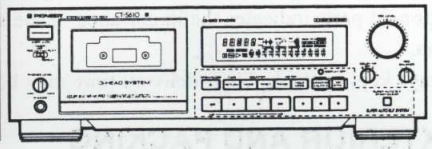
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2413

STEREO CASSETTE DECK

CT-S610
CT-S610-G

CT–S610 AND CT–S610–G HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CT–S610	CT–S610–G		
HEM	○	○	AC220–230V, 230–240V (switchable)*	
HB	○	–	AC220–230V, 230–240V (switchable)*	
SD	○	–	AC110V, 120–127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to CT–S610/HEM, HB, SD and CT–S610–G/HEM types.**
- **As to CT–S610/HB, SD and CT–S610–G/HEM types, refer to page 41.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

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SO JAN. 1992 Printed in Japan

1. EXPLODED VIEWS, PACKING AND PARTS LIST

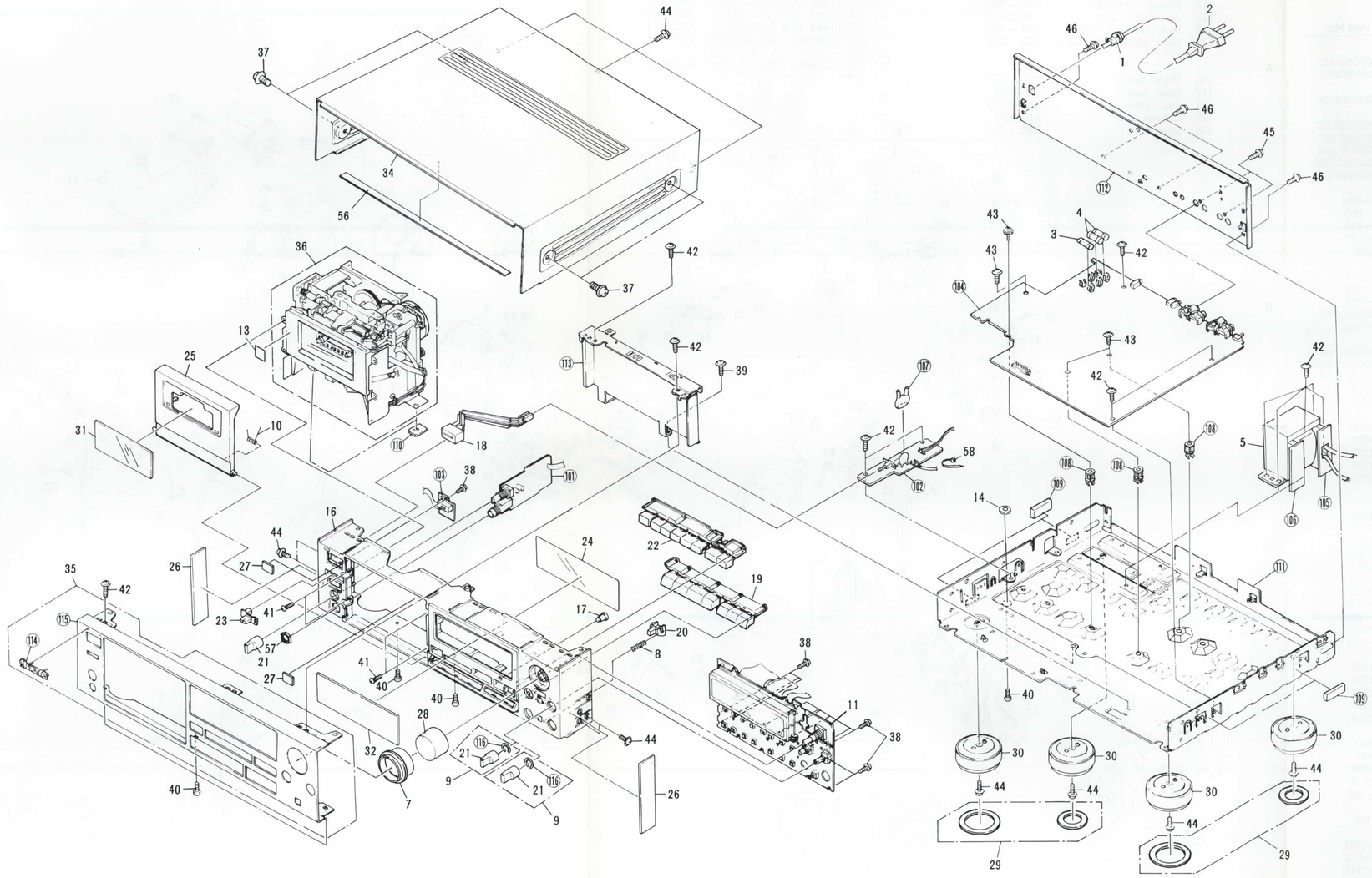
NOTES:

- The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.
- 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 "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

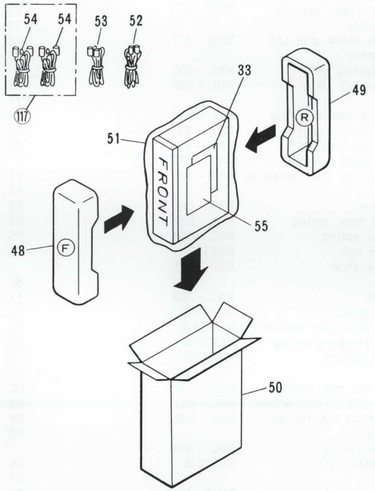
1.1 PARTS LIST OF EXTERIOR AND PACKING

Mark	No.	Description	Part No.
⚠	1	Strain relief	CM – 22B
⚠	2	AC Power cord	PDG1003
⚠	3	FU703 Fuse (1.25A)	REK – 101
⚠	4	FU701, FU702 (400mA)	REK – 096
⚠	5	T1 Power transformer	RTT1160
	6	.....	
	7	VR ring	RAT1007
	8	Button spring	RBH1144
	9	Knob (B) assembly	RXA1430
	10	Door spring (R)	RBH1223
⊙	11	SUBB unit	RWX1060
	12	.....	
	13	Door cushion	REB1174
	14	Spacer	REC1086
	15	.....	
	16	Panel stay	RNT1134
	17	Counter reset knob	RAA1009
	18	Power button	RAC1410
	19	Function knob	RAC1411
	20	Push knob	RAC1413
	21	Knob (B)	RAC1414
	22	Mode knob	RAC1552
	23	Slide SW knob	RAC1562
	24	FL filter	RAH1542
	25	Door	RAH1991
	26	Side rubber	REB1094
	27	Door sheet (B)	REB1170
	28	VR knob	RAC1363
	29	Stopper	VEC1061
	30	Insulator	VNK1095
	31	Door lens	RLP1026
	32	FL lens	RLP1027
	33	Operating instructions (English/French)	RRE1051
	34	Bonnet	RXX1378
	35	Front panel assembly	RXX1465
⊙	36	Mechanism unit	RYM1153
	37	Screw	FBT40P080FZK
	38	Screw	ABZ26P080FZK
	39	Screw	BBT30P060FCC
	40	Screw	BBT30P100FZK
	41	Screw	BBZ30P100FZK
	42	Screw	IBZ30P060FCC
	43	Screw	IBZ30P150FCC
	44	Screw	BBZ30P080FCC
	45	Screw	BBZ30P100FCC
	46	Screw	BBZ30P060FCC
	47	.....	
	48	Pad (F)	RHA1021
	49	Pad (R)	RHA1022
	50	Packing case	RHG1319
	51	Sheet	RHX – 034
	52	Control cord	RDE1030
	53	Connection cord (with mini plug)	PDE – 319
	54	Connection cord	RDE – 010
	55	Operating instructions (German/Italian/Dutch/ Swedish/Spanish/ Portuguese)	RRD1118
	56	Protector	RED1020
	57	Jack nut	RBN – 006
	58	Binder	REC – 371
	101	HPHN unit	RWZ2473
	102	PWSW unit	RWZ2474
	103	TIMS unit	RWZ2475
	104	MAIN unit	RWZ2591
	105	TRN 2 unit	RWZ2478
	106	TRN 1 unit	RWZ2477
	107	Capacitor cover	REC – 150
	108	PCB spacer	PNY – 404
	109	Rubber spacer (A)	REB1057
	110	Mechanism sheet (2)	REE1015
	111	Main chassis	RNB1060
	112	Rear panel	RNA1504
	113	FL shield plate	RNE1349
	114	Name plate	PAN1035
	115	Front panel	RAH1987
	116	Ring	RBH1300
	117	Connection cord assembly	RDE1002

Exterior



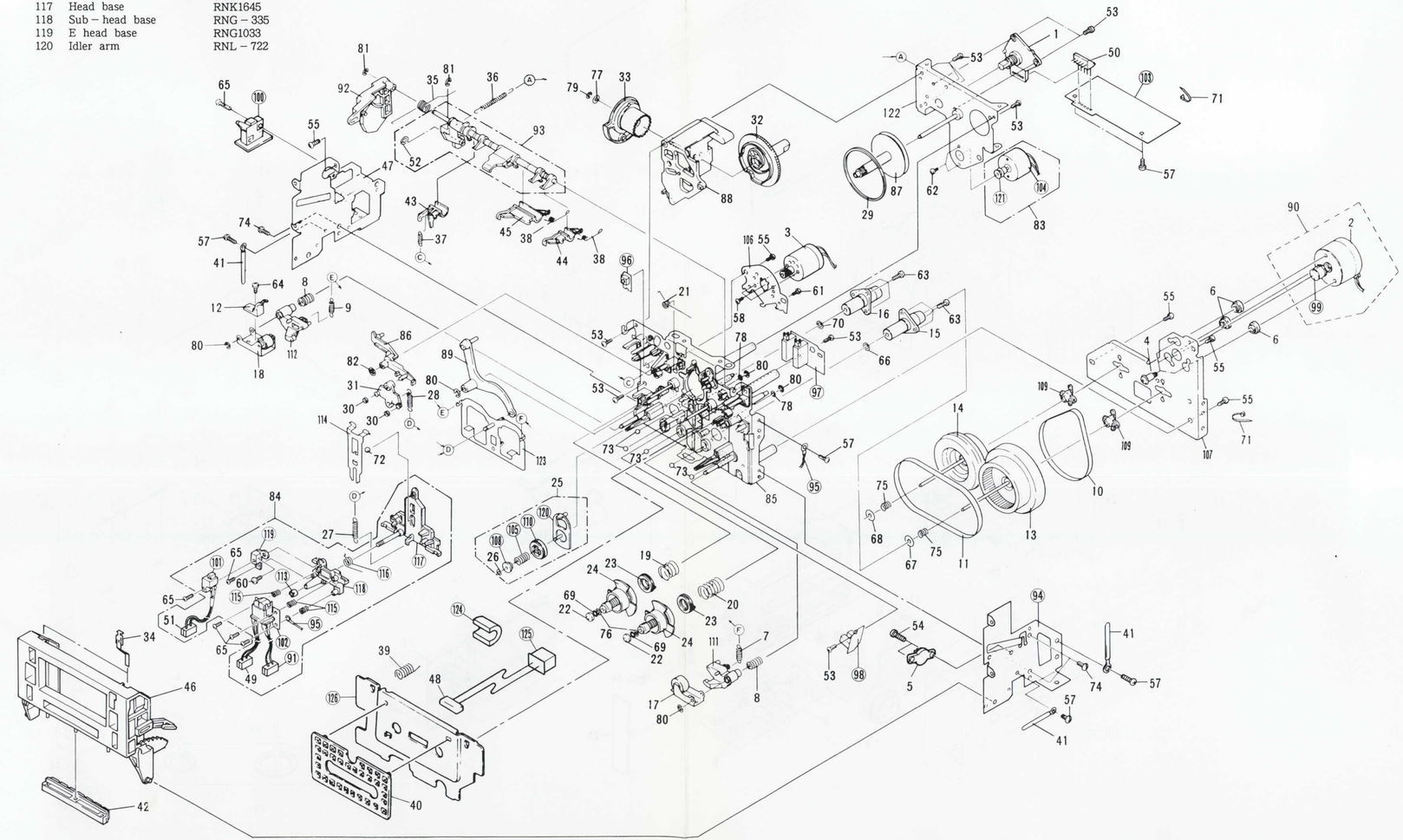
Packing



CT-S610

1.2 PARTS LIST OF MECHANISM SECTION (RYM1153)

Mark	No.	Description	Part No.
	1	Rotary encoder	RSX1004
	2	Capstan motor	RXM1054
	3	Reel motor assembly	RXM1018
	4	Step screw	RBA – 064
	5	Damper assembly	VXA1153
	6	Rubber cushion	REB1125
	7	Pinch spring	RBL – 028
	8	Pinch thrust spring	RBL – 030
	9	Sub – pinch spring	RBL – 098
	10	Capstan belt	REB1143
	11	Capstan belt (A)	REB – 509
	12	Tape guide	RNK1823
	13	Flywheel assembly	RXA1374
	14	Sub – flywheel assembly	RXA1375
	15	Metal holder assembly(A)	RXA1342
	16	Metal holder assembly(B)	RXA1343
	17	Pinch roller arm (R) assembly	RXB – 876
	18	Pinch roller arm (A) assembly	RXB – 877
	19	BT spring (A)	RBL – 031
	20	BT spring (B)	RBL – 032
	21	Idler pressure spring	RBL – 033
	22	Reel shaft cap (B)	RNK – 815
	23	BT disk assembly	RXB – 751
	24	Reel base assembly	RXB – 874
	25	Take – up idler assembly	RXB – 875
	26	Washer	RBF – 065
	27	Head base spring	RBL – 037
	28	Brake spring	RBL – 038
	29	Drive belt	REB1169
	30	Brake shoe	REB – 511
	31	Brake	RNL – 723
	32	Cam gear	RNK1640
	33	Side cam gear assembly	RXA1349
	34	Half pressure spring	RBK1004
	35	Eject spring	RBH1303
	36	Half set arm spring	RBL – 040
	37	REC functioning spring	RBL – 041
	38	Detection functioning spring	RBL – 042
	39	Earth spring	RBL – 059
	40	Stabilizer (B)	REB1038
	41	Cord clamper	RNH – 184
	42	Stabilizer	REB1161
	43	REC detector arm	RNL – 733
	44	Chrom detector arm	RNL – 734
	45	Metal detector arm	RNL – 735
	46	Door pocket	RNT1101
	47	Door frame (L)	RNE1442
	48	LED	SLP – 401C
	49	Connector assembly (4P)	RKP1383
	50	2.5mm pitch sidepost (5P)	BS5P – SHF – 1
	51	Connector assembly (2P)	RKP1384
	52	Washer	RBF – 057
	53	Screw	BBZ26P080FZK
	54	Screw	PBZ20P060FMC
	55	Screw	BBZ30P080FZK
	56	·····	
	57	Screw	BCZ30P060FMC
	58	Screw	BMZ26P030FZK
	59	·····	
	60	Screw	BMZ26P060FZK
	61	Screw	BMZ30P080FZK
	62	Screw	JGZ20P025FMC
	63	Screw	PMA26P050FZK
	64	Screw	PMA26P060FZK
	65	Screw	PMZ20P080FZK
	66	Washer	RBF – 030
	67	Thrust washer (A)	RBF – 069
	68	Thrust washer (B)	RBF – 070
	69	Washer	RBF – 076
	70	Washer	RBF1040
	71	Binder	REC – 371
	72	Steel ball (3mm)	REF – 022
	73	Steel ball (4mm)	REF – 023
	74	Screw	VCT30P060FZK
	75	Thrust spring	RBL – 044
	76	Washer	WA21D040D013
	77	Washer	WA26N070W040
	78	Washer	WA32D080D050
	79	E ring	YE20FUC
	80	E ring	YE25FUC
	81	E ring	YE30FUC
	82	Snapring	YS24FBT
	83	Power motor assembly	RXX1055
	84	Head base assembly	RXX1333
	85	Mechanism chassis assembly	RXA1366
	86	Brake lever	RNK1638
	87	Second pulley assembly	RXA1350
	88	Gear base assembly	RXA1351
	89	Pinch lever assembly	RXA1360
	90	Capstan motor assembly	RXX1491
	91	Connector assembly (4P)	RKP1111
	92	Eject lever	RNL – 738
	93	Shift shaft assembly	RXB – 885
	94	Door frame (R)	RNE1325
	95	Earth lead assembly	RDF – 001
	96	REC switch unit	RWZ1749
	97	Tape selector unit	RWZ1750
	98	Sensor unit (A)	RWZ1752
	99	Motor pulley	RNK1676
	100	Door switch unit	RWZ1754
	101	E head	RPB1042
	102	R & P head	RPB1041
	103	Connector unit	RWZ1771
	104	Power motor	RXM1019
	105	Spring	RBL – 047
	106	Reel motor mounting plate	RNE1169
	107	Flywheel holder	RNH – 304
	108	Spring cup	RNL – 012
	109	Thrust holder	RNL – 743
	110	Idle pulley	RNL – 549
	111	Pressure arm (R)	RNL – 725
	112	Pressure arm (L)	RNL – 726
	113	Adjustment nut	RBA1047
	114	Head base set spring	RBL – 026
	115	Head adjustment spring (C)	RBL – 034
	116	Hight spring	RBL – 036
	117	Head base	RNK1645
	118	Sub – head base	RNG – 335
	119	E head base	RNG1033
	120	Idler arm	RNL – 722
	121	First pulley	RNL – 727
	122	Gear chassis assembly	RXA1171
	123	Pinch base assembly	RXB – 878
	124	Lead wire holder	RNL – 793
	125	Connector assembly (2P)	RKP – 895
	126	Cassette plate	RAH1306



2. PCB CONNECTIONS DIAGRAMS

• View from soldering side

MECHA UNIT

HPHN UNIT

REC SW UNIT

CONNECTOR UNIT

DOOR SW UNIT

TAPE SELECTOR UNIT

SENSOR UNIT(A)

SUB UNIT (RWX 1061 : SD Type)
(RWX 1060 : HEM HB Types)

MAIN UNIT

TRNS

TRN1

PSWS UNIT

TIMS UNIT

Line Voltage Selection

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection wire from PSW UNIT (Terminal No. ⑨)to TRN1 UNIT (Terminal No. J12 and J13)as follows.

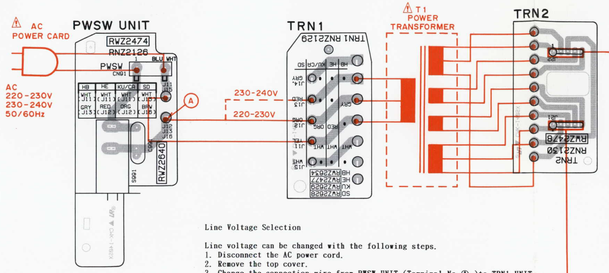
Voltage	Terminal No. of TRN1 UNIT
220-230V	J 1 2
230-240V	J 1 3

4. Stick the line voltage label on the rear panel.

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

POWER Supply Section for SD Type.

• View from component side



Line Voltage Selection

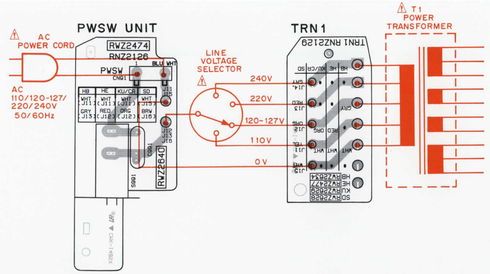
Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection wire from PWSW UNIT (Terminal No Ⓐ)to TRN1 UNIT (Terminal No. J12 and J13)asfollows.

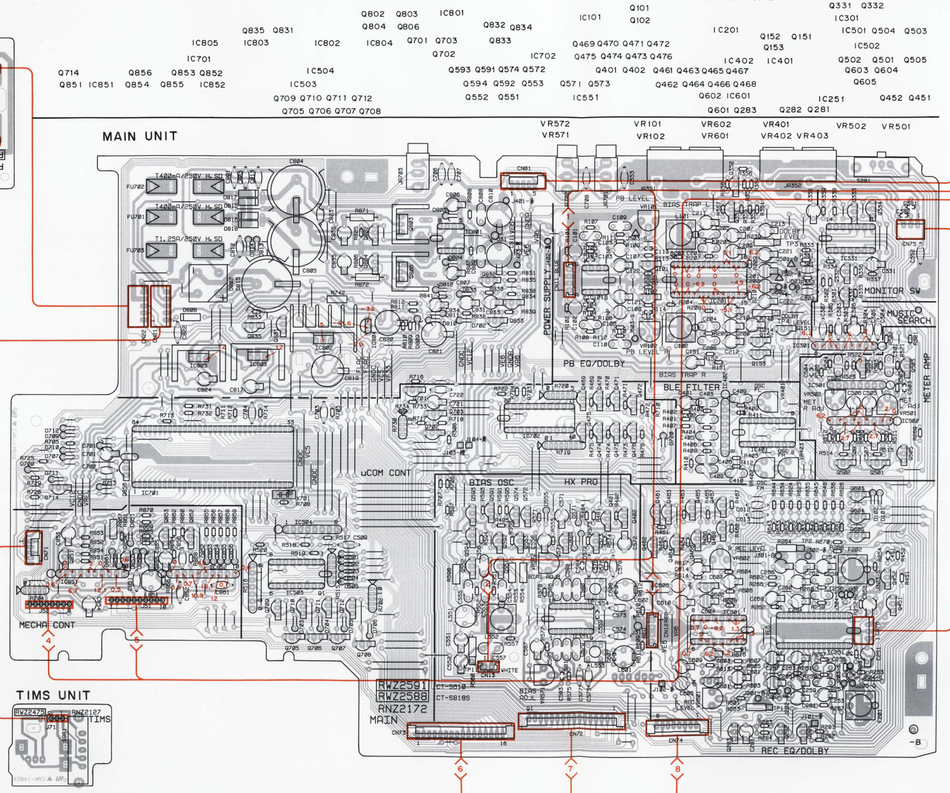
Voltage	Terminal No. of TRN1 UNIT
220-230V	J 1 2
230-240V	J 1 3

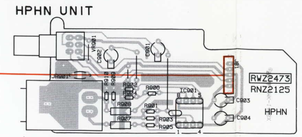
4. Stick the line voltage label on the rear panel.

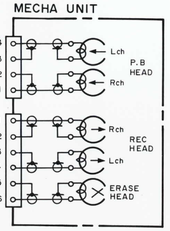
Port NO.	Description
AAX-193	220V label
AAX-192	240V label

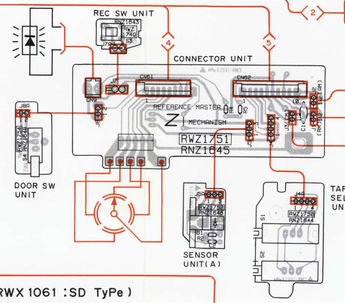
POWER Supply Section for SD Type.



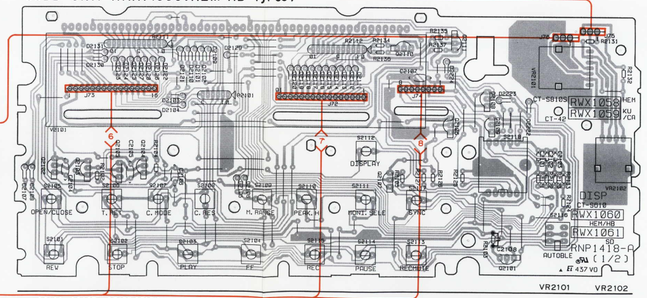








(RWX1061 :SD TyPe)
SUBB UNIT (RWX1060:HEM HB TyPes)



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. 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.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

3. SCHEMATIC DIAGRAM

1. RESISTORS :
Indicated in Ω, 1/4W, 1/6W, 1/8W, ±5% tolerance unless otherwise noted k:kΩ, M:MΩ, (F):±1%, (G):±2%, (J):±10%, (M):±20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF) /voltage (V) unless otherwise noted p:pF.
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
[ ] : DC voltage (V) at stop state.
mA : DC current at stop state.

4. OTHERS :
→ : Signal route.
Ø : 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 resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

NOTE
If the parts are not identified in the diagram, the followings are used.

2SC1740S
2SA933S
1SS254

P.B HEAD
MECHA UNIT(1/3)
CN11
PB AMP
PB LEVEL Adj.
BIAS TRAP Adj.
IC101 (1/2) M5220P
IC101 (2/2)
IC201 CXA1330S PB DOLBY B/C NR
TAPE/SOURCE SELECTOR
LINE MUTE
PB MUTE
MS
IC331 TC4066BP
IC301 BA335
LINE OUTPUT (PLAY)
RKB1020
JA351 (1/2)
JA351 (2/2)
HPHN UNIT
IC901 (1/2) M5218AP
IC901 (2/2)
H.P. AMP
PHONES JA901
RKN1002
VR MAX RL=8Ω –15.6dBV
REEL MOTOR DRIVE
ASSIST MOTOR DRIVE
IC851 JA7291P
IC852 LB1641
A/D CONVERTER for METER LEVEL
METER AMP
IC502 BA6138
IC501 (1/2) M5218AL
IC501 (2/2)
METER LEVEL Adj.
IC503 TC4050BP
IC504 (1/2) M5235L
IC504 (2/2)
SUBB UNIT RWX1060 (HEM.HB) RWX1061 (SD)
REC BALANCE
REC LEVEL
J75
J76
CN75
CN76
MAIN UNIT
REC MUTE
REC LEVEL Adj.
REC EQ
IC251 CXA1330S REC DOLBY B/C NR
IC601 CXA1198AP
NOR/CrO2 /MET SELECT SW
BLE INITIAL CONDITION
CN12
CN13
R REC HEAD
L ERASE HEAD
MECHA UNIT (2/3)
LINE INPUT (REC)
RKB1020
JA352 (1/2)
JA352 (2/2)
GSH
IC702 M52255P
BLE DATA CONVERSION SC
DOOR OPEN/REC INHIBIT/TIMER REC/ TIMER PLAY SW
SC KEY BUFFER
IC701 PD3312A
CD. DECK SYNCHRO
RKN1014 JA703
CONTROL JA721
RKN1004 JA702
MECHA UNIT (3/3) SENSOR UNIT
CONNECTOR UNIT
TAPE SELECTOR UNIT
S1 SLF-431C
CN62
CN61
J52
J51
J4
J3
J2
J1
C.M
R.M
A.M
J8 OPEN DOOR SW
J7 UN REC REC SW UNIT
J5
TIMS UNIT
CN71 J71
PLAY
OFF
REC
RSH1011 S981
105kHz OSC
BIAS FREQ ADJ.
BIAS LEVEL Adj.
MET BIAS ADJ
BIAS OSC SW
IC401 TC4052BP
IC402 (2/2) M5218AL
400Hz LEVEL ADJ.
12kHz LEVEL ADJ.
400Hz LPF
3kHz LPF
SELECTOR (400Hz/3kHz/12kHz)

	400	3K	12K	OFF
FSEA	H	L	H	L
FSEB	H	H	L	L

IC551 uPC1297CA DOLBY HX PRO
BIAS ADJ AMP
REGULATOR
MUTE SW
SYSTEM CONTROL
X701 VSS1014 (4.19MHz)
NOR/CrO2 BIAS ADJ
REC BIAS ON/OFF
POWER OFF & RESET
DISPLAY ON/OFF
FL IND DRIVER
SUBB UNIT (1/2) RWX1060 (HEM,HB) RWX1061 (SD)
V2401 RAW1109 (HEM,HB) RAW1110 (SD)
DOLBY NR B-OFF-C
RSB1001
S00 DOOR OPEN/CLOSE
S01 METER RANGE
S02 MUTE
SC3 REW RETURN PAUSE
STOP COUNTER MODE REC
PLAY COUNTER RESET FF
HOLD MODE MONITOR CD-SYNCRO
BLE DISP OFF
SC4
S2101–2115, 2117 RSG1039
T1 POWER TRANSFORMER
FOR HEM TYPE
AC220V~230V 50/60Hz
AC230V~240V 50/60Hz FOR HB TYPE
AC110/120~127/220/240V 50/60Hz
FOR SD TYPE
PDG1003
PDG1036
PDG1013
PWSW UNIT
TRN1
TRN2
RTT1160 HEM, HB
RTT1173 SD
LINE VOLTAGE SELECTOR PSB1002
FU701, FU702 T400mA/250V REK-096
FU703 T1.25A/250V REK-101
BLE TEST TONE 400Hz 7.4dBV
BLE TEST TONE SVP-P

: PLAYBACK SIGNAL
: RECORDING SIGNAL
: MEASUREMENT POINT

4. PCB 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 ⚠ 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 × 10^1 → 561 ····· RD1/4PS 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

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

5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4SR 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
⊙		MOTHER UNIT	RWM1499
		├PWSW UNIT	
		├HPHN UNIT	
		├TIMS UNIT	
		├TRN 1 UNIT	
		├TRN 2 UNIT	
		└MAIN UNIT	
⊙		SUBB UNIT	RWX1060
		REC SW UNIT	
		TAPE SELECTOR UNIT	
		SENSOR UNIT (A)	
		DOOR SW UNIT	
		CONNECTOR UNIT	
⊙ SUBB UNIT			
SEMICONDUCTORS			
	Q2101	TRANSISTOR	2SA933S
	Q2102	TRANSISTOR	DTC124ES
	Q2103	TRANSISTOR	DTA124ES
	Q2104	TRANSISTOR	DTC124ES
	Q2105	TRANSISTOR	DTA124ES
	Q2106	TRANSISTOR	DTC124ES
	Q2107	TRANSISTOR	DTA124ES
	Q2108, 2109	DIGITAL TRANSISTOR	DTA114ES
	Q2110, 2111	TRANSISTOR	2SC1740S
	D2101-2131	DIODE	1SS252
	D2222-2224	DIODE	1SS252
SWITCHES			
	S2101-2115		RSG1039
	S2116	SWITCH	RSG1027
	S2117		RSG1039
	S2118		RSB1001
CAPACITORS			
	C2101, 2102	AXIAL CAPACITOR	CKPUYB821K50
	C2104-2106	CERAMIC CAPACITOR	CKCYF473Z50
	C2107	CERAMIC CAPACITOR	CKCYF103Z50
	C2108	CERAMIC CAPACITOR	CKDYB102K50
RESISTORS			
	R2101	RESISTOR ARRAY	RA5T□□□J
	R2102-2105	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2111	RESISTOR ARRAY	RA11T□□□J
	R2112	RESISTOR ARRAY	RA10T□□□J
	R2121, 2122	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2124-2127	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2131-2137	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR2101	VARIABLE RESISTOR (100K×2)	RCV1077
	VR2102	VARIABLE RESISTOR (200K)	RCV1046
OTHERS			
	V2101		RAW1109
HPHN UNIT			
SEMICONDUCTORS			
	IC901	OP-AMP, IC	M5218AP
CAPACITORS			
	C901, 902	ELECTR. CAPACITOR	CEAS010M50
	C903, 904	ELECTR. CAPACITOR	CEAS101M10
RESISTORS			
	R901-906	CARBONFILM RESISTOR	RD1/6PM□□□J
	R907, 908	CARBONFILM RESISTOR	RD1/2LF□□□J
	R909, 910	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR901	VARIABLE RESISTOR (20K×2)	RCV1043
OTHERS			
	JA901	JACK	RKN1002
PWSW UNIT			
SWITCHES			
⚠	S991	SWITCH	RSA-063
CAPACITORS			
⚠	C991	CAPACITOR (CERAMIC) (0.01/400)	RCG-009

Mark	No.	Description	Part No.
TIMS UNIT			
SWITCHES			
	S981		RSH1011
MAIN UNIT			
SEMICONDUCTORS			
	IC101	OP-AMP-IC	M5220P
	IC201	DOLBY B/C IC	CXA1330S
	IC251	DOLBY B/C IC	CXA1330S
	IC301	IC	BA335
	IC331	LOGIC IC	TC4066BP
	IC401	LOGIC IC	TC4052BP
	IC402	OP-AMP, IC	M5218AL
	IC501	OP-AMP, IC	M5218AL
	IC502		BA6138
	IC503	CMOS LOGIC IC	TC4050BP
	IC504	DUAL-COMPARATOR IC	M5233L
	IC551	DOLBY HX PRO IC	UPC1297CA
	IC601	REC EQUALIZER IC	CXA1198AP
	IC701	MCU	PD4312A
	IC702	OUTPUT EXPANDER IC	M50255P
	IC801	OP-AMP, IC	M5218AP
⚠	IC802	REGULATOR IC	NJM7805FA
⚠	IC803	REGULATOR IC	NJM7812FA
⚠	IC804	REGULATOR IC	NJM79L12A
⚠	IC805	REGULATOR IC	NJM7812FA
	IC851	LINEAR IC	TA7291P
	IC852		LB1641
	Q101, 102	TRANSISTOR	DTC114ES
	Q151	DIGITAL TRANSISTOR	DTC114TS
	Q152	TRANSISTOR	DTA124ES
	Q153	TRANSISTOR	DTC124ES
	Q281	TRANSISTOR	DTA124ES
	Q282, 283	DIGITAL TRANSISTOR	DTC114TS
	Q331, 332	TRANSISTOR	2SD1302
	Q333	TRANSISTOR	DTC124ES
	Q334	TRANSISTOR	DTA124ES
	Q351, 352	TRANSISTOR	2SD1302
	Q401, 402	DIGITAL TRANSISTOR	DTC114TS
	Q451, 452	TRANSISTOR	2SD1302
	Q461-476	DIGITAL TRANSISTOR	DTC114TS
	Q501-505	DIGITAL TRANSISTOR	DTC114TS
	Q551, 552	TRANSISTOR	2SC3243
	Q553	TRANSISTOR	2SD1302
	Q571	TRANSISTOR	DTC114ES
	Q572	DIGITAL TRANSISTOR	DTA114ES
	Q573	TRANSISTOR	2SA933S
	Q574	TRANSISTOR	2SC1740S
	Q591-593	DIGITAL TRANSISTOR	DTC114TS
	Q594	TRANSISTOR	2SA1283
	Q601, 602	TRANSISTOR	2SD2144S
	Q603-605	TRANSISTOR	DTC114ES
	Q701	TRANSISTOR	2SA933S
	Q702, 703	DIGITAL TRANSISTOR	DTA114ES

Mark	No.	Description	Part No.
	Q705-708	DIGITAL TRANSISTOR	DTA114ES
	Q709-712	TRANSISTOR	DTC114ES
	Q714	TRANSISTOR	DTC114ES
	Q802	TRANSISTOR	2SC1740S
⚠	Q803	TRANSISTOR	2SD1266
	Q804	TRANSISTOR	2SA933S
⚠	Q806	TRANSISTOR	2SB941
	Q831, 832	TRANSISTOR	2SC1740S
	Q833	TRANSISTOR	DTC114ES
	Q834	DIGITAL TRANSISTOR	DTA114ES
	Q835	TRANSISTOR	2SC1740S
	Q851	DIGITAL TRANSISTOR	DTC114TS
	Q852, 853	TRANSISTOR	2SA933S
	Q854	TRANSISTOR	DTC114ES
	Q855	TRANSISTOR	2SC1740S
	Q856	DIGITAL TRANSISTOR	DTC114TS
	D101, 102	DIODE	1SS254
	D483	DIODE	1SS254
	D501-505	DIODE	1SS254
	D555	DIODE	1SS254
	D571, 572	DIODE	1SS254
	D701	ZENER DIODE	MTZJ9.1A
	D702	DIODE	1SS254
	D703-706	DIODE	1SS252
	D707-713	DIODE	1SS254
	D720	ZENER DIODE	MTZJ3.3B
⚠	D802		S2VB20
⚠	D803, 804	ZENER DIODE	MTZJ6.2B
⚠	D808	RECTIFIER DIODE	1SR35-100A
⚠	D809	ZENER DIODE	MTZJ20A
⚠	D810	ZENER DIODE	MTZJ9.1A
	D811	DIODE	1SS254
	D812	ZENER DIODE	MTZ3.6B
	D813, 814	DIODE	1SS252
⚠	D815-818	RECTIFIER DIODE	1SR35-100A
	D833	DIODE	1SS254
	D851	DIODE	1SS254
	D852-856	DIODE	1SS252
	D857	ZENER DIODE	MTZJ4.3B
	D858	DIODE	1SS254
	D860	ZENER DIODE	MTZJ11B
	D861	DIODE	1SS254
SWITCHES			
	S281		RSH1025
COILS/TRANSFORMERS			
	L101, 102	COIL	RTF1060
	L551	RADIAL INDUCTOR	LFA121K
	L552		RTD1057
	L553, 554		RTD1011
	L601, 602	COIL (2.2mH)	RTF1094
	L851	(150 μH)	RTF1068
	F201, 202	FILTER	RTF1062

Mark	No.	Description	Part No.
CAPACITORS			
	C101, 102	PL. STYRENE CAPACITOR	CQSA221J50
	C103, 104	AXIAL CAPACITOR	CKPUYB101K50
	C105, 106	AUDIO FILM CAPACITOR	CFTXA563J50
	C107, 108	ELECTR. CAPACITOR	CEANP100M16
	C109, 110	AUDIO FILM CAPACITOR	CFTXA273J50
	C113, 114	CERAMIC CAPACITOR	CKPUYB102K50
	C121, 122	ELECTR. CAPACITOR	CEAS101M10
	C151	ELECTR. CAPACITOR	CEAS010M50
	C201, 202	ELECTR. CAPACITOR	CEYA4R7M50
	C203-206	AUDIO FILM CAPACITOR	CFTXA222J50
	C207, 208	ELECTR. CAPACITOR	CEASR33M50
	C209, 210	ELECTR. CAPACITOR	CEASR22M50
	C211, 212	ELECTR. CAPACITOR	CEASR33M50
	C213, 214	ELECTR. CAPACITOR	CEAS330M16
	C221, 222	ELECTR. CAPACITOR	CEAS101M10
	C251, 252	ELECTR. CAPACITOR	CEYA010M50
	C253, 254	ELECTR. CAPACITOR	CEAS4R7M50
	C255-258	AUDIO FILM CAPACITOR	CFTXA222J50
	C259, 260	ELECTR. CAPACITOR	CEASR33M50
	C261, 262	ELECTR. CAPACITOR	CEASR22M50
	C263, 264	ELECTR. CAPACITOR	CEASR33M50
	C265, 266	ELECTR. CAPACITOR	CEYA330M16
	C267, 268	ELECTR. CAPACITOR	CEAS101M10
	C281	ELECTR. CAPACITOR	CEAS010M50
	C301, 302	CERAMIC CAPACITOR	CGCYX104K25
	C303	CERAMIC CAPACITOR	CGCYX473K25
	C304, 305	CERAMIC CAPACITOR	CGCYX104K25
	C306	ELECTR. CAPACITOR	CEASR47M50
	C307	CERAMIC CAPACITOR	CKCYF473Z50
	C331	ELECTR. CAPACITOR	CEAS010M50
	C351	ELECTR. CAPACITOR	CEAS010M50
	C352, 353	CERAMIC CAPACITOR	CKCYF473Z50
	C381, 382	AXIAL CAPACITOR	CKPUYB101K50
	C401	ELECTR. CAPACITOR	CEAS010M50
	C402	AUDIO FILM CAPACITOR	CFTXA103J50
	C403	AUDIO FILM CAPACITOR	CFTXA104J50
	C405	AUDIO FILM CAPACITOR	CFTXA182J50
	C406	AUDIO FILM CAPACITOR	CFTXA123J50
	C408		CFTXA272J50
	C409	AUDIO FILM CAPACITOR	CFTXA823J50
	C410	AUDIO FILM CAPACITOR	CFTXA103J50
	C451	AXIAL CAPACITOR	CKPUYF103Z25
	C501, 502	AUDIO FILM CAPACITOR	CFTXA154J50
	C503, 504	AXIAL CAPACITOR	CKPUYB561K50
	C505-508	ELECTR. CAPACITOR	CEAS4R7M50
	C509	CERAMIC CAPACITOR	CKCYF473Z50
	C551, 552	ELECTR. CAPACITOR	CEAS470M16
	C553	AUDIO FILM CAPACITOR	CFTXA223J50
	C554, 555	AUDIO FILM CAPACITOR	CFTXA332J50
	C556	AUDIO FILM CAPACITOR	CFTXA682J50
	C557	CAPACITOR	CQPA752J100
	C558	ELECTR. CAPACITOR	CEAS330M35
	C559	AXIAL CAPACITOR	CKPUYB101K50
	C571	ELECTR. CAPACITOR	CEAS010M50
	C572	ELECTR. CAPACITOR	CEAS330M35
	C573, 574	CERAMIC CAPACITOR	CKCYF473Z50
	C575, 576	CERAMIC CAPACITOR	CKCYB391K500
	C577, 578	CERAMIC CAPACITOR	CCCSL101K500
	C579-582	AUDIO FILM CAPACITOR	CFTXA223J50
	C583, 584	AXIAL CAPACITOR	CKPUYB821K50
	C585, 586	AUDIO FILM CAPACITOR	CFTXA103J50
	C587	ELECTR. CAPACITOR	CEAS330M35
	C601, 602	ELECTR. CAPACITOR	CEAS010M50
	C603, 604	ELECTR. CAPACITOR	CEAS4R7M50
	C605, 606	ELECTR. CAPACITOR	CEANP220M16
	C607, 608	CERAMIC CAPACITOR	CKPUYB102K50
	C609, 610	ELECTR. CAPACITOR	CEAS101M10
	C612, 613	CERAMIC CAPACITOR	CKCYF473Z50
	C614	ELECTR. CAPACITOR	CEAS2R2M50
	C701	ELECTR. CAPACITOR	CEAS101M10
	C702-704	CERAMIC CAPACITOR	CKCYF103Z50
	C706, 707	CERAMIC CAPACITOR	CKCYF103Z50
	C708	CERAMIC CAPACITOR	CKCYF473Z50
	C721	ELECTR. CAPACITOR	CEAS470M16
	C722	CERAMIC CAPACITOR	CKCYF103Z50
	C801	CERAMIC CAPACITOR	CKCYF473Z50
	C803	CERAMIC CAPACITOR	CKCYF473Z50
	C804, 805	ELECTR. CAPACITOR	CENA222M25
	C806, 807	ELECTR. CAPACITOR	CEAS100M50
	C808, 809	AUDIO FILM CAPACITOR	CFTXA563J50
	C810, 811	ELECTR. CAPACITOR	CEAS101M10
	C812, 813	CERAMIC CAPACITOR	CKCYF473Z50
	C815	CAPACITOR (6800/25)	VCH1078
	C817	ELECTR. CAPACITOR	CEAS101M25
	C819	ELECTR. CAPACITOR	CEAS102M6R3
	C820, 821	ELECTR. CAPACITOR	CEAS101M50
	C822, 823	CERAMIC CAPACITOR	CKCYF473Z50
	C824	ELECTR. CAPACITOR	CEAS101M25
	C831	ELECTR. CAPACITOR	CEAS4R7M50
	C833	ELECTR. CAPACITOR	CEAS470M16
	C834	ELECTR. CAPACITOR	CEAS4R7M50
	C835, 836	ELECTR. CAPACITOR	CEAS101M10
	C851, 852	CERAMIC CAPACITOR	CKCYF473Z50
	C853, 854	ELECTR. CAPACITOR	CEAS100M50
	C855	ELECTR. CAPACITOR	CEAS220M25
	C856	CERAMIC CAPACITOR	CKCYF473Z50
	C861	CERAMIC CAPACITOR	CKCYF473Z50
RESISTORS			
	R101-114	CARBONFILM RESISTOR	RD1/6PM□□□J
	R151, 152	CARBONFILM RESISTOR	RD1/6PM□□□J
	R201-210	CARBONFILM RESISTOR	RD1/6PM□□□J
	R239, 240	CARBONFILM RESISTOR	RD1/2LF□□□J
	R251-262	CARBONFILM RESISTOR	RD1/6PM□□□J
	R263, 264	CARBONFILM RESISTOR	RD1/2LF□□□J
	R265-270	CARBONFILM RESISTOR	RD1/6PM□□□J
	R281-284	CARBONFILM RESISTOR	RD1/6PM□□□J
	R301-306	CARBONFILM RESISTOR	RD1/6PM□□□J
	R331-338	CARBONFILM RESISTOR	RD1/6PM□□□J

Mark	No.	Description	Part No.
	R351-359	CARBONFILM RESISTOR	RD1/6PM□□□J
	R401-412	CARBONFILM RESISTOR	RD1/6PM□□□J
	R451, 452	CARBONFILM RESISTOR	RD1/6PM□□□J
	R461-476	CARBONFILM RESISTOR	RD1/6PM□□□J
	R481, 482	CARBONFILM RESISTOR	RD1/6PM□□□J
	R484, 485	CARBONFILM RESISTOR	RD1/6PM□□□J
	R501-514	CARBONFILM RESISTOR	RD1/6PM□□□J
	R515	RESISTOR ARRAY	RA5T□□□J
	R516	LADDER RESISTOR (11K/22K)	RCX1020
	R517-523	CARBONFILM RESISTOR	RD1/6PM□□□J
	R551, 552	CARBONFILM RESISTOR	RD1/6PM□□□J
	R553, 554	CARBONFILM RESISTOR	RD1/2LF□□□J
	R555-557	CARBONFILM RESISTOR	RD1/6PM□□□J
	R560	CARBONFILM RESISTOR	RD1/2LF□□□J
	R571	CARBONFILM RESISTOR	RD1/6PM□□□J
	R573-578	CARBONFILM RESISTOR	RD1/6PM□□□J
	R591	CARBONFILM RESISTOR	RD1/6PM□□□J
	R593-595	CARBONFILM RESISTOR	RD1/6PM□□□J
	R596	CARBONFILM RESISTOR	RD1/2LF□□□J
	R597	CARBONFILM RESISTOR	RD1/6PM□□□J
	R601-614	CARBONFILM RESISTOR	RD1/6PM□□□J
	R616, 617	CARBONFILM RESISTOR	RD1/6PM□□□J
	R621-626	CARBONFILM RESISTOR	RD1/6PM□□□J
	R631-636	CARBONFILM RESISTOR	RD1/6PM□□□J
	R641-646	CARBONFILM RESISTOR	RD1/6PM□□□J
	R702	RESISTOR ARRAY	RA4T□□□J
	R703	CARBONFILM RESISTOR	RD1/6PM□□□J
	R704	RESISTOR ARRAY	RA4T□□□J
	R705-708	CARBONFILM RESISTOR	RD1/6PM□□□J
	R710-714	CARBONFILM RESISTOR	RD1/6PM□□□J
	R716-718	CARBONFILM RESISTOR	RD1/6PM□□□J
	R719	RESISTOR ARRAY	RA7T□□□J
	R720	RESISTOR ARRAY	RA5T□□□J
	R722-726	CARBONFILM RESISTOR	RD1/6PM□□□J
	R729	CARBONFILM RESISTOR	RD1/6PM□□□J
	R730	RESISTOR ARRAY	RA3T□□□J
	R731-734	CARBONFILM RESISTOR	RD1/6PM□□□J
⚠	R742	FUSLIBLE RESISTOR	RFA1/4L□□□J
	R805-812	CARBONFILM RESISTOR	RD1/6PM□□□J
	R831-833	CARBONFILM RESISTOR	RD1/6PM□□□J
	R835, 836	CARBONFILM RESISTOR	RD1/6PM□□□J
	R838, 839	CARBONFILM RESISTOR	RD1/6PM□□□J
	R841	CARBONFILM RESISTOR	RD1/6PM□□□J
	R851-866	CARBONFILM RESISTOR	RD1/6PM□□□J
	R867	CARBONFILM RESISTOR	RD1/2LF□□□J
	R868-870	CARBONFILM RESISTOR	RD1/6PM□□□J
⚠	R871, 872	METAL OXIDE RESISTOR	RS1LMF□□□J
	VR101, 102	VR (22K-B)	RCP1046
	VR401-403	VR (22K-B)	RCP1046
	VR501, 502	VR (10K-B)	RCP1045
	VR571, 572	VR (47K-B)	RCP1047
	VR601, 602	VR (22K-B)	RCP1046

Mark	No.	Description	Part No.
OTHERS			
	JA351, 352	JACK	RKB1020
	JA701, 702	JACK	RKN1004
	JA703	JACK	RKN1014
	X701	CERAMIC RESONATOR (4.19MHz)	VSS1014

REC SW UNIT

SWITCHES

	S3	SWITCH	RSG-143

TAPE SELECTOR UNIT

SWITCHES

	S1, 2		RSH-070

SENSOR UNIT (A)

SEMICONDUCTORS

	D1		GP1A51HR

CAPACITORS

	C2	CERAMIC CAPACITOR	CKPUYY103N16

RESISTORS

	R2	CARBONFILM RESISTOR	RD1/6PM□□□J

DOOR SW UNIT

SWITCHES

	S4		RSK1002

CONNECTOR UNIT

CAPACITORS

	C1	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS

	R4, 5	CARBONFILM RESISTOR	RD1/6PM□□□J

TRN1 UNIT

TRN1 unit has no service part.

TRN2 UNIT

TRN2 unit has no service part.

5. ADJUSTMENTS

5.1 MECHANISM ADJUSTMENT

1. Tape Speed Adjustment		
Mode	Adjustment Location	Specifications
PLAY	Capstan motor adjustment hole (Refer to Fig. 1.)	Adjust so that the playback frequency is 3000 ± 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.

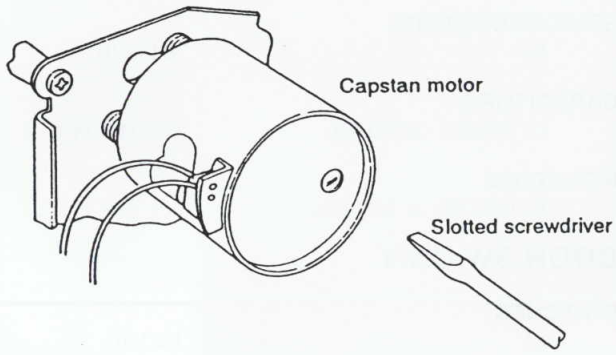


Fig. 1

2. Adjustment of Door Damper	
Adjustment Location	Specifications
Cylinder adjustment screw (Refer to Fig. 2.)	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.)

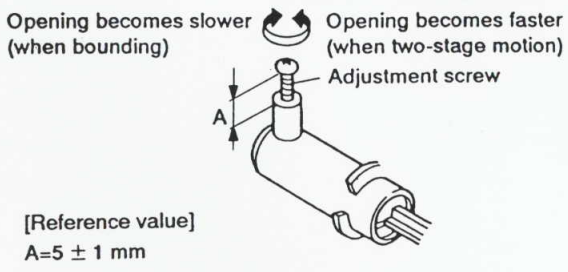


Fig. 2

3. Tape running and azimuth 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. 3.)	Playback the above tape and adjust so that there is no curling of the tape in the guide section of the head. (Refer to Fig. 4.)
3	PLAY	Azimuth adjustment screw (Refer to Fig. 3.)	Playback test tape **STD-331E** 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 dnes not satisfy the specifications. (Be sure to adjust Item 3 when Item 2 is adjusted.)		

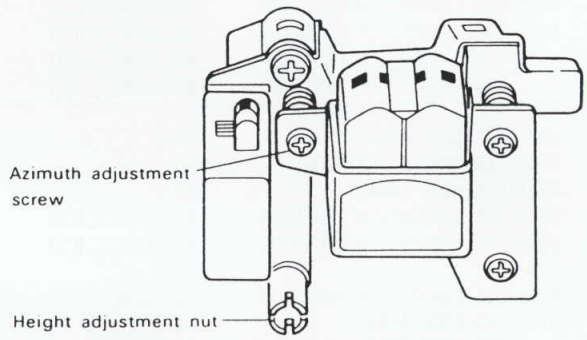


Fig. 3.

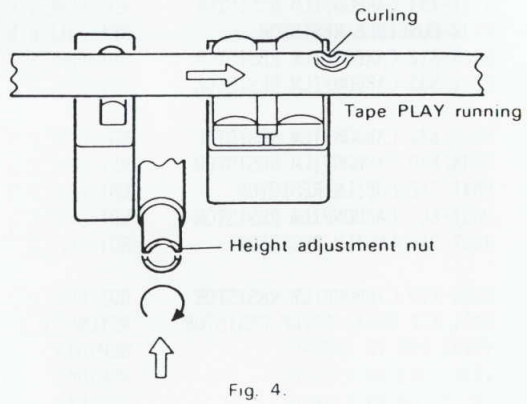


Fig. 4.

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 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) 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–331E : Playback adjustments (See Fig. 5–1)
STD–631 : NORMAL blank tape
STD–621 : CrO_2 blank tape
STD–610 : METAL blank tape

* As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

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

Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. Level meter adjustment and BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

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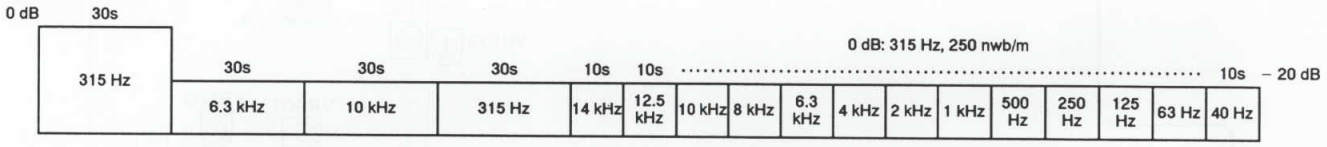


Fig. 5–1 Constants of the test tape STD–331E

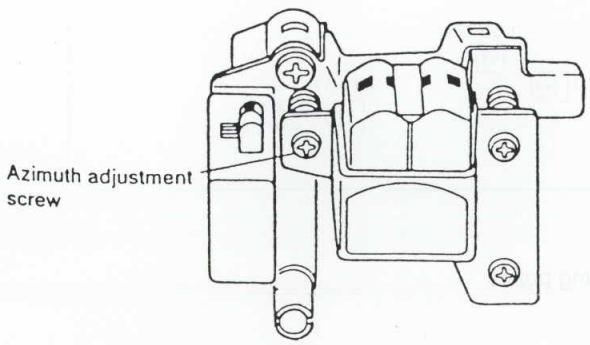


Fig. 5–2 Head azimuth adjustment

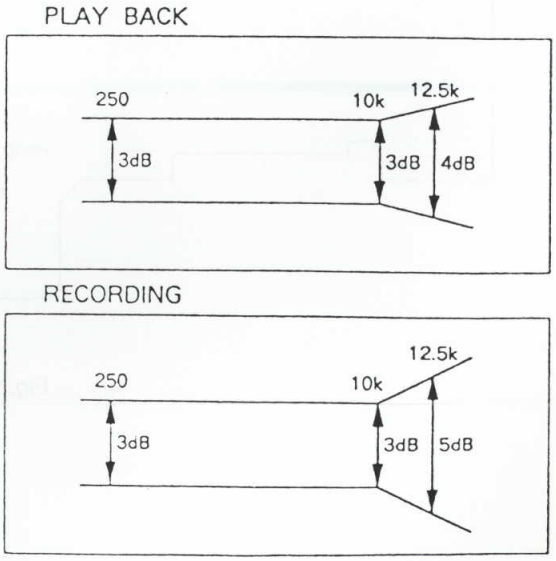


Fig. 5–3 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, 102 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–331E test tape.	Head azimuth adjustment screw. (See Fig. 5–2)	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–331E test tape.	Deck	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	–6.7 dBV	This adjustment must be performed accurately for proper Dolby level setting.

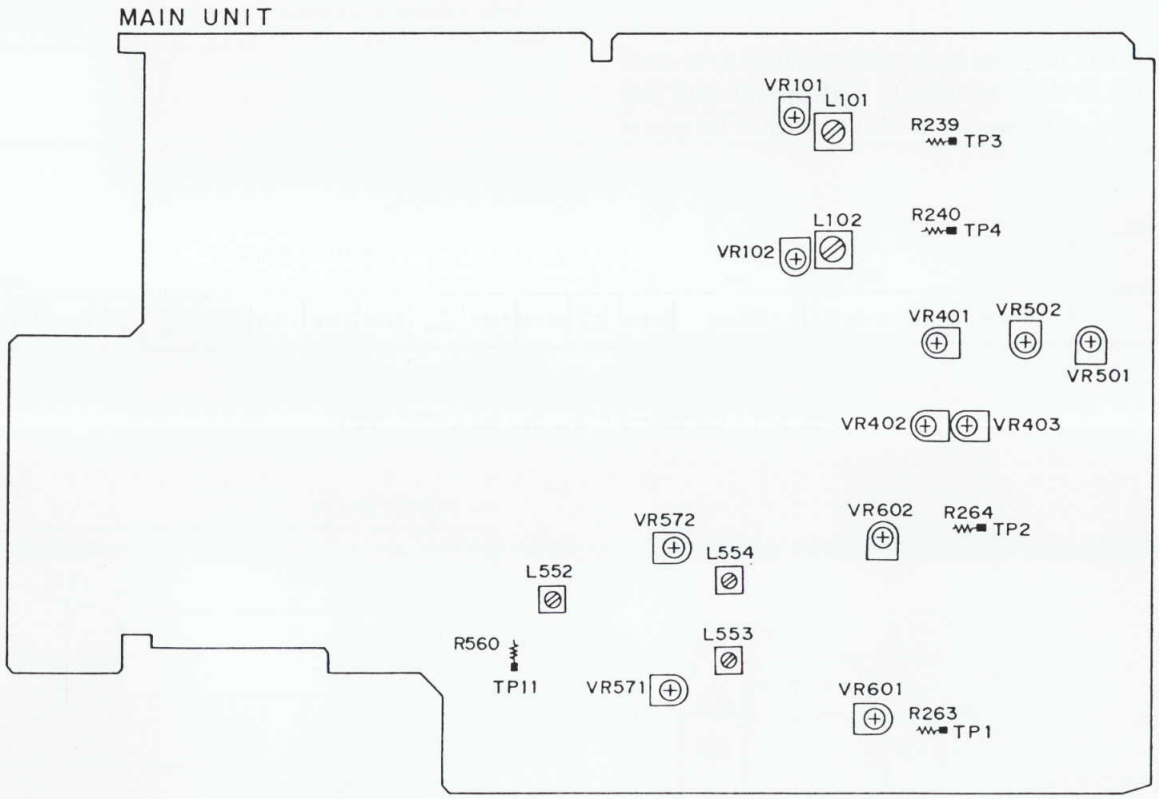


Fig. 5–4 Adjusting points

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.	Deck	L552	TP. 11	105 kHz ± 300 Hz	

2. Bias Trap 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.	Deck	L101 (Lch) L102 (Rch)	LINE OUT	Minimum output	

3. Recording Bias Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/–20 dBV (–20VU meter reading) signal to the line input terminals and insert STD–631.			LINE OUT		
2.		Record and play back the 315 Hz signal and a 10 kHz signal at –20 dBV input level.	Deck	VR571 (L) VR572 (R)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to 0 ± 0.5 dB.	
3.	Check distortion value after adjustment is completed and confirm that there is no underbias.						

4. Recording Level Adjustment

- Turn OFF the DOLBY NR switch.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply the 315 Hz/–4 dBV signal to the line input, and load STD–631 (NORM).	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	REC → PLAY	Record and play back the 315 Hz/–4 dBV signal.	Deck	VR601 (Lch) VR602 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes –11.2 dBV.	Recording bias adjustment and recording level adjustment with STD–631 must be performed accurately as reference for BLE adjustment.
3.	REC → PLAY	Record the 315 Hz/–4 dBV signal on STD–621 (CrO_2), and play it back.	Check			–11.2 dBV ± 1.5 dB	
4.	REC → PLAY	Record the 315 Hz/–4 dBV signal on STD–610 (METAL), and play it back.	Check			–11.2 dBV ± 1.5 dB	

5. Level Meter Adjustment and BLE Adjustment

- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.

- **Entering the test mode**
  Press the MODE (COUNTER), RANGE and Display ON/OFF keys on the front panel simultaneously, with the power ON. The unit enters the test mode and the following occurs:
  *1. When REC key is pressed, the unit enters the test mode 1. (FL indication "1")
  At this time, level meter adjustment is to be performed.
  *2. When REW key is pressed, the unit enters the test mode 2. (FL indication "2")
  At this time, BLE adjustment (400 Hz) is to be performed.
  *3. When STOP key is pressed, the unit enters the test mode 3. (FL indication "3")
  At this time, BLE adjustment (3 kHz) is to be performed.
  *4. When PLAY key is pressed, the unit enters the test mode 4. (FL indication "4")
  At this time, BLE adjustment (12 kHz) is to be performed.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE and TEST MODE 1 (*1)	Input the 315 Hz/–6 dBV (500 mV) signal to the LINE INPUT terminal, set to the test mode, and then press the REC key.	REC LEVEL VR	LINE OUT	–6 dBV	Level meter adjustment
			VR501	Level meter Lch	Adjust so that 0 dB of the level meter flashes.	
			VR502	Level meter Rch	Adjust so that 0 dB of the level meter flashes.	
2.	—	REC LEVEL VR MIN or no signal input.	—	—	—	
3.	TEST MODE 2 (*2)	Press the REW key.	VR401	Level meter Rch	Adjust so that –3 dB of the level meter flashes.	400 Hz adjustment
4.	TEST MODE 3 (*3)	Press the STOP key.	VR402		Adjust so that –3 dB of the level meter flashes.	3 kHz adjustment
5.	TEST MODE 4 (*4)	Press the PLAY key.	VR403		Adjust so that –3 dB of the level meter flashes.	12 kHz adjustment
6.	When the RESET key is pressed again, the test mode is released.					

5. REGLAGES

5.1 RÉGLAGES MECANIQUES

1. Réglage de vitesse de bande

Mode	Point de réglage	Caractéristiques
LEC–TURE	Orifice de réglage du moteur de cabestan (Se reporter à la Fig. 1)	Régler afin que la fréquence de lecture soit de 3000 ± 5 Hz au début de l'enroulement de la bande d'essai STD–301.
LEC–TURE		Reproduire à nouveau la bande d'essai STD–301 et confirmer que les caractéristiques ci–dessus sont satisfaisantes.

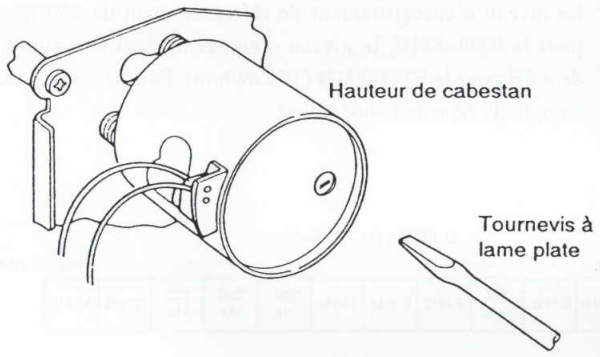


Fig. 1

2. Réglage du mécanisme de porte

Point de réglage	Caractéristiques
Vis de réglage du cylindre (Se reporter à la Fig. 2)	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).

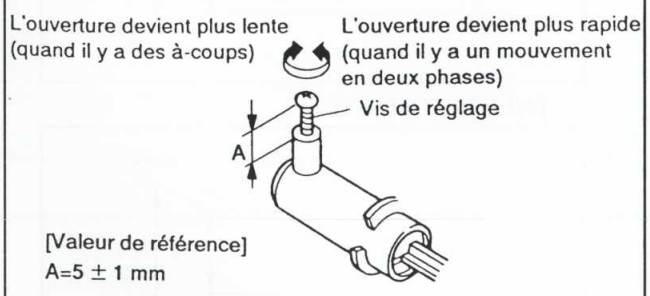


Fig. 2

3. Réglage d'azimuth et de défilement de bande

N°	Mode	Emplacement de réglage	Spécifications
1	—	—	Insérer le demi-miroir dans le côté A (régler les vis à l'avant).
2	PLAY	Ecrou de réglage de hauteur (Se reporter à la Fig. 3.)	Reproduire la bande ci-dessus et régler pour qu'il n'y ait pas d'ondulation de la bande dans la section guide de la tête. (Se reporter à la Fig. 4.)
3	PLAY	Vis de réglage d'azimuth (Se reporter à la Fig. 3.)	Reproduire la bande d'essai **STD-331E** et régler pour que le niveau de sortie de 10 kHz soit maximum et également pour qu'il n'y ait pas de déphasage entre le canal gauche et le canal droit.
4	Vérifier à nouveau l'article 2 ci-dessus et régler s'il ne satisfait pas les spécifications.(Toujours régler l'article 3 lorsque l'article 2 est réglé.)		

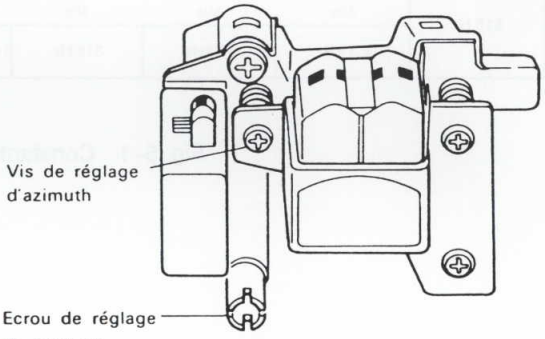


Fig. 3.

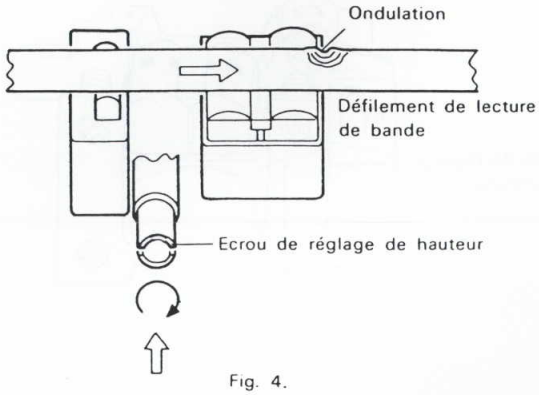


Fig. 4.

5.2 RÉGLAGES 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 0 dBV=1 Vrms.
5. Connecter une résistance de charge de 50 kΩ (tolérance 47k à 52 kΩ) 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–331E : Réglages de la lecture (Voir fig. 5–1)
STD–631 : Bande vierge de type normal
STD–621 : 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 l'oscillateur de polarisation.
2. Réglage du circuit réjecteur de polarisation
3. Réglage de la polarisation d'enregistrement.
4. Réglage du niveau d'enregistrement.
5. Réglage de décibelmétre et réglage du BLE.

REMARQUE:
Cette unité est dotée d'une sélection automatique de bande.

* Le niveau d'enregistrement de référence étant de 250 nwb/m pour le STD–331E, le niveau d'enregistrement sera supérieur de 4 dB pour le STD–331B (160 nwb/m). Pour le réglage, tenir compte du type de bande utilisé.

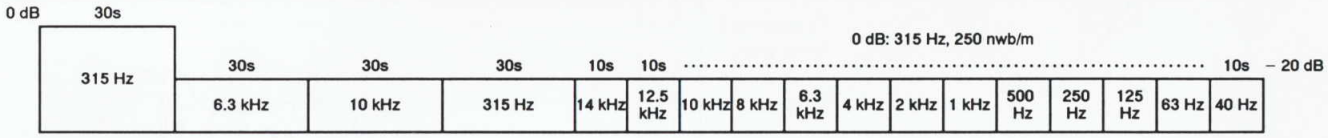


Fig. 5–1 Constantes de la bande d'essai STD–331E

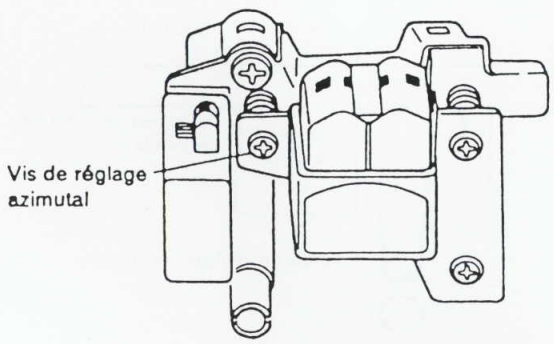


Fig. 5–2 Réglage de l'azimut de la tête

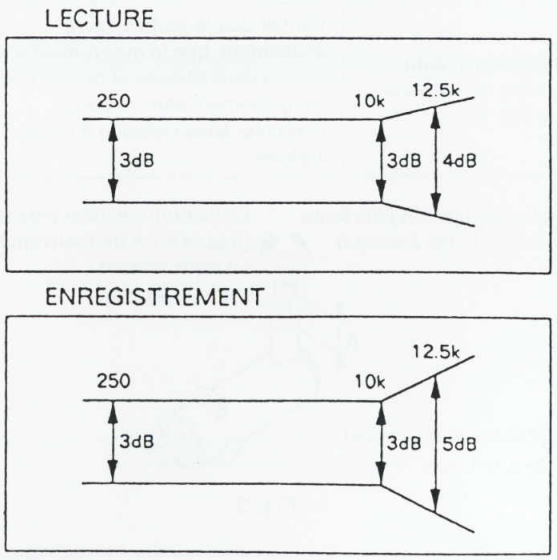


Fig. 5–3 Zone de réponse en fréquence

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

- Tourner VR101, 102 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–331E.	Vis de réglage de l'azimut de la tête. (Voir fig. 5–2)	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–331E.	Platine	VR101 (can. G) VR102 (can. D)	TP. 3 (can. G) TP. 4 (can. D)	–6,7 dBV	Ce réglage doit être effectué avec précision pour un réglage adéquat du niveau Dolby.

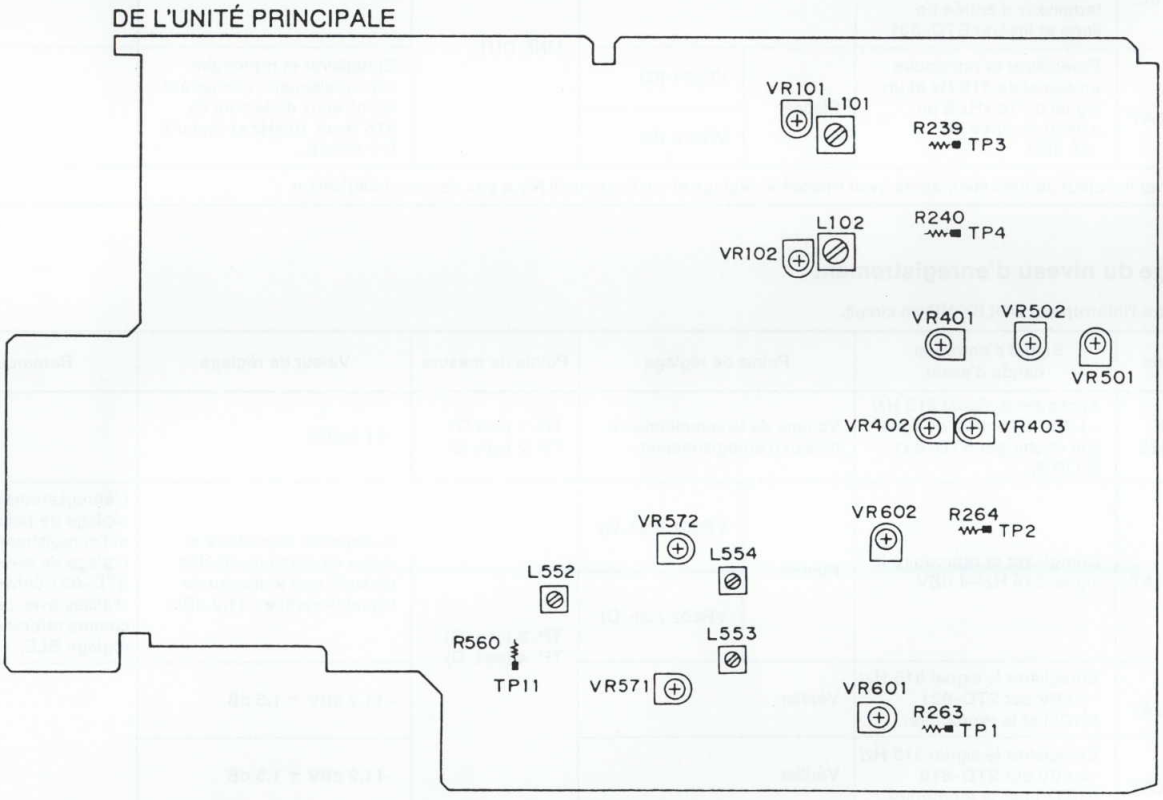


Fig. 5–4 Points réglage

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.	Platine	L552	TP. 11	105 kHz ± 300 Hz	

2. Réglage du circuit réjecteur 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.	Platine	L101 (can. G) L102 (can. D)	LINE OUT	Sortie minimum	

3. Réglage de la polarisation d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC/ PAUSE	Appliquer un signal de 315 Hz/–20 dBV (lecture du décibelmètre –20) aux terminaux d'entrée de ligne et insérer STD–631.			LINE OUT		
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.	Platine	VR571 (G) VR572 (D)		Enregistrer et reproduire continuellement, comparant les niveaux de lecture de 315 Hz et 10 kHz et régler à 0 ± 0,5 dB.	
3.	Vérifier la valeur de distorsion après avoir trmineé le réglage et confirmer qu'il N'y a pas de sous polarisation.						

4. Réglage du niveau d'enregistrement

- Éteindre l'interrupteur DOLBY NR en circuit.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC/ PAUSE	Appliquer le signal 315 Hz/ –4 dBV à l'entrée de ligne line et charger STD–631 (NORM).	Volume de la commande de niveau d'enregistrement.		TP. 1 (can.G) TP. 2 (can. D)	–11,2 dBV	
2.	REC → PLAY	Enregistrer et reproduire le signal 315 Hz/–4 dBV.	Platine	VR601 (can. G) VR602 (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 –11,2 dBV.	L'enregistrement du réglage de polarisation et l'enregistrement du réglage de niveau avec STD–631 doivent être réalisés avec précision comme référence pour le réglage BLE.
3.	REC → PLAY	Enregistrer le signal 315 Hz/ –4 dBV sur STD–621 (CrO2) et le reproduire.	Vérifier			–11,2 dBV ± 1,5 dB	
4.	REC → PLAY	Enregistrer le signal 315 Hz/ –4 dBV sur STD–610 (METAL) et le reproduire.	Vérifier			–11,2 dBV ± 1,5 dB	

5. Réglage du décibelmètre et réglage du BLE

- Le réglage BLE doit être effectué une fois que tous les autres réglages sont terminés.
- Ce réglage doit être effectué en mode d'essai.

- **Entrée du mode d'essai**
  Appuyer simultanément sur les touches de MODE (COUNTER), RANGE et Display ON/OFF situées sur le panneau avant lorsque l'alimentation est sous tension. L'unité passe alors au mode d'essai et la procédure suivante se déroule:
  *1. Lorsque l'on appuie sur la touche REC, le mode d'essai 1 est alors commuté. (Indication FL "1")
  A ce moment, le réglage du décibelmètre doit être effectué.
  *2. Lorsque la touche REW est enfoncée, le mode d'essai 2 est alors commuté. (Indication FL "2")
  A ce moment, le réglage du BLE (400 Hz) doit être effectué.
  *3. Lorsque la touche STOP est enfoncée, le mode d'essai 3 est alors commuté. (Indication FL "3")
  A ce moment, le réglage du BLE (3 kHz) doit être effectué.
  *4. Lorsque la touche PLAY est enfoncée, le mode d'essai 4 est alors commuté. (Indication FL "4")
  A ce moment, le réglage du BLE (12 kHz) doit être effectué.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE et Mode d'essai 1 (*1)	Entrer le signal 315 Hz/–6 dBV (500 mV) sur la borne d'entrée de ligne LINE INPUT, spécifiez sur le mode d'essai et appuyez sur la touche REC.	REC LEVEL VR	LINE OUT	–6 dBV	Réglages du décibelmètre
			VR501	Décibelmètre canal G	Régler afin que 0 dB sur le décibelmètre clignote.	
			VR502	Décibelmètre canal D	Régler afin que 0 dB sur le décibelmètre clignote.	
2.	—	REC LEVEL VR MIN ou absence d'entrée de signal.	—	—	—	
3.	Mode d'essai 2 (*2)	Appuyez sur la touche REW.	VR401	Décibelmètre canal D	Régler afin que –3 dB sur le décibelmètre clignote.	Réglage à 400 Hz
4.	Mode d'essai 3 (*3)	Appuyez sur la touche STOP.	VR402		Régler afin que –3 dB sur le décibelmètre clignote.	Réglage à 3 kHz
5.	Mode d'essai 4 (*4)	Appuyez sur la touche PLAY.	VR403		Régler afin que –3 dB sur le décibelmètre clignote.	Réglage à 12 kHz
6.	Lorsque l'on appuie sur la touche RESET à nouveau, le mode d'essai est réalisé.					

5. AJUSTES

5.1 AJUSTES MECANISMO

1. Ajuste de velocidad de cinta

Modo	Punto de ajuste	Especificaciones
PLAY	Orificio de ajuste del motor de cabrestante (vea la Fig. 1)	Ajuste de modo que la frecuencia de reproducción sea 3000 ± 5 Hz al comienzo del bobinado de la cinta de prueba STD–301.
PLAY		Reproduzca nuevamente la cinta de prueba STD–301 y confirme que las especificaciones de arriba sea satisfechas.

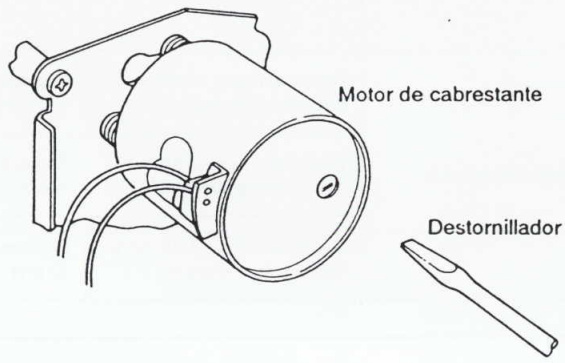


Fig. 1

2. Ajuste del amortiguador de puerta

Punto de ajuste	Especificaciones
Tornillo de ajuste de cilindro (vea la Fig. 2)	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).

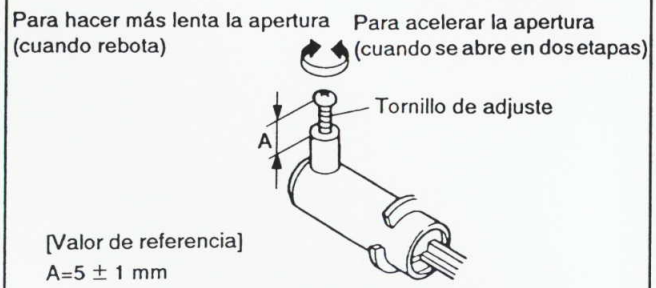


Fig. 2

3. Ajuste del azimut y movimiento de la cinta

N.	Modo	Punto de ajuste	Especificaciones
1	—	—	Inserte medio espejo en el lado A (fije los tornillos de delante).
2	PLAY	Tuerca de ajuste de altura (Consulte la figura 3.)	Reproduzca la cinta de arriba y ajústela de forma que no esté doblada en la sección guía de la cabeza. (Consulte la figura 4.)
3	PLAY	Tornillo de ajuste de azimut (Consulte la figura 3.)	Reproduzca la cinta de prueba **STD-331E** y ajústela de forma que el nivel de salida de 10 kHz sea el máximo, y que no exista diferencia de fase entre el canal izquierdo y el canal derecho.
4	Compruebe de nuevo el ítem 2 de arriba y ajuste si no se satisfacen las especificaciones. (Asegúrese de ajustar el ítem 3 después de haber ajustado el ítem 2.)		

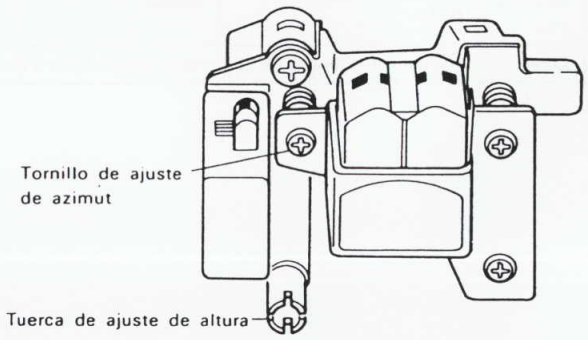


Figura 3.

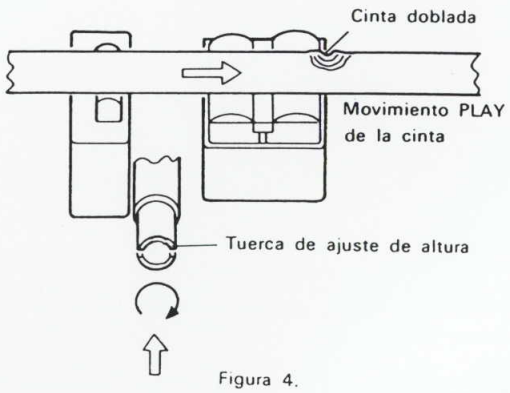


Figura 4.

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 47k 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–331E : Ajustes de reproducción (Consulte la figura 5–1)
STD–631 : Cinta virgen NORMAL
STD–621 : Cinta virgen de CrO_2
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 del oscillador de polarización
2. Ajuste del eliminador de polarización
3. Ajuste de la polarización de grabación
4. Ajuste del nivel de grabación
5. Ajuste del medidor de nivel y ajuste BLE

NOTA:
Esta unidad posee una función de selección automática de cinta.

* Como el nivel de grabación de referencia es igual a 250 nwb/m para el STD–331E, el nivel de grabación será 4 dB mayor para el STD–331B (160 nwb/m). Al realizar el ajuste, preste suma atención al tipo de cintá que se está utilizando.

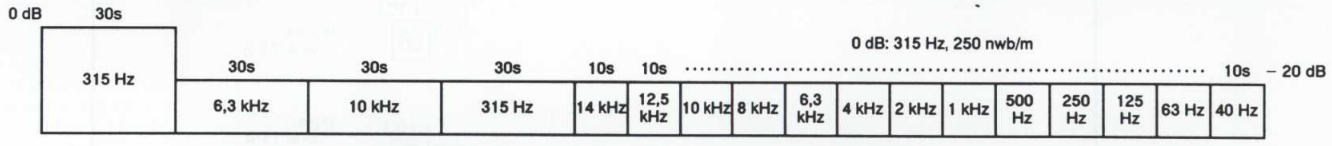


Figura 5–1 Constantes de la cinta de prueba STD–331E

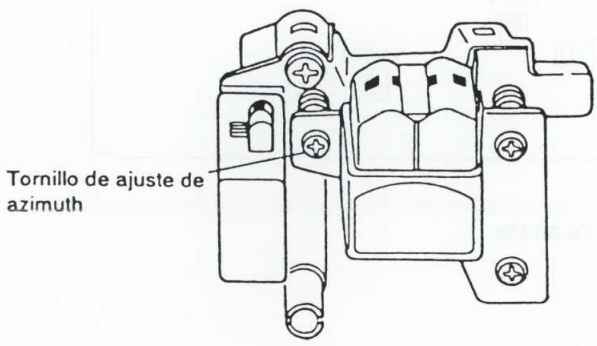


Figura 5–2 Zona de respuesta de frecuencia

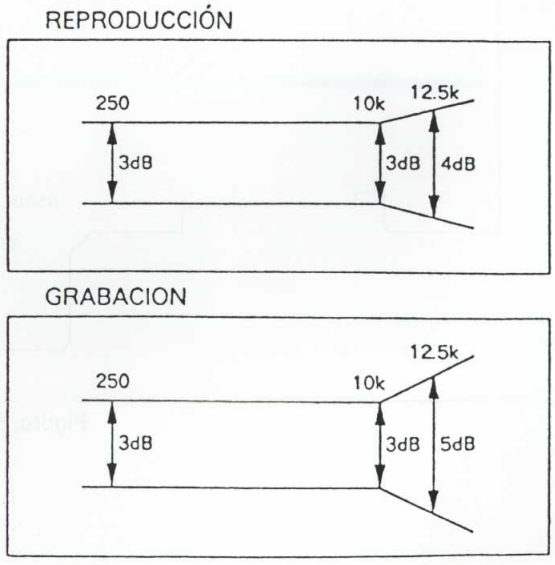


Figura 5–3 Ajuste de azimut de la cabeza

SECCIÓN DE REPRODUCCIÓN

1. Ajuste del azimut de la cabeza

- Poner VR101, 102 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–331E.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 5–2)	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 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–331E.	Platina	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	–6,7 dBV	Este ajuste debe efectuarse con precisión para lograr un buen reglaje del nivel Dolby.

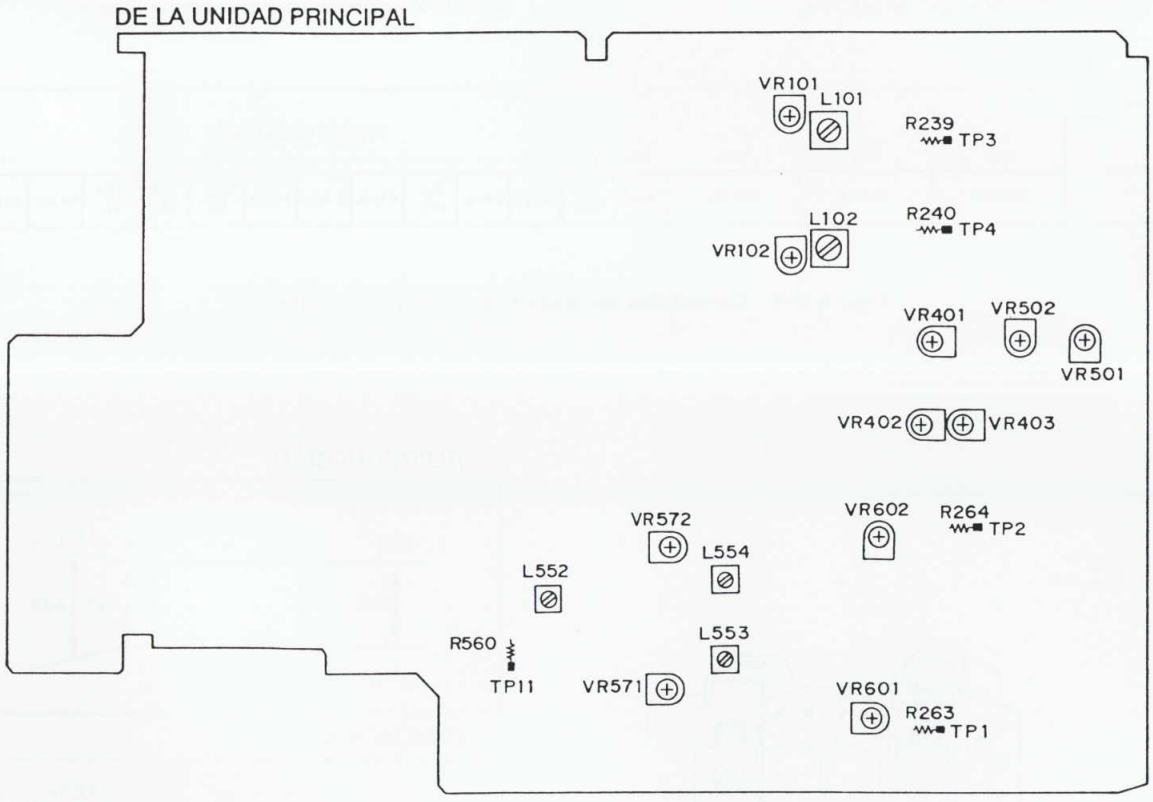


Figura. 5–4 Puntos de ajuste

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.	Platina	L552	TP. 11	105 kHz ± 300 Hz	

2. Adjuste del eliminador 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.	Platina	L101 (Lch) L102 (Rch)	LINE OUT	Salida mínima	

3. Ajuste de la polarización de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC/ PAUSE	Aplique una señal de 315 Hz/–20 dBV (dando una lectura de –20 UV en el medidor de volumen) a los terminales de entrada de línea, e inserte el casete STD–631.			LINE OUT		
2.		Grabe y reproduzca la señal de 315 Hz y una señal de 10 kHz a un nivel de entrada de –20 dBV.	Platina	VR571 (L) VR572 (R)		Grabe y reproduzca repetidamente, comparando los niveles de reproducción 315 Hz y 10 kHz, y ajuste a 0 ± 0,5 dB.	
3.	Verifique le valor de la distorsión una vez finalizado el ajuste y confirm e que no haya subpolarización.						

4. Ajuste del nivel de grabación

- Desconecte el interruptor DOLBY NR.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC/ PAUSE	Aplique la señal de 315 Hz/–4 dBV a la entrada line y cargue STD–631 (NORM).	Control de nivel de grabación.		TP. 1 (Lch) TP. 2 (Rch)	–11,2 dBV	
2.	REC → PLAY	Grabe y reproduzca la señal de 315 Hz/–4 dBV.	Platina	VR601 (Lch) VR602 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de repro–ducción sea de –11,2 dBV.	El ajuste de la polarización de grabación y el ajuste del nivel de grabación con STD–631 debe efectuarse con precisión para que sirva como referencial al ajuste BLE.
3.	REC → PLAY	Grabe la señal de 315 Hz/–4 dBV en STD–621 (CrO2) y reprodúzcala.	Verifique			–11,2 dBV ± 1,5 dB	
4.	REC → PLAY	Grabe la señal de 315 Hz/ –4 dBV en STD–610 (METAL) y reprodúzcala.	Verifique			–11,2 dBV ± 1,5 dB	

5. Ajuste del medidor de nivel y ajuste BLE

- El ajuste BLE debe efectuarse después de haber terminado todos los otros ajustes.
- Este ajuste debe efectuarse en el modo de prueba.

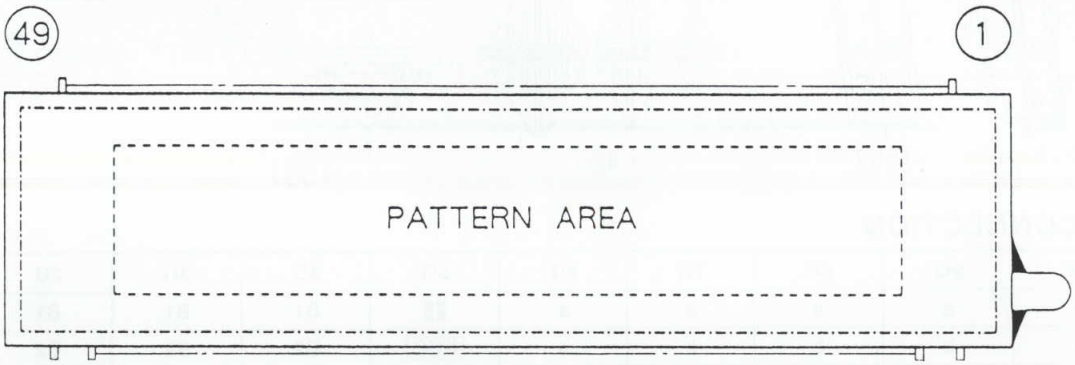
- **Cómo poner el modo de prueba**
  Pulse las teclas MODE (COUNTER), RANGE y Display ON/OFF del panel delantero simultáneamente, con la alimentación conectada.
  La unidad entrará en el modo de prueba y ocurrirá lo siguiente:
  *1. Cuando pulse la tecla REC, la unidad entrará en el modo de prueba 1. (indicación FL "1")
  Efectúe en este momento el ajuste del medidor de nivel.
  *2. Cuando pulse la tecla REW, la unidad entrará en el modo de prueba 2. (indicación FL "2")
  Efectúe en este momento el ajuste BLE (400 Hz).
  *3. Cuando pulse la tecla STOP, la unidad entrará en el modo de prueba 3. (indicación FL "3")
  Efectúe en este momento el ajuste BLE (3 kHz).
  *4. Cuando pulse la tecla PLAY, la unidad entrará en el modo de prueba 4. (indicación FL "4")
  Efectúe en este momento el ajuste BLE (12 kHz).

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE y Modo de prueba 1 (*1)	Introduzca la señal de 315 Hz/–6 dBV (500 mV) por el terminal LINE INPUT, ponga el modo de prueba y pulse luego la tecla REC.	REC LEVEL VR	LINE OUT	–6 dBV	Ajuste del medidor de nivel
			VR501	Canal izquierdo del medidor de nivel	Ajuste de modo que parpadee 0 dB en el medidor de nivel.	
			VR502	Canal derecho del medidor de nivel	Ajuste de modo que parpadee 0 dB en el medidor de nivel.	
2.	—	VR del nivel de grabación (REC LEVEL) mínimo o sin entrada de señal.	—	—	—	
3.	Modo de prueba 2 (*2)	Pulse la tecla REW.	VR401	Canal derecho del medidor de nivel	Ajuste de modo que parpadee –3 dB en el medidor de nivel.	Ajuste de 400 Hz
4.	Modo de prueba 3 (*3)	Pulse la tecla STOP.	VR402		Ajuste de modo que parpadee –3 dB en el medidor de nivel.	Ajuste de 3 kHz
5.	Modo de prueba 4 (*4)	Pulse la tecla PLAY.	VR403		Ajuste de modo que parpadee –3 dB en el medidor de nivel.	Ajuste de 12 kHz
6.	Cuando pulse de nuevo la tecla RESET, se cancelará el modo de prueba.					

6. FL INFORMATION

● RAW1109 (For HEM and HB types) RAW1110 (For SD type)

Note: RAW1109 and RAW1110 have the same pattern except for the color of illumination.



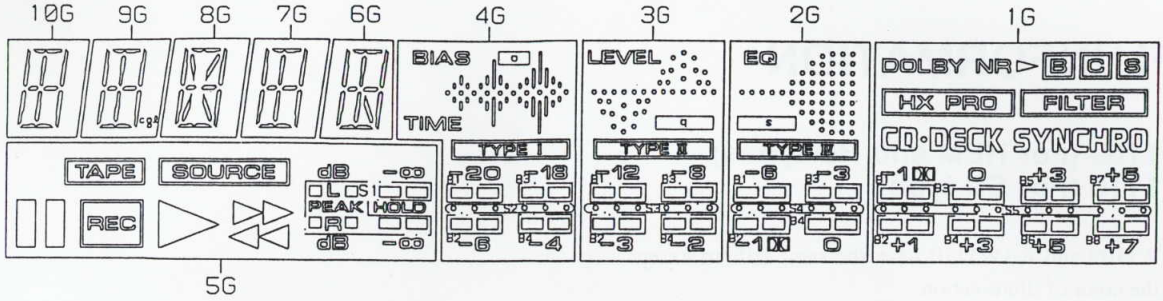
PIN CONNECTION

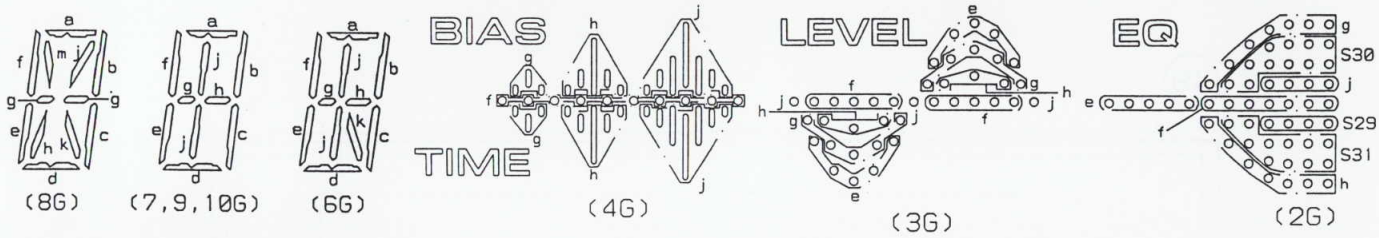
PIN NO.	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25
CONNECTION	F1	F1	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	P22	P21	P20	P19	P28	P27	P26	P25	P24	P23	P31	P30

PIN NO.	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	P29	NC	P18	P17	P16	P15	P14	P13	P1	P19	P2	P6	P8	P7	P5	P3	P10	P11	P4	P12	NP	NP	F2	F2

Note: 1) F1, F2 ····· Filament
2) NP····· No pin
3) NC ····· No connection
4) 1G to 10G ··· Grid

CT-S610





ANODE CONNECTION

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	▮▮	B1	B1	B1	B1
P2	b	b	b	b	b	REC	B2	B2	B2	B2
P3	c	c	c	c	c	▶	B3	B3	B3	B3
P4	d	d	d	d	d	◀◀	B4	B4	B4	B4
P5	e	e	e	e	e	▶▶	TIME	e	e	B5
P6	f	f	f	f	f	–	f	f	f	B6
P7	g	g	g	g	g	TAPE	g	g	g	B7
P8	h	h	h	h	h	SOURCE	h	h	h	B8
P9	j	j	j	j	j	HOLD	j	j	j	CD·DECK SYNCHRO
P10	–	–	k	–	k	dB –∞ (Upper)	–20 –18	–12 –8	–6 –3	–1 0 +3 +5
P11	–	□ (col)	m	–	–	dB –∞ (Lower)	–6 –4	–3 –2	–1 0	+1 +3 +5 +7
P12	–	–	–	–	–	–	S2	S3	S4	S5
P13	–	–	–	–	–	S1	–	–	–	–
P14	–	–	–	–	–	–	BIAS	–	–	–
P15	–	–	–	–	–	–	o	–	–	–
P16	–	–	–	–	–	–	–	LEVEL	–	–
P17	–	–	–	–	–	–	–	q	–	–
P18	–	–	–	–	–	–	–	–	EQ	–
P19	–	–	–	–	–	–	–	–	s	–
P20	–	–	–	–	–	–	TYPE I	–	–	–
P21	–	–	–	–	–	–	–	TYPE II	–	–
P22	–	–	–	–	–	–	–	–	TYPE IV	–
P23	–	–	–	–	–	–	–	–	–	DOLBY NR▷
P24	–	–	–	–	–	–	–	–	–	B
P25	–	–	–	–	–	–	–	–	–	C
P26	–	–	–	–	–	–	–	–	–	S
P27	–	–	–	–	–	–	–	–	–	HX PRO
P28	–	–	–	–	–	–	–	–	–	FILTER
P29	–	–	–	–	–	–	–	–	S29	–
P30	–	–	–	–	–	–	–	–	S30	–
P31	–	–	–	–	–	–	–	–	S31	–

7. FOR CT–S610/HB, SD AND CT–S610–G/HEM TYPES

CONTRAST OF MISCELLANEOUS PARTS

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 "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable

CT–S610/HB, SD, CT–S610–G/HEM and CT–S610/HEM have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		CT–S610/ HEM type	CT–S610/ HB type	CT–S610/ SD type	CT–S610–G /HEM type	
⊙	Mother unit	RWM1499	RWM1520	RWM1519	RWM1499	
	├PWSW unit	Non supply	Non supply	Non supply	Non supply	
	└TRN 1 unit	Non supply	Non supply	Non supply	Non supply	
⊙	SUBB unit	RWX1060	RWX1060	RWX1061	RWX1060	
⚠	AC power cord	PDG1003	PDG1036	PDG1013	PDG1003	
	Wrapping cover	.....	.....	Non supply	.....	Cover for voltage selector
⚠	Voltage selector (AC110/120–127/220/240V)	.....	.....	PSB1002	.....	
⚠	T1 Power transformer (AC220–230/230–240V)	RTT1160	RTT1160	.....	RTT1160	
⚠	T1 Power transformer (AC110/120–127/220/240V)	.....	.....	RTT1173	.....	
	FL filter	RAH1542	RAH1542	RAH1838	RAH1542	
	VR knob (REC LEVEL)	RAC1363	RAC1363	RAC1363	.....	
	VR knob assembly (A) (REC LEVEL)	.....	.....	.....	RXA1367	
	Power button	RAC1410	RAC1410	RAC1410	RAC1697	
	Function knob	RAC1411	RAC1411	RAC1411	RAC1698	
	Push knob	RAC1413	RAC1413	RAC1413	RAC1699	
	Knob (B)	RAC1414	RAC1414	RAC1414	RAC1700	
	Mode knob	RAC1552	RAC1552	RAC1552	RAC1681	
	Slide SW knob	RAC1562	RAC1562	RAC1562	RAC1540	
	Door	RAH1991	RAH1991	RAH1991	RAH1990	
	VR ring	RAT1007	RAT1007	RAT1007	RAT1003	
	Side rubber	REB1094	REB1094	REB1094	REB1145	
	Panel stay	RNT1134	RNT1134	RNT1134	RNT1135	
	Knob (B) assembly	RXA1430	RXA1430	RXA1430	RXA1469	
	Bonnet	RXX1378	RXX1378	RXX1378	RXX1475	
	Front panel assembly	RXX1465	RXX1465	RXX1465	RXX1464	
	Packing case	RHG1319	RHG1319	RHG1319	RHG1318	
	Operating instructions (German/Italian/Dutch/Swedish/ Spanish/Portuguese)	RDD1118	.....	.....	RDD1118	
	Operating instructions (Spanish)	.....	.....	RRD1119	.....	

PWSW UNIT
Although PWSW unit of CT–S610/SD and PWSW unit of CT–S610/HEM are different in part number, they have the same service parts.
PWSW unit of CT–S610–G/HEM is the same as that of CT–S610/HEM.

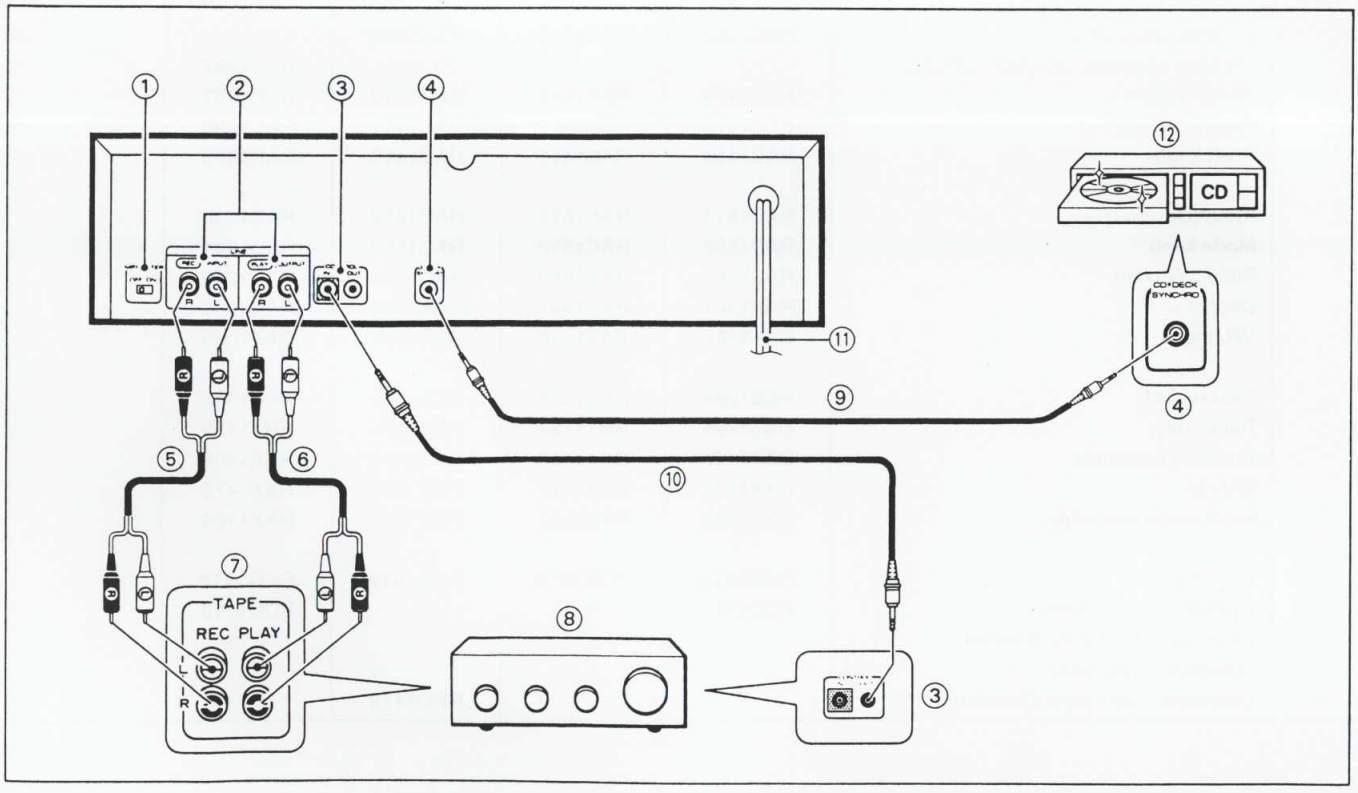
TRN 1 UNIT
Although TRN 1 unit of CT–S610/HB, SD and TRN 1 unit of CT-S610/HEM are different in part number, they have the same service parts.
TRN1 unit of CT–S610–G/HEM is the same as that of CT–S610/HEM.

SUBB UNIT (RWX1061)
RWX1061 and RWX1060 have the same construction except for the following:

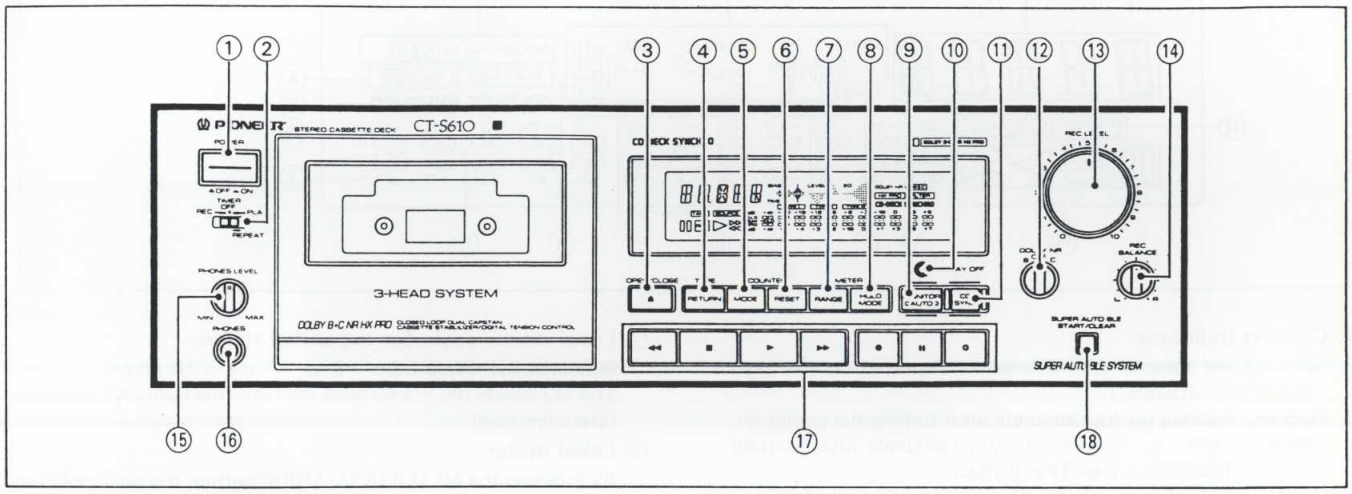
Mark	Symbol & Description	Part No.		Remarks
		RWX1060	RWX1061	
	V2101	RAW1109	RAW1110	

8. CONNECTIONS

① MPX FILTER switch
② LINE INPUT (REC)/OUTPUT (PLAY) jacks
③ CONTROL IN/OUT jacks
④ CD•DECK SYNCHRO jack
⑤ Recording connection cord
⑥ Playback connection cord
⑦ TAPE REC/PLAY jacks
⑧ Stereo Amplifier
⑨ CD•DECK SYNCHRO control cord
⑩ Control cord
⑪ Power cord
⑫ Compact Disc Player



9. PANEL FACILITIES



① **Power switch (POWER ■ OFF/ ▬ ON)**

② **Timer mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)**

③ **Open/close button (OPEN/CLOSE ⏏)**

Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.

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.

④ **Tape return button (TAPE RETURN)**

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

⑤ **Counter mode button (COUNTER MODE)**

Each time this button is pressed, one of the two mode (Normal tape counter/Time counter) is set in sequence.

⑥ **Counter reset button (COUNTER RESET)**

Reset the counter indication to "0000."

⑦ **Level meter range selector button (METER RANGE)**

Selects wide or expanded range for the level meter.

⑧ **Level meter hold mode button (METER HOLD MODE)**

Selects the display mode of the peak level.

When press this button so that the HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

⑨ **Monitor selector button (MONITOR [AUTO])**

Used to monitor the source sound or just recorded sound during recording.

- When the unit is set to record or playback mode, the TAPE indicator light up and the monitor mode is automatically selected.

⑩ **Display off button (DISPLAY OFF)**

Press this button to turn off the function display.

⑪ **CD•DECK SYNCHRO recording button (CD SYNC)**

⑫ **DOLBY* NR switch (B/OFF/C)**

*

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

⑬ **Recording level control (REC LEVEL)**

⑭ **Recording balance control (REC BALANCE)**

⑮ **Headphones level control (PHONES LEVEL)**

⑯ **Headphones jack (PHONES)**

⑰ **Operation buttons**

◀◀: Rewind/music search
■ : Stop
▶ : Playback
▶▶: Fast forward/music search
● : Recording
❚❚ : Pause
○ : Recording mute

⑱ **SUPER AUTO BLE button (START/CLEAR)**

ATLC (Automatic Tape Loose Canceler)

With the tape slack prevention function, when the cassette door closes, the take-up reel automatically revolves to eliminate any tape slack.

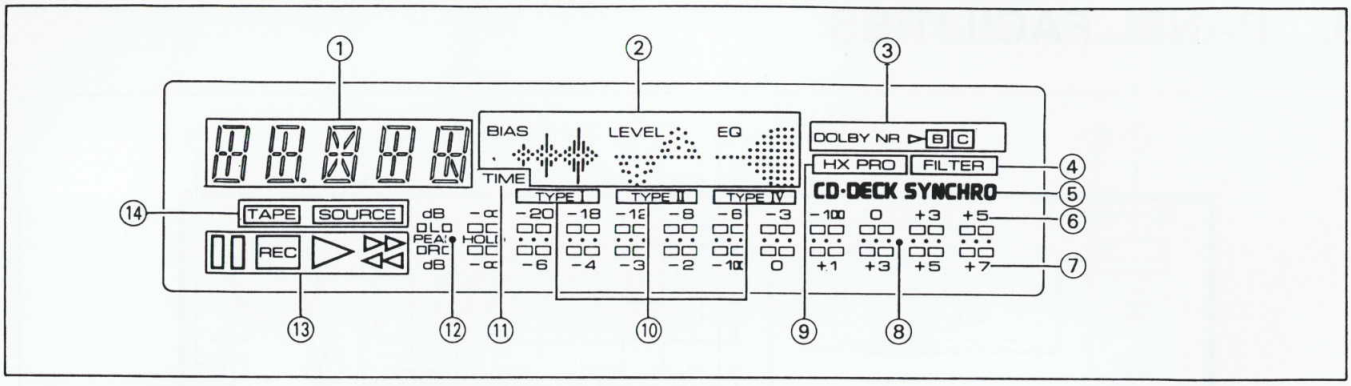
SUPER AUTO BLE

With commercially available cassette tapes, sensitivity and frequency characteristics might differ slightly from one another, even though the same sound adjustment is set for them. To utilize tape characteristics to the maximum possible and realize an ideal recording which reproduces the source exactly, optimum recording level (sensitivity) and equalizer values must be set accordingly for each tape. In many conventional tape decks, standard values are fixed for standard tapes, thus nullifying the subtle differences between individual tapes. Perfect tuning by ear through use of fine adjustment controllers for bias and sensitivity is difficult and requires a lot of effort.

The AUTO BLE on this unit automatically adjusts bias, level and equalizer by using a microprocessor to set the optimum recording characteristics accordingly for each tape.

The recording bias is adjusted with 3 steps at 12 kHz. The recording level is adjusted with 16 steps at 400 Hz. The recording equalizers are adjusted with 16 steps at 3 kHz and with 16 steps at 12 kHz.

CT-S610



① **Counter indicator**

Normally the tape or time counter is displayed number (see "COUNTER MODES").

POWER: Flashes for four seconds after turning the power on.

TIMER: Lights for approximately 10 seconds after starting TIMER PLAY or TIMER REC.
Immediately returns to normal counter mode if any button is pressed while lighted.
Otherwise, returns to normal counter mode after 10 seconds.

P+XX/P−XX:
Will be displayed during music search.
A plus sign (+) appears in the second digit during forward direction search.
A minus sign (−) appears in the second digit during reverse direction search.
The last two digits show the number of selections to be skipped.

R: Flashes "R" on the fifth digit during the tape rewinding in the repeat playback mode.

During AUTO BLE tuning, indicates STRT, BIAS, LEVEL, EQ, TUNED or Error

② **AUTO BLE indicator**

③ **DOLBY B/C NR indicator**

④ **MPX filter indicator (FILTER)**

Light when the MPX FILTER switch on the rear panel is set to ON position.

⑤ **CD•DECK SYNCHRO indicator**

Lights when synchro recording from a CD player is being carried out.

⑥ **Level meter scale for wide range**

Indicates the levels from −20 to +5 dB in 10 steps.
The ▯▯ beside the −1 dB marks indicates the Dolby NR systems reference level.

⑦ **Level meter scale for expanded range**

Indicates the levels from −6 to +7 dB in 10 steps.
The ▯▯ beside the −1 dB mark indicates the Dolby NR systems reference level.

⑧ **Level meter**

By pressing the METER HOLD MODE button, the peak hold for about 1.2 second or continuation can be set for the level meter.
By pressing the METER RANGE button, wide or expanded range can be set for the level meter.

⑨ **HX PRO indicator**

⑩ **Tape type indicators**

Indicates the tape type in accordance with the loaded cassette.

⑪ **TIME counter indicator**

Lights up in the time counter mode.

⑫ **PEAK HOLD indicator**

Lights when the level meter is set in the peak hold mode.

⑬ **Tape transport mode indicators**

▷: Lights during playback, playback pause and recording modes. Flashes during music search.

▯▯: Lights during pause modes.

◀◀: Lights during rewind.

▶▶: Lights during fast forward.

REC: Lights during recording and recording pause (standby) modes. Flashes during recording mute.

⑭ **Monitor source indicators**

TAPE: Recorded sound

SOURCE: Original source sound

10. SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads
Recording/playback head:
Combined Hard permalloy recording/Hard permalloy playback head × 1
Erasing head: Ferrite head × 1
Motor ..... DC servo capstan motor × 1
DC reel motor × 1
DC assist motor × 1
Wow and Flutter ..... No more than 0.023% (WRMS)
No more than ±0.056% (DIN)
Fast Winding Time ..... Approximately 90 seconds (C-60 tape)

Frequency Response
(−20 dB recording: ±6 dB)
TYPE IV (Metal) tape ..... 15 to 21,000 Hz
TYPE II (Chrome) tape ..... 15 to 20,000 Hz
TYPE I (Normal) tape ..... 15 to 20,000 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% (at −4 dB: 160 nwb/m)
Input (Sensitivity)
LINE (INPUT) ..... 100 mV (Input impedance 54 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 3.2 kΩ)
Headphone ..... 3.4 mW
(Load impedance 8 Ω, PHONES LEVEL control max.)

Subfunctions

- Super AUTO BLE system
- Dolby HX Pro Headroom Extension system
- Dolby B-type and C-type noise reduction systems
- MPX filter
- Level meter with 2 modes peak hold selection (10 + 1 segments)
- Level meter range selection (wide/expanded)
- 4-digit electronic tape counter with mode selection (Normal/Time)
- Auto monitor selection (Tape/Source)
- Display off
- Music search (over ±15 selections)
- Automatic Tape Loose Canceller (ATLC)
- Tape return/return play
- Auto space recording mute
- Auto tape selector
- Playback/recording timer start function
- CD•DECK SYNCHRO recording
- Headphones jack with level control
- Power eject (Open/Close)
- Repeat playback
- System remote control available

Miscellaneous

Power Requirements
European model ..... AC 220−230 Volts~, 50/60 Hz
U.K. model ..... AC 230−240 Volts~, 50/60 Hz
Multi-voltage model ..... AC 110/120−127/220/240 V (switchable), 50/60 Hz
Power Consumption
CT-S610 ..... 21W
Dimensions
CT-S610 ..... 420(W) × 127.5(H) × 323(D) mm
Weight (without package)
CT-S610 ..... 6.0 kg

Accessories

Operating instructions 1
Connection cord with pin plugs 2
CD•DECK SYNCHRO control cord 1
Remote control cord 1

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