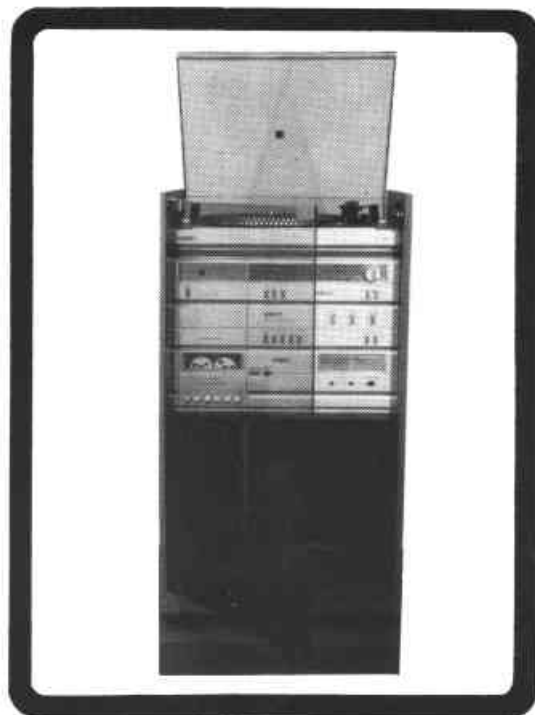


SERVICE MANUAL
IS 500
REMOTE CONTROL
INTEGRATED HI-FI STEREO SYSTEM
MADE IN BRITAIN

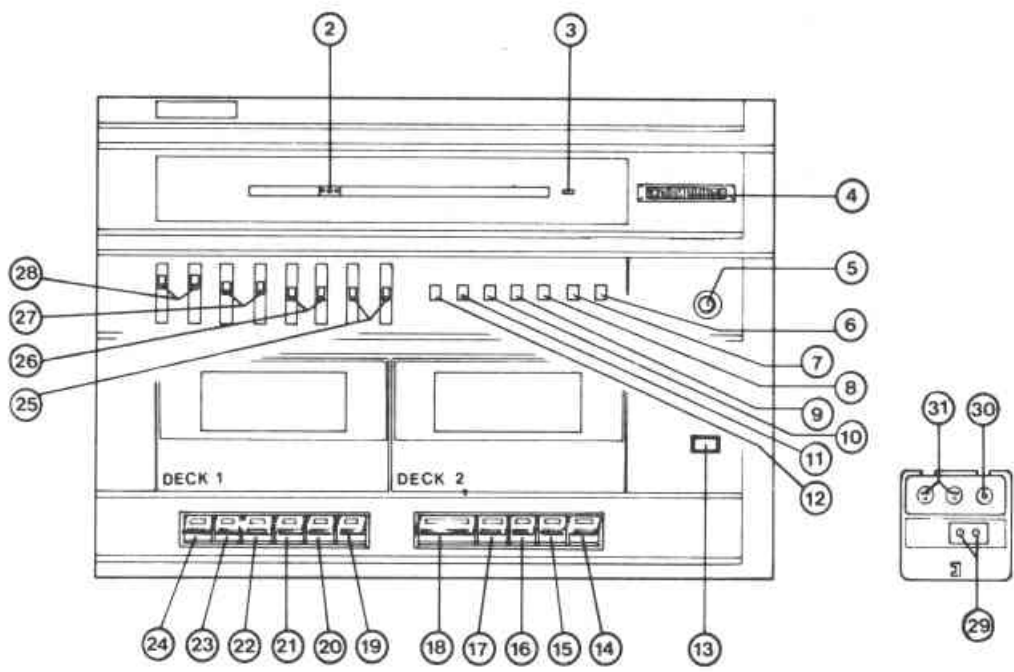


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Service Department
FIDELITY PLC
St. Leonards Road, London, NW10 6ST
Telephone: 01-965 9235 (6 lines)

PART NO. 44822

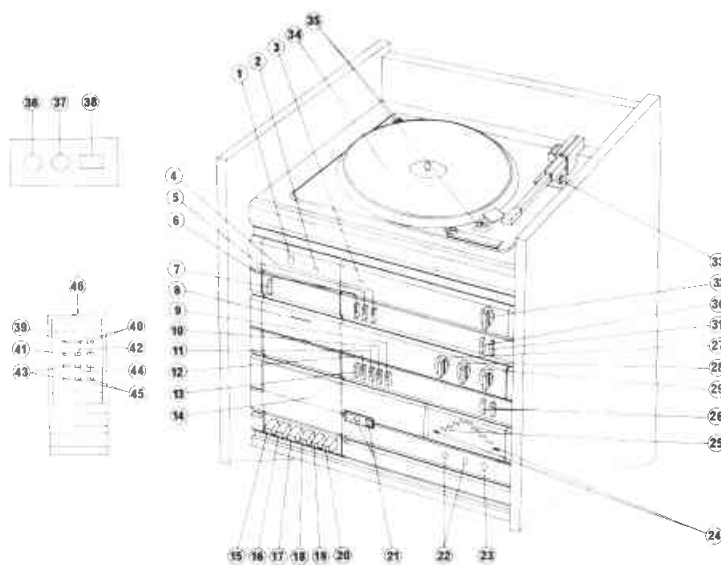


1. RECORD PLAYER
2. "ON" LED
3. STEREO INDICATOR
4. TUNING KNOB
5. HEADPHONE SOCKET
6. MW BUTTON
7. LW BUTTON
8. FM BUTTON
9. AFC BUTTON
10. DISC BUTTON
11. TAPE BUTTON
12. CD/AUX BUTTON
13. ON/OFF BUTTON
14. PAUSE DECK 2
15. STOP/EJECT DECK 2
16. FF DECK 2
17. REW DECK 2
18. PLAY DECK 2
19. PAUSE DECK 1
20. STOP/EJECT DECK 1
21. FF DECK 1
22. REW DECK 1
23. PLAY DECK 1
24. REC DECK 1
25. BALANCE CONTROL
26. VOLUME CONTROL
27. TREBLE CONTROL
28. BASS CONTROL

EXPLODED VIEW PARTS

REF. NO.	IDENT No.	DESCRIPTION	REF. NO.	IDENT No.	DESCRIPTION
1.	101-00800-002-6	Cassette Window	27.	105-00800-001-5	Tension Wire Bracket A
2.	118-00850-001-8	Cassette Lid 1 (Specify Model)	28.	056-00800-001-4	Record Wire Ass'y
3.	118-00850-002-9	Cassette Lid 2 (Specify Model)	29.	020-05408-OBA-4	IC
4.	102-00800-005-4	Function Knob	30.	111-00800-001-8	Heat Sink
5.	106-07702-001-2	Gear Damper	31.	107-07150-001-6	Dial Drum
6.	101-00850-002-1	Dial Window (Specify Model)	32.	027-07200-002-8	Headphone Jack
7.	104-00850-001-5	Front Panel (Specify Model)	33.	019-00800-001-7	MW/LW Ant COIL/BAR
8.	110-07702-001-4	Pointer	34.	106-00800-002-1	Jack Holder
9.		LED Amp Ass'y	35.	116-00800-001-3	Terminal Board
10.		LED Amp Ass'y	36.	027-00200-003-6	Ant Jack
11.	105-01330-007-4	Screw Bracket	37.	027-03610-003-0	Speaker Jack
12.	109-00800-002-6	Tuning Shaft	38.	108-07150-001-1	Pulley
13.	105-00800-005-9	Tuning Knob Bracket	39.	109-00800-001-5	Pulley Shaft
14.	102-00800-004-3	Tuning Knob	40.	147-00800-001-7	Door Spring
15.	108-00800-001-0	Dial Pulley	41.	130-03008-013-9	Tapping Screw PS 3φx8R
16.	102-00800-002-1	Key Knob B	42.	131-02003-013-0	Machine Screw PM 2.6φx3Rx0.4
17.	102-00800-001-0	Key Knob A	43.	129-02606-013-8	Tapping Screw PS 2.6φx6R
18.	049-01330-001-9	Cassette Deck	44.	131-02608-01301	Machine Screw PM 2.6φx8Rx0.45
19.	105-00800-002-6	Tension Wire Bracket B	45.	131-03006-013-4	Machine Screw PM 3φx6Rx0.5
20.	115-00800-001-8	Record Metal	46.	128-03006-013-6	Tapping Screw PS 3φx6R
21.	056-00800-001-4	Record Wire Ass'y	47.	125-26050-001-6	Outgear Washer 2.6φx5o
22.	102-00800-003-2	Slide Knob	48.	125-32180-001-7	Washere 3.2φx18φx0.8T
23.	106-00800-001-0	Switch Holder	49.	130-03010-012-1	Tapping Screws PS 3φx10R
24.		Receiver Amp Ass'y	50.	131-03306-012-3	Machine Screw PM 3φx6Rx0.5
25.	105-00800-004-8	Main PCB Bracket	51.	025-07602-003-3	Led
26.		Main Amp Ass'y	52.	106-00250-001-9	Led Holder

CONTROL IDENTIFICATION



- 1 Infra Red Sensor
 - 2 Command Received LED
 - 3 Stereo Beacon
 - 4 LW Button
 - 5 MW Button
 - 6 FM Button
 - 7 Power ON/OFF Button
 - 8 Remote Control Storage Compartment
 - 9 Loudness Button
 - 10 Microphone Button
 - 11 Disc Button
 - 12 Tape Button
 - 13 Tuner Button
 - 14 Cassette Flap
 - 15 Record Key
 - 16 Play Key
 - 17 Rewind Key
 - 18 Fast Forward Key
 - 19 Stop/Eject Key
 - 20 Pause Key
 - 21 Tape Counter & Reset Button
 - 22 L & R Microphone Sockets
 - 23 Headphone Socket
 - 24 Power 'ON' Indicator LED's
 - 25 L & R Power Output LED Indicators
 - 26 L & R Balance Controls
 - 27 Treble Control
 - 28 Bass Control
 - 29 Volume Control
 - 30 AFC/Freq Button
 - 31 Mono/Stereo Button
 - 32 Tuning Control
 - 33 33/45 Speed Selector
 - 34 Record Player Turntable
 - 35 Record Player Transit Screw
 - 36 Right Speaker Socket
 - 37 Left Speaker Socket
 - 38 FM Aerial Socket
- REMOTE CONTROL UNIT**
- 39 Normal Button
 - 40 Volume '—' & '+' Buttons
 - 41 Power 'OFF' Button
 - 42 Balance 'Left' & 'Right' Buttons
 - 43 Sound 'OFF' & 'ON' Buttons
 - 44 Bass '—' & '+' Buttons
 - 45 Treble '—' & '+' Buttons
 - 46 Infra Red Emitter

SPECIFICATION

GENERAL DESCRIPTION

CONTROLS

- Push Button — Power On/Off/AFC/Freq/FM/MW/LW/Tuner/Disc/Loudness/Tape/Mic/Balance L/Balance R/Mono/Stereo
- Remote Control — Normal/Volume '—' & '+'/Power OFF/Balance 'L' & 'R'/Sound 'OFF' & 'ON'/Bass '—' & '+'/Treble '—' & '+'
- Rotary — Volume/Tuning/Treble/Bass
- Sockets — Microphone Jack Socket (3.5mm Type)
- 300 Ohm FM Aerial DIN standard
- Left hand loud-speaker 2 pin DIN
- Right hand loud-speaker 2 pin DIN
- Stereo Headphone Jack Socket min. impedance 4 ohms
- Other Facilities — Internal ferrite rod for MW and LW
- Automatic FM stereo indicator light
- LED power meters
- Infra Red Remote Control with LED command received indicator

RECORD PLAYER

Two speed belt drive record playing deck fitted with stereo ceramic cartridge.
(Cartridge: SC12H. Stylus: ST20).

TUNER

- Performance and Frequency Range**
- AM Radio — MW 525-1625 KHz (572-184 Metres)
Sensitivity 400 uV/ Metre at 1 MHz for 20 dB S/N
 - LW Radio — 150-250 KHz (2000-1200 Metres)
Sensitivity 800 uV/ Metre at 200 KHz for 20 dB S/N
 - FM Radio — 87.5-108 MHz
Sensitivity 5 uV for 30 dB S/N
 - FM Stereo Decoder — FM stereo channel separation 25 dB at 1 KHz

AMPLIFIER

- Output power — 8 watts per channel RMS into 4 ohms
Total Music Power of 24 watts
- Signal to Noise Ratio — 52 dB with tone controls flat
- Tone Controls via Remote Control
- Treble — ± dB @ 10KHz
- Bass — ± dB @ 100Hz

CASSETTE SECTION

- Piano keys — Record, Play, Rewind, Fast Forward, Stop/Eject and Pause
- Signal to Noise Ratio — 45 dB
- Erase Ratio — 65 dB
- Wow & Flutter — Less than 0.4% RMS
- Frequency Response — 50Hz to 10KHz ± 3 dB
- SPEAKERS**
- Impedance — 4 ohms
- Lead Length — Approximately 3.6 metres (12') terminated with 2 pin DIN plug

DIMENSIONS

- Main Unit with Lid — Approx. 435mm wide × 817mm high × 407mm deep (17¼" × 32¼" × 16")
- Speakers — Approx. 250mm wide × 450mm high × 152mm deep (9¾" × 17¾" × 6")
- Power Supply — 220/250 volts AC 50 Hz, 3 core mains lead
- Power Consumption — 50 watts
- Remote Control
- Battery Type — PP3 or equivalent

NOTE:

This apparatus has been produced to comply with Directive No. 76/899/EEC.

CHANGES TO SPECIFICATION

The aim of Fidelity Radio is continually to improve their products and therefore reserve the right to alter specifications.

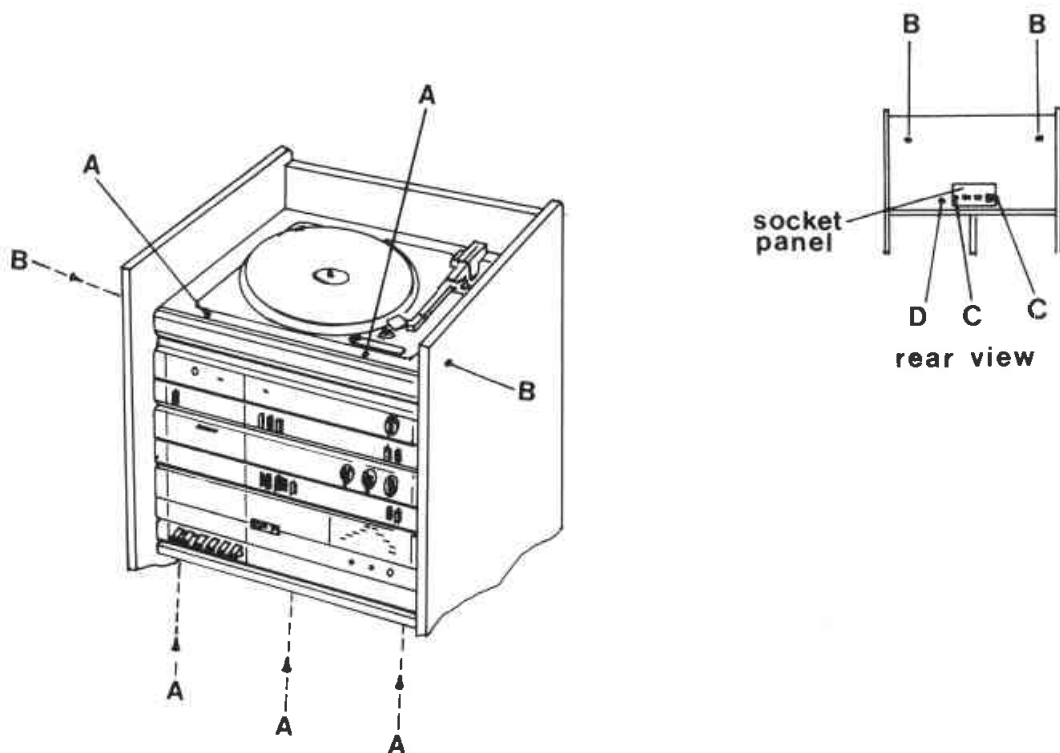


Diagram 1

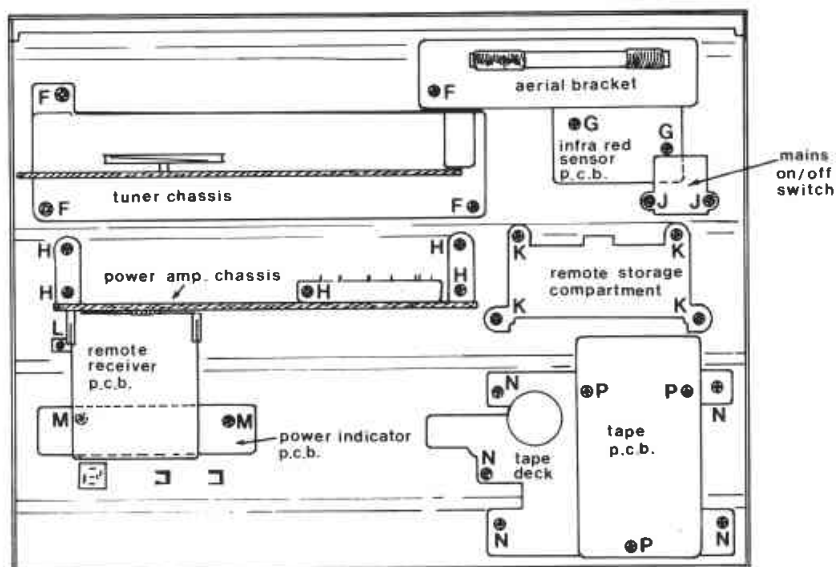


Diagram 2 INSIDE VIEW

DISMANTLING PROCEDURE

1. RECORD PLAYER MOUNTING PLATE

First clamp the record player to its mounting plate by turning the two transit screws fully anti-clockwise, then remove the two screws marked 'A' from the top and four screws marked 'B', two from the sides and two from the rear. Then lift the plate upwards and unsolder the pick-up and the turntable motor leads from the Tuner board. (See Diagram 1 above).

2. FRONT PANEL TOGETHER WITH P.C. BOARDS

First remove the front glass door by loosening the screws on the hinges and carefully unslotting the door from the hinges.

Remove the record player mounting plate as above, then remove three screws marked 'A' from the bottom of the panel and two screws marked 'C' (Diagram 1) from the rear of the unit. Unslot the speaker panel from the back and gently draw out the front which will slide out together with the boards allowing access for servicing.

NOTE: To remove the panel completely, loosen the mains cord clamp screw 'D' from the rear of the unit. Then unplug the mains connector and unsolder the green earth wire from the tag on the transformer bracket.

3. TUNER CHASSIS

First remove the tuning knob and then remove four screws marked 'F' (see Diagram 2).

4. TAPE MECHANISM WITH PC BOARD

Remove five screws marked 'N' which will allow you to withdraw the tape mechanism together with the PC Board.

The tape PC Board can be removed by the removal of the three screws marked 'P'.

5. POWER AMPLIFIER CHASSIS

First remove the treble, bass and volume control knobs, then remove five screws marked 'H' (see Diagram 2).

NOTE: One of the 'H' screw is located on the push button switch bracket.

6. POWER INDICATOR PC BOARD

Remove two screws marked 'M'.

7. INFRA RED SENSOR PC BOARD

Remove two screws marked 'G'.

8. REMOTE STORAGE COMPARTMENT

The 'K' screws denote remote storage compartment fixing.

NOTE:

The clear windows on tuning scale, LED meter, cassette door and sensor diode can be removed by pushing the window protrusions visible from the inside.

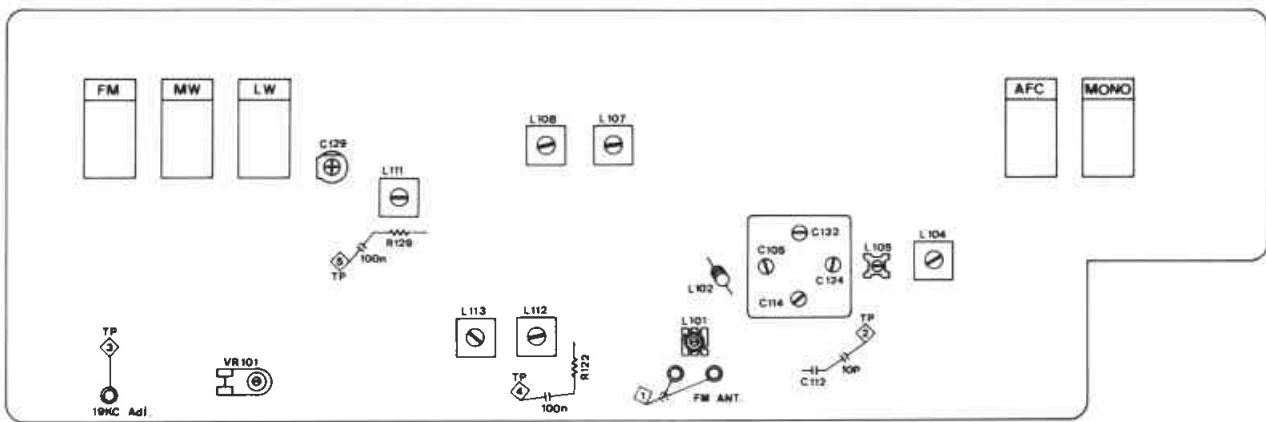
CAUTION. Removing the windows from the front either with a screw driver or any sharp instrument, will damage the window.

TUNER ALIGNMENT PROCEDURE

AM-alignment						FM-alignment														
	step	connect	frequency	set radio dial to	points of alignment (max output)		step	connect	frequency	set radio dial to	points of alignment (max output)									
IF	1	Signal gen. coupled by single turn coil to ferrite and common.	468 KHz	right end position	L 107	IF	1	Sweep gen. VIA. 10PF to TP2 and common oscilloscope to TP 4 serials a 0.1uF cap.	10.7 MHz	right end position	L 104									
	2				L 108		2				L 112									
	3			repeat alignment 1 & 2	3		L 113 s-curve													
MW	4	Oscilloscope to TP 5 serials a 0.1uF cap.	525 KHz	left end position	L 111 oscill coil	MW	4	repeat alignment 1 to 3 until S-curve is symmetrical	87.5 MHz	left end position	L 105 osc. coil									
	5		1625 KHz	right end position	C 132 osc trimmer		5			108 MHz	right end position	C 114 osc trimmer								
	6		repeat alignment 4 & 5	600 KHz	dial scale at 600 KHz		L 109 input ant coil			RF	6	repeat alignment 5 & 6	90 MHz	dial scale at 90 MHz	L 102 RF coil					
	7		1400 KHz								dial scale at 1400KHz					C 124 anttrimmer	7	106 MHz	dial scale at 106MHz	C 105 RF trimmer
	8		repeat alignment 7 & 8								8					repeat alignment 8 & 9				
LW	9	repeat alignment 7 & 8	145 KHz	left end position	C 129 osc trimmer	LW	9	repeat alignment 8 & 9	170 KHz	dial scale at 170KHz	L 110 input ant coil									
	10		265 KHz	right end position			10					repeat alignment 10 to 12								
	11		170 KHz	dial scale at 170KHz	L 110 input ant coil															
	12		repeat alignment 10 to 12																	

FM MULTIPLEX ALIGNMENT.

1. Frequency Counter to TP3 and Common.
2. Adjust VR101 until to Frequency 19KHz.



TUNER ALIGNMENT POINTS

ADJUSTMENTS OF THE TAPE SECTIONS

Please ensure that the record/playback and erase heads are clean by either using a head cleaning tape or by using a soft fluffless cloth or soft brush moistened with pure alcohol or methylated spirits.

1. Azimuth Head Alignment

Select play mode and load the cassette deck with a 10 KHz azimuth tape and switch unit to tape. Monitor the output of both channels with an oscilloscope and adjust the azimuth screw (nearest the erase head) on the record/playback head for (a) maximum output and (b) the two channels to be in phase. The screw should then be sealed.

2. Bias Adjustment

Select Record mode. Connect a VV meter across R2 (left channel) and adjust P1 to read 4 mV on the meter. Repeat the above for the Right channel by connecting the meter across R102 and adjusting P101 for 4 mV.

3. Oscillator Frequency Check

First ensure that the Frequency Shift button is in the 'Off' position. Connect the output of a suitable frequency counter to a coupling coil. Place the coupling coil in proximity to the erase head, the frequency counter should read $70 \text{ KHz} \pm 2 \text{ KHz}$.

REMOTE CONTROL TRANSMITTER AND RECEIVER FREQUENCY CHECK

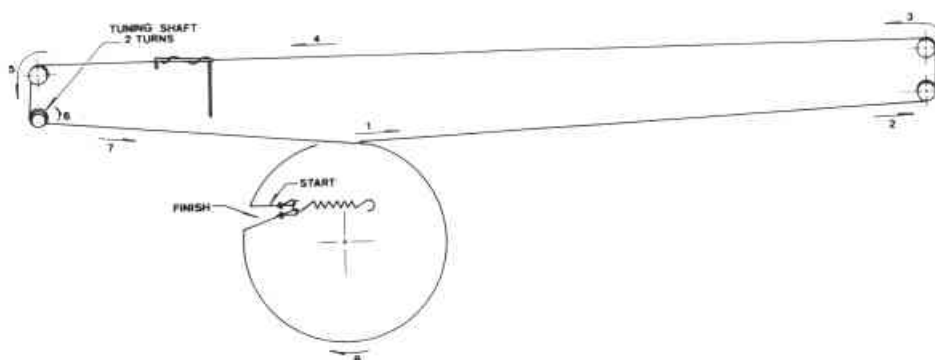
1. Receiver

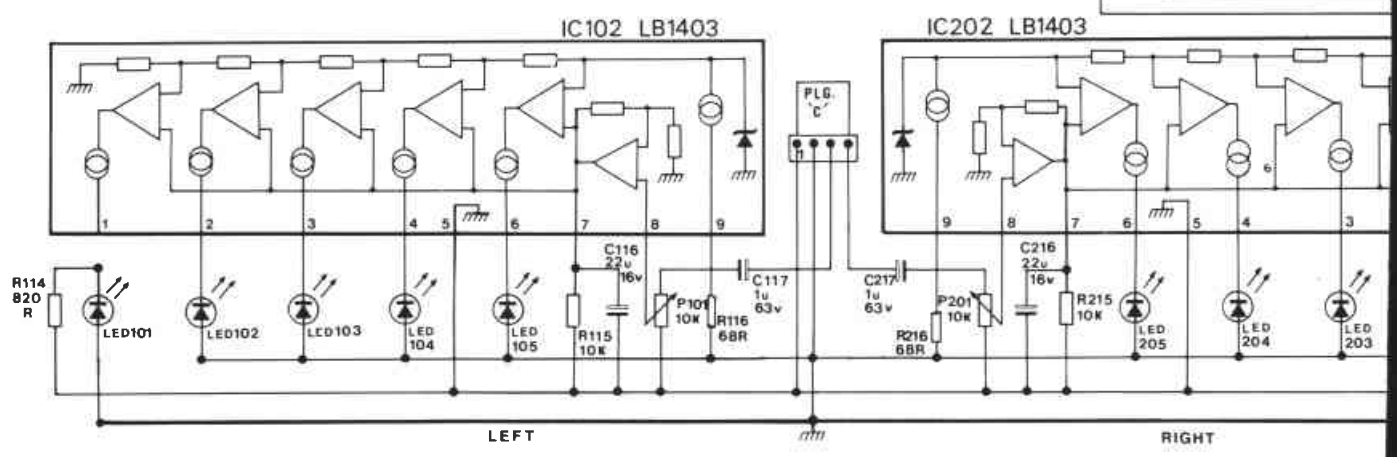
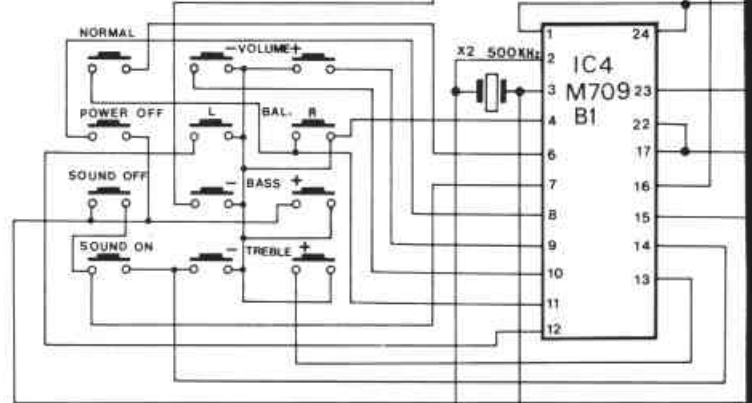
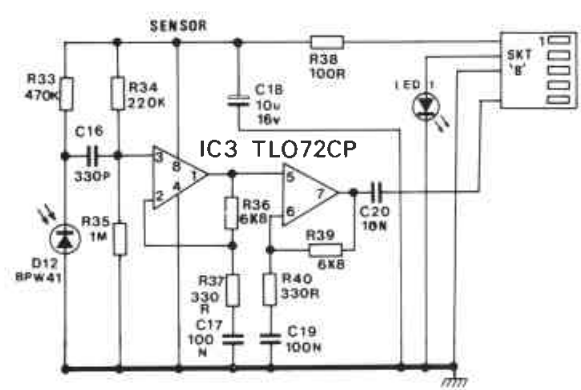
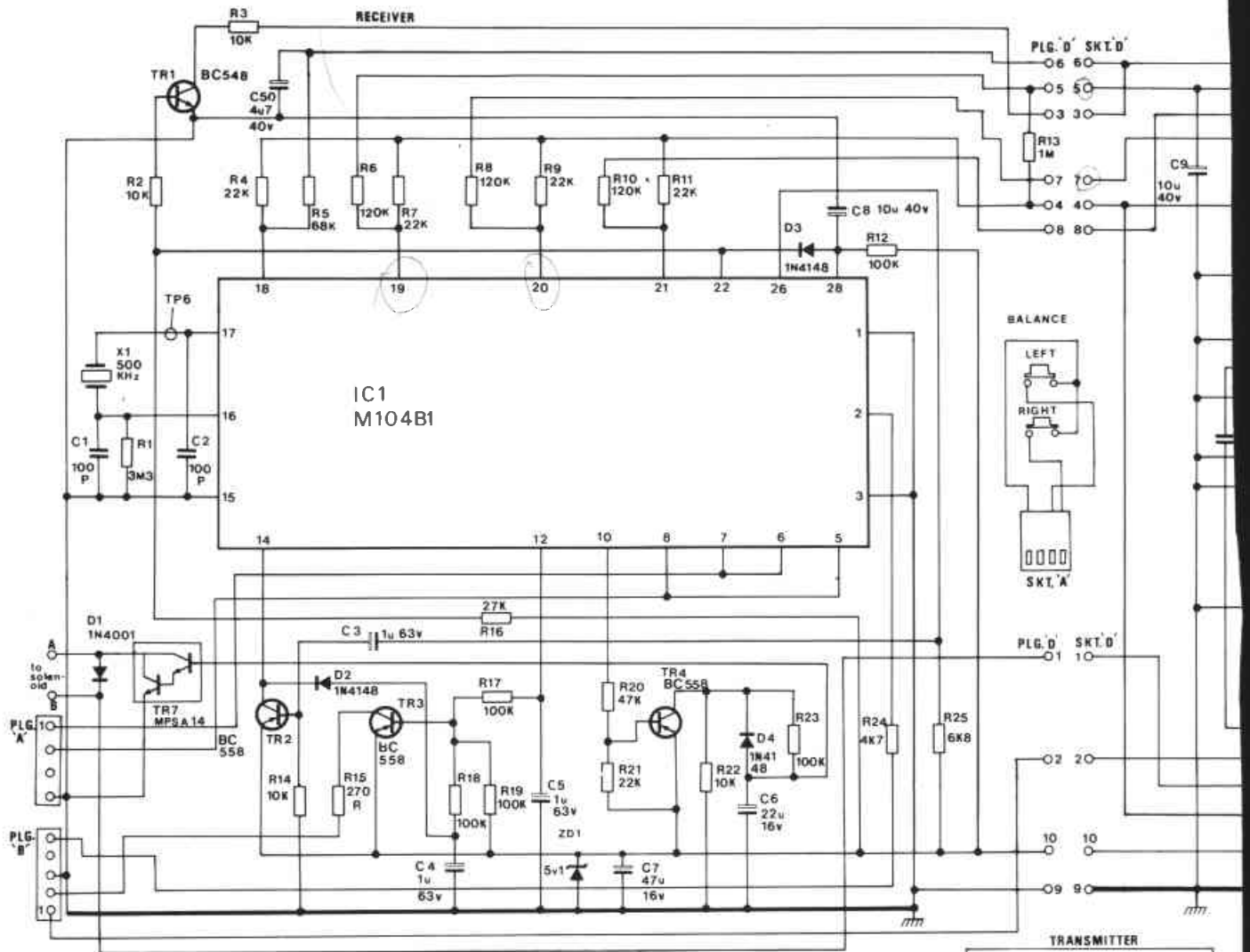
Connect a frequency counter to test point 6 (Pin 17 of IC1 M104) and earth. Check that the counter reads $500 \text{ kHz} \pm 2.5 \text{ KHz}$.

2. Transmitter

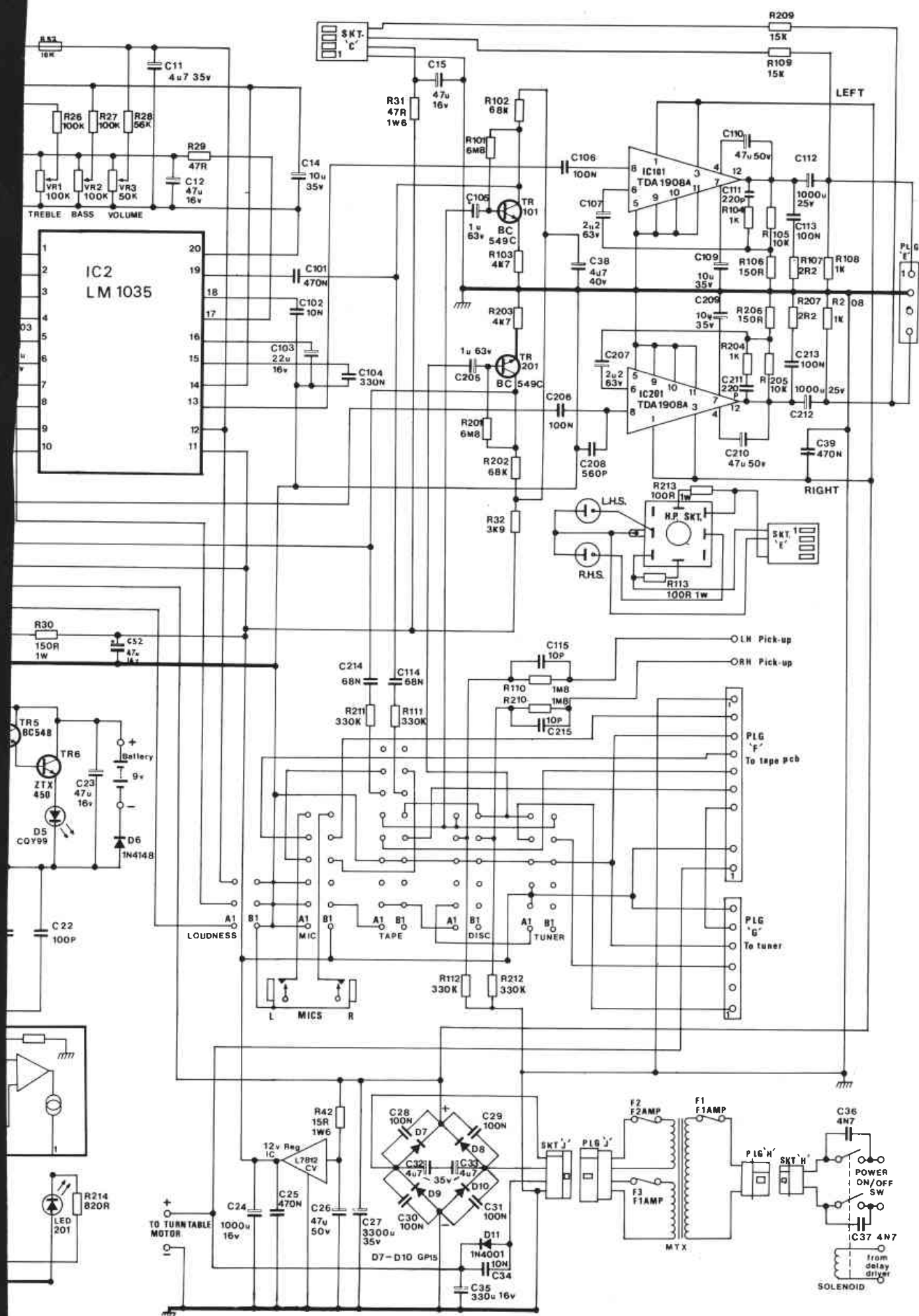
Connect a frequency counter to pin 3 of IC4 (M709) and earth. Then depress any of the remote control buttons and check that the counter reads $500 \text{ KHz} \pm 2.5 \text{ KHz}$.

TUNER DRIVECORD ARRANGEMENT





MAIN PC BOARD CIRCUIT DIAGRAM
 a) Power Amplifier c) Remote Receiver
 b) Infra Red Sensor d) Power Output Indicator



COMPONENT VALUES

RESISTORS	C33	4μ7 40v
R26	C34	10N
R27	C35	330μ 16v
R28	C39	470N
R29	C52	47μ 16v
R30	C101	470N
R31	C102	10N
R32	C103	22μ 16v
R42	C104	330N
R52	C105	1μ 63v
R101	C106	100N
R102	C107	2μ2 63v
R103	C109	10μ 40v
R105	C110	47μ 50v
R106	C112	1000μ 25v
R107	C113	100N
R108	C114	68N
R109	C115	10P
R110	C201	470N
R111	C202	10N
R112	C203	22μ 16v
R201	C204	330N
R202	C205	6M8
R203	C206	68K
R205	C207	4K7
R206	C208	10K
R207	C209	100R
R208	C210	2R2
R209	C212	1K
R210	C213	15K
R211	C214	1M8
R212	C215	39K
		330K

CAPACITORS

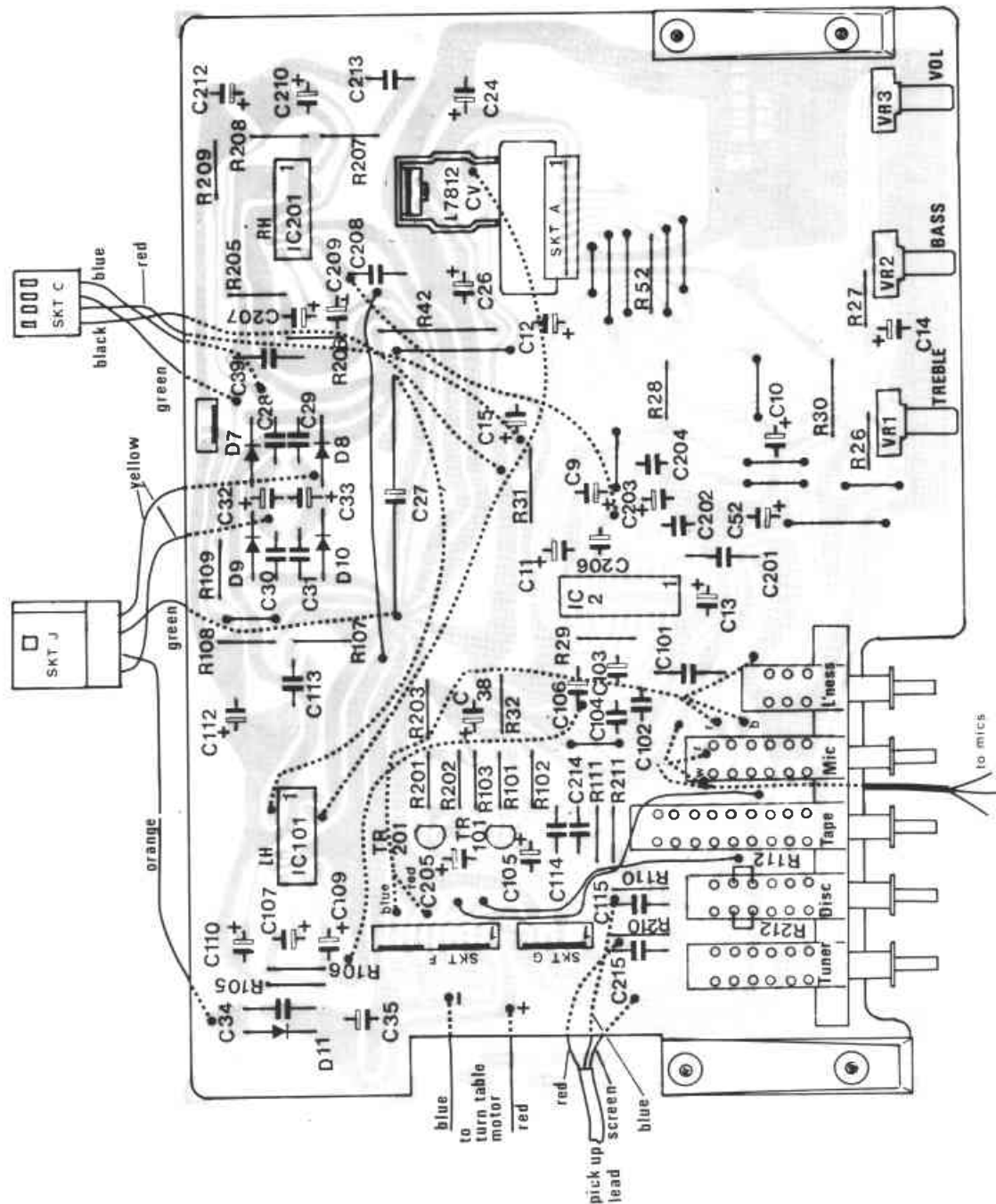
C9	10μ 40v
C10	1μ 63v
C11	4μ7 40v
C12	47μ 16v
C13	47μ 16v
C14	10μ 40v
C15	47μ 16v
C24	1000μ 16v
C26	47μ 50v
C27	3300μ 35v
C28	100N
C29	100N
C30	100N
C31	100N
C32	4μ7 40v

SEMICONDUCTORS

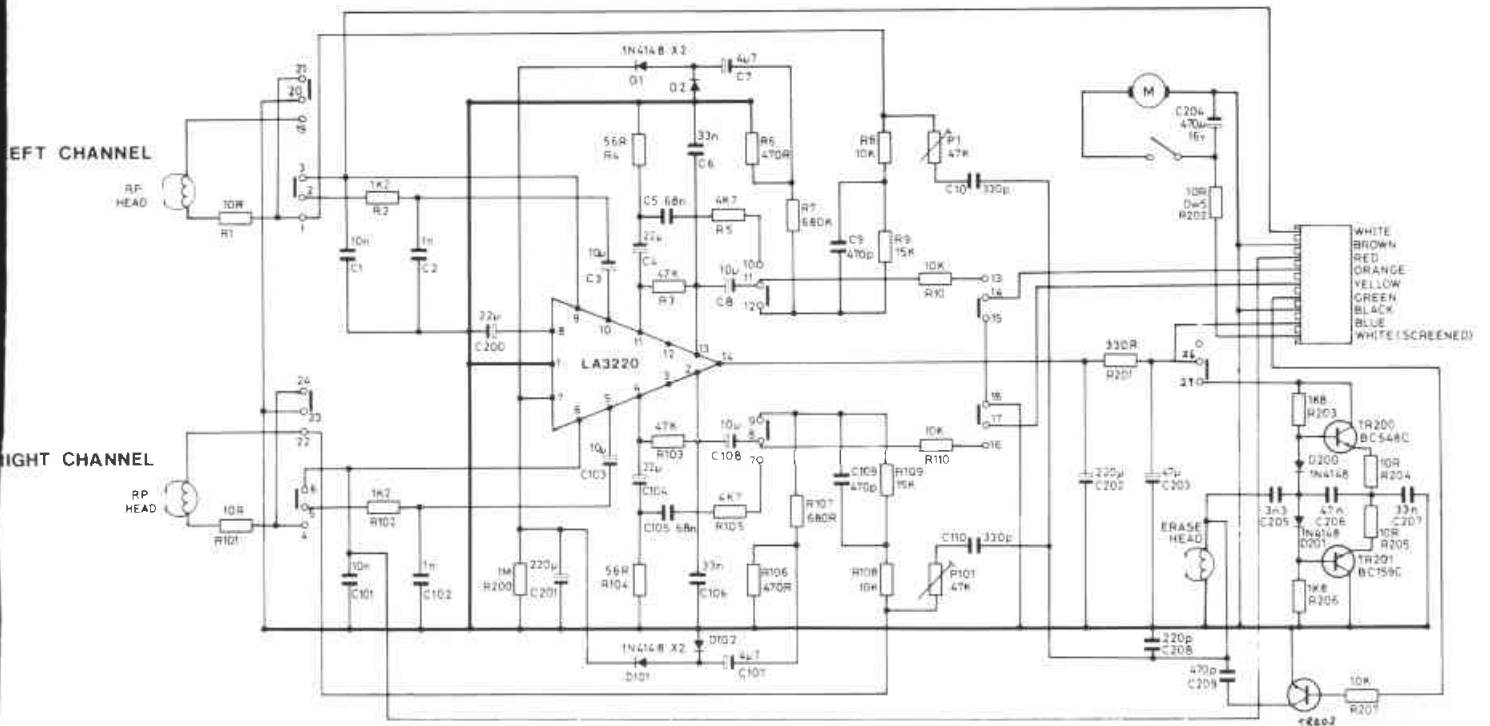
IC2	LM 1035N
IC101	TDA 1908A
IC201	TDA 1908A
TR101	BC 549C
TR201	BC 549C
D7	GP 15J
D8	GP 15J
D9	GP 15J
D10	GP 15J

POTENTIOMETERS

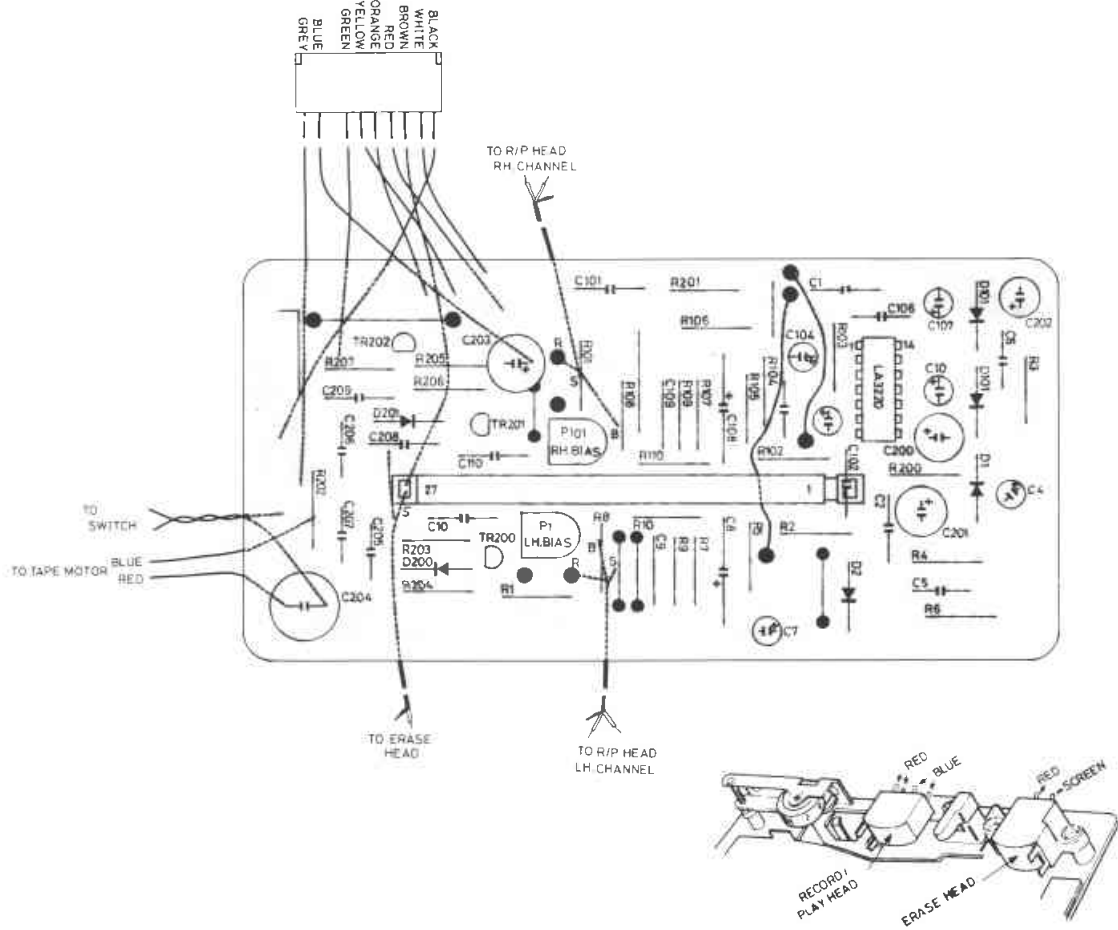
VR1	100K
VR2	100K
VR3	50K

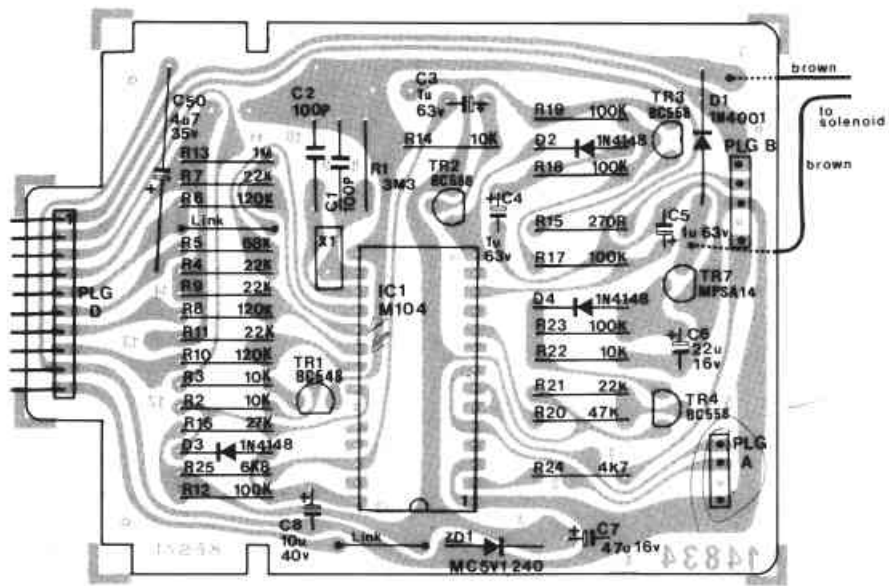


MAIN PC BOARD COMPONENT LAYOUT

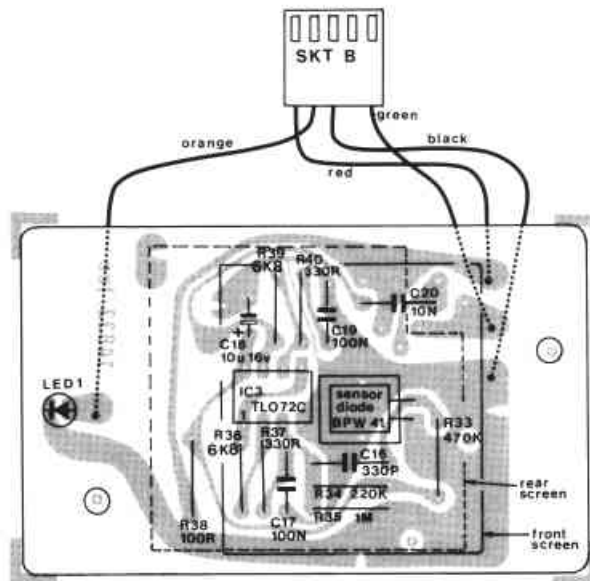


TAPE PC BOARD CIRCUIT DIAGRAM

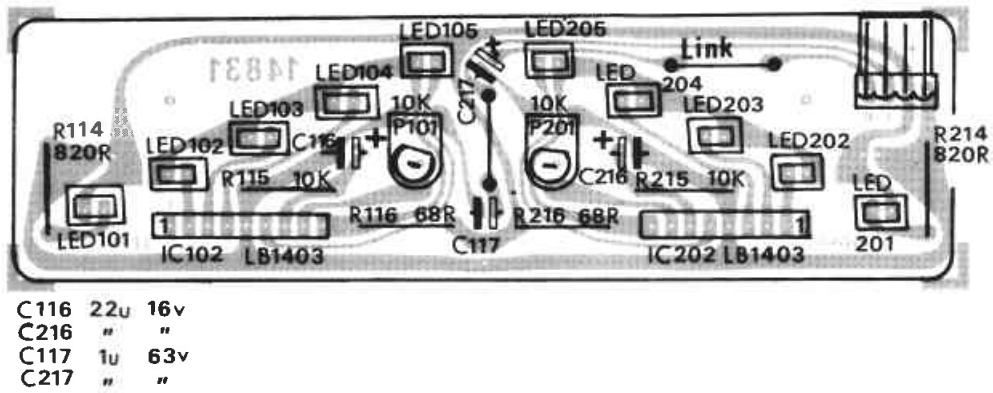




REMOTE RECEIVER PC BOARD COMPONENT LAYOUT



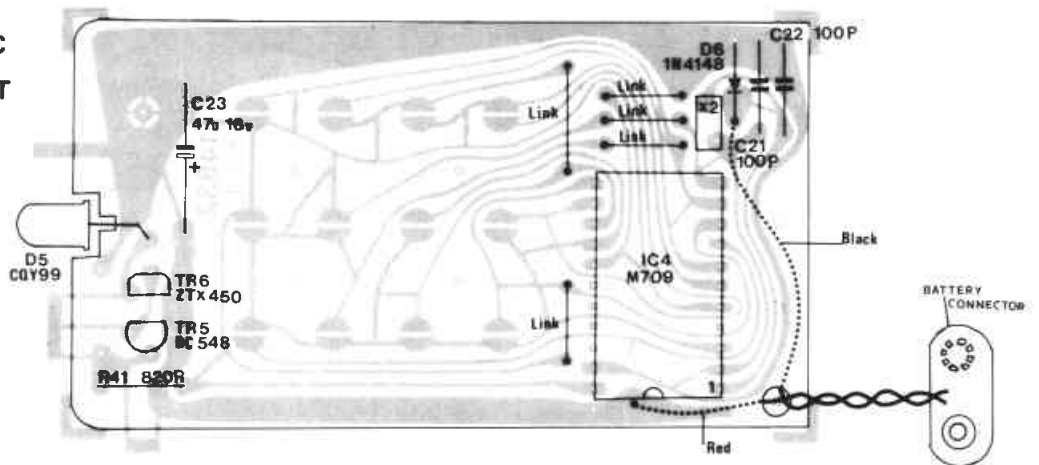
INFRA RED SENSOR PC BOARD COMPONENT LAYOUT



- C116 22u 16v
- C216 " "
- C117 1u 63v
- C217 " "

POWER INDICATOR PC BOARD COMPONENT LAYOUT

**INFRA RED TRANSMITTER PC
BOARD COMPONENT LAYOUT**

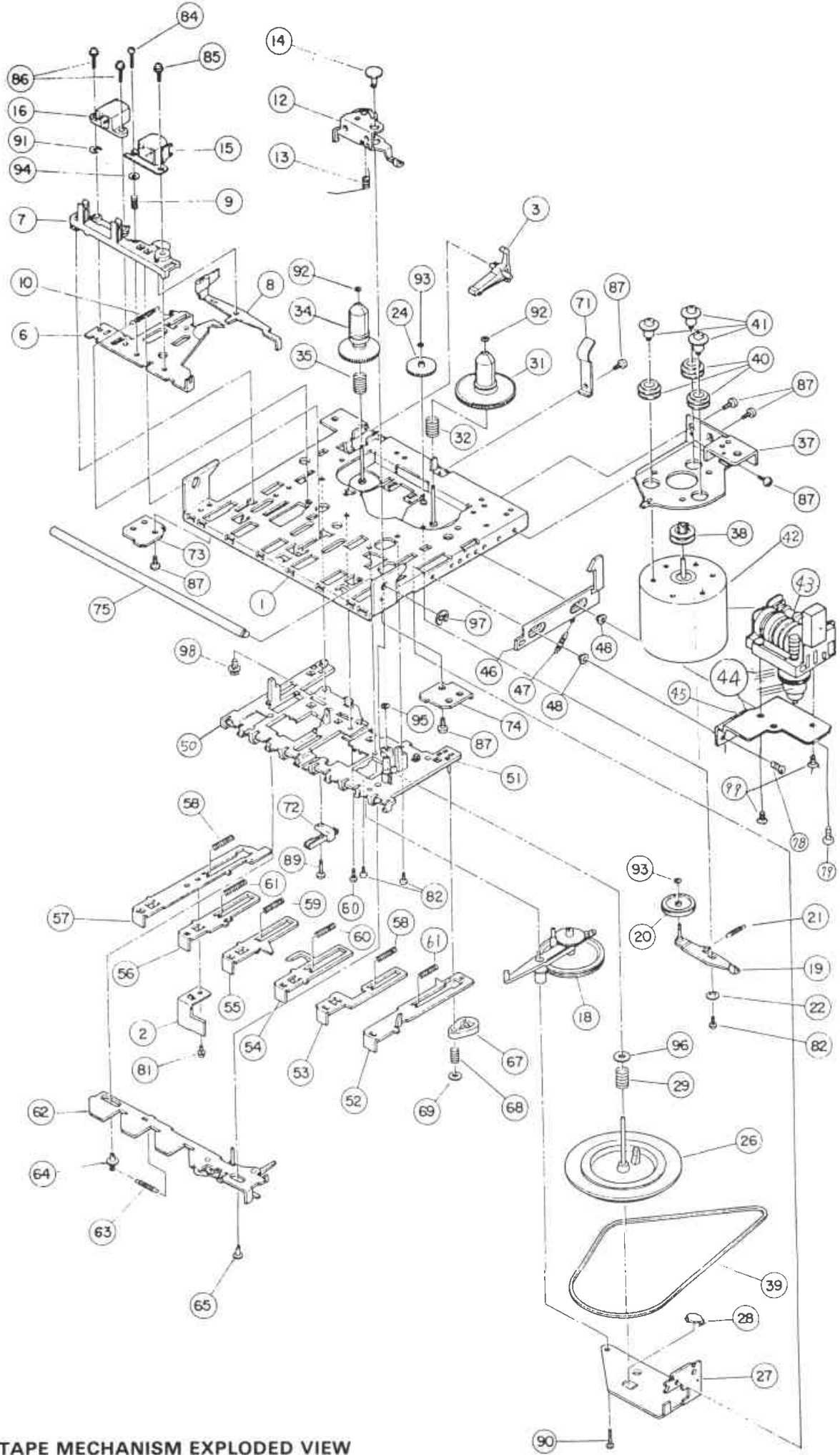


SELECTED PARTS LIST

Part No.	Chassis Parts	Ref. Nos. (if any)
SEMICONDUCTORS		
IS 500-001	IC TDA 5700	IC 101 (Tuner)
IS 500-002	IC LA 3361	IC 102 (Tuner)
64711	IC LA 3220	Tape PCB
64770	IC TDA 1908A	IC 101, IC 201 (Main PCB)
64820	IC M 709	IC 4
64821	IC LM 1035	IC 2
64822	IC LB 1403	IC 102, IC 202
64823	IC M104	IC1
64946	IC L78 12CV	12V Regulator
64824	IC TL072 CP	IC 3
IS 500-003	TR 1417F	T101, T102, T103 (Tuner)
74160	TR BC 548 C	TR200 (Tape)
74253	TR BC 302/ZTX 450	TR6
74310	TR BC 558	TR2, TR3, TR4
74466	TR MPS-A-14	TR7
74570	TR BC 549C	TR101, TR201 (Main PCB)
74662	TR BC 548	TR1, TR5
74740	TR BC559C	TR201 (Tape)
DIODES		
IS 500-004	CDG00	D101 (Tuner)
IS 500-005	FV1043	D102 (Tuner)
IS 500-006	CDG24	D103, D106, D107 (Tuner)
IS 500-007	IN60P	D 104, D105 (Tuner)
43751	LED Red	
43770	LED Green	
55030	IN4148	D1, D2, D101, D102, D200, D201 (Tape). D2, D3, D4, D6
55080	IN4001	D1, D11
55290	PL4002/GP15	D7-D10 (Main PCB)
55310	BPW41	D12
55312	CQY99	D5
55820	BZX 83C 5V1	ZD1
PRESETS & POTENTIOMETERS		
54010	Preset 10K	VR101 (Tuner) P101, P201
54085	Preset 47K	P1, P101 (Tape)
54820	Pot. 100K	(Treble, Bass)
54821	Pot. 50K	(Volume)
TRIMMERS, COILS & FILTERS		
IS 500-008	Coil TOM 0142100	L111 (Tuner)
IS 500-009	Coil TRD 0026-100	L113 (Tuner)
IS 500-010	Coil TRD 00 11100	L112 (Tuner)
IS 500-011	Coil TIA00 14100	L108 (Tuner)
IS 500-012	Coil TIA00 29100	L107 (Tuner)
IS 500-013	Coil TIF01 33100	L104 (Tuner)
IS 500-014	FM ANT. Coil	L101 (Tuner)
IS 500-015	Trimmer Capacitor	C129 (Tuner)

SELECTED PARTS LIST

Part No.	Chassis Parts	Ref. Nos. (if any)
21900	500kHz Resonator	X1, X2
	SPECIAL CAPACITORS	
10420	3300 μ 35v Horizontal	C27
12022	2 μ 2 63v Vertical	C107, C207
12325	22 μ 16v Vertical	C116, C216
12360	10 μ 35v Vertical	C8, C9
12510	1 μ 63v Vertical	C117, C217
12610	10 μ 16v Vertical	C18
22345	4N7 400v	C36, C37
	SPECIAL RESISTORS	
56233	330R 1/5 WATT	R37, R40
59515	15R 1W6	R42
59547	47R 1W6	R31
59615	150R 1W6	R30
	GENERAL	
09635	FM Aerial Socket	
13310	Battery Connectors	(Transmitter)
31200	Speaker Lead	
38160	Fuse F1 AMP	F1, F3
38200	Fuse F2 AMP	F2
38750	Fuse Holder	
65240	Heat shrink sleeve	
70150	Power ON/OFF Switch	
70664	Record/Playback Switch	(Tape)
70820	Push Button Switch	(Function selectors)
73770	Power Mains Transformer	
96820	LED Spacer	
IS 500-016	Ferrite Bar with Coils	L109, L110 (Tuner)
	WOODEN RACK	
17840	Base Panel	
17841	LH Side Panel	
17842	RH Side Panel	
17843	Middle Shelf	
17844	Vertical Centre Support	
17845	Upper Back	
17846	Small Shelf	
19811	Castor Pin	
19812	Castor Spacer	
19813	Dowel	
19814	Castor	
19815	Castor Nut	
19820	LH Lid Hinge	
19821	RH Lid Hinge	
19822	Lid Hinge Pad	
19823	Door Top Hinge	
19824	Door Bottom Hinge	
19825	Door Finger Plate	
19826	Lid	
19827	Door	
19828	Lid Extrusion	
	TAPE MECHANISM	
16700	Cassette Backing Plate	
18822	Cassette Flap	
32711	Damper	
32712	Piston for Damper	
32820	Cassette Mechanism (TN 332FC 214)	
42700	Cassette Keys	
69700	Cassette Key Spring	
69710	Damper Piston Spring	



TAPE MECHANISM EXPLODED VIEW

SELECTED PARTS LIST

Part Nos.	Chassis Parts	Ref. Nos. (if any)
TAPE MECHANISM		
3	Record Safety Lever	
12	Pinch Roller Assy.	
15	Record Playback Head	
16	Erase Head	
20	Take Up Roller Assy.	
31	Take Up Reel Assy.	
34	Supply Reel Assy.	
38	Motor Pulley	
39	Main Belt	
42	Motor	
43	Counter	
44	Counter Belt	
BOXING & FINISHING PARTS		
08120	Tuner Chassis	
01821	Amplifier Chassis	
01829	Tape PC/Mechanism Complete	
09361	Speaker (Boxed)	
09775	Mains Transformer Bracket Complete	
09820	Handset Complete (Remote Control)	
11030	300 ohm Aerial	
18821	Front Panel	
18823	Remote Compartment Flap	
18825	Flap/LED Window	
18826	Dial Window	
18827	Motor Board	
19829	Lid Buffer	
25821	Carton (Packing)	
26820	Record Player	
33823	LED Trim	
33824	Sensor Trim	
33826	Front Top Trim (Teak)	
42820	Cassette Key	
42821	Tuning Knob	
42822	Control Knob	
42823	Push Button Knob	
44820	Operating Instructions	
51821	Lid Pad (Packing)	
51822	Top & Bottom Pad (Packing)	
51823	Front Pad (Packing)	