E R T SERVICE CHART 1677 PHILIPS N2200

CASSETTOPHONE is a portable lightweight tape cassette player which reproduces mono and stereo tapes monophonically.

Battery. Six 1.5V U11 type cells.

Transistors. TR1 preamplifier BC149B, TR2 amplifier BC148B, TR3 driver BC148B, TR4 and TR5 output pair AC128 and AC129, TR6 and TR7 speed control BC148B and AC187.

Thermistors. R7 50ohm NTC, R22 470ohm NTC.

Input. Socket for external 9V power source.

Output. 500mW.

Speaker. 3in. 8ohm impedance.

Frequency range. 150c/s to 7kc/s.

Tracks. Twin track monophonic.

Tape. Width 0.15in. Compact Cassette System.

Tape speed. $1\frac{7}{8}$in. per second.

Dimensions. $10\frac{1}{8} \times 6\frac{1}{8} \times 2\frac{1}{2}$in.

Weight. 2lb 10oz.

Manufacturer. Philips Electrical Ltd.

Service Department. Combined Electronic Services Ltd, Queensway, Waddon Factory Estate, Croydon CR9 4DR. Tel: spare parts 01-686 7311; service enquiries 01-688 7722. After hours recorded messages on both lines.

DISMANTLING

Cabinet back. To uncase the unit, remove cabinet back which is held by three screws and one PK screw in the handle.

Cassette container flap. Take off the two hinge springs, put switch in 'forw' (fast wind) position. Press cam near slide bracket slightly sideways and withdraw container flap. Reassemble in reverse order.

Playback head or Pressure roller. Remove cabinet back and take off circlip retaining slide bracket. Take off stop spring and roller. Slide bracket can then be lifted out to limit of connecting leads. Playback head and pressure roller are then accessible.

Clutch assembly. Remove cabinet back. Undo two Philips screws on flywheel bracket and remove flywheel. Remove retaining ring and pull friction disc off its spindle. The entire clutch assembly can be dismantled.

Clean with methylated spirits or replace items as needed and reassemble in reverse order. When refitting flywheel, degrease capstan.

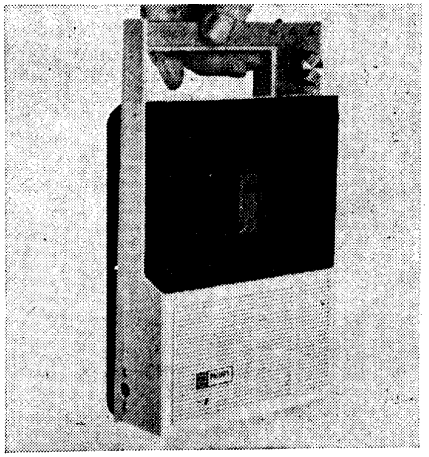
SERVICE NOTES

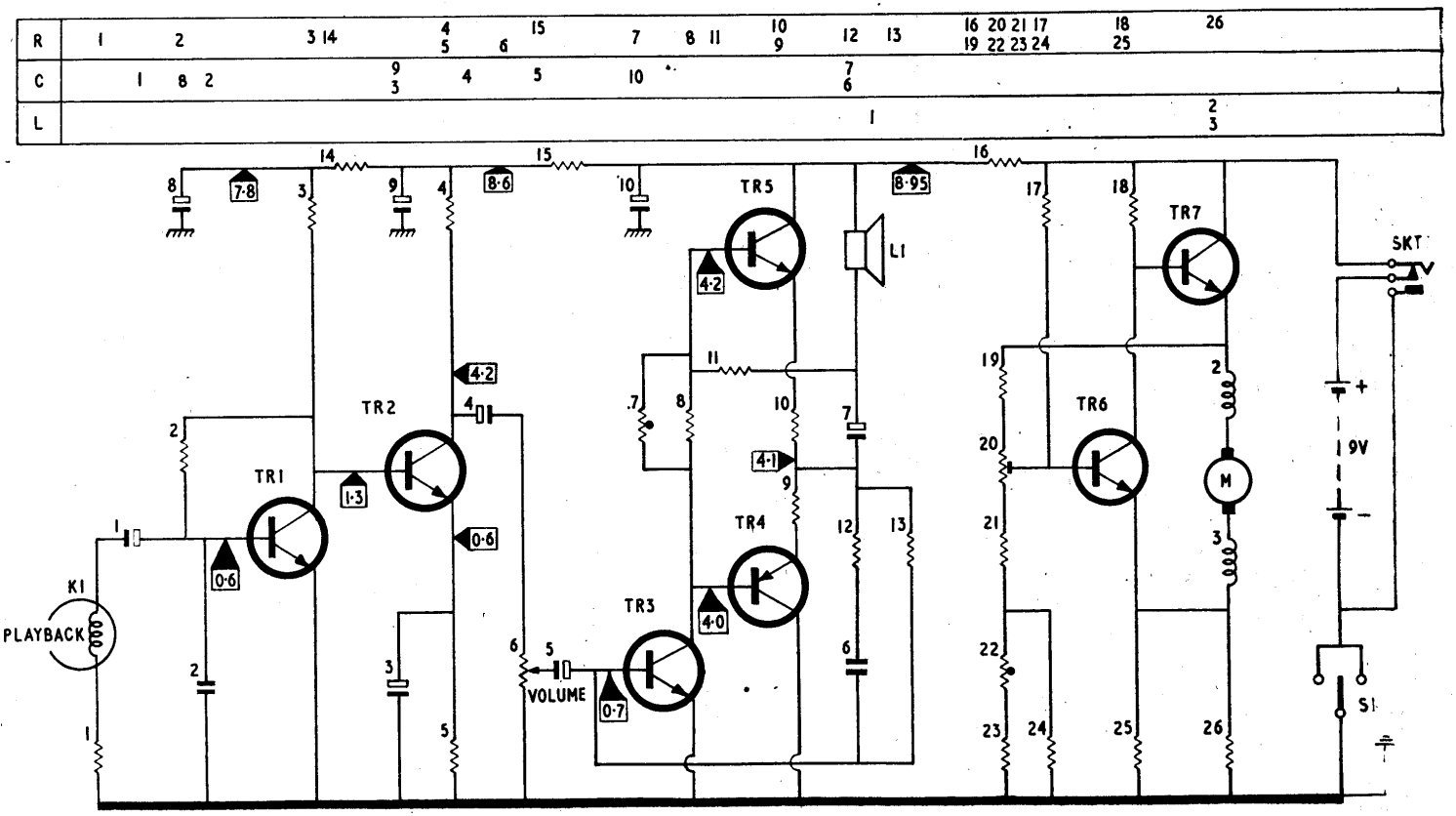
Playback head. In the 'play' position, playback head should be .14in. within the cassette, measured from the outer edge. Use a cassette having section above playback head removed and take off the cassette container flap as described above. Adjust stop spring with roller to locate slide bracket in correct position.

Head azimuth. Insert test cassette, having a constant tone (4-6kc/s) recorded on it, and switch to 'play'. Connect an AC millivoltmeter across speaker terminals and adjust azimuth setting screw to obtain

RESISTORS		
R1	22	A2
R2	1M	A2
R3	27K	A2
R4	1K5	A2
R5	220	A1
R6	22K	—
R7	50 NTC	B2
R8	120	A2
R9	1.5	A1
R10	1.5	A2
R11	680	A1
R12	6K8	A2
R13	130K	A1
R14	3K3	A1
R15	150	A2
R16	4.7	B2
R17	47K	B2
R18	1K2	B2
R19	3K	B1
R20	220	B1
R21	430	B2
R22	470 NTC	B1
R23	180	B1
R24	270	B1/2
R25	4.7	B1
R26	5.6	B1

CAPACITORS		
C1	1.5mF	A2
C2	4K7pF	A2
C3	82mF	A1
C4	1.5mF	A2
C5	10mF	A2
C6	22KpF	A1
C7	470mF	A2
C8	56mF	A1
C9	330mF	A1
C10	330mF	A1/2





maximum output. This adjusting screw is located on slide bracket and accessible through a hole in cabinet back.

Pressure roller. In 'play' position, clearance between pressure roller and its stop should be at least .020in. Clearance is adjusted by bending the metal tongue on end of pressure roller assembly, reached through rectangular hole in top part of slide bracket.

In 'stop' or 'forw' positions spring should exert a force such that a pull of 165-210gm is needed to bring the pressure roller away from the stop. Remove slide bracket to effect this measurement, adjusting by bending the spring anchor tag.

Flywheel. Vertical end play of flywheel should be between .008in. and .020in. Adjustment is by bending thrust bearing bracket as required.

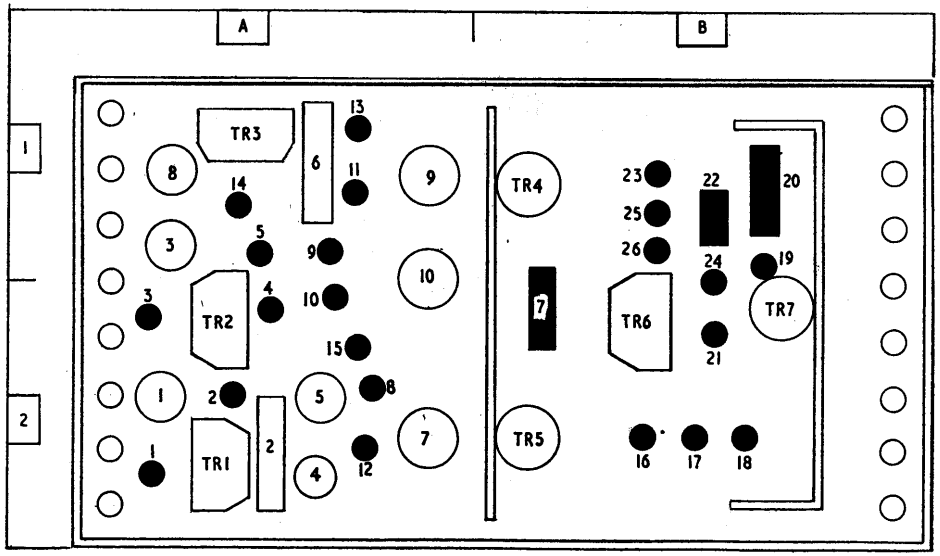
Tape speed adjustment. Insert test cassette and switch to 'play'. Test cassettes have 800c/s signal modulated every 187in. on a constant 6.3kc/s tone, and are available from Combined Electronic Services Ltd. The time between any two 800c/s signals should be between 95 and 103 seconds. If the time is outside these limits, adjust speed using R20.

Sensitivity check. Apply 1kc/s signal at a level of 35mV, via a 22K resistor to R1. Turn R6 fully clockwise and check that voltages are within 10 per cent of tabulated values at the following points:

	TR1	TR2	TR3	TR4	TR5
Collector	1.1mV	12mV	940mV	—	—
Base	—	1.1mV	4.7mV	940mV	910mV

Consumption Checks.

	No signal	50mW output	500mW output
Less motor	15-30mA	50mA max.	125mA max.
With motor	85-100mA	120mA max.	195mA max.



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