1010 'E R T' SERVICE CHART FERGUSON 323RG

Capacitors—

Moulded tubular—C36.
Paper tubular—1,000V—C1 33 43.
Paper tubular—750V—C35
Paper tubular—350V—C9 26 27 28 34 37.
Silver mica—C2 10 11 13 14 18 19 20 22 23 24 25 29 30.

Trimmers—C4 5 6 15 16 17 21.
Electrolytic—25V—C39.
Electrolytic—350V—C40 41 42.

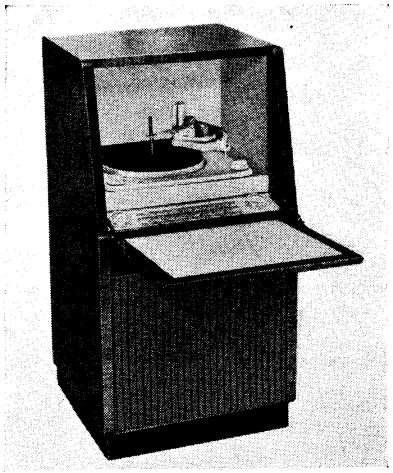
Resistors—

½watt—R3 5 10 27 28 30.
Remainder are ¼ or ⅓watt type.
Note—R3 R25 are 10 per cent tolerance.

Potentiometers—

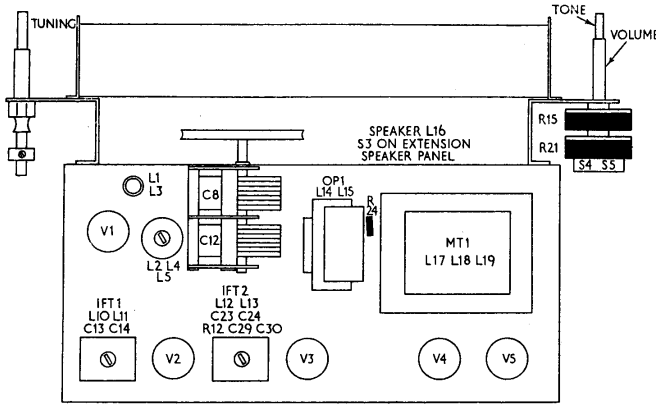
Concentrically mounted carbon type—R15 21 (with DP switch).

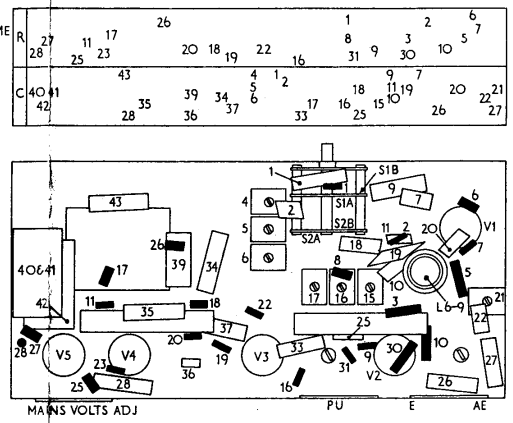
Loudspeaker is an 8in. circular PM type.

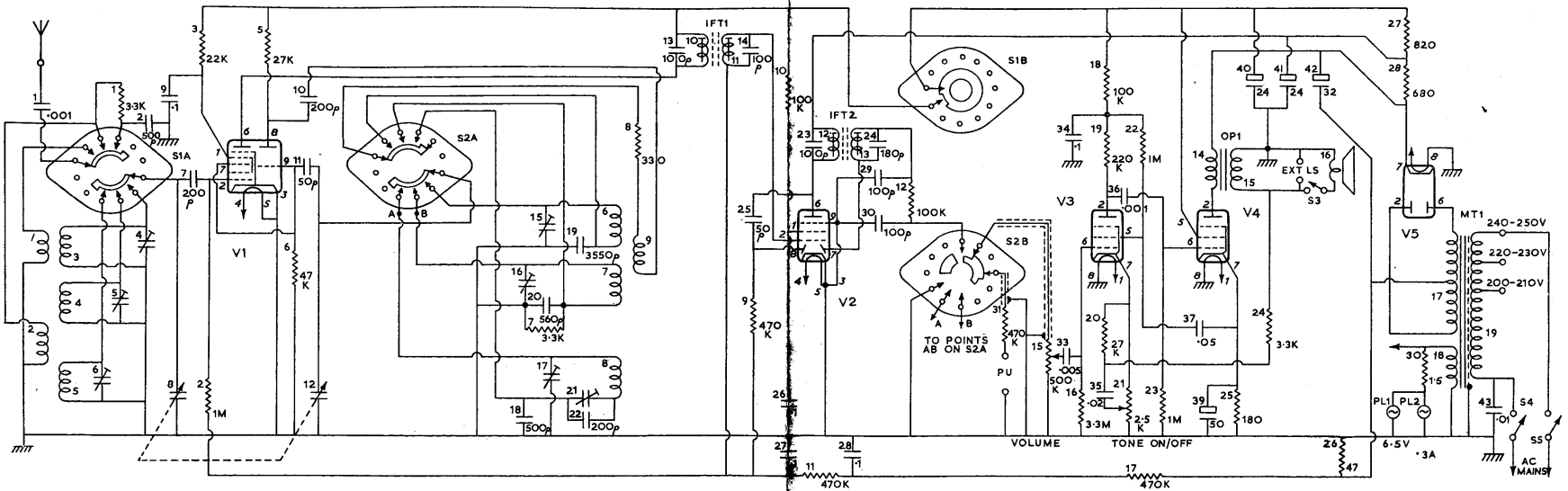


INDUCTORS

L		Ohms
1	...	2.3
2	...	28
4	...	2.6
5	...	30
7	...	2.5
8	...	15
9	...	1
10	...	8
11	...	8
12	...	8
13	...	6
14	...	460
16	...	2.75
17	...	760
19	...	44







Wavechange switch shown in gram position

	ECH81		EBF80	EF41	EL41	EZ40
A	250V 3·8mA	95V 5·5mA	268V 4·3mA	35V 0·5mA	265V 35·0mA	270V RMS
G2	110V 6mA	—	80V 1·7mA	20V 0·1mA	250V 5·0mA	—
K	—	—	—	1·0V	6·8V	285V 61mA

FERGUSON 323RG

FIVE-VALVE three-waveband superhet receiver with three-speed automatic record changer. Bureau type cabinet. Suitable for 200-250V 50c/s AC. Manufactured by Ferguson Radio Corporation, Ltd., Great Cambridge Road, Enfield, Middlesex.

The receiver is a superhet employing an ECH81 frequency-changer V1, an EBF80 combined IF amplifier, signal rectifier and AVC V2, an EF41 AF amplifier V3, an EL41 output amplifier V4, and an EZ40 full-wave rectifier V5. Waveband coverage is SW 15.7-55.4 metres, MW 184-575 metres, LW 733-2050 metres. Automatic record changer is a Collaro RC54, fitted with turn-over crystal pickup head.

Aerial. Aerial signal is fed through C1 to S1A which switches it to aerial coupling coils L1(SW), L2 (MW and LW). The grid coils L3(SW),, L4(MW), L5(LW), which are trimmed by C4 C5 C6 respectively, are switched by S1A to aerial tuning capacitor C8, and thence coupled by C7 to grid of frequency-changer V1. AVC is applied through R2 to its grid on all wavebands.

Oscillator is triode section V1 connected in a shunt-fed tuned-grid circuit. L6(SW), L7(MW), L8(LW), which are trimmed by C15 C16 C17, and padded by C19 C20 C21-22 respectively, are switched by S2A to oscillator tuning capacitor C12, and thence coupled by C11 to oscillator grid V1. Anode reaction voltages are obtained inductively on SW band from L9, and both inductively and capacitively from L9 C20 on MW band. On LW band the voltage is obtained solely from capacitor C18. Reaction voltages are switched by S2A through C10 to oscillator anode V1. R7 R8 are MW and SW limiters respectively.

Pickup. Signal from pickup of auto-changer unit is fed through load matching resistor R31 to S2B which, in its Gram position, switches it through to volume control R15. At the same time the HT to V1 and screen V2 is removed by S1B and radio signal circuit is disconnected from R12 by S2B, thus preventing breakthrough on records.

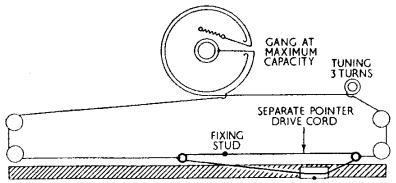
AVC. IF signal at anode V2 is fed by C25 to second diode V2. Rectified voltage appearing across load R9 is decoupled by C27 and applied, together with negative bias developed across R26 in negative HT return to chassis, to grids of V1 V2. Negative grid bias provides AVC line delay.

Tone Control R21 operates by varying the frequency response of negative feedback circuit connected between secondary L15 of speaker output transformer OP1 and cathode V3.

Extension LS. Sockets are provided on rear of cabinet for connection of a low-impedance extension speaker. S3, which enables internal speaker to be switched off when desired, is located on extension speaker socket panel and operated by one pin of the connecting plug.

HT is provided by indirectly-heated full wave rectifier V5 fed from HT secondary L17 of mains input transformer MT1. Resistance-capacity smoothing is given by C42 R28 C41 R27 C40. Reservoir smoothing capacitor C42 is rated to handle 125mA ripple current. It should be noted that external casing of C42 must be insulated from chassis, otherwise the negative HT bias developed across R26 will be short circuited.

Heaters V1-V5 are parallel connected and obtain their current from secondary L18 of MT1.



Dial Lights PL1 PL2 are parallel connected and are fed from secondary L18 through surge limiting resistor R30.

Primary L19 of MT1 is tapped for inputs of 200-210, 220-230, 240-250V 50c/s AC.

On-off switches S4 S5 are operated by spindle of Tone Control.

Replacement of pickup stylus. Lift pickup arm and remove the small screw which secures the metal strip to which the sapphire is attached thus releasing it from the crystal cartridge. Withdraw old stylus very carefully and fit new one in reverse order.

Pickup muting. The pickup is muted during the change cycle to avoid reproduction of undesirable noises. Adjustment may be made by loosening the small nut at bottom of bracket immediately below pickup pivot on underside of unit plate, and sliding the muting switch assembly in the slot which locates it. It should be set when the machine has switched off so that the switch blades are just separated. To ensure complete silence during the change cycle it is essential that the blades should spring firmly into contact with each other when released; inadequate contact pressure between the blades may produce unpleasant scratching sounds.

Removal of chassis. First remove the two sets of concentrically mounted push-on type control knobs and also rear panel of cabinet. Unplug aerial-earth and pickup leads from chassis sockets. Unsolder two speaker leads from OP1 on receiver chassis. Uncleat mains lead from bottom edge of cabinet, and disconnect mains lead from junction box mounted on underside of shelf supporting auto-changer.

Remove the two screws securing chassis mounting board to front of cabinet. Chassis can be withdrawn and separated from its mounting board.

ALIGNMENT INSTRUCTIONS

Apply signal as stated below	*Tune receiver to*	*Trim in order stated for maximum output*
1. 470kc/s to g1 of V1 via .1 capacitor	Gang at max. capacity	Cores L13 L12 L11 L10
2. 350kc/s to aerial socket via dummy aerial	857 metres	C17 C6
3. 160kc/s as above	1,875 metres	C21. Repeat operations 2 and 3
4. 1.5mc/s as above	200 metres	C16 C5
5. 580kc/s as above	517 metres	Check calibration
6. 17mc/s as above	17.7 metres	C15 then slightly rock gang whilst adjusting C4
7. 6mc/s as above	50 metres	Check calibration

NOTE: Calibration points for alignment purposes are indicated by five small holes in the scale backing plate. From left to right, they are as follows: 1. MW and SW trim point. 2. LW trim point. 3. MW check point. 4. SW check point and LW padding point. 5. Maximum gang setting.

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