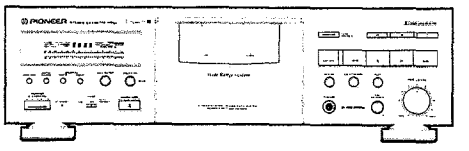
PIONEER®
The Art of Entertainment

PION-04487

Service Manual



• The above illustration shows CT-S640S.

ORDER NO.
RRV1298

STEREO CASSETTE DECK

CT-S640S
CT-S540S
CT-S540S-G

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model			Power Requirement	The voltage can be converted by the following method.
	CT-S640S	CT-S540S	CT-S540S-G		
HEM	○	○	○	AC220 – 230V	AC230 – 240V, *
HEWM	○	○	—	AC220 – 230V	AC230 – 240V, *
HBW	○	—	—	AC230 – 240V	AC220 – 230V, *

* : Alter the wiring of the Power-supply block at the primary winding of power transformer referring to the "Line Voltage Selection" described in Service Manual.

CONTENTS

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1. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts marked by "NSP" 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 parts. 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 EXTERIOR

■ CONTRAST OF CT-S640S/HEM, HEWM, HBW, CT-S540S/HEM, HEWM AND CT-S540S-G/HEM

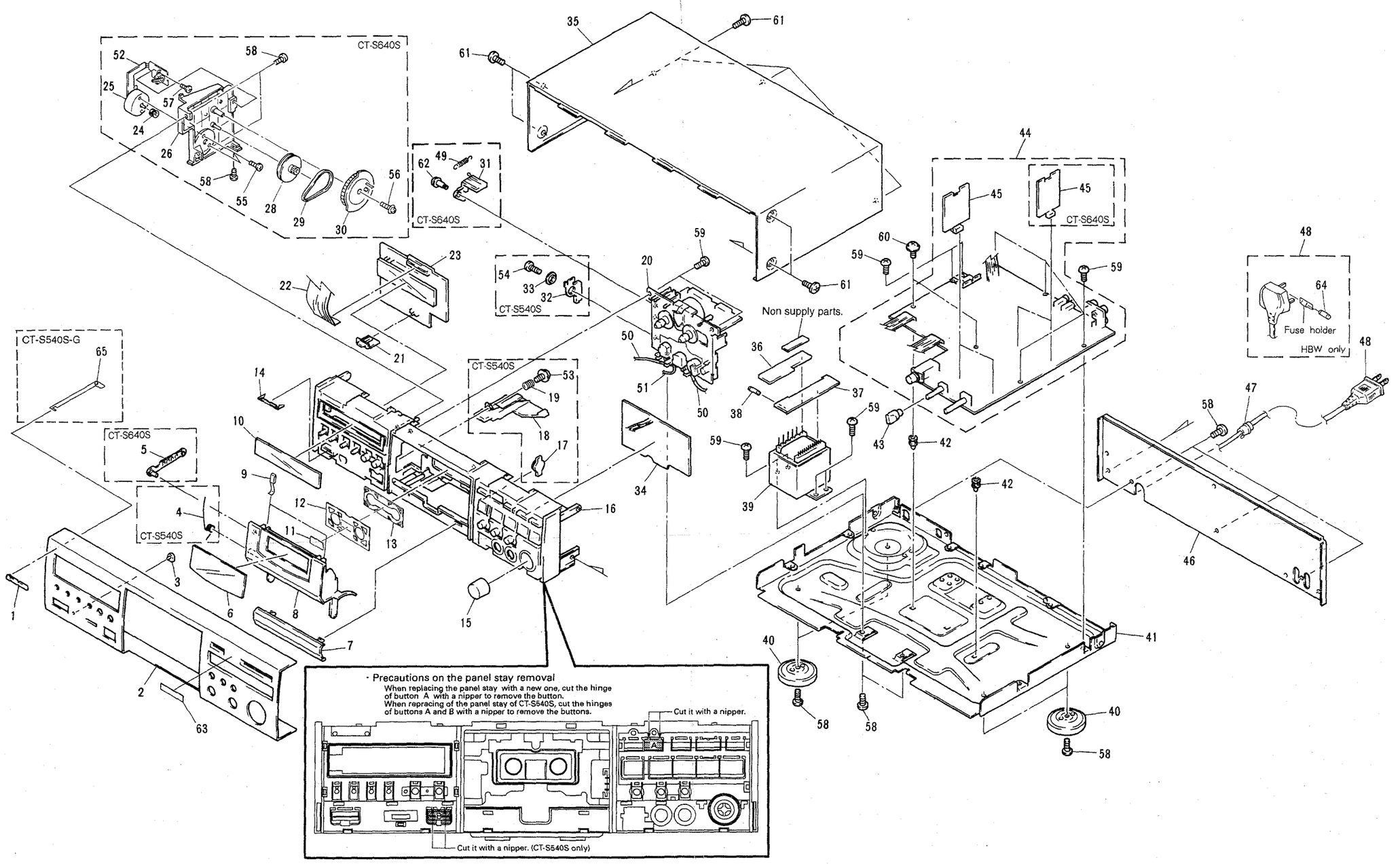
CT-S640S/HEM, HEWM, HBW, CT-S540S/HEM, HEWM and CT-S540S-G/HEM have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.						Remarks
			CT-S640S/ HEM	CT-S640S/ HEWM	CT-S640S/ HBW	CT-S540S/ HEM	CT-S540S HEWM	CT-S540S-G/ HEM	
	44	MAIN UNIT	RWZ3517	RWZ3517	RWZ3517	RWZ3516	RWZ3516	RWZ3516	
	23	FL UNIT	RWZ3525	RWZ3525	RWZ3525	RWZ3535	RWZ3535	RWZ3535	
NSP	52	POCM UNIT	RWZ3541	RWZ3541	RWZ3541	Not Used	Not Used	Not Used	
NSP	20	MECHANISM UNIT	RYM1251	RYM1251	RYM1251	RYM1224	RYM1224	RYM1224	
	62	Screw (STEEL)	PBA-125	PBA-125	PBA-125	Not Used	Not Used	Not Used	
	29	Rubber belt	PEB1127	PEB1127	PEB1127	Not Used	Not Used	Not Used	
	24	Motor pulley	PNW1634	PNW1634	PNW1634	Not Used	Not Used	Not Used	
	25	DC motor/0.75W	PXM1010	PXM1010	PXM1010	Not Used	Not Used	Not Used	
	18	Eject knob	Not Used	Not Used	Not Used	RAC1999	RAC1999	RAC2000	
	2	Front panel	RAH2559	RAH2559	RAH2559	RAH2560	RAH2560	RAH2561	
	8	Door pocket	RAH2563	RAH2563	RAH2563	RAH2564	RAH2564	RAH2566	
	7	Azimuth cover	RAH2567	RAH2567	RAH2567	RAH2568	RAH2568	RAH2569	
	49	Ratchet spring	RBH1008	RBH1008	RBH1008	Not Used	Not Used	Not Used	
	19	Eject spring	Not Used	Not Used	Not Used	RBH1425	RBH1425	RBH1425	
	4	Door spring	Not Used	Not Used	Not Used	RBH1421	RBH1421	RBH1421	
	17	Domper assy	Not Used	Not Used	Not Used	REC1005	REC1005	REC1005	
NSP	33	Arm collar	Not Used	Not Used	Not Used	RLA1124	RLA1124	RLA1124	
	46	Rear panel	RNA1952	RNA1952	RNA1953	RNA1954	RNA1954	RNA1955	
NSP	32	Eject arm	Not Used	Not Used	Not Used	RNE1597	RNE1597	RNE1597	
	28	Pulley gear	RNK1517	RNK1517	RNK1517	Not Used	Not Used	Not Used	
	5	Joint	RNK1895	RNK1895	RNK1895	Not Used	Not Used	Not Used	
	30	Cam gear	RNK1896	RNK1896	RNK1896	Not Used	Not Used	Not Used	
	31	SW lever	RNK1897	RNK1897	RNK1897	Not Used	Not Used	Not Used	
	26	Loading base assy	RXA1548	RXA1548	RXA1548	Not Used	Not Used	Not Used	
	1	Name plate	PAM1608	PAM1608	PAM1608	PAM1608	PAM1608	RAN1016	
	43	Balance knob	RAC1705	RAC1705	RAC1705	RAC1705	RAC1705	RAC1742	
	15	VR knob	RAC1707	RAC1707	RAC1707	RAC1707	RAC1707	RAC1708	
	21	Slide knob	RAC1713	RAC1713	RAC1713	RAC1713	RAC1713	RAC1915	
	35	Bonnet	REA1192	REA1192	REA1192	REA1192	REA1192	REA1193	
	16	Panel stay	REA1196	REA1196	REA1196	REA1196	REA1196	REA1198	
⚠	48	AC power cord	PDG1003	PDG1003	PDG1055	PDG1003	PDG1003	PDG1003	
⚠	64	Fuse (T5A)	Not Used	Not Used	PEK1003	Not Used	Not Used	Not Used	
	53	Screw	Not Used	Not Used	Not Used	IBZ30P060FCC	IBZ30P060FCC	IBZ30P060FCC	
	54	Screw	Not Used	Not Used	Not Used	BCZ26P050FMC	BCZ26P050FMC	BCZ26P050FMC	
	65	Earth band	Not Used	Not Used	Not Used	Not Used	Not Used	RNE1852	
	61	Screw	BBZ30P080FZK	BBZ30P080FZK	BBZ30P080FZK	BBZ30P080FZK	BBZ30P080FZK	BBZ30P080FNI	

■ PARTS LIST FOR CT-S640S/HEM

Mark	No.	Description	Parts No.
	1	Name plate	PAM1608
	2	Front panel	RAH2559
	3	LED lens	PNW2019
	4	·····	
	5	Joint	RNK1895
	6	Door lens	RAH2570
	7	Azimuth cover	RAH2567
	8	Door pocket	RAH2563
	9	Half pressure spring	RBK1004
	10	FL lens	RAH2558
	11	Remain display paper	REE-113
	12	Stabilizer panel	RAH1483
	13	Stabilizer B	REB1085
	14	Power cap	RAC1998
	15	VR knob	RAC1707
	16	Panel stay	REA1196
	17	·····	
	18	·····	
	19	·····	
NSP	20	MECHANISM UNIT	RYM1251
	21	Slide knob	RAC1713
	22	Lead card 29P	RDD1335
	23	FL UNIT	RWZ3525
	24	Motor pulley	PNW1634
	25	DC motor 10.75W	PXM1010
	26	Loading base assy	RXA1548
	27	·····	
	28	Pulley gear	RNK1517
	29	Rubber belt	PEB1127
	30	Cam gear	RNK1896
	31	SW lever	RNK1897
	32	·····	
	33	·····	
	34	OPSW UNIT	RWZ3521
	35	Bonnet	REA1192
NSP	36	TRN 1 PCB	RNZ2829
NSP	37	TRN 2 UNIT	RWZ3537
⚠	38	Fuse (T 1.25A)	AEK1055
⚠	39	Power transformer	RTT1287
	40	Insulator	PNW1912
NSP	41	Main chassis	RNB1113
	42	Spacer	RNY-404
	43	Balance knob	RAC1705
	44	MAIN UNIT	RWZ3517
	45	DOLBY S UNIT	RWX1111
	46	Rear panel	RNA1952
⚠	47	Strain relief	CM-22B
⚠	48	AC power cord	PDG1003
	49	Ratchet spring	RBH1008
	50	Connector assy 3P	RKP1673
	51	Connector assy 2P	RKP1681
NSP	52	POCM UNIT	RWZ3541
	53	·····	
	54	·····	
	55	Screw	BMZ26P040FMC
	56	Screw	IPZ26P080FMC
	57	Screw	BBZ26P060FMC
	58	Screw	BBZ30P080FCC
	59	Screw	BBZ30P060FCC
	60	Screw	IBZ30P150FCC
	61	Screw	BBZ30P080FZK
	62	Screw	PBA-125
	63	Getter	RAX1026

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.



1.2 MECHANISM UNIT (RYM1251 and RYM1224)

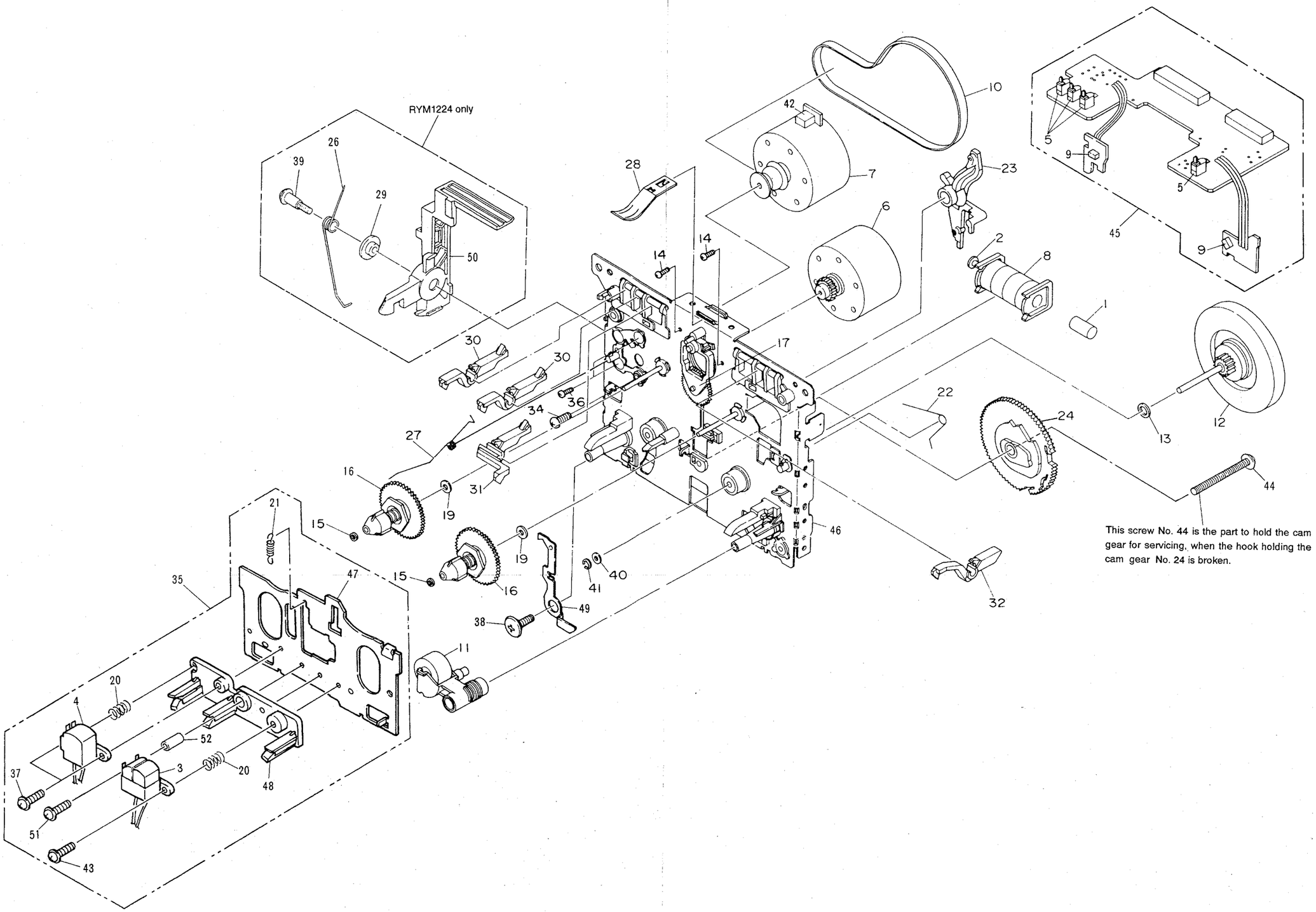
■ CONTRAST OF RYM1251 and RYM1224

RYM1251 and RYM1224 have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.		Remarks
			RYM1251	RYM1224	
	26	Lever SP (L) (Eject)	Not Used	RBH1262	
	29	Lever Collar B	Not Used	RLA1146	
	39	Screw	Not Used	RBA1078	
	50	Lever (L) (Eject)	Not Used	RNK1593	

■ PARTS LIST FOR RYM1251

Mark	No.	Description	Parts No.
	1	Fixed core	RLA1130
	2	Planger	RLA1132
	3	Head (R/P)	RPB1047
	4	Head (E)	RPB1040
	5	Push SW	RSG1018
	6	MTR rael BLK	RXM1057
	7	MTR main BLK	RXM1058
	8	Solenoid BLK	RXP1010
	9	Photo – transistor	SPI33534FG
	10	Main belt	REB1163
	11	Pinch roller assy	RXA1183
	12	F/W assy	RXA1346
	13	Washer	WA26D045D025
	14	Screw 2.6 x 6.4 ZN	RBA1076
	15	Washer	RBF – 057
	16	Reel base BLK	RXA1184
	17	Idler BLK	RXA1248
	18	.....	
	19	Washer	RBF1038
	20	Azimuth SP	RBH1076
	21	Haed base SP	RBL1003
	22	Slide SP	RBH1239
	23	Play arm	RNK1525
	24	Cam gear (3R)	RNK1672
	25	.....	
	26	.....	
	27	Eject prevention spring (L)	RBH1234
	28	Spring cassette	RBK1048
	29	.....	
	30	Detector lever (REC)	RNK1527
	31	Metal detector lever (L)	RNK1529
	32	Detector lever (P)	RNK1543
	33	.....	
	34	Screw	RBA1101
	35	Plate HD BLK	RXA1488
	36	Screw	PMA26P050FMC
	37	F lock screw	RBA1031
	38	Screw (7.7)	RBA1048
	39	.....	
	40	Washer	WA26D047D050
	41	Washer	YE15FUC
	42	Holder cushion (L)	RED1027
	43	F lock screw	RBA1102
	44	Screw	RBA1068
	45	PCB control BLK	RXA1487
	46	Chassis base BLK	RXA1557
	47	Head base	RNE1390
	48	Head spacer	RNK2106
	49	Eject prevention arm (L)	RNE1199
	50	.....	
	51	Screw	PMZ20P080FMC
	52	Spacer	RLA1275


RYM1224 only
This screw No. 44 is the part to hold the cam gear for servicing, when the hook holding the cam gear No. 24 is broken.

2. PACKING AND PARTS LIST

NOTES:

- Parts marked by "NSP" 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 parts. 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.

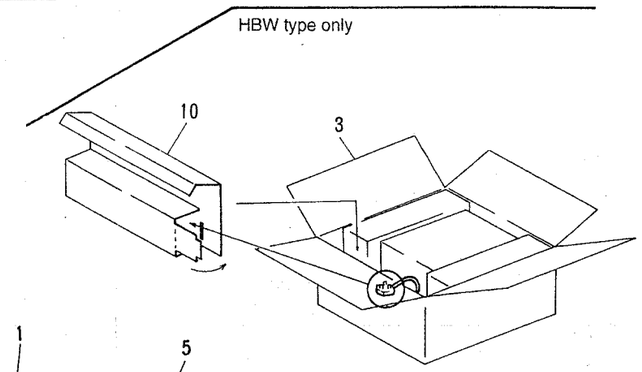
■ CONTRAST OF CT-S640S/HEM, HEWM, HBW, CT-S540S/HEM, HEWM AND CT-S540S-G/HEM

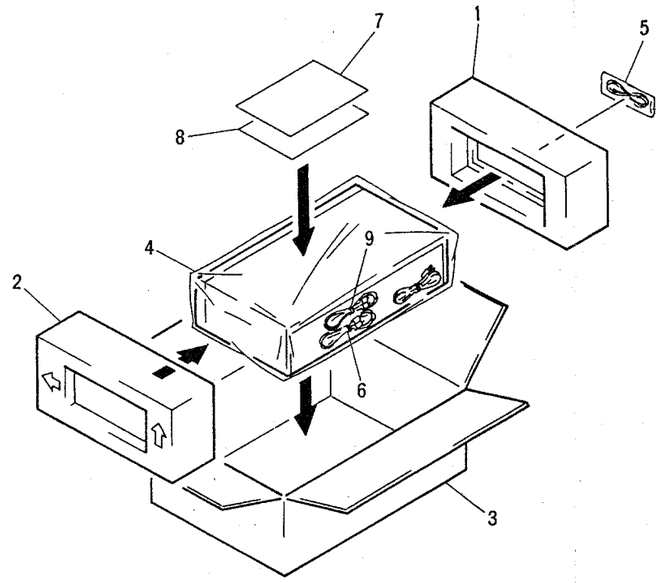
CT-S640S/HEM, HEWM, HBW, CT-S540S/HEM, HEWM and CT-S540S-G/HEM have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.						Remarks
			CT-S640S/ HEM	CT-S640S/ HEWM	CT-S640S/ HBW	CT-S540S/ HEM	CT-S540S HEWM	CT-S540S-G/ HEM	
	3	Packing case (PAPER)	RHG1670	RHG1670	RHG1671	RHG1672	RHG1672	RHG1673	
	10	Rear spacer (PAPER)	Not Used	Not Used	RHC1060	Not Used	Not Used	Not Used	
	7	Operating instructions (French/German/Italian/Dutch/ Swedish/Portuguese)	RRD1165	Not Used	Not Used	RRD1165	Not Used	RRD1165	

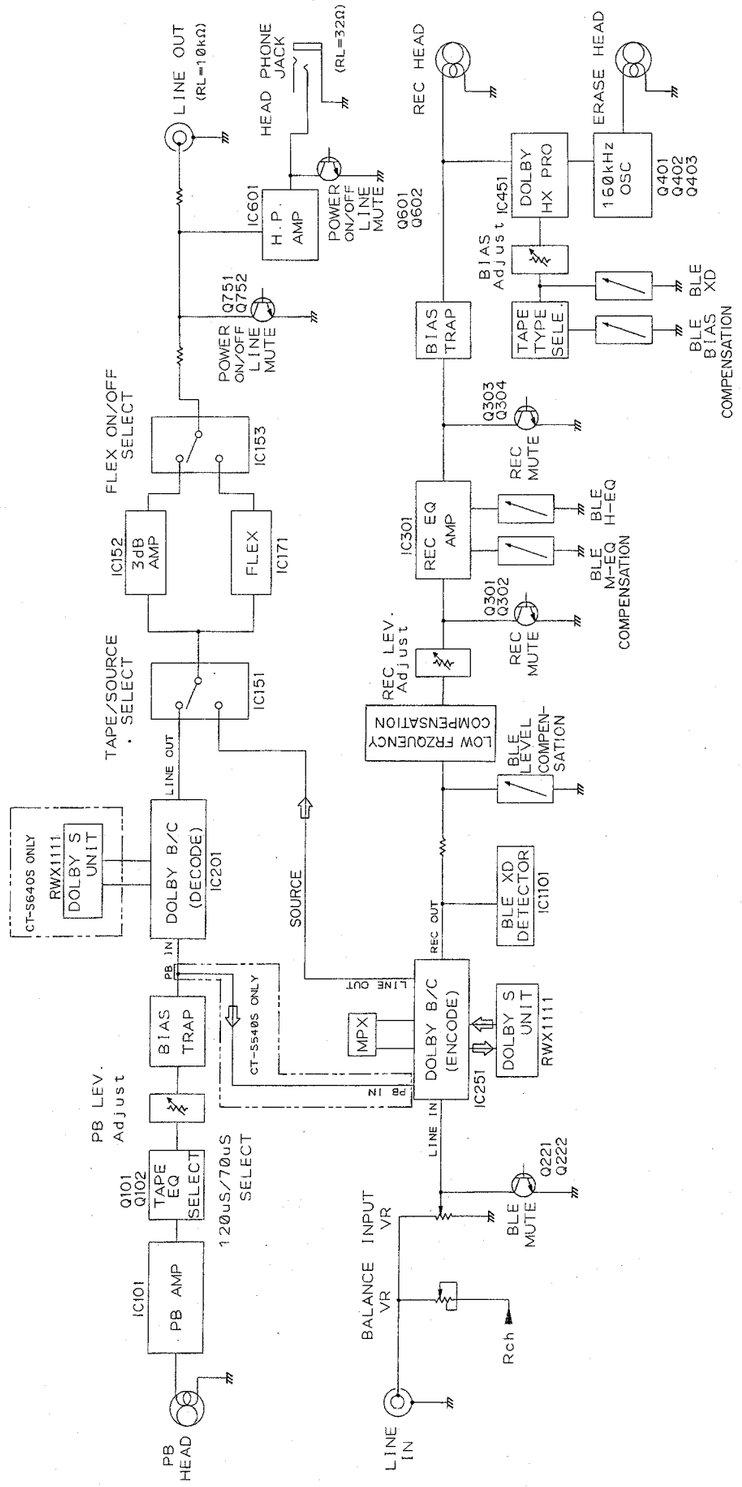
■ PARTS LIST FOR CT-S640S/HEM

Mark	No.	Description	Parts No.
	1	Pad (L)	RHA1174
	2	Pad (R)	RHA1175
	3	Packing case	RHG1670
	4	Sheet	RHX-034
	5	Connection cord assy	RDE1026
	6	Control cord	RDE1038
	7	Operating instructions (French/German/Italian/ Dutch/Swedish/Portuguese)	RRD1165
	8	Operating instructions (English/Spanish)	RRE1120
	9	Cord with mini plug	PDE1247





3. BLOCK DIAGRAM



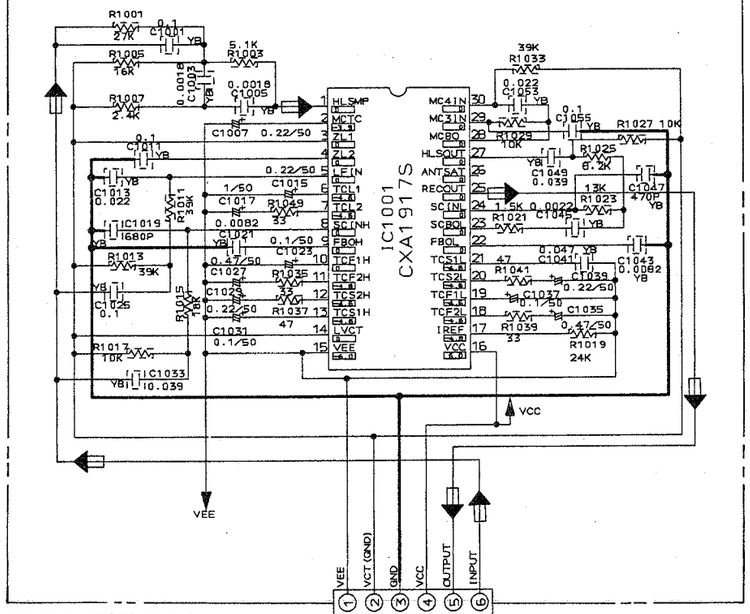
⇧ : On signals when a Dolby S sound is played back using CT-S540S
- When a Dolby S sound is played back using CT-S540S, signals are output to LINE OUT via the encoder side Dolby IC.
  And a Dolby S sound is recorded and played back using CT-S540S, a simultaneous playback sound (tape) becomes a Dolby B sound.

4. SCHEMATIC AND PCB CONNECTION DIAGRAMS

SIGNAL ROUTE
➡ : ENCODE SIGNAL ROUTE

SCH-1

DOLBY S UNIT(RWX1111) · CT-S640S have four DOLBY S unit. CT-S540S have two DOLBY S unit.



TO MAIN UNIT
CN201A,CN202A
CN251A,CN252A
(⟶ SCH-2)

NOTE FOR SCHEMATIC DIAGRAMS (Type 6A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ⊢ V :
   DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ⊢ mA :
   DC current in STOP mode unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ◁ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

OPSW UNIT
S1601 : ■ STOP
S1602 : ● REC
S1603 : ▮▮ PAUSE
S1604 : MONITOR TAPE/SOURCE
S1605 : CD-SYNCHRO
S1606 : RETURN
S1607 : O REC MUTE
S1608 : ► PLAY
S1609 : ►► FF
S1610 : ◄◄ REW
S1611 : FLEX
S1612 : BLE XD

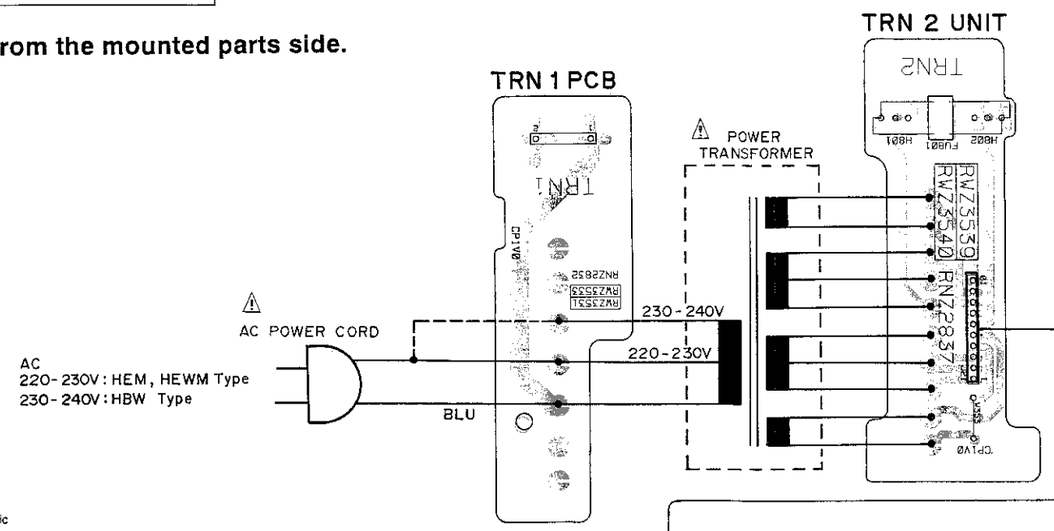
FL UNIT
S1501 : COUNTER RESET
S1502 : ▲ EJECT
S1504 : COUNTER MODE
S1505 : DOLBY NR OFF/B/C/S
S1507 : POWER STANDBY/ON/OFF
S1508 : MPX FILTER
S1509 : METER RANGE
S1510 : TIMER MODE (REC – OFF – PLAY/REPEAT)

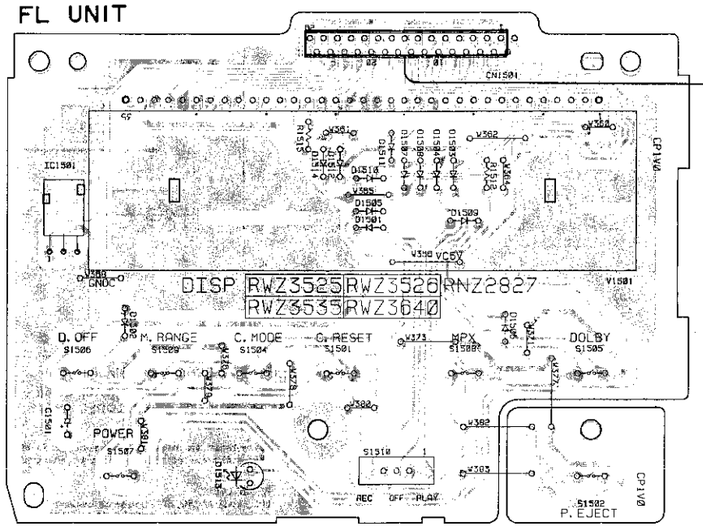
DOLBY S UNIT
SCH-1

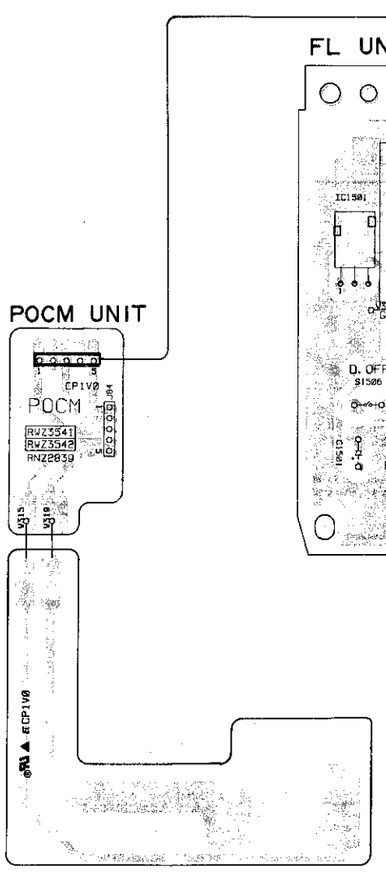
DOLBY S UNIT
SCH-1

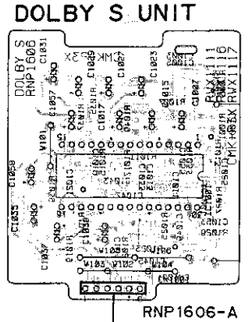
CT-S640S, CT-S540S, CT-S540S-G

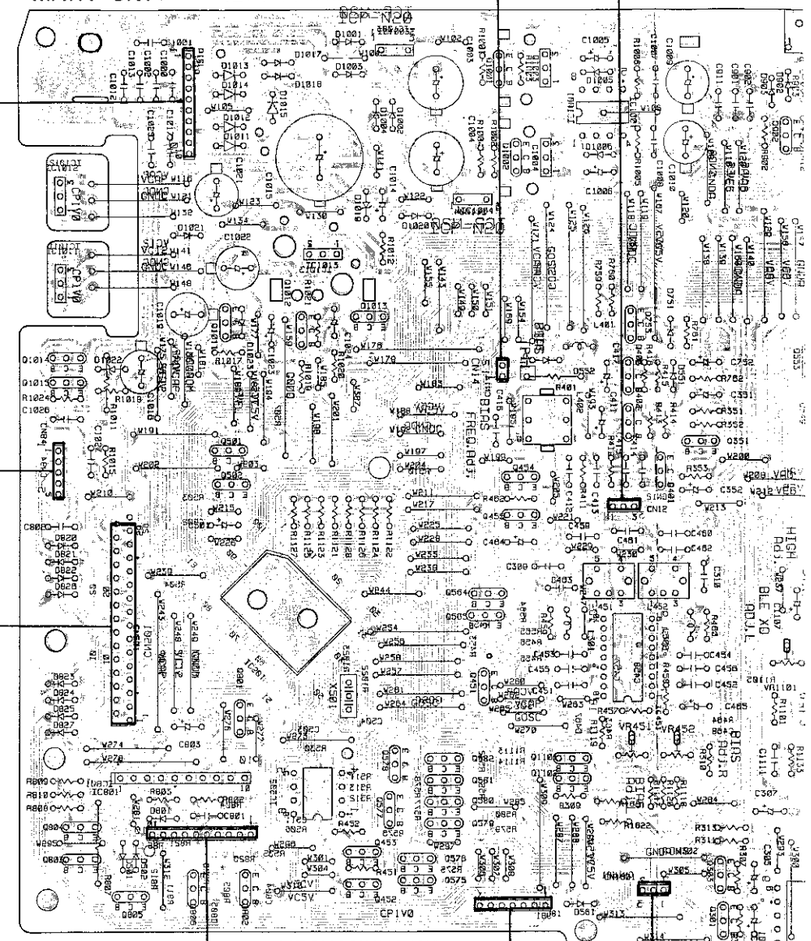
● **This diagram is viewed from the mounted parts side.**

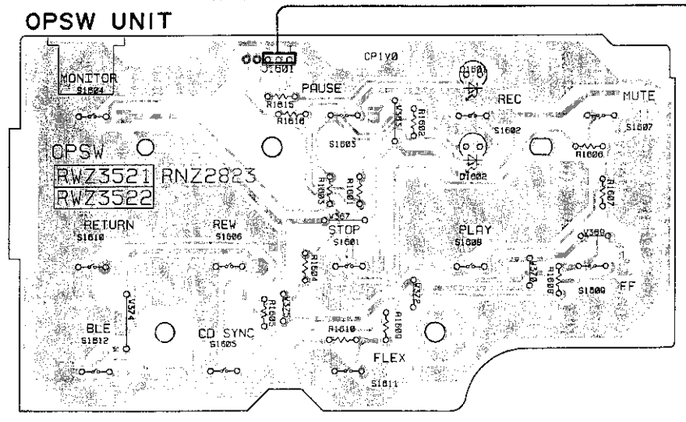










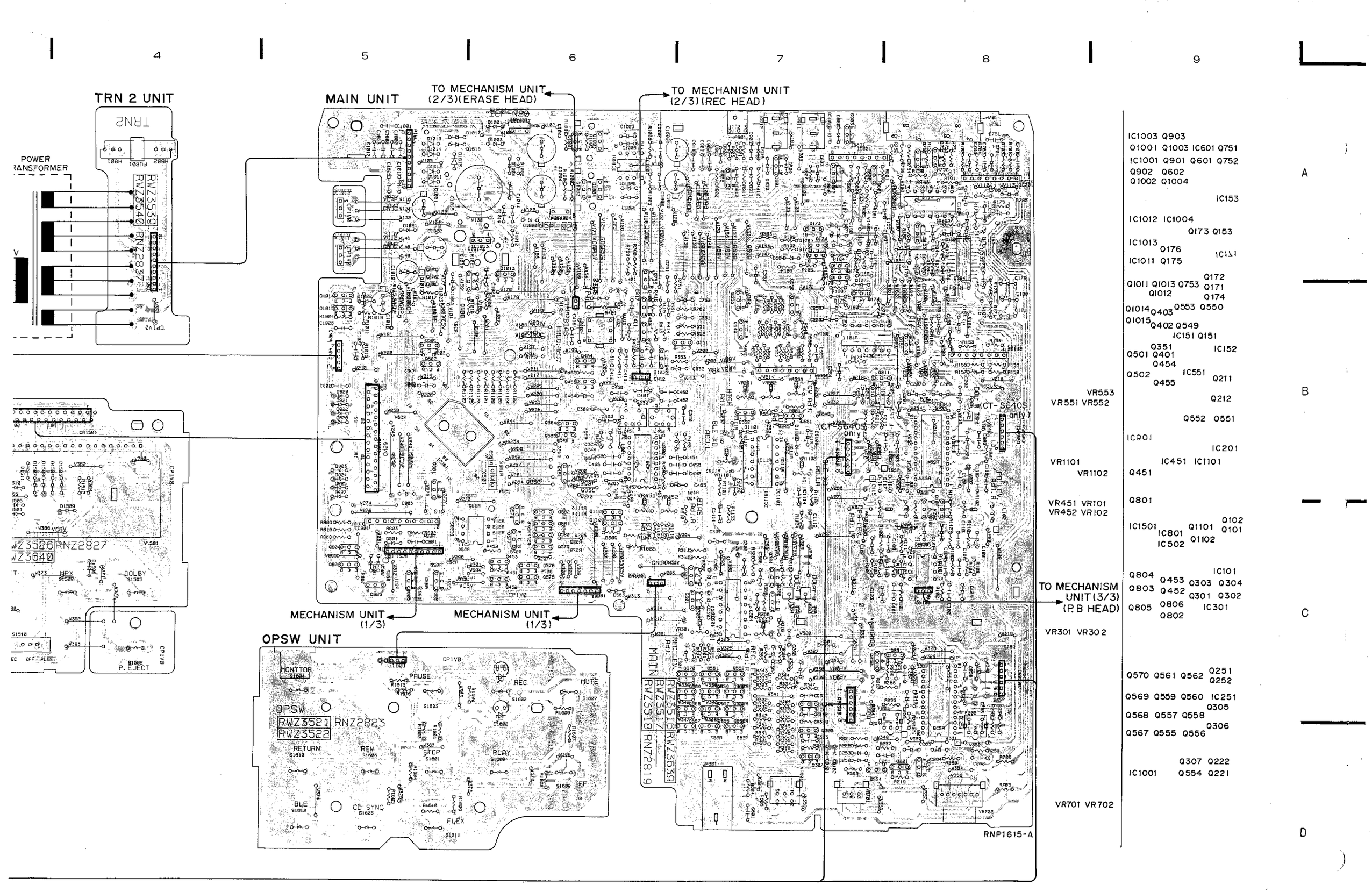


NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3- terminal regulator

- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.


TRN 2 UNIT
TRN2
POWER TRANSFORMER
RWZ3539
RWZ3540 RNZ2837
MAIN UNIT
TO MECHANISM UNIT (2/3)(ERASE HEAD)
TO MECHANISM UNIT (2/3)(REC HEAD)
MECHANISM UNIT (1/3)
MECHANISM UNIT (1/3)
OPSW UNIT
OPSW
RWZ3521 RNZ2823
RWZ3522
MONITOR
PAUSE
REC
MUTE
RETURN
REW
STOP
PLAY
FF
BLE
CD SYNC
FLEX
RWZ3526 RNZ2827
RWZ3640
MPX
DOLBY
P. EJECT
RWZ3517 RWZ3518 RWZ3639 RNZ2819
MAIN
(CT-S640S only)
TO MECHANISM UNIT (3/3) (P.B HEAD)
VR553
VR551 VR552
VR1101
VR1102
VR451 VR101
VR452 VR102
VR301 VR302
VR701 VR702
IC1003 Q903
Q1001 Q1003 IC601 Q751
IC1001 Q901 Q601 Q752
Q902 Q602
Q1002 Q1004
IC153
IC1012 IC1004
Q173 Q153
IC1013
Q176
IC1011 Q175
IC151
Q1011 Q1013 Q753 Q172
Q1012 Q171
Q174
Q1014 Q403 Q553 Q550
Q1015 Q402 Q549
IC151 Q151
Q351
Q501 Q401 IC152
Q454
Q502 IC551 Q211
Q455
Q212
Q552 Q551
IC201
IC201
IC451 IC1101
Q451
Q801
IC1501 Q102
IC801 Q1101 Q101
IC502 Q1102
IC101
Q804 Q453 Q303 Q304
Q803 Q452 Q301 Q302
Q805 Q806 IC301
Q802
Q570 Q561 Q562 Q251
Q252
Q569 Q559 Q560 IC251
Q305
Q568 Q557 Q558
Q306
Q567 Q555 Q556
Q307 Q222
IC1001 Q554 Q221
RNP1615-A
A
B
C
D
4
5
6
7
8
9

MAIN UNIT (RWZ3517 : CT-S640S)
(RWZ3516 : CT-S540S, CT-S540S-G)

MECHANISM UNIT(3/3)
(RYM1251 : CT-S640S)
(RYM1224 : CT-S540S,
CT-S540S-G)

P.B HEAD
(RPB1041)

PB AMP

DOLBY B/C NR

DOLBY CONT

TAPE/SOURCE

3dB AMP

FLEX

TO DOLBY S UNIT
CN1001(→SCH-1)(CT-S640S ONLY)

REC EQ AMP

BLEXD DETECTOR

BLE TEST TONE FILTER

BLE CONT (LEVEL)

BLEXD CONT

HX PRO

POWER SUPPLY

POWER OFF

RESET

Power Supply Section for HEM,HEWM Types

TRN 1 PCB
(RNZ2832)

TRN 2 UNIT
(RWZ3539)

RTT1287
POWER TRANSFORMER

Power Supply Section for HBW Type.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE No. ICP-N20, MFD BY ROHM CO., LTD. FOR IC1003 AND IC1004.

Line Voltage Selection

Line voltage can be chaged by the following modification :
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of TRN 1 PCB primary pins.
4. Stick a line voltage label on the rear panel.

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

FL UNIT
(RWZ3525 : CT-S640S)
(RWZ3535 : CT-S540S, CT-

SCH-2

MAIN UNIT, MECHANISM UNIT
TRN 1 PCB, TRN 2 UNIT
OPSW UNIT, POCM UNIT
FL UNIT

SCH-2

SIGNAL ROUTE
- ⇨ : PLAYBACK SIGNAL ROUTE
- ➡ : RECORDING SIGNAL ROUTE
- ⇨ : RECORDING MONITOR SIGNAL ROUTE
- ➡ : ENCODE SIGNAL ROUTE

FLEX

FLEX (ON/OFF)

IC171 PA0059AM

IC153 TC40668P

MECHA CONTROL

IC801 TA7288P

HP AMP

IC601 (1/2) BA15218N

IC601 (2/2) BA15218N

POCM UNIT (RWZ3541) (CT-S640S ONLY)

MECHANISM UNIT(1/3) (RYM1251:CT-S640S) (RYM1224:CT-S540S, CT-S540S-G)

BLE CONT (MEQ)

BLE CONT (HEQ)

MECHANISM UNIT(2/3) (RYM1251:CT-S640S) (RYM1224:CT-S540S,CT-S540S-G)

160kHz BIAS OSC.

IC501 PD5310A

MEMORY IC502 AT24C01-10PC

SR REMOCON

CD SYNCHRO

OPSW UNIT (RWZ3521)

V1501 RAW1144-A

NOTE

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

- 2SC3311A-R/S
- 2SA1309A-R/S
- DTC124ES
- DTA124ES
- DTC124TS
- DTA124TS
- 1SS254
- S1501-S1509, S1601-S1612 RSG1030

MAIN UNIT, MECHANISM UNIT
TRN 1 PCB, TRN 2 UNIT
OPSW UNIT, POCM UNIT
FL UNIT

SCH-2

5. PCB PARTS LIST

NOTES:

- Parts marked by "NSP"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.
- 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 ····· RD1/8PM 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 ····· RN1/4PC 5 6 2 1 F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol & Description	Part No.						Remarks
		CT-S640S/ HEM	CT-S640S/ HEWM	CT-S640S/ HBW	CT-S540S/ HEM	CT-S540S/ HEWM	CT-S540S-G/ HEM	
⚠NSP	MOTHER UNIT	RWM1812	RWM1812	RWM1812	RWM1810	RWM1810	RWM1810	
	├ MAIN UNIT	RWZ3517	RWZ3517	RWZ3517	RWZ3516	RWZ3516	RWZ3516	
	└ DOLBY S UNIT	RWX1111	RWX1111	RWX1111	RWX1111	RWX1111	RWX1111	
	├ OPSW UNIT	RWZ3521	RWZ3521	RWZ3521	RWZ3521	RWZ3521	RWZ3521	
	├ FL UNIT	RWZ3525	RWZ3525	RWZ3525	RWZ3535	RWZ3535	RWZ3535	
	├ TRN 2 UNIT	RWZ3539	RWZ3539	RWZ3539	RWZ3539	RWZ3539	RWZ3539	
	└ POCM UNIT	RWZ3541	RWZ3541	RWZ3541	Not Used	Not Used	Not Used	

■ CONTRAST OF PCB ASSEMBLIES

MAIN UNIT

RWZ3517 and RWZ3516 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3517	RWZ3516	
	CN84	SBRK05S	Not Used	
	D820 – D822	1SS254	Not Used	

FL UNIT

RWZ3525 and RWZ3535 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3525	RWZ3535	
	D1507	1SS254	Not Used	
	S1502	RSG1030	Not Used	

■ PARTS LIST FOR CT-S640S/HEM

Mark	No.	Description	Parts No.
DOLBY S UNIT			
SEMICONDUCTORS			
	IC1001		CXA1917S
CAPACITORS			
	C1017		CEJA010M50
	C1023. C1031. C1037		CEJAR10M50
	C1007. C1015. C1029. C1039		CEJAR22M50
	C1027. C1035		CEJAR47M50
	C1001. C1011. C1025. C1055		CKSQYB104K25
	C1003. C1005		CKSQYB182K50
	C1045		CKSQYB222K50
	C1013. C1053		CKSQYB223K50
	C1033. C1049		CKSQYB393K50
	C1047		CKSQYB471K50
	C1041		CKSQYB473K50
	C1019		CKSQYB681K50
	C1021. C1043		CKSQYB822K50
RESICTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN1001		6033B-06Z029
MAIN UNIT			
SEMICONDUCTORS			
	IC502		AT24C01-10PC
	IC1101		BA14741
	IC1001		BA15218
	IC152. IC551. IC601		BA15218N
	IC301		CXA1198AP
	IC201. IC251		CXA1563S
⚠	IC1003. IC1004		ICP-N20
	IC101		NJM4580DD
⚠	IC1013		NJM78M05FA
⚠	IC1011. IC1012		NJM78M12FA
	IC171		PA0059AM
	IC501		PD5310A
	IC801		TA7288P
	IC151. IC153		TC4066BP
	IC451		UPC1297CA
	Q1002. Q172. Q454. Q753		2SA1309A
⚠	Q1004		2SB1566
	Q401. Q402		2SC1815
	Q805		2SC3246
	Q1001. Q1011. Q1014. Q1015		2SC3311A
	Q1101. Q1102. Q221. Q222		2SC3311A
	Q301. Q302. Q451. Q802. Q806		2SC3311A
	Q803. Q804		2SD1858X
	Q303. Q304. Q403. Q601. Q602		2SD2144S
	Q751. Q752		2SD2144S

Mark	No.	Description	Parts No.
⚠	Q1003		2SD2395
	Q554		2SK246
	Q1013. Q351. Q567-Q570		DTA124ES
	Q901. Q903		DTA124TS
	Q101. Q1012. Q102. Q151-Q153		DTC124ES
	Q173-Q176. Q211. Q212		DTC124ES
	Q251. Q252. Q305-Q307. Q455		DTC124ES
	Q501. Q502. Q549. Q550. Q553		DTC124ES
	Q801. Q902		DTC124ES
	Q171. Q452. Q453. Q551. Q552		DTC124TS
	Q555-Q562		DTC124TS
⚠	D1011-D1014		1SR35-100AVL
	D101. D1017. D1018. D102. D1020		1SS254
	D1023. D1101. D1102. D1514		1SS254
	D171. D172. D174. D175. D177		1SS254
	D211. D251-D253. D503. D504		1SS254
	D509. D510. D551. D552. D561		1SS254
	D751. D820-D827. D859. D860		1SS254
	D901-D903. D911-D913		1SS254
⚠	D1005. D1006		HZS6C1L
	D1019		MTZJ3.6B
⚠	D1022		MTZJ6.2B
⚠	D1001-D1004. D1015. D801		S5688G
COILS AND FILTERS			
	L401		LFA121K
	X501 (6.3MHz)		RSS1045
	L451. L452 (160kHz)		RTD1074
	L402 (160kHz)		RTD1076
	L101. L102		RTF1097
	L301. L302		RTF1099
	F201. F202		RTF1209
CAPACITORS			
	C115. C116		CCCCH101J50
	C117. C118		CCCCH151J50
	C459. C460		CCCSL271K500
	C554		CCSQCH101J50
	C107. C108		CEANP100M50
	C183. C263. C264. C301. C302		CEAS010M50
	C352. C752		CEAS010M50
	C1005. C1006. C155. C156		CEAS100M50
	C193. C194. C351. C803		CEAS100M50
	C121. C122. C180. C184. C185		CEAS101M10
	C190. C207. C208. C307. C308		CEAS101M10
	C603. C604		CEAS101M10
	C1016. C1019. C1021		CEAS101M50
	C1022		CEAS102M6R3
	C1024		CEAS220M16
	C1009. C1010		CEAS221M25
	C1003. C1004		CEAS222M16
	C253. C254. C259. C260		CEAS330M16
	C305. C306. C417. C465		CEAS330M16
	C1015		CEAS332M25

re, when replacing, be sure

e unavailable.

:e is shown by J=5%, and

CT-S540S-G/HEM	Remarks
RWM1810	
RWZ3516	
RWX1111	
RWZ3521	
RWZ3535	
RWZ3539	
Not Used	

Remarks

Remarks

■ PARTS LIST FOR CT-S640S/HEM

Mark	No.	Description	Parts No.

DOLBY S UNIT

SEMICONDUCTORS

	IC1001	CXA1917S

CAPACITORS

	C1017	CEJA010M50
	C1023, C1031, C1037	CEJAR10M50
	C1007, C1015, C1029, C1039	CEJAR22M50
	C1027, C1035	CEJAR47M50
	C1001, C1011, C1025, C1055	CKSQYB104K25
	C1003, C1005	CKSQYB182K50
	C1045	CKSQYB222K50
	C1013, C1053	CKSQYB223K50
	C1033, C1049	CKSQYB393K50
	C1047	CKSQYB471K50
	C1041	CKSQYB473K50
	C1019	CKSQYB681K50
	C1021, C1043	CKSQYB822K50

RESICTORS

	All Resistors	RS1/10S□□□J

OTHERS

	CN1001	6033B-06Z029

MAIN UNIT

SEMICONDUCTORS

	IC502	AT24C01-10PC
	IC1101	BA14741
	IC1001	BA15218
	IC152, IC551, IC601	BA15218N
	IC301	CXA1198AP
	IC201, IC251	CXA1563S
⚠	IC1003, IC1004	ICP-N20
	IC101	NJM4580DD
⚠	IC1013	NJM78M05FA
⚠	IC1011, IC1012	NJM78M12FA
	IC171	PA0059AM
	IC501	PD5310A
	IC801	TA7288P
	IC151, IC153	TC4066BP
	IC451	UPC1297CA
	Q1002, Q172, Q454, Q753	2SA1309A
⚠	Q1004	2SB1566
	Q401, Q402	2SC1815
	Q805	2SC3246
	Q1001, Q1011, Q1014, Q1015	2SC3311A
	Q1101, Q1102, Q221, Q222	2SC3311A
	Q301, Q302, Q451, Q802, Q806	2SC3311A
	Q803, Q804	2SD1858X
	Q303, Q304, Q403, Q601, Q602	2SD2144S
	Q751, Q752	2SD2144S

Mark	No.	Description	Parts No.
⚠	Q1003		2SD2395
	Q554		2SK246
	Q1013, Q351, Q567-Q570		DTA124ES
	Q901, Q903		DTA124TS
	Q101, Q1012, Q102, Q151-Q153		DTC124ES
	Q173-Q176, Q211, Q212		DTC124ES
	Q251, Q252, Q305-Q307, Q455		DTC124ES
	Q501, Q502, Q549, Q550, Q553		DTC124ES
	Q801, Q902		DTC124ES
	Q171, Q452, Q453, Q551, Q552		DTC124TS
	Q555-Q562		DTC124TS
⚠	D1011-D1014		1SR35-100AVL
	D101, D1017, D1018, D102, D1020		1SS254
	D1023, D1101, D1102, D1514		1SS254
	D171, D172, D174, D175, D177		1SS254
	D211, D251-D253, D503, D504		1SS254
	D509, D510, D551, D552, D561		1SS254
	D751, D820-D827, D859, D860		1SS254
	D901-D903, D911-D913		1SS254
⚠	D1005, D1006		HZS6C1L
	D1019		MTZJ3.6B
⚠	D1022		MTZJ6.2B
⚠	D1001-D1004, D1015, D801		S5688G

COILS AND FILTERS

	L401	LFA121K
	X501 (6.3MHz)	RSS1045
	L451, L452 (160kHz)	RTD1074
	L402 (160kHz)	RTD1076
	L101, L102	RTF1097
	L301, L302	RTF1099
	F201, F202	RTF1209

CAPACITORS

	C115, C116	CCCCH101J50
	C117, C118	CCCCH151J50
	C459, C460	CCCSL271K500
	C554	CCSQCH101J50
	C107, C108	CEANP100M50
	C183, C263, C264, C301, C302	CEAS010M50
	C352, C752	CEAS010M50
	C1005, C1006, C155, C156	CEAS100M50
	C193, C194, C351, C803	CEAS100M50
	C121, C122, C180, C184, C185	CEAS101M10
	C190, C207, C208, C307, C308	CEAS101M10
	C603, C604	CEAS101M10
	C1016, C1019, C1021	CEAS101M50
	C1022	CEAS102M6R3
	C1024	CEAS220M16
	C1009, C1010	CEAS221M25
	C1003, C1004	CEAS222M16
	C253, C254, C259, C260	CEAS330M16
	C305, C306, C417, C465	CEAS330M16
	C1015	CEAS332M25

Mark	No.	Description	Parts No.
	C153, C154, C179, C411, C501		CEAS470M16
	C1014, C1023, C175, C176, C181		CEAS4R7M50
	C187-C189, C201, C202		CEAS4R7M50
	C303, C304		CEAS4R7M50
	C1107, C1108, C203, C204		CEASR10M50
	C255, C256, C464		CEASR10M50
	C551		CEASR47M50
	C412, C415		CFTXA332J50
	C1111-C1114		CFTXA562J50
	C414		CFTXA682J50
	C173, C174, C261, C262		CFTYA103J50
	C451, C452		CFTYA103J50
	C1026, C1027, C557		CFTYA104J50
	C413		CFTYA123J50
	C455, C456		CFTYA223J50
	C109, C110		CFTYA273J50
	C555		CFTYA333J50
	C1007, C1008, C105, C106		CFTYA563J50
	C205, C206, C257, C258		CFTYA683J50
	C252, C601, C901, C902, C311-C313		CKCYF103Z50
	C1001, C1002, C1012, C1013, C1017		CKCYF473Z50
	C1025, C751, C801, C802, C911		CKCYF473Z50
	C103, C104, C119, C120, C463		CKPUYB101K50
	C453, C454		CKPUYB821K50
	C191, C192		CKPUYX222M16
	C467, C468		CKSQYB221K50
	C457, C458		CKSQYB223K50
	C553		CKSQYB272K50
	C556		CKSQYB472K50
	C552		CKSQYB682K50
	C502-C504, C511, C804, C805		CKSQYF103Z50
	C309, C310		CQPA181J100
	C101, C102		CQPA271J100
	C416		CQPA392J100
	C461, C462 (470PF/500V)		RCG1006

RESISTORS

	R205, R206 (22kΩ)	RCN1023
	R401	RD1/2LMF010J
	R413, R414	RD1/2VM4R7J
	R607, R608	RD1/6PM101J
	R1005, R1006, R1012, R1133, R1134	RD1/6PM102J
	R263, R264 (2.7kΩ)	RCN1072
	R188, R313, R314, R605, R606	RD1/6PM102J
	R757-R759, R911	RD1/6PM102J
	R1020, R1021, R159, R1621, R1622	RD1/6PM103J
	R183, R351, R352, R462	RD1/6PM103J
	R557, R558, R603, R604	RD1/6PM103J
	R705, R706, R760	RD1/6PM103J
	R157, R158, R161, R162	RD1/6PM104J
	R191, R192, R343, R353	RD1/6PM104J
	R548, R549, R556, R762	RD1/6PM104J
	R101, R102, R563	RD1/6PM105J
	R253, R254	RD1/6PM112J
	R301, R302	RD1/6PM113J
	R175, R176, R185	RD1/6PM122J
	R1017, R1125, R1126, R411, R412	RD1/6PM123J

Mark	No.	Description	Parts No.
	R451		RD1/6PM132J
	R331		RD1/6PM134J
	R1001, R1002, R761		RD1/6PM151J
	R751, R752, R808, R810		RD1/6PM152J
	R552		RD1/6PM153J
	R341		RD1/6PM154J
	R326		RD1/6PM164J
	R213, R269		RD1/6PM181J
	R459, R460		RD1/6PM184J
	R1117, R1118		RD1/6PM202J
	R155, R156, R207		RD1/6PM203J
	R346		RD1/6PM204J
	R902		RD1/6PM221J
	R1024, R109, R110, R309, R310		RD1/6PM222J
	R171, R189, R190, R271, R272		RD1/6PM223J
	R305, R306, R416, R457, R458		RD1/6PM223J
	R501, R551, R566, R903		RD1/6PM223J
	R107, R108, R554, R561		RD1/6PM242J
	R1123, R1124, R315		RD1/6PM243J
	R452, R802		RD1/6PM272J
	R1018, R323		RD1/6PM273J
	R901, R912		RD1/6PM274J
	R255, R256		RD1/6PM302J
	R322		RD1/6PM303J
	R560		RD1/6PM331J
	R111, R112, R221, R222		RD1/6PM332J
	R303, R304, R311, R312, R415		RD1/6PM332J
	R803, R809		RD1/6PM332J
	R103, R104, R307, R308		RD1/6PM390J
	R1119, R1120, R553		RD1/6PM392J
	R555		RD1/6PM393J
	R336		RD1/6PM394J
	R332		RD1/6PM433J
	R1003, R1004, R601, R602		RD1/6PM470J
	R755, R756		RD1/6PM471J
	R1019, R177, R178		RD1/6PM472J
	R753, R754		RD1/6PM473J
	R173, R174		RD1/6PM512J
	R342		RD1/6PM513J
	R559		RD1/6PM560J
	R1015, R1127, R1128, R211, R268		RD1/6PM562J
	R550		RD1/6PM562J
	R1121, R1122, R184, R321		RD1/6PM563J
	R212, R267		RD1/6PM622J
	R105, R106, R265, R266, R333		RD1/6PM623J
	R335, R344		RD1/6PM623J
	R186		RD1/6PM681J
	R325		RD1/6PM683J
	R345		RD1/6PM753J
	R562		RD1/6PM821J
	R153, R154, R257, R258		RD1/6PM822J
	R324		RD1/6PM823J
	R334		RD1/6PM913J
	R1011		RFA1/4PL820J
	R807		RS2LMF560J

Mark	No.	Description	Parts No.
		VR551 (10kΩ/0.1W)	RCP1045
		VR1101,VR1102,VR301, VR302, VR552 (22kΩ/0.1W)	RCP1046
		VR101, VR102, VR451, VR452, VR553 (47kΩ/0.1W)	RCP1047
		VR701 (50kΩ-B)	RCS1039
		VR702 (50kΩ-A)	RCV1110
		Other Resistors	RS1/10S□□□J
OTHERS			
	CN501	29P CONNECTOR	9604S-29C
	CN14	CONNECTOR POST	B2B-PH-K
	CN101, CN12	CONNECTOR POST	B3B-PH-K
	JA901	MINI JACK	PKN1005
	JA701	4P JACK	RKB-020
	JA601	HEADPHONE JACK	RKN1002
	JA911, JA912	REMOCON JACK	RKN1004
		PCB BINDER	VEF1008
		EARTH PLATE	VNF-091

OPSW UNIT

SWITCHES AND RELAYS

	S1601-S1612		RSG1030

RESISTORS

	All Resistors		RD1/6PM□□□J

FL UNIT

SEMICONDUCTORS

	D1501-D1507, D1509-D1512		1SS254
	D1513		SLR-342VCT31

SWITCHES AND RELAYS

	S1501, S1502, S1504-S1509		RSG1030
	S1510		RSH1041

CAPACITORS

	C1502		CKSQYB104K25

RESISTORS

	All Resistors		RD1/6PM□□□J

OTHERS

	CN1501	29P CONNECTOR	9604S-29C
	V1501	FL INDICATOR TUBE	RAW1144

TRN 2 UNIT

OTHERS

	H801, H802	FUSE HOLDER	RKR1003

PCOM UNIT

OTHERS

	REAF SWITCH		VSK1011

6. TEST MODE

1. Entering the Test Mode

In case of STOP mode:

- To enter the test mode, press COUNTER MODE + COUNTER RESET + PAUSE at a time.

2. Canceling test mode

- Press COUNTER RESET key.
- Press STANDBY key.
- Turn the power OFF.

The test mode is canceled by executing any of the above.

3. Test mode major items

- CD sync, SW check
- BLE adjustment, BLE-XD adjustment
- FLEX monitor check

① SW operation check

The test mode is executed as follows.

Counter Display	Key Input	Adjustment and Check items
＊＊ : 10	All keys other than COUNTER MODE key	● In this mode, the mechanism is operated without the cassette half. ● SW check The following appear on the counter. • Cassette half SW check With the cassette half : " h＊ : 10" Without the half : " ＊ : 10" • Erase-protection detection SW check Recordable : " r＊ : 10" Not recordable : " ＊ : 10" • Timer SW check TIMER REC : " ＊R : 10" OFF : " ＊ : 10" TIMER PLAY : " ＊P : 10" ● CD sync check Connect a code, let the input/output be short-circuited, and press CD SYNCHRO key. " CD SYNC " will light up. ● Tape position SW check The following appear in the same manner as in normal condition. NORMAL : " TYPE I " CrO_2 : " TYPE II " METAL : " TYPE IV "

② BLE Adjustment Mode

- **Entering the BLE Adjustment Mode**

To enter the BLE adjustment mode, press BLE key when " ∗∗ : 10 " appears on the counter.
After that, the adjustment mode is changed each time BLE key is pressed.
When " ∗∗ : 10 " is not displayed on the counter, first press STOP key and perform the above procedures.

- **Canceling BLE adjustment mode**

To cancel the BLE adjustment mode, press STOP key. The mechanism operation check mode is set.

Counter Display	Key Input	LINE MUTE	REC MUTE	BIAS	Adjustment and Check items
: 30	BLE	OFF	ON	OFF	———
400	BLE	OFF	ON	OFF	● 400 Hz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output = −23 dBv) □ □ □ □ □ ■ □ □ □ □ □ □ ■ ■ ■ ■ ■ □ ■ ■ ■ ■ ■ ■
3 k	BLE	OFF	ON	OFF	● 3 kHz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output = −23 dBv) □ □ □ □ □ ■ □ □ □ □ □ □ ■ ■ ■ ■ ■ □ ■ ■ ■ ■ ■ ■
15 k	BLE	OFF	ON	OFF	● 15 kHz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output = −23 dBv) □ □ □ □ □ ■ □ □ □ □ □ □ ■ ■ ■ ■ ■ □ ■ ■ ■ ■ ■ ■
10 k	BLE	OFF	ON	OFF	● 10 kHz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output = −11 dBv) □ □ □ □ -□- -□- -□- □ □ □ □ □ ■ ■ ■ ■ □ □ □ ■ ■ ■ ■ ■
12 k	BLE	OFF	ON	OFF	● 12 kHz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output = −11 dBv) □ □ □ □ -□- -□- -□- □ □ □ □ □ ■ ■ ■ ■ □ □ □ ■ ■ ■ ■ ■
15 k	BLE	OFF	ON	OFF	● 15 kHz OUTPUT LEVEL ADJUSTMENT MODE Adjust so that the meter indicates as follows. (LINE OUT output −11 dBv) □ □ □ □ -□- -□- -□- □ □ □ □ □ ■ ■ ■ ■ □ □ □ ■ ■ ■ ■ ■

※ ■ : Stands for "lights up"
□ : Stands for "goes off"
-□- : Stands for "lights up" or "blinks"

Counter Display	Key Input	LINE MUTE	REC MUTE	BIAS	Adjustment and Check items
HPFL	BLE	OFF	ON	OFF	● BLE XD LCH HPF ADJUSTMENT MODE Input signals to LINE IN so that a 12 kHz/−11 dBV signal is output from LINE OUT. □ □ □ □ -□- -□- -□- □ □ □ □ □ ■ ■ ■ ■ □ □ □ ■ ■ ■ ■ ■
HPFR	BLE	OFF	ON	OFF	● BLE XD RCH HPF ADJUSTMENT MODE Same as above.

※ ■ : Stands for "lights up"
□ : Stands for "goes off"
-□- : Stands for "lights up" or "blinks"

③ FLEX monitor mode

- **Entering FLEX monitor mode**

To enter the FLEX monitor mode, press FLEX key when " ＊＊ : 10 " appears on the counter.
After that, the FLEX MOVEMENT is turned ON and OFF each time FLEX key is pressed.
When " ＊＊ : 10 " is not displayed on the counter, first press STOP key and perform the above procedures.

- **Canceling FLEX monitor mode**

To cancel the FLEX monitor mode, press STOP key. The mechanism operation check mode is set.

Counter Display	Key Input	Adjustment and Check items
＊＊ : 40	FLEX basic operation key	• Turned ON when "FLEX" lights up.

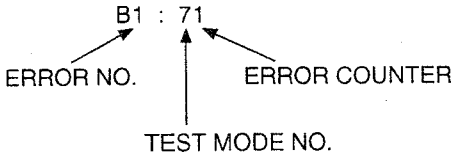
④ Error No. display (Refer to "Self-diagnosis".)

Press METER RANGE key when " ＊＊ : 10 " appears on the counter. An error No. will appear on the front panel FL area.

Self-diagnosis function

The self-diagnosis function automatically displays an error symbol on the front panel FL display area when an error occurs. The purpose ofthis function is to efficiently repair the product by reading an error symbol by the user to report it to a service personnel.
After an error occurs, even if the AC power cord is disconnected from an outlet, an error symbol can be displayed again by the following procedures.

① Enter the test mode. (See "Entering test mode".)
② Press METER RANGE key.
③ A display example is shown below.



④ When METER RANGE key is additionally pressed, the error counter changes to "2" then "3", and errors that have occurred in the past appear. (Up to three errors can be stored.)
⑤ After the repair is completed, clear the stored error numbers.
To perform this, press STOP key to enter the test mode, and press COUNTER MODE key and MUTE key.

Parts error occurred	Counter display	Producing condition	Possible causes
BLE	B1	The take-up side reel table stops during BLE operation.	• A tape was ended. • The reel motor stopped. • The capstan motor stopped.
	B2	Signals are not recorded on the tape during BLE operation.	• The characteristics of the tape used was significantly different from that of the reference tape. • The internal oscillator did not oscillate. • The compensation circuit parts were defective or did not correctly contact to each other.
Loading	L1	A tape does not reach an appropriate position by open/close operation.	• A tape was not set properly. • Foreign matters existed, etc.
Mechanism	M1	The take-up side reel table stops while the supply-side reel table continues operation. The tape may be jammed.	• The reel motor stopped. • A tape wound round the capstan due to static electricity, etc.

7. ADJUSTMENTS

1. MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment			
Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Tape speed adjustment hole	3000Hz ± 5Hz

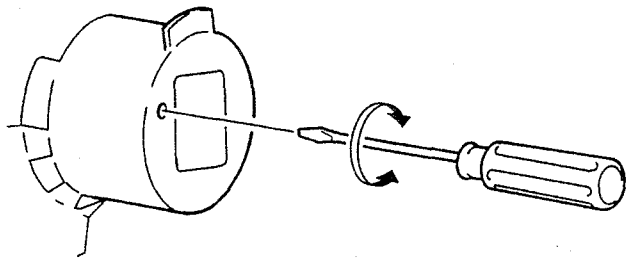


Fig.1 Tape speed adjustment

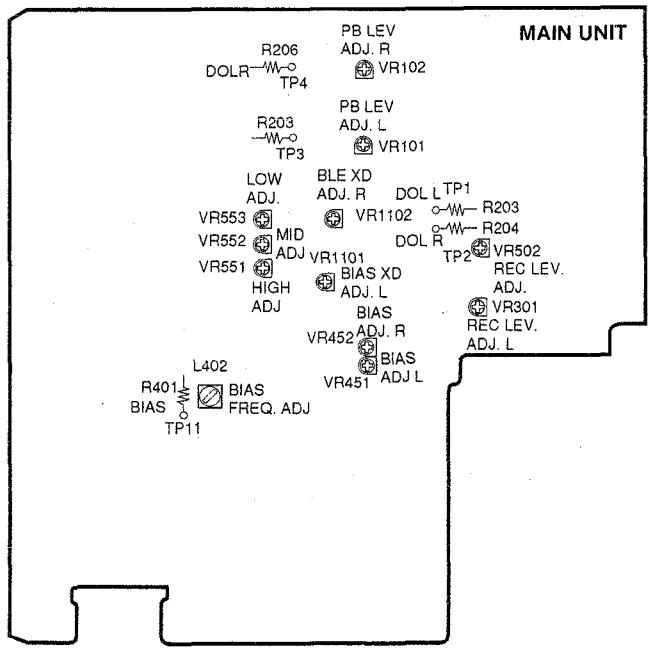


Fig.2 Adjusting points

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 10 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. 3)
STD–631 or STD–632	: 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 careful 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. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

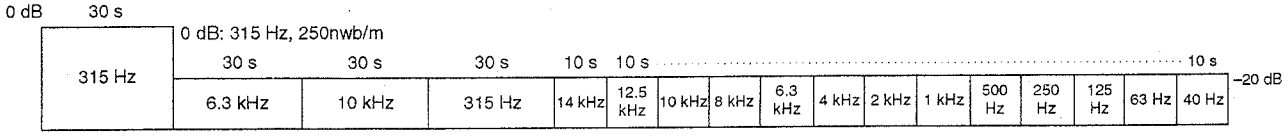
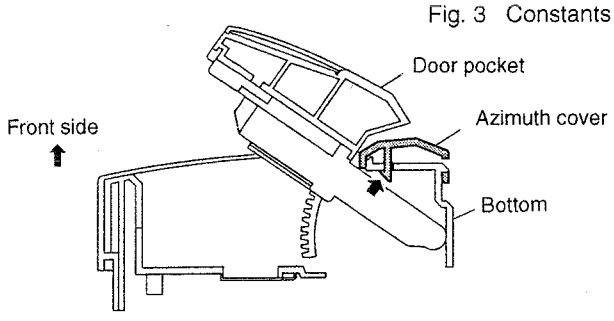


Fig. 3 Constants of the test tape STD–331E



Open the door and remove the two inner hooks (right and left). The azimuth cover will be removed.
• The front panels are not removed from the panel stay unless the azimuth cover is removed.

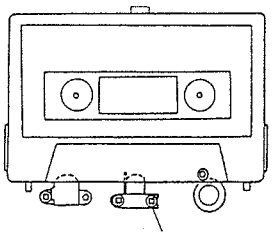
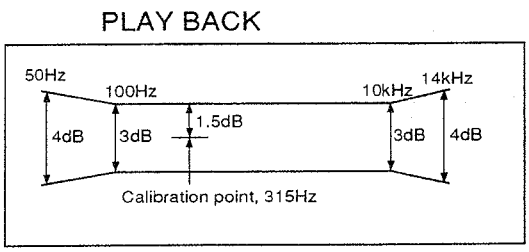


Fig. 4 Head azimuth adjustment



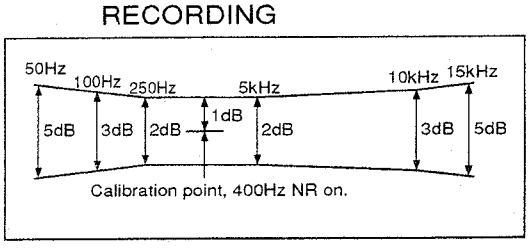


Fig. 5 Frequency response zone

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. 4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with silicon bond 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	VR 101 (Lch) VR 102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	–6.7 dBV	This adjustment must be performed accurately for proper Dolby level setting.

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	L402	TP. 11	160 kHz ± 1 kHz	

2. Recording Bias Adjustment

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

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-631 or STD-632 test tape. Record the 315 Hz and 10 kHz signals at –20 dB input level and playback.	Deck	VR 451 (Lch) VR 452 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 10 kHz signal becomes 0 dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/–4 dB signal to the line input terminals, load the STD-631 or STD-632 test tape.	Volume of the output level of the oscillator		TP. 3 (Lch) TP. 4 (Rch)	–11.2 dBV	
2.	REC/ PLAY	Record the above signal onto the STD-631 or STD-632 test tape, and playback.	Deck	VR 301 (Lch) VR 302 (Rch)		Repeatedly record, playback and adjust so that the playback signal level becomes –11.2 dBV.	
3.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	
4.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment Value	Remarks
1.	REC PAUSE	Apply a 315 Hz/ 0 dB signal to the Line Input terminals.	Volume of the output level of the oscillator	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0dB" light up within –7.2 dBV ± 1 dB of the signal output level.	

5. AUTO 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.
  Turn on the power, and after more than 4 seconds, press the "COUNTER RESET" button, "COUNTER MODE" button and ❚❚ (PAUSE) button simultaneously.
- Releasing the Test Mode.
  Press the "COUNTER RESET" button.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment Value	Remarks
1.	—	Set to test mode.	—	—	—	
2.		Press the BLE XD key on the front panel.	VR553	Level meter	Adjust so that the FL segment 0 dB lights up or blinks. **Note :** At this time, if both segments next to the 0 dB light up or blink, this can be accepted.	400 Hz adjustment (FL indication 400)
3.		Press the BLE XD key on the front panel.	VR552			3 kHz adjustment (FL indication 3k)
4.		Press the BLE XD key on the front panel.	VR551			15 kHz adjustment (FL indication 15k)
5.		Press the BLE XD key on the front panel.	—		Make sure that FL segment 0 dB or both segment 0 dB or light up or blink.	10 kHz check (FL indication 10k)
6.		Press the BLE XD key on the front panel.				12 kHz check (FL indication 12k)
7.		Press the BLE XD key on the front panel.				15 kHz check (FL indication 15k)
8.		Press the BLE XD key on the front panel.	VR1101		Input signals to LINE IN so that a 12 kHz/–11 dBV signal is output from LINE OUT. Adjust so that the FL segment 0 dB lights up or blinks. **Note :** At this time, if both segments next to the 0 dB light up or blink, this can be accepted.	12 kHz adjustment (FL indication HPFL)
9.		Press the BLE XD key on the front panel.	VR1102			12 kHz adjustment (FL indication HPFR)

8. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD5310A (MAIN UNIT, IC501)

SYSTEM CONTROL

● Pin Function

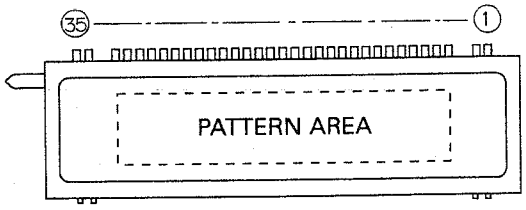
<table>
<tr><th>Pin No.</th><th>NAME</th><th>I/O</th><th>FUNCTION</th></tr>
<tr><td>1</td><td>—</td><td>I</td><td>Connected to the pull-down resistor.</td></tr>
<tr><td>2</td><td>$\overline{\text{MPX}}$</td><td>O</td><td>Multiplex filter control (“H” when MPX is ON.)</td></tr>
<tr><td>3</td><td>BSL3</td><td>O</td><td rowspan="4">BLE-XD L-ch bias control</td></tr>
<tr><td>4</td><td>BSL2</td><td>O</td></tr>
<tr><td>5</td><td>BSL1</td><td>O</td></tr>
<tr><td>6</td><td>BSL0</td><td>O</td></tr>
<tr><td>7</td><td>BSR3</td><td>O</td><td rowspan="4">BLE-XD R-ch bias control</td></tr>
<tr><td>8</td><td>BSR2</td><td>O</td></tr>
<tr><td>9</td><td>BSR1</td><td>O</td></tr>
<tr><td>10</td><td>BSR0</td><td>O</td></tr>
<tr><td>11</td><td>BS1</td><td>O</td><td rowspan="2">BLE bias control
(BS1 : “Open” and BS0 : “L” when BLE is OFF.)</td></tr>
<tr><td>12</td><td>BS0</td><td>O</td></tr>
<tr><td>13</td><td>FSE1</td><td>O</td><td rowspan="2">BLE oscillator frequency selection
<table><tr><th>Level</th><th>Frequencies selected</th><th>FSE0</th><th>FSE1</th></tr><tr><td rowspan="3">–23dBV</td><td>400Hz</td><td>H</td><td>H</td></tr><tr><td>3kHz</td><td>L</td><td>H</td></tr><tr><td>15kHz</td><td>H</td><td>L</td></tr><tr><td rowspan="3">–11dBV</td><td>10kHz</td><td>L</td><td>H</td></tr><tr><td>12kHz</td><td>L</td><td>H</td></tr><tr><td>15kHz</td><td>H</td><td>L</td></tr></table></td></tr>
<tr><td>14</td><td>FSE0</td><td>O</td></tr>
<tr><td>15</td><td>LEV3</td><td>O</td><td rowspan="4">BLE level control
LEV3 : “L”, LEV2 : “H”, LEV1: “H”, and LEV0 : “H” when BLE is OFF.</td></tr>
<tr><td>16</td><td>LEV2</td><td>O</td></tr>
<tr><td>17</td><td>LEV1</td><td>O</td></tr>
<tr><td>18</td><td>LEV0</td><td>O</td></tr>
<tr><td>19</td><td>HEQ3</td><td>O</td><td rowspan="4">BLE HIGH EQ control
HEQ3 : “L”, HEQ2 : “Open”, HEQ1 : “Open”, and HEQ0:“Open” when BLE is OFF.</td></tr>
<tr><td>20</td><td>HEQ2</td><td>O</td></tr>
<tr><td>21</td><td>HEQ1</td><td>O</td></tr>
<tr><td>22</td><td>HEQ0</td><td>O</td></tr>
<tr><td>23</td><td>MEQ3</td><td>O</td><td rowspan="4">BLE MID EQ control
MEQ3 : “L”, MEQ2:“Open”, MEQ1 : “Open”, and MEQ0 : “Open” when BLE is OFF.</td></tr>
<tr><td>24</td><td>MEQ2</td><td>O</td></tr>
<tr><td>25</td><td>MEQ1</td><td>O</td></tr>
<tr><td>26</td><td>MEQ0</td><td>O</td></tr>
<tr><td>27</td><td>OSC</td><td>O</td><td>Square wave output for BLE oscillator</td></tr>
<tr><td>28</td><td>OSCG</td><td>O</td><td>Gain switching for BLE oscillator (“L” : High gain)</td></tr>
<tr><td>29</td><td>DOLB</td><td>O</td><td>Dolby control (“H” : Dolby B)</td></tr>
<tr><td>30</td><td>$\overline{\text{FLEX}}$</td><td>O</td><td>FLEX IC ON/OFF control (“H” : FLEX OFF)</td></tr>
<tr><td>31</td><td>TOCD</td><td>O</td><td>CD sync output (“H” output when sync REC.)</td></tr>
<tr><td>32</td><td>$\overline{\text{SSEN}}$</td><td>I</td><td>Sensing pulse input of the supply side</td></tr>
<tr><td>33</td><td>REMT</td><td>I</td><td>Remote control signal input</td></tr>
<tr><td>34</td><td>$\overline{\text{POFF}}$</td><td>I</td><td>Power-off signal input (“L” when the power is OFF.)</td></tr>
<tr><td>35</td><td>$\overline{\text{REST}}$</td><td>I</td><td>Reset signal input (“L” when reset.)</td></tr>
</table>

<table>
<tr><th>Pin No.</th><th>NAME</th><th>I/O</th><th>FUNCTION</th></tr>
<tr><td>36</td><td>GND</td><td>I</td><td>Connected to GND.</td></tr>
<tr><td>37</td><td>—</td><td>—</td><td>Open</td></tr>
<tr><td>38</td><td>XIN</td><td>I</td><td rowspan="2">Connected to the main clock. (6.3 MHz)</td></tr>
<tr><td>39</td><td>XOUT</td><td>O</td></tr>
<tr><td>40</td><td>GND</td><td>I</td><td>Connected to GND.</td></tr>
<tr><td>41</td><td>DATA</td><td>I/O</td><td rowspan="2">Last memory IC
IC502 (AT24C01-10PC) communication</td></tr>
<tr><td>42</td><td>CLK</td><td>O</td></tr>
<tr><td>43</td><td>TSEN</td><td>I</td><td>Sensing pulse input of the take-up side</td></tr>
<tr><td>44</td><td>MET</td><td>O</td><td rowspan="3">REC amplifier control according to the tape type
“H” output : Metal
“H” output : Chrome
“H” output : Normal</td></tr>
<tr><td>45</td><td>CRO</td><td>O</td></tr>
<tr><td>46</td><td>NOR</td><td>O</td></tr>
<tr><td>47</td><td>$\overline{\text{RMUT}}$</td><td>O</td><td>REC muting control (“H” when muting is OFF.)</td></tr>
<tr><td>48</td><td>$\overline{\text{LMUT}}$</td><td>O</td><td>Line muting control (“H” when muting is OFF.)</td></tr>
<tr><td>49</td><td>BIAS</td><td>O</td><td>Bias control (“H” when bias is ON)</td></tr>
<tr><td>50</td><td>RM2</td><td>O</td><td rowspan="3">Motor driver control (TA7288P)
<table>
<tr><th></th><th>OFF</th><th>RML</th><th>RMR</th><th>OPEN</th><th>CLOSE</th></tr>
<tr><td>RM0</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>RM1</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>RM2</td><td>L</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>51</td><td>RM1</td><td>O</td></tr>
<tr><td>52</td><td>RM0</td><td>O</td></tr>
<tr><td>53</td><td>RMPL</td><td>O</td><td>Real motor torque control</td></tr>
<tr><td>54</td><td>CPM</td><td>O</td><td>Capstan motor control</td></tr>
<tr><td>55</td><td>SOLB</td><td>O</td><td rowspan="2">Solenoid control</td></tr>
<tr><td>56</td><td>SOLA</td><td>O</td></tr>
<tr><td>57</td><td>MRCV</td><td>O</td><td>Meter circuit recovery time control (“H” when a recovery is FAST.)</td></tr>
<tr><td>58</td><td>MGAN</td><td>O</td><td>Meter circuit gain switching (“H” when MS)</td></tr>
<tr><td>59</td><td>FG0</td><td>O</td><td rowspan="9">FL grid scanning output</td></tr>
<tr><td>60</td><td>FG1</td><td>O</td></tr>
<tr><td>61</td><td>FG2</td><td>O</td></tr>
<tr><td>62</td><td>FG3</td><td>O</td></tr>
<tr><td>63</td><td>FG4</td><td>O</td></tr>
<tr><td>64</td><td>FG5</td><td>O</td></tr>
<tr><td>65</td><td>FG6</td><td>O</td></tr>
<tr><td>66</td><td>FG7</td><td>O</td></tr>
<tr><td>67</td><td>S13</td><td>O</td><td rowspan="14">FL segment scanning output</td></tr>
<tr><td>68</td><td>S12</td><td>O</td></tr>
<tr><td>69</td><td>S11</td><td>O</td></tr>
<tr><td>70</td><td>S10</td><td>O</td></tr>
<tr><td>71</td><td>S9</td><td>O</td></tr>
<tr><td>72</td><td>S8</td><td>O</td></tr>
<tr><td>73</td><td>S7</td><td>O</td></tr>
<tr><td>74</td><td>S6</td><td>O</td></tr>
<tr><td>75</td><td>S5</td><td>O</td></tr>
<tr><td>76</td><td>S4</td><td>O</td></tr>
<tr><td>77</td><td>S3</td><td>O</td></tr>
<tr><td>78</td><td>S2</td><td>O</td></tr>
<tr><td>79</td><td>S1</td><td>O</td></tr>
<tr><td>80</td><td>S0</td><td>O</td></tr>
</table>

Pin No.	NAME	I/O	FUNCTION
81	LSTB	O	Standby LED control ("H" when STANDBY is ON.)
82	—	O	Connected to the pull-down resistor.
83	SPB	O	"H" when Dolby S is played back. (CT-S540S only)
84	BLON	O	BLE control ("H" when BLE.)
85	FLXM	O	Playback output control ("L" only when FLEX is played back.)
86	MONT	O	Monitor switching control ("L" : Tape, "H":Source)
87	$\overline{\text{DOLS}}$	O	Dolby control ("L" when Dolby S.)
88	DOLO	O	Dolby control ("H" when Dolby is OFF.)
89	VEE	I	Power supply for the built-in pull-down resistor
90	KEY3	I	Key scanning input
91	Vcc	I	Power supply (+5V)
92	KEY2	I	Key scanning input
93	AVSS	I	Power supply for the built-in A/D converter AVSS is connected to GND, AREF to 5V.
94	AREF	I	
95	METL	I	L-ch level meter input
96	METR	I	R-ch level meter input
97	XDDL	I	L-ch BLE-XD detector input
98	XDDR	I	R-ch BLE-XD detector input
99	KEY1	I	Key scanning input
100	KEY0	I	Key scanning input

9. FL INFORMATION

● V1501 (RAW1144)



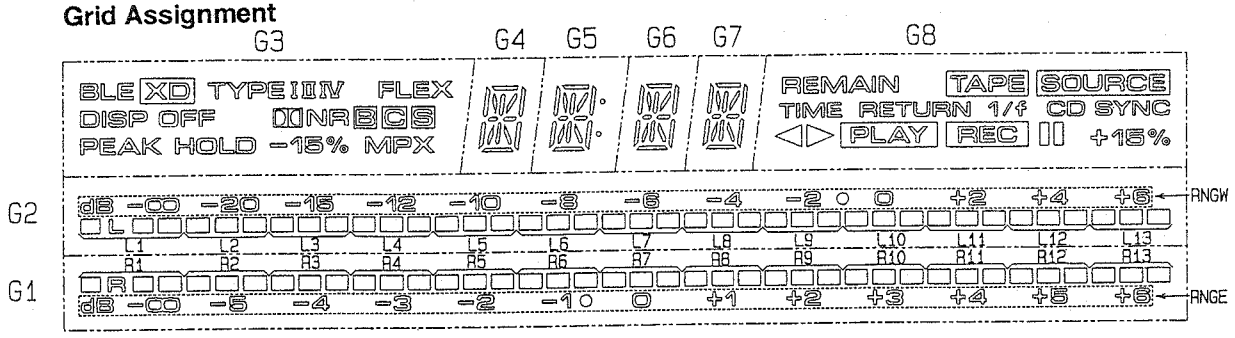
Pin Connection

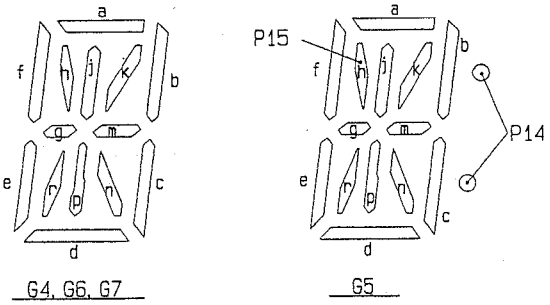
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F	F	NP	NL	P1	P2	P3	P4	NL	P5	P6	P7	P8	P9	NL	P10	P11

Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Assignment	P12	P13	P14	NL	P15	P16	NL	G8	G7	G6	G5	G4	G3	G2	G1	NP	F	F

F:Filament G1~G8:Grid P1~P16:Anode NP:No pin NL:No lead

Grid Assignment

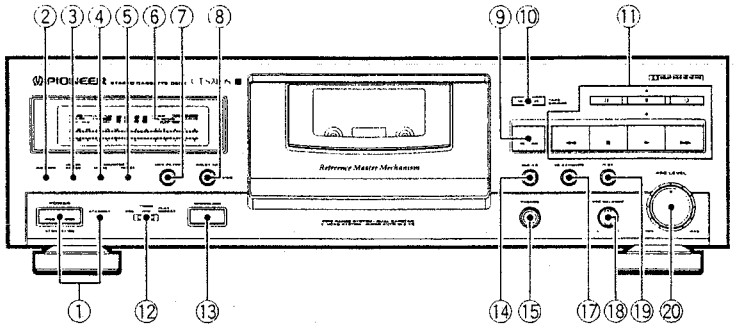




Anode Connection

	G8	G7	G6	G5	G4	G3	G2	G1
P1	TAPE	a	a	a	a	DISP OFF	L1	R1
P2	SOURCE	b	b	b	b	I	L2	R2
P3	▯▯	f	f	f	f	II	L3	R3
P4	▷	g	g	g	g	IV	L4	R4
P5	◁	m	m	m	m	B	L5	R5
P6	PLAY	c	c	c	c	C	L6	R6
P7	REC	e	e	e	e	S	L7	R7
P8	TIME	d	d	d	d	MPX	L8	R8
P9	REMAIN	j	j	j	j	BLE	L9	R9
P10	RETURN	p	p	p	p	XD	L10	R10
P11	1/f	k	k	k	k	FLEX	L11	R11
P12	+15%	n	n	n	n	PEAK	L12	R12
P13	CD SYNC	r	r	r	r	DD NR	L13	R13
P14		h	h		h	TYPE	RNGW	RNGE
P15				h		-15%		
P16						HOLD		

10. PANEL FACILITIES



①POWER STANDBY/ON switch and STANDBY indicator
The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.

②Display off button (DISP OFF)
Press to select the function display on or off.

③Level meter range selector button (METER RANGE)
Press to select wide or expanded range on the level meter.

④Tape counter mode button (COUNTER MODE)

⑤Counter reset button (COUNTER RESET)
The tape capacity can be selected with this button while the REMAIN counter is displayed.

⑥Function display

⑦MPX FILTER button

⑧Dolby* NR button (DOLBY NR OFF/B/C/S)

*
- *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.*

⑨Return button (RETURN)
This button is used to fast forward or rewind the tape to a point near the counter reading "0000".

⑩Monitor selector button (MONITOR)
Used to monitor the source sound or the actual recorded sound during recording.
(CT-S540S)
When the monitor function is used during a recording being made with Dolby S-type noise reduction, the recorded signals from the tape are played back via a Dolby B-type NR. This allows the economical use of a single S-type circuit by taking advantage of the audible compatibility of Dolby S-type circuit by normal non-simultaneous playback, the S-type decoder is used to decode the tape with full accuracy.
- When the unit is set to record or playback mode, the TAPE indicator lights up and the monitor mode is automatically selected.

⑪Operation buttons
- ◀◀ : Rewind/music search
- ■ : Stop
- ▶ : When pressed during stop, begins playback.
- ▶▶ : Fast forward/music search
- ● : Recording
- ❚❚ : When pressed during playback or recording, pauses playback or recording. When pressed during pause, resumes play or starts recording.
- O : Recording mute

⑫TIMER mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)

⑬OPEN/CLOSE button (CT-S640S)/EJECT button (CT-S540S) (⏏)
- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

⑭BLE XD button

⑮Headphones jack (PHONES)

⑰CD-DECK SYNCHRO recording button (CD SYNCHRO)

⑱Recording balance control (REC BALANCE)

⑲FLEX button

⑳Recording level control (REC LEVEL)

11. 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 (CT-S640S only)
Wow and Flutter
CT-S640S, CT-S540S ..... No more than 0.05% (WRMS, JIS)
No more than ± 0.14% (DIN)
Fast Winding Time
CT-S640S, CT-S540S ..... Approx. 90 second (C-60 tape)
Frequency Response (at –20 dB recording level)
CT-S640S
TYPE IV (Metal) tape ..... 20 to 25,000 Hz (±6 dB)
TYPE II (High/CrO_2) Tape ..... 20 to 19,000 Hz (±6 dB)
TYPE I (Normal) Tape ..... 20 to 19,000 Hz (±6 dB)
CT-S540S
TYPE IV (Metal) tape ..... 20 to 21,000 Hz (±6 dB)
TYPE II (High/CrO_2) Tape ..... 20 to 19,000 Hz (±6 dB)
TYPE I (Normal) Tape ..... 20 to 19,000 Hz (±6 dB)

Signal-to-Noise Ratio (Dolby NR OFF)
CT-S640S, CT-S540S ..... More than 59 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)
Dolby S-type NR ON ..... More than 22 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 23 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 1.9 kΩ)
Headphones (PHONES)
CT-S640S, CT-S540S ..... 1.4 mW (Load impedance 32 Ω)

Miscellaneous

Power requirements
U.K., model ..... AC 230—240 Volts~, 50/60 Hz
European model ..... AC 220—230 Volts~, 50/60 Hz
Power consumption
CT-S640S ..... 23 W
CT-S540S ..... 22 W
Dimensions ..... 420 (W) × 125 (H) × 280 (D) mm
Weight
CT-S640S
European model ..... 4.1 kg
U.K. model ..... 4.3 kg
CT-S540S ..... 4.0 kg

Subfunctions

- DOLBY B-type, C-type and S-type NR Systems
  CT-S540S only:
  When the monitoring function is used during a recording being made with Dolby S-type noise reduction, the recorded signals from the tape are played back via a Dolby B-type noise reduction.
- DOLBY HX PRO system
- MPX FILTER
- Headphones jack
- 4-digit electronic tape/time/remain counter
- Music search up to ±15 selections
- Automatic space recording mute
- SUPER AUTO BLE XD tuning system
- FL level meter 12 +1 segments (with peak hold)
- System remote control available
- CD-DECK SYNCHRO function
- Timer Recording/Playback (Automatic repeat playback ON)
- Auto tape selector
- FLEX system
- Last memory
- Tape return/return play
- Auto monitor selection (Tape/Source)
- Display off
- Power eject (Open/Close) (CT-S640S)

Accessories

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

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