

TECHNICAL MANUAL

Quality. Uncompromised

ROTEL®

RD-845

STEREO CASSETTE TAPE DECK

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THE ROTEL CO., LTD.

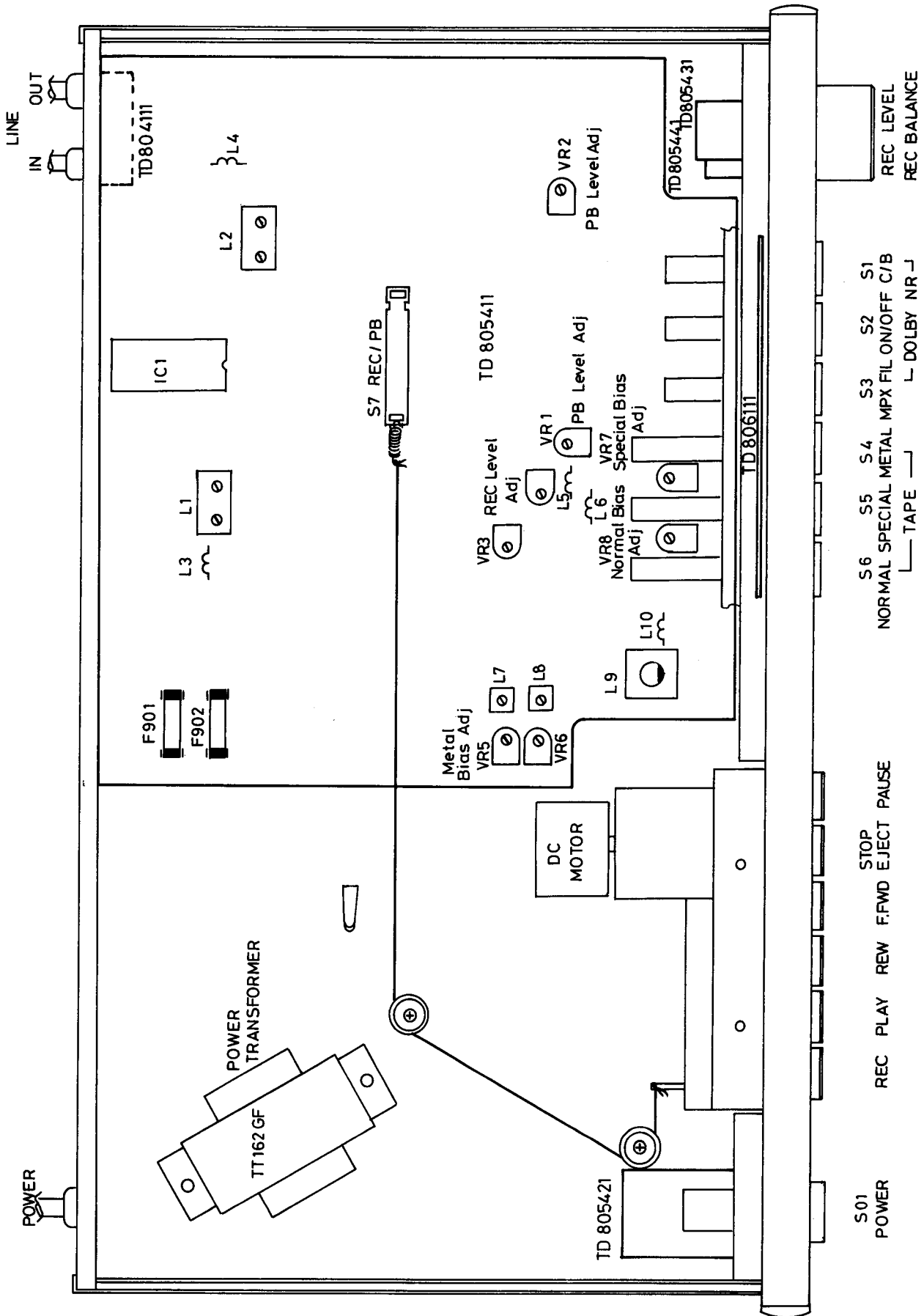
1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

ROTEL ELECTRONICS CO., LTD.

ROTEL BLDG., 3F. NO. 35, FUSING N. ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

MN20001561

Chassis Layout



Playback System Adjustments

Instruments: Oscilloscope, AC VTVM, Frequency Counter and Test Tape

Conditions: Oscilloscope, AC VTVM and Frequency Counter...LINE OUT Tape Selector...NORMAL Dolby NR...OFF

Adjustment Item	Test Tape	Adjust	Adjust for
Azimuth	ATT-114N	REC/PB head screw	Obtain largest wave form on Oscilloscope for both channels.
Dolby Level	MTT-150	VR1 (L-ch) VR2 (R-ch)	AC VTVM reads 245mV at TP1, TP2
Playback EQ Check	LCT-3009-C	Output Level difference between 40Hz, 1KHz and 10KHz signal is within $\pm 3.0\text{dB}$	
Tape Speed Deflection Check/Tape Speed Adjust	LCT-3001	Check that allowable margin of deflecting at middle of or at the end of winding is in the range of +2% - 1% (at 3000Hz allowable margin of deflection of speed is 3060-2970) If Tape Speed deflection surpasses the above range adjust speed of Motor	

Adjustment Item	Coupling	Tape Selector	Adjust	Adjust for
Spectral Skewing Network	I/P...SG (1 KHz) IN Point TP9 (TP10) O/P...IN IC Pin 22 (L. R ch The Same)	NORMAL	L3 (L-Ch) L4 (R-Ch)	1. AC VTVM read minimum at 19.9 KHz. 2. Check 17KHz relative to 1KHz, AC VTVM read 8.3 dB (Minimum)

Recording System Adjustments

Instruments: Oscilloscope, Signal Generator AC VTVM and Blank Tape

Conditions: Dolby NR...OFF REC Level...Maximum

Adjustment Item	Coupling	Tape Selector	Adjust	Adjust for
Bias Carrier	Oscilloscope...Point TP1 (TP2R-ch)	METAL	L7 (L-ch) L8 (R-ch)	Obtain Min. deflection on the Oscilloscope
19KHz Filter	S.G. (400Hz OdB)... LINE IN/LINE OUT...500mV Changed S.G. to 19KHz Dolby NR...OFF	NORMAL	L1 (L-ch) L2 (R-ch)	AC VTVM reads -30dB (Minimum)
Bias Voltage	Oscilloscope...Point 5 6 (R-ch)	METAL	VR5 (L-ch) VR6 (R-ch)	AC VTVM reads 8 mV
		SPECIAL	VR7	AC VTVM reads 5mV
		NORMAL	VR8	AC VTVM reads 4mV

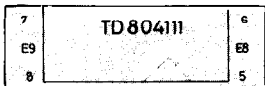
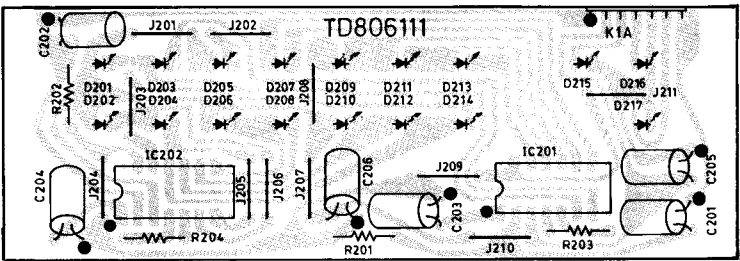
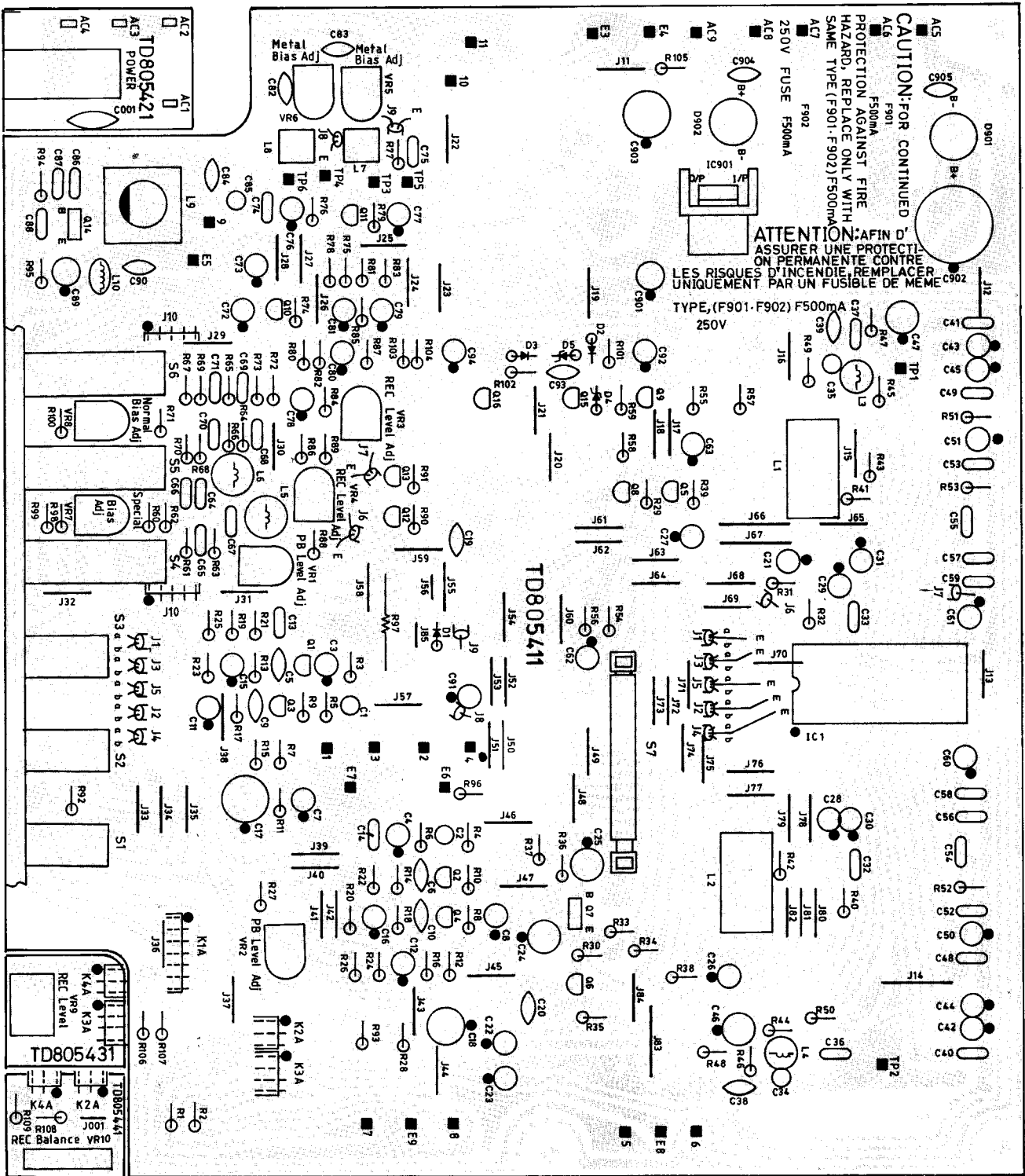
REC/PB System Adjustments

Instruments: Signal Generator, H.D. Analyzer and Blank Tape

Conditions: Dolby NR...OFF REC Level...Maximum PLAY, REC, PAUSE...ON

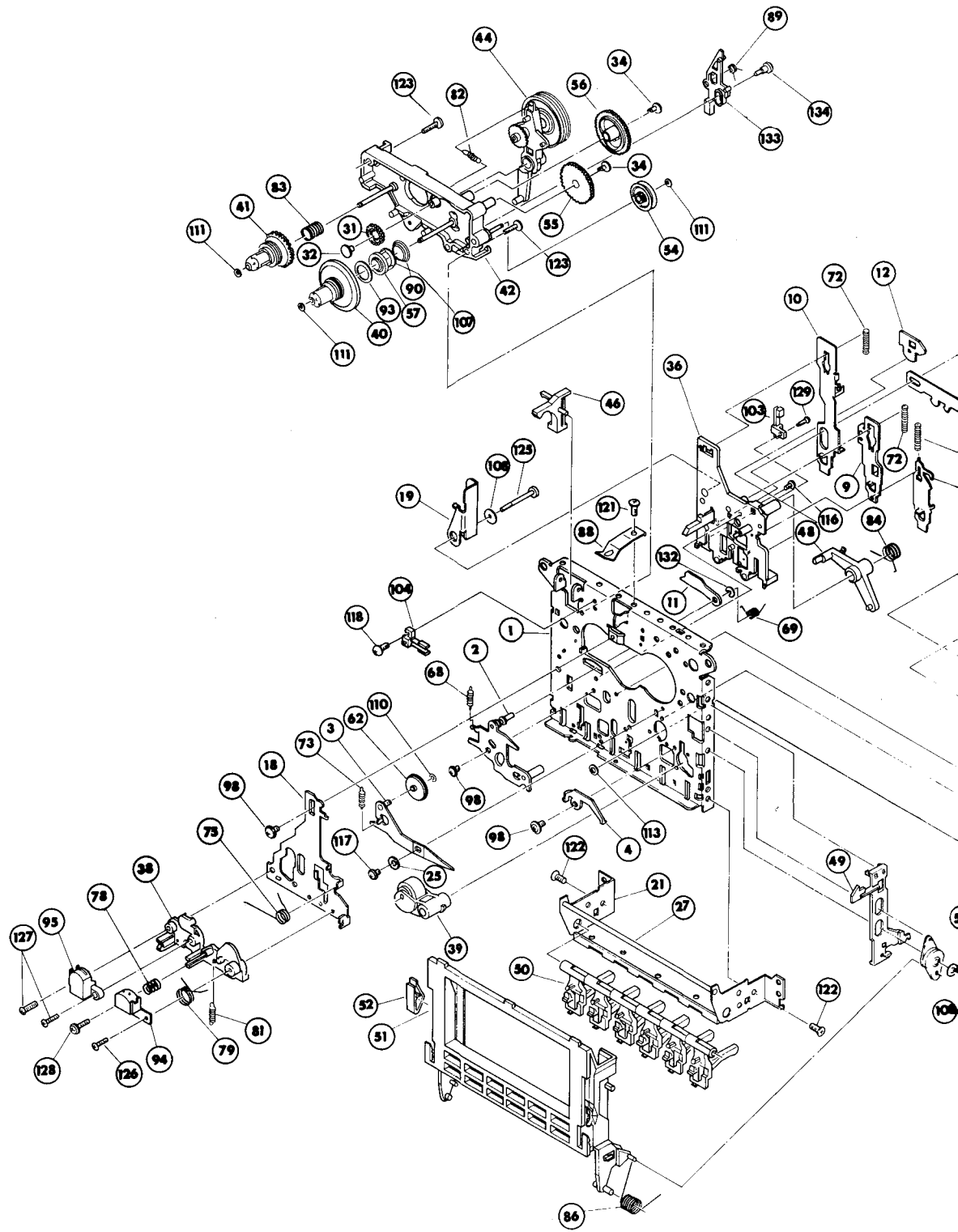
Adjustment	Conditions	Adjust	Adjust for
REC/PB Output Level	S.G. (400Hz 0dB)...LINE IN/LINE OUT...500mV Release Pause Button and Playback it again.	VR 3 (L-Ch) VR 4 (R-Ch)	Recording and Playback level difference must be within ± 1 dB
Distortion Check	S.G. (400Hz 0dB)... LINE IN/LINE OUT...500mV H.D. Analyzer...LINE OUT Release Pause Button and playback it again.	Check that distortion is within following range. a. METAL Tape under 2% b. SPECIAL Tape under 3% c. NORMAL Tape under 2%	
	If the distortion factor exceeds the above, recheck Bias Current Adjustment		
Frequency Response Check	METAL Tape insert it	VR 5 (L-Ch) VR 6 (R-Ch)	40Hz-125Hz...5dB 125Hz-10KHz...3dB 10KHz-15KHz...5dB
	SPECIAL Tape insert it	VR 7	
	NORMAL Tape insert it	VR 8	40Hz-125Hz ..5dB 125Hz-10KHz...3dB 10KHz-14KHz...5dB

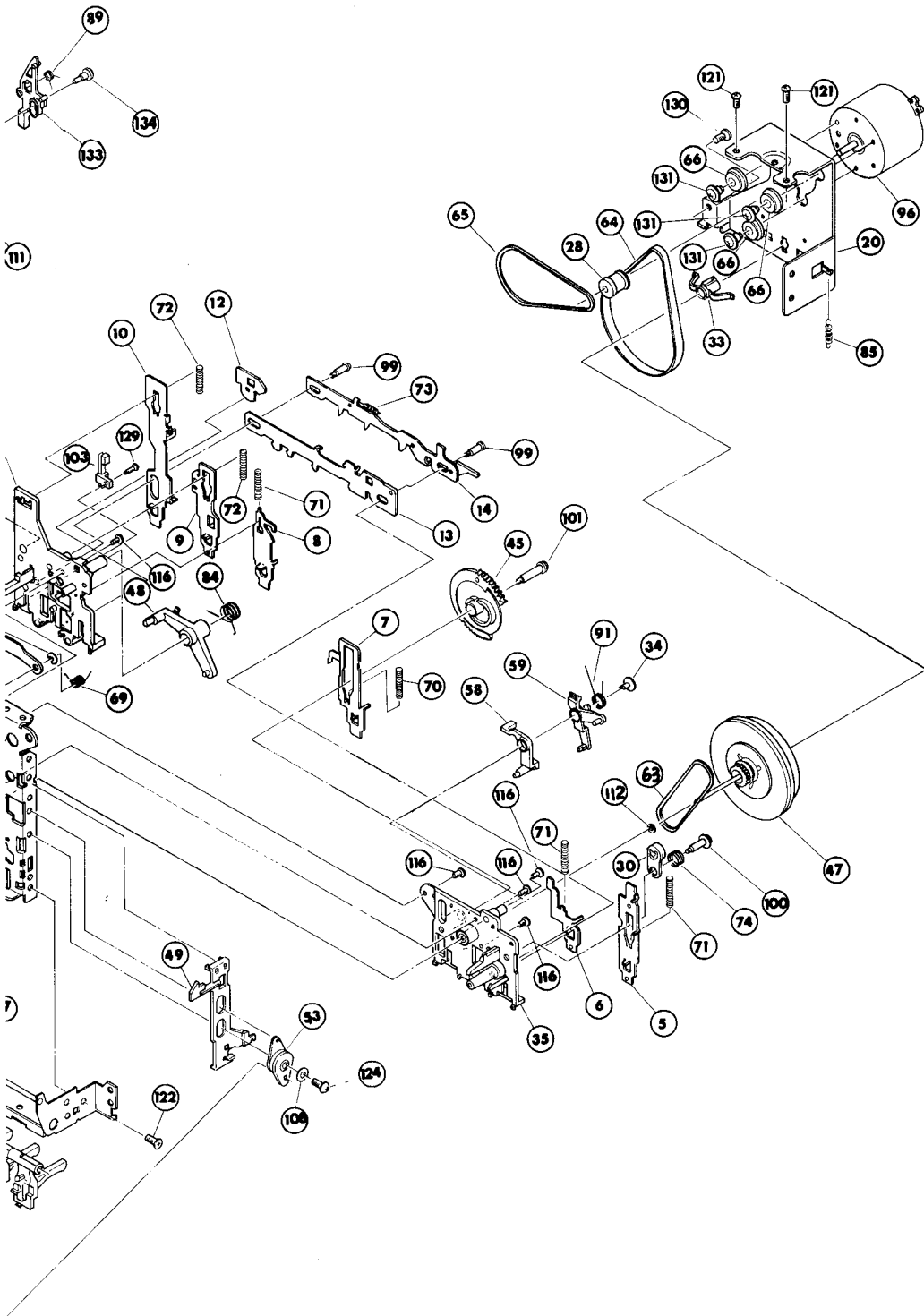
PRINTED CIRCUIT BOARDS



Disassembly Diagram

No.	Computer No.	Parts No.	Description	No.	Computer No.	Parts No.	Description
1	DM09001467	MA 1141	Chassis	68	DM11000914	MD 6055	Shift Arm Spring
2	DM09001650	MD 1191	Shift Arm Assy	69	DM11000975	MD 6019	Rec Lever Spring (B)
3	DM09001601	MD 1173	Idler Arm (HT) Assy	70	DM11001098	MD 6038	FF Lever Spring
4	DM09001479	MD 1004	Pause Arm	71	DM11000872	MD 6005	Rew Lever Spring
5	DM09001364	MD 1165	Pause Lever (B) Assy	72	DM11000940	MD 6003	Lever Spring
6	DM09001376	MD 1121	Stop Lever	73	DM11000951	MD 6006	Cam Spring
7	DM09001388	MD 1142	FF Lever (B)	74	DM11000963	MD 6007	Pause Cam Spring
8	DM09001431	MD 1144	Rew Lever (B)	75	DM11000938	MD 6010	Head Chassis Spring
9	DM09001613	MD 1156	Play Lever (B)	76			
10	DM09001455	MD 1163	Rec Lever (C)	77			
11	DM09001510	MDS 1108	Rec Lever (BH)	78	DM11000446	KD 6009	Head Spring
12	DM09001480	MD 1061	Interlock Arm	79	DM11001050	MD 6060	P Roller Spring
13	DM09001583	MC 1140	Lock Cam (A)	80			
14	DM09001273	MD 1045	Lock Cam (B) Assy	81	DM11001001	MD 6001	Head Chassis Return Spring
15				82	DM11001086	MD 6035	Clutch Arm Spring
16				83	DM11000896	MD 6013	Back Tension Spring
17				84	DM11000999	MD 6050	Lock Arm Spring
18	DM09001406	MC 1168-2	Head Chassis	85	DM11000987	MD 6040	Eject Lever Spring
19	DM09001522	MD 1021	Rec Arm	86	DM11001074	MD 6079	Cassette Case Spring
20	DM09001595	MC 1062	Motor Holder	87			
21	DM09001339	MC 1131	Button Holder (B)	88	DM11001062	MDS 1097	Pack Spring
22				89		MD 6062	Auto Sensor Spring
23				90	DM11000902	MD 6016	Auto Clutch Spring
24				91	DM11000859	MD 6017	Auto Lock Arm Spring
25	DM13000190	MD 2033	Collar	92			
26				93	DM17000020	MD 8009	Auto Clutch Felt
27	DM13000206	MD 2016	Button Shaft	94		245-30-102	RP Head
28	DM12000351	MD 2041	Motor Pulley	95		HAJAB30C50	E Head
29				96	DM03000179	MMI-5A-2L3	Motor
30	DM09001315	MC 3014	Pause Cam	97			
31	DM12000338	MD 3015	FF Gear	98	DM14000317	MD8002	Screw (A)
32	DM08000157	KD 3052	Bush	99	DM14000329	MD 8003-2	Screw (B)
33	DM09000918	LC 3014	Capstan Holder	100	DM14000330	MD 8004-2	Screw (C)
34	DM08000327	MD 3047	Bush	101	DM14000340	MD 8005-2	Screw (D)
35	DM09001352	MD 3076	Laver Holder (A) Assy	102			
36	DM09001420	MB 3075	Lever Holder (B)	103	DM10000096	LSA-1119C	Leaf Switch
37				104	DM10000102	LSA-1120YN	Leaf Switch
38	DM09001418	MC 3019-5	Head Base	105			
39	DM01000218	MD 3072	P Roller Arm Assy	106			
40	DM01000188	MD 3034	T Reel Assy	107	DM15000386	MD 8016	Tefron Washer
41	DM01000190	MD 3035	S Reel Assy	108	NW20000083	2.6φ	Plain Washer (L)
42		MC 3113	Reel Base Assy (B)	109			
43				110	DM15000398	1.2φx3.5φx0.25t	Polyslider Washer
44	DM09001649	MD 3096	Clutch Arm Assy	111	DM15000222	1.7φx3.5φx0.25t	Polyslider Washer
45	DM12000296	MC 3083-3	Gear (C)	112	DM15000404	2.1φx5.0φx0.4t	Polyslider Washer
46	DM09001560	MC 3021	Rec Sensor	113	DM15000120	1.9φx5.0φ0.5t	Oil Stop Washer
47	DM12000340	MD 3061	Flywheel Assy (I)	114			
48	DM09001558	MC 3086-2	Lock Arm (H)	115			
49	DM09001534	MD 3025	Eject Lever (F)	116	SW45200412	+M2x4MC	Tap Tite Screw
50	DM09001571	MC 3039	Button Lever	117	SW41200510	+M2x5MC	Tap Tite Screw
51	DM09001492	MB 3091	Cassette Case	118	SW41200612	+M2x6MC	Tap Tite Screw
52	DM06000040	MD 3081	Cassette Clamp	119			
53	DM03000180	MD 3084	Damper Assy	120			
54	DM12000314	MD 3066	Auto Pulley	121	SW41260414	+M2.6x4MC	Tap Tite Screw
55	DM12000326	MD 3065	Auto Gear	122	DM14000354	+M2.6x5MC	Flat Tap Tite Screw
56	DM12000302	MD 3044	Auto Cam Gear	123	SW41260815	+M2.6x8MC	Bind Tap Tite Screw
57	DM09001390	MD 3048	Auto Clutch	124	SW41261315	+M2.6x13MC	Tap Tite Screw
58	DM09001546	MD 3043	Auto Arm (B)	125	DM14000305	M2.6x22	Dia Screw
59	DM09001285	MD 3042	Auto Lock Arm	126		2x8	Binding Screw
60				127	SW71200912	2x9	Binding Screw
61				128		2x9	Washer Head Screw
62	DM12000284	MD 4001	Play Idler	129	SW51260514	+M2.6x5MC	Tapping Screw
63	DM08000339	MD 4003	Auto Belt	130	SW51260617	+M2.6x6MC	Tapping Screw
64	DM08000352	MD 4006	Drive Belt	131	DM13000218	MD8017	Sholdek (B)
65	DM08000364	MD 4008	FR Belt	132	DM15000209	2φ	E Ring
66	DM08000303	MD 4002	Motor Cushion	133	DM09001637	MD 3041	Auto Sensor Arm
67				134		MD 2044	Auto Sensor Arm Shaft

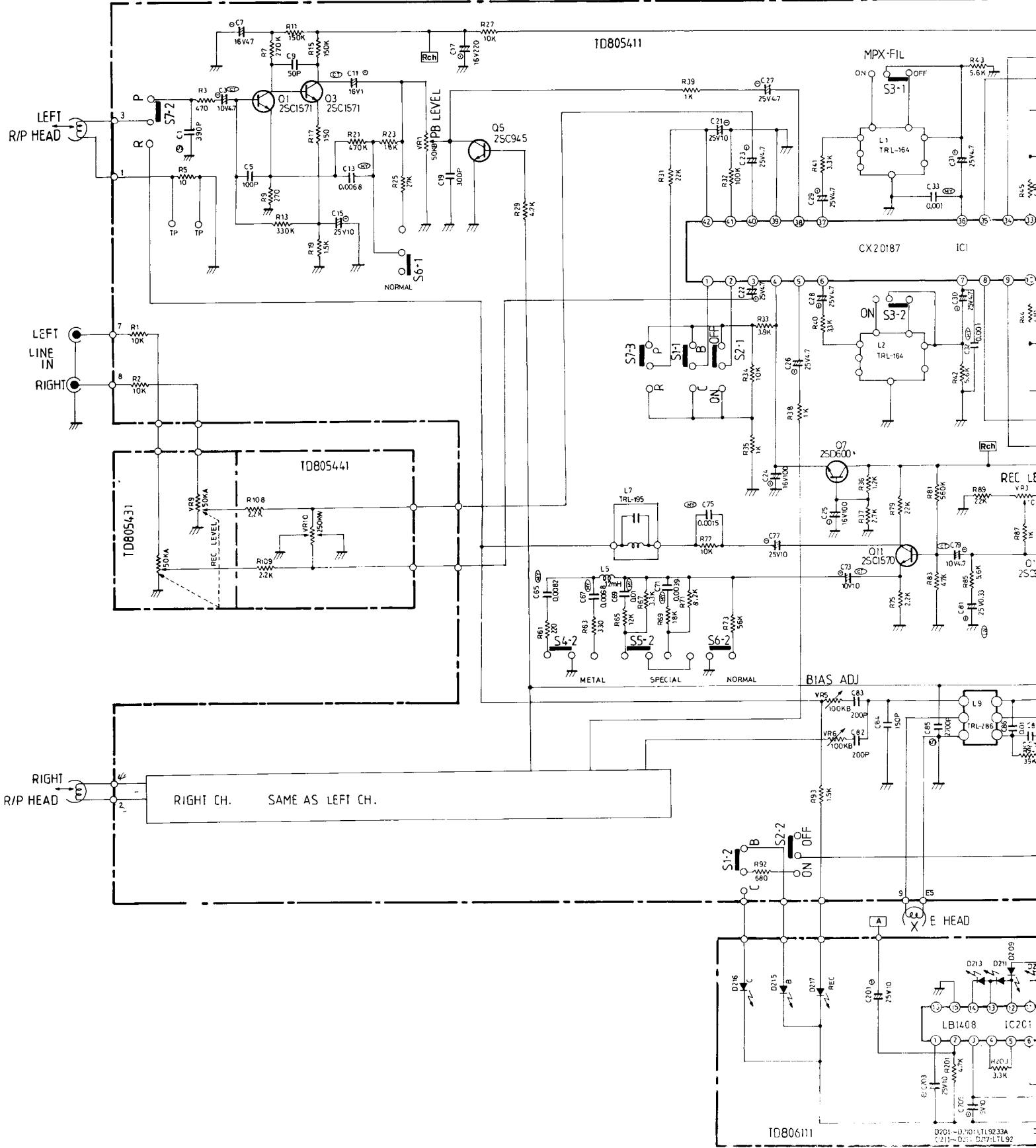


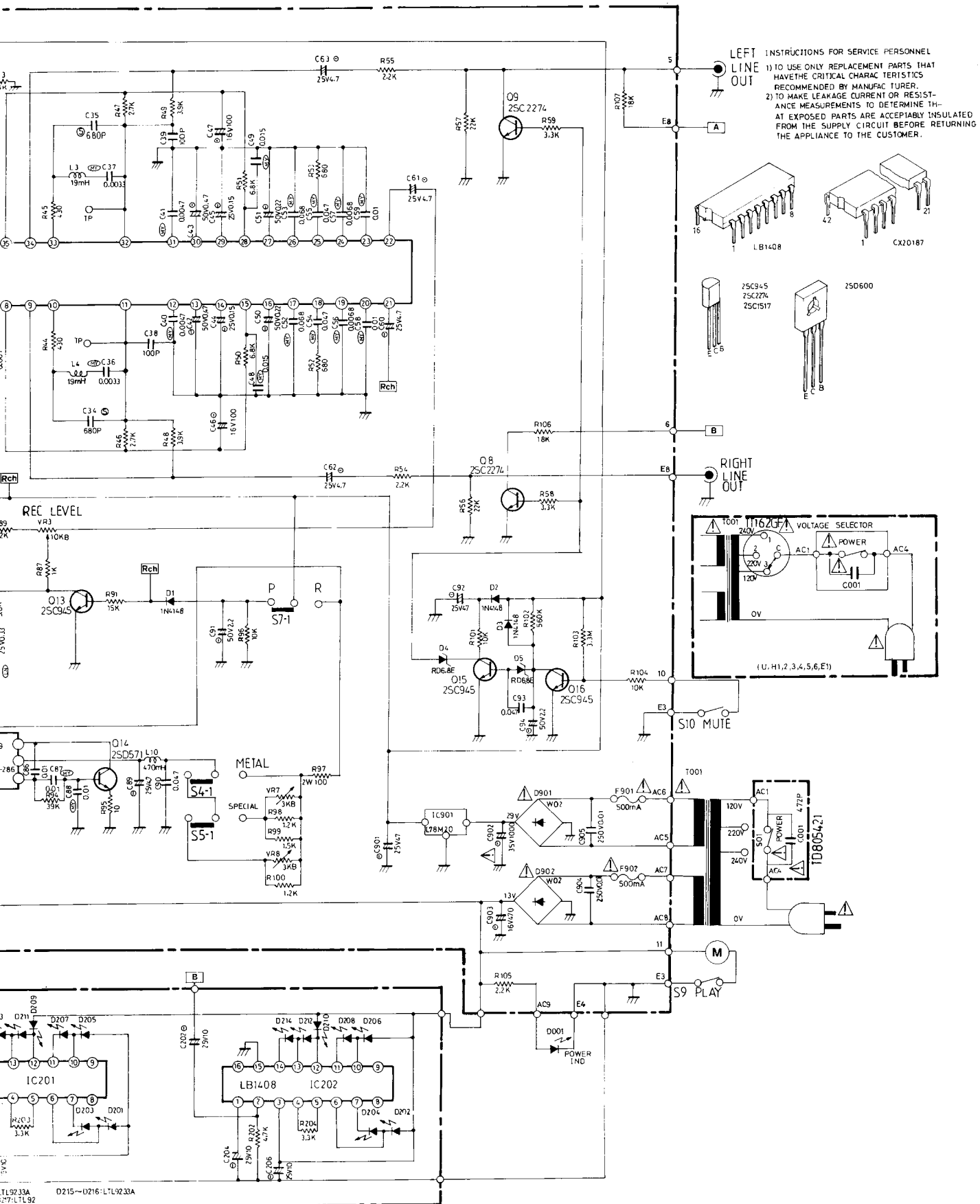


Schematic Diagram

SCHEMATIC DIAGRAM RD-845

NOTE: PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENTS WITHOUT PRIOR NOTICE.

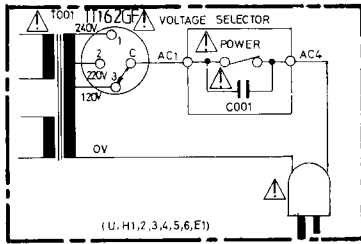
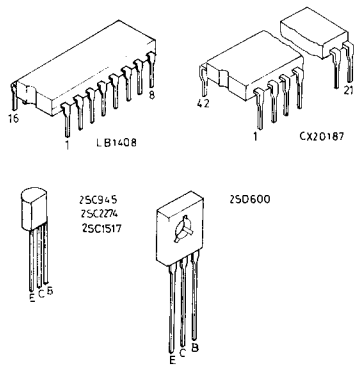




LEFT LINE OUT

INSTRUCTIONS FOR SERVICE PERSONNEL

- 1) TO USE ONLY REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.
- 2) TO MAKE LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.



TL9233A
277:TL92

Parts List

NOTE: THE COMPONENTS INDENTIFIED BY Δ MARK ARE FOR SAFETY. REPLACE ONLY WITH ORIGINAL PARTS. DO NOT SUBSTITUTE.

SYMBOL	PARTS NO.	DESCRIPTION
	TD805411	PCB ASSEMBLY
R1, 2	RD41002820	R, CARBON 10K J 1/4W
R3, 4	RD44700820	R, CARBON 470 J 1/4W
R5, 6	RD41009825	R, CARBON 10 J 1/4W
R7, 8	RD42703828	R, CARBON 270K J 1/4W
R9, 10	RD42700827	R, CARBON 270 J 1/4W
R11, 12	RD41503820	R, CARBON 150K J 1/4W
R13, 14	RD43303822	R, CARBON 330K J 1/4W
R15, 16	RD41502827	R, CARBON 15K J 1/4W
R17, 18	RD41500820	R, CARBON 150 J 1/4W
R19, 20	RD41501823	R, CARBON 1.5K J 1/4W
R21, 22	RD44703820	R, CARBON 470K J 1/4W
R23, 24	RD41802823	R, CARBON 18K J 1/4W
R25, 26	RD42702824	R, CARBON 27K J 1/4W
R27, 28	RD41002820	R, CARBON 10K J 1/4W
R29, 30	RD44701823	R, CARBON 4.7K J 1/4W
R31	RD42202827	R, CARBON 22K J 1/4W
R32	RD11003821	R, CARBON 100K J 1/4W
R33	RD43901828	R, CARBON 3.9K J 1/4W
R34	RD11002828	R, CARBON 10K J 1/4W
R35	RD41001826	R, CARBON 1K J 1/4W
R36	RD11201825	R, CARBON 1.2K J 1/4W
R37	RD12701829	R, CARBON 2.7K J 1/4W
R38, 39	RD41001826	R, CARBON 1K J 1/4W
R40, 41	RD43301825	R, CARBON 3.3K J 1/4W
R42, 43	RD45601824	R, CARBON 5.6K J 1/4W
R44, 45	RD44300828	R, CARBON 430 J 1/4W
R46, 47	RD42701820	R, CARBON 2.7K J 1/4W
R48, 49	RD43901828	R, CARBON 3.9K J 1/4W
R50, 51	RD16801820	R, CARBON 6.8K J 1/4W
R52, 53	RD16800826	R, CARBON 680 J 1/4W
R54, 55	RD42201823	R, CARBON 2.2K J 1/4W
R56, 57	RD42202827	R, CARBON 22K J 1/4W
R58, 59	RD43301825	R, CARBON 3.3K J 1/4W
R60, 61	RD12200828	R, CARBON 220 J 1/4W
R62, 63	RD13300820	R, CARBON 330 J 1/4W
R64, 65	RD41202820	R, CARBON 12K J 1/4W
R66, 67	RD43301825	R, CARBON 3.3K J 1/4W
R68, 69	RD41802823	R, CARBON 18K J 1/4W
R70, 71	RD18201820	R, CARBON 8.2K J 1/4W
R72, 73	RD45602828	R, CARBON 56K J 1/4W
R74, 75	RD42201823	R, CARBON 2.2K J 1/4W
R76, 77	RD41002820	R, CARBON 10K J 1/4W
R78, 79	RD42202827	R, CARBON 22K J 1/4W
R80, 81	RD45603821	R, CARBON 560K J 1/4W
R82, 83	RD44702827	R, CARBON 47K J 1/4W
R84, 85	RD45601824	R, CARBON 5.6K J 1/4W
R86, 87	RD41001826	R, CARBON 1K J 1/4W
R88, 89	RD42202827	R, CARBON 22K J 1/4W
R90, 91	RD41502827	R, CARBON 15K J 1/4W
R92	RD16800826	R, CARBON 680 J 1/4W
R93	RD41502827	R, CARBON 15K J 1/4W
R94	RD13902820	R, CARBON 39K J 1/4W
R95	RD11009823	R, CARBON 10 J 1/4W
R96	RD11002828	R, CARBON 10K J 1/4W
R97	RM11000220	R, METAL 100 J 2W
R98	RD11201825	R, CARBON 1.2K J 1/4W
R99	RD41501823	R, CARBON 1.5K J 1/4W
R100	RD41202820	R, CARBON 1.2K J 1/4W
R101	RD41002820	R, CARBON 10K J 1/4W
R102	RD45603821	R, CARBON 560K J 1/4W
R103	RD13304824	R, CARBON 3.3M J 1/4W
R104	RD41002820	R, CARBON 10K J 1/4W
R105	RD42201823	R, CARBON 2.2K J 1/4W
R106, 107	RD41802823	R, CARBON 18K J 1/4W
C1, 2	CS43911436	CAP, STYROL 390P 50V
C3, 4	CT04707840	CAP, TANTALUM 4.7uF 10V
C5, 6	CC41011432	CAP, CERAMIC 100P 50V
C7, 8	CE44706167	CAP, ELEC. 47uF 16V
, 10	CC45012431	CAP, CERAMIC 50P 50V

SYMBOL	PARTS NO.	DESCRIPTION
C11, 12	CT01007740	CAP, TANTALUM 1uF 16V
C13, 14	CM06810426	CAP, MYLAR 682 J 50V
C15, 16	CE01006251	CAP, ELEC. 10uF 25V
C17, 18	CE02205164	CAP, ELEC. 220uF 16V
C19, 20	CC03011436	CAP, CERAMIC 300P 50V
C21	CE01006251	CAP, ELEC. 10uF 25V
C22, 23	CE04707252	CAP, ELEC. 4.7uF 25V
C24, 25	CE01005167	CAP, ELEC. 100uF 16V
C26-31	CE44707251	CAP, ELEC. 4.7uF 25V
C32, 33	CM01010429	CAP, MYLAR 102 J 50V
C34, 35	CS46811428	CAP, STYROL 680P 50V
C36, 37	CM13310427	CAP, MYLAR 332 J 50V
C38, 39	CC41011432	CAP, CERAMIC 100P 50V
C40, 41	CM04710428	CAP, MYLAR 472 J 50V
C42, 43	CE04708505	CAP, ELEC. 0.47uF 50V
C44, 45	CE01508256	CAP, ELEC. 0.15uF 25V
C46, 47	CE01005167	CAP, ELEC 100uF 16V
C48, 49	CM01509424	CAP, MYLAR 153 J 50V
C50, 51	CE02208505	CAP, ELEC. 0.22uF 50V
C52, 53	CM06809424	CAP, MYLAR 683 J 50V
C54, 55	CM04709426	CAP, MYLAR 473 J 50V
C56, 57	CM06810426	CAP, MYLAR 682 J 50V
C58, 59	CM11009426	CAP, MYLAR 103 J 50V
C60-63	CE44707251	CAP, ELEC. 4.7uF 25V
C64, 65	CM08210426	CAP, MYLAR 822 J 50V
C66, 67	CM06810426	CAP, MYLAR 682 J 50V
C68, 69	CM11009426	CAP, MYLAR 103 J 50V
C70, 71	CM13910420	CAP, MYLAR 392 J 50V
C72, 73	CT01006840	CAP, TANTALUM 10uF 10V
C74, 75	CM11510425	CAP, MYLAR 152 J 50V
C76, 77	CT01006840	CAP, TANTALUM 10uF 10V
C78, 79	CT04707840	CAP, TANTALUM 4.7uF 10V
C80, 81	CN03308252	CAP, LOW NOISE 0.33uF 25V
C82, 83	CC02011430	CAP, CERAMIC 200P 50V
C84	CC31511432	CAP, CERAMIC 150P 50V
C85	CS42710332	CAP, STYROL 2700P 125V
C86-88	CM11009426	CAP, MYLAR 103 J 50V
C89	CE44707251	CAP, ELEC. 4.7uF 25V
C90	CC45009456	CAP, CERAMIC 0.047 50V
C91	CE42207500	CAP, ELEC. 2.2uF 50V
C92	CE44706258	CAP, ELEC. 47uF 25V
C93	CC45009456	CAP, CERAMIC 0.047 50V
C94	CE42207500	CAP, ELEC. 2.2uF 50V
C901	CE44706258	CAP, ELEC. 47uF 25V
C902	CE01004357	CAP, ELEC. 1000uF 35V Δ
C903	CE04705164	CAP, ELEC. 470uF 16V
C904	CC01009256	CAP, CERAMIC 0.01 250V
Q1-4	TR30000108	TRANSISTOR 2SC1571
Q5, 6	TR30000248	TRANSISTOR 2SC945
Q7	TR40000069	TRANSISTOR 2SD600K
Q8, 9	TR30000121	TRANSISTOR 2SC2274
Q10, 11	TR30000108	TRANSISTOR 2SC1570
Q12, 13	TR30000248	TRANSISTOR 2SC945
Q14	TR40000010	TRANSISTOR 2SD571
Q15, 16	TR30000248	TRANSISTOR 2SC945
D1-3	DD10000100	DIODE 1N4148
D4, 5	DD20000065	DIODE RD-6.8E
D901, 902	DD10000123	DIODE W-02 Δ
IC1	IC00001980	IC CX-20187
IC901	IC00000548	IC L78M20
L1, 2	LC11640002	COIL, MPX TRL-164
L3, 4	LM00000449	MICRO INDUCTOR 19mH
L5, 6	LM00000139	MICRO INDUCTOR 12mH
L7, 8	LC21950000	TRAP COIL TRL-195
L10	LM00000012	MICRO INDUCTOR 470uH
VR1, 2	RV20000235	R, SEMI-FIXED 08-301 50KB
VR3, 4	RV20000193	R, SEMI-FIXED 08-301 10KB
VR5, 6	RV20000181	R, SEMI-FIXED 08-301 100KB
VR7, 8	RV20000296	R, SEMI-FIXED 08-301 3KB
F901, 902	FU24000033	FUSE 250V UL/CSA 5MF 500MA Δ
	FU23000013	FUSE 250V 500MA S Δ

SYMBOL	PARTS NO.	DESCRIPTION
S1-6 S7	SH16000140 SH20000216	6 KEY PUSH SW 4TR-2564 SLIDE SW 4TR-1950
	TD805421	PCB ASSEMBLY
S01 C001	SH40000120 CK00000060 CK00000035	POWER SW C-3600B-T Δ SPARK KILLER DE7100 FZ472P Δ SPARK KILLER DE7150P472M Δ
	TD805431	PCB ASSEMBLY
VR9	RV10000627	R,VARIABLE 4TR-1966 50Kx2
	TD805441	PCB ASSEMBLY
R108,109 VR10	RD12201821 RV10000627	R,CARBON 2.2K J 1/4W R,VARIABLE 4TR-1439
	TD806111	PCB ASSEMBLY
R201,202 R203,204 C201,202 D201-210 D211-214	RD24701829 RD23301820 CE01006251 DD40000617 DD40000563	R,CARBON 4.7K J 1/4W R,CARBON 3.3K J 1/4W CAP,ELEC. 10uF 25V L.E.D LTL9233A L.E.D LTL9213A
D215,216 D217 IC201,202	DD40000617 DD40000563 IC00001954	L.E.D LTL9233A L.E.D LTL9213A IC LB1408
	OTHERS	
AB00000328 AF40000252 AF40000264 AM00001604 AR40000250	BOTTOM BOARD 3TTW-5 FRONT CHASSIS (R) 2TTW-2 FRONT CHASSIS (L) 2TTW-3 CHASSIS BODY 2TTW-4 PLASTIC REAR BOARD 2TTS-18	
DC00000475 DC00000499 DC00000657 KB20001068 KB20001317	CASSETTE DECK ASS'Y GT-90FMF#3 COUNTER BELT 4TWD-12C#8 60F TAPE COUNTER T3SA100-035-795 DECK PUSH BUTTON 4TVC-2#6 BLK DECK PUSH BUTTON 4TVC-2#8 RED LINE	
OM10000589 PT16607108 FT00000138 PU10000032 CD00000218	TAPE ORNAMENTAL PLATE 4TTW-17 POWER TRANSFORMER TT-166-GF Δ RUBBER FOOT 4TR-2274 PULLEY 4TR-905A AC CORD SPT-2 AWG#18 4TR-670#4-U,C Δ	
CD00000097 CD00000048 CD00000085 CD00000115 CD00000267	AC CORD SPT-2 AWG#18 4TR-670#2-H1,2,3,4 AC POWER CORD 4TR-1037-H5,6,7,E,K2 Δ AC POWER CORD C-2504A-K1 Δ AC POWER CORD C-3763-T-G Δ AC CORD SPT-2 AWG#16 072 C-2743-A Δ	
SC00000131 SC00000027 VC00000048 AA40000410 AW00000423	AC CORD STOPPER SR-5N-4-A,K1 AC CORD STOPPER SR-4N-4 VOLTAGE SELECTOR C-4304A01-U,H1,2,4,5,6 FRONT PANEL 2TTW-1#2 Δ PANEL WINDOW 4TR-2655#3	
BU00000815 KB20002000 OM10000048 OM10000413 AU00000877	PUSH RING 4TTW-13 PUSH BUTTON 4TTL-13 19.5x11.5 ORNAMENTAL SIDE PLATE 3TR-2349 CASSETTE DOOR PLATE 3TVJ-11#7 UPPER COVER 3TUV-6#5	
KB10001310 KB10001345 KB20001561 KB20002176 PL00000850 TN10002880	KNOB 4TR-2254 33F KNOB C-3187#5-T 13F PUSH BUTTON 4TR-2176 14x14 ALUMINUM CAP 4TTW-7 STYROL SIDE MOULDING 3TTW-14 TZ-172 INSIDE CARTON 4TTW-15#2	