

# Service Manual

ORDER NO.  
RRV1286

CASSETTE TAPE DECK

# CT-S440S

• Refer to the service manual RRV1123 for CT-S430S/HBXJ.

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-S440S		
HBWXJ	○	AC230 – 240V	AC220 – 230V, *
HEMXJ	○	AC220 – 230V	AC230 – 240V, *
HEWMXJ	○	AC220 – 230V	AC230 – 240V, *
HLXJ	○	AC220 – 230V	AC230 – 240V, *
SDXJ	○	AC110V/120 – 127V/220V/240V	With the voltage selector

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

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# 1. CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

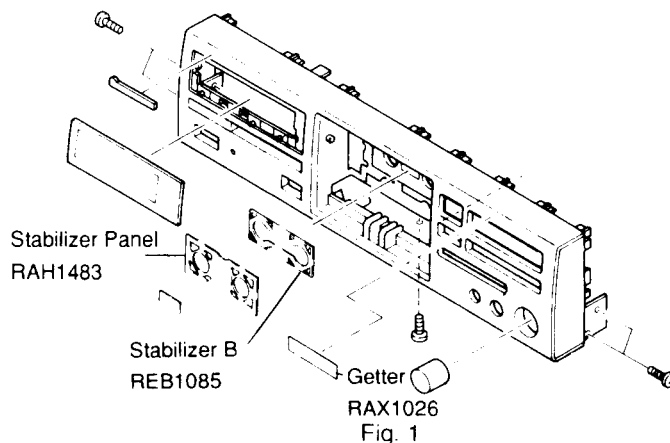
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

**■ CONTRAST OF CT-S440S/HBWXJ, HEMXJ, HEWMXJ, HLXJ, SDXJ AND CT-S430S HBXJ**

CT-S440S/HBWXJ, HEMXJ, HEWMXJ, HLXJ, SDXJ and CT-S430S/HBXJ have the same construction except for the following :

Mark	Symbol & Description	Part No.						Remarks
		CT-S430S/ HBXJ	CT-S440S/ HBWXJ	CT-S440S/ HEMXJ	CT-S440S/ HEWMXJ	CT-S440S/ HLXJ	CT-S440S/ SDXJ	
$\Delta$	Power Transformer (AC220 - 230V/230 - 240V)	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	Not Used	Refer to Fig.3
$\Delta$	Power Transformer (AC110V/120 - 127V /220V/240V)	Not Used	Not Used	Not Used	Not Used	Not Used	RTT1255	
$\Delta$	AC Power Cord	PDG1055	PDG1055	PDG1003	PDG1003	PDG1003	PDG1013	
$\Delta$	Fuse (T5A)	PEK1003	PEK1003	Not Used	Not Used	Not Used	Not Used	
	FL Lens	RAH2413	RAH2413	RAH2413	RAM2413	RAH2414	RAH2414	
	Rear Panel	RNA1818	RNA1925	RNA1924	RNA1924	RNA1927	RNA1926	Refer to Fig.2
$\Delta$	Pin Cap	VEC1616	VEC1616	Not Used	Not Used	Not Used	Not Used	
	Voltage Selector	Not Used	Not Used	Not Used	Not Used	Not Used	PSB1002	
	Front Panel	RAH2533	RAH2537	RAH2537	RAH2537	RAH2537	RAH2537	
	Door Pocket	RAH2443	RAH2539	RAH2539	RAH2539	RAH2539	RAH2539	
	Stabilizer Panel	Not Used	RAH1483	RAH1483	RAH1483	RAH1483	RAH1483	Refer to Fig.1
	Stabilizer B	Not Used	REB1085	REB1085	REB1085	REB1085	REB1085	
	Getter	Not Used	RAX1026	RAX1026	RAX1026	RAX1026	RAX1026	
	Operating Instructions (English)	RRB1146	RRB1157	Not Used	Not Used	Not Used	Not Used	
	Operating Instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	Not Used	Not Used	RRE1114	Not Used	Not Used	Not Used	
	Operating Instructions (German)	Not Used	Not Used	Not Used	RRD1157	Not Used	Not Used	
	Operating Instructions (English/Spanish/Chinese)	Not Used	Not Used	Not Used	Not Used	RRE1115	RRE1115	
	Packing Case	RHG1572	RHG1652	RHG1651	RHG1651	RHG1653	RHG1653	
	Pad Spacer A	RHC1039	RHC1039	Not Used	Not Used	Not Used	Not Used	
	Pad Spacer B	RHC1041	RHC1041	Not Used	Not Used	Not Used	Not Used	
NSP	Mother Unit	RWM1697	RWM1794	RWM1793	RWM1793	RWM1793	RWM1975	
	├ Main Unit	RWZ3208	RWZ3462	RWZ3462	RWZ3462	RWZ3462	RWZ3462	
	├┬ Dolby S Unit	RWX1101	RWX1109	RWX1109	RWX1109	RWX1109	RWX1109	
	├ OPSW Unit	RWZ3211	RWZ3463	RWZ3463	RWZ3463	RWZ3463	RWZ3463	
	├ FL Unit	RWZ3214	RWZ3464	RWZ3464	RWZ3464	RWZ3464	RWZ3464	
NSP	├ TR1 Unit	RWZ3298	RWZ3466	RWZ3465	RWZ3465	RWZ3465	RWZ3467	
NSP	├ TR2 Unit	RWZ3220	RWZ3468	Not Used	Not Used	Not Used	Not Used	

**● EXPLODED VIEWS**



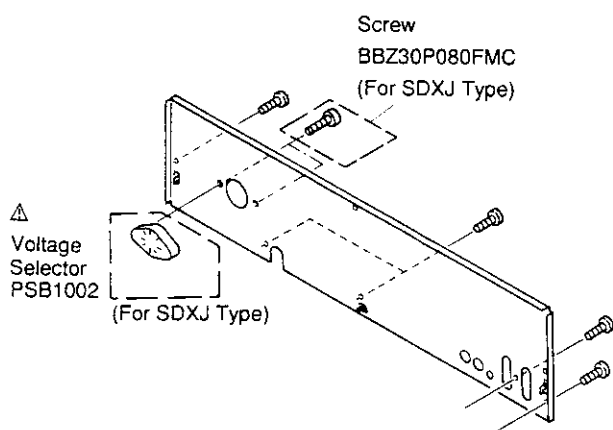


Fig. 2

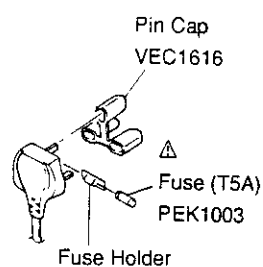


Fig. 3

**MAIN UNIT**

RWZ3462 and RWZ3208 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3208	RWZ3462	
	D1151, D1154	Not Used	1SS355	*
	D1152, D1153	Not Used	1SS254	*
	Dolby S Unit	RWX1101	RWX1109	

Note \* : Refer to "2. SCHEMATIC DIAGRAM".

**OPSW UNIT**

RWZ3463 and RWZ3211 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3211	RWZ3463	
	D1451	SEL6410G	SLR - 342MGT31	
	D1452	SEL6C10R	SLR - 342VRT31	

**FL UNIT**

RWZ3464 and RWZ3214 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3214	RWZ3464	
	D1520	SEL6210S	SLR - 342UCT31	

**TR1 UNIT**

RWZ3466 and RWZ3465, RWZ3467 and RWZ3298 have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		RWZ3298	RWZ3466	RWZ3465	RWZ3467	
	C1025	CKSQYF223Z50	CKSQYF223Z50	Not Used	Not Used	
Δ	C1033	Not Used	Not Used	Not Used	VCG - 044	*
Δ	C1031	Not Used	Not Used	VCG - 044	Not Used	*
Δ	Capacitor Cover Terminal	Not Used	Not Used	REC - 150	REC - 150	*
		Not Used	Not Used	Not Used	PKC - 027	*

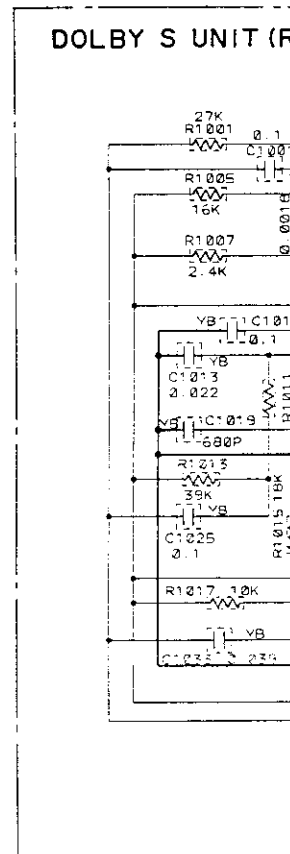
Note \* : Refer to "2. SCHEMATIC DIAGRAM".

**TR2 UNIT**

Although RWZ3220 and RWZ3468 different in part number, consist of the same components.

**■ PARTS LIST**

Mark No.	Description	Part
A	<b>DOLBY S UNIT</b>	
	<b>SEMICONDUCTORS</b>	
	IC100, IC1002	CXA1917S
	<b>CAPACITORS</b>	
	C1017, C1018	CEJA010M50
	C1057-C1060	CEJA470M16
	C1023, C1024, C1031, C1032	CEJAR10M50
	C1037, C1038	CEJAR10M50
	C1007, C1008, C1015, C1016	CEJAR22M50
	C1029, C1030, C1039, C1040	CEJAR22M50
	C1027, C1028, C1035, C1036	CEJAR47M50
	C1001, C1002, C1011, C1012	CKSQYB104K
	C1025, C1026, C1055, C1056	CKSQYB104K
	C1003-C1006	CKSQYB182K
B	C1045, C1046	CKSQYB222K
	C1013, C1014, C1053, C1054	CKSQYB223K
	C1033, C1034, C1049, C1050	CKSQYB393K
	C1047, C1048	CKSQYB471K
	C1041, C1042	CKSQYB473K



**SCH-1F**

DOLBY S UNIT

- NOTE FOR SCHEMATIC DIAGRAMS**  
(Type 6A)
- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
  - Since these are basic circuits, some parts of them or the SWITCHES (Underline indicates switch position):
  - RESISTORS:**  
Unit: k:K $\Omega$ , M:M $\Omega$ , or  $\Omega$  unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F):  $\pm 1\%$ , (G):  $\pm 2\%$ , (K):  $\pm 10\%$ , (M):  $\pm 20\%$  or  $\pm 5\%$  unless otherwise noted.
  - CAPACITORS:**  
Unit: p: pF or  $\mu$ F unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.
  - COILS:**  
Unit: m: mH or  $\mu$ H unless otherwise noted.
  - VOLTAGE AND CURRENT:**  
DC voltage (V) in STOP mode unless otherwise noted.  
DC current in STOP mode unless otherwise noted.
  - OTHERS:**  
    - Adjusting point.
    - Measurement point.
    - The  $\Delta$  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.
  - SCH- ON THE SCHEMATIC DIAGRAM:**  
    - SCH- $\square$  indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram).

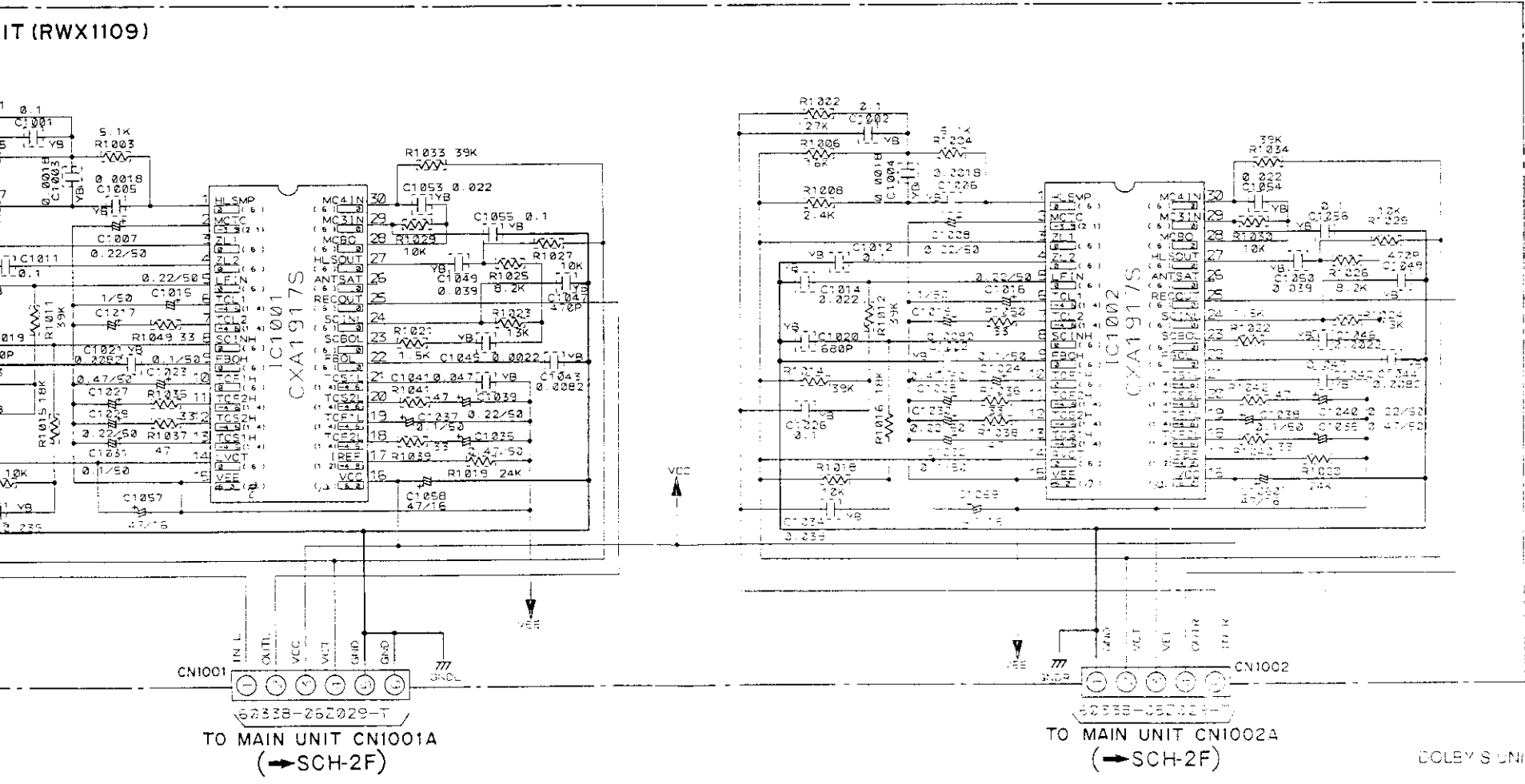
## 2. SCHEMATIC DIAGRAM

### 1. DOLBY S UNIT

Part No.	Mark No.	Description	Part No.
		C1019, C1020	CKSQYB681K50
		C1021, C1022, C1043, C1044	CKSQYB822K50
	<b>RESISTORS</b>	All Resistors	RS1/10S $\square\square\square$
	<b>OTHERS</b>		
		CN1002 CONNECTOR	6033B-05Z029
		CN1001 CONNECTOR	6033B-06Z029

010M50  
470M16  
R10M50  
R10M50  
R22M50  
R22M50  
R47M50  
YB104K25  
YB104K25  
YB182K50  
YB222K50  
YB223K50  
YB393K50  
YB471K50  
YB473K50

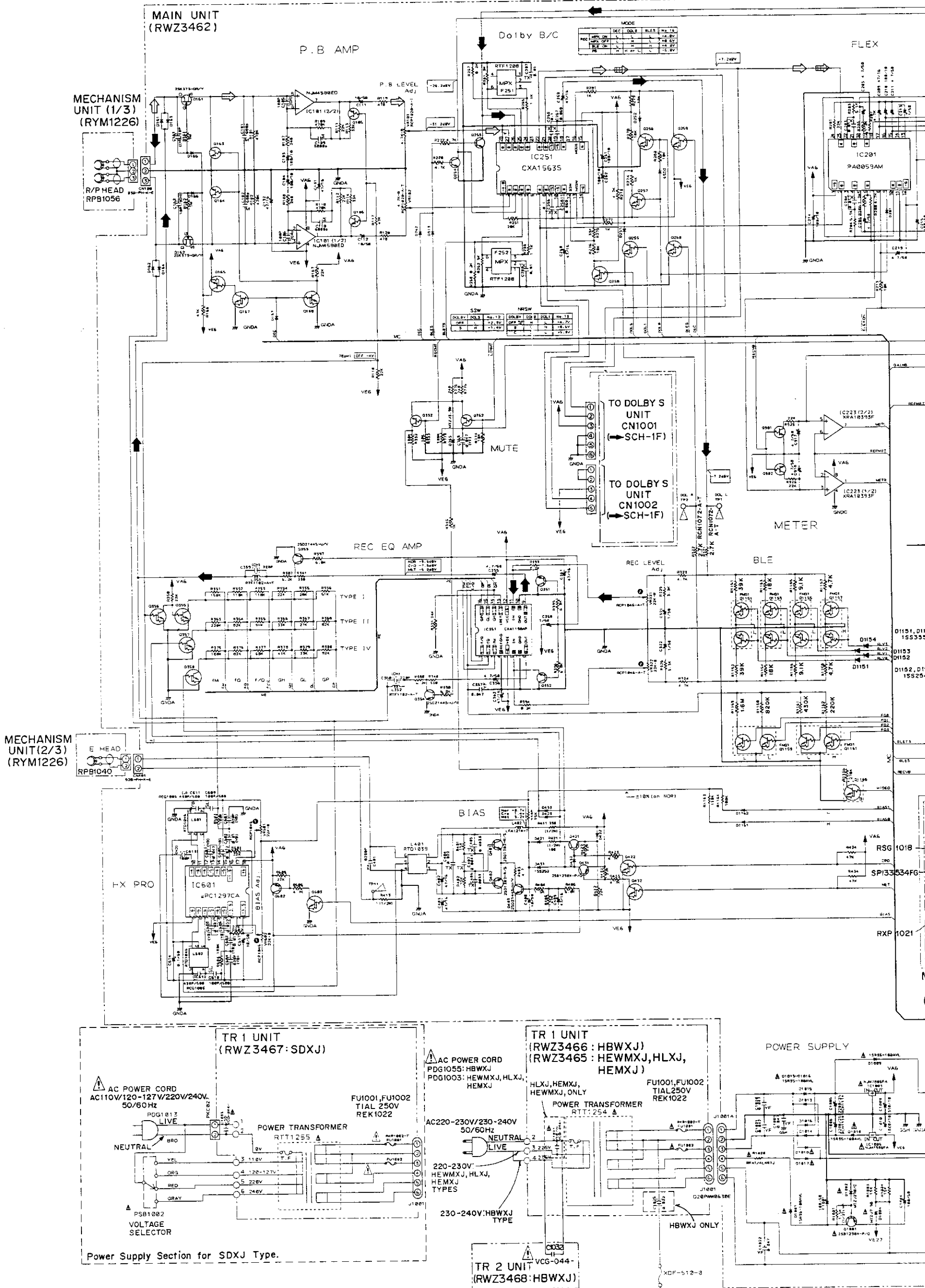
SCH-1F



SCH-1F

2. MAIN UNIT, OPSW UNIT FL UNIT

A  
B  
C  
D  
E  
F



Line Voltage Selection

Line voltage can be changed by the following modification:

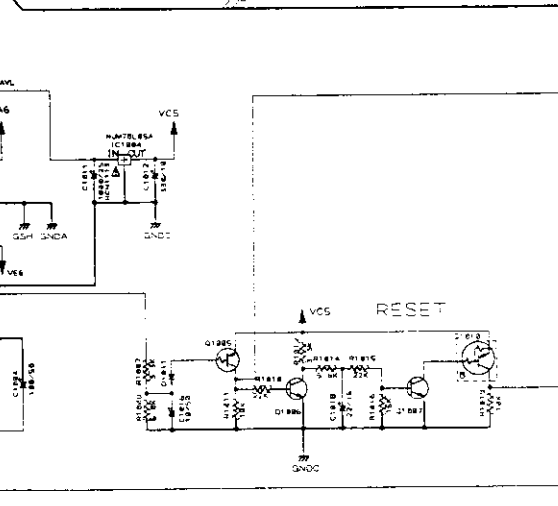
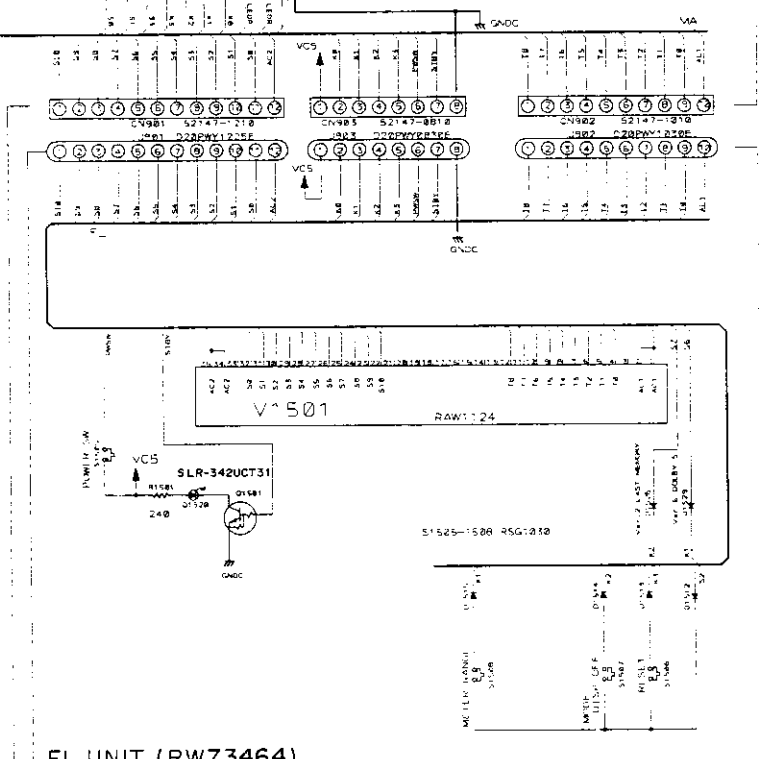
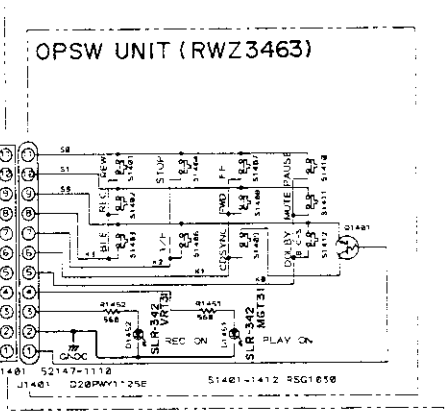
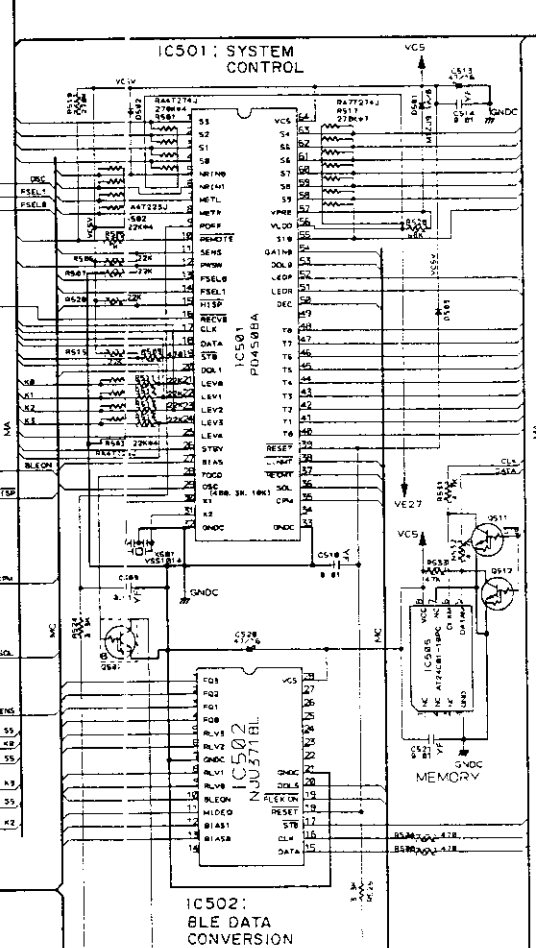
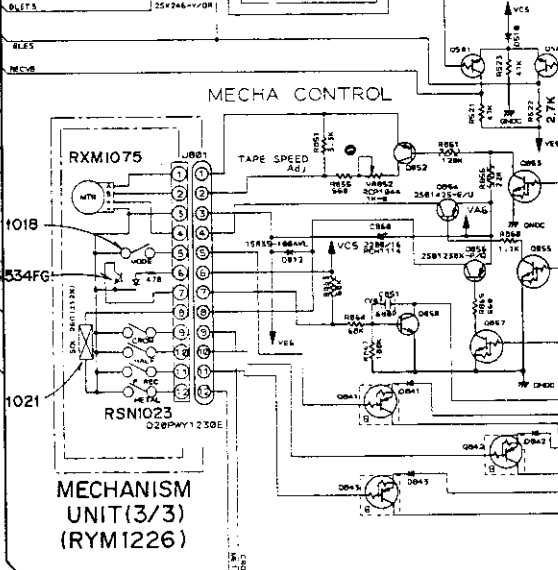
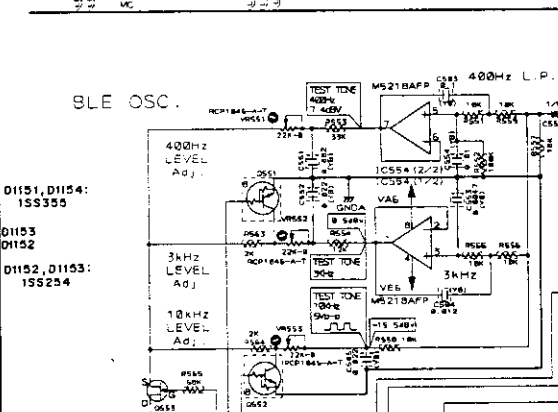
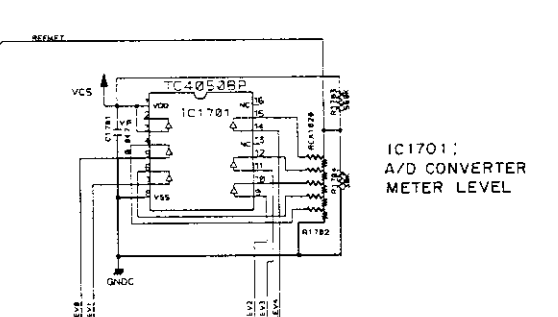
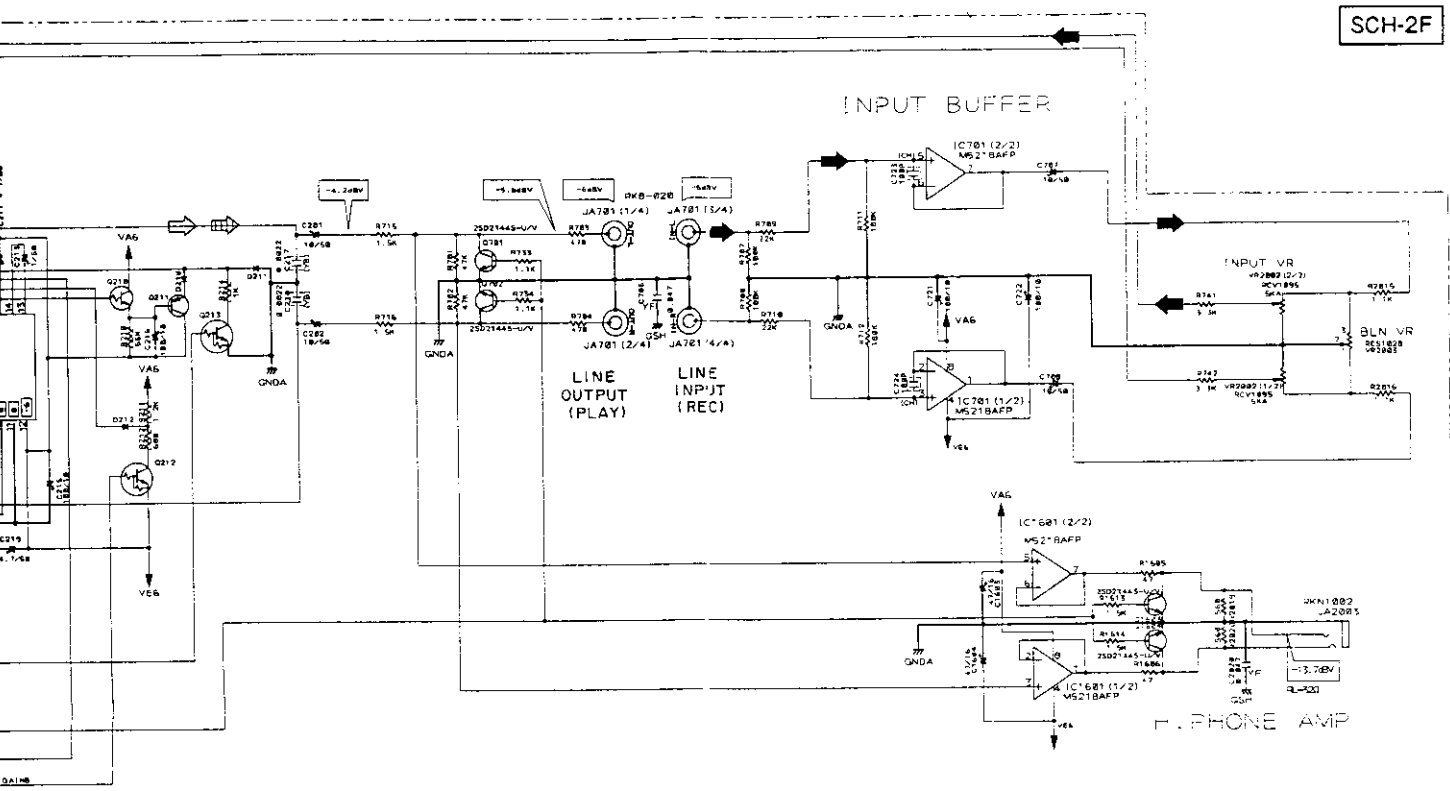
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of TRANSFORMER 1 UNIT primary pins.
4. Stick a line voltage label on the rear panel.

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

SCH-2F

MAIN UNIT, OPSW UNIT FL UNIT

SCH-2F



- Unspecified diodes and transistors are as follows.
  - Rs, Cs and Trs enclosed in dotted line are cnp parts.
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>⊕ 2SC3311A-R/S</li> <li>⊕ 2SA1309A-R/S</li> <li>⊕ DTC114TS</li> <li>⊕ DTA114TS</li> <li>⊕ DTC124ES</li> <li>⊕ DTA124ES</li> <li>⊕ DTA124EK (CHIP)</li> <li>⊕ DTA124EK (CHIP)</li> <li>⊕ 1SS124</li> </ul> | <p><b>SIGNAL RATE</b></p> <ul style="list-style-type: none"> <li>⇨ : PLAYBACK SIGNAL</li> <li>➡ : RECORDING SIGNAL</li> <li>⇨ : RECORDING MONITOR SIGNAL</li> </ul> |
|--|---|

MAIN UNIT, OPSW UNIT  
FL UNIT

SCH-2F

3. PCB CONNECTION DIAGRAM • This diagram is viewed from the mounted parts side.

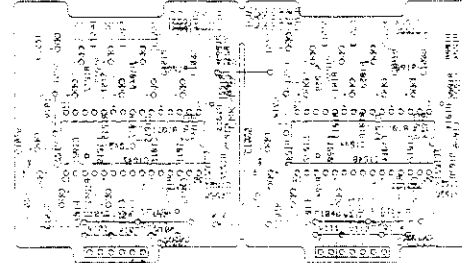
NOTE FOR PCB DIAGRAMS

- 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.

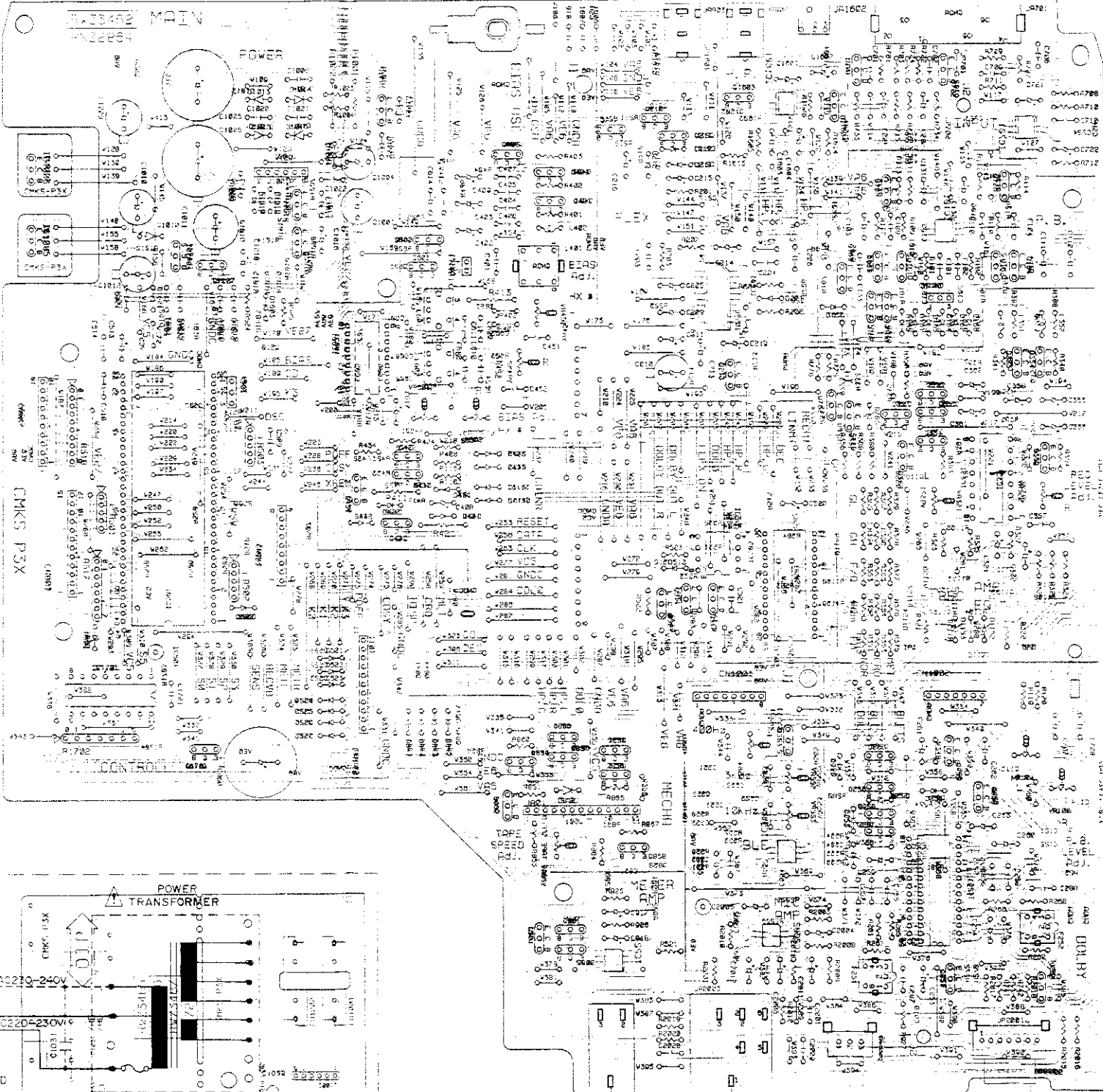
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- 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.

DOLBY S UNIT

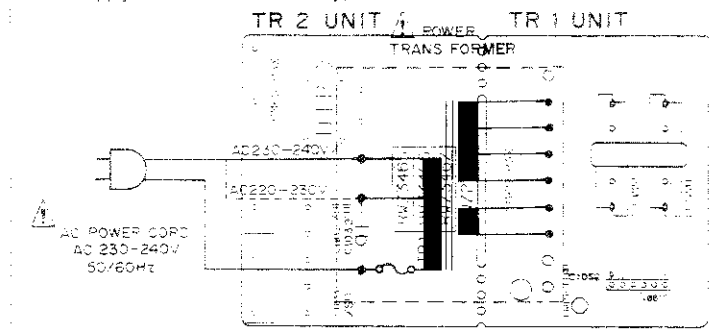


MAIN UNIT

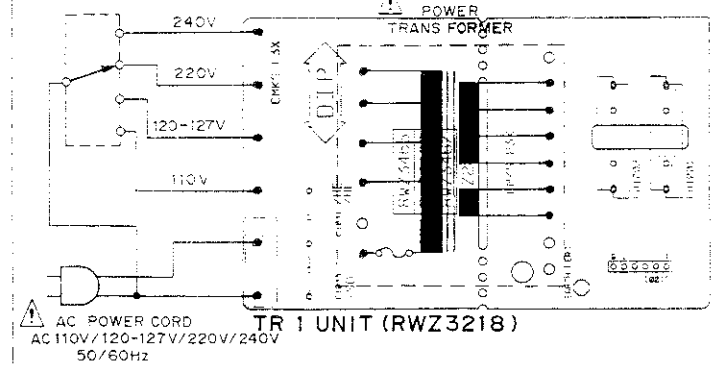


Q1001	Q210	Q1604
Q1005	Q212	Q211
Q1006	Q403	Q1001
Q602	Q402	Q106
Q603	Q401	Q105
IC1004		
Q1007		
VR451	Q351	Q161
VR452	Q352	Q354
VR601	Q213	Q353
VR602	Q722	Q355
Q422	Q354	Q352
Q403		Q351
VR321		
VR322		
Q421		
	Q505	
	Q502	
	Q502	
	Q511	
	Q512	
	Q553	
	Q553	
VR541	Q1701	Q554
VR101	Q1701	Q555
		Q200
		Q552
		Q256
		Q556
		Q257
VR552		Q558
VR553		Q258
VR552		Q552
		Q251
Q501		
Q901	Q5501	Q5050
Q902		
	Q253	Q254
VR203		
VR202		

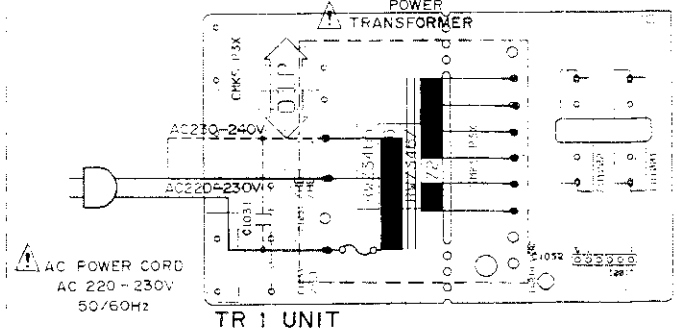
Power Supply Section for HBWXJ Type.



VOLTAGE SELECTOR



Power Supply Section for SDXJ Type.

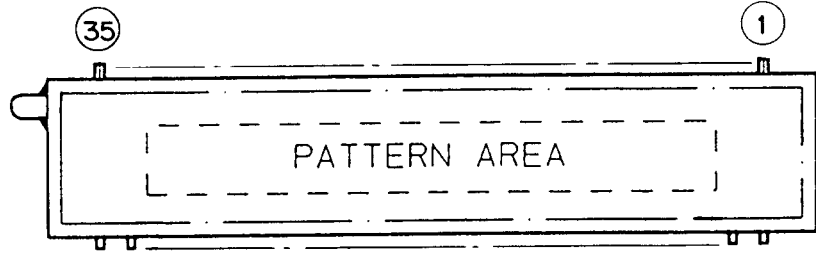


Power Supply Section for HEWMXJ, HLXJ and HEMXJ Types.

RNP1626-A

# 5. FL INFORMATION

■ RAW1124 (V1501)

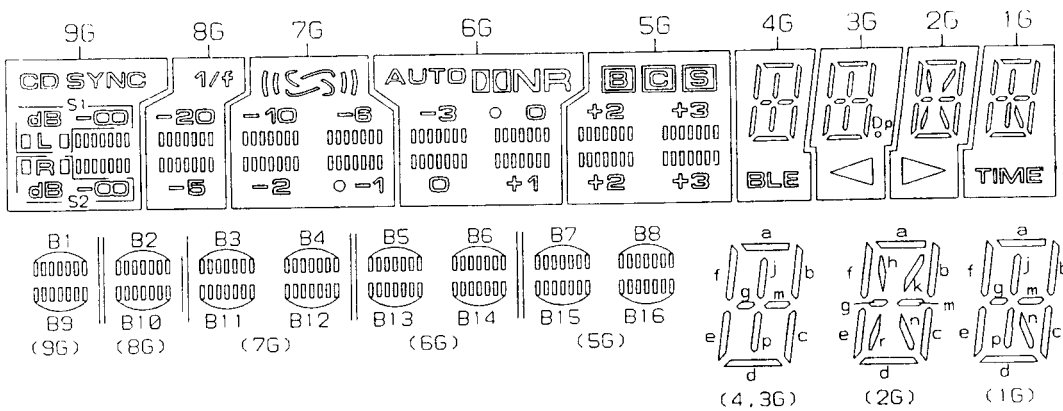


## Pin Connection

PIN NO.	35	33	33	33	33	32	22	22	22	22	22	22	22	22	21	11	11	11	11	11	11	11	11	11	11	11	10	9	8	7	6	5	4	3	2	1			
CONNECTION	F	F	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

NOTE 1) F1, F2 --- Filament  
 2) NP ----- No pin  
 3) DL ----- Datum Line  
 4) 1G~9G --- Grid

## Grid Assignment



## Anode Connection

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	B1	B2	B3	B5	B7	a	a	a	a
P2	-	-	B4	B6	B8	b	b	b	b
P3	B9	B10	B11	B13	B15	f	f	f	f
P4	-	-	B12	B14	B16	g	g	g, m	g
P5	S1	-20	-10	-6	-3	0	0	+2	+3
P6	S2	-5	-2	0	-1	0	+1	+2	+3
P7	-	-	⌈	-	-	e	e	e	e
P8	-	-	⌋	-	-	d	d	d	d
P9	CD SYNC	1/4	( )	AUTO	⊠	j, p	j, p	h	j, p
P10	-	-	( )	DONR	⊠	-	Dp	n	n
P11	-	-	-	-	⊠	BLE	◁	▷	TIME

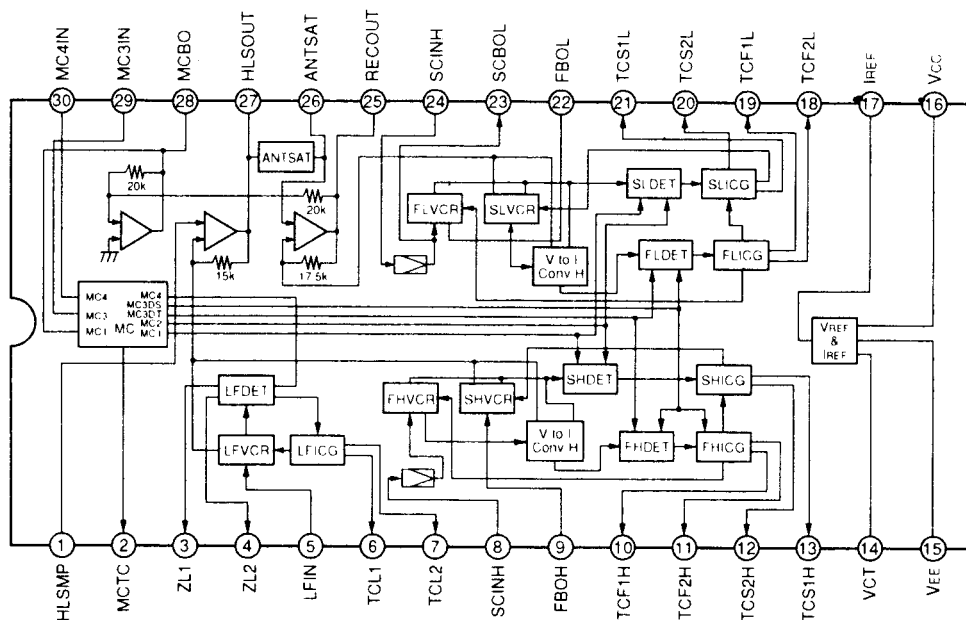


## 4. IC INFORMATION

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

### ■ CXA1917S (DOLBY S UNIT, IC1001, IC1002) DOLBY S TYPE NOISE REDUCTION SYSTEM

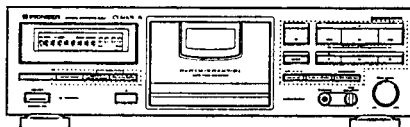
#### ● Block Diagram



#### ● Pin Function

Pin No.	NAME	FUNCTION
1	HLSMP	HL stage main bus input pin
2	MCTC	MC2 time constant pin
3	ZL1	Weighted pin for HL/LF/FB main band rectifiers
4	ZL2	Input pin for HL/LF/FB bus band rectifiers
5	LFIN	HL/LF/FB stages input pin
6	TCL1	Primary integral time constant pin for HL/LF/FB detectors
7	TCL2	Secondary integral time constant pin for HL/LF/FB detectors
8	SCINH	Input pin for HL/HF side chains
9	FBOH	Output pin for HL/HF/FB VCRs
10	TCF1H	Primary integral time constant pin for HL/HF/FB detectors
11	TCF2H	Secondary integral time constant pin for HL/HF/FB detectors
12	TCS2H	Secondary integral time constant pin for HL/HF/SB detectors
13	TCS1H	Primary integral time constant pin for HL/HF/SB detectors
14	VCT	Dual power supply of + and - → Ground pin    Single power supply → VCT pin
15	VEE	Dual power supply of + and - → Negative power supply pin    Single power supply → Ground pin
16	Vcc	Positive power supply pin
17	IREF	Reference current input pin
18	TCF2L	Secondary integral time constant pin for LL/HF/FB detectors
19	TCF1L	Primary integral time constant pin for LL/HF/FB detectors
20	TCS2L	Secondary integral time constant pin for LL/FB/SB detectors
21	TCS1L	Primary integral time constant pin for LL/HF/SB detectors
22	FBOL	Output pin for LL/HF/FB VCRs
23	SCBOL	Output pin for LL/HF side chain buffer amplifiers
24	SCINH	Input pin for LL/HF side chains
25	RECOUT	Recording (encode) output pin
26	ANTSAT	LL stage main bus input pin
27	HLSOUT	HL stage output pin
28	MCBO	MC buffer feedback pin
29	MC3IN	MC3 input pin
30	MC4IN	MC4 input pin

# Service Manual



ORDER NO.  
RRV1123

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

## STEREO CASSETTE DECK

# CT-S430S

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-S430S		
HBXJ	○	AC230 - 240V	AC220 - 230V, *
HB	○	AC230 - 240V	AC220 - 230V, *
HEM	○	AC220 - 230V	AC230 - 240V, *
HEMXJ	○	AC220 - 230V	AC230 - 240V, *
HEWM	○	AC220 - 230V	AC230 - 240V, *
HEWMXJ	○	AC220 - 230V	AC230 - 240V, *
HL	○	AC220 - 230V	AC230 - 240V, *
HLXJ	○	AC220 - 230V	AC230 - 240V, *
SD	○	AC110V/120 - 127V/220V/240V	With the voltage selector
SDXJ	○	AC110V/120 - 127V/220V/240V	With the voltage selector

\* : 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.

**NOTE:**

The introduction of CT-S430/HBXJ, HEMXJ, HEWMXJ, HLXJ, and SDXJ was postponed in April, 1994.

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# CHAPTER 1


## 1.1 SPECIFICATIONS

System.....	4 track, 2-channel stereo
Heads.....	"Hard Permalloy" recording/playback head × 1 "Ferrite" erasing head × 1
Motor.....	DC servo motor × 1
Wow and Flutter.....	0.070% (WRMS, JIS) ±0.18% (DIN)
Fast Winding Time.....	Approx. 100 seconds (C-60 tape)
Frequency Response (at -20 dB recording level)	
TYPE IV (Metal) tape.....	25 to 18,000 Hz (±6 dB)
TYPE II (High/CrO <sub>2</sub> ) Tape.....	25 to 17,000 Hz (±6 dB)
TYPE I (Normal) Tape.....	25 to 17,000 Hz (±6 dB)
Signal-to-Noise Ratio (Dolby NR OFF)	
Dolby NR off.....	More than 57 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) (CT-S430S only)
Harmonic Distortion.....	No more than 1.0% (at -4 dB: 160 nwb/m)
Input (Sensitivity)	
LINE (INPUT).....	100 mV (Input impedance 67 kΩ)
Output (Reference level)	
LINE (OUTPUT).....	0.5 V (Output impedance 2.2 kΩ)
Headphone (PHONES).....	1.33 mW (Load Impedance 32 Ω)


### Miscellaneous

Power requirements	
U.K., model.....	AC 230—240 Volts~, 50/60 Hz
Australian model.....	AC 240V, 50/60 Hz
Power consumption.....	16 W
Dimensions.....	420 (W)×125 (H)×280 (D) mm
Weight (without package)	
U.K. model and Australian model.....	3.8 kg

### Subfunctions

- Dolby B-type, C-type and S-type NR systems (CT-S430S)
- Dolby B-type and C-type NR Systems (CT-S330)
- DOLBY HX PRO system
- Auto tape selector (TYPE I, II, IV)
- Headphones jack
- 4-digit electronic tape/time counter
- Music search up to ±15 selections
- Automatic space recording mute
- SUPER AUTO BLE tuning system
- FL level meter 7 + 1 segments (with peak hold)
-  System remote control available
- CD · DECK SYNCHRO function
- FLEX system
- Display off
- Last memory
- Timer play

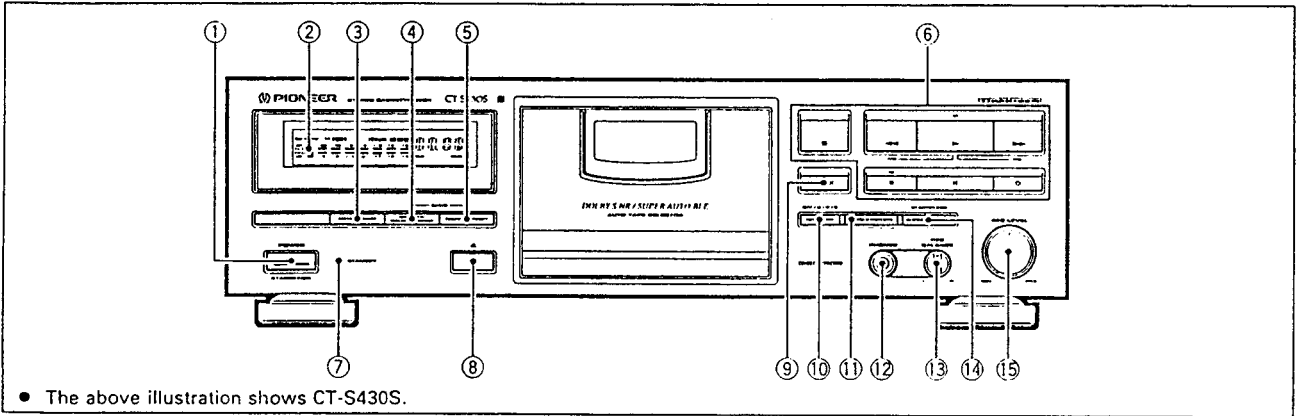
### Accessories

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.*

## 1.2 PANEL FACILITIES



• The above illustration shows CT-S430S.

**① POWER STANDBY/ON switch**

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.

**② Function display**

**③ Level meter range selector button (METER RANGE)**

Press to select wide or expanded range on the level meter.

**④ Display off/Tape counter mode button (DISP OFF/COUNTER MODE)**

Press to select the tape counter mode, the time counter mode, or to turn the function display off. Press the button to choose between the modes or to turn the display off.

Display off → Display on → Display on  
(Tape counter) (Tape counter) (Time counter)

**⑤ Tape counter reset button (COUNTER RESET)**

**⑥ Operation buttons**

- ◀/MS : Rewind/music search
- : Stop
- ▶ : Playback
- ▶▶/MS : Fast forward/music search
- : Recording
- ⏸ : Pause
- : Recording mute

**⑦ STANDBY indicator**

**⑧ Eject button (⏏)**

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

**⑨ FLEX button**

**⑩ Dolby\* NR button (OFF/B/C/S) (CT-S430S)**

**Dolby\* NR button (OFF/B/C) (CT-S330)**

For the CT-S430S

For the CT-S330

OFF → B → C → S

OFF → B → 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.

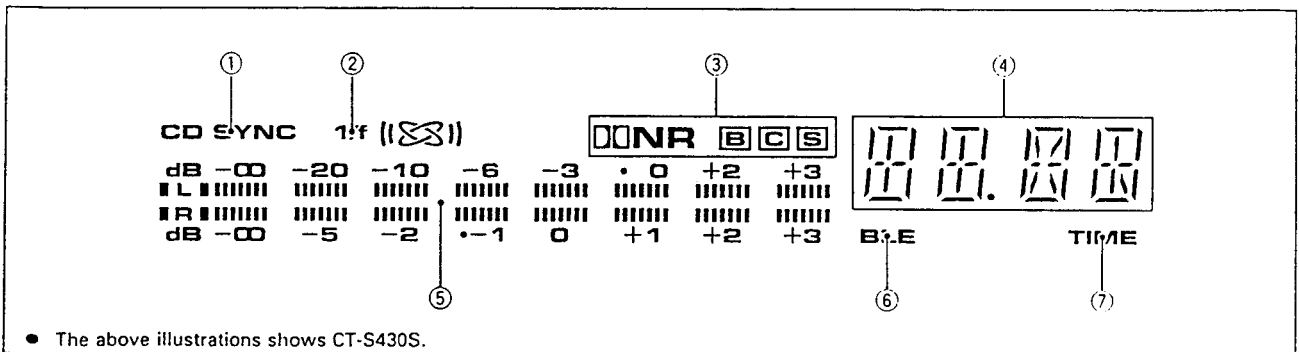
**⑪ CD · DECK SYNCHRO recording button (CD SYNCHRO)**

**⑫ Headphones jack (PHONES)**

**⑬ Recording balance control (REC BALANCE)**

**⑭ SUPER AUTO BLE button**

**⑮ Recording level control (REC LEVEL)**



• The above illustrations shows CT-S430S.

**① CD · DECK SYNCHRO indicator (CD SYNC)**

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

**② FLEX indicator (1/f)**

This indicator lights when the FLEX button is pressed.

**③ DOLBY NR B/C/S indicator (CT-S430S)**

**DOLBY NR B/C indicator (CT-S330)**

**④ Counter indicator**

Normally the tape number or time counter is displayed.

Flashes for four seconds after the power cord is connected to the power supply.

**⑤ Level meter with peak hold function**

The ● beside the -1 dB mark (at Expand mode) or 0 dB mark (at Wide mode) indicates the Dolby NR systems reference level.

Meter range:

Wide mode: -20 dB to +3 dB

Expand mode: -5 dB to +3 dB

- Selected meter range is shown on the function display by pressing the METER RANGE button.

**⑥ BLE indicator**

**⑦ TIME counter indicator**

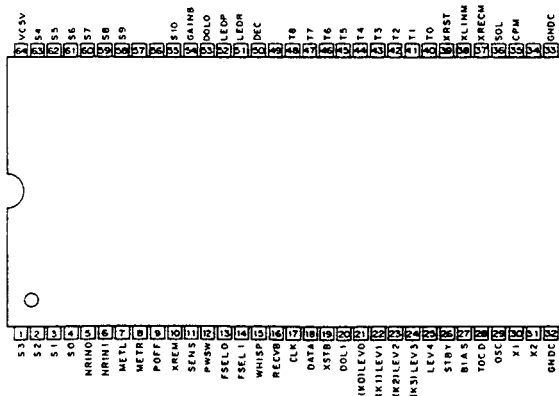
Lights up in the time counter mode.

## 1.3 IC INFORMATION

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

### ■ PD4508A (MAIN UNIT, IC501)

#### ● Pin Arrangement (Top view)



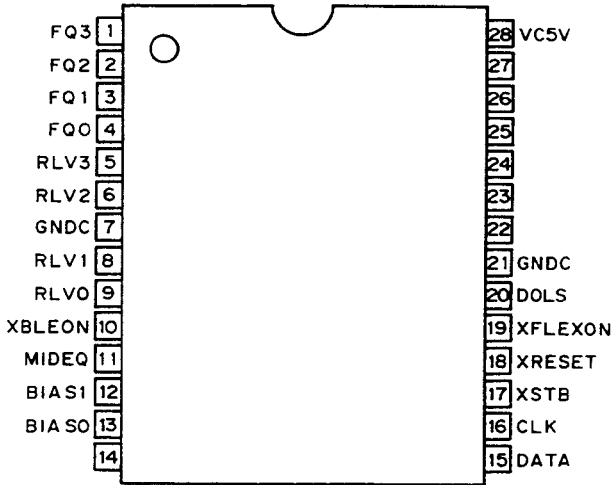
#### ● Pin Function

Pin No.	Name	I/O	Function
1	S3	O	Segment output, key scan output.
2	S2	O	
3	S1	O	
4	S0	O	
5	NRINO	I	Not used.
6	NRIN1	I	
7	METL	I	Level detection input, Lch.
8	METR	I	Level detection input, Rch.
9	POFF	I	POWER OFF input. "H":Active.
10	XREM	I	Remote commander input. "L":Active.
11	SENS	I	Sensing pulse input
12	PWSW	I	POWER SW input
13	FSEL0	O	AUTO BLE frequency select output (3 KHz)
14	FSEL1	O	AUTO BLE frequency select output (10 KHz)
15	XHISP	O	2× speed select output during AUTO BLE. "L":2× speed.
16	XRECVB	O	Meter circuit time constant switching output. "L":FAST, "H":SLOW.
17	CLK	O	Expansion IC clock output and memory IC clock output
18	DATA	I, O	Expansion IC data output and memory IC data input/output
19	XSTB	O	Expansion IC strobe output. "L" during communication output.
20	DOL1	O	DOLBY switching output 1
21	LEVEL0 (K0)	O	Level scan output.
		I	Key scan input.
22	LEVEL1 (K1)	O	Level scan output.
		I	Key scan input.
23	LEVEL2 (K2)	O	Level scan output.
		I	Key scan input.
24	LEVEL3 (K3)	O	Level scan output.
		I	Key scan input.
25	LEVEL4	O	Level scan output.

Pin No.	Name	I/O	Function
26	STBY	O	STANDBY display output
27	BIAS	O	BIAS oscillation output
28	TOCD	O	CD SYNC output
29	OSC	O	AUTOBLE 400/3K/10 KHz square wave output
30	X1	-	Crystal/ceramic connection for main system clock oscillation
31	X2	-	
32	GNDC	-	GND
33	(XT1)	-	Crystal connection for subsystem clock oscillation. GND.
34	(XT2)	-	Crystal connection for subsystem clock oscillation. Not used.
35	CPM	O	Capstan motor driving
36	SOL	O	Solenoid driving
37	XRECMT	O	Record mute output. "L":ON.
38	XLINMT	O	Line mute output. "L":ON.
39	XRST	I	System reset input. "L":Active.
40	T0	O	FL display grid output
41	T1	O	
42	T2	O	
43	T3	O	
44	T4	O	
45	T5	O	
46	T6	O	
47	T7	O	
48	T8	O	
49	-	-	Not used.
50	DEC	O	DECODE/ENCODE output. "H":DECODE, "L":ENCODE.
51	LEDR	O	Output for displaying playback system running
52	LEDP	O	Output for displaying record system running
53	DOLO	O	DOLBY switching output 0
54	GAINB	O	FLEX IC gain switching output
55	S10	O	Segment output
56	VLOAD	-	Connected to pull-down resistor for FL controller/driver
57	VPRE	-	Output buffer power supply for FL controller/driver
58	S9	O	Segment output
59	S8	O	Segment output, key scan output.
60	S7	O	
61	S6	O	
62	S5	O	
63	S4	O	
64	VC5V	-	+ 5V power supply

## ■ NJU3718L (MAIN UNIT, IC502)

### ● Pin Arrangement (Top view)



### ● Pin Functions

Pin No.	Name	Function
1	FQ3	Output BIT 3 for compensating AUTO BLE HIGH EQ
2	FQ2	Output BIT 2 for compensating AUTO BLE HIGH EQ
3	FQ1	Output BIT 1 for compensating AUTO BLE HIGH EQ
4	FQ0	Output BIT 0 for compensating AUTO BLE HIGH EQ
5	RLV3	Output BIT 3 for compensating AUTO BLE LEVEL
6	RLV2	Output BIT 2 for compensating AUTO BLE LEVEL
7	GNDC	GND
8	RLV1	Output BIT 1 for compensating AUTO BLE LEVEL
9	RLV0	Output BIT 0 for compensating AUTO BLE LEVEL
10	XBLEON	AUTO BLE ON output. "L":ON during BLE.
11	MIDEQ	Output for compensating AUTO BLE MID EQ
12	BIAS1	Output BIT 1 for compensating AUTO BLE BIAS
13	BIAS0	Output BIT 0 for compensating AUTO BLE BIAS
14	-	Not used.
15	DATA	Serial data signal input
16	CLK	Clock signal input
17	XSTB	Strobe signal input
18	XRST	System reset input. "L":Active.
19	XFLEX ON	Flex IC ON output. "L" during FLEX ON.
20	DOLS	Dolby S ON output
21	GNDC	GND
22 to 27	-	-
28	VC5	+5V power supply

## ■ AT24C01-10PC (MAIN UNIT, IC505)

### ● Pin Functions

Pin No.	Name	Function
1	NC	Not used.
2		
3		
4	GND	GND
5	DATM	Serial data signal input/output
6	CLKM	Clock signal input
7	NC	Connected to GND.
8	VCC	5V power supply

# 1.4 ADJUSTMENTS

## 1. MECHANICAL ADJUSTMENT

1. Tape speed Adjustment			
Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	VR852	3000Hz ± 5Hz

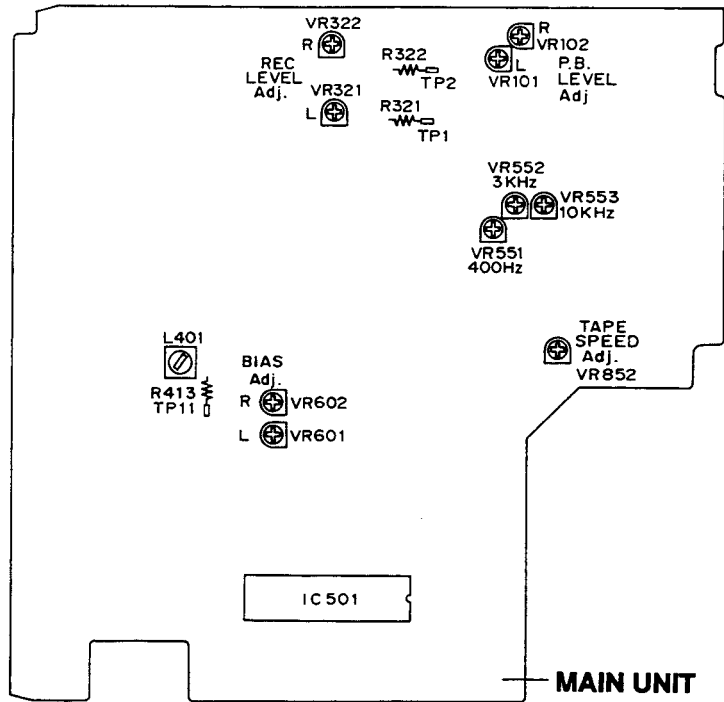


Fig. 1 Adjusting points

● **Before performing the head azimuth adjustment**

Remove the azimuth cover before performing this adjustment.

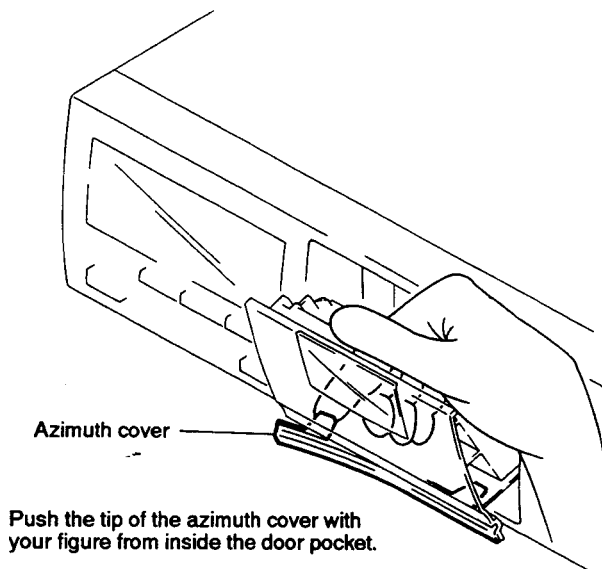


Fig. 2 Removal of azimuth cover



## 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<sub>2</sub> 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.

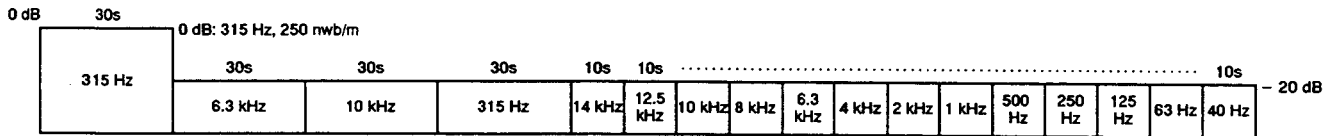


Fig. 3 Constants of the test tape STD-331E

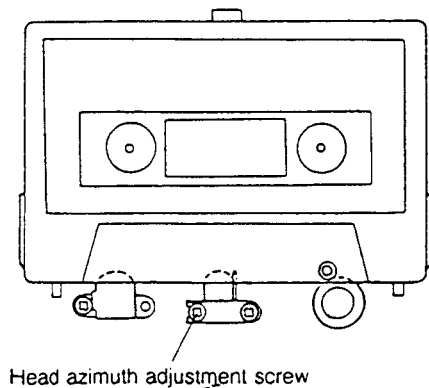


Fig. 4 Head azimuth adjustment

### List of Adjustments

#### Playback sections

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

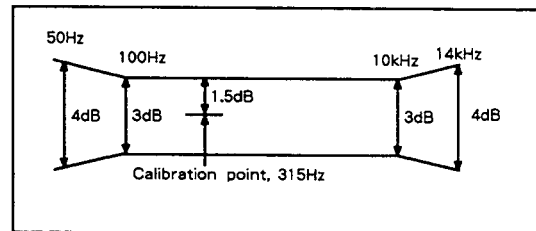
#### Recording sections

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.

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.

### PLAY BACK



### RECORDING

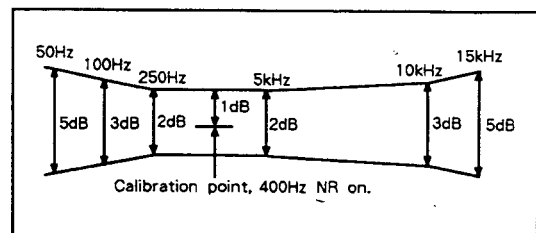


Fig. 5 Frequency response zone

## 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 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. 1 (Lch) TP. 2 (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 L401	TP. 11	105 kHz $\pm$ 0.3 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 6.3 kHz signals at -26 dBV input level and playback.	Deck VR601 (Lch) VR602 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes + 0.5dB $\pm$ 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 signal to the line input terminals, load the STD-631 or STD-632 test tape.	Volume of the output level of the oscillator	TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV	
2.	REC/ PLAY	Record the above signal onto the STD-631 or STD-632 test tape, and playback.	Deck VR321 (Lch) VR322 (Rch)		Repeatedly record, playback and adjust so that the playback signal level becomes -11.2dBV.	
3.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check		-11.2 dBV $\pm$ 1.5 dB	
4.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		-11.2 dBV $\pm$ 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 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 "0 dB" light up within $-7.2 \text{ dBV} \pm 2 \text{ dB}$ 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 AUTO BLE key on the front panel.	VR551	Level meter Rch	Adjust the Lch segment which is lit until Rch is not lighting up. Lch <input checked="" type="checkbox"/> → <input type="checkbox"/> Rch <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> ( <input checked="" type="checkbox"/> : light up <input type="checkbox"/> : not light up)	400 Hz adjustment (Test mode 1 FL indication 1)
3.		Press the AUTO BLE key on the front panel.	VR552			3 kHz adjustment (Test mode 2 FL indication 2)
4.		Press the AUTO BLE key on the front panel.	VR553			10 kHz adjustment (Test mode 3 FL indication 3)

# 1.5 PARTS LIST FOR EXPLODED VIEWS AND PACKING

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## 1. EXTERIOR AND PACKING

**■ CONTRAST OF HBXJ, HB, HEM, HEWM, HEWMXJ, HL, HLXJ, HEMXJ, SD AND SDXJ TYPES**

HBXJ, HB, HEM, HEWM, HEWMXJ, HL, HLXJ, HEMXJ, SD and SDXJ have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.										
			HBXJ type	HB type	HEM type	HEWM type	HEWMXJ type	HL type	HLXJ type	HEMXJ type	SD type	SDXJ type	
NSP	4	TRN 1 unit	RWZ3298	RWZ3298	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3218	RWZ3218
NSP	5	TRN 2 unit	RWZ3220	RWZ3220	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
$\Delta$	9	Power Transformer (AC220-230/230-240V)	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	RTT1254	Not used	Not used
$\Delta$	9	Power Transformer (AC110/120-127/220/240V)	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	RTT1255	RTT1255
$\Delta$	10	Power cord with HB plug	PDG1055	PDG1055	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
$\Delta$	10	Power cord with HE plug	Not used	Not used	PDG1003	PDG1003	PDG1003	PDG1003	PDG1003	PDG1003	PDG1003	Not used	Not used
$\Delta$	10	Power cord with SD plug	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	PDG1013	PDG1013
NSP	16	Main chassis	RNB1100	RNB1090	RNB1090	RNB1090	RNB1100	RNB1090	RNB1100	RNB1100	RNB1100	RNB1090	RNB1100
	32	FL lens	RAH2413	RAH2413	RAH2413	RAH2413	RAH2413	RAH2414	RAH2414	RAH2413	RAH2414	RAH2414	RAH2414
	35	Rear panel	RNA1818	RNA1847	RNA1848	RNA1848	RNA1814	RNA1822	RNA1840	RNA1814	RNA1820	RNA1820	RNA1838
$\Delta$	45	Pin cap	VEC1616	VEC1616	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
$\Delta$	48	Voltage selector	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	PSB1002	PSB1002
$\Delta$	49	Fuse (T5A)	PEK1003	PEK1003	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
	67	Connection cord with mini plug	PDE-319	PDE1247	PDE1247	PDE1247	PDE-319	PDE1247	PDE-319	PDE1247	PDE-319	PDE-319	PDE-319
	57	Control cord	RDE1030	RDE1038	RDE1038	RDE1038	RDE1030	RDE1038	RDE1030	RDE1038	RDE1030	RDE1030	RDE1030
	58	Operating instructions (English)	RRB1146	RRB1146	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
	58	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	Not used	Not used	RRE1101	Not used	Not used	Not used	Not used	Not used	RRE1101	Not used	Not used
	58	Operating instructions (German)	Not used	Not used	Not used	RRD1150	RRD1150	Not used	Not used	Not used	Not used	Not used	Not used
	58	Operating instructions (English, Spanish, Chinese)	Not used	Not used	Not used	Not used	Not used	RRE1102	RRE1102	Not used	RRE1102	Not used	RRE1102
	61	Packing case	RHG1572	RHG1593	RHG1609	RHG1609	RHG1571	RHG1574	RHG1580	RHG1613	RHG1573	RHG1573	RHG1582
	65	Pad spacer A	RHC1039	RHC1039	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
	66	Pad spacer B	RHC1041	RHC1041	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used

**■ PARTS LIST FOR HBXJ TYPE**

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Main unit	RWZ3208		12	Door spring L	RBH1384
	2	Dolby S unit	RWX1101		13	Half pressure spring	RBK1004
	3	OPSW unit	RWZ3211		14	LED lens	PNW2019
NSP	4	TRN 1 unit	RWZ3298		15	Damper assy	REC1005
NSP	5	TRN 2 unit	RWZ3220				
	6	FL unit	RWZ3214	NSP	16	Main chassis	RNB1100
$\Delta$	7	Strain relief	CM - 22B		17	Cord clamper	RNH - 184
$\Delta$	8	Fuse FU1001, FU1002 (T1.0A)	REK1022		18	Indicator lens S	RNK1911
$\Delta$	9	Power transformer	RTT1254		19	Insulator	PNW1912
$\Delta$	10	Power cord with HB plug	PDG1055		20	Balance knob	RAC1705
	11	Mechanism unit	RYM1226		21	VR knob	RAC1707
					22	Eject spring L	RBH1379
					23	Operation knob	RAC1795

**2. MECHANISM UNIT**

Mark	No.	Description	Part No.
	24	Eject knob	RAC1906
	25	Power knob	RAC1809
	26	Door lens	RAH2171
	27	Mode knob A	RAC1907
	28	Name plate	RAM1007
NSP	29	Eject collar	RLA1283
	30	Indication panel	REE - 113
NSP	31	Arm collar	RLA1290
	32	FL lens	RAH2413
	33	Door pocket	RAH2443
	34	Front panel	RAH2411
	35	Rear panel	RNA1818
	36	Bonnet	REA1077
	37	Eject spring	RBH1340
	38	Washer	WA52D120D025
NSP	39	PCB spacer	PNY - 404
	40	Eject arm L	RNE1763
	41	Eject lever L	RNK2045
	42	Connector assy 3P	RKP1672
	43	Connector assy 2P	RKP1681
	44	Azimuth cover	RAH2431
	45	Pin cap	VEC1616
NSP	46	Binder	Z09 - 058
	47	Earth lead assy	RDF1089
	48	.....	
△	49	Fuse (T5A)	PEK1003
	50	Screw	BBZ30P080FMC
	51	Screw	IBZ30P150FCU
	52	Screw	BSZ26P120FMC
	53	Screw	ABZ30P080FMC
	54	Screw	IPZ26P080FMC
	55	Screw	BCZ26P050FMC
	56	Connection cord assy	RDE1036
	57	Control cord	RDE1030
	58	Operating instructions (English)	RRB1146
	59	Pad (L)	RHA1111
	60	Pad (R)	RHA1112
	61	Packing case	RHG1572
	62	Sheet	RHX - 034
	63	Spacer A	RHC1044
	64	.....	
	65	Pad spacer A	RHC1039
	66	Pad spacer B	RHC1041
	67	Connection cord with mini plug	PDE - 319

Mark	No.	Description	Part No.
	1	Plunger	RLA1288
	2	PCB Control BLK	RXA1625
	3	Push Switch	RSG1018
	4	SPLF	RSN1023
	5	Photo - Transistor	SPI33534FG
	6	MTR Main BLK	RXM1075
	7	Solenoid BLK	RXP1021
	8	Spring Interlock L	RBH1385
	9	Arm Interlock L	RNE1780
	10	Chassis Base BLK	RXA1627
	11	Spring Brake	RBH1387
	12	Main Belt	RBE1163
	13	F/R Belt	REB1254
	14	Lever Brake	RNK2071
	15	E Head	RPB1040
	16	Pinch Roller BLK R	RXA1630
	17	Head Spacer	RNK1631
	18	Clutch Assy BLK	RXA1631
	19	Screw	RBA1113
	20	Washer 2.1 × 0.25T	RBF1038
	21	Spring Reel (L)	RBH1388
	22	Spring Reel (R)	RBH1389
	23	Cam Spring	RBH1393
	24	Spacer	RLA1286
	25	Lever F/R	RNE1782
	26	Reel Feather	RNK2072
	27	Reel Base	RNK2073
	28	Play Gear (A)	RNK2074
	29	FF Gear (A)	RNK2075
	30	F/R Pulley	RNK2076
	31	Clutch Assy BLK	RXA1632
	32	Washer	WA17D040D025
	33	Washer	WA23F060M040
	34	Spring (Azimuth)	RBH1076
	35	F Lock Screw	RBA1031
	36	Spring HB	RBH1390
	37	Head Base	RNE1784
	38	R/P Head	RPB1056
	39	Stop Ring	YE15FUC
	40	Screw	RBA1113
	41	Washer 2.0 × 0.3	RBE1009
	42	Spring Arm Play	RBH1391
	43	Spacer	RLA1286
	44	Washer	WA26D047D050
	45	Cam Gear	RNK2078
	46	Arm Play	RNK2079
	47	Spring Cassette	RNE1786
	48	Screw	BMZ26P040FZK
	49	Washer	WA26D045D025

# 1.6 PCB PARTS LIST

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- 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  $\Omega$   $\rightarrow$   $56 \times 10^1 \rightarrow$  561 ..... RD1/8PM  $\begin{matrix} 5 & 6 & 1 \\ \hline & & J \end{matrix}$   
 47k  $\Omega$   $\rightarrow$   $47 \times 10^3 \rightarrow$  473 ..... RD1/4PS  $\begin{matrix} 4 & 7 & 3 \\ \hline & & J \end{matrix}$   
 0.5  $\Omega$   $\rightarrow$  0R5 ..... RN2H  $\begin{matrix} 0 & R & 5 \\ \hline & & K \end{matrix}$   
 1  $\Omega$   $\rightarrow$  010 ..... RS1P  $\begin{matrix} 0 & 1 & 0 \\ \hline & & K \end{matrix}$

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

5.62k  $\Omega$   $\rightarrow$   $562 \times 10^1 \rightarrow$  5621 ..... RN1/4PC  $\begin{matrix} 5 & 6 & 2 & 1 \\ \hline & & & F \end{matrix}$

## LIST OF WHOLE PCB ASSEMBLIES

Mark	PCB Assemblies	Part No.										
		HBXJ type	HB type	HEM type	HEWM type	HEWMXJ type	HL type	HLXJ type	HEMXJ type	SD type	SDXJ type	
NSP	Mother unit	RWM1697	RWM1697	RWM1693	RWM1693	RWM1693	RWM1693	RWM1693	RWM1693	RWM1693	RWM1695	RWM1695
	├ Main unit	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208	RWZ3208
	└ Dolby S unit	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101	RWX1101
	├ OPSW unit	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211	RWZ3211
	└ FL unit	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214	RWZ3214
NSP	├ TR 2 unit	RWZ3220	RWZ3220	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
NSP	└ TR 1 unit	RWZ3298	RWZ3298	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3217	RWZ3218	RWZ3218

## TRN 1 UNIT

RWZ3298, RWZ3217 and RWZ3218 have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		RWZ3298	RWZ3217	RWZ3218	
$\Delta$	C1025	CKSQYF223Z50	CKSQYF223Z50	Not used	
$\Delta$	C1033	Not used	Not used	VCG - 044	
$\Delta$	C1031	Not used	VCG - 044	Not used	
$\Delta$	Capacitor cover	Not used	REC - 150	REC - 150	
	Terminal	Not used	Not used	PKC - 027	

## ■ PARTS LIST FOR HBXJ AND HB TYPES

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
		<b>DOLBY S UNIT</b>				C1037, C1038	CFTYA334J50
						C1013, C1014, C1055, C1056	CKSQYB102K50
		<b>SEMICONDUCTORS</b>				C1007, C1008, C1025, C1026	CKSQYB104K25
		IC1001, IC1002	CXA1417Q			C1043, C1044, C1067, C1068	CKSQYB104K25
						C1077, C1078, C1081, C1082	CKSQYB104K25
		<b>CAPACITORS</b>					
		C1003, C1004, C1015, C1016	CEJA010M50			C1087, C1088	CKSQYB104K25
		C1051, C1052	CEJA010M50			C1023, C1024, C1049, C1050	CKSQYB153K50
		C1089, C1090	CEJA100M25			C1065, C1066, C1069-C1072	CKSQYB182K50
		C1085, C1086	CEJA220M25			C1083, C1084	CKSQYB182K50
		C1033, C1034	CEJAR10M50			C1079, C1080	CKSQYB183K50
		C1001, C1002, C1031, C1032	CEJAR22M50			C1059, C1060	CKSQYB222K50
		C1045, C1046, C1091, C1092	CEJAR22M50			C1009, C1010, C1073, C1074	CKSQYB223K50
		C1027, C1028, C1041, C1042	CEJAR47M50			C1093, C1094	CKSQYB333K50
		C1075, C1076	CEJAR47M50			C1005, C1006, C1061, C1062	CKSQYB393K50
		C1019, C1020	CFTYA224J50			C1063, C1064	CKSQYB471K50

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C1047, C1048		CKSQYB473K50		D1620-D1622, D163-D167, D201		ISS254
	C1011, C1012		CKSQYB681K50		D210-D212, D251-D253		ISS254
	C1017, C1018, C1053, C1054		CKSQYB822K50		D421-D423, D432, D433		ISS254
	C1021, C1022, C1039, C1040		CKSQYB823K25		D502, D503, D510, D521-D527		ISS254
	C1029, C1030, C1035, C1036 (47/16)		RCH1095		D742, D841-D843, D913, D921		ISS254
				△	D1002		MTZJ27B
					D765		MTZJ3. 9B
<b>RESISTORS</b>							
	All Resistors		RS1/10S□□□J	△	D1004		MTZJ7. 5B
					D501		MTZJ9. 1A
<b>OTHERS</b>				<b>COILS AND FILTERS</b>			
	CN1002 2MM PIN HEADER 7P		6033B-07Z029		L402		LFA121J
	CN1001 2MM PIN HEADER 8P		6033B-08Z029		L401 (105K)		RTD1039
<b>MAIN UNIT</b>					L601, L602 (105K)		RTD1046
<b>SEMICONDUCTORS</b>					L351, L352		RTF1102
	IC505		AT24C01-10PC		F251, F252		RTF1208
	IC351		CXA1198AP	<b>CAPACITORS</b>			
	IC251		CXA1563S		C609, C610		CCCSL101K500
	IC1601, IC554, IC701		M5218AFP		C161, C162		CCSQCH100D50
	IC101		NJM4580ED		C105, C106, C613, C723, C724		CCSQCH101J50
△	IC1003		NJM7806FA		C359, C360		CCSQCH221J50
△	IC1004		NJM78L05A		C213, C321, C322, C358, C555		CEAS010M50
△	IC1005		NJM7906FA		C1016, C111, C112, C201, C202		CEAS100M50
	IC502		NJU3718L		C408, C617, C707, C708		CEAS100M50
	IC201		PA0059AM		C103, C104, C210, C214-C216		CEAS101M10
					C261, C262, C721, C722		CEAS101M10
	IC501		PD4508A		C1001, C1004		CEAS101M50
	IC1701		TC4050BP		C1010		CEAS102M10
	IC601		UPC1297CA		C1018		CEAS220M16
	IC223		XRA10393F		C1009, C1012		CEAS331M10
	Q510		2SA1037K		C131, C132, C1603, C1604, C209		CEAS470M16
					C259, C260, C361, C362		CEAS470M16
△	Q211, Q421, Q602, Q852		2SA1309A		C402, C403, C409, C513, C520		CEAS470M16
	Q1001, Q431, Q856		2SB1238X		C205, C206, C211, C219		CEAS4R7M50
	Q854		2SB1425		C355, C356, C917, C918		CEAS4R7M50
	Q1006, Q1007, Q253, Q254		2SC3311A		C614		CEASR10M50
	Q351, Q352, Q858		2SC3311A		C203, C204, C287, C288		CFTYA103J50
					C255, C256		CFTYA104J50
	Q401, Q402		2SD1302		C404		CFTYA223J50
	Q1603, Q1604, Q353, Q354, Q403		2SD2144S		C257, C258		CFTYA683J50
	Q701, Q702		2SD2144S		C1606, C509, C510, C514, C521		CKCYF103Z50
	Q553		2SK246		C910		CKCYF103Z50
					C1008, C1020-C1022, C1607, C1701		CKCYF473Z50
	Q161, Q162		2SK373		C2020, C357, C706		CKCYF473Z50
	Q1005, Q332, Q501, Q502, Q762		DTA114TS		C554, C601, C602		CKSQYB103K50
	Q1010, Q841-Q843		DTA124EK		C503		CKSQYB104K25
	Q165		DTA124ES		C504		CKSQYB123K50
	Q105, Q106, Q163, Q164, Q210		DTC114TS		C217, C218		CKSQYB222K50
					C505, C552, C605, C606		CKSQYB223K50
	Q901, Q902		DTC114TS		C553		CKSQYB472K50
	Q1165, Q507, Q551, Q552		DTC124EK		C607, C608		CKSQYB473K50
	Q167, Q168, Q212, Q213		DTC124ES		C851		CKSQYB681K50
	Q255-Q260, Q355-Q358, Q422		DTC124ES		C603, C604		CKSQYB821K50
	Q432, Q511, Q512, Q603, Q853		DTC124ES		C551		CKSQYB823K25
					C769		CKSQYF473Z50
	Q855, Q857		DTC124ES		C405, C406		QMA332J50
	Q1151, Q1153, Q1155, Q1157, Q1159		FMG1		C407		QMA472J50
	Q1161		FMG1				
△	D1001, D1009, D1010, D1013-D1016		1SR35-100AVL				
△	D812		1SR35-100AVL				
	D431		1SS252				
	D1011, D1017, D1018, D1161, D1162		1SS254				
	D1602-D1604, D161, D162		1SS254				

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C101, C102		CQMA681J50		VR321, VR322, VR551-VR553 (22K)		RCP1046
	C109, C110		CQMA682J50		VR601, VR602 (22K $\Omega$ )		RCP1046
	C401		CQPA822J100		VR2003		RCS1028
	C860 (2200/16)		PCH1114		VR2002		RCV1095
	C611, C612 (430P/500)		RCG1005		Other Resistors		RS1/10S□□□J
	C1011 (1000/25)		RCH1113				
	C1005, C1006 (2200/25)		RCH1114				
<b>RESISTORS</b>				<b>OTHERS</b>			
	R502, R503		RA4T223J		CN903 8P JUMPER CONNECTOR		52147-0810
	R501		RA4T274J		CN902 10P JUMPER CONNECTOR		52147-1010
	R517		RA7T274J		CN1401 11P JUMPER CONNECTOR		52147-1110
	R321, R322 (560 $\Omega$ )		RCN1024		CN901 12P JUMPER CONNECTOR		52147-1210
	R1702 (11K/22K)		RXC1020		CN401 KR CONNECTOR		B2B-PH-K-E
	R413		RD1/2LMF010J		CN100 KR CONNECTOR		B3B-PH-K-E
	R1001		RD1/2LMF152J		JA1602 MINI JACK		PKN1005
	R421		RD1/2LMF181J		JA701 4P JACK		RKB-020
	R411		RD1/2LMF391J		JA2003 HEADPHONE JACK		RKN1002
	R1164, R707, R708, R867		RD1/6PM104J		JA902, JA903 REMOTE CONTROL JACK		RKN1004
	R2015, R2016, R265, R266		RD1/6PM112J		PCB BINDER		VEF1008
	R733, R734, R860		RD1/6PM112J		PCB BINDER		VEF1040
	R1163, R352, R353		RD1/6PM114J		EARTH PLATE		VNF-091
	R1613, R1614, R715, R716		RD1/6PM152J		X501 CERAMIC RESONATOR (4.19MHz)		VSS1014
	R1003, R1004, R401, R402, R408		RD1/6PM153J	<b>OPSW UNIT</b>			
	R351		RD1/6PM154J	<b>SEMICONDUCTORS</b>			
	R375, R711, R712		RD1/6PM184J		Q1401		DTA114TS
	R355		RD1/6PM203J		D1451		SEL6410G
	R111, R112, R201, R350, R354		RD1/6PM223J		D1452		SEL6C10R
	R709, R710, R925, R926		RD1/6PM223J	<b>SWITCHES AND RELAYS</b>			
	R363		RD1/6PM224J		S1401-S1404, S1406-S1412		RSG1030
	R775, R776		RD1/6PM241J	<b>RESISTORS</b>			
	R327, R328		RD1/6PM272J		All Resistors		RD1/6PM□□□J
	R367		RD1/6PM273J	<b>FL UNIT</b>			
	R261, R262		RD1/6PM302J	<b>SEMICONDUCTORS</b>			
	R340, R341		RD1/6PM331J		Q1501		DTC124ES
	R325, R326, R524, R525		RD1/6PM332J		D1512-D1515, D1526, D1529		ISS254
	R741, R742, R851		RD1/6PM332J		D1520		SEL6210S
	R113, R114, R366, R379		RD1/6PM333J	<b>SWITCHES AND RELAYS</b>			
	R378		RD1/6PM433J		S1505-S1508		RSG1030
	R1605, R1606		RD1/6PM470J	<b>RESISTORS</b>			
	R119, R120, R703, R704		RD1/6PM471J		All Resistors		RD1/6PM□□□J
	R207, R208, R323, R324		RD1/6PM472J	<b>OTHERS</b>			
	R117, R424, R434, R521-R523		RD1/6PM473J		V1501 FL INDICATOR TUBE		RAW1124
	R701, R702		RD1/6PM473J	<b>TR 2 UNIT</b>			
	R101, R102, R109, R110		RD1/6PM474J	<b>CAPACITORS</b>			
	R403		RD1/6PM477J		△ C1032 (0.01/400)		VCG-044
	R203, R204		RD1/6PM512J	<b>TR 1 UNIT</b>			
	R356		RD1/6PM513J	<b>CAPACITORS</b>			
	R2019, R2020, R855, R865		RD1/6PM561J		C1025		CKSQYF223Z50
	R387, R388		RD1/6PM622J				
	R377, R864		RD1/6PM683J				
	R267, R268, R393, R394		RD1/6PM822J				
	R364, R368, R376, R380		RD1/6PM823J				
	R365		RD1/6PM913J				
△	R1020		RFA1/4L4R7J				
	VR101, VR102 (4.7K)		RCP1020				
	VR852 (1.0K $\Omega$ )		RCP1044				



# Service Manual

ORDER NO.  
RRZ1123

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

STEREO CASSETTE DECK

# CT-S430S

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## CHAPTER 2

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#### CHAPTER 2

2.1 BLOCK DIAGRAM .....	2-2
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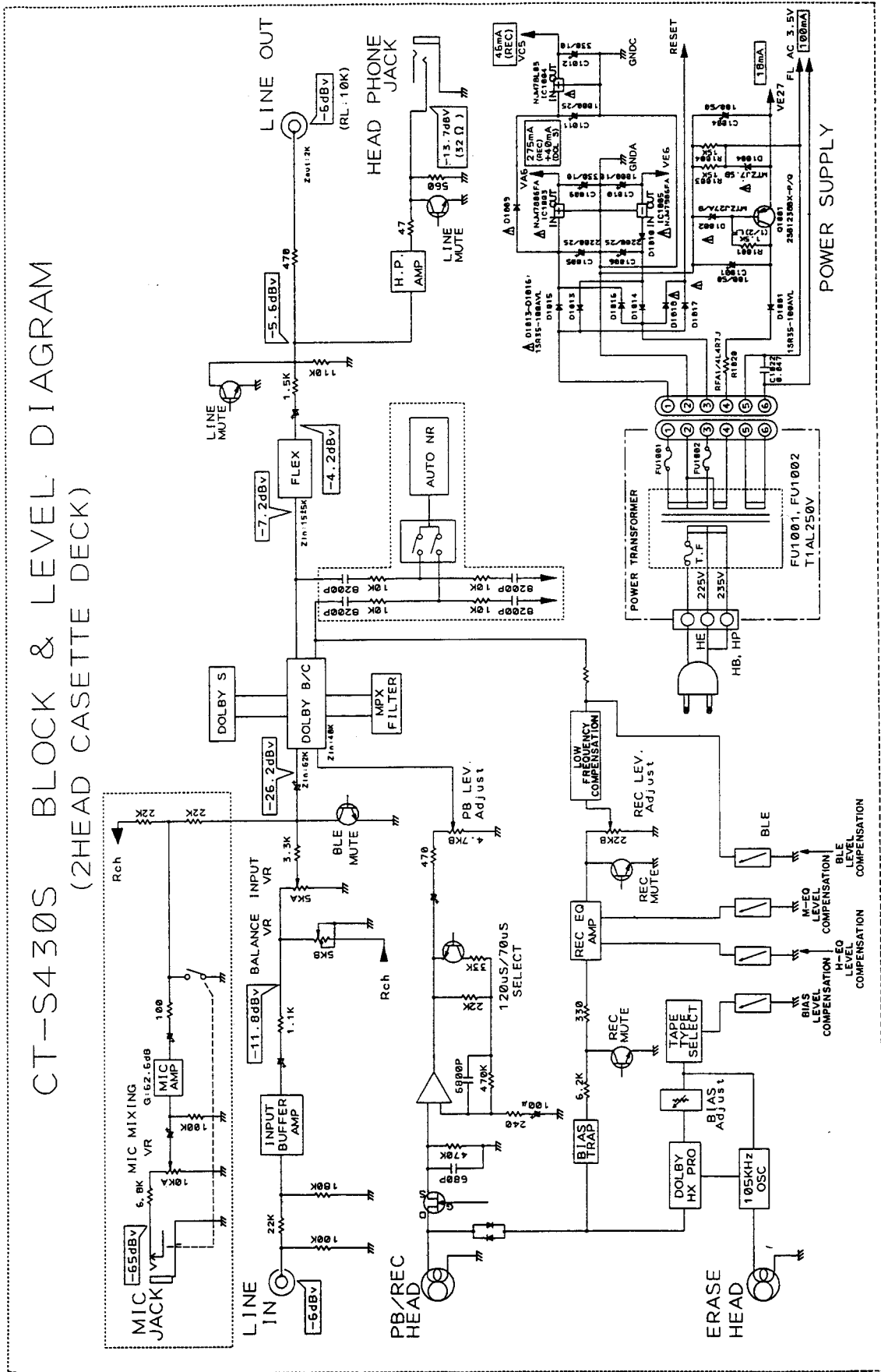
**PIONEER ELECTRONICS OF CANADA, INC.** 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada

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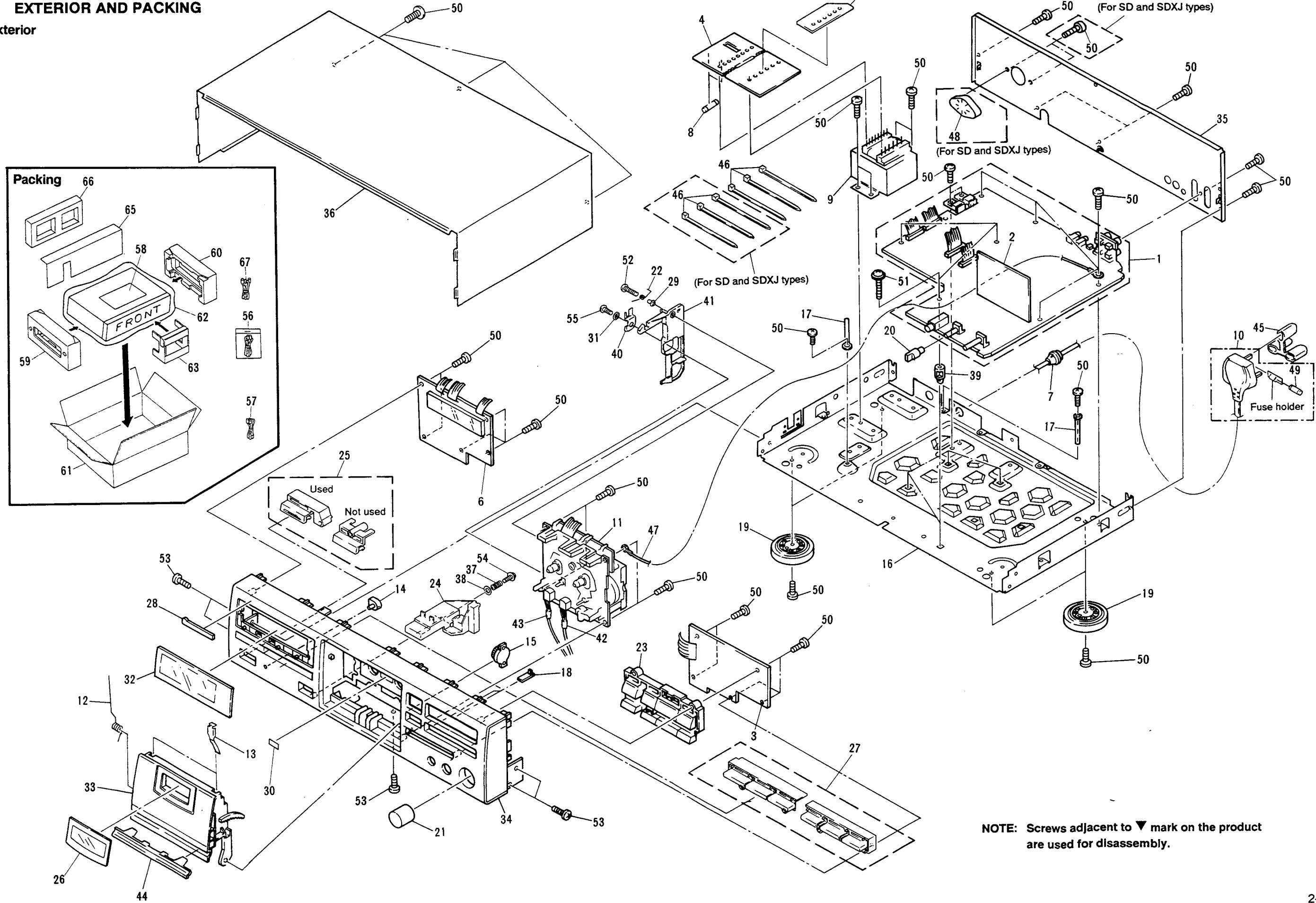
## 2.1 BLOCK DIAGRAM



# 2.2 EXPLODED VIEWS AND PACKING

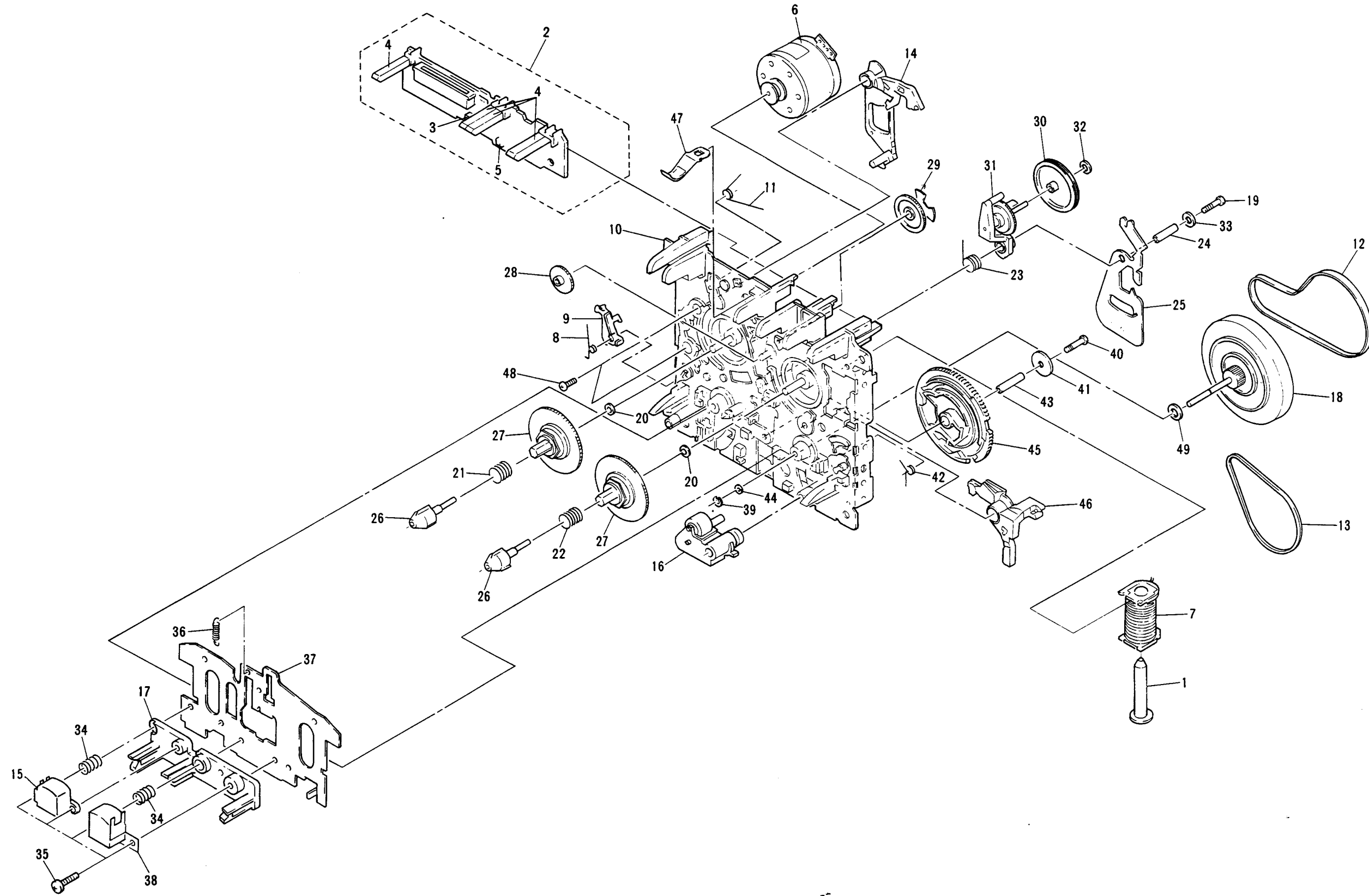
## 1. EXTERIOR AND PACKING

### Exterior



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

2. MECHANISM UNIT



A

B

C

D

## 2.3 SCHEMATIC DIAGRAMS

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: k $\Omega$ , M: M $\Omega$ , or  $\Omega$  unless otherwise noted.  
 Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
 Tolerance: (F):  $\pm 1\%$ , (G):  $\pm 2\%$ , (K):  $\pm 10\%$ , (M):  $\pm 20\%$  or  $\pm 5\%$  unless otherwise noted.

4. CAPACITORS:

Unit: p:pF or  $\mu$ F unless otherwise noted.  
 Ratings: capacitor ( $\mu$ F)/ voltage (V) unless otherwise noted.  
 Rated voltage: 50V except for electrolytic capacitors.

5. COILS:

Unit: m:mH or  $\mu$ H unless otherwise noted.

6. VOLTAGE AND CURRENT:

$\square$  or  $-V$ :  
 DC voltage (V) in STOP mode unless otherwise noted.  
 $\square$  mA or  $-mA$ :  
 DC current in STOP mode unless otherwise noted.

7. OTHERS:

- $\odot$  or  $\ominus$ : Adjusting point.
- $\triangle$ : Measurement point.
- The  $\Delta$  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- $\square$  ON THE SCHEMATIC DIAGRAM:

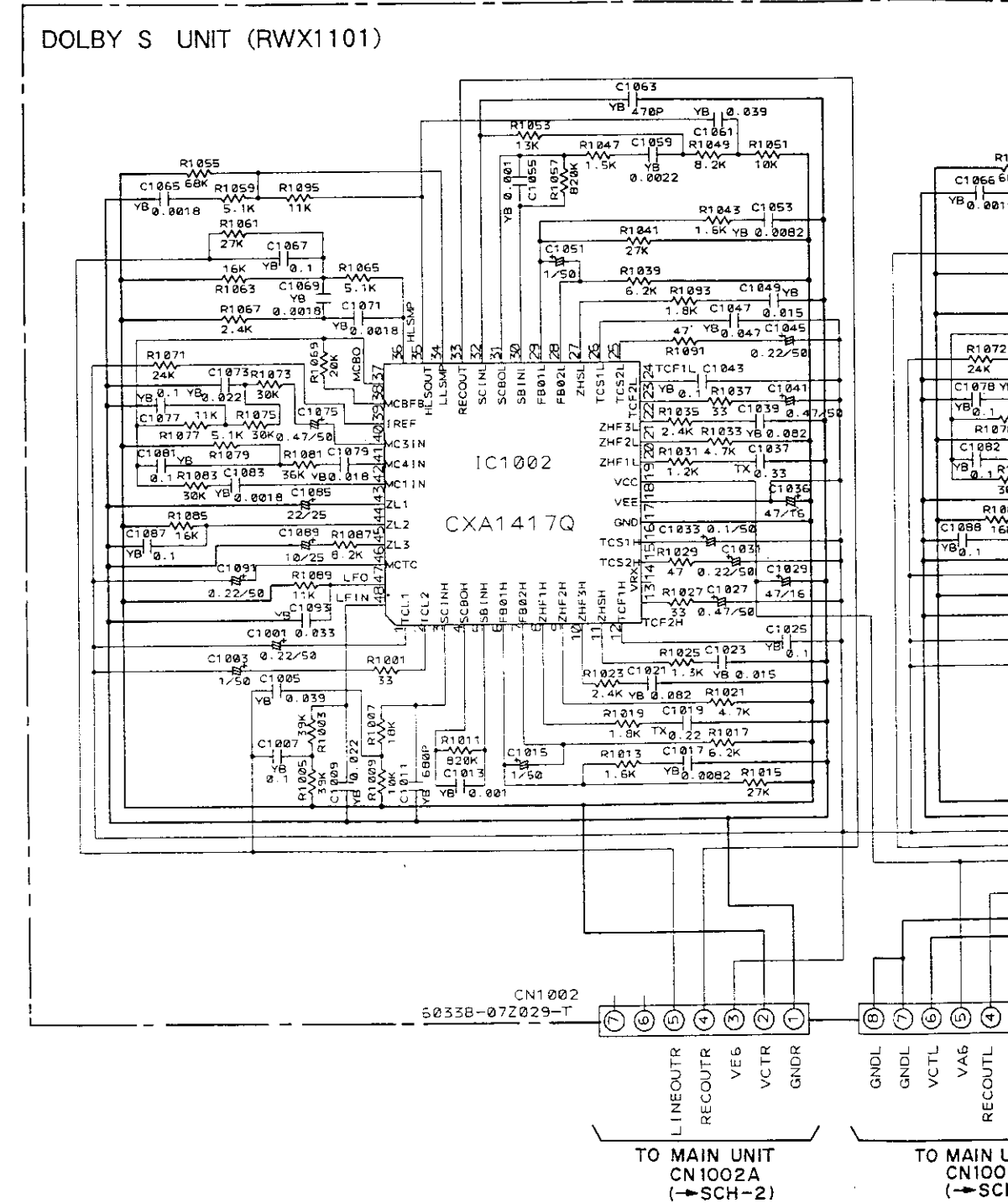
$\bullet$  SCH- $\square$  indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

9. SWITCHES (Underline indicates switch position):

OPSW UNIT  
 S1401 :  $\blacktriangleleft$ REW  
 S1402 : REC  
 S1403 : AUTO BLE  
 S1404 :  $\blacksquare$ STOP  
 S1406 : FLEX (I/f)  
 S1407 :  $\blacktriangleright$ FF  
 S1408 :  $\blacktriangleright$ PLAY  
 S1409 : CD SYNCHRO  
 S1410 :  $\parallel$ PAUSE  
 S1411 : REC MUTE  
 S1412 : DOLBY NR

FL UNIT  
 S1505 : POWER SW  
 S1506 : COUNTER RESET  
 S1507 : COUNTER MODE/DISP OFF  
 S1508 : METER RANGE

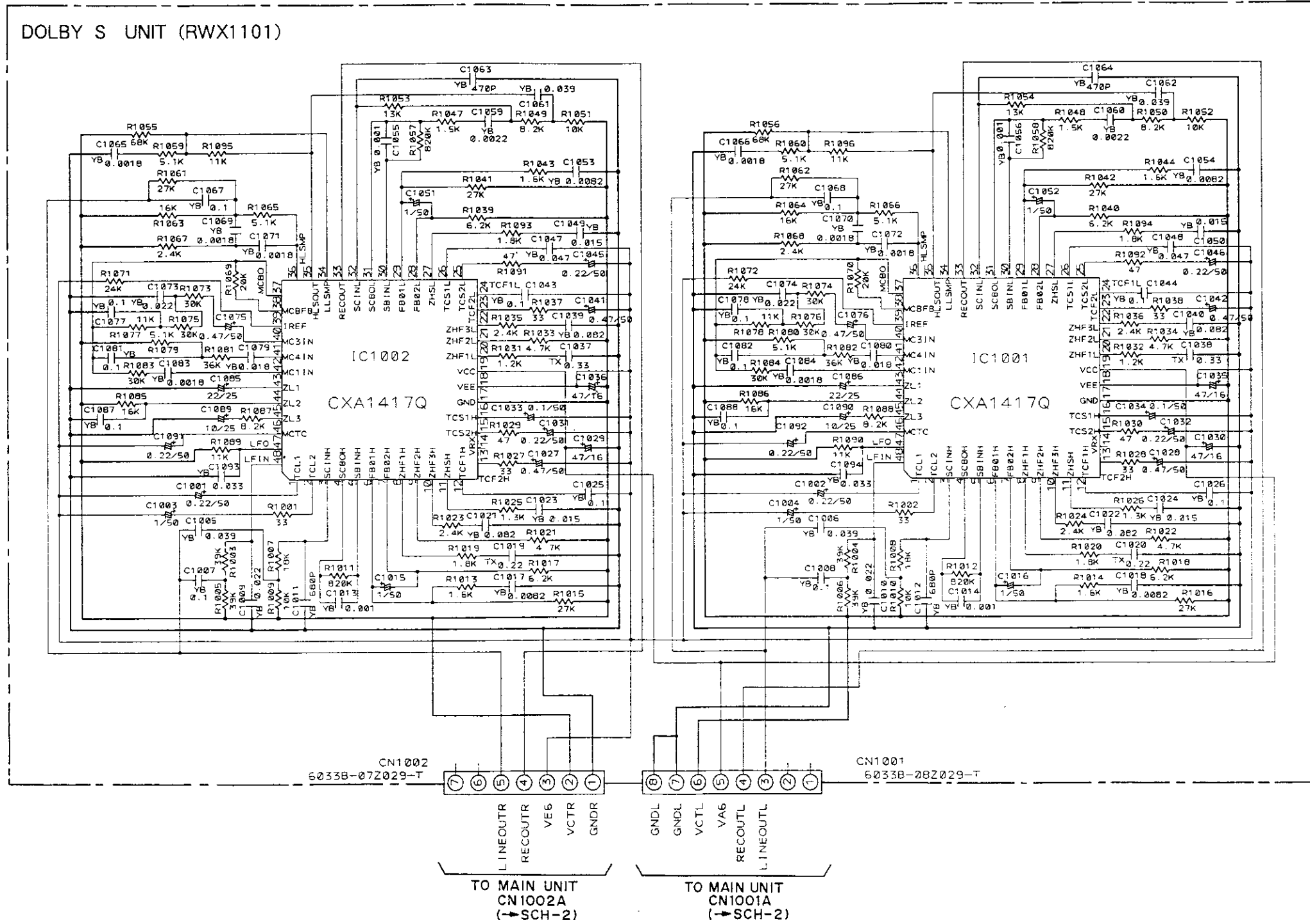
### 1. DOLBY S UNIT



SCH-1 DOLBY S UNIT

1. DOLBY S UNIT

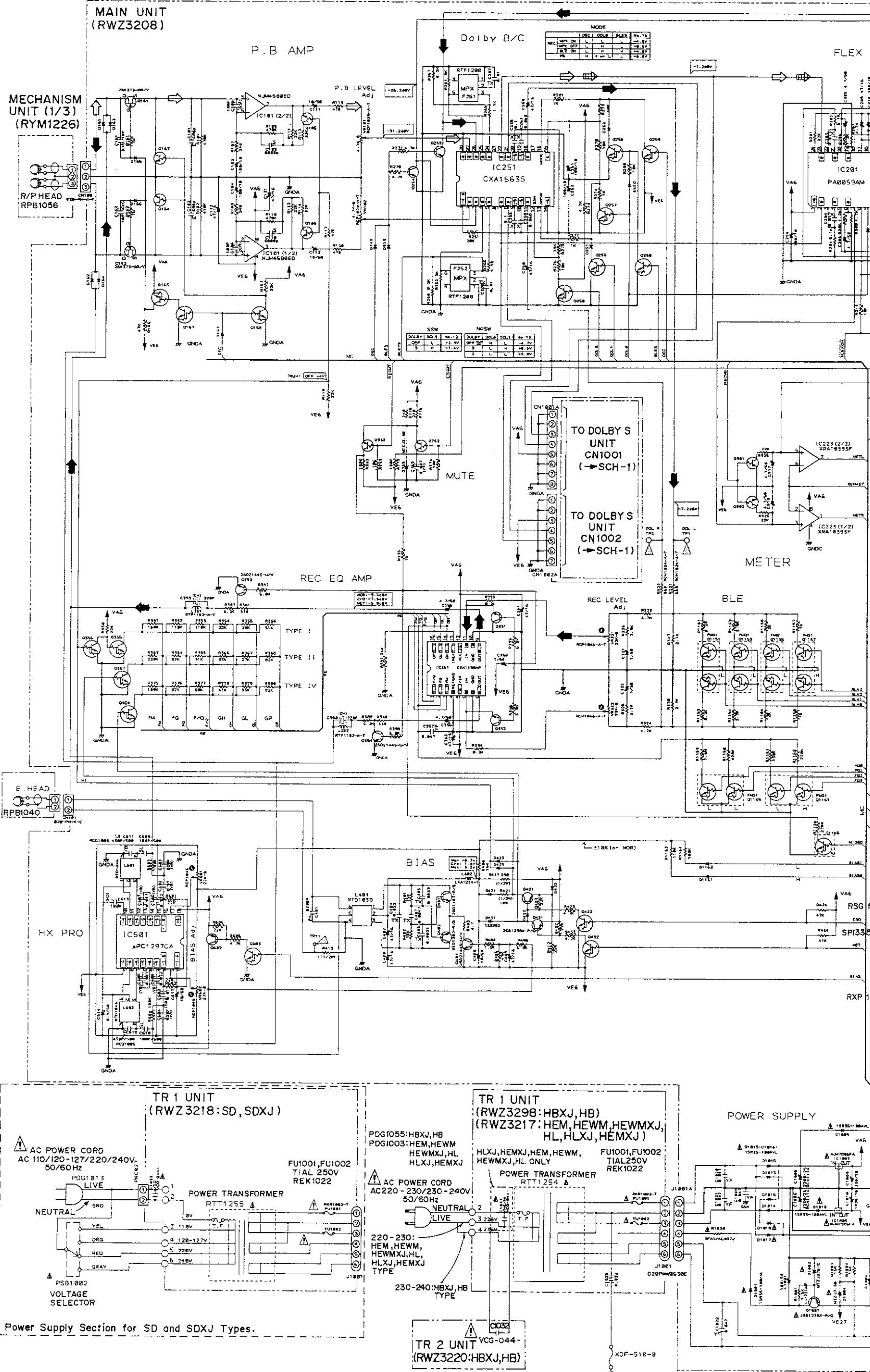
SCH-1



SCH-1 DOLBY S UNIT

DOLBY S UNIT SCH-1

2. MAIN, OPSW, FL, TR 1 AND TR 2 UNIT



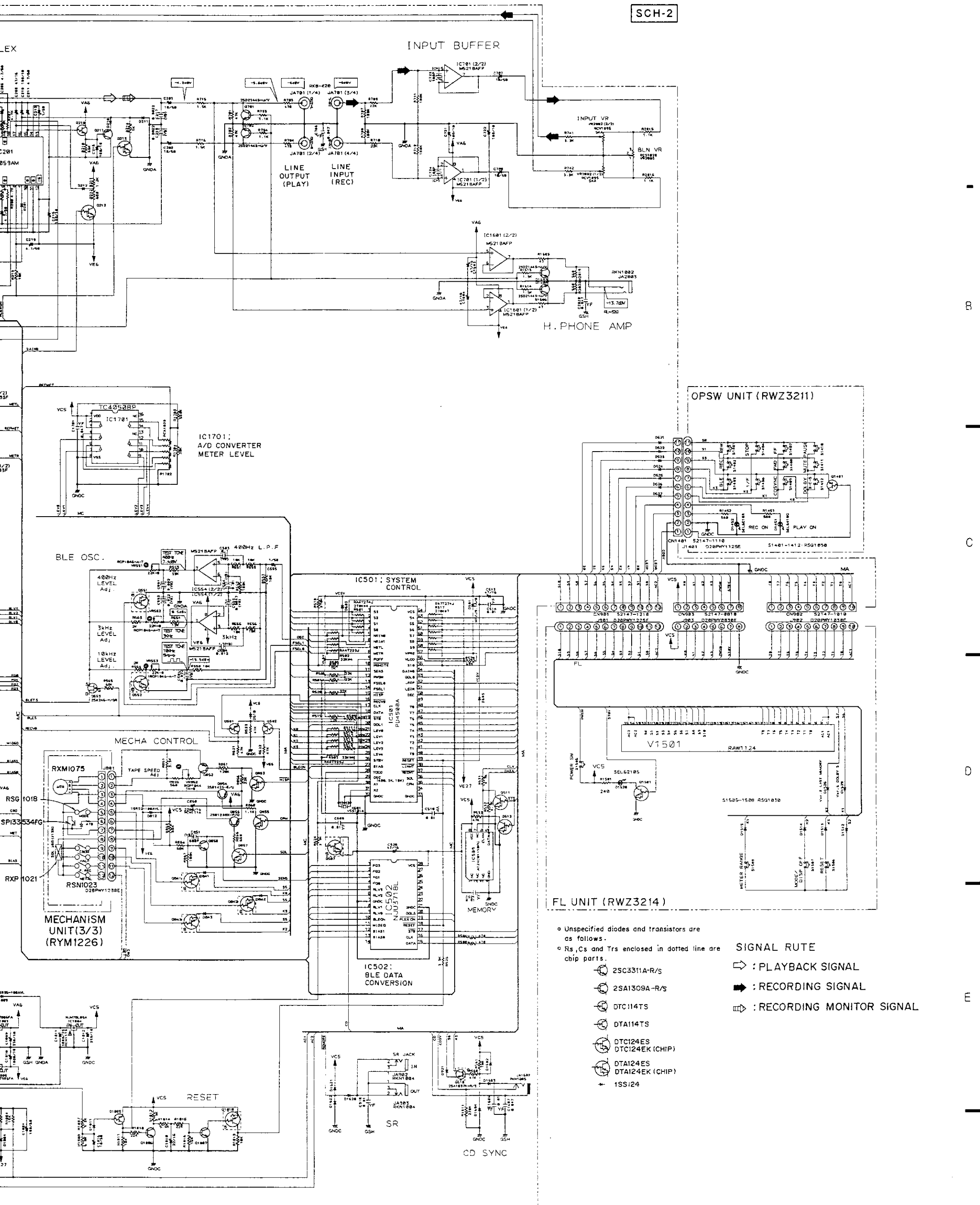
**SCH-2**

MAIN UNIT, OPSW UNIT, FL UNIT, TR 1 UNIT, TR 2 UNIT

Line Voltage Selection  
Line voltage can be changed by the following modification:  
1. Disconnect the AC power cord.  
2. Remove the cover.  
3. Change the connection of TRANSFORMER 1 UNIT primary pins.

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

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



- Unspecified diodes and transistors are as follows.
- Rs, Cs and Trs enclosed in dotted line are chip parts.
- 2SC331A-R/S
- 2SA1309A-R/S
- DTC114TS
- DTA114TS
- DTC124ES
- DTC124EK (CHIP)
- DTA124ES
- DTA124EK (CHIP)
- 1SS124

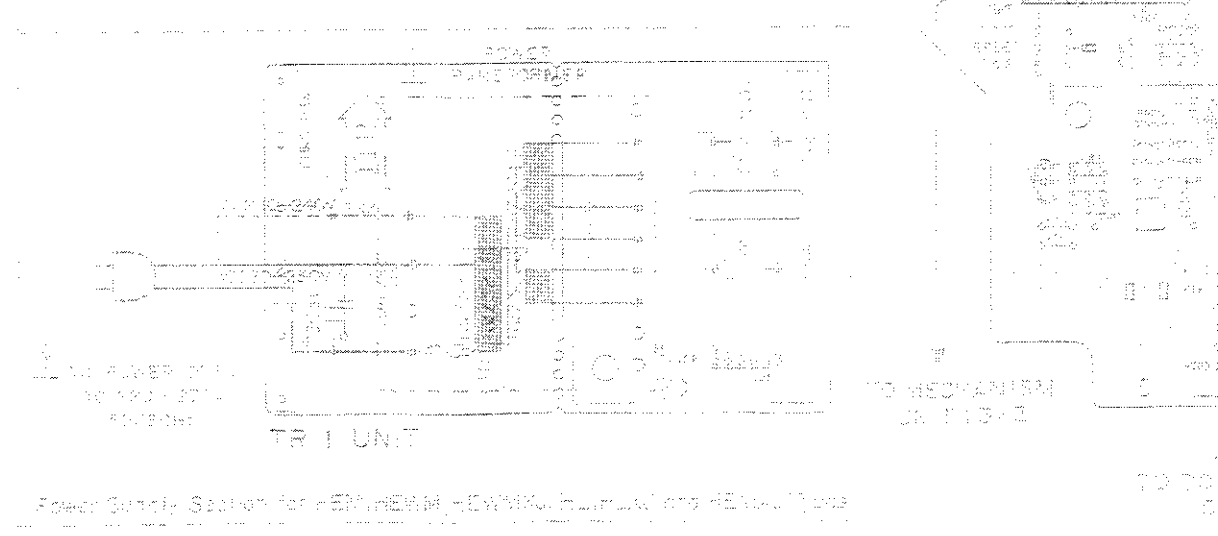
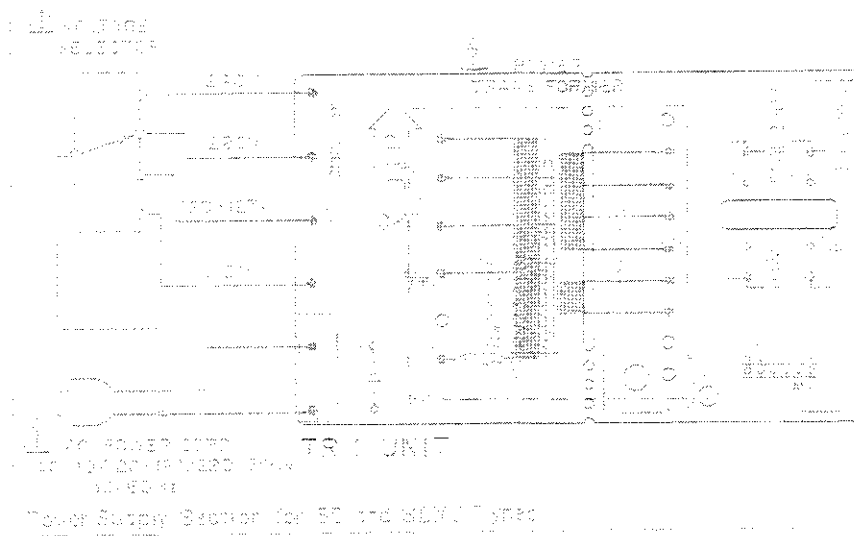
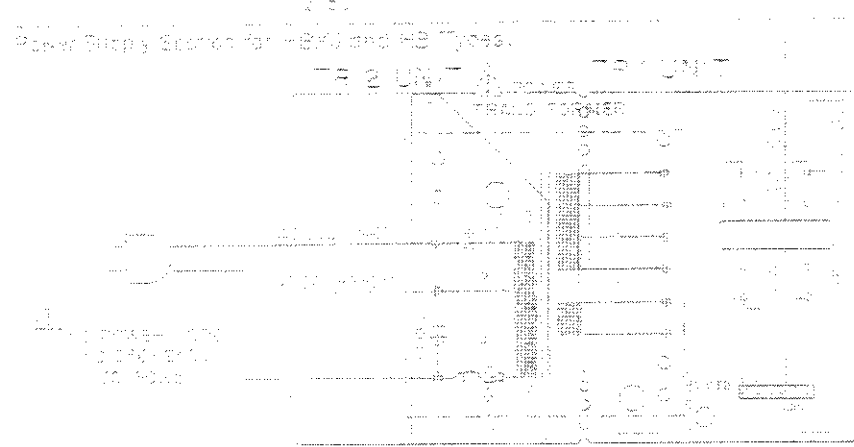
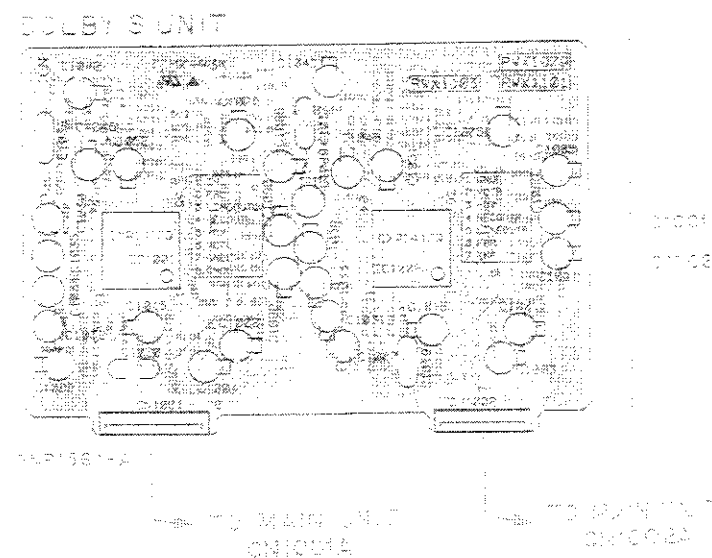
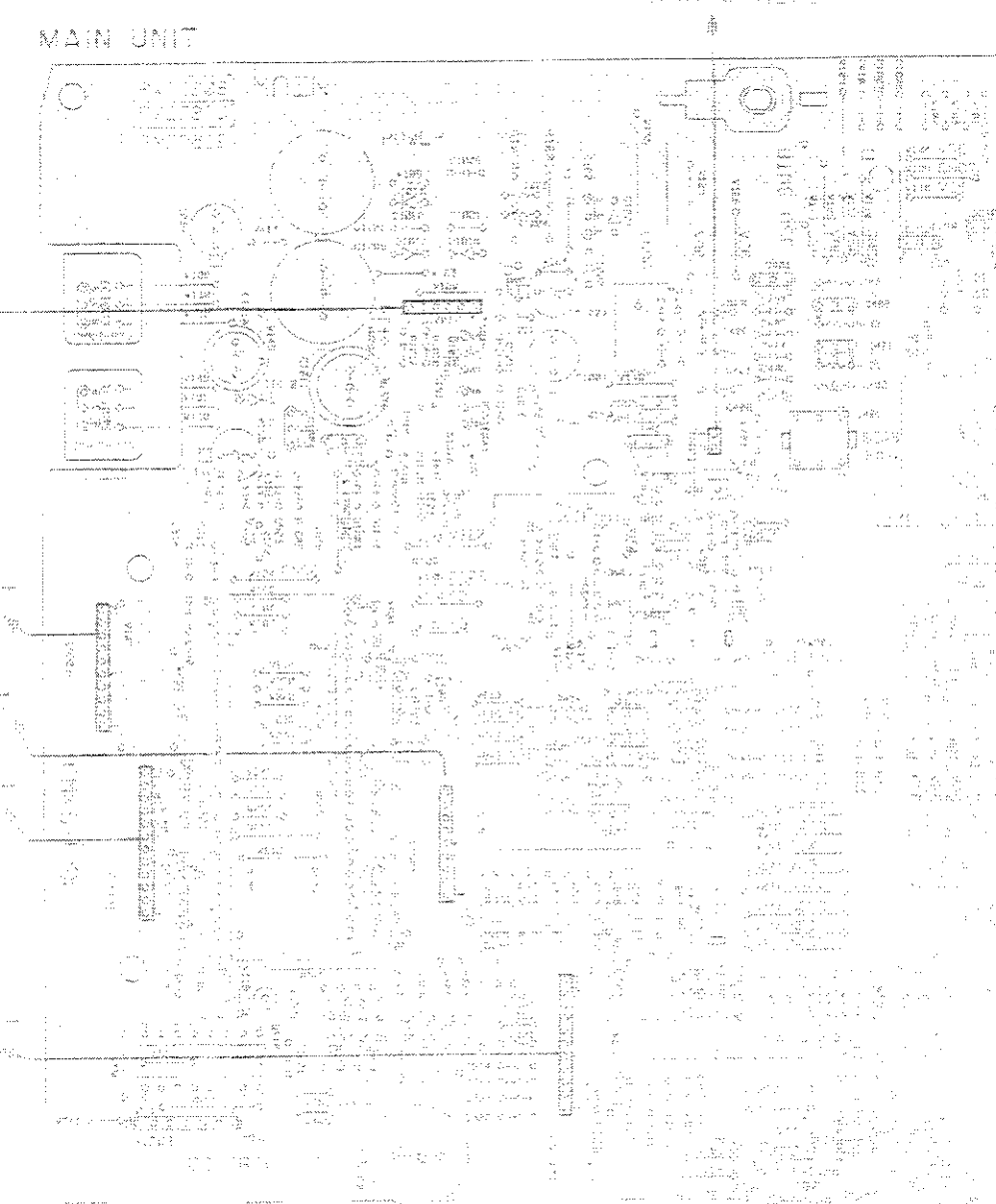
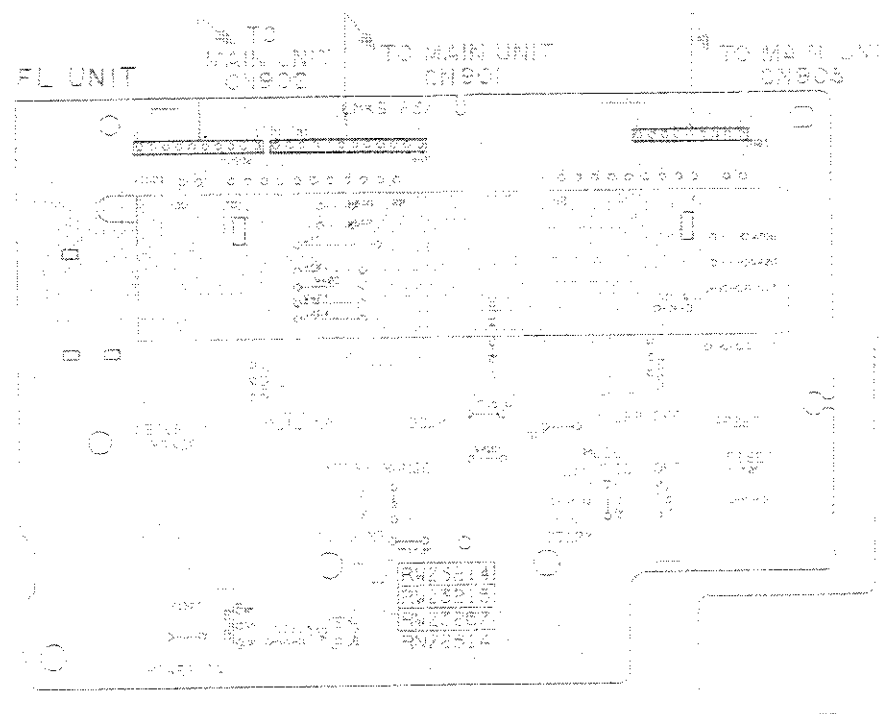
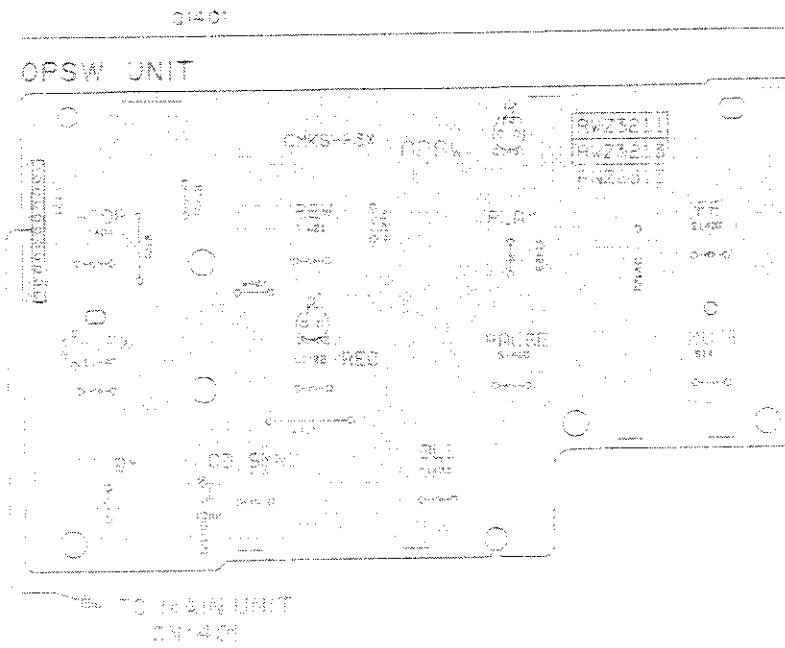
- SIGNAL RATE
- : PLAYBACK SIGNAL
- : RECORDING SIGNAL
- : RECORDING MONITOR SIGNAL

MAIN UNIT, OPSW UNIT, FL UNIT, TR 1 UNIT, TR 2 UNIT



# 2.4 PCB CONNECTION DIAGRAM

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



\* This diagram is viewed from the pink colored foil side.  
\* This PCB is double sided.

**NOTE FOR BOARD MOUNTING**

1. The board is to be mounted on a metal chassis.
2. The board is to be mounted on a metal chassis with the components on the pink side of the board.
3. The board is to be mounted on a metal chassis with the components on the pink side of the board.
4. The board is to be mounted on a metal chassis with the components on the pink side of the board.

**NOTE FOR PCB DIAGRAM**

1. Part numbers are given in parentheses.
2. Component values are given in parentheses.
3. Component values are given in parentheses.
4. Component values are given in parentheses.

**COMPONENTS**

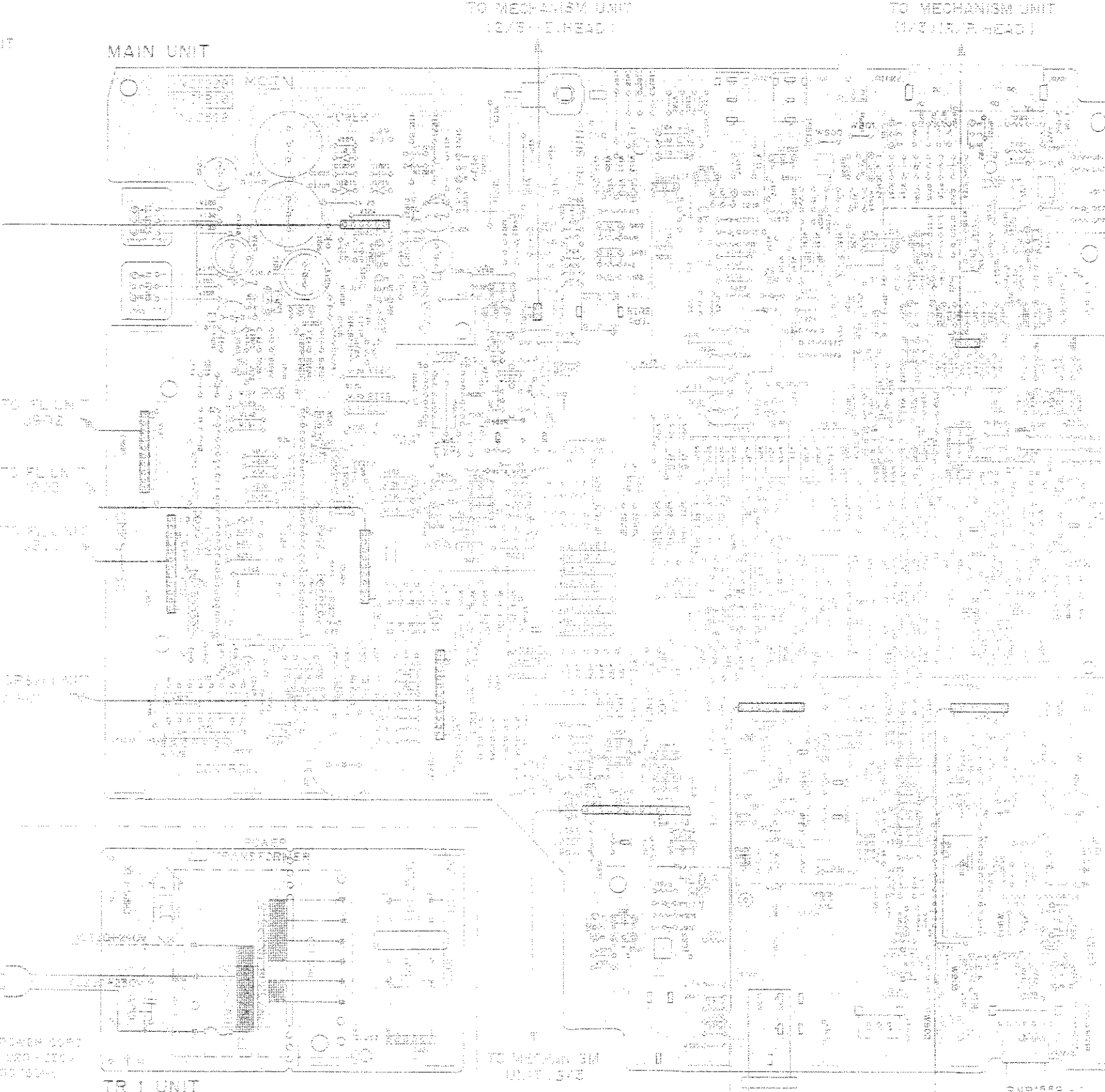
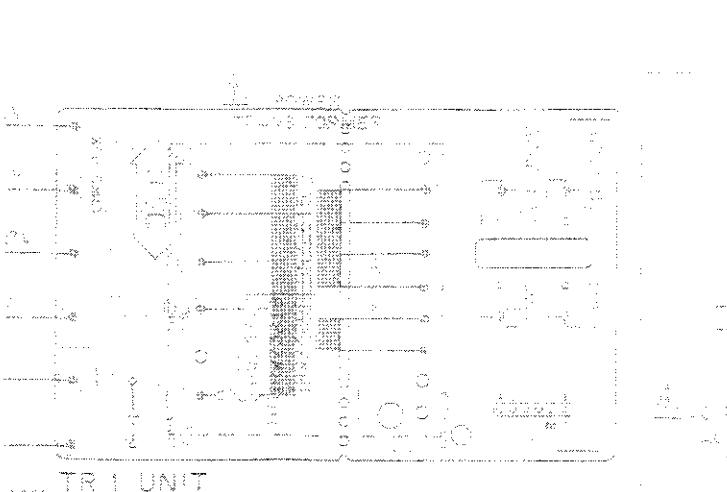
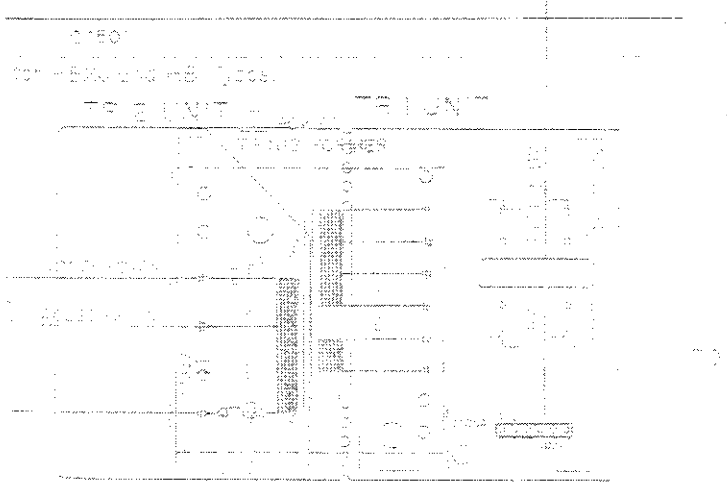
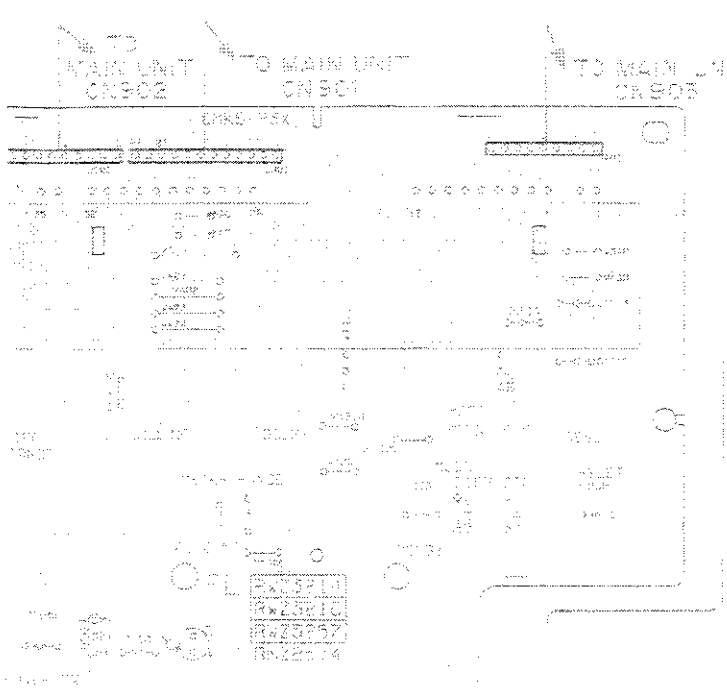
RESISTORS: 10K, 100K, 1M, 10M, 100M, 1K, 10K, 100K, 1M, 10M, 100M

CAPACITORS: 100P, 1N, 10N, 100N, 1U, 10U, 100U, 1M, 10M, 100M

DIODES: 1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007, 1N4008, 1N4009, 1N4010, 1N4011, 1N4012, 1N4013, 1N4014, 1N4015, 1N4016, 1N4017, 1N4018, 1N4019, 1N4020, 1N4021, 1N4022, 1N4023, 1N4024, 1N4025, 1N4026, 1N4027, 1N4028, 1N4029, 1N4030, 1N4031, 1N4032, 1N4033, 1N4034, 1N4035, 1N4036, 1N4037, 1N4038, 1N4039, 1N4040, 1N4041, 1N4042, 1N4043, 1N4044, 1N4045, 1N4046, 1N4047, 1N4048, 1N4049, 1N4050, 1N4051, 1N4052, 1N4053, 1N4054, 1N4055, 1N4056, 1N4057, 1N4058, 1N4059, 1N4060, 1N4061, 1N4062, 1N4063, 1N4064, 1N4065, 1N4066, 1N4067, 1N4068, 1N4069, 1N4070, 1N4071, 1N4072, 1N4073, 1N4074, 1N4075, 1N4076, 1N4077, 1N4078, 1N4079, 1N4080, 1N4081, 1N4082, 1N4083, 1N4084, 1N4085, 1N4086, 1N4087, 1N4088, 1N4089, 1N4090, 1N4091, 1N4092, 1N4093, 1N4094, 1N4095, 1N4096, 1N4097, 1N4098, 1N4099, 1N4100

TRANSISTORS: 2N2222, 2N2907, 2N3055, 2N3638, 2N4350, 2N4351, 2N4352, 2N4353, 2N4354, 2N4355, 2N4356, 2N4357, 2N4358, 2N4359, 2N4360, 2N4361, 2N4362, 2N4363, 2N4364, 2N4365, 2N4366, 2N4367, 2N4368, 2N4369, 2N4370, 2N4371, 2N4372, 2N4373, 2N4374, 2N4375, 2N4376, 2N4377, 2N4378, 2N4379, 2N4380, 2N4381, 2N4382, 2N4383, 2N4384, 2N4385, 2N4386, 2N4387, 2N4388, 2N4389, 2N4390, 2N4391, 2N4392, 2N4393, 2N4394, 2N4395, 2N4396, 2N4397, 2N4398, 2N4399, 2N4400

ICs: 7401, 7402, 7403, 7404, 7405, 7406, 7407, 7408, 7409, 7410, 7411, 7412, 7413, 7414, 7415, 7416, 7417, 7418, 7419, 7420, 7421, 7422, 7423, 7424, 7425, 7426, 7427, 7428, 7429, 7430, 7431, 7432, 7433, 7434, 7435, 7436, 7437, 7438, 7439, 7440, 7441, 7442, 7443, 7444, 7445, 7446, 7447, 7448, 7449, 7450, 7451, 7452, 7453, 7454, 7455, 7456, 7457, 7458, 7459, 7460, 7461, 7462, 7463, 7464, 7465, 7466, 7467, 7468, 7469, 7470, 7471, 7472, 7473, 7474, 7475, 7476, 7477, 7478, 7479, 7480, 7481, 7482, 7483, 7484, 7485, 7486, 7487, 7488, 7489, 7490, 7491, 7492, 7493, 7494, 7495, 7496, 7497, 7498, 7499, 7500



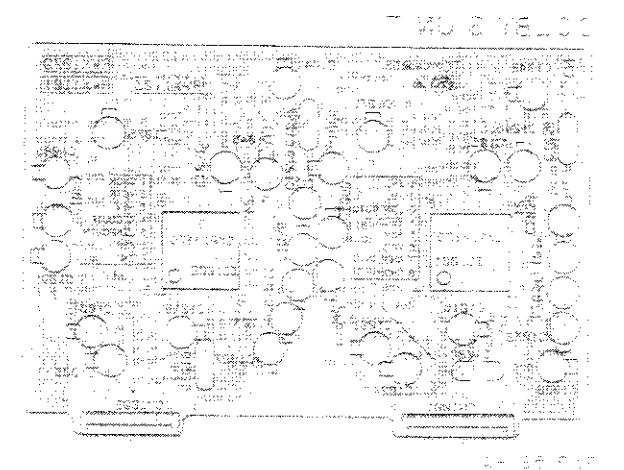
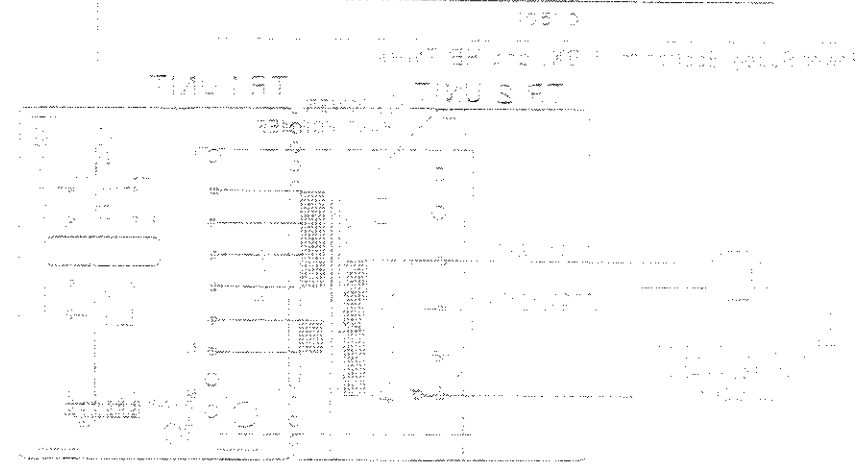
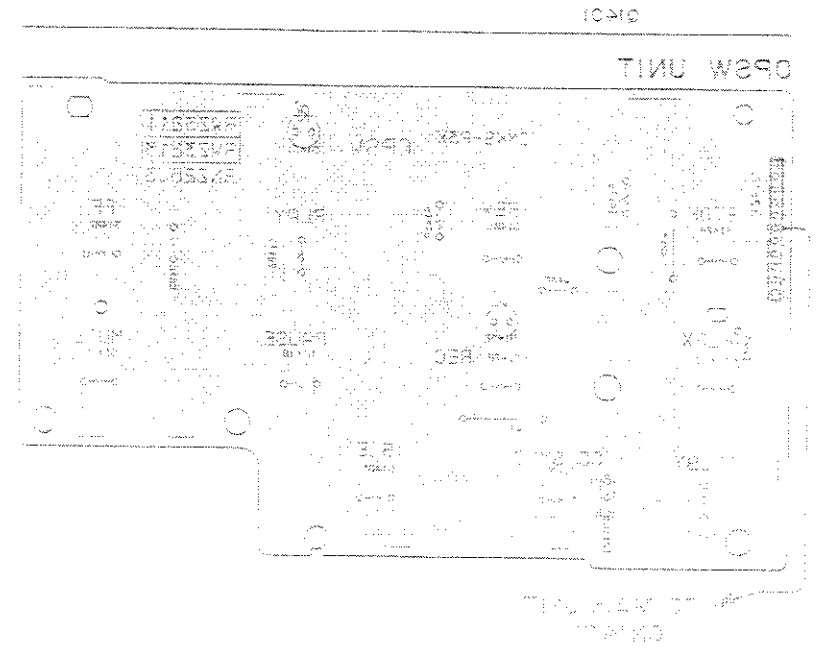
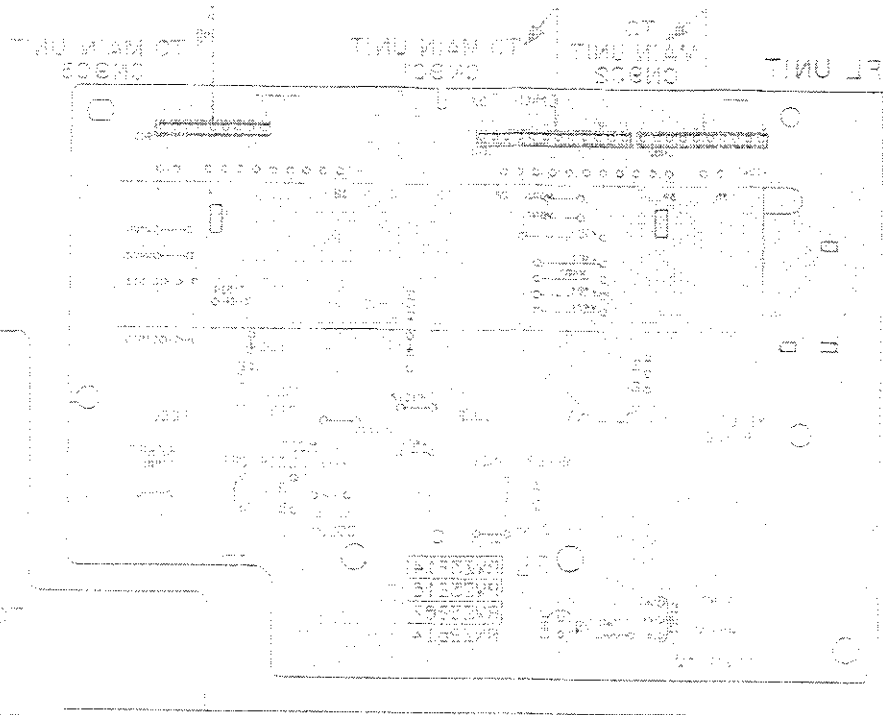
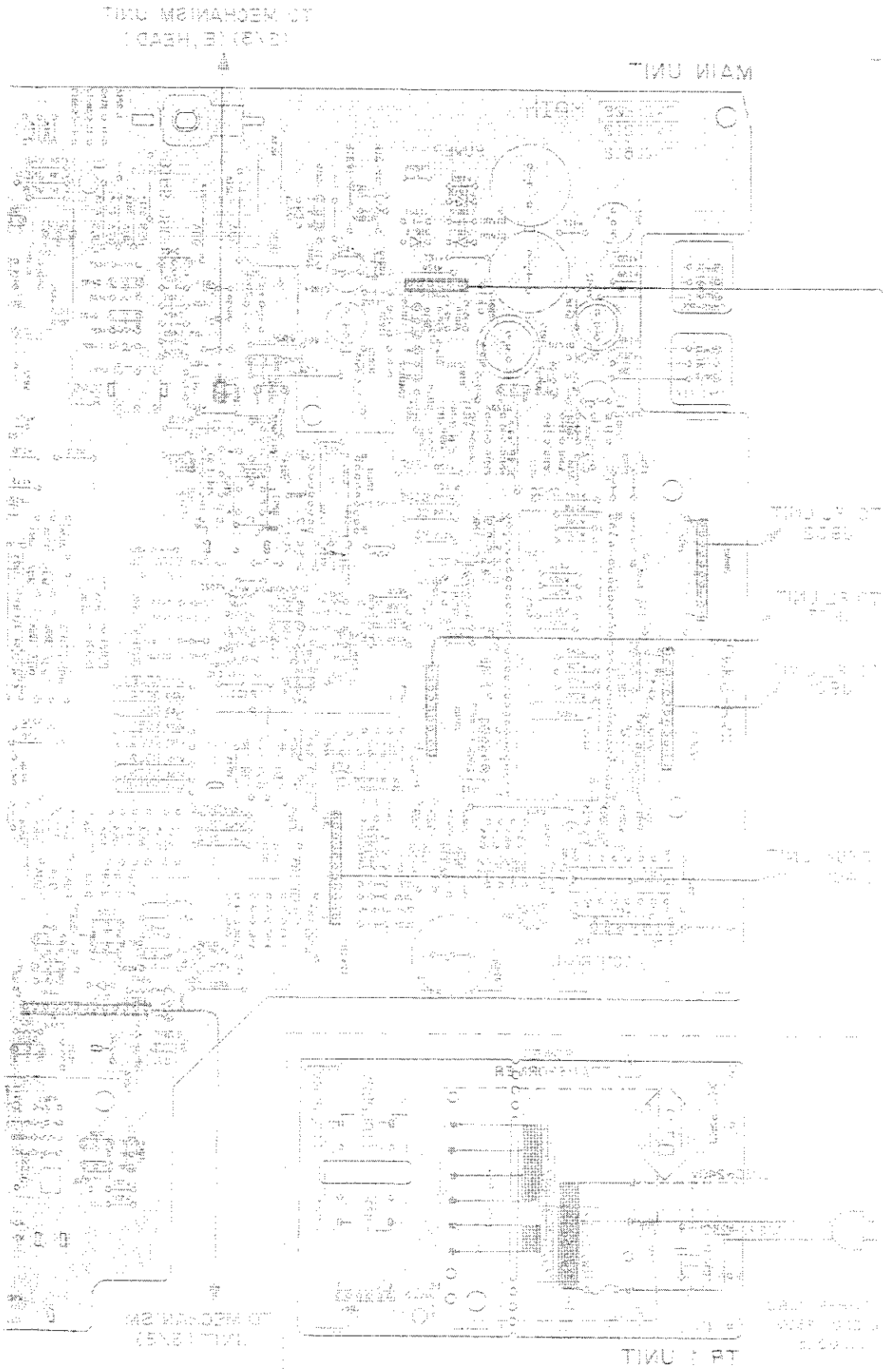
Power Supply Section for HEW, HEWMM, HEWMMU, HE, HEY, and HEWNU Types

01001	01002	01003	01004	01005	01006	01007	01008	01009	01010
01011	01012	01013	01014	01015	01016	01017	01018	01019	01020
01021	01022	01023	01024	01025	01026	01027	01028	01029	01030
01031	01032	01033	01034	01035	01036	01037	01038	01039	01040
01041	01042	01043	01044	01045	01046	01047	01048	01049	01050
01051	01052	01053	01054	01055	01056	01057	01058	01059	01060
01061	01062	01063	01064	01065	01066	01067	01068	01069	01070
01071	01072	01073	01074	01075	01076	01077	01078	01079	01080
01081	01082	01083	01084	01085	01086	01087	01088	01089	01090
01091	01092	01093	01094	01095	01096	01097	01098	01099	01100

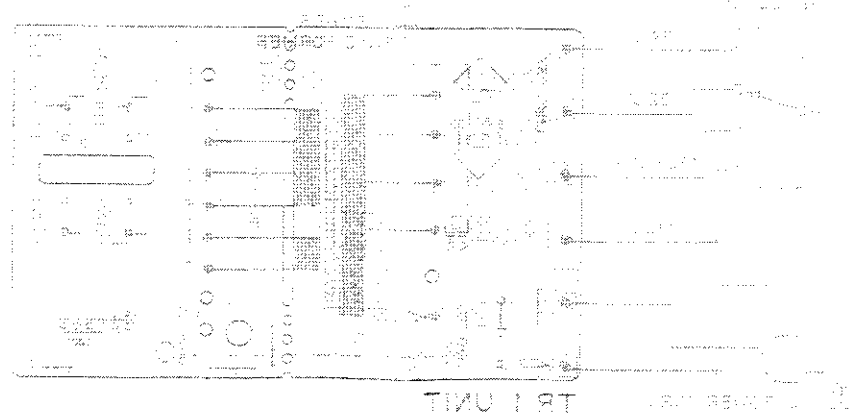
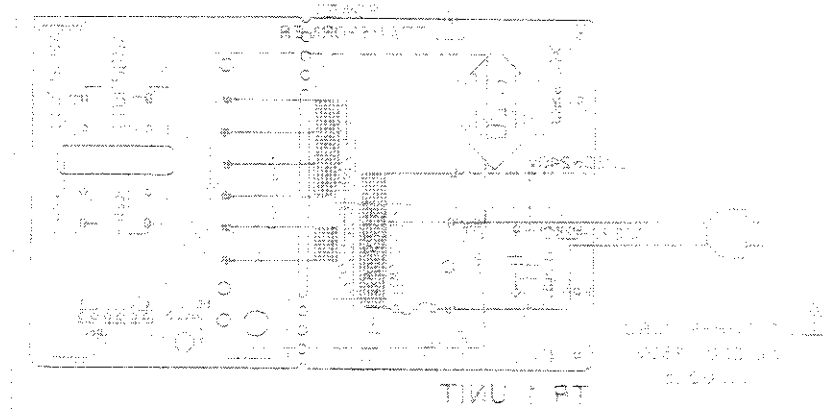


# 5.4 PCB CONNECTION DIAGRAM

• This diagram is viewed from the foil side.



• This diagram is viewed from the gray colored foil side.  
• This PCB is double sided



TO MECHANISM UNIT (5X3) HEAD

TO MAIN UNIT