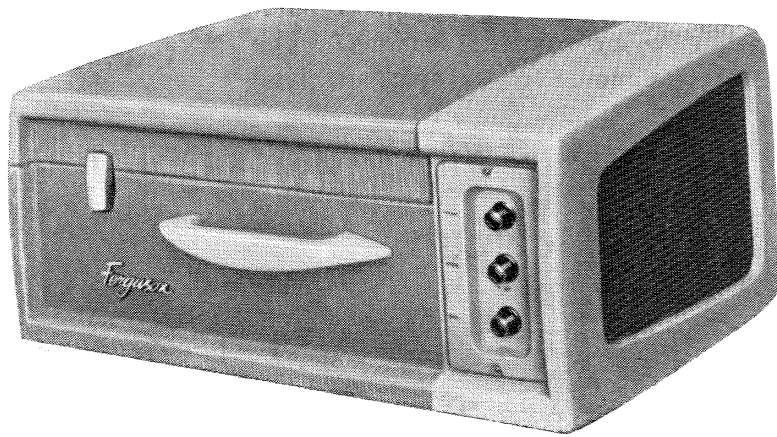


# FERGUSON

RADIO



“Fortune II”

AUTO  
RECORD  
PLAYER

394G

SERVICE MANUAL

# AUTOMATIC RECORD PLAYER 394 G

## SPECIFICATION

**Mains Supply :** 200-250 Volts, 50 cps AC mains.

**Power Consumption :** Approximately 38 Watts at 240V.

**Valves :** Two UCL83 triode pentodes.

**Output Power :** Approximately 6 Watts.

**Record Changer :** BSR Monarch type UA8\* four speed automatic record changer with turnover crystal pick-up, type TC8M.

**Loudspeaker :** Wide range twin cone 6½ in. diameter.

**Pilot Lamp :** 8V 0.15A MES.

**Case :** 19 in. wide x 15¾ in. deep x 8¾ in. high.

\* The record changer is a special model for use with the 394G only and is not interchangeable with the standard Monarch UA8.

## CIRCUIT.

**Note :** The heater supply for the two valves used in the amplifier is obtained by connecting the heaters in series with the induction motor of the record changer. This provides the necessary voltage drop on 200—220V mains ; on the higher range a 100Ω resistor is connected in series with the motor and acts as a dropper for the HT supply as well.

The push-pull amplifier circuit utilises two triode pentode valves type UCL83, the pentode sections forming the output stage. One triode section **V2A**, functions as the phase inverter, the other, **V1A** as the input voltage amplifier. The tone and volume controls operate in the grid circuit of **V1A** and a negative feedback voltage from the secondary of the output transformer is injected across **R7** in its cathode circuit. The effect of **C9** is to reduce the feedback at low frequencies to provide a degree of bass lift. The voltages developed across the anode and cathode loads of **V2A** are applied to the control grids of **V1B** and **V2B** through **C10** and **C11**. **C13** and **R18** across the primary of the output transformer provide phase correction.

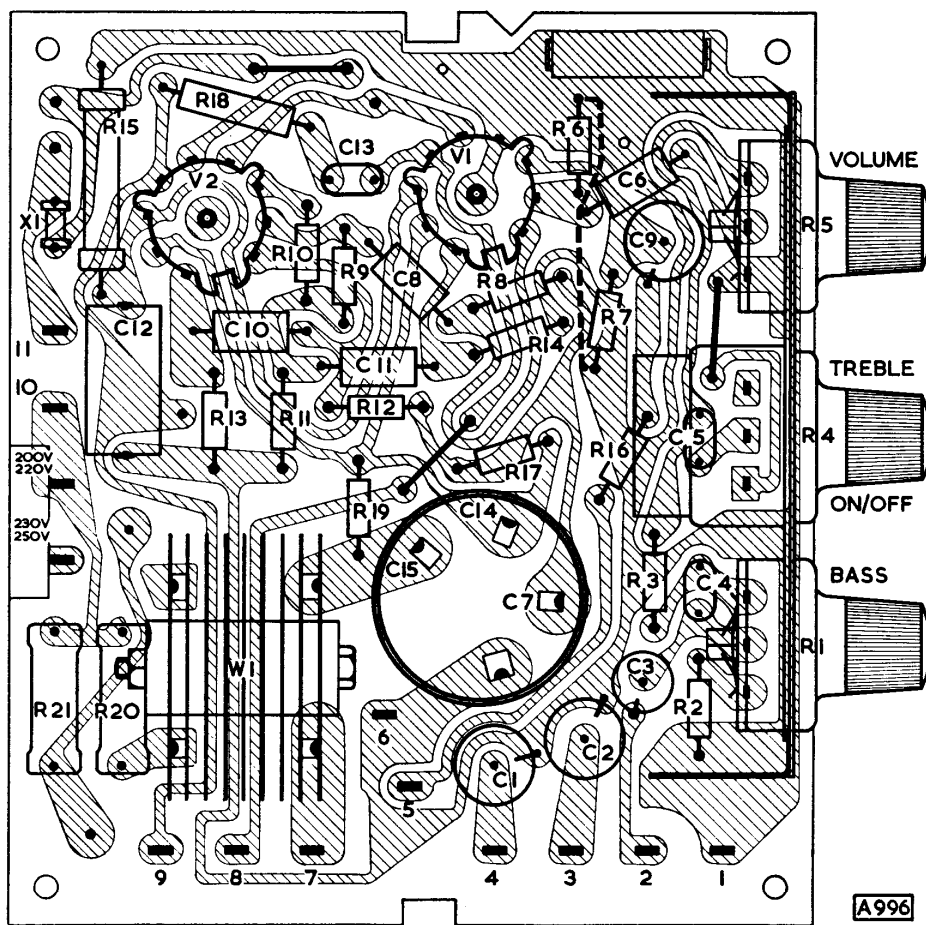


Fig. 1. Printed circuit panel viewed from the components side.



## SERVICING NOTES

When servicing becomes necessary on the printed panel, it must be remembered that excessive heat can loosen the bond between the copper conducting circuits and the insulating board; consequently, particular care is necessary if any connections must be made to the "wiring" side of the board. For this reason, when replacing a resistor or capacitor, cut out the faulty component so that as much as possible of the original lead-out wires remain for connecting in the new component, soldering to the ends of the

wires instead of to the printed conductors. Use a small low consumption iron and do not apply the bit for longer than is necessary to produce a sound joint.

The heavier components are secured to the panel by clip lugs which also form the electrical connections. To remove these, use a heavier type iron and apply heat and pressure to the lug—not the printed circuit—so that when the solder melts, the lug is pressed clear of the connecting point. In some cases a small stiff-

haired brush will assist in breaking the connection.

When a section of printed conductor is damaged or fused, scrape off the damaged portion and restore the connection with a jumper wire on the component side of the board. Should it become necessary to solder directly to a printed conductor, use a 60/40 resin cored solder and, with a low consumption iron, make the joint quickly to avoid overheating. **Do not use a corrosive type flux.**

## MECHANICAL DETAILS

### Removing the Record Changer

Remove the ventilation panel at the side of the record changer compartment and withdraw the woodscrews securing the motor board. Lift up the motor board and remove the pin socket connectors associated with the pick-up and motor leads from the printed circuit panel. The record changer and mounting board may then be lifted out of the cabinet.

### Removing the Amplifier Panel

Disconnect the leads to the output transformer and remove the woodscrews securing mains lead cleat and pilot lamp holder. The controls escutcheon and the strip of wood securing the bottom edge of the printed panel should then be removed. Slacken off the nuts holding the wood strip at the top of the panel and ease the amplifier panel down to release its top edge. The amplifier may then be lifted out of the cabinet.

### Stylus Replacement

When replacing a worn stylus, use the following types:—

LP—TC8R (coloured red).

78—TC8G (coloured green).

Do not remove the screw securing the stylus, one turn is sufficient to slacken and so enable the stylus to be withdrawn. When fitting the new stylus, ensure that the stylus is correctly seated under the screw at one end and fitting over the stylus coupler at the other.

## MECHANICAL SPARES

PART DESCRIPTION	PART No.
Cabinet	V17724
Cabinet partition	X18116
Control escutcheon	X18117
Pilot lamp holder	Z13314/2
Printed circuit pin socket connector	Z21558
Record changer	N16120
Valve holder	Z13648

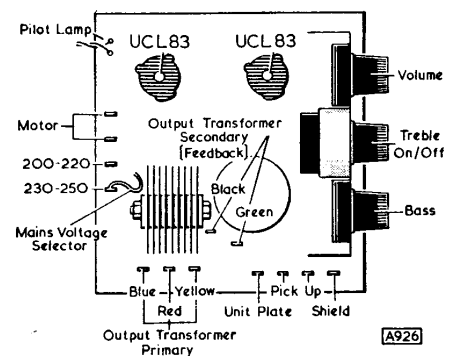


Fig. 3. Pin socket connections to printed circuit panel.