

# FERRANTI

## 514PB, 515PB

Four-valve, plus rectifier, three-waveband manual tuning and press-button superhet. Four MW and two LW stations may be pre-selected. Provision is made for a high impedance pickup and low impedance extra loud-speaker. The model 514PB has a moulded cabinet and the Model 515PB a walnut cabinet. Suitable for AC mains 200-270 volts, 40-100 cycles. Marketed by Ferranti Ltd., Moston, near Hollinwood, Lancs., and Kern House, Kingsway, London, WC2.

THE aerial input is fed via a switch to the coupling coils L1 (SW), L3 (MW), L5 (Auto) or L7 (LW) with an IF filter L9, T8, on MW and a 261 m. filter L10, T12 on LW.

On Manual the tuning coils L2, L4, L8 are

connected to VC1 section of the ganged condenser and the grid of the heptode frequency changer V1 while on Automatic VC1 is out of circuit and L6 is connected across the press-button trimmers and their associated switches.

The oscillator section of V1 includes a similar tuning arrangement. L11 (SW), L13 (MW) and L17 (LW) are the grid tuning coils with L15 for Automatic. Feedback coils are fed from the oscillator anode via C9 and R22. R1 and C4 are the grid leak and condenser.

The intermediate frequency signal from V1 is coupled by the IF transformer L19, L20 to the grid of the amplifying pentode V2. The coupling between L19 and L20 is altered when the receiver is switched to Automatic by the inclusion of the coupling components L21 and R2. This feature broadens the

bandwidth to compensate for slight inaccuracies in the settings of the press-button trimmers.

A second IF transformer L22, L23 transfers the signal from V2 to the signal diode of the double-diode-triode V3. R4 is the load resistance, filtered by R3, C17, and the low or audio frequency signal is fed via C22 to the volume control R20 and thence to the grid of the triode section of V3. The pickup sockets are connected across C31 and R20 via the wavechange switch when record reproduction is desired.

The automatic volume control diode of V3 is fed from the anode of V2 via C16. R6 is the load resistance while R7 provides delay volts. AVC is applied to V1 and V2 on all wavebands.

Audio signals from V3 are resistance capacity coupled by R19, C23 and R15 to the grid of the

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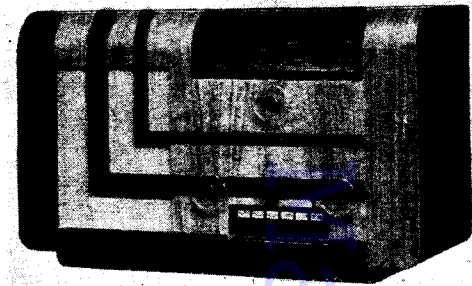
### VALVE READINGS

V	Type	Electrode	Volts	Ma
1	X63 or 6A8G	Anode	280	3
		Osc anode	150	4.2
		Screen	65	3.6
2	KTW63 or 6K7G	Anode	280	5
		Screen	65	1
		Heater	70	1
3	DH63 or 6Q7G	Anode	270	32
		Screen	280	5
4	KT63 or 6F6G	Anode	270	32
		Screen	280	5
5	U50 or 5Y3G	Heater	350	—

Pilot lamps, 6.5 v, .3 amp, M.E.S.  
Readings taken on 200 v mains with no signal, volume maximum on MW 200 metres.

### RESISTORS

R	Ohms	R	Ohms
1	50,000	12	10,000
2	50	13	10,000
3	100,000	14	450
4	500,000	15	500,000
5	2 meg	16	100
6	2 meg	17	20,000
7	50	18	20,000
8	1,000	19	250,000
9	250	20	1 meg
10	10,000	21	40,000
11	500,000	22	10,000



The 515PB is a four-valve, plus rectifier, three-waveband set with six push-buttons.

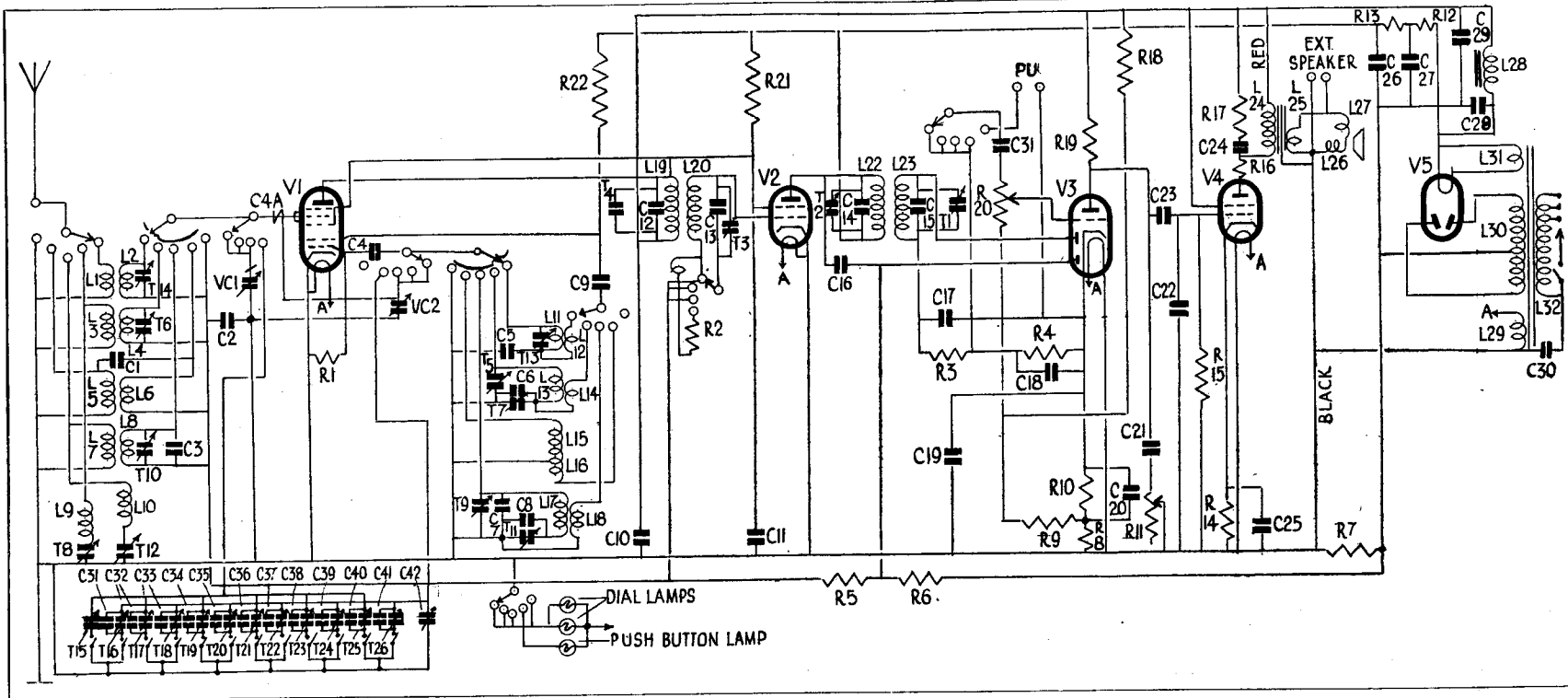
### WINDINGS

L	Ohms	L	Ohms
1	2	13	6.3
2	2.5	14	1.3
3	36	15	6.3
4	7.4	16	7.7
5	84	17	14.7
6	6	18	9.5
7	66	19	9.5
8	30	20	11
9	34	21	.8
10	5	22	9.5
11	2	23	9.5
12	.7	24	250
25	.5	25	.5
26	2	26	2
27	3	27	3
28	1,000	28	1,000
29	2	29	2
30	(total) 450	30	(total) 450
31	.2	31	.2
32	(total) 45	32	(total) 45

### CONDENSERS

C	Mfd
1	.00001
2	.05
3	.00005
4	.0001
5	.004
6	.0004
7	.0001
8	.00015
9	.001
10	.1
11	.1
12	.00009
13	.00009
14	.00009
15	.00009
16	.00005
17	.00015
18	.00015
19	.05
20	6
21	.005
22	.0004
23	.02
24	.01
25	50
26	4
27	4
28	12
29	12
30	.002

Values of condensers in push-button unit depend on station coverage.



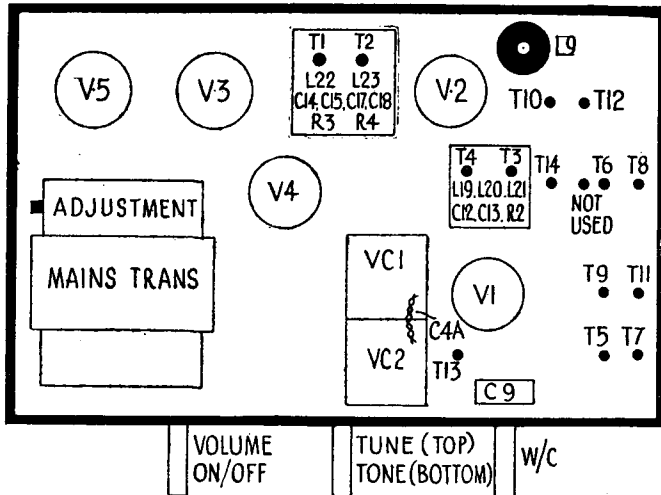
# FERRANTI

## 515PB—Contd.

output pentode V4. A variable tone control comprising C21 and R11 is connected to V3 anode.

V4 is biased by R14 decoupled by C25 and a stabilising resistance R16 is connected in the anode circuit. A permanent degree of tone correction is provided by R17, C24 across the primary L24 of the output transformer.

The secondary L25 feeds the moving-coil energised loud-speaker of which L26 is the speech coil, L27 the hum-bucking coil and L28 the field



These diagrams identify parts above and below the 515PB chassis. The condenser strapped to the side and not shown in the drawings contains C28 and C29.

Tune oscillator to 450 kcs and adjust T1, T2, T3 and T4 for maximum output, reducing the input as the circuits come into line.

**MW Band**—Connect the service oscillator to the aerial and earth sockets via a dummy aerial. Only feed sufficient input to obtain reliable peaks in the output meter and progressively reduce the input.

With gang at minimum, tune service oscillator to 200 m (1,500 kcs) and adjust T5 for maximum.

Tune set and oscillator to 228 m (1,315 kcs) and adjust T6 for maximum output.

Tune set and oscillator to 500m (600 kcs) and adjust T7 for maximum output, simultaneously rocking gang for maximum output.

With gang at maximum tune service oscillator to 450 kcs and adjust T8 for *minimum* response.

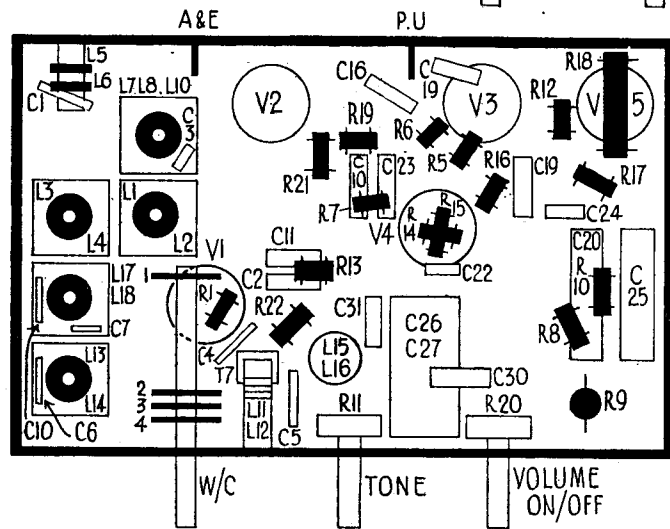
**LW Band**—Tune set and oscillator to 1,128 m (266 kcs) and adjust T9 and T10 for maximum.

Tune set and oscillator to 1,807 m (166 kcs) and adjust T11 for maximum simultaneously rocking gang for maximum output.

Tune set and oscillator to 1,200 m, inject a 261m (1,149 kcs) signal and adjust T12 for *minimum*.

**SW Band**—With gang at maximum, tune service oscillator to 18 mcs (approx. 16.6 m), screw T13

*Continued on page viii*



coil. Extra sockets for a low impedance speaker are across L25.

The power supply circuits are conventional with high tension derived from the full-wave rectifier V5. Smoothing is effected by the field winding L28, C28, C29. V1 and V2 screens and the oscillator anode HT supply are fed from V5 via R12, R13 smoothed by C26, C27. The usual secondaries are provided for the heaters. Mains filtering is by C30.

### GANGING

**IF Circuits**—Set volume to maximum, pointer to 200 m, wavelength switch to LW, tone to "high."

Connect an output meter across the primary of the speaker transformer and a service oscillator between the top grid cap of V1 (via a .05 mfd condenser) and chassis.

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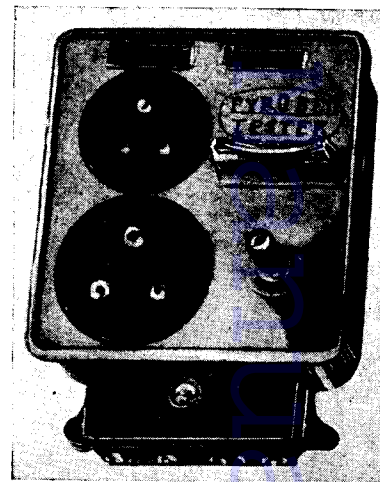
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