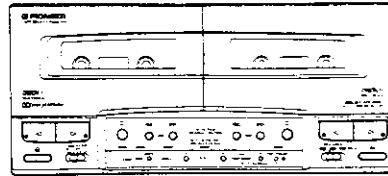


Service Manual

PIONEER®
The Art of Entertainment



ORDER NO.
ARP2633

STEREO DOUBLE CASSETTE DECK

CT-P930WR

CT-P830WR

CT-P730WR

CT-P930WR, CT-P830WR AND CT-P730WR HAVE THE FOLLOWING:

Type	Model			Power Requirement	Remarks
	CT-P930WR	CT-P830WR	CT-P730WR		
AB	○	—	○	AC power supplied from power transformer's secondary of other system component	
ADL	—	○	○		
AEM	○	○	○		

- This manual is applicable to the following: CT-P930WR/AB and AEM; CT-P830WR/ADL and AEM; CT-P730WR/AB, ADL and AEM.
- For the following: CT-P930WR/AEM; CT-P830WR/ADL and AEM; CT-P730WR/AB, ADL and AEM, refer to page 25.
- These products are system(s) component.

Each of these products does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

These product's instructions are contained within the operating instructions manual of the related system component(s).

These product's accessories etc. are packed with their related component(s).

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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 Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

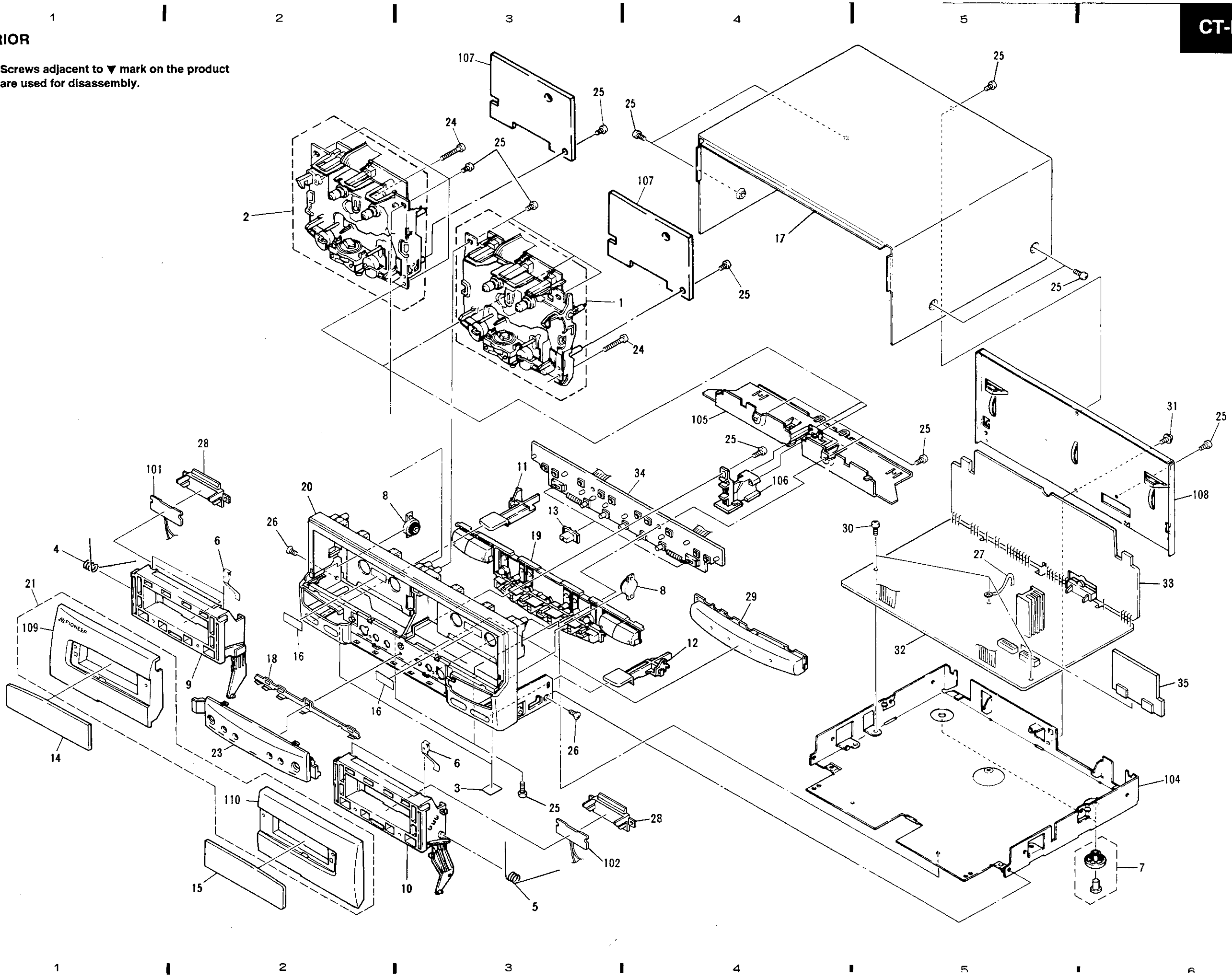
1.1 EXTERIOR

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
⊙	1	Mechanism unit II	EXK2217	NSP	101	HALF LED 1 unit	RWZ2719
⊙	2	Mechanism unit I	EXK2227	NSP	102	HALF LED 2 unit	RWZ2720
	3	Rubber sheet	AEB1111		103	.....
	4	Door coil spring (L)	RBH1301	NSP	104	Main Chassis	RNB1084
	5	Door coil spring (R)	RBH1302	NSP	105	Mechanism shield plate	RNE1555
	6	Half pressure spring	RBK1004	NSP	106	Center bracket	RNK1845
	7	Leg assembly	REC - 434	NSP	107	Mechanical cover board	RNZ2282
	8	Damper assembly	REC1005	NSP	108	Rear panel	RNA1618
	9	Door pocket (L)	RNK1843	NSP	109	Door panel (L)	REA1021
	10	Door pocket (R)	RNK1844	NSP	110	Door panel (R)	REA1022
	11	Eject knob (L)	RAC1729				
	12	Eject knob (R)	RAC1730				
	13	Slide knob	RAC1731				
	14	Door lens (L)	RAH2100				
	15	Door lens (R)	RAH2101				
	16	Remain display paper	REE - 113				
	17	Bonnet	FNA1469				
	18	REC lens	RNK1848				
	19	Operation button assembly	RXA1517				
	20	Front panel	RAH2137				
	21	Door panel	RAH2138				
	22	.....				
	23	Center panel	RAH2139				
	24	Screw	BPZ30P250FMC				
	25	Screw	BBZ30P080FZK				
	26	Screw	CBZ30P080FZK				
	27	Cord clasper	RNH - 184				
	28	Spot lens	RNK1847				
	29	Center knob	RAC1727				
	30	Screw	BBZ30P080FMC				
	31	Screw	IPZ30P050FZK				
	32	MAIN unit	RWZ2717				
	33	REAR unit	RWZ2718				
	34	OPERATE unit	RWZ2715				
	35	DOLBY HX PRO unit	RWZ2716				

EXTERIOR

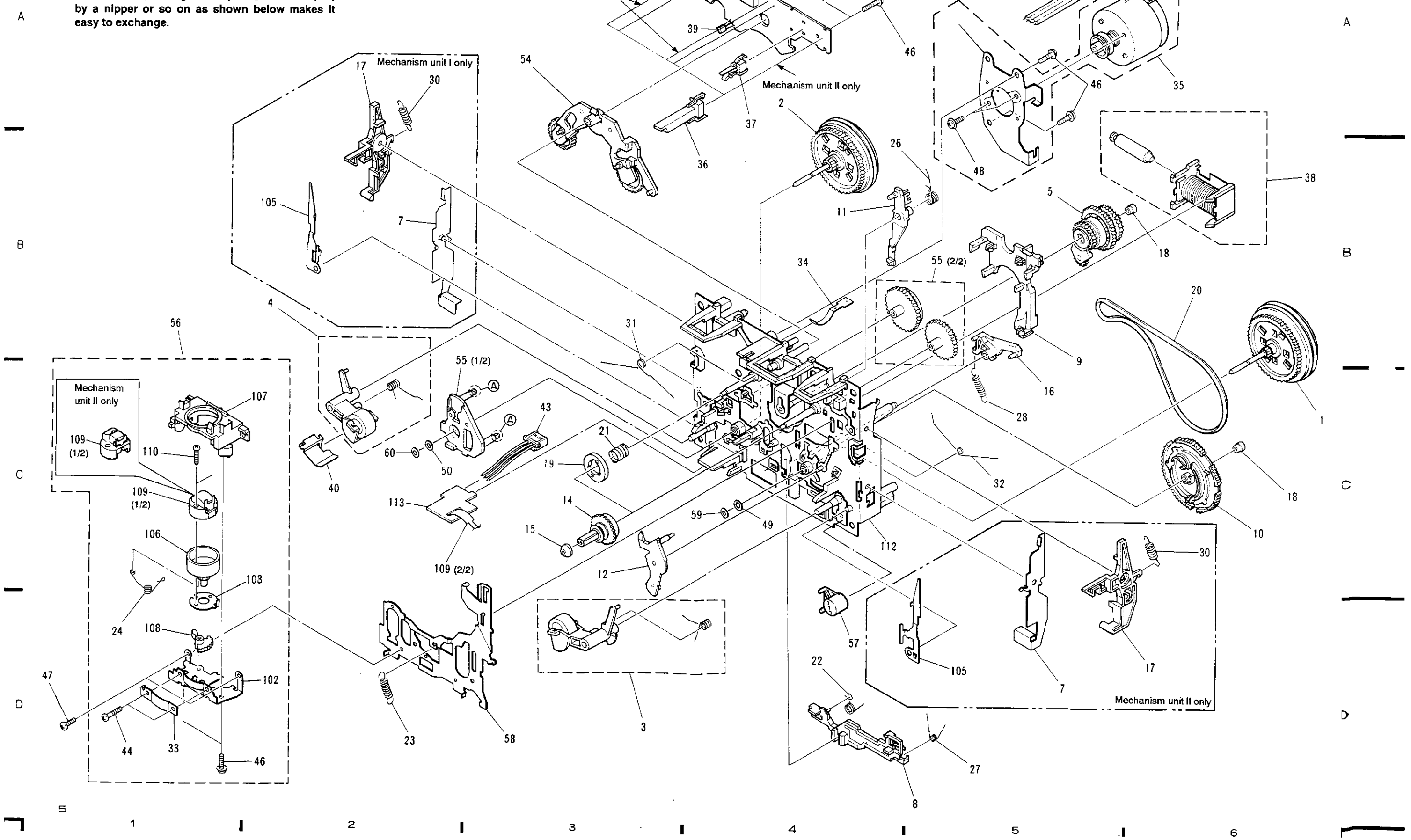
NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.



CT-P930WR, CT-P830WR, CT-P730WR

1.2 MECHANISM UNIT I (EXK2227) AND MECHANISM UNIT II (EXK2217)

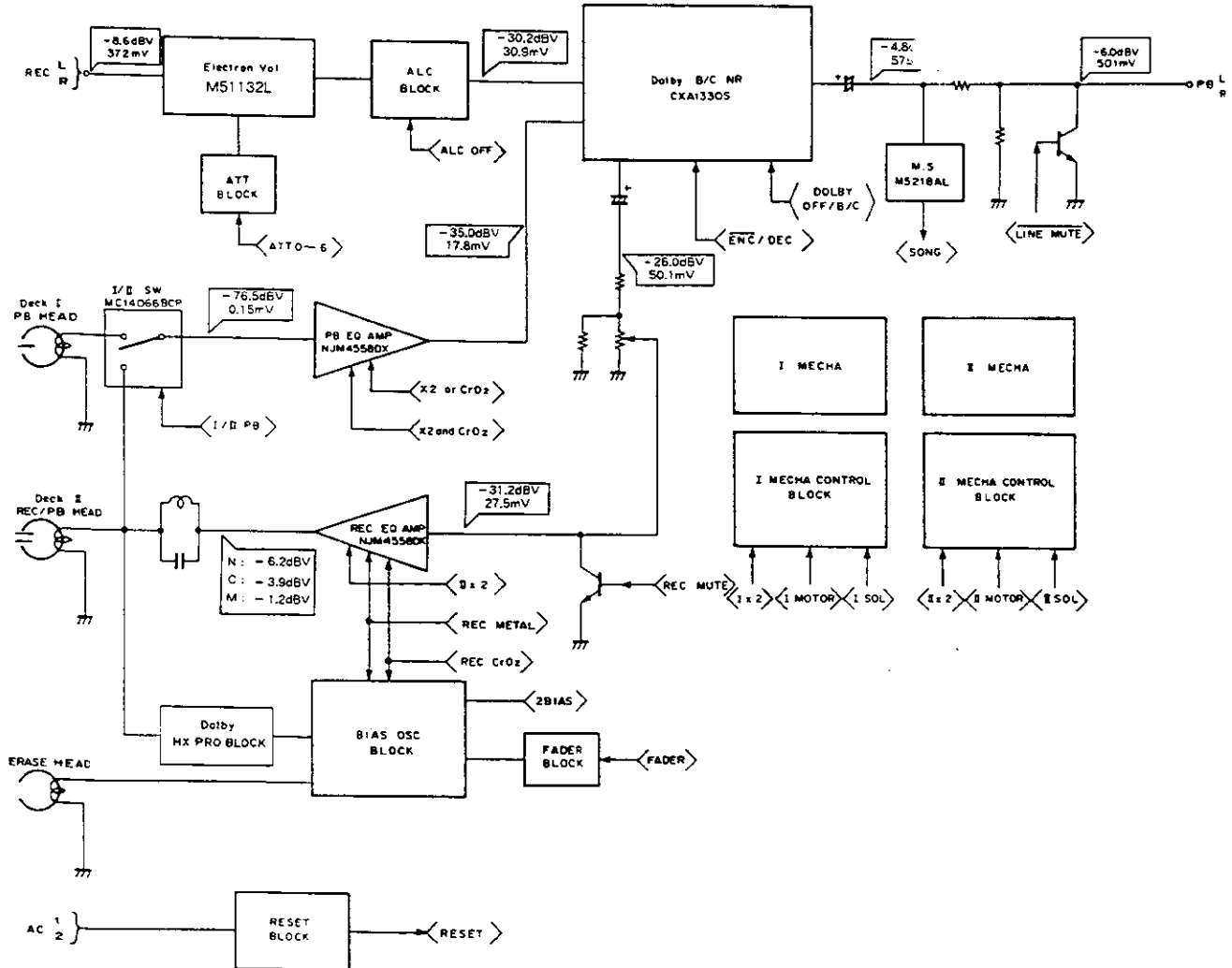
NOTE: When replace the arm unit of No.55 (EXX1003) with new one, cutting off the part ① of NO.55 (1/2) by a nipper or so on as shown below makes it easy to exchange.



Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Flywheel unit (FWD)	EXA1232		41	Connector (10P)	EKS1013
	2	Flywheel unit (RVS)	EXA1233			(Mechanism unit I)	
	3	Pinch roller unit (FWD)	EXA1224			Connector (15P)	EKS1012
	4	Pinch roller unit (RVS)	EXA1225			(Mechanism unit II)	
	5	Limiter unit	EXA1226		42	Wire (4P)	EDD1003
	6	.....			43	Connector	EDE1015
	7	Eject lever L2	AZN2063			(Mechanism unit I)	
		(Mechanism unit I)				Connector	EDE1014
		Eject lever R2	AZN2064			(Mechanism unit II)	
		(Mechanism unit II)			44	Screw	EBA1020
	8	Lever	ENV1305		45	.....
	9	Brake	ENV1317		46	Screw (M2 x 8)	ATZ20P080FMC
	10	Gear	ENV1369		47	Screw	BSZ20P060FMC
					48	Screw	PMS26P025FUC
	11	Arm	ENV1159		49	Washer	EBF1008
	12	Arm	ENV1163		50	Washer	EBF1009
	13	.....			51	.....
	14	Reel	ENV1335		52	.....
	15	Bush	ENV1338		53	.....
	16	Arm	ENV1330		54	Arm unit	EXX1006
	17	Eject lever L1	AZN2108		55	Arm unit	EXX1003
		(Mechanism unit I)					
		Eject lever R1	AZN2109		56	Head frame assembly	EXX1008
		(Mechanism unit II)				(Mechanism unit I)	
	18	Bush	ENV1184			Head frame assembly	EXX1007
	19	Magnet	ENV1336			(Mechanism unit II)	
	20	Beit	ENT1023		57	Arm	ENV1283
					58	Head chassis unit	EXA1230
	21	Spring	EBH1424		59	Washer	EBF1010
	22	Spring	EBH1401		60	Washer	EBF1011
	23	Spring	EBH1203				
	24	Spring	EBH1402		101	.....
	25	.....		NSP	102	Bracket	ENC1284
				NSP	103	Plate	ENC1285
	26	Spring	EBH1406	NSP	104	Bracket	ENC1199
	27	Spring	EBH1407	NSP	105	Arm (Mechanism unit I)	ENC1288
	28	Spring	EBH1408			Arm (Mechanism unit II)	ENC1289
	29	.....				
	30	Spring	EBH1409	NSP	106	Holder	ENV1161
				NSP	107	Holder	ENV1101
	31	Spring	EBH1410	NSP	108	Gear	ENV1177
	32	Spring	EBH1256	NSP	109	Head unit	EXA1110
	33	Spring	EBL1013			(Mechanism unit I)	
	34	Spring	EBL1014			Head unit	EXA1109
	35	Motor unit	EXA1241			(Mechanism unit II)	
				NSP	110	Screw	JGZ14P085FNI
	36	Switch (Detect)	ESN1003		111	.....
	37	Switch (Mode)	ESN1004				
	38	Solenoid	EXP1005	NSP	112	Chassis unit	EXX1011
	39	Hall IC	DN6847SE	NSP	113	PC board	ENP1056
	40	Bracket	ENC1336	NSP	114	PC board	ENP1053
						(Mechanism unit I)	
						PC board	ENP1055
						(Mechanism unit II)	

2. BLOCK DIAGRAM



3. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" 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 \rightarrow 56 \times 10¹ \rightarrow 561 RD1/8PM $\begin{matrix} 5 & 6 & 1 \\ \hline & & J \end{matrix}$
 47k Ω \rightarrow 47 \times 10³ \rightarrow 473 RD1/4PS $\begin{matrix} 4 & 7 & 3 \\ \hline & & J \end{matrix}$
 0.5 Ω \rightarrow 0R5 RN2H $\begin{matrix} 0 & R & 5 \\ \hline & & K \end{matrix}$
 1 Ω \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 Ω \rightarrow 562 \times 10¹ \rightarrow 5621 RN1/4PC $\begin{matrix} 5 & 6 & 2 & 1 \\ \hline & & & F \end{matrix}$

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
------	-----	-------------	----------	------	-----	-------------	----------

LIST OF ASSEMBLIES

		OPERATE UNIT	RWZ2715				
		DOLBY HX PRO UNIT	RWZ2716				
		MAIN UNIT	RWZ2717				
		REAR UNIT	RWZ2718				
NSP		HALF LED 1 UNIT	RWZ2719				
NSP		HALF LED 2 UNIT	RWZ2720				

OPERATE UNIT

SEMICONDUCTORS

D846, D847, D850, D860	SEL6C10R
D841-D844	SEL6410G
D851	SEL6910A
D801-D804	ISS254

SWITCHES

S811-S813, S815, S816, S819-S821, S823, S824	RSG1033
S814, S817, S818, S822, S825	RSG1034
S849, S850	RSH1030

RESISTORS

ALL RESISTORS	RD1/6PM□□□J
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DOLBY HX PRO UNIT

SEMICONDUCTORS

IC901	UPC1297CA
Q701, Q702	2SA1309A
Q703, Q704	XDC124ES
D702	ISS254

COILS

L701, L702	RTD1046
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CAPACITORS

C709, C710	CCCSL101K500
C715, C717	CEAS100M50
C716	CEAS4R7M50
C701, C702	CFTXA103J50
C705, C706	CFTXA223J50
C714	CGCYX104M25

C707, C708	CGCYX473K25
C713	CKPUYB101K50
C703, C704	CKPUYB821K50
C711, C712	RCG1005

RESISTORS

VR701, VR702 (22k Ω)	RCP1084
OTHER RESISTORS	RD1/6PM□□□J

OTHERS

CN510 5P PCB CONNECTOR	05JQ-ST
CN520 6P PCB CONNECTOR	06JQ-ST

MAIN UNIT

SEMICONDUCTORS

IC701	M51132L
IC801	PD3227A
Δ IC1001	NJM78M06FA
Δ IC1002	RCJ79M06FA
Δ IC1003	NJM7805FA
Δ IC1004	NJM7812FA
Q578, Q601, Q821, Q822	DTC143ES
Q571, Q579, Q609	XDA124ES
Q801, Q802	XDA144ES
Q805, Q806, Q817, Q823, Q824	XDC114ES

Q484, Q485, Q495-Q501, Q828	XDC124ES
Q606, Q850-Q853	2SA1283
Q483, Q816, Q1001	2SA1309A
Q580, Q583	2SB1238X
Q493, Q494	2SC1740SLN

Q581, Q582	2SC1815
Q605	2SC3243
Q1004	2SC3246
Δ Q572, Q584, Q585, Q604, Q607, Q1002, Q1003	2SC3311A
Q481, Q482, Q814	2SD2144S

D1010	MTZJ11B
D604	MTZ9.1B
Δ D1001-D1004	1SR35-100AVL
D1005, D1009	1SR35-100AVL
D581	1SS252

Mark	No.	Description	Part No.
------	-----	-------------	----------

		D491, D492, D580, D582, D583, D605, D805, D806, D808-D814, D816, D819, D837, D838, D870, D1006-D1008, D1011, D1012	ISS254
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COILS

L580	LFA121K
L581	RTD1062

CAPACITORS

C600	CEASR22M50
C495	CEASR33M50
C580	CEASR47M50
C496, C587, C601, C602, C604, C607, C643, C1016	CEAS100M50
C1013, C1019	CEAS101M25
C1010	CEAS102M25
C591, C593	CEAS220M50
C1006, C1007, C1011	CEAS221M10
C642, C1014	CEAS221M16
C1004, C1005	CEAS222M25

C585, C586	CEAS330M16
C606, C1017	CEAS4R7M50
C603, C605, C608, C1020	CEAS470M16
C581	CFTXA223J50
C582-C584	CFTXA332J50
C805	CKCYB152K50
C806	CKCYF103250
C804, C1001, C1002	CKCYF473250
C403	CQPA752J100

RESISTORS

R854	RA13T473J
R855	RA7T103J
R856	RA8T103J
R408	RCN1022
R527, R528 (22k Ω)	RCN1023

R585, R1011 (160 Ω)	RCN1026
R586 (200 Ω)	RCN1036
VR521, VR522 (22k Ω)	RCP1046
VR803 (1k Ω)	RCP1112
VR801, VR802	VRT66VS223

OTHER RESISTORS

OTHER RESISTORS	RD1/6PM□□□J
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OTHERS

CN51 CONNECTOR	BSB-XH-A
CN52 CONNECTOR	B6B-XH-A
CN 15P SOCKET	AKP1090
X801 CERAMIC RESONATOR (F=4.19MHz)	VSS1014

REAR UNIT

SEMICONDUCTORS

IC201	CXA1330S
IC101	MC14066BCP
IC601	M5218AL
IC102, IC302	NJM4558DX
IC301	SN74LS05N

Q527, Q528, Q602, Q603, Q608	XDC124ES
Q411, Q412, Q431-Q436, Q439, Q440, Q453, Q491, Q492	2SC3311A

Mark	No.	Description	Part No.
		D491, D492, D580, D582, D583, D605, D805, D806, D808-D814, D816, D819, D837, D838, D870, D1006-D1008, D1011, D1012	1SS254
COILS			
	L580		LFA121K
	L581		RTD1062
CAPACITORS			
	C600		CEASR22M50
	C495		CEASR33M50
	C580		CEASR47M50
	C496, C587, C601, C602, C604, C607, C643, C1016		CEAS100M50
	C1013, C1019		CEAS101M25
	C1010		CEAS102M25
	C591, C593		CEAS220M50
	C1006, C1007, C1011		CEAS221M10
	C642, C1014		CEAS221M16
	C1004, C1005		CEAS222M25
	C585, C586		CEAS330M16
	C606, C1017		CEAS47M50
	C603, C605, C608, C1020		CEAS470M16
	C581		CFTXA223J50
	C582-C584		CFTXA332J50
	C805		CKCYB152K50
	C806		CKCYF103Z50
	C804, C1001, C1002		CKCYF473Z50
	C403		CQPA752J100
RESISTORS			
	R854		RA13T473J
	R855		RA7T103J
	R856		RA8T103J
	R408		RCN1022
	R527, R528 (22kΩ)		RCN1023
	R585, R1011 (160Ω)		RCN1026
	R586 (200Ω)		RCN1036
	VR521, VR522 (22kΩ)		RCP1046
	VR803 (1kΩ)		RCP1112
	VR801, VR802		VRTG6VS223
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN51 CONNECTOR		B5B-XH-A
	CN52 CONNECTOR		B6B-XH-A
	CN 15P SOCKET		AKP1090
	X801 CERAMIC RESONATOR (F=4.19MHz)		VSS1014
REAR UNIT			
SEMICONDUCTORS			
	IC201		CXA1330S
	IC101		MC14066BCP
	IC601		M5218AL
	IC102, IC302		NJM455DX
	IC301		SN74LS05N
	Q527, Q528, Q602, Q603, Q608		XDC124ES
	Q411, Q412, Q431-Q436, Q439, Q440, Q453, Q491, Q492		2SC3311A

Mark	No.	Description	Part No.
	Q523, Q524		2SD2144S
	Q413, Q414		2SK373
	D411-D420, D430, D431, D601, D602		1SS254
COILS/FILTERS			
	L523, L524		RTF1020
	F493, F494		RTF1062
	L451, L452		RTF1099
	L521, L522		RTF1102
CAPACITORS			
	C421, C422		CCCSL100D50
	C638		CCCSL101J50
	C640		CCCSL560J50
	C419, C420		CEANL100M16
	C215, C216		CEASR22M50
	C217, C218, C223, C224		CEASR33M50
	C549		CEASR47M50
	C439, C440, C491, C492, C497, C498, C521-C524		CEAS010M50
	C493, C494, C639, C903, C904		CEAS100M50
	C475, C476		CEAS101M16
	C209, C210, C531, C532, C645		CEAS2R2M50
	C433, C434, C525, C526		CEAS330M16
	C435, C436, C545, C546		CEAS470M16
	C529, C530		CFTXA182J50
	C535, C536		CFTXA183J50
	C211-C214		CFTXA222J50
	C641		CFTXA223J50
	C541-C544		CFTXA473J50
	C539, C540		CFTXA562J50
	C431, C432		CFTXA682J50
	C527, C528		CFTXA683J50
	C644		CFTXA823J50
	C411, C412		CKCYB331K50
	C441, C442		CKCYB391K50
	C413, C414		CKCYB471K50
	C533, C534		CKCYB681K50
	C415, C416		CKCYB821K50
	C425		CKCYF473Z50
	C547, C548		CKPUYB221K50
	C537, C538		CQMA752J50
RESISTORS			
	VR451-VR454 (22kΩ)		RCP1084
	OTHER RESISTORS		RD1/6PM□□□J
HALF LED 1 UNIT			
SEMICONDUCTORS			
	D1101-D1104		SEL6410G
RESISTORS			
	R1101		RD1/6PM□□□J
HALF LED 2 UNIT			
SEMICONDUCTORS			
	D1201-D1204		SEL6410G
RESISTORS			
	R1201		RD1/6PM□□□J

4. PACKING

NOTES:

- Parts marked by "NSP" are generally unavailable.
- The Δ mark found on some component parts is to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock.

Parts List

Mark	No.	Description
	1	Pad F
	2	Pad R
	3	Sheet
	4	Caution card (AB type only)
	5	Packing case



Mark No.	Description	Part No.
Q523, Q524		2SD2144S
Q413, Q414		2SK373
D411-D420, D430, D431, D601, D602		1SS254

COILS/FILTERS

L523, L524	RTF1020
F493, F494	RTF1062
L451, L452	RTF1099
L521, L522	RTF1102

CAPACITORS

C421, C422	CCCSL100D50
C638	CCCSL101J50
C640	CCCSL560J50
C419, C420	CEANL100M16
C215, C216	CEASR22M50
C217, C218, C223, C224	CEASR33M50
C549	CEASR47M50
C439, C440, C491, C492, C497, C498, C521-C524	CEAS010M50
C493, C494, C639, C903, C904	CEAS100M50
C475, C476	CEAS101M16
C209, C210, C531, C532, C645	CEAS2R2M50
C433, C434, C525, C526	CEAS330M16
C435, C436, C545, C546	CEAS470M16
C529, C530	CPTXA182J50
C535, C536	CPTXA183J50
C211-C214	CPTXA222J50
C641	CPTXA223J50
C541-C544	CPTXA473J50
C539, C540	CPTXA562J50
C431, C432	CPTXA682J50
C527, C528	CPTXA683J50
C644	CPTXA823J50
C411, C412	CKCYB331K50
C441, C442	CKCYB391K50
C413, C414	CKCYB471K50
C533, C534	CKCYB681K50
C415, C416	CKCYB821K50
C423	CKCYF473Z50
C547, C548	CKPUYB221K50
C537, C538	CQMA752J50

RESISTORS

VR451-VR454(22kΩ)	RCP1084
OTHER RESISTORS	RD1/6PM□□□J

HALF LED 1 UNIT

SEMICONDUCTORS

D1101-D1104	SEL6410G
-------------	----------

RESISTORS

R1101	RD1/6PM□□□J
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HALF LED 2 UNIT

SEMICONDUCTORS

D1201-D1204	SEL6410G
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RESISTORS

R1201	RD1/6PM□□□J
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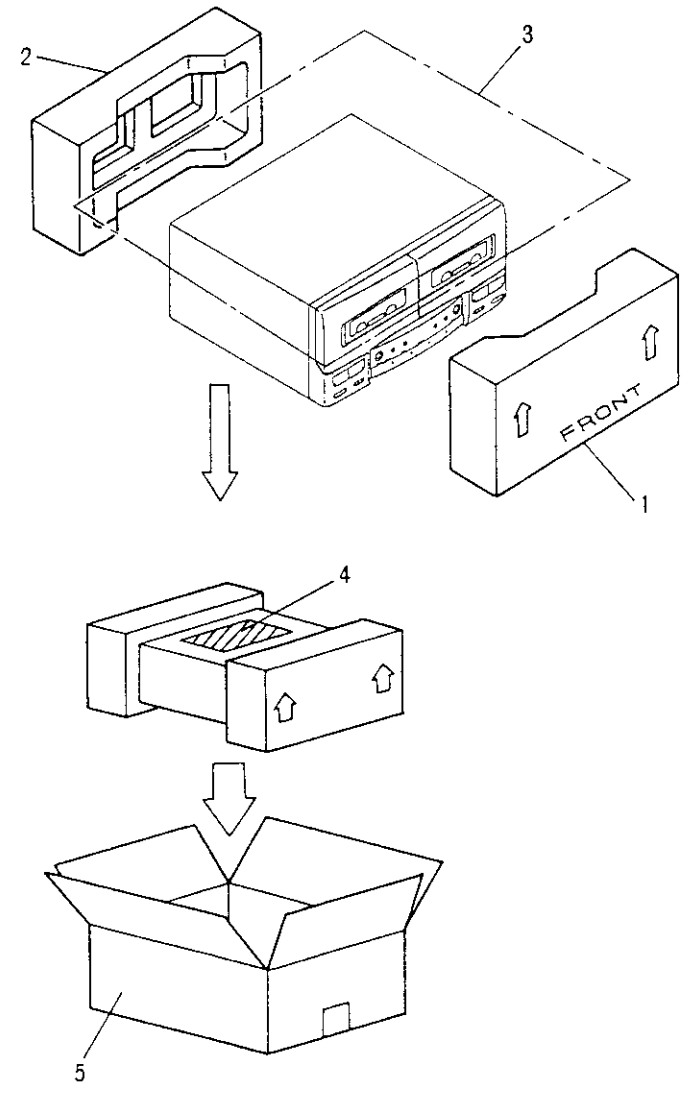
4. PACKING

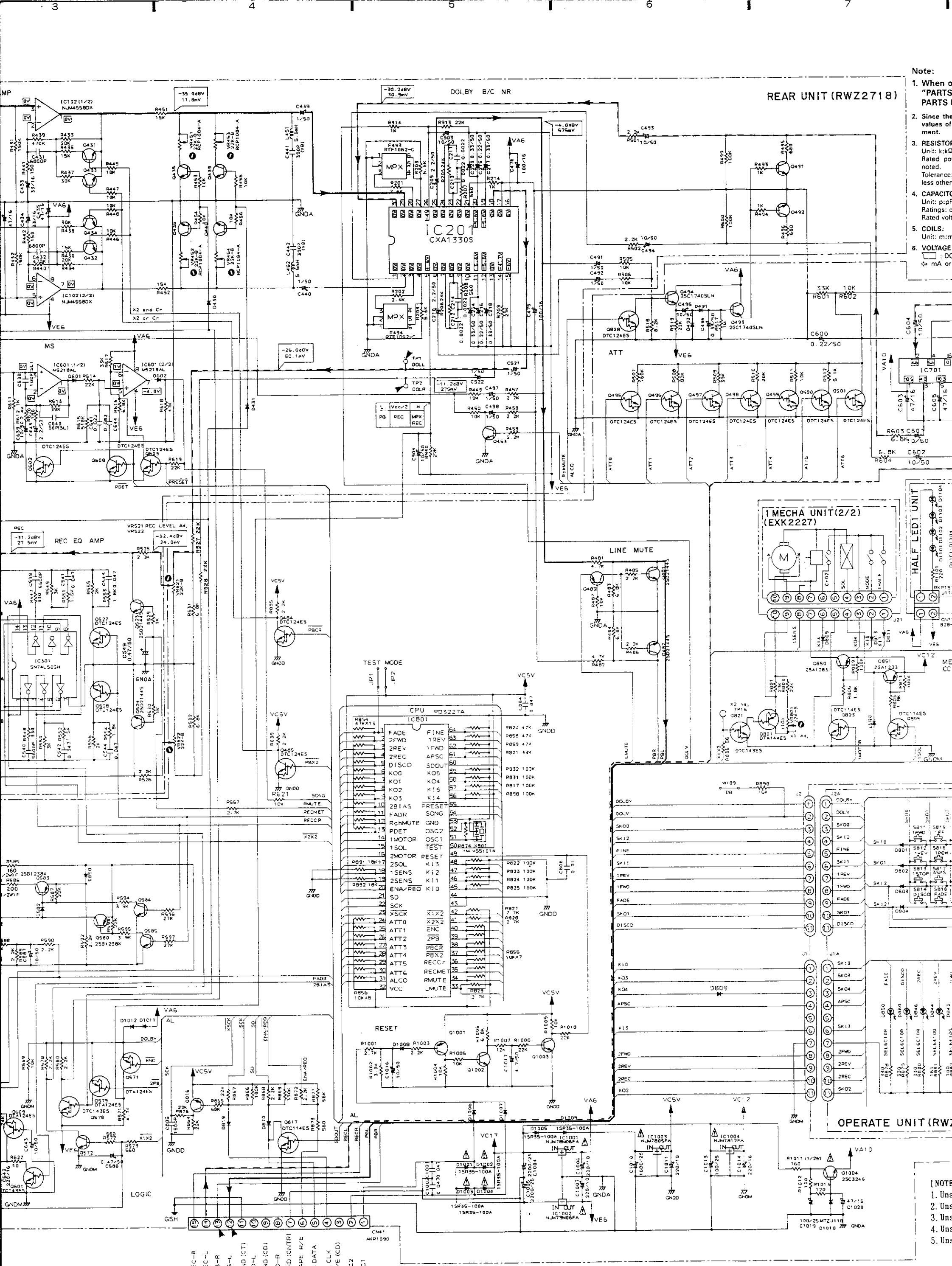
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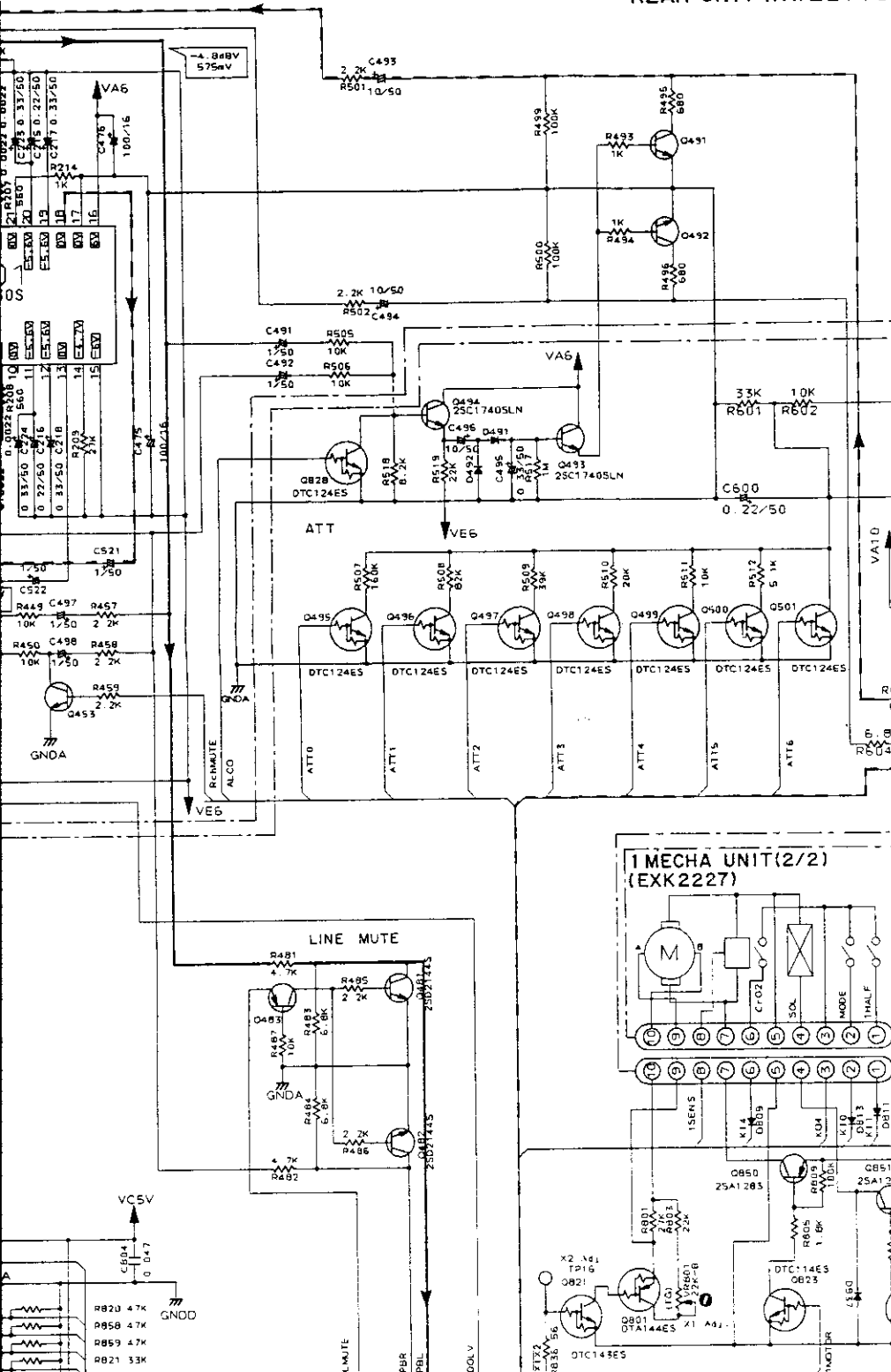
Parts List

Mark No.	Description	Part No.
1	Pad F	RHA1093
2	Pad R	RHA1094
3	Sheet	RHX1003
4	Caution card (AB type only)	RRN1001
5	Packing case	RHG1416





REAR UNIT (RWZ2718)



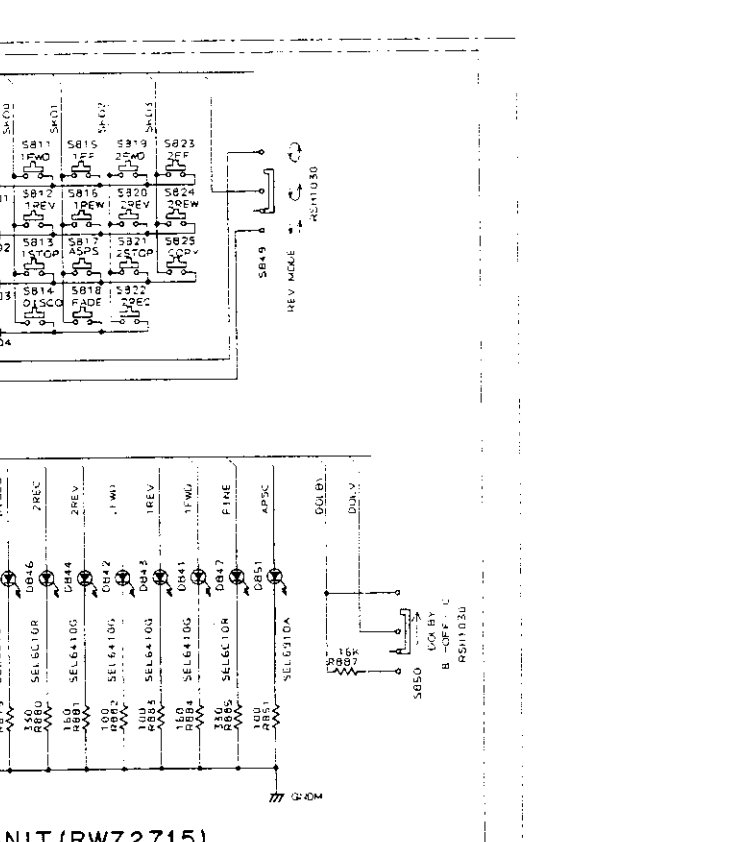
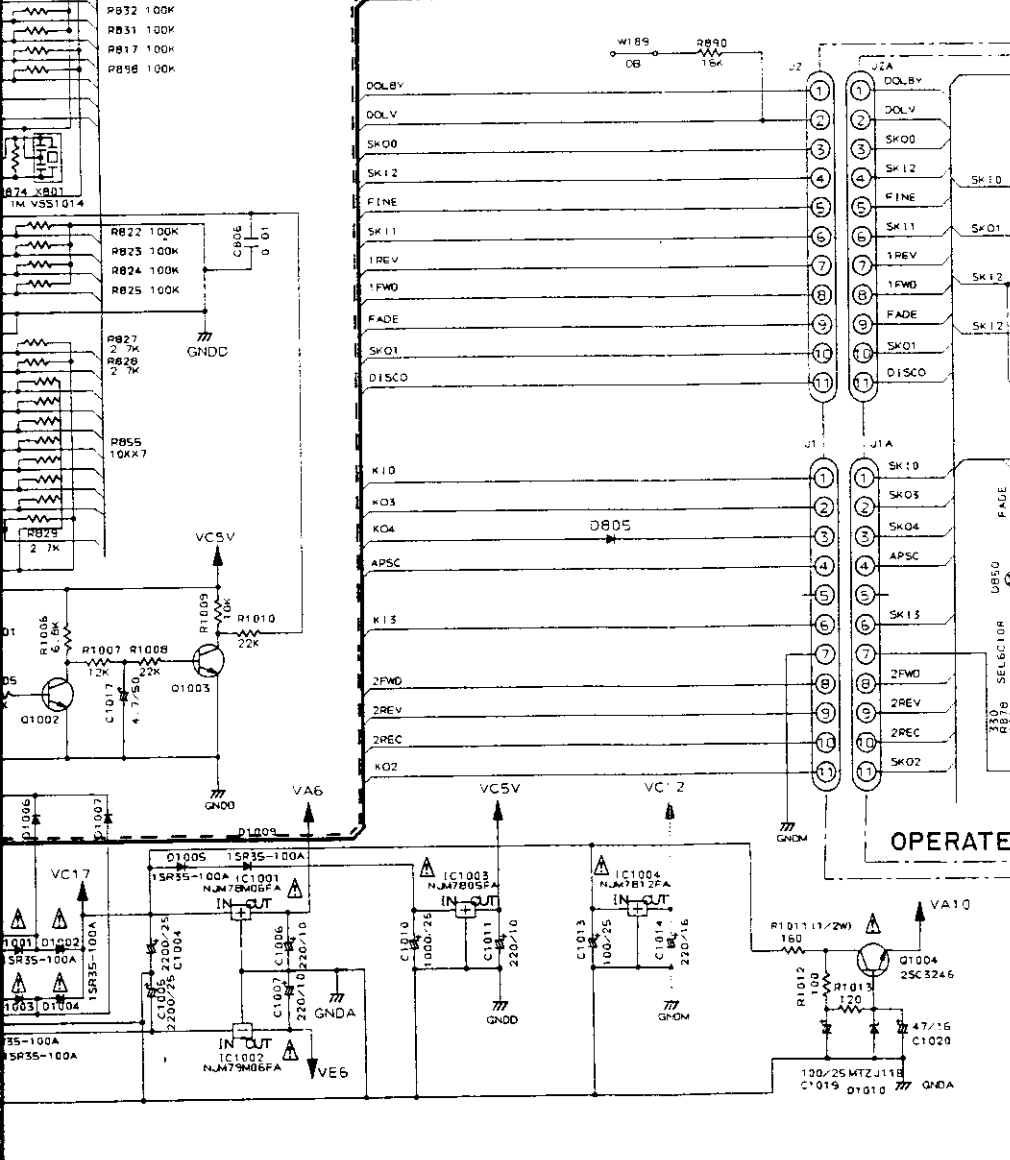
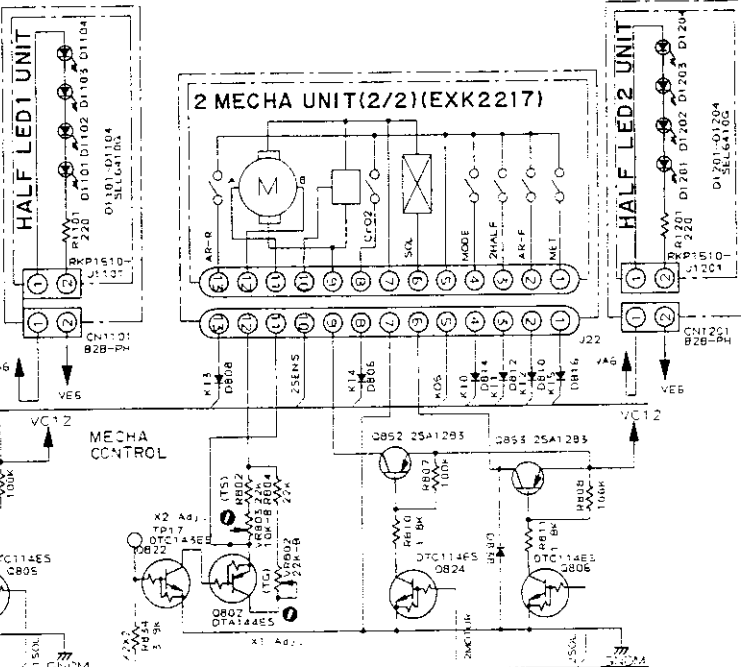
- Note: (Type 6)
- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
 - Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
 - RESISTORS:**
Unit: k:K Ω , M:M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/8W, 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 μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
 - COILS:**
Unit: m:mH or μ H unless otherwise noted.
 - VOLTAGE AND CURRENT:**
—: DC voltage (V) in STOP mode unless otherwise noted.
mA or -mA: DC current in STOP mode unless otherwise noted.

- OTHERS:**
 - : Signal route.
 - ⊙: Adjusting point.
 - ▼ (Red): Measurement point.
 - The Δ 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.
- SWITCHES (Underline indicates switch position):**

OPERATE UNIT	
S811 : 1FWD	S822 : 2REC
S812 : 1REV	S823 : 2FF
S813 : 1STOP	S824 : 2REW
S814 : DISCO	S825 : COPY
S815 : 1FF	S849 : REV.MODE
S816 : 1REW	= C O
S817 : ASPS	S850 : DOLBY
S818 : FADE	B - OFF - C
S819 : 2FWD	
S820 : 2REV	
S821 : 2STOP	

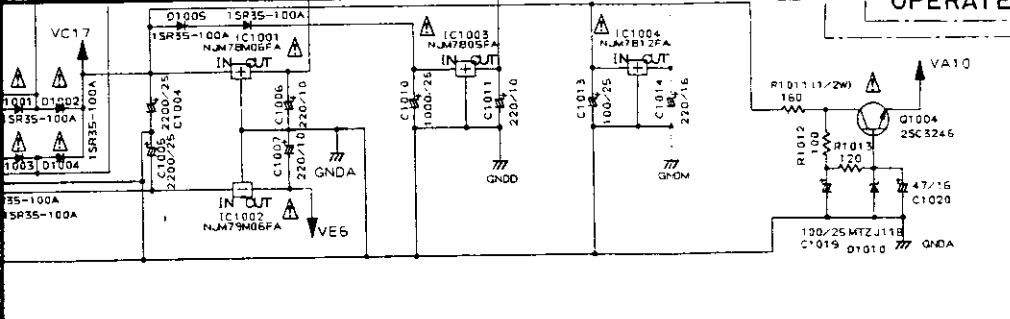
1 MECHA UNIT (2/2) (EXK2227)

2 MECHA UNIT (2/2) (EXK2217)



OPERATE UNIT (RWZ2715)

MAIN UNIT (RWZ2717)



- [NOTE]
- Unspecified NPN transistors are 2SC3311A. —: PLAYBACK SIGNAL
 - Unspecified PNP transistors are 2SA1309A. - - -: RECORDING SIGNAL
 - Unspecified diodes are 1SS245.
 - Unspecified capacitors are CFTXA.
 - Unspecified semi-fixed resistors are TB.

9. PCB CONNECTION DIAGRAMS

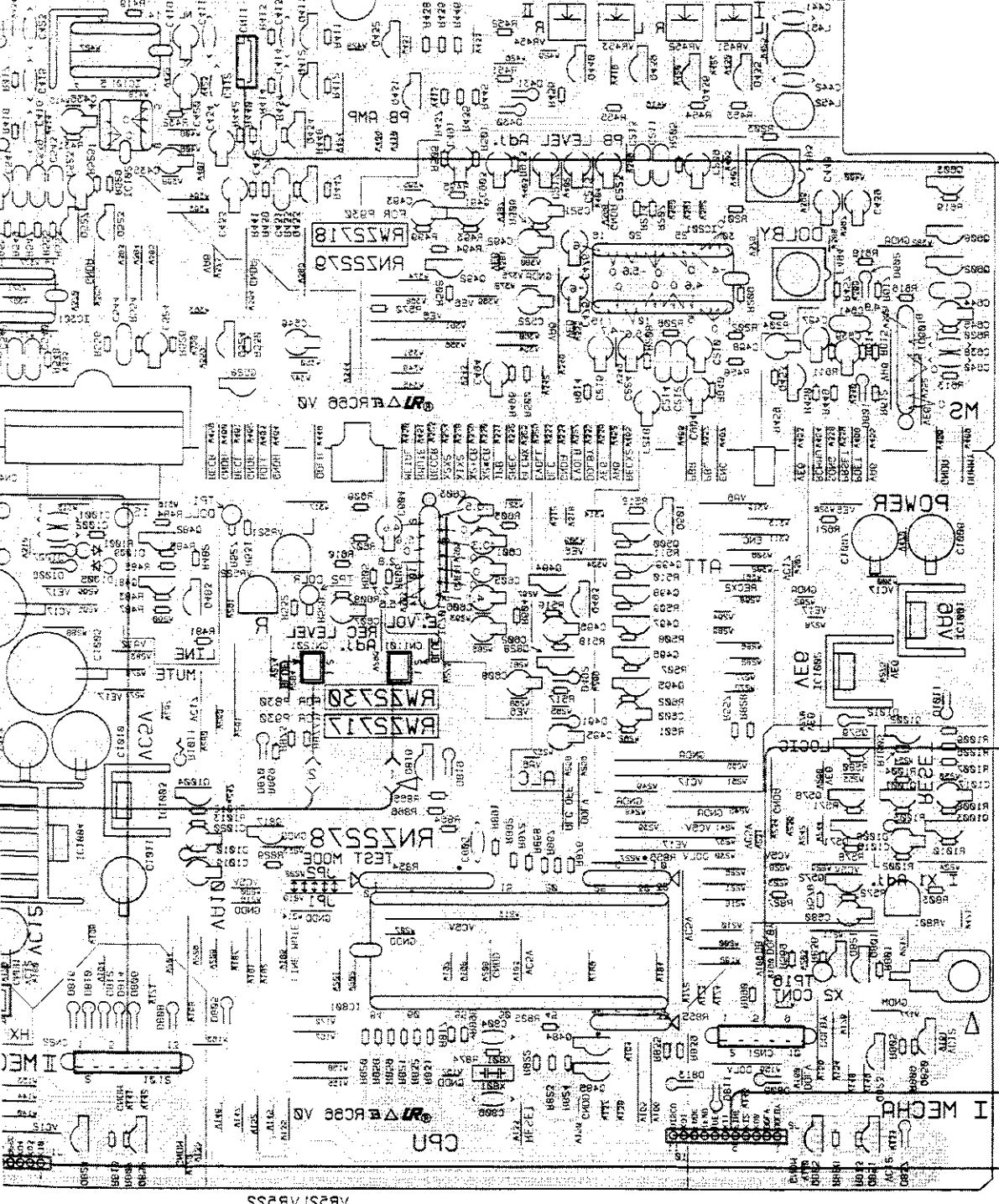
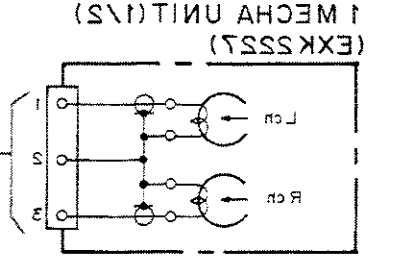
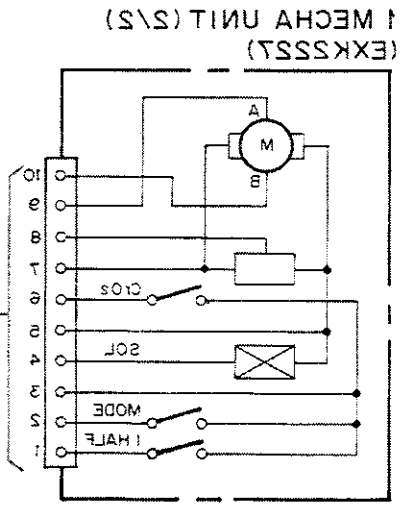
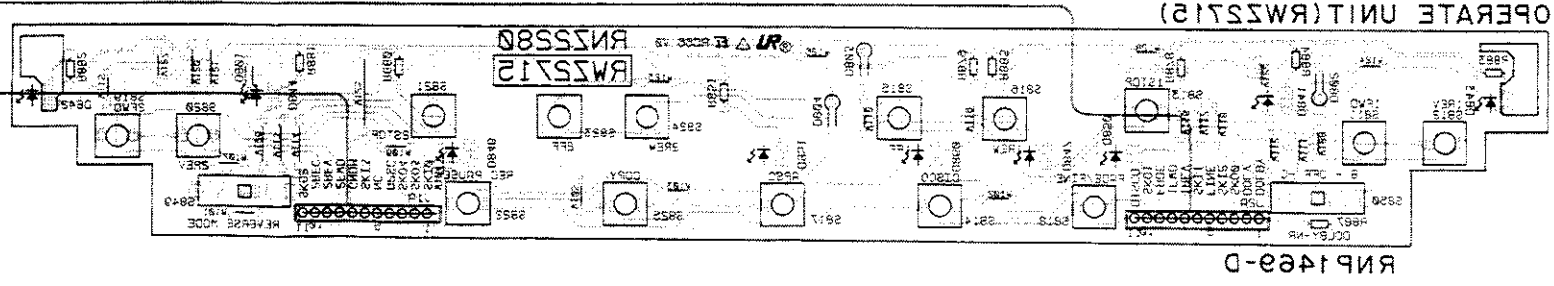
• View from soldering side

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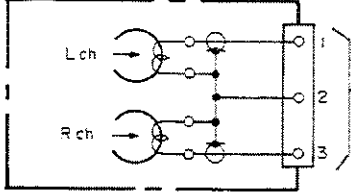
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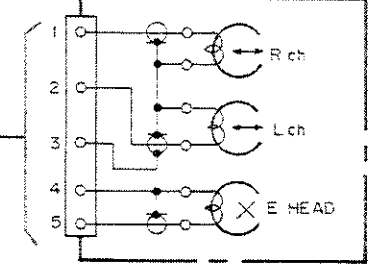
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REAR UNIT (RWZ2718) VR451 VR452 VR453 VR454

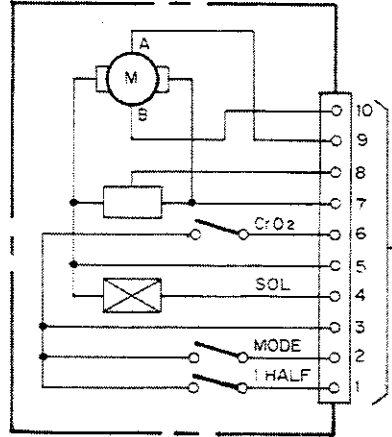
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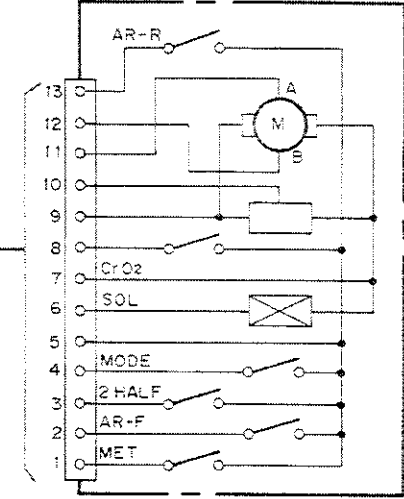
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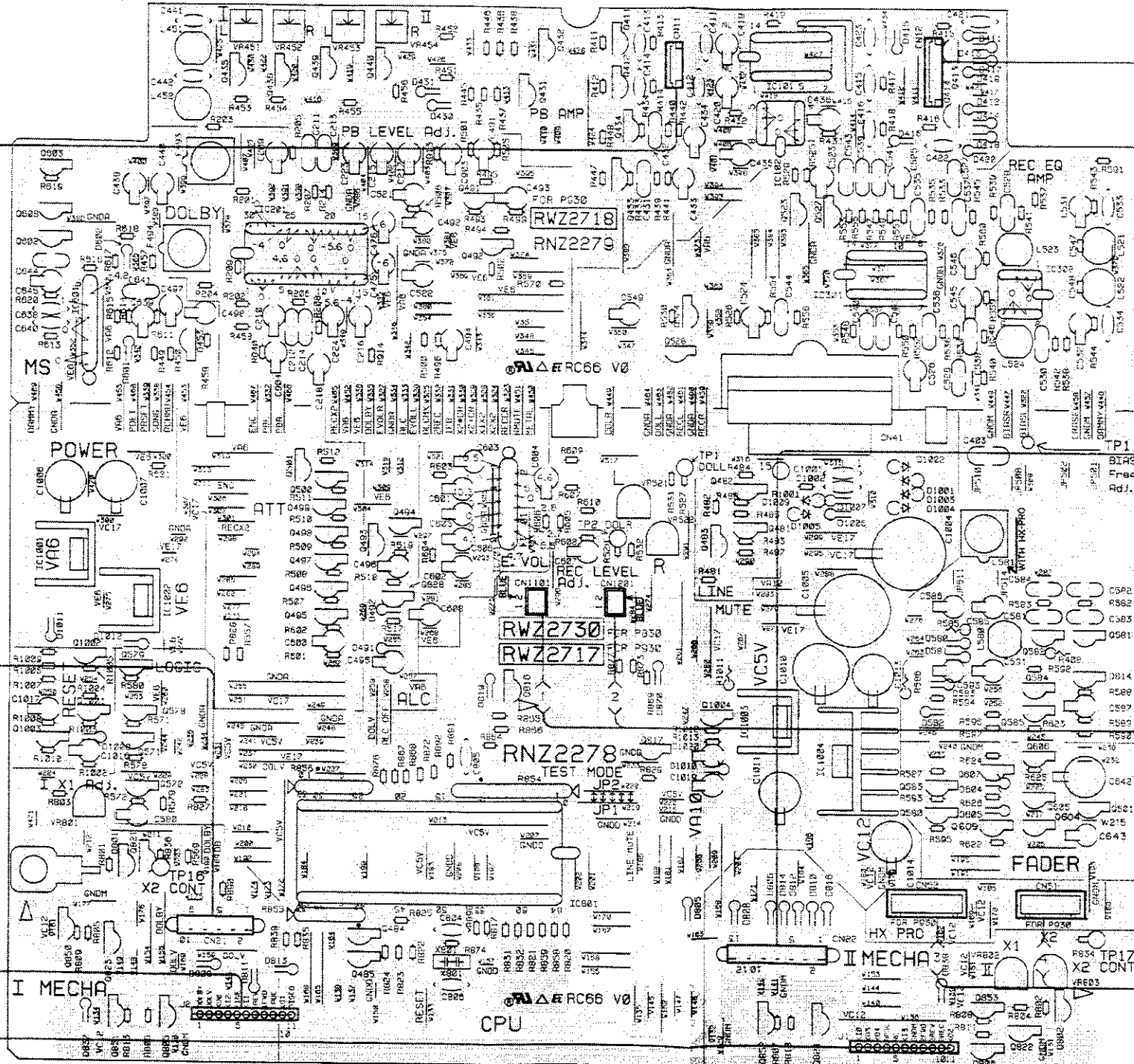
1 MECHA UNIT (2/2) (EXK2227)



2 MECHA UNIT (2/2) (EXK2217)



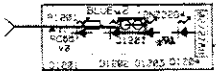
MAIN UNIT (RWZ2717)



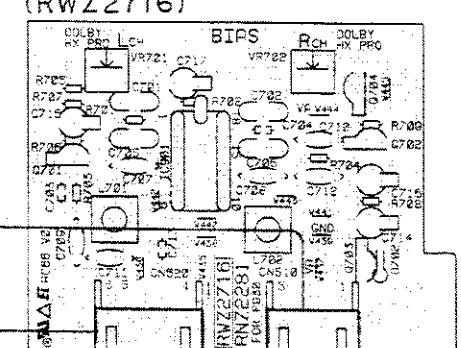
HALF LED1 UNIT



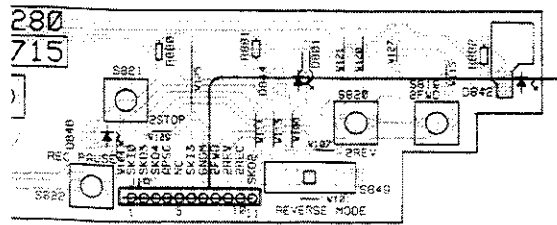
HALF LED2 UNIT



DOLBY HX PRO UNIT (RWZ2716)



VR801 IC1001 Q501 Q500 Q499 Q498 Q497 Q493 Q494 IC701 Q483 Q482 Q481 VR802 VR803
 Q1002 Q579 IC1002 Q496 Q495 Q828 Q816 Q582 Q584 Q581 Q814
 Q1003 Q1001 Q578 Q571 Q817 Q1004 IC1003 IC1004 Q607 Q585 Q606
 Q801 Q821 Q10572 IC801 Q583 Q580 Q609 Q605 Q604 Q601
 Q850 Q823 Q8851 Q805 Q484 Q485 Q852 Q824 Q853 Q806 Q822 Q802



7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENT

This adjustment should be performed in test mode.

- Entering the test mode. — Short circuit JP1 and JP2 inside the main unit and turn the power on.

1. Tape Speed Adjustment and Check						
No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Normal speed PLAY	STD-301 (3 kHz)	Playback for 1 minute and press the FF (REW) key. *1		
2		Double speed PLAY		check	6000 Hz ± 800 Hz (LINE OUT)	
3		Release the FF (REW) key after checking.				
4	II	Normal speed PLAY		Playback for 1 minute and press the FF (REW) key. *1		
5		Double speed PLAY		VR803	Within ± 10 Hz of step 2 (deck I) check value.	
6		Release the FF (REW) key after checking.				
7		Normal speed PLAY		VR802	3000 Hz ± 5 Hz (LINE OUT)	
8	I				VR801		Within ± 5 Hz of step 7 (deck II) adjustment value.

*1: As long as the FF (REW) key is pressed during playback, the unit is double speed mode.

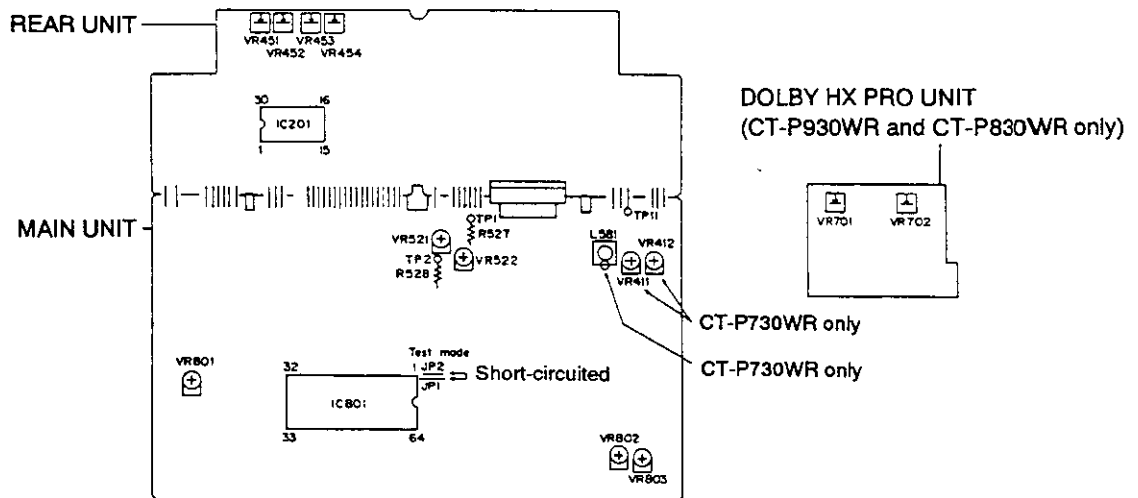


Fig. 7-1 Adjusting points

• Door Damp Check and Adjustment

1. Mount the door coil spring on the position ④ as shown in Fig. 7-2, and then upright the front panel assembly as shown in Fig. 7-3.
2. Start moving the doors of DECK I and DECK II open at the same time. When either door is fully open, confirm that the difference between that door and the other door is equal to or less than 15 mm.
3. If the specifications of steps 1 and 2 above are not satisfied, adjust by changing the position where the door coil spring is mounted, as follows.
 - When DECK I door moves more slowly than DECK II door, change the position of the DECK I door coil spring from ④ to ⑤.
 - When DECK I door moves faster than DECK II door, change the position of the DECK II door coil spring from ④ to ⑤.

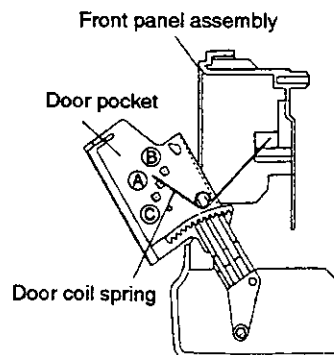


Fig. 7-2

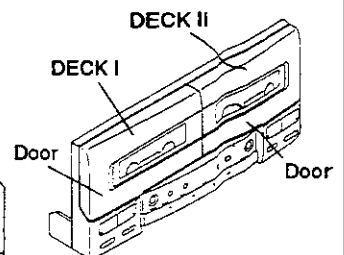


Fig. 7-3

7.2 PERPARATION FOR ADJUSTMENT OF HEAD ANGLE

1. Push the EJECT knob, and make the cassette door open. (See Fig. 7-4.)
2. Take the door panel off, as shown with an arrow in Fig. 7-4. Take the DECK I and DECK II doors off, one after the other.

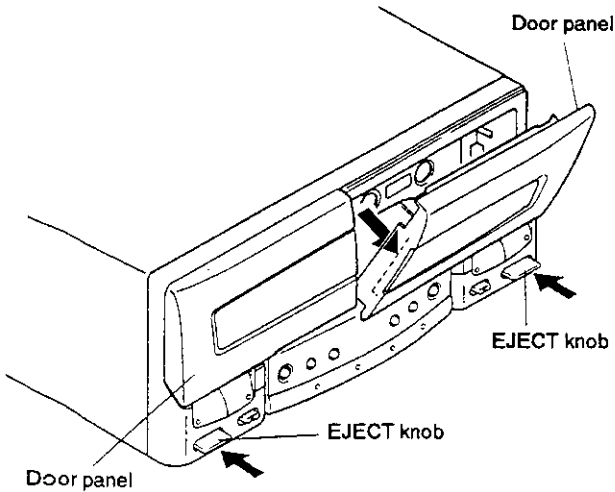


Fig. 7-4

3. Close the door pockets of DECK I and DECK II, and then insert a screwdriver in the slit of the center panel. Push the two hooks, and take off the center panel. (See Fig. 7-5.)

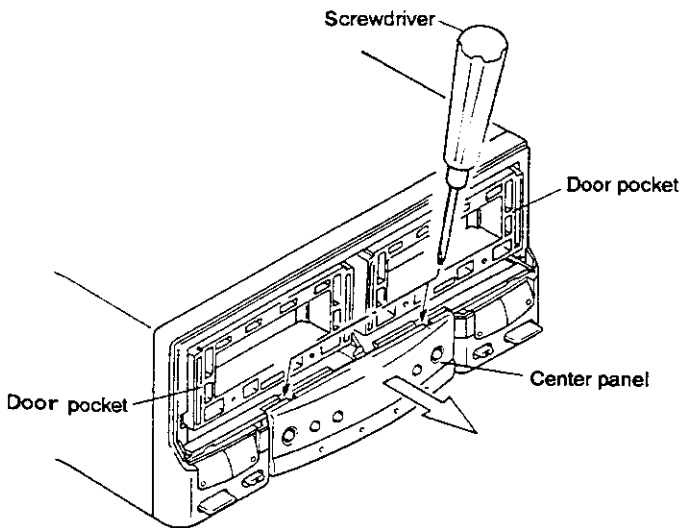


Fig. 7-5

4. Insert the screwdriver in each of the four holes on the front panel, and make azimuth adjustment. (See Fig. 7-6.)

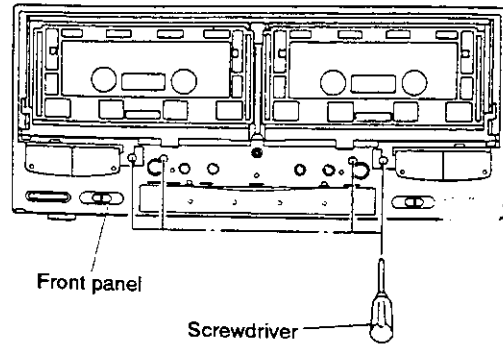


Fig. 7-6

7.3 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

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

Test Tapes

- STD-331E : Playback adjustments (See Fig. 7-7)
 STD-631 : NORMAL blank tape
 STD-621 : CrO₂ blank tape
 STD-610 : METAL blank tape

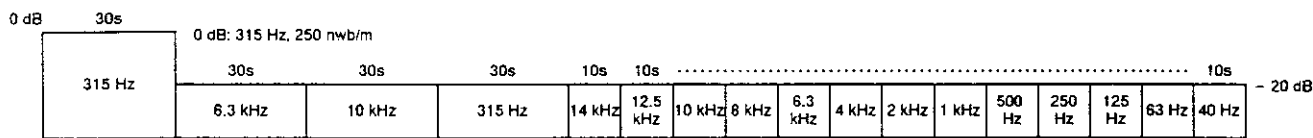


Fig. 7-7 Constants of the test tape STD-331E

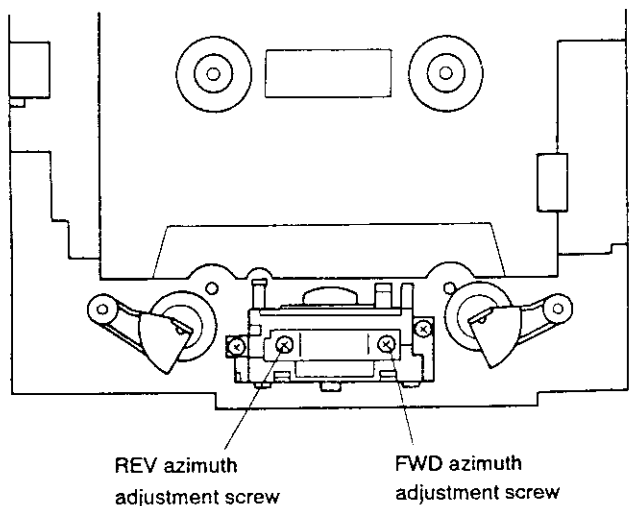


Fig. 7-8 Head azimuth adjustment

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.

NOTE: This unit has an automatic tape selection feature.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
 "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

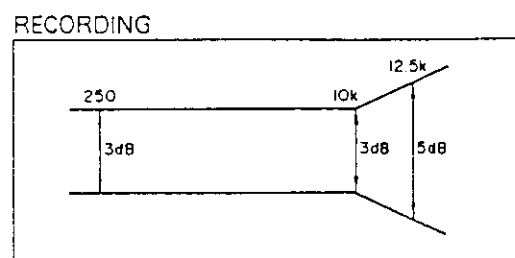
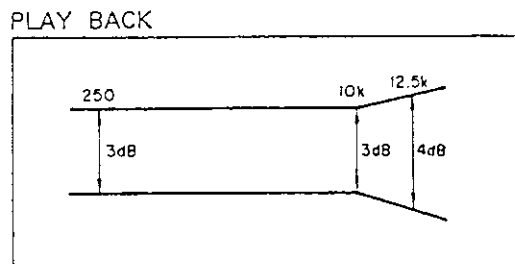


Fig. 7-9 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR451, VR452 (Deck I) or VR453, VR454 (Deck II) to meet the conditions.

No.	Mode	Input signal & test tape	Adjustment location
1.	PLAY	Play the 10 kHz/-20 dB section of STD-331E test tape.	Head azimuth adjustment screw. (See Fig. 7-8)
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 after the head azimuth adjustment.

No.	Mode	Input signal & test tape	Adjustment location
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331E test tape.	Deck I VR451 (L) VR452 (R) Deck II VR453 (L) VR454 (R)

RECORDING SECTION

1. Bias Oscillator Adjustment (CT-P930WR and CT-P930WR)

No.	Mode	Input signal & test tape	Adjustment location
1.	REC	Load the STD-610 test tape with no input signal.	Deck II L581

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to be damaged.

No.	Mode	Input signal & test tape	Adjustment location
1.	STOP	Load the STD-631 (NORMAL) test tape.	
2.	REC → PLAY	Record the 315 Hz and 6.3 kHz signals at -28 dBV input level and playback.	Deck II VR701 (L) VR411 * VR702 (R) VR412 *

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location
1.	REC/ PAUSE	Apply a 315 Hz signal to the line input terminals, load the STD-631 test tape.	Volume of the output of the oscillator
2.	REC → PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck II VR521 (L) VR522 (R)
3.	REC → PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check
4.	REC → PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR451, VR452 (Deck I) or VR453, VR454 (Deck II) 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. 7-8)	LINE OUT L - R terminal (Pins 12, 13 of CN41)	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 I	VR451 (Lch) VR452 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	-8.7 dBV
			Deck II	VR453 (Lch) VR454 (Rch)		

RECORDING SECTION

1. Bias Oscillator Adjustment (CT-P930WR and CT-P830WR only)

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 II	L581	TP11	108 kHz \pm 0.5 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.	STOP	Load the STD-631 (NORMAL) test tape.				
2.	REC \rightarrow PLAY	Record the 315 Hz and 6.3 kHz signals at -28 dBV input level and playback.	Deck II	VR701 (Lch) VR411 * VR702 (Rch) VR412 *	LINE OUT L - R terminal (Pins 12, 13 of CN41)	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes +0.5 dB \pm 0.5 dB when compared with the 315 Hz signal. * CT-P730WR only

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 test tape.	Volume of the output level of the oscillator		-11.2 dBV	
2.	REC \rightarrow PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck II	VR521 (Lch) VR522 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2 dBV.
3.	REC \rightarrow PLAY	Record the above signal onto the STD-821 test tape, and playback.	Check		-11.2 dBV \pm 1.5 dB	
4.	REC \rightarrow PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		-11.2 dBV \pm 1.5 dB	

8. FOR CT-P930WR/AEM, CT-P730WR/AB, ADL A

8.1 CONTRAST OF MISCELLANEOUS P

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not standard parts.
- The Δ mark found on some component parts indicates the important parts. The Δ mark on the identical designation.
- Parts marked by "C" are not always kept in stock. Their delivery time is long.

CT-P930WR/AEM, CT-P830WR/ADL, AEM AB have the same construction except

Mark	Symbol & Description	CT-P930WR/	CT-P930WR/
		AB type	AEM type
NSP	DOLBY HX PRO unit	RWZ2716	RWZ2716
	MAIN unit	RWZ2717	RWZ2717
NSP	HALF LED 1 unit	RWZ2719	RWZ2719
	HALF LED 2 unit	RWZ2720	RWZ2720
NSP	Door lens (L)	RAH2100	RAH2100
	Door lens (R)	RAH2101	RAH2101
	Door panel	RAH2138	RAH2138
	Door panel (L)	REA1021	REA1021
NSP	Door panel (R)	REA1022	REA1022
	Spot lens	RNK1847	RNK1847
NSP	Rear panel	RNA1618	RNA1618
	Packing case	RHG1418	RHG1418
	Caution card	RRN1001	.....

MAIN UNIT

- Although RWZ2925 and RWZ2717 are service parts.
- RWZ2926 and RWZ2717 have the same construction.

Mark	Symbol & Description
	Q581, Q582 Q814 L581 T581 C403
	C417, C418 C581 C582 C583, C584 C588
	R582, R583 R585 (160 Ω /0.5W) R585 (150 Ω /0.5W) R586 (200 Ω /0.5W) R586 (120 Ω /0.5W)
	VR411, VR412 (220k Ω) CN51 CN52

CT-P930WR, CT-P830WR, CT-P730WR

8. FOR CT-P930WR/AEM, CT-P830WR/ADL, AEM, CT-P730WR/AB, ADL AND AEM

8.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

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

CT-P930WR/AEM, CT-P830WR/ADL, AEM, CT-P730WR/AB, ADL, AEM and CT-P930WR/AB have the same construction except for the following:

Mark	Symbol & Description	Part No.							Remarks
		CT-P930WR/ AB type	CT-P930WR/ AEM type	CT-P830WR/ ADL type	CT-P830WR/ AEM type	CT-P730WR/ AB type	CT-P730WR/ ADL type	CT-P730WR/ AEM type	
NSP	DOLBY HX PRO unit	RWZ2718	RWZ2718	RWZ2718	RWZ2718	.....	.....	.....
	MAIN unit	RWZ2717	RWZ2717	RWZ2925	RWZ2925	RWZ2928	RWZ2928	RWZ2928	
	HALF LED 1 unit	RWZ2719	RWZ2719	.....	.....	.....	.....	.....
	HALF LED 2 unit	RWZ2720	RWZ2720	.....	.....	.....	.....	.....
NSP	Door lens (L)	RAH2100	RAH2100	RAH2100	RAH2100	RAH2143	RAH2143	RAH2143	
	Door lens (R)	RAH2101	RAH2101	RAH2101	RAH2101	RAH2144	RAH2144	RAH2144	
	Door panel	RAH2138	RAH2138	RAH2140	RAH2140	RAH2141	RAH2141	RAH2141	
	Door panel (L)	REA1021	REA1021	REA1023	REA1023	REA1025	REA1025	REA1025	
	Door panel(R)	REA1022	REA1022	REA1024	REA1024	REA1028	REA1028	REA1028	
	Spot lens	RNK1847	RNK1847	.....	.....	.....	.....	.....
NSP	Rear panel	RNA1818	RNA1818	RNA1824	RNA1824	RNA1825	RNA1828	RNA1828	
	Packing case	RHG1418	RHG1418	RHF1038	RHG1417	RHF1039	RHF1039	RHG1419	
	Caution card	RRN1001	.....	.....	.....	RRN1001	.....	.....

MAIN UNIT

- Although RWZ2925 and RWZ2717 are different in part number, they have the same service parts.
- RWZ2926 and RWZ2717 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2717	RWZ2926	
	Q581, Q582	2SC1815	2SD1302	
	Q814	2SD2144S	2SD1302	
	L581	RTD1062	.....
	T581	.....	ATX - 043	
	C403	CQPA752J100	CQPA162J100	
	C417, C418	.....	CCCSL101K500	
	C581	CFTXA223J50	CFTXA123J50	
	C582	CFTXA332J50	CFTXA153J50	
	C583, C584	CFTXA332J50	CFTXA103J50	
	C588	.....	CKPUYB221K50	
	R582, R583	RD1/6PM123J	RD1/6PM223J	
	R585 (160 Ω /0.5W)	RCN1026	.....
	R585 (150 Ω /0.5W)	.....	RCN1041	
	R586 (200 Ω /0.5W)	RCN1036	.....
	R586 (120 Ω /0.5W)	.....	RCN1020	
	VR411, VR412 (220k Ω)	.....	RCP1049	
	CN51	B5B - XA - A	.....
	CN52	B6B - XH - A	.....

mechanical center positions.

Position	Measuring location	Adjustment value	Remarks
Line out	LINE OUT L - R terminal (Pins 12, 13 of CN41)	Maximum playback signal level.	

performed with great care.

Position	Measuring location	Adjustment value	Remarks
(Lch) (Rch)	TP. 1 (Lch) TP. 2 (Rch)	-8.7 dBV	

P830WR only)

Position	Measuring location	Adjustment value	Remarks
	TP11	108 kHz \pm 0.5 kHz	

become under bias by checking the distortion rate.

Position	Measuring location	Adjustment value	Remarks
(Lch) (Rch)	LINE OUT L - R terminal (Pins 12, 13 of CN41)	Repeatedly record, playback and adjust so that the playback level of 8.3 kHz signal becomes +0.5 dB \pm 0.5 dB when compared with the 315 Hz signal.	*CT-P730WR only

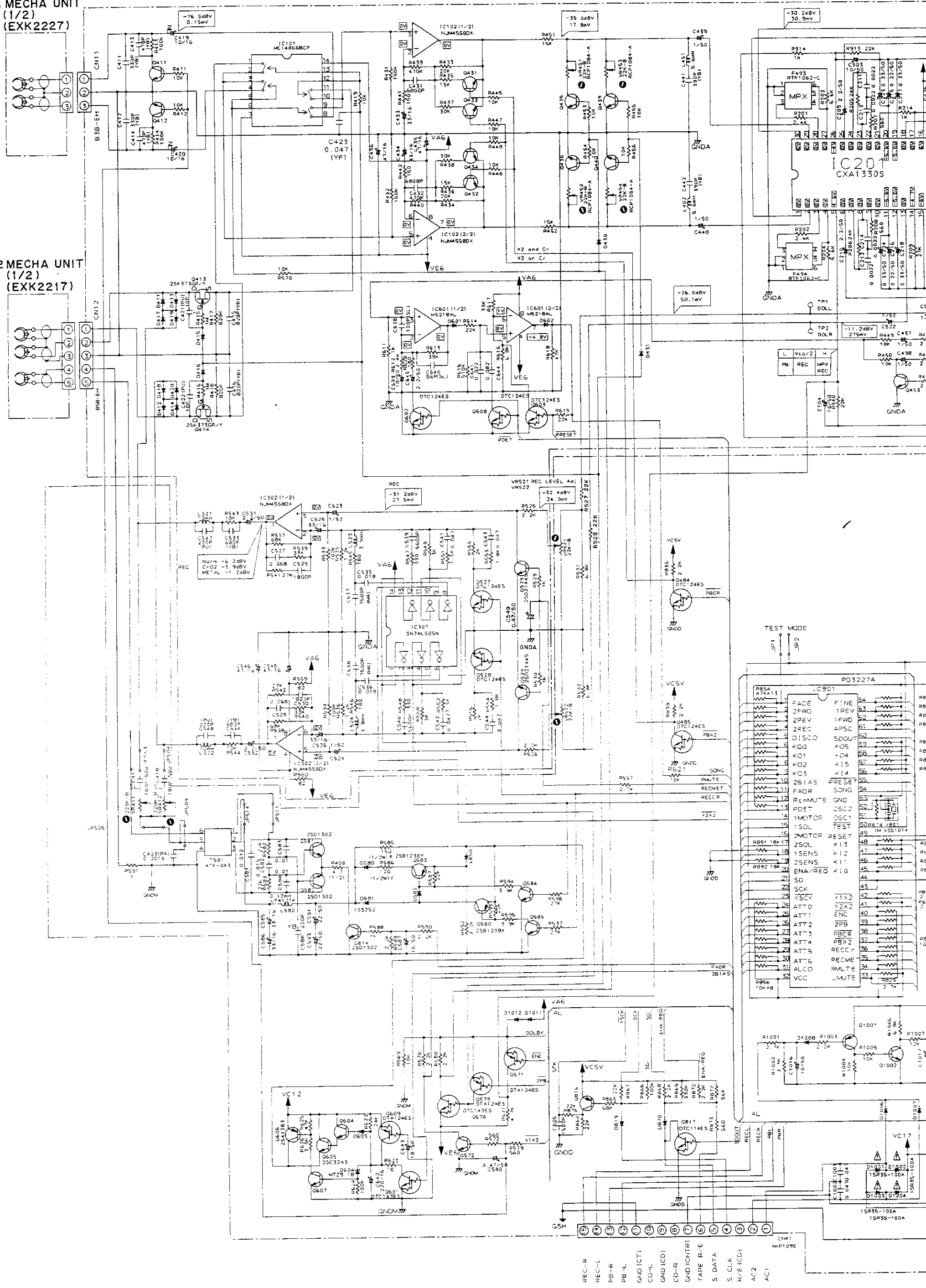
Position	Measuring location	Adjustment value	Remarks
Level of		-11.2 dBV	
(Lch) (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2 dBV.	
		-11.2 dBV \pm 1.5 dB	
		-11.2 dBV \pm 1.5 dB	

8.2 SCHEMATIC DIAGRAMS

1 MECHA UNIT (1/2) (EXK2227)

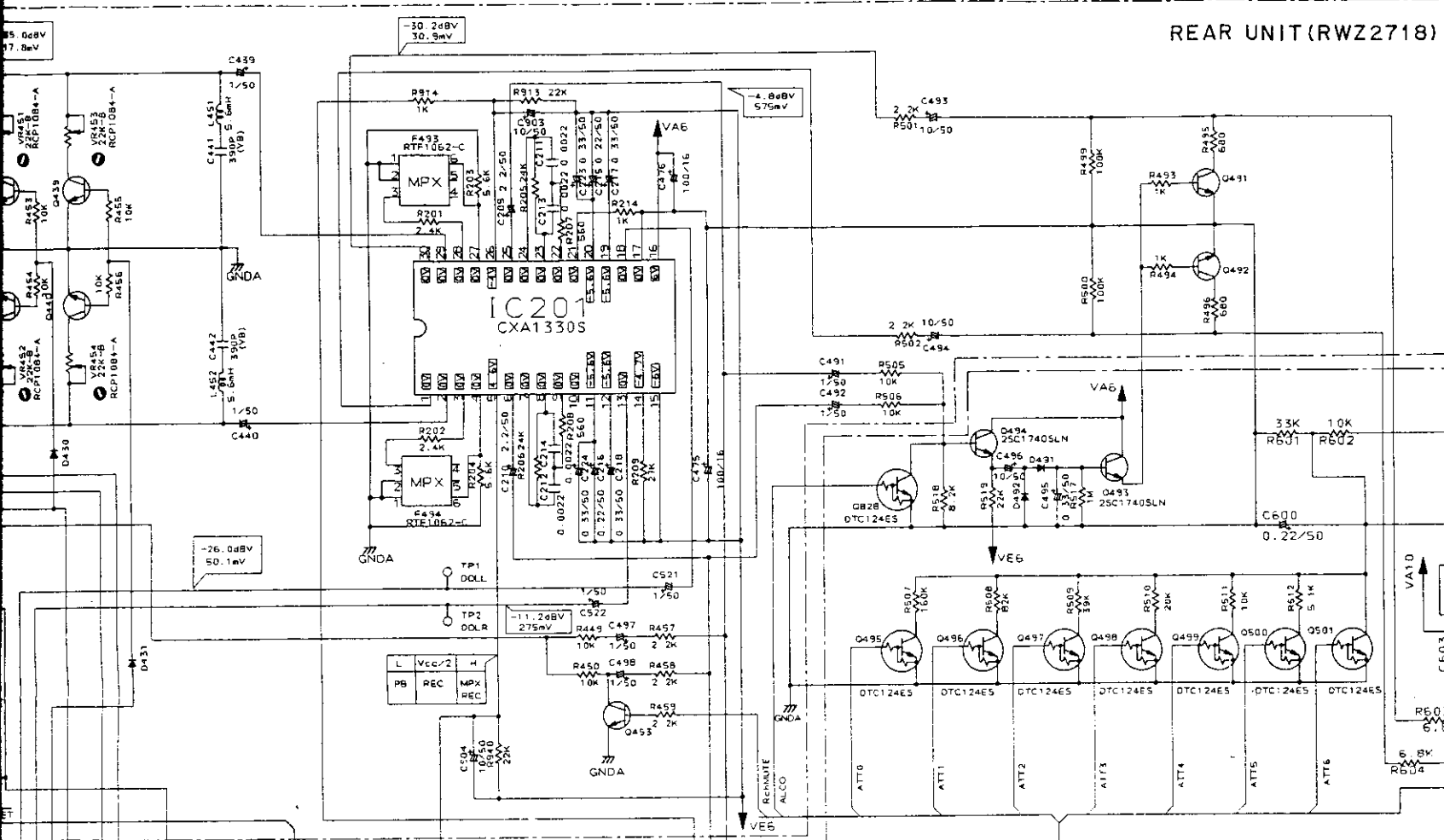
2 MECHA UNIT (1/2) (EXK2227)

A
B
C
D
E
F

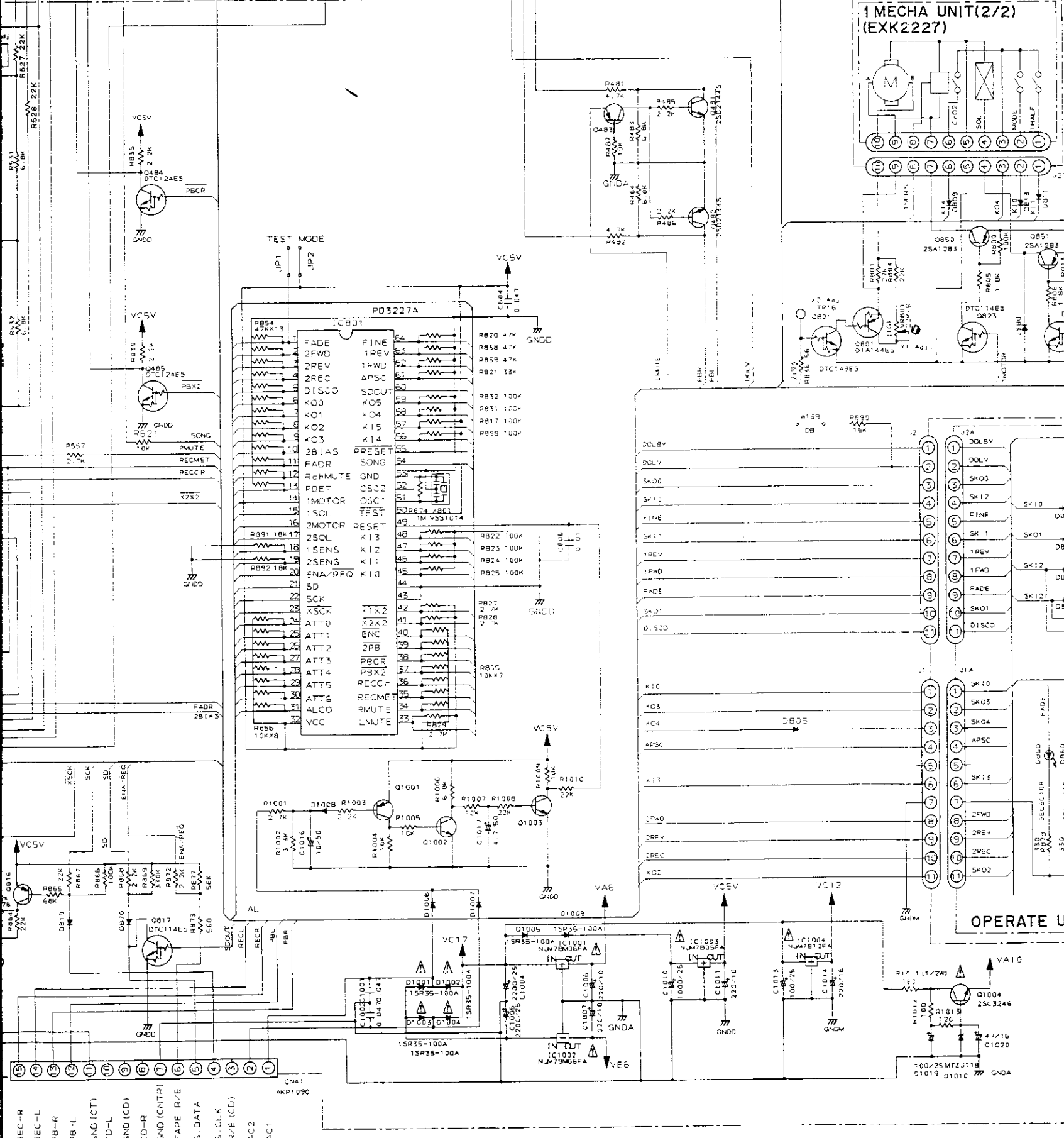


(Connect to prescribed components)

- Note:**
- 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 values of some components may be changed for improvement.
 - RESISTORS:**
Unit: k:K, 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.
 - CAPACITORS:**
Unit: p: pF or μF unless otherwise noted.
Rated voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
 - COILS:**
Unit: m:mH or μH unless otherwise noted.
 - VOLTAGE AND CURRENT:**
□ : DC voltage (V) in STOP mode unless otherwise noted.
⊖ : mA or -mA : DC current in STOP mode unless otherwise noted.



REAR UNIT (RWZ2718)



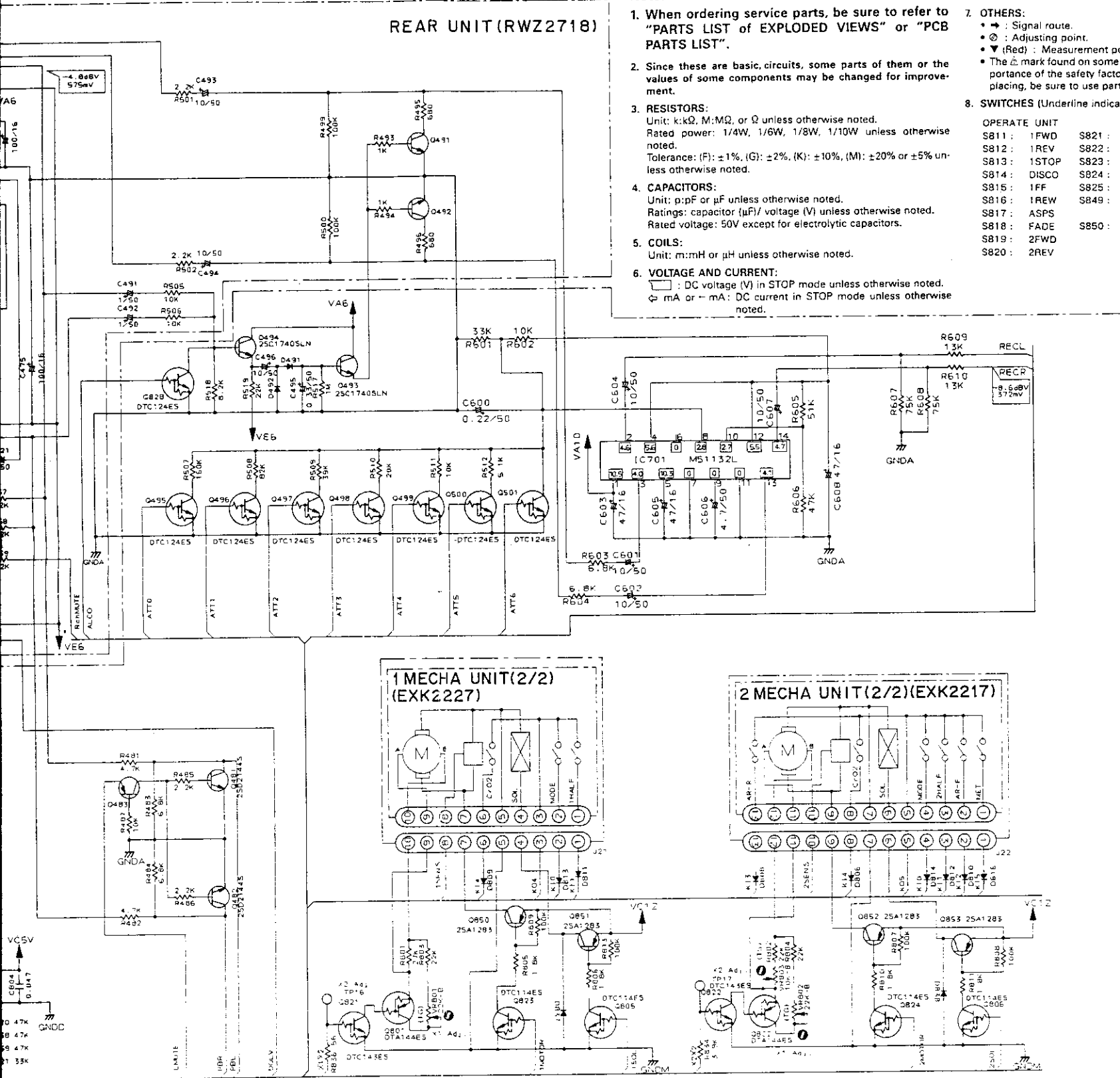
REAR UNIT (RWZ2718)

Note: (Type 6)

- 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 values of some components may be changed for improvement.
- 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.
- CAPACITORS:
Unit: p: pF or μF unless otherwise noted.
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:
Unit: m: mH or μH unless otherwise noted.
- VOLTAGE AND CURRENT:
⊖: DC voltage (V) in STOP mode unless otherwise noted.
⊕ mA or -mA: DC current in STOP mode unless otherwise noted.

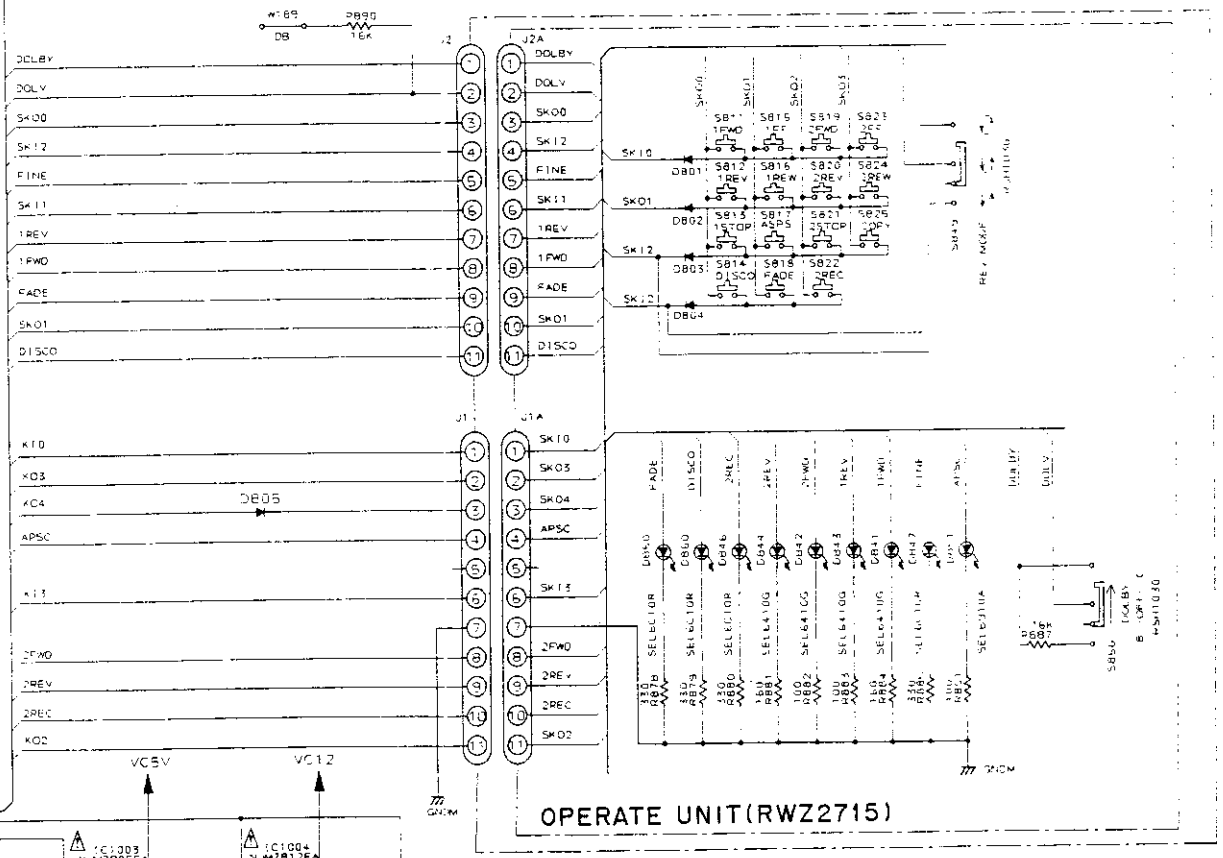
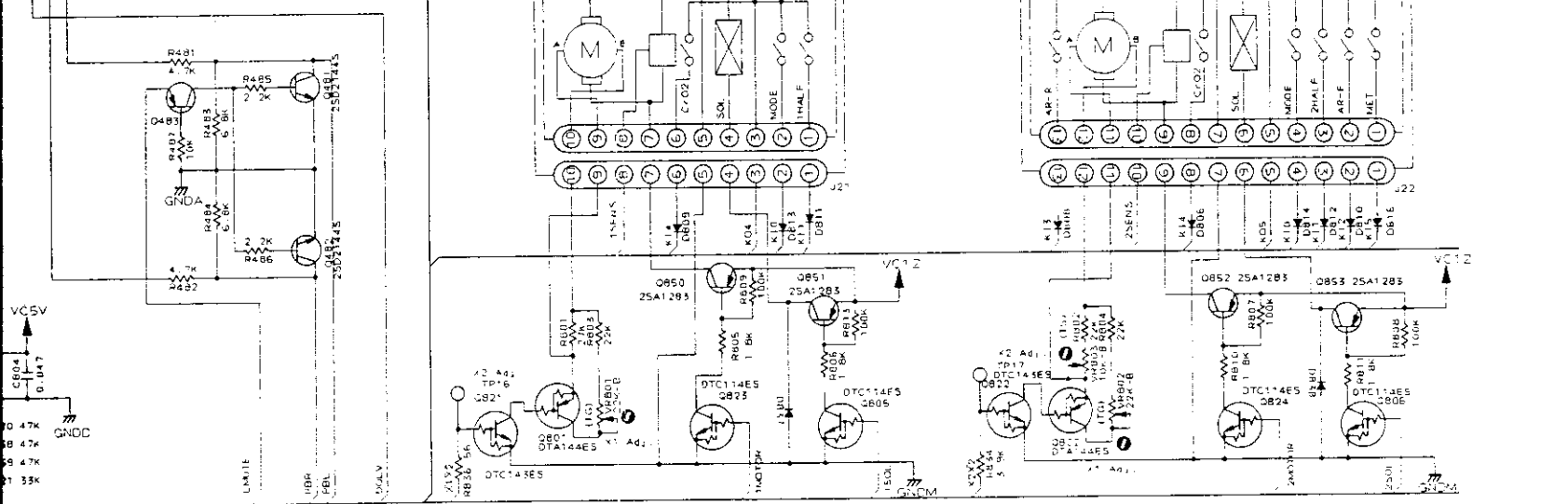
- OTHERS:
• ⊕: Signal route.
• ⊙: Adjusting point.
• ⊖ (Red): Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SWITCHES (Underline indicates switch position):

OPERATE UNIT	
S811: 1FWD	S821: 2STOP
S812: 1REV	S822: 2REC
S813: 1STOP	S823: 2FF
S814: DISCO	S824: 2REW
S815: 1FF	S825: COPY
S816: 1REW	S849: REV. MODE
S817: ASPS	⊖ ⊕
S818: FADE	S850: DOLBY
S819: 2FWD	B - OFF - C
S820: 2REV	

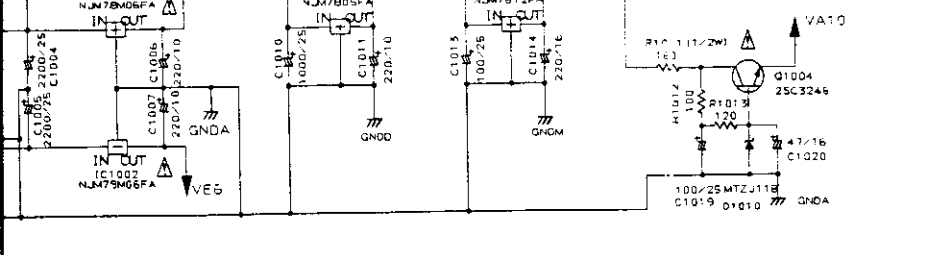


1 MECHA UNIT (2/2) (EXK227)

2 MECHA UNIT (2/2) (EXK2217)



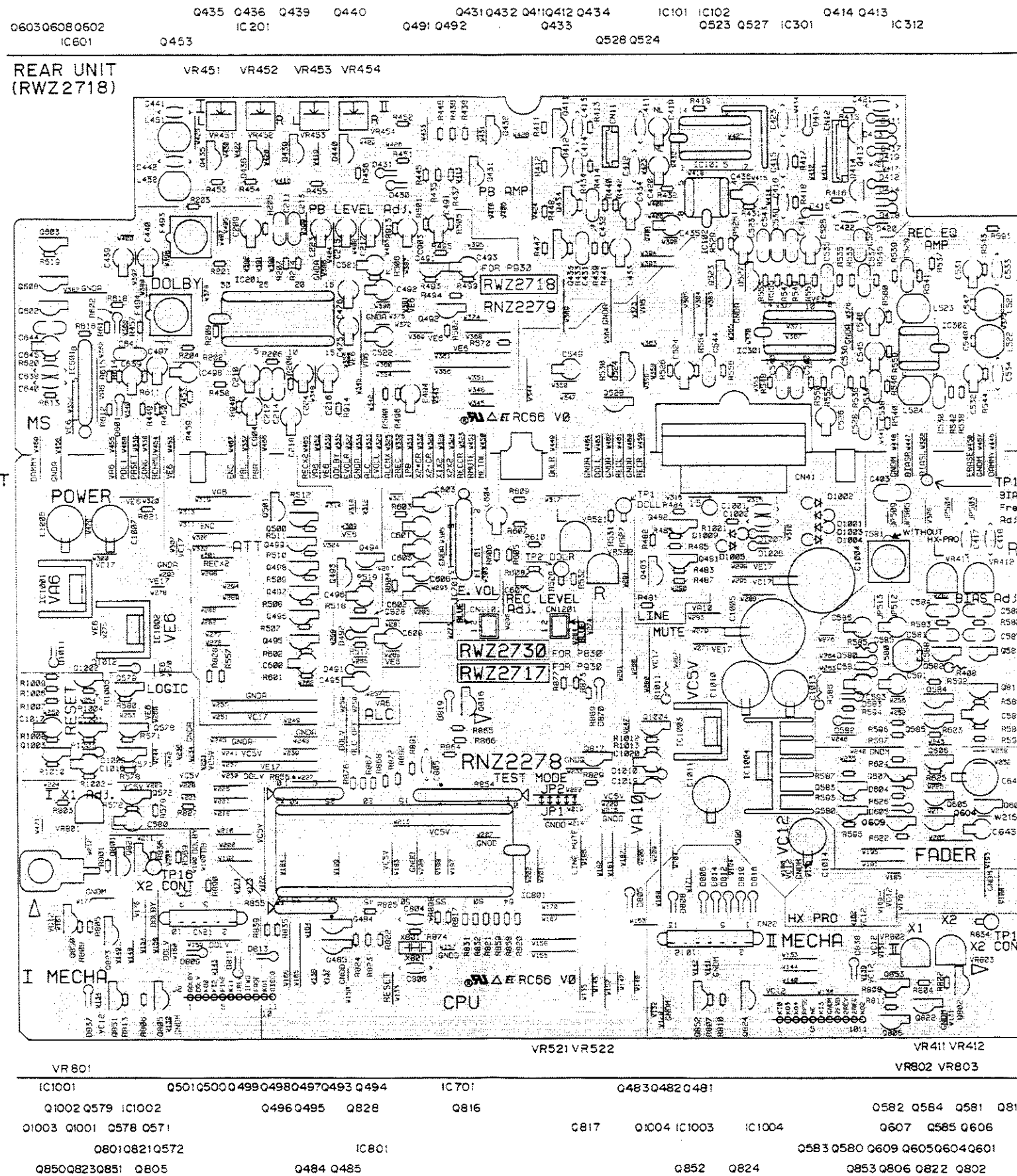
MAIN UNIT (RWZ2926)



- [NOTE]
- Unspecified NPN transistors are 2SC3311A.
 - Unspecified PNP transistors are 2SA1309A.
 - Unspecified diodes are 1SS245.
 - Unspecified capacitors are CFTXA.
 - Unspecified semi-fixed resistors are TB.

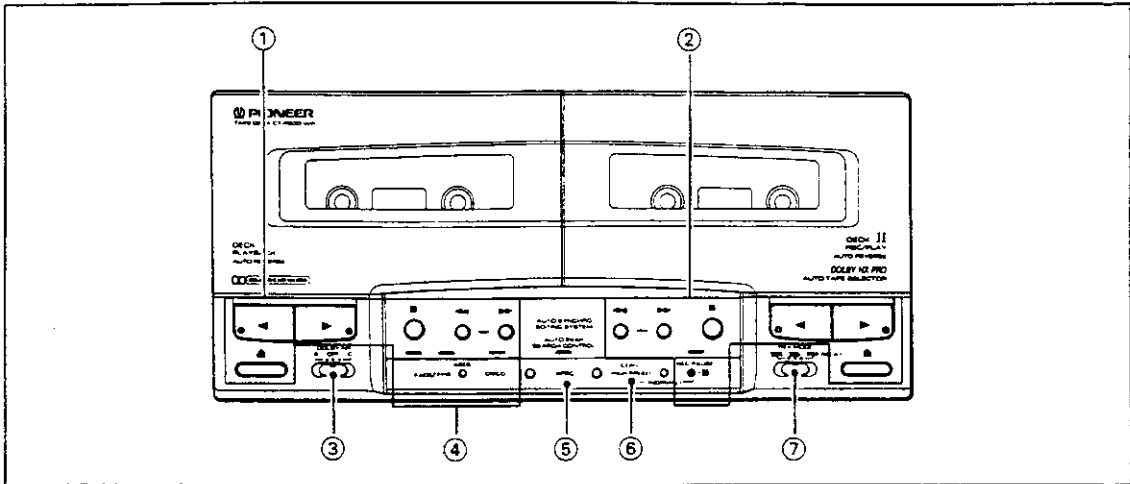
8.3 PCB CONNECTION DIAGRAMS

• View from component side



9. PANEL FACILITIES AND SPECIFICATIONS

**STEREO DOUBLE CASSETTE DECK:
CT-P930WR**



① Deck I operating buttons

- ◀, ▶ : Play
- ▲ : Eject cassette (cassette door opens)
- : Stop
- ◀◀, ▶▶ : Rewind, fast forward

② Deck II operating buttons

- ◀, ▶ : Play
- ▲ : Eject cassette (cassette door opens)
- : Stop
- ◀◀, ▶▶ : Rewind, fast forward
- ■ REC PAUSE : Temporarily pause recording.

③ DOLBY* NR selector switch (DOLBY NR B/OFF/C)

Use to select Dolby noise reduction.

- * *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.

④ ASES button (ASES FADE/FINE, DISCO)

Use these buttons for automatic editing of CD tracks when recording on cassette tapes.

⑤ Auto Peak Search Control button (APSC)

When recording is performed with this button in the ON position, the recording level will be set automatically to produce the optimum dynamic range for the tape.

This button does not function during use of the tape copy function.

⑥ COPY button

Use to perform copying of one cassette tape to another. Two speeds are available, NORMAL and HIGH-SPEED (twice normal speed).

⑦ Reverse mode switch (REV MODE RELAY)

Use to select the tape-travel mode

- : Play back one side only.
- : One full play (forward and reverse sides) of the cassette tape in either deck I or deck II.
- RELAY : Continuous auto-reverse play of the tapes in decks I and II, beginning from the forward (▶) direction.

DOUBLE CASSETTE DECK: CT-P930WR

- Tracks 4-track, 2-channel stereo
- Playback head Hard permaloy (×1)
- Recording/Playback head Hard permaloy (×1)
- Erasing head Ferrite (×1)
- Motor DC servo 2-speed motor (×2)
- Wow and flutter 0.09% (WRMS)
- Rewind/Fast forward time about 120 seconds (with C-60 tape)

Frequency response:

- TYPE IV (metal) tape ... 35 Hz–16,000 Hz ±6 dB (recorded at -20 dB) -
- TYPE II (high/CrO₂) tape 35 Hz–15,000 Hz ±6 dB (recorded at -20 dB) -
- TYPE I (normal) tape ... 35 Hz–14,000 Hz ±6 dB (recorded at -20 dB) -

S/N ratio 56 dB

- With Dolby B type NR ON 10 dB improvement at 5 kHz -
- With Dolby C type NR ON 19 dB improvement at 5 kHz -

Other

- Dimensions 260 (W) × 117 (H) × 243 (D) mm
- Weight 2.7 kg