SERV 34050

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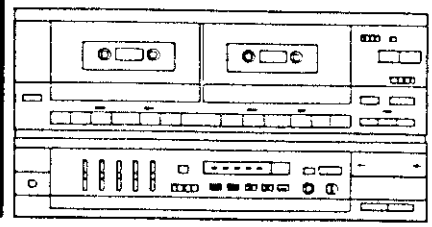
Service Manual



ORDER NO.
ARP1303-A

STEREO DOUBLE CASSETTE TAPE DECK AMPLIFIER

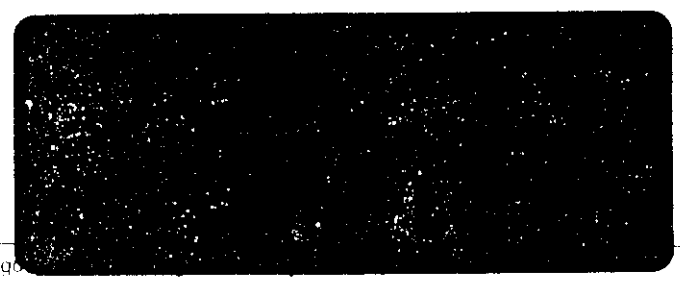
DC-X88Z

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.

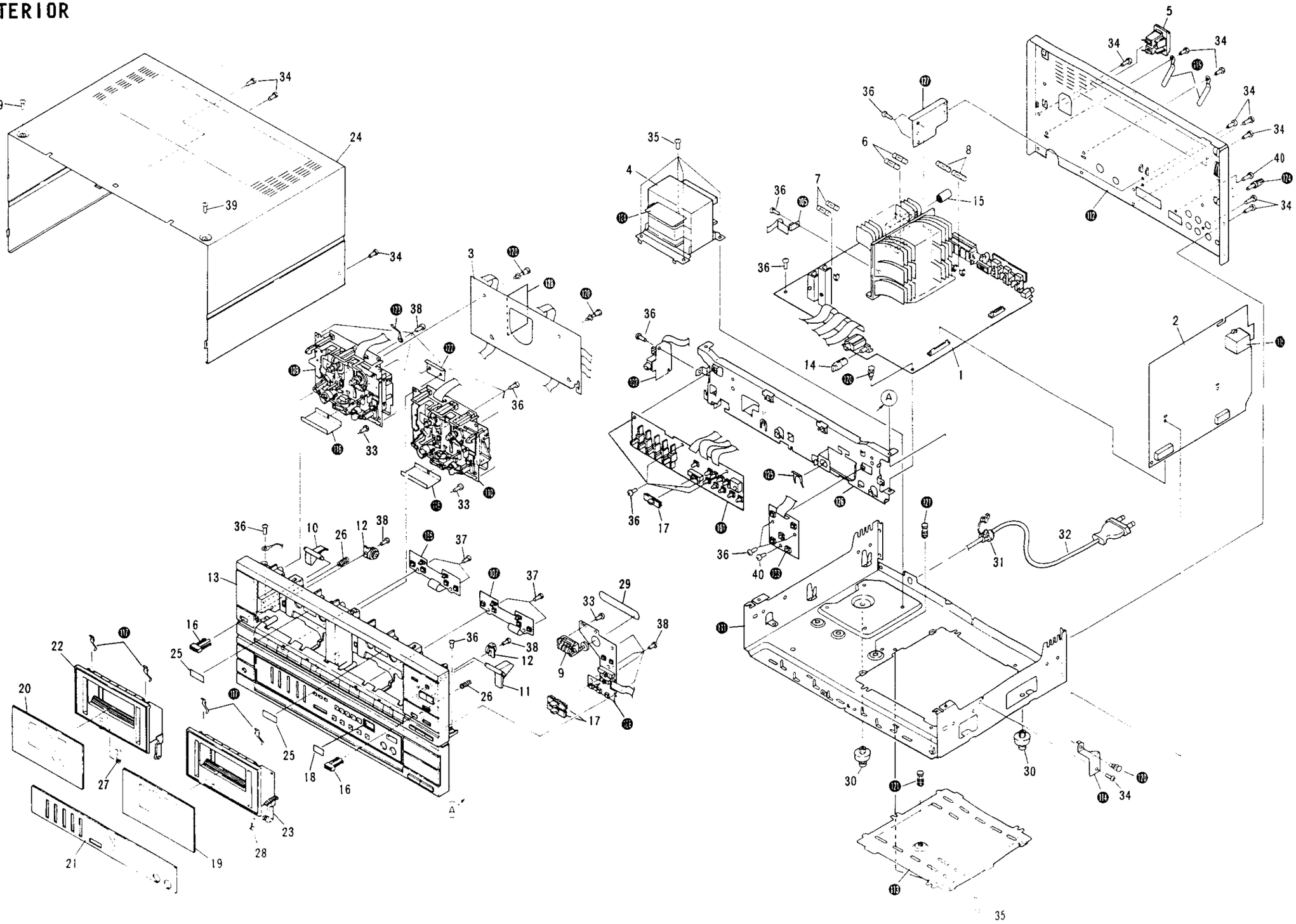
CONTENTS



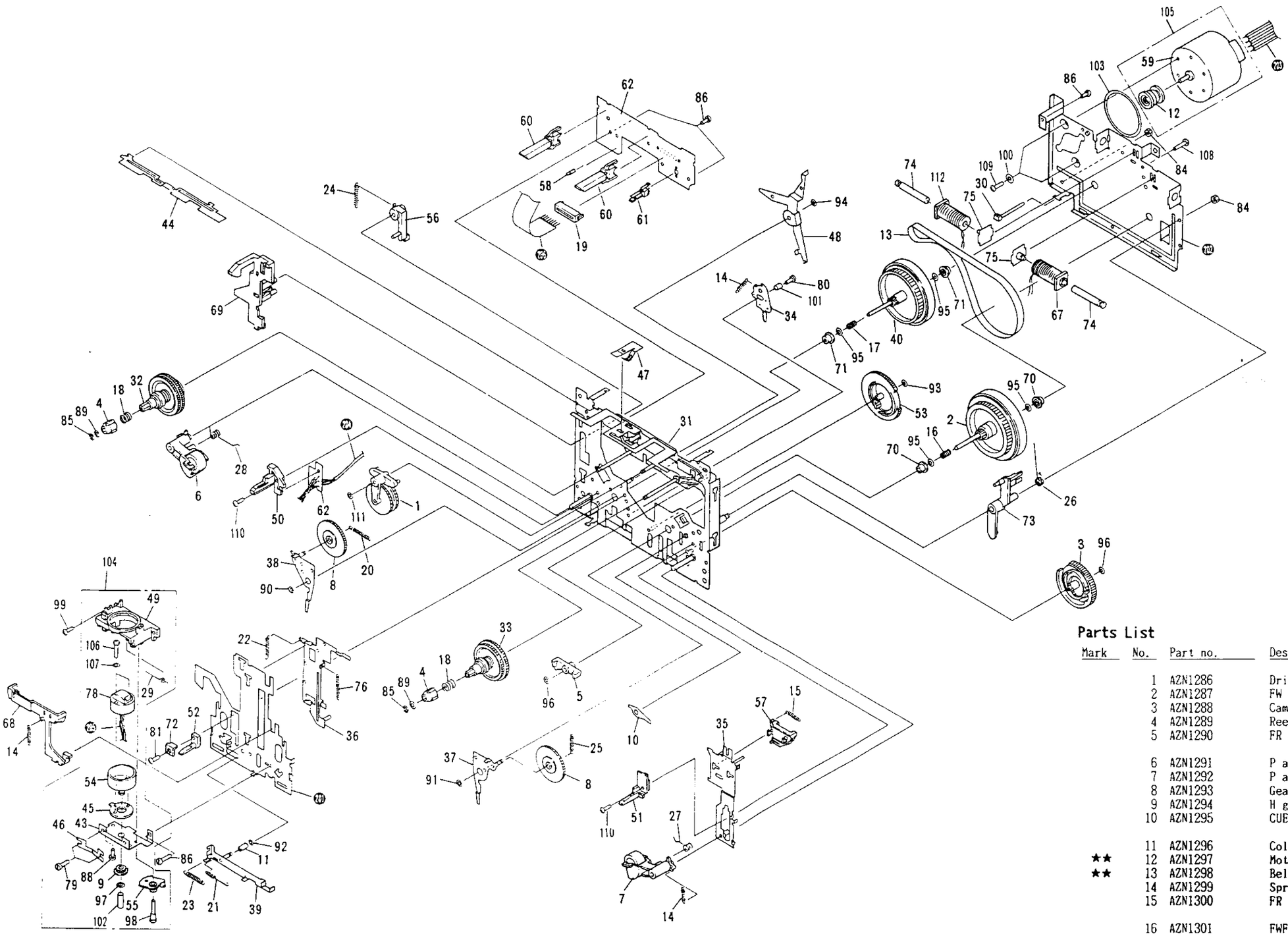
PIONEER ELECTRONIC CORPORATION 4-1 Mego
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A. TEL [213] 835-6177
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 6B8 Canada TEL [416] 479-4411
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium TEL: 03/775-28-08
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

3. EXPLODED VIEWS AND PARTS LIST

3.1 EXTERIOR



3.2 MECHANISM UNIT 1



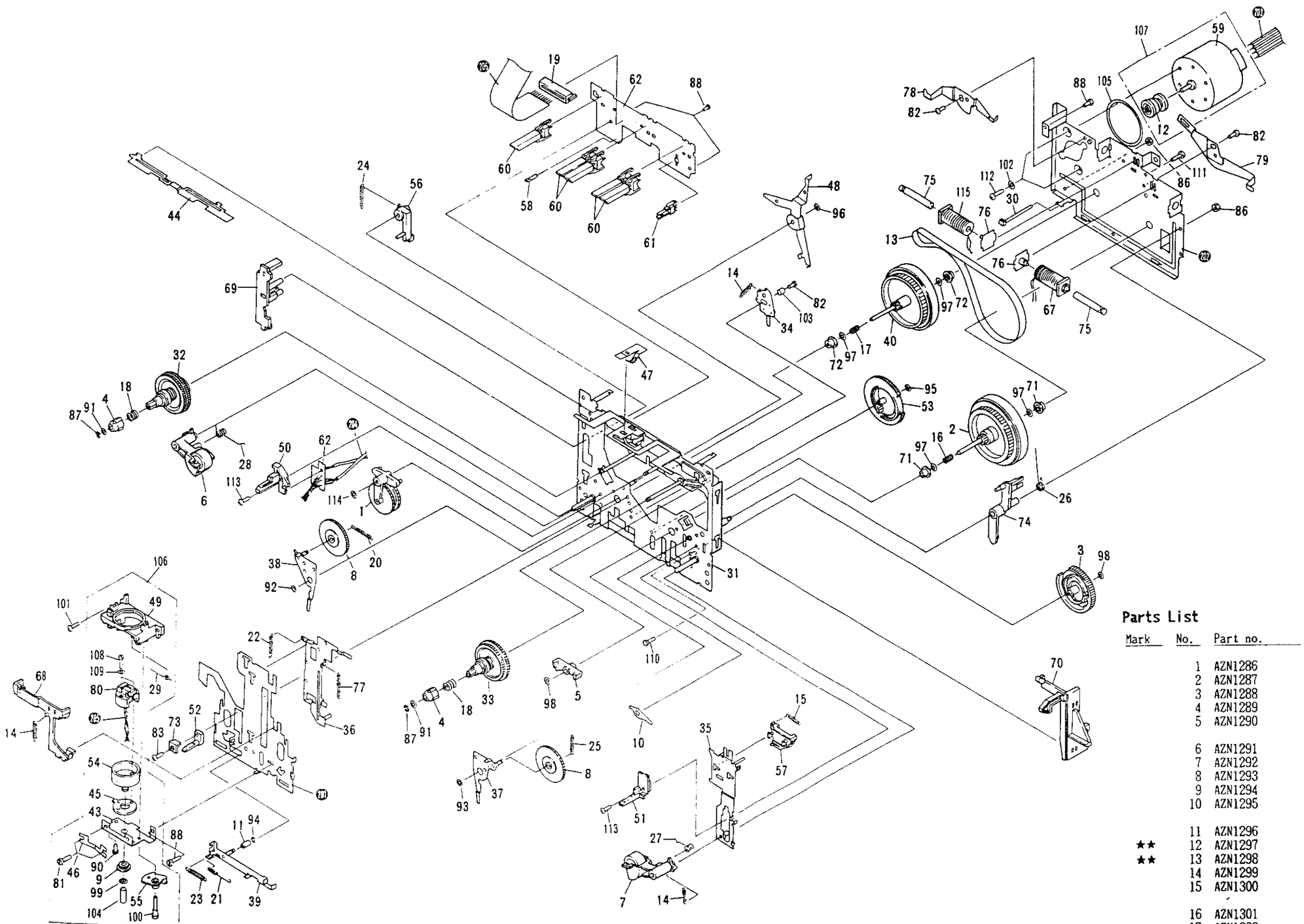
Parts List

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
A	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
B	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
C	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)
D	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



Parts List

Mark	No.	Part no.	Description
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	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 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
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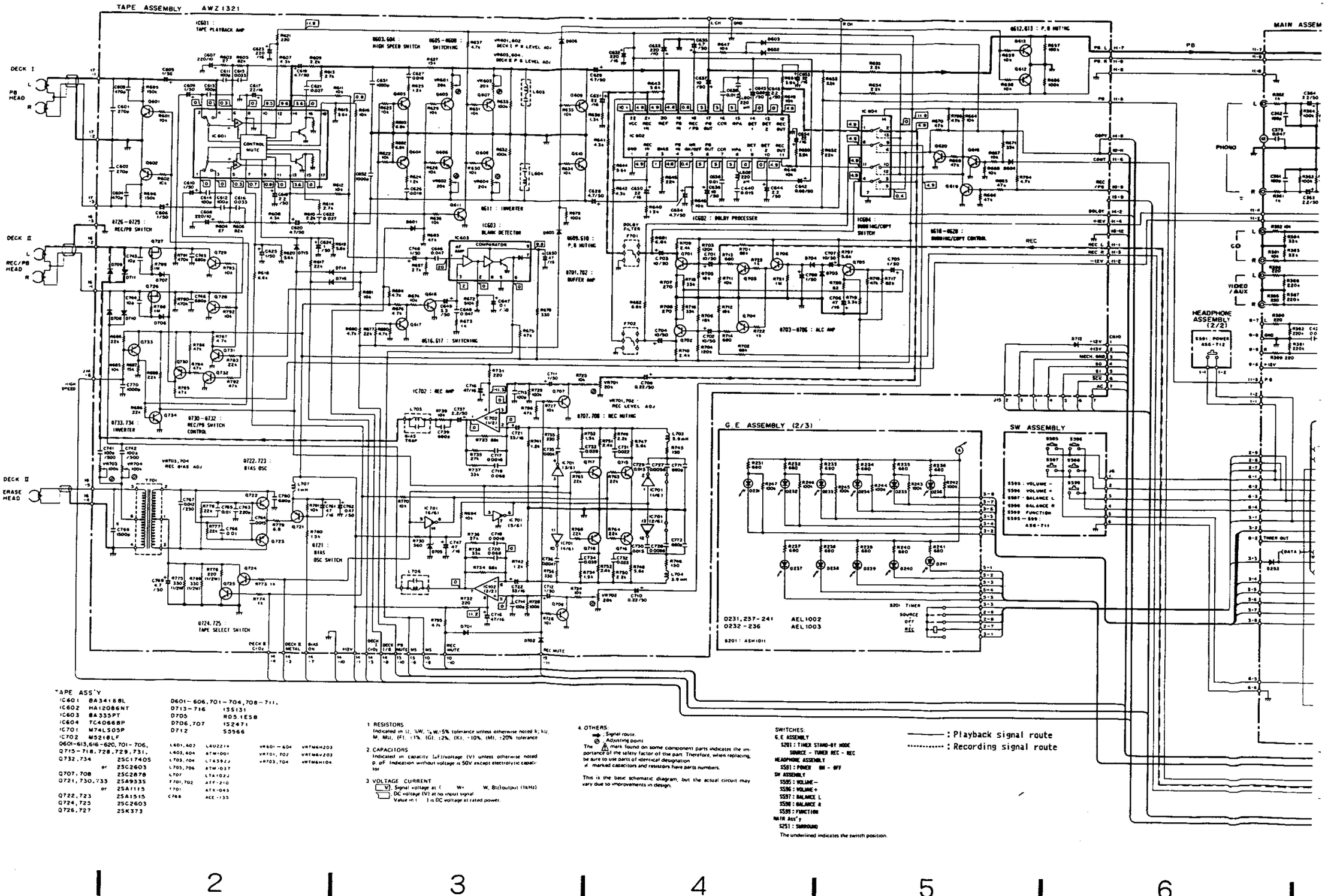
	36	AZN1323	PLAY lever assembly
	37	AZN1324	Gear arm R assembly
	38	AZN1325	Gear arm L assembly
	39	AZN1326	Head lever assembly
	40	AZN1327	FW assembly
	41		· · · · ·
	42		· · · · ·
	43	AZN1328	Azimuth plate
	44	AZN1329	Switch arm
	45	AZN1330	Head arm
	46	AZN1331	Azimuth spring
	47	AZN1332	Cassette holder
	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)

Mark	No.	Part no.	Description
	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	S3566		
IC702	M5218LF				
Q601~613,616~620,701~706,		L601,602	L40Z224	VR601~604	VRTM6H203
Q715~718,728,729,731,		L603,604	ATW1001	VR701,702	VRTM6V203
Q732,734	2SC1740S	L705,704	LTA592J	VR703,704	VRTM6H104
	or 2SC2603	L705,706	ATW-037		
Q707,708	2SC2878	L707	LTA102J		
Q721,730,733	2SA933S	F701,702	ATF-210		
	or 2SA1115	T701	ATK-043		
Q722,723	2SA1515	C768	ACE-135		
Q724,725	2SC2603				
Q726,727	2SK373				

1 RESISTORS
Indicated in Ω, ¼W, ⅛W ±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

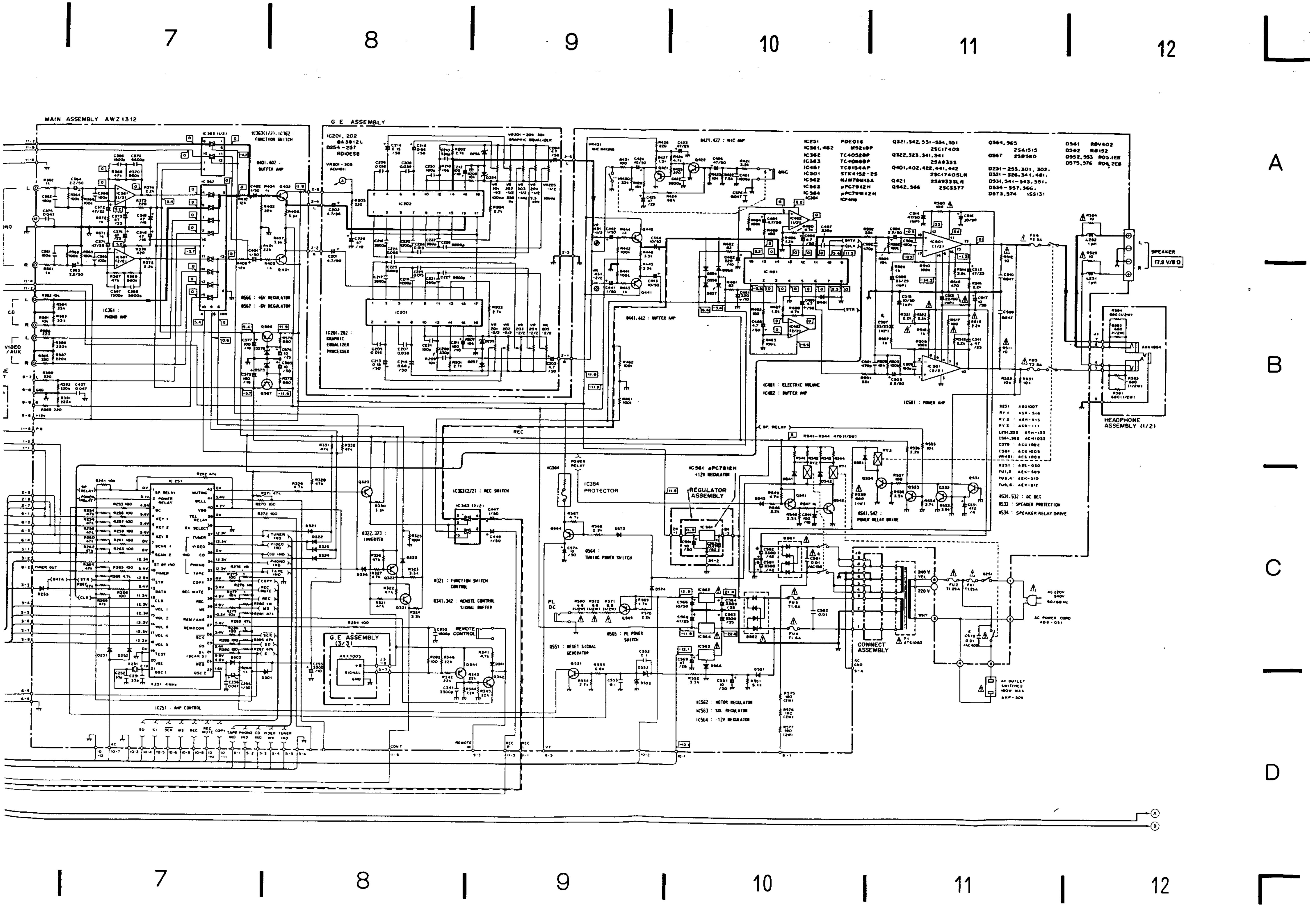
3 VOLTAGE CURRENT
(V) Signal voltage at (W÷ W, 8Ω)output (1kHz)
DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

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
of 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


7
8
9
10
11
12
A
B
C
D
MAIN ASSEMBLY AWZ1312
G.E ASSEMBLY
IC201, 202 BA3812L
D254 - 257 RD10ES8
VR201 - 205 ACU1011
VR201 - 205 GRAPHIC EQUALIZER
IC201, 202 : GRAPHIC EQUALIZER PROCESSER
IC363(1/2), IC362 : FUNCTION SWITCH
Q401, 402 : BUFFER AMP
Q566 : +6V REGULATOR
Q567 : -6V REGULATOR
IC361 : PHONO AMP
Q421, 422 : MIC AMP
VR431 MIC MIXING
MIC
Q441, 442 : BUFFER AMP
IC481 : ELECTRIC VOLUME
IC482 : BUFFER AMP
IC501 : POWER AMP
IC251 PDE016
IC361, 482 M5218P
IC362 TC4052BP
IC363 TC4066BP
IC481 TC9154AP
IC501 STK4152-2S
IC562 NJM78M13A
IC563 μPC7912H
IC564 μPC79M12H
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
D231 - 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
SPEAKER 17.9 V/8 Ω
L
R
HEADPHONE ASSEMBLY (1/2)
AKN1004
S251 ASG1007
RY1 ASR-516
RY2 ASR-515
RY3 ASR-111
L251, 252 ATH-133
C561, 562 ACH1033
C579 ACG1002
C581 ACG1005
VR451 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
SP. RELAY
R541 - R544 470 (1/2W)
IC561 μPC7812H +12V REGULATOR
REGULATOR ASSEMBLY
IC364 PROTECTOR
POWER RELAY
Q564 : TUNING POWER SWITCH
PL DC
Q565 : PL POWER SWITCH
Q551 : RESET SIGNAL GENERATOR
IC562 : MOTOR REGULATOR
IC563 : SOL REGULATOR
IC564 : -12V REGULATOR
CONNECT ASSEMBLY
T1 ATS1060
240 V
220 V
AC 220V 240V 50/60 Hz
AC POWER CORD ADG-051
AC OUTLET SWITCHED 100W MAX AKP-509
IC363(2/2) : REC SWITCH
Q322, 323 : INVERTER
Q321 : FUNCTION SWITCH CONTROL
Q341, 342 : REMOTE CONTROL SIGNAL BUFFER
REMOTE CONTROL
G.E ASSEMBLY (3/3)
AXX1005
SIGNAL
GND
IC251 : AMP CONTROL
IC251
SP. RELAY
POWER RELAY
MUTING
BELL
TEL RELAY
EX SELECT
TUNER
VIDEO
CD
PHONO
TAPE
COPY
REC MUTE
REC
REM/ANS
REMOCON
TIMER OUT
DATA
STR
CLK
TUNER IND
VIDEO IND
CD IND
PHONO IND
TAPE IND
COPY
REC MUTE
REC
MS
SCK
SO
SI
R251 4MHz
REC
CONT
REMOTE IN
VT
SO
SI
SCK
MS
REC
REC MUTE
COPY
TAPE IND
PHONO IND
CD IND
VIDEO IND
TUNER IND
AC
CD
VIDEO / AUX
A
B

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

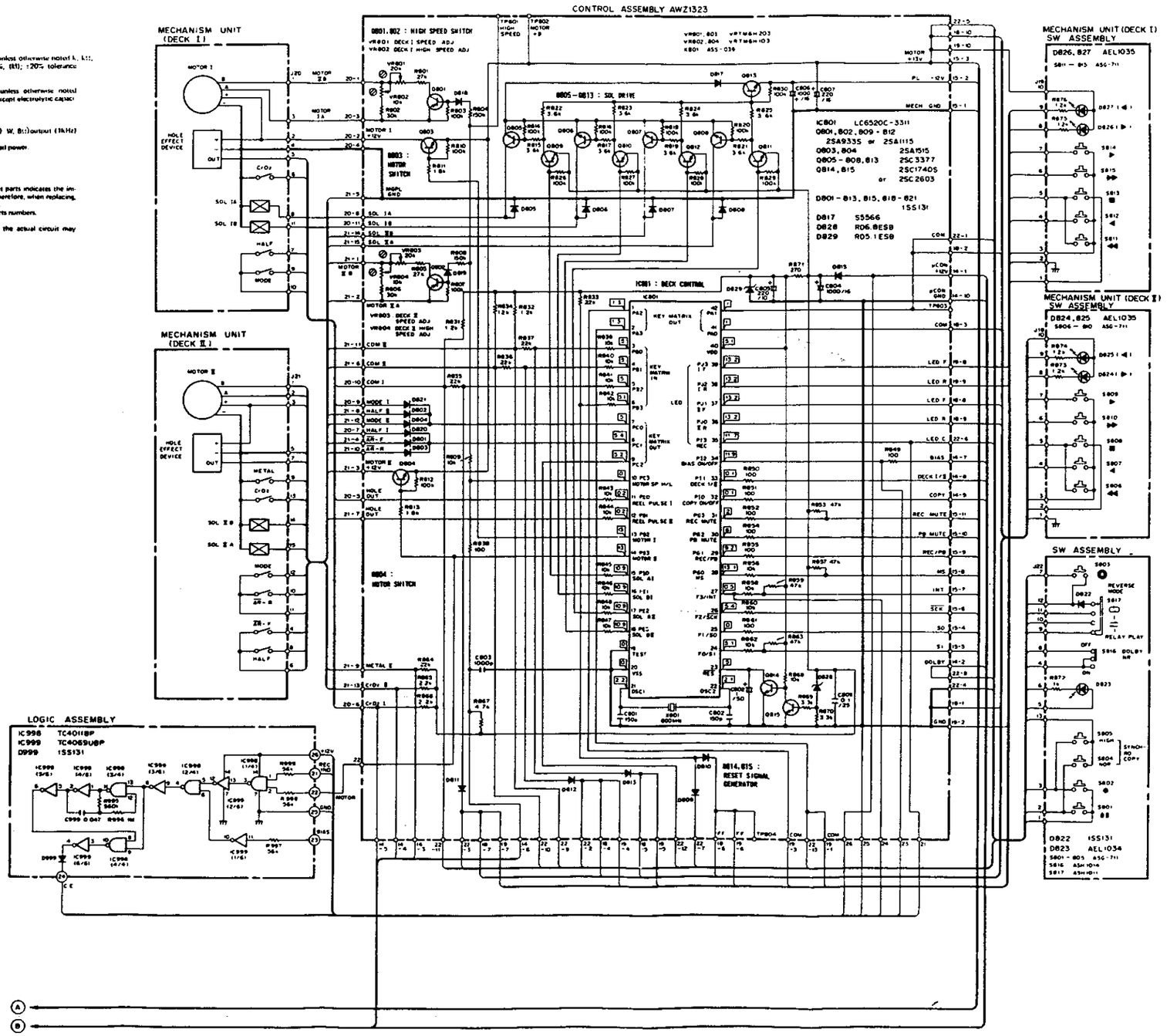
2. CAPACITORS:
Indicated in capacity (μF):voltage (V) unless otherwise noted (p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT
(V): Signal voltage at 1 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



5. P. C. BOARDS CONNECTION DIAGRAM

NOTE

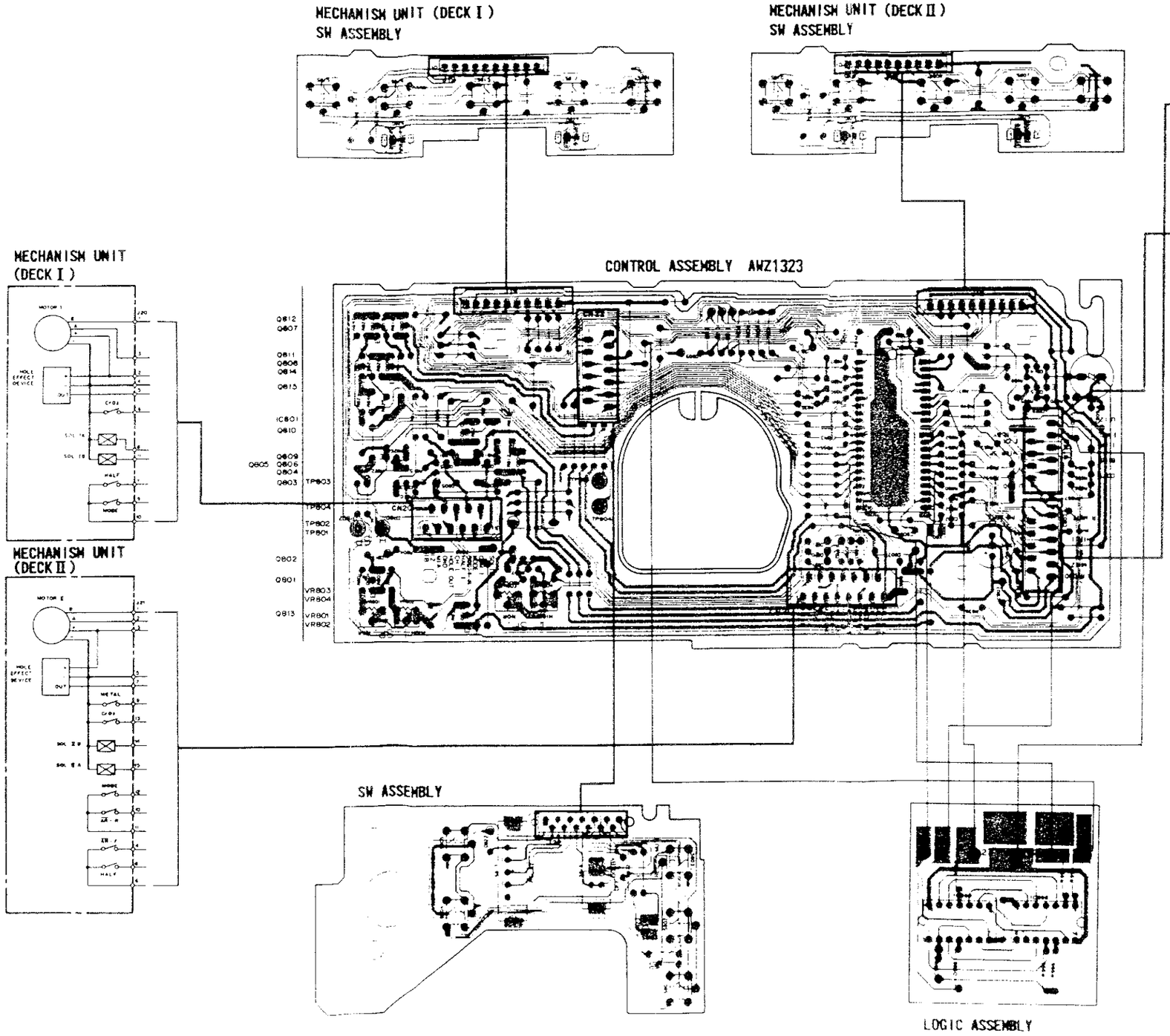
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

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

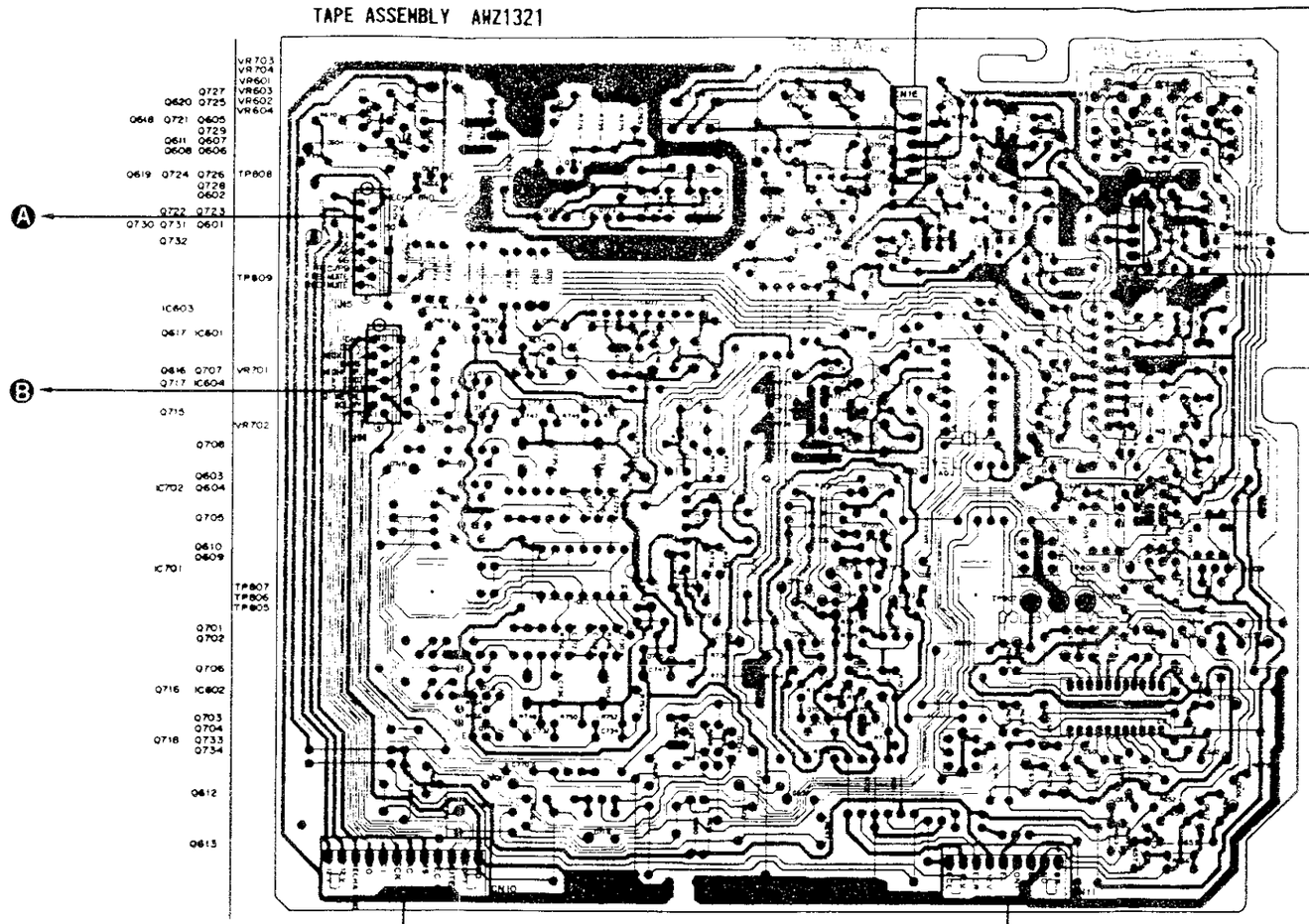
Others

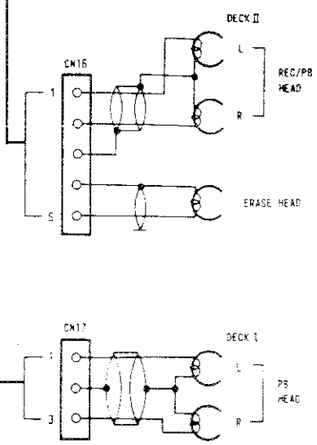
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

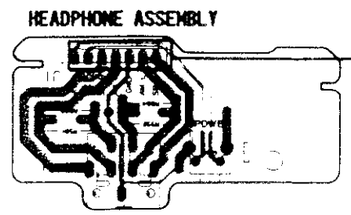
3. The capacitor terminal marked with ⊖ (double circles) shows negative terminal.
4. The diode terminal marked with ⊖ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

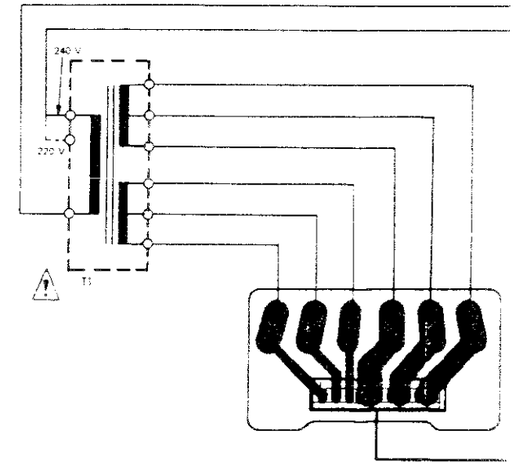


TAPE ASSEMBLY AHZ1321

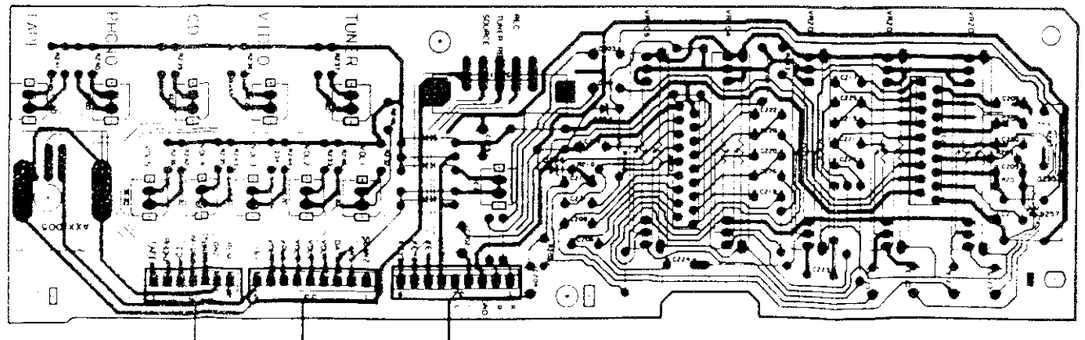








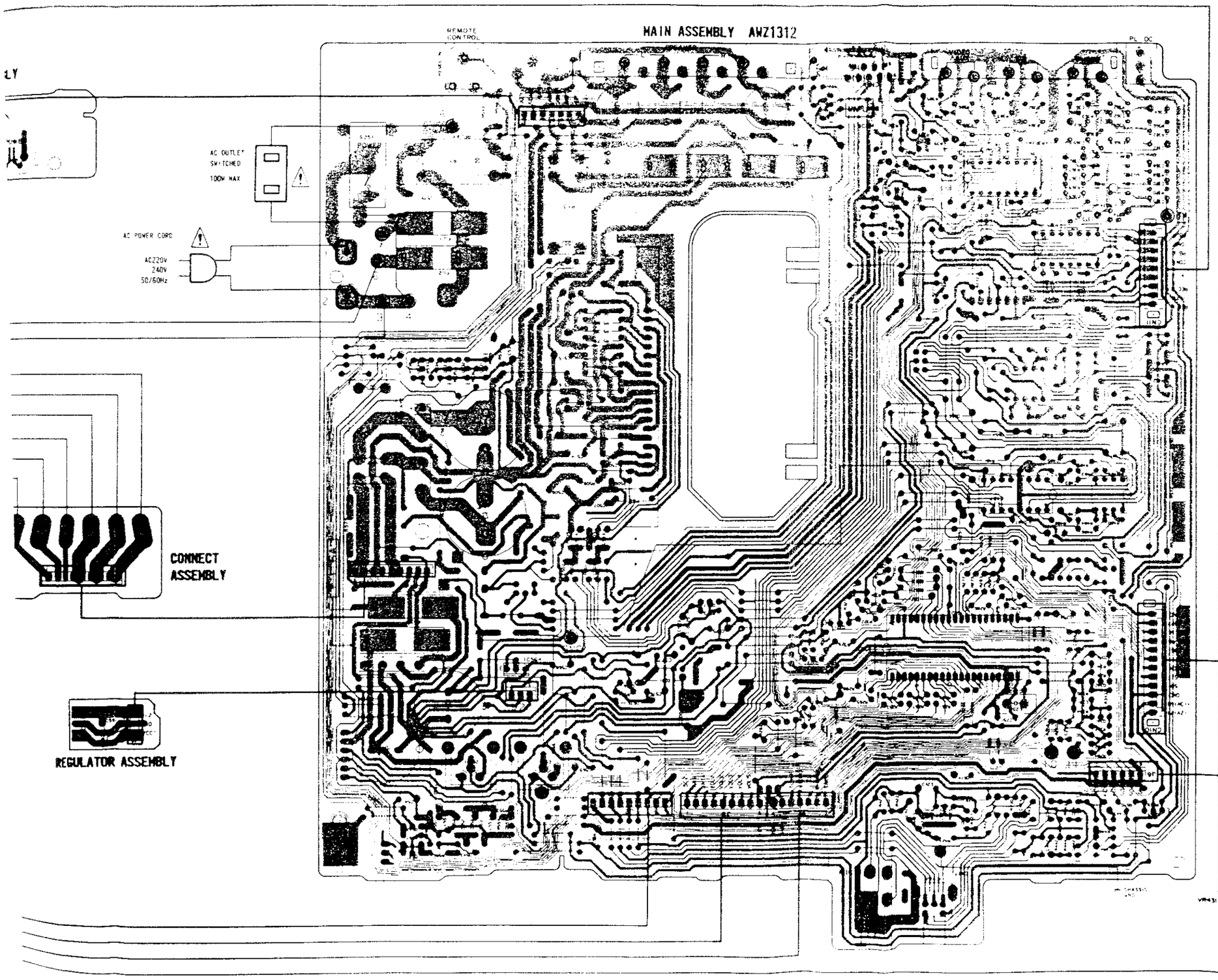
G.E ASSEMBLY

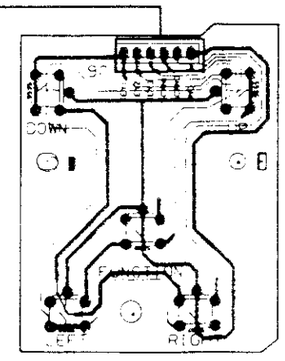


7 8 9 10 11 12

A B C D

MAIN ASSEMBLY AWZ1312





SW ASSEMBLY

DC-X88Z

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 ② ⑥ ⑪ J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS ④ ⑦ ⑬ J*
0.5Ω	*0R5*		*RN2H ⑨ ⑨ ⑤ K*
1Ω	*010*		*RS1P ⑩ ⑪ ⑩ 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 ⑫ ⑪ 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

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 valu into code form, and then rewrite the part no. as befo

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.

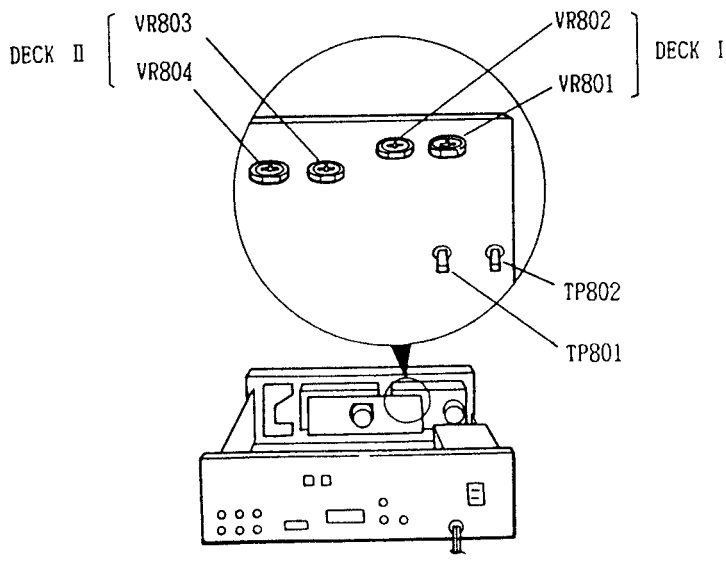


Fig. 7-1 Adjustment Point

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

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

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

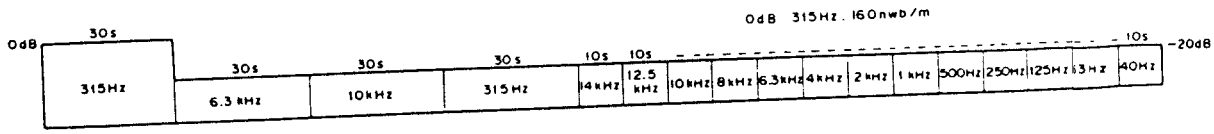


Fig. 7-2 Test tape STD-331B

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

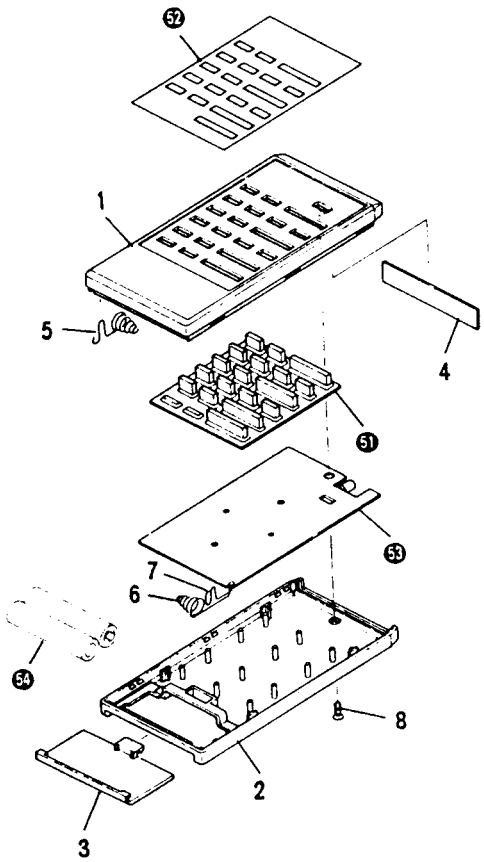
• Set the graphic equalizer and balance volume to the center and the mike mixing volume to the source side.

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.)

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.*

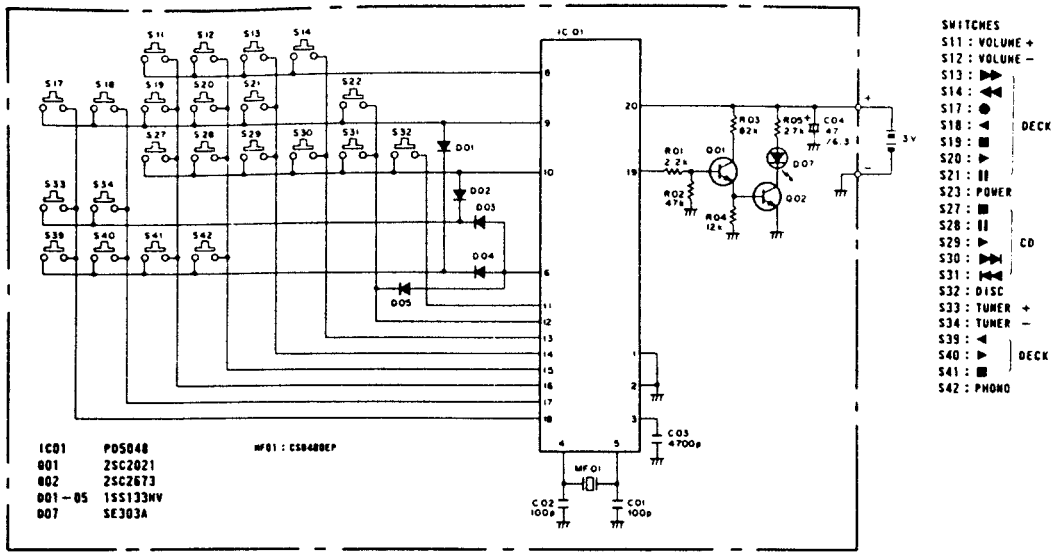


Parts List

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



IC01	PD5048
Q01	2SC2021
Q02	2SC2673
D01 – 05	1SS133HV
D07	SE303A

MF01 : CSB400EP

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.

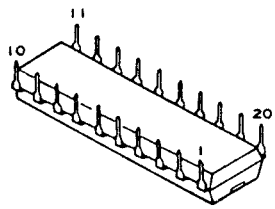
3. VOLTAGE, CURRENT
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

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.

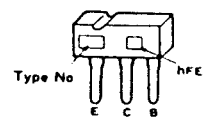
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

External Appearance of Transistors and IC

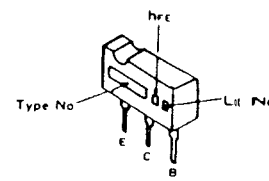
PD5048



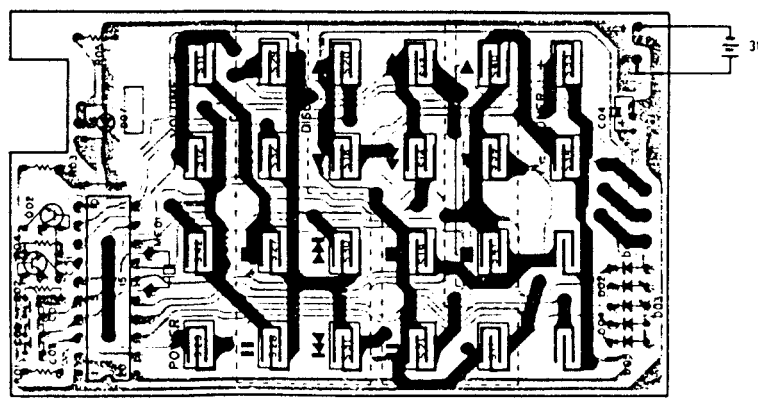
2SC2021



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