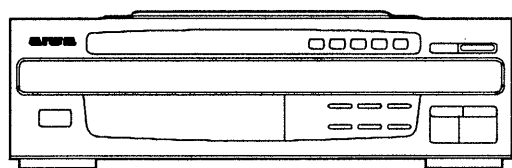


# aiwa



## DX-Z9300M



COMPACT DISC PLAYER

• BASIC CD MECHANISM: 4ZG-5

• TYPE:Y,YJ,YL

### SPECIFICATIONS

<b>Disc</b>	Compact disc
<b>Scanning method</b>	Non-contact optical scanner (semiconductor laser application)
<b>Laser</b>	Semiconductor laser ( $\lambda = 750 - 800 \text{ nm}$ )
<b>Rotation speed</b>	Approx. 500 rpm – 200 rpm (CLV)
<b>Error correction</b>	Cross Interleave, Reed Solomon code
<b>No. of channels</b>	2 channels
<b>D-A converter</b>	1-bit dual
<b>Wow/Flutter</b>	Unmeasurable
<b>Signal to noise ratio</b>	88 dB (1 kHz, 0 dB)
<b>Harmonic distortion</b>	0.03 % (1 kHz, 0 dB)
<b>Low pass filter</b>	4 times digital filter + active filter
<b>Dimensions (W × H × D)</b>	360 × 113.7 × 405 mm (14 <sup>1</sup> / <sub>4</sub> × 4 <sup>1</sup> / <sub>2</sub> × 16 in.)
<b>Weight</b>	4.5 kg (9 lbs 15 oz)

● Design and specifications are subject to change without notice.

MANUAL  
SERVICE

# CAUTION WHEN SERVICING

DX - Z9300 do not have a power transformer and receive their power supplies from the cassette receiver and amplifier through a 11-pin flat cable.

If the cassette receiver is available, follow the procedure below.

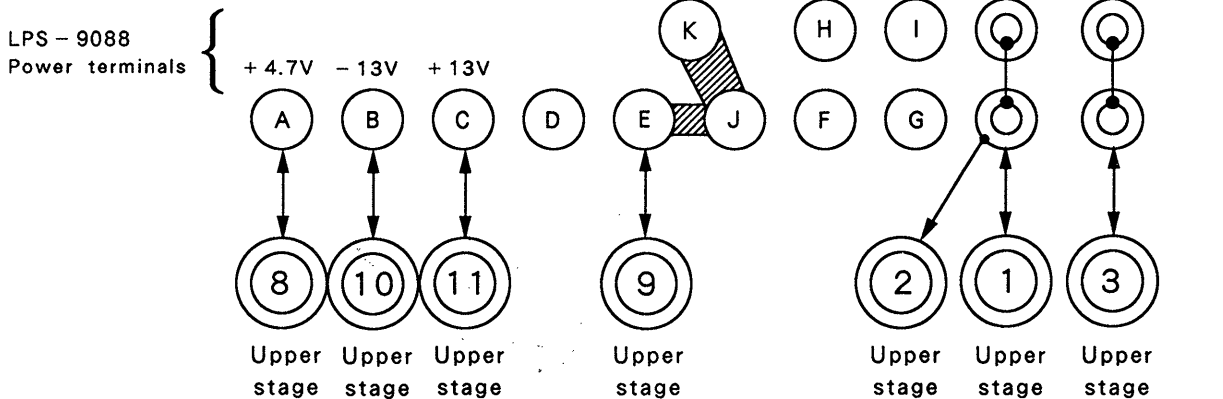
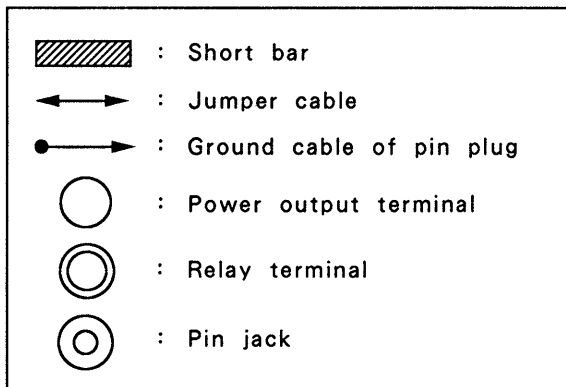
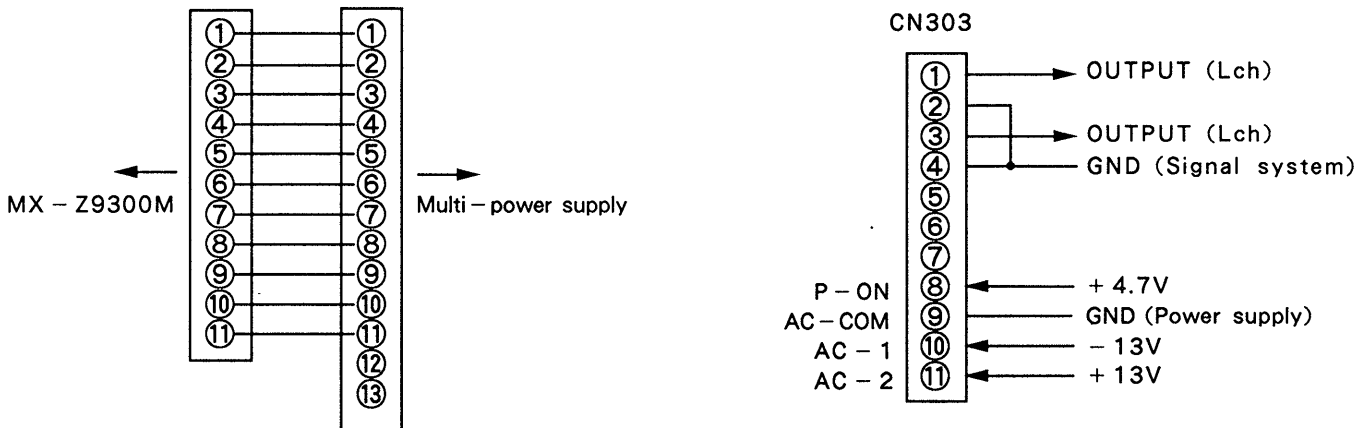
Connect the Multi-power supply (LPS - 9088) in the manner below.

- FL201 does not light as AC power for FL201 is not supplied.

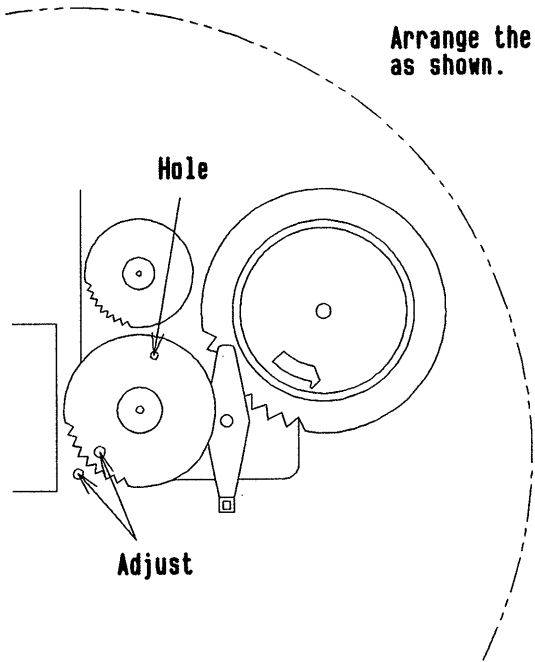
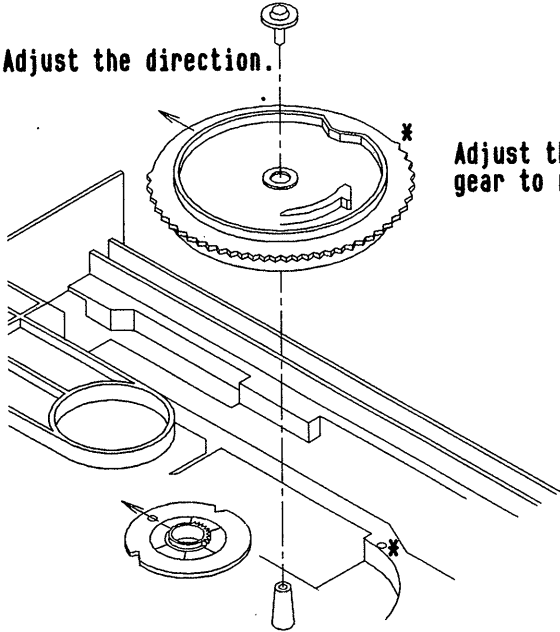
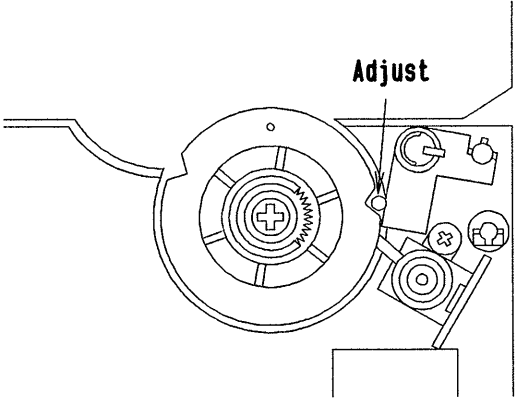
Connection diagram when using multi power supply (LPS - 9088).

- Connect to J1 of the LPS - 9088 using multiconversion harness.

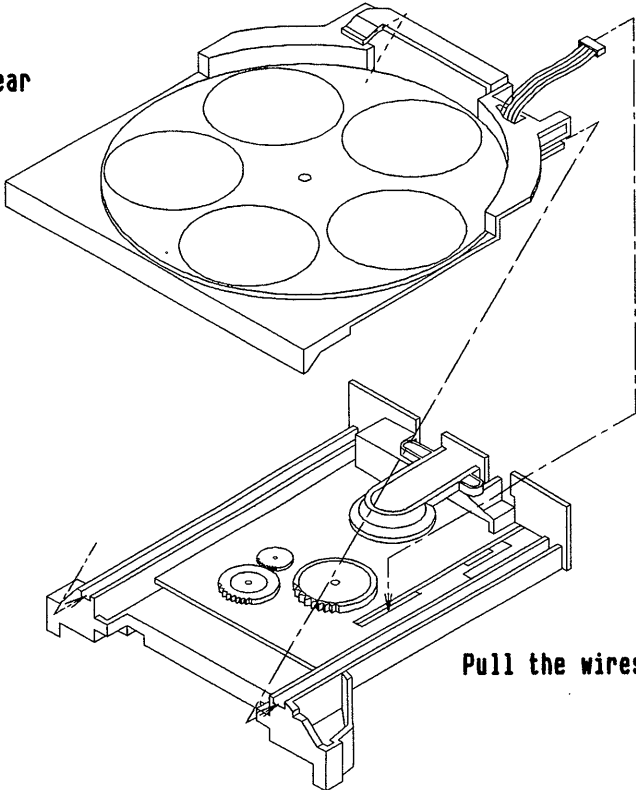
Connection diagram of multi-conversion harness



DISASSEMBLY INSTRUCTIONS



Arrange the gear as shown.

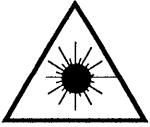


# PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

## WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

## VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainituilla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

## WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstråling, som överskrider gränsen för laserklass 1.

## CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

## ATTENTION

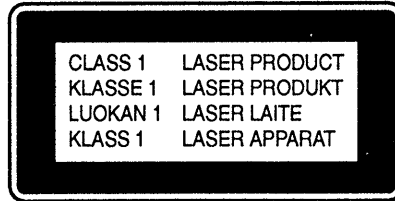
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

## ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

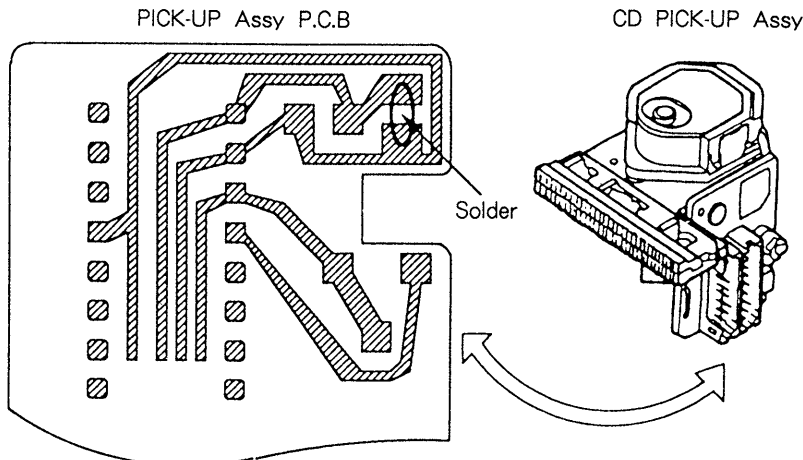
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



## Precaution to replace Optical block (KSS – 210A)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in figure below.



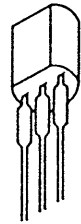
# ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は“REFERENME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カリ NO.	DESCRIPTION	REF. NO	PART NO.	カリ NO.	DESCRIPTION
IC				CN302	87-099-031-019		CONN,14P 6216 H
	84-VM5-602-010		IC,CXP82320-199Q	CN303	87-009-241-019		CONN,11P51016
	87-002-394-019		IC,LB1641	FL201	84-VM5-601-019.		FL,8-BT-167G
	87-017-745-010		IC,CXA1782BQ	L301	87-003-143-089		COIL,4.7UH
	87-070-120-040		IC,BA6897FP	L302	87-003-143-089		COIL,4.7UH
	87-017-585-080		IC,NJM4580E	PN201	84-VM5-606-019		CONN,6P 53114
	87-001-982-010		IC,TA7291S	PN403	87-009-349-019		CONN,6P PH H
				R321	87-025-469-010		RES,NF2.2-1/4W J
				T301	87-007-311-019		COIL,OSC DDCON V
				W202	84-VM5-621-019		CABLE,FFC 8P-1.25
TRANSISTOR				W303	84-VM5-607-019		CORD FG 11P 830
	87-026-218-089		TR,DTC144ES	X201	87-008-394-089		CF CST 4.19 MGW
	87-026-462-089		TR,2SC1740S (RS)	5CD C.B			
	89-328-785-089		TR,2SC2878-A (E2-M)	C1	87-010-188-080		C-CAP,S 6800P-50 B
	87-026-463-089		TR,2SA933S (RS)	C2	87-010-196-080		C-CAP,S 0.1-25 F
	89-213-702-019		TR,2SB1370E	C3	87-010-196-080		C-CAP,S 0.1-25 F
	89-320-011-089		TR,2SC2001K	C4	87-010-196-080		C-CAP,S 0.1-25. F
	89-347-191-089		TR,2SC4719Q	C5	87-010-404-080		CAP,E 4.7-50 SME
	89-118-182-089		TR,2SA1818Q	C6	87-010-193-080		C-CAP,S 0.033-2 SF
	89-110-154-080		TR,2SA1015Y	C7	87-010-197-080		C-CAP,S 0.01-25 B
	89-113-187-080		TR,2SA1318TU	C8	87-010-403-080		CAP,E 3.3-50 SME
	87-026-233-080		C-TR,DTA114TK	C9	87-010-382-080		CAP,E 22-25 SME
	87-026-211-080		C-TR,DTA114EK T147	C10	87-010-260-080		CAP,E 47-25 SME
	89-112-965-080		TR,2SA1296GR	C11	87-010-197-080		C-CAP,S 0.01-25 B
	89-318-154-080		TR,2SC1815Y	C12	87-010-193-080		C-CAP,S 0.033-25 F
DIODE				C13	87-010-197-080		C-CAP,S 0.01-25 B
	87-020-465-089		DIODE,ISS133	C14	87-010-186-080		C-CAP,S 4700P-50 B
	87-017-093-089		ZENER,HZS5C3	C15	87-010-182-080		C-CAP,S 2200P-50 B
	87-002-726-099		DIODE,DSF 10TC FMG	C21	87-010-198-080		C-CAP,S 0.022-25 B
	87-001-559-089		DIODE,ISS 131 (T-72)	C22	87-010-196-080		C-CAP,S 0.1-25 F
	87-017-083-089		ZENER,HZS 4C2	C23	87-010-263-080		CAP,E 100-10 SME
	87-001-574-089		DIODE,1SR139-200 T31	C24	87-010-178-080		C-CAP,S 1000P-50 B
	87-002-564-080		DIODE,1SS133 RA	C25	87-010-197-080		C-CAP,S 0.01-25 B
	87-020-027-080		C-DIODE,1SS184	C26	87-010-260-080		CAP,E 47-25 SME
MAIN C.B				C27	87-010-196-080		C-CAP,S 0.1-25 F
	C201 87-018-209-089		CAP,TC-U 0.1-50 F	C28	87-010-263-080		CAP,E 100-10 SME
	C202 87-018-209-089		CAP,TC-U 0.1-50 F	C29	87-010-197-080		C-CAP,S 0.01-25 B
	C203 87-010-401-089		CAP,E 1-50 SME	C30	87-010-196-080		C-CAP,S 0.1-25 F
	C204 87-010-405-089		CAP,E 10-50 SME	C31	87-010-193-080		C-CAP,S 0.033-25 F
	C205 87-018-131-089		CAP,TC-U 1000P-50 B	C33	87-010-196-080		C-CAP,S 0.1-25 F
	C206 87-018-131-089		CAP,TC-U 1000P-50 B	C34	87-010-197-080		C-CAP,S 0.01-25 B
	C207 87-018-134-089		CAP,TC-U 0.01-16 Y	C35	87-010-221-080		CAP,E 470-10 SME
	C208 87-018-209-089		CAP,TC-U 0.1-50 F	C36	87-010-196-080		C-CAP,S 0.1-25 F
	C210 87-018-131-089		CAP,TC-U 1000P-50 B	C37	87-010-260-080		CAP,E 47-25 SME
	C211 87-018-131-089		CAP,TC-U 1000P-50 B	C38	87-010-197-080		C-CAP,S 0.01-25 B
	C212 87-018-209-089		CAP,TC-U 0.1-50 F	C39	87-010-260-080		CAP,E 47-25 SME
	C301 87-018-131-089		CAP,TC-U 1000P-50 B	C40	87-010-197-080		C-CAP,S 0.01-25 B
	C302 87-018-131-089		CAP,TC-U 1000P-50 B	C40	87-010-197-080		C-CAP,S 0.01-25 B
	C303 87-016-113-019		CAP,E 4700-16 VR	C41	87-010-146-080		CAP,S 2P-50 CH
	C304 87-018-131-089		CAP,TC-U 1000P-50 B	C42	87-010-154-080		C-CAP,S 10P-50 CH
	C305 87-010-236-089		CAP,E 1000-10	C45	87-018-209-080		CAP,TC-U 0.1-50 F
	C306 87-018-131-089		CAP,TC-U 1000P-50 B	C101	87-010-194-080		C-CAP,S 0.047-25 F
	C307 87-010-248-089		CAP,E 220-10 SME	C102	87-010-180-080		C-CAP,S 1500P-50 B
	C308 87-010-248-089		CAP,E 220-10 SME	C103	87-010-263-080		CAP,E 100-10 SME
	C313 87-018-127-089		CAP,TC-U 470P-50 B	C104	87-010-197-080		C-CAP,S 0.01-25 B
	C314 87-010-405-089		CAP,E 10-50 SME	C105	87-015-819-080		C-CAP,S 0.01-50 BK
	C315 87-010-408-089		CAP,E 47-50 SME	C106	87-012-156-080		C-CAP,S 220P-50 CH
	C316 87-018-209-089		CAP,TC-U 0.1-50 F	C107	87-010-197-080		C-CAP,S 0.01-25 B
	C317 87-018-209-089		CAP,TC-U 0.1-50 F	C112	87-010-154-080		C-CAP,S 10P-50 CH
	C319 87-018-209-089		CAP,TC-U 0.1-50 F	C113	87-010-154-080		C-CAP,S 10P-50 CH
	C320 87-010-381-089		CAP,E 330-16 SME	C115	87-010-404-080		CAP,E 4.7-50 SME
	C321 87-018-209-089		CAP,TC-U 0.1-50 F	C118	87-010-154-080		C-CAP,S 10P-50 CH
	C322 87-018-209-089		CAP,TC-U 0.1-50 F	C120	87-010-263-080		CAP,E 100-10 SME
	CN202 87-099-201-019		CONN,8P 6216 H	C121	87-010-197-080		C-CAP,S 0.01-25 B
	CN301 87-099-199-019		CONN,6P 6216 H	C122	87-010-196-080		C-CAP,S 0.1-25 F
				C201	87-012-153-080		C-CAP,S 120P-50 CH
				C202	87-010-153-080		C-CAP,S 120P-50 CH
				C203	87-010-153-080		C-CAP,S 120P-50 CH

REF. NO	PART NO.	カ リ NO.	DESCRIPTION	REF. NO	PART NO.	カ リ NO.	DESCRIPTION
C204	87-010-153-080		C-CAP, S 120P-50 CH	SW511	87-036-215-089		SW, TACT EVQ21404M
C205	87-010-153-080		C-CAP, S 120P-50 CH	SW512	87-036-215-089		SW, TACT EVQ21404M
C206	87-010-153-080		C-CAP, S 120P-50 CH	SW513	87-036-215-089		SW, TACT EVQ21404M
C207	87-010-153-080		C-CAP, S 120P-50 CH	SW514	87-036-215-089		SW, TACT EVQ21404M
C208	87-010-153-080		C-CAP, S 120P-50 CH	SW515	87-036-215-089		SW, TACT EVQ21404M
C209	87-010-153-080		C-CAP, S 120P-50 CH				
C210	87-010-153-080		C-CAP, S 120P-50 CH	KEY POWER C.B			
C211	87-010-402-080		C-CAP, E 2.2-50 SME				
C212	87-010-402-080		C-CAP, E 2.2-50 SME	SW517	87-036-215-089		SW, TACT EVQ21404M
C213	87-010-186-080		C-CAP, S 4700P-50 B				
C214	87-010-186-080		C-CAP, S 4700P-50 B	U/D SW C.B			
C231	87-010-263-080		CAP, E 100-10 SME				
C232	87-010-263-080		CAP, E 100-10 SME	SW401	87-036-271-010		SW, LVR 1-2-2(*)
C301	87-010-178-080		C-CAP, S 1000P-50 B				
C302	87-010-404-080		CAP, E 4.7-50 SME	OP SW C.B			
C304	87-010-197-080		C-CAP, S 0.01-25 B				
C305	87-010-263-080		CAP, E 100-10 SME	SW402	87-036-271-010		SW, LVR 1-2-2(*)
C306	87-010-196-080		C-CAP, S 0.1-25 F				
C307	87-010-178-080		C-CAP, S 1000P-50 B	CL SW C.B			
C308	87-010-178-080		C-CAP, S 1000P-50 B				
L1	87-003-295-080		COIL, 10UH	SW403	87-036-109-010		SW, PUSH SPPB 61
M308	87-045-305-010		MOTOR, RF-500TB				
SFR1	87-024-176-080		SFR, 100K DIA6 V	TTS C.B			
SFR2	87-024-173-080		SFR, 22K DIA6 V				
SFR3	87-024-176-080		SFR, 100K DIA6 V	PH401	87-026-573-010		P-SNSR, GP1S53V
W301	84-ZG5-609-010		CABLE, FFC 6P-1.25				
W302	84-VM5-623-010		CABLE, FFC 14P-1.25	TTM C.B			
X101	87-030-347-080		VIB, XTAL 33.8688MHZ				
				C401	87-018-209-010		CAP, TC-U 0.1-50 F
KEY STOP C.B				M401	87-045-305-010		MOTOR, RF-500TB
C501	87-018-134-089		CAP, TC-U 0.01-16 Y				
CN201	84-VM5-605-019		CONN, 6P 52170	DISCS C.B			
CN203	87-009-308-019		CONN, 2P 51048				
D501	87-017-369-080		LED SEL2510C TP-6	PH402	84-ZG5-601-010		P-SNSR, RPR359F
D502	87-017-369-080		LED SEL2510C TP-6				
D503	87-017-369-080		LED SEL2510C TP-6	CH SW C.B			
D504	87-017-369-080		LED SEL2510C TP-6				
SW501	87-036-215-089		SW, TACT EVQ21404M	SW404	87-036-271-010		SW, LVR 1-2-2(*)
SW502	87-036-215-089		SW, TACT EVQ21404M				
SW503	87-036-215-089		SW, TACT EVQ21404M	FN C.B			
SW504	87-036-215-089		SW, TACT EVQ21404M	D902	87-017-806-010		LED, SEL1810DM
SW506	87-036-215-089		SW, TACT EVQ21404M	D903	87-017-350-010		LED, SEL1550CM
SW507	87-036-215-089		SW, TACT EVQ21404M	D904	87-017-350-010		LED, SEL1550CM
SW518	87-036-215-089		SW, TACT EVQ21404M	D905	87-017-806-010		LED, SEL1810DM
SW519	87-036-215-089		SW, TACT EVQ21404M				
SW520	87-036-215-089		SW, TACT EVQ21404M	MOTOR C.B			
SW521	87-036-215-089		SW, TACT EVQ21404M				
W203	85-VM1-601-019		F-CABLE, 2P-2.0 215	M2	9X-262-513-210		SLED MOTOR
				M3	9X-262-513-210		SPINDLE MOTOR
KEY O/C C.B				PIN3	91-564-721-110		CONNECTOR 5P
				SW1	91-572-085-110		LEAF SW
D505	83-NFJ-617-089		LED, SLZ 989C-07-S-T1				
D506	83-NFJ-617-089		LED, SLZ 989C-07-S-T1				
D507	83-NFJ-617-089		LED, SLZ 989C-07-S-T1				
D508	83-NFJ-617-089		LED, SLZ 989C-07-S-T1				
D509	83-NFJ-617-089		LED, SLZ 989C-07-S-T1				
SW509	87-036-215-089		SW, TACT EVQ21404M				
SW510	87-036-215-089		SW, TACT EVQ21404M				

# TRANSISTOR ILLUSTRATION



E C B

2SA1296  
2SC1815  
2SC2878



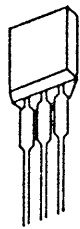
E C B

2SA1015  
2SC2001  
2SA1318



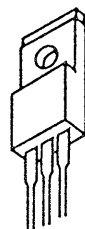
E C B

2SA1818  
2SC4719



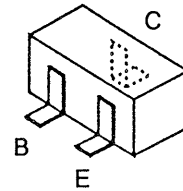
E C B

2SA933  
2SC1740  
DTC144ES



E C B

2SB1370



DTA114TK  
DTA144EK

## ○チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

Chip resistor part coding

⑧⑧ - □□□ - □□□

A  
抵抗コード  
Resistor code

桁表示  
Figure

抵抗値  
Value of resistor

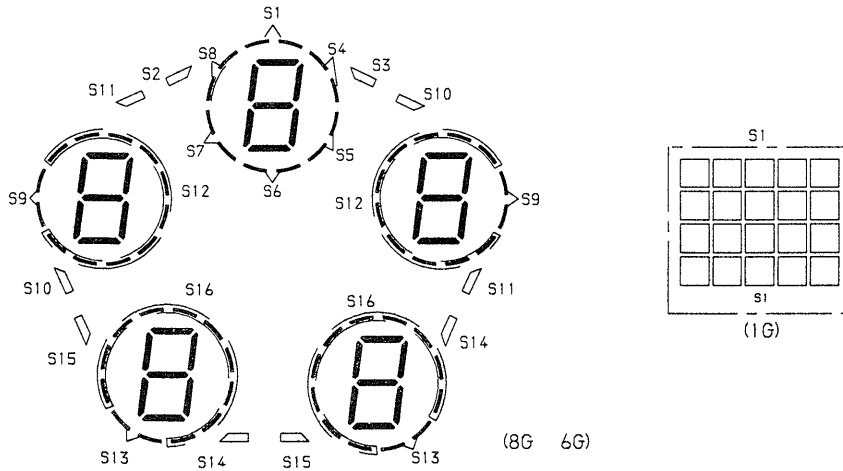
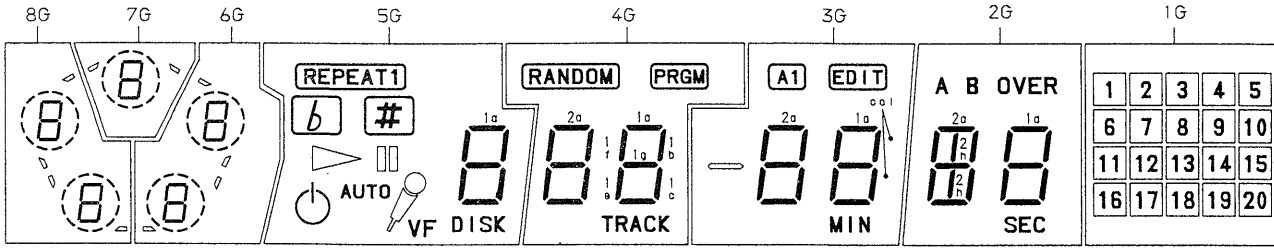
チップ抵抗

Chip resistor

Wattage 容量	Type 種類	Tolerance 許容誤差	Symbol 記号	Dimensions/寸法(mm)			Resistor Code : A 抵抗コード : A	
				Form/外形	L	W		t
1/32W	1608	±5%	CJ		1.6	0.8	0.35	108
1/10W	2125	±5%	CJ		2	1.25	1.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.5 ~0.7	128

# FL (8-BT-167GK)

## GRID ASSIGNMENT

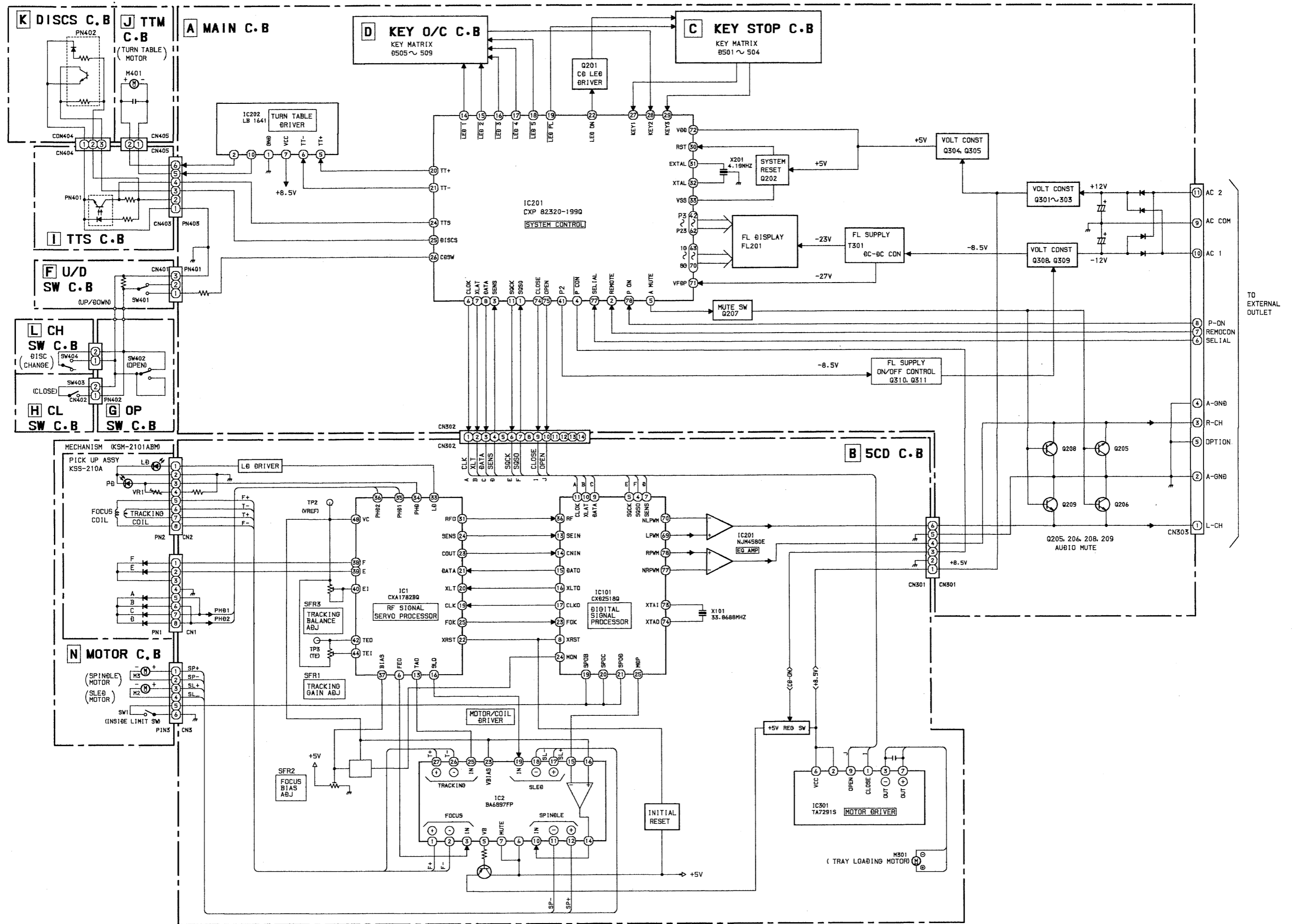


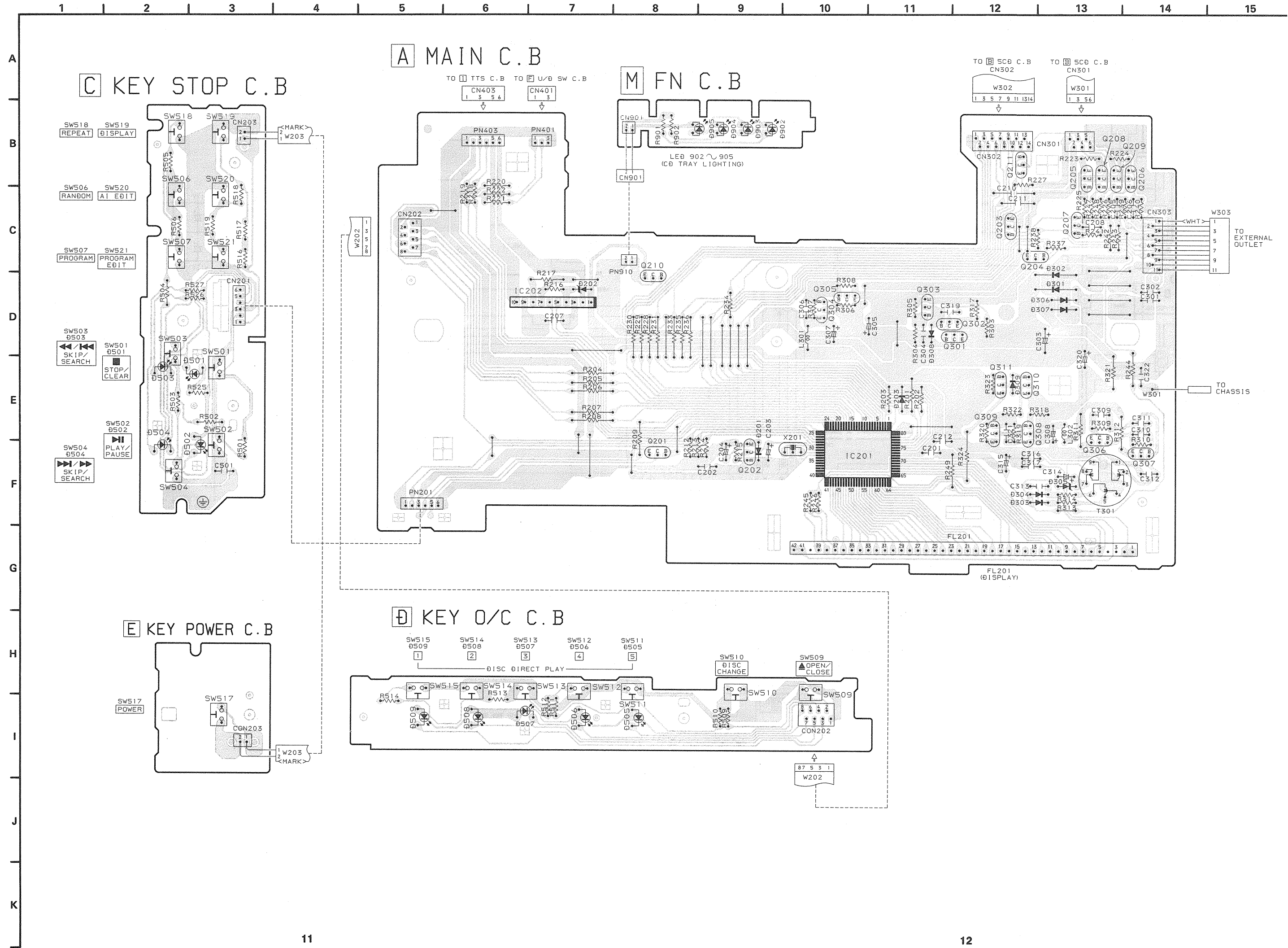
## ANODE CONNECTION

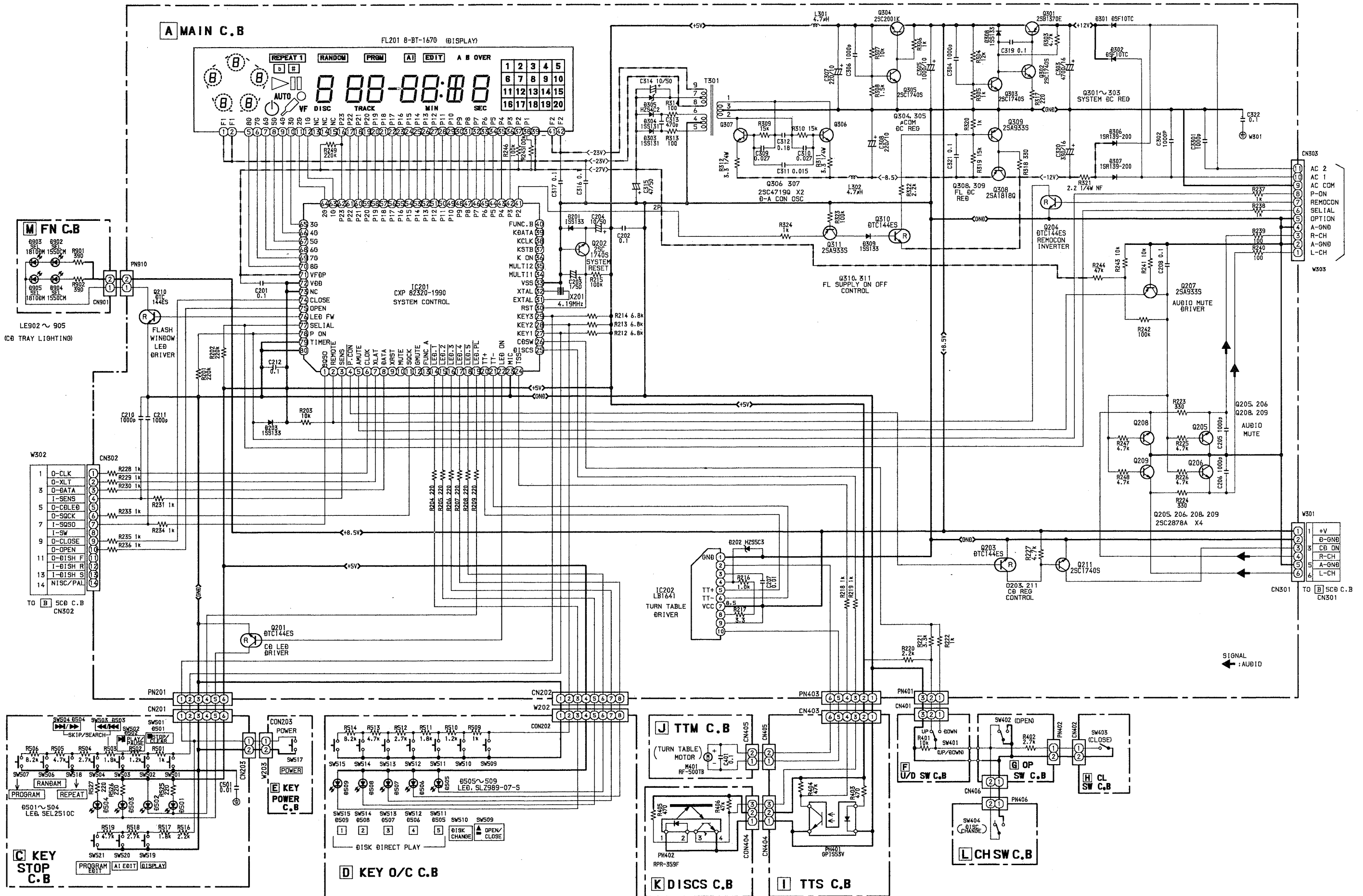
	8G	7G	6G	5G	4G	3G	2G	1G
P1	-	-	-	b, #	-	-	-	-
P2	-	-	-	⏻	-	-	-	-
P3	S2	S10	S10	⏻	2a	2a	2a	1
P4	S1	S9	S9	▶	2b	2b	2b	2
P5	S3	S11	S11	🎤	2c	2c	2c	3
P6	a, d	1a, 1d	1a, 1d	VF	2d	2d	2d	4
P7	b	1b	1b	AUTO	2e	2e	2e	5
P8	c	1c	1c	-	2f	2f	2f	6
P9	e	1e	1e	(b)	2g	2g	2g	7
P10	f	1f	1f	REPEAT	RANDOM	A1	A	8
P11	g	1g	1g	1	PRGM	EDIT	B	9
P12	S4	S12	S12	(REPEAT 1)	(RANDOM)	(A1)	(OVER)	10
P13	S5	S14	S14	1a	1a	1a	1a	11
P14	S6	S13	S13	1b	1b	1b	1b	12
P15	S7	S15	S15	1c	1c	1c	1c	13
P16	S8	1a, 1d	1a, 1d	1d	1d	1d	1d	14
P17	-	1b	1b	1e	1e	1e	1e	15
P18	-	1c	1c	1f	1f	1f	1f	16
P19	-	1e	1e	1g	1g	1g	1g	17
P20	-	1f	1f	-	-	col	-	18
P21	-	1g	1g	DISK	TRACK	MIN	8EC	19
P22	-	S16	S16	-	(PRGM)	(EDIT)	-	20
P23	-	-	-	(#)	-	↔	2h	S1



BLOCK DIAGRAM

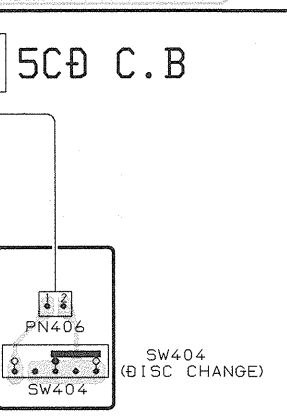
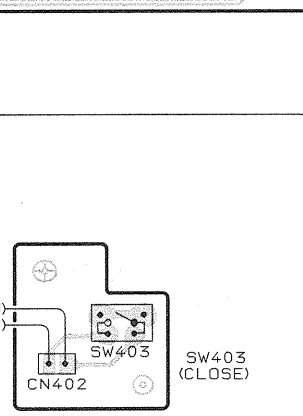
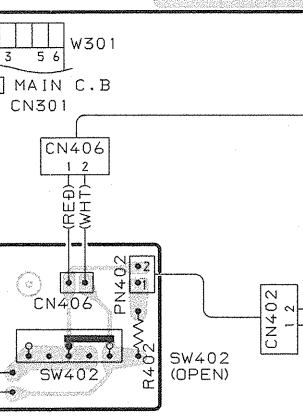
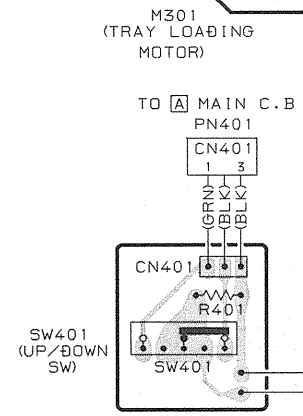
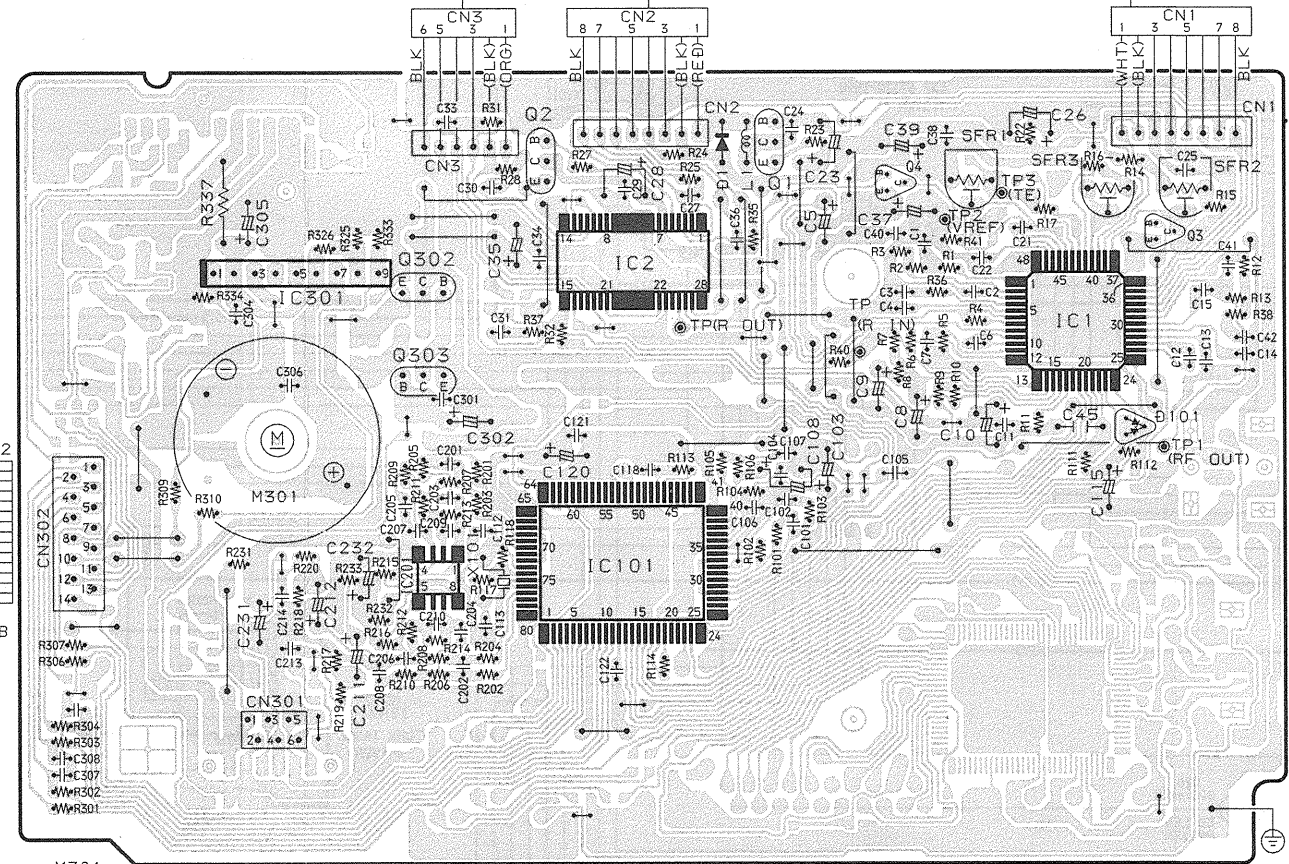
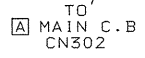
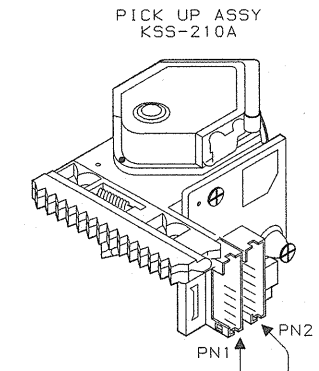
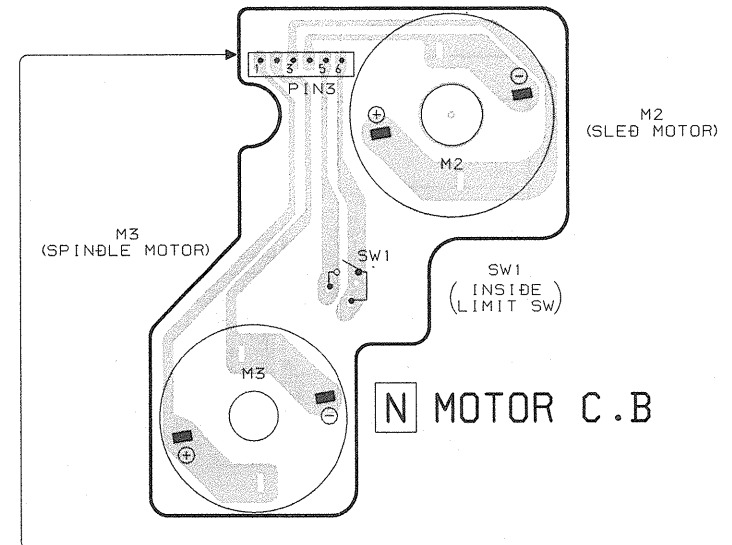
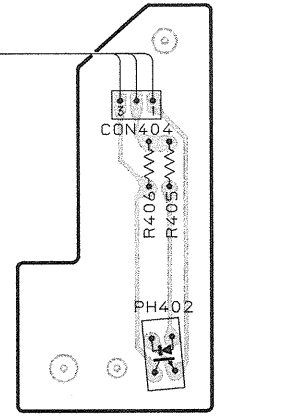
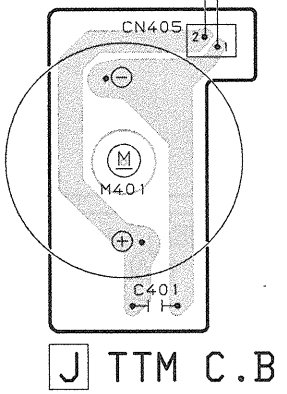
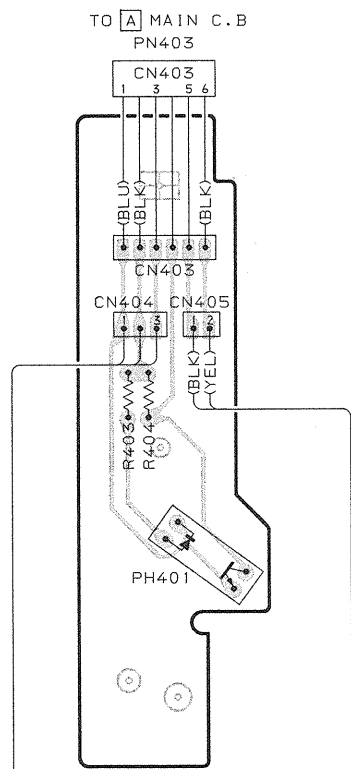


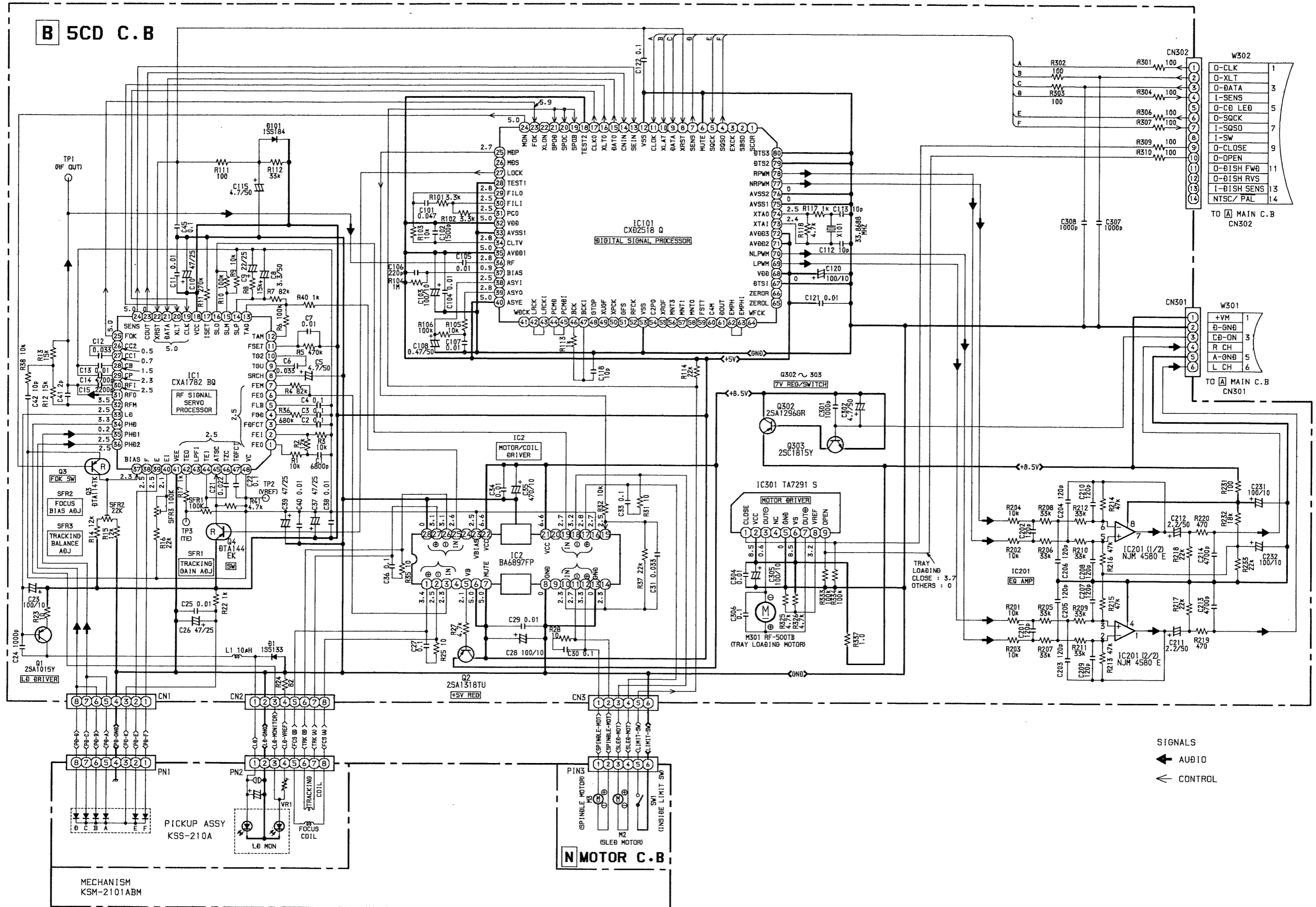




1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

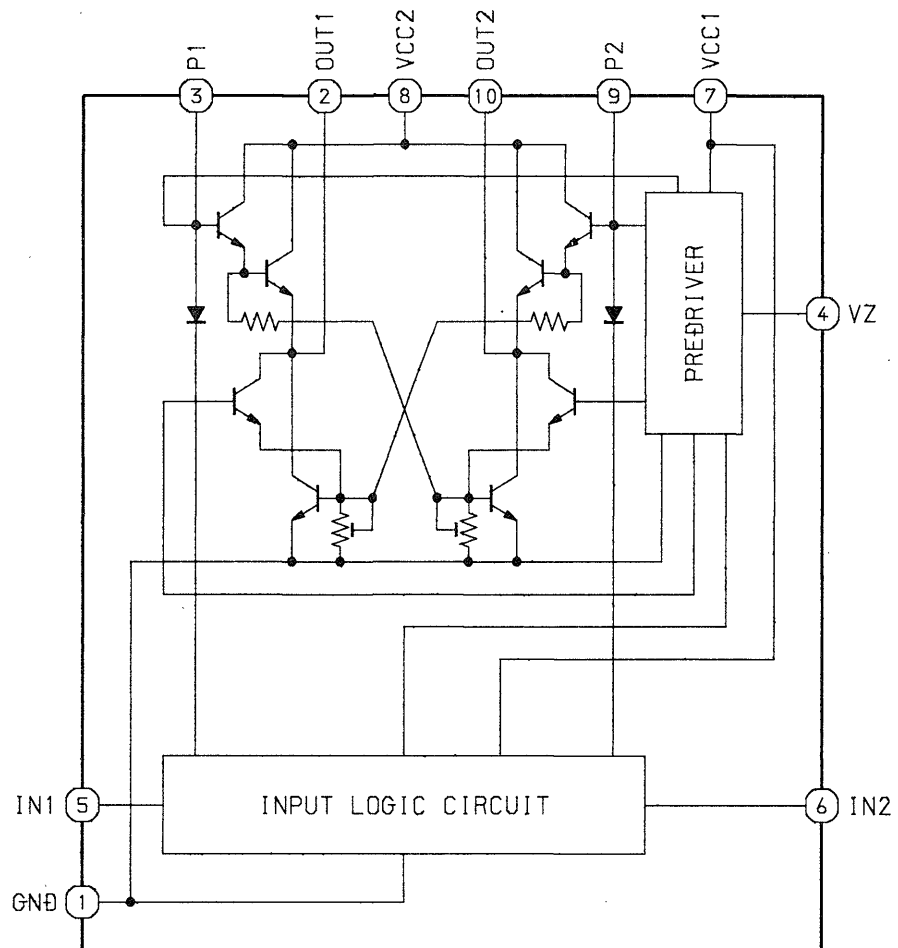
A  
B  
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J  
K



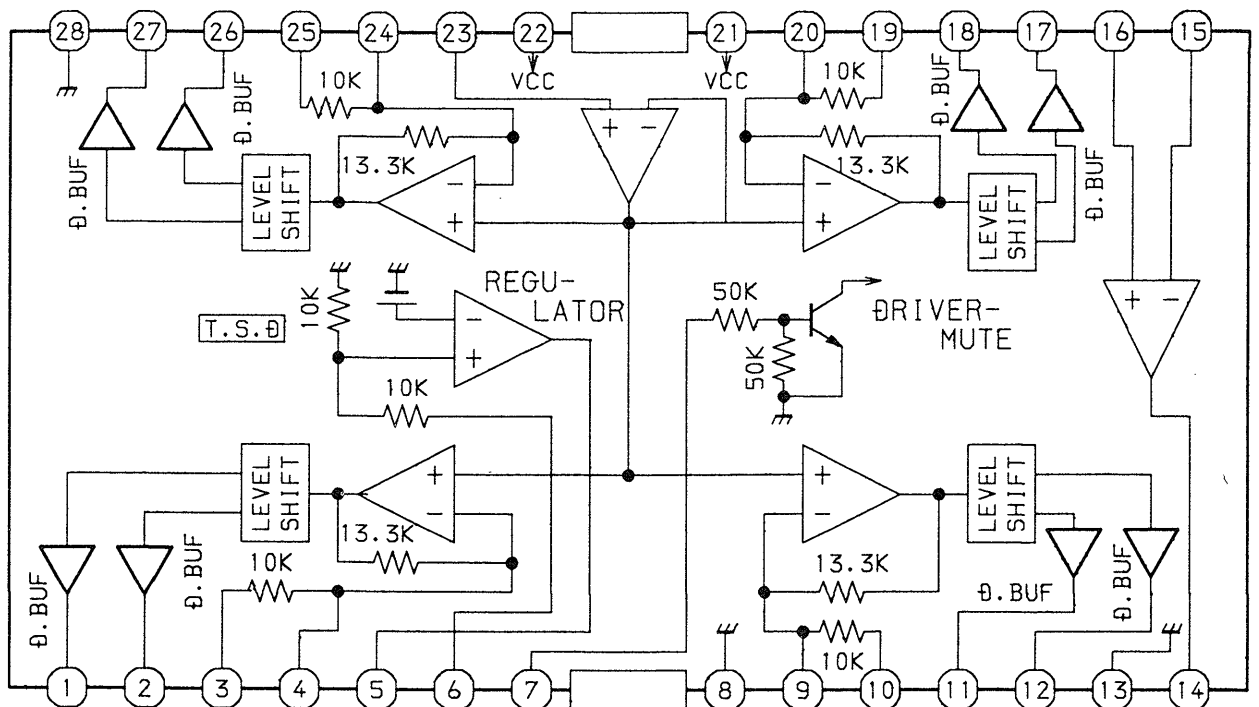


IC BLOCK DIAGRAM

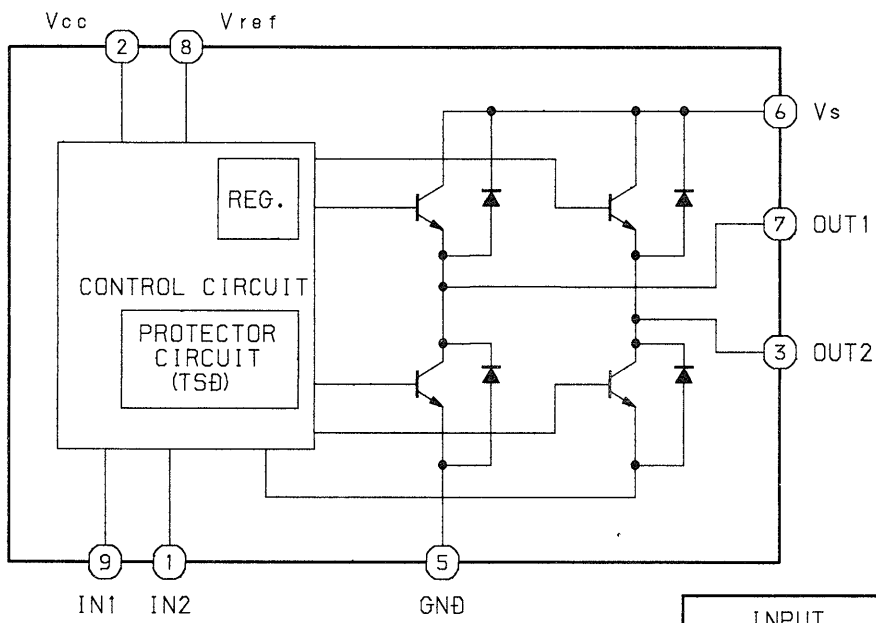
IC, LB1641



IC, BA6897FP



# IC, TA7291S



INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	$\infty$	$\infty$	STOP
1	0	H	L	CW
0	1	L	H	CCW
1	1	L	L	BRAKE

$\infty$  : HI IMPEĐANCE  
 NOTE : INPUT "H" ACTIVE

IC DESCRIPTION  
IC, CXD2518Q

Pin No.	Pin Name	I/O	Description
1	SCOR	O	1H when the subcode sync S0 or S1 is detected. (Not used)
2	SBSO	O	SUBP ~ W serial output. (Not used)
3	EXCK	I	Clock input for SBSO read out. (Not used)
4	SQSO	O	SUBQ 80-bit serial output.
5	SQCK	I	Clock input for SQSO read out.
6	MUTE	I	H to mute. L to cancel. (Connected to GND)
7	SENS	O	SENS signal output to CPU. (IC 201)
8	XRST	I	System reset. L to reset.
9	DATA	I	Serial data input from CPU. (IC 201)
10	XLAT	I	Latch input from CPU (IC 201). Latching serial data at fall down.
11	CLOK	I	Clock input from CPU (IC 201) to transfer serial data.
12	VSS	-	GND.
13	SEIN	I	SENS input from SSP (CXA1782BQ).
14	CNIN	I	Numbers of track jump are counted and input.
15	DATO	O	Serial data output to SSP (CXA1782BQ).
16	XLTO	O	Serial data latched output to SSP (CXA1782BQ). Latched at fall down edge.
17	CLKO	O	Clock input from SSP (CXA1782BQ) to transfer serial data.
18	TEST2	I	TEST. (Connected to +5V)
19~21	SPOB~D	I	Input from INSIDE LIMIT switch (SW1).
22	XLON	O	Mute control output. (Not used)
23	FOK	I	Focus OK input pin. Used for SENS output and servo auto sequencer.
24	MON	O	Spindle motor ON/OFF control output.
25	MDP	O	Spindle motor servo control output.
26	MDS	O	Spindle motor servo control output. (Not used)
27	LOCK	O	GFS is sampled by 460Hz. H output when GFS is H. L output when GFS is L for 8 consecutive times.
18	TEST1	I	TEST. (Connected to GND)
19	FILO	O	Filter output to master PLL. (Slave = digital PLL)
30	FILI	I	Filter input to master PLL.
31	PCO	O	Charge-pump output to master PLL.
32	VDD	-	Power supply input. (+5V)
33	AVSS1	-	GND.
34	CLTV	I	VCO control voltage input to master PLL.
35	AVDD1	-	Power supply input. (+5V)
36	RF	I	EFM signal input.
37	BIAS	I	Constant current input to asymmetry correction circuit.
38	AYSI	I	Comparator voltage input to asymmetry correction circuit.
39	AYSO	O	EFM full swing output. (L = VSS, H = VDD)
40	ASYE	I	L: asymmetry correction OFF. H: asymmetry correction ON. (Connected to +5V)
41	WCDK	O	D/A interface, word clock (2Fs) for 48-bit slot. (Not used)



Pin No.	Pin Name	I/O	Description
42	LRCK	O	D/A interface, LR clock (FS) for 48-bit slot.
43	LRCKI	I	LR clock input to DAC. (48-bit slot)
44	PCMD	O	D/A interface, serial data. (2's complement, MSB first)
45	PCMDI	I	Audio data input to DAC. (48-bit slot)
46	BCK	O	D/A interface, bit clock.
47	BCK1	I	Bit clock input to DAC. (48-bit slot)
48	GTOP	O	GTOP output. (Not used)
49	XUGF	O	XUGF output. (Not used)
50	XPCCK	O	XPLCK output. (Not used)
51	GFS	O	GFS output. (Not used)
52	RFCK	O	RFCK output. (Not used)
53	VSS	-	GND.
54	C2PO	O	C2PO output. (Not used)
55	XROF	O	XRAOF output. (Not used)
56	MNT3	O	MNT3 output. (Not used)
57	MNT1	O	MNT1 output. (Not used)
58	MNT0	O	MNT0 output. (Not used)
59	FSTT	O	Pins-73 and -74 divided-by 2/3 output. (Not used)
60	C4M	O	4.2336MHz output. (Not used)
61	DOUT	O	Digital Out connector output signal. (Not used)
62	EMPH	O	H when the play back disk has emphasis. L when it does not.
63	EMPHI	I	DAC emphasis ON/OFF. H when ON. L when OFF.
64	WFCK	O	WFCK (WRITE FRAME CLOCK) output. (Not used)
65	ZEROL	O	Not sound data detection output. H (L-ch) when no sound data is detected. (Not used)
66	ZEROR	O	Not sound data detection output. H (L-ch) when no sound data is detected. (Not used)
67	DTSI	I	TEST for DAC. (Connected to GND)
68	VDD	-	Power supply input. (+5V)
69	LPWM	O	L-ch PWM output. (Normal polarity)
70	NLPWM	O	L-ch PWM output. (Reversed polarity)
71	AVDD2	-	Power supply input to L-ch PWM driver. (Connected to +5V)
72	AVDD3	-	Power supply input to X'tal. (Connected to +5V)
73	XTAI	I	X'tal input to 33.8688MHz oscillator circuit.
74	XTAO	O	33.8688MHz X'tal oscillator circuit output.
75	AVSS1	-	Power supply input to X'tal. (Connected to GND)
76	AVSS2	-	Power supply input to PWM driver. (Connected to GND)
77	NRPWM	O	R-ch PWM output. (Reversed phase)
78	RPWM	O	R-ch PWM output. (Normal phase)
79	DTS2	I	TEST-2 for DAC. (Connected to GND)
80	DTS3	I	TEST-3 for DAC. (Connected to GND)

IC, CXA1782BQ

Pin No.	Pin Name	I/O	Description
1	FEO	O	Focus error amplifier output pin. This pin is connected to the FZC comparator input internally.
2	FEI	I	Focus error input pin.
3	FDFCT	I	Capacitor connection pin for time constant used when there is defect.
4	FGD	I	Corrects the focus servo high frequency gain.
5	FLB	I	This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo.
6	FEO	O	Focus drive output.
7	FEM	I	Focus amplifier inverted input pin.
8	SRCH	I	This is a pin where the time constant is externally connected to generate the focus search waveform.
9	TGU	I	This is a pin where the selection time constant is externally connected to set the tracking servo the high frequency gain.
10	TG2	I	This is a pin where the selection time constant is externally connected to set the tracking high frequency gain.
11	FSET	I	Pin for setting peak of the phase compensator of the focus tracking.
12	TAM	I	Tracking amplifier inverted input pin.
13	TAO	O	Tracking drive output.
14	SLP	I	Sled amplifier non-inverted input pin.
15	SLM	I	Sled amplifier inverted input pin.
16	SLO	O	Sled drove output.
17	ISET	I	The current which determines height of the focus search, track jump and sled kick is input.
18	VCC	-	+5V power supply pin.
19	CLK	I	Serial data transfer clock input from CPU (CXD2518Q).
20	XLT	I	Latch input from CPU (CXD2518Q).
21	DATA	I	Serial data input from CPU (CXD2518Q).
22	XRST	I	Reset input pin. Reset at L.
23	COUT	O	Signal output to count the number of tracks.
24	SENS	O	FZC, DFCT, TZC, Gain or BAL is output depending on the command to CPU (CXD2518Q).
25	FOK	O	Output pin of the focus OK comparator.
26	CC2	O	Input pin where the DEFECT bottom hold output is capacitance coupled.
27	CC1	I	DEFECT bottom hold output pin.
28	CB	I	This is a pin where the DEFECT bottom hold capacitor is connected.
29	CP	I	This is a pin where the MIRR hold capacitor is connected and MIRR comparator non-inverted signal is input.
30	RFI	I	Input pin where the RF summing amplifier output is capacitance coupled.
31	RFO	O	RF summing amplifier output pin. (TP1)
32	RFM	I	RF summing amplifier inverted input pin. Gain of RF amplifier is determined by the resistor connected between RFO and this pin.

Pin No.	Pin Name	I/O	Description
33	LD	O	APC amplifier output pin.
34	PHD	I	APC amplifier input pin.
35~36	PHD1~2	I	RF I-V amplifier inverted input pin. These pins are connected to the A+C and B+D pins of the optical pickup.
37	BIAS	I	Bias adjustment pin of the non-inverted side of the focus error amplifier.
38~39	F~E	I	F and E IV amplifier non-inverted input pins. These pins are connected to the F and E of the optical pickup.
40	EI	-	Gain adjustment pin of the I-V amplifier E.
41	VEE	-	GND connection pin.
42	TEO	O	Tracking error amplifier output pin.
43	LPFI	I	BAL adjustment comparator input pin.
44	TEI	I	Tracking error input pin.
45	ATSC	I	Window comparator input pin for detecting ATSC.
46	TZC	I	Tracking zero-cross comparator input pin.
47	TDFCT	I	Capacitor connection pin for the time constant used when there is defect.
48	VC	O	DC voltage output pin of VREF. (VDD/2)

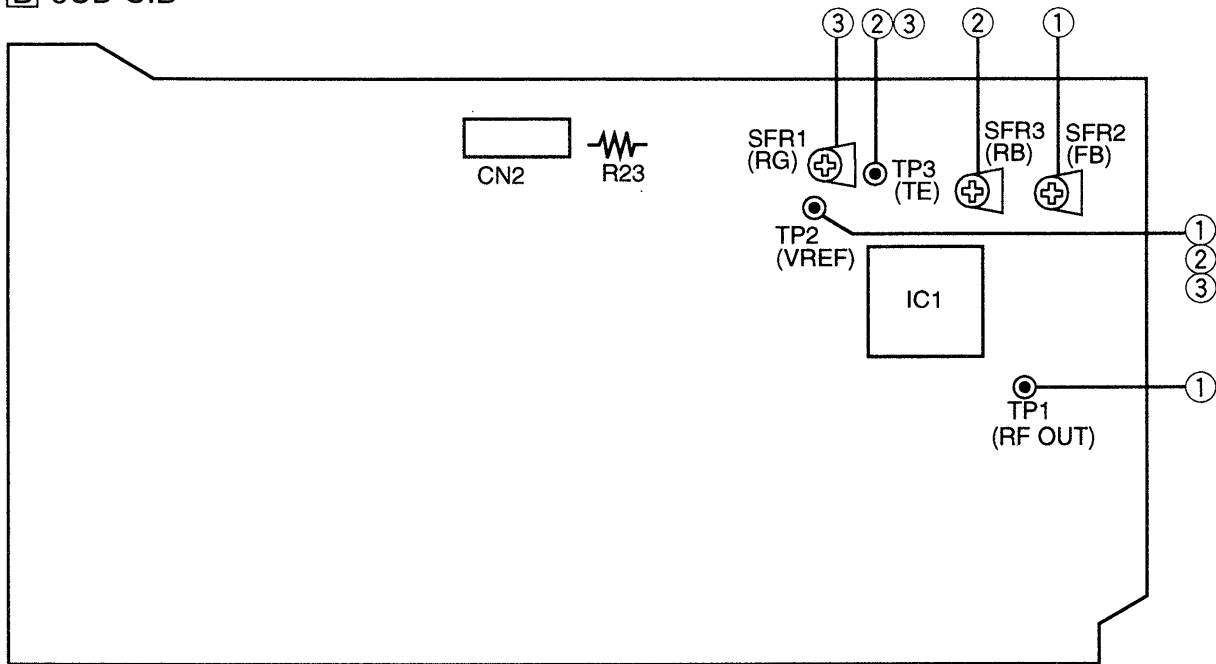
#### IC, CXP82320-199Q

Pin No.	Pin Name	I/O	Description
1	SQSO	I	SUBQ 80-bit serial data input.
2	REMOTE	I	Remote controller 42-bit serial data input.
3	SENS	I	DSP SENS input.
4	P CON	O	Power ON/OFF control output. "L" when power on.
5	AMUTE	O	Analog mute output. "H" when muting.
6	CLOK	O	Serial data sending clock output to DSP (CXD2518Q).
7	XLAT	O	Serial data latch output to DSP (CXD2518Q).
8	DATA	O	Serial data output to DSP (CXD2518Q).
9	XRST	O	System reset output to DSP (CXD2518Q).
10	MUTE	O	Mute output to DSP (CXD2518Q) "H" when muting.
11	SQCK	O	Clock output for SQSO read in.
12	GMUTE	O	Mute output for CDG Video.
13	FUNC A	O	Switching output by FUNC A Key.
14	LED 1	O	DISK 1 DIRECT KEY LED control output. "L" when light on.
15	LED 2	O	DISK 2 DIRECT KEY LED control output. "L" when light on.
16	LED3	O	DISK 3 DIRECT KEY LED control output. "L" when light on.
17	LED4	O	DISK 4 DIRECT KEY LED control output. "L" when light on.
18	LED5	O	DISK 5 DIRECT KEY LED control output. "L" when light on.

Pin No.	Pin Name	I/O	Description
19	LED PL	O	PLAY KEY LED control output. "L" when light on.
20	TT+	O	Turntable motor control output. "H" when right turn.
21	TT-	O	Turntable motor control output. "H" when reverse.
22	LED ON	O	STOP, F.S, B.S, KEY LED control output. "H" when light on.
23	MIC	I	Input mic signal detection level of auto vocal. (Connected to GND)
24	TTS	I	Input photosensor detection of turntable position.
25	DISCS	I	Input photosensor detection of DISC existence.
26	CDSW	I	Input photosensor detection of CD tray position.
27	KEY1	I	KEY matrix level input 1.
28	KEY2	I	KEY matrix level input 2.
29	KEY3	I	KEY matrix level input 3.
30	RST	I	System control reset input.
31	EXTAL	I	Ceramic oscillator input (4.19MHz).
32	XTAL	O	Ceramic oscillator output (4.19MHz).
33	VSS	-	GND.
34	MULTI1	O	2-bit switch output 1 by multi key input.
35	MULTI2	O	2-bit switch output 2 by multi key input.
36	K ON	O	Key control ON/OFF output. "H" when on.
37	KSTB	O	Serial data latch output for key control.
38	KCLK	O	Serial data sending clock output for key control.
39	KDATA	O	8-bit serial data output for key control.
40	FUNC B	O	Switching output by FUNC B KEY.
41	P2	O	FL segment output for send by. "H" when power off.
42~62	P3~P23	O	FL segment output.
63~70	1G~8G	O	FL grid output.
71	VFDP	-	Power supply input (-27V).
72	VDD	-	Power supply input (+5V).
73	NC	-	Connected to VDD (+5V).
74	CLOSE	O	CD tray motor control output. "H" when moving close direction.
75	OPEN	O	CD tray motor control output. "H" when moving open direction.
76	LED FW	O	Flash window LED control output. "H" when light on.
77	SERIAL	I/O	8-bit serial data input/output to the outside equipment.
78	P ON	I	Power ON/OFF control input. Power ON when "H edge".
79	TIMER	I	Input ON PLAY setting after reset system control. (PLAY when "H").
80	-	-	Connected to GND.

# ADJUSTMENT

## B 5CD C.B

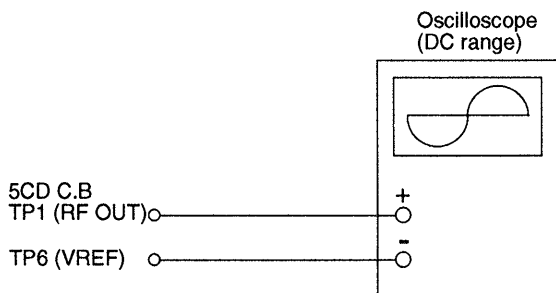


Note: Connect a probe (10:1) of the oscilloscope or the frequency counter to a test point.

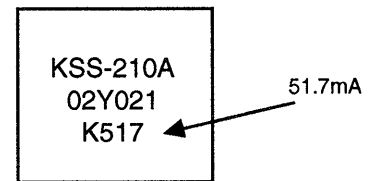
Note: The current of the laser signal can be checked with the voltages on both sides of R23 (10Ω). The difference for the specified value shown on the level must be within ± 6.0mA.

### 1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

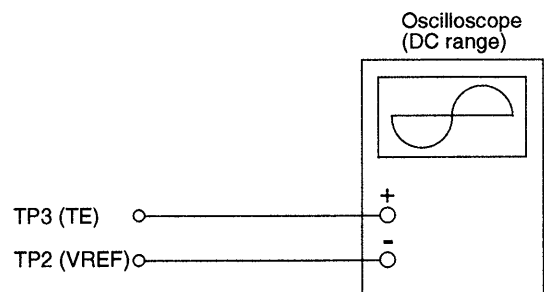


- 1) Connect an oscilloscope to the test point TP1 (RF OUT) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disk TCD-782 (YEDS-18) and play back the second composition.
- 4) Adjust SFR2 so that RF signal of the test point TP1 (RF OUT) is MAX and CLEARREST.

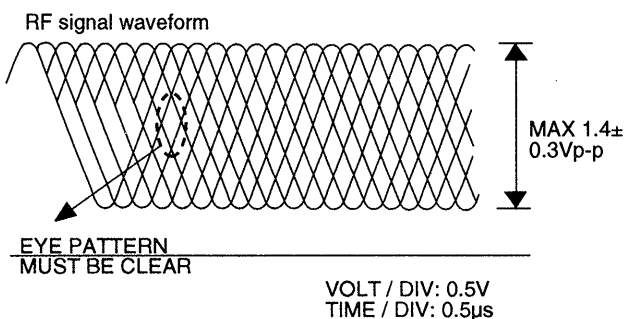


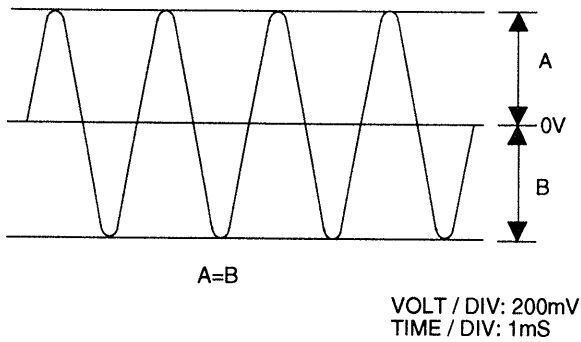
$$\text{Laser current } I_{op} = \frac{\text{Voltage across R23}}{10 \Omega}$$

### 2. Tracking Balance Adjustment.



- 1) Connect an oscilloscope to the test point TP3 (TE) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disk TCD-782 (YEDS-18) and press the PLAY button.
- 4) Connect the intermediate point of SFR1 to TP2 (VREF).
- 5) Adjust SFR3 so that the wave form on the oscilloscope is vertically symmetrical as shown in the figure below.
- 6) After the adjustment is completed, remove the connected lead wires from the terminals.





### 3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

When gain adjustment is off, the symptoms below appear.

Symptoms	Gain	(Focus)	Tracking
• The time until music starts becomes linger for STOP ->▶ PLAY or automatic selection (◀▶ buttons pressed) (Normally takes about 2 seconds)		Low	Low or High
• Music does not start and disk continues to rotate for STOP ->▶ PLAY or automatic selection (◀▶ buttons pressed)		—	Low
• Disc stop to rotate shortly after STOP ->▶ PLAY		Low or High	—
• Sound is interrupted during PLAY, or time counter display stop.		—	Low
• More noises during the 2-axis device operation.		High	High

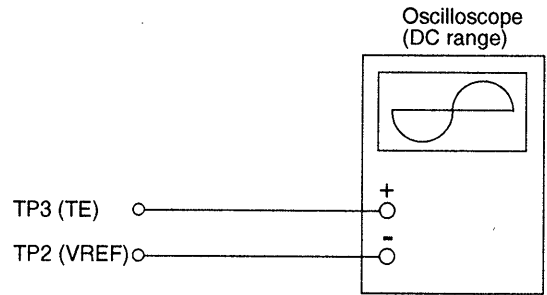
The following is simple adjustment method.

-----Simple adjustment-----

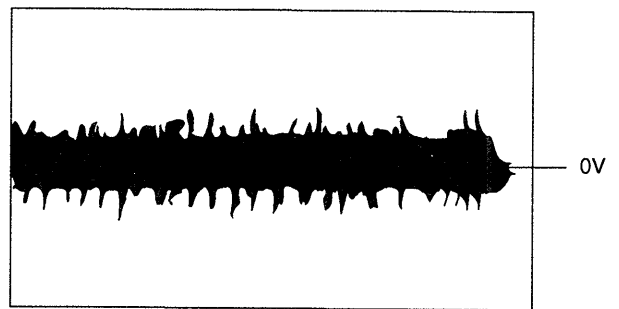
Note: Since exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment.

If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:

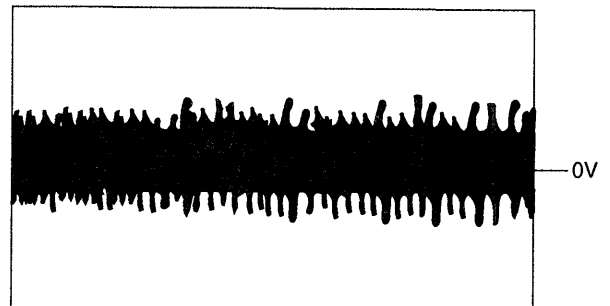


1. Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2. Insert test disk TCD-782 (YEDS-18) and play back the second composition.
3. Connect an oscilloscope to TP3 (TE) of the 5CD C.B.
4. Adjust SFR1 so that the Waveform appears as shown in the figure below. (Tracking gain adjustment)



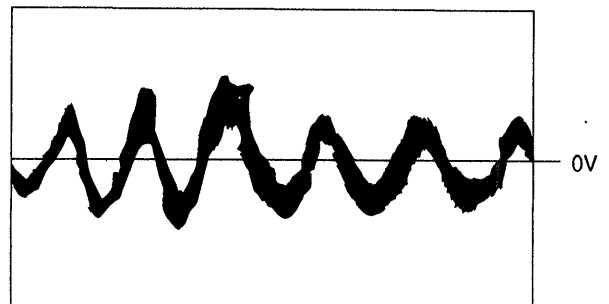
VOLT / DIV: 50mV  
TIME / DIV: 1mS

• Incorrect example  
Low tracking gain  
(The fundamental wave appears as compared with the waveform adjusted)



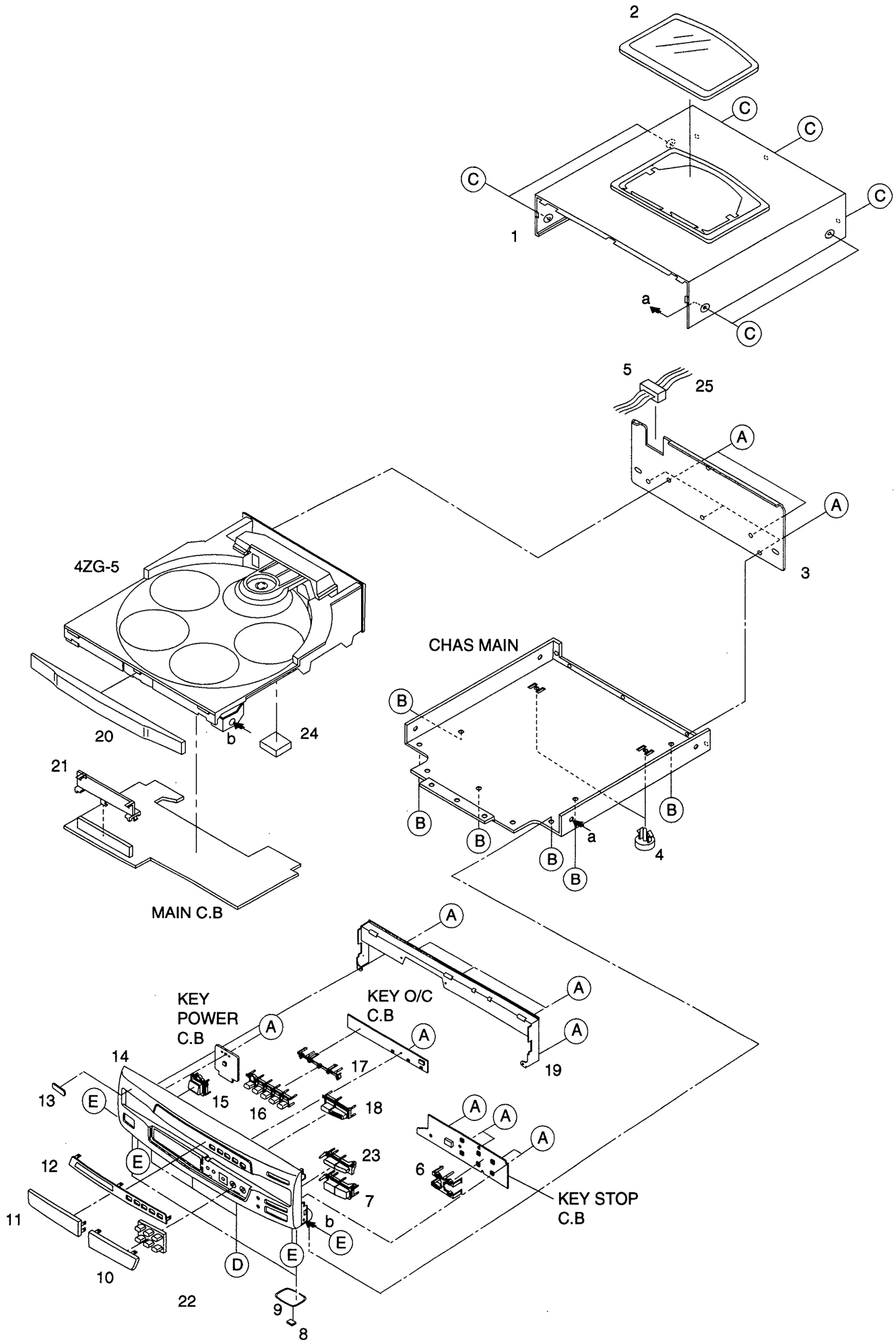
VOLT / DIV: 50mV  
TIME / DIV: 1mS

High tracking gain  
(The frequency of the fundamental wave is higher than in low gain)



VOLT / DIV: 50mV  
TIME / DIV: 1mS

MECHANICAL EXPLODED VIEW 1/1



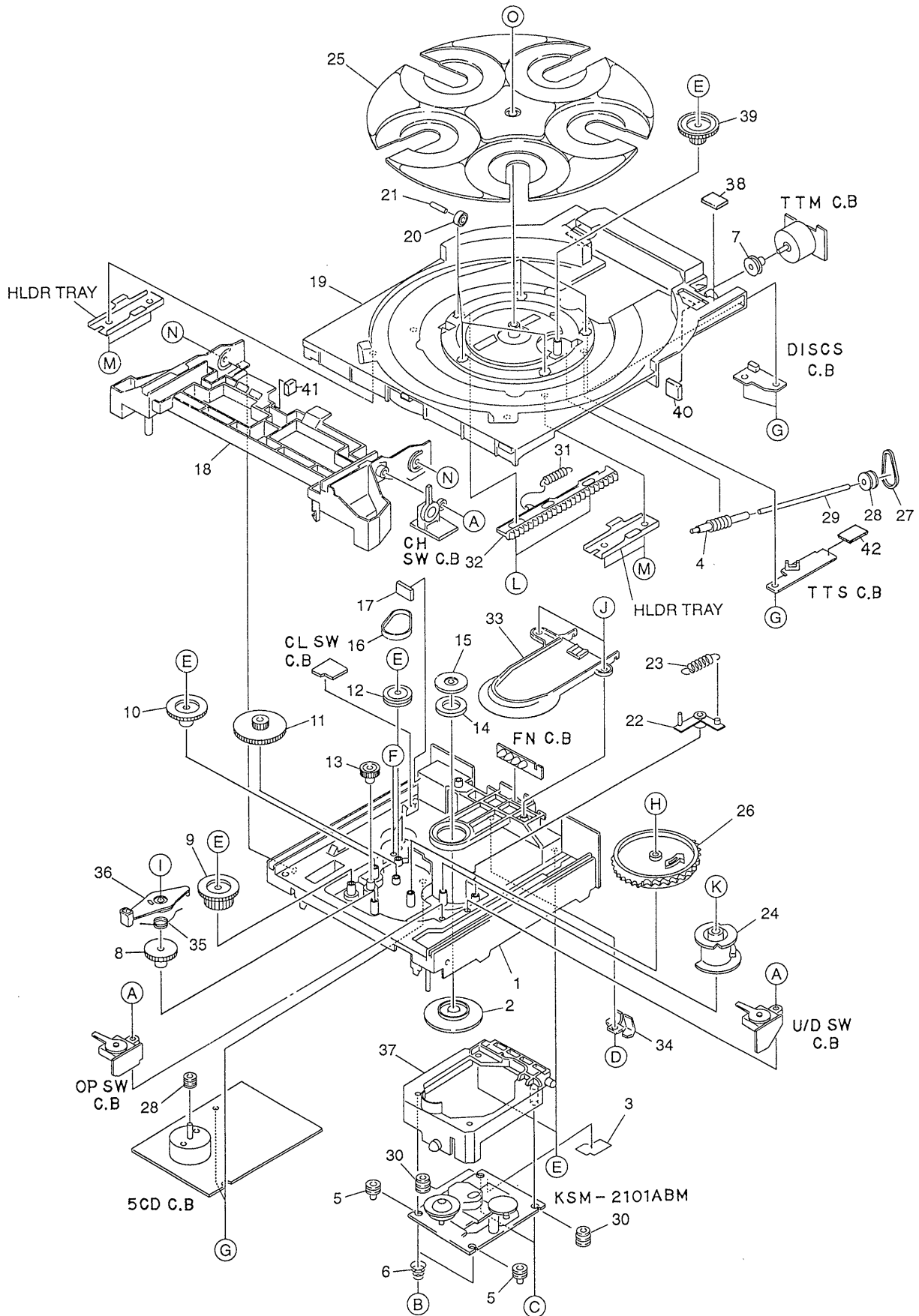
# MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
 If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カソリ NO.	DESCRIPTION	REF. NO	PART NO.	カソリ NO.	DESCRIPTION
1	85-VM1-005-019		CAB, STEEL	20	85-VM1-014-019		PANEL, TRAY
2	85-NF5-031-019		WINDOW, TOP	21	81-VM1-203-019		GUIDE, FL
3	85-VM1-002-019		PANEL, REAR YBN (Y, YL)	22	85-VM1-011-019		KEY, DISPLAY
3	85-VM1-004-019		PANEL, REAR YJBN (YJ)	23	85-VM1-009-019		KEY, SKIP
4	87-085-213-019		FOOT, H1.5	24	84-VM5-206-019		CUSH, CHAS
5	89-VT5-202-010		BUSHING CORD	25	85-VM1-602-019		CORD, FG 11P 900
6	85-VM1-203-019		GUIDE, LED (PLAY)	A	87-067-579-019		BVT 2+3-8 W/O SLOT
7	85-VM1-010-019		KEY, PLAY	B	87-067-703-019		BVT2+3-10 (W/O SLOT)
8	81-VM1-201-019		FELT 20-15-2	C	87-067-641-019		UTT2+3-8 W/O SLOT BLK
9	84-VM5-013-010		RING, FOOT	D	87-591-094-419		QIT+3-6
10	85-VM1-015-019		PANEL, WINDOW	E	87-721-096-419		QT2+3-10
11	85-VM1-013-019		WINDOW, DISPLAY				
12	85-VM1-012-019		WINDOW, CD				
13	82-NE8-032-019		BADGE AIWA 27.5				
14	85-VM1-001-019		CAB, FR				
15	85-VM1-006-019		KEY, POWER				
16	85-VM1-007-019		KEY, DISC				
17	85-VM1-202-019		GUIDE, LED (DISC)				
18	85-VM1-008-019		KEY, OPEN				
19	85-VM1-201-019		HLDR, CAB				



CD MECHANISM EXPLODED VIEW 1/2

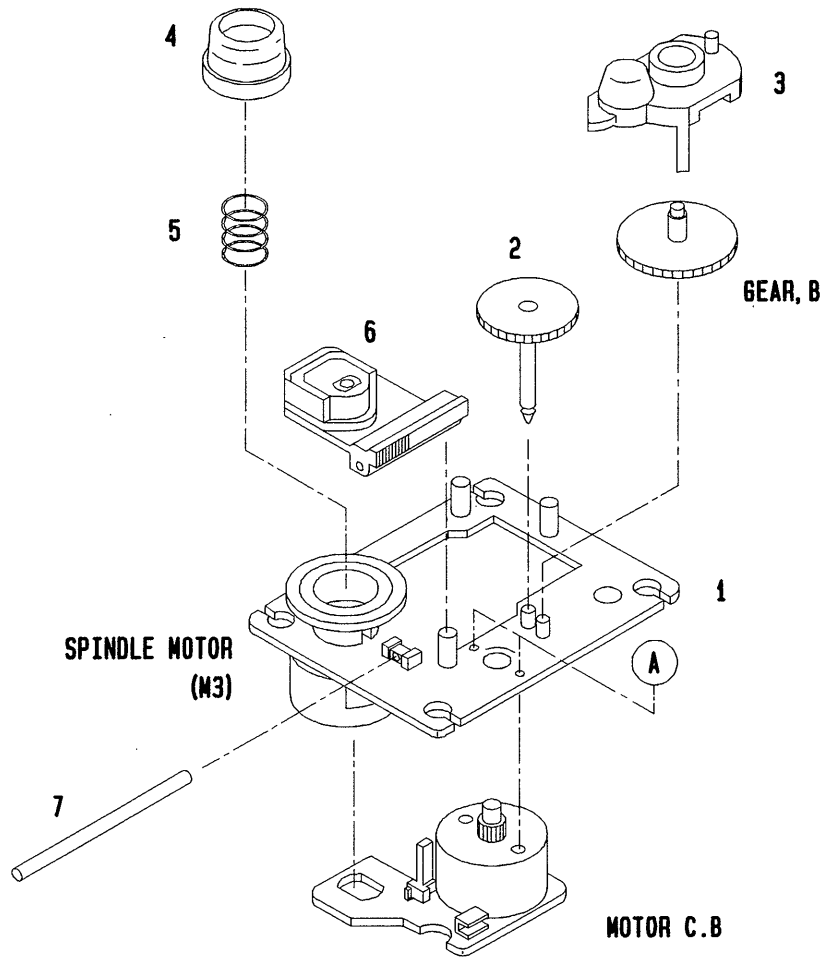


# CD MECHANISM PARTS LIST 1/2

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
 If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	84-ZG5-219-019		CHAS, MECH 5 (NO5)	31	84-ZG5-217-019		SPR-E, GEAR RACK
2	81-ZG1-277-019		HLDR, MAGNET N	32	84-ZG5-207-019		GEAR, RACK TRAY
3	81-ZG1-241-210		SH, CD MECH	33	84-ZG5-006-019		IND, CD (5)
4	81-ZG1-276-11K		WORM GEAR, TT NO2	34	83-NF5-034-019		IND, CD 2
5	81-ZG1-230-010		G-CUSH, MECH	35	84-ZG5-213-019		SPR-T, LVR CAM
6	81-ZG1-231-110		SPR-C, MECH	36	84-ZG5-208-019		LVR, TRAY CAM
7	81-ZG1-236-01K		PULLY, TT MO	37	81-ZG1-253-519		HLDR, MECH MK2
8	81-ZG1-250-019		GEAR, TRAY RELAY MK2	38	80-MQ1-209-019		CLOTH, 20-7
9	84-ZG5-005-019		GAER, TRAY B (YEL)	39	84-ZG5-202-019		WORM-WHL, TT
10	84-ZG5-004-019		GEAR, TRAY A (GRA)	40	84-ZG5-220-010		CUSH, TRAY OPEN
11	81-ZG1-017-019		GEAR, RELAY RED	41	84-ZG5-221-010		CUSH, LVR CAM
12	81-ZG1-014-01K		PULLY, RELAY YEL	42	84-ZG5-224-019		SH, 12-12-0.1
13	84-ZG5-206-019		GEAR, TRAY C	A	81-653-215-019		SPECIAL SCREW VT2
14	87-036-326-010		MAGNET, CLAMPER 93	B	81-ZG1-254-019		S-SCREW, MECH HLDR
15	81-ZG1-255-119		PLATE, MAGNET MK2	C	81-ZG1-271-019		S-SCREW, MECH REAR
16	81-ZG1-232-010		BELT, TRAY	D	87-741-094-419		UT2+3-6
17	84-ZG5-223-010		CUSH, TRAY IN	E	87-067-945-119		VFT2+3-12 (F10)
18	84-ZG5-214-019		CHAS, SUPPORT	F	87-251-071-419		U+2. 6-4
19	84-ZG5-001-019		TRAY	G	87-067-579-019		BVT 2+3-8 W/O SLOT
20	84-ZG5-209-010		ROLLER ASSY, TT	H	81-ZG1-264-019		S-SCREW, CAM
21	84-ZG5-210-019		SHAFT, ROLLER	I	84-ZG5-218-019		S-SCRW, LVR CAM
22	81-ZG1-020-019		PLATE, CAM BGE	J	87-067-703-019		BVT2+3-10
23	81-ZG1-262-019		SPR-E, CAM S	K	87-078-061-019		VFT2+3-20DIA10, GLD
24	81-ZG1-016-01K		GEAR, MECH CAM BGE	L	87-761-096-419		VFT2+3-10
25	84-ZG5-002-019		TURNTABLE	M	87-743-095-419		VT2+3-8 BLK
26	84-ZG5-003-019		GEAR, TRAY CAM (YEL)	N	87-721-096-419		QT2+3-10
27	81-ZG1-233-110		BELT, TT	O	87-078-148-019		VFT2+3-12 (F10)BLK
28	81-ZG1-212-01K		PULLY, LOAD MO				
29	84-ZG5-211-019		SHAFT, WORM				
30	80-CD3-214-019		CUSH CD A				

# CD MECHANISM EXPLODED VIEW 2/2



# CD MECHANISM PARTS LIST 2/2

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REF. NO	PART NO.	カソリ NO.	DESCRIPTION	REF. NO	PART NO.	カソリ NO.	DESCRIPTION
1	9X-262-513-310		T. T CHASS ASSY W/MOTOR	6	98-848-127-110		OPTICAL PICK UP KSS-210A
2	92-625-188-020		GEAR (A)	7	94-917-565-010		SHAFT SLED
3	92-625-544-010		COVER	A	87-261-032-210		V+2-3
4	92-625-187-010		RING CENTER				
5	92-625-191-010		SPRING COMPRESSION				

## ■ ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は“REFERENME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF.NO	PART NO.	カリ NO.	DESCRIPTION
	85-VM1-901-019		IB,ESCGFI (S)

# REFERENCE NAME LIST

## ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER
サージサプレッサ	SERGESUPPRESSOR
セラコン	CAP,CERA

## MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL
ジグアーム	ARM,SHAFT
ジグガイド	GUIDE,SHAFT
ストラップ	STRAP
トクナベ	S-SCREW
ヒンジ	HINGE
ヒンジビス	S-SCREW
ビスセレート	SCREW,SERRART

サービス技術ニュース	
番号	連絡内容
G - -	
G - -	
G - -	

**アイワ株式会社**  
**AIWA CO.,LTD.**

931196 750038

Tokyo Japan