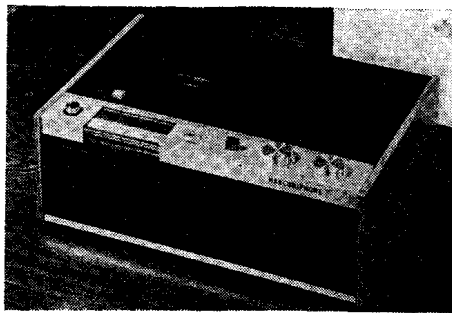


E R T

**SERVICE
CHART**

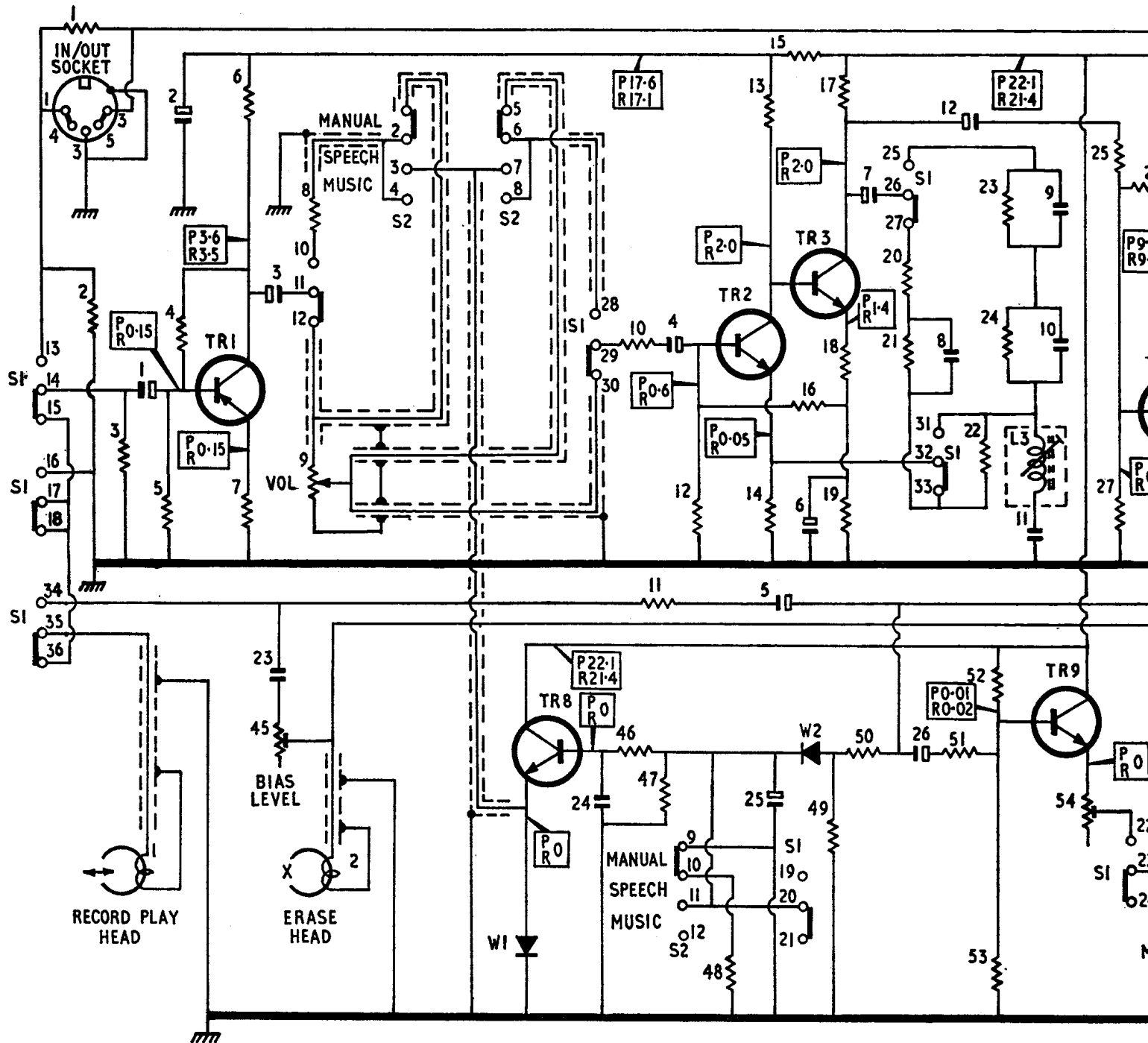
1873



Marconiphone 4256 cassette recorder

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R	1	2	3	5	4	6	8	10	11	12	13	15	17	18	20	2	52	23	25	26
C		1	2			3			4		5	6	7		8		11	9		
L		1				2														3



Marconiphone

4256

cassette recorder

It
d, in
vision.

A SOPHISTICATED conventional table recorder combined with the advantages found in the use of pre-recorded cassette tapes, are the important features of this model from Marconi.

Designed in a teak cabinet with black and aluminised panels, it has the facility to "eject" the cassette at the push of a button.

Control of operation is simple with piano keys and recording can be either manual or automatic.

TR6—OPIB
TR7—OPIA
TR8—AF2
TR9—AF2

Diodes. W1—AF2
W2—D17
W3—D5
W4—Supply r.
08E9-C

Mains. 240V AC 50Hz.

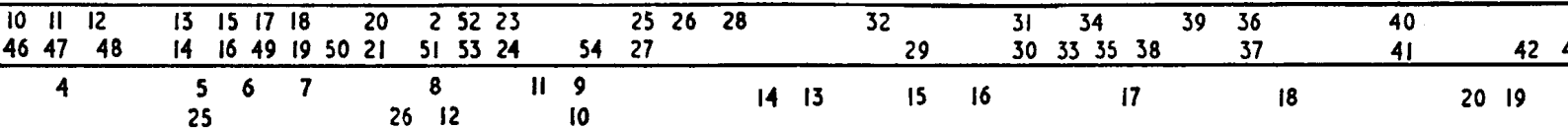
Transistors. TR1—AF15
TR2—AF15
TR3—AF2
TR4—AF4
TR5—AF4

Tape speed. 1 1/2 ips.

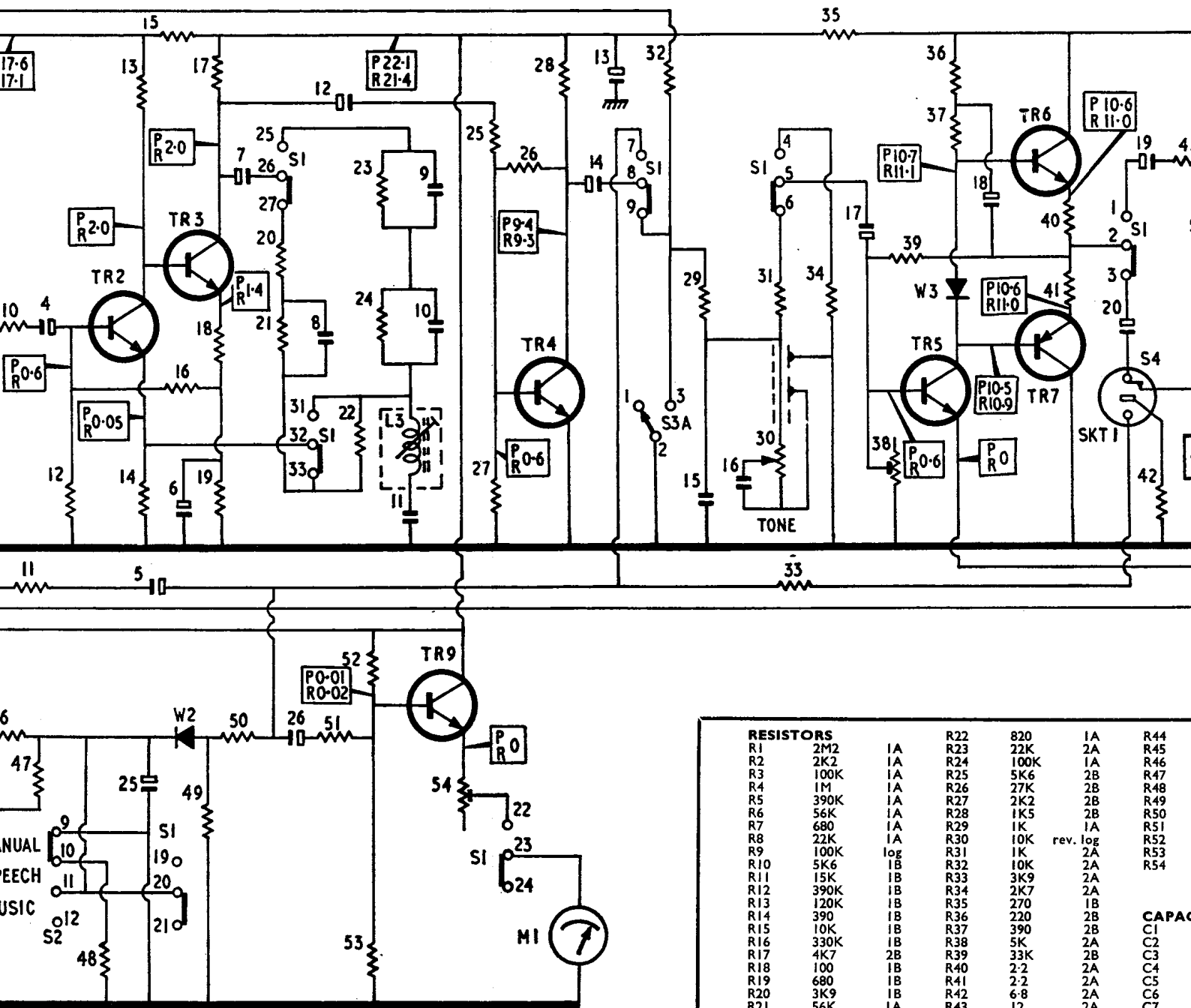
Tracks. 2 track.

Cassette. C60 and C90.

Output. 3W.



3



RESISTORS					
R1	2M2	IA	R22	820	IA
R2	2K2	IA	R23	22K	2A
R3	100K	IA	R24	100K	IA
R4	1M	IA	R25	5K6	2B
R5	390K	IA	R26	27K	2B
R6	56K	IA	R27	2K2	2B
R7	680	IA	R28	1K5	2B
R8	22K	IA	R29	1K	IA
R9	100K	log	R30	10K	rev. log
R10	5K6	IB	R31	1K	2A
R11	15K	IB	R32	10K	2A
R12	390K	IB	R33	3K9	2A
R13	120K	IB	R34	2K7	2A
R14	390	IB	R35	270	IB
R15	10K	IB	R36	220	2B
R16	330K	IB	R37	390	2B
R17	4K7	2B	R38	5K	2A
R18	100	IB	R39	33K	2B
R19	680	IB	R40	2.2	2A
R20	3K9	IB	R41	2.2	2A
R21	56K	IA	R42	6.8	2A
			R43	12	2A

CAPACITORS	
C1	
C2	
C3	
C4	
C5	
C6	
C7	

A SOPHISTICATED conventional table recorder combined with the advantages found in the use of pre-recorded cassette tapes, are the important features of this model from Marconi.

Designed in a teak cabinet with black and aluminised panels, it has the facility to "eject" the cassette at the push of a button.

Control of operation is simple with piano keys and recording can be either manual or automatic.

Mains. 240V AC 50Hz.

Transistors. TR1—AF15
TR2—AF15
TR3—AF2
TR4—AF4
TR5—AF4

TR6—OP1B
TR7—OPIA
TR8—AF2
TR9—AF2

Diodes. W1 —AF2
W2 —D17
W3 —D5
W4 —Supply rectifier
08E9-010

Tape speed. 1 1/2 ips.

Tracks. 2 track.

Cassette. C60 and C90.

Output. 3W.

Speaker. Elliptical 15ohm impedance.

Level meter. Automatic and manual.

Tape position indicator. Clear window to view tape position.

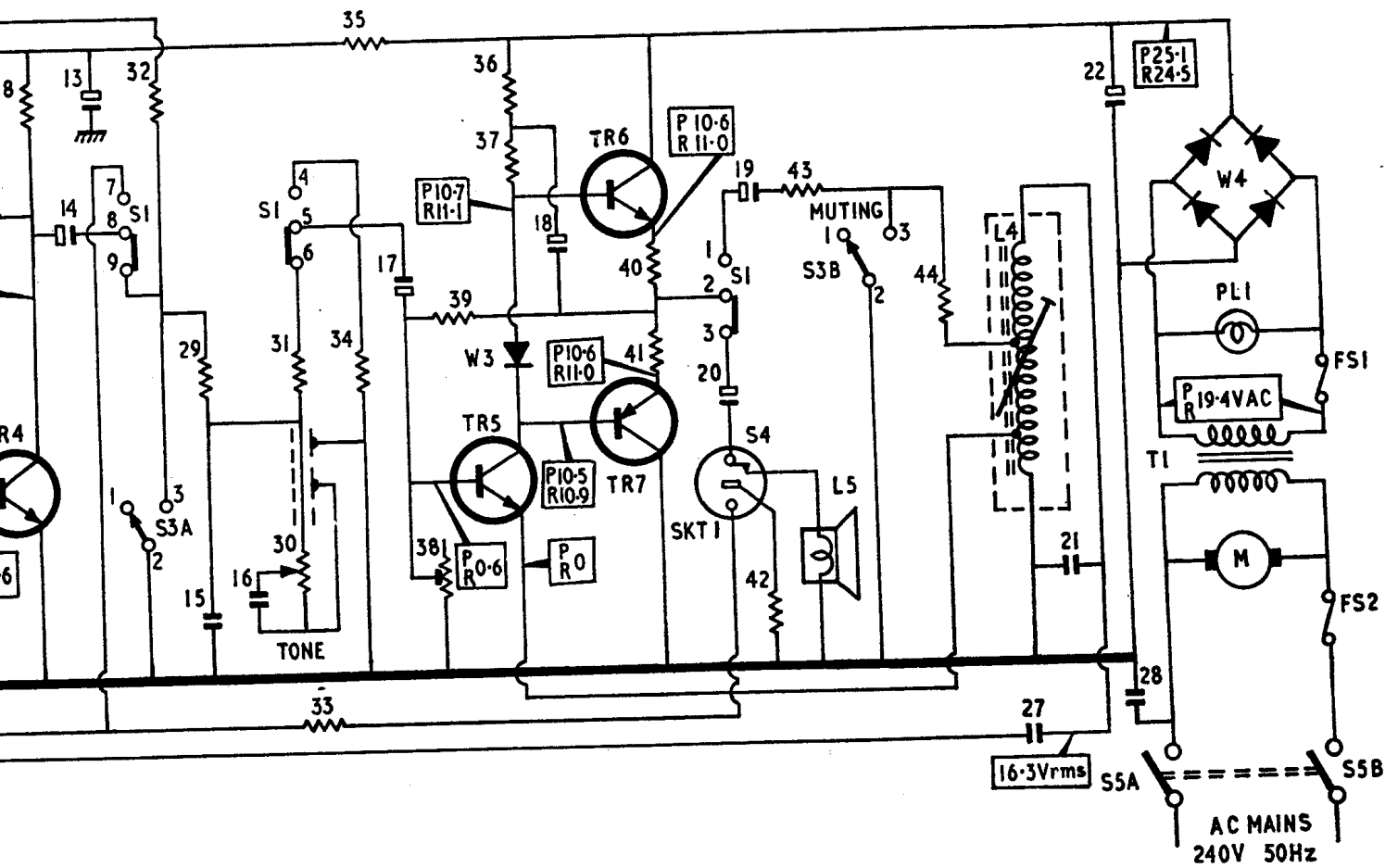
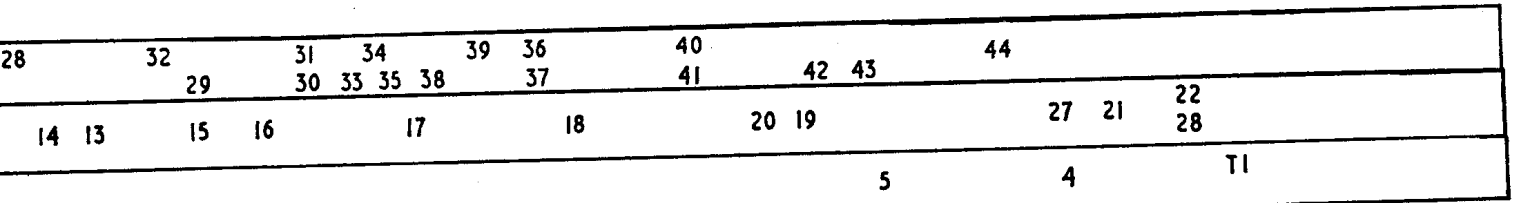
Microphone. Moving coil.

Inputs. Radio/auxiliary equipment extension speaker sockets/microphone.

Outlets. Playback to aux. amplifier. Extension loudspeaker/headphone socket.

Dimensions. 4 1/4 x 12 x 8in.

Price. £37.75.



RESISTORS			CAPACITORS		
R1	2M2	1A	R22	820	1A
R2	2K2	1A	R23	22K	2A
R3	100K	1A	R24	100K	1A
R4	1M	1A	R25	5K6	2B
R5	390K	1A	R26	27K	2B
R6	56K	1A	R27	2K2	2B
R7	680	1A	R28	1K5	2B
R8	22K	1A	R29	1K	1A
R9	100K	log	R30	10K	2A
R10	5K6	1B	R31	1K	2A
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R12	390K	1B	R33	3K9	2A
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R15	10K	1B	R36	220	2B
R16	330K	1B	R37	390	2B
R17	4K7	2B	R38	5K	2A
R18	100	1B	R39	33K	2B
R19	680	1B	R40	2.2	2A
R20	3K9	1B	R41	2.2	2A
R21	56K	1A	R42	6.8	2A
			R43	12	2A
			R44	68	2A
			R45	50K	2A
			R46	390K	1B
			R47	3M3	1A
			R48	100K	1A
			R49	5K6	1B
			R50	680	2B
			R51	22K	1B
			R52	6M8	1B
			R53	82	1B
			R54	5K	2B

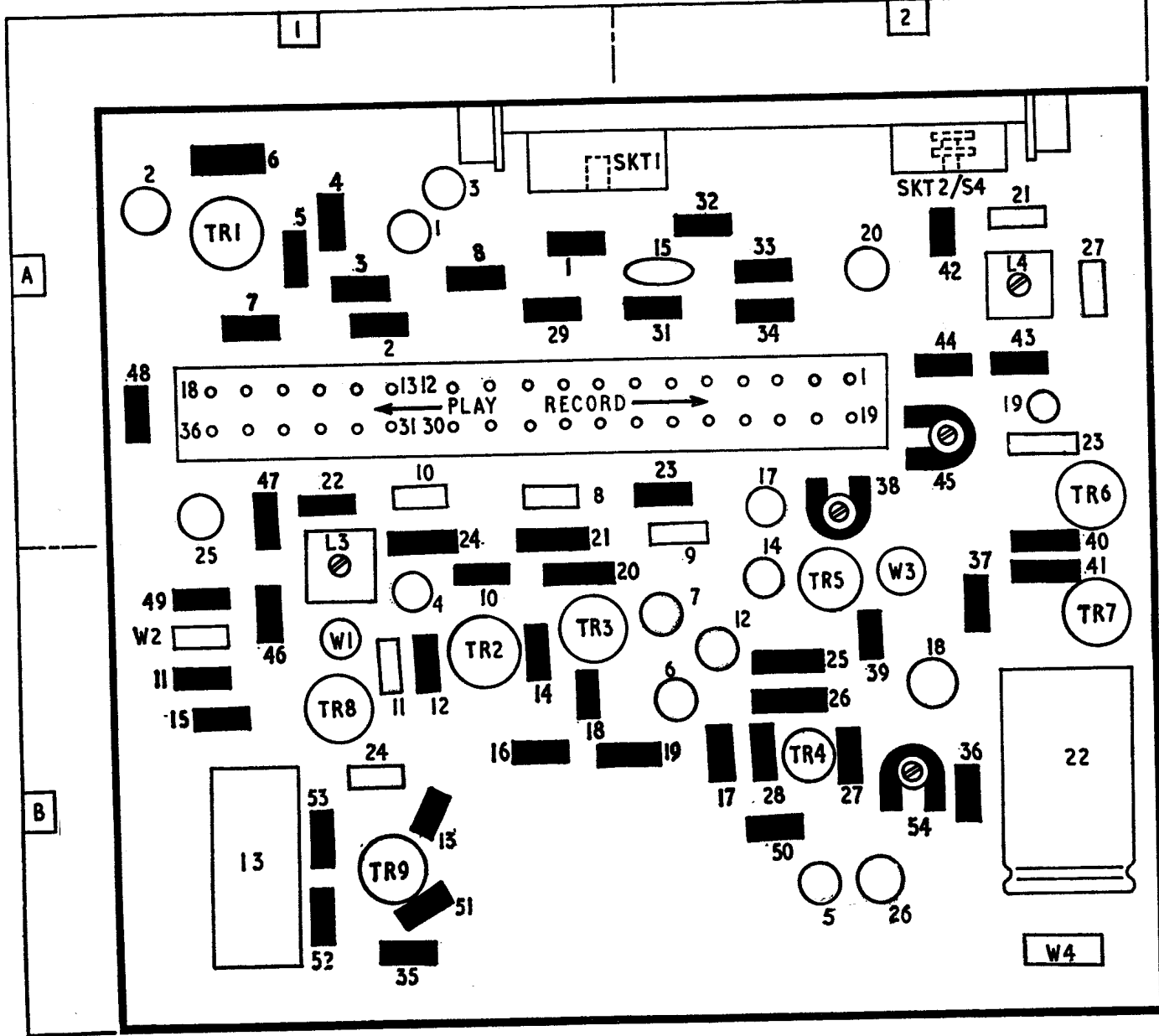
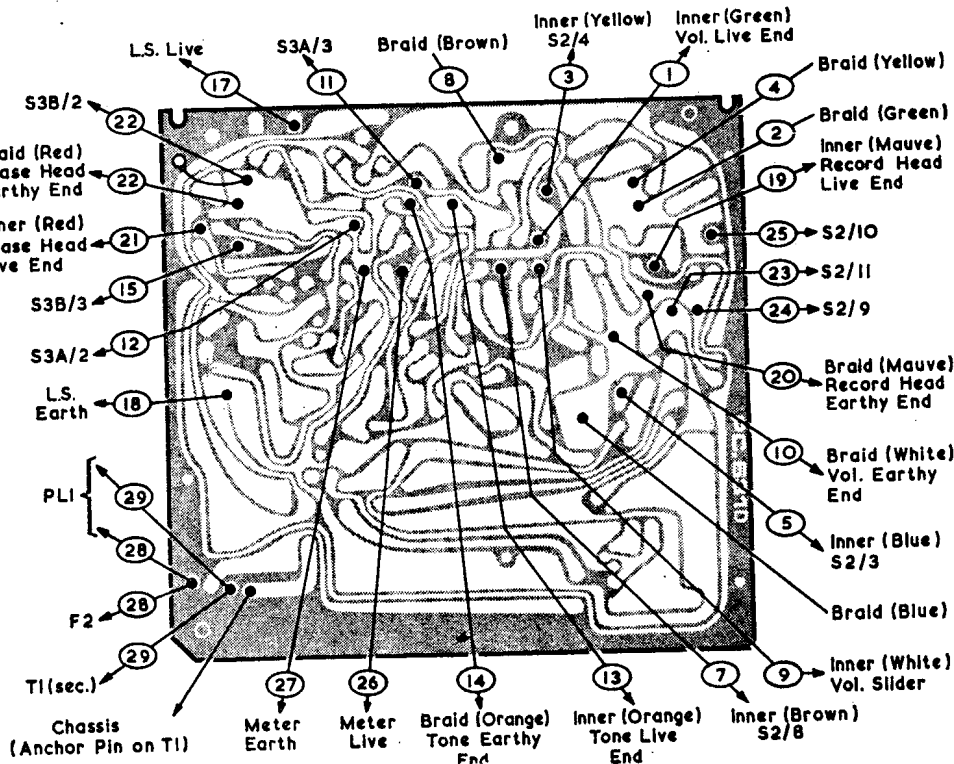
Manufacturer. BRC, 284 Southbury Road, Enfield, Middlesex.

Service Dept.

1. PO Box 121, Lea Valley Trading Estate, Angel Road, Edmonton, London N18 3BP. Tel: 01-807 3060. Spares only. Tel: 01-807 0791.
2. Thorn House, Derby Street, Cheetham, Manchester 8. Tel: 061-832 2499.
3. 155, Shieldhall Road, Glasgow SW1. Tel: 041-882 4512.

SERVICE NOTES

Figures in rectangles on the circuit diagram are DC voltages. Measurements taken with respect to negative chassis lines with a 20Kohm/Volt meter.
 Prefix "R" for record and "P" for playback. The record/play switch S1 is shown in the "play" position. DC resistances of coils are shown where these exceed 1ohm.
 In a small number of machines, switch sections S1 contacts 19, 20 and 21 are wired in TR5 emitter circuit and not in the ARLC circuit as shown.



E R T SERVICE CHART 1873 Marconiphone 4256

DISMANTLING

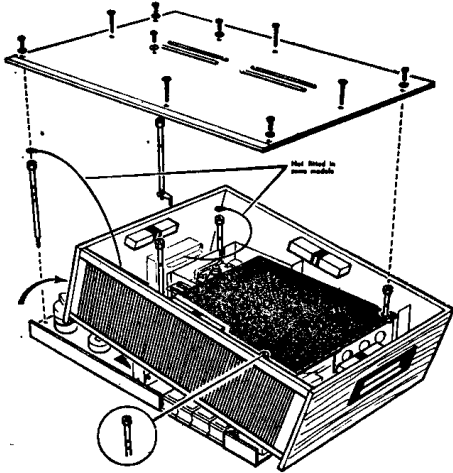
Invert the machine on a clean, non-abrasive surface and remove the base cover (ten screws).

Unplug the speaker leads and remove the two end studs nearest the mains transformer.

Release the two cleats holding the mains lead and speaker leads. Unbolt mains transformer and lift the cabinet surround clear of the chassis.

Most meter checks and adjustments can be made with the printed board in this position.

Holes are provided in the board for access to the variable resistors.



The printed board can be raised sufficiently for drive belt replacement after slackening the main cableform cleat and removing four screws that secures the drive belt and motor cover.

Note.

Removal of the main base cover gives access to the two fuses.

PRESET ADJUSTMENTS

In the normal run of circumstances no alterations to the preset pots and inductors should be necessary.

However if C11 is replaced L3 should be adjusted. If C23 or record/play head is replaced adjustment of R45 will be necessary.

In the event of the replacement of TR9, R51, R52, R53 or record level meter, R54 should be adjusted.

The timing of oscillator coil L4 (35kHz) should be checked and, if necessary, returned if a replacement erase head is fitted or if C21 has been replaced,

Record equalization

Depress 'Record' key and inject 150mV, 15kHz signal from an audio oscillator into SKT1 (pins 3 and 2) and adjust core of L3 for maximum output indications on the record level meter.

Record level meter calibration

Connect an AC electronic voltmeter between "phone" pin (tag 4) and chassis (tag 2) of SKT2

Inject a 1kHz signal from an audio oscillator into SKT1. Depress 'Record' key and adjust signal level to obtain a reading of 1.2V rms on meter.

This represents peak recording level, and preset resistor R54 should be adjusted so that the record level meter registers at the junction of the red and black sections of the scale.

Bias level

Connect an AC electronic voltmeter with low input capacity across tags of Record/Play head.

Depress 'Record' 'Play' keys. Resister

R45 should then be set initially to give a reading of 14V rms across the head.

At a level 20db below peak recording level, make a frequency response recording, then switch to 'play' and check that the frequency response falls within the following limits relative to level at 1kHz:— 8kHz ± 0 to -6 dB.

If the result is not within these limits, R45 must be readjusted. If the response is too high readjust R45 to increase bias. If too low readjust to reduce bias.

If in order to obtain a frequency response level within stated limits, it is necessary to adjust the bias voltage outside the limits 10V-18V, it must be assumed that either the Record/Play head is faulty or that a fault exists which affects the normal frequency response of the record amplifier, such as misalignment of L3.

In any case, the fault must be corrected before attempting to readjust R45.

Output balance adjustment

Switch to 'play' and connect an audio oscillator across the Record/Play head and an oscilloscope across the speaker.

Set volume and tone controls to maximum and inject a 1kHz signal of sufficient strength to produce maximum output to the internal loudspeaker (2.5W).

Observe the output waveform and adjust R38 to provide symmetry of both halves of the waveform and equal clipping at high output.

Tape head adjustments

For access to the magnetic heads, remove cassette well and envelope.

A spring, fitted under one of the two Record/Play head mounting screws, permits the head to be 'rocked' for azimuth.

No specific provision is made for head height adjustment. Note, however, that provision is made for horizontal alignment of the heads with the pinchwheel by insertion or removal of shims.

For Record/Play azimuth adjustments, play back a standard azimuth tape.

With an output meter connected, adjust

the azimuth screw (left-hand mounting screw) for maximum meter deflection whilst keeping the volume as low as possible.

MECHANICAL ADJUSTMENTS

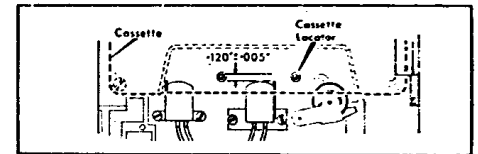
Mechanical tolerances and clearances given below are included as a guide for use when clearing a mechanical fault. A correctly operating deck need not necessarily be within the stated limits.

However, if a part has been replaced or subjected to mechanical strain, one or more of the following adjustments may be necessary:—

Head plate fore and aft adjustments

The distance from the front face of the record/play head to the back edge of the cassette locator should be 0.12in. ± 0.005 in. with the play key engaged.

Reseal the screw heads following this adjustment.



Pinch wheel bracket clearance and pressure

With the play key engaged, the clearance between the arm of the pinch wheel bracket and the stop lug on the head plate should be 0.030in. This can be adjusted by bending the stop lug.

To check pinch wheel pressure, engage play key and with a spring balance attached to the pinch wheel bracket, check the pull required to lift the pinch wheel away from the capstan, i.e. when the pressure roller just fails to turn.

This should be 320-400 gms at pinch wheel spindle and may be adjusted, when necessary by transferring the spring end into any of the fine spring fixing holes in the head plate, i.e. clockwise to reduce

PLUG & SOCKET CONNECTIONS

IN-OUT SOCKET

PLAYBACK OUTPUT 500mV at 10k Ω
(Volume Control at mid position)
TO EXTERNAL AMPLIFIER
OR RADIOGRAM

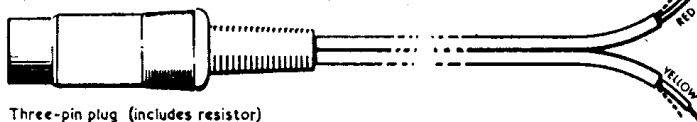
RECORD INPUT (220mV into 10k Ω)
FROM EXT. LS SOCKETS

RECORD INPUT (0.2mV into 2k Ω)
FROM MICROPHONE OR RADIOGRAM

SCREENING BRAIDS—
insulate from plug shell

CONNECTING LEAD FOR RECORDING AND PLAYBACK
for use with radio, radiogram or Hi-Fi amplifier

RECORD INPUT (10mV into 100k Ω)

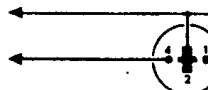


Three-pin plug (includes resistor)

PLAYBACK OUTPUT (500mV at 10k Ω) or
RECORD INPUT (220mV into 10k Ω)

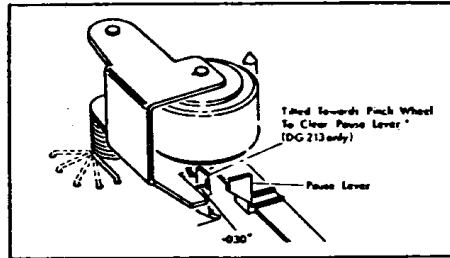
PH/LS SOCKET Used with two-pin plug giving a choice of two plug positions

EARPHONE 1k Ω -2k Ω (1.2V)
For monitoring recording
or playback



LOUDSPEAKER OR EARPHONE
MUST NOT BE LESS THAN 8 Ω
For playback only,
with internal LS muted

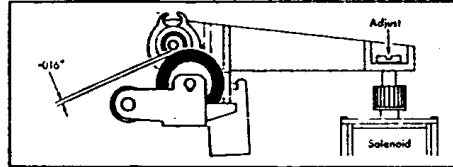
pressure and anti-clockwise to increase pressure.



Pause solenoid adjustment

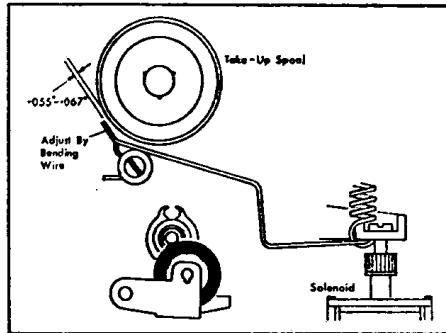
With play key engaged and pause solenoid energised, the clearance between capstan and pinch wheel is set to 0.016in. by adjusting the screw into the solenoid plunger.

After adjustment, the screw thread should be sealed with locking paint.



Pause brake clearance

The clearance between the pause brake wire and take up spool tyre should be 0.055in.-0.067in. (Play key engaged). If necessary, adjust by bending the brake wire at the point indicated in the illustration.



Take up clutch assembly

Before checking the pressure of the take up pulley against the spool carrier tyre, thoroughly clean both drive surfaces.

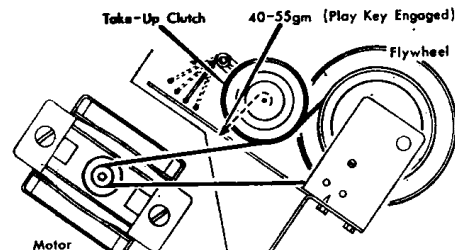
Insufficient tension of take up arm spring (72) will cause take-up pulley to slip, whereas too much tension will result in defective operation of the take up clutch.

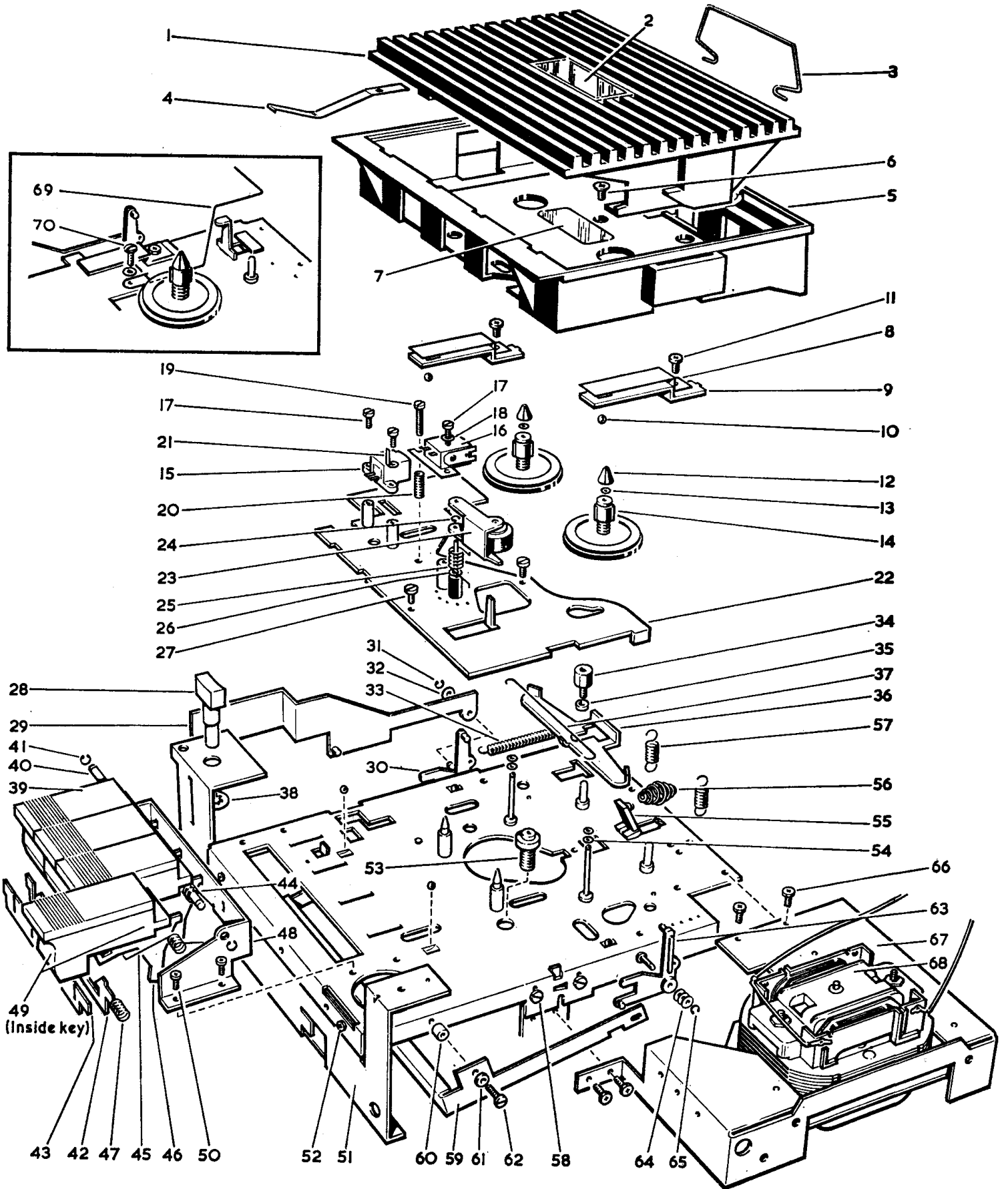
The tension of spring (72) should be 40-55 gms as measured with a spring balance at the centre of the take up spindle clutch disc.

Engage play key and note the spring balance reading when the take up reel just fails to drive. If incorrect, move spring end to alternative anchor hole in chassis.

Take up torque at the spool carrier should be 35-55 gm/cm. A high take up torque can cause the tape to ride out of the guides and cause damage to the tape. Very low take up torque may cause defective take up particularly with a stiff or badly worn cassette.

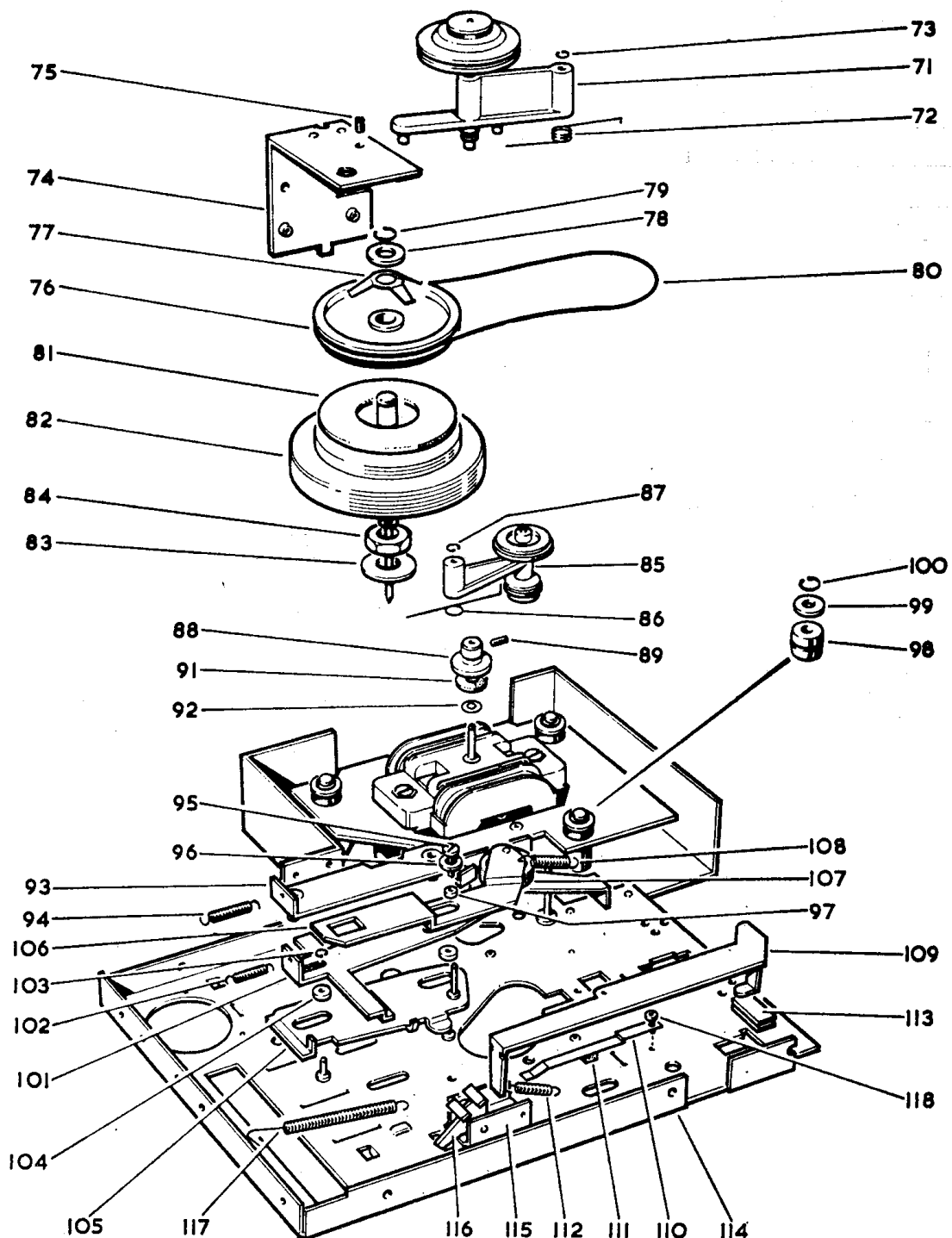
To rectify, it is necessary to replace complete assembly (71).





MECHANICAL ASSEMBLY

- | | | |
|---|--|---|
| (1) Cassette envelope (black) | (17) Head securing screw (6mm) | (34) Brake stop and Cassette well support bush |
| Cassette envelope (teak) | (18) Shakeproof washer (2mm) | (35) Brake stop spacer |
| (2) Cassette envelope window | (19) Azimuth screw (12mm) | (36) Brake |
| (3) Cassette envelope damping spring | (20) Azimuth tension spring | (37) Brake spring |
| (4) Cassette holding spring | (21) Solder tag | (38) Spire nut securing cassette release button |
| (5) Cassette moulded well | (22) Head Plate | (39) Piano key |
| (6) Screw securing cassette moulded well | (23) Pinchwheel carrier assembly | (40) Key pivot shaft |
| (7) Tape spooling indicator | (24) 'E' clip securing pinchwheel carrier assembly | (41) 'C' clip securing shaft |
| (8) Ballbearing retaining spring | (25) Pinchwheel carrier return spring | (42) Latch plate |
| (9) Ballbearing retaining bracket | (26) *Plastic washer (2.5mm) | (43) Latch guide |
| (10) Ballbearing (2.5mm) (6off) | (27) †Head plate fixing screw (5mm) | (44) Key return spring (8 turns) |
| (11) Screw securing bracket and spring assembly | Shakeproof washer | (45) Play key return spring (3 turns) |
| (12) Spool carrier cap | (28) Cassette release button | (46) Key lever |
| (13) Washer under spool carrier cap | (29) Cassette release lever | (47) Latch return spring |
| (14) Spool carrier assembly | (30) Cassette release latch (LH) | (48) Key assembly support bracket |
| (15) Erase head (Ikejiri ME36) | (31) 'E' clip | (49) Key fixing clip |
| (16) Signal head (Ikejiri R783) | (32) Red plastic washer | (50) Screw securing key support bracket |
| | (33) Latch return spring | (51) Front chassis bracket |



- | | |
|--|--|
| (52) Screw securing front chassis bracket | (88) Motor pulley |
| (53) Capstan bearing assembly | (89) Grub screw securing pulley |
| (54) Washer under spool carrier | (91) Felt washer |
| (55) Cassette thrust | (92) Red plastic washer |
| (56) Cassette thrust spring | (93) Pulley release arm assembly |
| (57) Cassette tension spring | (94) Pulley release arm tension spring |
| (58) Screw securing flywheel bracket (2 off) | (95) Screw securing rewind bracket |
| (59) Tie bar | (96) Washer on securing screw |
| (60) Bush for tie bar | (97) Spacer on securing screw |
| (61) Washer under tie bar screw | (98) Grommet on motor plate |
| (62) Screw securing tie bar | (99) Washer |
| (63) Cassette release latch (RH) | (100) 'C' clip securing motor plate |
| (64) Red plastic washer | (101)** Switch actuating arm |
| (65) 'E' clip | (102) Tension spring |
| (66) Screws (motor bracket) (4 off) | (103) 'E' clip securing switch arm |
| (67) Motor bracket rivetted assembly | (104) Spacer |
| (68) Motor assembly | (105) Forward wind bracket rivetted assembly |
| (69) Muting switch coupling link | (106) Rewind bracket rivetted assembly |
| (70) Screw securing link | (107) Rewind jockey |
| Washer | (108) Rewind tension spring |
| (71) Take-up clutch assembly | (109) Bracket interlock |
| (72) Spring for take-up arm | (110) Back tension brake (omitted in some decks) |
| (73) 'E' clip securing take-up arm | (111) Brake pad |
| (74) Flywheel shaft retaining bracket | (112) Bracket interlock tension spring |
| (75) Grub screw, 6BA x 3/8 in. | (113) Grommet |
| (76) Drive clutch | (114) Unit plate rivetted assembly |
| (77) Clutch spring | (115) Switch lever pin |
| (78) Red washer | (116) Record/Play switch lever |
| (79) 'E' clip securing drive clutch | (117) Record/Play switch return spring |
| (80) Drive belt | (118) Screw securing back tension brake |
| (81) Clutch lining | |
| (82) Flywheel assembly | |
| Thrust washer fitted over capstan spindle | |
| (83) Washer for capstan bearing assembly | |
| (84) Nut securing capstan bearing assembly | |
| (85) Rewind arm assembly | |
| (86) Return spring on rewind arm assembly | |
| (87) 'E' clip securing rewind arm | |

*Fitted as required.
†On the DG213 deck one of the head fixing screws is also used to secure one end of the pause brake spring; screw Part No. then becomes SM25CC10.
**Actuating switch on battery models only.