

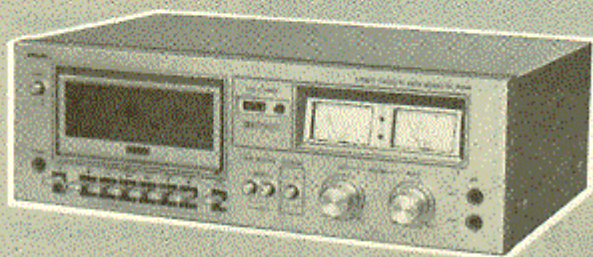
2706

TOSHIBA
STEREO CASSETTE DECK
PC-X10M

D.S

148

47



SPECIFICATIONS

Power supply:	AC 240V~, 50 Hz (for U.K. and Australia) AC 220V~, 50 Hz (for European countries except U.K.) AC 115/230V~, 50/60 Hz (for Middle East Asia and South America) AC 120V~, 60 Hz (for U.S.A. and Canada)	SN ratio:	20 Hz - 15 kHz for normal tape 57 dB (line peak level WTD, Chrome position tape)
Power consumption:	8W	Dolby NR:	Dolby NR mode improves SN ratio by 5 dB and 10 dB at 1 kHz and 5 kHz or over respectively.
Motor:	DC servomotor	Input jacks:	Line input jack; Cord with pin jack, 70mV (50K ohm or more) Microphone jack;
Head:	2-head system, record/ playback head (permalloy), erase head (ferrite)	Output jacks:	6.3mm dia. jack x 2, 0.25mV (600 ohm - 10K ohm) Line output jack; Cord with pin jack, 0.4V (50K ohm) Headphone jack; 6.3mm dia. jack, 0.25mW (8 ohm)
Semiconductors:	ICs 2 Transistors 16 Diodes 9 LED 2	Dimensions (mm):	420(W) x 145(H) x 210(D) (including rubber feet and knobs)
Track:	4-track and 2-channel stereo	Weight:	3.8 kg
Record/erase system:	AC Bias (85 kHz)/AC Erasure		
Tape speed:	4.8 cm/sec		
Fast forward/rewind:	Approx. 80 sec. (C-60)		
Wow and flutter:	0.05% (WTD RMS)		
Frequency response:	20 Hz - 17 kHz for metal tape 20 Hz - 16 kHz for chrome position tape		

Specifications are subject to change without notice.

TA, TC, TE, TU, AY, VF

1. BLOCK DIAGRAM

This block diagram is for Middle East, Asia and South America. For U.S.A. and Canada, the DIN Jack is omitted.

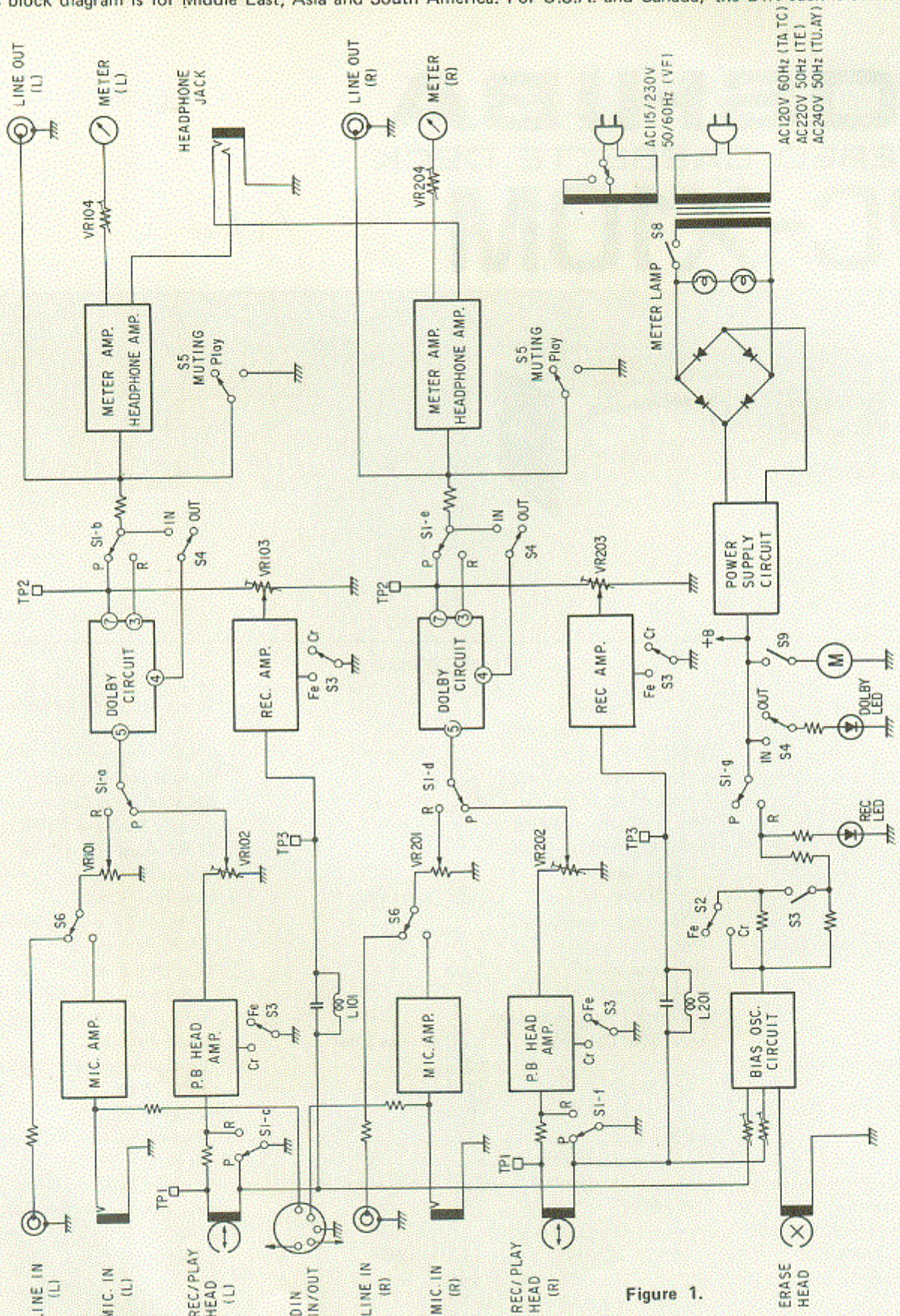


Figure 1.

* Noise Reduction System is manufactured under license from Dolby Laboratories Inc. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Inc.

2. PARTS LOCATIONS

FRONT VIEW

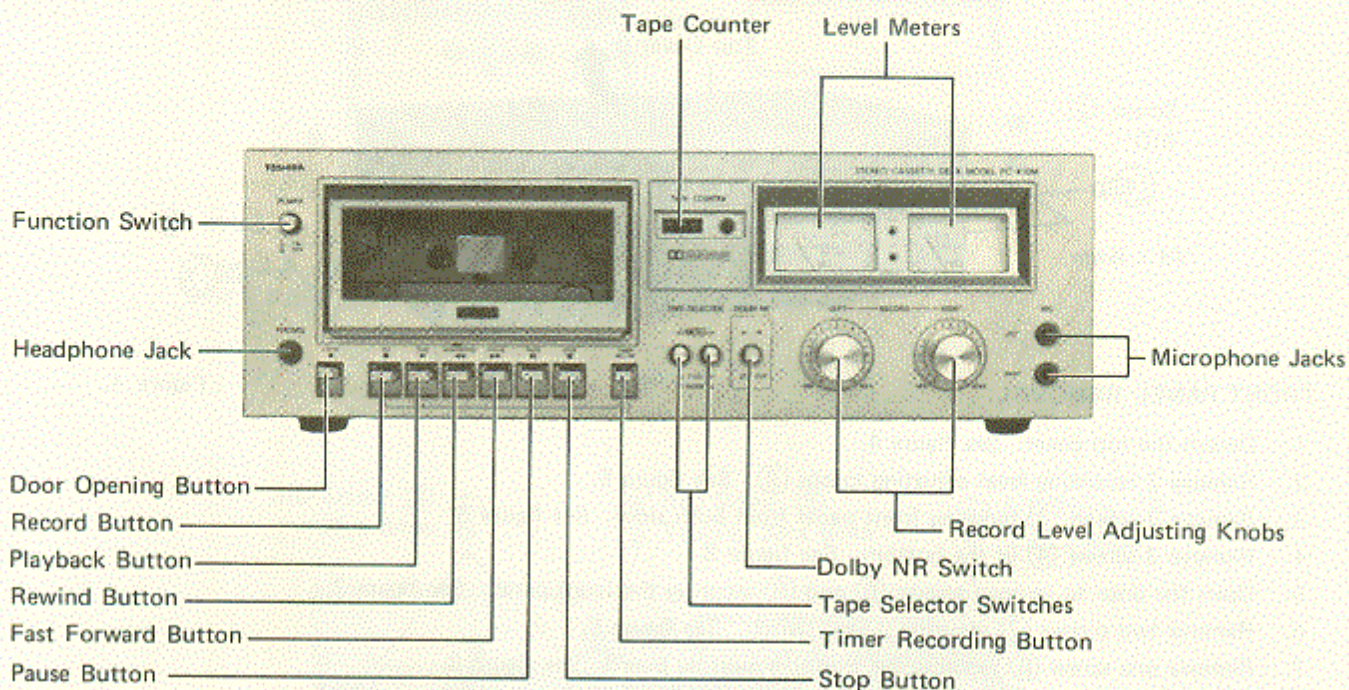


Figure 2.

REAR VIEW

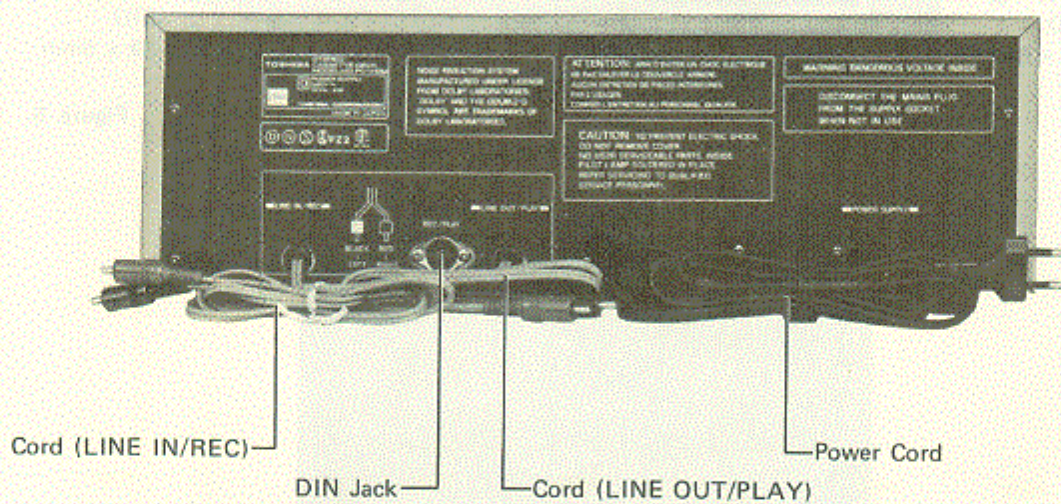


Figure 3.

* Photograph shown in Fig. 3 is for Middle East, Asia and South America. For U.S.A. and Canada, the DIN Jack is omitted.

3. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Detach the top cover removing 4 screws ①.

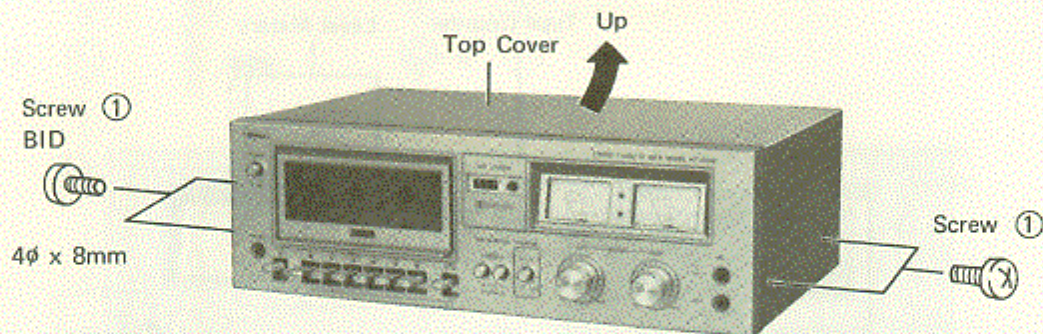


Figure 4.

FRONT PANEL REMOVAL

1. Detach the top cover. See figure 4.
2. Remove 2 recording level adjusting knobs ②. See figure 5.
3. Remove 2 screws ③ securing front panel from both sides. See figure 5.
4. Remove 3 screws ④ at the bottom. See figure 6.
5. Open the door to remove screws ⑤ and ⑥ securing the front panel. See figure 7.
6. Remove two screws ⑦ securing power switch. See figure 8.
7. Remove one screw ⑧ securing the motor mounting board. See figure 8.
8. Remove two screws ⑨ securing the meter mounting board. See figure 8.
9. Remove one screw ⑩ securing PC board. See figure 8.
10. Detach the front panel by removing the door from the front panel. See figure 9.



Figure 5.

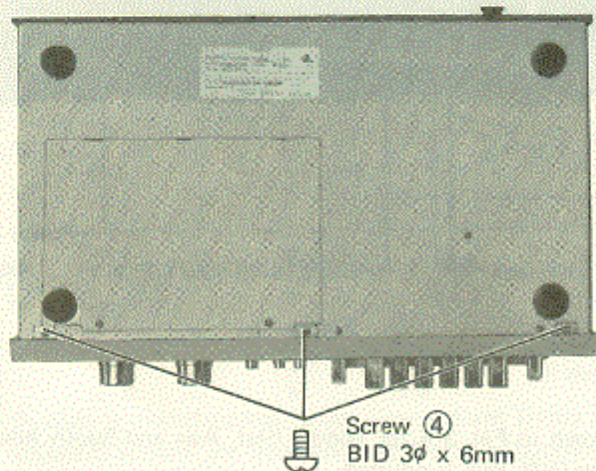


Figure 6.

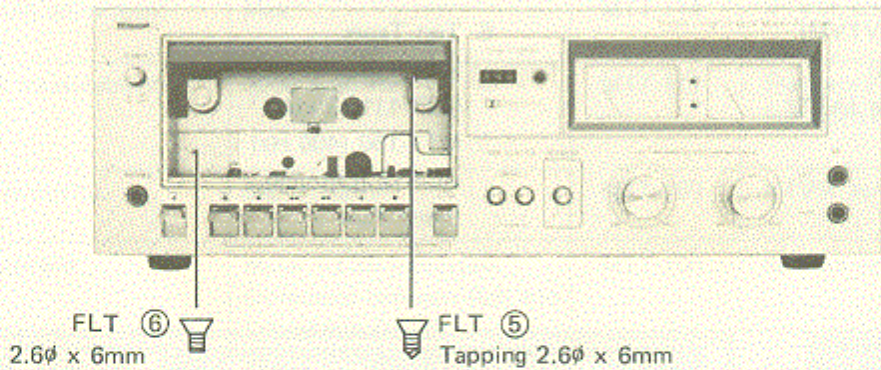


Figure 7.

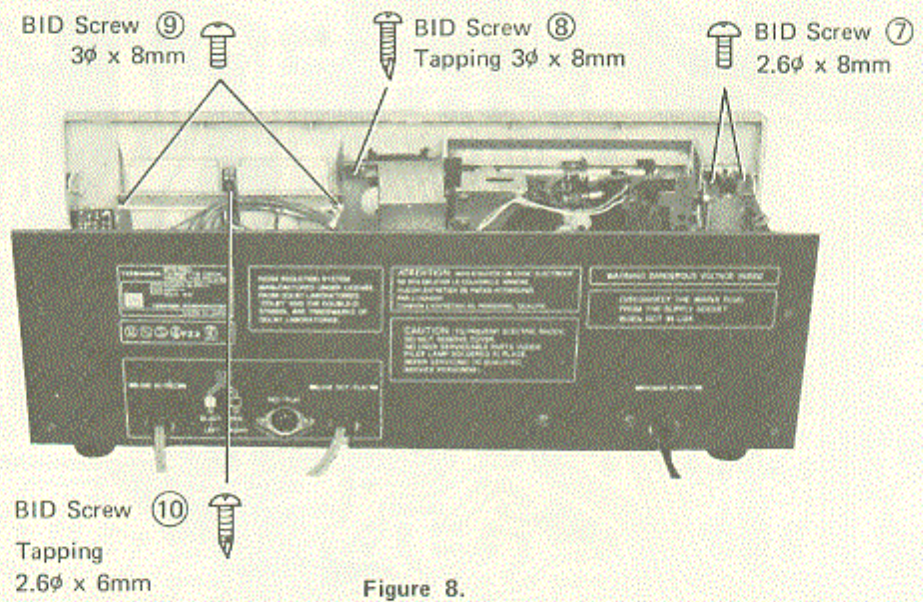


Figure 8.

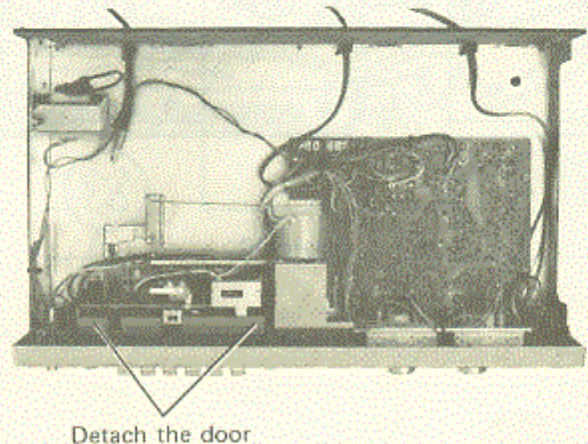


Figure 9.

4. ADJUSTMENTS

TEST EQUIPMENTS

1. Vacuum Voltmeter (VTVM)
2. Signal Generator (SG)
3. Resistance Attenuator (ATT)
4. Screwdriver
5. Frequency Counter

6. Test Tapes
 MTT-114
 MTT-111 (3 KHz)
 MTT-150 (400 Hz)
 AC-512 (Chrome)
 Blank Tape

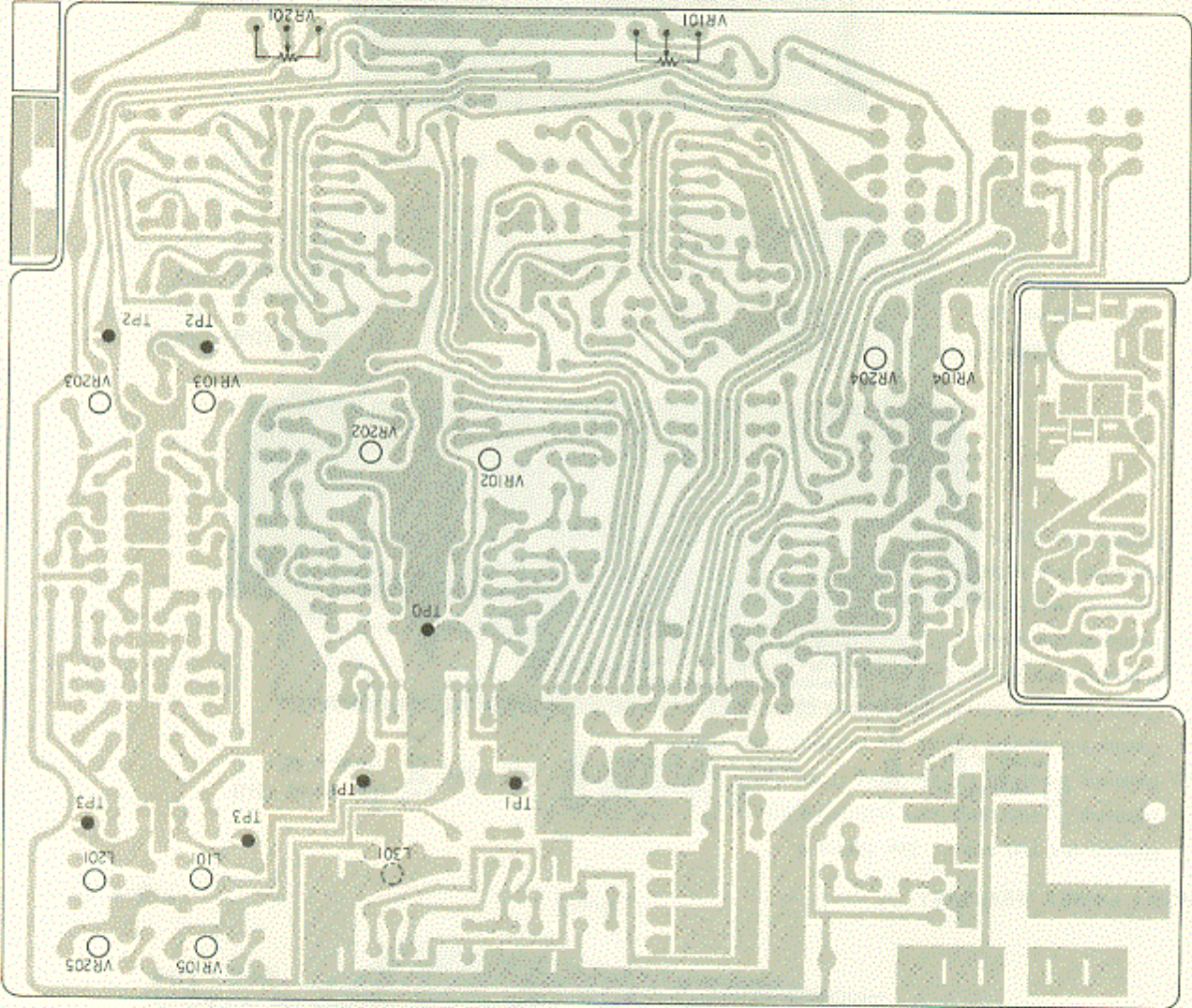


Figure 10.

	Item	Reference Value	Tape Used	Adjusting Tool	Volume	Bias
1	Head azimuth adjustment	Max.	MTT-114	VTVM, screwdriver	_____	Nor
2	Tape speed measurement	3000 ± 30 Hz	MTT-111	Frequency Counter Screwdriver	_____	Nor
3	Playback sensitivity adjustment	580 ± 10 mV	MTT-150	VTVM, screwdriver	_____	Nor.
4	Meter adjustment	Meter +3 dB indication Difference between Rch and Lch within 0.5 dB	MTT-150	Screwdriver	_____	Nor
5	Bias frequency adjustment	$85K \pm 5$ kHz	AC-512	Frequency Counter Screwdriver	Min.	CrO ₂
6	Bias leak adjustment	Min.	_____	VTVM, screwdriver	Min.	Nor
7	Record/playback frequency special adjustment (chrome)	0 ± 1 dB	AC-512	SG, ATT, VTVM Screwdriver	Max.	CrO ₂
8	Record/playback sensitivity adjustment (chrome)	$580\text{mV} \pm 60\text{mV}$	AC-512	SG, ATT, VTVM Screwdriver	Max.	CrO ₂

- Input: 0 dB = 1V
- Line in input impedance: 600 ohm
- Line out loading impedance: 50K ohm
- Test point loading impedance: Unloading

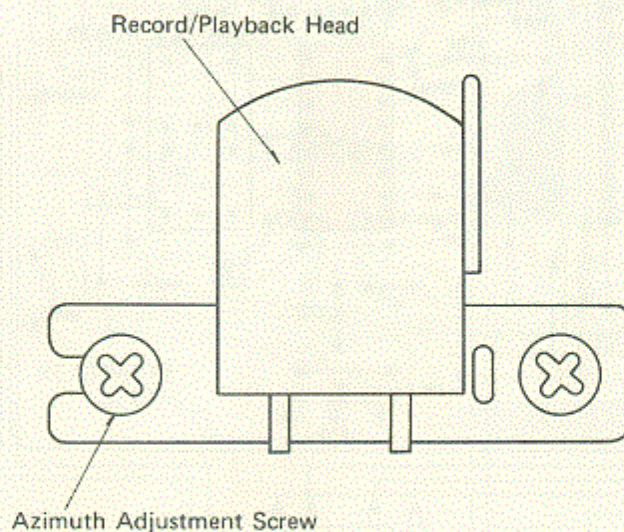


Figure 11.

Time	Switch			Adjustment Point	Test Point	Input Frequency ATT	Remarks
	Bias	EQ	NR				
—	Nor	Nor	Out	Head azimuth adjusting screw	Line out	—	Fasten screw after adjustment. See Fig. 11.
—	Nor	Nor	Out	Semi-fixed VR in motor	Line out	—	Adjust to 3000 ± 15 Hz only when tape speed deviates from reference value at the tape end. (See Fig. 12)
—	Nor.	Nor	Out	VR102 VR202	T.P. 2	—	
—	Nor	Nor	Out	VR104 VR204	Meter scale	—	No difference between deflections of right and left meters.
n.	CrO ₂	CrO ₂	Out	L301	T.P. 1	—	
n.	Nor	Nor	Out	L101 L201	T.P. 3	—	
x.	CrO ₂	CrO ₂	Out	VR105 VR205	Line out	1 kHz, 12.5 kHz -40 dB	
x.	CrO ₂	CrO ₂	Out	VR103 VR203	Line out	400 Hz -23 dB	

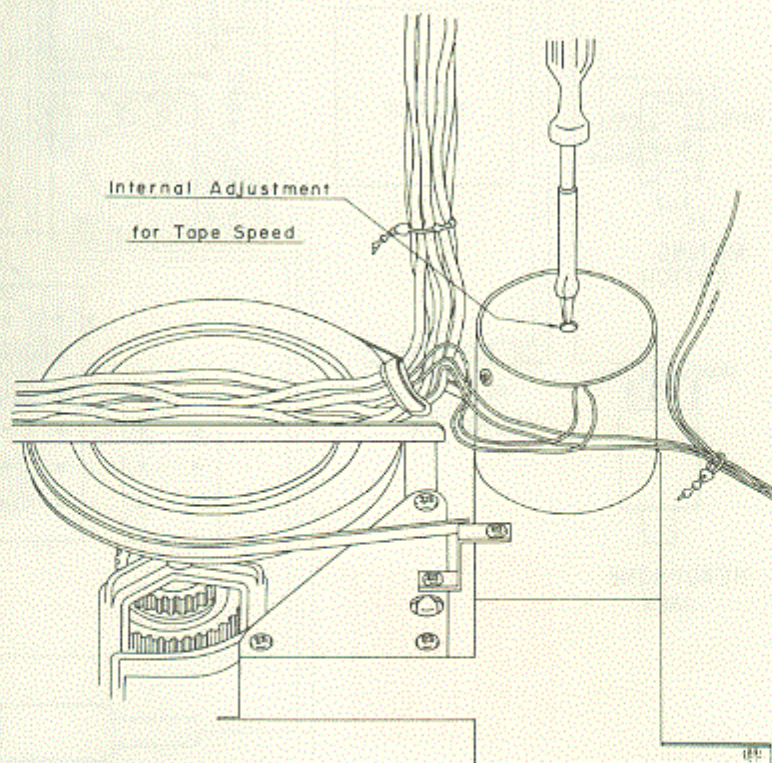


Figure 12.

S LOCATIONS

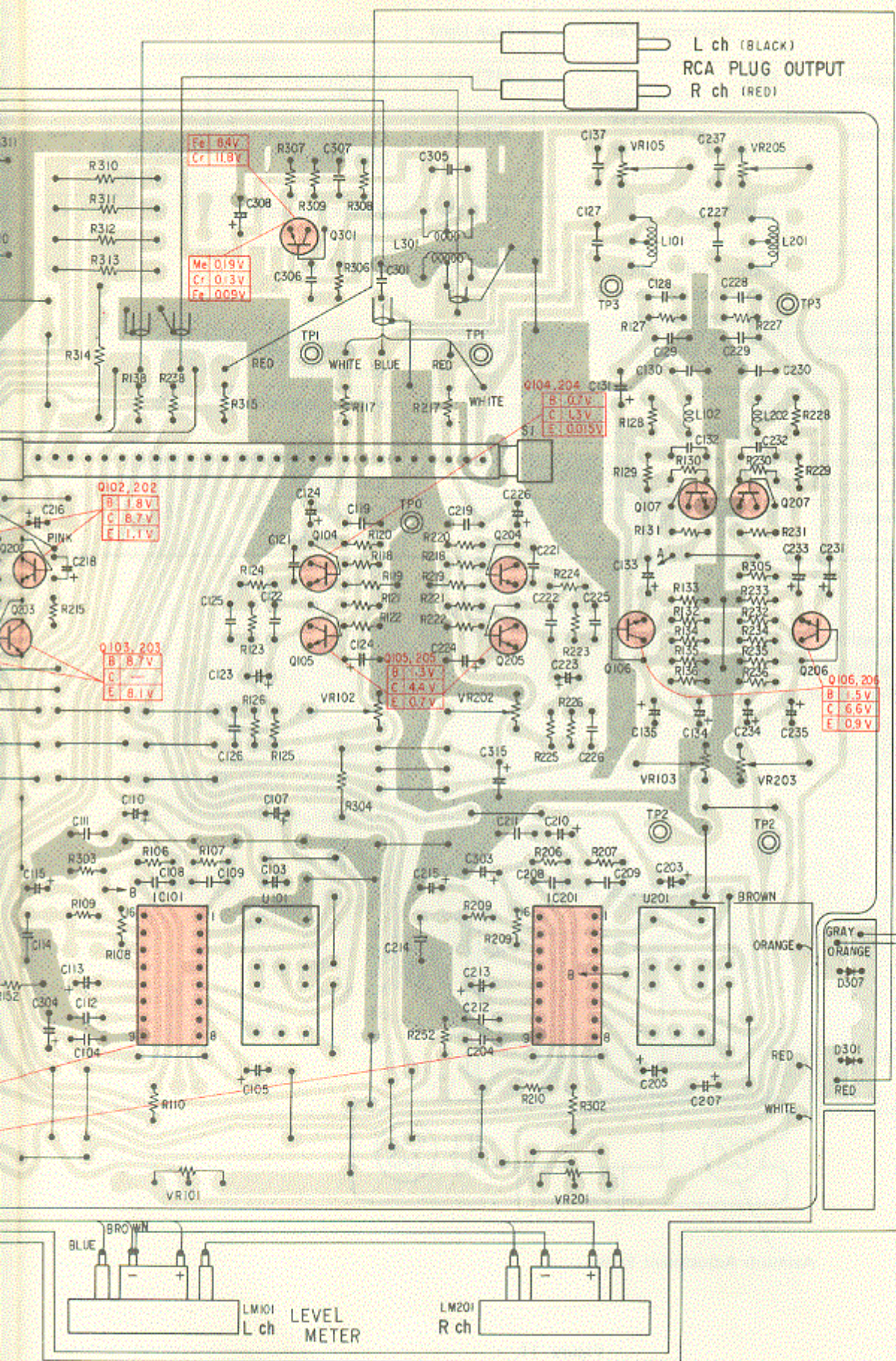
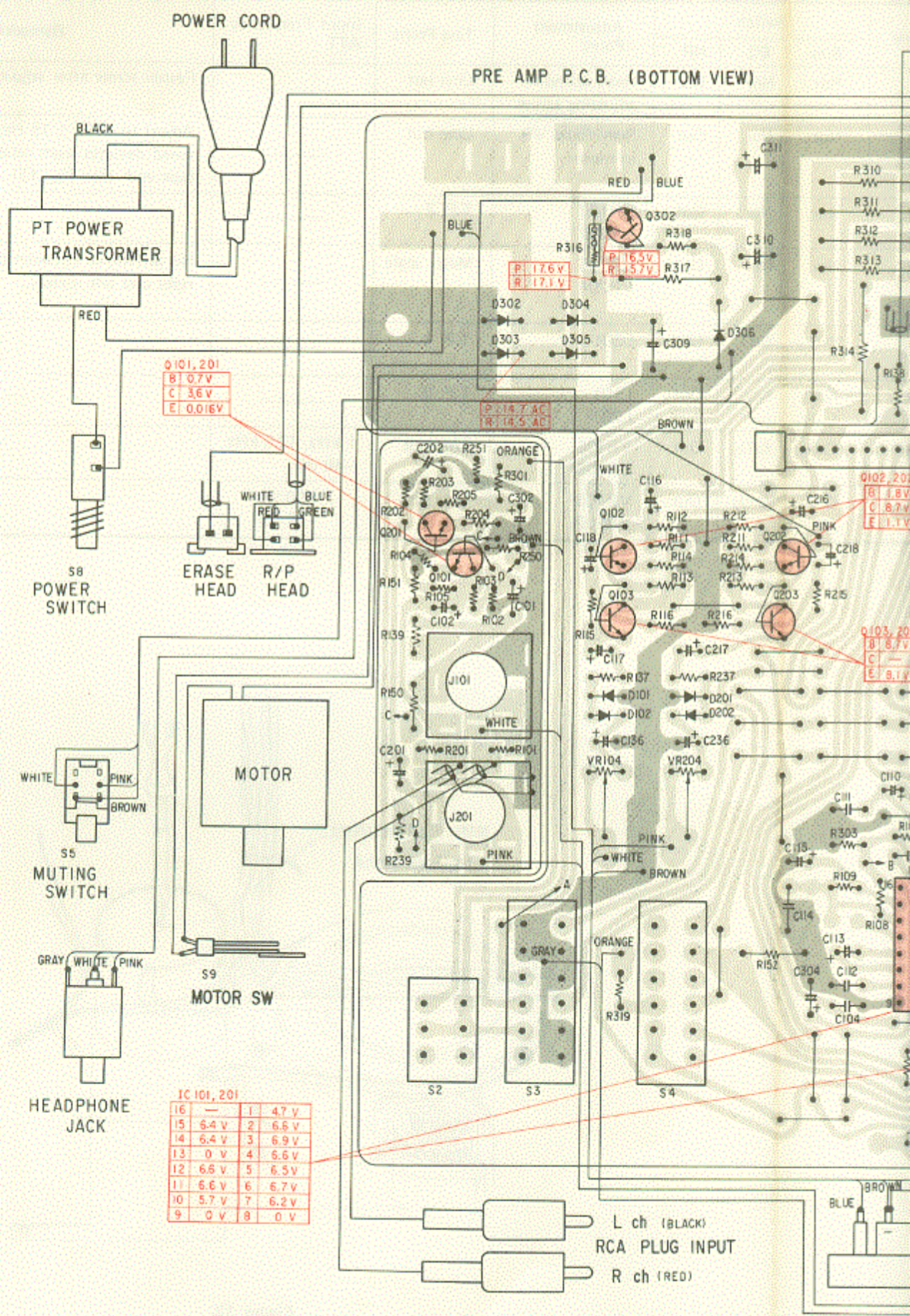


Figure 13.

TA,TC

5. ELECTRICAL PARTS LOCATION

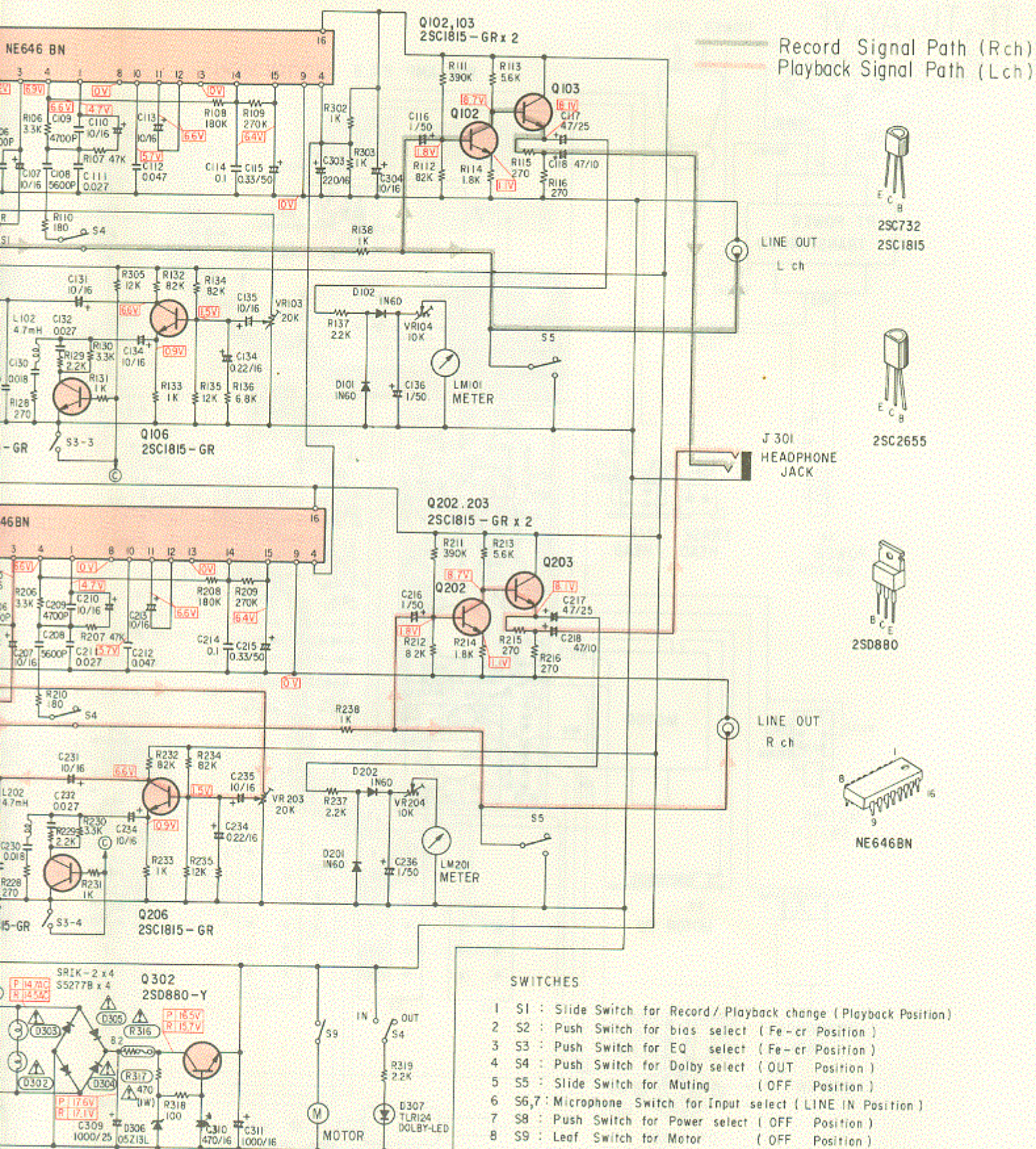


IC 101, 201

16	—	1	4.7 V
15	6.4 V	2	6.6 V
14	6.4 V	3	6.9 V
13	0 V	4	6.6 V
12	6.6 V	5	6.5 V
11	6.6 V	6	6.7 V
10	5.7 V	7	6.2 V
9	0 V	8	0 V

Figure 13.

SCHEMATIC DIAGRAM



6. SCHEMATIC DI

TA, TC

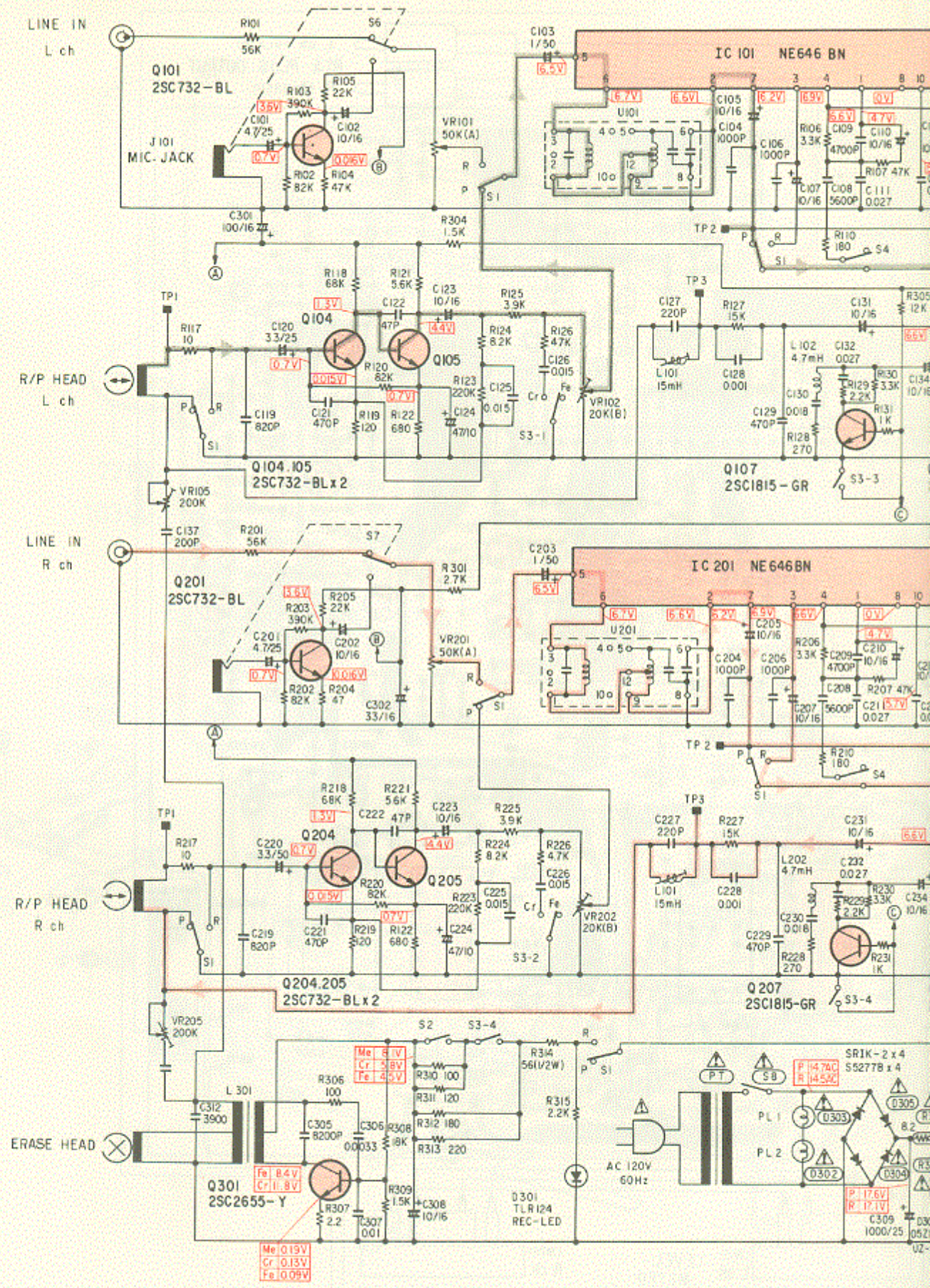


Figure 14.

S LOCATIONS

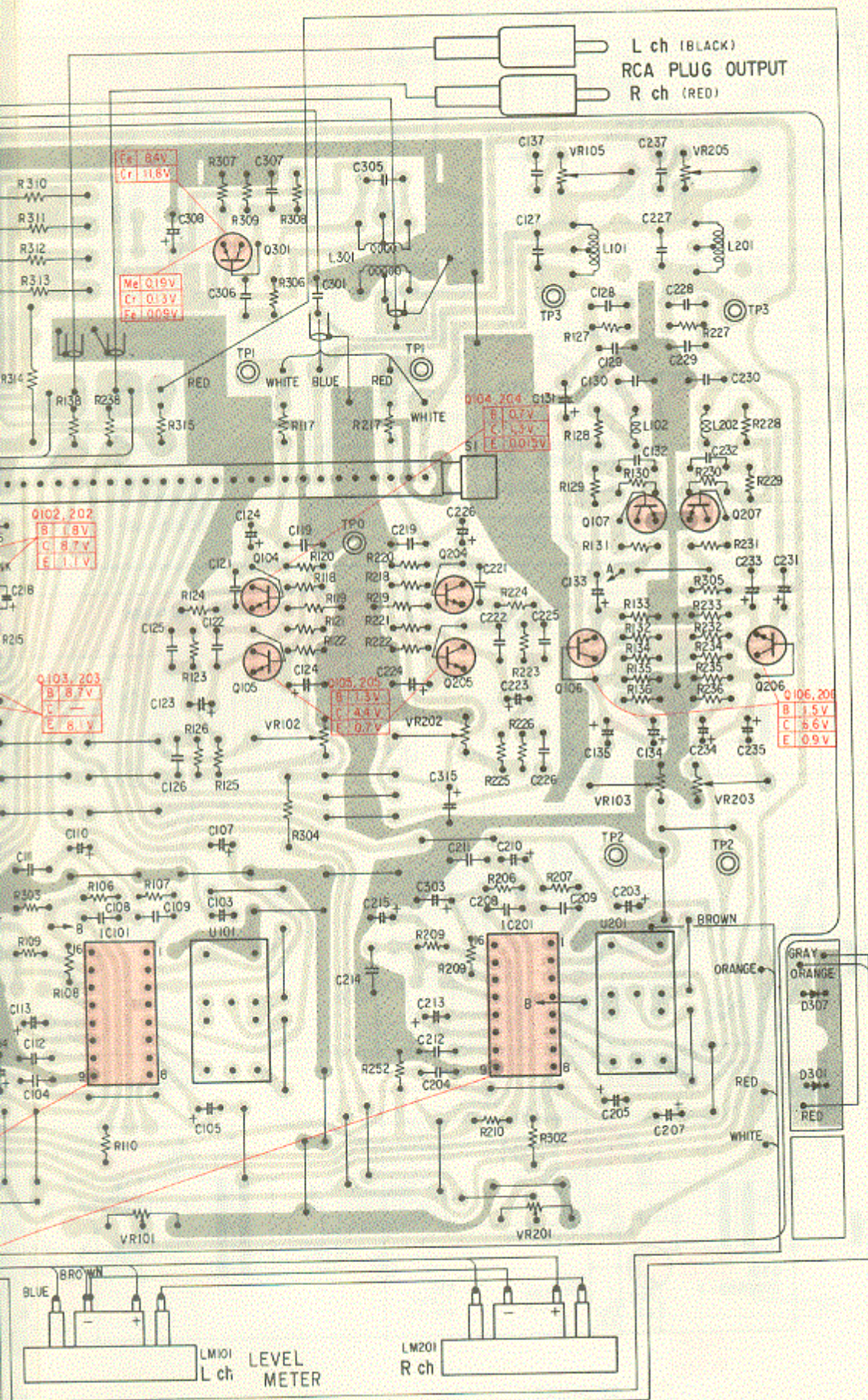


Figure 15.

7. ELECTRICAL PARTS LOCATION

TE, TU, AY, VF

PRE AMP P.C.B. (BOTTOM VIEW)

VF Model

VOLTAGE SELECT SW

PT POWER TRANSFORMER

POWER CORD

TE, TU, AY Model Only

FUSE

S8 POWER SWITCH

ERASE HEAD R/P HEAD

S5 MUTING SWITCH

MOTOR

S9 MOTOR SW

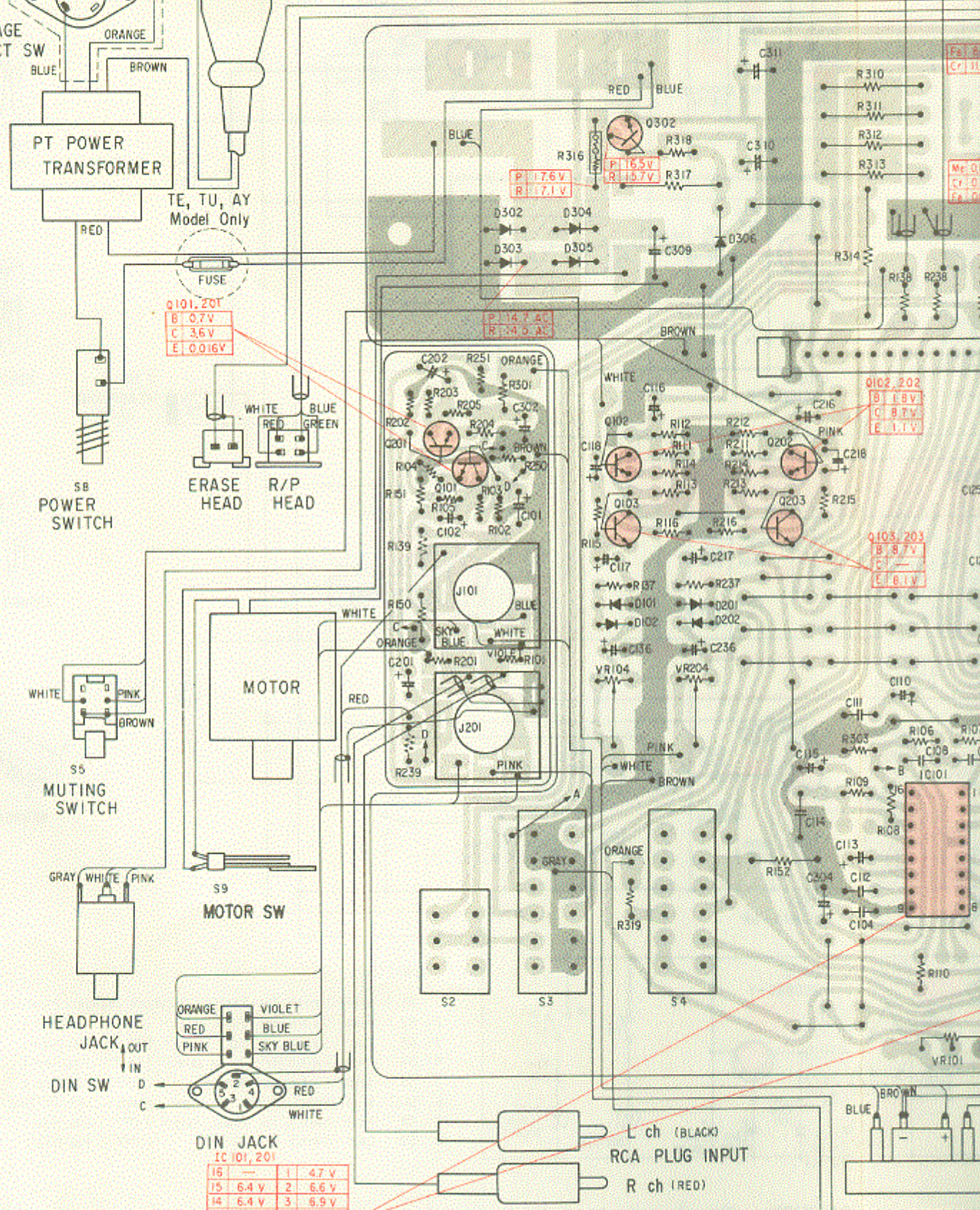
HEADPHONE JACK

DIN SW

DIN JACK

16	-	1	4.7 V
15	6.4 V	2	6.6 V
14	6.4 V	3	6.9 V
13	0 V	4	6.6 V
12	6.6 V	5	6.5 V
11	6.6 V	6	6.7 V
10	5.7 V	7	6.2 V
9	0 V	8	0 V

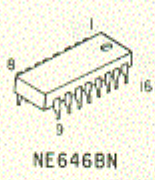
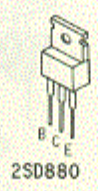
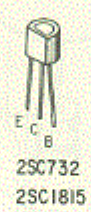
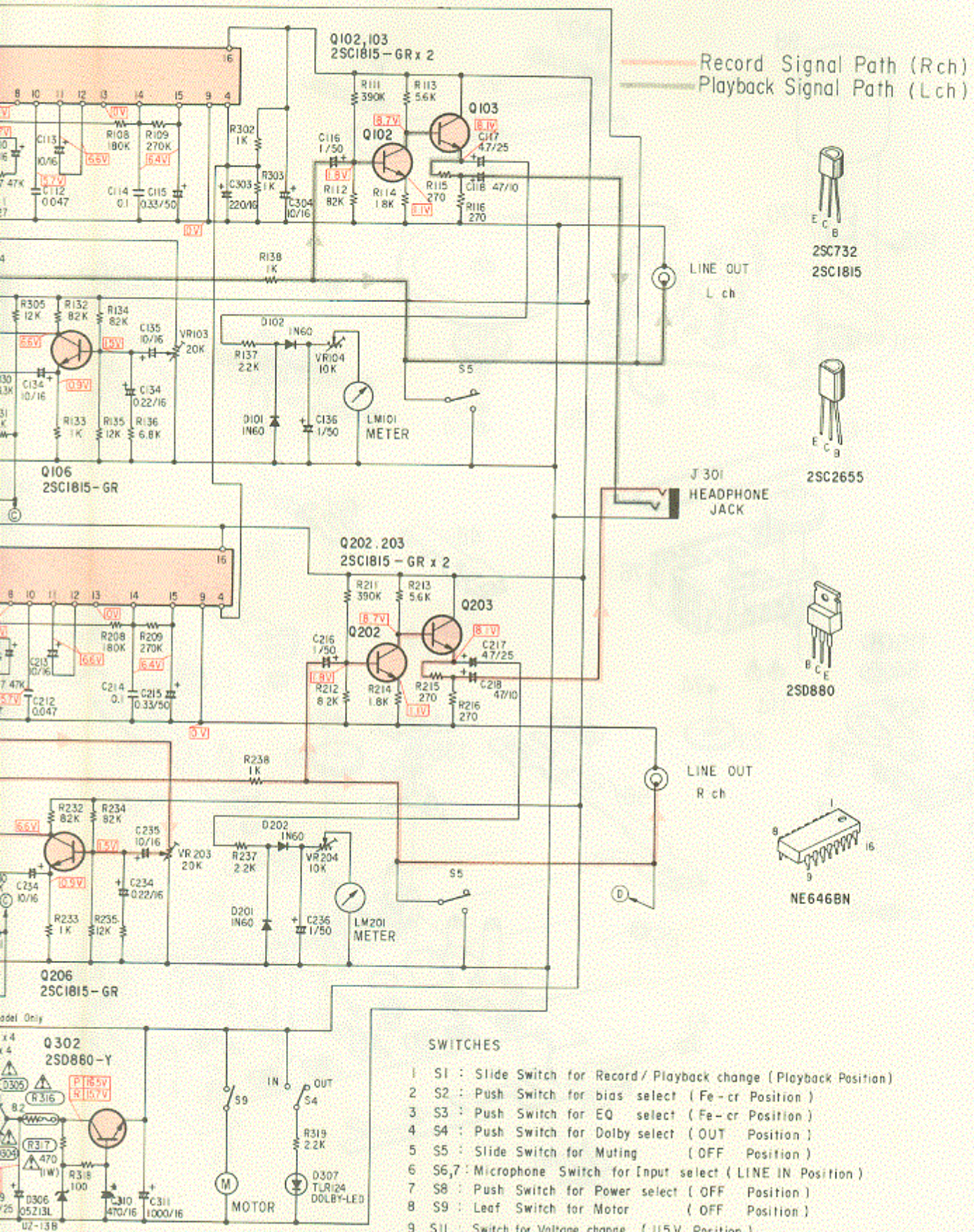
PRE AMP P.C.B. (BOTTOM VIEW)



L ch (BLACK)
RCA PLUG INPUT
R ch (RED)

Figure 15.

SCHEMATIC DIAGRAM



CAUTION: The \triangle mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

8. SCHEMATIC DIAGRAM

TE, TU, AY, VF
TE, TU, AY, VF

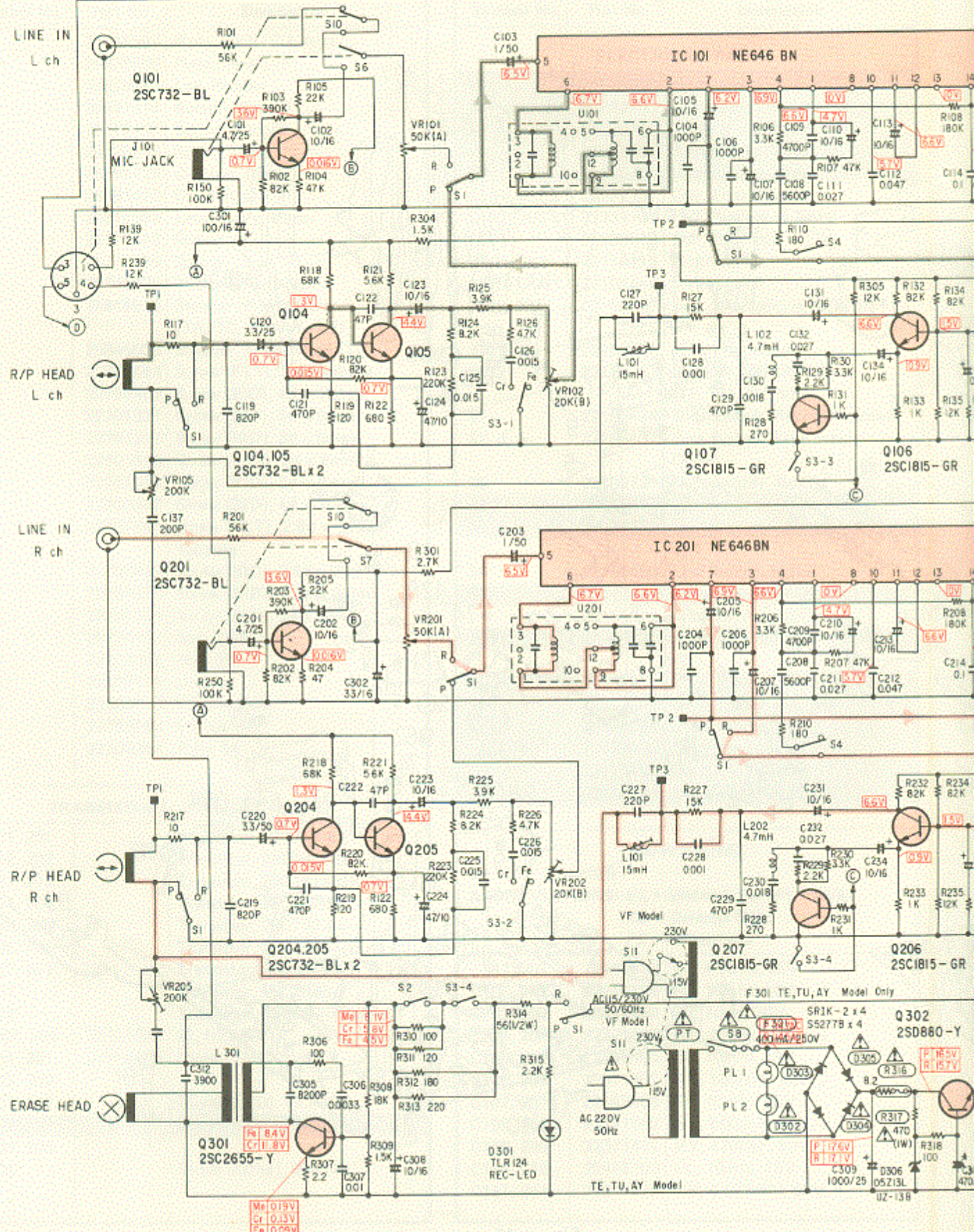


Figure 16.

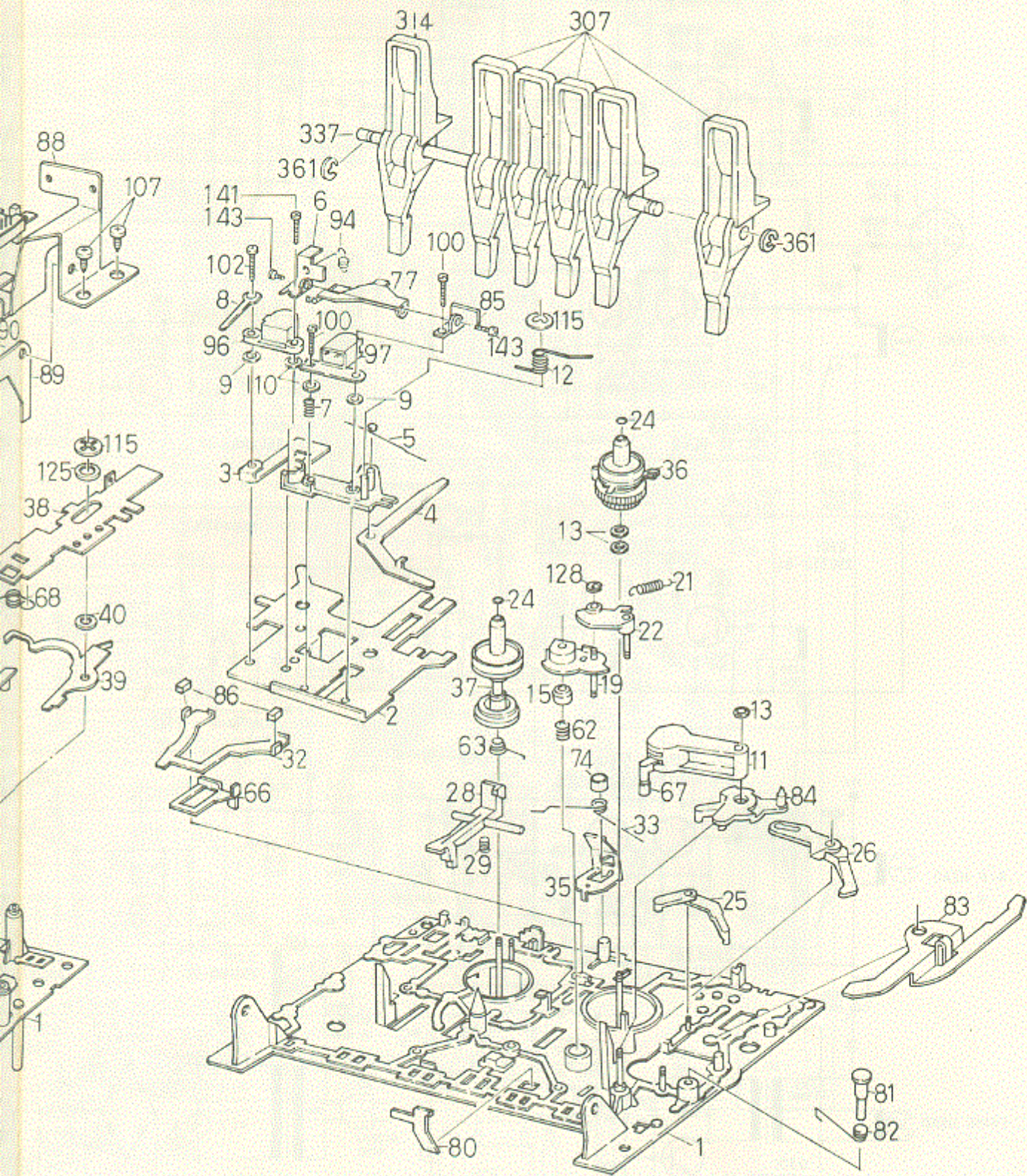


Figure 18.

9. MECHANICAL PARTS LOCATIONS

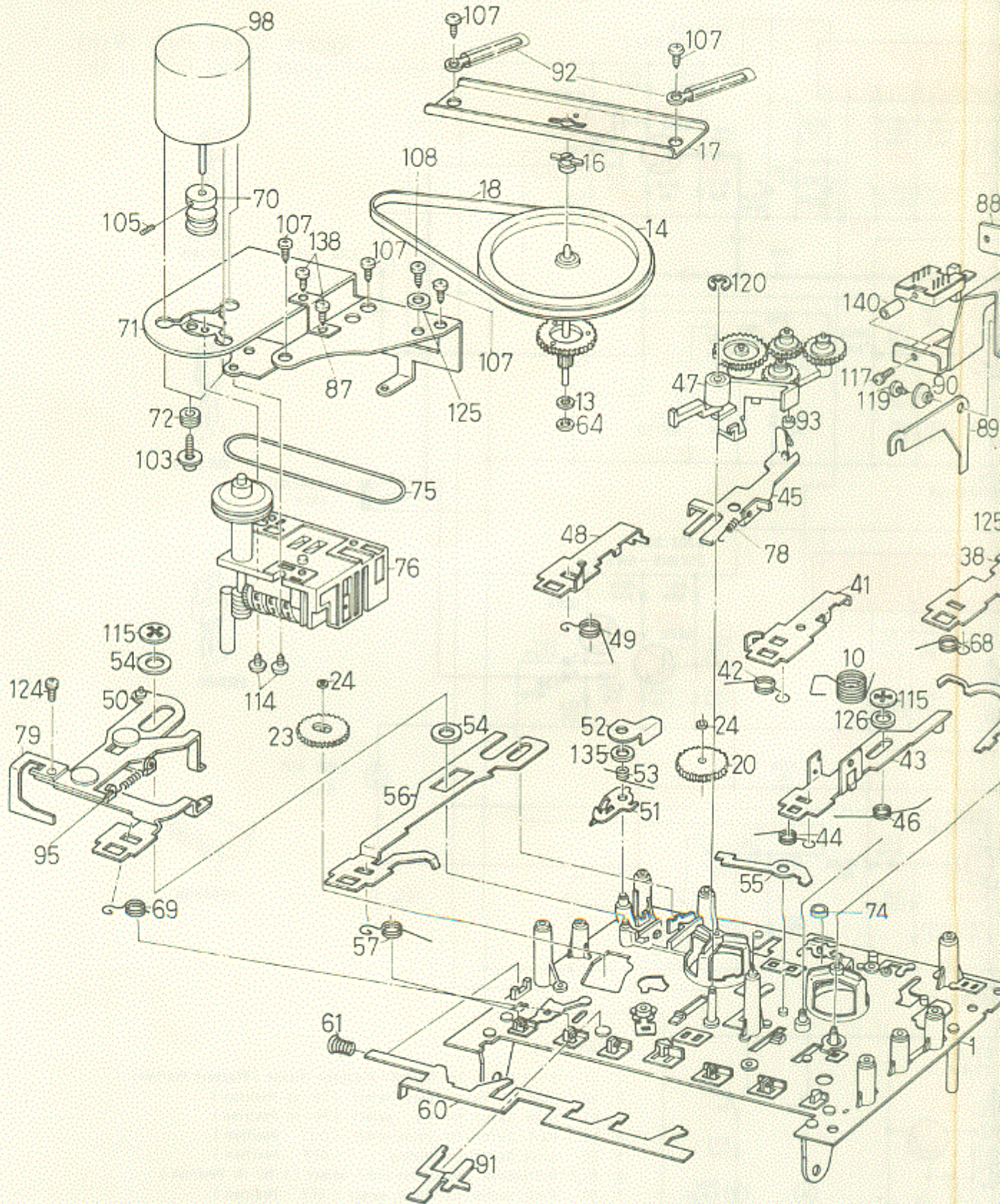


Figure 17.

NOTE: Parts excluded in the Parts List are not available as replacement parts.

10. CABINET PARTS LOCATIONS

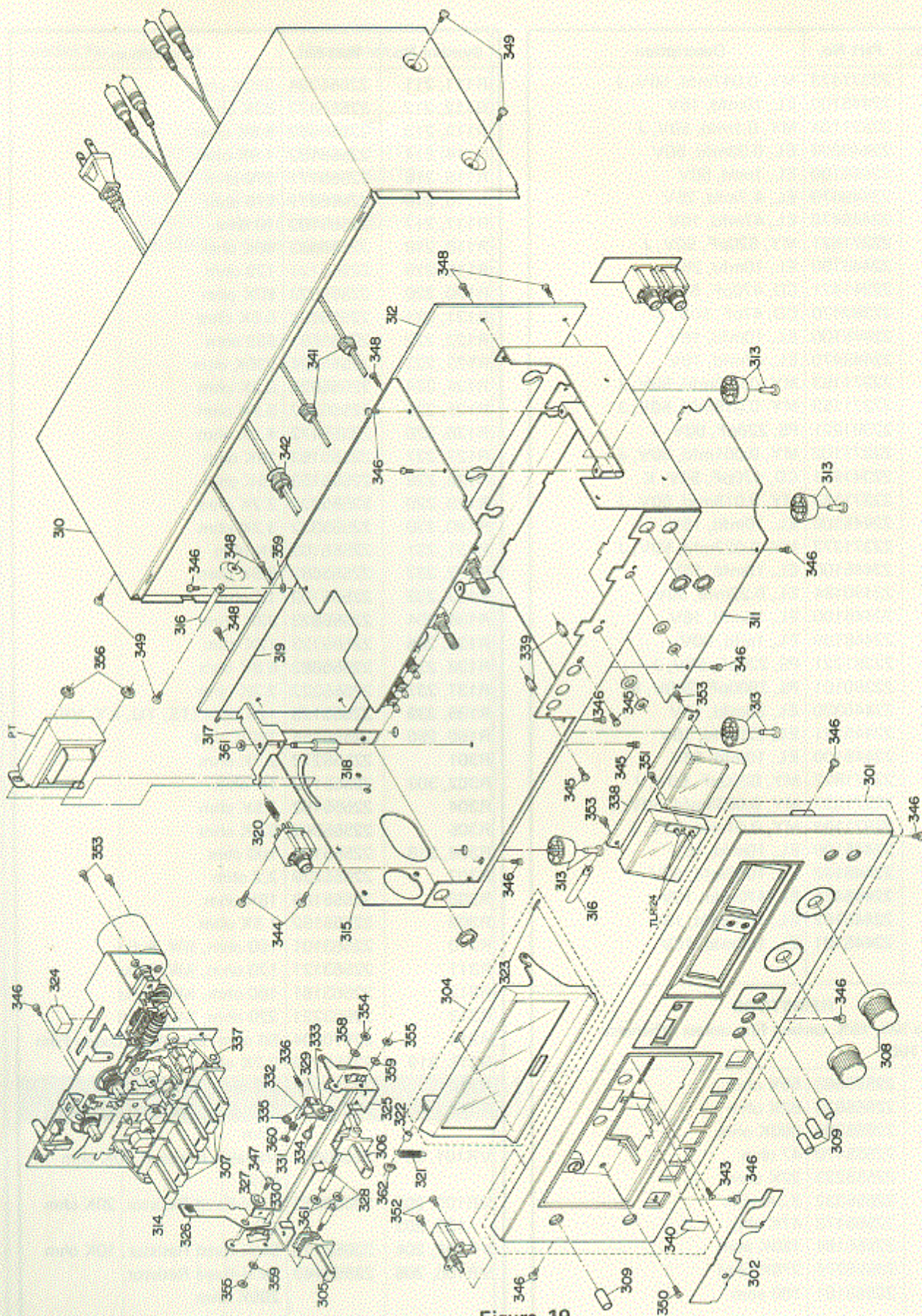


Figure 19.

NOTE: Parts excluded in the Parts List are not available as replacement parts.

11. PARTS LIST

CAUTION: The \triangle mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
MECHANICAL PARTS					
3	25733508	Plate, Head	76	25873213	Tape Counter
4	25782353	Lever, Release	78	25776134	Spring, Middle Pulley
5	25773450	Spring, Release Lever	82	25773462	Spring, Kick Arm
7	25772400	Spring, Record/Playback Head	83	25748438	Lever, Timer
9	25764584	Washer, Head	84	25748439	Lever, Timer
10	25773451	Spring, Head Chassis	86	25761421	Rubber, Brake
11	25717435	Pressure Roller Ass'y	94	25776135	Spring
12	25773452	Spring, Pressure Roller	95	25776136	Spring, Release Lever
13	25764585	Washer, 3 ϕ	96	22218234	Head, Erase
14	25717436	Flywheel	97	22217344	Head, Record/Playback
15	25725410	Metal, Flywheel	98	22125768	Motor, DC
16	25725411	Holder, Flywheel	100	22701398	Screw (PAN), 2 ϕ x 10mm
18	25755430	Belt, Flywheel	102	22707487	Screw (PAN), 2 ϕ x 12mm
19	25782360	Arm, Play Pulley	105	22701431	Screw (ITB), 2.6 ϕ x 6mm
20	25756221	Pulley, Play	107	22701326	Screw (BID), 3 ϕ x 8mm, Tapping
21	25776133	Spring, Play Pulley	108	22707163	Screw (PAN), 3 ϕ x 10mm
22	25782361	Arm, Cam Gear	110	25764591	Washer
23	25756222	Gear, Cam	114	22707473	Screw (BID), 2.6 ϕ x 6mm
24	25764586	Washer, 2 ϕ	115	22703283	Ring, CS
25	25782354	Arm, Auto-stop	117	22701491	Screw (PAN), 2.6 ϕ x 10mm
26	25782362	Arm, Kick	119	22701325	Screw (BID), 3 ϕ x 8mm
28	25782355	Arm, Record Prevention, Error	120	22703119	E Ring, 2.5 ϕ
29	25772552	Spring	124	22707151	Screw (BID), 2.6 ϕ x 5mm
33	25773453	Spring, Brake Arm	126	22703285	Washer
36	25712375	Reel Plate Ass'y, Take-up	128	22703117	E Ring, 1.5 ϕ
37	25712376	Reel Plate Ass'y, Supply	135	22703286	Washer
40	25764588	Washer	138	22701321	Screw (BID), 3 ϕ x 6mm
42	25773454	Spring, Rewind Arm	140	25753346	Spacer
44	25773455	Spring, Play Lever	141	22707488	Screw (PAN), 2 ϕ x 14mm
46	25773456	Spring, Switch Drive Plate	143	22707265	Screw (BID), 2 ϕ x 4mm
47	25713521	Pulley Ass'y, Middle	CABINET PARTS		
49	25773457	Spring, Fast-forward Arm	301	25838599	Panel Ass'y, Front (TA, TC, VF)
53	25773458	Spring, Pause Lever	301	25838600	Panel Ass'y, Front (TE, TU, AY)
54	25764589	Washer	302	25838506	Cover, Chassis
57	25773459	Spring, Stop Lever	304	25832437	Door (With Cushion)
61	25772553	Spring, Slide Lock Plate	305	25782356	Button, Open
62	25772554	Spring, Arm	306	25782357	Button, Timmer
63	25772555	Spring, Back Tension	307	25782358	Button, Operation
64	25764590	Washer, Thrust	308	25837313	Knob, Record Level
65	25756223	Gear, Flywheel	309	25782359	Button, Push
67	25733509	Pipe, 3 ϕ	310	25838602	Cover, Top
68	25773460	Spring, Record Lever	312	25838594	Plate, Back (TA)
69	25773461	Spring, Pause Lever	312	25838595	Plate, Back (TC)
70	25758038	Pulley, Motor	312	25838596	Plate, Back (TE)
72	25761456	Cushion, Motor			
75	25755431	Belt, Tape Counter			

Symbol No.	Part No.	Description
312	25838597	Plate, Back (TU, AY)
312	25838598	Plate, Back (VF)
313	22828048	Leg, Rubber
314	25837314	Button, Record
320	25776137	Spring, Record
321	25776138	Spring, Door
322	25761425	Cushion, Door
324	25761422	Cushion, Door
326	25816589	Lever Ass'y, Door
335	25773463	Spring
336	25776139	Spring
341	25845528	Stopper, Patch Cord
342	25845528	Stopper, Power Cord (TA, TC, TE, AY, VF)
342	25845556	Stopper, Power Cord (TU)
343	22707664	Screw (FLT), 2.6φ x 6mm
344	22707402	Screw (BID), 4φ x 10mm
345	22701321	Screw (BID), 3φ x 6mm
346	22701321	Screw (BID), 3φ x 6mm
347	22701348	Screw (FLT), 3φ x 8mm
348	22701325	Screw (BID), 3φ x 8mm
349	22707402	Screw (BID), 4φ x 10mm
350	22707665	Screw (FLT), 2.6φ x 6mm, Tapping
351	22707473	Screw (BID), 2.6φ x 6mm
352	22707323	Screw (BID), 2.6φ x 8mm
353	22701325	Screw (BID), 3φ x 8mm
354	25720130	Nut, 2.6φ
355	22702108	Nut, 3φ
356	22702115	Nut, 4φ
360	22703119	E Ring, 2.5φ
361	22703280	E Ring, 4φ
362	22703284	Ring, 3φ
TRANSISTORS, ICS AND DIODES		
Q101, 201		Transistor, 2SC732-BL
Q102, 202		Transistor, 2SC1815-GR
Q103, 203		Transistor, 2SC1815-GR
Q104, 204		Transistor, 2SC732-BL
Q105, 205		Transistor, 2SC732-BL
Q106, 206		Transistor, 2SC1815-GR
Q107, 207		Transistor, 2SC1815-GR
Q301		Transistor, 2SC2655-Y
Q302		Transistor, 2SD880-Y
IC101, 201	22114681	IC, NE646B
D101, 201, 102, 202	22115602	Diode, 1N60
D301, 307		Diode (LED), TLR124
D302, 303, 304, 305		Diode, S5277B (SRIK-2)
D306		Diode (Zener), 05Z13L

Symbol No.	Part No.	Description
ELECTRICAL PARTS		
PT	22223706	Transformer, Power (TA, TC)
PT	22223702	Transformer, Power (TE)
PT	22223703	Transformer, Power (TU)
PT	22223704	Transformer, Power (AY)
PT	22223705	Transformer, Power (VF)
L101, 201	22232231	Coil, Trap (15mH)
L102, 202	22232191	Coil, Peaking (4.7mH)
L301	22235016	Coil, Oscillator
U101, 201	22153115	Filter, MPX
LM101, 201	22104545	Meter, Level
J101, 201	22163767	Jack, Microphone (With S6, S7)
J301	22163768	Jack, Headphone
J302	22163773	Jack, 5P DIN (With S10) (TE, TU, AY, VF)
S1	22195436	Slide Switch, Record/Playback
S2, 3, 4	22195437	Push Switch, Tape Select/Dolby
S5	22195730	Slide Switch, Muting
S8	22195731	Switch, Power (TA, TC)
S8	22195732	Switch, Power (TE, TU, AY, VF)
S9	22195450	Leaf Switch, Motor
S11	22147187	Switch, Voltage Change (VF)
	22164314	Adaptor, Plug (VF)
F301	22144424	Fuse, 400mA/250V (TE, TU, AY)
	22170412	Cord, Patch
	22176572	Cord, Power (TA, TC)
	22176286	Cord, Power (TE)
	22176536	Cord, Power (TU)
	22176489	Cord, Power (AY)
	22176114	Cord, Power (VF)
CAPACITORS		
J = ±5%, K = ±10%		
ABBREVIATIONS: EL = Electrolytic, MY = Mylar, CD = Ceramic Disk, PS = Polystyrene		
C101, 201	22446479	EL, 4.7mfd, 25V
C102, 202	22445100	EL, 10mfd, 16V
C103, 203	22448109	EL, 1mfd, 50V
C104, 204	22371102	MY, 1000pF, 50V, J
C105, 205	22445100	EL, 10mfd, 16V
C106, 206	22371102	MY, 1000pF, 50V, J
C107, 207	22445100	EL, 10mfd, 16V
C108, 208	22371562	MY, 5600pF, 50V, J
C109, 209	22371472	MY, 4700pF, 50V, J
C110, 210	22445100	EL, 10mfd, 16V
C111, 211	22371273	MY, 0.027mfd, 50V, J

Symbol
C112, 2
C113, 2
C114, 2
C115, 2
C116, 2
C117, 2
C118, 2
C119, 2
C120, 2
C121, 2
C122, 2
C123, 2
C124, 2
C125, 2
C126, 2
C127, 2
C128, 2
C129, 2
C130, 2
C131, 2
C132, 2
C133, 2
C134, 2
C135, 2
C136, 2
C137, 2
C301
C302
C303
C304
C305
C306
C307
C308
C309
C310
C311
C315
Resis noted
R101
R102
R103
R104
R105
R106
R107
R108
R109
R110
R111

Symbol No.	Part No.	Description
C112, 212	22371473	MY, 0.047mfd, 50V, J
C113, 213	22445100	EL, 10mfd, 16V
C114, 214	22371104	MY, 0.1mfd, 50V, J
C115, 215	22440208	EL, 0.33mfd, 50V
C116, 216	22448109	EL, 1mfd, 50V
C117, 217	22446479	EL, 4.7mfd, 25V
C118, 218	22445470	EL, 47mfd, 16V
C119, 219	22371821	MY, 820pF, 50V, J
C120, 220	22446100	EL, 10mfd, 25V
C121, 221	22341471	CD, 470pF, 50V, K
C122, 222	22362470	CD, 47pF, 50V, K
C123, 223	22445100	EL, 10mfd, 16V
C124, 224	22445470	EL, 47mfd, 10V
C125, 225	22371153	MY, 0.015mfd, 50V, J
C126, 226	22371153	MY, 0.015mfd, 50V, J
C127, 227	22381221	PS, 220pF, 50V, J
C128, 228	22371102	MY, 0.001mfd, 50V, J
C129, 229	22341471	CD, 470pF, 50V, K
C130, 230	22371183	MY, 0.018mfd, 50V, J
C131, 231	22445100	EL, 10mfd, 16V
C132, 232	22371273	MY, 0.027mfd, 50V, J
C133, 233	22445100	EL, 10mfd, 16V
C134, 234	22440184	EL, 0.22mfd, 50V
C135, 235	22445100	EL, 10mfd, 16V
C136, 236	22448109	EL, 1mfd, 50V
C137, 237	22381221	PS, 220pF, 50V, J
C301	22380101	PS, 3900pF, 200V, K
C302	22445330	EL, 33mfd, 16V
C303	22445221	EL, 220mfd, 16V
C304	22445100	EL, 10mfd, 16V
C305	22371822	MY, 8200pF, 50V, J
C306	22371332	MY, 0.0033mfd, 50V, J
C307	22371103	MY, 0.01mfd, 50V, J
C308	22445100	EL, 10mfd, 16V
C309	22446102	EL, 1000mfd, 25V
C310	22445471	EL, 470mfd, 16V
C311	22445102	EL, 1000mfd, 16V
C315	22445101	EL, 100mfd, 16V

RESISTORS

Resistors are $\frac{1}{4}W$, $\pm 5\%$, carbon film unless otherwise noted. K = 1000

R101, 201	22555563	56K ohm
R102, 202	22555823	82K ohm
R103, 203	22555394	390K ohm
R104, 204	22555470	47 ohm
R105, 205	22555223	22K ohm
R106, 206	22555332	3.3K ohm
R107, 207	22555473	47K ohm
R108, 208	22555184	180K ohm
R109, 209	22555274	270K ohm
R110, 210	22555181	180 ohm

Symbol No.	Part No.	Description
R111, 211	22555394	390K ohm
R112, 212	22555823	82K ohm
R113, 213	22555562	5.6K ohm
R114, 214	22555182	1.8K ohm
R115, 215	22555271	270 ohm
R116, 216	22555271	270 ohm
R117, 217	22555100	10 ohm
R118, 218	22555683	68K ohm
R119, 219	22555121	120 ohm
R120, 220	22555823	82K ohm
R121, 221	22555562	5.6K ohm
R122, 222	22555681	680 ohm
R123, 223	22555224	220K ohm
R124, 224	22555822	8.2K ohm
R125, 225	22555392	3.9K ohm
R126, 226	22555472	4.7K ohm
R127, 227	22555153	15K ohm
R128, 228	22555153	15K ohm
R129, 229	22555222	2.2K ohm
R130, 230	22555332	3.3K ohm
R131, 231	22555102	1K ohm
R132, 232	22555682	6.8K ohm
R133, 233	22555102	1K ohm
R134, 234	22555823	82K ohm
R135, 235	22555123	12K ohm
R136, 236	22555682	6.8K ohm
R137, 237	22555222	2.2K ohm
R139, 239	22555123	12K ohm (TE, TU, AY, VF)
R150, 250	22555154	150K ohm
R301	22555272	2.7K ohm
R302, 303	22555102	1K ohm
R304	22555152	1.5K ohm
R305	22555562	5.6K ohm
R306, 318	22555101	100 ohm
R307	22555229	2.2 ohm
R308	22555183	18K ohm
R309	22555152	1.5K ohm
R310	22563101	100 ohm, $\frac{1}{4}W$, Solid
R311	22563121	120 ohm, $\frac{1}{4}W$, Solid
R312	22563181	180 ohm, $\frac{1}{4}W$, Solid
R313	22563221	220 ohm, $\frac{1}{4}W$, Solid
R314	22570304	56 ohm, 2W, Metal Oxide Film
R315, 319	22555222	2.2K ohm
R316	22500172	8.2 ohm, $\frac{1}{4}W$, Fusible
R317	22570035	470 ohm, 1W, Metal Oxide Film
VR101, 201	22650455	Variable Resistor, 50K ohm (A)
VR102, 202, 103, 203	22658052	Semi-fixed Resistor, 20K ohm (B)
VR104, 204	22658129	Semi-fixed Resistor, 10K ohm
VR105, 205	22658449	Semi-fixed Resistor, 200K ohm

Symbol No.	Part No.	Description
ACCESSORIES		
	22902766	Owner's Manual (E)
	22902767	Owner's Manual (F)(TC, TE)
	22902768	Owner's Manual (G)(TE)
	22902773	Owner's Manual (A)(VF)
	22902772	Owner's Manual (S)(VF)
	22990374	Cleaner, Head

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