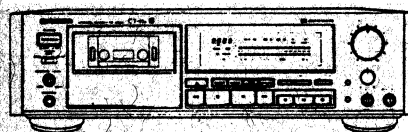


Service Manual



STEREO CASSETTE DECK

CT-91a

CT-91a HAS TWO VERSIONS :

Type	Power requirement	Export destination
HEM	AC220V, 240V (switchable) *	European continent
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-91a/HEM and SD types.
- For the SD type, refer to pages 47.
- 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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1. SPECIFICATIONS

Systems	4 track, 2-channel stereo
Heads	Recording and playback head Laser amorphous playback head/ Hard permalloy recording head combination × 1 Erasing head: (Ferrite head) × 1
Motors	DC servo capstan motor × 1 DC reel motor × 1 DC auxiliary motor × 1
Wow & flutter	0.022% (WRMS) ± 0.052% (DIN)
Fast winding time	Approximately 80 seconds (C-60 tape)
Frequency response (-20 dB recording)	
Metal tape	15 Hz to 23,000 Hz
Chrome tape	15 Hz to 21,000 Hz
Normal tape	15 Hz to 21,000 Hz
Signal-to-noise ratio	
DOLBY NR OFF	More than 60 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 0.6% (0 dB)
Input	LINE: 67 mV (Input impedance: 50 k Ω)
Output	LINE: 316 mV (Output impedance: 1.4 k Ω) Headphones: 0.8 mW (Load impedance 8 Ω VR Max.)

Subfunctions

- 3-mode Counter (4-digit electronic counter)
- Auto Tape Loose Canceller function
- Meter Range Selection (wide/expanded range)
- Auto Monitor Function (TAPE/SOURCE auto selection)
- Power Eject (OPEN/CLOSE)
- Music Search (over ± 15 selections)
- Tape Return/Return Play
- Headphones jack (with volume control)
- Bias control
- Rec calibration level control
- MPX Filter
- Auto Space Recording Mute
- Auto Tape Selector
- Playback/Recording timer start function
- Dolby B-type and C-type Noise Reduction Systems
- Dolby HX Pro system
- FL Level Meter Peak-hold function (15 + 1 segments)

Miscellaneous

Power requirements	
U.S., Canadian models	AC 120V 60 Hz
U.S. military, other destination models	~AC 110V/120 - 127V/220V/240V (switchable), 50/60 Hz
Power consumption	
U.S., Canadian models	28W
U.S. military, other destination models	28W
Dimensions	457(W) × 133.5(H) × 372(D) mm
Weight (without package)	10.8 kg

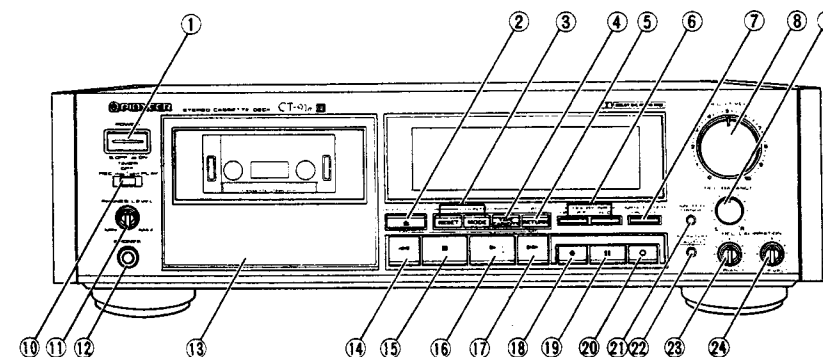
Accessories

Operating instructions	1
Connecting cords	2

NOTE:

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

2. PANEL FACILITIES



① POWER switch

Turns the power on and off.

After the power is turned on, the dotted lines in the level meter flash for approximately 4 seconds until the circuits of the unit have stabilized. The unit will not operate during this time.

② Cassette door OPEN/CLOSE button

NOTE:

If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

③ COUNTER selectors

RESET:

Resets the counter indication to "0000".

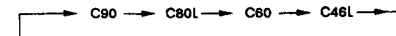
MODE:

Each time this button is pressed, one of the following three modes is set in sequence.

- Normal tape counter
- Time counter (displays the elapsed playback or recording time)
- Remaining time counter (displays the remaining time of the tape).

④ TAPE CAPACITY selector

To indicate the correct time value in the remaining time counter mode, this selector must be set in accordance with the tape used.



⑤ TAPE RETURN button

This button is used in the tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000".

⑥ DOLBY NR selectors

ON/OFF:

Used to turn the Dolby NR Systems circuits ON or OFF.

B/C:

With the ON/OFF switch in the ON position, Dolby B-type NR or C-type NR can be selected with this switch.

⑦ MPX FILTER switch

Set this switch to ON when recording FM broadcasts with one of the Dolby NR systems.

⑧ REC LEVEL control

⑨ REC BALANCE control

⑩ TIMER mode selector

REC:

Set to this position for timer recording.

PLAY:

Set to this position for timer playback.

OFF:

When the timer is not to be used, set the selector to this position. (Normally leave the selector in this position.)

⑪ PHONES LEVEL control

Used for adjusting the volume when listening with headphones.

⑫ PHONES jack

For connection of standard stereo headphones.

13 Cassette door

Open and close this door by pressing the OPEN/CLOSE button for insertion or removal of the tape.

14 Rewind (◀◀) button

Press this button to rewind the tape. Also, this button is used for music search during playback.

15 Stop (■) button

16 Play (▶) button

17 Fast forward (▶▶) button

Press this button to fast forward the tape. Also, this button is used for music search during playback.

18 Recording (●) button

When this button is pressed, the unit is set to one-touch recording pause (recording standby mode).

19 Pause (||) button

The tape transport can be momentarily stopped by pressing this button during recording or playback. Press the button again to restart operation. The button does not operate during fast forward or rewind.

20 Record muting (○) button

Press this button to create an unrecorded space during recording.

21 METER RANGE selector

Selects wide or expanded range for the level meter.

22 MONITOR selector

For monitoring the sound during recording, this switch can be used to switch between source sound and just recorded sound.

Normally, however, the unit will automatically select tape playback sound after playback has started or the just recorded sound after recording has started.

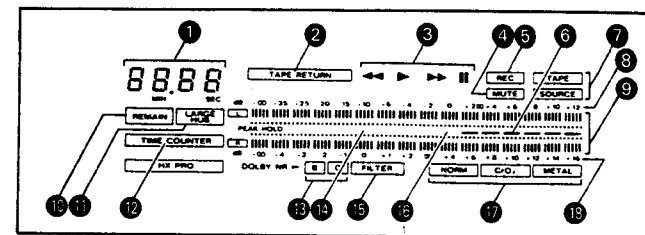
23 REC CALIBRATION BIAS control

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

24 REC CALIBRATION LEVEL control

The AUTO TAPE SELECTOR of this unit matches the recording characteristics with the tape used. Proper adjustment of the REC CALIBRATION LEVEL control permits optimum use of the given tape characteristics for even better recording results.

● OPERATING DISPLAY



1 Counter

- The counter has three display modes.
- If the cassette door is open, the message "OPEN" is displayed.
- During music search the number of selections is displayed.

2 TAPE RETURN

Lights up during tape return operation.

3 Tape transport modes

- ◀◀: Lights up when rewinding the tape.
- ▶▶: Lights up during playback, playback pause, recording pause and recording. Flashes during music search.
- ▶▶: Lights up when fast forwarding the tape.
- ||: Lights up in the pause mode.

4 MUTE

Flashes and lights during recording mute operation.

5 REC

Lights up during recording.

6 Warning zone

Changes according to the type of tape used and to the selected meter range.

7 Monitor source

TAPE: Recorded sound
SOURCE: Original source sound

8 Scale for wide range

9 Level

L: Left channel
R: Right channel

The **0** marks indicate the reference level for the Dolby NR Systems.

10 REMAIN

Lights up when the remaining time counter mode is selected.

11 LARGE HUB

Lights up when the TAPE CAPACITY selector is pressed in the remaining time counter mode, and the Large Hub mode is set.

12 TIME COUNTER

Lights up in the time counter mode.

13 DOLBY B-type NR/C-type NR

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

14 0 dB position for expanded range

15 MPX FILTER

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

16 0 dB position for wide range

17 Tape type

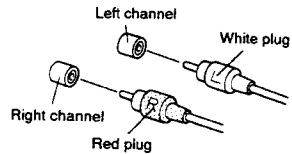
The unit will automatically detect and display the tape type (NORMAL/CrO₂/METAL) of the cassette inserted. When no tape is inserted, METAL is displayed.

18 Scale for expanded range

• CONNECTIONS

Connection of input and output cords

- The cords to be used have white and red pin plugs.
- Connect white plugs to the left channel (L), and red plugs to the right channel (R), making sure that the colors match. Take particular care to insert the plugs all the way in.



CONTROL IN jack

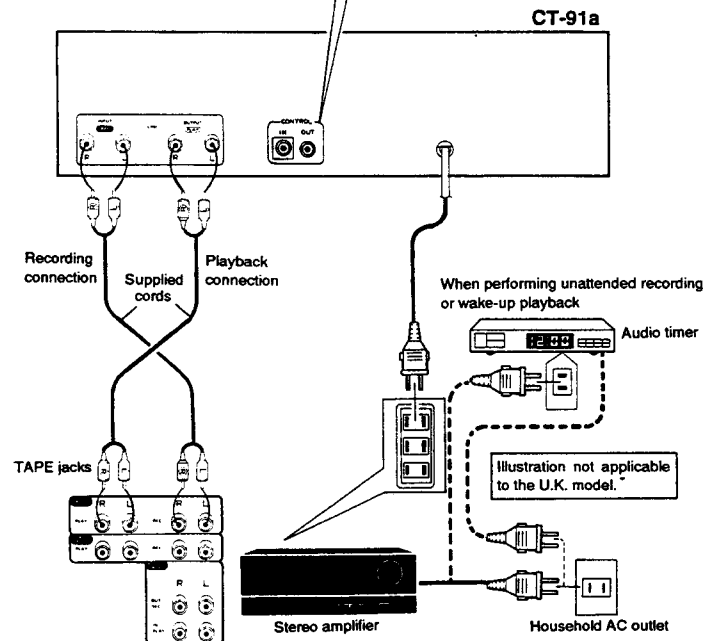
Connect this jack to the CONTROL OUT jack of a component equipped with the Pioneer System Remote Control (bearing the  mark) using a supplied mini-plug cord, and you will be able to operate the PAUSE function of this component using the system remote control.

CONTROL OUT jack

Intermediary output of remote control signals from the above input jack. Connect it to the CONTROL IN jack of another component compatible with the Pioneer System Remote Control.

Connection to an audio timer

For details on the connection to an audio timer, refer to the instruction manual of the audio timer.



3. EXPLODED VIEWS AND PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- 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.
- Parts marked by "O" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

3.1 EXTERIOR

Parts List of Exterior

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
△	1	CM-22B	Strain relief	41	RAH1405	Door panel	
△	2	ADG1036	AC power cord	42	RXX1064	Cassette plate assembly	
△	3	REK-102	Fuse (FU103 1.6A/250V)	43	RXX1128	Bonnet	
△	4	REK-100	Fuse (FU101, FU102 1A/250V)	44	RXX1159	Door assembly	
△	5	RTT1061	Power transformer (T1)	45	RXX1204	Front panel assembly	
	6	SLF-401C	Diode (D11)	46	BBZ40P080FCC	Screw	
	7	DBK-106	Mounting plate	47	BBZ30P060FCC	Screw	
	8	PNB1109	Absorber plate B	48	IBZ30P080FCC	Screw	
	9	RBF1019	Washer	49	BBT30P080FZK	Screw	
	10	RBH1150	Spring	50	BBZ40P180FCC	Screw	
	11	RBL-059	Cassette plate spring	51	PYC30P100FMC	Screw	
	12	RBM-014	Nylon rivet (3.5×5.5)	52	BBZ26P080FZK	Screw	
	13	REB-223	Cover cushion (D)	53	PMA30P060FCU	Screw	
	14	REB1038	Stabilizer B	54	REE1010	Motor label	
	15	REB1057	Rubber spacer (A)	101		BIAS VR unit	
	16	REC1008	Wood spacer	102		Headphone unit	
	17	RNH-184	Cord clasper	103		INPUT VR unit	
	18	AAM1001	Name plate	104		Amp unit	
	19	ABA1023	Screw	105		FL unit	
	20	AMR1159	Leg assembly	106		Switch unit	
				107		OSC.HX unit	
	21	RAC1337	Knob (PHONES LEVEL, REC CALIBRATION)	108		Timer unit	
				109		Control unit	
				110		Power supply unit	
	22	RAC-668	Knob A (TIMER)	111		Tape mechanism unit	
	23	RAC1203	Button (POWER)	112		Power transformer sheet	
	24	RAC1204	Button (DOLBY, MPX)	113		Tape mechanism sheet	
	25	RAC1205	Button (COUNTER)	114		VR rod	
				115		Center stay	
	26	RAC1206	Button (◀, ■, ▶, ➡, ●, ■, ○)	116		VR holder	
	27	RAC1262	VR knob B (REC BALANCE)	117		Panel stay	
	28	RAH1184	FL filter	118		Main Chassis	
	29	RAP1003	Under escutcheon	119		P.C.B holder	
	30	RMS1007	Side wood (L)	120		Shield plate	
	31	RMS1008	Side wood (R)	121		VR rod guide	
	32	RNK1284	Door	122		Joint	
	33	RNK1285	Button holder	123		P.C.B stud	
	34	RNK1411	Side mold (L)	124		Cassette plate	
	35	RNK1412	Side mold (R)	125		Front panel	
	36	RXA1158	VR knob assembly (A)	126		Rear panel	
	37	RXA1160	Button assembly (MONITOR)				
	38	RAH1197	Door lens				
	39	RAH1198	FL panel				
	40	RAH1368	Side panel				

D

f

D

3.2 Parts List of Mechanism Unit

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	RSF-031	Micro switch		56	BBZ26P080FZK	Screw
	2	RSX-059	Rotary encoder		57	BBZ30P080FZK	Screw
	3	RXM1016	Capstan motor assembly		58	BCZ30P060FMC	Screw
	4	RXM1018	Reel motor assembly		59	BMZ23P100FZK	Screw
	5	RBA-064	Step screw		60	BMZ26P030FZK	Screw
	6	RBL-044	Thrust spring		61	RBF-065	Washer
	7	REB-408	Rubber cushion		62	BMZ30P080FZK	Screw
	8	RBL-028	Pinch spring		63	JGZ20P025FMC	Screw
	9	RBL-030	Pinch thrust spring		64	PMA26P050FZK	Screw
	10	RBL-098	Pinch spring (SUB)		65	PMA26P060FZK	Screw
	11	REB1073	Capstan belt		66	PMZ20P080FZK	Screw
	12	REB1074	Capstan belt (A)		67	RBF-030	Oil stopper
	13	RNL-016	Tape guide		68	RBF-069	Thrust washer (A)
	14	RXA1235	Flywheel assembly		69	RBF-070	Thrust washer (B)
	15	RXA1236	Flywheel assembly (SUB)		70	RBF-076	Slider washer
	16	RXA1238	Pinch roller (A) assembly		71	RBF-077	Oil stopper
	17	RXA1240	Pinch roller (R) assembly		72	REC-371	Binder
	18	RXB-362	Metal holder assembly (A)		73	REF-022	Steel ball (φ 3)
	19	RXB-466	Metal holder assembly (B)		74	REF-023	Steel ball (φ 4)
	20	RBL-031	BT spring (A)		75	VCT30P060FZK	Screw
	21	RBL-032	BT spring (B)		76	VCZ26P080FMC	Screw
	22	RBL-033	Idler pressure spring		77	WA21D040D013	Washer
	23	RNK-815	Reel shaft cap (B)		78	WA26N070W040	Washer
	24	RXB-751	BT disc assembly		79	WA32D080D050	Washer
	25	RXB-874	Reel base assembly		80	YE20FUC	E ring
	26	RXB-875	Take-up idler assembly		81	YE25FUC	E ring
	27	RBL-037	Head base spring		82	YE30FUC	E ring
	28	RBL-038	Brake spring		83	YS24FBT	Retaining ring
	29	REB-502	Drive belt		84	RXX1055	Power motor assembly
	30	REB-511	Brake shoe		85	RXX1212	Head base assembly
	31	RNL-723	Brake		101		Earth lead wire assembly
	32	RNL-729	Cam gear		102		R/P head
	33	RXB-884	Side cam gear assembly		103		Erase head assembly
	34	RBH1136	Arm shock-absorb spring		104		Connector unit
	35	RBH1137	Plate (A) return spring		105		Power motor
	36	RBH1138	Plate (B) return spring		106		Reel motor mounting plate
	37	RBH1142	Frame return spring		107		Flywheel holder
	38	RBL-027	Pocket spring (A)		108		Thrust holder
	39	RBL-039	Eject spring		109		Mechanism chassis assembly
	40	RBL-040	Half pressure spring		110		Pressure arm (R)
	41	RBL-041	Rec arm spring		111		Pressure arm (L)
	42	RBL-042	Detect arm spring		112		Adjustment nut
	43	RBL-043	Lock lever spring		113		Head base pressure spring
	44	REB-447	O ring		114		Head adjust spring (C)
	45	RNH-184	Cord clasper		115		Hight spring
	46	RNK1297	Arm		116		Head base
	47	RNL-733	Rec detect arm		117		Sub head base
	48	RNL-734	CrO ₂ detect arm		118		Brake lever
	49	RNL-735	Metal detect arm		119		First pulley
	50	RNL-739	Piston		120		Gear chassis assembly
	51	RNL-740	Cylinder		121		Pinch base assembly
	52	RNL-741	Lock lever		122		Pinch lever assembly
	53	RNL-742	Collar		123		Gear base assembly
	54	RNL-849	Pocket (L)		124		Second pulley assembly
	55	RNL-850	Pocket (R)		125		Absorber

Mark	No.	Part No.	Description
	126		Cassette clamp shaft
	127		Pocket frame
	128		Plate (A)
	129		Plate (B)
	130		Frame
	131		Door arm
	132		Cassette clasper (L)
	133		Cassette clasper (R)
	134		Side plate
	135		Eject lever
	136		Top frame assembly
	137		Shift shaft assembly
	138		Door frame (R) assembly
	139		Door frame (L) assembly
	140		Rec switch unit
	141		Tape selector unit
	142		Sensor unit (A)
	143		Sensor unit (B)

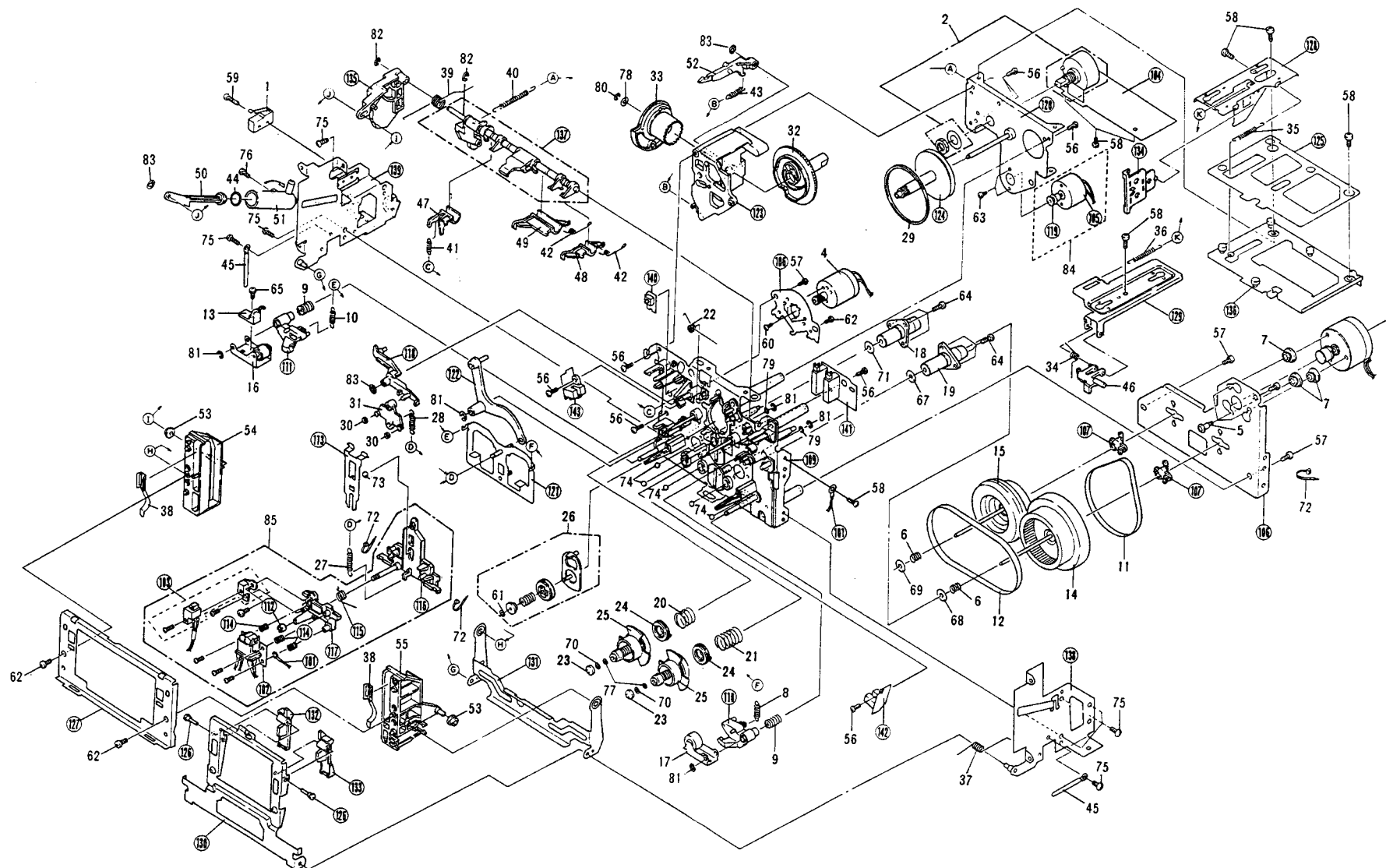
Mechanism Unit

A

B

C

D



A

B

C

D

1

2

3

4

5

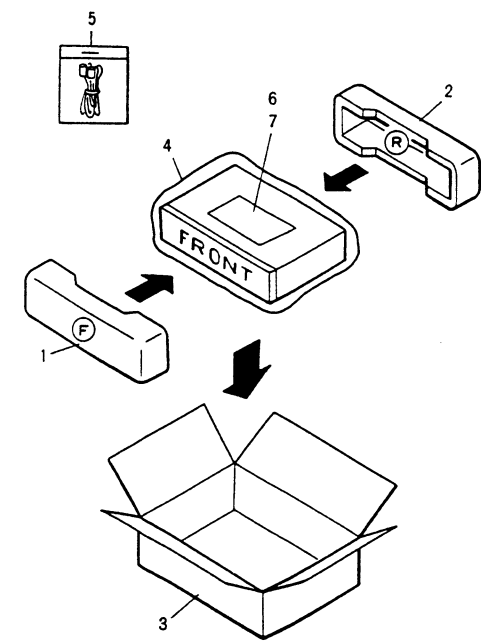
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I. PACKING

Parts List

Mark	No.	Part No.	Description
	1	RHA1029	Pad (F)
	2	RHA1030	Pad (R)
	3	RHG1124	Packing case
	4	RHX-034	Sheet
	5	RDE1013	Connection cord assembly
	6	RRD1062	Operating instructions (French/Italian/Dutch/ Swedish/Spanish/ Portuguese)
	7	RRE1026	Operating instructions (English/German)



5. SCHEMATIC DIAGRAM

- RESISTORS
Indicated in Ω , 1/4W, 1/8W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted: k, M, M.L. (F), $\pm 1\%$; (G), $\pm 2\%$; (K), $\pm 10\%$; (M), $\pm 20\%$ tolerance
- CAPACITORS
Indicated in capacity (μ F)/voltage (V) unless otherwise noted: p, pF
Indication without voltage is 50V except electrolytic capacitor
- VOLTAGE, CURRENT
DC voltage (V) at no input signal Value in () is DC voltage at rated power

4. SWITCHES

The underlined indicates the switch position

AMP UNIT

- S301 DOLBY NR ON-OFF
S302 DOLBY NR B-C
S303 MPX FILTER ON-OFF

SW UNIT

- S1001 STOP
S1002 REW
S1003 REC
S1004 OPEN/CLOSE
S1005 FF
S1006 PAUSE
S1007 TAPE RETURN
S1008 PLAY
S1009 COUNTER RESET
S1010 COUNTER MODE
S1011 HUB
S1012 METER RANGE
S1013 MONITOR AUTO
S1014 REC MUTE
TAPE SELECTOR UNIT
S2 TAPE SELECT METAL-CR2
S3 TAPE SELECT NORMAL-NORMAL

TAPE SELECTOR UNIT

- S2 TAPE SELECT METAL-CR2
S3 TAPE SELECT NORMAL-NORMAL

TIMER UNIT

- S1011 TIMER REC-OFF-PLAY

REC SW UNIT

- S1 REC INH OFF-ON

MECHA UNIT

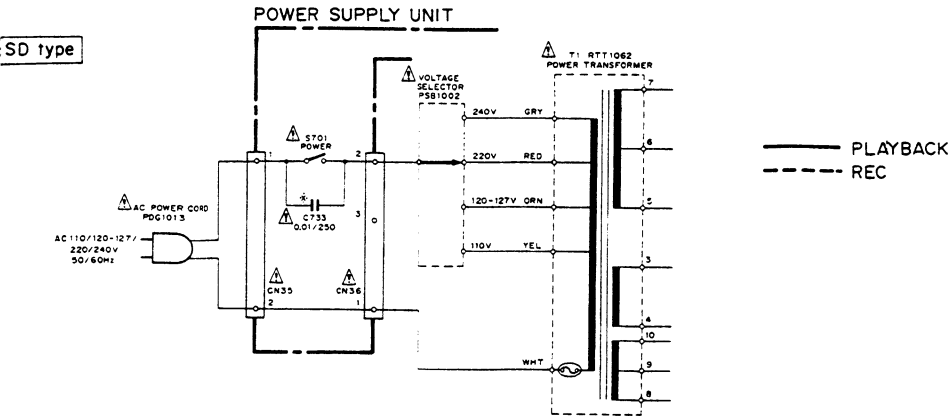
- S011 DOOR CLOSE-OPEN

POWER SUPPLY UNIT

- S701 POWER ON-OFF

5. OTHERS

- Signal route
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
X marked capacitors and resistors have parts numbers
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

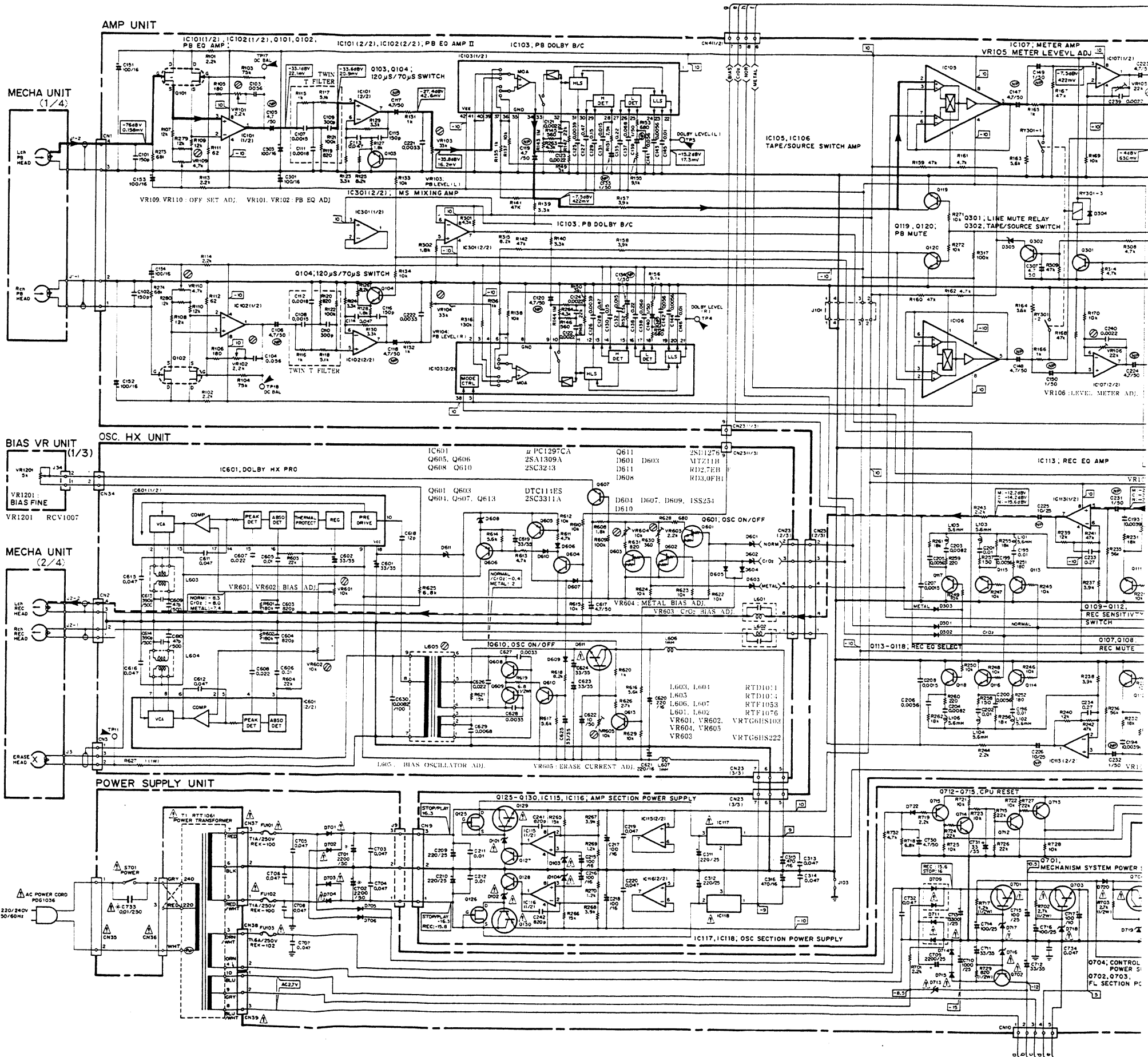


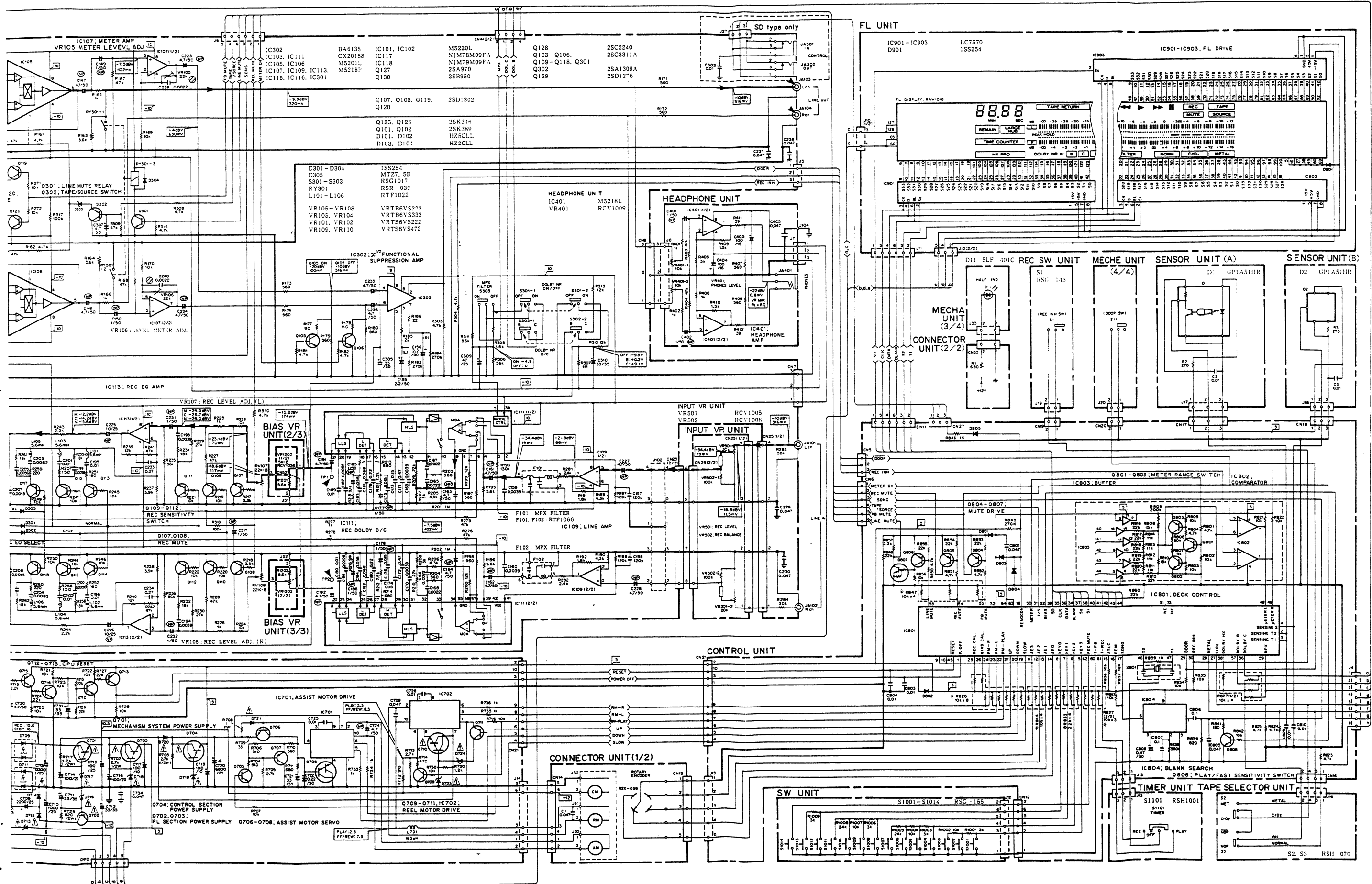
Line Voltage Selection

Line voltage can be changed with following steps.

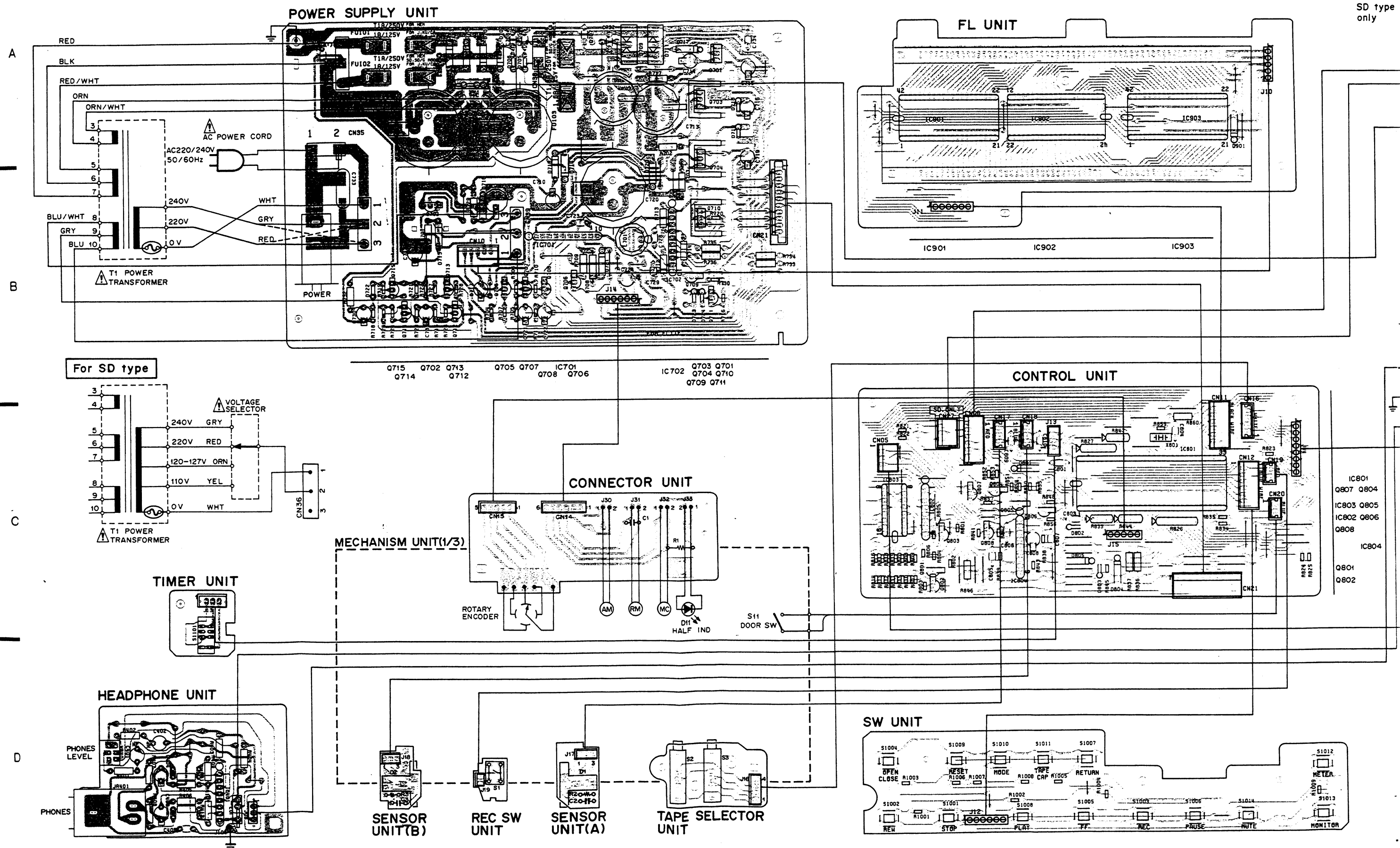
- Disconnect the AC power cord.
- Remove the Bonnet case.
- Change the connection of the power transformer lead wire.
- Stick the line voltage label on the rear panel.

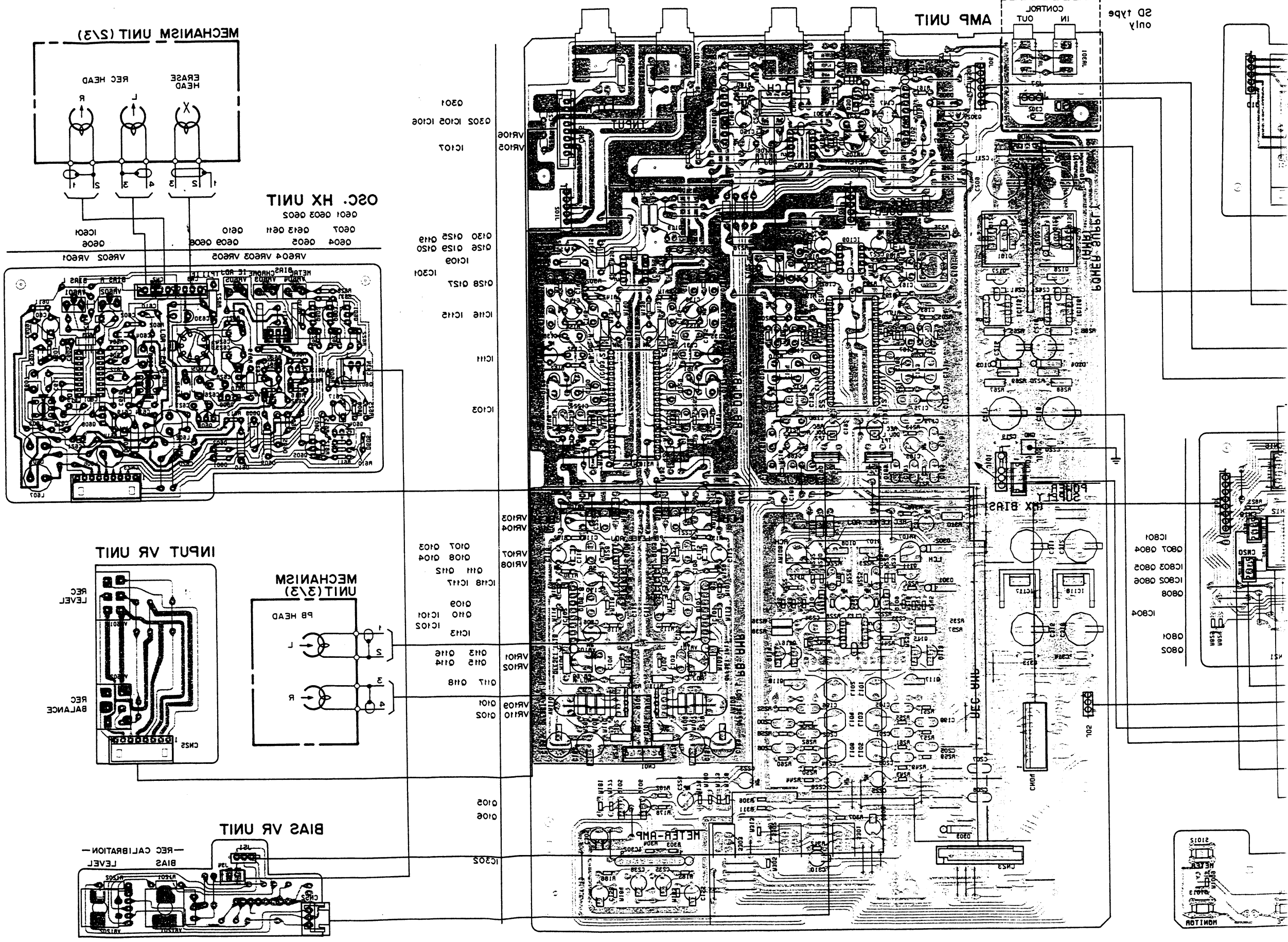
Part No.	Description
AAX-193	220v label
AAX-192	240V label





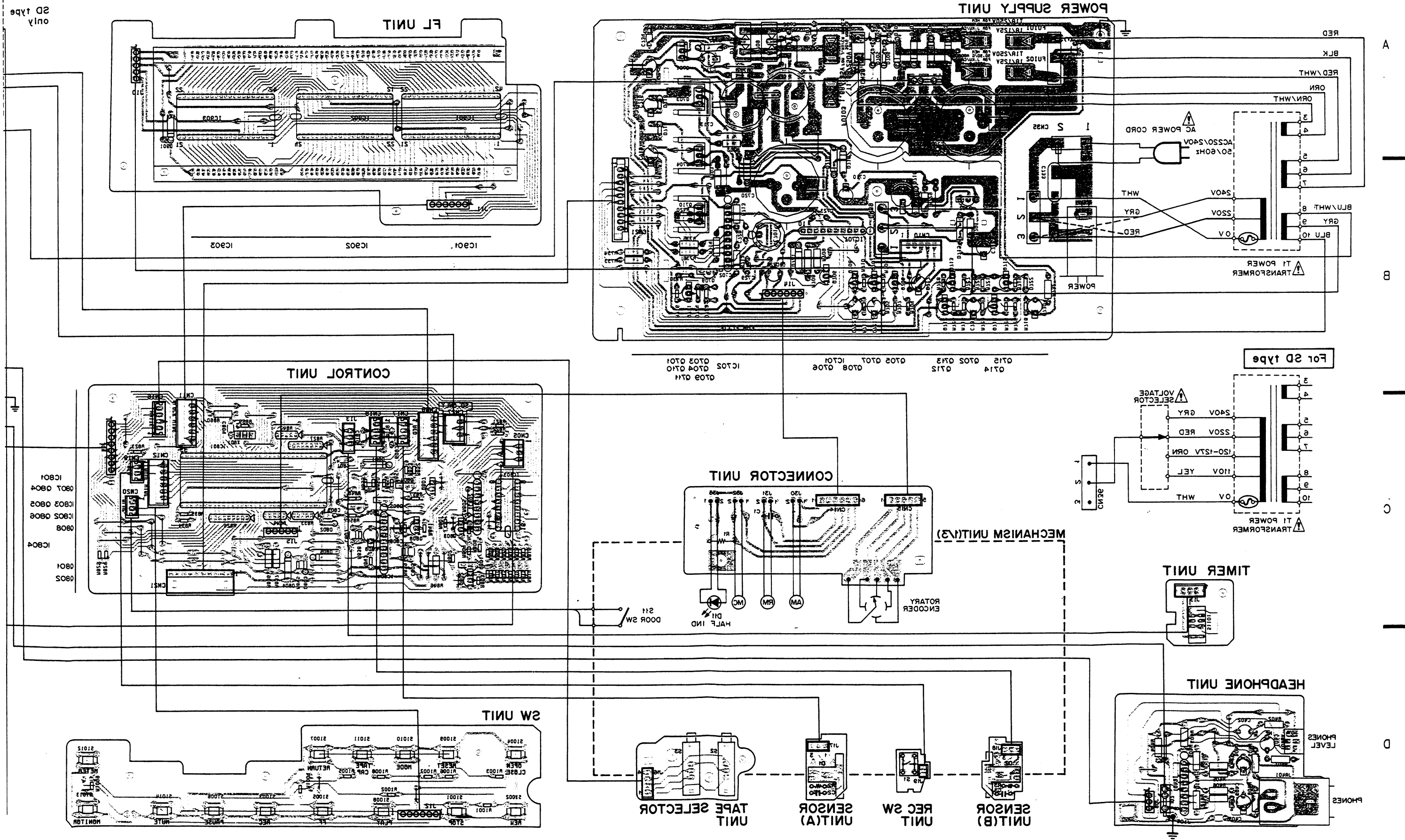
- **View from component side**





6. P.C. BOARDS CONNECTION DIAGRAM

- **View from soldering side**



7. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ 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 56×10¹ 561 RD1/4PS **561J**
47k Ω 47×10³ 473 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 562×10¹ 5621 RN1/4SR **5621F**

Miscellaneous Parts

P. C. BOARD ASSEMBLY

Mark	Symbol & Description	Part No.
	FL unit	
	Switch unit	
	OSC.HX unit	
	Timer unit	
	Control unit	
	Power supply unit	
	BIAS VR unit	
	Headphone unit	
	INPUT VR unit	
	Amp unit	
	REC switch unit	
	TAPE SELECTOR unit	
	CONNECTOR unit	
	SENSOR unit (A)	
	SENSOR unit (B)	

OTHERS

Mark	Symbol & Description	Part No.
Δ	Strain relief	CM-228
Δ	AC power cord	ADG1036
Δ	FU103 Fuse (1.6A/250V)	REK-102
Δ	FU101, FU102 Fuse (1A/250V)	REK-100
Δ	Power transformer	RTT1061
	Diode	SLF-401C
	Micro switch	RSF-031
	Rotary encoder	RSX-059
	Capstan motor assembly	RXM1016
	Reel motor assembly	RXM1018
	Power motor assembly	RXX1055
	Head base assembly	RXX1212

FL Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC901-IC903	LC7570
	D901	1SS254

OTHER

Mark	Symbol & Description	Part No.
	Fluorescent tube	RAW1018

Switch Unit

SWITCHES

Mark	Symbol & Description	Part No.
	S1001-1014 Tact switch	RSG-155
	(■, ▲, ●, ◆, ☆, ■, TAPE RETURN, ►, COUNTER RESET, COUNTER MODE, TAPE CAPACITY, METER RANGE, MONITOR, ⊙)	

RESISTORS

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

OSC.HX Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC601	μ PC1297CA
	Q601-Q603	DTC114ES
	Q605, Q606	2SA1309A
	Q608-Q610	2SC3243
	Q604, Q607, Q613	2SC3311A
	Q611	2SD1276
	D601-D603	MTZ11B
	D611	RD2.7EB-F
	D608	RD3.0FB1
	D604-D607, D609, D610	1SS254

COILS

Mark	Symbol & Description	Part No.
	L603, L604 Step-up coil	RTD1011
	L605 OSC coil	RTD1014
	L606, L607 Line coil	RTF1053
	L601, L602 Trap coil	RTF1076

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CAPACITORS

Mark	Symbol & Description	Part No.
	C618	CCCCH120J50
	C609, C610	CCCSL470K500
	C622	CEAS100M50
	C620, C621	CEAS221M16
	C601, C602, C619, C623-C625	CEAS330M35
	C617	CEAS4R7M50
	C607, C608, C626	CFTXA223J50
	C627, C628	CFTXA332J50
	C629	CFTXA682J50
	C605, C606	CGCYX103K25
	C615, C616	CGCYX473K25
	C613, C614	CKCYB391J500
	C611, C612	CKCYF473Z50
	C603, C604	CKPUYB821K50
	C630	CQPA822J100

RESISTORS

Mark	Symbol & Description	Part No.
	VR601, VR602, VR604, VR605	VRTG6HS103
	Semi-fixed resistor (10k)	
	VR603	VRTG6HS222
	Semi-fixed resistor (2.2k)	
	R627	RS1LMF010J
	R619	RD¼PMF6H8J
	R603, R620	RD¼PM□□□J
	Other resistors	RD¼PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	CN23 Connector	W-D2509

Timer Unit

SWITCH

Mark	Symbol & Description	Part No.
	S1101 Slide switch	RS11001
	(TIMER REC-OFF-PLAY)	

Control Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC804	BA335
	IC802	M5233L
	IC801	PD4148B
	IC803	TC4050BP
	Q807	DTC143ES
	Q803-Q806	2SA1309A
	Q801, Q802	2SC3311A
	Q808	2SD1302
	D801-D805	1SS254

CAPACITORS

Mark	Symbol & Description	Part No.
	C808	CEASR47M50
	C806, C807	CGCYX104K25
	C805	CGCYX473K25
	C803, C804, C809, C810	CKCYF103Z50
	C801	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R826 Resistor array (10k×8)	DCN1009
	R844, R847	RCX1008
	Resistor array (10k×4)	
	R833 Resistor array (22k×4)	RCX1009
	R827 Resistor array (10k×7)	RCX1010
	R836, R837, R846	RD¼PM□□□J
	R806-R820	RN¼P□□□□F
	Other resistors	RD¼PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN21 Connector socket	W-D2510
	X801 Ceramic resonator	VSS1014

Power Supply Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
Δ	IC701, IC702	BA6109
	Q702	2SA1283
	Q706, Q707, Q713, Q715	2SA1309A
	Q708	2SA936
	Q705, Q709, Q711, Q712, Q714	2SC3311A
Δ	Q701, Q703, Q704, Q710	2SD1276
Δ	D723	MTZ10C
Δ	D717	MTZ12B
Δ	D716	MTZ13B
Δ	D718, D719	MTZ6.2B
Δ	D724	MTZ6.8C
Δ	D713	RD2.7EB1
Δ	D709	1B2C1-LC2
Δ	D711	1B2Z1-LC2
Δ	D714, D715, D720, D721	1SR35-100A
Δ	D705, D706, D722	1SS254
	D701-D704	10DF2FA9

SWITCH

Mark	Symbol & Description	Part No.
Δ	S701 Power switch	RSA-063

COIL

Mark	Symbol & Description	Part No.
	L701 Line coil	RTF1075

CAPACITORS

Mark	Symbol & Description	Part No.
	C724	CEANP4R7M50
	C722	CEASR22M50
	C717, C719	CEAS101M10
	C714-C716	CEAS101M25
	C710	CEAS102M25
	C709	CEAS222M25
	C711, C712, C721, C731	CEAS330M35
	C713	CEAS332M25
	C730	CEAS4R7M50
	C723, C728	CKCYF103Z50
	C703-C708, C729, C732, C734	CKCYF473Z50
	C720 (6800 μ F/25V)	RCH1010
	C701, C702 (2200 μ F/50V)	RCH1021
Δ	C733 (0.01 μ F/250V)	VCG-044

RESISTORS

Mark	Symbol & Description	Part No.
	R708	RS1LMF010J
	R702, R703, R717, R729	RD¼PMF□□□J
	R701, R709, R712-R714, R732-R736	RD¼PM□□□J
	Other resistor	RD¼PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	CN21 Connector	W-P9810

BIAS VR Unit

RESISTORS

Mark	Symbol & Description	Part No.
	VR1201 Variable resistor	RCV1007
	(5k-B) (BIAS)	
	VR1202 (5k×2) (LEVEL)	RCV1036
	R1201, R1202	RD¼PM562J

Headphone Unit

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
	IC401	M5218L

CAPACITORS

Mark	Symbol & Description	Part No.
	C401, C402	CEYANP010M50
	C403, C404	CEZA101M16
	C405	CGCYX473K25

RESISTORS

Mark	Symbol & Description	Part No.
	VR401 Variable resistor (10k-B) (PHONES LEVEL)	RCV1009
	Other resistors	RD¼PM□□□J

OTHER

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

INPUT VR Unit

RESISTORS

Mark	Symbol & Description	Part No.
	VR501 Variable resistor	RCV1005
	(20k-B) (REC LEVEL)	
	VR502 Variable resistor	RCV1008
	(100k-MN) (REC BALANCE)	

OTHER

Mark	Symbol & Description	Part No.
	CN25 Connector socket	W-D2508

Amp Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC302	BA6138
	IC103, IC111	CX20188
	IC105, IC106	M5201L
	IC107, IC109, IC113, IC115, IC116, IC301	M5218P
	IC101, IC102	M5220L
Δ	IC117	NJM78M09FA
Δ	IC118	NJM79M09FA
	Q302	2SA1309A
Δ	Q127	2SA970
	Q130	2SB950
	Q128	2SC2240
	Q103-Q106, Q109-Q118, Q301	2SC3311A
Δ	Q129	2SD1276
	Q107, Q108, Q119, Q120	2SD1302
	Q125, Q126	2SK246
	Q101, Q102	2SK389
Δ	D103, D104	H2ZCLL
Δ	D101, D102	H25CLL
	D305	MTZ7.5B
	D301-D304	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S301-S303 Push switch	RSG1017
	(MPX FILTER, DOLBY B/C, DOLBY ON-OFF)	
	RY301 Relay	RSR-039

CAPACITORS

Mark	Symbol & Description	Part No.
C133, C134, C139, C140, C177, C178, C185, C186, C317	CEANP010M50	
C155, C156	CEAS2R2M50	
C311, C312	CEAS221M25	
C305, C310	CEAS330M35	
C235, C236, C307	CEAS4R7M50	
C309	CEAS470M25	
C315, C316	CEAS471M16	
C149, C150, C231, C232	CEYANP010M50	
C225, C226	CEYANP100M25	
C105, C106, C117-C120, C147, C148, C161-C164, C191, C192, C223, C224, C227, C228	CEYANP4R7M50	
C151-C154, C215-C218, C301, C303	CEZA101M16	
C209, C210	CEZA221M25	
C145, C146, C189, C190, C195, C196, C201, C202	CFTXA103J50	
C107, C108, C207, C208	CFTXA152J50	
C131, C132, C175, C176	CFTXA153J50	
C129, C130, C173, C174	CFTXA154J50	
C111, C112	CFTXA182J50	
C121-C124, C165-C168, C239, C240	CFTXA222J50	
C135, C136, C179, C180	CFTXA224J50	
C233, C234	CFTXA274J50	
C221, C222	CFTXA332J50	
C125, C126, C159, C160, C169, C170, C193, C194	CFTXA392J50	
C113, C114	CFTXA473J50	
C127, C128, C171, C172	CFTXA474J50	
C143, C144, C187, C188, C199, C200, C205, C206	CFTXA562J50	
C103, C104, C141, C142, C183, C184	CFTXA563J50	
C137, C138, C181, C182	CFTXA683J50	
C203, C204	CFTXA822J50	
C219, C220, C229, C230, C237, C238, C313, C314	CGCYX473K25	
C211, C212	CKCYF103Z50	
C157, C158	CKPUYB121K50	
C115, C116	CKPUYB151K50	
C241, C242	CKPUYB821K50	
C101, C102	CQSF151J50	
C109, C110	CQSF301J50	

COILS - FILTERS

Mark	Symbol & Description	Part No.
L101-L106 Coil (5.6mH)	RTF1022	
F101, F102 MPX filter	RTF1066	

RESISTORS

Mark	Symbol & Description	Part No.
VR105-VR108	VRTB6VS223	
Semi-fixed resistor (22k)		
VR103, VR104	VRTB6VS333	
Semi-fixed resistor (33k)		
VR101, VR102	VRTS6VS222	
Semi-fixed resistor (2.2k)		
VR109, VR110	VRTS6VS472	
Semi-fixed resistor (4.7k)		
R115-R120	RDF¼P□□□□	
R103, R104, R107-R112, R273, R274, R279, R280, R283, R284	RDR¼PM□□□□	
R133-R138, R157, R158, R163-R166, R171, R172, R193, R217, R218, R235-R238, R265-R272, R275-R278, R310, R315-R317	RD¼PM□□□□J	
Other resistors	RD¼PM□□□□J	

OTHERS

Mark	Symbol & Description	Part No.
JA101, JA103 1P Pin jack (W) (Lch, LINE IN/OUT)	RKB1010	
JA102, JA104 1P Pin jack (L) (Rch, LINE IN/OUT)	RKB1011	
CN25 Connector	W-P9808	
CN23 Connector	W-P9809	

REC Switch Unit

SWITCH

Mark	Symbol & Description	Part No.
S1 Tact switch	RSG-143	

TAPE SELECTOR Unit

SWITCH

Mark	Symbol & Description	Part No.
S2, S3 Slide switch	RSH-070	

CONNECTOR Unit

CAPACITORS

Mark	Symbol & Description	Part No.
C1	CKCYF473Z50	

RESISTORS

Mark	Symbol & Description	Part No.
R1	RD¼PM681J	

SENSOR Unit (A)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
D1	GP1A51HR	

CAPACITORS

Mark	Symbol & Description	Part No.
C2	CKPUYY103N16	

RESISTORS

Mark	Symbol & Description	Part No.
R2	RD¼PM271J	

SENSOR Unit (B)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
D2	GP1A51HR	

CAPACITORS

Mark	Symbol & Description	Part No.
C3	CKPUYY103N16	

RESISTORS

Mark	Symbol & Description	Part No.
R3	RD¼PM271J	

8. ADJUSTMENTS

8.1. MECHANISM RELATED ADJUSTMENT

1. Tape running and azimuth adjustment

2. Tape Speed Adjustment

No.	Mode	Adjustment Location	Specifications
1			Insert half mirror in side A (set screws at front).
2	PLAY	Height adjustment nut (Refer to Fig. 1.)	Playback the above tape and adjust to that there is no curling of the tape in the guide section of the head. (Refer to Fig. 2.)
3	PLAY	Azimuth adjustment screw (Refer to Fig. 1.)	Playback test tape STD-331B and adjust so that the 10 kHz output level is maximum and also so that there is no phase difference between L-ch and R-ch.
4	Check Item 2 above again and adjust again if it does not satisfy the specifications. (Be sure to adjust Item 3 when Item 2 is adjusted.)		

Azimuth adjustment screw

Height adjustment nut

Fig. 1.

Curling

Tape PLAY running

Height adjustment nut

Fig. 2.

Mode	Adjustment Location	Specifications
PLAY	Capstan motor adjustment hole (Refer to Fig. 3.)	Adjust so that the playback frequency is 3015 ± 5 Hz at the beginning of winding of test tape STD-301.
PLAY		Playback test tape STD-301 again and confirm that the above specifications are satisfied.

Capstan motor

Slotted screwdriver

Fig. 3.

3. Adjustment of Door Damper

Adjustment Location	Specifications
Cylinder adjustment screw (Refer to Fig. 4.)	Make sure that the door opens smoothly, there is no two-stage motion, and that there is no bounding when it opens completely. (Perform with no cassette half inserted.)

Opening becomes slower (when bounding)

Opening becomes faster (when two-stage motion)

Adjustment screw

Reference value
 $A = 5 \pm 1$ mm

Fig. 4.

8.2 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 $0dB_v = 1V_{rms}$.
 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. 8-1)
STD-630	: NORMAL blank tape
STD-620	: CrO ₂ blank tape
STD-610	: METAL blank tape

List of Adjustments

Playback sections

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

Recording sections

1. Bias oscillator adjustment.
2. Erase current adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.

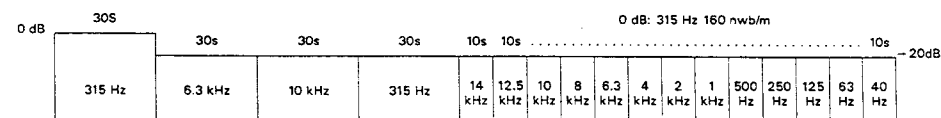


Fig. 8-1. Constants of the test tape STD-331B

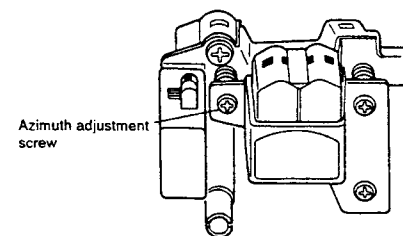


Fig. 8-2. Head azimuth adjustment

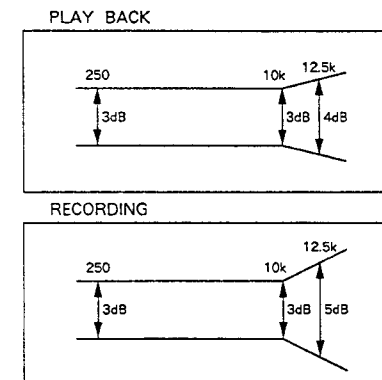


Fig. 8-3. Allowable playback frequency response zone

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. 8-2)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Equalizer Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz and 6.3 kHz/−20 dB portion of the STD-331B test tape.	VR101 (Lch) VR102 (Rch)	LINE OUT	Adjust the 10 kHz level to 0.5 dB $\pm$ 0.5 dB in respect to the 315 Hz playback level.	

3. 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)	TP 3 (Lch) TP 4 (Rch)	−15.2 dBv	

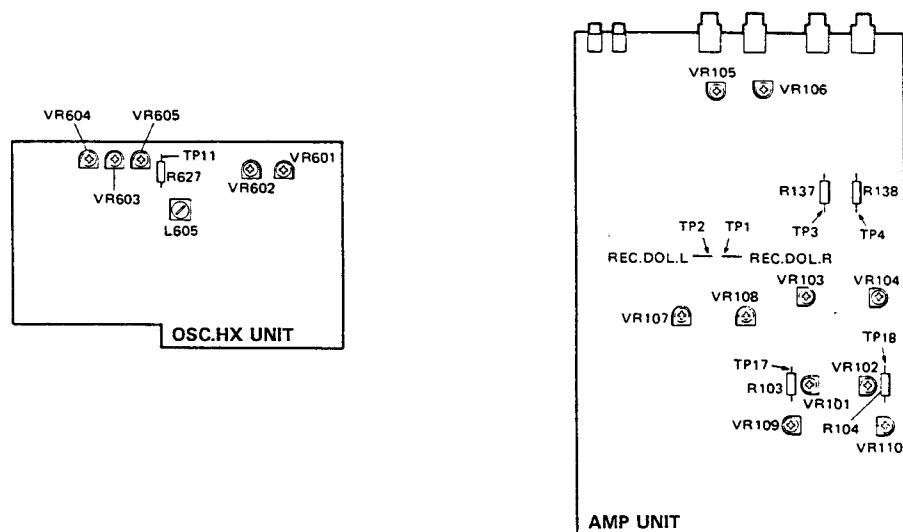


Fig. 8-4 Adjustment location

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	L 605	TP 11	106kHz $\pm$ 300Hz	

2. Erase Current Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	VR605	TP 11	130 mV AC	

3. Recording Bias Adjustment

3-1. Overbias Adjustment								
No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks	
1.	REC/ PAUSE	Apply a 6.3 kHz/−10dBv (−10VU meter reading) signal to the Line input terminals and insert STD-630.	—		LINE OUT L, R terminals	—		
2.	REC →PLAY	Record and play back the 6.3 kHz signal at −10 dBv input level.	NOR	VR601 (Lch) VR602 (Rch)		NOR	3.0 dB overbias	Turn control clockwise past the peak to assure proper overbias value.
3.		Record the 6.3 kHz/−10 dBv signal on STD-620 and play back.	CrO ₂	VR603 (L/Rch)		CrO ₂	2.5 dB overbias	
4.		Record the 6.3kHz/−10 dBv signal on STD-610 and play back.	METAL	VR604 (L/Rch)		METAL	1.0 dB overbias	
5. Turn control clockwise past the peak to assure proper overbias value.								
3-2. Frequency Response Adjustment								
No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks	
1.	REC/ PAUSE	Apply a 10kHz/315 Hz/−20 dBv signal to the Line input terminals and insert STD-630.	—		LINE OUT L, R terminals	—		
2.	REC →PLAY	Record and play back the 315 Hz signal and a 10 kHz signal at −20 dBv input level.	NOR	VR601 (Lch) VR602 (Rch)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to +1.5 ± 0.5 dB.		
3.		Record the 10 kHz/315 Hz, −20 dBv signal on STD-620 and play back.	CrO ₂	VR603 (L/Rch)		+0.5 ± 1.0 dB		
4.		Record the 10 kHz/315 Hz, −20 dBv signal on STD-610 and play back.	METAL	VR604 (L/Rch)		+0.5 ± 1.0 dB		
5. Check distortion value after adjustment is completed and confirm that there is no underbias.								

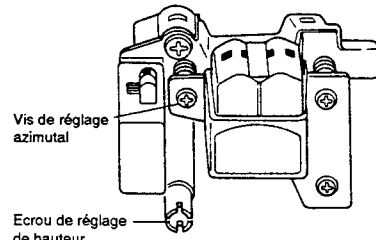
4. Recording Level Adjustment

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	TP. 1 (Lch) TP. 2 (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.	VR107 (Lch) VR108 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -14.6 dB.	
5.	STOP	Set the TAPE SELECTOR switch to the CrO ₂ position.				
6.	REC/PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check	TP. 3 (Lch) TP. 4 (Rch)	-14.6 dBv $\pm$ 0.9 dB 2.1	
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	TP. 3 (Lch) TP. 4 (Rch)	-14.6 dBv $\pm$ 0.9 dB 2.1	

8. RÉGLAGES

8.1. REGLAGES RELATIFS AU MECANISME

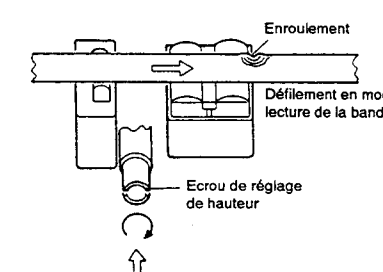
1. Défilement de bande et réglage azimutal				2. Réglage de vitesse de bande		
N°	Mode	Point de réglage	Caractéristiques	Mode	Point de réglage	Caractéristiques
1			Insérer le demi-miroir dans la face A (les vis à l'avant).	LECTURE	Orifice de réglage du moteur de cabestan (Se reporter à la Fig. 3).	Régler afin que la fréquence de lecture soit de 3015 ± 5 Hz au début de l'enroulement de la bande d'essai STD-301.
2	LECTURE	Ecrou de réglage de hauteur. (Se reporter à la Fig. 1)	Reproduire la bande ci-dessus et ajuster afin que la bande soit pas enroulée dans la section de guide de tête. (Se reporter à la Fig. 2).	LECTURE		Reproduire à nouveau la bande d'essai STD-301 et confirmer que les caractéristiques ci-dessus sont satisfaisantes.
3	LECTURE	Vis de réglage azimutal. (Se reporter à la Fig. 1).	Reproduire la bande d'essai STD-331B et régler afin que le niveau de sortie de 10 kHz soit maximum et qu'il n'y ait pas de différence de phase entre le canal gauche et le canal droit.			
4	Vérifier à nouveau l'élément 2 ci-dessus et régler le gain s'il ne satisfait pas aux spécifications. (Lorsque le réglage de l'élément 2 est effectué, procéder à celui de l'élément 3.)					



Vis de réglage azimutal

Ecrou de réglage de hauteur

Fig. 1.

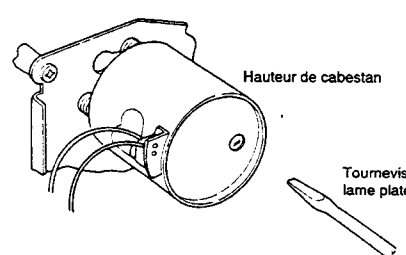


Enroulement

Défilement en mode lecture de la bande

Ecrou de réglage de hauteur

Fig. 2.



Hauteur de cabestan

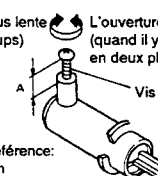
Tournevis à lame plate

Fig. 3.

3. Réglage du mécanisme de porte	
Point de réglage	Caractéristiques
Vis de réglage du cylindre (Se reporter à la Fig. 4)	Vérifier que la porte s'ouvre doucement, que le mouvement n'est pas en deux phases et qu'elle s'ouvre complètement sans à-coups. (Exécuter sans cassette à moitié insérée).

L'ouverture devient plus lente (quand il y a des à-coups)

L'ouverture devient plus rapide (quand il y a un mouvement en deux phases)



Vis de réglage

Valeur de référence:
 $A = 5 \pm 1$ mm

Fig. 4.

8.2 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. 8-1)
- STD-630 : Bande vierge de type normal
- STD-620 : Bande vierge de type chrome
- STD-610 : Bande vierge de type métal

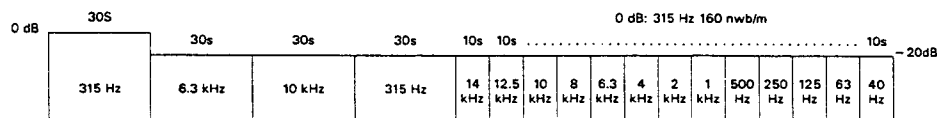


Fig. 8-1 Constantes de la bande d'essai STD-331B

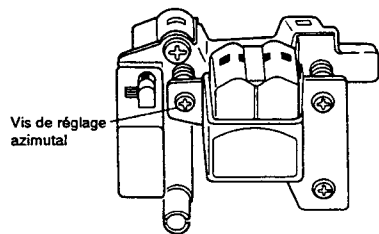


Fig. 8-2 Réglage de l'azimut de la tête

Liste des réglages

Sections de lecture

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

Sections d'enregistrement

1. Réglage de l'oscillateur de polarisation.
2. Réglage du courant d'effacement.
3. Réglage de la polarisation d'enregistrement.
4. Réglage du niveau d'enregistrement.

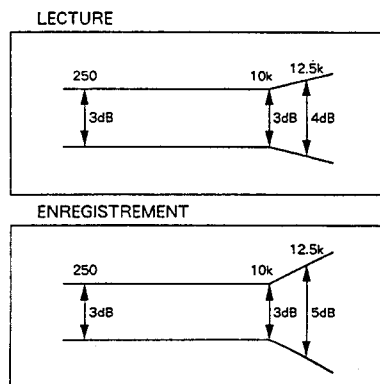


Fig. 8-3 Tolérance de la zone de réponse en fréquence de lecture

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

* Tourner VR 103, VR 104 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. 8-2)	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 de l'égaliseur de lecture

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la partie 315 Hz et 6,3 kHz/-20 dB de la bande d'essai STD-331B.	VR101(can. G) VR102(can. D)	Sortie de ligne (LINE OUT)	Régler le niveau 10 kHz sur 0.5 dB $\pm$ 0.5 dB par rapport au niveau de reproduction 315 Hz.	

3. 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)	TP 3 (can. G) TP 4 (can. D)	-15.2 dBV	

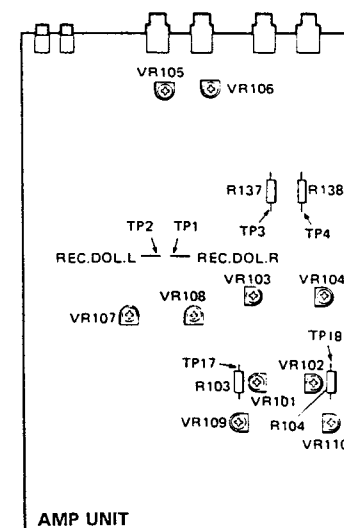
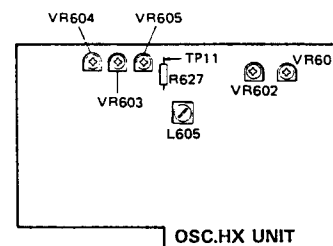


Fig. 8-4 Points de réglage

SECTION D'ENREGISTREMENT

1. Réglage de l'oscillateur de polarisation

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD-610 et n'introduire aucun signal.	L 605	TP. 11	106kHz $\pm$ 300Hz	

2. Réglage du courant d'effacement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD-610 et n'introduire aucun signal.	VR 605	TP. 11	130 mV AC	

3. Réglage de prépolarisation

3-1. Réglage de surpolarisation								
No.	Mode	Signal d'entrée et bande d'essai	Point de réglage		Point de mesure	Valeur de réglage	Remarques	
1.	REC/ PAUSE	Appliquer un signal de 6,3 kHz/ – 10 dBv (lecture du décibelimètre – 10) aux terminaux d'entrée de ligne et insérer STD-630.	—		Terminaux de sortie LINE OUT gauche et droit	—	Tourner la commande à droite au-delà de la crête pour assurer la valeur overbias correcte.	
2.	REC →PLAY	Enregistrer et reproduire le signal de 6,3 kHz à un niveau d'entrée de – 10 dBv.	NOR	VR601 (can.G) VR602 (can.D)		NOR		Surpolarisation 3,0 dB
3.		Enregistrer le signal de 6,3 kHz/ – 10 dBv sur STD-620 et reproduire.	CrO2	VR603 (can.G/D)		CrO2		Surpolarisation 2,5 dB
4.		Enregistrer le signal de 6,3 kHz/ – 10 dBv sur STD-610 et reproduire.	METAL	VR604 (can.G/D)		METAL		Surpolarisation 1,0 dB
5. Tourner la commande à droite au-delà de la crête pour assurer la valeur de surpolarisation correcte.								
3-2. Réglage de réponse de fréquence								
No.	Mode	Signal d'entrée et bande d'essai	Point de réglage		Point de mesure	Valeur de réglage	Remarques	
1.	REC/ PAUSE	Appliquer un signal de 10 kHz/315 Hz/ – 20 dBv aux terminaux d'entrée de ligne et insérer STD-630.	—		Terminaux de sortie LINE OUT gauche et droit	—		
2.	REC →PLAY	Enregistrer et reproduire un signal de 315 Hz et un signal de 10 kHz à un niveau d'entrée de – 20 dBv.	NOR	VR601 (can.G) VR602 (can.D)		Enregistrer et reproduire continuellement, comparant les niveaux de lecture de 315 Hz et 10 kHz et régler à + 1,5 ± 0,5 dB		
3.		Enregistrer le signal de 10 kHz/315 Hz/ – 20 dBv sur STD-620 et reproduire.	CrO2	VR603 (can.G/D)		+ 0,5 ± 1,0 dB		
4.		Enregistrer le signal 10 kHz/315 Hz/ – 20 dBv sur STD-610 et reproduire.	METAL	VR604 (can.G/D)		+ 0,5 ± 1,0 dB		
5. Vérifier la valeur de distorsion après avoir terminé le réglage et confirmer qu'il n'y a pas de sous polarisation								

4. 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.	TP. 1 (can. G) TP. 2 (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.	VR107(can. G) VR108(can. D)	TP. 3 (can. G) TP. 4 (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne – 14,6dB.	
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	TP. 3 (can. G) TP. 4 (can. D)	– 14,6 dBv $\pm$ 0,9 dB 2,1	
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	TP. 3 (can. G) TP. 4 (can. D)	– 14,6 dBv $\pm$ 0,9 dB 2,1	

8. AJUSTES

8.1. AJUSTES RELACIONADOS AL MECANISMO

1. Ajuste de transporte de cinta y azimuth				2. Ajuste de velocidad de cinta		
N°	Modo	Punto de ajuste	Especificaciones	Modo	Punto de ajuste	Especificaciones
1			Inserte el medio espejo en el lado A (coloque los tornillos al frente).	PLAY	Orificio de ajuste del motor de cabrestante (vea la Fig. 3).	Ajuste de modo que la frecuencia de reproducción sea 3015 ± 5 Hz al comienzo del bobinado de la cinta de prueba STD-301.
2	PLAY	Tuerca de ajuste de altura (vea la Fig. 1).	Reproduzca la cinta indicada y ajuste de modo que la cinta no se enrule en la sección guía de la cabeza (vea la Fig. 2).	PLAY		Reproduzca nuevamente la cinta de prueba STD-301 y confirme que las especificaciones de arriba sea satisfechas.
3	PLAY	Tornillo de ajuste de azimuth (vea la Fig. 1).	Reproduzca la cinta de prueba STD-331B y ajuste de modo que el nivel de salida de 10 kHz sea máximo y de que no exista diferencia de fase entre ambos canales.			
4			Verifique nuevamente el punto 2 y repita el ajuste si el mismo no satisficiera las especificaciones (asegúrese de ajustar a continuación como en el punto 3).			

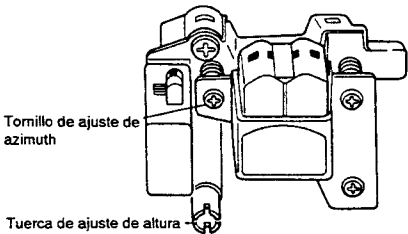


Fig. 1.

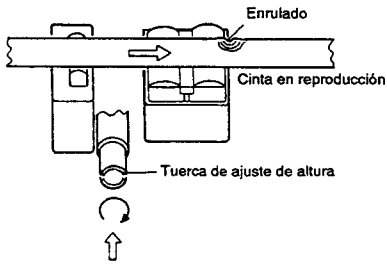


Fig. 2.

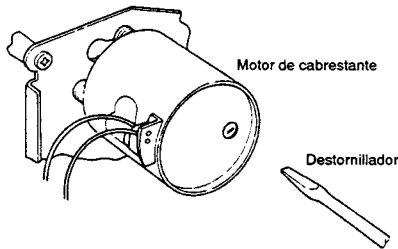


Fig. 3.

3. Ajuste del amortiguador de puerta	
Punto de ajuste	Especificaciones
Tornillo de ajuste de cilindro (vea la Fig. 4).	Asegúrese de que la puerta se abra suavemente, en un solo movimiento y sin rebotar al abrirse por completo (realice esta prueba sin un casete a medio insertar).

Para hacer más lenta la apertura (cuando rebota)

Para acelerar la apertura (cuando se abre en dos etapas)



Valor de referencia:
 $A = 5 \pm 1$ mm

Fig. 4.

8.2 AJUSTES ELÉCTRICOS

Condiciones de ajuste

- Los ajustes mecánicos deben haberse completado primero.
 - La cabeza debe estar limpia y desmagnetizada.
 - Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
 - La señal de referencia es de 0 dBV=1 Vrms.
 - Conecte una resistencia de 50 kΩ (o entre 47 y 52 kΩ) en los terminales OUTPUT.
 - 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 8-1)
- STD-630 : Cinta virgen NORMAL
- STD-620 : Cinta virgen de CrO₂
- STD-610 : Cinta virgen de METAL

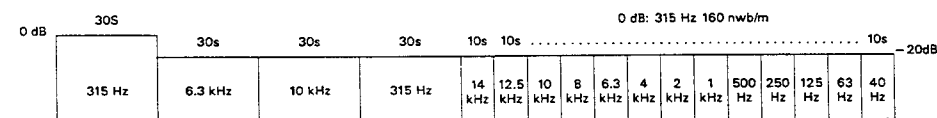


Figura 8-1 Constantes de la cinta de prueba STD-331B

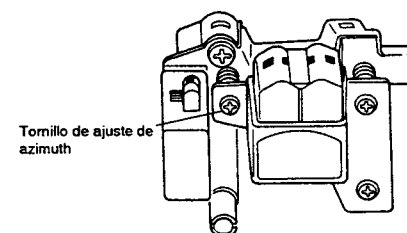


Figura 8-2 Ajuste de azimuth de la cabeza

Lista de ajustes

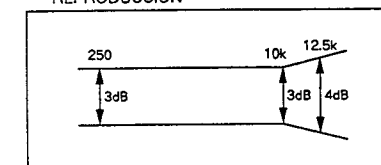
Secciones de reproducción

- Ajuste de azimuth de la cabeza
- Ajuste del ecualizador de reproducción
- Ajuste del nivel de reproducción

Secciones de grabación

- Ajuste del oscilador de polarización
- Ajuste de la corriente de borrado
- Ajuste de la polarización de grabación
- Ajuste del nivel de grabación

REPRODUCCIÓN



GRABACIÓN

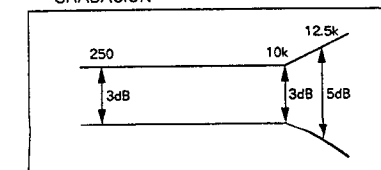


Figura 8-3 Zona permitida de respuesta de frecuencia de reproducción

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 8-2)	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 ecualizador de reproducción

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la parte de 315 Hz y 6,3 kHz/-20 dB de la cinta de prueba STD-331B.	VR 101 (Lch) VR 102 (Rch)	LINE OUT	Ajuste el nivel de 10 kHz a $0.5 \text{ dB} \pm 0.5 \text{ dB}$ respecto al nivel de reproducción de 315 Hz.	

3. 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)	TP 3 (Lch) TP 4 (Rch)	-15.2 dBv	

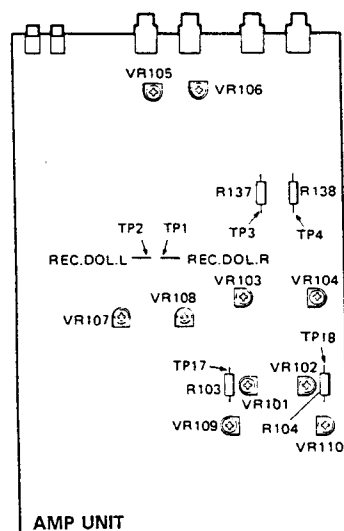
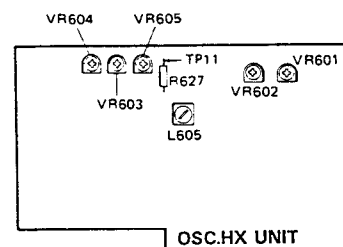


Figura 8-4 Punto de ajuste

SECCIÓN DE GRABACIÓN

1. Ajuste del oscilador de polarización

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD-610 sin señal de entrada.	L 605	TP 11	106kHz $\pm$ 300Hz	

2. Ajuste de la corriente de borrado

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD-610 sin señal de entrada.	VR 605	TP 11	130 mV AC	

3. Ajuste de la polarización de grabación

3-1. Ajuste de sobrepolarización								
N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios	
1.	REC/PAUSE	Aplice una señal de 6,3 kHz/-10 dBv (dando una lectura de -10 UV en el medidor de volumen) a los terminales de entrada de línea, e inserte el casete STD-630.	—		Terminales LINE OUT L y R	—	Gire el control en sentido horario hasta pasar el pico para asegurar un correcto valor de sobrepolarización.	
2.	REC → PLAY	Grabe y reproduzca la señal de 6,3 kHz a un nivel de entrada de -10dBv.	NOR	VR601 (Lch) VR602 (Rch)		NOR		Sobrepolarización de 3,0 dB
3.		Grabe la señal de 6,3 kHz/-10 dBv en la cinta STD-620, y reproduzca.	CrO2	VR603 (L/Rch)		CrO2		Sobrepolarización de 2,5 dB
4.		Grabe la señal de 6,3 kHz/-10 dBv en la cinta STD-610, y reproduzca.	METAL	VR604 (L/Rch)		METAL		Sobrepolarización de 1,0 dB
5. Gire el control en sentido horario hasta pasar el pico para asegurar un correcto valor de sobrepolarización.								
3-2. Ajuste de respuesta de frecuencia								
N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios	
1.	REC/PAUSE	Aplice una señal de 10 kHz/315 Hz/-20 dBv a los terminales de entrada de línea, e inserte el casete STD-630.	—		Terminales LINE OUT L y R	—		
2.	REC → PLAY	Grabe y reproduzca la señal de 315 Hz y una señal de 10kHz a un nivel de entrada de -20 dBv.	NOR	VR601 (Lch) VR602 (Rch)		Grabe y reproduzca repetidamente, comparando los niveles de reproducción a 315 Hz y 10 kHz, y ajuste a +1.5 ±0.5 dB.		
3.		Grabe la señal de 10 kHz/315 Hz -20 dBv en la cinta STD-620, y reproduzca.	CrO2	VR603 (L/Rch)		+0.5 ±1.0 dB		
4.		Grabe la señal de 10 kHz/315 Hz, -20 dBv en la cinta STD-610, y reproduzca.	METAL	VR604 (L/Rch)		+0.5 ±1.0 dB		
5. Verifique el valor de la distorsión una vez finalizado el ajuste y confirme que no haya subpolarización.								

4. 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.	TP. 1 (Lch) TP. 2 (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 107 (Lch) VR 108 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de - 14.6 dB.	
5.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO2.				
6.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reproduzca.	Verifique	TP. 3 (Lch) TP. 4 (Rch)	- 14.6 dBv $\pm$ 0.9 dB 2.1	
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	TP. 3 (Lch) TP. 4 (Rch)	- 14.6 dBv $\pm$ 0.9 dB 2.1	

9. FOR SD TYPE

CONTRAST OF MISCELLANEOUS PARTS

NOTES :

- Parts without part number cannot be supplied.
- The Δ 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.

The CT-91a/SD type is the same as the CT-91a/HEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT-91a/HEM type	CT-91a/SD type	
Δ	Amp unit	Non supply	Non supply	
Δ	AC Power cord	ADG1036	PDG1013	
Δ	Voltage selector	.....	PSB1002	
Δ	T1 Power transformer (AC220/240V)	RTT1061	.....	
Δ	T1 Power transformer (AC110/120-127/220/240V)	.....	RTT1062	
	FL filter	RAH1184	RAH1369	
	Front panel assembly	RXX1204	RXX1205	
	Operating instructions (French/Italian/Dutch/Swedish/Spanish/Portuguese)	RRD1062	.....	
	Operating instructions (English/German)	RRE1026	.....	
	Operating instructions (English)	.....	RRB1047	
	Operating instructions (Spanish)	.....	RRD1054	
	Connection cord (Mini)	.....	PDE-319	

AMP UNIT

The amp unit (for CT-91a/SD type) is the same as the amp unit (for CT-91a/HEM type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT-91a/HEM type	CT-91a/SD type	
	C302	.....	CKCYF103Z50	
	JA301, JA302 Remote control jack	.....	RKN1004	