

SERVICE MANUAL

COMPACT DISC STEREO
RADIO CASSETTE RECORDER

BASIC TAPE MECHANISM : ZZM-1 AR4NC
BASIC CD MECHANISM : DA11T3C

SPECIFICATIONS

<Tuner section>

Frequency range

FM: 87.5 MHz to 108.0 MHz
Antenna: Rod antenna
(AM) MW:
530 kHz to 1,605 kHz
Antenna: Ferrite bar antenna
LW: <G, EZ>
150 kHz to 285 kHz
Antenna: Ferrite bar antenna

<Deck section>

Track format

4 tracks, 2 channels

Frequency range

Normal tape: 50 - 12,500 Hz (EIAJ)

Recording system

AC bias

Erasing system

Magnet erase

Heads

Recording/playback head (1)
Erasure head (1)

<CD player section>

Disc

Compact disc

Scanning method

Non-contact optical scanner
(semiconductor laser)

<General>

Speaker

80 mm cone type (2)

Outputs

Headphones jack: stereo mini-jack

Power output

2.9 W + 2.9 W<EZ>

(DIN MUSIC POWER)

2.5 W + 2.5 W

(EIAJ 7 ohms, T.H.D. 10 % DC)

1.9 W + 1.9 W

(DIN 1% Rated Power)

Power requirements

DC 12 V using eight size C (R14)
batteries

AC 110 - 120 V/220 - 240 V,

switchable, 50/60 Hz<HR, HT>

AC 230 V, 50 Hz <G, EZ>

16 W

Power consumption

Dimensions

310 x 171 x 260 mm

(W x H x D)

Weight

2.8 kg (excluding batteries)

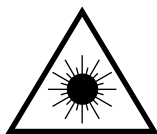
- Design and specifications are subject to change without notice.

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 mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, 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.

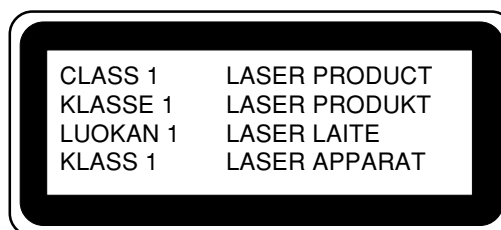
ATTENTION

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.

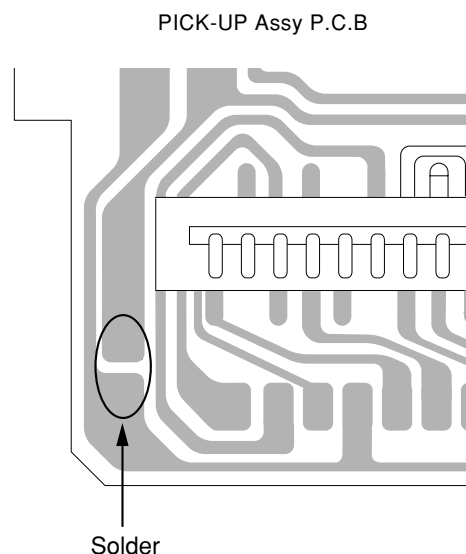


Precaution to replace Optical block

(SF-P101NR)

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 right figure.



ELECTRICAL MAIN PARTS LIST

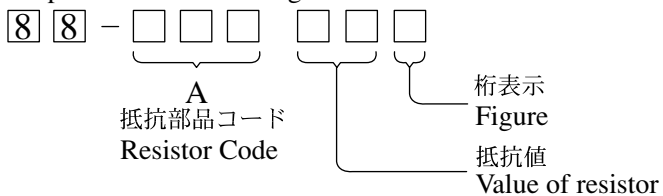
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C279	87-010-385-080		CAP, ELECT 220-25V
	87-A20-955-010	IC, LA1828		C301	87-016-658-000		CAP, E 4700-35 M SMG
	87-A21-064-010	IC, LA4227		C306	87-010-404-080		CAP, ELECT 4.7-50V
	87-A21-520-040	C-IC, M61509FP		C307	87-010-401-080		CAP, ELECT 1-50V
	87-A20-446-010	C-IC, LA9241ML		C308	87-010-221-080		CAP, ELECT 470-10V
	87-A20-459-010	C-IC, LC78622ED		C309	87-010-197-080		CAP, CHIP 0.01 DM
	87-A21-093-010	IC, LA6541D		C310	87-010-248-080		CAP, ELECT 220-10V
	8A-CD9-610-010	C-IC, LC865516A-5P16		C311	87-010-374-080		CAP, ELECT 47-10V
	87-A21-607-010	IC, NJM14558LD		C312	87-010-385-080		CAP, ELECT 220-25V
				C316	87-010-384-080		CAP, ELECT 100-25V
TRANSISTOR				C321	87-010-197-080		CAP, CHIP 0.01 DM
	89-327-143-080	TR, 2SC2714 (0.1W)		C322	87-010-263-080		CAP, ELECT 100-10V
	87-026-447-080	TR, 2SC1740S R		C325	87-010-405-080		CAP, ELECT 10-50V
	87-026-463-080	TR, 2SA933S (0.3W)		C401	87-010-403-080		CAP, ELECT 3.3-50V
	87-A30-288-040	CHIP-TR, DTC114YKA		C402	87-010-197-080		CAP, CHIP 0.01 DM
	89-320-011-080	TR, 2SC2001 (15W)		C403	87-010-263-080		CAP, ELECT 100-10V
	89-112-965-080	TR, 2SA1296 (0.75W)		C404	87-010-248-080		CAP, ELECT 220-10V
	87-026-291-080	TR, DTC124XS		C405	87-010-197-080		CAP, CHIP 0.01 DM
	87-A30-226-010	TR, 2SB1655E		C406	87-010-374-080		CAP, ELECT 47-10V
	87-026-462-080	TR, 2SC1740 S (RS 0.3W)		C407	87-010-178-080		CHIP CAP 1000P
	89-318-154-080	TR, 2SC1815 (0.4W)		C408	87-010-198-080		CAP, CHIP 0.022
	89-109-332-380	TR, 2SA933RS		C409	87-010-248-080		CAP, ELECT 220-10V
	89-113-187-080	TR, 2SA1318TU		C410	87-010-263-080		CAP, ELECT 100-10V
	87-A30-287-040	TR, DTC114TKA (0.2W)		C411	87-A11-177-080		C-CAP, S 0.15-16 K B
	89-317-403-080	TR, 2SC1740S		C412	87-010-401-080		CAP, ELECT 1-50V
	87-026-464-010	TR, DTC114TS		C413	87-016-369-080		C-CAP, S 0.033-25 B K
	87-026-464-080	TR, DTC114TS (0.3W)		C414	87-010-405-080		CAP, ELECT 10-50V
				C416	87-010-545-080		CAP, ELECT 0.22-50V
				C417	87-012-157-080		C-CAP, S 330P-50 CH
				C418	87-010-213-080		C-CAP, S 0.015-50 B
DIODE				C419	87-A11-608-080		C-CAP, S 0.33-25 K B
	87-020-465-080	DIODE, 1SS133 (110MA)		C420	87-016-369-080		C-CAP, S 0.033-25 B K
	87-027-607-080	ZENER, HZ7B3L		C421	87-A11-177-080		C-CAP, S 0.15-16 K B
	87-A40-466-080	ZENER, MTZJ2.7A		C422	87-010-183-080		C-CAP, S 2700P-50 B
	87-070-345-080	DIODE, IN4148		C423	87-010-956-080		CHIP-CAP, S 0.068-25B
	87-A40-648-080	ZENER, MTZJ8.2A		C424	87-010-993-080		C-CAP, S 0.056-25 B
	87-A40-234-080	ZENER, MTZJ5.6A		C425	87-010-176-080		C-CAP, S 680P-50 SL
	87-017-978-080	DIODE, 1N4003		C426	87-A11-608-080		C-CAP, S 0.33-25 K B
	87-017-932-080	ZENER, MTZJ6.2B		C428	87-010-197-080		CAP, CHIP 0.01 DM
	87-A40-465-010	DIODE, FR202		C429	87-010-186-080		CAP, CHIP 4700P
				C430	87-012-156-080		C-CAP, S 220P-50 CH
				C431	87-010-545-080		CAP, ELECT 0.22-50V
				C432	87-010-374-080		CAP, ELECT 47-10V
				C433	87-010-401-080		CAP, ELECT 1-50V
				C434	87-010-184-080		CHIP CAPACITOR 3300P(K)
MAIN C.B				C435	87-010-197-080		CAP, CHIP 0.01 DM
C30	87-010-260-080	CAP, ELECT 47-25V		C436	87-010-374-080		CAP, ELECT 47-10V
C211	87-010-805-080	CAP, S 1-16		C437	87-010-404-080		CAP, ELECT 4.7-50V
C212	87-010-805-080	CAP, S 1-16		C438	87-016-669-080		C-CAP, S 0.1-25 K B
C215	87-016-460-080	C-CAP, S 0.22-16 B		C439	87-010-178-080		CHIP CAP 1000P
C216	87-016-460-080	C-CAP, S 0.22-16 B		C440	87-010-145-080		C-CAP, S 1P-50 CH
C231	87-010-213-080	C-CAP, S 0.015-50 B		C441	87-010-197-080		CAP, CHIP 0.01 DM
C232	87-010-213-080	C-CAP, S 0.015-50 B		C442	87-010-312-080		C-CAP, S 15P-50 CH
C233	87-A10-201-080	C-CAP, S0.33-16 KB		C445	87-012-368-080		C-CAP, S 0.1-50 F
C234	87-A10-201-080	C-CAP, S0.33-16 KB		C446	87-012-368-080		C-CAP, S 0.1-50 F
C235	87-016-669-080	C-CAP, S 0.1-25 K B		C447	87-012-368-080		C-CAP, S 0.1-50 F
C236	87-016-669-080	C-CAP, S 0.1-25 K B		C448	87-010-315-080		C-CAP, S 27P-50 CH
C237	87-010-408-080	CAP, ELECT 47-50V		C450	87-012-140-080		CAP 470P
C239	87-010-197-080	CAP, CHIP 0.01 DM		C451	87-012-156-080		C-CAP, S 220P-50 CH
C240	87-010-197-080	CAP, CHIP 0.01 DM		C455	87-010-247-080		CAP, ELECT 100-50V
C247	87-010-401-080	CAP, ELECT 1-50V		C457	87-010-312-080		C-CAP, S 15P-50 CH
C248	87-010-401-080	CAP, ELECT 1-50V		C458	87-010-312-080		C-CAP, S 15P-50 CH
C251	87-010-401-080	CAP, ELECT 1-50V		C459	87-010-263-080		CAP, ELECT 100-10V
C263	87-010-178-080	CHIP CAP 1000P		C460	87-015-819-080		CAPACITOR, 0.01
C264	87-010-178-080	CHIP CAP 1000P		C461	87-010-197-080		CAP, CHIP 0.01 DM
C265	87-010-263-080	CAP, ELECT 100-10V		C462	87-010-248-080		CAP, ELECT 220-10V
C266	87-010-263-080	CAP, ELECT 100-10V		C463	87-010-190-080		S CHIP F 0.01
C267	87-010-112-080	CAP, ELECT 100-16V		C465	87-010-404-080		CAP, ELECT 4.7-50V
C268	87-010-112-080	CAP, ELECT 100-16V		C466	87-012-368-080		C-CAP, S 0.1-50 F
C271	87-010-235-080	CAP, E 470-16 SME		C467	87-010-263-080		CAP, ELECT 100-10V
C272	87-010-235-080	CAP, E 470-16 SME					
C278	87-010-405-080	CAP, ELECT 10-50V					

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
TC5	87-011-221-080		TRIMMER,CER 30P 6.15X5.9 VC<EZ,G>	VOL C.B			
TC6	87-011-221-080		TRIMMER,CER 30P 6.15X5.9 VC<EZ,G>	CN607	84-722-632-010		CONN,2P H
VC1	87-A91-635-010		TUN-CAP,20P-140P E-ACD(MITSUMI)	S614	8Z-CT6-636-010		SW,TACT EVQJAC04M
FRONT C.B				S615	8Z-CT6-636-010		SW,TACT EVQJAC04M
C601	87-010-313-080		CAP, CHIP 18P	PHONE C.B			
C602	87-010-315-080		C-CAP,S 27P-50 CH	CN204	87-049-469-010		CONN,4P V
C603	87-010-319-080		C-CAP,S 56P-50 CH	CNA203	8A-CDB-624-010		CONN ASSY,3P H.P
C604	87-010-317-010		CHIP CAP,S 39P CH	CNA204	8A-CDB-633-010		CONN ASSY,4P SPKR
C605	87-010-263-080		CAP, ELECT 100-10V	J251	87-009-216-010		JACK, DIA 3.5
C606	87-015-785-080		CHIP CAPACITOR, 0.1FZ-25Z	BATT A C.B			
C607	87-015-819-080		CAPACITOR,0.01	C901	87-018-205-080		CAP, CERA-SOL 0.022
C608	87-010-405-080		CAP, ELECT 10-50V	C902	87-018-205-080		CAP, CERA-SOL 0.022
C609	87-010-400-080		CAP, ELECT 0.47-50V	C903	87-018-205-080		CAP, CERA-SOL 0.022
C611	87-010-248-080		CAP, ELECT 220-10V	C904	87-018-205-080		CAP, CERA-SOL 0.022
C613	87-012-368-080		C-CAP,S 0.1-50 F	CNA901	8A-CDB-621-010		CONN ASSY,3P POWER
C614	87-010-312-080		C-CAP,S 15P-50 CH	△ PR901	87-A90-092-080		PROTECTOR,2.5A 491
CN601	87-099-033-010		16P 6216 H	△ PT901	8A-CDB-653-010		PT,E 2.5W EI48X23<EZ,G>
CN602	87-099-201-010		CONN,8P 6216 H	△ PT901	8A-CDB-651-010		PT,H 2.5W EI48X23<HC>
CNA604	8A-CDB-616-010		CONN ASSY,6P KEY FUNCT	BATT B C.B			
CNA606	8A-CDB-617-010		CONN ASSY,2P KEY VOL	CD MOTOR C.B			
FC601	8A-CDB-618-010		FF-CABLE, 16P 1.25 FR-MAIN	M2	9X-262-576-910		MOTOR GEAR ASSY
FC602	8A-CDB-619-010		FF-CABLE, 8P 1.25 CD-FR	PIN3	91-564-722-110		CONNECTOR 6P
L601	87-003-102-080		COIL, 10UH	SW1	91-572-085-120		LEAF SW
LED602	88-CD6-630-010		LED,934ID RED				
LED608	88-CD6-630-010		LED,934ID RED				
LED611	87-CD8-616-010		LED,SA36-11 HWA-11.0				
S601	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S602	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S603	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S604	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S605	8Z-CT6-636-010		SW,TACT EVQJAC04M				
X601	87-030-273-010		VIB,XTAL 32.768K5PPM				
X602	87-030-376-080		VIB,CER CSA5.76MG200				
KEY FUNCT C.B							
CN605	87-099-417-010		CONN 6P EH H WHT				
LED606	88-CD6-630-010		LED,934ID RED				
LED607	88-CD6-630-010		LED,934ID RED				
LED610	88-CD6-631-010		LED,934GD GRN				
S606	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S607	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S608	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S609	8Z-CT6-636-010		SW,TACT EVQJAC04M				
S611	8Z-CT6-636-010		SW,TACT EVQJAC04M				

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



チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法/Dimensions (mm)			抵抗コード : A Resistor Code : A	
				外形/Form	L	W		t
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION



E C B

2SA1296
2SC1815



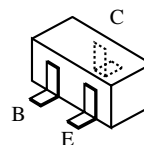
E C B

2SC2001
2SA1318TU

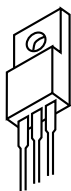


E C B

2SC1740S/SR/SRS
2SA933S/RS
DTC124XS
DTC114TS

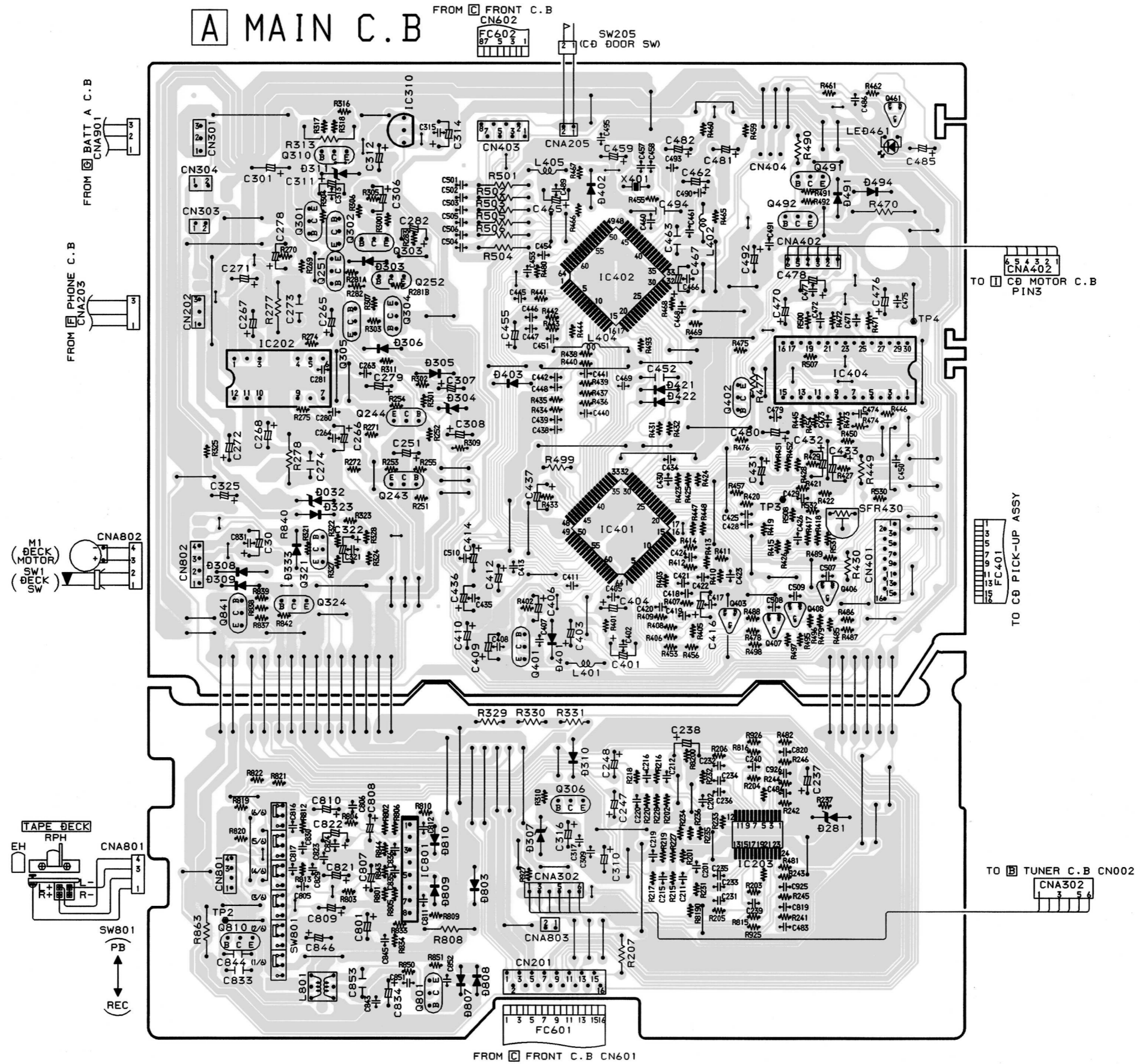


DTC114YKA
DTC114TKA
2SC2714



B C E

2SB1655E

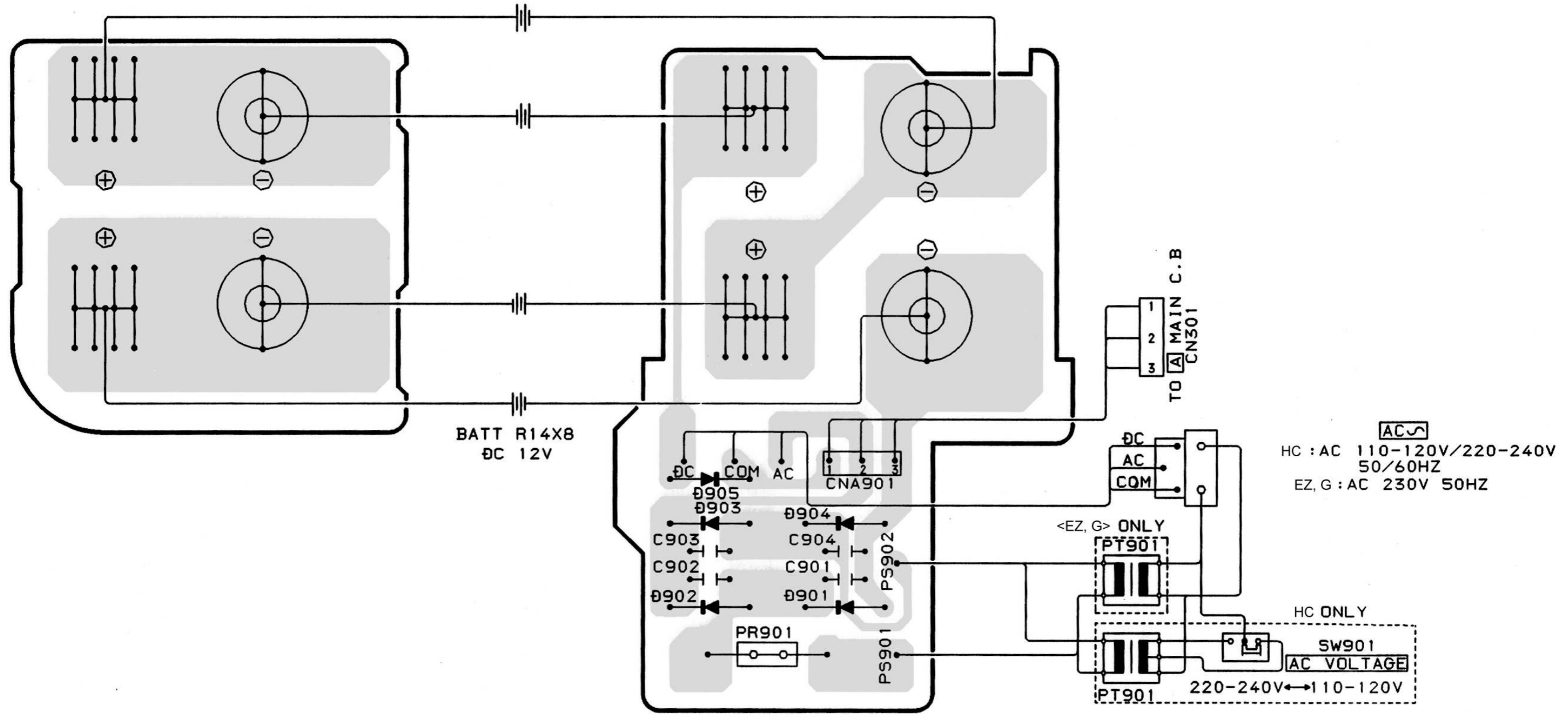


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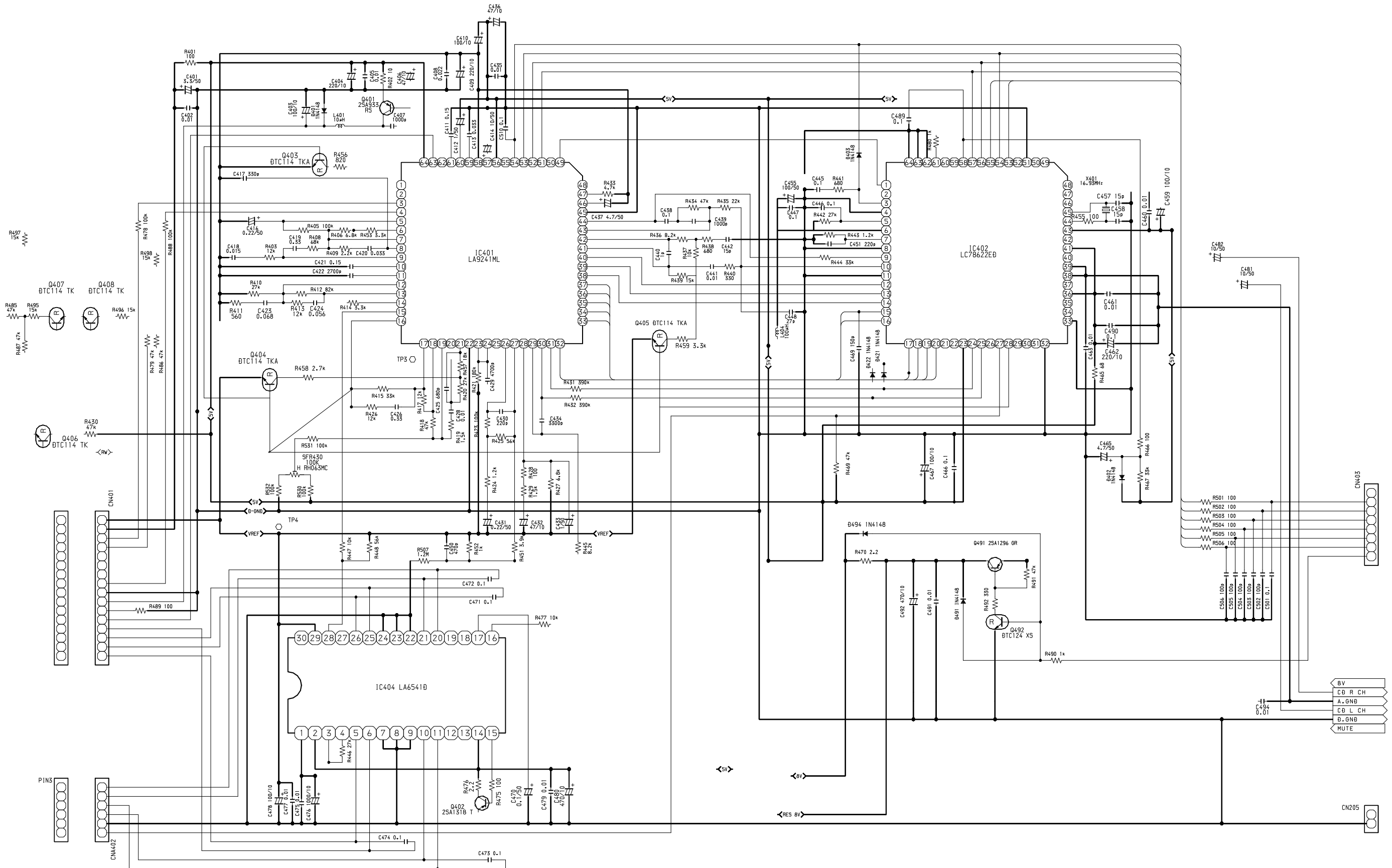
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SCHEMATIC DIAGRAM – 2 (MAIN 2/2 / CD MOTOR)

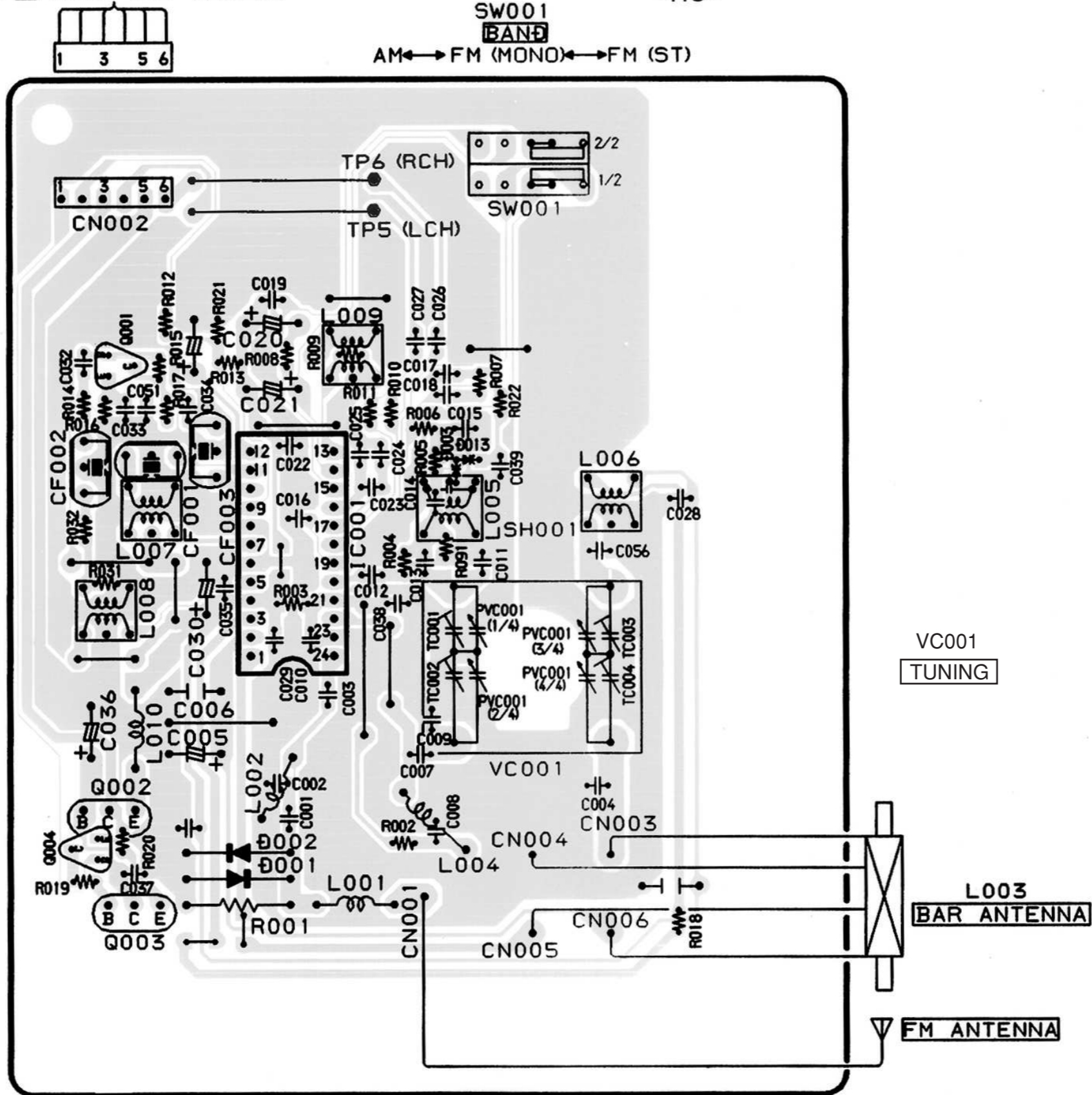


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B TUNER C.B

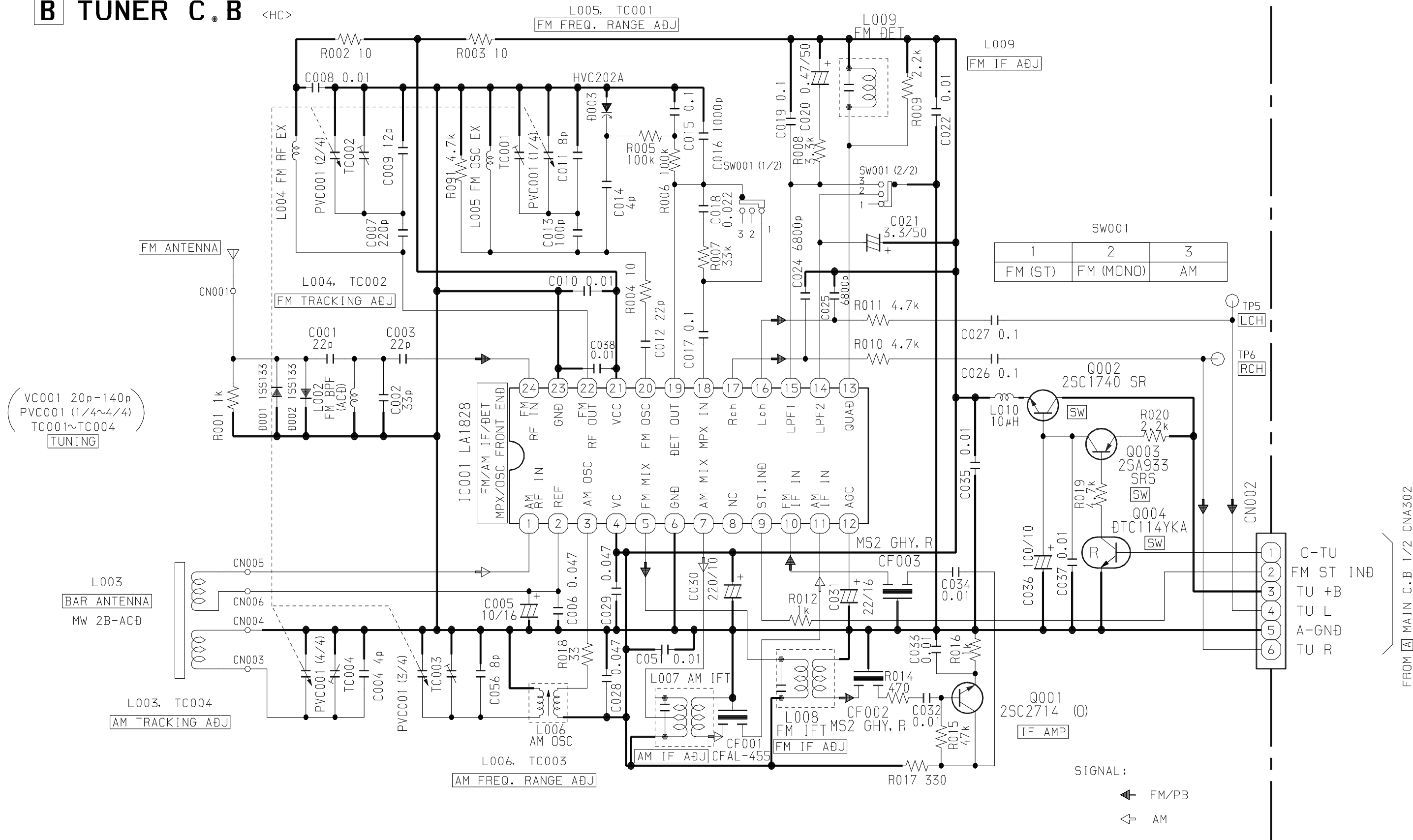
FROM **A** MAIN C.B CNA302

<HC>



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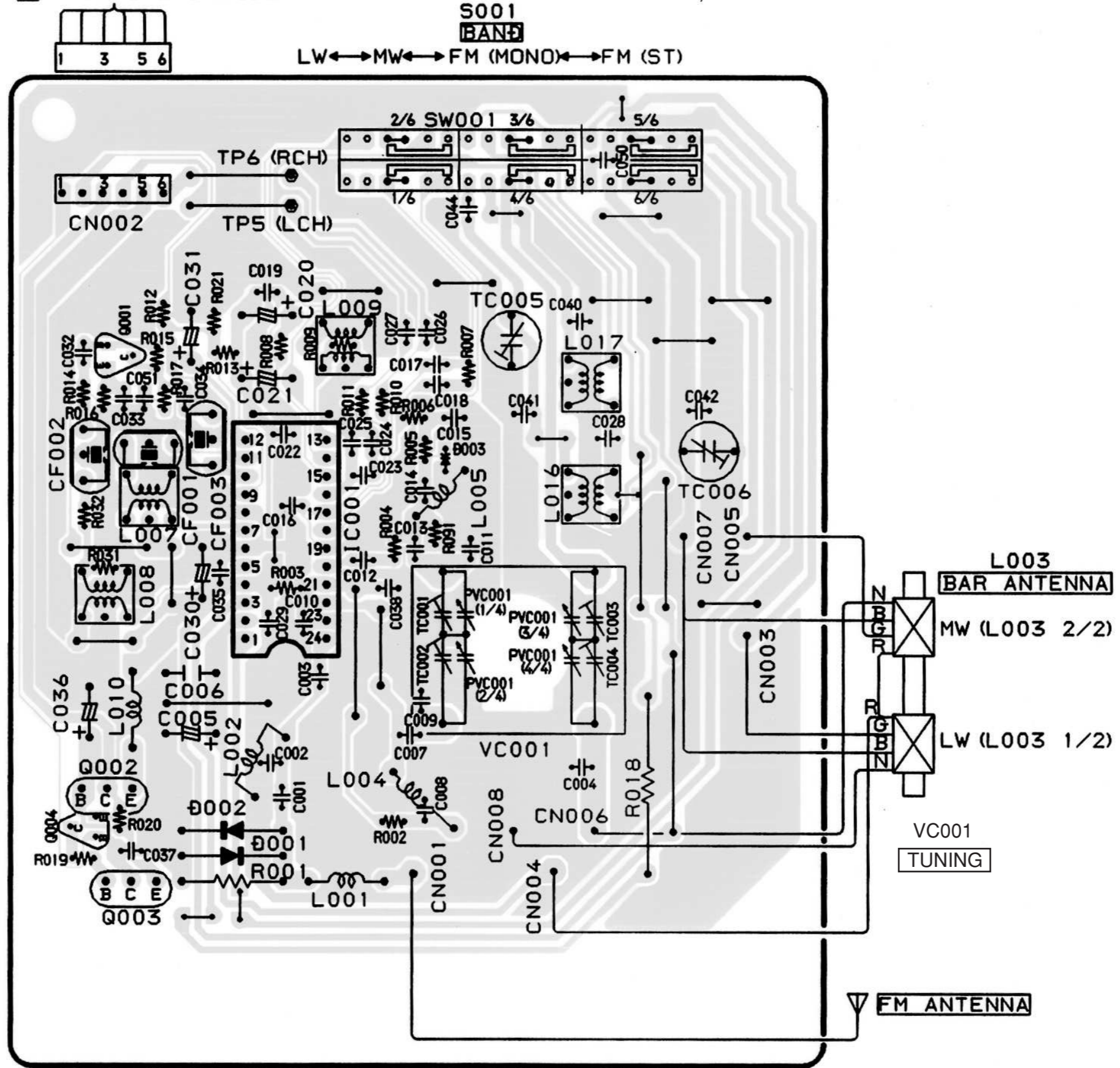


FROM MAIN C.B 1/2 CNA302

B TUNER C.B

FROM A MAIN C.B CNA302

<EZ, G>

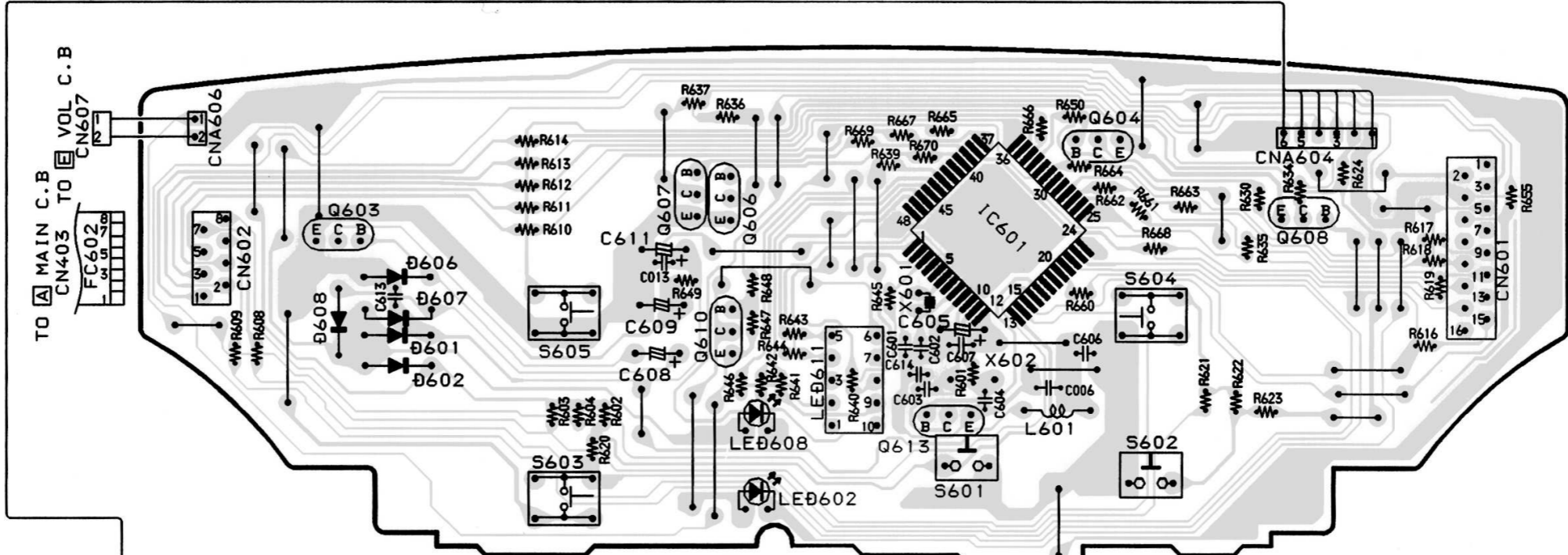


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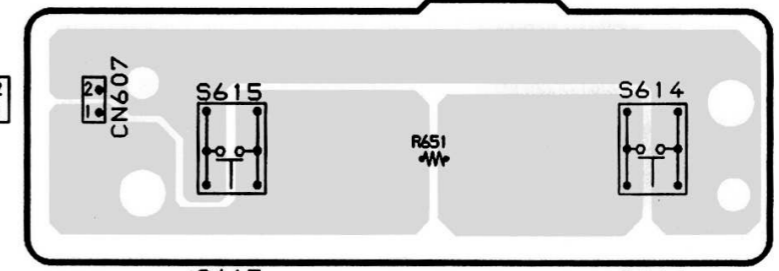
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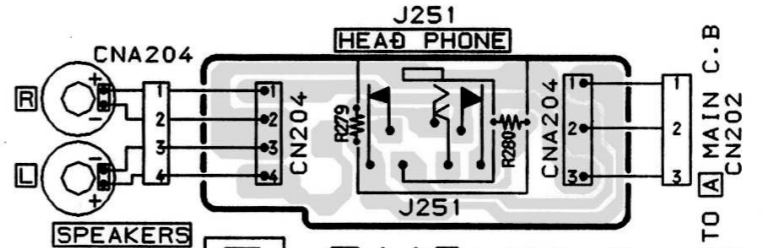
C FRONT C. B



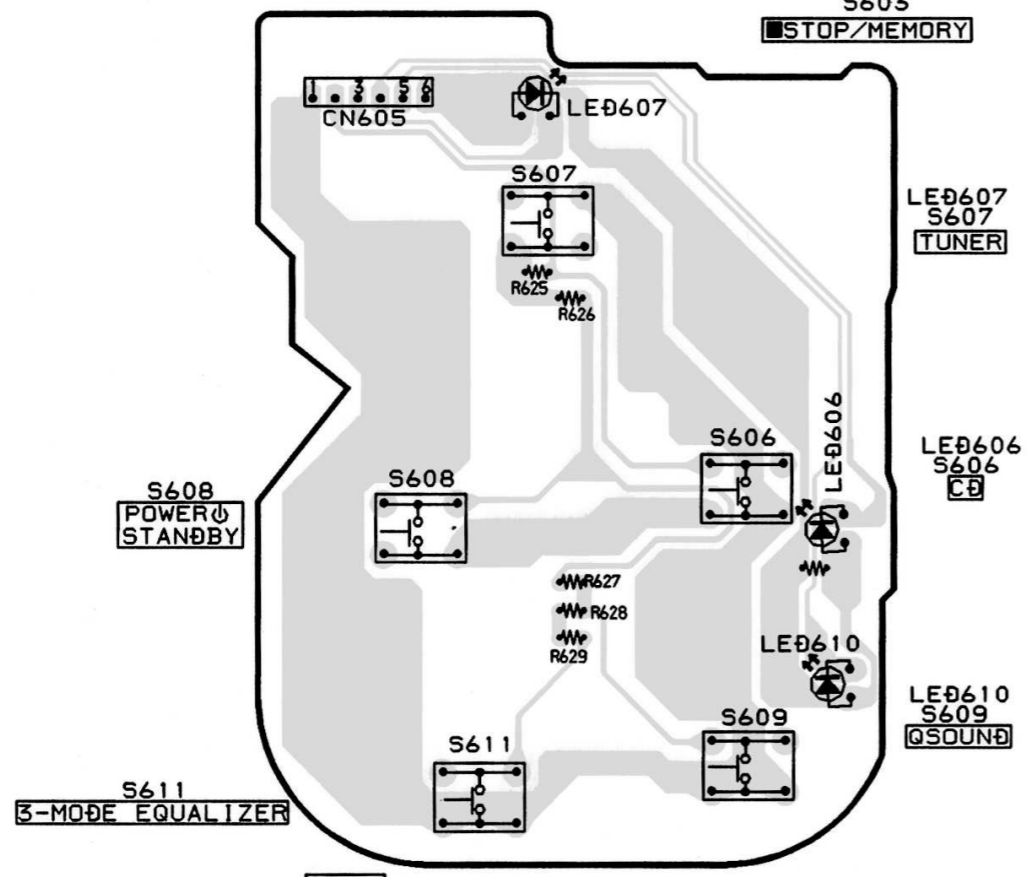
E VOL C. B



F PHONE C. B

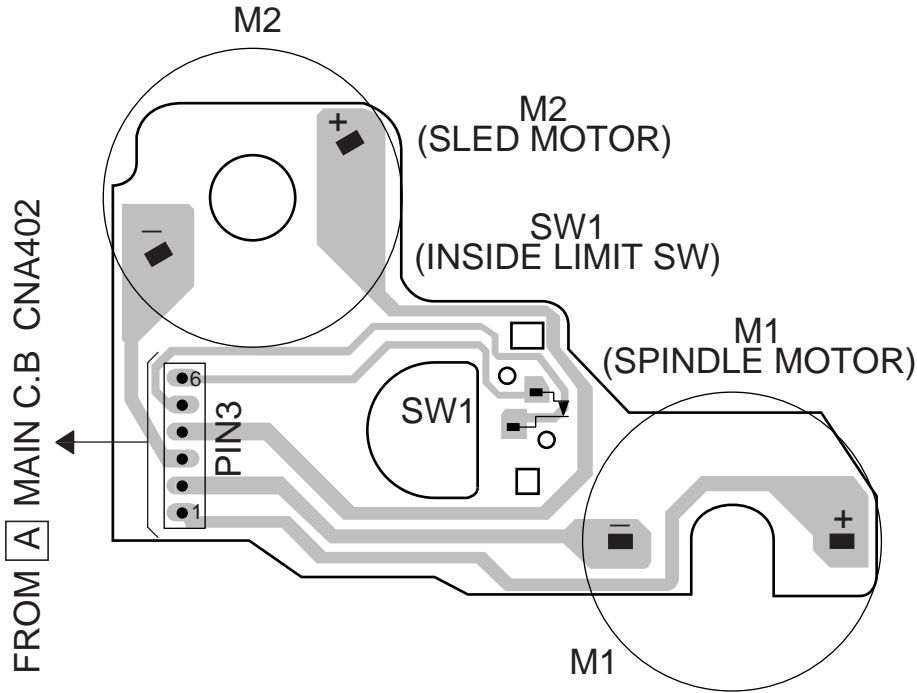


D KEY FUNCT C. B



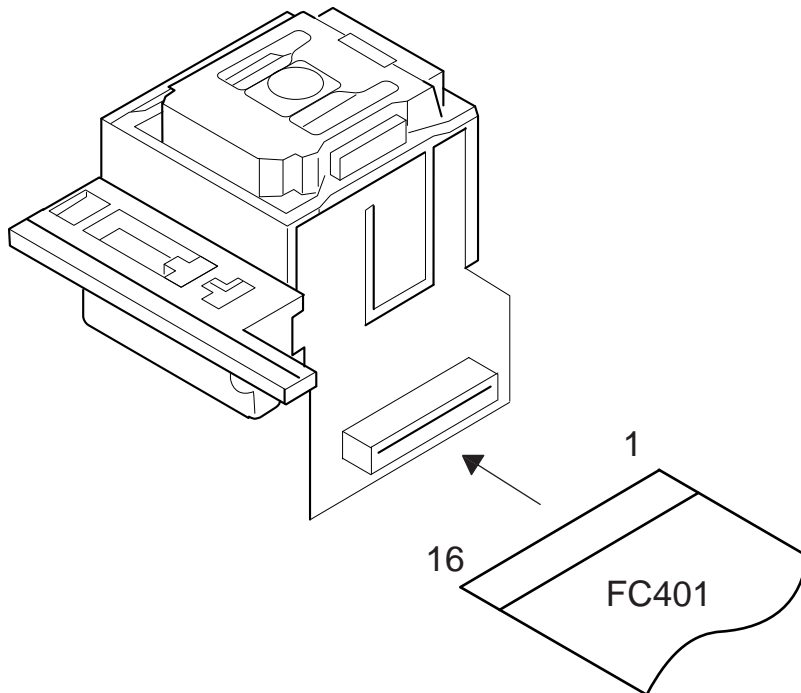
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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I CD MOTOR C.B



FROM A MAIN C.B CNA402

PICK UP ASSY
SF-P101NR

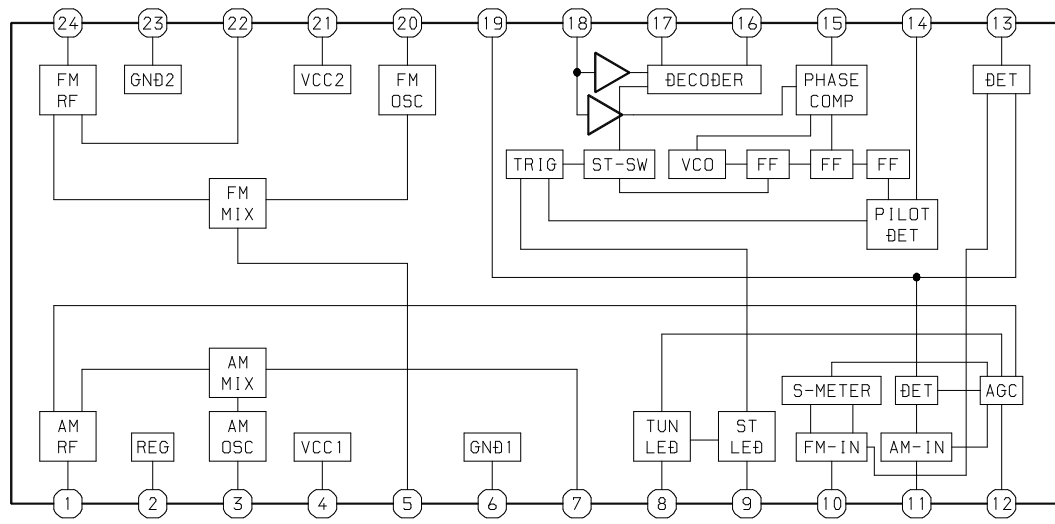


FROM A MAIN C.B CN401

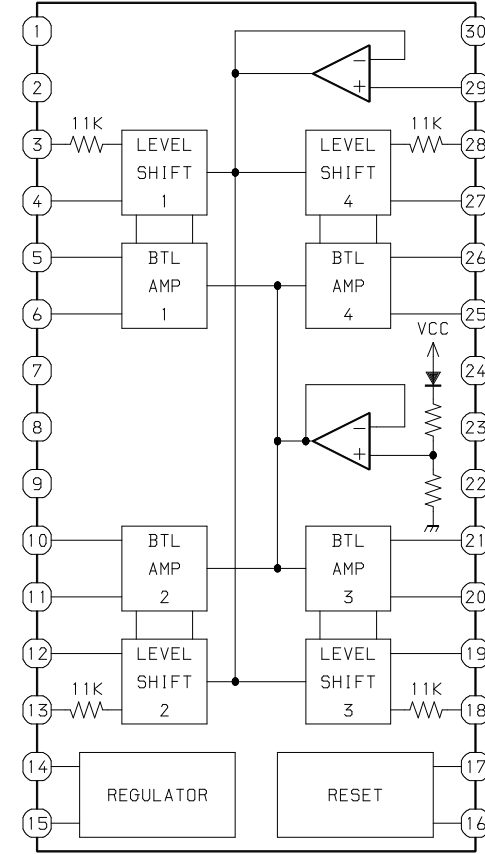
A
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IC BLOCK DIAGRAM

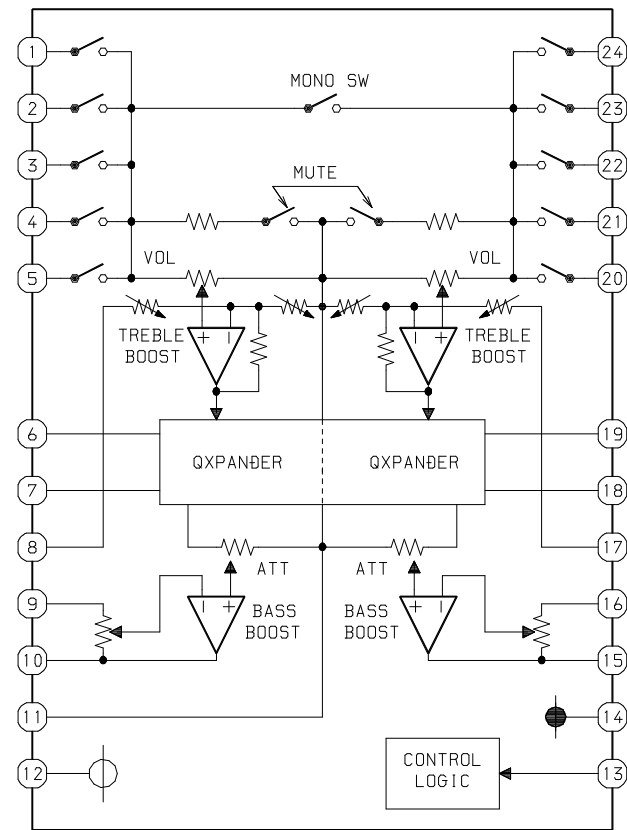
IC, LA1828



IC, LA6541Ø



IC, M61509FP



IC DESCRIPTION

IC, LC78622ED

Pin No.	Pin Name	I/O	Description
1	DEFI	I	Defect detection signal (DEF) input. ("L" is applied when not used.)
2	TAI	I	For PLL/Test input. A pull-down resistor is incorporated.
3	PDO	O	Phase comparison output to control the external VCO.
4	VVSS	–	Ground of the built-in VCO. Normally, 0V.
5	ISET	I	For the connection of a resistor which adjusts the PDO output current.
6	VVDD	–	Power supply of the built-in VCO.
7	FR	I	Adjusts the VCO frequency range.
8	VSS	–	Ground of digital circuits. Normally, 0V.
9	EFMO	O	For slice level control/EFM signal output.
10	EFMIN	I	EFM signal input.
11	T2	I	Test input. A pull-down resistor is incorporated. Be sure to connect this to 0V.
12	CLV+	O	Disc motor control tri-state outputs.
13	CLV-		
14	$\overline{V/P}$	O	Output to monitor the automatic switching between the rough servo control and phase servo control. "H" :Rough servo, "L": Phase servo.
15	HFL	I	Track detection signal input. Schmitt trigger input.
16	TES	I	Track error signal input. Schmitt trigger input.
17	TOFF	O	Tracking off output.
18	TGL	O	Tracking gain switching output. "L" raises the gain.
19	JP+	O	Track jump control tri-state outputs.
20	JP-		
21	PCK	O	Monitors the clock signal for EFM data playback.4.3218MHz when the phase is locked.
22	FSEQ	O	Sync signal detection output. Goes "H" when the sync signal detected from the EFM signal matches the sync signal generated internally. (Not used)
23	VDD	–	Power supply of digital circuits.
24	SL+	I/O	General purpose input/output 1. Controlled by serial data command issued by the microprocessor.
25	SL–	I/O	General purpose input/output 2. Controlled by serial data command issued by the microprocessor.
26	NC	–	Not connected.
27	PUIN	I/O	CD pickup inside limit switch.
28	RW	I/O	Serial data command sled signal output terminal from microprocessor.
29	EMPH	O	Deemphasis monitor. "H": when playing a deemphasis disc. (Not used)
30	C2F	O	C2 flag output. (Not used)
31	DOUT	O	Outputs a digital OUT signal. (EIAJ format) (Not used)
32	T3	I	Test input. A pull-down resistor is incorporated. Be sure to connect this to 0V.
33	T4		
34	N.C	–	Not connected.
35	MUTEL	O	Lch 1-bit DAC/Lch muting output. (Not used)

Pin No.	Pin Name	I/O	Description
36	LVDD	–	Lch power supply.
37	LCHO	O	Lch output.
38	LVSS	–	Lch ground. Normally, 0V.
39	RVSS	–	Rch 1-bit DAC/Rch ground. Normally, 0V.
40	RCHO	O	Rch output.
41	RVDD	–	Rch power supply.
42	MUTER	O	Rch muting output. (Not used)
43	XVDD	–	Power supply of crystal oscillator.
44	XOUT	O	For the connection of a 16.9344 MHz crystal oscillator.
45	XIN	I	
46	XVSS	–	Ground of crystal oscillator. Normally, 0V.
47	SBSY	O	Subcode block sync signal output. (Not used)
48	EFLG	O	C1,C2,single,duplex correction monitor. (Not used)
49	PW	O	Output of subcodes P,Q,R,S,T,U and W. (Not used)
50	SFSY	O	Subcode frame sync signal output. Falls when the subcode is set to the standby state.(No used)
51	SBCK	I	Subcode read-out clock input. Schmitt trigger input.("L" is applied when not used.)
52	FSX	O	7.35 kHz sync signal output obtained by dividing the oscillator frequency. (Not used)
53	WRQ	O	Subcode Q standby output.
54	RWC	I	Read/write control input. Schmitt trigger input.
55	SQOUT	O	Subcode Q output.
56	COIN	I	Command input from the microprocessor.
57	$\overline{\text{CQCK}}$	I	Command input retrieval clock or subcode retrieval clock input from SQOUT. Schmitt trigger input.
58	RES	I	LC78622 reset input.
59	T11	O	Test output. Set to open (normally, "L" output.) (Not used)
60	16M	O	16.9344 MHz output. (Not used)
61	4.2M	O	4.236 MHz output.
62	T5	I	Test input. A pull-down resistor is incorporated. Be sure to connect to 0 V.
63	$\overline{\text{CS}}$	I	Chip select input. A pull-down resistor is incorporated.
64	TEST1	I	Test input with no pull-down resistor. Be sure to connect this to 0 V.

Pin No.	Pin Name	I/O	Description
1	FIN2	O	For the connection of the pickup photodiode. Addition to the FIN1 pin creates an RF signal and subtraction from it create an EF signal.
2	FIN1	O	For the connection of the pickup photodiode.
3	E	O	For the connection of the pickup photodiode. Subtraction from the F pin creates a TE signal.
4	F	O	For the connection of the pickup photodiode.
5	TB	I	Inputs the DC components in the TE signal.
6	TE-	O	For the connection of a resistor which sets the gain of the TE signal between this pin and the TE pin.
7	TE	O	TE signal output.
8	TESI	I	TES (track error sense) comparator input. The TE signal is passed through a BPF.
9	SCI	I	Shock detection input.
10	TH	I	Sets the time constant for the tracking gain.
11	TA	O	TA amp output.
12	TD-	I	Composes the tracking phase compensation constant between the TD and VR pins.
13	TD	O	Sets the tracking phase compensation.
14	JP	I	Sets the amplitude of the tracking jump signal (kick pulses).
15	TO	O	Tracking control signal output.
16	FD	O	Focusing control signal output.
17	FD-	I	Composes the focusing phase compensation constant between the FD and FA pins.
18	FA	O	Composes the focusing phase compensation constant between the FD- and FA- pins.
19	FA-	I	Composes the focusing phase compensation constant between the FA and FE pins.
20	FE	O	FE signal output.
21	FE-	I	For the connection of a resistor which sets the gain of the FE signal between this pin and the TE pin.
22	AGND	O	Ground of analog signals.
23	SP	O	Single-ended output of the signals input to the CV+ and CV- pins.
24	SPI	I	Spindle amp input.
25	SPG	I	For the connection of a resistor which sets the gain in the spindle 12cm mode.
26	SP-	I	For the connection of the spindle phase compensation constant with the SPD pin.
27	SPD	O	Spindle control signal output.
28	SLEQ	I	For the connection of sled phase compensation constant.
29	SLD	O	Sled control signal output.
30	SL-	I	Sled feed signal input from the microprocessor.
31	SL+		
32	JP-	I	Tracking signal input from the DSP.
33	JP+		
34	TGL	I	Tracking gain control signal input from the DSP. Low gain when TGL is "H".
35	TOFF	I	Tracking off control signal input from the DSP. Off when TOFF is "H".
36	TES	O	Outputs the TES signal to the DSP.

Pin No.	Pin Name	I/O	Description
37	HFL	O	The HFL (high frequency level) signal is used to judge whether the main beam is positioned on the pit or on the mirror.
38	SLOF	I	Sled servo off control input.
39	CV-	I	CLV error signal input from the DSP.
40	CV+		
41	RFSM	O	RF output.
42	RFS-	O	Sets the RF gain and the EFM signal's 3T compensation constant together with the RFSM pin.
43	SLC	O	The SLC (slice level control) signal is output to control the DSP's data slice level of the RF waveform.
44	SL1	I	Input to control the DSP's data slice level.
45	DGND	-	Ground of digital signals.
46	FSC	O	Output for the focus search smoothing capacitor.
47	TBC	I	The TBC (tracking balance control) signal sets the EF balance variation range.
48	NC	-	Not connected.
49	DEF	O	Disc defect detection output.
50	CLK	I	Reference clock input. 4.23 MHz is input from the DSP.
51	CL	I	Microprocessor command clock input.
52	DAT	I	Microprocessor command data input.
53	CE	I	Microprocessor chip enable input.
54	DRF	O	DRF (detect RF) is an output to detect the RF level.
55	FSS	I	The FSS (focus search select) signal switches the focus search modes (+/-search / +search with respect to the reference voltage).
56	VCC2	-	VCC of servo and digital circuits.
57	REF1	-	For the connection of bypass capacitor for the reference voltage.
58	VR	O	Reference voltage output.
59	LF2	-	Sets the time constant for disc defect detection.
60	PH1	-	For the connection of a capacitor to hold the RF signal peak.
61	BH1	-	For the connection of a capacitor to hold the RF signal bottom.
62	LDD	O	APC circuit output.
63	LDS	I	APC circuit input.
64	VCC1	-	VCC of RF signal circuits.

IC, LC865516A-5P16

Pin No.	Pin Name	I/O	Description
1	$\overline{\text{SEG E}}$	O	SEG E control.
2	$\overline{\text{SEG F}}$	O	SEG F control.
3	$\overline{\text{SEG G}}$	O	SEG G control.
4	NC	—	Not connected.
5	I-RST	I	Microprocessor reset input.
6	XT1 (IN)	I	Connected to an external 32.768 kHz crystal oscillator.
7	NC	—	Not connected.
8	XT2 (OUT)	O	Connected to an external 32.768 kHz crystal oscillator.
9	VSS	—	GND.
10	CF1 (IN)	I	Connected to an external 5.76 MHz ceramic filter.
11	CF2 (OUT)	O	Connected to an external 5.76 MHz ceramic filter.
12	VDD	—	Microprocessor power supply (+5 V).
13	I-KEY0	I	Key AD input. (AD)
14	I-KEY1	I	Key AD input. (AD)
15	I-MOTOR	I	Deck status input. (AD)
16	I-CD SW	I	CD door switch status input.
17	O-SHIFT	O	Main clock shift output.
18	NC	—	Not connected.
19	O-BASS LED	O	BASS LED ON/OFF control output. (Not used)
20	O-QS LED	O	Q sound LED ON/OFF control output.
21	O-SFT LED	—	Not used.
22	I-DRF	I	CD RF level detection input.
23	I-WRQ	I	CD subcode Q standby input.
24	NC	—	Not connected.
25	I-REM	I	Remote control input.
26	O-CD ON	O	CD power control output.
27	O-TU ON	O	TU power control output.
28	O-P.CONT	O	The main power supply control output.
29	NC	—	Not connected.
30	O-BEAT	O	Beat sw control output.
31	O-MUTE	O	Main mute output.
32	O-DIGIT	O	7-segment LED power supply control output.
33	O-SEG REPEAT	O	REPEAT LED ON/OFF control output.
34	O-COIN	O	CD command output.
35	I-SQOUT	I	CD subcode Q input.
36	O-CQCK	O	CD command/CLK for subcode.
37	O-RWC	O	CD read/write control output.
38	O-DATA	O	Data output to M61509FP.
39	O-CD LED	O	LED ON/OFF control output for the CD function.
40	O-TU LED	O	LED ON/OFF control output for the TU function.
41	O-TA LED	O	LED ON/OFF control output for the TA function. (Not used)

Pin No.	Pin Name	I/O	Description
42	NC	—	Not connected.
43	$\overline{\text{SEG DP}}$	O	SEG DP control.
44	$\overline{\text{SEG A}}$	O	SEG A control.
45	$\overline{\text{SEG B}}$	O	SEG B control.
46	$\overline{\text{SEG C}}$	O	SEG C control.
47	$\overline{\text{SEG D}}$	O	SEG D control.
48	NC	—	Not connected.

ADJUSTMENT <TUNER / DECK / CD>

< RADIO SECTION > <EZ, G>

1. LW Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L016, TC005
 - Method:
 - L016 145kHz
 - TC005 295kHz
2. LW Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L003 (1/2), TC006
 - Method:
 - L003 (1/2) 150kHz
 - TC006 285kHz
3. MW Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L017, TC003
 - Method:
 - L017 515kHz
 - TC003 1635kHz
4. MW Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L003 (2/2), TC004
 - Method:
 - L003 (2/2) 600kHz
 - TC004 1400kHz
5. AM IF Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L007
 - Method:
 - L007 455kHz
6. FM Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L005, TC001
 - Method:
 - L005 87.4MHz
 - TC001 108.3MHz
7. FM Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L004, TC002
 - Method:
 - L004 88MHz
 - TC002 108MHz
8. FM IF Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L008, L009
 - Method:
 - L008, L009 10.7MHz

< RADIO SECTION > <HC>

1. AM Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L006, TC003
 - Method:
 - L006 515kHz
 - TC003 1635kHz
2. AM Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L003, TC004
 - Method:
 - L003 600kHz
 - TC004 1400kHz
3. AM IF Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L007
 - Method:
 - L007 455kHz
4. FM Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L005, TC001
 - Method:
 - L005 87MHz
 - TC001 109MHz
5. FM Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L004, TC002
 - Method:
 - L004 88MHz
 - TC002 108MHz
6. FM IF Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L008, L009
 - Method:
 - L008, L009 10.7MHz

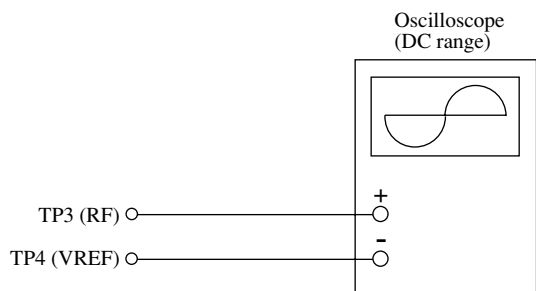
< TAPE RECORDER SECTION >

1. Bias Adjustment
 - Test tape: TTA-630
 - Test Point: TP2
 - Adjustment location: L801
 - Method:
 - L801 85kHz±2kHz
2. Azimuth Adjustment
 - Settings:
 - Test tape: TTA-320
 - Test point: PHONE JACK
 - Adjustment location: Azimuth adjustment screw
 - Method: Play back the test tape and adjust the screw so that the output is maximum.

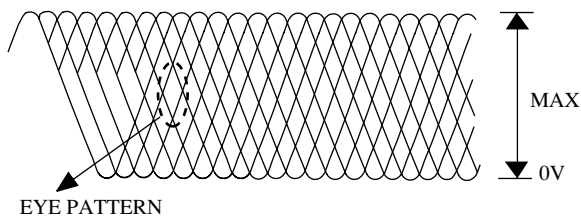
< CD SECTION >

1. Focus Bias Adjustment

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

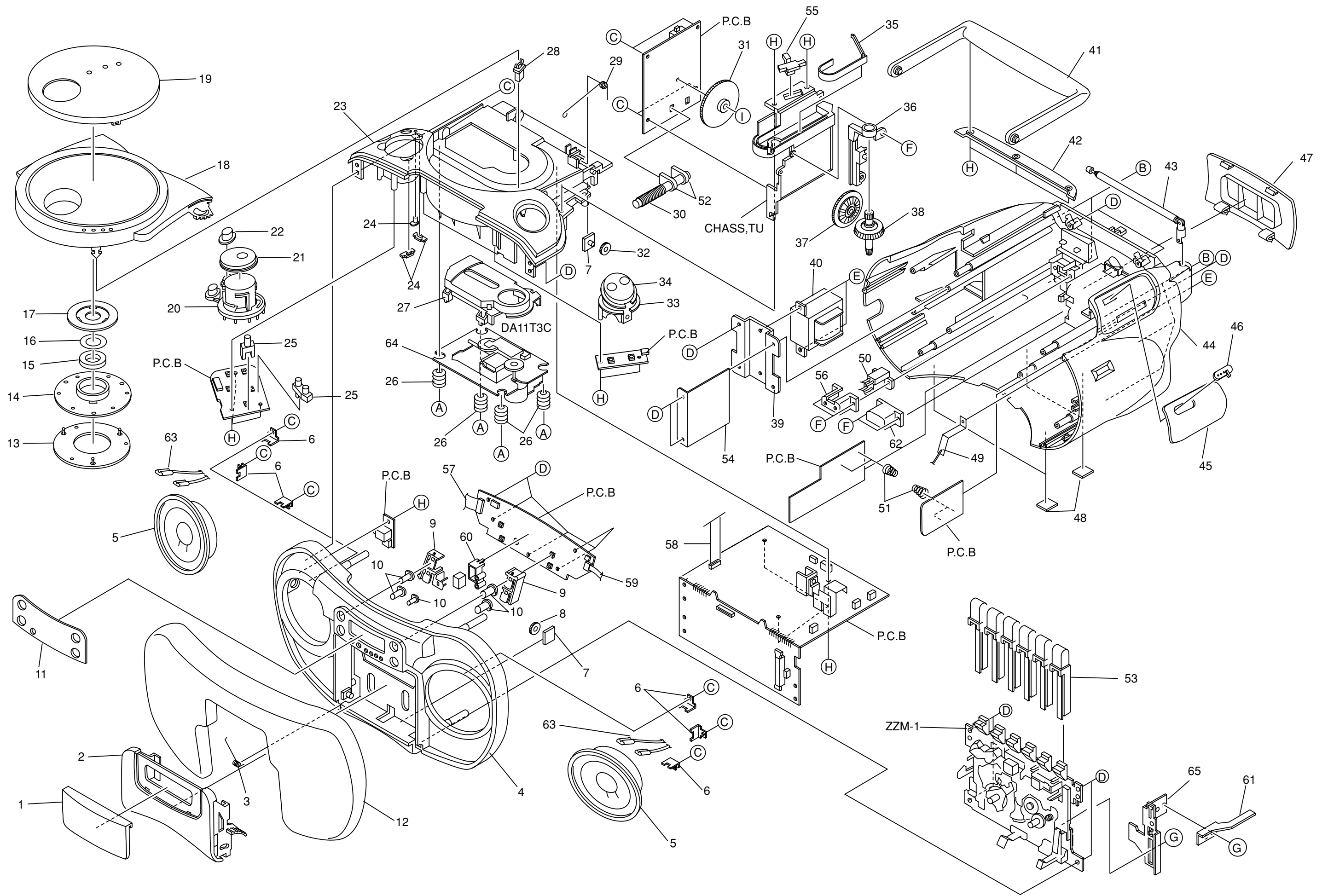


- 1) Connect an oscilloscope to the test point TP3 (RF) and TP4 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 4) Adjust SFR430 so that RF signal of the test point TP3 (RF) is MAX and CLEAREST.



must be CLEAR and MAX

VOLT / DIV: 200mV
TIME / DIV: 0.5μs



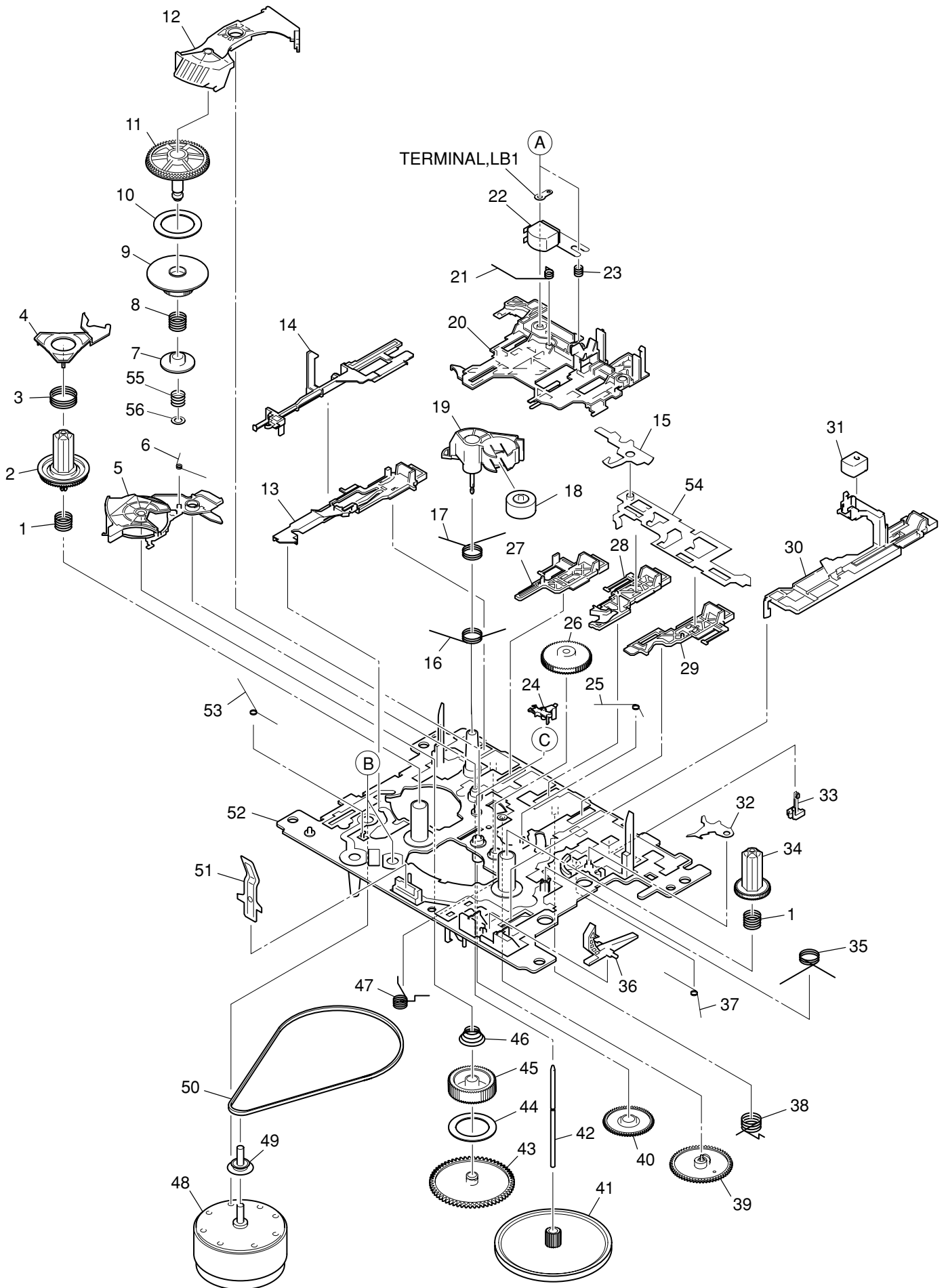
MECHANICAL PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-CDB-006-010		WINDOW, CASS	△	40	8A-CDB-653-010	PT, E 2.5W EI48X23<[S]EZ, [S]G>
2	8A-CDB-008-010		BOX, CASS	△	40	8A-CDB-651-010	PT, H 2.5W EI48X23<[S]HC>
3	8A-CDB-204-010		SPR-T, CASS	41	8A-CDB-019-010		HANDL, GRIP
4	8A-CDB-001-010		CABI, FR	42	8A-CDB-018-110		COVER, HANDL
5	88-CD8-622-010		SPKR, F 77 70HM 3W	43	87-A91-857-010		ANT, ROD 5SEC709
6	8Z-CDB-208-010		HLDR, SPKR	44	8A-CDB-002-010		CABI, REAR
7	8A-CDB-205-010		PLATE, OIL DUMP	45	8A-CDB-007-010		WINDOW, TU<[S]HC>
8	87-063-164-010		OIL-DMPR 80	45	8A-CDB-027-010		WINDOW, TU EZ<[S]EZ, [S]G>
9	8A-CDB-206-010		BASE, CD	46	8A-CDB-217-010		LEVER, BAND
10	8A-CDB-016-010		BTN, CD	47	8A-CDB-020-010		LID, BATT
11	8A-CDB-004-010		WINDOW, DISP	48	86-CT9-223-010		CUSH, FOOT
12	8A-CDB-023-110		GRILLE, SPKR	49	8A-CDB-207-010		HLDR, ANT
13	8Z-CT6-213-010		BASE, CHUCK	△	50	87-A60-178-010	JACK, AC E W/SW
14	8Z-CT6-214-010		RING, CHUCK	51	8A-CDB-215-010		SPR-T, BATT
15	87-036-368-010		MAGNET	52	8A-CDB-220-010		HLDR, M66 BAR ANT
16	86-CT9-222-010		PLATE, MAGNET	53	8A-CDB-131-010		KEY, REC
17	86-CT9-217-010		HLDR, CHUCK A(S)	54	8A-CDB-216-010		PLATE, TRAN
18	8A-CDB-009-210		BOX, CD	55	8A-CDB-010-010		BTN, TU
19	8A-CDB-005-010		WINDOW, CD	56	87-A90-086-010		COVER, AC JACK
20	8A-CDB-213-010		BASE, FUNC	57	8A-CDB-618-010		FF-CABLE, 16P 1.25 FR-MAIN
21	8A-CDB-013-010		BTN, FUNC	58	8A-CDB-623-010		FF-CABLE, 16P 1.0 CD-RF
22	8A-CDB-014-010		BTN, QSOUND	59	8A-CDB-619-010		FF-CABLE, 8P 1.25 CD-FR
23	8A-CDB-003-010		CHAS, CD	60	8A-CDB-208-010		HLDR, LED SA/SC36
24	8A-CDB-021-010		LENS, FUNC	61	8A-CDB-226-010		SPR-P, REC
25	8A-CDB-203-010		HLDR, LED FUNC	△	62	87-A91-369-010	SW, AC SL 2 2 2 SDKGA41700<[S]HC>
26	88-CH6-220-010		CUSHION, CD A	63	8A-CDB-633-010		CONN ASSY, 4P SPKR
27	8Z-CT9-064-010		PANEL CD	64	M8-ZZK-E90-070		DA11T3C
28	87-036-389-010		SW, PUSH LOCK	65	8A-CDB-225-010		PLATE, REC
29	8A-CDB-218-010		SPR-T, CD	A	81-CD5-204-010		SCREW CD
30	8A-CD9-661-010		BAR-ANT, MW/LW 3B-ACD(COI)<[S]EZ, [S]G>	B	87-651-104-410		VT1+3-30
30	8A-CD9-660-010		BAR-ANT, MW 2B-ACD(COI)<[S]HC>	C	87-741-096-410		UT2+3-10
31	8A-CDB-210-010		DRUM, GEAR	D	87-751-097-410		SCREW 3X12
32	87-063-165-010		OIL-DMPR 150	E	87-261-096-410		SCREW, V+3-10 GLD
33	8A-CDB-214-010		BASE, VOL	F	87-741-074-410		UT2+2.6-8
34	8A-CDB-012-010		BTN, VOL	G	87-745-094-410		UT2+3-6 W/O SLOT NI
35	8A-CDB-022-010		POINTER, TU	H	87-751-095-410		VT2+3-8 W/O
36	8A-CDB-209-010		HLDR, BTN TUN	I	87-745-094-410		UT2+3-6
37	8A-CDB-211-010		GEAR, MID TUN				
38	8A-CDB-011-010		BTN, TUN				
39	8A-CDB-219-010		HLDR, TRAN				

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange	GM	Metallic Green
YM	Metallic Yellow	DM	Metallic Orange	PT	Transparent Pink

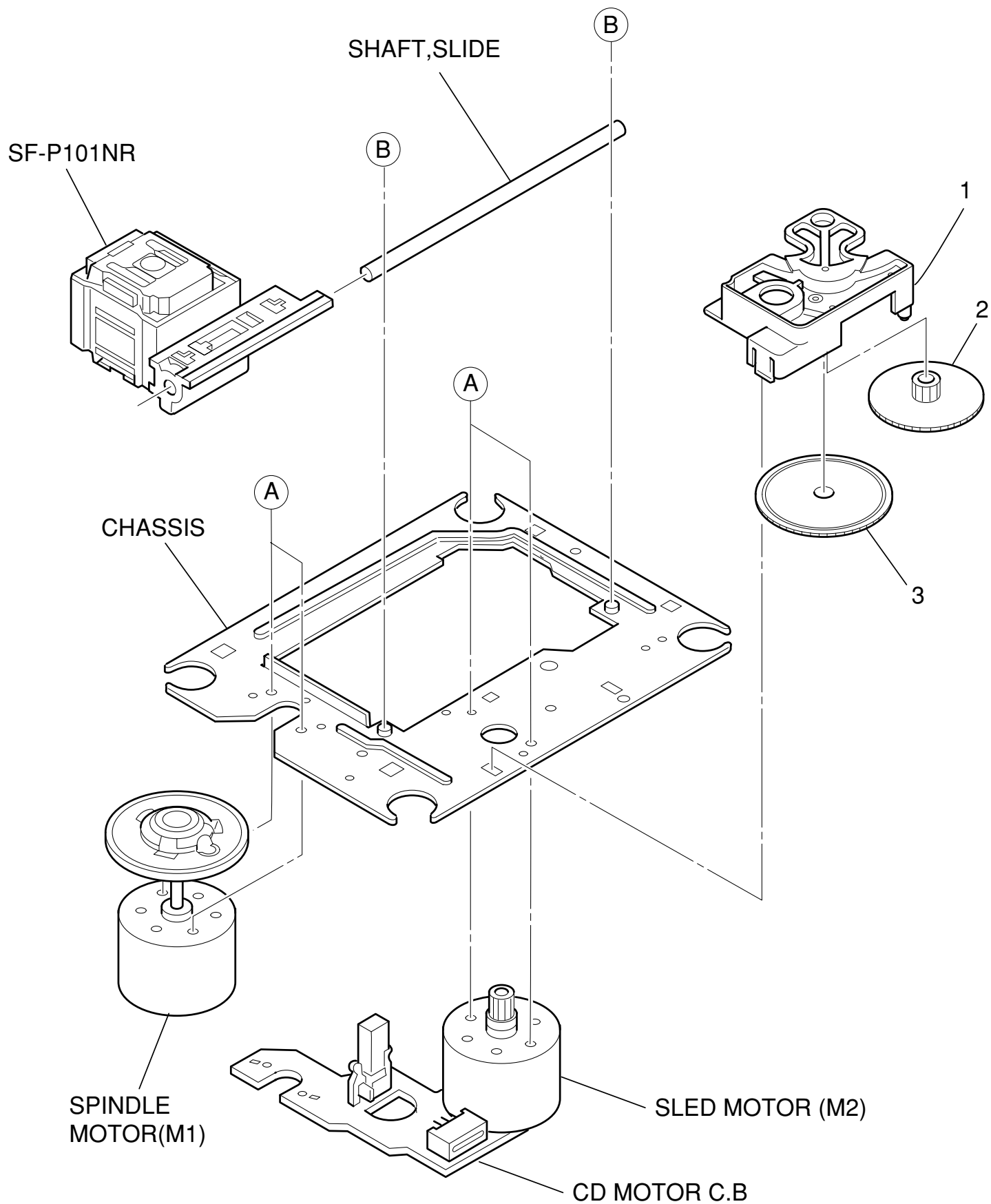
TAPE MECHANISM EXPLODED VIEW 1 / 1



TAPE MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-ZM1-254-310		SPR-C, REEL R	31	87-A91-819-010		HEAD, EH 2NSS-2200
2	8Z-ZM1-225-110		GEAR, REEL R	32	8Z-ZM1-215-010		LEVER, REC LOCK
3	8Z-ZM1-253-210		SPR-C, AUTO SENSOR	33	87-A91-492-010		SW, LEAF MSW18560
4	8Z-ZM1-217-110		LEVER, AUTO SENSOR	34	8Z-ZM1-226-010		GEAR, REEL L
5	8Z-ZM1-212-110		LEVER, T-UP	35	8Z-ZM1-241-210		SPR-T, PLAY
6	8Z-ZM1-245-310		SPR-T, AUTO	36	8Z-ZM1-220-110		LEVER, REC SENSOR
7	8Z-ZM1-236-010		CLR, SLIP FF/REW	37	8Z-ZM1-249-210		SPR-T, FR
8	8Z-ZM1-252-110		SPR-C, FF/REW	38	8Z-ZM1-242-310		SPR-T, FF/REW
9	8Z-ZM1-230-010		GEAR, SLIP FF/REW A	39	8Z-ZM3-244-010		GEAR, CAM TD20
10	8Z-ZM1-269-010		FELT, FF/REW 2	40	8Z-ZM1-232-010		GEAR, IDL FF/REW
11	8Z-ZM1-238-110		GEAR, SLIP FF/REW B 2	41	8Z-ZM3-228-110		FLY-WHL, M3
12	8Z-ZM1-237-110		LEVER, FF/REW 2	42	8Z-ZM1-267-110		SHAFT, CAPSTAN 2
13	8Z-ZM1-283-010		LEVER, PAUSE 2	43	8Z-ZM1-228-010		GEAR, SLIP T-UP B
14	8Z-ZM1-222-010		LEVER, E-LOCK M	44	8Z-ZM1-265-010		FELT, T-UP
15	8Z-ZM1-219-010		LEVER, E-OPEN	45	8Z-ZM1-227-010		GEAR, SLIP T-UP A
16	8Z-ZM1-244-110		SPR-T, T-UP	46	8Z-ZM1-251-210		SPR-C, T-UP SLIP
17	8Z-ZM1-247-310		SPR-T, PINCH	47	8Z-ZM1-243-310		SPR-T, STOP/PAUSE
18	8Z-ZM1-261-110		ROLLER ASSY, PINCH	48	87-A91-825-010		MOT, M09Y/Z
19	8Z-ZM1-221-210		LEVER, PINCH	49	8Z-ZM1-271-010		PULLEY, MOT ZZM-1
20	8Z-ZM1-205-310		LEVER, PLAY	50	8Z-ZM1-264-010		BELT, MAIN S
21	8Z-ZM1-248-210		SPR-T, BRG	51	8Z-ZM1-260-010		SPR-P, CASSETTE
22	87-A91-830-010		HEAD, RP-7442	52	8Z-ZM1-201-610		CHAS ASSY, ZZM-1
23	84-ZM2-227-310		SPR-C, AZIMUTH	53	8Z-ZM1-255-310		SPR-T, E-LOCK
24	8Z-ZM1-216-110		LEVER, AUTO	54	8Z-ZM1-214-210		LEVER, LOCK
25	8Z-ZM1-246-110		SPR-T, AUTO 2	55	8Z-ZM1-257-110		SPR-C, F/R
26	8Z-ZM1-233-110		GEAR, IDL REW	56	8Z-ZM1-275-010		W-L, 1.47-4-0.25
27	8Z-ZM1-208-010		LEVER, STOP	A	84-ZM2-242-010		S-SCREW, AZ1-2-6.4
28	8Z-ZM1-207-010		LEVER, FF	B	8Z-ZM1-270-110		V+2.6 ZZM-1
29	8Z-ZM1-206-010		LEVER, REW	C	87-B10-301-010		W-L, 1.63-3.2-0.5 SLIT
30	8Z-ZM1-211-210		LEVER, REC 2				




CD MECHANISM EXPLODED VIEW 1 / 1



CD MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S2-121-A28-400		COVER GEAR
2	S2-511-A21-000		GEAR MIDDLE
3	S2-511-A21-100		GEAR, DRIVE
A	S1-PN2-03R-OSE		SCR PAN PCS 2-3
B	87-261-073-410		SCR S-TPG FLT 2.6-6
ALL	M8-ZZK-E90-070		DA11T3C

ACCESSORIES / PACKAGE LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-CDB-906-010		IB, EZ (9L) FM<EZ>
1	8A-CDB-911-010		IB, H (EC-K) FM<HC>
1	8A-CDB-904-010		IB, G (E) FM<G>
	2	87-A80-036-010	AC CORD SET ASSY, E W/FLTR VOL<EZ>
	2	87-A80-089-010	AC CORD SET, HC<HC>
	2	87-A80-144-010	AC CORD SET ASSY, G BLK<G>

アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110, JAPAN TEL:03 (3827) 3111