

# SERVICE NOTES FOR

# EVER READY

Regd. Trade Mark.

# RADIO

## A.C. MAINS SUPERHET RECEIVER MODEL 5033.

### TECHNICAL SPECIFICATION

**T**HE Model No. 5033 is a three-band superhet receiver for A.C. mains operation (200-250 volts, 40-100 cycles).

Valves are as follows :—

- Frequency changer  
Ever Ready A36B (Triode hexode).
- I.F. Amplifier  
Ever Ready A50P (Variable- $\mu$  H.F. pentode).
- Detector, A.V.C., and L.F. Amplifier  
Ever Ready A23A (Duo-diode-triode).
- Output Valve  
Ever Ready S30D (Triode).
- Rectifier  
Ever Ready A11D (Double diode).
- Tuning Indicator  
Ever Ready A39A.

An inductively coupled band-pass filter precedes the frequency changer on long and medium waves; on short waves the aerial is coupled direct to the aerial coil through a condenser (C14).

The grid coils in the oscillator circuits are tuned, and the oscillator frequency is higher than the signal frequency on medium and long waves, and lower on short waves.

The primary of the 1st I.F. transformer forms the anode load of the frequency changer, and this winding, in common with the other I.F. coils, is tuned to 455 Kc/s. The anode circuit of the I.F. amplifier includes the primary of the second I.F. transformer, the secondary of which is connected direct to the signal diode, and through a small condenser to the A.V.C. diode. The latter applies the A.V.C. potential via decoupled circuits to the grids of the frequency changer and I.F. amplifier valves. L.F. coupling between the triode amplifier in the duo-diode triode valve, and the output triode, is effected by a high-fidelity resistance-capacitance combination. The maximum undistorted output is 2.5 watts.

The H.T. rectifier circuit is conventional, and the speaker field is used as a smoothing choke.

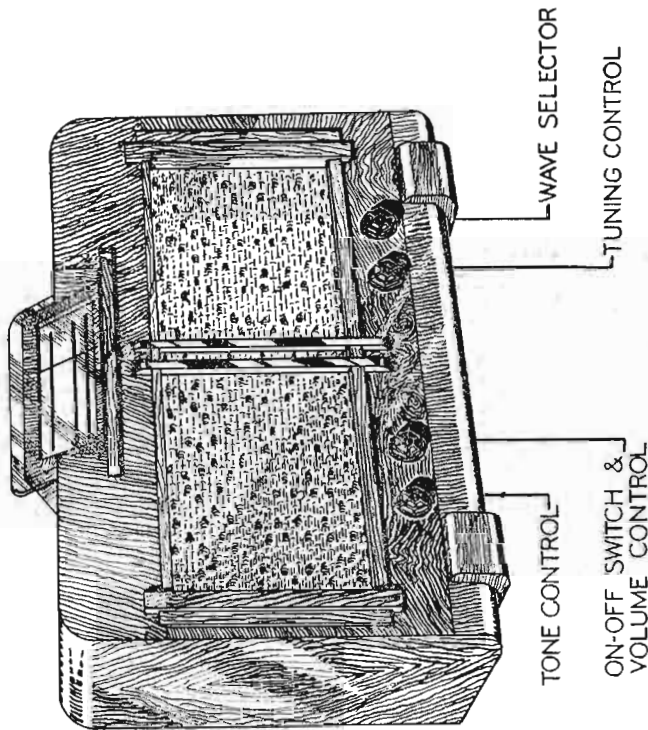
Wavelengths covered by the Model 5033 are as follows :—

Long waves ... 850 to 1,920 metres.

Medium waves 198 to 580 metres.

Short waves ... 19 to 50 metres.

The wavechange switches are in position "A" on short waves, "B" on medium waves, and "C" on long waves.



SERVICE DATA FOR MODEL 5033.

CONDENSERS			
Code	Description	Part No.	Values
C1	M.W.B.P.1 Trimmer	82,500	5/40 mmfd.
C2	L.W.B.P.1 Trimmer	82,501	40/100 mmfd.
C3	M.W.B.P.2 Trimmer	82,500	5/40 mmfd.
C4	L.W.B.P.2 Trimmer	82,501	40/100 mmfd.
C5	S.W. Aerial Trimmer	82,500	5/40 mmfd.
C6	M.W. Oscillator Trimmer	82,500	5/40 mmfd.
C7	L.W. Oscillator Trimmer	82,501	40/100 mmfd.
C8	M.W. Padder (Double)	82,501	300/600 mmfd.
C9	L.W. Padder (Double)	82,502	200/400 mmfd.
C10	L.W. Padder {Padder		
C11	Triple Gang	80,506	540 mmfd. Max.
C12	S.W. Aerial Coupling	71,262	10 mmfd.
C13	S.W. Tracing	68,005	.01 mfd.
C14	A.V.C. Decoupling	68,020	.1 mfd.
C15	V.1 Screen By-pass	68,020	.1 mfd.
C16	V.1 Cathode By-pass	68,020	.1 mfd.
C17	V.1 Oscillator Grid	66,035	.0001 mfd.
C18	V.1 Oscillator Anode	68,020	.1 mfd.
C19	A.V.C. Decoupling	68,020	.1 mfd.
C20	I.F. Trimmers on I.F.T. Assembly	68,020	
C21	V.2 Screen By-pass	68,020	.1 mfd.
C22	V.2 Cathode By-pass	68,020	.1 mfd.
C23	Tuning Indicator Grid By-pass	68,020	.1 mfd.
C24	L.F. Coupling	66,035	.05 mfd.
C25	Signal Diode Load By-pass	66,035	.0001 mfd.
C26	V.3 Cathode By-pass	67,005	12 V. P.V. Elec.
C27	A.V.C. Coupling	71,262	10 mmfd.
C28	L.F. Coupling	68,008	.05 mfd.
C29	V.3 Anode Decoupling	67,009	300 V. W. or dng Elec.
C30	Tone Control	68,007	.025 mfd. Elec.
C31	H.I. Smoothing	67,031	8 + 8 mfd. 540V. Peak Elec.
C32	Rectifier Reservoir	67,510	20 mfd. P. V. 30 Elec.
C33	V.4 Cathode By-pass		

SWITCHES			
Code	Description	Part No.	Values
S1	B.P.1		
S2	B.P.2		
S3	Oscillator Grid		
S4	Oscillator Anode		
S5	Dial Lamps		
S6	On/Off (Ganged with Vol. Control)	83,506	Wave Range Switch

VALVES			
Code	Description	Part No.	Values
V1	Triode Hexode Frequency Changer	4093	Ever Ready A36B
V2	H.F. Pentode I.F. Amplifier	4093	Ever Ready A50P
V3	Double Diode Triode	4097	Ever Ready A23A
V4	Directly heated Output Triode	4096	Ever Ready S30D
V5	Rectifier	4084	Ever Ready A11D
V6	C.R. Tuning Indicator	4097	Ever Ready A39A

RESISTORS			
Code	Description	Part No.	Values
R1	S.W. A.V.C. Decoupling	71,962	110,000 ohm, 1/2 watt
R2	M. & L.W. A.V.C.		
R3	Decoupling	71,962	110,000 ohm, 1/2 watt
R4	V1 Screen Potentiometer	71,928	20,000 ohm, 1 watt
R5	V1 Screen Potentiometer	71,935	5,000 ohm, 1 watt
R6	V1 Oscillator Grid Leak	71,974	26,000 ohm, 1/2 watt
R7	V1 Bias	71,969	150 ohm, 1/2 watt
R8	M.W. Het. Voltage Adjuster	71,914	1,000 ohm, 1/2 watt
R9	L.W. Het. Voltage Adjuster	71,907	2,000 ohm, 1/2 watt
R10	V1 Screen and Osc. Decoupling	72,011	10,000 ohm, 2 watt
R11	A.V.C. Decoupling	71,962	110,000 ohm, 1/2 watt
R12	V2 Bias	71,957	100 ohm, 1/2 watt
R13	V2 Screen Feed	24,756	25,000 ohm, 1/2 watt
R14	I.F. Stopper	71,962	110,000 ohm, 1/2 watt
R15	Signal Diode Load	71,944	510,000 ohm, 1/2 watt
R16	V3 Bias	81,502	500,000 ohm, Var.
R17	V3 Bias	71,988	2,100 ohm, 1/2 watt
R18	V3 Anode Load	71,971	5,100 ohm, 1/2 watt
R19	A.V.C. Diode Load	71,962	110,000 ohm, 1/2 watt
R20	A.V.C. Diode Load	71,944	510,000 ohm, 1/2 watt
R21	Tuning Indicator Grid Decoupling	71,944	510,000 ohm, 1/2 watt
R22	Tuning Indicator Anode Feed	71,902	2.1 Megohm, 1/2 watt
R23	V4 Grid Leak	71,945	260,000 ohm, 1/2 watt
R24	Tone Control	81,506	250,000 ohm, Var.
R25	V4 Bias	89,500	600 ohm, 2 watt
R26	A2 Potentiometer	71,962	110,000 ohm, 1/2 watt
R27	V1 Oscillator Grid Stopper	71,943	200 ohm, 1/2 watt
R28	A2 Potentiometer	71,963	11,000 ohm, 1/2 watt

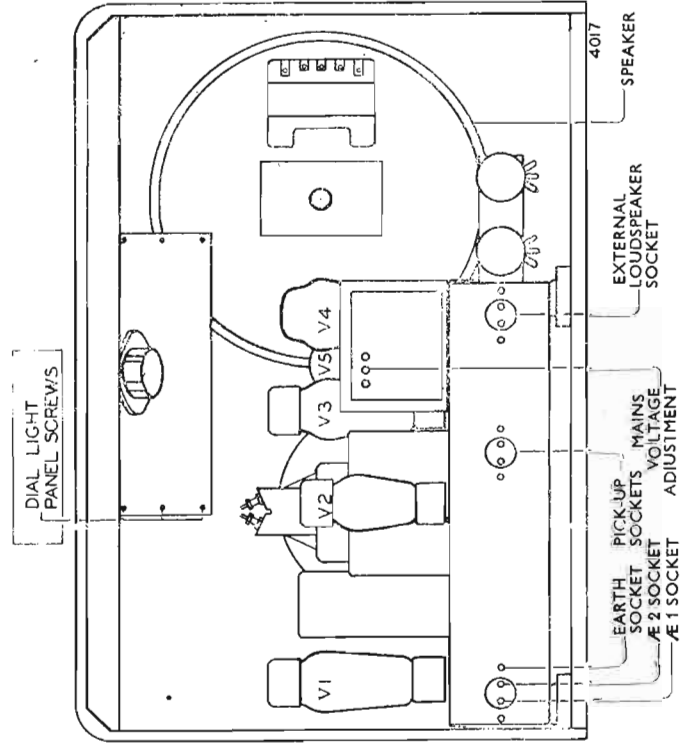


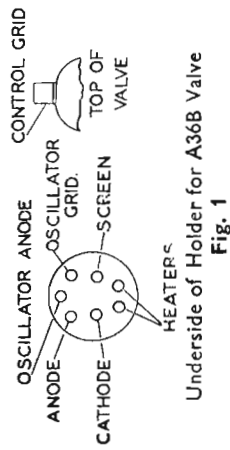
Fig. 10

OPERATING CONDITIONS OF VALVES			
Valve	Electrode	Voltage	Current (mA.)
Frequency changer (Ever Ready A36B) Triode-hexode	Anode	268	1.4
	Screen	68	3.4
	Osc. anode	102	8.2
	Cathode	1.8	13.0
I.F. Amplifier (Ever Ready A50P) Variable-mu H.F. pentode	Anode	268	9.7
	Screen	167	3.5
	Cathode	1.3	13.2
Det.: A.V.C. & L.F. amp. (Ever Ready A23A) Duodiode-triode	Anode	128	2.2
	Cathode	2.7	2.2
Tuning Indicator (Ever Ready A39A)	Anode	19	0.16
	Target	267	0.38
	Cathode	0	0.54
Output (Ever Ready S30D) Triode	Anode	247	44.0
	Cathode	26	44.0
Rectifier (Ever Ready A11D) Double-diode	Anode to anode	685 R.M.S.	—
	Cathode	403	77.0

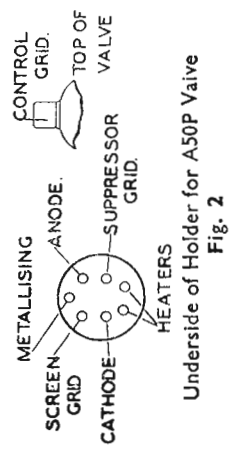
Mains supply at 224 v. input to 216/235 v. Tap.=0.32 amps.

NOTE.—The above measurements made with the receiver tuned to 1,000 Kc/s and no signal applied to input terminals. All voltages are to CHASSIS unless otherwise stated, and an Avometer on the 1,200-volt range was used for all voltages above 15 volts.

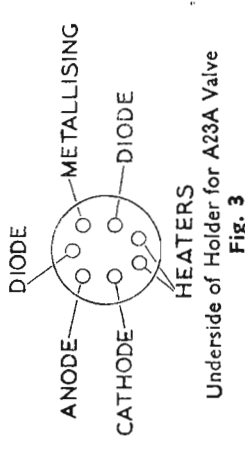
INDUCTANCES			
Code	Description	Part No.	Values
L1	M. & L.W. Primary		
L2	M.W.B.P.1		
L3	L.W.B.P.1		
L4	S.W. Aerial		
L5	M.W.B.P.2	78,505	Signal Frequency Coil
L6	L.W.B.P.2		
L7	S.W. Grid		
L8	M.W. Grid		
L9	L.W. Grid		
L10	S.W. Tickler		
L11	M.W. Tickler		
L12	L.W. Tickler		
L13	1st I.F. Primary		
L14	1st I.F. Secondary	77,501	Oscillator Frequency Coil
L15	2nd I.F. Primary		
L16	2nd I.F. Secondary	77,503	1st I.F.T.
L17	Speaker Field, 1,650 ohm Cold		2nd I.F.T.
T1	Output Transformer on Speaker	85,509	
T2	Mains Transformer	77,507	



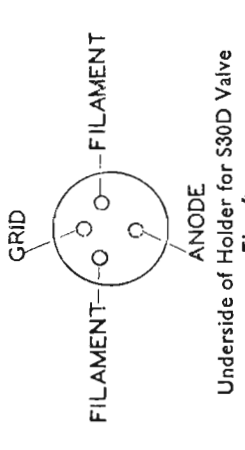
Underside of Holder for A368 Valve  
Fig. 1



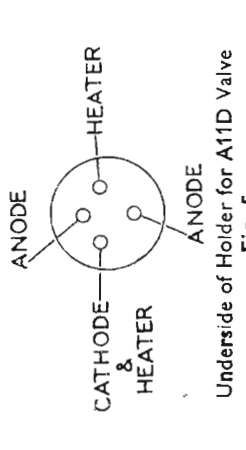
Underside of Holder for A50P Valve  
Fig. 2



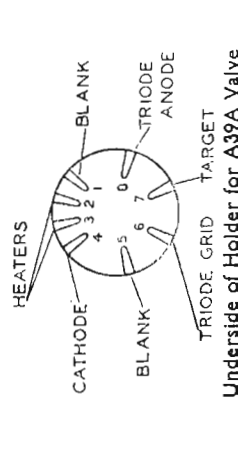
Underside of Holder for A23A Valve  
Fig. 3



Underside of Holder for S30D Valve  
Fig. 4



Underside of Holder for A11D Valve  
Fig. 5



Underside of Holder for A39A Valve

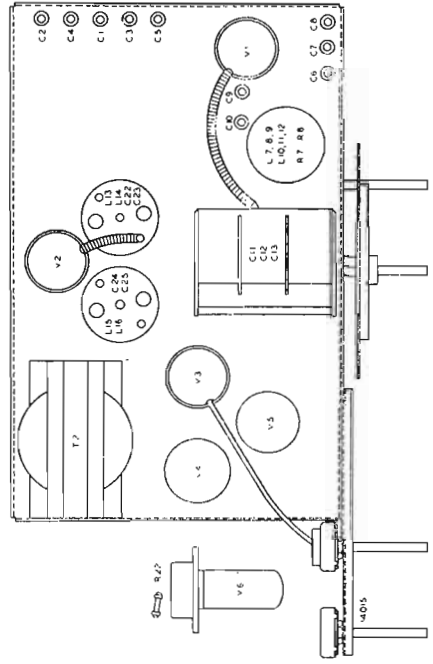


Fig. 7

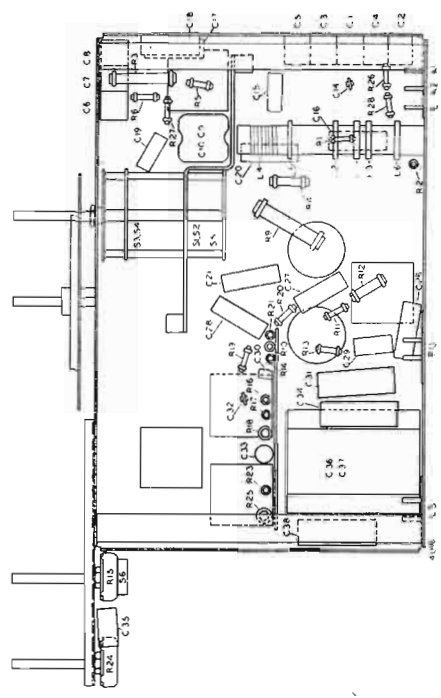


Fig. 8

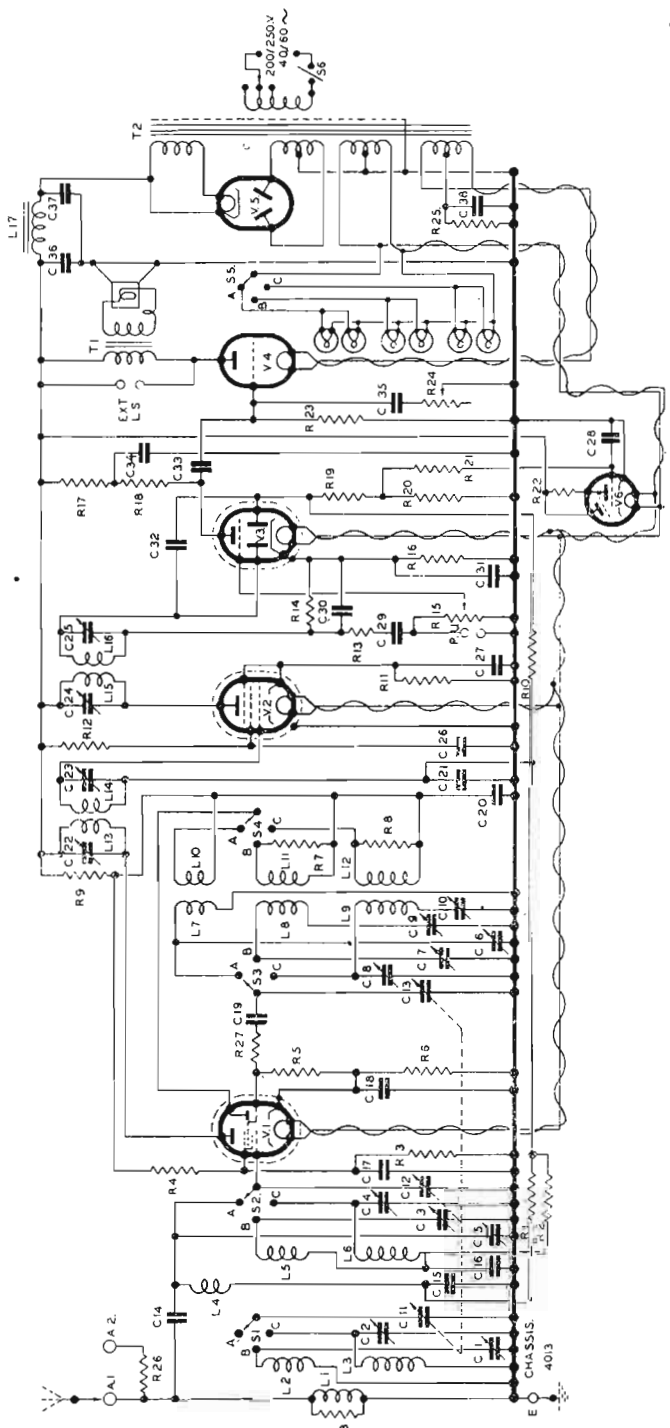


Fig. 9



Regd. Trade Mark

## SPARE PARTS PRICE LIST FOR MODEL 5033.

Prices are subject to alteration without notice. Postage and Packing extra.

Part No.	Description and Circuit Indication	List Price
63530	Cabinet, complete with Baffle, etc.	65/-
73610	Card Back for Cabinet	2/-
78505	Coil, Aerial (L1, L2, L3, L4, L5, L6)	6/6
78509	" Anode (L7, L8, L9, L10, L11, L12, R7, R8)	6/-
80506	Condenser, Gang, 3-stage (C11, C12, C13)	18/9
71262	Mica 10 mmfd. (C14) (C32)	1/6
66035	" .0001 mfd. (C19) (C30)	8d.
68005	" Tubular .01 mfd. (C15)	1/-
68020	" " 1 mfd. (C16) (C17) (C18) (C20) (C21) (C26)	1/4
68008	" .05 mfd. (C29) (C33)	1/-
67005	" 50 mfd. (C31)	2/3
68007	" 2 mfd. (C34)	2/6
67510	" 0.25 mfd. (C35)	1/-
67031	" 20 mfd. (C38)	1/-
63540	" Block 8 + 8 mfd. (C36) (C37)	7/6
74022	Escutcheon and Screws	4/-
57013	Instruction Booklet	1/-
57014	Knob, Tuning	3d.
57015	" Tone	3d.
57016	" Volume and Off	3d.
73657	" L.M.S.	3d.
69327/8	Lamp, 5.5 volt, .3 amp.	6d.
60057	Liner and Carton	10/-
82502	Mains Lead	1/6
71012	Padder, 300—600, 200—400 mmfd. (C9) (C10)	3/-
71013	Plug for Earth	3d.
71962	" Aerial	3d.
71928	Resistor 110,000 ohms 1/2 watt (R1) (R2) (R10) (R13) (R19) (R26)	1/-
71935	" 20,000 ohms 1/2 watt (R3)	1/-
71974	" 5,000 ohms 1/2 watt (R4)	1/-
71969	" 26,000 ohms 1/2 watt (R5)	1/-
72011	" 150 ohms 2 watt (R6)	1/-
71957	" 10,000 ohms 2 watt (R9)	1/-
24756	" 100 ohms 1/2 watt (R11)	1/-
71944	" 25,000 ohms 1/2 watt (R12)	1/-
71982	" 510,000 ohms 1/2 watt (R14) (R20) (R21)	1/-
71988	" 2,100 ohms 1/2 watt (R16)	1/-
71971	" 5,100 ohms 1/2 watt (R17)	1/-
71902	" 50,000 ohms 1/2 watt (R18)	1/-
71945	" 2.1 Megohms 1/2 watt (R22)	1/-
89500	" 260,000 ohms 1/2 watt (R23)	1/-
71943	" 600 ohms 2 watt (R25)	1/-
71963	" 200 ohms 1/2 watt (R27)	1/-
73611	" 11,000 ohms 1/2 watt (R28)	1/-
75516	Scale Pointer	3d.
90002	Socket Plate Aerial	3d.
90006	" " L.S.	3d.
85509	" " P.U.	3d.
83506	Speaker, including Transformer...	35/-
81506	Switch, Wave-change	6/-
77501	Tone Control (R24)	3/6
77503	Transformer, 1st I.F. (L13) (L14)	7/-
77507	" 2nd I.F. (L15) (L16)	7/-
82500	" Mains (T2)	27/6
82501	Trimmer 5—40 mmfd. (C1) (C5) (C6) (C7)	8d.
4093	" 40—100 mmfd. (C2) (C4) (C8)	1/-
4083	Valve (V1) Ever Ready A36B	15/-
4067	" (V2) " A50P	12/6
4096	" (V3) " A23A	15/6
4084	" (V4) " S30D	12/6
4097	" (V5) " A11D	10/6
75505	" (V6) " A39A	17/6
75507	Holdets, 4-pin	3d.
75507	" 7-pin	6d.

### Circuit Alignment Procedure for Ever Ready 5033.

NOTE.—C1 and C2, etc., refer to trimmers as indicated in Service Manual, Figs. No. 6, 7 and 8.

#### I.F. Circuit Alignment.

- Short circuit the oscillator by clip leads across front section of gang condenser C13.
- Apply a signal of 455 Kc/s. between frequency changer (V1) control grid and chassis. Trim each I.F. circuit to peak in the following order:—C25, C24, C23, C22.
- Check each circuit by going over the trimmers in the same order again.
- Remove shorting clip from gang condenser.

#### R.F. Circuit Alignment.

The three wavebands short, medium and long waves are quite independent of each other and any adjustment to trimmers or padders on any one band affects only that particular band.

#### Medium Waveband Alignment.

- See that scale pointer registers with the 180° line on the scale with the gang at maximum capacity.
- Set condenser C9 approximately two-thirds in.
- Set the pointer against the 214-metre mark on scale.
- Apply a signal of 214 metres to the A1 and E sockets of the receiver and adjust condenser C7 to receive the signal, then adjust condenser C3 to give maximum output and adjust condenser C1 to give maximum output.
- Set pointer against 500-metre mark on the scale.
- Apply a signal of 500 metres and adjust condenser C9 to give maximum output on that signal.
- Re-set pointer against 214-metre mark and re-adjust condensers C7, C3, C1 to give maximum output on the 214-metre signal.
- Check again at 500 metres and see that the pointer is at the 500-metre mark when receiving the 500-metre signal. If it is not, make slight adjustment to condenser C9.
- Check calibration at 214 metres, 300 metres and 500 metres.

#### Long Waveband Alignment.

- See that the pointer registers with the 180° line on the scale with the gang at maximum capacity.
- Set condenser C10 approximately one-third in.
- Set pointer against 1,200-metre mark on scale.
- Apply a signal of 1,200 metres to the A1 and E sockets of the receiver and adjust condenser C8 to receive the signal, then adjust condenser C4 to give maximum output and adjust condenser C2 to give maximum output.
- Set pointer against 1,700-metre mark on scale.
- Apply a signal of 1,700 metres and adjust condenser C10 to give maximum output on that signal.
- Re-set pointer against 1,200-metre mark and re-adjust condensers C8, C4, C2 to give maximum output on the 1,200-metre signal.
- Check again at 1,700 metres and see that the pointer is at the 1,700-metre mark when receiving the 1,700-metre signal. If it is not, make slight adjustment to condenser C10.
- Check calibration at 1,200 metres and 1,700 metres.

#### Short Waveband Alignment.

- See that the scale pointer registers with the 180° line on scale with the gang at maximum capacity.
- Set the pointer against 15 Mc/s. mark on the scale.
- Screw condenser C6 right in and then apply a signal of 15 Mc/s. Slowly unscrew C6 until this signal is heard. Care should be taken that the right peak is selected. Two peaks will be found with this trimmer. The correct one is the one with C6 at the higher capacity, in other words, it is the first peak found when unscrewing C6. Having selected the right peak adjust condenser C5 to give maximum output.
- Apply a signal of 7.5 Mc/s. and tune the receiver to this signal and adjust the end turn of inductance L4 (on signal frequency coil) to give maximum output on this signal.
- Re-set pointer to 15 Mc/s. mark and re-adjust condenser C6 and C5 to give maximum output on the 15 Mc/s. signal.
- Check calibration at 15 Mc/s.

NOTE.—On the short waveband the oscillator runs at the lower frequency and performance on this band depends upon the selection of the right peak of trimmer C6 when aligning at 15 Mc/s.