

For more information remember www.savoy-hill.co.uk

PORTOGRAM JUNIOR EIGHT DE LUXE



Self-contained portable record reproducer consisting of a five-valve amplifier with push-pull output and a choice of Collaro players. In air-travel rexine covered case or polished figured oak cabinet with lock and key and leather carrying handle. Suitable for 100-120, 200-250V 50c/s. Models for 40 and 60c/s can be supplied if required. Made by Portogram Radio Electrical Industries, Ltd., Preil Works, St. Rule Street, London, SW8.

AMPLIFIER consists of a triode pre-amplifier V1, followed by a paraphase driver valve V2, the output signals of which are fed to two beam-tetrode amplifiers V3, V4 connected in push-pull. Output is fed to an 8in. PM speaker. HT is supplied by an indirectly heated half-wave rectifier V5.

The record player unit fitted to Model A is a Collaro RC500 automatic changer with high-fidelity moving-iron pickup. Model B is fitted with a Collaro three-speed single record unit type 3/514, which has interchangeable plug-in moving-iron heads for standard and microgroove recordings.

Model C has an AC/DC single-record unit type U/516 with moving iron pickup for standard recordings. Model D is fitted with standard speed rim drive motor unit AC/514 and Model E with an adjustable speed centre-drive motor type AC/508. Both latter models are single record players with moving iron pickups.

Pickup input is fed to volume control R2 and thence to grid of triode pre-amplifier section of V1.

R1, C1 shunted across R2 is a bass compensating circuit. Cathode bias is provided by R3 decoupled by C3. Diode anodes of V1 are not used and are connected down to "earth" line of amplifier. Anode load is R4. Variable top cut tone control is given by R15, C10.

Paraphase driver stage Signal at anode V1 is fed by C4 to g1 of V2 which, with its screen strapped to anode and suppressor connected to cathode, is operated as a triode. R5 is grid load resistor and cathode bias and negative feedback are provided by R6. Opposite-phase signals for grids of push-pull output valves are developed across cathode load R7 and anode load R8.

Output stage. Signals at cathode and anode of V2 are fed by C6, C5 respectively to grids of push-pull beam-tetrode output amplifiers V3, V4 of which R9, R10 are grid resistors. Cathode bias for the strapped cathodes is provided by R11 decoupled by C7. Screen voltages are obtained direct from HT line, decoupling being given by C8. HT for anodes is fed through centre tapped primary L2 of output matching transformer OPI.

Secondary L3 of OPI feeds signal to an 8in. PM speaker L4.

HT is provided by an indirectly-heated half-wave rectifier V5 with anode voltage obtained from the input mains through current limiter R12. Choke-capacity smoothing is by L5, C8, C9. Reservoir smoothing capacitor C9 is rated to handle 200mA ripple current.

Heaters of V1 to V5 are series connected and obtain their current from the mains direct on 100 to 120V supplies, but through tapped dropper R13 on 200 to 250V mains.

ON/OFF switch S1, which is ganged to volume control spindle, is connected in mains lead to earthy side of amplifier circuit.

Continued on opposite page.

CAPACITORS

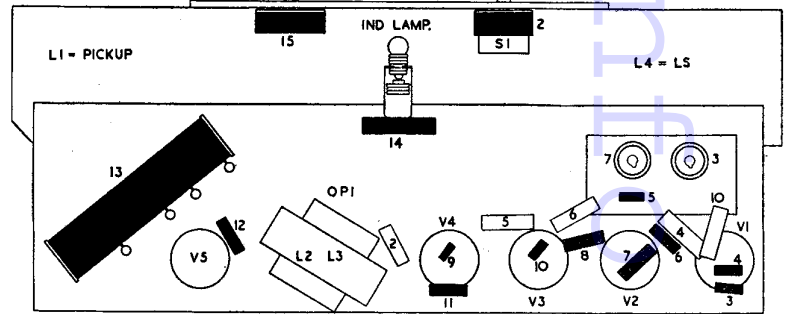
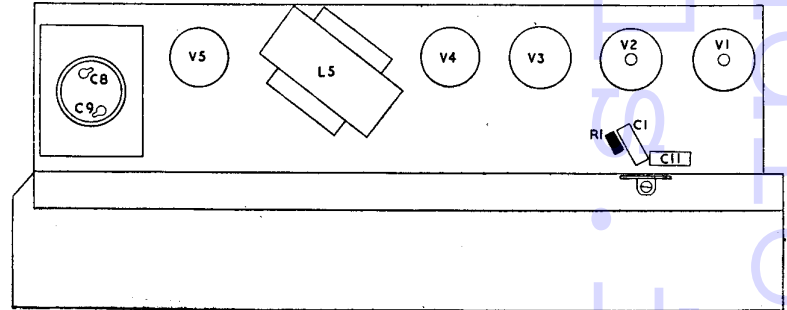
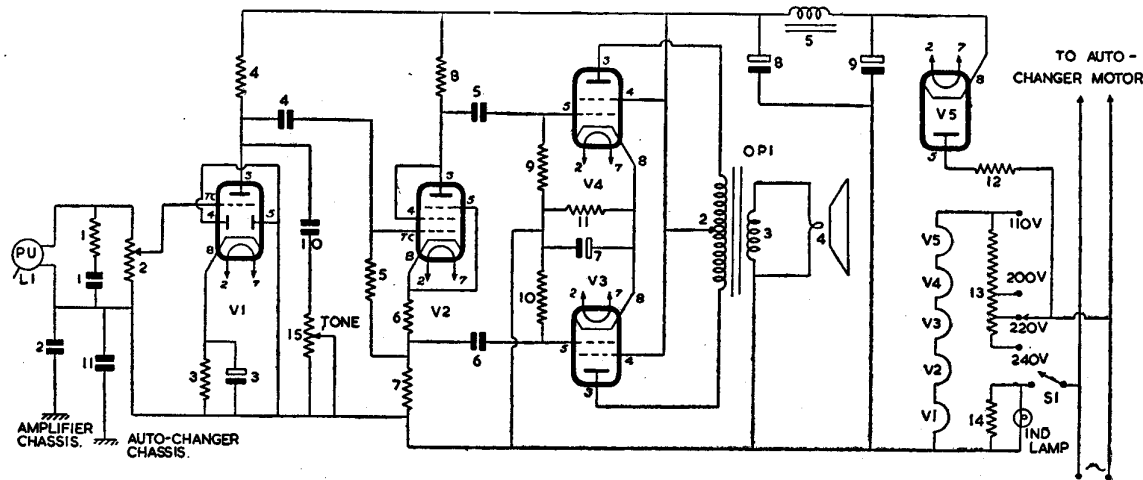
C	Capacity	Type
1	.01 Mica	
2	.02 Tubular 500V	
3	50 Electrolytic 12V	
4	.02 Tubular 500V	
5	.02 Tubular 500V	
6	.02 Tubular 500V	
7	50 Electrolytic 25V	
8	32 Electrolytic 250V	
9	32 Electrolytic 250V	
10	.02 Tubular 500V	
11	.01 Mica	

RESISTORS

R	Ohms	Watts
1	12K	
2	500K Potr. with SP switch	
3	3.3K	
4	100K	
5	1M	
6	2K	
7	47K	
8	47K	
9	470K	
10	470K	
11	150	
12	33	
13	850 Mains Dropper	

INDUCTORS

L	Ohms	Watts
1	5000	
2	180 Centre-tapped	
3	.25	
4	2.5	
5	800	
14	90	WW 5W
15	50K	Potr.



Valve	Pinout	Heater
V1-12Q7	Diagram showing pins D, G1, H, K, I-IV, A, 75V .5MA	TC G1
V2-12K7	Diagram showing pins G3, G2 STRAPPED, H, K, H, A, 85V 1.3MA	TC G1 56V
V3-35L6	Diagram showing pins G1, G2, H, K, H, A, 157V 3.2MA, 155V 39MA	13.5V
V4-35L6	Diagram showing pins G1, G2, H, K, H, A, 157V 4MA, 155V 41MA	13.5V
V5-35Z4	Diagram showing pins H, K, H, A, 220V RMS, 235V 89MA	
Indicator Lamp	Diagram showing a 6.5V .3A lamp	
Mains Current	= .35A	

Component	Value
R	13 12 15 14 9 11 2 10 8 7 5 6 3 4
C	2 5 6 7 4 10
L	1 2 3 4

ENGLISH ELECTRIC WASHING MACHINE

Cabinet domestic washing machine with 20in. pale green vitreous enamelled steel tub, power-operated draining pump, and 11in. driven wringer. Finished in pale cream stoved enamel with highly-polished aluminium cabinet top, wringer pressure screw and feeder boards. Will accept 7lbs. dry wash. Model described is 4002R; the 4001R is similar but without pump. Available for 110, 200-220, or 230-250V AC. Manufactured by the English Electric Co., Ltd., Queens House, Kingsway, London, WC2, at their East Lancashire Road, Liverpool, 10, factory.

THE washing machine (Fig. 1) is a domestic cabinet type with (model 4002R) or without (4001R) power operated wringer and pump, and with 20in. diameter tub taking up to 7lbs. of dry wash.

The cabinet measures 32½ins. high by 21½ins. square, overall dimensions including wringer being 45½ins. by 23½ins. wide by 26½ins. deep.

Mains consumption on full load (including wringer) is approximately 400W.

CONSTRUCTION

The cabinet is a pressed aluminium or steel unit, the bottom being shaped to form a plinth. Pressed steel brackets riveted (in aluminium models) or welded (steel models) across corners at top and bottom provide strength and rigidity. Swivel type casters fitted with hard-rubber wheels are mounted on lower brackets; upper brackets are fitted with anchored nuts to take fixing bolts of aluminium

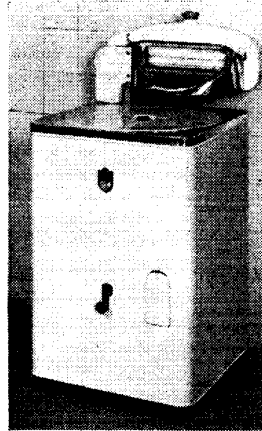


Fig. 1

top. Tub is enclosed by a pale cream stoved enamelled circular pressed aluminium lid fitted with sunk moulded knob.

Interior is fitted with a diagonally-mounted pressed steel chassis (Fig. 3) welded to steel angle strips riveted or welded to side panels.

The tub is fitted with a cast-alloy agitator-column assembly (Fig. 3) through which drive shaft operates and also a cast light-alloy outlet drain which is coupled by flexible hose to pump inlet (Fig. 4). The tub is supported on the diagonal

chassis and held securely by the agitator column which is fixed by three bolts to the chassis.

Moulded rubber beading seals joint between tub and cabinet top. Joints between base flange of agitator column, tub and clamp ring and heads of the six clamp ring fixing bolts are sealed by cork gaskets.

The cast alloy agitator fits on a square-head drive shaft (Figs. 2 and 3), being held by a cast alloy cap fitted with steel screw which goes into tapped hole in drive shaft.

Bottom of shaft is splined to engage with socket of agitator pinion in gearbox.

A steel wringer support column (Fig. 3) occupies a corner of cabinet being welded to a bottom plate (which is bolted to angle strips) and, at the top, to a vertical bracket bolted to side of tub. On top of the cabinet is a flanged wringer socket (Fig. 2) giving six wringer positions, the socket being fixed by four screws to the support column.

The wringer drive bar is provided at its top with a slotted key to engage with wringer drive spindle and at its lower end with a flat tie-bar to engage with slotted socket in gearbox.

Gearbox consists of a cast alloy housing (Fig. 7) containing the main worm drive which is fitted with a pulley to accept V belt of motor, together with wringer drive gear, intermediate gear with clutch, and rack and pinion agitator drive.

Clutch consists of a clutch plate on a pivoted fork coupled through an actuating arm to a control lever on side of gearbox. Clutch plate is fitted with two vertical pins which fit into holes in intermediate gear and in rack drive wheel. With clutch disengaged the fork is down and the pins,

which are always engaged with intermediate gear, are just below its top surface. When clutch lever is placed in "on" position clutch pins, under pressure of control lever spring, move into holes in rack drive wheel.

The rack bar pivots on a solid bearing mounted eccentrically on the rack drive wheel and slides through a cast iron stirrup which fits over shaft of agitator pinion and holds rack and pinion in mesh. Pinion shaft is hollowed at top and has six vertical grooves forming a socket into which fits the base of agitator drive shaft (Fig. 6).

Wringer gear shaft is slotted to take keyed base of wringer drive bar.

Gearbox is filled with 1½ pints of Shell Mex "Talpa" oil and is enclosed by a cast cover held by nine bolts. Joint between cover and housing is sealed with a cork gasket and leakage at shaft outlets is prevented by rubber trap rings.

Filling and draining vents fitted with screw-in plugs facilitate oil-changing and topping up.

Gearbox is attached to underside of diagonal chassis by three bolts into projecting lugs on sides of agitator column base flange and by a single bolt clamping wringer drive end to side panel of cabinet. A rubber vibration absorber is inserted between bracket on gearbox and side panel.

The ½hp 1425 RPM single-phase induction motor is suitable for 50c/s AC mains.

Motor is attached by resilient mountings to a cradle pivoted on brackets on underside of gear-

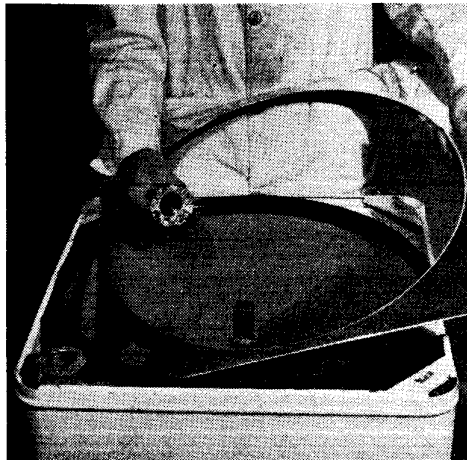


Fig. 2.—After removing wringer socket and three screws top of cabinet can be lifted off



Fig. 3.—On taking out the tub clamp ring, tub can be removed, exposing agitator column

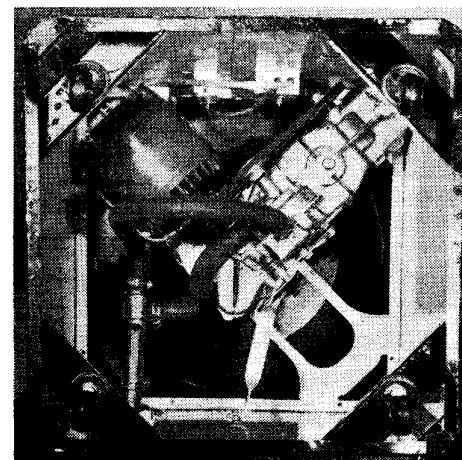


Fig. 4.—With the machine inverted, most of the "works" are accessible



Fig. 5.—Pump can be taken out after undoing bracket screws and slacking off hose clip screws