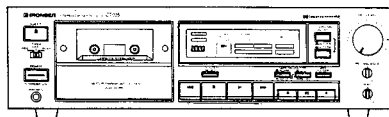


# Service Manual

**PIONEER**  
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ORDER NO.  
ARP1728

STEREO CASSETTE DECK

# CT-335

## CT-335-S

CT-335 AND CT-335-S HAVE FOUR VERSIONS :

Type	Applicable model		Power requirement	Export destination
	CT-335	CT-335-S		
HEM	○	○	AC220V, 240V (switchable) *	European continent
HB	○	—	AC220V, 240V (switchable) *	United Kingdom
HP	○	—	AC220V, 240V (switchable) *	Australia
SD	○	—	AC110V, 120V-127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

\*Change the primary wiring of the power transformer.

- This manual is applicable to the CT-335/HEM, HB, HP, SD and CT-335-S/HEM types.
- For the CT-335/HB, HP, SD and CT-335-S/HEM types, refer to pages 33, 34.
- The CT-335-S is the same as the CT-335 except for the color.
- Ce manuel pour le service comprend les explications en français de réglage.
- Este manual de servicio trata del método ajuste escrito en español.

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SA APR. 1989 Printed in Japan

# 1. EXPLODED VIEWS AND PARTS LIST

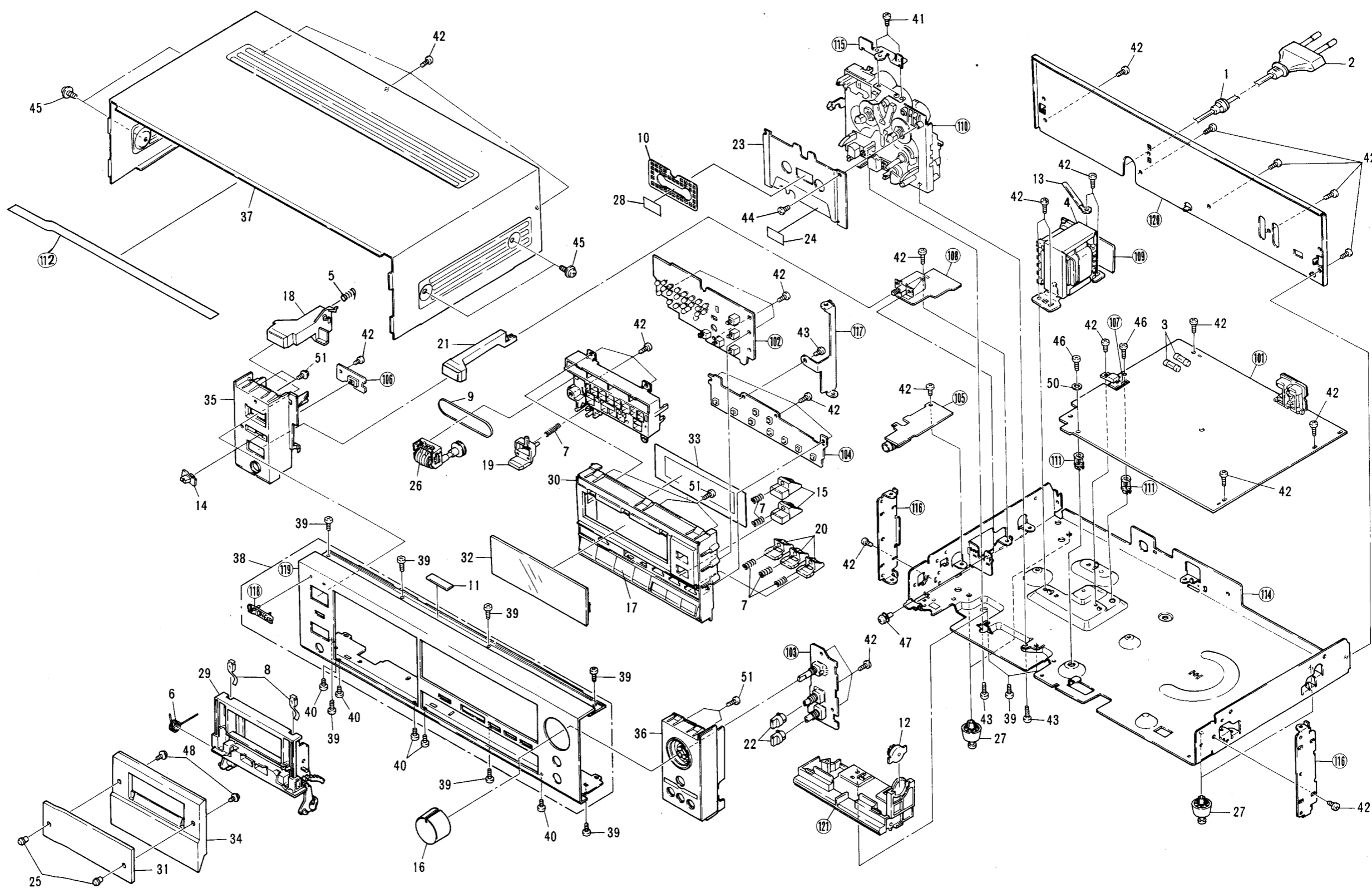
## NOTES :

- Parts without part number cannot be supplied.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "O" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## 1.1 Parts List of Exterior

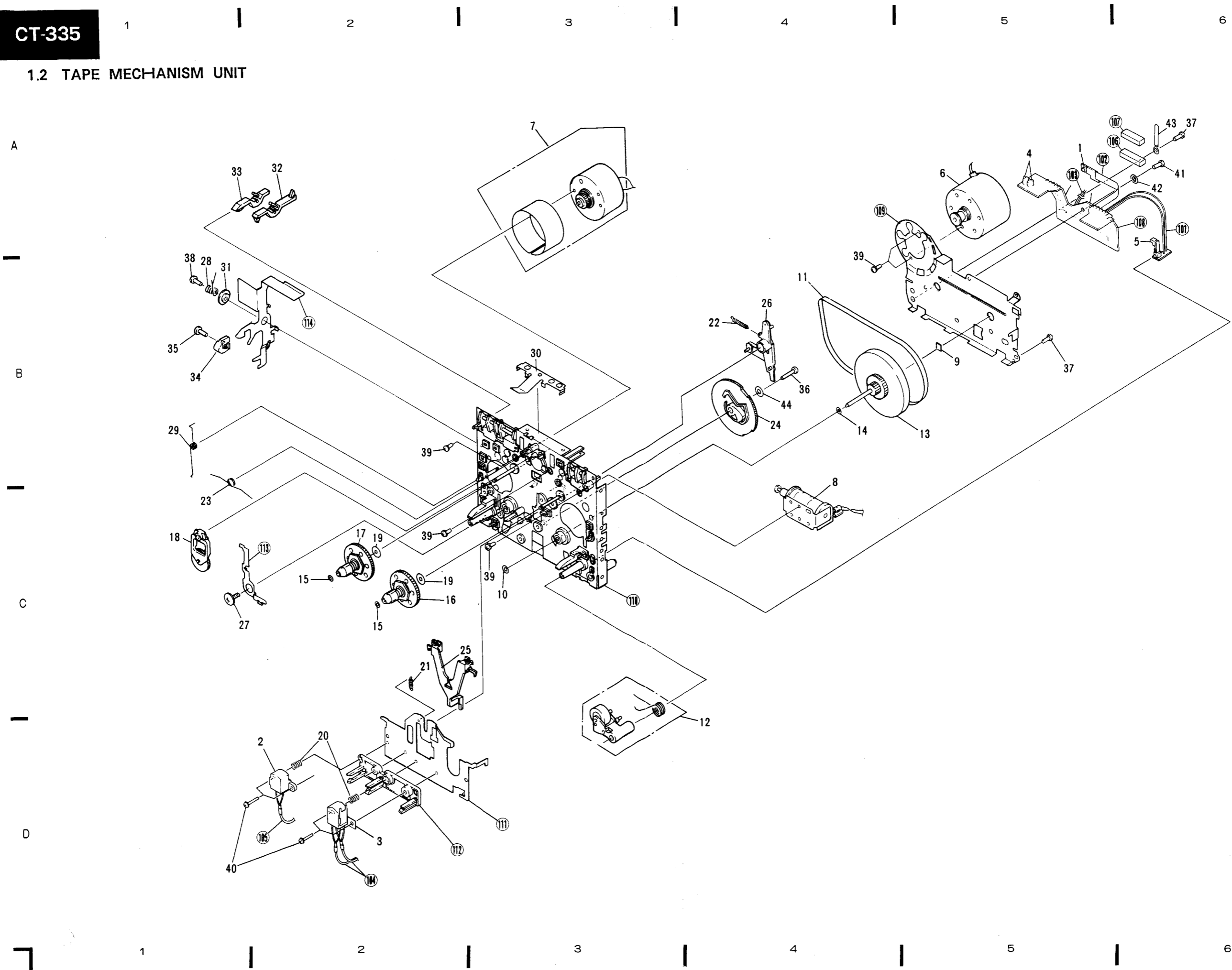
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
$\Delta$	1	CM-22B	Strain relife		41	BBZ30P040FMC	Screw
$\Delta$	2	PDG1003	AC Power cord		42	BBZ30P080FZK	Screw
$\Delta$	3	REK-100	Fuse (FU301, FU302, 1A)		43	BBZ30P100FMC	Screw
$\Delta$	4	RTT1050	Power transformer (T1)		44	BCT26P100FZK	Screw
	5	RBH1008	Spring		45	FBT40P080FZK	Screw
	6	RBH1134	Door spring (L)		46	IBZ30P150FCU	Screw
	7	RBH1146	Push spring		47	PMA30P060FMC	Screw
	8	RBK1013	Half pressure spring		48	ATZ26P050FMC	Screw
	9	REB-514	Counter belt		49	.....	.....
	10	REB1038	Stabilizer (B)		50	WA30W120R100	Washer
	11	REB1083	Rubber stabilizer		51	ABZ30P080FMC	Screw
	12	REC1005	Damper assembly		101		Main unit
	13	RNH-184	Cord stopper		102		Display unit
	14	RAC-668	Slide knob (A) (TIMER)		103		VR unit
	15	RAC1218	Dolby knob (DOLBY NR ON/OFF, B/C)		104		Control SW unit
					105		Headphone unit
	16	RAC1221	VR knob (REC LEVEL)		106		Timer SW unit
	17	RAC1223	Operation knob ( $\leftarrow$ , $\blacksquare$ , $\rightarrow$ , $\bullet$ , $\parallel$ , $\circ$ )		107		Transistor unit
					108		Power SW unit
	18	RAC1226	Eject knob (EJECT)		109		Transformer unit
	19	RAC1228	Counter reset knob (RESET)		110		Mechanism nit
	20	RAC1230	Tape select knob (TAPE SELECTOR, MPX FILTER)		111		PCB spacer
					112		Bonnet cushion
					113		.....
					114		Main chassis
	21	RAC1240	Power button (POWER)		115		Machanism stay
	22	RAC1337	Headphone knob (REC BALANCE, BIAS)		116		Side stay
	23	RAH1234	Cassette plate		117		Center stay
	24	RAH1341	Shield plate		118		Name plate
	25	RAT1001	Screw		119		Front panel
					120		Rear panel
	26	RAW1023	Counter				
	27	REC-369	Leg assembly		121		Door fulcrum mold
	28	REC-113	Remain display paper				
	29	RNT1010	Door pocket				
	30	RAH1240	Button panel				
	31	RAH1244	Door lens				
	32	RAH1246	Meter lens				
	33	RAH1247	LED filter				
	34	RAH1466	Door panel				
	35	RNK1313	Eject mold				
	36	RNK1315	VR escutcheon				
	37	RXX1079	Bonnet				
	38	RXX1181	Front panel assembly				
	39	BBT30P060FZK	Screw				
	40	BBZ26P080FZK	Screw				

Exterior



CT-335

1.2 TAPE MECHANISM UNIT



## Parts List of Tape MECHANISM Unit

Mark	No.	Part No.	Description
	1	GP2S04B	Photo reflector
	2	RPB1005	Erase head
	3	RPB1014	REC/PB head
	4	RSG1018	Push switch
	5	RSN1010	Leaf switch
	6	RXM-135	Capstan motor assembly
	7	RXM1020	Reel motor assembly
△	8	RXP1007	Solenoid
	9	REC1002	Spacer
	10	RBF-030	Washer
	11	REB1053	Main belt
	12	RXA1183	Pinch roller assembly
	13	RXC-083	F/W flywheel assembly
	14	WA26D045D025	Washer
	15	RBF-057	Washer
	16	RXA1184	Take up reel assembly
	17	RXC-040	Reel assembly
	18	RXC-086	Idler assembly
	19	WA21D070D013	Washer
	20	RBH1076	Azimuth spring
	21	RBL-140	Head base spring
	22	RBH1151	Play arm spring
	23	RBL-145	Hold spring
	24	RNK1339	Cam gear (H-2)
	25	RNK1340	Hold lever (C)
	26	RNK1341	Play arm (F)
	27	RBA1048	Screw
	28	RBH1193	Eject lever spring (L)
	29	RBH1153	Eject prevention spring (L)
	30	RBK1002	Half hold spring
	31	RLB-558	Spacer
	32	RNK1337	REC detect lever
	33	RNK1338	Pack detect lever
	34	RNM-160	Hook
	35	PCZ20P040FMC	Screw
	36	PRZ20P130FMC	Screw
	37	PRZ26P080FMC	Screw
	38	RBA-094	Screw
	39	RBA1005	Screw with washer
	40	RBA1031	F lock screw
	41	RBA1049	Screw
	42	RBE1005	Screw
	43	RNH-184	Cord holder
	44	WA23F060M040	Washer
	101		Wire
	102		Jumper wire
	103		Jumper wire
	104		Head lead (6P)
	105		Head lead (2P)
	106		Connector (5P)
	107		Connector (7P)
	108		Connect assembly
	109		F/W blacket
	110		Shassis preparation parts
	111		Head base
	112		Head spacer
	113		Eject prevention arm (L)
	114		Eject arm (L)

## 2. ELECTRICAL PARTS LIST

### NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "O" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω 56×10<sup>1</sup> 561 ..... RD1/4PS 561J  
 47k Ω 47×10<sup>3</sup> 473 ..... RD1/4PS 473J  
 0.5 Ω 0R5 ..... RN2H 0R5K  
 1 Ω 010 ..... RS1P 010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω 562×10<sup>1</sup> 5621 ..... RN1/4SR 5621F

### Miscellaneous Parts

#### P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Main unit	
	Display unit	
	VR unit	
	Control SW unit	
	Headphone unit	
	Timer SW unit	
	Transistor unit	
	Power SW unit	
	Transformer unit	

#### OTHERS

Mark	Symbol & Description	Part No.
△	Strain relief	CM-22B
△	AC power cord	PDG1003
△	FU301, FU302 Fuse (T1A/AC250V)	REK-100
△	T1 Power transformer	RTT1050
	Photo reflector	GP2S04B
	E head	RPB1005
	R/P head	RPB1014
	Push switch	RPG1018
	Leaf switch	RSN1010
	Reel motor assembly	RXM1020
	Capstan motor assembly	RXM-135
△	Solenoid	RXP1007

#### Main unit

#### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	BA335
	IC303	BA6109
	IC102	CX20187
	IC103, IC104, IC305	M5218L
	IC101	M5220L

Mark	Symbol & Description	Part No.
	IC304	PD4149
	IC105	μ PC1297CA
	IC306	μ PC1330HA
	Q306, Q310, Q312, Q313, Q317, 2SA1309A	
	Q320	
	Q307, Q308	2SC3243
	Q302, Q304, Q305	2SC3246
	Q101-Q104, Q107-Q114,	2SC3311A
	Q301, Q303, Q311, Q314, Q318,	
	Q319, Q321-Q324	
	Q105, Q106, Q309	2SD1302
△	Q316	2SD1796
△	D315	MTZ5.1B
	D313	MTZJ6.2C
△	D310	1B2C1-LC2
△	D309	1B2Z1-LC2
	D303	1SR35-100A
	D301, D302, D304-D308, D311	1SS254
	D312, D314, D316	

#### COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L301 Oscillator coil	RTD1019
	L109, L110 Peaking coil	RTD1020
	L107, L108 Coil (10mH)	RTF1004
	L103-L106 Coil (19mH)	RTF1005
	L101, L102 MPX Filter	RTF1058

#### CAPACITORS

Mark	Symbol & Description	Part No.
	C187, C188	CCCSL101K500
	C103, C104	CEANL100M16
	C107, C108	CEANL101M10
	C157-C160, C307	CEASR10M50
	C137, C138, C171, C172	CEASR15M50
	C139, C140	CEASR22M50
	C135, C136, C310	CEASR47M50
	C117, C118, C123, C124,	CEAS010M50
	C153-C156, C175, C176	
	C111, C112, C119, C120, C173,	CEAS100M50
	C174, C320, C331, C342, C345	

Mark	Symbol & Description	Part No.
C161, C162, C301, C306, C339, C355		CEAS101M25
C335		CEAS221M35
C334		CEAS222M35
C343		CEAS222M6R3
C302-C304, C315, C321, C324, C338		CEAS330M35
C127, C128		CEAS331M16
C341		CEAS332M16
C149-C152, C169, C170, C312-C314, C337, C344, C346		CEAS4R7M50
C147, C148, C179, C180, C326		CFTXA103J50
C167, C168		CFTXA152J50
C125, C126		CFTXA153J50
C109, C110, C113, C114, C183, C184, C325		CFTXA223J50
C131, C132, C327, C328		CFTXA332J50
C121, C122, C133, C134		CFTXA472J50
C165, C166		CFTXA562J50
C145, C146, C163, C164		CFTXA682J50
C141, C142		CFTXA683J50
C193, C194		CFTXA822J50
C309, C318, C322		CGCYX104K25
C143, C144, C185, C186, C308		CGCYX473K25
C189, C190		CKCYB681J500
C319, C323, C340		CKCYF103Z50
C305, C332, C333, C348-C350		CKCYF473Z50
C353-C360		
C105, C106, C330, C336		CKPUYB101K50
C115, C116, C177, C178		CKPUYB102K50
C191, C192		CKPUYB181K50
C129, C130,		CKPUYB681K50
C181, C182		CKPUYB821K50
C329		CQPA153J100
C101, C102		CQSA681J50

**RESISTORS**

Mark	Symbol & Description	Part No.
VR107, VR108	Semi-Fixed (15k)	VRTB6VS153
VR103-VR106	Semi-Fixed (22k)	VRTB6VS223
△ R333		RS2LMF200J
R343, R344, R358		RD½PM□□□J
R119, R120, R127, R128, R148, R154, R301, R304, R305, R329-R331, R346, R354, R359, R362-R364, R382, R383		RD¼PM□□□J
Other resistors		RD¼PM□□□J

**OTHERS**

Mark	Symbol & Description	Part No.
JA303	Pin jack 4P	RKB1001
X301	Ceramic resonator	VSS1014

**Display unit**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC601, IC602	AN6882
	D601, D606, D614-D619	SEL4214S
	D602-D605, D607, D610-D613, LT4E4IC	
	D620-D623, D626-D628	
	D631	1SR35-100A
	D629, D630	1SS254

**SWITCHES**

Mark	Symbol & Description	Part No.
	S601-S605 Push switch (DOLBY NR ON/OFF, DOLBY NR B/C, MPX FILTER, TAPE SELECTOR NORM/HIGH, TAPE SELECTOR CrO <sub>2</sub> /METAL)	RSG-150

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C601, C602	CEJA220M16
	C603	CKDYF473Z50

**RESISTORS**

Mark	Symbol & Description	Part No.
△ R619 (30 Ω)		RCN1018
R617, R618		RD½PM□□□J
Other resistors		RD¼PM□□□J

**VR unit**

**RESISTORS**

Mark	Symbol & Description	Part No.
VR803	Variable resistor (5k-B BIAS)	RCV1007
VR801	Variable resistor (100kB REC BALANCE)	RCV1010
VR802	Variable resistor (50kA×2 REC LEVEL)	RCV1012
R801, R802		RD¼PM333J

**Control SW unit**

**SWITCHES**

Mark	Symbol & Description	Part No.
	S501, S502, S506-S510 Tact switch (○, ▶, ⇨, ■, ◀, ●)	RSG-155

**RESISTORS**

Mark	Symbol & Description	Part No.
	All resistors	RD¼PM□□□J

**Headphone unit**

**CAPACITOR**

Mark	Symbol & Description	Part No.
	C401	CKCYF473Z50

**RESISTORS**

Mark	Symbol & Description	Part No.
	All resistors	RD¼PM□□□J

**OTHER**

Mark	Symbol & Description	Part No.
	JA401 Headphone jack (PHONES)	RKN1002

**Timer SW unit**

**SWITCH**

Mark	Symbol & Description	Part No.
	S701 Slide switch (TIMER REC/PLAY)	RSH1014

**Transistor unit**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
△ Q315		2SD1796

**Power SW unit**

**SWITCH**

Mark	Symbol & Description	Part No.
△ S901	Power switch (POWER)	RSA-069

**CAPACITORS**

Mark	Symbol & Description	Part No.
△ C901, C902		CKCYF103Z50

**Transformer unit**

There is no supply parts.

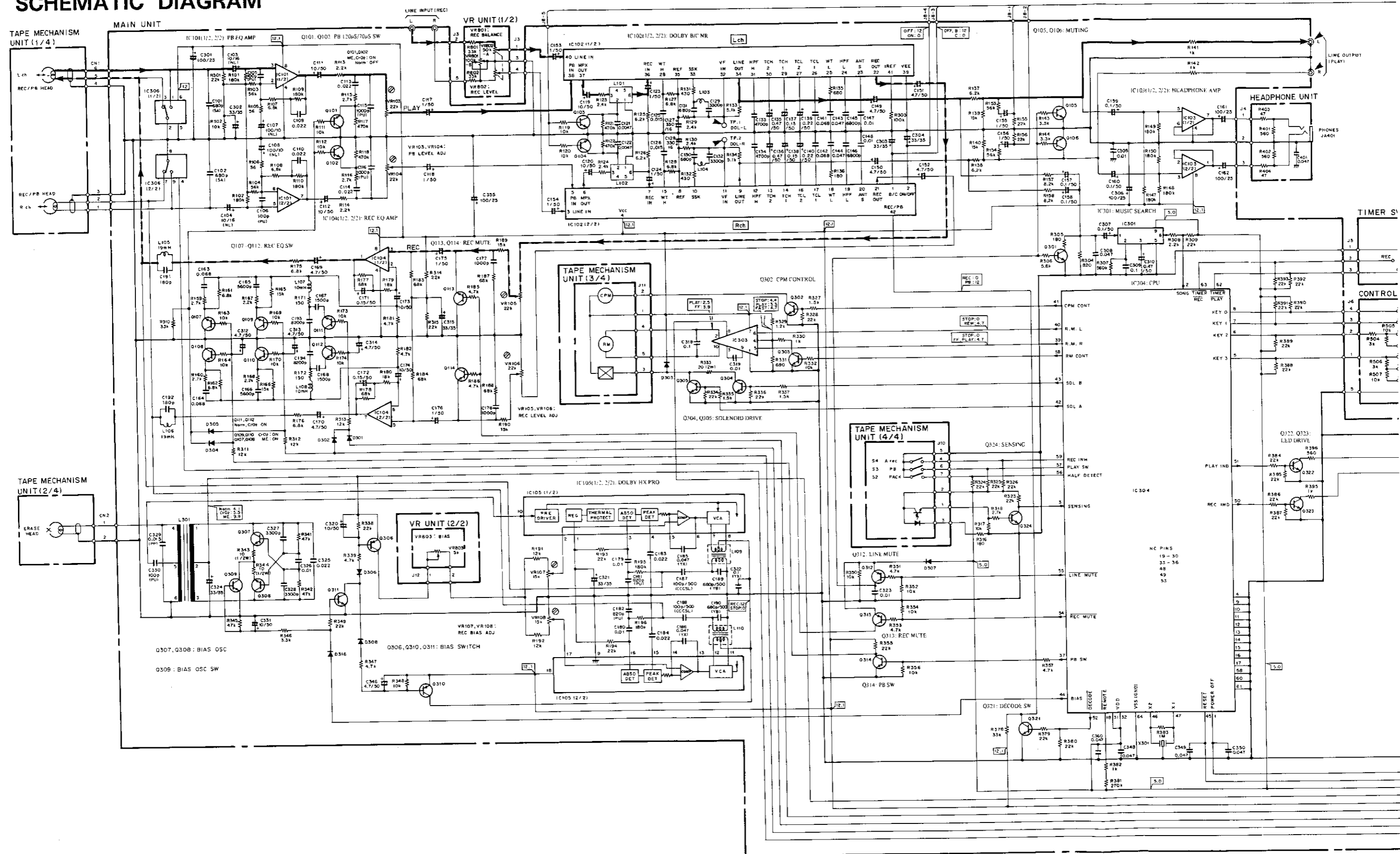
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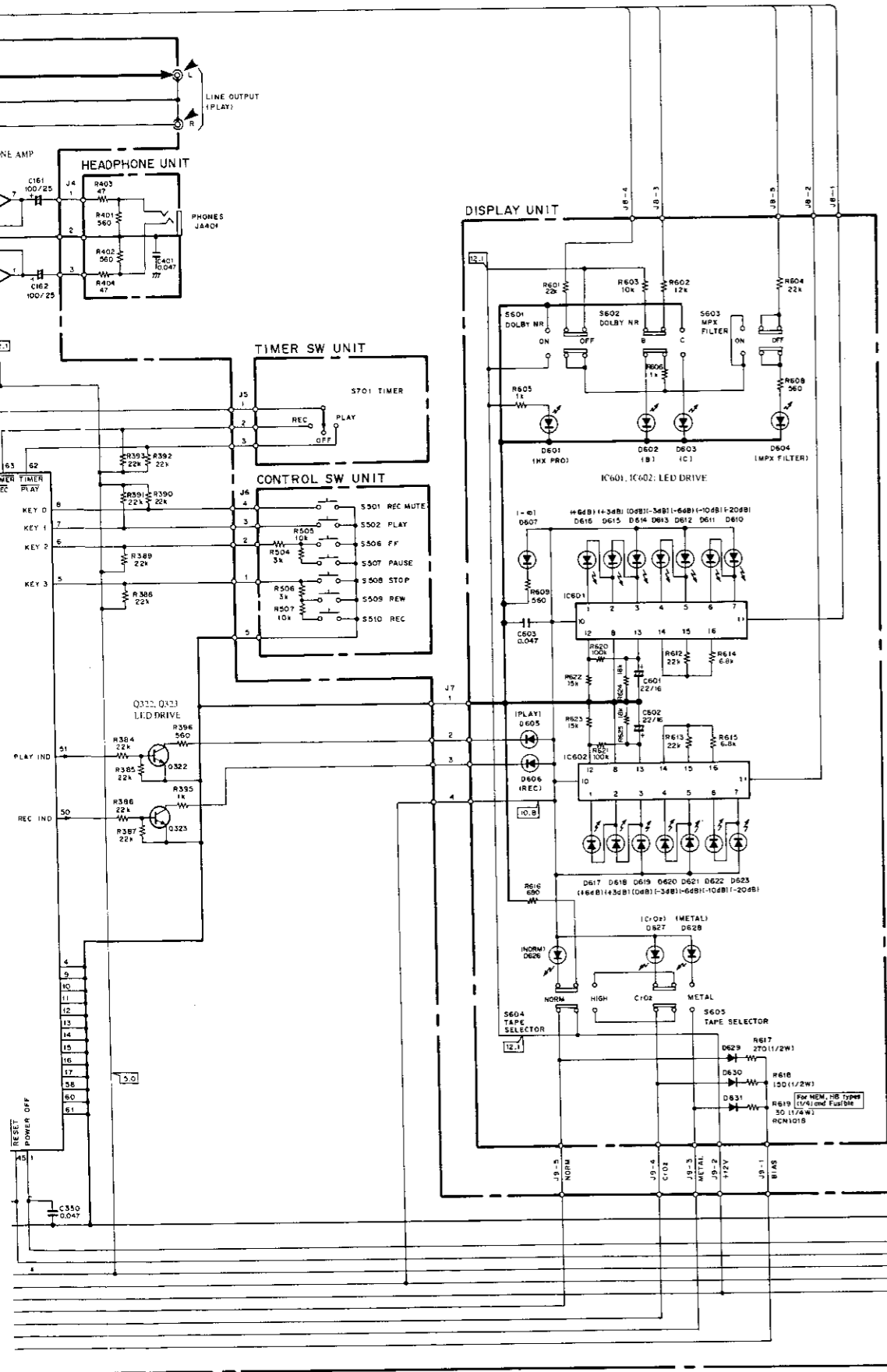
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C

D

### 3. SCHEMATIC DIAGRAM





<b>MAIN UNIT</b> IC301 IC303 IC102 IC104, IC305, IC101  IC304 IC105 IC306 Q306, Q310, Q312, Q313, Q317, 2SA1309A, Q320  Q307, Q308 Q302, Q304, Q305 Q101-Q104, Q107-Q114, Q301, Q303, Q311, Q314, Q318, Q319, Q321-Q324  Q105, Q106, Q309 Q316 D315 D313 D310  D309 D303 Q301, Q302, Q304-Q308, Q311, 1SS254 D312, D314, D316 L301  L109, L110 L107, L108 L103-L106 L101, L102 VR107, VR108  VR103-VR106 JA303 X301	BA335 BA8109 CX20187 M5218L M5220L  PD4149 PC1297CA PC1330MA  2SC3243 2SC3246 2SC3311A  2SD1302 2SD1796 MT25-18 MTZJ6-2C 1B2C1-LC2  1B2Z1-LC2 1SR35-10GA 1SS254  RTD1019  RTD1020 RTF1004 RTF1005 RTF1058 VRTB6V5153  VRTB6V5223 RKB1001 VSS1014	<b>DISPLAY UNIT</b> IC601, IC602 D601, D606, D614-D618 D602-D605, D607, D610-D613, D620-D623, D626-D628 SEL4914A(HF, SD) D631  1SS254 RSG-150  <b>VR UNIT</b> VR803 VR801 VR802  <b>CONTROL SW (C) UNIT</b> S501, S502, S506-S510  <b>HEADPHONE UNIT</b> JA401  <b>TIMER SW UNIT</b> S701  <b>TRANSISTOR UNIT</b> Q315  <b>POWER SW UNIT</b> S901  <b>AN5882</b> SEL4214S LT4F41C(HEM, HB) SEL4914A(HF, SD) 1SR35 100A
--	--	--

- RESISTORS:**  
Indicated in 0.1/8, 1/4W, ±5% tolerance unless otherwise noted  
k: kΩ, M: MΩ, D: DΩ, F: ±1%, G: ±2%, K: ±10%, M: ±20% tolerance.
  - CAPACITORS:**  
Indicated in capacity (μF) / voltage (V) unless otherwise noted  
p: pF.  
Indication without voltage is 50V except electrolytic capacitor.
  - VOLTAGE CURRENT:**  
□: DC voltage (V) at no input signal.  
mA: DC current at no input signal.
  - SWITCHES** (The underline indicates the switch position)
- TAPE MECHANISM UNIT**  
 S2: PAUSE ON-OFF  
 S3: PB ON-OFF  
 S4: A REC ON-OFF
- DISPLAY UNIT**  
 S601: DOLBY NR ON-OFF  
 S602: DOLBY NR B-C  
 S603: MPX FILTER OFF-ON  
 S604: TAPE SELECTOR NORM-HIGH  
 S605: TAPE SELECTOR CO2-METAL
- CONTROL SW UNIT**  
 S501: REC MUTE  
 S502: PLAY  
 S506: FF  
 S507: PAUSE  
 S508: STOP  
 S509: REW  
 S510: REC
- TIMER SW UNIT**  
 S701: TIMER REC-OFF-PLAY
- POWER SW UNIT**  
 S901: POWER ON-OFF
- OUTSIDE OF UNITS (SD TYPE)**  
 S5 VOLTAGE SELECTOR SWITCH  
 110V-120/127V-220V-240V

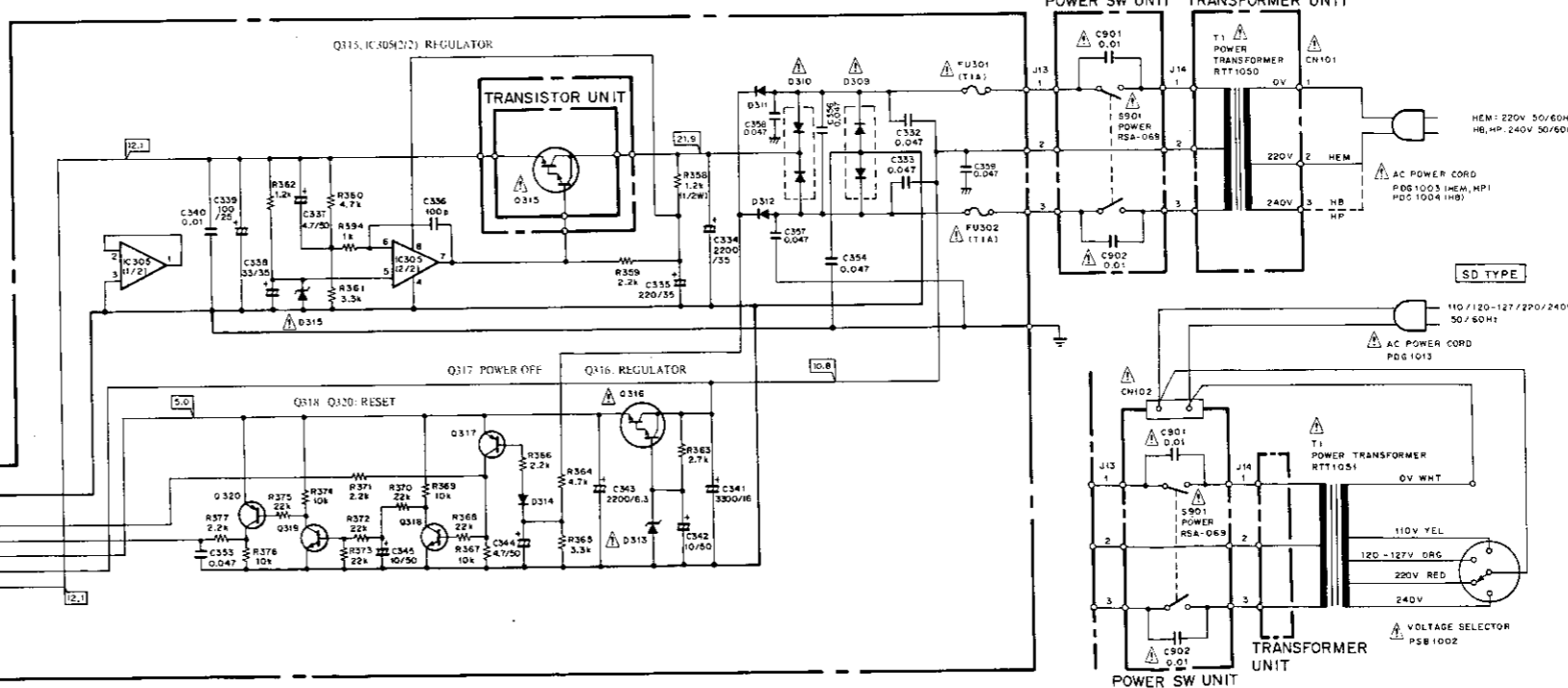
- OTHERS**
    - : Adjusting point.
    - The : mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
    - ⊖: marked capacitor and resistor have parts number
    - This is the basic schematic diagram, but the actual circuit may vary due to improvements in design
- PLAYBACK SIGNAL ROUTE  
 RECORDING SIGNAL ROUTE  
 ADJUSTING TEST POINT

**HEM, HB, HP type Line Voltage Selection**

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the TRANSFORMER UNIT assembly primary pins.
4. Stick the line voltage label on the rear panel.

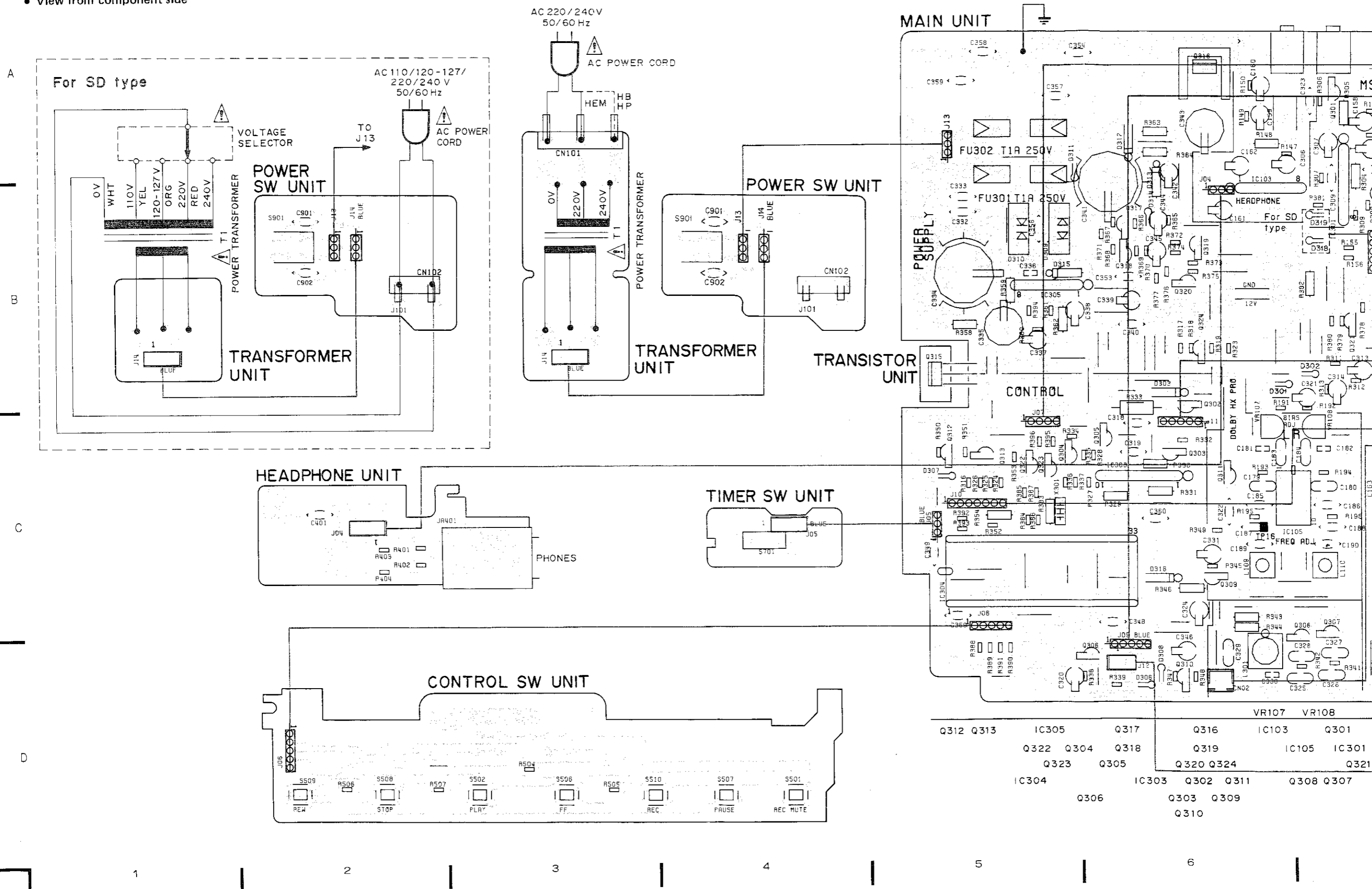
Part No.	Description	
AAX-193	220v label	HEM, HB 220V
AAX-192	240V label	HP 240V

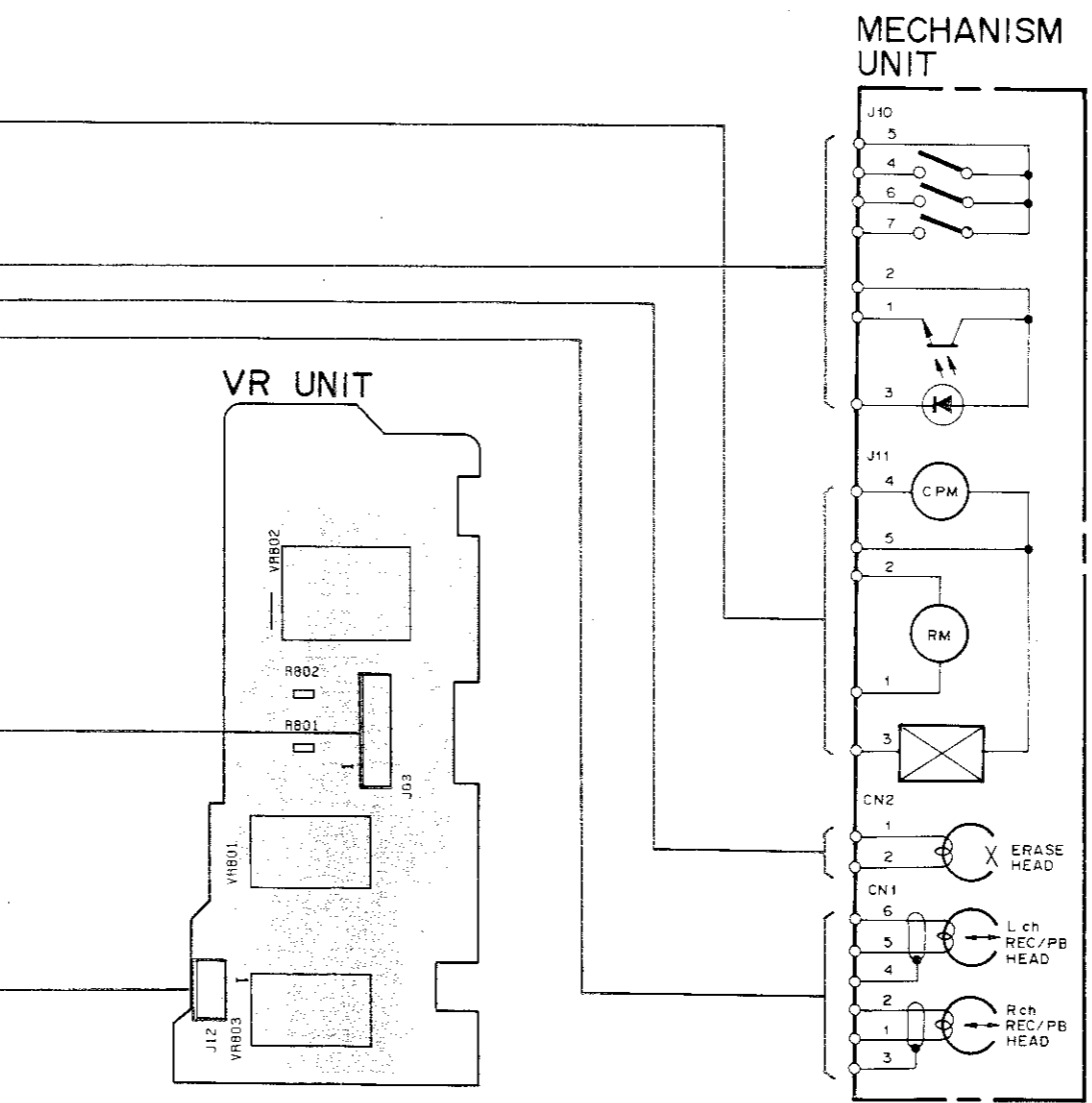
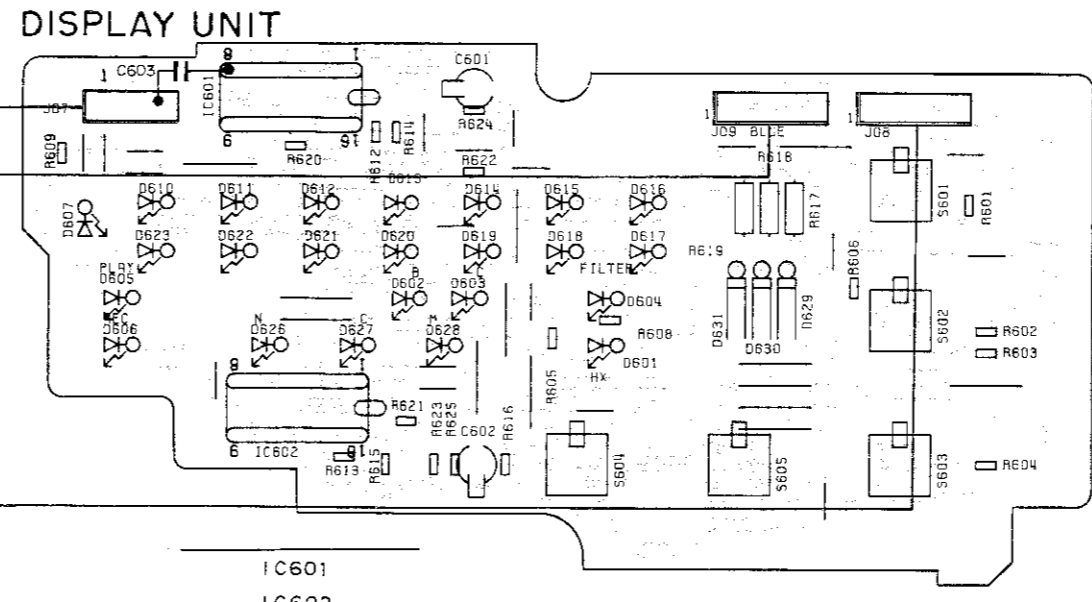
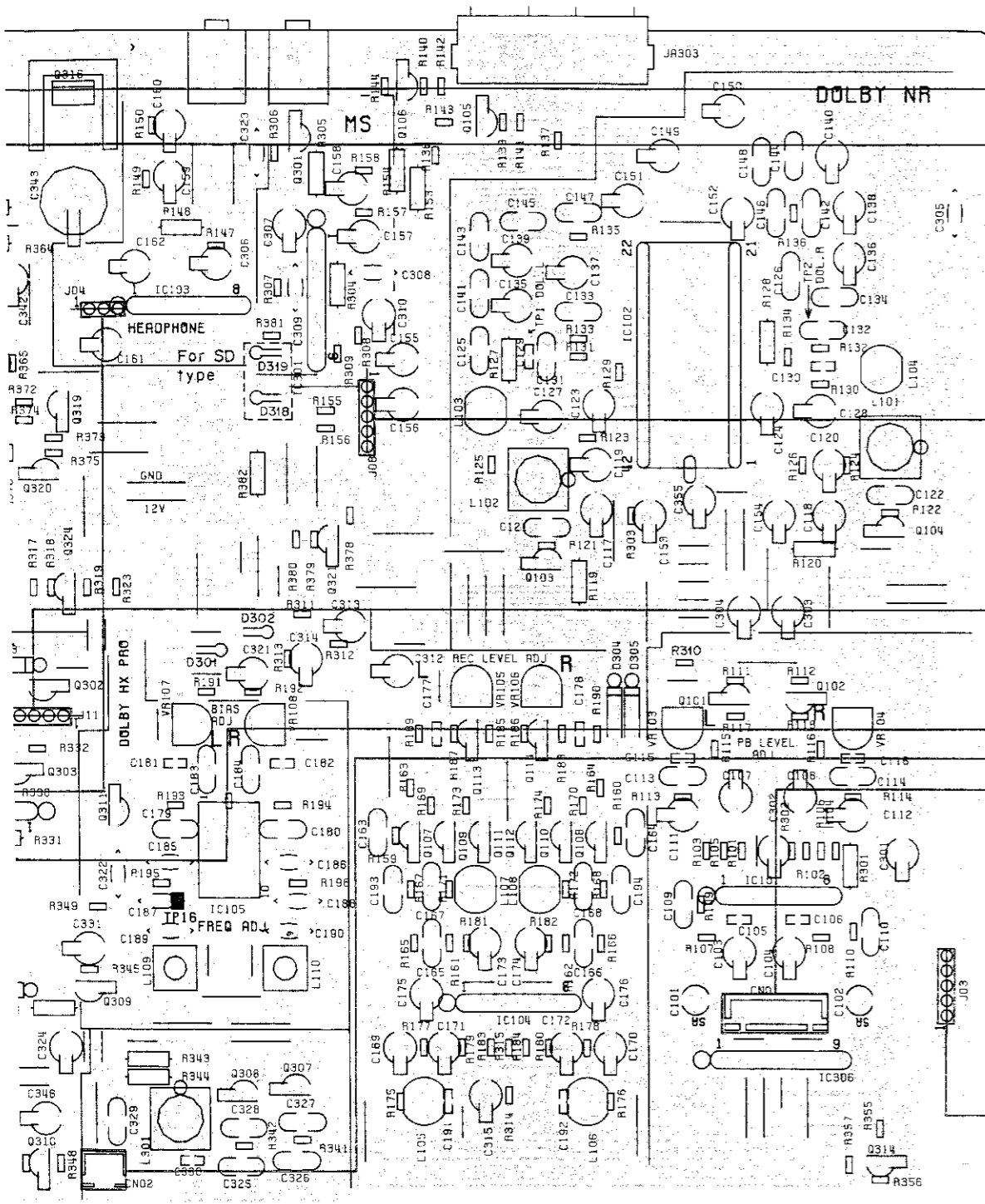




# 4. P.C. BOARDS CONNECTION DIAGRAM

• View from component side





Q316	IC103	Q301	Q106	Q105	Q103	IC102	Q101	Q102	Q104
Q319	IC105	IC301	Q113	Q114		IC101	Q314		
Q320	Q324	Q321	Q107	Q111	Q110	IC306			
Q302	Q311	Q308	Q307	Q109	Q112	Q108			
Q303	Q309			IC104					
Q310									

PCB pattern diagram indicator	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zener diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non-polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

- This PCB connection diagram is viewed from the parts mounted side.
- The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
- The capacitor terminals marked with (C) shows negative terminal.
- The diode marked with (C) shows cathode side.
- The transistor terminal marked with (E) shows emitter.

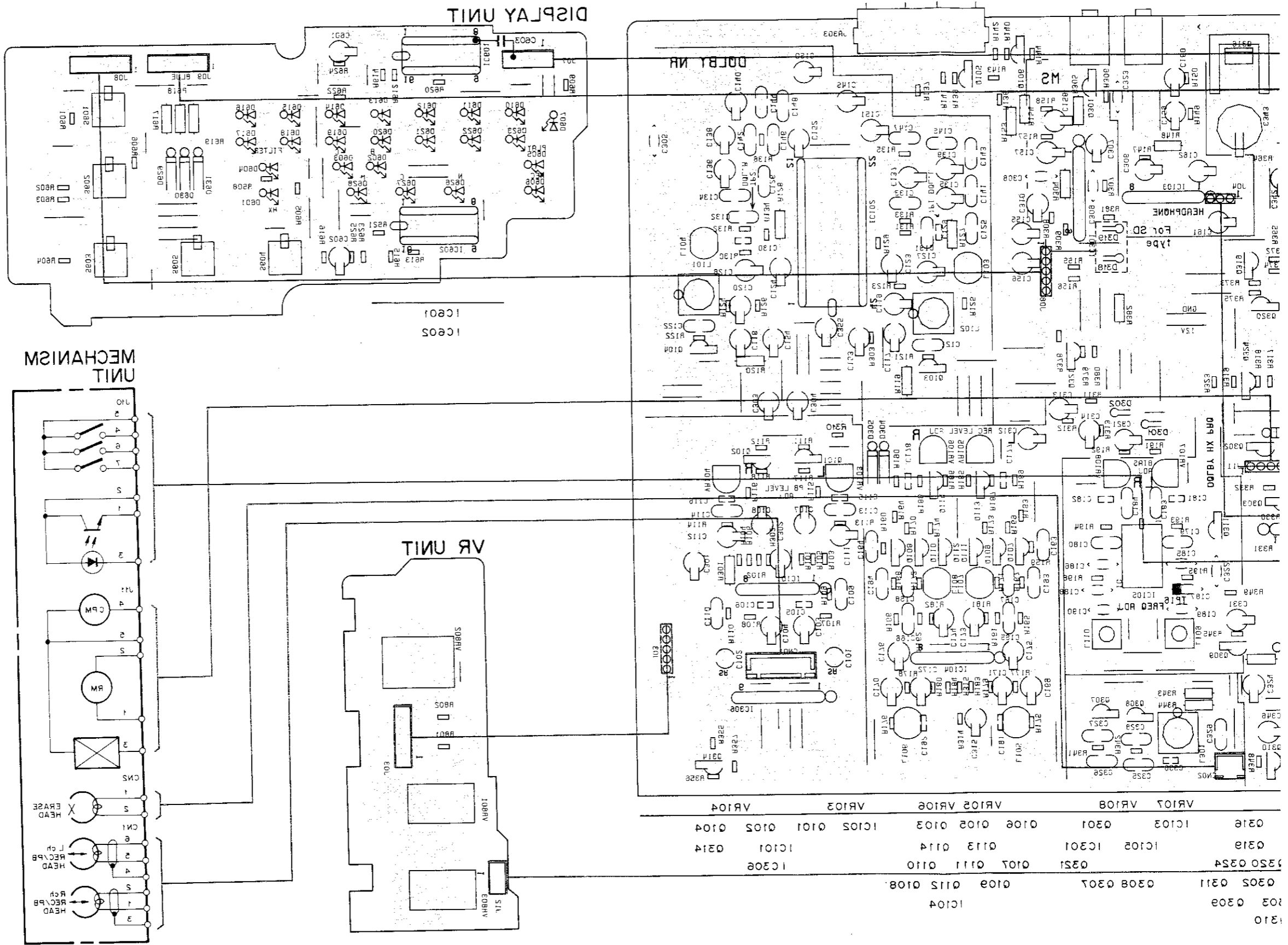
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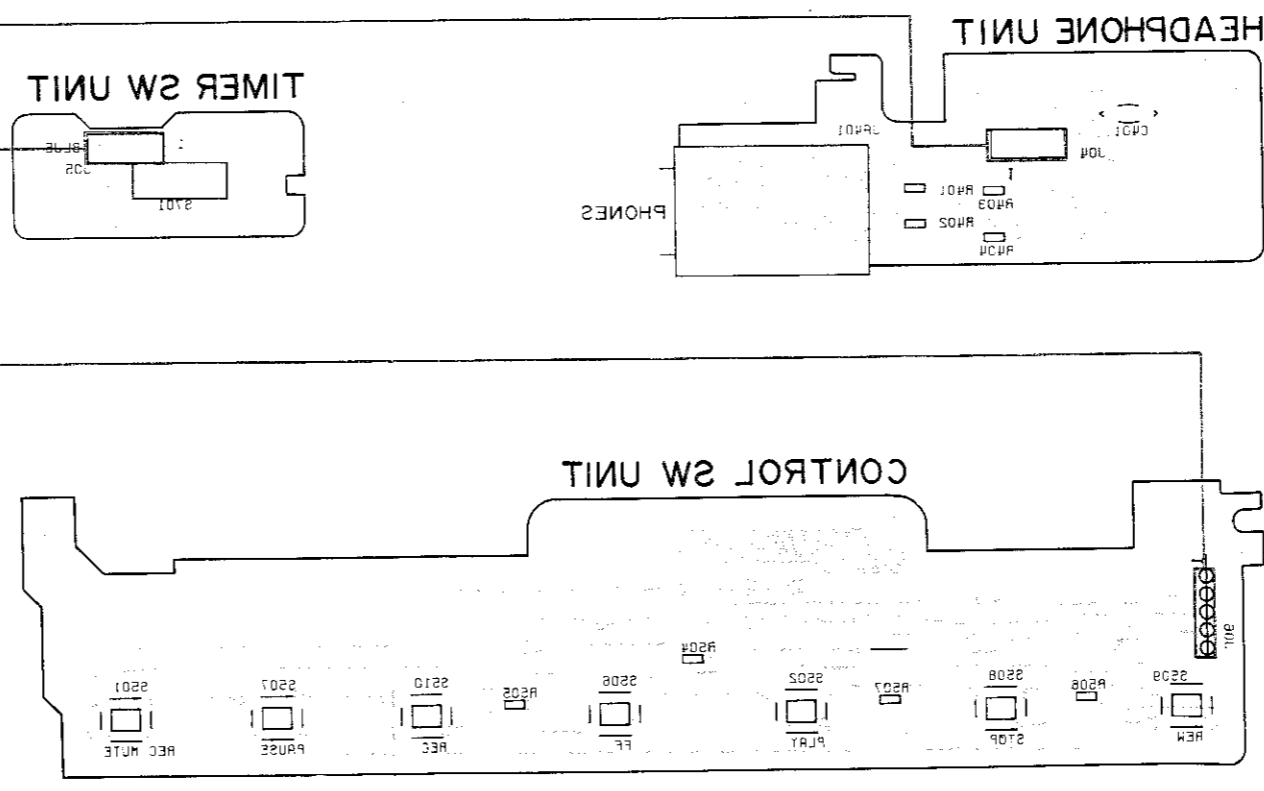
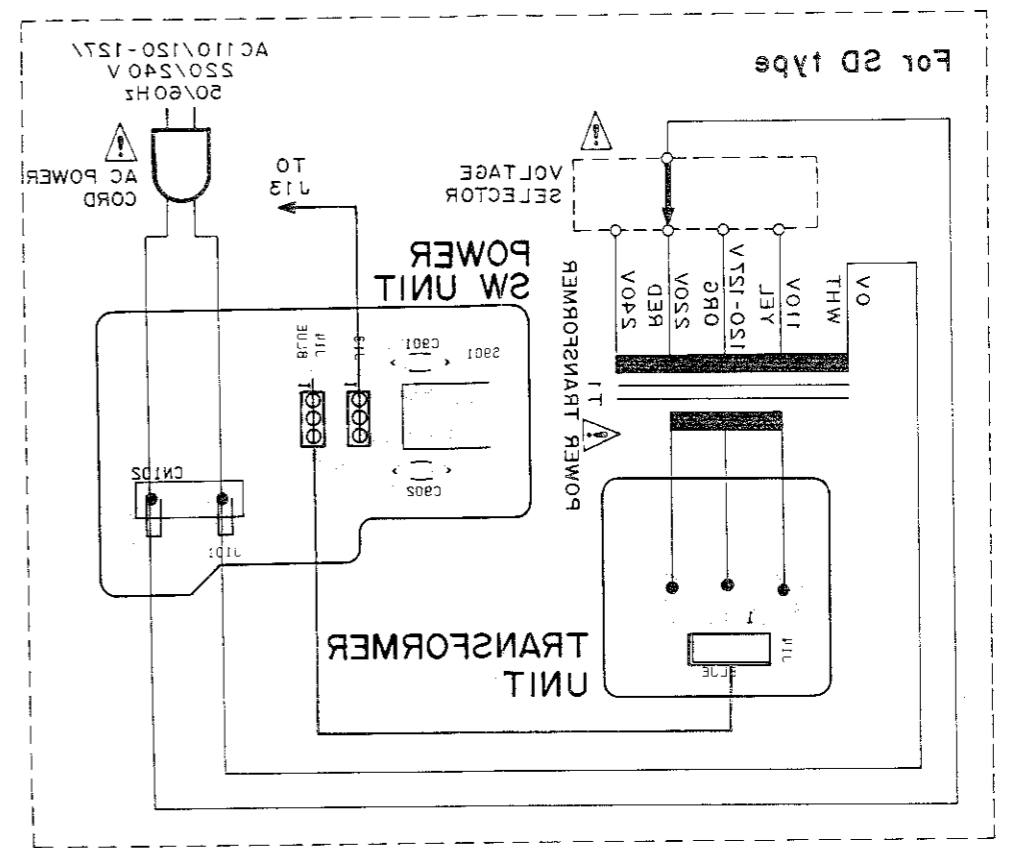
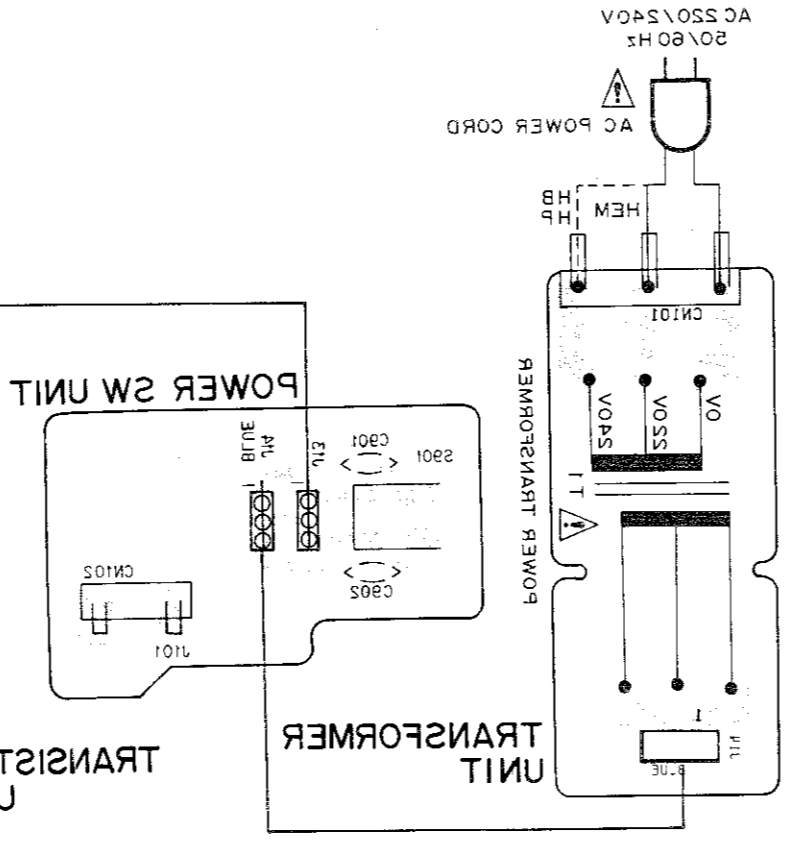
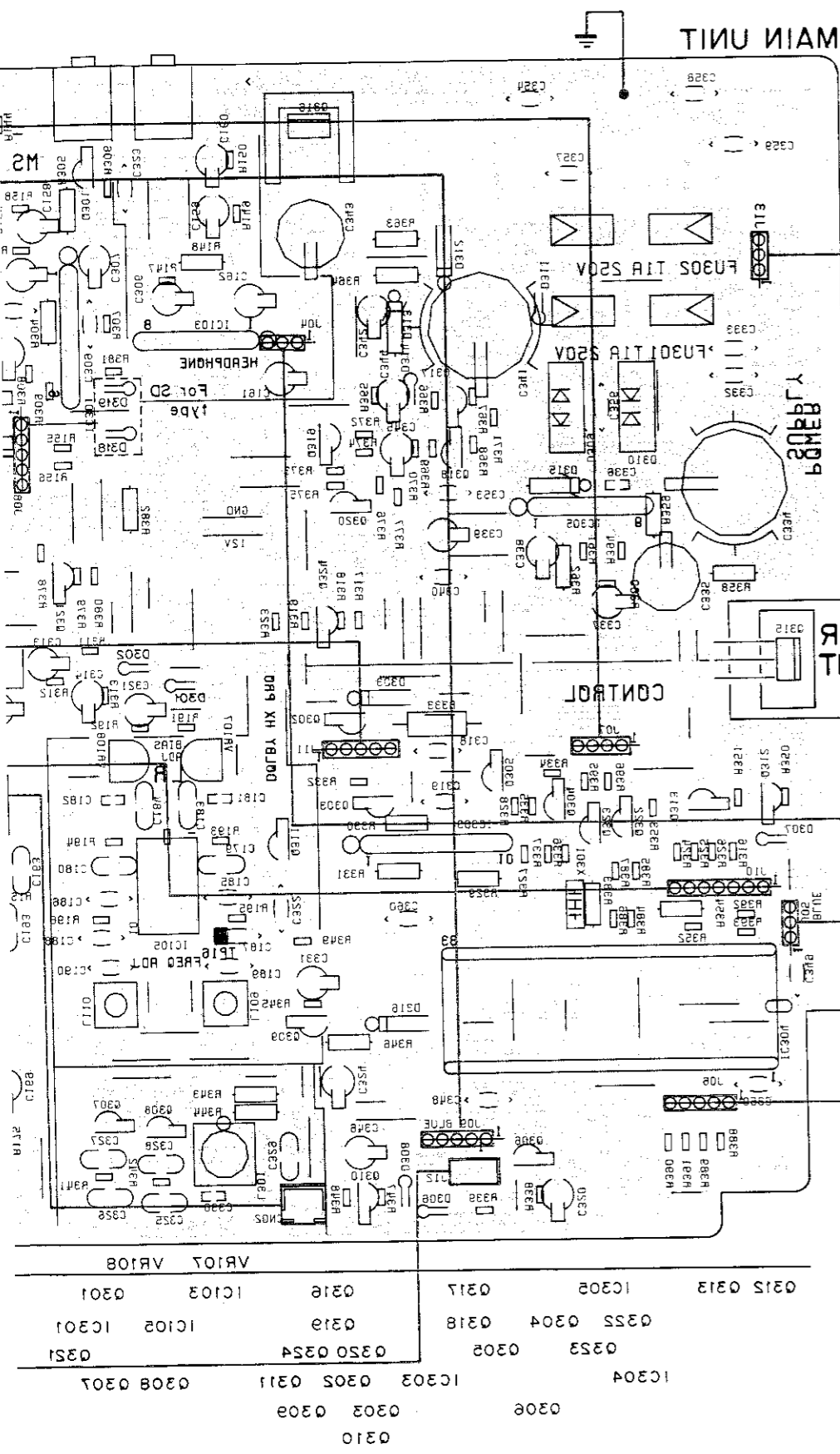
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# 4. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side



0310 0309 0308 0307 0306 0305 0304 0303 0302 0301 0300 0299 0298 0297 0296 0295 0294 0293 0292 0291 0290 0289 0288 0287 0286 0285 0284 0283 0282 0281 0280 0279 0278 0277 0276 0275 0274 0273 0272 0271 0270 0269 0268 0267 0266 0265 0264 0263 0262 0261 0260 0259 0258 0257 0256 0255 0254 0253 0252 0251 0250 0249 0248 0247 0246 0245 0244 0243 0242 0241 0240 0239 0238 0237 0236 0235 0234 0233 0232 0231 0230 0229 0228 0227 0226 0225 0224 0223 0222 0221 0220 0219 0218 0217 0216 0215 0214 0213 0212 0211 0210 0209 0208 0207 0206 0205 0204 0203 0202 0201 0200 0199 0198 0197 0196 0195 0194 0193 0192 0191 0190 0189 0188 0187 0186 0185 0184 0183 0182 0181 0180 0179 0178 0177 0176 0175 0174 0173 0172 0171 0170 0169 0168 0167 0166 0165 0164 0163 0162 0161 0160 0159 0158 0157 0156 0155 0154 0153 0152 0151 0150 0149 0148 0147 0146 0145 0144 0143 0142 0141 0140 0139 0138 0137 0136 0135 0134 0133 0132 0131 0130 0129 0128 0127 0126 0125 0124 0123 0122 0121 0120 0119 0118 0117 0116 0115 0114 0113 0112 0111 0110 0109 0108 0107 0106 0105 0104 0103 0102 0101 0100 0099 0098 0097 0096 0095 0094 0093 0092 0091 0090 0089 0088 0087 0086 0085 0084 0083 0082 0081 0080 0079 0078 0077 0076 0075 0074 0073 0072 0071 0070 0069 0068 0067 0066 0065 0064 0063 0062 0061 0060 0059 0058 0057 0056 0055 0054 0053 0052 0051 0050 0049 0048 0047 0046 0045 0044 0043 0042 0041 0040 0039 0038 0037 0036 0035 0034 0033 0032 0031 0030 0029 0028 0027 0026 0025 0024 0023 0022 0021 0020 0019 0018 0017 0016 0015 0014 0013 0012 0011 0010 0009 0008 0007 0006 0005 0004 0003 0002 0001 0000

# 5. ADJUSTMENTS

## 5.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment			
Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Variable resistor control	3000Hz $\pm$ 5Hz

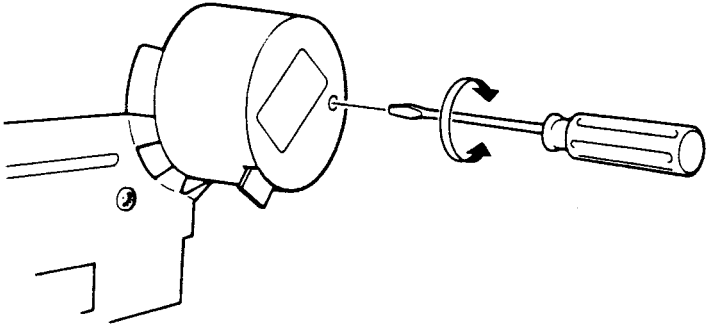
  


Fig. 5-1

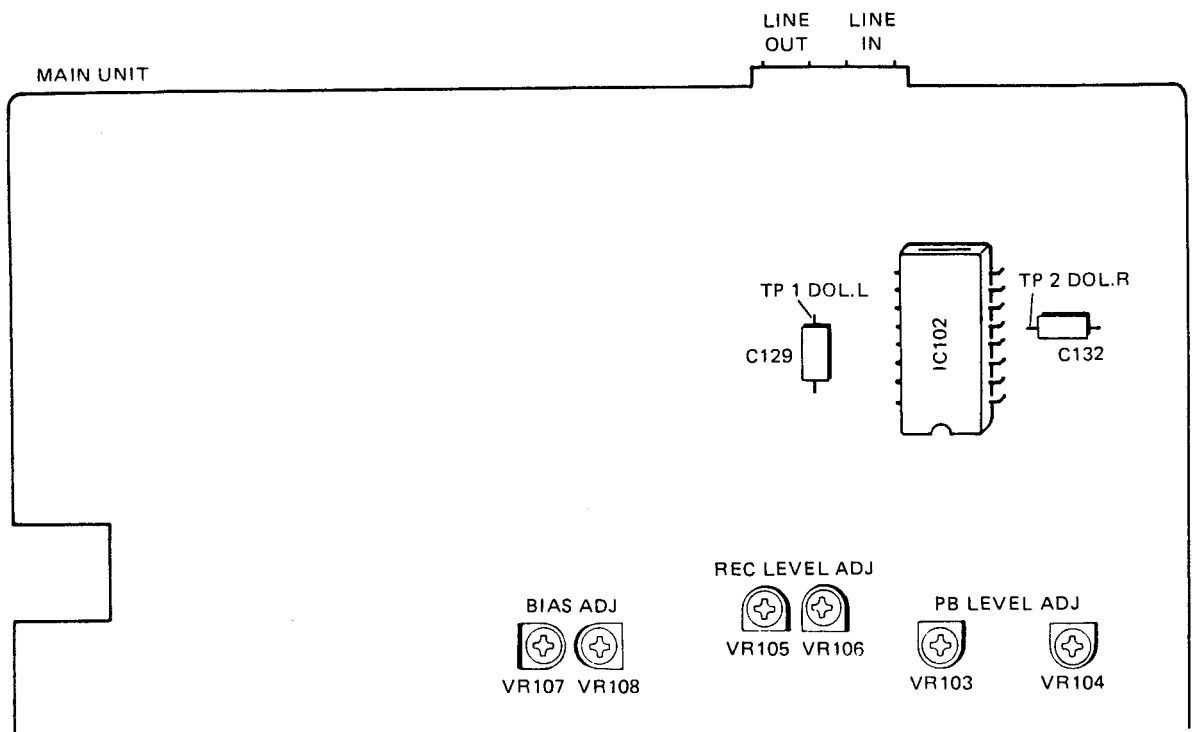


Fig. 5-2 Adjusting Points

**5.2 ELECTRICAL ADJUSTMENTS**

**Adjustment Conditions**

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv=1Vrms.
5. Connect a 50 kilo-ohm (or between 47 to 52 kilo-ohm) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.

DOLBY NR : OFF  
 TAPE SELECTOR : NORM

**Test Tapes**

- STD-331B : Playback adjustments  
 (See Fig. 5-3)
- STD-630 : NORMAL blank tape  
 STD-620 : CrO<sub>2</sub> blank tape  
 STD-610 : METAL blank tape

**List of Adjustments**

**Playback sections**

1. Head azimuth adjustment.
2. Playback level adjustment.

**Recording sections**

1. Recording bias adjustment.
2. Recording level adjustment.

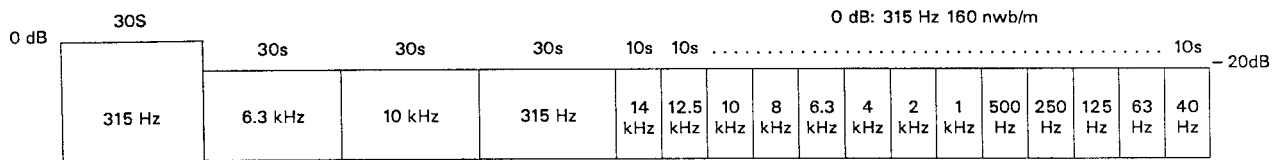


Fig. 5-3. Constants of the test tape STD-331B

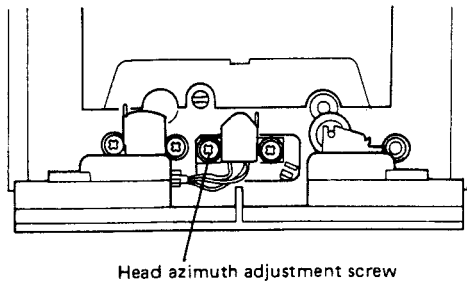


Fig. 5-4. Head azimuth adjustment

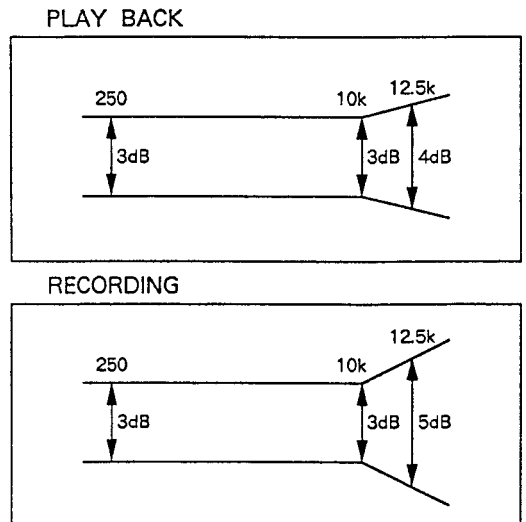


Fig. 5-5. Allowable playback frequency response zone

## PLAYBACK SECTION

### 1. Head Azimuth Adjustment

- Turn VR103, VR104 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/ - 20 dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 5-4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

### 2. Playback level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331B test tape.	VR103 (Lch) VR104 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv	

## RECORDING SECTION

### 1. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.				
2.	REC	Record the 315 Hz and 6.3 kHz signals at - 20 dBv input level and playback.	VR107 (Lch) VR108 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes + 0.5 dB $\pm$ 0.5 dB when compared with the 315 Hz signal.	

### 2. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.				
2.	REC PAUSE	Apply a 315 Hz/0 dBv signal to the line input terminals, load the STD-630 test tape.	Rec Level control volume	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv	
3.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)				
4.	REC/ PLAY	Record the above signal onto the STD-630 test tape, and playback.	VR105 (Lch) VR106 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes - 15.2dB.	
5.	STOP	Set the TAPE SELECTOR switch to the CrO <sub>2</sub> position.				
6.	REC/ PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv $\pm$ 1.5 dB	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.				
8.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv $\pm$ 1.5 dB	

## 5. RÉGLAGE

### 5.1 RÉGLAGES MÉCANIQUES

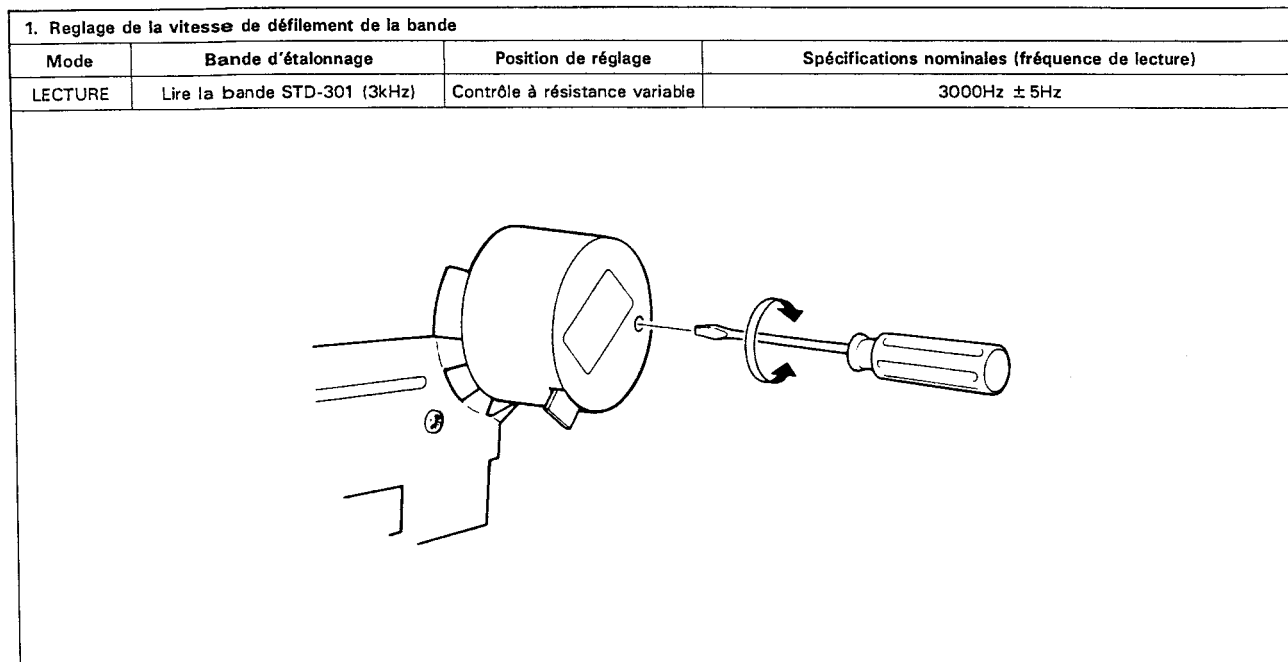


Fig. 5-1

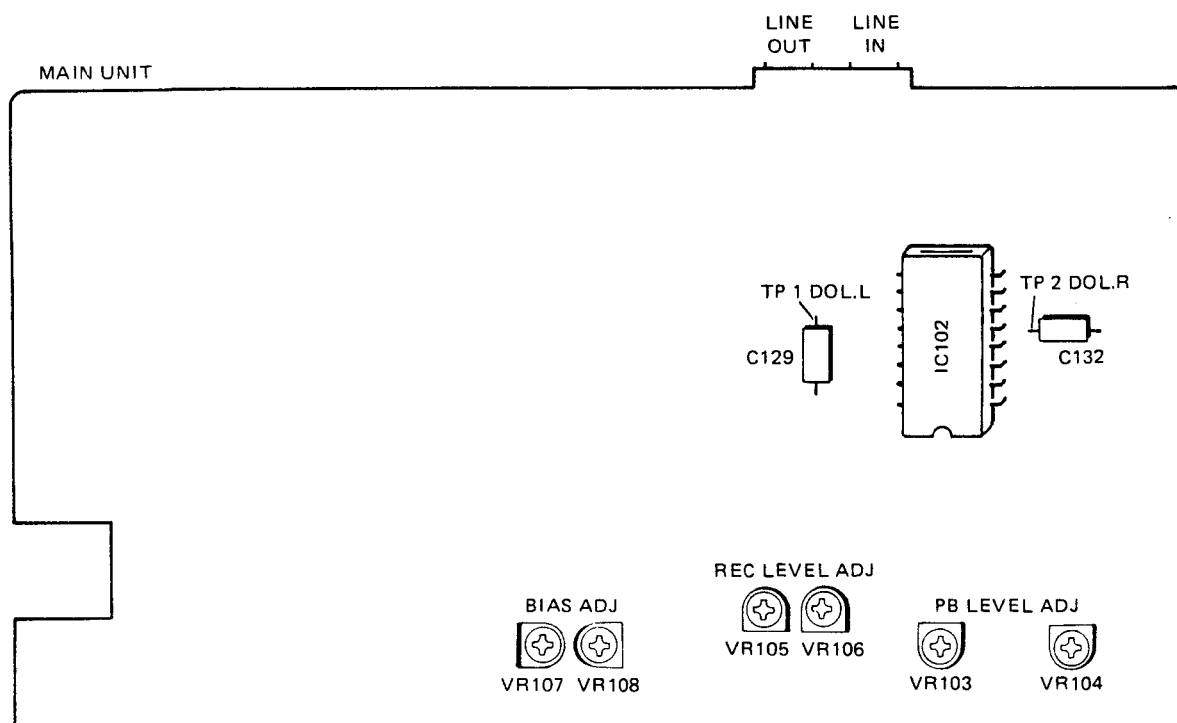


Fig. 5-2 Points de réglage



**5.2 REGLAGES ELECTRIQUES**

**Conditions de réglage**

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de  $\text{dBv}=1 \text{ Vrms}$ .
5. Connecter une résistance de charge de 50 kohms (tolérance 47 à 52 kohms) aux bornes de sortie (OUTPUT).

6. Sauf indication contraire, les commutateurs ci-dessous doivent être laissés sur les positions indiquées.

DOLBY NR : OFF  
 Sélecteur de bande : NORM  
 (TAPE SELECTOR)

**Bandes d'essai**

- STD-331B : Réglages de la lecture  
 (Voir fig. 5-3)
- STD-630 : Bande vierge de type normal  
 STD-620 : Bande vierge de type chrome  
 STD-610 : Bande vierge de type métal

**Liste des réglages**

**Sections de lecture**

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

**Sections d'enregistrement**

1. Réglage de la polarisation d'enregistrement.
2. Réglage du niveau d'enregistrement.

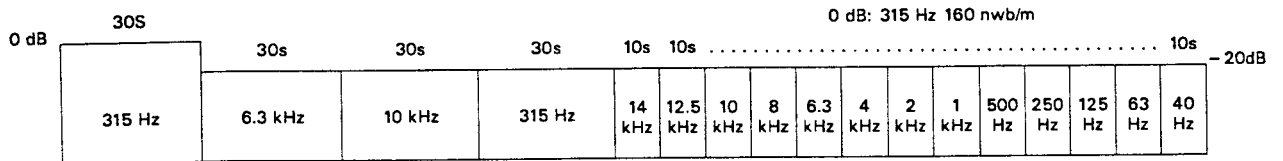
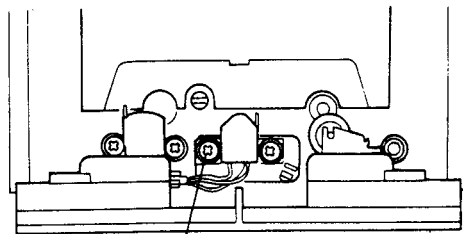


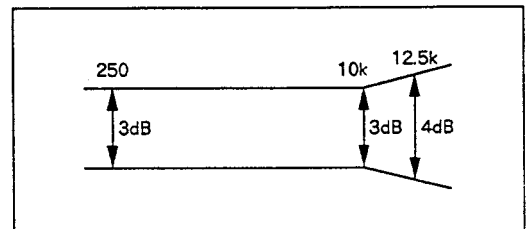
Fig. 5-3 Constantes de la bande d'essai STD-331B



Vis de réglage de l'azimutage

Fig. 5-4 Réglage de l'azimut de la tête

**LECTURE**



**ENREGISTREMENT**

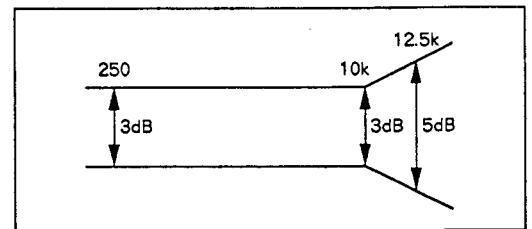


Fig. 5-5 Tolérance de la zone de réponse en fréquence de lecture

## SECTION DE LECTURE

### 1. Réglage de l'azimut de la tête

- Tourner VR103, VR104 sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/ - 20 dB de la bande d'essai STD-331B.	Vis de réglage de l'azimut de la tête. (Voir fig. 5-4)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

### 2. Réglage du niveau de lecture

- Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD-331B.	VR103 (can. G) VR104 (can. D)	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	- 15.2 dBv	

## SECTION D'ENREGISTREMENT

### 1. Réglage de la polarisation d'enregistrement

- Après le réglage, des précautions doivent être prises pour éviter une sous-polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de - 20 dBv et les reproduire.	VR107 (can. G) VR108 (can. D)	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne + 0.5 dB $\pm$ 0.5 dB lorsqu'il est comparé avec le signal 315 Hz.	

### 2. Réglage du niveau d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC PAUSE	Appliquer un signal de 315 Hz/0 dBv aux bornes d'entrée de ligne, charger la bande d'essai STD-630.	Volume de la commande de niveau d'enregistrement.	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	- 15.2 dBv	
3.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)				
4.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-630 et le reproduire.	VR105 (can. G) VR106 (can. D)	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne - 15.2dB.	
5.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position CrO2.				
6.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-620 et le reproduire.	Vérifier	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	- 15.2 dBv $\pm$ 1.5 dB	
7.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position METAL.				
8.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.	Vérifier	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	- 15.2 dBv $\pm$ 1.5 dB	

# 5. AJUSTE

## 5.1 AJUSTES MECANICOS

1. Ajuste de la velocidad de la cinta			
Modo	Cinta de prueba	Posición de ajuste	Valor de especificación (frecuencia de reproducción)
PLAY	Reproducir la STD-301 (3kHz)	Control del resistor variable	3000Hz ± 5Hz

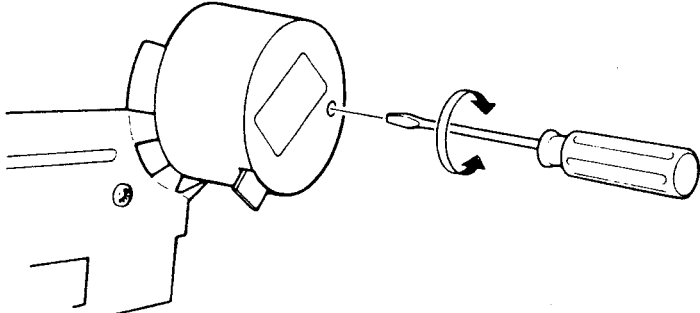
  


Fig. 5-1

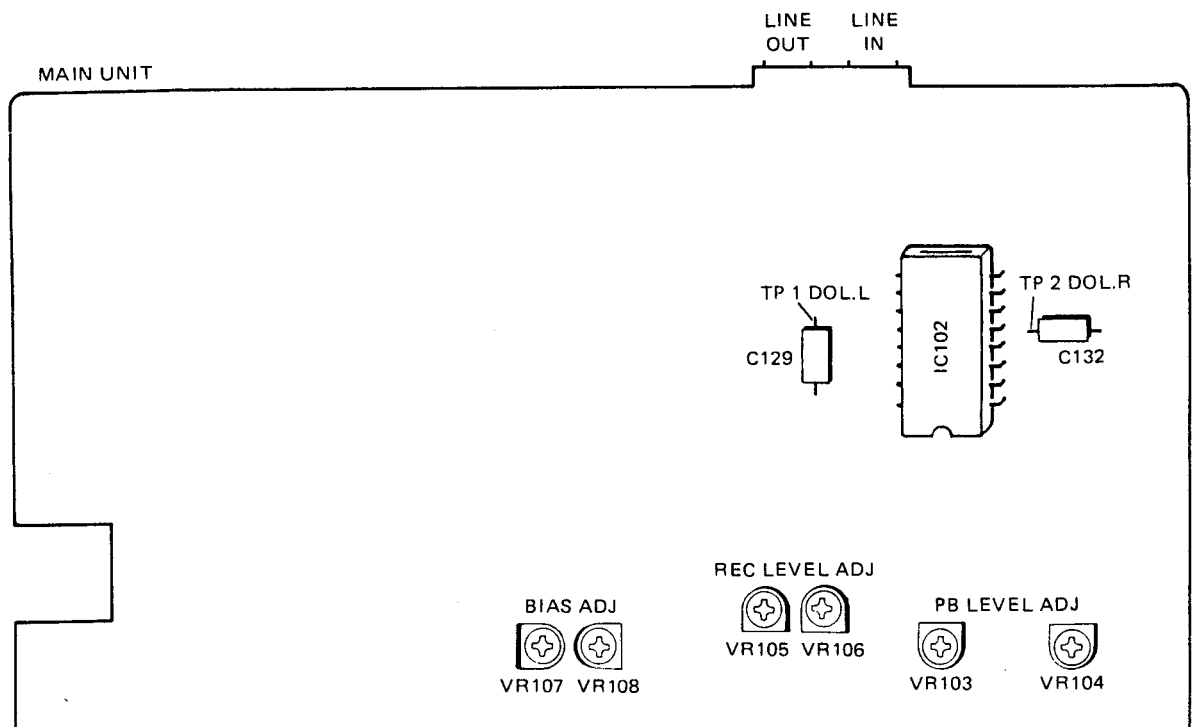


Fig. 5-2 Puntos de ajuste

**5.2 AJUSTES ELÉCTRICOS**

**Condiciones de ajuste**

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de 0 dBv=1 Vrms.
5. Conecte una resistencia de 50 kΩ (o entre 47 y 52 kΩ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.

DOLBY NR : OFF  
 TAPE SELECTOR : NORM

**Cintas de prueba**

- STD-331B : Ajustes de reproducción  
 (Consulte la figura 5-3)
- STD-630 : Cinta virgen NORMAL  
 STD-620 : Cinta virgen de CrO<sub>2</sub>  
 STD-610 : Cinta virgen de METAL

**Lista de ajustes**

**Secciones de reproducción**

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

**Secciones de grabación**

1. Ajuste de la polarización de grabación
2. Ajuste del nivel de grabación

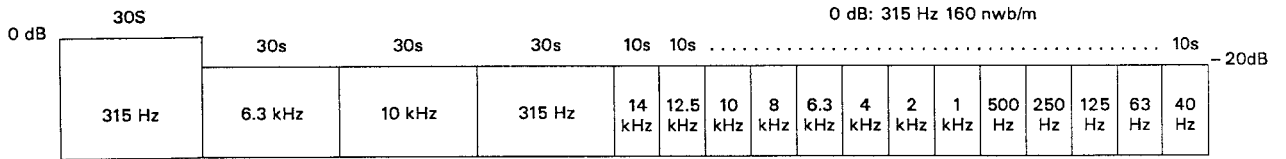
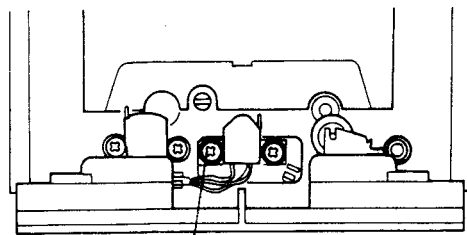


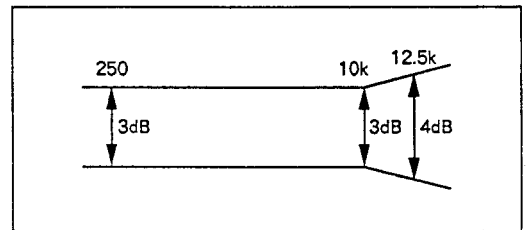
Figura 5-3 Constantes de la cinta de prueba STD-331B



Tornillo de ajuste de azimut

Figura 5-4 Ajuste de azimut de la cabeza

**REPRODUCCIÓN**



**GRABACIÓN**

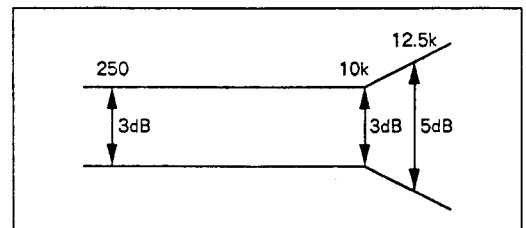


Figura 5-5 Zona permissible de respuesta de frecuencia de reproducción

## SECCIÓN DE REPRODUCCIÓN

### 1. Ajuste del azimut de la cabeza

- Poner VR 103, VR 104 en las posiciones del centro mecánico.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/ - 20 dB de la cinta de prueba STD-331B.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 5-4)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

### 2. Ajuste del nivel de reproducción

- Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD-331B.	VR 103 (Lch) VR 104 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv	

## SECCIÓN DE GRABACIÓN

### 1. Ajuste de polarización de grabación

- Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de - 20 dBv y reproduzca.	VR 107 (Lch) VR 108 (Rch)	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de + 0.5 dB $\pm$ 0.5 dB cuando se compare con la señal de 315 Hz.	

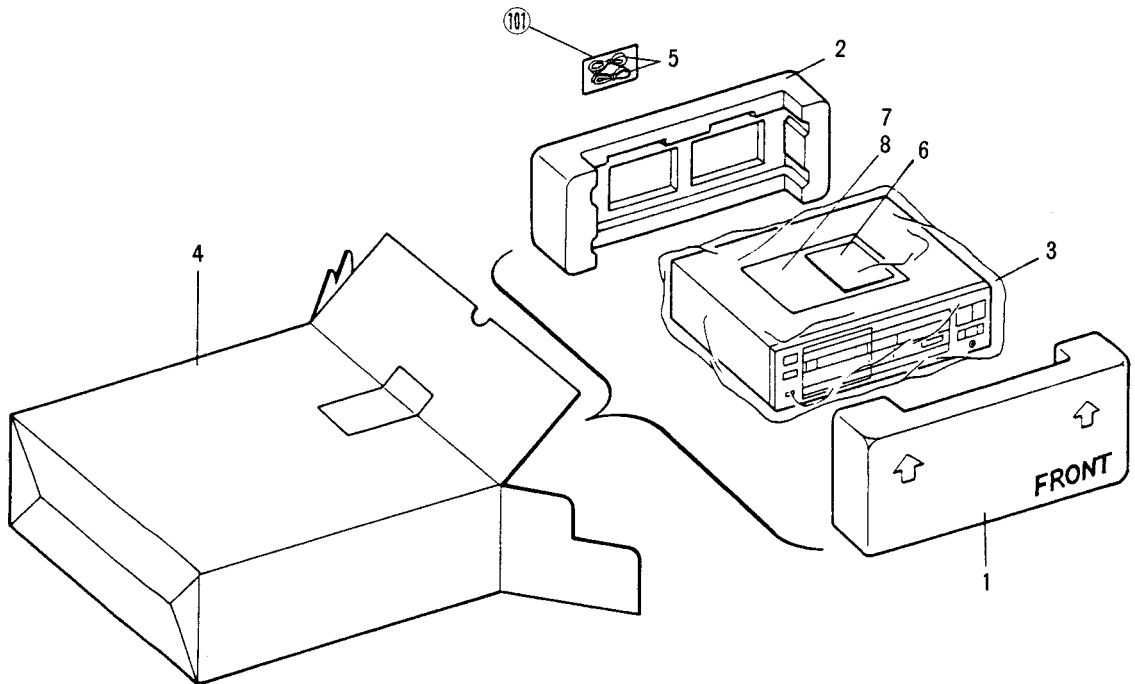
### 2. Ajuste del nivel de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC PAUSE	Aplique una señal de 315 Hz/0 dBv a los terminales de entrada de línea e introduzca la cinta de prueba STD-630.	Control de nivel de grabación.	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv	
3.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)				
4.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-630 y reproduzca.	VR 105 (Lch) VR 106 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de - 15.2 dB.	
5.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO <sub>2</sub> .				
6.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reproduzca.	Verifique	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv $\pm$ 1.5 dB	
7.	STOP	Ponga el conmutador TAPE SELECTOR en la posición METAL.				
8.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-610 y reproduzca.	Verifique	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	- 15.2 dBv $\pm$ 1.5 dB	

## 6. PACKING

### Parts List

Mark	No.	Part No.	Description
	1	RHA1006	Pad (A)
	2	RHA1007	Pad (B)
	3	RHX-034	Styrene paper
	4	RHG1108	Packing case
	5	RDE-010	Connection cord
	6	RRB1035	Operating instructions (English)
	7	RRD1053	Operating instructions (French/German/Italian)
	8	RRD1056	Operating instructions (Dutch/Spanish/ Portuguese/Swedish)
101			Connection cord assembly



## 7. HB, HP, SD AND CT-335-S/HEM TYPES

### CONTRAST OF MISCELLANEOUS PARTS

**NOTES :**

- Parts without part number cannot be supplied.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT-335/HB, HP, SD and CT-335-S/HEM types are the same as the CT-335/HEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.				
		CT-335 /HEM type	CT-335 /HB type	CT-335 /HP type	CT-335 /SD type	CT-335-S /HEM type
$\Delta$	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Power SW unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Transformer unit	Non supply	Non supply	Non supply	Non supply	Non supply
	AC Power cord	PDG1003	PDG1004	PDG1006	PDG1013	PDG1003
$\Delta$	Voltage selector	.....	.....	.....	PSB1002	.....
$\Delta$	T1 Power transformer (AC220/240V)	RTT1050	RTT1050	RTT1050	.....	RTT1050
$\Delta$	T1 Power transformer (AC110/120-127/220/240V)	.....	.....	.....	RTT1051	.....
	Slide knob (A) (TIMER)	RAC-668	RAC-668	RAC-668	RAC-668	RAC1219
	VR knob (REC LEVEL)	RAC1221	RAC1221	RAC1221	RAC1221	RAC1222
	Operation knob ( $\leftarrow$ , $\blacksquare$ , $\rightarrow$ , $\bullet$ , $\parallel$ , $\odot$ )	RAC1223	RAC1223	RAC1223	RAC1223	RAC1224
	Eject knob (EJECT)	RAC1226	RAC1226	RAC1226	RAC1226	RAC1227
	Counter reset knob (RESET)	RAC1228	RAC1228	RAC1228	RAC1228	RAC1309
	Tape select knob (TAPE SELECTOR, MPX FILTER)	RAC1230	RAC1230	RAC1230	RAC1230	RAC1308
	Power button (POWER)	RAC1240	RAC1240	RAC1240	RAC1240	RAC1241
	Headphone knob (REC BALANCE, BIAS)	RAC1337	RAC1337	RAC1337	RAC1337	RAC1360
	Button panel	RAC1240	RAH1240	RAH1240	RAH1240	RAH1241
	Door panel	RAH1466	RAH1466	RAH1466	RAH1466	RAH1474
	Eject mold	RNK1313	RNK1313	RNK1313	RNK1313	RNK1314
	VR escutcheon	RNK1315	RNK1315	RNK1315	RNK1315	RNK1316
	Bonnet	RXX1079	RXX1079	RXX1079	RXX1079	RXX1080
	Front panel assembly	RXX1181	RXX1181	RXX1181	RXX1181	RXX1178
	Packing case	RHG1108	RHG1108	RHG1108	RHG1108	RHG1115
	Operating instructions (English)	RRB1035	RRB1035	RRB1035	RRB1035	.....
	Operating instructions (French/German/Italian)	RRD1053	.....	.....	.....	RRD1053
	Operating instructions (Dutch/Spanish/Portuguese/Swedish)	RRD1056	.....	.....	.....	.....
	Operating instructions (Spanish)	.....	.....	.....	RRD1054	.....

NOTE : MAIN UNIT, POWER SW UNIT, TRANSFORMER UNIT  
No different parts to be supplied.

# CT-335/HP, HP, SD, CT-335-S/HEM

## DISPLAY UNIT

The display units (for the CT-335/HP and SD types) are the same as the display unit (for the CT-335/HEM type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT-335/HEM type	CT-335/HP and SD types	
	D602-D605, D607, D610-D613, D620-D623, D626-D627 R619	LT4E41C RCN1018	SEL4914A-X RD½PMF300J	



## 8. SPECIFICATIONS

Systems .....	4 track, 2-channel stereo
Heads .....	"Hard Permalloy" recording/playback head × 1 "Ferrite" erasing head × 1
Motor .....	DC servo capstan motor × 1 DC reel motor × 1
Wow and Flutter .....	No more than 0.055% (WRMS) ± 0.17% (DIN)
Fast winding Time .....	Approximately 100 seconds (C-60 tape)
Frequency Response ( ± 6 dB)	
-20 dB recording:	
Normal tape .....	25 to 16,000 Hz
Chrome tape .....	25 to 17,000 Hz
Metal tape .....	25 to 18,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF .....	More than 58 dB
Noise Reduction Effect	
Dolby B-type NR ON .....	More than 10 dB (at 5 kHz)
Dolby C-type NR ON .....	More than 19 dB (at 5 kHz)
Harmonic Distortion .....	No more than 0.7% (0 dB)
Input (Sensitivity)	
LINE (INPUT) .....	63 mV (Input impedance 50 k Ω )
Output (Reference level)	
LINE (OUTPUT) .....	316 mV (Output impedance 5.5 k Ω )
Headphone .....	0.25 mW (load impedance 8 Ω )

### Subfunctions

- DOLBY B-type and C-type NR Systems
- DOLBY HX PRO
- MPX FILTER switch
- 3-position tape selector (NORM/CrO<sub>2</sub>/METAL)
- Music search over ± 15 selections
- Automatic space recording mute
- Rec BIAS control
- 7 segments/channel LED level meter
- Timer Recording/Playback

### Miscellaneous

#### Power Requirements

European model .....	AC 220 Volts ~ , 50/60 Hz
U.K., Australian models .....	AC 240 Volts ~ , 50/60 Hz
Other destination models .....	AC 110V/120-127V/220V/240V, 50/60 Hz (switchable)

#### Power Consumption

European, U.K. models .....	17W
Other destination models .....	17W

Dimensions .....	420(W) × 120(H) × 272(D) mm 18-9/16(W) × 4-3/4(H) × 10-11/16(D) in
Weight (without package) .....	4.2 kg (9 lb 4 oz)

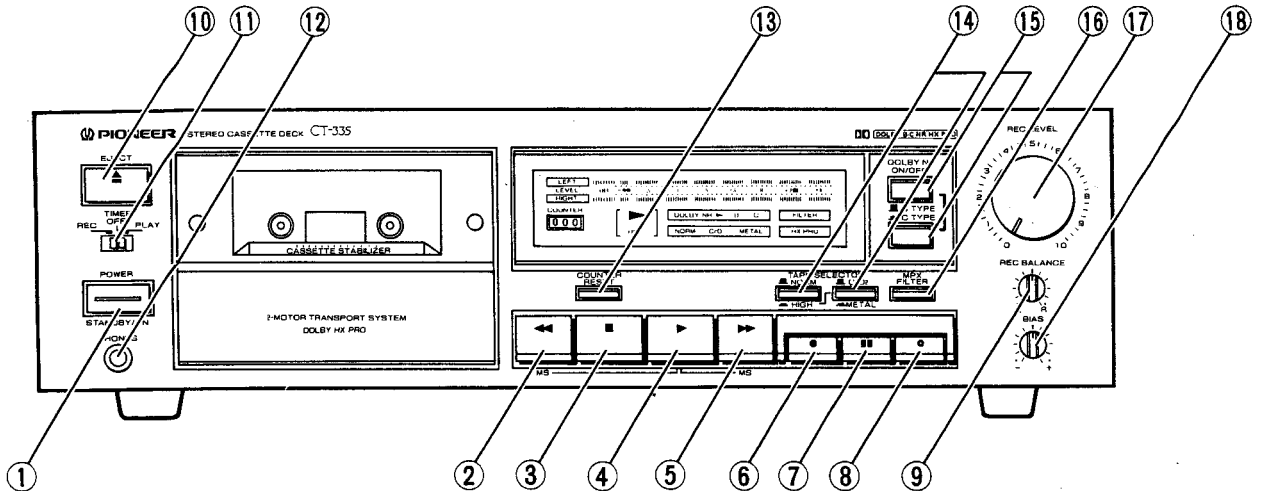
### Accessories

Operating instructions .....	1
Connection cord with pin plugs .....	2

#### NOTE:

*Specifications and design subject to possible modifications without notice due to improvements.*

## 9. PANEL FACILITIES



### ① POWER (STANDBY/ON) switch

**NOTE:**

The **POWER** switch turns off the transformer secondary circuits only, and so even at the **STANDBY** position, the unit is connected to the mains as long as the power cord is connected to a power outlet.

### ② Rewind button (◀◀)

To rewind the tape in the direction of the arrows. When this button is pressed once during playback of a selection, the same selection will be played again. If pressed in the blank between two selections, the first selection before the current tape position will be played. The unit will skip one selection in reverse direction for each time the (◀◀) button is pressed.

### ③ Stop button (■)

To stop all operations.

### ④ Playback button (▶)

To start playback.

### ⑤ Fast forward button (▶▶)

To fast-forward the tape in the direction of the arrows. When pressed during playback, the unit will skip one selection in forward direction for each time the (▶▶) button is pressed.

### ⑥ Recording button (●)

When the recording (●) button is pressed, the unit is set to recording standby mode. Press the pause (||) button or playback (▶) button when ready to record. The unit will not enter the recording standby mode if a cassette with the erasure prevention tabs removed is loaded.

### ⑦ Pause button (||)

To stop tape transport momentarily during recording or playback. Press the button again to resume operation. This can also be done by pressing the playback (▶) button. This button does not work during fast-forward and rewind.

### ⑧ Record muting button (○)

Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording standby mode.

### ⑨ REC BALANCE control

Balancing the recording level between left (L) and right (R) channels.

### ⑩ EJECT button (▲)

Press to open the cassette door after you have pressed the stop button (■) and the tape has stopped.

**NOTE:**

If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the **EJECT** button.

### ⑪ TIMER switch

**OFF:**

Normally, be sure to leave the switch in this position.

**REC:**

For timer recording

**PLAY:**

For timer playback

- Recording or playback may suddenly start when turning the power on with this switch in the **REC** or **PLAY** position.

⑫ PHONES jack

⑬ Tape COUNTER RESET button

Resets the tape counter reading to "000".

⑭ TAPE SELECTOR switches

These switches must be set in accordance with the tape used to select the proper recording bias and playback equalization.

**Normal tape:**

Release the left switch (  NORM ).

**CrO<sub>2</sub> tape:**

Depress the left switch (  HIGH ) and release the right switch (  METAL ).

**Metal tape:**


Depress both the right and left switches (  HIGH,  METAL ).

⑮ DOLBY \* NR switches

Set these switches to ON and B-TYPE or C-TYPE for recording with the built-in Dolby NR Systems and for playback of tapes which have been recorded using the Dolby NR Systems.

For other tapes, set the upper DOLBY NR switch to OFF.

\*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY," and the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑯ MPX FILTER switch

High frequencies may be muted when using the Dolby NR Systems during FM recording from some tuners. To prevent this, set the switch to ON.

**OFF:**

The **FILTER** indicator in the operating display goes off. Normally, leave the switch in this position.

**ON:**

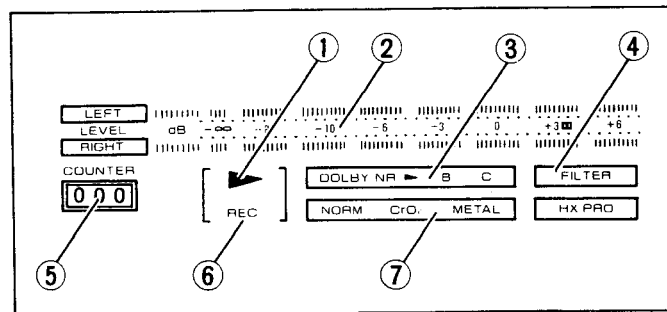
The **FILTER** indicator in the operating display lights up. The MPX FILTER switch can be set to ON only when the DOLBY NR ON/OFF switch is in the ON position.

⑰ REC LEVEL control

⑱ Rec BIAS control

It is possible to adjust the bias according to the tape used and the source to be recorded.

OPERATING DISPLAY



① Play indicator

▶: Lights up during playback and recording. The indicator flashes slowly in the pause mode and fast during music search.

② LEVEL meter

**LEFT** : Left channel.  
**RIGHT** : Right channel.

③ DOLBY B/C NR indicator

Indicates the selected Dolby Noise Reduction Systems, B-type or C-type.

④ MPX FILTER indicator

Lights up when the MPX FILTER switch is pressed and the Dolby NR Systems are ON.

⑤ Tape COUNTER

⑥ REC indicator

Lights up during recording.

⑦ Tape selector indicator

Shows the position of the TAPE SELECTOR switches.