

HITACHI

SERVICE MANUAL

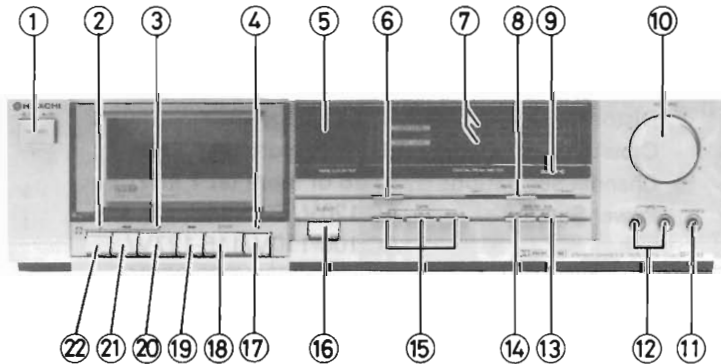
TK

No. 1664E

D-E33

(U,C,FS,BS,AU,W)

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KEY TO ILLUSTRATIONS

- | | |
|-----------------------------|-----------------------------------|
| ① POWER (MAINS) SWITCH | ⑫ MICROPHONE SOCKETS |
| ② RECORDING INDICATOR | ⑬ DOLBY B/C NR CHANGE OVER SWITCH |
| ③ PLAYBACK INDICATOR | ⑭ DOLBY NR SWITCH |
| ④ PAUSE INDICATOR | ⑮ TAPE SELECT SWITCHES |
| ⑤ TAPE COUNTER | ⑯ EJECT BUTTON |
| ⑥ REC MUTE SWITCH | ⑰ PAUSE BUTTON |
| ⑦ DIGITAL PEAK METER | ⑱ STOP BUTTON |
| ⑧ RECORDING BALANCE CONTROL | ⑲ FAST FORWARD BUTTON |
| ⑨ DOLBY C NR INDICATOR | ⑳ PLAYBACK BUTTON |
| ⑩ RECORDING LEVEL CONTROL | ㉑ REWIND BUTTON |
| ⑪ HEADPHONE SOCKET | ㉒ RECORD BUTTON |

SAFETY PRECAUTION

The following precautions should be observed when servicing.

- Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with Δ in the schematic diagram, and circuit board diagram.
- Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

STEREO CASSETTE TAPE DECK

January 1982

TOKAI WORKS

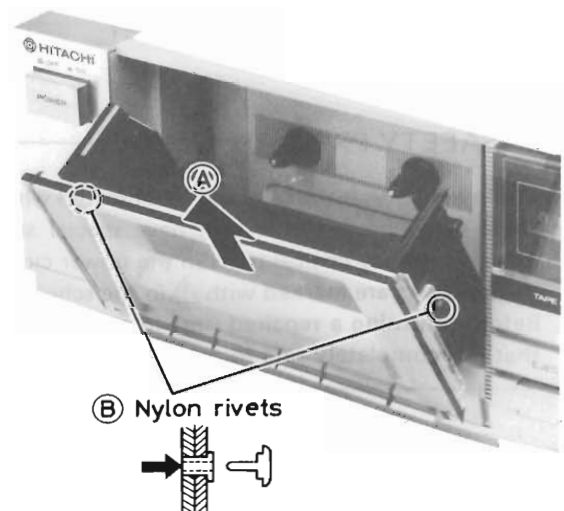
SPECIFICATIONS

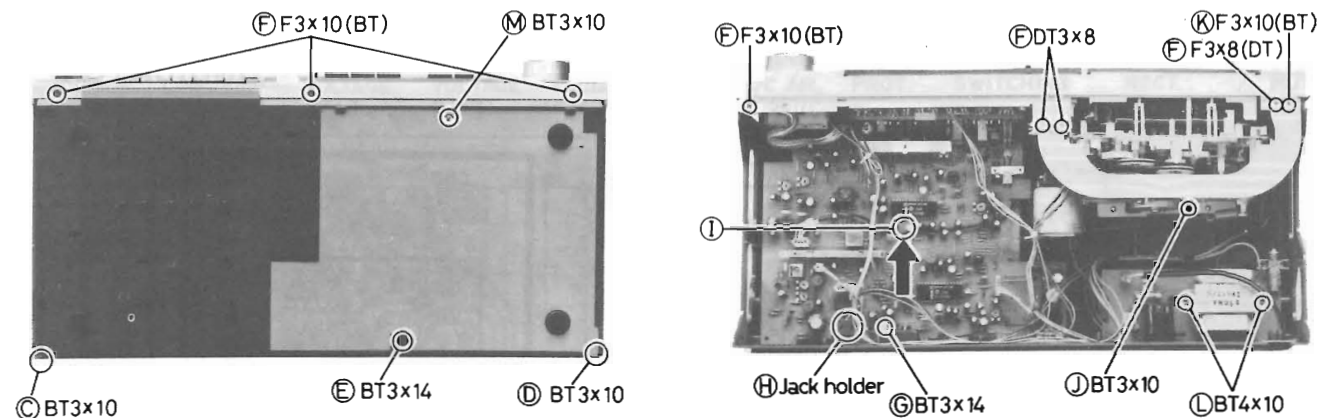
Semiconductors:		Dolby NR OFF:	58 dB (Weighted A, Reference 3% THD Metal Tape)
ICs:	6		58 dB*
Transistors:	13	Wow and Flutter:	0.05% (WRMS)
Diodes:	11		0.17%*
LEDs:	17	Input Sensitivity and Impedance:	
Track System:	4 track 2 channel stereo	Microphone:	0.5 mV, 300 ohms~5k ohms
Tape:	Cassette tape (C-30, 60, 90)	Line in:	80 mV, 50k ohms or more
Tape Speed:	4.75 cm/s	Output Level:	500 mV
Recording System and Bias Frequency:	AC bias, 85 kHz	Output Load Impedance:	
Erasing System:	AC erase	Line out:	50k ohms or more
Erase Ratio:	65 dB or more (at 1 kHz)	Headphone:	8 ohms~2k ohms
Frequency Response:		Distortion:	1.0% (1 kHz, 160 nWb/m)
NOR-I:	20 Hz~15 kHz	Crosstalk:	60 dB or more (at 1 kHz)
	30 Hz~14 kHz (± 3 dB)	Channel Separation:	30 dB or more (at 1 kHz)
	30 Hz~14 kHz*	Power Supply:	AC 120V, 60 Hz (U, C)
CrO ₂ -II:	20 Hz~16 kHz		AC 100-110V/115-127V/200-220V/230-250V, 50/60 Hz (W)
	30 Hz~15 kHz (± 3 dB)		AC 220V, 50 Hz (FS)
	30 Hz~15 kHz*		AC240V, 50 Hz (BS, AU)
METAL-IV:	20 Hz~17 kHz	Power Consumption:	9.5W
	30 Hz~16 kHz (± 3 dB)	Dimensions:	110(H) x 435(W) x 227(D) mm
	30 Hz~16 kHz*	Weight:	3.4 kg
S/N (Signal to Noise Ratio):		Motor:	Electronically controlled DC m
Dolby C NR ON:	72 dB (weighted A, Reference 3% THD Metal Tape)	Heads:	Metal SL Record/playback head
	72 dB*		Three-gap ferrite Erase head
Dolby B NR ON:	66 dB (Weighted A, Reference 3% THD Metal Tape)		
	66 dB*		

* According to DIN 45 500

DISASSEMBLY

1. **Cassette clear panel**
 - 1) Depress the eject button to open the cassette door.
 - 2) Lift up the cassette clear panel in the direction of the arrow (A).
2. **Cassette door**
Remove (B) (two) nylon rivets.
3. **Upper cover**
Remove (C) and (D) (two) screws.
4. **Bottom cover**
Remove (D), (E) and (M) (three) screws.
5. **Front panel**
Remove (F) (seven) screws.
6. **Main PC board**
 - 1) Remove (E) and (G) (two) screws and jack holder (H).
 - 2) Pull the PC board in the direction of the arrow (I).
7. **Cassette chassis**
Remove (J) and (K) (two) screws.
8. **Power PC board**
Remove (L) (two) screws.





ADJUSTMENT

Perform the following adjustments in the sequence stated after cleaning the heads, pressure roller and capstan with a head cleaning stick moistened in alcohol. Also, unless otherwise specified, set the switches and controls to the positions indicated in the table.

Symbol No.	Switches and Controls	Position	Symbol No.	Switches and Controls	Position
S2-S4	Tape select switches	NOR-I	RV1	Recording level control	Max.
S5	Dolby NR switch	OFF	RV2	Recording balance control	Center

* According to DIN 45 500

Item	Adjustments	Measuring Instrument and Connection			Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
		Measuring Instrument	Input Terminal	Output Terminal					
1	Tape speed	*Frequency counter	—	LINE OUT	MTT-111, 3000 Hz (3150 Hz*)	Playback	Semi-variable resistor in the motor	3000 Hz +30 Hz -10 (3150 Hz*)	See Note 1
2	Head azimuth	*VTVM	—	LINE OUT	MTT-316, 12.5 kHz	Playback	Azimuth adjusting screw	Output Max.	See Note 2
3	Playback gain	*VTVM	—	TP1L, R (IC301L, R pin 24)	MTT-150, 400 Hz, 20m Maxwell	Playback	RT1L, R	580 mV	See Note 3
4	(1) Bias current	*VTVM	—	TP3L, R	—	Record	RT3L, R	10V	See Note 4
		Set RT2L, R to the center.							
	(2)	*Audio oscillator (1.25kHz/12.5kHz, 0dB - 23dB) *Attenuator *VTVM	LINE IN	LINE OUT	Hitachi UD tape	Record/playback	RT3L, R	Output difference within ±1 dB	See Note 5
5	Record level	*Audio oscillator (400Hz, 0dB)	LINE IN	—	Hitachi UD tape	Record/playback	RT2L, R	Digital peak meter indicates 0dB	See Note 6
6	Digital peak meter	*Audio oscillator (400Hz) *Attenuator *VTVM	LINE IN	LINE OUT	—	Record	RT4L, R	0 dB indicator lights	See Note 7

Note:

- Adjust within 30 sec. after heat-running for more than 20 minutes.
- When the maximum values of both channels are different, adjust to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.
- Playback a test tape (MTT - 150, 400 Hz 20 m Maxwell) and adjust RT1L, R so that the level of TP1L, R (IC301L, R pin 24) becomes 580 mV.
- Adjust RT3L, R so that the bias voltage of TP3L, R becomes 10V in the recording mode.
- 1) Set RT2L, R to the center.
2) Feed a 1.25 kHz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the digital peak meter indicates 0 dB. Then, lower the attenuator output level by 23 dB.
3) Record the signal on Hitachi UD tape with the conditions of item 2), then continue to record with the audio oscillator frequency set to 12.5 kHz.

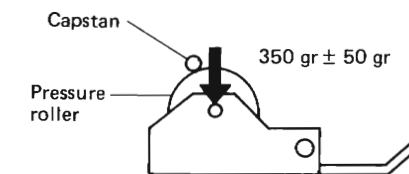
- Playback the recorded signal and adjust RT3L, R so that the output level difference between two frequencies is within ±1 dB measured at the LINE OUT jacks.
- 1) Feed a 400 Hz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the digital peak meter indicates 0 dB.
2) Record the signal on Hitachi UD tape with the conditions of item 1).
3) Playback the recorded signal and adjust RT2L, R so that the digital peak meter indicates 0 dB.
- 1) Feed a 400 Hz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the source monitor level at LINE OUT jacks becomes -3 dBm.
2) Adjust RT4L, R so that the 0 dB indicator of the digital peak meter lights.
3) Lower the attenuator output level by 1 dB and adjust RT4L, R so that the 0 dB indicator goes off.

INSPECTION OF MECHANISM

Check Item	Reference Value	Remarks
1 Pressure of pressure roller	350 gr ± 50 gr	Note 1
2 Torque	Take-up	33 to 65 gr-cm Measure in playback mode
	Fast forward	70 to 120 gr-cm Measure in fast forward mode
	Rewind	70 to 120 gr-cm Measure in rewind mode
3 Back-tension	Take-up reel	6 gr-cm Measure in playback mode (with counter)
	Supply reel	1 ~ 3 gr-cm Measure in playback mode
4 Brake-torque	10 gr-cm or more	Measure in stop mode
5 Flywheel thrust gap	0.05 ~ 0.5 mm	

Note 1. Pressure of pressure roller

Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.

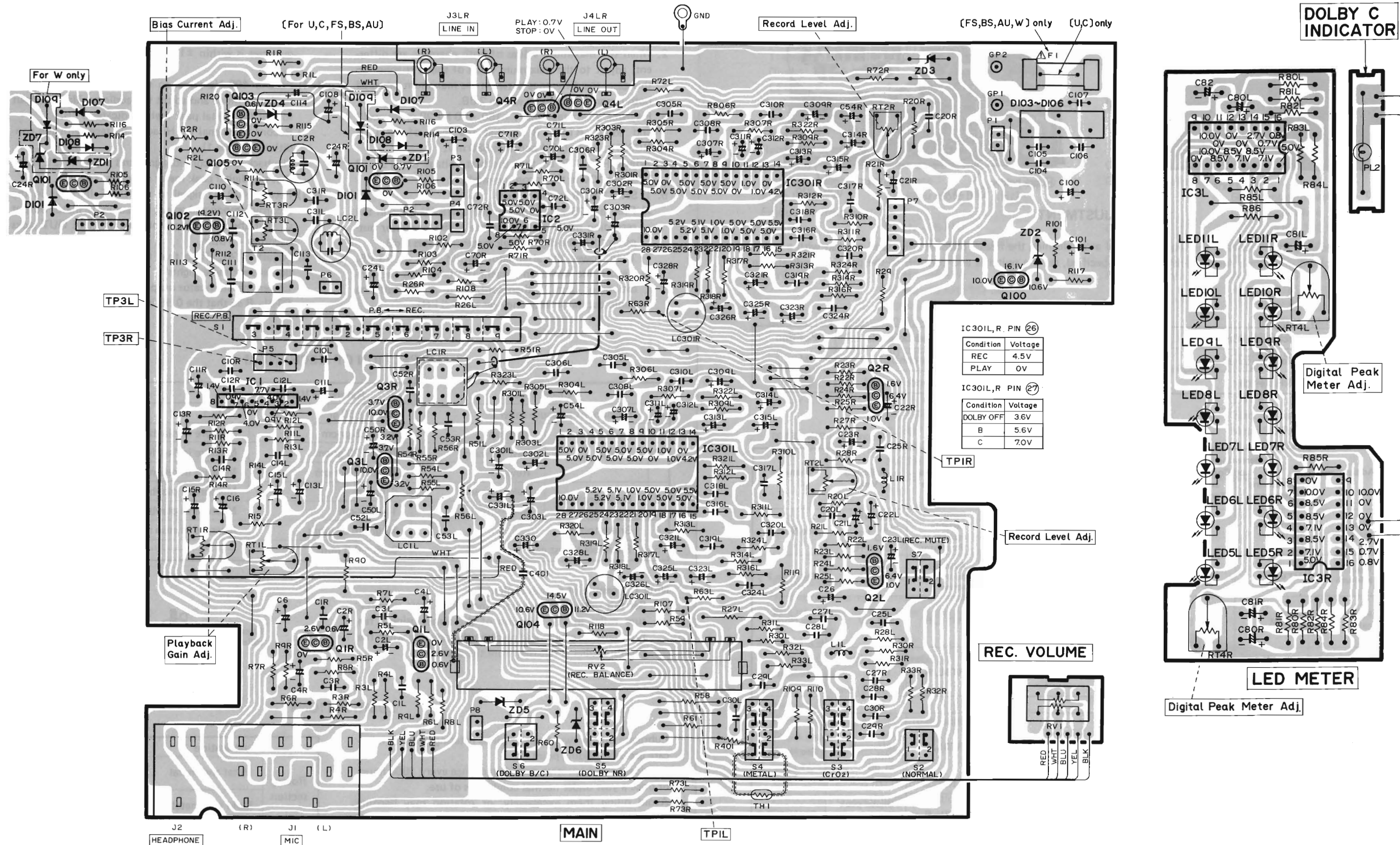


LUBRICATIONS

Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point. Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use. Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

	Lubrication	Oil or Grease
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold	White grease (FL-LUBE-A)
	Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Froil (GB-TS-1)

CIRCUIT BOARD DIAGRAM



SCHMATIC DIAGRAM

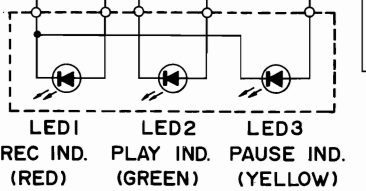
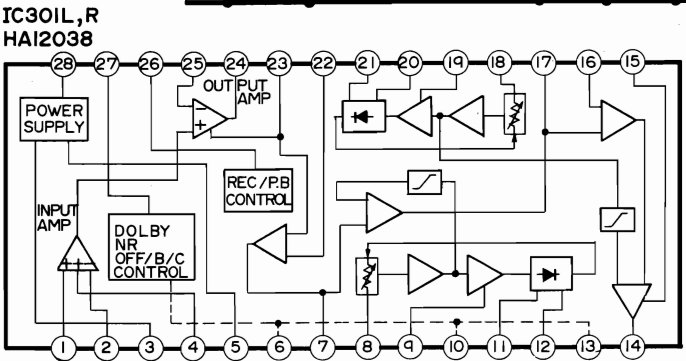
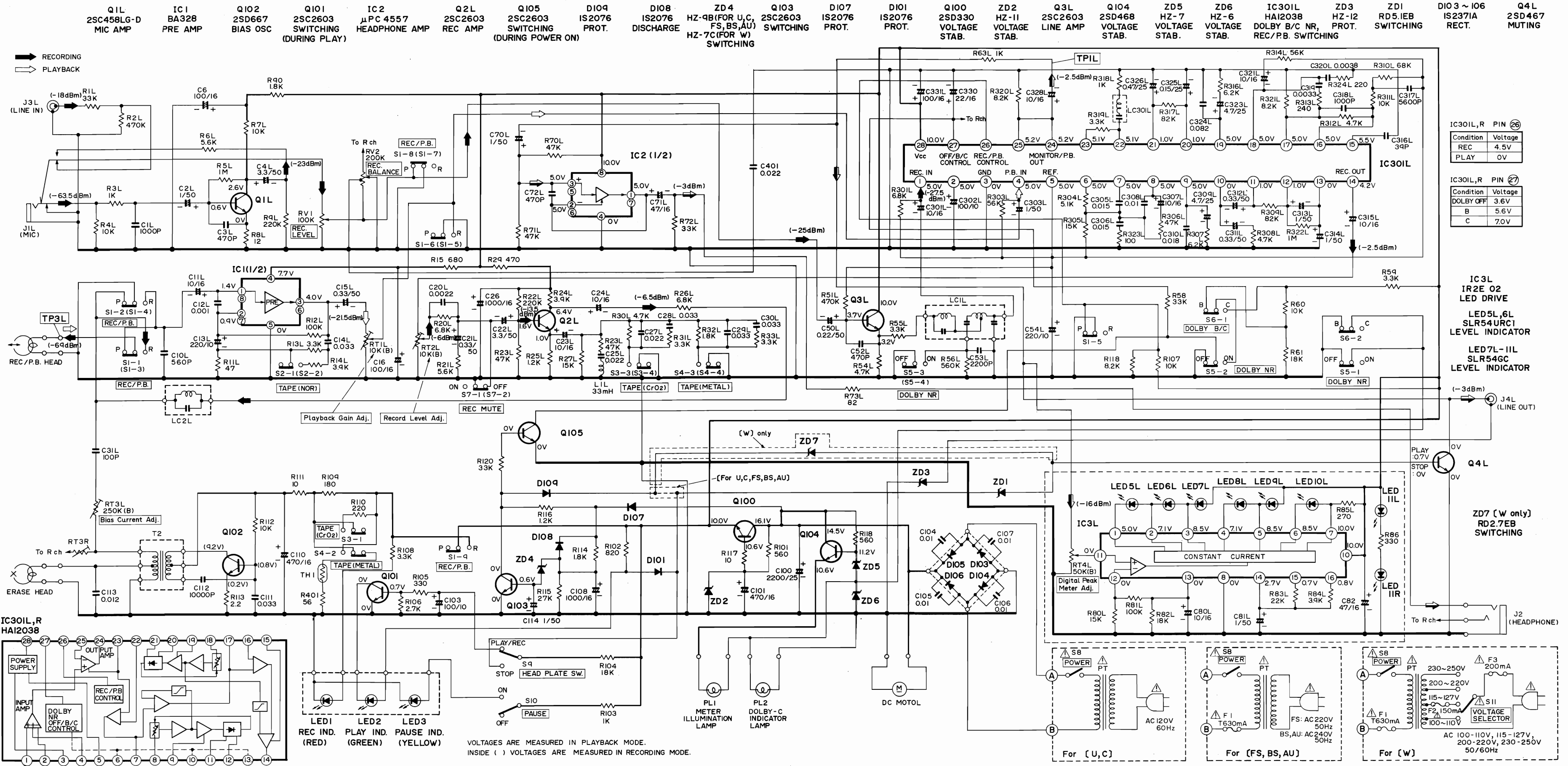
Note

- 1. Voltage measured at base of chassis with minimum volume control and no signal.
- 2. Nomenclature of Resistors and Capacitors.

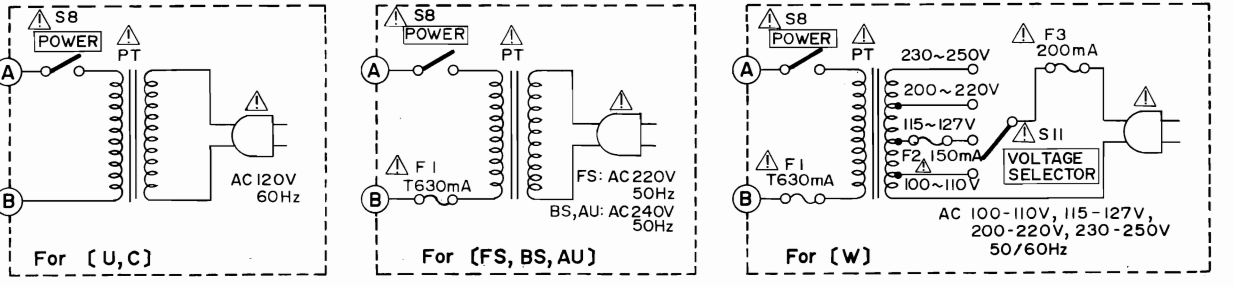
Circuit No.	
Value	No indicated Ω (Ohm) M: 1000kΩ
Tolerance	No indicated ±5% K: ±10% M: ±20%
Wattage	No indicated 1/2W
Sort	No indicated Carbon film RC: Composition RW: Wire wound RS: Oxide metal film RN: Fixed metal film

Circuit No.	
Value	No indicated μF P: PF
Tolerance	No indicated ±10% J: ±5% M: ±20% Z: +80%, -20% D: ±0.5pF C: ±0.25pF
Sort	Ceramic Electrolytic Mylar Polyester Styrol
Voltage	No indicated 50WV

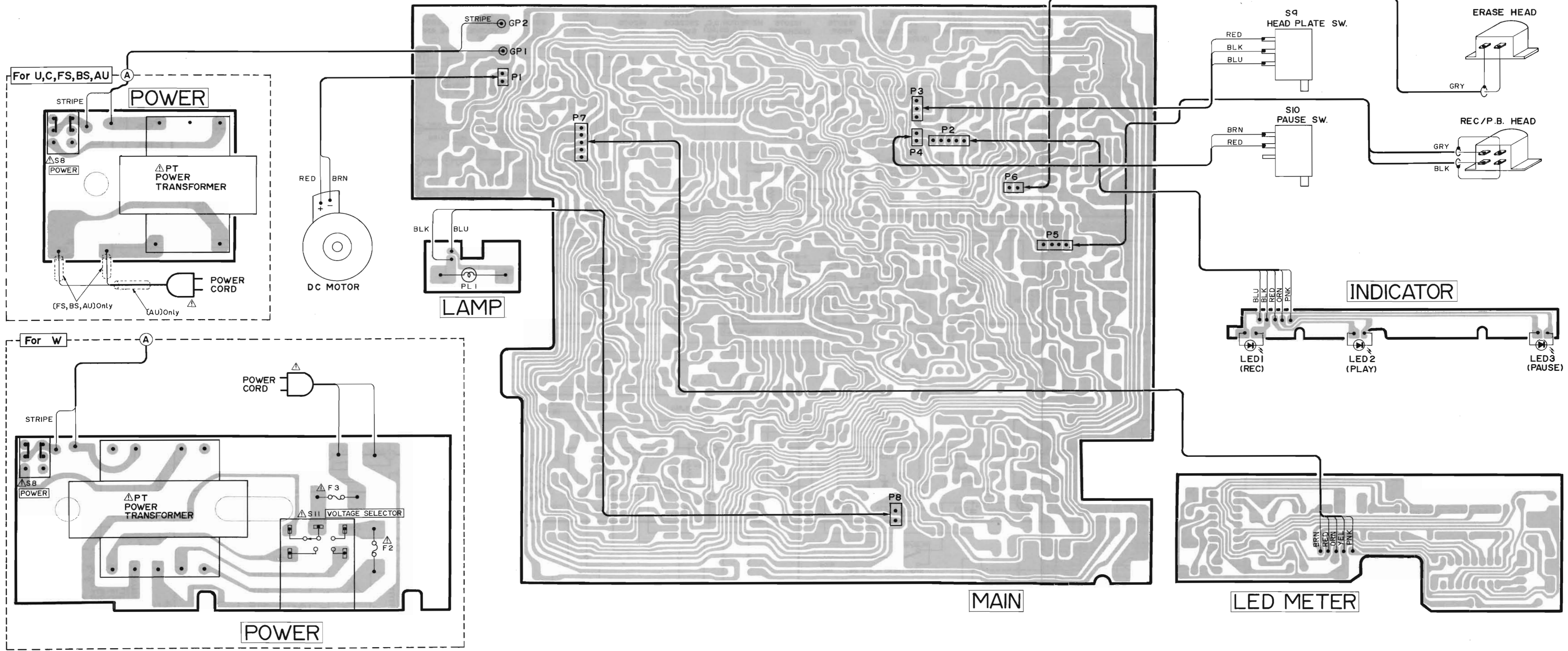
- 3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
- 4. When replacing capacitors marked with *, use specified ones stated on parts list since required temperature characteristics.



VOLTAGES ARE MEASURED IN PLAYBACK MODE.
INSIDE () VOLTAGES ARE MEASURED IN RECORDING MODE.



WIRING DIAGRAM

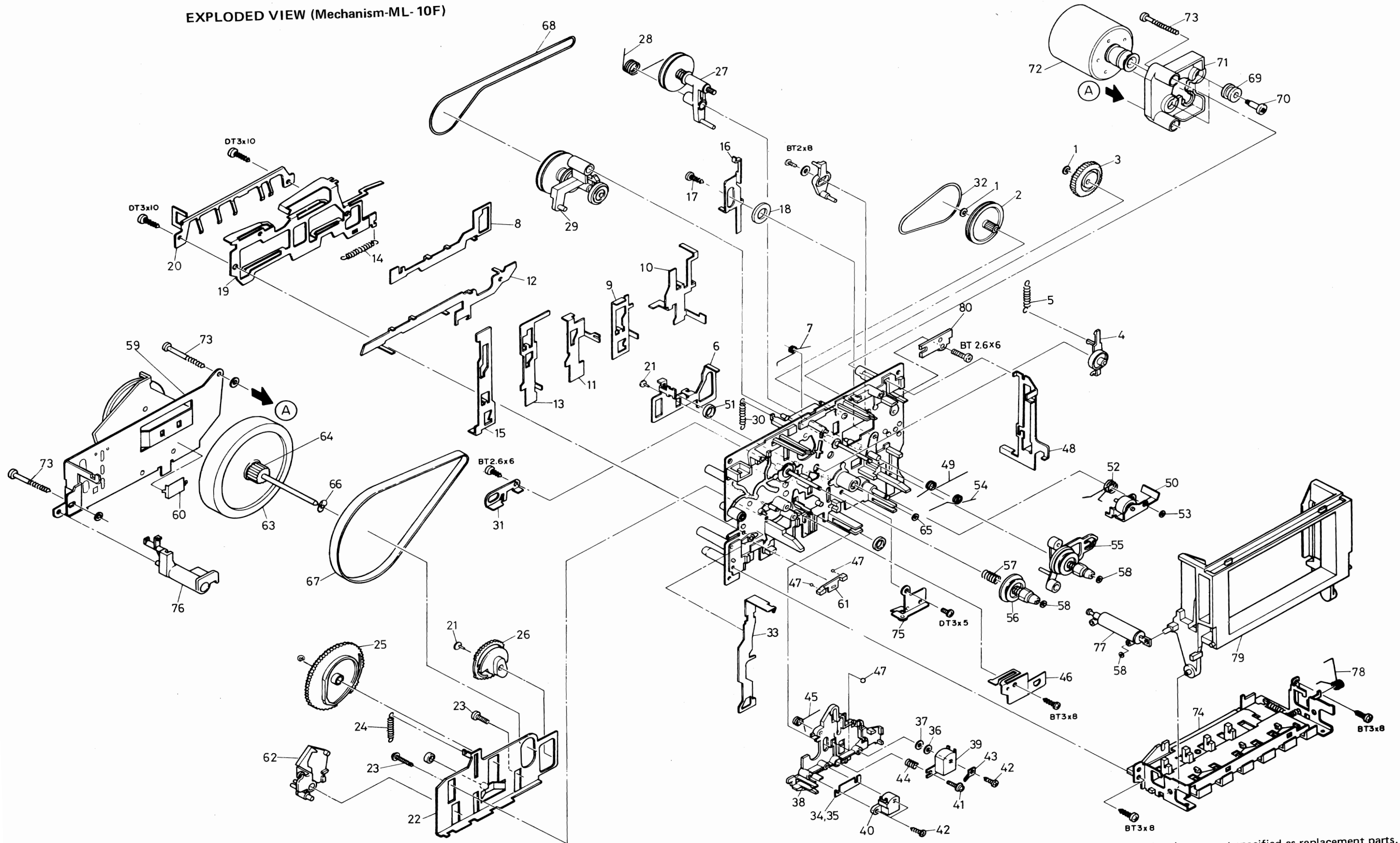


REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
RESISTORS			ZD 4	5330322	ZENER DIODE SILICON TR-9S
RT 1LR	5007477	SEMI VARIABLE 10K OHM	ZD 5	5330316	ZENER DIODE HZ7C1
RT 2LR	5007477	SEMI VARIABLE 10K OHM	ZD 6	5331587	ZENER DIODE RD5.6E-B1
RT 3LR	5007482	SEMI VARIABLE 250K OHM	TRANSFORMERS		
RT 4LR	5007479	SEMI VARIABLE 50K OHM	△PT	5212592	POWER TRANSFORMER (U,C)
RV 1	5000875	VARIABLE RESISTOR 100K OHM(A)	△PT	5212593	POWER TRANSFORMER (FS)
RV 2	5023024	VARIABLE RESISTOR 200K OHM(5B)	△PT	5212594	POWER TRANSFORMER (BS,AU)
R111	0170474	FUSE RESISTOR 10 OHM+-5% 1/4W	△PT	5212941	POWER TRANSFORMER (W)
R117	0170474	FUSE RESISTOR 10 OHM+-5% 1/4W	T 2	5260461	BIAS OSCILLATOR COIL
SEMI-CONDUCTORS			COILS		
D101	5330131	DIODE 1S2076	L 1LR	5150364	CHOKE COIL 3.3 MH
D103-106	5330381	DIODE SILICON 1S2371	MISCELLANEOUS		
D107-109	5330131	DIODE 1S2076	△	5746342	POWER CORD (BS)
IC 1	5350713	IC BA328-LN	△	5746443	POWER CORD (U,C)
IC 2	5352831	IC MPC4557C	△	5746571	POWER CORD (AU)
IC 3LR	5365501	IC IR-2E02	△	5746661	POWER CORD (W,FS)
IC301LR	5355111	IC HA1203B	△F 1	5720174	FUSE 630MA (W,FS,BS,AU)
LED 1	5380631	LED SEL1112R	△F 2	5720105	FUSE 150MA (W)
LED 2	5380641	LED SEL1331G	△F 3	0591100	FUSE 200MA (W)
LED 3	5380651	LED SEL1741Y	J 1LR	5679824	JACK (MIC)
LED 5LR	5380482	LED SLR53URC1	J 2	5679824	JACK (HEADPHONE)
LED 6LR	5380482	LED SLR53URC1	J 3LR	5676261	PIN JACK ASSEMBLY (LINE IN)
LED 7LR	5380481	LED SLR-53GC1	J 4LR	5676261	PIN JACK ASSEMBLY (LINE OUT)
LED 8LR	5380481	LED SLR-53GC1	LC 1LR	5161665	DOLBY FILTER
LED 9LR	5380481	LED SLR-53GC1	LC 2LR	5120562	TRAP COIL
LED10LR	5380481	LED SLR-53GC1	LC301LR	5120564	TRAP COIL
LED11LR	5380481	LED SLR-53GC1	LM 1	5765071	LAMP (METER ILLUMINATION)
Q 1LR	5320024	TRANSISTOR SILICON 2SC458DLG	LM 2	5765071	LAMP (DOLBY-C INDICATOR)
Q 2LR	5323012	TRANSISTOR 2SC2603F	S 1	5623435	SLIDE SWITCH (REC./P.B.)
Q 3LR	5323012	TRANSISTOR 2SC2603F	S 2-6	5634436	PUSH SWITCH (TAPE, DOLBY NR, DOLBY B/C)
Q 4LR	5323012	TRANSISTOR 2SC2603F	S 7	5634361	PUSH SWITCH (REC MUTE)
Q100	5323151	TRANSISTOR 2SD330ALE	△S 8	5637038	PUSH SWITCH (POWER)
Q101	5323012	TRANSISTOR 2SC2603F	S 9	5633361	PUSH SWITCH (PLAY)
Q102	5322651	TRANSISTOR 2SD667C	S10	5633361	PUSH SWITCH (PAUSE)
Q103	5323012	TRANSISTOR 2SC2603F	△S11	5605121	ROTARY SWITCH (VOLTAGE SELECTOR) [W]
Q104	5321213	TRANSISTOR 2SD468C	FOR ACCESSORIES		
Q105	5323012	TRANSISTOR 2SC2603F		7740321	HEAD CLEANING STICK
ZD 1	5330848	ZENER DIODE RD5.1EB2		5894163	PATCH CORD
ZD 2	5330555	ZENER DIODE HZ11B2	△	5652291	SOCKET ADAPTER (W)
ZD 3	5330534	ZENER DIODE HZ12A3			

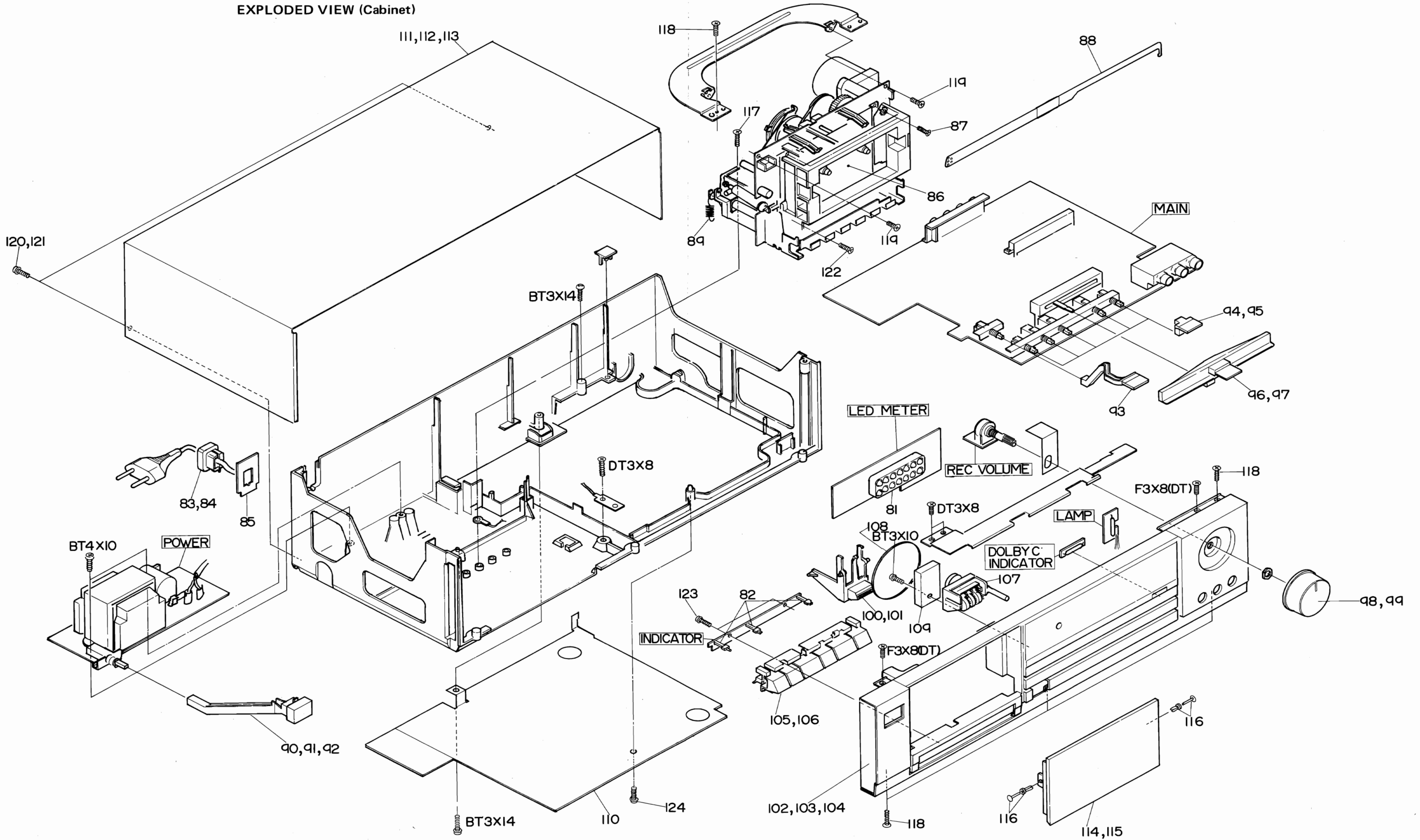
SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MECHANISM (ML - 10F)			41	7781005	SCREW FOR HEAD MOUNTING
1	7788061	POLY SLIDER WASHER	42	8784138	BIND TAPPING SCREW-2MMDX8MM
2	6430982	PULLEY GEAR FOR AUTO STOP	43	7342491	EARTH PLATE
3	6431291	CAM GEAR	44	6321733	HEAD SPRING C
4	6762725	FF ARM ASSEMBLY	45	6547731	HEAD PLATE SPRING
5	6540702	SPRING	46	6534246	HEAD HOLDER SPRING
6	7331678	BRAKE PLATE	47	0948492	BALL - 2MMD
7	6546562	SPRING FOR BRAKE PLATE	48	7347931	EJECT SLIDER
8	7337198	AUTO STOP PREVENTION SLIDER ASSEMBLY	49	6546518	SPRING FOR EJECT SLIDER
9	7337128	FF SLIDER	50	7329781	PRESSURE ROLLER ARM ASSEMBLY
10	7331786	PAUSE SLIDER	51	6586007	BRAKE RUBBER
11	7331718	PLAY SLIDER	52	6547553	SPRING FOR PRESSURE ROLLER
12	7340006	LOCK PLATE	53	7786219	POLYESTER WASHER
13	7339992	REWIND SLIDER	54	6546507	SPRING
14	6300083	SPRING	55	6414234	TURNTABLE ASSEMBLY
15	7347943	RECORD SLIDER	56	6414021	TURNTABLE ASSEMBLY
16	7343241	AUTO STOP SENSING LEVER	57	6305592	BACK TENSION SPRING
17	7781133	BT SCREW-3MMD	58	7786115	POLYESTER WASHER
18	7787951	WASHER	59	7345153	FLYWHEEL SUPPORT ASSEMBLY
19	6535114	LEAF SPRING	60	6530926	FLYWHEEL SUPPORT SPRING
20	6535282	LEAF SPRING	61	6765041	BALL SUPPORT
21	7552446	PIN	62	6765598	POWER ASSIST LOCK ARM
22	7331879	POWER ASSIST SLIDER ASSEMBLY	63	6374052	FLYWHEEL ASSEMBLY
23	7781135	BT SCREW-3MMD	64	6431501	FLYWHEEL GEAR
24	6542021	SPRING FOR POWER ASSIST	65	7786623	POLY SLIDER WASHER
25	6431541	POWER ASSIST GEAR	66	7772623	SPRING
26	6430976	PAUSE GEAR	67	6357163	FLYWHEEL BELT
27	6762675	TAKE UP ARM ASSEMBLY	68	6355381	BELT
28	6546453	SPRING FOR TAKE UP ARM	69	6576082	RUBBER PLATE
29	6762645	REWIND ARM ASSEMBLY	70	7539004	MOTOR FIXING SCREW
30	6301704	SPRING	71	6766011	MOTOR HOLDER
31	7333965	REWIND HOLDER	72	6420843	DC MOTOR ASSEMBLY
32	6355382	BELT	73	7781147	BT BIND HEAD SCREW-3MMDX30MM
33	7347951	RECORD PREVENTION SLIDER	74	7341333	BUTTON HOLDER ASSEMBLY
34	7757052	SPACER	75	7334765	STOP ARM ASSEMBLY
35	7757051	SPACER	76	6763115	RECORD CHANGE ARM
36	7771441	WASHER - 2 MMD	77	6769221	DAMPER ASSEMBLY
37	7771442	WASHER-2MMD	78	6546485	SPRING FOR CASSETTE HOLDER
38	6765806	HEAD BASE	79	6770512	CASSETTE HOLDER
39	5449021	RECORD PLAYBACK HEAD	80	7343301	E STOPPER
40	5445351	ERASE HEAD			

EXPLODED VIEW (Mechanism-ML-10F)











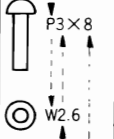


Note: Components marked without numbers in this drawing are not specified as replacement parts.

EXPLODED VIEW (Cabinet)



Note: Components marked without numbers in this drawing are not specified as replacement parts.

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
FOR CASSETTE DECK ASSEMBLY (B)			101	6292162	EJECT BUTTON ASSEMBLY (BS)
81	6769431	LED SPACER	102	6770692	FRONT FRAME ASSEMBLY (U,C,W,AU)
82	6770641	LED SPACER	103	6770693	FRONT FRAME ASSEMBLY (FS)
MISCELLANEOUS			104	6770697	FRONT FRAME ASSEMBLY (BS)
△	83	6794401 BUSHING (U, C, W, FS, AU)	105	6060511	FUNCTION BUTTON ASSEMBLY (U, C, W, FS, AU)
△	84	6794411 BUSHING (BS)	106	6060512	FUNCTION BUTTON ASSEMBLY (BS)
	85	7347131 BUSHING HOLDER	107	5559482	COUNTER
	86	6634034 CASSETTE METAL	108	6354663	BELT
	87	0678316 DT SCREW-2.6MMDX16MM(BLACK)	109	6771651	COUNTER HOLDER
	88	7333333 RECORD PLATE	110	6045154	BOTTOM COVER
	89	6302746 SPRING FOR RECORD PLATE	111	6045051	UPPER COVER (W,FS,AU)
	90	6768024 PUSH BUTTON ASSEMBLY (POWER) (U,C,W,AU)	112	6045052	UPPER COVER (U,C)
	91	6768025 PUSH BUTTON ASSEMBLY (POWER) (FS)	113	6045053	UPPER COVER (BS)
	92	6768028 PUSH BUTTON ASSEMBLY (POWER) (BS)	114	6093741	CASSETTE DOOR ASSEMBLY (U, C, W, FS, AU)
	93	6055761 PUSH BUTTON (REC MUTE)	115	6093742	CASSETTE DOOR ASSEMBLY (BS)
	94	6055751 PUSH BUTTON (TAPE, DOLBY NR, DOLBY B/C) [U, C, W, FS, AU]	116	6795242	NYLON RIVET
	95	6055753 PUSH BUTTON (TAPE, DOLBY NR, DOLBY B/C) [BS]	117	8699410	BT BIND SCREW-3MMD x 10MM (BLACK)
	96	6292401 SLIDE KNOB ASSEMBLY (REC BALANCE) [U, C, W, FS, AU]	118	7781581	BT FLAT SCREW-3MMDX10MM
	97	6292402 SLIDE KNOB ASSEMBLY (REC BALANCE) [BS]	119	8602403	DT FLAT SCREW-3MMDx8MM
	98	6288851 KNOB ASSEMBLY (REC. LEVEL) [U, C, W, FS, AU]	120	8698410	BT BIND SCREW-3MMDX10MM (W, FS, BS, AU)
	99	6288852 KNOB ASSEMBLY (REC. LEVEL) [BS]	121	8699410	BT BIND HEAD SCREW-3MMDX10MM (BLACK) [U, C]
100	6292161	EJECT BUTTON ASSEMBLY (U, C, W, FS, AU)	122	8691312	BT BIND SCREW-2.6MMDX12MM
			123	7780264	BT BIND SCREW - 2.6MMD x 14MM
			124	8691410	BT BIND SCREW - 3MMD x 10MM

Type of head	
 P Pan head screw	 BT Binding head tapping screw
 F Flat countersunk head screw	 BL Bolt
 B Binding head screw	 W Washer
 T Round head tapping screw	 E "E" ring
	
Length (L mm) 	
Diameter (D mm) 	

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.

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