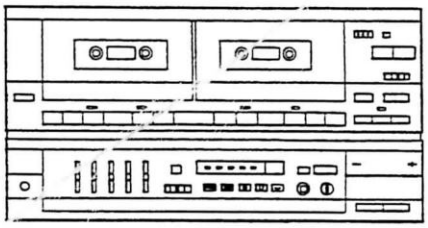
PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1303-A

STEREO DOUBLE CASSETTE TAPE DECK AMPLIFIER

DC-X88Z

MODEL DC-X88Z COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Power requirement	Export destination
HB	AC 220V, 240V (switchable)	United kingdom
HE	AC 220V, 240V (switchable)	European continent
HEZ	AC 220V, 240V (switchable)	West Germany
YP	AC 240V only	Australia
SD	AC 110V, 120-127V, 220V, 240V (switchable)	General market

- **This service manual is applicable to the HB type.**
- **As to the other types, please refer to additional service manual.**
- **Ce manual d'instruction se refère au mode de réglage, en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, M
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IFA©FEB.1987 Printed in Japan

1. SPECIFICATIONS

Cassette tape deck amplifier: DC-X88Z

Continuous Power Output
- Music power (both channel driven) . . . . . 65W + 65W (1kHz, T.H.D. 1%, 8 ohms)
- Peak music power (music power x 2) L, R total. . .260W
- 1 kHz (DIN) . . . . . 40W + 40W (T.H.D. 1% 8ohms)
- 1 kHz (DIN music power) . . . . . .65W + 65W (T.H.D. 1% 8 ohms)

Graphic equalizer frequency band. . . . . .100 Hz, 300 Hz, 1 kHz, 3,3 kHz, 10 kHz, ±7 dB

Hum and Noise (IHF, short-circuited, A network)
- PHONO. . . . . .72 dB

Hum and Noise (DIN continous Power/50 mW)
- PHONO. . . . . 68 dB/60 dB

Total Harmonic Distortion
- (40 Hz to 20,000 Hz, 16W, 8 ohms) . . No more than 0.2%

Tape Deck Section

Systems. . . . . 4 track, 2-channel stereo

Heads . . . . . Recording/playback head x 1
Playback head x 1
Erasing head x 1

Motor . . . . . DC servo 2 speed motor x 2

Wow and Flutter . . . . . .No more than 0.09% (WRMS)
No more than 0.25% (DIN)

Fast Winding Time. . . . . .Approximately 95 seconds (C-60 tape)

Frequency Response
- –20 dB recording:
- Normal tape . . . . . .35 Hz to 14,000 Hz ±6 dB
- CrO_2 . . . . . .35 Hz to 15,000 Hz ±6 dB
- Metal tape . . . . . .35 Hz to 16,000 Hz ±6 dB

Signal-to-noise Ratio
- Dolby NR OFF. . . . . .56 dB

Noise Reduction Effect
- Dolby B type NR ON. . . . . More than 10 dB (at 5 kHz)

Furnished Parts

Operating Insturctions 1
Turntable legs parts 2
Remote control unit 1
Dry cell batteries. 2

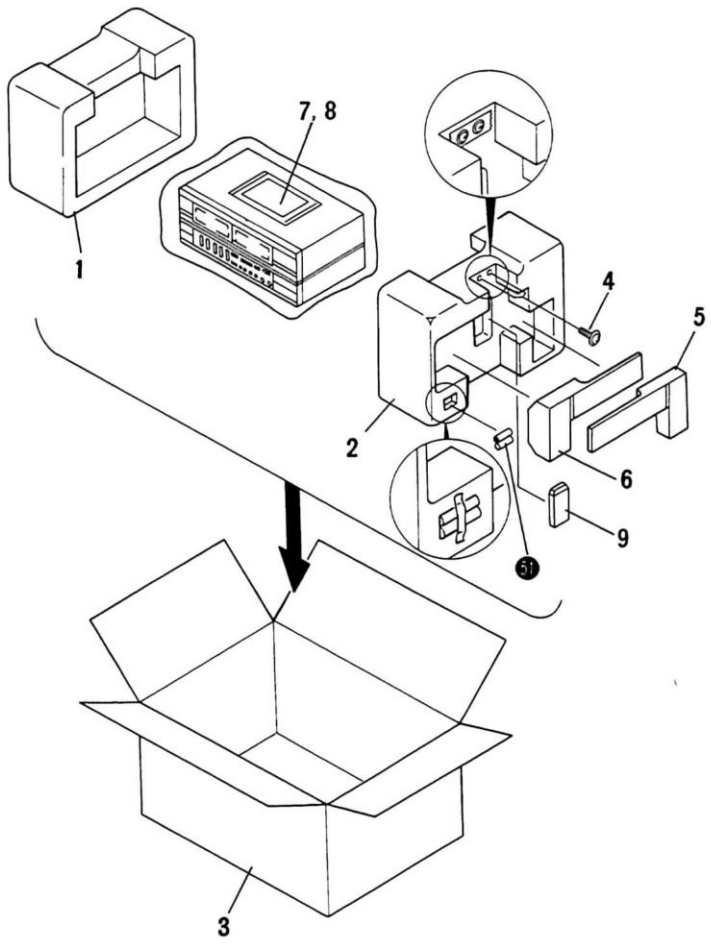
Miscellaneous

Power requirements
European model . . . . . .a.c. 220 Volts∿, 50/60 Hz
U.K. and Australian models. . . .a.c. 240 Volts∿, 50/60 Hz
Other destination models
. . . . AC 110/120 – 127/220/240V (switchable) 50/60 Hz

Power Consumption

European model 250W
U.K. and Australian models. 250W
Other destination models 320W
Dimensions . . . . . 360 (W) x 190.5 (H) x 285 (D)mm
14-3/16 (W) x 7-1/2 (H) x 11-1/4 (D) in
Weight (without package) . . . . . 7.2 kg (15 lb 14 oz)

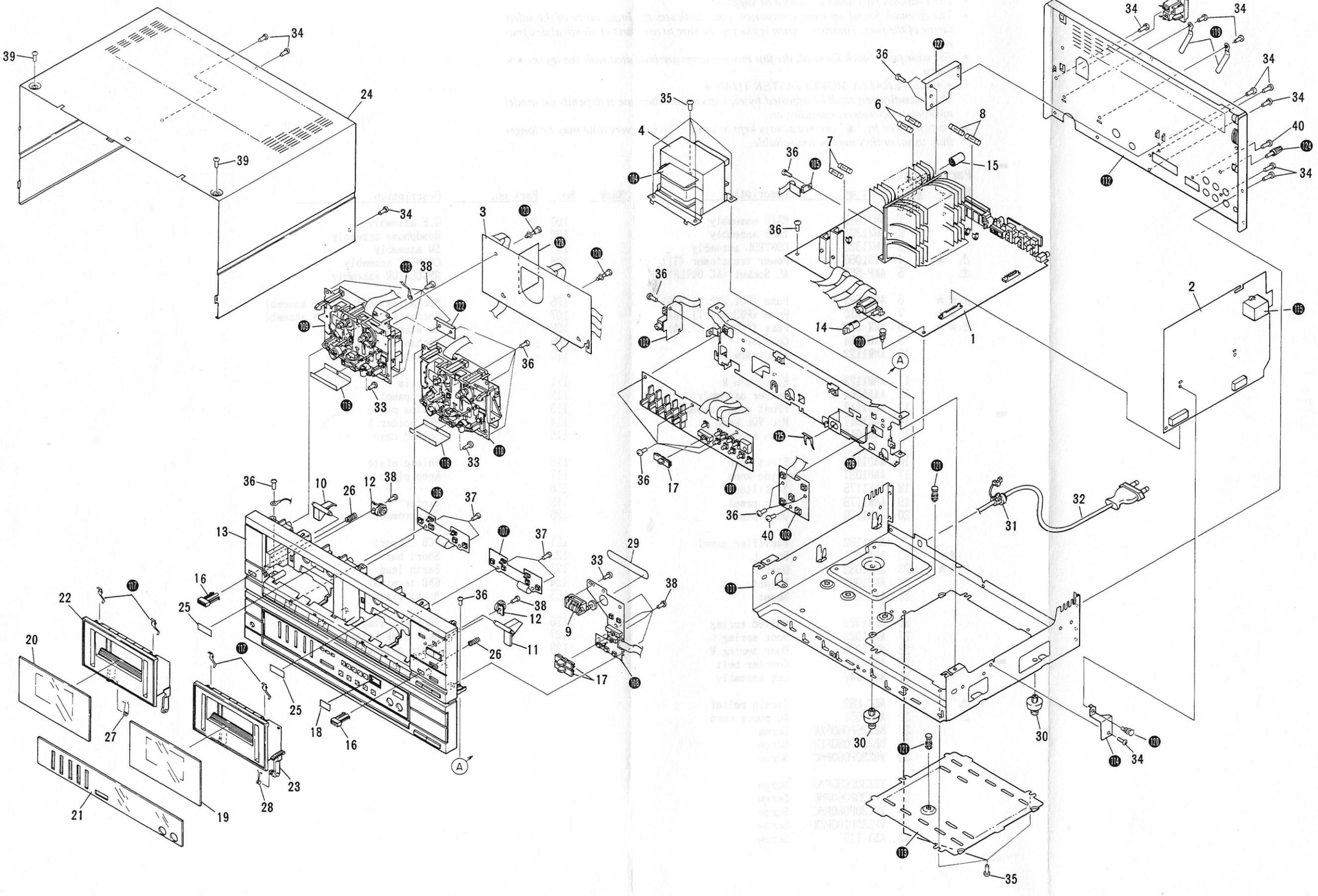
2. PACKING



Parts List

Mark	No.	Part no.	Description
	1	AHA1062	Side pad L
	2	AHA1063	Side pad R
	3	AHD1168	Packing case
	4	ABA1003	Screw
	5	AMR1060	Player stand L
	6	AMR1061	Player stand R
	7	ARB1048	Operating instruction
	8	ARM1003	Caution card
	9	AXD1017	Remote control unit
	51		Battery

3. EXPLODED VIEWS AND PARTS LIST
3.1 EXTERIOR



NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ● " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part no.	Description
	1	AWZ1312	MAIN assembly
	2	AWZ1321	TAPE assembly
	3	AWZ1323	CONTROL assembly
⚠ ★	4	ATS1060	Power transfomer (T1)
⚠	5	AKP-509	AC Socket (AC OUTLET)
⚠★★	6	AEK-509	Fuse (FU1,FU2,T1.25A)
⚠★★	7	AEK-510	Fuse (FU3,FU4,T1.6A)
⚠★★	8	AEK-512	Fuse (FU5,FU6,T2.5A)
	9	AAW1004	Counter
	10	AMR1122	Eject arm L
	11	AMR1123	Eject arm R
	12	AXA1004	Damper assembly
	13	AMB1143	Front panel assembly
	14	AAB1017	Mic VOL knob
	15	AAD-015	Push knob
	16	AAD1104	Eject knob
	17	AAE1037	Slide knob
	18	AAK1175	IR filter
	19	AAK1178	Door panel
	20	AAK1179	Door panel
	21	AAK1182	Amplifier panel
★★	22	AAN1031	Door L
★★	23	AAN1032	Door R
	24	ANE1002	Bonnet
	25	AAX1054	Sheet
	26	ABH1022	Coiled spring
	27	ABH1023	Door spring L
	28	ABH1024	Door spring R
	29	AEB-310	Counter belt
	30	AEC-847	Leg assembly
⚠	31	AEC-882	Strain relief
⚠	32	ADG-051	AC power cord
	33	BBZ26P060FZK	Screw
	34	BBZ30P080FZK	Screw
	35	VBZ30P060FMC	Screw
	36	VBZ30P080FMC	Screw
	37	VPZ30P060FMC	Screw
	38	VPZ30P080FMC	Screw
	39	VPZ30P100FZK	Screw
	40	ABA-115	Screw

Mark	No.	Part no.	Description
	101		G.E assembly
	102		Headphone assembly
	103		SW assembly
	104		CONNECT assembly
	105		REGULATOR assembly
	106		Mechanism unit (1) SW assembl
	107		Mechanism unit (2) SW assembl
	108		SW assembly
	109		Mechanism unit (I)
	110		Mechanism unit (II)
	111		Chassis
	112		Rear panel
	113		Bottom plate
	114		PWB holder A
	115		Shield case
	116		Shield plate
	117		Keep plate
	118		・・・・・
	119		Binder
	120		Pin grommet
	121		PCB support
	122		Short bar
	123		Earth lead
	124		GND terminal
	125		Mount plate
	126		AF Panel stay
	127		Heat sink holder
	128		Logic assembly

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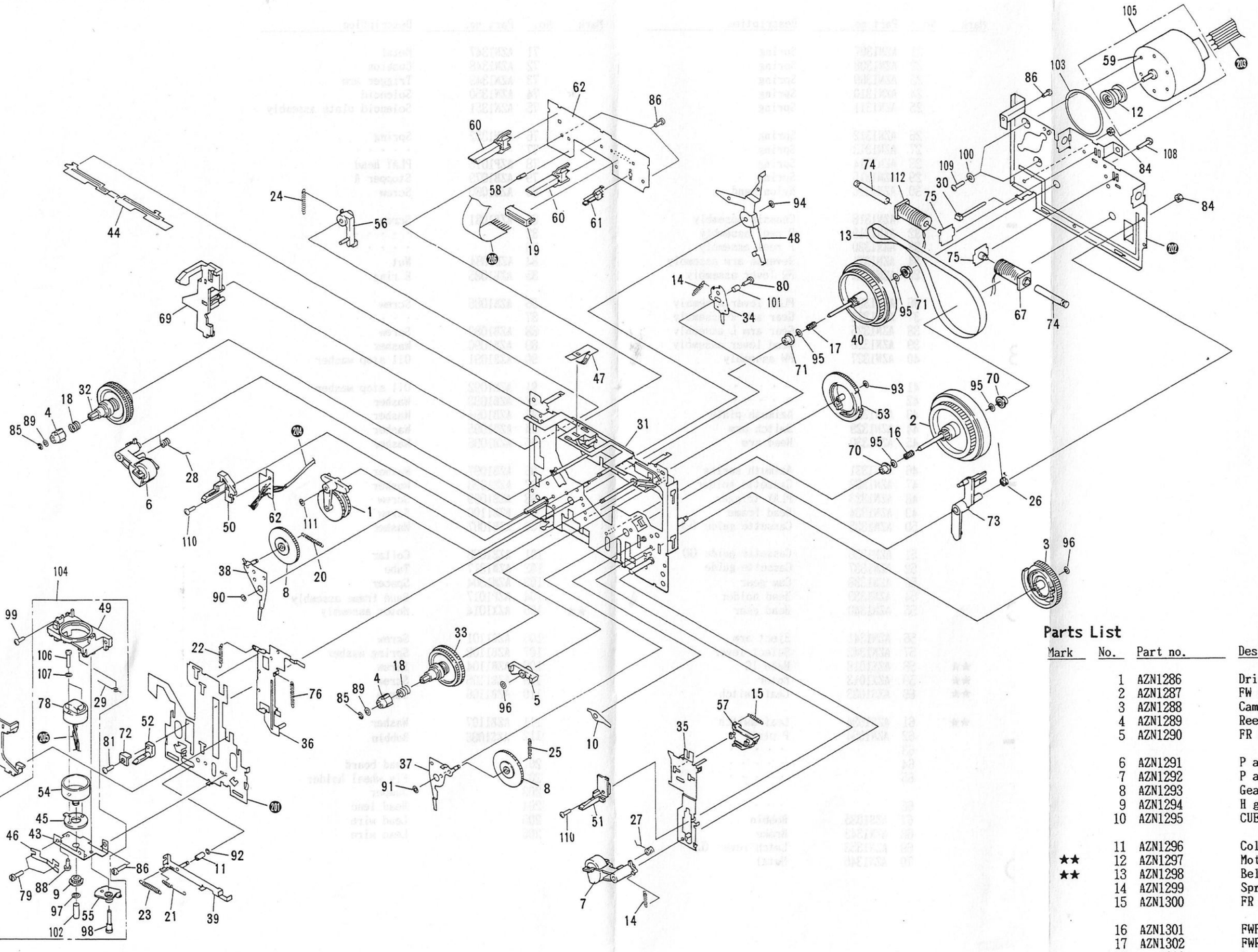
3.2 MECHANISM UNIT I



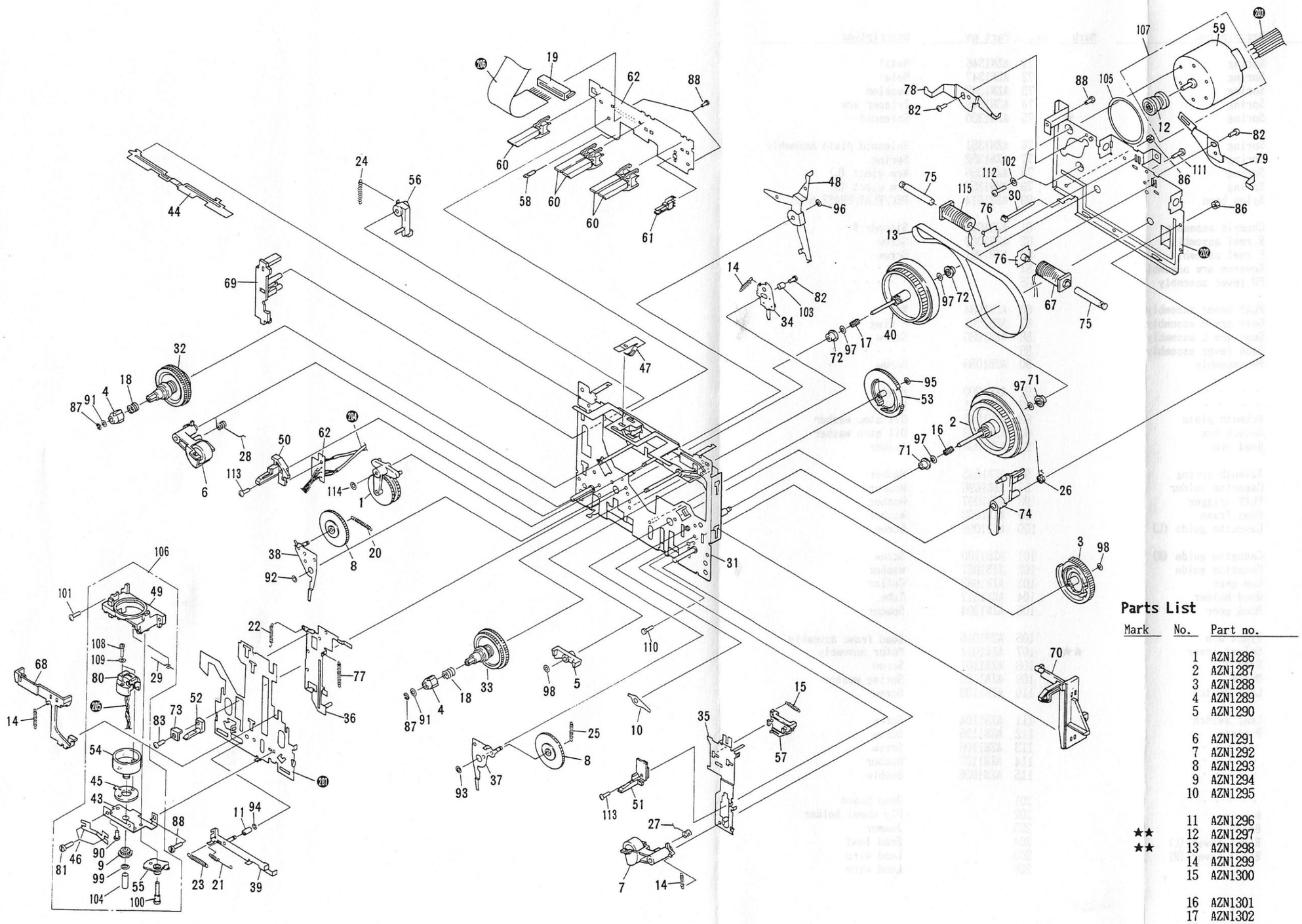
Parts List

Mark	No.	Part no.	Description
	1	AZN1286	Drive arm assembly
	2	AZN1287	FW assembly A
	3	AZN1288	Cam gear
	4	AZN1289	Reel stopper
	5	AZN1290	FR arm
	6	AZN1291	P arm L assembly
	7	AZN1292	P arm R assembly
	8	AZN1293	Gear A
	9	AZN1294	H gear
	10	AZN1295	CUE arm
	11	AZN1296	Collar C
★★	12	AZN1297	Motor pulley
★★	13	AZN1298	Belt
	14	AZN1299	Spring
	15	AZN1300	FR lever spring
	16	AZN1301	FWF spring
	17	AZN1302	FWR spring
	18	AZN1303	Spring
	19	AZN1305	Cable holder
	20	AZN1306	Spring

Mark	No.	Part no.	Description
	21	AZN1307	Spring
	22	AZN1308	Spring
	23	AZN1309	Spring
	24	AZN1310	Spring
	25	AZN1311	Spring
	26	AZN1312	Spring
	27	AZN1313	Spring
	28	AZN1314	Spring
	29	AZN1315	Spring
	30	AZN1316	Nylon band
	31	AZN1318	Chassis assembly
	32	AZN1319	R reel assembly
	33	AZN1320	F reel assembly
	34	AZN1321	Reverse arm assembly
	35	AZN1322	FR lever assembly
	36	AZN1323	PLAY lever assembly
	37	AZN1324	Gear arm R assembly
	38	AZN1325	Gear arm L assembly
	39	AZN1326	Head lever assembly
	40	AZN1327	FW assembly
	41		·····
	42		·····
	43	AZN1328	Azimuth plate
	44	AZN1329	Switch arm
	45	AZN1330	Head arm
	46	AZN1331	Azimuth spring
	47	AZN1332	Cassette holder
	48	AZN1333	PLAY trigger
	49	AZN1334	Head frame
	50	AZN1335	Cassette guide (L)
	51	AZN1336	Cassette guide (R)
	52	AZN1337	Cassette guide
	53	AZN1338	Cam gear
	54	AZN1339	Head holder
	55	AZN1340	Head gear
	56	AZN1341	Eject arm
	57	AZN1342	Select lever
★★	58	AZE1018	Hole IC
★★	59	AZX1013	Motor
★★	60	AZS1033	Leaf switch
★★	61	AZS1034	Leaf switch
	62	AZN1354	P plate
	63		·····
	64		·····
	65		·····
	66		·····
	67	AZS1035	Bobbin
	68	AZN1343	Brake
	69	AZN1353	Latch lever (L)
	70	AZN1346	Metal

Mark	No.	Part no.	Description
	71	AZN1347	Metal
	72	AZN1348	Cushion
	73	AZN1349	Trigger arm
★	74	AZN1350	Solenoid
	75	AZN1351	Solenoid plate assembly
	76	AZN1352	Spring
	77		·····
	78	AZP1015	PLAY head
	79	AZB1079	Stopper A
	80	AZB1080	Screw
	81	AZB1081	Screw
	82		·····
	83		·····
	84	AZB1084	Nut
	85	AZB1085	E ring
	86	AZB1086	Screw
	87		·····
	88	AZB1089	Screw
	89	AZB1090	Washer
	90	AZB1091	Oil stop washer
	91	AZB1092	Oil stop washer
	92	AZB1093	Washer
	93	AZB1094	Washer
	94	AZB1095	Washer
	95	AZB1096	Washer
	96	AZB1097	Washer
	97	AZB1098	Washer
	98	AZB1099	Screw
	99	AZB1100	Screw
	100	AZB1087	Washer
	101	AZB1088	Collar
	102	AZN1317	Tube
	103	AZN1304	Spacer
	104	AZP1017	Head frame assembly
★★	105	AZX1014	Motor assembly
	106	AZB1101	Screw
	107	AZB1102	Spring washer
	108	AZB1104	Screw
	109	AZB1105	Screw
	110	AZB1106	Screw
	111	AZB1107	Washer
	112	AZS1036	Bobbin
	201		Head board
	202		Fly wheel holder
	203		Jumper
	204		Head lead
	205		Lead wire
	206		Lead wire

3.3 MECHANISM UNIT II



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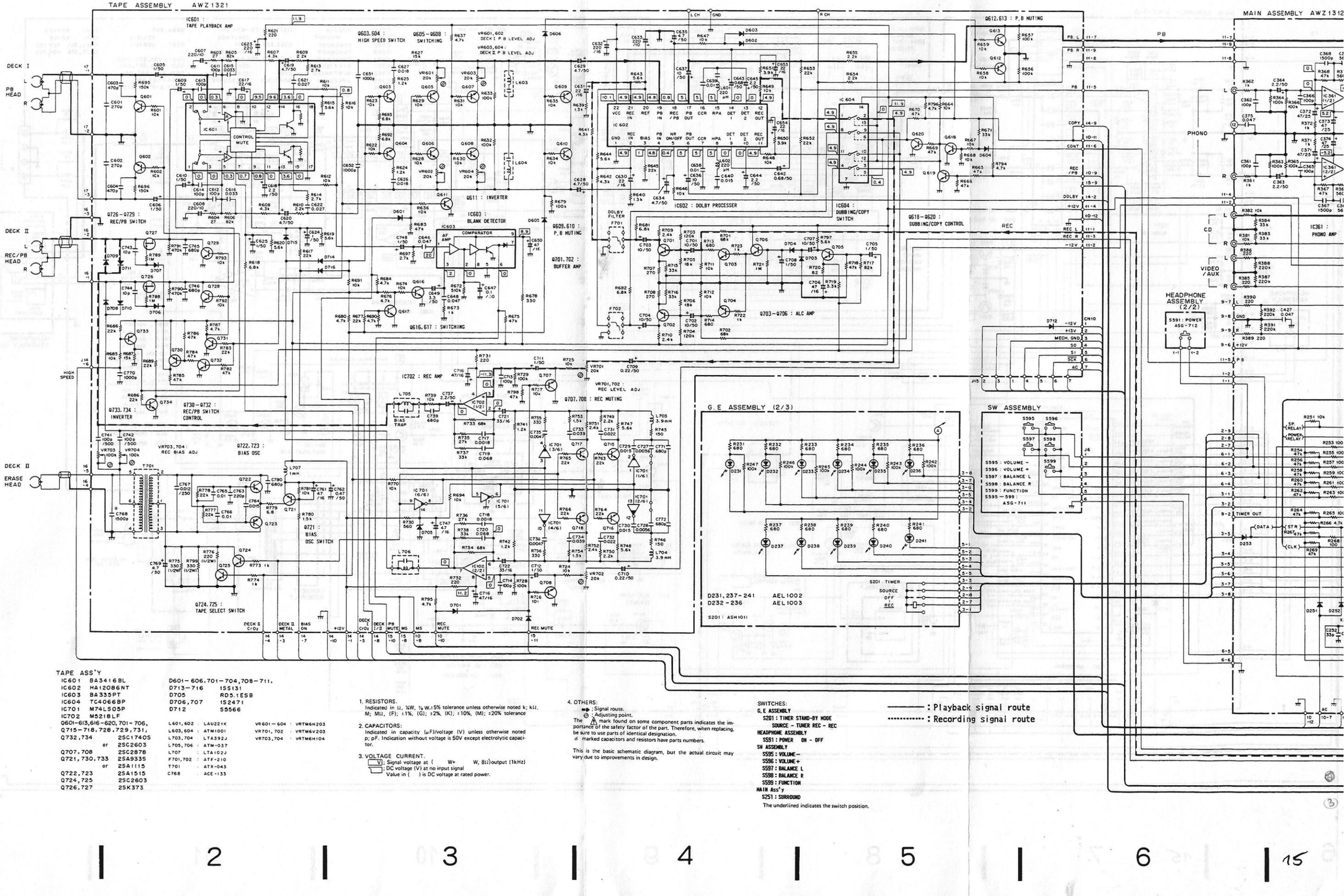
	6	AZN1291	P arm L assembly
	7	AZN1292	P arm R assembly
	8	AZN1293	Gear A
	9	AZN1294	H gear A
	10	AZN1295	CUE arm
	11	AZN1296	Collar C
★★	12	AZN1297	Motor pulley
★★	13	AZN1298	Belt
	14	AZN1299	Spring
	15	AZN1300	FR lever spring
	16	AZN1301	FWF spring
	17	AZN1302	FWR spring
	18	AZN1303	Spring
	19	AZN1305	Cable holder
	20	AZN1306	Spring

Mark	No.	Part no.	Description
	21	AZN1307	Spring
	22	AZN1308	Spring
	23	AZN1309	Spring
	24	AZN1310	Spring
	25	AZN1311	Spring
	26	AZN1312	Spring
	27	AZN1313	Spring
	28	AZN1314	Spring
	29	AZN1315	Spring
	30	AZN1316	Nylon band
	31	AZN1318	Chassis assembly
	32	AZN1319	R reel assembly
	33	AZN1320	F reel assembly
	34	AZN1321	Reverse arm assembly
	35	AZN1322	FR lever assembly
	36	AZN1323	PLAY lever assembly
	37	AZN1324	Gear arm R assembly
	38	AZN1325	Gear arm L assembly
	39	AZN1326	Head lever assembly
	40	AZN1327	FW assembly
	41		・・・・・
	42		・・・・・
	43	AZN1328	Azimuth plate
	44	AZN1329	Switch arm
	45	AZN1330	Head arm
	46	AZN1331	Azimuth spring
	47	AZN1332	Cassette holder
	48	AZN1333	PLAY trigger
	49	AZN1334	Head frame
	50	AZN1335	Cassette guide (L)
	51	AZN1336	Cassette guide (R)
	52	AZN1337	Cassette guide
	53	AZN1338	Cam gear
	54	AZN1339	Head holder
	55	AZN1340	Head gear
	56	AZN1341	Eject arm
	57	AZN1342	Select lever
★★	58	AZE1018	Hole IC
★★	59	AZX1013	Motor
★★	60	AZS1033	Leaf switch
★★	61	AZS1034	Leaf switch
	62	AZN1355	P plate
	63		・・・・・
	64		・・・・・
	65		・・・・・
	66		・・・・・
	67	AZS1035	Bobbin
	68	AZN1343	Brake
	69	AZN1344	Eject lever (L)
	70	AZN1345	Eject lever (R)
	71	AZN1346	Metal
	72	AZN1347	Metal
	73	AZN1348	Cushion
	74	AZN1349	Trigger arm
★	75	AZN1350	Solenoid
	76	AZN1351	Solenoid plate assembly
	77	AZN1352	Spring
	78	AZN1356	Arm eject (L)
	79	AZN1357	Arm eject (R)
	80	AZP1014	REC/PLAY/ERASE head
	81	AZB1079	Stopper A
	82	AZB1080	Screw
	83	AZB1081	Screw
	84		・・・・・
	85		・・・・・
	86	AZB1084	Nut
	87	AZB1085	E ring
	88	AZB1086	Screw
	89		・・・・・
	90	AZB1089	Screw
	91	AZB1090	M nut
	92	AZB1091	Washer
	93	AZB1092	Oil stop washer
	94	AZB1093	Oil stop washer
	95	AZB1094	Washer
	96	AZB1095	Washer
	97	AZB1096	Washer
	98	AZB1097	Washer
	99	AZB1098	Washer
	100	AZB1099	Screw
	101	AZB1100	Screw
	102	AZB1087	Washer
	103	AZB1088	Collar
	104	AZN1317	Tube
	105	AZN1304	Spacer
	106	AZP1016	Head frame assembly
★★	107	AZX1014	Motor assembly
	108	AZB1101	Screw
	109	AZB1102	Spring washer
	110	AZB1103	Screw
	111	AZB1104	Screw
	112	AZB1105	Screw
	113	AZB1106	Screw
	114	AZB1107	Washer
	115	AZS1036	Bobbin
	201		Head board
	202		Fly wheel holder
	203		Jumper
	204		Head lead
	205		Lead wire
	206		Lead wire

4. SCHEMATIC DIAGRAM



TAPE ASS'Y

IC601	BA3416BL	D601-606,701-704,708-711,			
IC602	HA12086NT	D713-716	1SS131		
IC603	BA335PT	D705	RD5.1ESB		
IC604	TC4066BP	D706,707	1S2471		
IC701	M74LS05P	D712	S5566		
IC702	M5218LF				
Q601-613,616-620,701-706,		L601,602	LAU221K	VR601-604	: VRTM6H203
Q715-718,728,729,731,		L603,604	ATM1001	VR701,702	: VRTM6V203
Q732,734	2SC1740S	L703,704	LTA392J	VR703,704	: VRTM6H104
or	2SC2603	L705,706	: ATM-037		
Q707,708	2SC2878	L707	: LTA102J		
Q721,730,733	2SA933S	F701,702	: ATF-210		
or	2SA1115	T701	: ATX-043		
Q722,723	2SA1515	C768	: ACE-133		
Q724,725	2SC2603				
Q726,727	2SK373				

1. RESISTORS.
Indicated in Ω, ¼W, ½ W.±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

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

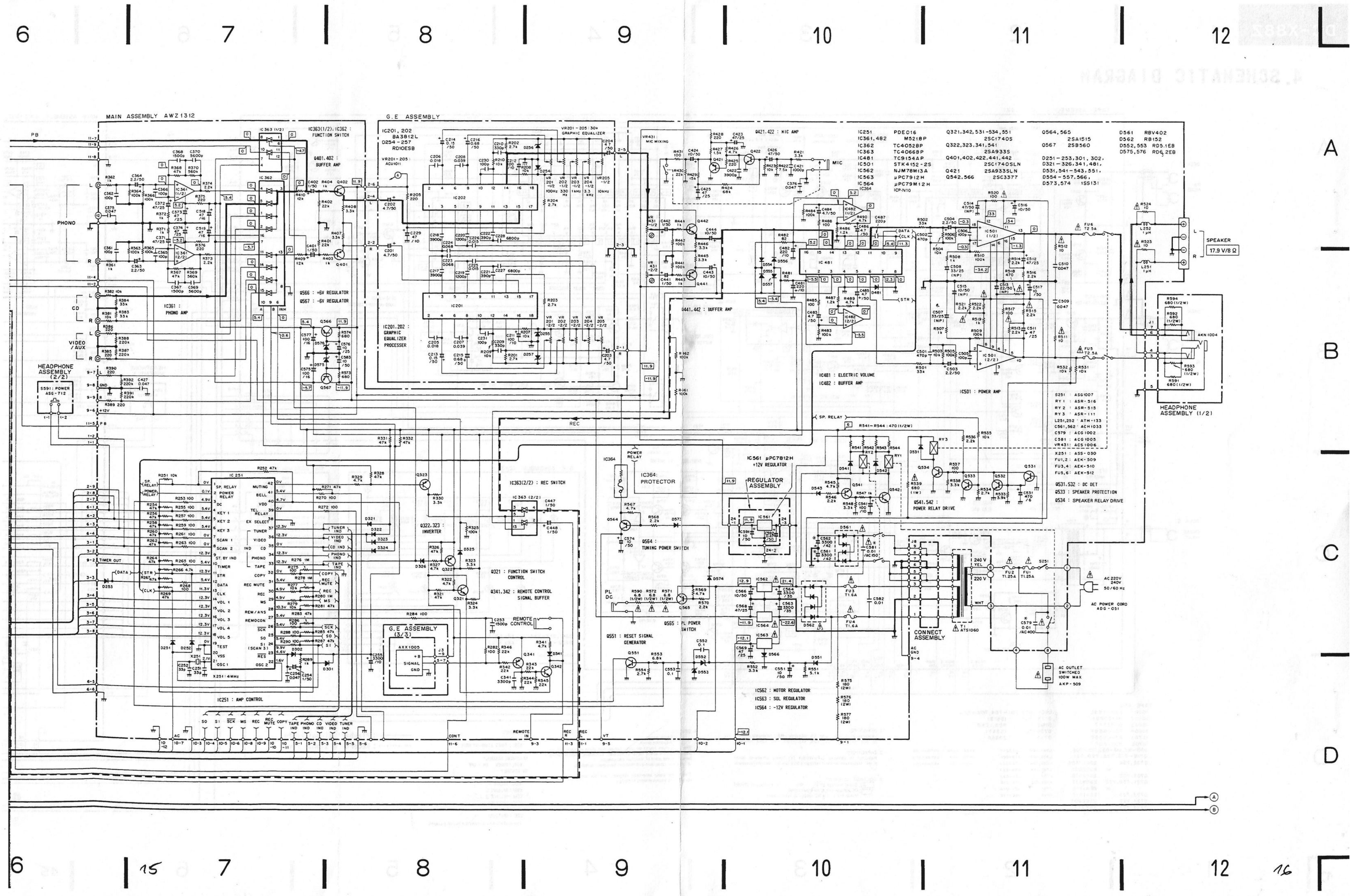
3. VOLTAGE CURRENT.
V: Signal voltage at (W+ W, 8Ω) output (1kHz)
V: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

4. OTHERS:
: Signal route.
: Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

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

SWITCHES:
G.E ASSEMBLY
S201 : TIMER STAND-BY MODE
SOURCE – TUNER REC – REC
HEADPHONE ASSEMBLY
S591 : POWER ON – OFF
SW ASSEMBLY
S595 : VOLUME –
S596 : VOLUME +
S597 : BALANCE L
S598 : BALANCE R
S599 : FUNCTION
MAIN Ass'y
S251 : SURROUND
The underlined indicates the switch position.

——— : Playback signal route
····· : Recording signal route


MAIN ASSEMBLY AWZ1312
G.E ASSEMBLY
IC201, 202 BA3812L
D254 - 257 RD10ESB
VR201 - 205 : ACU1011
VR201 - 205 : 30× GRAPHIC EQUALIZER
IC363(1/2), IC362 : FUNCTION SWITCH
Q401, 402 : BUFFER AMP
Q421, 422 : MIC AMP
VR431 : MIC MIXING
MIC
PHONO
CD
VIDEO / AUX
HEADPHONE ASSEMBLY (2/2)
S591 : POWER ASG-712
IC361 : PHONO AMP
Q566 : +6V REGULATOR
Q567 : -6V REGULATOR
IC201, 202 : GRAPHIC EQUALIZER PROCESSER
Q441, 442 : BUFFER AMP
IC481 : ELECTRIC VOLUME
IC482 : BUFFER AMP
IC501 : POWER AMP
SPEAKER
17.9 V/8 Ω
HEADPHONE ASSEMBLY (1/2)
IC251 PDE016
IC361, 482 M5218P
IC362 TC4052BP
IC363 TC4066BP
IC481 TC9154AP
IC501 STK4152-2S
IC562 NJM78M13A
IC563 μPC7912H
IC564 μPC79M12H
ICP-N10
Q321, 342, 531-534, 551 2SC1740S
Q322, 323, 341, 541 2SA933S
Q401, 402, 422, 441, 442 2SC1740SLN
Q421 2SA933SLN
Q542, 566 2SC3377
Q564, 565 2SA1515
Q567 2SB560
D251-253, 301, 302, D321-326, 341, 481, D531, 541-543, 551, D554-557, 566, D573, 574 1SS131
D561 RBV402
D562 RB152
D552, 553 RD5.1EB
D575, 576 RD6.2EB
S251 : ASG1007
RY1 : ASR-516
RY2 : ASR-515
RY3 : ASR-111
L251, 252 : ATH-133
C561, 562 : ACH1033
C579 : ACG1002
C581 : ACG1005
VR431 : ACS1006
X251 : ASS-030
FU1, 2 : AEK-509
FU3, 4 : AEK-510
FU5, 6 : AEK-512
Q531, 532 : DC DET
Q533 : SPEAKER PROTECTION
Q534 : SPEAKER RELAY DRIVE
Q541, 542 : POWER RELAY DRIVE
IC561 μPC7812H +12V REGULATOR
REGULATOR ASSEMBLY
IC364 : PROTECTOR
Q564 : TUNING POWER SWITCH
IC363(2/2) : REC SWITCH
IC251
IC251 : AMP CONTROL
Q322, 323 : INVERTER
Q321 : FUNCTION SWITCH CONTROL
Q341, 342 : REMOTE CONTROL SIGNAL BUFFER
G.E ASSEMBLY (3/3)
AXX1005
REMOTE CONTROL
Q551 : RESET SIGNAL GENERATOR
Q565 : PL POWER SWITCH
IC562 : MOTOR REGULATOR
IC563 : SOL REGULATOR
IC564 : -12V REGULATOR
CONNECT ASSEMBLY
T1 ATS1060
AC 220V 240V 50/60 Hz
AC POWER CORD ADG-031
AC OUTLET SWITCHED 100W MAX AKP-509
X251 : 4MHz
6 7 8 9 10 11 12
A B C D

1. RESISTORS:
Indicated in Ω, ¼W, ½W: ±5% tolerance unless otherwise noted k, kΩ, M, MΩ; (F), ±1%, (G), ±2%, (K), ±10%, (M), ±20% tolerance

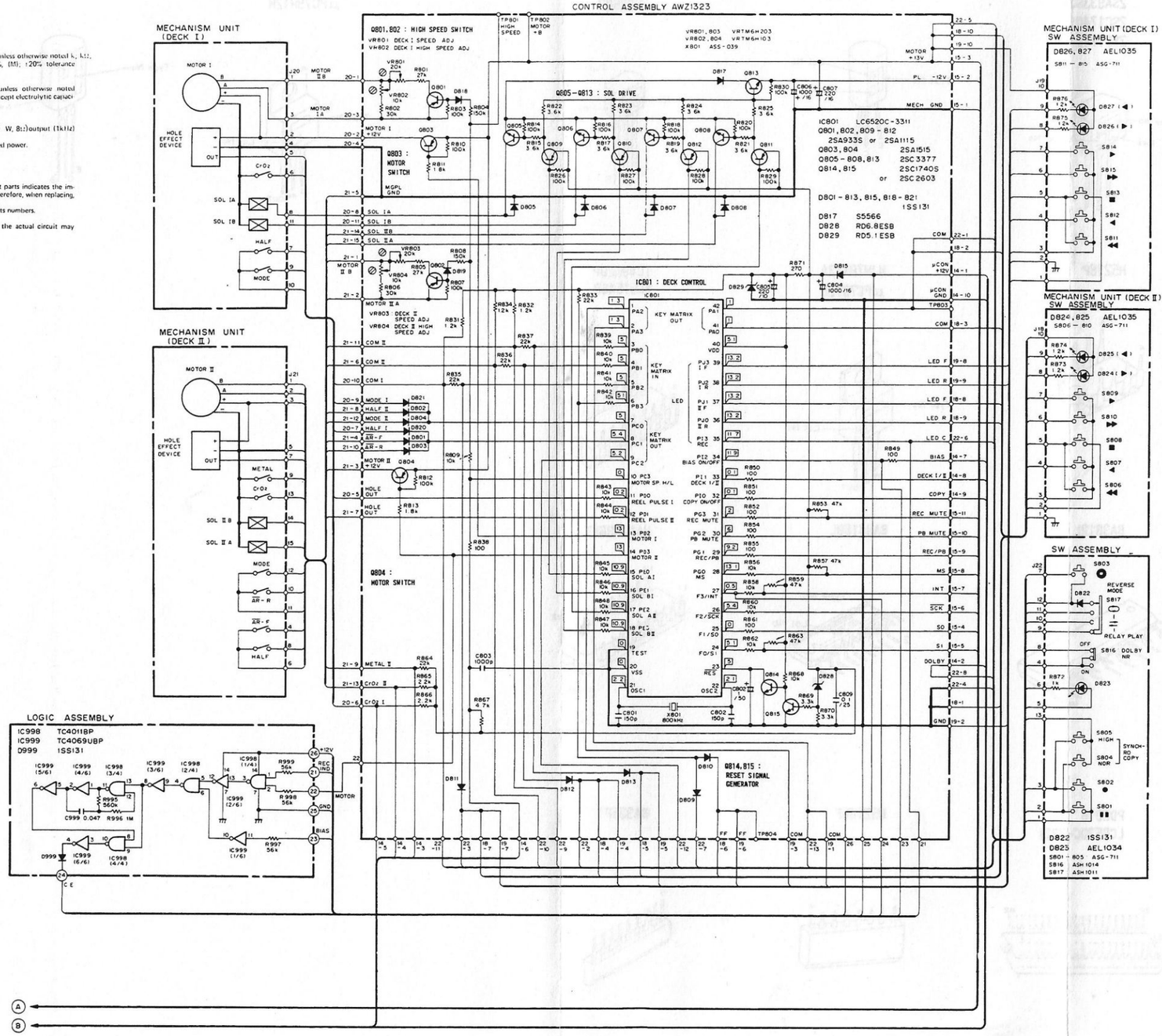
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
(V): Signal voltage at (40 W+ 40 W, 8Ω)output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

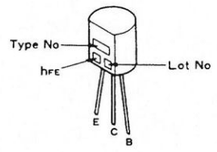
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
MECHANISM UNIT (I) SW ASSEMBLY
S811 : ◀◀ (FAST)
S812 : ◀ (PLAY)
S813 : ■ (STOP)
S814 : ▶ (PLAY)
S815 : ▶▶ (FAST)
MECHANISM UNIT (II) SW ASSEMBLY
S806 : ◀◀ (FAST)
S807 : ◀ (PLAY)
S808 : ■ (STOP)
S809 : ▶ (PLAY)
S810 : ▶▶ (FAST)
SW ASSEMBLY
S801 : ⏸ (PAUSE)
S802 : ● (REC)
S803 : ○ (MUTING)
S804 : NORMAL → SYNCHRO
S805 : HIGH → COPY
S816 : DOLBY NR
S817 : REVERSE MODE
⊖ — ⇄ — RELAY PLAY

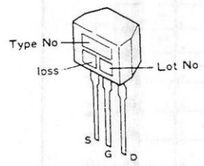


External Apperance of Transistor and ICs

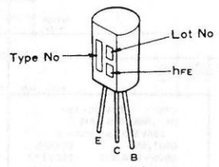
2SA1515



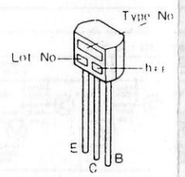
2SA933S
2SA933SLN
2SC1740S
2SC1740SLN



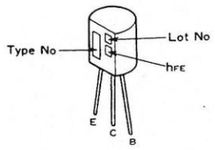
2SB560



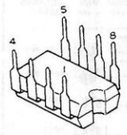
2SA1115
2SC2603



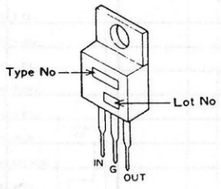
2SC2878



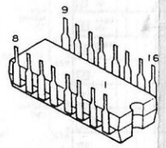
M5218P



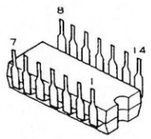
NJM78M13A
μPC7812H



TC4052BP
TC9154AP



TC4066BP
M74LS05P
TC4011BP
TC4069UBP



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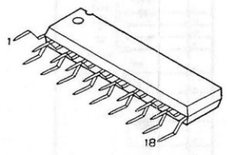

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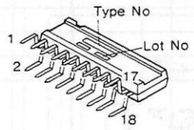
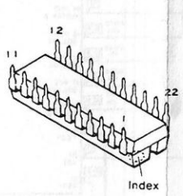
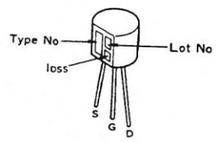


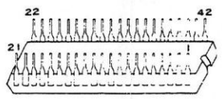
HA12086NT



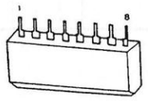
2SK373



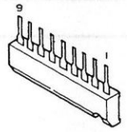
PDE016
LC6520C-3311



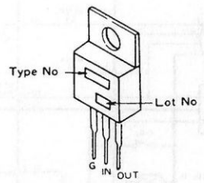
M5218LF



BA335PT



μPC7912H
μPC79M12H



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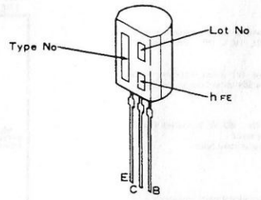
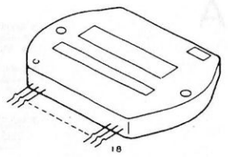


STK4152-2SP



5. P.C. BOARDS CONNECTION DIAGRAM

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 (E C B)	E C B or E C B	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

MECHANISM UNIT (DECK I)
SW ASSEMBLY

MECHANISM UNIT (DECK II)
SW ASSEMBLY

MECHANISM UNIT (DECK I)

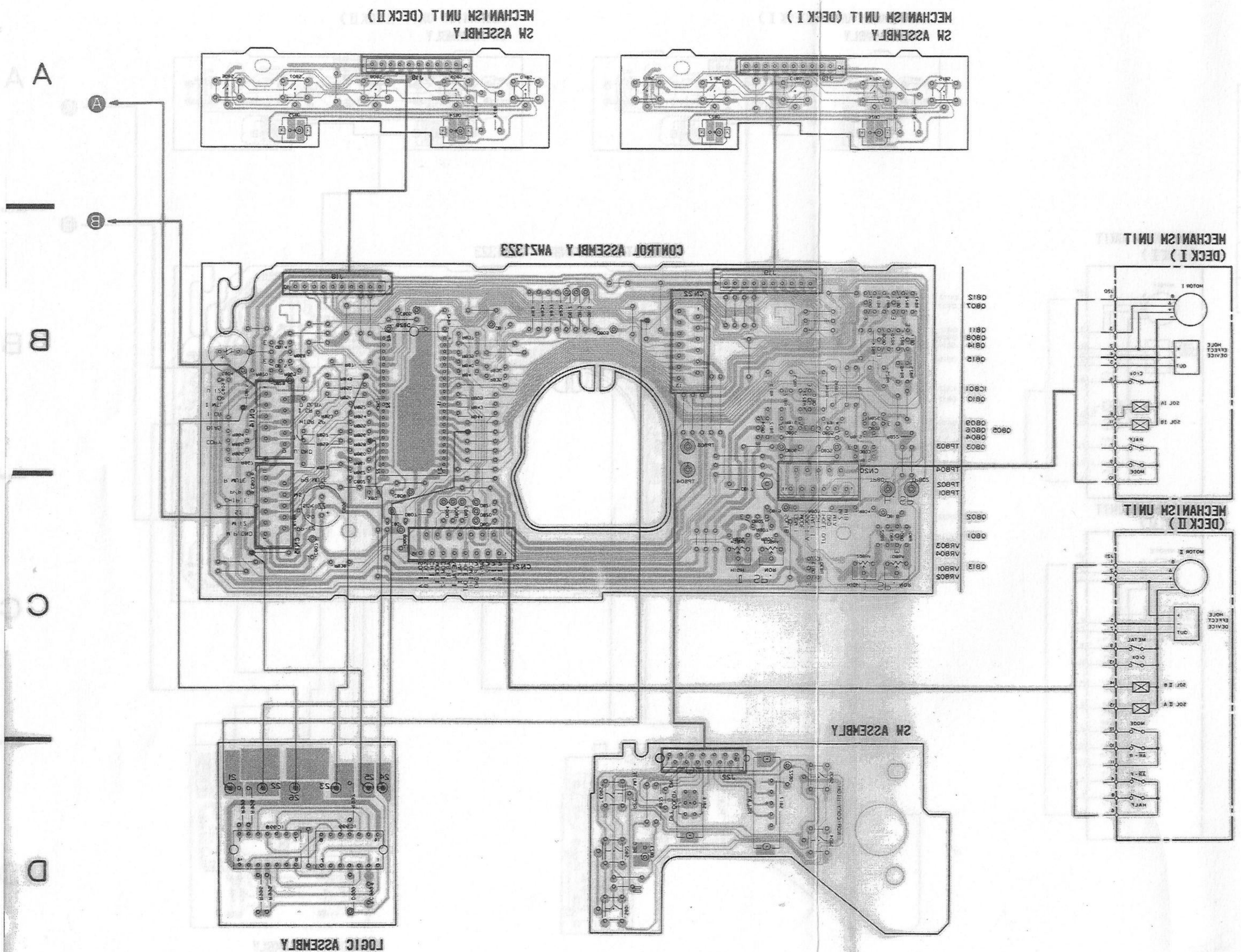
MECHANISM UNIT (DECK II)

CONTROL ASSEMBLY AWZ1323

SW ASSEMBLY

LOGIC ASSEMBLY

5. P.C. BOARDS CONNECTION DIAGRAM



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

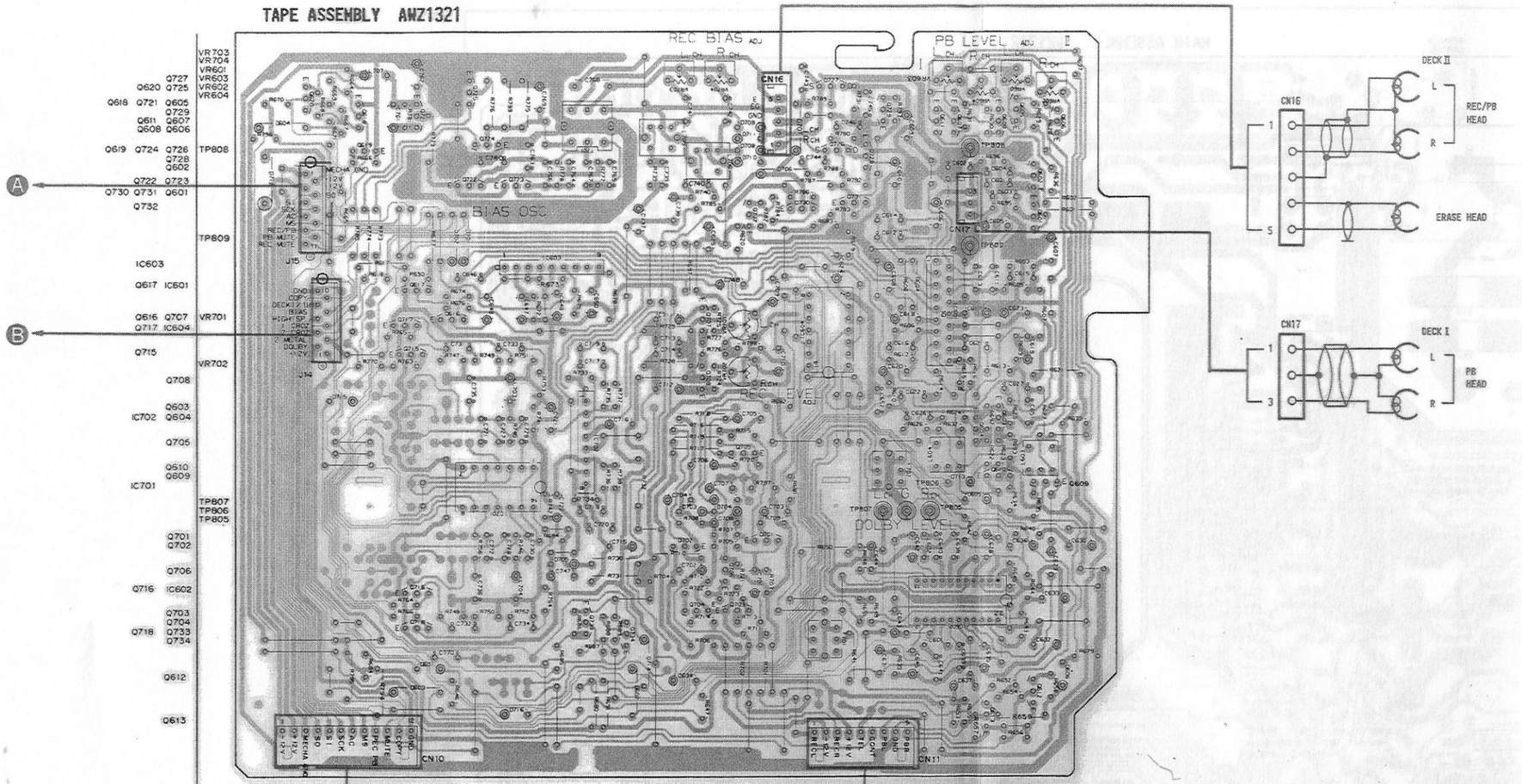
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504		Transistor
Q215		Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

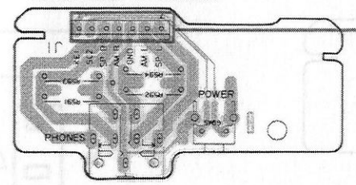
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

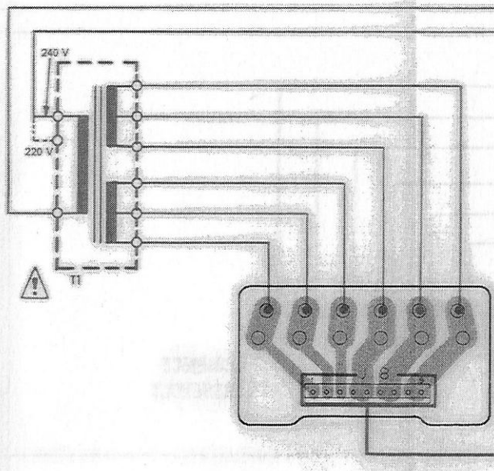
3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

TAPE ASSEMBLY AWZ1321

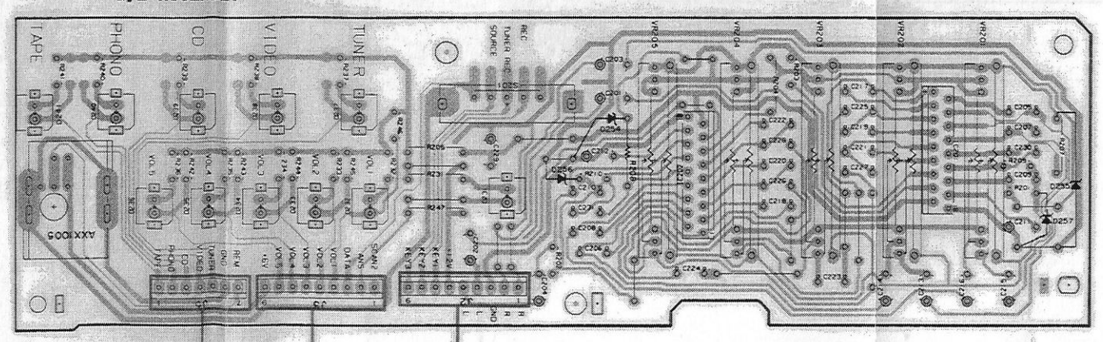


HEADPHONE ASSEMBLY

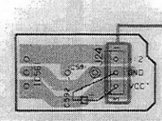




G.E ASSEMBLY



REGULATOR ASSEMBLY



7 8 9 10 11 12

A B C D

MAIN ASSEMBLY ANZ1312

SSEMBLY

POWER

AC OUTLET
SWITCHED
100W MAX

AC POWER CORD

AC220V
240V
50/60Hz

S251
POWER

REMOTE CONTROL

SPEAKER

VIDEO / AUX

CD

PHONO

PL. DC

Q564

IC361 IC362

Q401 Q402

IC363

IC501

Q534 Q533 Q532 Q531

IC482 IC481

Q322

Q567

Q321

IC251

IC564 Q323

Q566 Q342

Q341

IC562 IC563

Q565 Q551 Q441 Q542 Q422 Q421

Q442 Q541

VR431

CONNECT ASSEMBLY

REGULATOR ASSEMBLY

SW ASSEMBLY

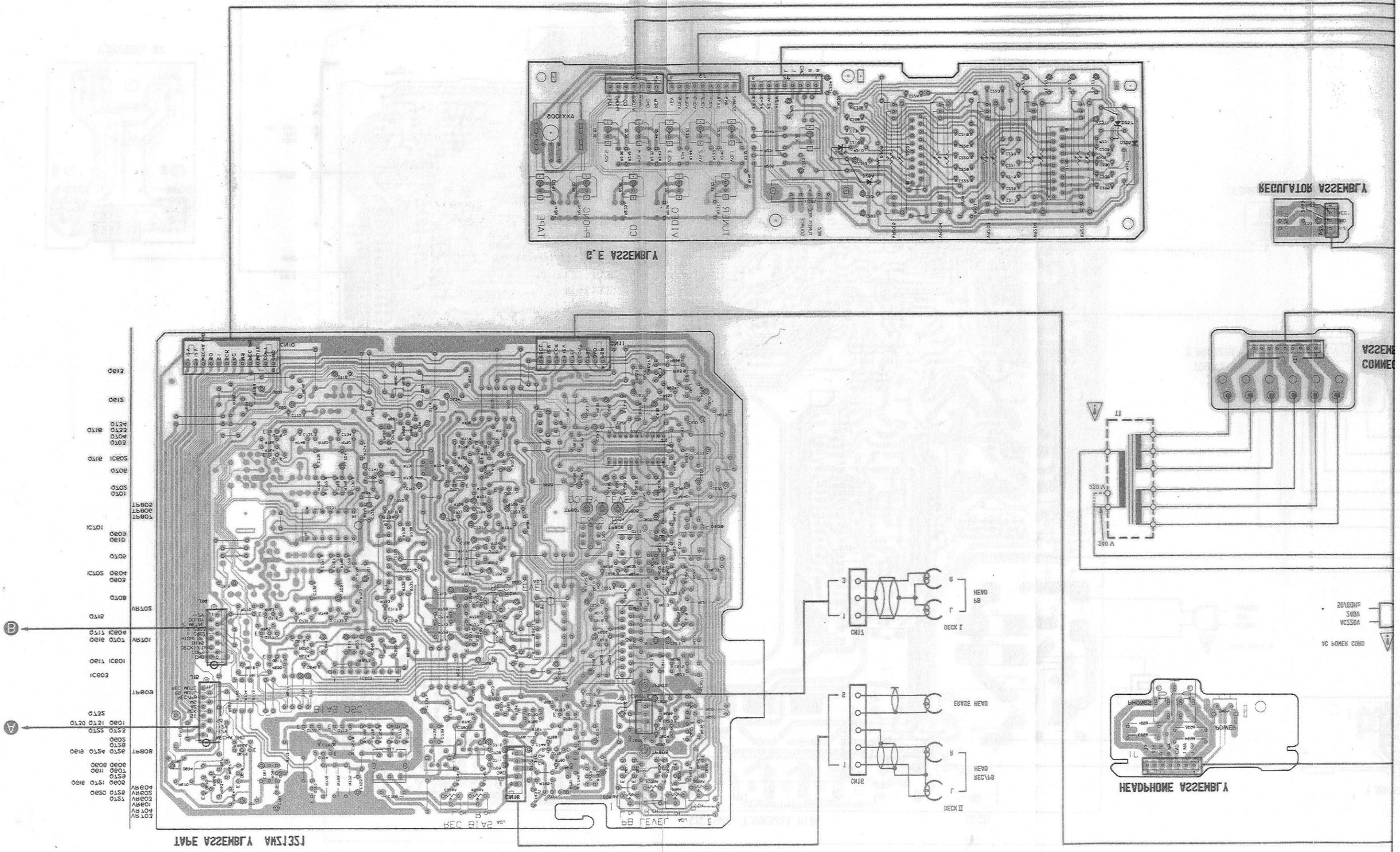
DOWN

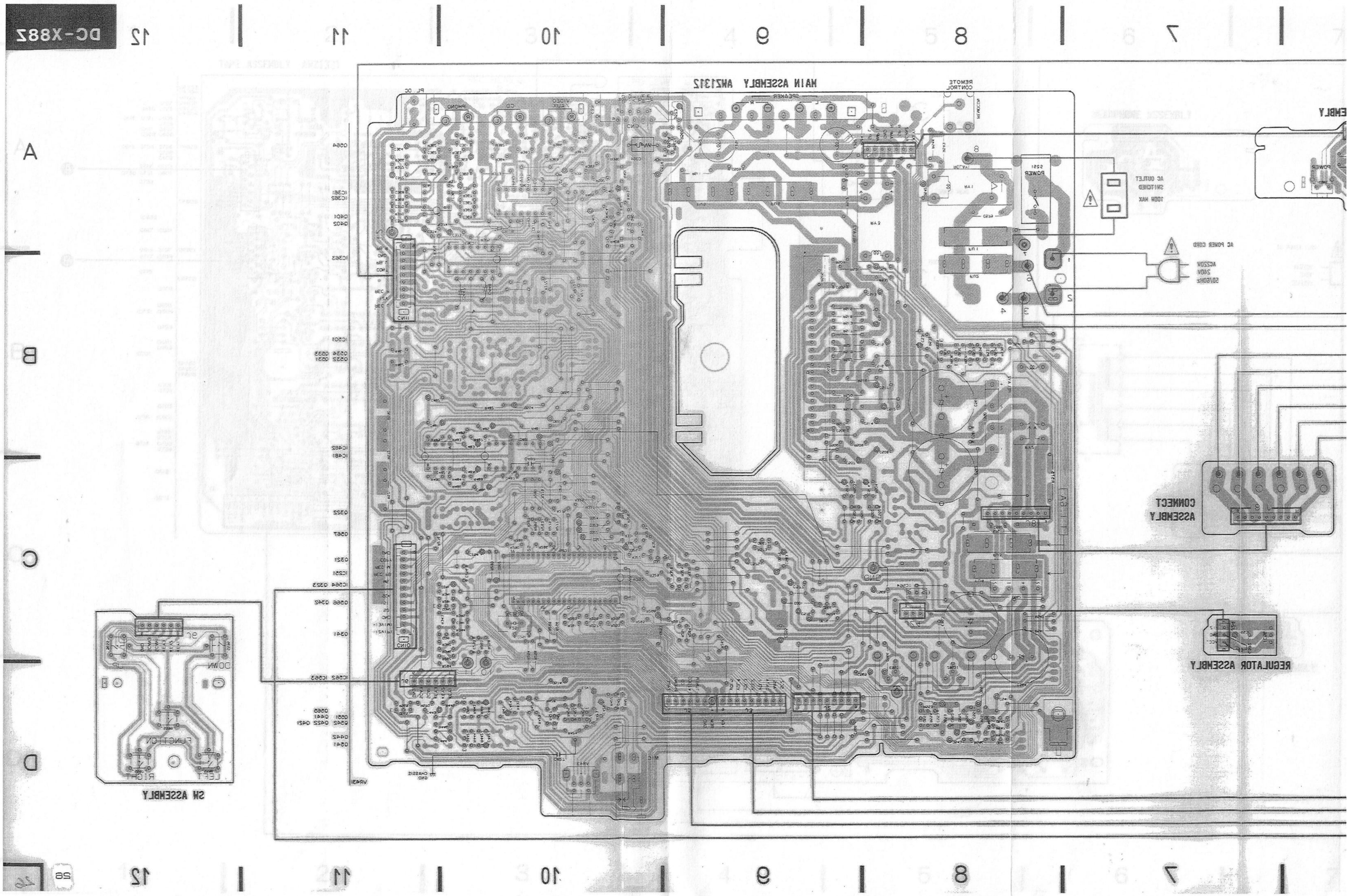
UP

FUNCTION

LEFT

RIGHT


A.E ASSEMBLY
REGULATOR ASSEMBLY
TAPE ASSEMBLY AN7135
HEADPHONE ASSEMBLY
DECK I
DECK II
REC/PB
ERASE HEAD
AC POWER CORD



DC-X882
MAIN ASSEMBLY AWZ1312
SW ASSEMBLY
CONNECT ASSEMBLY
REGULATOR ASSEMBLY
AC POWER CORD
AC OUTLET SWITCHED 100W MAX
S251 POWER
REMOTE CONTROL
SPEAKER
PHONO
CD
VIDEO AUX
FUNCTION
RIGHT
LEFT
DOWN
UP
MIC
CHASSIS GND

6. ELECTRICAL PARTS LIST

NOTES:

- *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%).

560Ω	*56 × 10¹*	*561*	*..... RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*..... RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*..... RN2H 0 R 5 K*
1Ω	*010*		*..... RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62kΩ 562 × 10¹ 5621 ..... RN1/4SR 5 6 2 1 F
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Miscellaneous Parts

Mark	Symbol & Description	Part No.
	MAIN assembly	AWZ1312
	G.E assembly	Non supply
	Headphone assembly	Non supply
	SW assembly	Non supply
	REGULATOR assembly	Non supply
	CONNECT assembly	Non supply
	TAPE assembly	AWZ1321
	CONTROL assembly	AWZ1323
	Mechanism unit (I) SW assembly	Non supply
	Mechanism unit (II) SW assembly	Non supply
	SW assembly	Non supply
	LOGIC assembly	Non supply
⚠ ★	T1 Power transformer	ATS1060
⚠	AC Socket (AC OUTLET)	AKP-509
⚠★★	FU1,FU2 Fuse (T1.25A)	AEK-509
⚠★★	FU3,FU4 Fuse (T1.6A)	AEK-510
⚠★★	FU5,FU6 Fuse (T2.5A)	AEK-512
⚠	AC power cord	ADG-051
⚠	Strain relief	AEC-882

MAIN Assembly (AWZ1312)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC361,IC482	M5218P
⚠★★	IC562	NJM78M13A
★★	IC251	PDE016
⚠★★	IC501	STK4152-2SP
★★	IC362	TC4052BP
★★	IC364	ICP-N10
★★	IC363	TC4066BP
★★	IC481	TC9154AP
⚠★★	IC564	μPC79M12H
⚠★★	IC563	μPC7912H
★★	Q564,Q565	2SA1515
★★	Q322,Q323,Q341,Q541	2SA933S
★★	Q421	2SA933SLN
★★	Q567	2SB560
★★	Q321,Q342,Q531−Q534,Q551	2SC1740S
★★	Q401,Q402,Q422,Q441,Q442	2SC1740SLN
★★	Q542,Q566	2SC3377
⚠ ★	D561	RBV402
★	D552,D553	RD5.1EB
★	D575,D576	RD6.2EB
⚠ ★	D562	RB152
★	D251−D253,D301,D302, D321−D325,D341,D481,D531, D541−D543,D551,D554−D557, D566,D573,D574	1SS131

SWITCH AND RELAYS

Mark	Symbol & Description	Part No.
⚠★★	S251 Push switch	ASG1007
★★	RY3 Relay	ASR-111
★★	RY2 Relay	ASR-515
★★	RY1 Relay	ASR-516

COILS

Mark	Symbol & Description	Part No.
	L251,L252 AF Choke coil (1μH)	ATH-133

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C579 (0.01μF/AC400V)	ACG1002
⚠	C581 (0.01μF/AC150V)	ACG1005
	C561,C562 (3300μF/42V)	ACH1033
	C251,C252	CCCSL330J50
	C361,C362,C365,C366	CCDSL101J50
	C487	CCDSL221J50
	C515	CEANP100M50
	C513	CEANP220M50
	C507,C508	CEANP330M25
	C514	CEANP470M50
	C426	CEASR47M50
	C254,C401,C402,C441,C442, C447,C448	CEAS010M50
	C424,C443,C444,C516,C517, C551,C566,C574,C576,C583	CEAS100M50
	C541	CEAS101M10
	C575,C577	CEAS101M16
	C363,C364,C503,C504	CEAS2R2M50
	C481,C482	CEAS221M10
	C255	CEAS332M10
	C563,C564	CEAS332M35
	C483－C486	CEAS4R7M50
	C371－C374,C423,C425,C511, C512,C568,C569	CEAS470M25
	C531	CEAS471M6
	C518,C519	CEYA470M16
	C421	CKCYB102K50
	C253,C367,C368	CKCYB152K50
	C341	CKCYB332K50
	C422	CKCYB392K50
	C369,C370	CKCYB562K50
	C582	CKDYF103Z50
	C256,C375,C427	CKCYF473Z50
	C552,C553	CKCYX104M25
	C376	CKDYF473Z50
	C501,C502	CQMA471K50
	C509,C510	CQMA473K50
	C505,C506	CQSA101J50

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
★	VR431 Variable resistor (30kΩ)	ACS1006
⚠	R571,R572,R590	RD1/2PMFL6R8J
	R541－R544	RD1/2PM471J
⚠	R511,R512,R517,R518, R521－R524	RD1/4PMFL□□□J
	R375,R376,R428,R481,R482, R513－R516,R519	RD1/4PM□□□J
⚠	R520	RFA1/4PL101J
⚠	R539	RS1LMF681J
⚠	R575－R577	RS2LMF181J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	6P Terminal	AKB-095
	4P Terminal (SPEAKER)	AKE-109
	Mini jack	AKN-034
	Mini jack	AKN-207
	Phone jack (MIC)	AKN1003
★	X251 Ceramic oscillator	ASS-030

G. E Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC201,IC202	BA3812L
★	D231,D237－D241	AEL1002
★	D232－D236	AEL1003
★	D254－D257	RD10ESB

SWITCH

Mark	Symbol & Description	Part No.
★★	S201 Slide switch (TIMER)	ASH1011

CAPACITORS

Mark	Symbol & Description	Part No.
	C230,C231	CCDSL101J50
	C213,C214	CEJAR15M50
	C215,C216	CEJAR68M50
	C211,C212	CEJA101M10
	C201－C204	CEJA4R7M50
	C229	CEJA470M16
	C209,C210	CKCYB331K50
	C221,C222	CKCYB391K50
	C225,C226	CQMA153J50
	C219,C220	CQMA182J50
	C205,C206	CQMA183J50
	C217,C218	CQMA392J50
	C207,C208	CQMA393J50
	C227,C228	CQMA682J50
	C223,C224	CQMA683J50

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
★	VR201－VR205 Variable resistor (30kΩ)	ACU1011
	R205	RD1/4PM221J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Remote control sensor	AXX1005

Headphone Assembly

SWITCH

Mark	Symbol & Description	Part No.
★★	S591 Tact switch (POWER)	ASG-712

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/2PM681J

OTHERS

Mark	Symbol & Description	Part No.
	Mini jack (PHONES)	AKN1004

SW Assembly

SWITCHES

Mark	Symbol & Description	Part No.
★★	S595−S599 Tact switch	ASG-711

REGULATOR Assembly

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★★	IC561	μPC7812H

CAPACITOR

Mark	Symbol & Description	Part No.
	C591	CEAS100M50

CONNECT Assembly

The electrical parts of this assembly are not supplied.

TAPE Assembly (AWZ1321)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC603	BA335PT
★★	IC601	BA3416BL
★★	IC602	HA12086NT
★★	IC702	M5218LF
★★	IC701	M74LS05P
★★	IC604	TC4066BP
★★	Q722,Q723	2SA1515
★★	Q721,Q730,Q733	2SA933S (2SA1115)
★★	Q601−Q613,Q616−Q620, Q701−Q706,Q715−Q718,Q728, Q729,Q731,Q732,Q734	2SC1740S (2SC2603)
★★	Q724,Q725	2SC2603
★★	Q707,Q708	2SC2878
★★	Q726,Q727	2SK373
★	D705	RD5.1ESB
★	D712	S5566
★	D601−D606,D701−D704, D708−D711,D713−D716	1SS131
★	D706,D707	1S2471

TRASFORMER, COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L705,L706	Trap coil	ATM-037
	L603,L604	Trap coil	ATM1001
	L601,L602	Axial inductor	LAU221K
	L707	Inductor	LTA102J
	L703,L704	Inductor	LTA392J
	F701,F702	Dolby filter	ATF-210
	T701		ATX-043

CAPACITORS

Mark	Symbol & Description	Part No.
	C768 (1500p)	ACE-133
	C743,C744	CCCSL100D50
	C611−C614,C713,C714	CCCSL101J50
	C741,C742	CCCSL101K500
	C763	CCCSL221J50
	C601,C602	CCCSL271J50
	C762	CEASR47M50
	C642,C643	CEASR68M50
	C647	CEAS0R1M50
	C605,C606,C609,C610,C624, C625,C705,C708,C711,C712, C748	CEAS010M50
	C636,C637,C701−C704,C707	CEAS100M50
	C709,C710	CEASR22M50
	C618,C644,C645,C737,C738	CEAS2R2M50
	C617,C630,C631,C653,C654	CEAS220M16
	C607,C608,C633	CEAS221M10
	C623,C632	CEAS221M16
	C649	CEAS3R3M50
	C721,C722	CEAS330M16
	C619,C620,C628,C629,C634, C635,C769	CEAS4R7M50
	C650,C706,C715,C716,C747, C761	CEAS470M16
	C651,C652,C770	CKCYB102K50
	C603,C604	CKCYB471K50
	C739,C740,C745,C746,C780	CKCYB681K50
	C646	CKCYF473Z50
	C638,C639,C765,C766	CQMA103J50
	C767	CQMA123K250
	C640,C641,C729,,C730,C764	CQMA153J50
	C717,C718	CQMA182J50
	C626,C627	CQMA183J50
	C731,C732	CQMA223J50
	C621,C622	CQMA273J50
	C615,C616	CQMA333J50
	C735,C736	CQMA472J50
	C733,C734	CQMA393J50
	C648	CQMA473K50
	C727,C728	CQMA562J50
	C771,C772	CQMA681J50
	C719,C720	CQMA683J50

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
★	VR703,VR704 Semi-fixed (100k)	VRTM6H104
★	VR601−VR604 Semi-fixed (20k)	VRTM6H203
★	VR701,VR702 Semi-fixed (20k)	VRTM6V203
	R775,C776,C799	RD1/2PM□□□J
	R621,R731,R732	RD1/4PM221J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	9P socket	AKP-046

CONTROL Assembly (AWZ1323)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC801	LC6520C-3311
★★	Q803,Q804	2SA1515
★★	Q801,Q802,Q809−Q812	2SA933S (2SA1115)
★★	Q814,Q815	2SC1740S (2SC2603)
★★	Q805−Q808,Q813	2SC3377
★	D829	RD5.1ESB
★	D828	RD6.8ESB
★	D817	S5566
★	D801−D813,D815,D818−D821	1SS131

CAPACITORS

Mark	Symbol & Description	Part No.
	C801,C802	CCCSL151J50
	C808	CEAS010M50
	C804,C806	CEAS102M16
	C805	CEAS221M10
	C807	CEAS221M16
	C803	CKCYF102Z50
	C809	CKCYX104M25

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
★	VR802,VR804 Semi-fixed (10k)	VRTM6H103
★	VR801,VR803 Semi-fixed (20k)	VRTM6H203
	R871	RD1/4PM271J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
★	X801 Ceramic oscillator (800kHz)	ASS-039

Mechanism unit (I) SW Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D826,D827	AEL1035

SWITCHES

Mark	Symbol & Description	Part No.
★★	S811−S815 Tact switch	ASG-711

RESISTORS

Mark	Symbol & Description	Part No.
	R875,R876	RD1/4PM122J

Mechanism unit (II) SW Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D824,D825	AEL1035

SWITCHES

Mark	Symbol & Description	Part No.
★★	S806−S810 Tact switch	ASG-711

RESISTORS

Mark	Symbol & Description	Part No.
	R873,R874	RD1/4PM122J

SW Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D823	AEL1034
★	D822	1SS131

SWITCHES

Mark	Symbol & Description	Part No.
★★	S801−S805 Tact switch	ASG-711
★★	S817 Slide switch	ASH1011
★★	S816 Slide switch	ASH1014

RESISTORS

Mark	Symbol & Description	Part No.
	R872	RD1/4PM102J

LOGIC Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC998	TC4011BP
★★	IC999	TC4069UBP
★	D999	1SS131

CAPACITORS

Mark	Symbol & Description	Part No.
	C999	CKDYF473Z50

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

7. ADJUSTMENTS

Tape speed adjustment

1. Connect the frequency counter to the TP1 terminal (Dolby TP: R-ch) on the complex assembly.
2. Turn the tape switch on.
3. Mount the test tape STD-301 onto deck I.
4. Put the deck I into play mode and short-circuit between terminals TP801 and TP802 on the tape assembly. (STD-301 is play backed in double speed.)
5. Adjust with VR802 so that the playback signal frequency of deck I becomes 6020Hz ± 10Hz.
6. Release the short-circuit between terminals TP801 and TP802.
7. Put the deck I into play mode and adjust with VR801 so that the playback signal frequency becomes 3010Hz ± 5Hz.
   Note: Be sure not to turn VR802 while performing the normal speed adjustment.
8. At this point, be sure to confirm that the wow and flutter are within 0.25% both in the normal speeds.
9. Mount the test tape STD-301 onto deck II.
10. Put the deck II into play mode and short-circuit between terminals TP801 and TP802 on the tape assembly. (STD-301 is play backed in double speed.)
11. Adjust with VR804 so that the playback signal frequency of deck II becomes 6020Hz ±10Hz.
12. Release the short-circuit between terminals TP801 and TP802.
13. Put the deck II into play mode and adjust with VR803 so that the play back signal frequency of deck II becomes 3010Hz ±5Hz. (Note: Be sure not to turn VR804 while performing the normal speed adjustment.)
14. At this point, be sure to confirm that the wow and flutter are within 0.25% in the normal speeds.

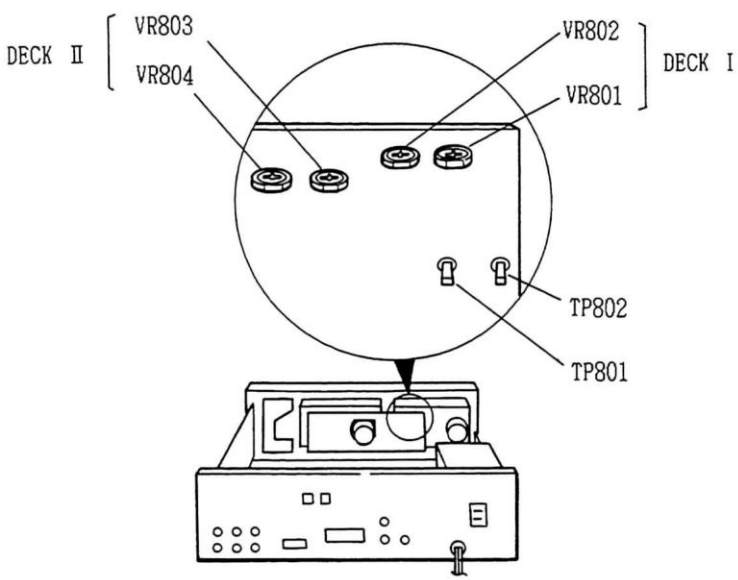


Fig. 7-1 Adjustment Point

Electrical system adjustment

Prior to the electrical system adjustment, be sure to confirm the following itesm.

1. The mechanical adjustment should be completed.
2. Perform cleaning of the head and the demagnetization of head with the head eraser.
3. The level during measurement is determined at 0dBv = 1V.
4. The specified tape should be used for adjustment.
   Since the test tape has A side and B side, use the A side with label.
   - STD-331B: For playback system adjustment
   - STD-608A: Normal blank tape
   - STD-620: CrO_2 blank tape
   - STD-610: Metal blank tape
5. Prepare the following measuring instruments.
   AC millivoltmeter, low frequency oscillatore, attenuator, and oscilloscope.
6. For the adjustment, perform both L and R channels unless otherwise specified.
7. Turn the Dolby NR switch to off unless otherwise specified.
8. Prior to the adjustment, be sure to perform aging of the set for several minutes. Especially prior to entering the adjustment of the recording and playback frequency characteristics, aging should be performed in REC/PLAY mode for 3 to 5 minutes.
9. The adjustment should be performed in accordance with the adjustment order. If the order is not kept, it may cause the failure of the complete adjustment which induces the inferior function of the unit.

Deck I

1. Head azimuth adjustment
2. Playback level adjustmint

Deck II

1. Head azimuth adjustment
2. Playback level adjustmint
3. Adjustment of recording and playback frequency characteristics
4. Adjustment of recording level

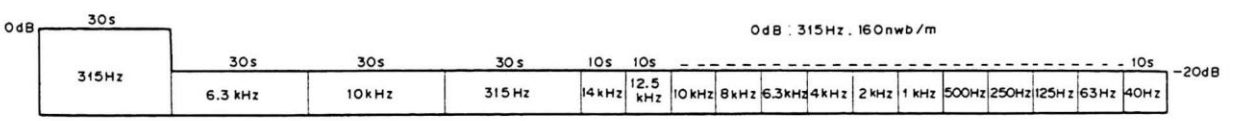


Fig. 7-2 Test tape STD-331B

Adjustment of Deck I

*This deck is provided with an auto-tape-selector mechanism.

1. Head azimuth adjustment

* (Note) Do not select FWD and REV with the screwdriver being kept inserted.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY	Play back 10kHz/−20dB on test tape STD-331B	Head azimuth adjusting screw (Fig.7-4)	TP Lch TP Rch	Maximum playback signal level	After completion, lock the screw

2. Playback level adjustment

* Perform this adjustment precisely since this adjustment is Dolby level setting during playback.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY	Play back 315Hz/0dB on test tape STD-331B	VR603 (L) VR604 (R)	TP Lch TP Rch	−13.5dBv	

Adjustment of Deck II

*This deck is provided with an auto-tape-selector mechanism.

1. Head azimuth adjustment

* (Note) Do not select FWD and REV with the screwdriver being kept inserted.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY	Play back 315Hz/0dB on test tape STD-331B	Head azimuth adjusting screw (Fig.7-4)	TP Lch TP Rch	Maximum playback signal level	After completion, lock the screw.

2. Playback level adjustment

* Perform this adjustment precisely since this adjustment is Dolby level setting during playback.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY	Play back 315Hz/0dB on test tape STD-331B	VR601 (L) VR602 (R)	TP Lch TP Rch	−13.5 dBv	

3. Adjustment of recording and playback frequency characteristics

* This adjustment is performed in order to adjust the recording bias. Therefore, caution should be exercised not to worsen the distortion ratio due to under bias.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	REC	STD-608A and put into REC mode.	Bias oscillator frequency T701	Between Ⓐ and Ⓑ in Fig.7-3	Confirm that the oscillation frequency 105 kHz ±1 kHz.	When it is not within the standard, put it into the standard by adjusting T701.
2	NORM	REC	Apply the signal of 315Hz to the CD terminal and turn the CD switch on.	Input signal level	TP Lch TP Rch	−33.5 dBv	
3	NORM	PEC/PLAY	Record and play back 315Hz and 10kHz on test tape STD-608	VR703 (L) VR704 (R)	TP Lch TP Rch	Repeat recording and playback, and compensate so that the playback level of 10kHz against 315Hz becomes 0±0.5dB.	

* Select the test tape, tape selector, and Dolby NR switch and satisfy the frequency characteristic zone as shown in Figs. 7-5 and 7-8.

4. Recording level adjustment

* Set the graphic equalizer and balance volume to the center and the mike mixing volume to the source side.

Procedure	Tape selector (AUTO)	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	REC	Apply the signal of 315Hz to the CD terminal and turn the CD switch on.	Input signal level	TP Lch TP Rch	−13.5dBV	
2	NORM	REC/PLAY	Record and play back 315Hz to the test tape STD-608A.	VR701 (L) VR702 (R)	TP Lch TP Rch	Repeat recording and playback, and compensate so that the playback level of 315Hz becomes −13.5 dBv	
3	CrO_2	REC/PLAY	Record and play back 315Hz to the test tape STD-620.		TP Lch TP Rch	Confirm that the playback level of 315Hz becomes -13.5dBv (±2.0dB)	
4	METAL	REC/PLAY	Record and play back 315Hz to the test tape STD-610.		TP Lch TP Rch	Confirm that the playback level of 315 Hz becomes -13.5dBv (±2.0dB)	

Note: If it is not set in REC/PLAY mode, there will be no signal to the TP terminal.
(In REC PAUSE mode, there is no signal to TP.)

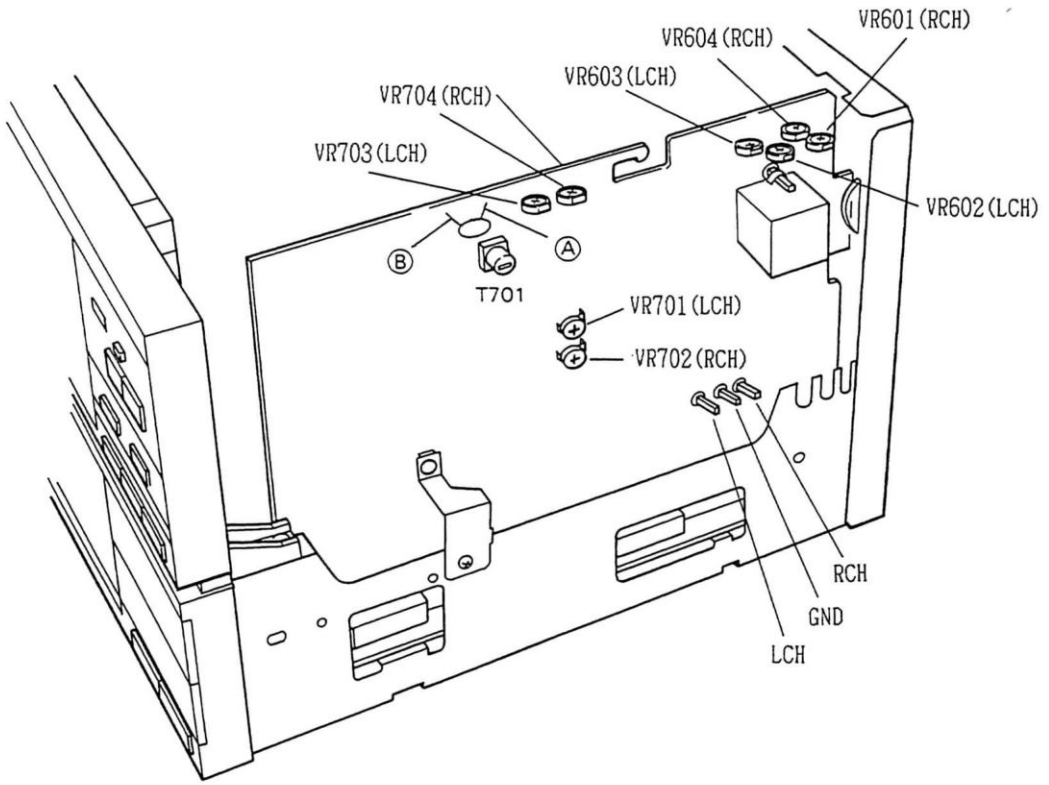


Fig. 7-3 Arrangement diagram of adjusting parts

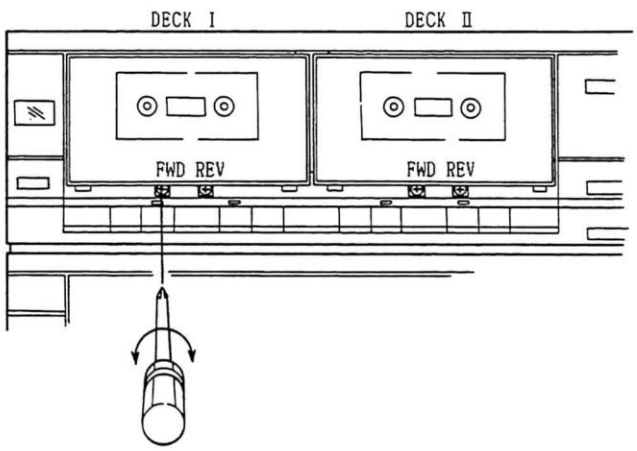


Fig. 7-4 Head azimuth adjustment

Test tape	STD-331B
DOLBY NR switch position	OFF

- The right channel is corrected by −0.5 at 125 Hz and −1 dB at 63 Hz to compensate for edge effect.

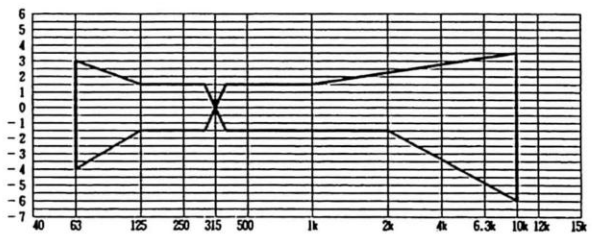


Fig. 7-5 Playback frequency response tolerance zone

Test tape	STD-608A	Test tape	STD-608A
DOLBY NR switch	OFF	DOLBY NR switch	ON

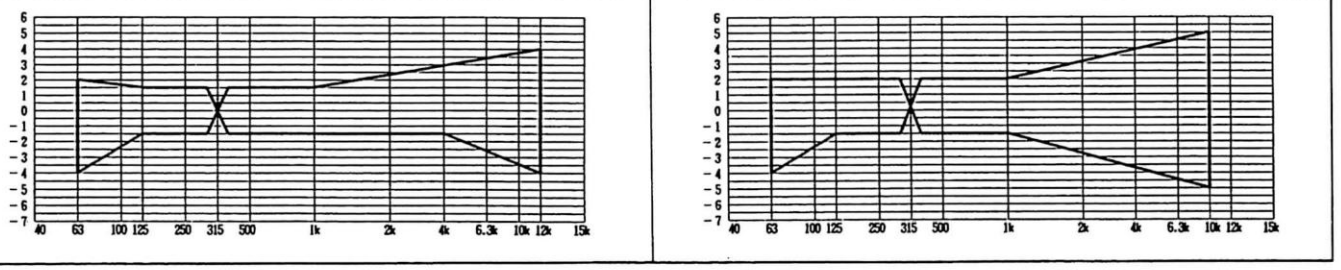


Fig. 7-6 Recording & playback frequency response tolerance zone (NORM)

Test tape	STD-620	Test tape	STD-620
DOLBY NR switch	OFF	DOLBY NR switch	ON

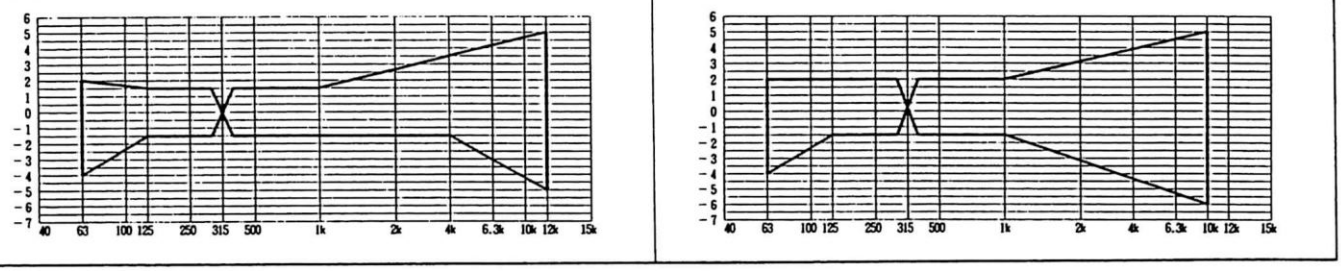


Fig. 7-7 Recording & playback frequency response tolerance zone (CrO2)

Test tape	STD-610	Test tape	STD-610
DOLBY NR switch	OFF	DOLBY NR switch	ON

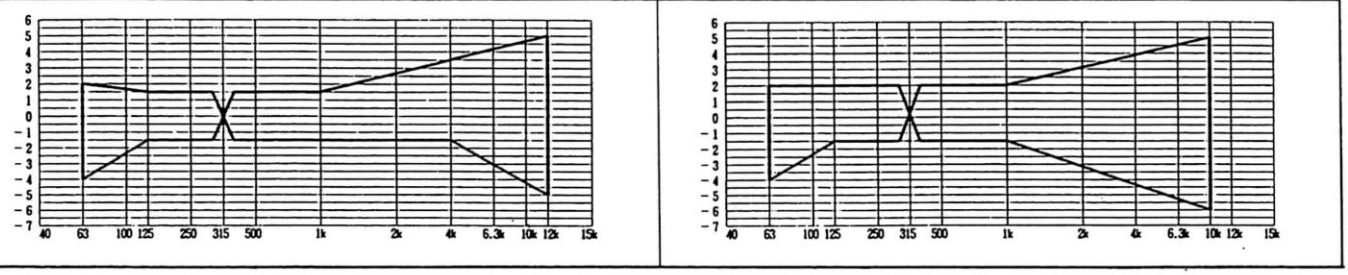


Fig. 7-8 Recording & playback frequency response tolerance zone (METAL)

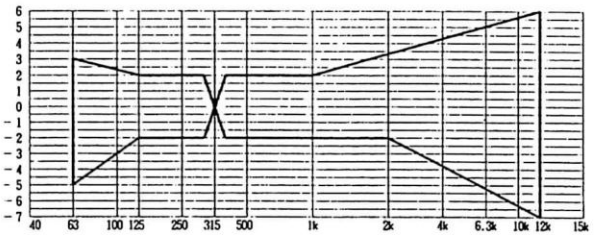
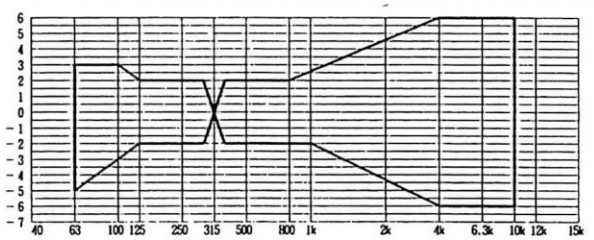
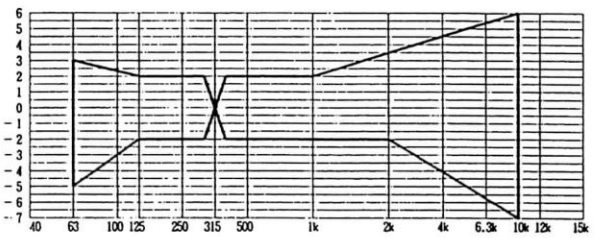
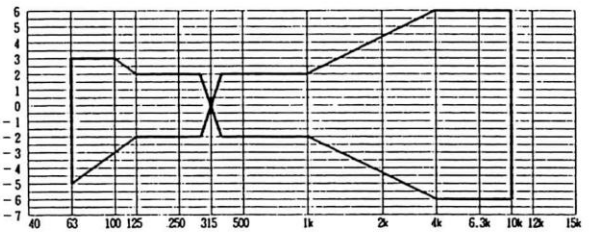
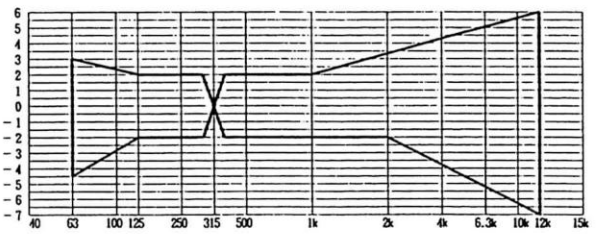
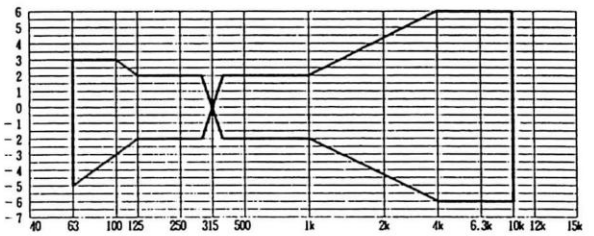
Test tape	STD-608A	Test tape	STD-608A (HIGH SPEED COPY)
DOLBY NR switch	OFF	DOLBY NR switch	OFF
			
Test tape	STD-620	Test tape	STD-620 (HIGH SPEED COPY)
DOLBY NR switch	OFF	DOLBY NR switch	OFF
			
Test tape	STD-610	Test tape	STD-610 (HIGH SPEED COPY)
DOLBY NR switch	OFF	DOLBY NR switch	OFF
			

Fig. 7-9 Copy mode recording & playback frequency response (for reference purposes)

7. RÉGLAGE

Réglage de la vitesse de bande

1. Raccorder le compteur de fréquence à la borne TP1 (Dolby TP: canal droit) sur l'ensemble de l'assemblage.
2. Commuter l'interrupteur de borne sur marche.
3. Installer la bande d'essai STD-301 sur la platine 1.
4. Court-circuiter entre les bornes TP801 et TP802 sur l'ensemble de l'assemblage et placer la platine 1 en mode de lecture (la bande STD -301 est reproduite à vitesse double).
5. Régler avec VR802 de sorte que la fréquence du signal de lecture de la platine 1 soit de 6020Hz ±10Hz.
6. Enlever le court-circuit entre les bornes TP801 et TP802.
7. Placer la platine 1 en mode de lecture et régler VR801 de sorte que la fréquence du signal de lecture soit 3010Hz ±5Hz.
8. A cette étape, veiller que le pleurage et le scintillement ne dépassent pas 0,25% aux deux vitesses normales.
9. Installer la bande d'essai STD-301 sur la platine 2.
10. Court-circuiter entre les bornes TP801 et TP802 sur l'ensemble de l'assemblage et placer la platine 2 en mode de lecture (la bande STD -301 est reproduite à vitesse double).
11. Régler avec VR804 de sorte que la fréquence du signal de lecture de la platine 2 diffère de 6020Hz±10Hz
12. Enlever le court-circuit entre les bornes TP801 et TP802.
13. Placer la platine 2 en mode de lecture et régler VR803 de sorte que la fréquence du signal de lecture de la platine 2 diffère de 3010Hz±5Hz
    (Remarque: S'assurer de pas tourner VR804 pendant le réglage de la vitesse normale).
14. A cette étape, veiller que le pleurage et le scintillement ne dépassent pas 0,25% aux deux vitesses normales.

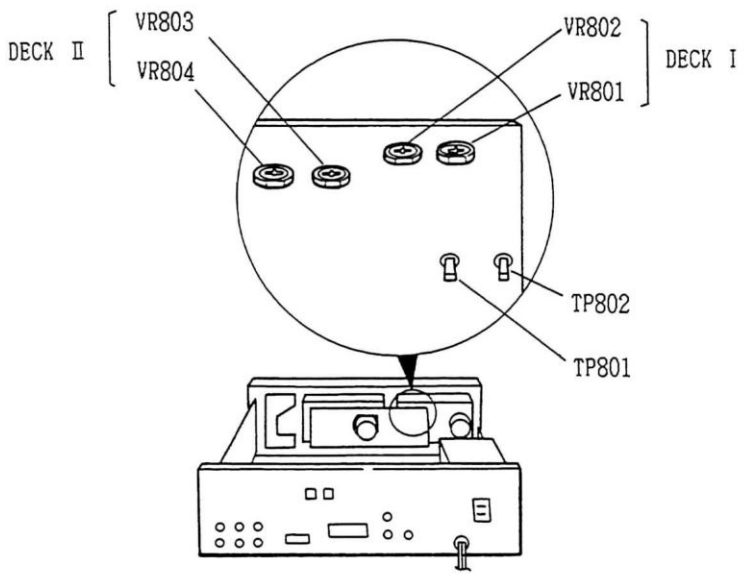


Fig. 7-1 Points de réglage

Réglage du système électrique

Avant de procéder au réglage du système électrique, s'assurer de vérifier les points suivants:

1. Le réglage mécanique doit être achevé.
2. Nettoyer la tête, puis démagnétiser celle-ci à l'aide d'un effaceur de tête.
3. Pendant la mesure, le niveau est déterminé à 0dB = 1V.
4. La bande spécifiée doit être utilisée.
   Comme la bande d'essai a une face A et une face B, utiliser la face A étiquetée.
   STD-331B: Pour le réglage du système de lecture
   STD-608A: Bande vierge normale
   STD-620: Bande vierge CrO_2
   STD-610: Bande vierge "métal"
5. Préparer les instruments de mesure suivants:
   Un millivoltmètre CA, un oscillateur de basse fréquence, un atténuateur et un oscilloscope.
6. Régler les canaux gauche et droit sauf si spécifié autrement.
7. Commuter l'interrupteur Dolby NR sur arrêt, sauf si spécifié autrement.
8. Avant de procéder au réglage, s'assurer de préchauffer l'appareil pendant quelques minutes. Il est recommandé de préchauffer l'appareil pendant 3 à 5 minutes en mode REC/PLAY tout particulièrement avant de procéder au réglage des caractéristiques de la fréquence d'enregistrement et de lecture.
9. Le réglage doit être réalisé selon un ordre précis. Si cet ordre n'est pas respecté, il risque de perturber l'ensemble du réglage et par conséquent, causer un mauvais fonctionnement de l'appareil.

Platine de lecture I

1. Réglage d'azimut de la tête
2. Réglage du niveau de lecture

Platine de lecture II

1. Réglage d'azimut de la tête
2. Réglage du niveau de lecture
3. Réglage des caractéristiques de la fréquence d'enregistrement et de lecture
4. Réglage du niveau d'enregistrement.

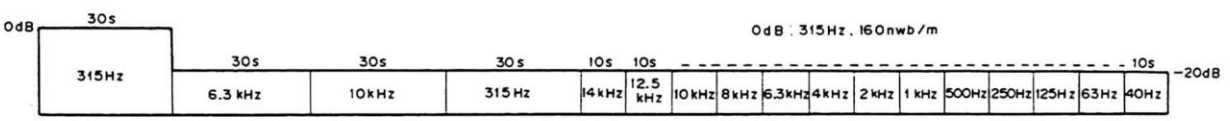


Fig. 7-2 Bande d'essai STD-331B

Réglage de la platine de lecture I

• Cette platine est pourvue d'un mécanisme d'auto-sélection-de bande.

1. Réglage d'azimut • (Note) Enlever le tournevis avant de régler sur marche avant ou retour en arrière.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	Marche	Lecture sur 10kHz/−20dB avec bande d'essai STD-331B	Vis de réglage d'azimut (Fig.7-4)	TP Lch TP Rch	Niveau maximum du signal de lecture	Bloquer ensuite la vis

2. Réglage du niveau de lecture • Effectuer ce réglage avec précision car il détermine le niveau Dolby pendant la lecture.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	Marche	Lecture sur 315Hz/0dB avec bande d'essai STD-331B	VR603 (L) VR604 (R)	TP Lch TP Rch	−13,5 dBV	

Réglage de la platine de lecture II

• Cette platine est pourvue d'un mécanisme d'auto-sélection-de bande.

1. Réglage d'azimut • (Note) Enlever le tournevis avant de régler sur marche avant ou retour en arrière.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Norm	Marche	Lecture sur 10kHz/−20dB avec bande d'essai STD-331B	Vis de réglage d'azimut (Fig.7-4)	TP Lch TP Rch	Niveau maximum du signal de lecture	Bloquer ensuite la vis

2. Réglage du niveau de lecture • Effectuer ce réglage avec précision car il détermine le niveau Dolby pendant la lecture.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	Marche	Lecture sur 315Hz/0dB avec bande d'essai STD-331B	VR601 (L) VR602 (R)	TP Lch TP Rch	−13,5 dBV	

3. Réglage des caractéristiques des fréquence d'enregistrement et de lecture • Ce réglage est effectué pour permettre l'adjustement de la polarisation d'enregistrement. Par conséquent, attention à ne pas perturber le taux de distorsion avec une sous-polarisation.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	REC	Mettre la bande d'essai STD-608A en place et régler le mode REC.	Fréquence de l'oscillateur de polarisation	Entre Ⓐ et Ⓑ sur la Fig. 7-3	Vérifier que la fréquence d'oscillation est de 105kHz ± 1kHz.	Si les cotes ne sont respectées, régler à l'aide de T701.
2	Normal	REC	Appliquer un signal de 315Hz à la borne de CD et brancher l'interrupteur de CD.	Niveau du signal d'entrée	TP Lch TP Rch	−33,5 dBV	
3	Normal	REC	Enregistrer et lire 315 Hz et 10kHz sur la bande d'essai STD-608.	VR703 (L) VR704 (R)	TP Lch TP Rch	Recommencer enregistrement et lecture et compenser pour amener le niveau d'enregistrement de 10kHz à 0±0,5dB par rapport aux 315Hz.	

• Choisir la bande d'essai, régler le sélecteur de bande, brancher l'interrupteur de réduction de bruit Dolby et obtenir la zone de caractéristique de fréquence comme illustré en Fig. 7-5 et 7-8.

4. Réglage duniveau d'enregistrement • Régler le correcteur et le volume en position moyenne et le volume de mixage du micro sur côté source.

Méthode	Sélecteur de bande (AUTO)	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	REC	Appliquer un signal de 315Hz à la borne de CD et brancher l'interrupteur de CD.	Niveau du signal d'entrée	TP Lch TP Rch	−13,5 dBV	
2	Normal	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-608A.	VR701 (L) VR702 (R)	TP Lch TP Rch	Recommencer enregistrement et lecture et compenser pour amener le niveau d'enregistrement de 315 Hz à −13,5 dBV	
3	CrO_2	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-620.		TP Lch TP Rch	Vérifier que le niveau de lecture à 315Hz passe à −13,5 dBV (±2,0 dB).	
4	METAL	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-610.		TP Lch TP Rch	Vérifier que le niveau de lecture à 315Hz passe à −13,5 dBV (±2,0 dB).	

Remarque: S'il n'est pas réglé en mode REC/PLAY aucun signal sera sur la borne TP (en mode REC PAUSE, il n'y a pas de signal sur TP).

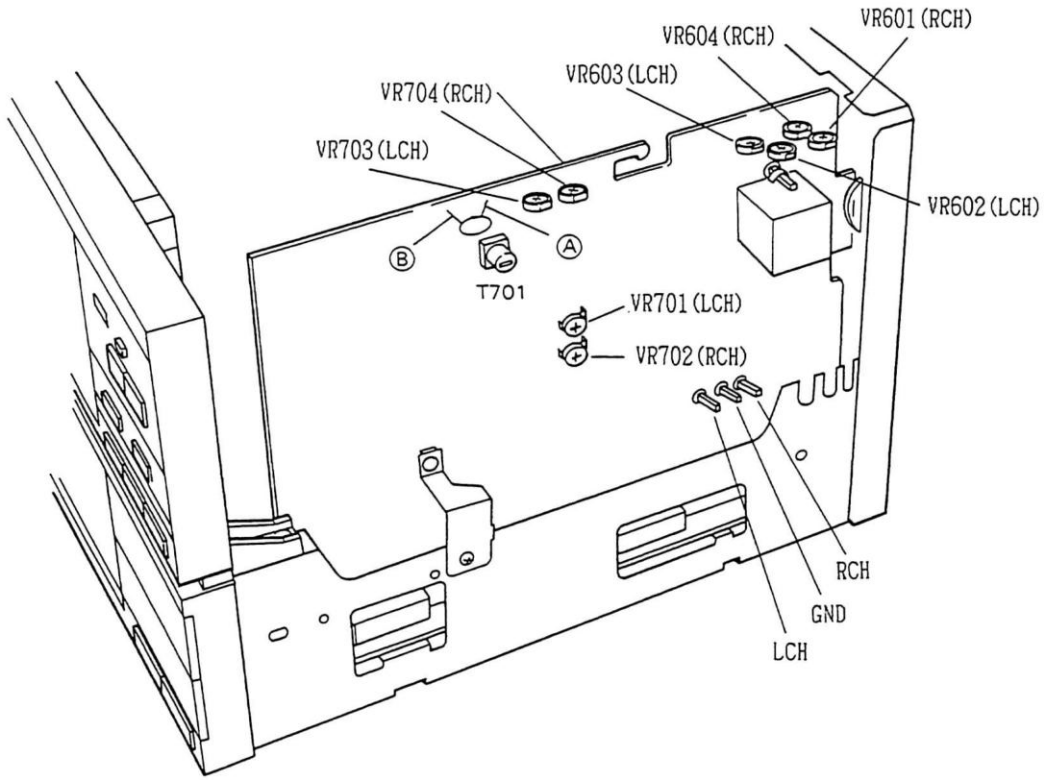


Fig. 7-3 Schéma de localisation des piéces de réglage

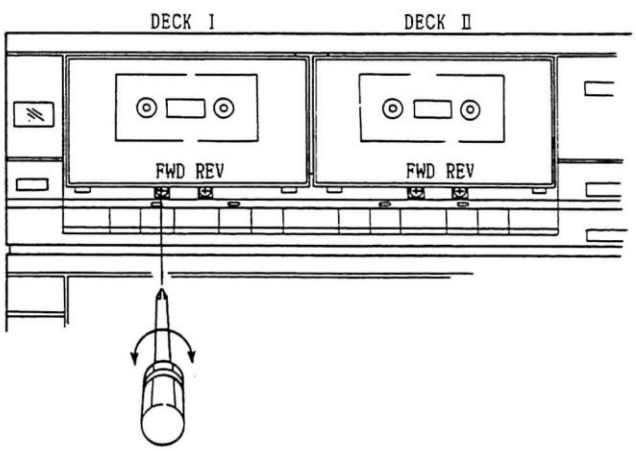


Fig. 7-4 Réglage d'azimuth de la tête

Bande d'essai	STD-331B
Position du commutateur DOLBY NR	OFF

- Le canal de droite se corrige de –0,5 dB á 125 Hz, et de –1 dB à 63 dB afin de compenser l'effet de bordure.

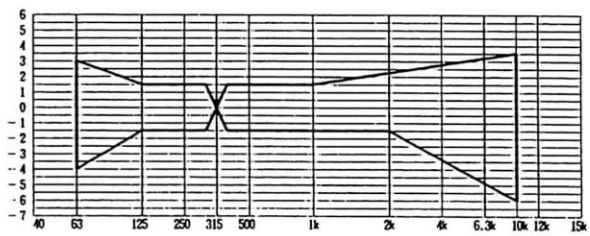


Fig. 7-5 Zone de tolérance de la réponse de fréquence de lecture

Bande d'essai	STD-608A	Bande d'essai	STD-608A
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	ON

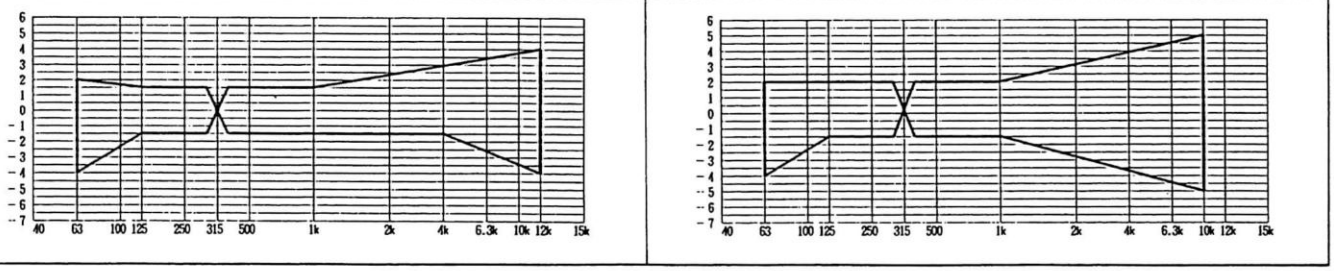


Fig. 7-6 Zone de tolérance de la réponse de fréquence d'enregistrement et de lecture (NORM)

Bande d'essai	STD-620	Bande d'essai	STD-620
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	ON

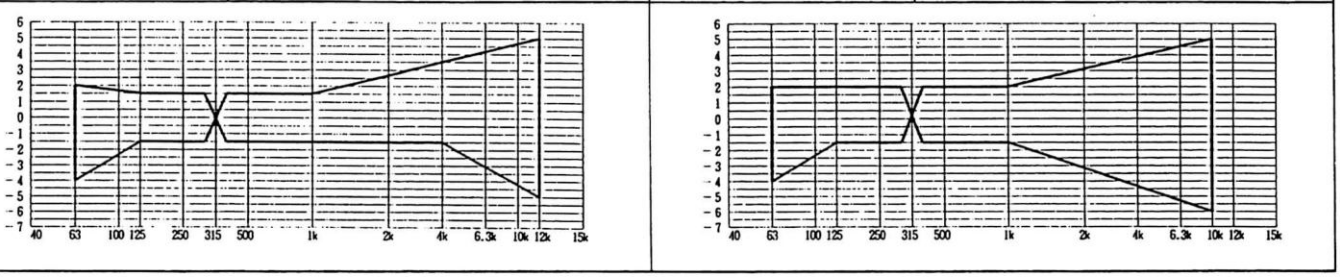


Fig. 7-7 Zone de tolérance de la réponse de fréquence d'enregistrement et de lecture (CrO2)

Bande d'essai	STD-610	Bande d'essai	STD-610
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	ON

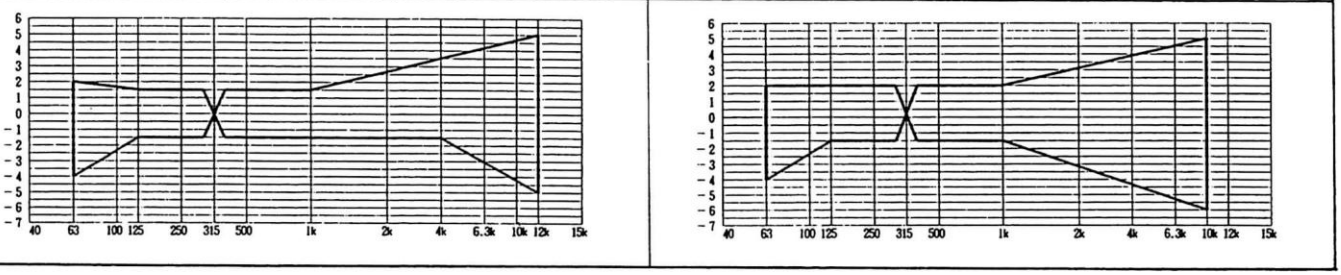
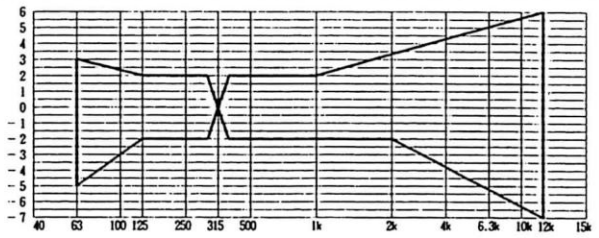
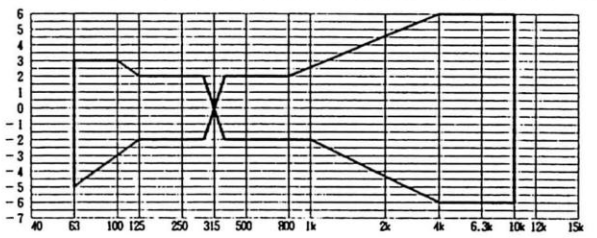


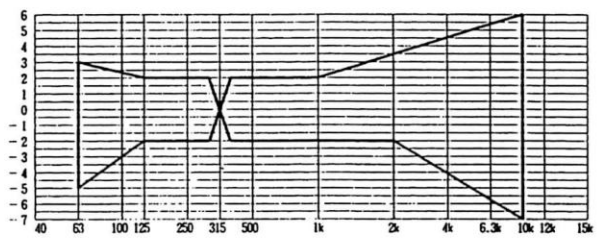
Fig. 7-8 Zone de tolérance de la réponse de fréquence d'enregistrement et de lecture (METAL)

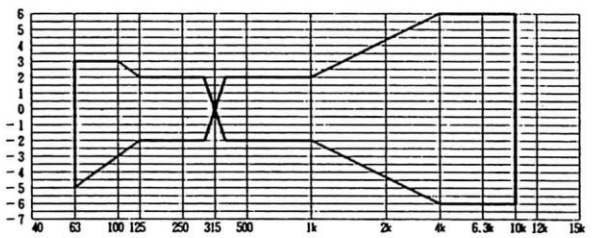
Bande d'essai	STD-608A	Bande d'essai	STD-608A (Copiage à vitesse rapide)
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	OFF



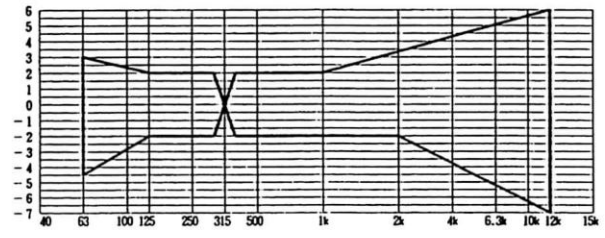


Bande d'essai	STD-620	Bande d'essai	STD-620 (Copiage à vitesse rapide)
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	OFF





Bande d'essai	STD-610	Bande d'essai	STD-610 (Copiage à vitesse rapide)
Commutateur DOLBY NR	OFF	Commutateur DOLBY NR	OFF



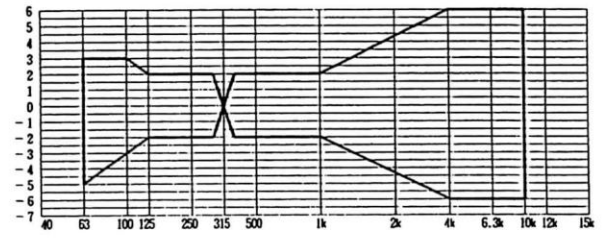


Fig. 7-9 Réponse de fréquence d'enregistrement et de lecture du mode de copiage (à des fins de référence)

7. AJUSTE
Ajuste de velocidad de la cinta

1. Conecte el frecuencímetro al terminal TP1 (Dolby TP: R-ch) del conjunto.
2. Conecte la alimentación del magnetófono.
3. Instale la cinta de prueba STD-301 en la sección I del magnetófono.
4. Cortocircuite los terminales TP801 y TP802 del conjunto de la cinta y ponga la sección I en el modo de reproducción. (La cinta STD-301 se reproducirá a velocidad doble.)
5. Ajuste VR802 de forma que la frecuencia de la señal de reproducción de la sección I sea de 6020Hz ±10Hz.
6. Abra el circuito entre los terminales TP801 y TP802.
7. Ponga la sección I en el modo de reproducción y ajuste VR801 de forma que la frecuencia de la señal de reproducción sea de 3010Hz ±5Hz.
8. En este punto, asegúrese de confirmar que la fluctuación y el trémolo no sean superiores al 0,25% a velocidad normal.
9. Instale la cinta de prueba STD-301 en la sección II del magnetófono.
10. Cortocircuite los terminales TP801 y TP802 del conjunto de la cinta y ponga la sección II en el modo de reproducción. (La cinta STD-301 se reproducirá a velocidad doble.)
11. Ajuste VR804 de forma que la frecuencia de la señal de reproducción de la sección II sea de 6020Hz±10Hz
12. Abra el circuito entre los terminales TP801 y TP802.
13. Ponga la sección II en el modo de reproducción y ajuste VR803 de forma que la frecuencia de la señal de reproducción sea de 3010Hz±5Hz
(Nota: Asegúrese de no girar VR804 durante el ajuste de la velocidad normal.)
14. En este punto, asegúrese de confirmar que la fluctuación y el trémolo no sean superiores al 0.25% a velocidad normal.

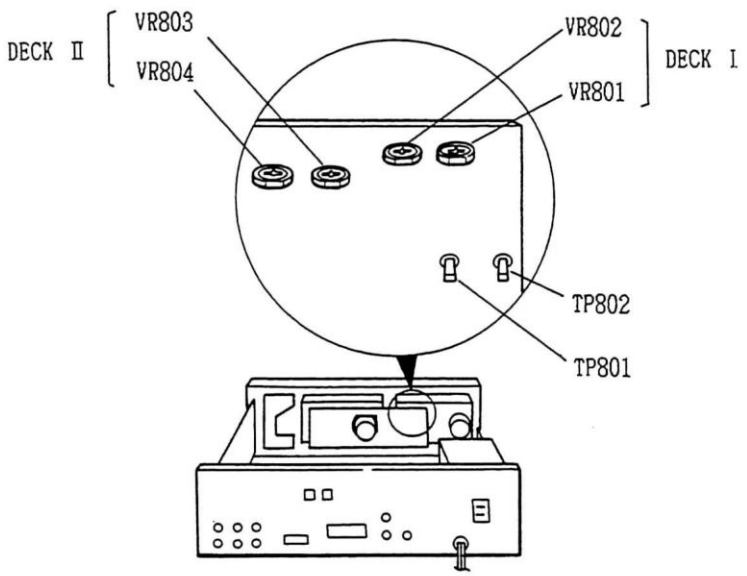


Fig. 7-1 Punto de ajuste

Ajuste del sistema eléctrico

Antes de ajustar el sistema eléctrico, asegúrese de:

1. Haber finalizado los ajustes eléctricos.
2. Haber limpiado y las cabezas y haberlas desmagnetizado con un desmagnetizador de cabezas.
3. Que el nivel durante la medición sea de 0dBv = 1V.
4. Emplear la cinta especificada para el ajuste. Como la cinta de prueba tiene caras A y B, emplee la cara A con etiqueta.
   STD-331B: Para el ajuste del sistema de reproducción
   STD-608A: Cinta normal en blanco
   STD-620: Cinta de CrO_2 en blanco
   STD-610: Cinta de metal en blanco
5. Preparar los instrumentos siguientes. Milivoltímetro de CA, oscilador de baja frecuencia, atenuador, y osciloscopio.
6. Realizar los ajustes tanto en el canal izquierdo (L) como en el derecho (R), a menos que se especifique otra cosa.
7. Poner el interruptor Dolby NR en OFF a menos que se especifique otra cosa.
8. Dejar calentar el aparato durante varios minutos antes de realizar los ajustes. En especial, antes de entrar en el ajuste de las características de la frecuencia de grabación y reproducción, tendrá que poner el aparato en los modos de grabación y reproducción durante 3 a 5 minutos.
9. Realizar los ajustes de acuerdo con el orden indicado. Si no guarda este orden, todo el ajuste puede fallar, lo que provocará el empeoramiento del funcionamiento de la unidad.

Sección I

1. Ajuste del acimut de la cabeza
2. Ajuste del nivel de reproducción

Sección II

1. Ajuste del acimut de la cabeza
2. Ajuste del nivel de reproducción
3. Ajuste de las características de la frecuencia de grabación y reproducción
4. Ajuste del nivel de grabación

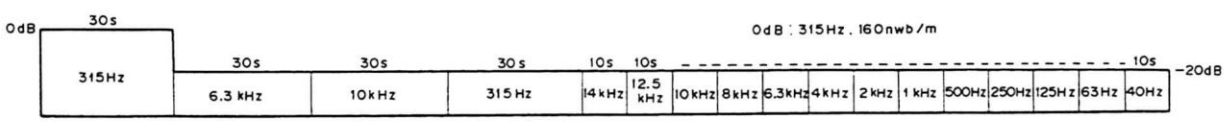


Fig. 7-2 Cinta de prueba STD-331B

Ajuste del Deck I

• Este deck está provisto con un mecanismo autoselector de cinta.

1. Ajuste del acimut de la cabeza • (Nota) No seleccione el avance hacia delante o hacia atrás con el destornillador mantenido dentro.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	Repro-ducción	Reproducción de 10 kHz/ – 20 dB en la cinta de prueba STD-331B	Tornillo de ajuste del acimut de la cabeza (Fig.7-4)	TP Lch TP Rch	Nivel máximo de señal de reproducción	Después de terminar, trabe el tornillo

2. Ajuste del nivel de reproducción Ejecute este ajuste con exactitud, ya que el anterior es la fijación del nivel Dolby durante la reproducción.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	Repro-ducción	Reproducción de 315Hz/ 0dB en la cinta de prueba STD-331B	VR603 (L) VR604 (R)	TP Lch TP Rch	–13,5 dBV	

Ajuste del Deck II

• Este deck está provisto con un mecanismo autoselector de cinta.

1. Ajuste del acimut de la cabeza • (Nota) No seleccione el avance hacia delante o hacia atrás con el destornillador mantenido dentro.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	Repro-ducción	Reproducción de 10 kHz/ – 20 dB en la cinta de prueba STD-331B	Tornillo de ajuste del acimut de la cabeza (Fig.7-4)	TP Lch TP Rch	Nivel máximo de señal de reproducción	Después de terminar, trabe el tornillo

2. Ajuste del nivel de reproducción • Ejecute este ajuste con exactitud, ya que el anterior es la fijación del nivel Dolby durante la reproducción.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	Repro-ducción	Reproducción de 315 Hz/ 0 dB en la cinta de prueba STD-331B	VR601 (L) VR602 (R)	TP Lch TP Rch	–13,5 dBV	

3. Ajuste de las características de la frecuencia de reproducción y grabación. • Este ajuste se efectua para ajustar la polarización de grabación. Por eso, se deberá tener cuidado de no empeorar la relación de distorsión debido a una subpolarización.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	REC	Monte la cinta de prueba STD-608A y ponga el modo de REC.	Frecuencia del oscilator de polarización	Entre Ⓐ y Ⓑ en la Fig. 7-3	Confirme que la frecuencia de oscilación sea 105 kHz ±1 kHz.	Cuando no está dentro del estándar, póngala en el estándar ajustando T701.
2	Normal	REC	Apique la señal de 315 Hz a la terminal de CD y conecte el interruptor de CD.	Nivel de señal de entrada	TP Lch TP Rch	–33,5 dBV	
3	Normal	REC/PLAY	Grabe y reproduzca 315 Hz y 10 kHz en la cinta de prueba STD-608.	VR703 (L) VR704 (R)	TP Lch TP Rch	Repita la grabación y la reproducción, y compense de modo que el nivel de reproducción de 10 kHz contra 315 Hz llegue a ser 0 ±0,5 dB.	

• Seleccione la cinta de prueba, el selector de cinta y el interruptor de reducción de ruido y satisfaga la zona de característica de la frecuencia como se muestra en las Figuras 7-5 y 7-8.

4. Ajuste el nivel de grabación • Fije el ecualizador gráfico y el volumen de equilibrio al centro y el volumen de mezcla de micro al lado de la fuente.

Procedimiento	Selector de cinta (AUTO)	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	REC	Aplique la señal de 315 Hz a la terminal de CD y conecte el interruptor de CD.	Nivel de señal de entrada	TP Lch TP Rch	–13,5 dBV	
2	Normal	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-608A.	VR701 (L) VR702 (R)	TP Lch TP Rch	Repita la grabación y la reproducción, y compense de modo que el nivel de reproducción de 315 Hz lleque a ser –13,5 dBV	
3	CrO_2	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-620.		TP Lch TP Rch	Confirme que el nivel de reproducción de 315 Hz llegue a ser –13,5 dBV (±2,0 dB).	
4	METAL	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-610.		TP Lch TP Rch	Confirme que el nivel de reproducción de 315 Hz llegue a ser –13,5 dBV (±2,0 dB).	

Nota: Si no lo pone en el modo de grabación/reproducción, no habrá seña en el terminal TP.
(En el modo de grabación en pausa, no habrá señal en TP.)

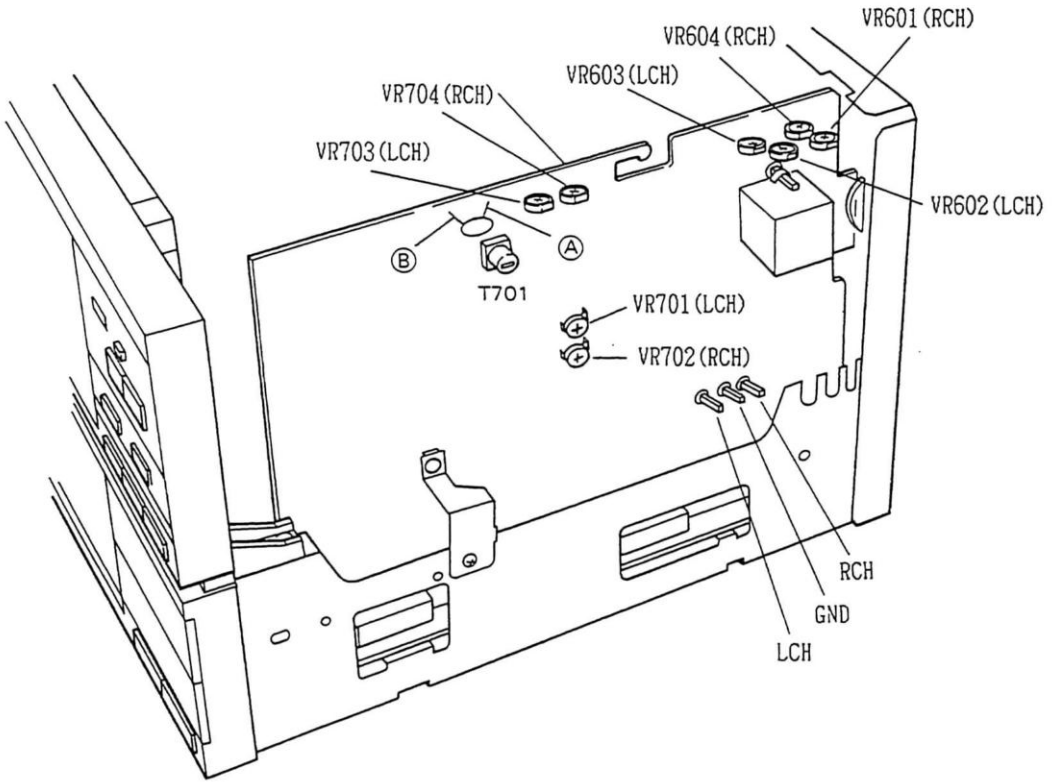


Fig. 7-3 Diagrama de disposición de las partes de ajuste

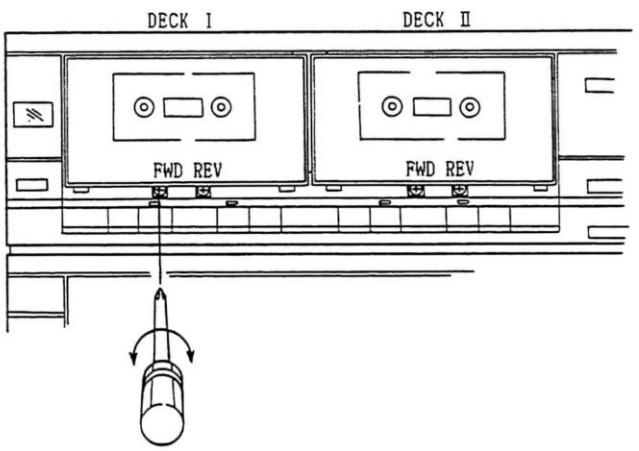


Fig. 7-4 Ajuste del acimut de la cabeza

Cinta de prueba	STD-331B
Posición del interruptor DOLBY NR	OFF

- El canal derecho se corrige en −0,5 dB a 125 Hz y −1 dB a 63 Hz para compensar el efecto de los bordes.

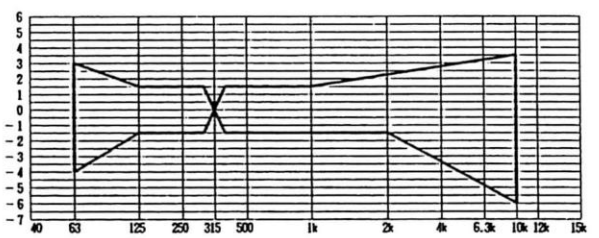


Fig. 7-5 Zona de tolerancia de respuesta de frecuencia de reproducción

Cinta de prueba	STD-608A	Cinta de prueba	STD-608A
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	ON

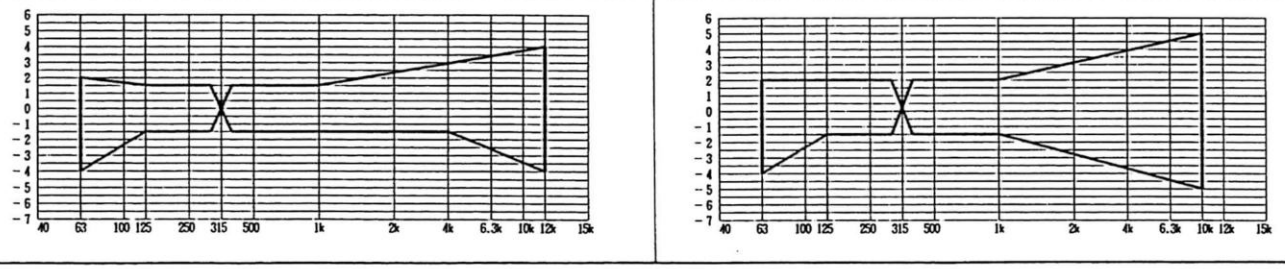


Fig. 7-6 Zona de tolerancia de copia y respuesta de frecuencia de reproducción (NORM)

Cinta de prueba	STD-620	Cinta de prueba	STD-620
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	ON

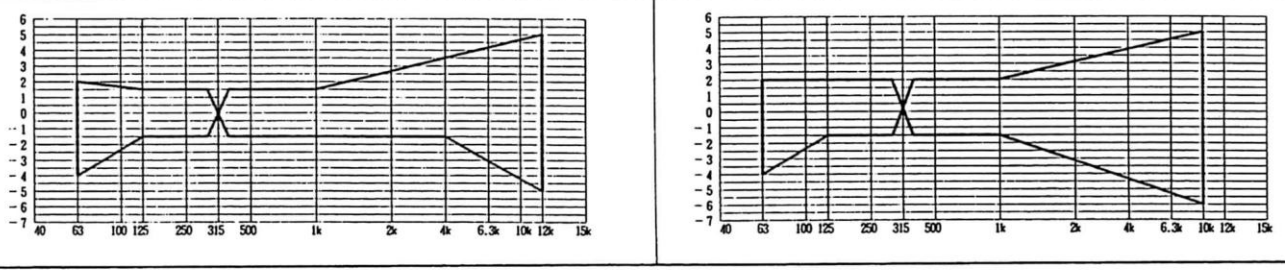


Fig. 7-7 Zona de tolerancia de copia y respuesta de frecuencia de reproducción (CrO2)

Cinta de prueba	STD-610	Cinta de prueba	STD-610
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	ON

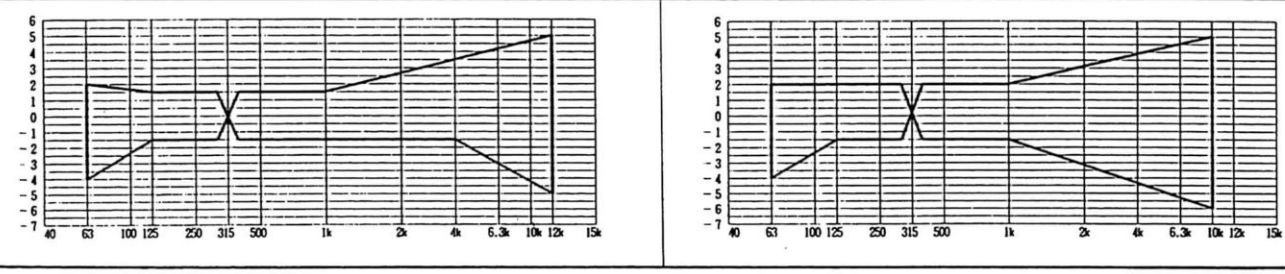
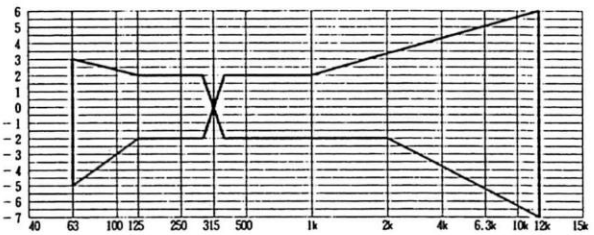
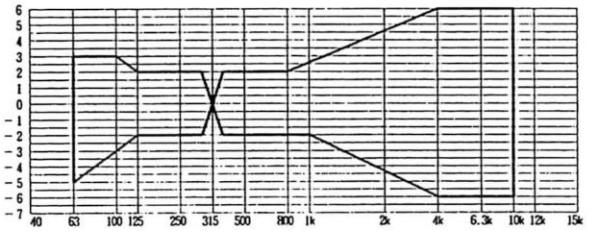


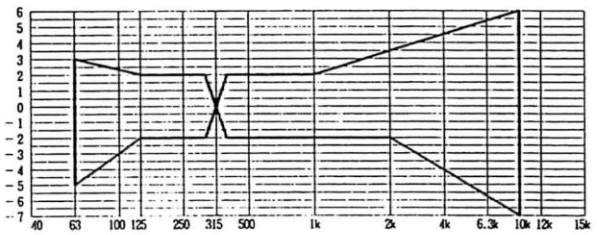
Fig. 7-8 Zona de tolerancia de copia y respuesta de frecuencia de reproducción (METAL)

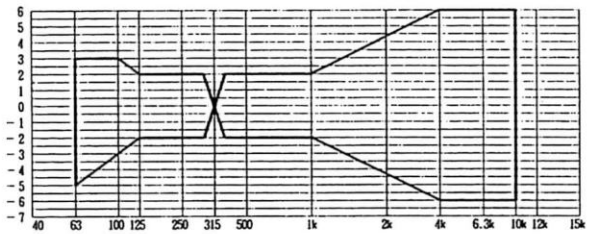
Cinta de prueba	STD-608A	Cinta de prueba	STD-608A (Copia de alta velocidad)
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	OFF



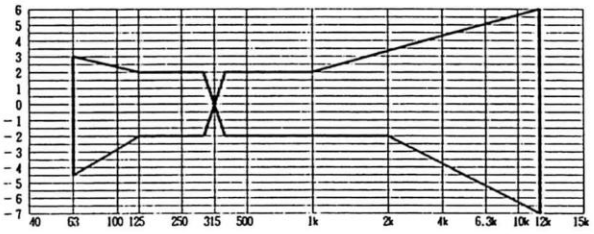


Cinta de prueba	STD-620	Cinta de prueba	STD-620 (Copia de alta velocidad)
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	OFF





Cinta de prueba	STD-610	Cinta de prueba	STD-610 (Copia de alta velocidad)
Interruptor DOLBY NR	OFF	Interruptor DOLBY NR	OFF



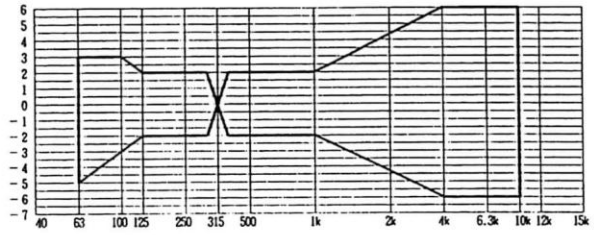


Fig. 7-9 Grabación de modo de copia y respuesta de frecuencia de reproducción (para referencia propuesta)

8. MECHANISM OUTLINE
8.1 FORWARD OPERATION

After activation of the motor, the PLAY solenoid is activated by applying a short-duration pulse. The operation of the solenoid causes the plunger to be drawn up and the engaged PLAY trigger arm to rotate in resistance to the energizing force. The protrusion B on the arm presses against section A1 of the cam gear's control cam, causing it to rotate slightly. This causes the cam gear to engage with the gear on the flywheel and drive the flywheel. (Fig. 8-1)

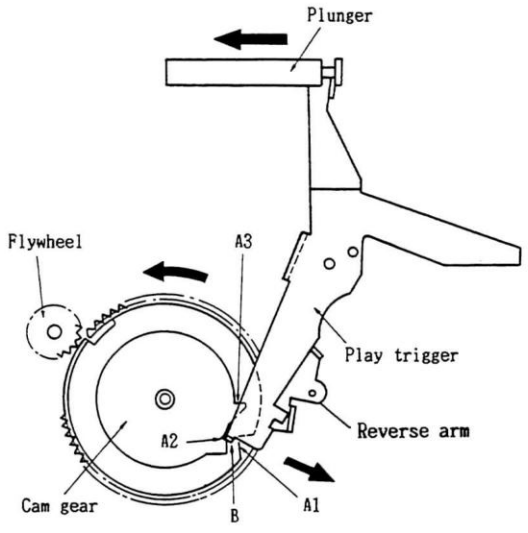


Fig. 8-1

The reverse arm rotates in the same direction due to the action of the PLAY trigger.

The solenoid demagnetizes before the position is achieved at which the reverse arm pin and section D1 of the cam gear's reverse cam engage, and the PLAY trigger and the reverse arm return to their home positions.

The PLAY plate moves to the PLAY position as the cam gear rotates.

The cam gear rotates until A3 on the control cam is halted by B on the PLAY trigger. In the halted state, the toothless section of the flywheel gear is situated opposite the cam gear, thus the cam gear is not driven and hence, does not rotate. At this time, the assist shaft is positioned at section C2 of the cam gear's assist cam and a rotational force is exerted on the cam gear because of the tilting of the cam section.

The head board moves in the same direction due to the action of a spring spanned between it and the PLAY plate, and advance positioning is controlled by means of a hole in the mechanism board. The movement of the head plate causes the gear arm, controlled by the elbow section of the head board, to rotate, and the rotation of the flywheel is transferred to the reel by means of the gear on the gear arm. The movement of the head board causes the gear arm, which is controlled by the elbow of the head board, to rotate, and the rotation of the flywheel is transmitted to the reel by means of the gear on the gear arm. At this time, because the head lever that slides laterally on the head board, is energized rightward, the left gear arm cannot rotate due to the action of the left-side elbow on the head lever; therfore, only the right wheel rotates. (Fig. 8-2)

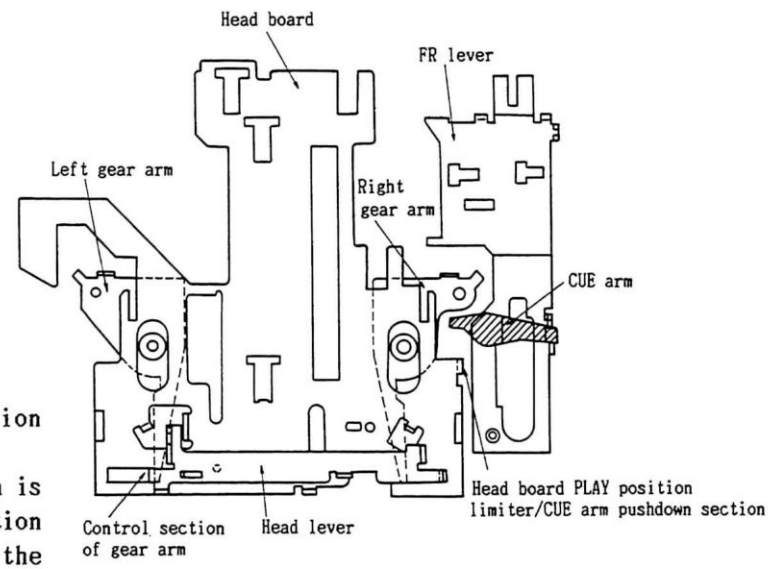


Fig. 8-2

When the head board is moving, because the head lever is being energized rightwards, the upper elbow of the head lever engages with the torsion spring of the right pinch arm, thus forcing the pinch roller against the capstan. Although the left pinch arm also moves, it stops just before the pinch roller contacts the tape. (Fig. 8-3)

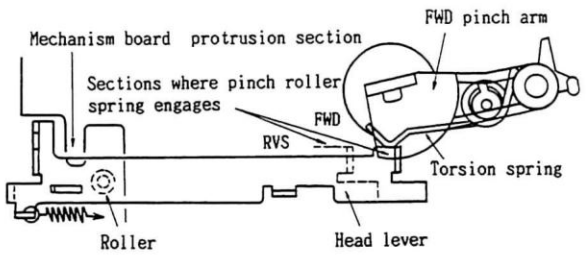


Fig. 8-3

The stop operation proceeds as follows: a pulse is applied to the PLAY solenoid, and section A3 of the cam gear's control cam and section B of the PLAY trigger are disengaged. When these disengage, the cam gear rotates due to rotational inertia resulting from a reactive force between the assist cam section C2 and the PLAY plate. The cam gear continues rotating until section B of the trigger arm catches on section A2 of the cam gear's control cam. The head board is returned to the stop position by a spring.

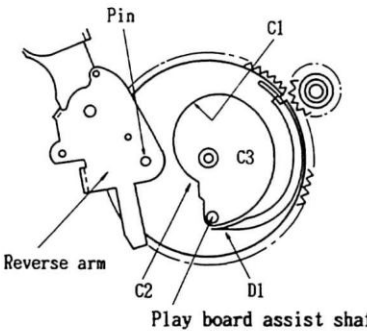
8.2 REVERSE OPERATION

The reverse operation is basically the same as the forward operation.

By applying a pulse to the PLAY solenoid from commencement of the operation until after the pin on the reverse arm is positioned at section D1 of the cam gear's reverse cam, the reverse arm rotates by means of the reverse cam's section D1, the tip of the reverse arm engages with the roller section of the head lever that slides over the head board. This causes the head lever to move toward the reverse side in resistance to the energization, thus maintaining the lateral position of the head lever until the roller is caused by the movement of the head board to engage with the indentation on the mechanism board.

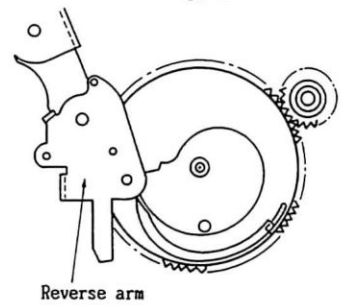
The sliding of the head lever causes the head gear, which until now was energized and rotating in the forward direction due to the action of the elbow section of the head lever, to be energized and to rotate in the reverse direction due to the action of a spring spanned between the head lever and the head gear.

Because the head lever is sliding toward the reverse side, only the left side of the gear arm rotates, and the left reel rotates. Furthermore, the pinch arm's torsion spring and the head lever do not engage, but, they engage near the fulcrum of the pinch arm due to the action of the left pinch arm's torsion spring, forcing the left pinch roller against the capstan.



In the stop state
(as seen from the front of the mechanism)

Fig. 8-4



At commencement of RVS operation

Fig. 8-5

8.3 FAST-FORWARD OPERATION

After activation of the motor, the FF/REW solenoid is activated by applying a short-duration pulse. The operation of the solenoid causes the plunger to be drawn up and the engaged trigger arm to rotate in resistance to the energizing force. The protrusion B on the arm presses against section A1 of the cam gear's control cam, causing it to rotate slightly, This causes the cam gear to engage with the gear on the flywheel and drive the flywheel. (Fig. 8-6)

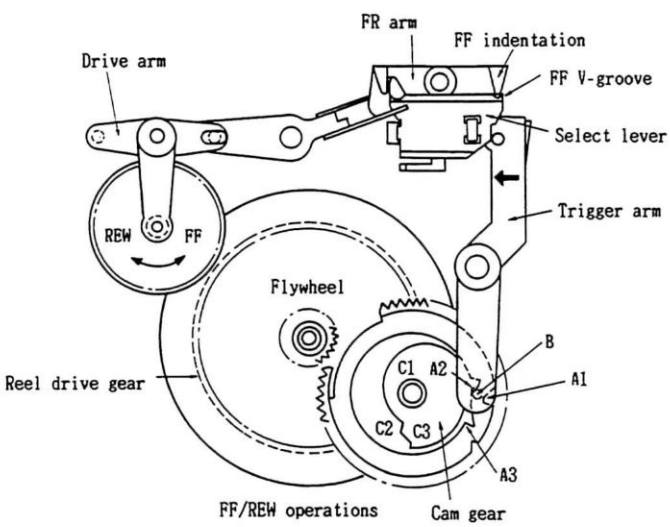


Fig. 8-6

The solenoid demagnetizes before the position is achieved at which the assist shaft of the FR lever and section C1 of the cam gear's assist cam engage, and the trigger arm returns to home position.

As the cam gear rotates, the assist shaft moves to the FF/REW position due to the action of section C1 of the cam gear's assist cam. In the halted state, the toothless section of the flywheel gear is situated opposite the cam gear, and the cam gear does not rotate. At this time, the assist shaft is positioned at section C2 of the cam gear's assist cam and a rotational force is exerted on the cam gear because of the tilting of the cam section.

The select lever, which slides laterally across the FR lever, is energized toward the FF side. During FF operations, when the select lever is caused to slide by the pin located in the direction opposite the plunger-engage section of the trigger arm, because the pulse applied to the solenoid is ended by the time the FR lever moves, the select lever returns to its home position. The select lever moves together with the FR lever, the FF-side V-groove on the select lever engages with the FF-side protrusion on the FR arm, which rotates taking the mechanism board shaft as its fulcrum, to cause the FR arm to rotate. The rotation of the FR arm causes the idler SP, which rotates taking the reel shaft as its fulcrum. This causes the arm of the idler, which transmits the rotation of the flywheel gear to the reel, to rotate, thus causing the reel to rotate at top speed.

The stop operation proceeds as follows: a pulse is applied to the FF/REV solenoid, and section A3 of the cam gear's control cam and section B of the PLAY trigger are disengaged. When these disengage, the cam gear rotates due to rotational inertia resulting from a reactive force between the assist cam section C2 and the PLAY plate. The cam gear continues rotating until section B of the trigger arm catches on section A2 of the cam gear's control cam. The head substrate is returned to the stop position by a spring.

8.4 REWIND OPERATION

The pulse applied to the FF/REV solenoid is maintained from commencement of the rewind operation until the FR lever moves and select lever moves toward the REW side in resistance to the energization generated by the pin on the trigger arm, and the REV-side V-groove on the select lever catches on the REW-side protrusion of the FR arm. This causes the reel opposite the one that rotates at FF, to rotate at full speed.

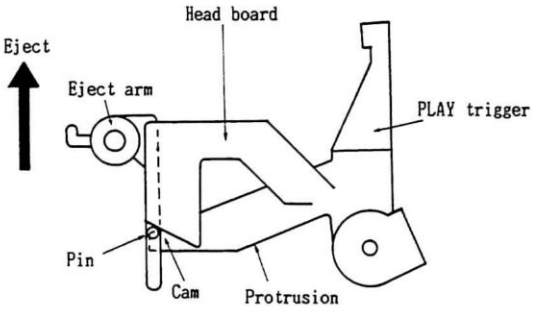
The stop operation is identical to the FF stop operation.

8.5 CUE/REVIEW OPERATION

When FF/REV operations are executed during PLAY, the elbow on the FR lever causes the CUE arm, which rotates taking the mechanism board as its fulcrum, to rotate and the cue arms's tip to push down the head board. (Fig. 8-2)

8.6 FORCED EJECT OPERATION

When an eject operation is executed during PLAY, the eject arm, which revolves on the eject lever strut, moves together with the eject lever in the eject direction, contacting protrusion on the PLAY trigger and causing the PLAY trigger to rotate, thus initiating a stop operation. When the head board has returned to the stop position, the eject arm pin moves along the head board cam; the eject operation then takes place without the PLAY trigger operating.



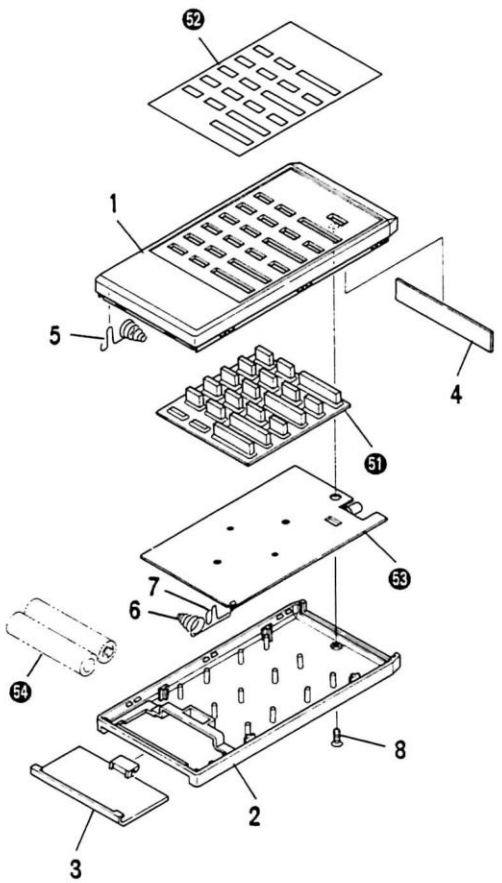
In the STOP state

Fig. 8-7

9. REMOTE CONTROL
9.1 EXPLODED VIEW AND PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

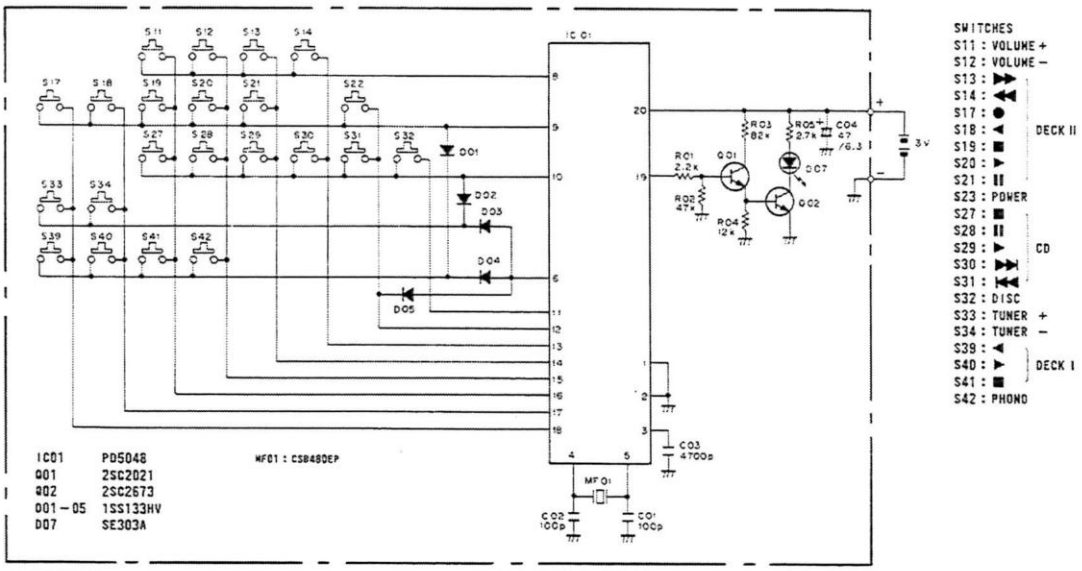


Parts List

Mark	No.	Part no.	Description
	1	AZA1053	Case (A)
	2	AZA1054	Case (B)
	3	AZA1055	Case (C)
	4	AZA1056	Filter
	5	AZK1042	Terminal (A)
	6	AZK1043	Terminal (B)
	7	AZK1044	Terminal (C)
	8	AZB1057	Screw
	51		Rubber switch
	52		Name plate
	53		P.C. Board
	54		Battery

9.2 SCHEMATIC DIAGRAM AND P.C.BOARD PATTERN

SCHEMATIC DIAGRAM



1. RESISTORS.
Indicated in Ω, ¼W, ⅛ W,±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

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

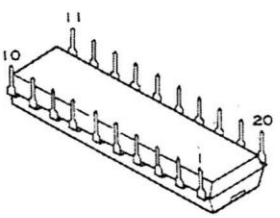
3. VOLTAGE CURRENT.
; DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

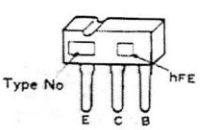
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

External Appearance of Transistors and IC

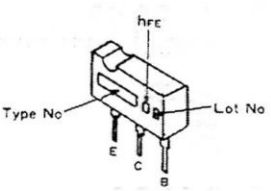
PD5048



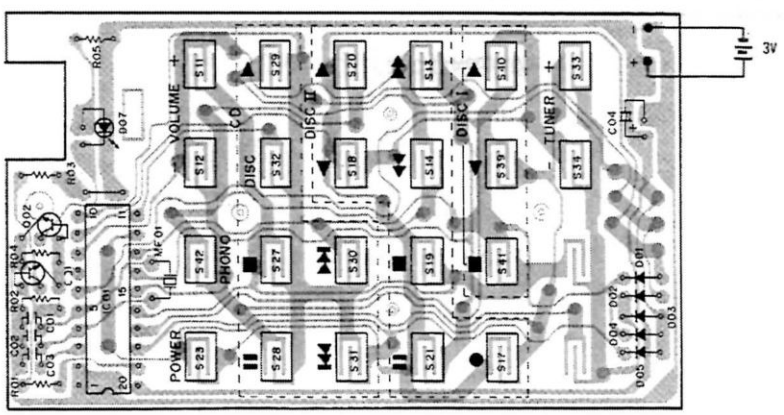
2SC2021



2SC2673



P.C.BOARD PATTERN



9.3 ELECTRICAL PARTS LIST

NOTES:

- *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%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

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

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC01	PD5048
★★	Q01	2SC2021
★★	Q02	2SC2673
★	D01−D05	1SS133HV
★	D07	SE303A

FILTER

Mark	Symbol & Description	Part No.
	MF01	CSB480EP

CAPACITORS

Mark	Symbol & Description	Part No.
	C01,C02	CCCSL101J50
	C03	CKCYB472K50
	C04	CEAS470M6R3

RESISTORS

NOTE:When ordering resistors,convert the resistance value into code form,and then rewrite the part no.as before.

Mark	Symbol & Description	Part No.
	R01−R05	RD1/8PM□□□J