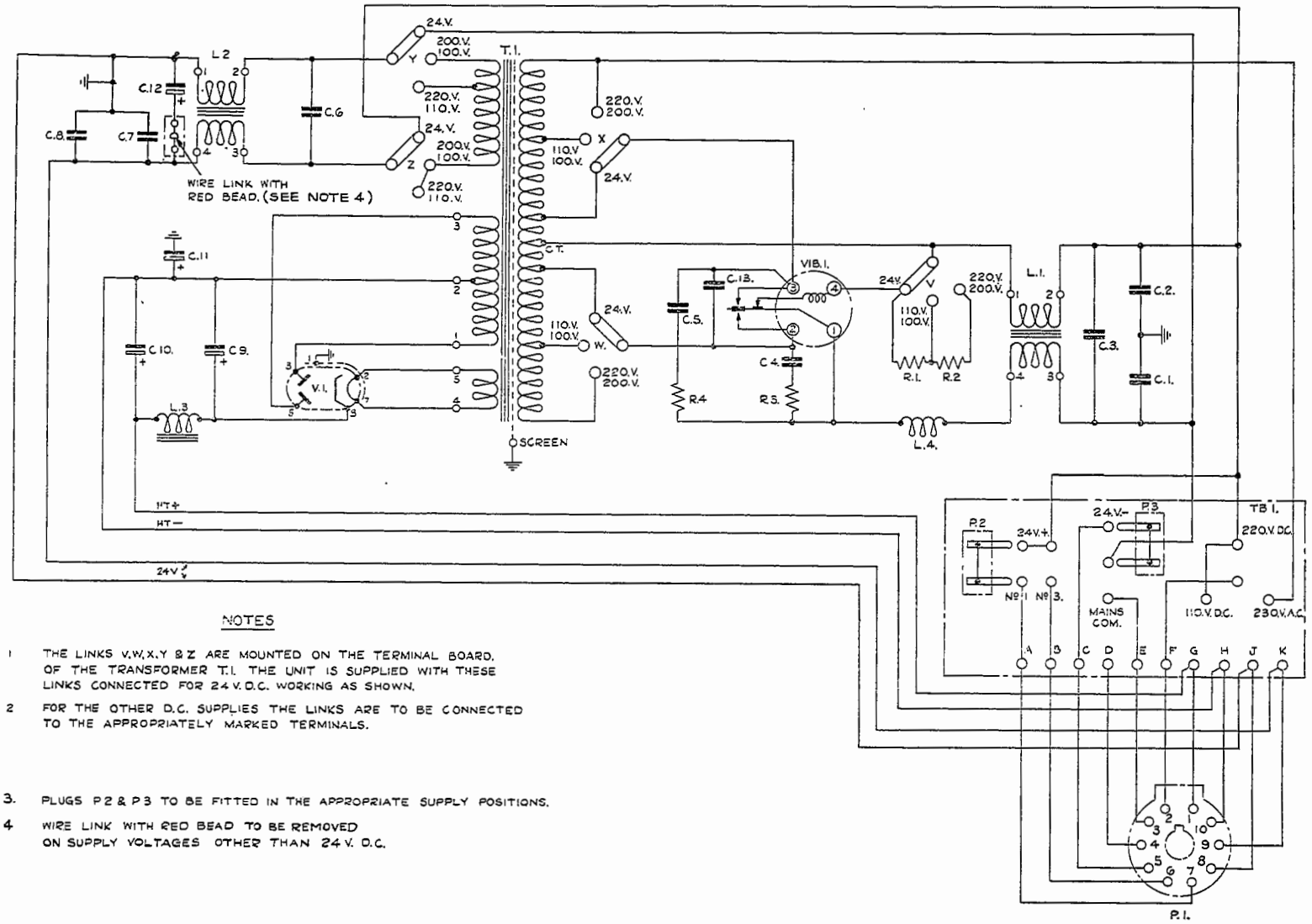
Issue No. 1
Sheet No. 1

OUTLINE OF TYPE 889A OR B POWER SUPPLY UNIT

POWER SUPPLY UNIT (Type 889A)

Ref.	Description	Value	Drawing No.	Remarks
	CAPACITORS			
C1	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP47N
C2	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP47N
C3	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	Dubilier
C4	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. CP45N
C5	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7	T.C.C. CP45N
C6	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	
C7	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP45N
C8	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	
C9	Capacitor, Electrolytic	8μF — 20% + 50% 450V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 25	T.C.C. CE19P
C10	Capacitor, Electrolytic	8μF — 20% + 50% 450V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 25	T.C.C. CE19P
C11	Capacitor, Electrolytic	12μF 50V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 6	T.C.C. CE32D
C12	Capacitor, Electrolytic	12μF 50V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 6	T.C.C. CE32D
C13	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. CP45N
	FUSE UNITS			
F1	Fuse Unit	See also X9 & X10	WIS.3142/C Sh. 1. Ref. 5	Slydlok WX.5344
F2	Fuse Unit	As F1	WIS.3142/C Sh. 1. Ref. 5	Slydlok WX.5344
	INDUCTANCES			
L1	Choke, Double	60+60mH	W.15204/B Sh. 1. Ed. A	
L2	Choke, Double	60+60mH	W.15204/B Sh. 1. Ed. A	
L3	Choke	8H	WIS.2504	
L4	Choke	140μH	WSK.3203/C Sh. 1. Ed. Q	
	LAMPS			
PL1	Lamp, Mes.	12V. 0.2A.	WIS.3181/C Sh. 1. Ref. 5	

Ref.	Description	Value	Drawing No.	Remarks
	SOCKETS			
PS1	Socket, 7 pin		WSK.836 Sh. 1. Ed. L	
	RESISTORS			
R1	Resistor	820Ω ± 10% 12W.	WIS.2606 Sh. 1. Ref. 2	Welwyn G.V. Mark 3AW Type AW.3112
R2	Resistor	1,200Ω ± 10% 12W.	WIS.2606 Sh. 1. Ref. 2	Welwyn G.V. Mark 3AW Type AW.3112
R3	Resistor	33Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R4	Resistor	33Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
	SWITCHES			
S1	Switch D.P. On/Off	250V. 3A.	WIS.3145/C Sh. 1. Ref. 1	Bulgin S277
	TRANSFORMERS			
T1	Transformer		W.15196 Sh. 1. Ed. A	
	VALVES			
V1	Valve, type 6X5G			F. W. Rectifier
	VIBRATORS			
VIB.1	Vibrator	24V.	WIS.2497 Sh. 1. Ref. 5	Wright & Weaire NS24
	MISCELLANEOUS ITEMS			
X1	Fuse Wire	2 Amp. Fusing	WIS.3285/C Sh. 1. Ref. 8	1 yard of each supplied on one card
X2	Fuse Wire	2 Amp. Fusing		
X3	Valveholder for V1	Octal	WIS.1894	Celestion SP8/US
X4	Valveholder for VIB.1	4 pin American	WIS.2532	Celestion SP4/US
X5	Earthing Clip for VIB.1		WIS.2731 Sh. 1. Ref. 1	Wright & Weaire V.105
X6	Lampholder, complete with Orange Lens	M.E.S.	W.19348/B Sh. 1. Ed. H	
X7	Terminal Head for Transformer T1		WIS.3843/C Sh. 1. Ref. 1	Bulgin T5
X8	Link for Transformer		2/W.15197/C	
X9	Fuse Cartridge	2 Amp. Fusing	WIS.2649/C Sh. 1. Ref. 9	Slydlok 534 — For tankers only
X10	Fuse Cartridge	5 Amp. Fusing	WIS.2649/C Sh. 1. Ref. 4	Slydlok 534 — For tankers only



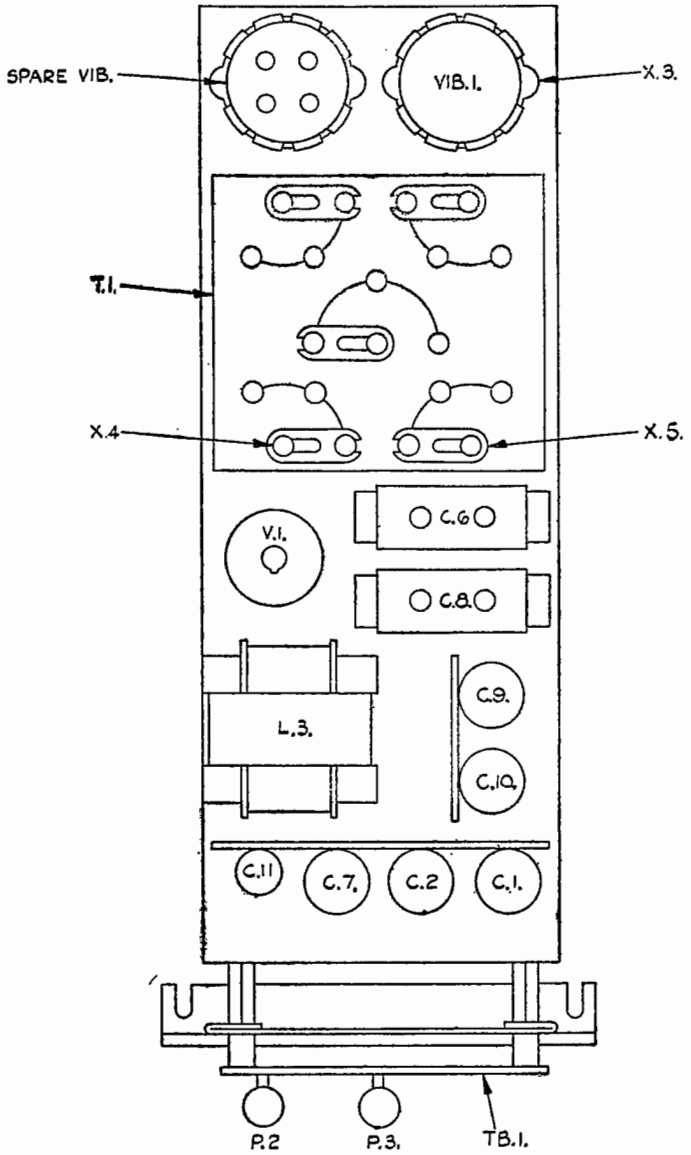
NOTES

1. THE LINKS V,W,X,Y & Z ARE MOUNTED ON THE TERMINAL BOARD. OF THE TRANSFORMER T.1. THE UNIT IS SUPPLIED WITH THESE LINKS CONNECTED FOR 24 V. D.C. WORKING AS SHOWN.
2. FOR THE OTHER D.C. SUPPLIES THE LINKS ARE TO BE CONNECTED TO THE APPROPRIATELY MARKED TERMINALS.
3. PLUGS P2 & P3 TO BE FITTED IN THE APPROPRIATE SUPPLY POSITIONS.
4. WIRE LINK WITH RED BEAD TO BE REMOVED ON SUPPLY VOLTAGES OTHER THAN 24 V. D.C.

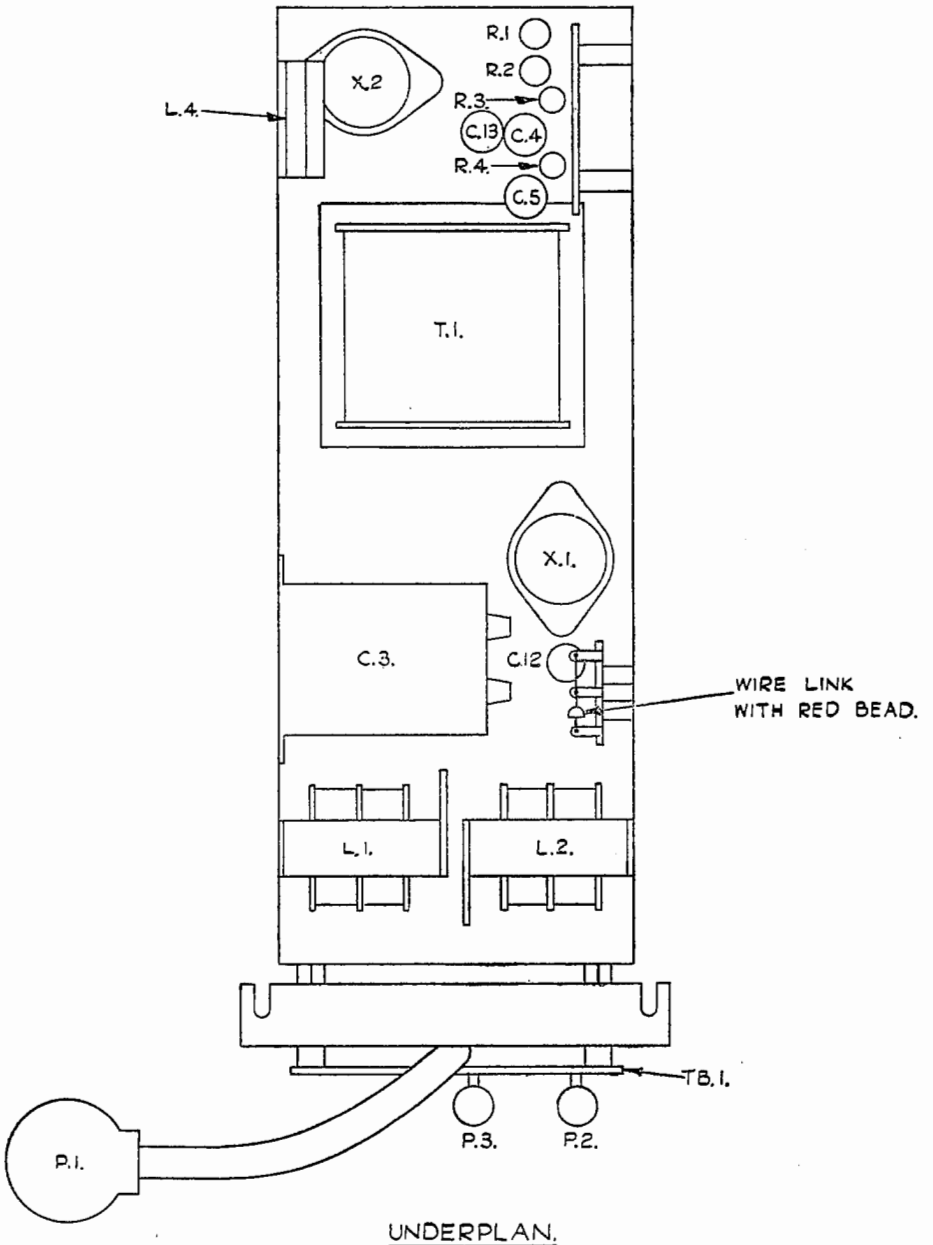
Sheet No. 1
Issue No. 2

WE/W.15213/B

CIRCUIT DIAGRAM FOR TYPE 966A POWER SUPPLY UNIT



PLAN.



UNDERPLAN.

Sheet 1A
Issue 1

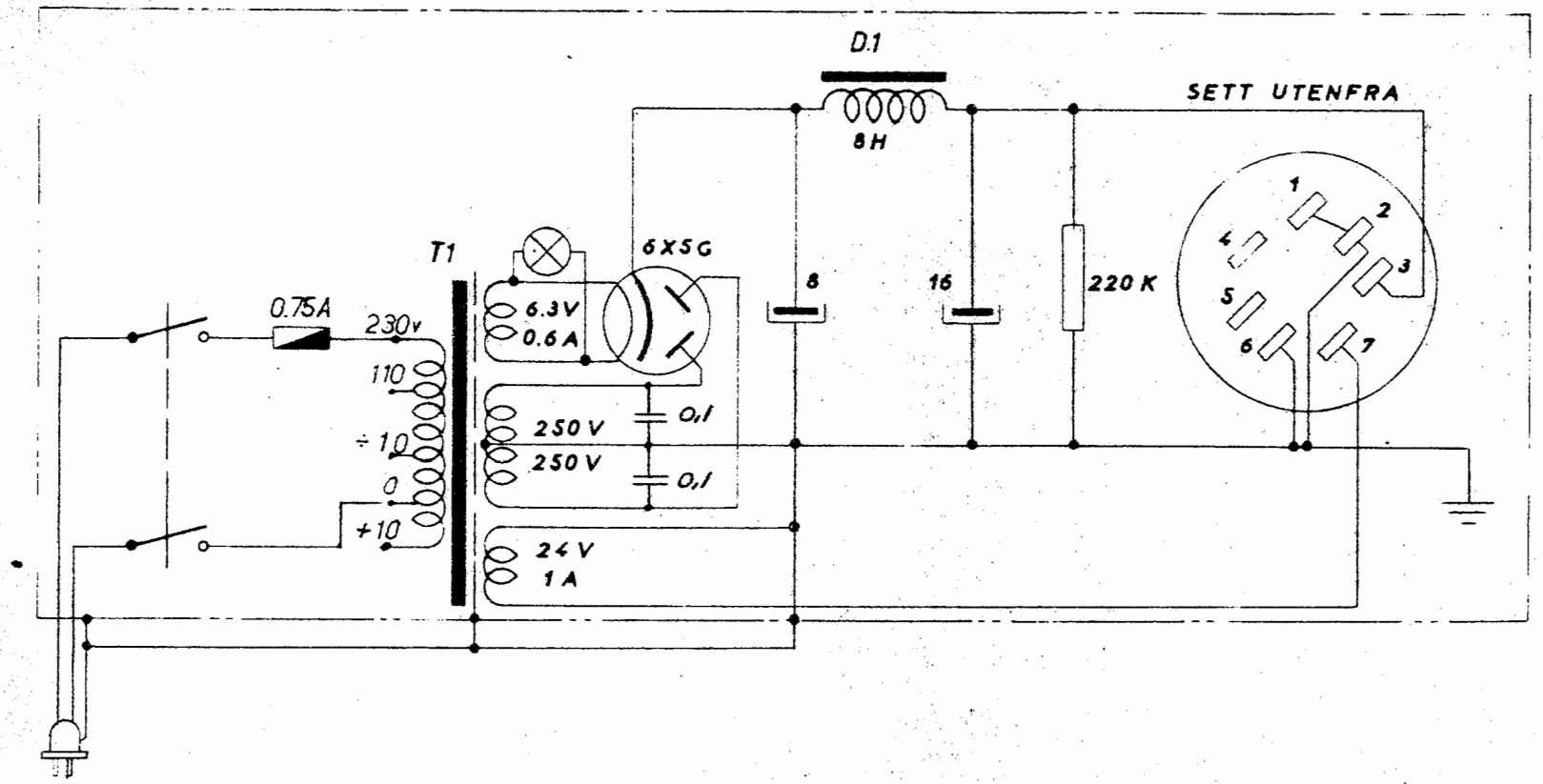
WE/W.15213/B

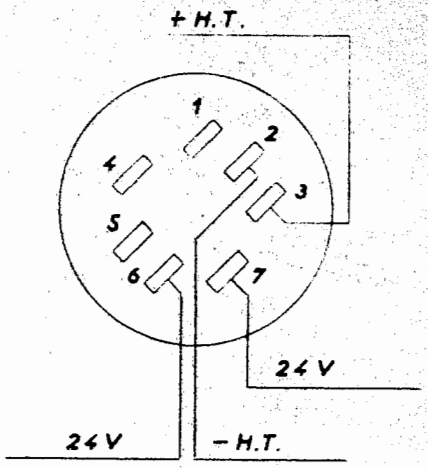
COMPONENT LOCATION FOR TYPE 966A POWER SUPPLY UNIT

POWER SUPPLY UNIT, TYPE 966A

Ref.	Description	Value	Drawing No.	Remarks
	CAPACITORS			
C1	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP47N
C2	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP47N
C3	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	Dubilier
C4	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. CP45N
C5	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. CP45N
C6	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	
C7	Capacitor	0.5μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 12A	T.C.C. CP44N
C8	Capacitor	2μF ± 15% 250V. D.C. Wkg.	WIS.3781/C Sh. 1. Ref. 1	
C9	Capacitor, Electrolytic	8μF — 20% + 50% 450V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 25	T.C.C. CE19P
C10	Capacitor, Electrolytic	8μF — 20% + 50% 450V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 25	T.C.C. CE19P
C11	Capacitor, Electrolytic	12μF 50V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 6	T.C.C. CE32D
C12	Capacitor, Electrolytic	12μF 50V. D.C. Wkg.	WIS.3201/C Sh. 1. Ref. 6	T.C.C. CE32D
C13	Capacitor	0.1μF ± 20% 350V. D.C. Wkg.	WIS.3955/C Sh. 1. Ref. 7A	T.C.C. CP45N
	INDUCTANCES			
L1	Choke, Double	60 + 60mM	W.15204/B Sh. 1. Ed. A	
L2	Choke, Double	60 + 60mH	W.15204/B Sh. 1. Ed. A	
L3	Choke	8H	WIS.2504	
L4	Choke	140μH	WSK.3203/C Sh. 1. Ed. Q	
	PLUGS			
P1	Plug, 10 pin		WIS.171 Sh. 1. Ref. 1	
P2	Plug, 2 pin Shorting Type		W.11137/B Sh. 1. Ref. 5	
P3	Plug, 2 pin Shorting Type		W.11137/B Sh. 1. Ref. 5	
	RESISTORS			
R1	Resistor	820Ω ± 10% 12W.	WIS.2606/C Sh. 1. Ref. 2	Welwyn G.V. Mark 3AW. Type AW3112

Ref.	Description	Value	Drawing No.	Remarks
R2	Resistor	1,200Ω ± 10% 12W.	WIS.2606/C Sh. 1. Ref. 2	Welwyn G.V. Mark 3AW. Type AW3112
R3	Resistor	33Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
R4	Resistor	33Ω ± 20%	WIS.3903 Sh. 1. Ref. 5	Erie Type 8
	TRANSFORMER			
T1	Transformer		W.15196 Sh. 1. Ed. A	
	TERMINAL BOARDS			
TB1	Tag & Socket Board		W.11137/B Sh. 1. Ed. A	
	VALVES			
V1	Valve type 6X5G			F.W. Rectifier
	VIBRATORS			
VIB.1	Vibrator	24V.	WIS.2497 Sh. 1. Ref. 5	Wright & Weaire NS24
	MISCELLANEOUS ITEMS			
X1	Valveholder for V1	Octal	WIS.1894	Celestion SP8/US
X2	Valveholder for VIB.1	4 Pin American	WIS.2532	Celestion SP4/US
X3	Earthing Clip for VIB.1		WIS.2731 Sh. 1. Ref. 1	Wright & Weaire V.105
X4	Terminal Head for Transformer T1		WIS.3843/C Sh. 1. Ref. 1	Bulgin T5
X5	Link for Transformer		2/W.15197/C	





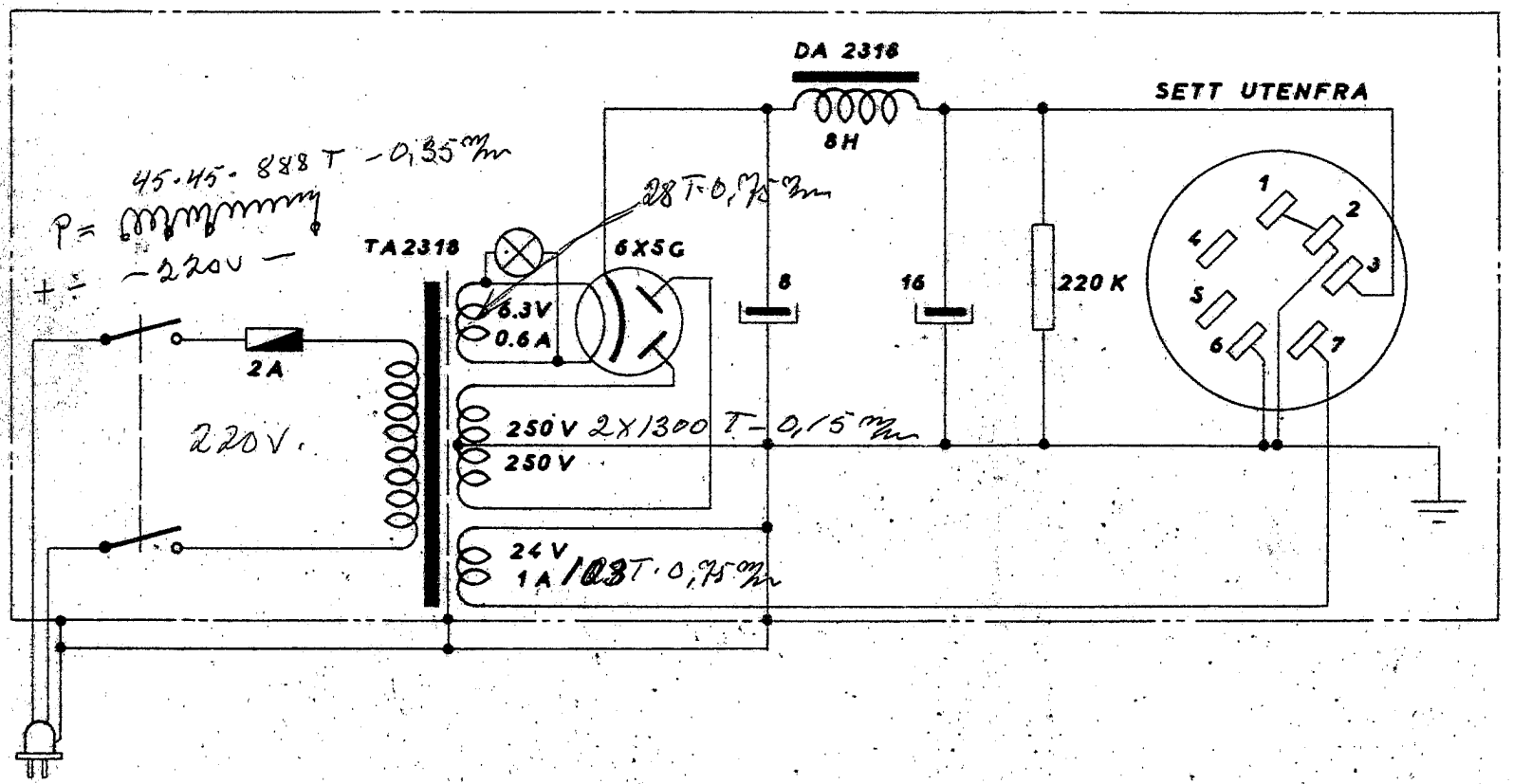
LIKERETTER FOR „ELECTRA" ELLER „MERCURY" MOTTAKER

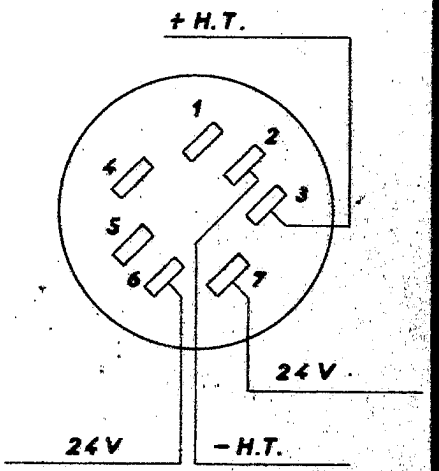
TYPE NM 950 E

1-1-55 OSLO 4914-A4

NORSK MARCONIKOMPANI A/S

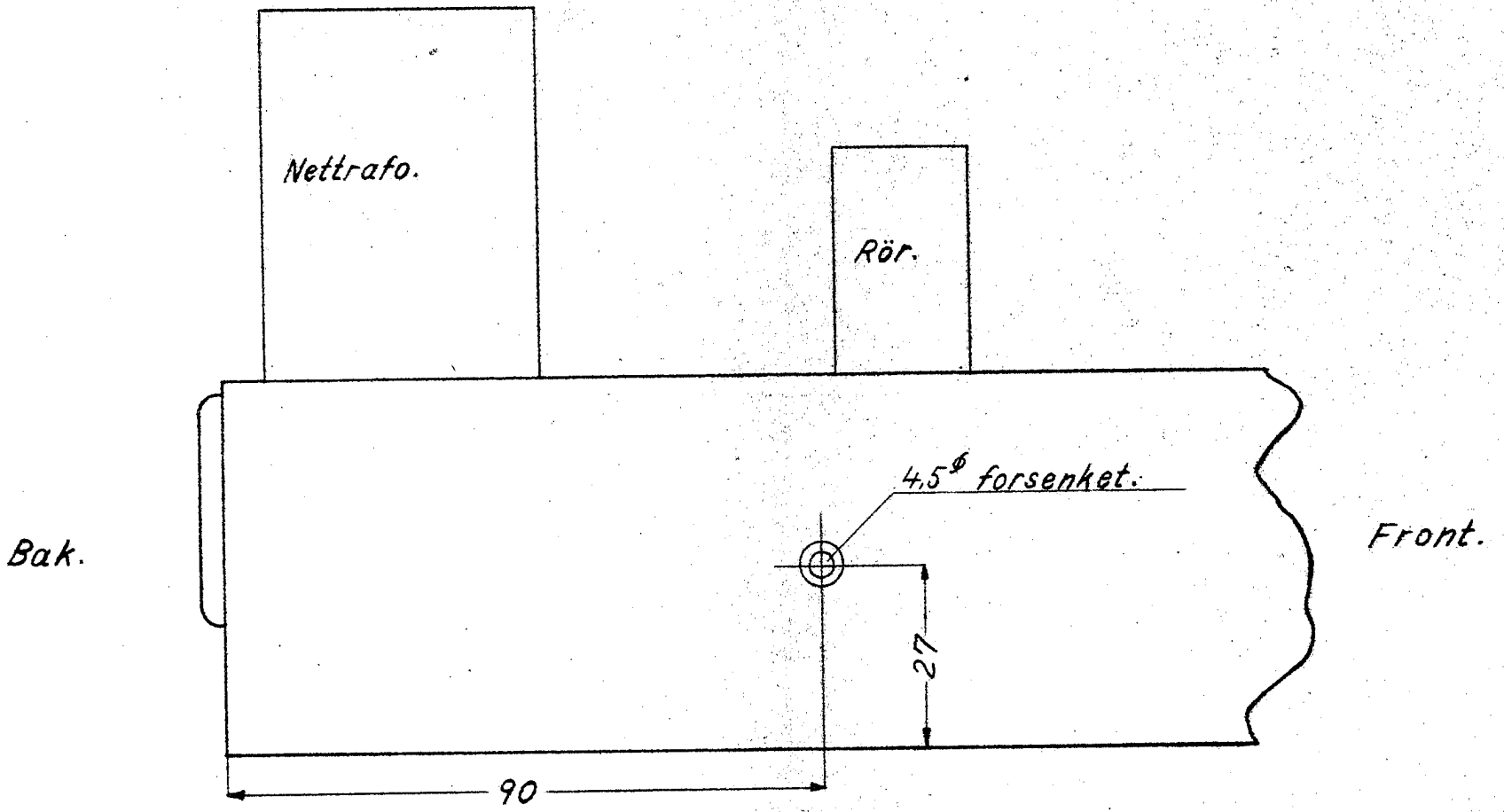
Rogaland Radio





LIKERETTER FOR „ELECTRA" ELLER „MERCURY" MOTTAKER

22.6.'54 OSLO 4683
NORSK MARCONIKOMPANI A/S

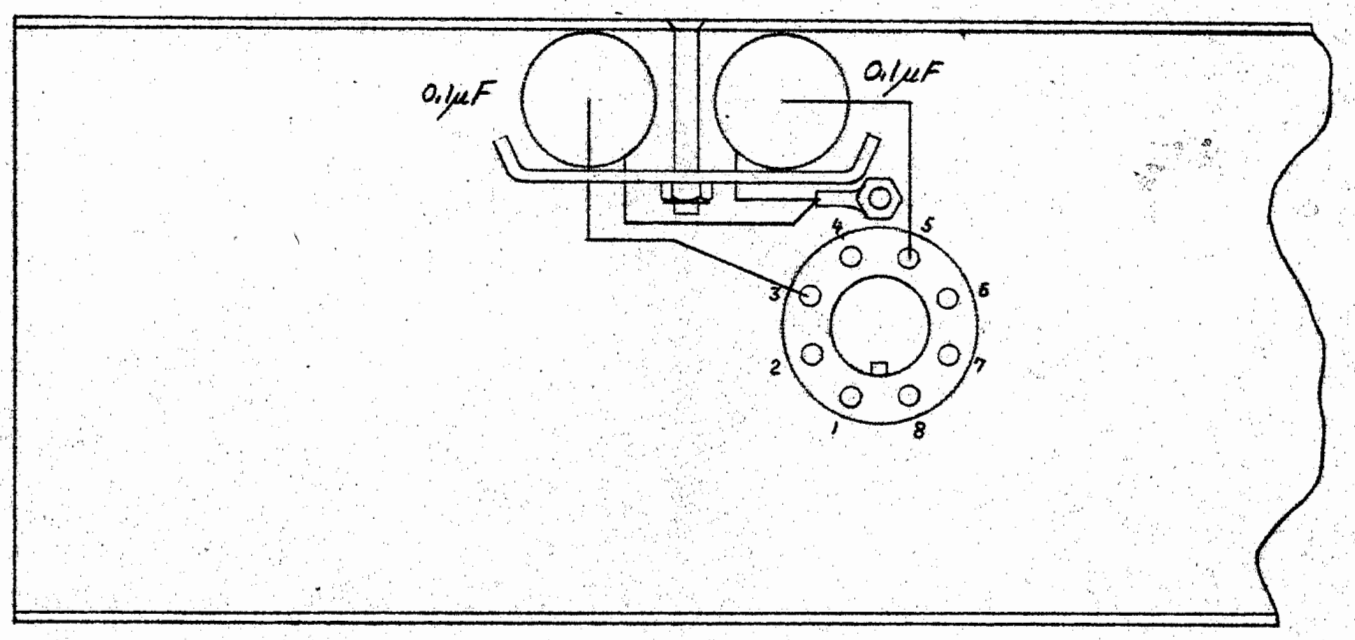


NORSK MARCONIKOMPANI.

Tittel:

NM950E. Boring i chassis for feste av brakett.

4916 - A4	Dato: 4-1 Oslo. 55	Tegnet: H.



Montert 25/3-57
/Alf.

NORSK MARCONIKOMPANI.

Titel:

NM 950E.

Mont. av 0,1µF kond.

4917-A4	Dato: 5-1 Oslo, 54	Tegning H.