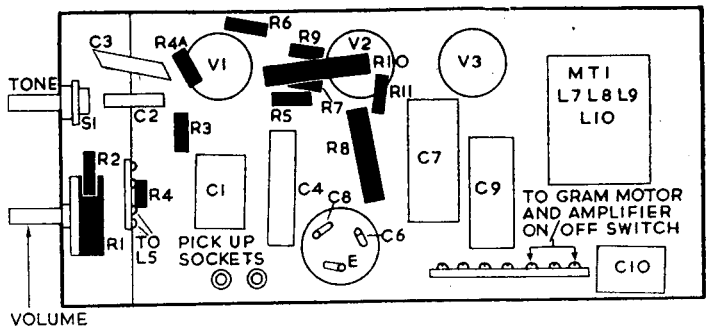
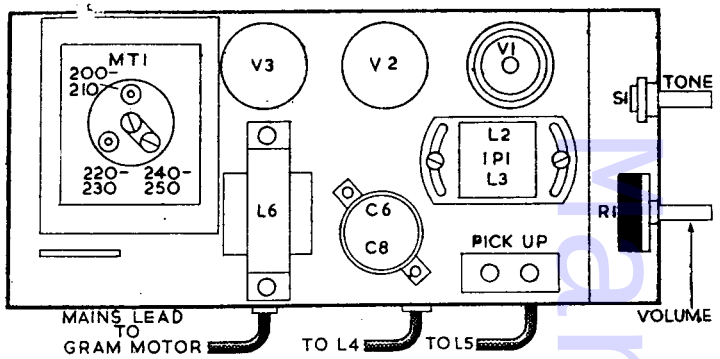
# DECCA DECCALIAN

*An electric record reproducer for operation from AC mains supplies 200-250V, 50 cycles. Consists of a two-stage amplifier, with negative feedback, feeding into a 6½-inch permanent magnet loudspeaker. The pick-up is a Decca lightweight needle armature type, fitted with replaceable sapphire stylus. The turntable and motor fitted is a Garrard type AC7C. Made by Decca Radio and Television, Ltd., 1-3, Brixton Road, London, SW9.*




AMPLIFIER consists of an anti-microphonic HF pentode V1 resistance-capacity coupled to a beam tetrode output valve V2. Output from V2 is fed into a 6½-in. permanent-magnet loudspeaker.

Negative feedback from the secondary of the output transformer is fed to the cathode of V1. A three-step tone control and a bass compensation network are connected in the grid circuit of V1. HT is provided by a full-wave indirectly-heated rectifier V3.

**Circuit.** The special Decca lightweight needle-armature pickup is connected to primary L2 of screened input transformer IP1. The secondary L3 feeds the signal to volume control R1 and thence, *via* bass compensating network R2, R3, C1, and tone control consisting of three-position switch S1 and capacitors C2, C3, to grid of V1.

R6 provides cathode bias to V1. No decoupling capacity is provided, as negative feedback voltages are applied to the cathode. The suppressor grid of V1 is strapped to its cathode. Screen voltage is obtained from R7 decoupled by C4, and R5 is the anode load resistor.

C5 is coupling capacitor between anode of V1 and grid of output valve V2, and R9 is grid resistor. Cathode bias is provided by R10 and decoupled by C7. Screen voltage is obtained from dropping resistor R8. C8 provides decoupling for the screen and for the HT supply to V1.

L4, the primary of the output matching transformer OP1, is in the anode circuit of V2. R11 is anode stopper resistor. L5, the secondary of OP1, feeds into the speech coil of the PM speaker.

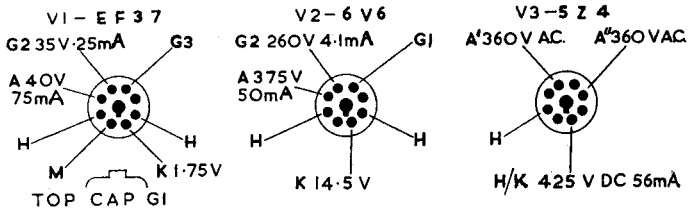
Negative feedback voltages are taken from the secondary of OP1 and applied to the cathode of V1 through R4 and R4A.

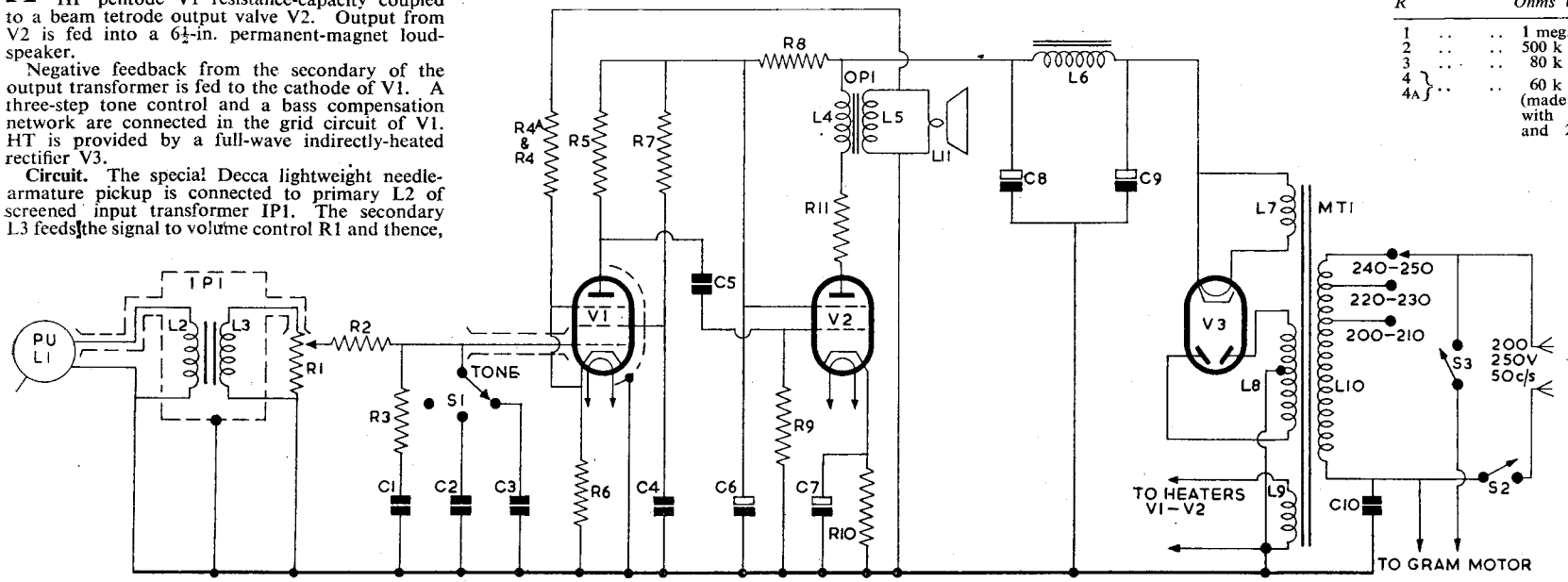
High tension is obtained from an indirectly heated full-wave rectifier V3. L7 supplies its heater voltage, and L8 its anode voltages. L6, C8, C9 provide choke-capacity smoothing of the HT supply. L9 supplies heater voltages of V1 and V2.

L10, the primary of the mains input transformer, MT1, is tapped for 200-250 volt, 50-cycle mains supplies. S2 is the amplifier on-off switch; it also breaks the supply to the turntable motor which is fitted with its own on-off switch S3.

C10 is fitted to eliminate modulation hum.

**Replacement of Sapphire.** The head of the pickup is fixed to the tone arm by means of a push-on bayonet catch fitting. By pressing the head in




## RESISTORS

| R | Ohms | Watts |
|---|---|---|
| 1 | 1 meg. | pot. |
| 2 | 500 k | ½ w |
| 3 | 80 k | ½ w |
| 4 } 4A } | 60 k (made up with 40 k and 20 k.) | ½ w |
| 5 | 300 k | ½ w |
| 6 | 3 k | ½ w |
| 7 | 1 meg. | ½ w |
| 8 | 25 k | 1 w |
| 9 | 1 meg. | ½ w |
| 10 | 270 | 1 w |
| 11 | 100 | ½ w |

## INDUCTORS

| L | Ohms |
|---|---|
| 1 | 210 |
| 2 | 5 |
| 3 | 5000 approx. |
| 4 | 400 |
| 5 | .5 |
| 6 | 365 |
| 7 | very low |
| 8 | 450 |
| 9 | very low |
| 10 | 26 total |
| 11 | 2.5 |

## CAPACITORS

| C | Mfds. | Type |
|---|---|---|
| 1 | .0045 | mica |
| 2 | .0 08 | mica |
| 3 | .002 | mica |
| 4 | .1 | tubular 500 v |
| 5 | .01 | tubular 1000 v |
| 6 | 8 | electrolytic 500 v |
| 7 | 40 | electrolytic 50 v |
| 8 | 16 | electrolytic 500 v |
| 9 | 8 | electrolytic 500 v |
| 10 | .002 | mica |

## DECCALIAN—*Continued*

and giving an eighth turn anti-clockwise the head can be removed. Unfasten the two screws on the top side of the head. The lower hinged plate of the assembly containing bar magnets, coil and specially designed rubber-suspended armature with sapphire attached, can now be opened out.

Remove rubber moulding and sapphire and insert new one. (Red spot to rear of recess.) Care should be taken when fitting new sapphire assembly to see that point of needle passes through the original hole in the plastic seal on the underneath side of head.

**Removal of Motorboard.** Before attempting to dismantle the equipment it is advisable to remove the bayonet catch plug in pickup head, and to secure the tone arm to its rest by means of a piece of wire or string.

Unscrew the two bolts at the ends of the sloping panel nearest to the hinges of the lid, and remove the panel.

Unscrew and remove the four wood screws holding the motor board to supporting runners at sides of cabinet. Grip back edge of motor board firmly and lift and slide it about an inch backwards. The motor board can now be tilted backwards so that the turntable side is resting against the inside of the lid.

Remove amplifier on-off switch from baseboard and unfasten mains lead to motor from terminals under bakelite cover plate on side of motor. Unplug pick-up leads from sockets on amplifier chassis.

The motorboard can now be removed from cabinet.

**Removal of Chassis.** Remove volume contro and tone control knobs. Unsolder lead from chassis earthing tag (on tag strip just in front of mains transformer). Unsolder leads to primary and secondary of speaker output transformer.

Remove mains input lead connections from socket at rear of cabinet. The chassis is fastened to two brackets (one at each end of the chassis) by four bolts which pass through rubber grommets on the chassis. Remove the four bolts. The chassis is now free to be lifted out.

It is necessary to raise the left-hand side of chassis first in order that the spindles of volume and tone controls are clear of escutcheon when the chassis is withdrawn.

**Removal of Cellular Escutcheon in Front of Loudspeaker.** Remove the four wood screws holding sloping panel on inside of front of cabinet and lift off panel.

Unfasten four bolts positioned towards outer edges of front, inside of cabinet. The cellular grille can now be removed. Removal of the loud-speaker escutcheon exposes the heads of bolts holding output transformer on to front panel of cabinet.

## TEST REPORT—Fisk Solariscope

THE "Fisk" Solariscope is designed to show the areas of daylight over the earth at any time of the year.

For the short wave listener it shows at which hours the best reception can be expected from any particular station. Relative times or hourly time differences between any two places can be quickly obtained.

The instrument consists of a cylindrical body with end caps, one of which is removable. On the body are printed two Mercator projection maps of the world so as to form a continuous map. The map is marked with lines of latitude and longitude, and principal cities, etc., are shown.

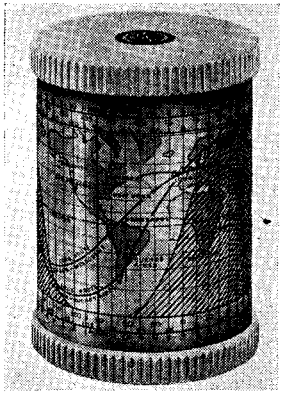
The longitudinal lines are shown at 15-degree intervals east and west of the Greenwich meridian. The 15-degree interval is chosen because it represents a time difference of one hour.

Furthermore, as one degree of longitude represents approximately 60 miles at the equator, the vertical lines may be used as a scale of distance, the unit being 900 miles approximately, at the equator.

Four transparent shadow charts, which slide over the cylindrical body, are provided. They are marked as follows: (*a*) March and September, (*b*) April, August and February, October, (*c*) May, July and November, January, and (*d*) June and December. Thus all the months of the year are covered by the four charts.

Shaded portions of the charts represent the areas of night and the clear portions indicate where it is day. The hours of the day in GMT are clearly printed on the outer edges of the charts.

The outlines of the shadow sections were evolved by plotting on the map of the world the times of



sunrise and sunset at every few degrees of longitude, a curve of these times being obtained for each day. For each month an average curve was struck.

To use the instrument it is only necessary to select the appropriate transparent shadow chart for month of year, place it over the cylindrical body and rotate to the appropriate time position.

The instrument is nicely constructed and a booklet explains its applications. Designed by Sir Ernest Fisk, the Solariscope is produced by E.M.I. Sales and Service, Ltd., Hayes, Middlesex.

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In the Dec. 1947 review of the Barber 293/UV combined ultra-violet and infra-red lamp we stated "Portia" goggles are made by Perihel. Although supplied by Perihel and other firms, the goggles are made by Solport Bros. Ltd., Portia House, 44-47, Spencer Street, London, E C 1.