

SERVICE MANUAL

COMPACT DISC STEREO
RADIO CASSETTE RECORDER

BASIC TAPE MECHANISM : TN-21ZVC-2000
BASIC CD MECHANISM : DA11T3C

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual" CSD-A310 (LH, HA), (S/M Code No. 09-003-428-2T1) and CSD-A310 (K), (S/M Code No. 09-003-428-2T2).

SPECIFICATIONS

<Tuner section>

Frequency range

FM: 87.5 MHz to 108.0 MHz
Antenna: Rod antenna
AM (MW):
530 kHz to 1,750 kHz <LH, HA>
530 kHz to 1,605 kHz <K>
Antenna: Ferrite bar antenna
LW: <K>
150 kHz to 285 kHz
Antenna: Ferrite bar antenna

<Deck section>

Track format

Frequency range

Recording system

Erasing system

Heads

4 tracks, 2 channels
Normal tape: 50 - 12,500 Hz (EIAJ)
AC bias
Magnet erase
Recording/playback head (1)
Erasure head (1)

<CD player section>

Disc

Scanning method

Compact disc
Non-contact optical scanner
(semiconductor laser)

<General>

Speaker

Outputs

Power output

80 mm cone type (2)
Headphones jack: stereo mini-jack
2.5 W + 2.5 W
(EIAJ 7 ohms, T.H.D. 10 %)
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 <LH, HA>
AC 230 V, 50 Hz <K>

Power consumption

Dimensions

(W x H x D)

Weight

16 W
310 x 171 x 260 mm

2.8 kg (excluding batteries)

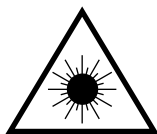
- Design and specifications are subject to change without notice.

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

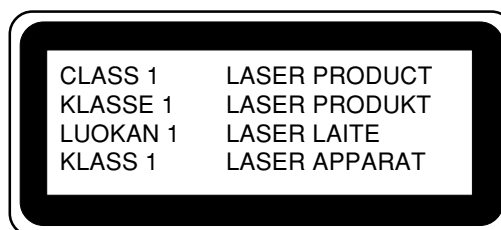
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

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.

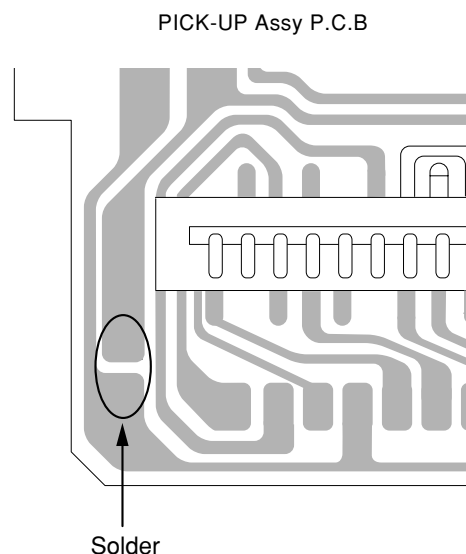


Precaution to replace Optical block

(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

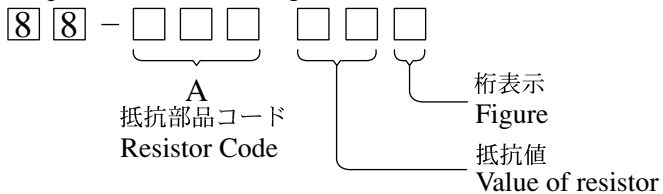
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC							
	87-A20-955-010	IC,LA1828		C278	87-010-405-080		CAP, ELECT 10-50V
	87-A21-064-010	IC,LA4227		C279	87-010-385-080		CAP, ELECT 220-25V
	87-A21-520-040	C-IC,M61509FP		C301	87-016-658-000		CAP,E 4700-35 M SMG
	87-A20-446-010	C-IC,LA9241ML		C306	87-010-404-080		CAP, ELECT 4.7-50V
	87-A20-459-010	C-IC,LC78622ED		C307	87-010-401-080		CAP, ELECT 1-50V
	87-A21-093-010	IC,LA6541D		C308	87-010-221-080		CAP, ELECT 470-10V
	8A-CD9-610-010	C-IC,LC865516A-5P16		C309	87-010-197-080		CAP, CHIP 0.01 DM
	87-A21-431-010	IC,BA4560N		C310	87-010-248-080		CAP, ELECT 220-10V
				C311	87-010-374-080		CAP, ELECT 47-10V
				C312	87-010-385-080		CAP, ELECT 220-25V
TRANSISTOR							
	89-327-143-080	TR,2SC2714 (0.1W)		C316	87-010-384-080		CAP, ELECT 100-25V
	87-026-447-080	TR,2SC1740S R		C321	87-010-197-080		CAP, CHIP 0.01 DM
	87-026-463-080	TR,2SA933S (0.3W)		C322	87-010-263-080		CAP, ELECT 100-10V
	87-026-213-080	CHIP-TR,DTC114YK		C325	87-010-405-080		CAP, ELECT 10-50V
	89-320-011-080	TR,2SC2001 (15W)		C401	87-010-403-080		CAP, ELECT 3.3-50V
	89-112-965-080	TR,2SA1296 (0.75W)		C402	87-010-197-080		CAP, CHIP 0.01 DM
	87-026-291-080	TR,DTC124XS		C403	87-010-263-080		CAP, ELECT 100-10V
	87-A30-226-010	TR,2SB1655E		C404	87-010-248-080		CAP, ELECT 220-10V
	87-026-462-080	TR,2SC1740 S(RS 0.3W)		C405	87-010-197-080		CAP, CHIP 0.01 DM
	89-318-154-080	TR,2SC1815 (0.4W)		C406	87-010-374-080		CAP, ELECT 47-10V
	89-109-332-380	TR,2SA933RS		C407	87-010-178-080		CHIP CAP 1000P
	89-113-187-080	TR,2SA1318TU		C408	87-010-198-080		CAP, CHIP 0.022
	87-026-239-080	TR,DTC114TK (0.2W)		C409	87-010-248-080		CAP, ELECT 220-10V
	87-026-297-080	TR,DTA144TK		C410	87-010-263-080		CAP, ELECT 100-10V
	89-317-403-080	TR,2SC1740S		C411	87-A11-177-080		C-CAP,S 0.15-16 K B
	87-026-464-010	TR,DTC114TS		C412	87-010-401-080		CAP, ELECT 1-50V
	87-026-464-080	TR,DTC114TS (0.3W)		C413	87-016-369-080		C-CAP,S 0.033-25 B K
				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							
	87-020-465-080	DIODE,1SS133 (110MA)		C419	87-A11-608-080		C-CAP,S 0.33-25 K B
	87-027-607-080	ZENER,HZ7B3L		C420	87-016-369-080		C-CAP,S 0.033-25 B K
	87-A40-466-080	ZENER,MTZJ2.7A		C421	87-A11-177-080		C-CAP,S 0.15-16 K B
	87-070-345-080	DIODE,IN4148		C422	87-010-183-080		C-CAP,S 2700P-50 B
	87-A40-648-080	ZENER,MTZJ8.2A		C423	87-010-956-080		CHIP-CAP,S 0.068-25B
	87-A40-234-080	ZENER,MTZJ5.6A		C424	87-010-993-080		C-CAP,S 0.056-25 B
	87-017-978-080	DIODE,1N4003		C425	87-010-176-080		C-CAP,S 680P-50 SL
	87-017-932-080	ZENER,MTZJ6.2B		C426	87-A11-608-080		C-CAP,S 0.33-25 K B
	87-A40-465-010	DIODE,FR202		C428	87-010-197-080		CAP, CHIP 0.01 DM
				C429	87-010-186-080		CAP,CHIP 4700P
				C430	87-012-156-080		C-CAP,S 220P-50 CH
MAIN C.B							
C30	87-010-260-080	CAP, ELECT 47-25V		C431	87-010-545-080		CAP, ELECT 0.22-50V
C211	87-010-805-080	CAP, S 1-16		C432	87-010-374-080		CAP, ELECT 47-10V
C212	87-010-805-080	CAP, S 1-16		C433	87-010-401-080		CAP, ELECT 1-50V
C215	87-016-460-080	C-CAP,S 0.22-16 B		C434	87-010-184-080		CHIP CAPACITOR 3300P(K)
C216	87-016-460-080	C-CAP,S 0.22-16 B		C435	87-010-197-080		CAP, CHIP 0.01 DM
C231	87-010-213-080	C-CAP,S 0.015-50 B		C436	87-010-374-080		CAP, ELECT 47-10V
C232	87-010-213-080	C-CAP,S 0.015-50 B		C437	87-010-404-080		CAP, ELECT 4.7-50V
C233	87-A10-201-080	C-CAP,S0.33-16 KB		C438	87-016-669-080		C-CAP,S 0.1-25 K B
C234	87-A10-201-080	C-CAP,S0.33-16 KB		C439	87-010-178-080		CHIP CAP 1000P
C235	87-016-669-080	C-CAP,S 0.1-25 K B		C440	87-010-145-080		C-CAP,S 1P-50 CH
C236	87-016-669-080	C-CAP,S 0.1-25 K B		C441	87-010-197-080		CAP, CHIP 0.01 DM
C237	87-010-408-080	CAP, ELECT 47-50V		C442	87-010-312-080		C-CAP,S 15P-50 CH
C239	87-010-197-080	CAP, CHIP 0.01 DM		C445	87-012-368-080		C-CAP,S 0.1-50 F
C240	87-010-197-080	CAP, CHIP 0.01 DM		C446	87-012-368-080		C-CAP,S 0.1-50 F
C247	87-010-401-080	CAP, ELECT 1-50V		C448	87-010-315-080		C-CAP,S 27P-50 CH
C248	87-010-401-080	CAP, ELECT 1-50V		C450	87-012-140-080		CAP 470P
C251	87-010-401-080	CAP, ELECT 1-50V		C451	87-012-156-080		C-CAP,S 220P-50 CH
C263	87-010-178-080	CHIP CAP 1000P		C455	87-010-247-080		CAP, ELECT 100-50V
C264	87-010-178-080	CHIP CAP 1000P		C457	87-010-312-080		C-CAP,S 15P-50 CH
C265	87-010-263-080	CAP, ELECT 100-10V		C458	87-010-312-080		C-CAP,S 15P-50 CH
C266	87-010-263-080	CAP, ELECT 100-10V		C459	87-010-263-080		CAP, ELECT 100-10V
C267	87-010-112-080	CAP, ELECT 100-16V		C460	87-015-819-080		CAPACITOR,0.01
C268	87-010-112-080	CAP, ELECT 100-16V		C461	87-010-197-080		CAP, CHIP 0.01 DM
C271	87-010-235-080	CAP,E 470-16 SME		C462	87-010-248-080		CAP, ELECT 220-10V
C272	87-010-235-080	CAP,E 470-16 SME		C463	87-010-190-080		S CHIP F 0.01
				C465	87-010-404-080		CAP, ELECT 4.7-50V
				C466	87-012-368-080		C-CAP,S 0.1-50 F

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
S1	87-A91-549-010		SW,SL-6-4 SK64D01G06<K>	VOL C.B			
SW1	87-A91-548-010		SW,SL-2-3 SK23E01G06<EXCEPT K>	CN607	84-722-632-010		CONN,2P H
TC5	87-011-221-080		TRIMMER,CER 30P 6.15X5.9 VC<K>	S614	8Z-CT6-636-010		SW,TACT EVQJAC04M
TC6	87-011-221-080		TRIMMER,CER 30P 6.15X5.9 VC<K>	S615	8Z-CT6-636-010		SW,TACT EVQJAC04M
VC1	87-A91-635-010		TUN-CAP,20P-140P E-ACD(MITSUMI)				
FRONT C.B				PHONE C.B			
C601	87-010-313-080		CAP, CHIP 18P	CN204	87-049-469-010		CONN,4P V
C602	87-010-315-080		C-CAP,S 27P-50 CH	CNA203	8A-CDB-624-010		CONN ASSY,3P H.P
C603	87-010-319-080		C-CAP,S 56P-50 CH	CNA204	8A-CDB-633-010		CONN ASSY,4P SPKR
C604	87-010-317-010		CHIP CAP,S 39P CH	J251	87-009-216-010		JACK, DIA 3.5
C605	87-010-263-080		CAP, ELECT 100-10V				
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<K>
CN602	87-099-201-010		CONN,8P 6216 H	△ PT901	8A-CDB-651-010		PT,H 2.5W EI48X23<EXCEPT K>
CNA604	8A-CDB-616-010		CONN ASSY,6P KEY FUNCT				
CNA606	8A-CDB-617-010		CONN ASSY,2P KEY VOL	BATT B C.B			
FC601	8A-CDB-618-010		FF-CABLE, 16P 1.25 FR-MAIN				
FC602	8A-CDB-619-010		FF-CABLE, 8P 1.25 CD-FR				
L601	87-003-102-080		COIL, 10UH	CD MOTOR C.B			
LED602	88-CD6-630-010		LED,934ID RED	M2	9X-262-576-910		MOTOR GEAR ASSY
LED608	88-CD6-630-010		LED,934ID RED	PIN3	91-564-722-110		CONNECTOR 6P
LED611	87-CD8-616-010		LED,SA36-11 HWA-11.0	SW1	91-572-085-120		LEAF SW
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



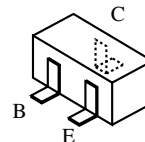
E C B

2SC2001
2SA1318TU

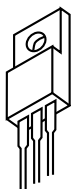


E C B

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



DTC114YK
DTC114TK
DTA144TK
2SC2714



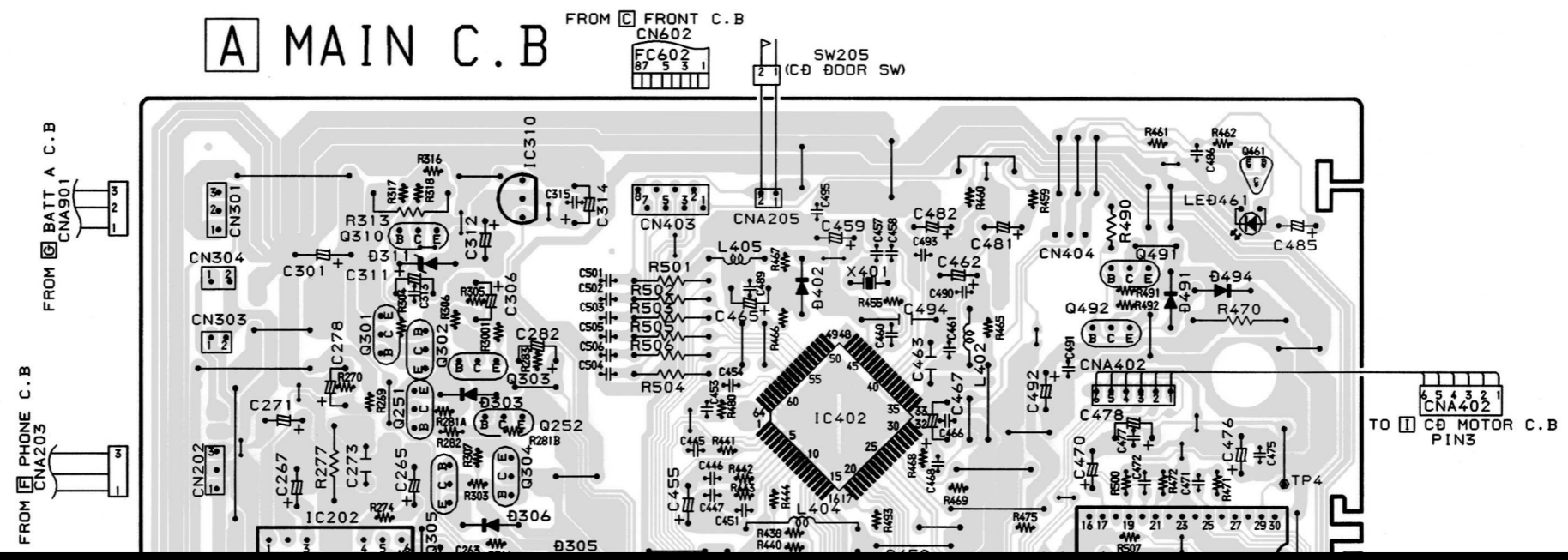
B C E

2SB1655E

WIRING - 1 (MAIN)

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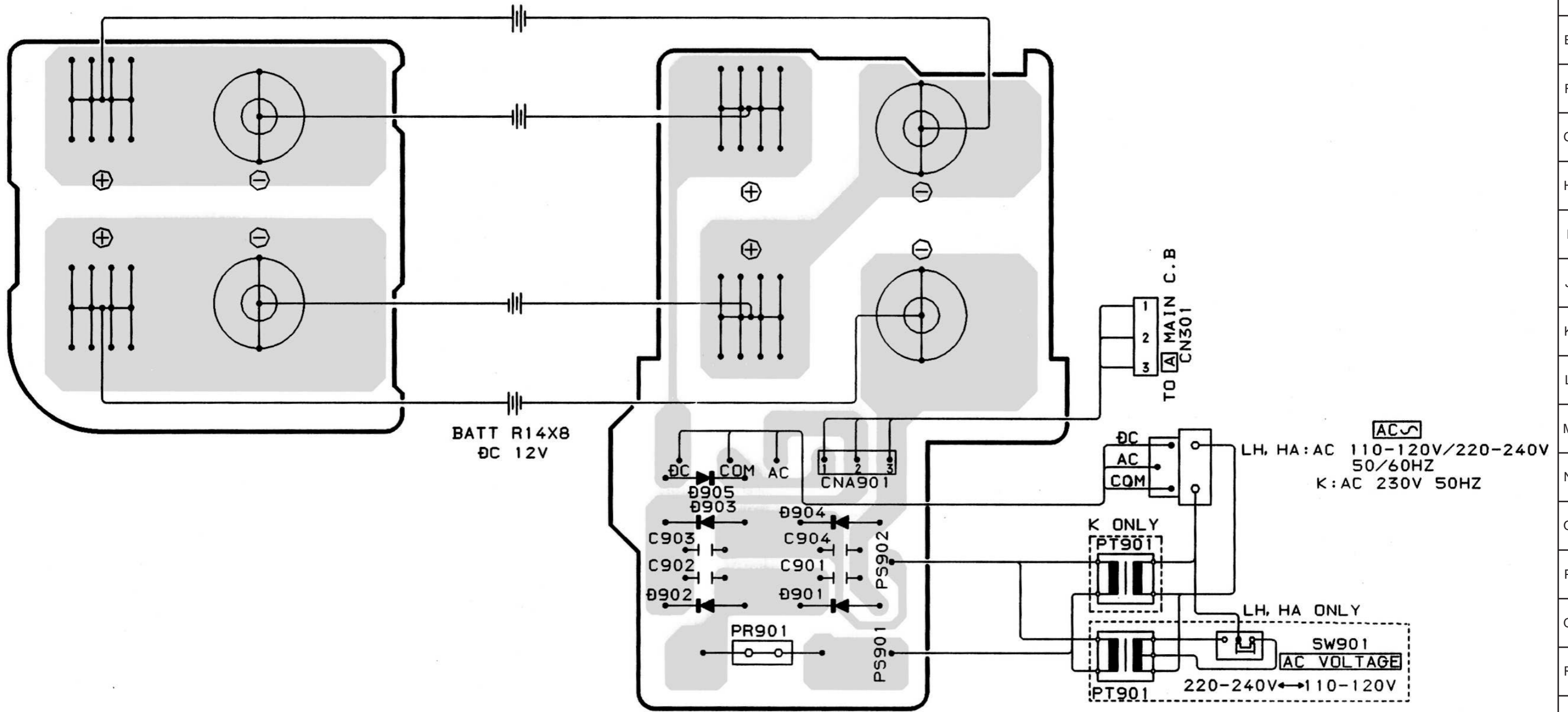


32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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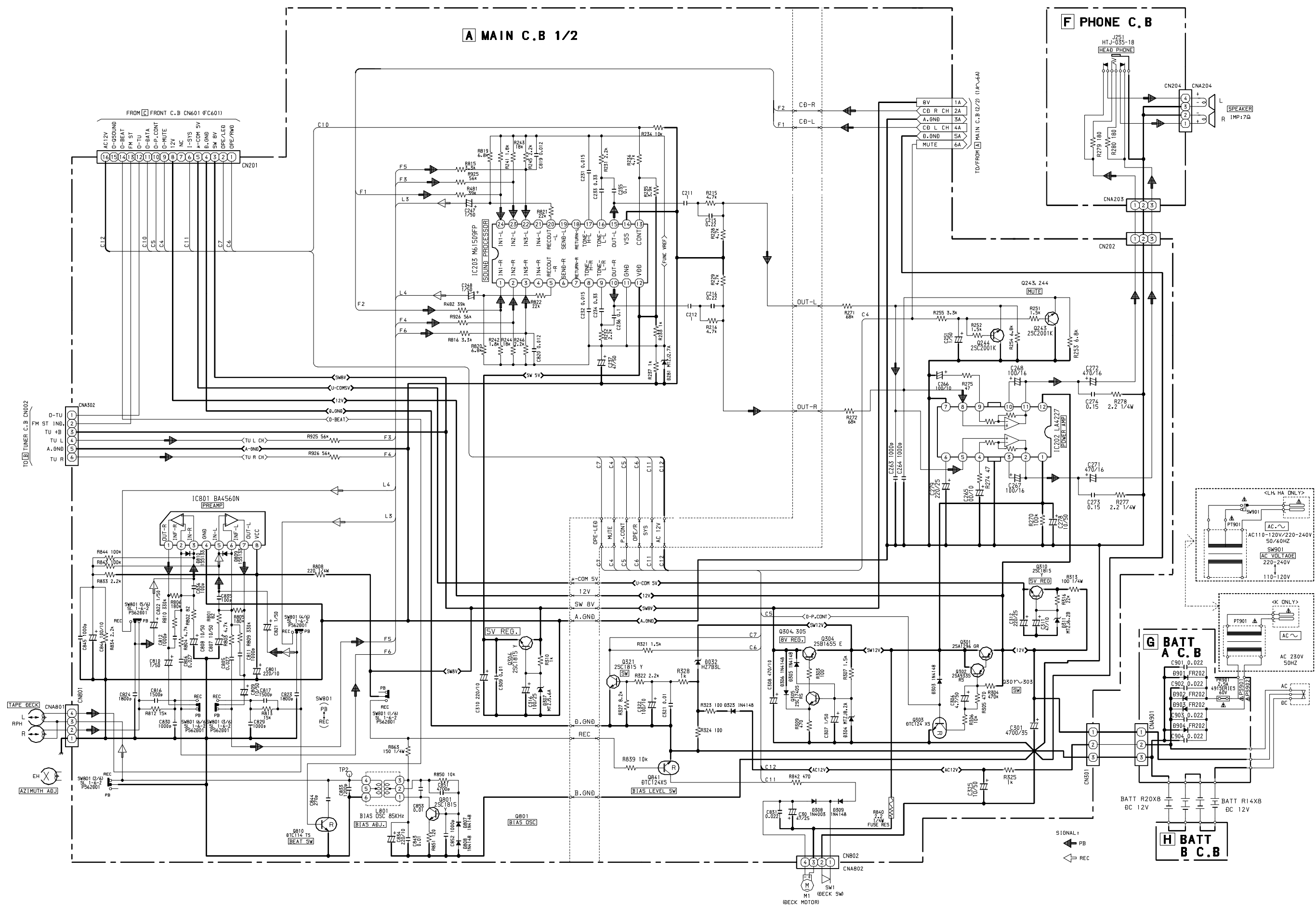
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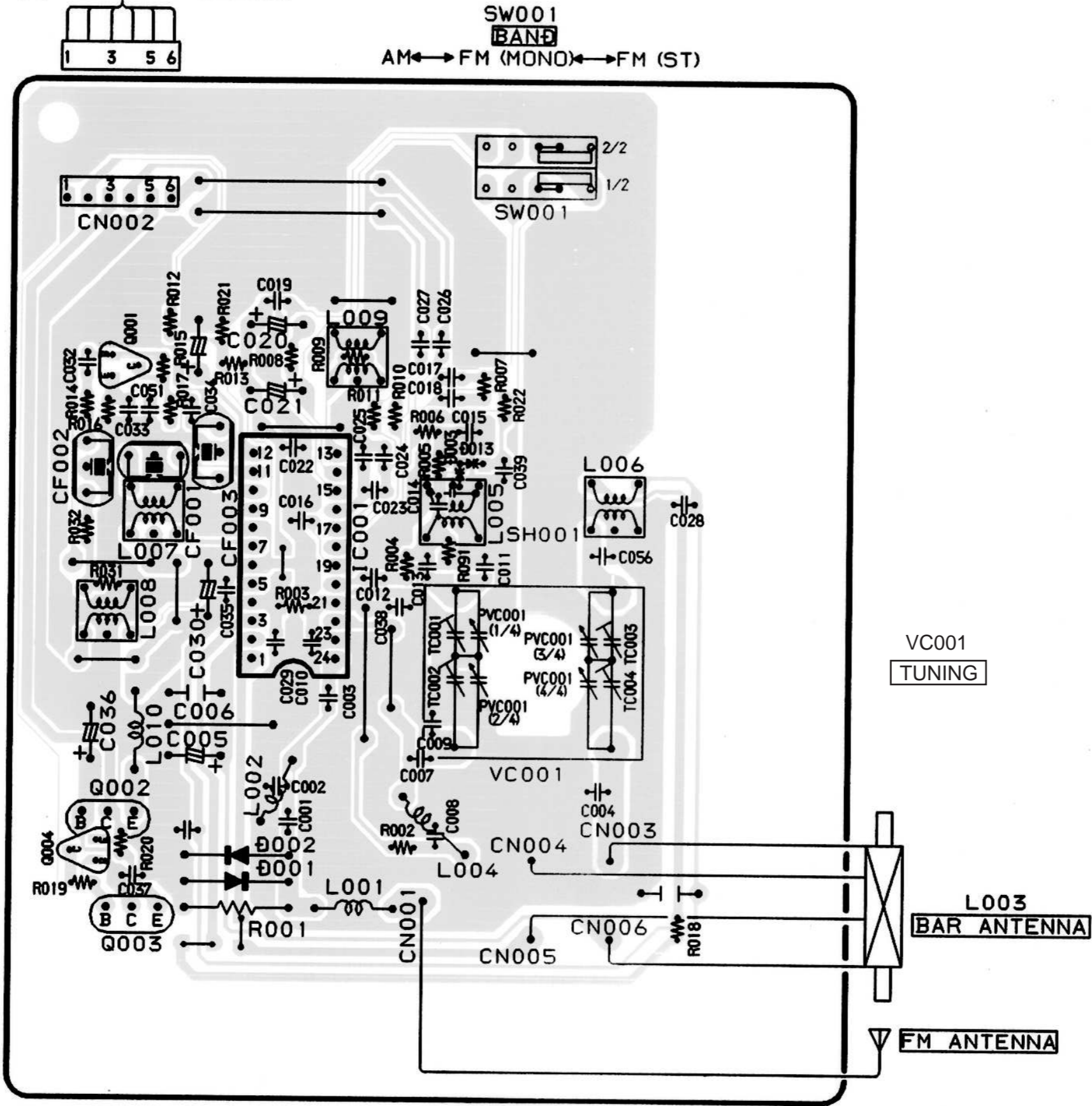
SCHEMATIC DIAGRAM – 1 (MAIN 1/2 / BATT A / BATT B / PHONE)



B TUNER C.B

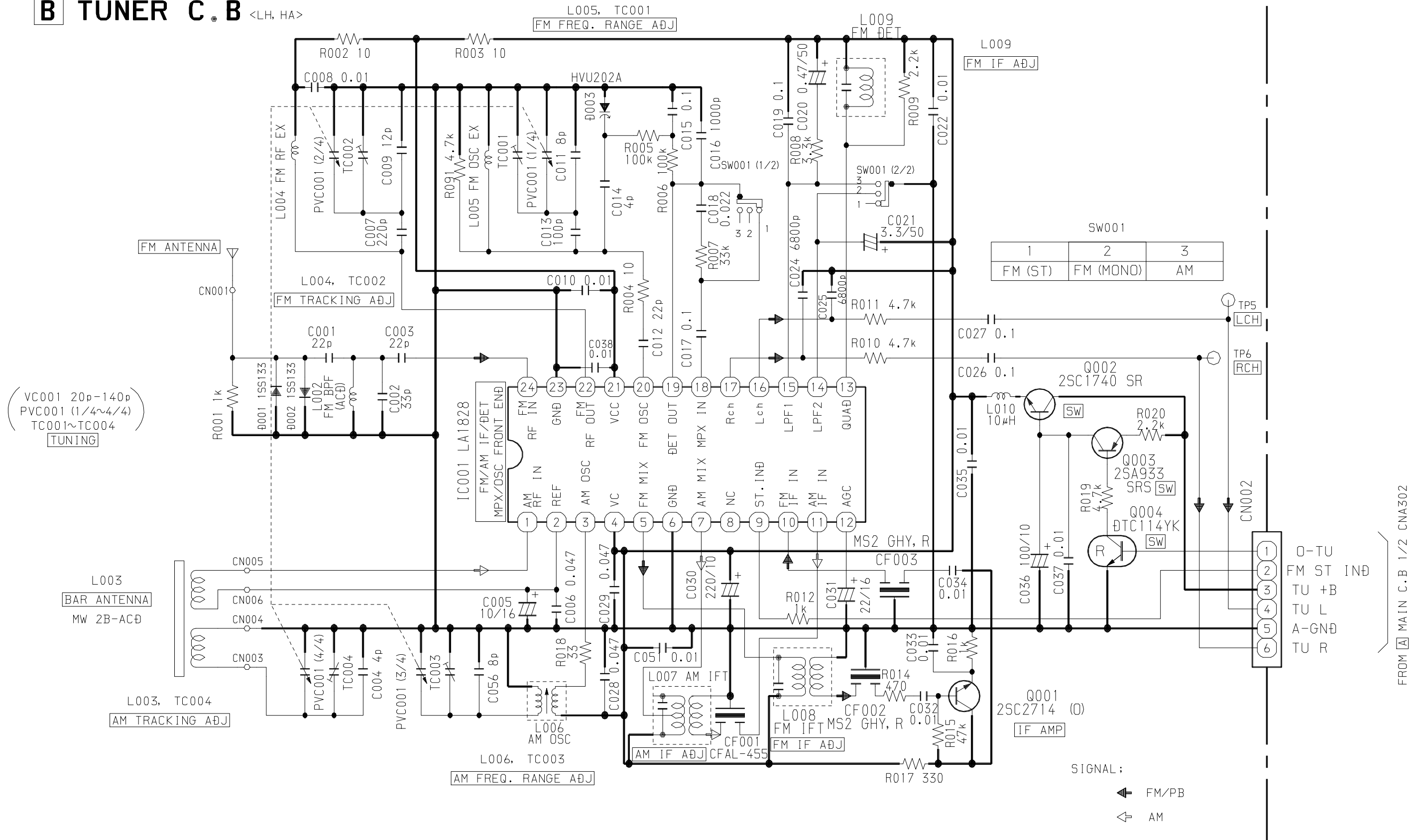
FROM A MAIN C.B CNA302

<LH, HA>



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B TUNER C.B <LH, HA>



(VC001 20p-140p
PVC001 (1/4~4/4)
TC001~TC004
TUNING)

SW001		
1	2	3
FM (ST)	FM (MONO)	AM

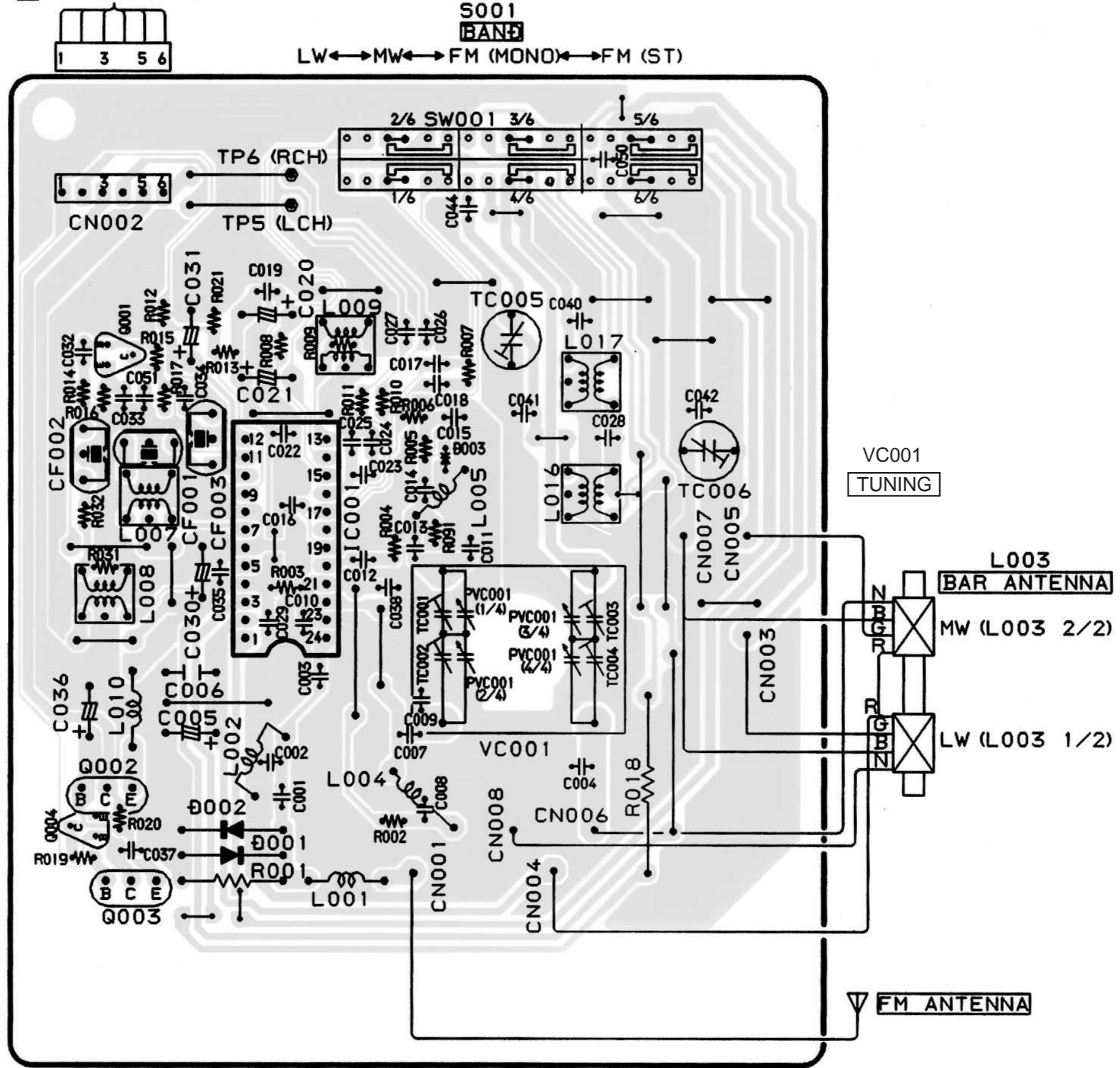
- 1 O-TU
- 2 FM ST IN
- 3 TU +B
- 4 TU L
- 5 A-GND
- 6 TU R

FROM MAIN C.B 1/2 CNA302

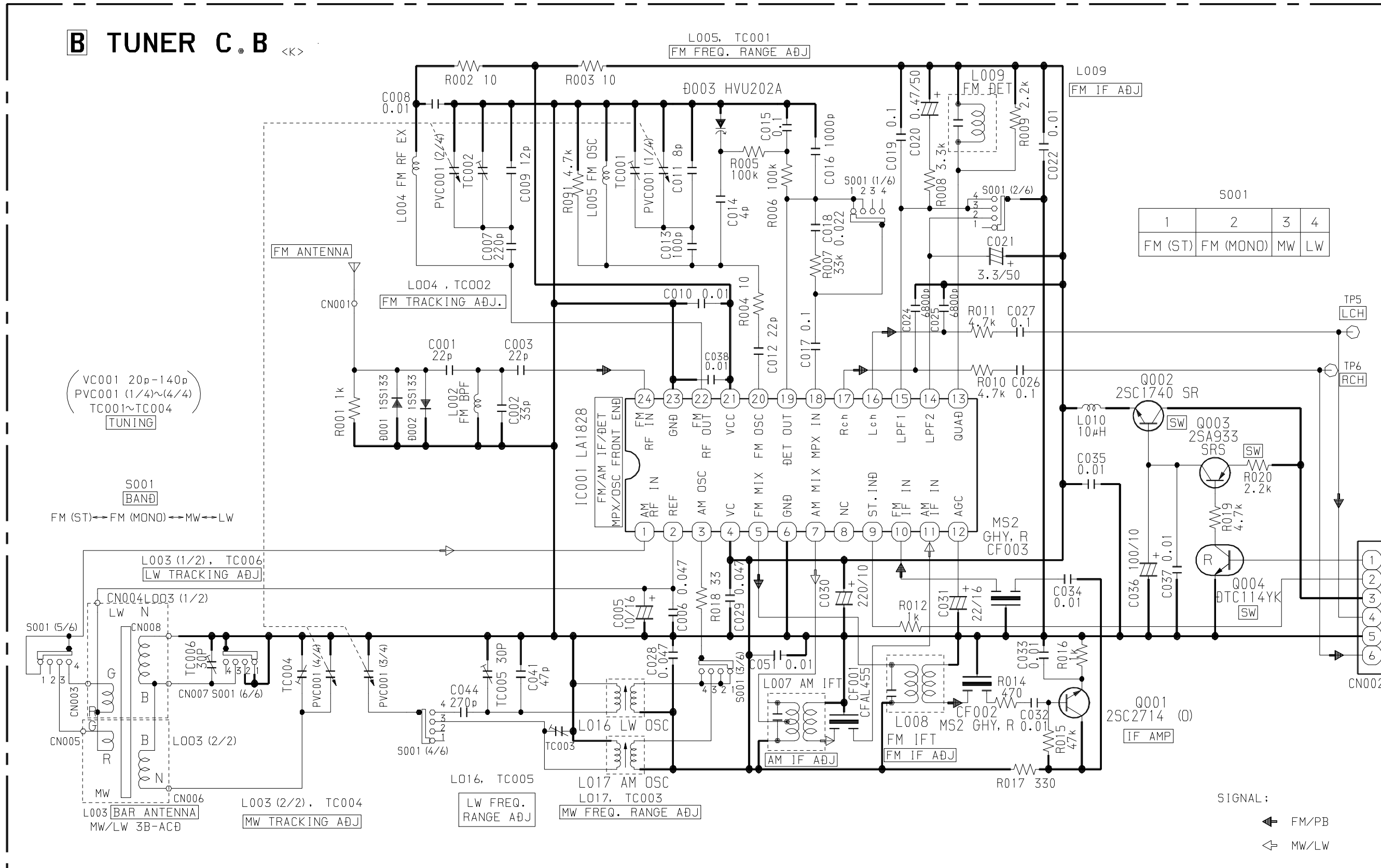
B TUNER C.B

FROM A MAIN C.B CNA302

<K>



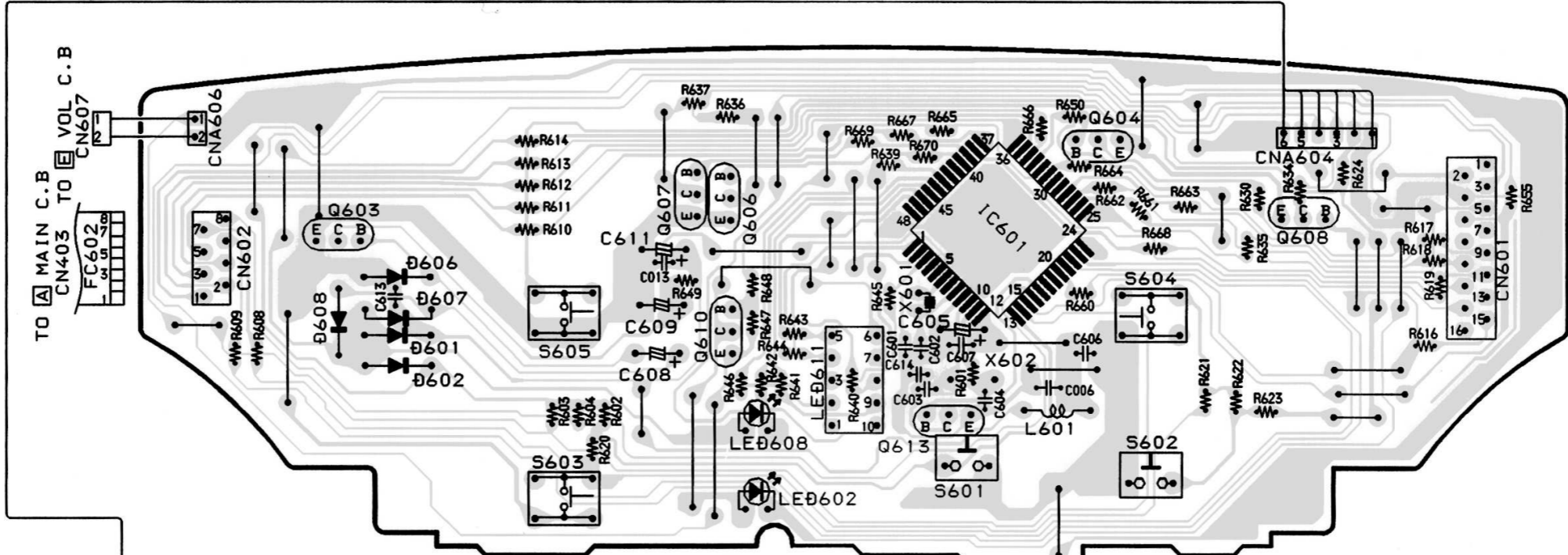
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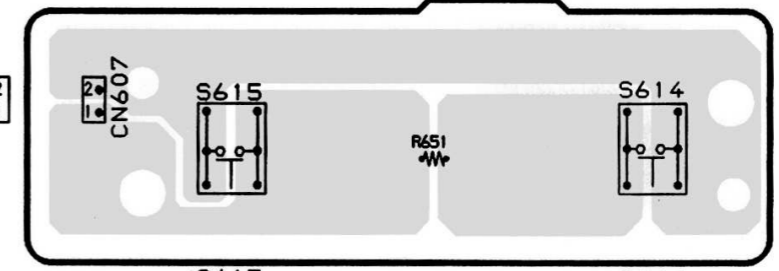
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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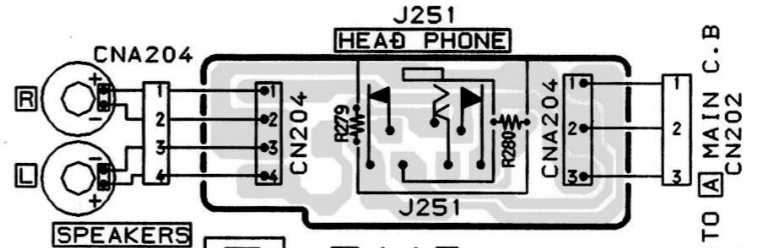
C FRONT C. B



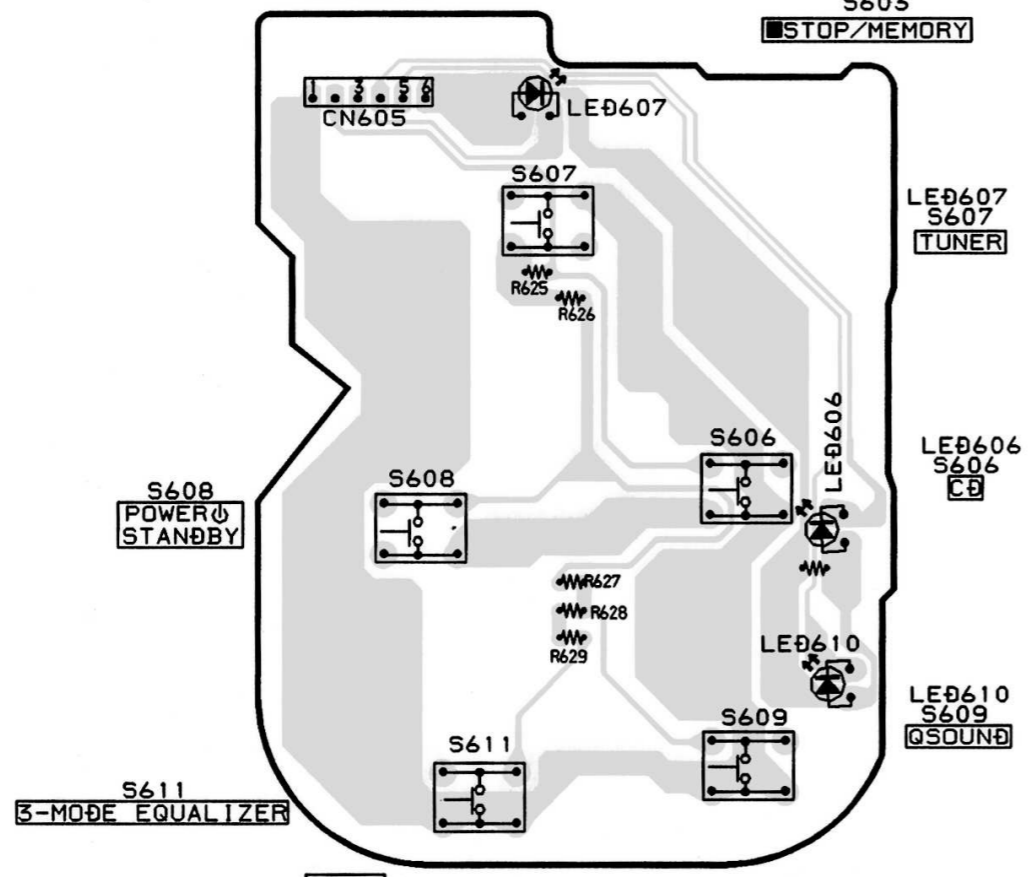
E VOL C. B

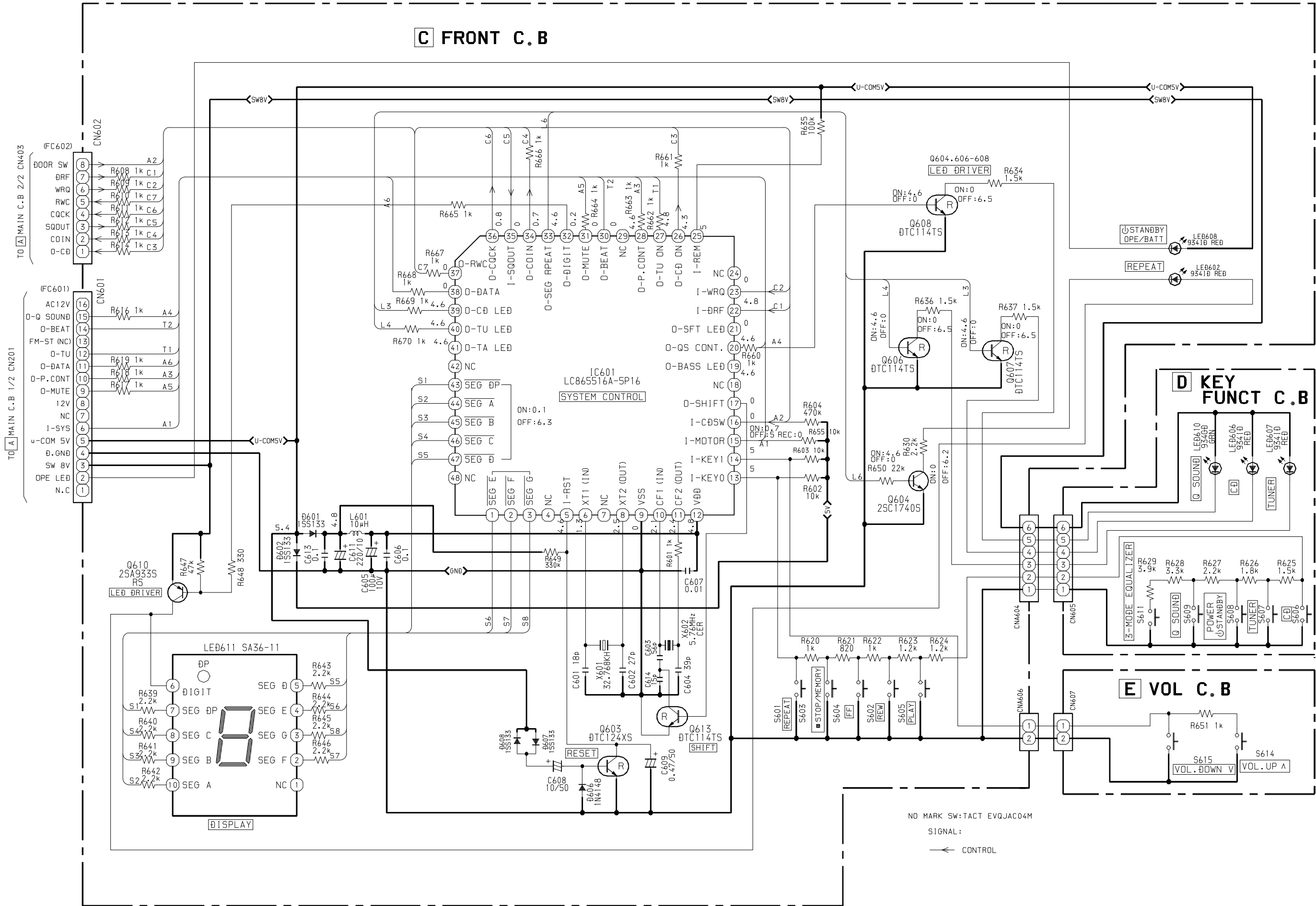


F PHONE C. B



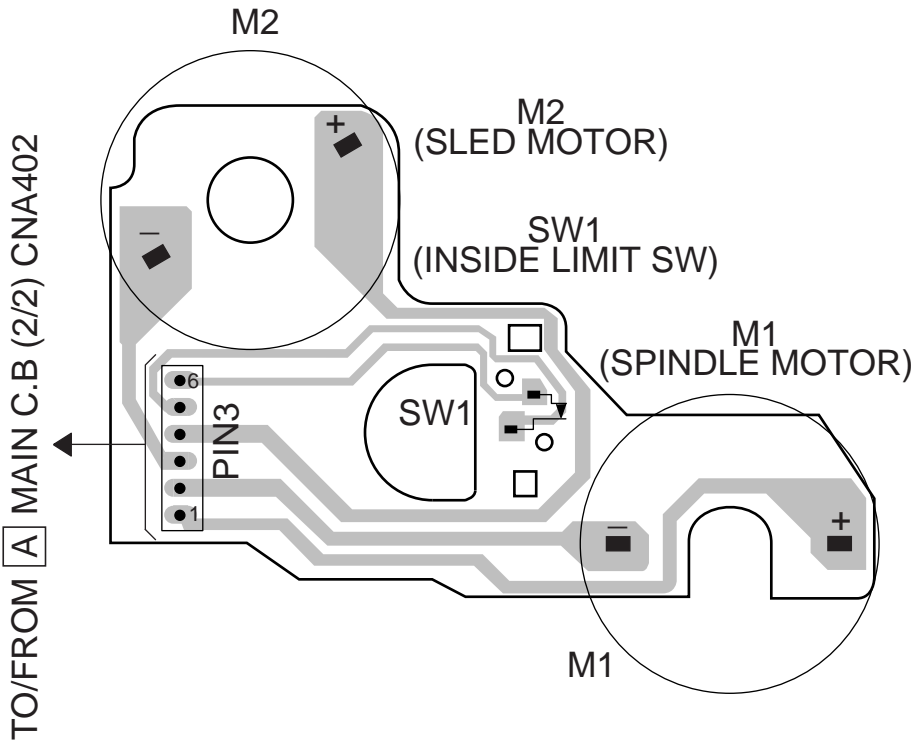
D KEY FUNCT C. B





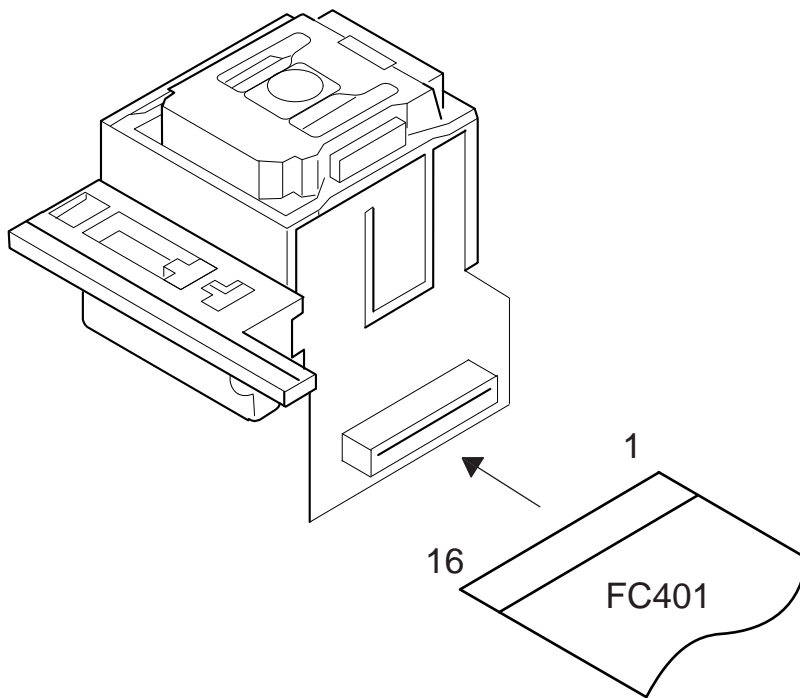
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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I CD MOTOR C.B



TO/FROM **A** MAIN C.B (2/2) CNA402

PICK UP ASSY
SF-P101NR

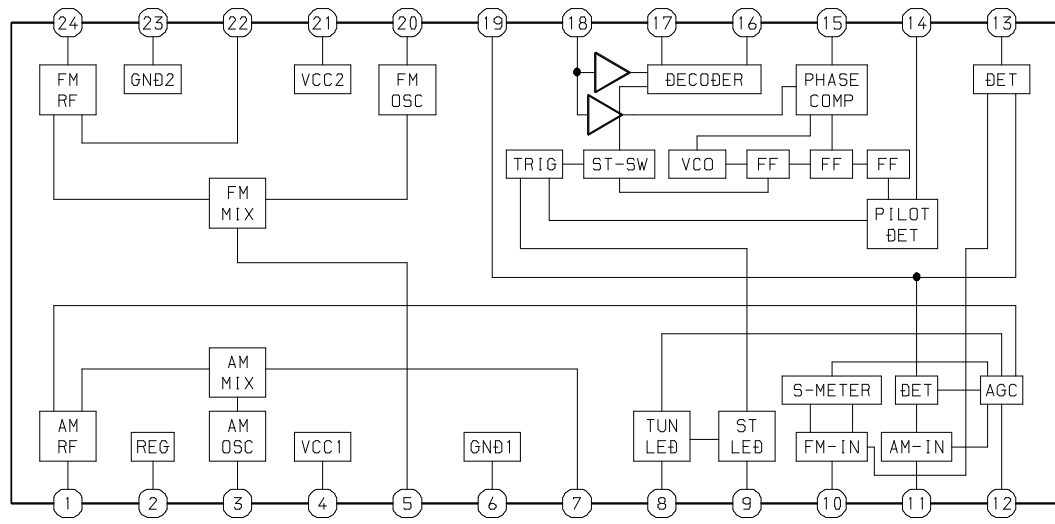


TO/FROM **A** MAIN C.B (2/2) CN401

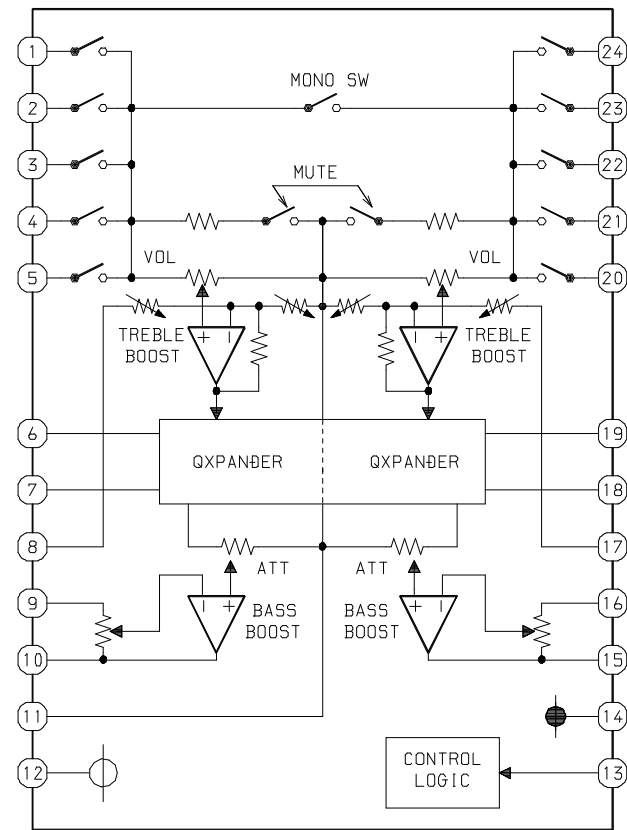
A
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IC BLOCK DIAGRAM

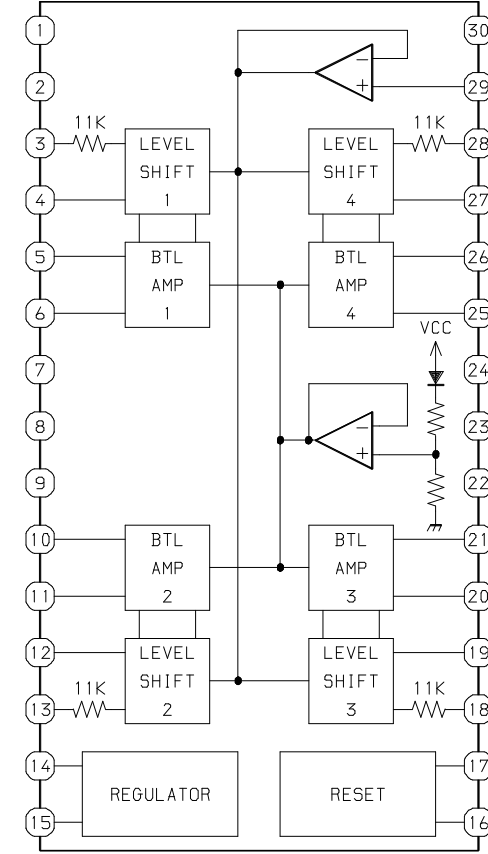
IC, LA1828



IC, M61509FP



IC, LA6541D



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.

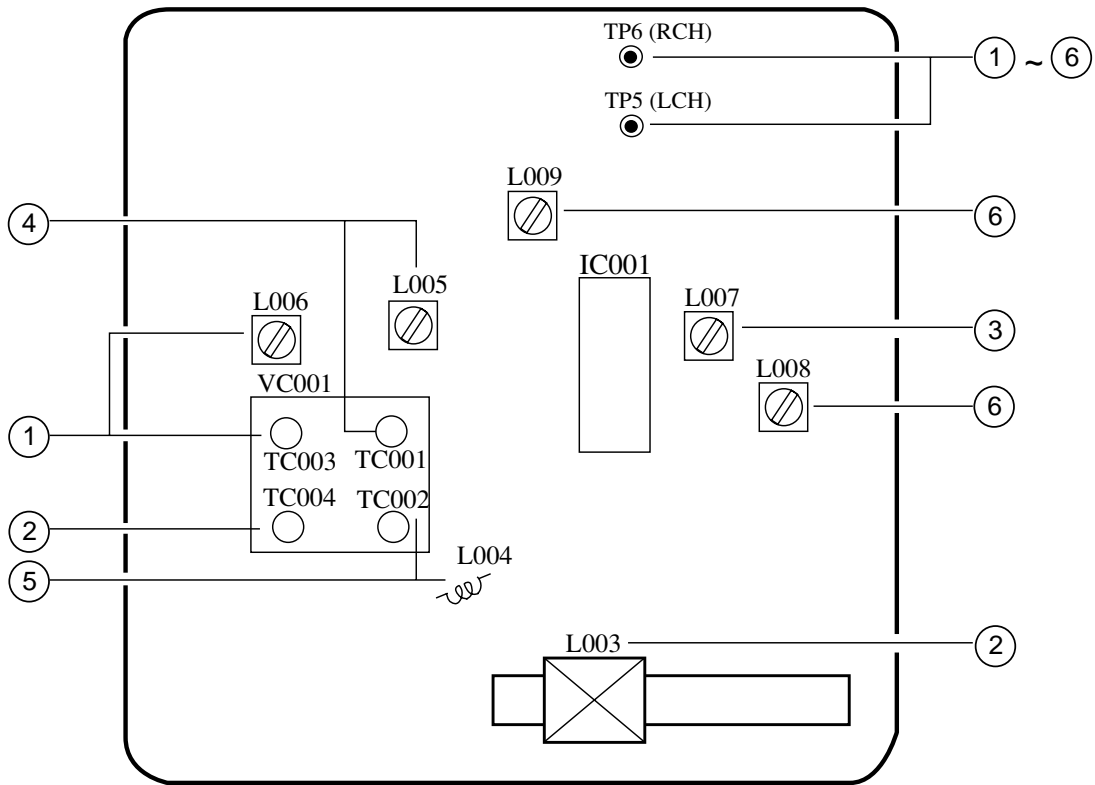
Pin No.	Pin Name	I/O	Description
37	HFL	O	The HFL (high frequency level) signal is used to judge whether the main beam is positioned on the pit or on the mirror.
38	SLOF	I	Sled servo off control input.
39	CV-	I	CLV error signal input from the DSP.
40	CV+		
41	RFSM	O	RF output.
42	RFS-	O	Sets the RF gain 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

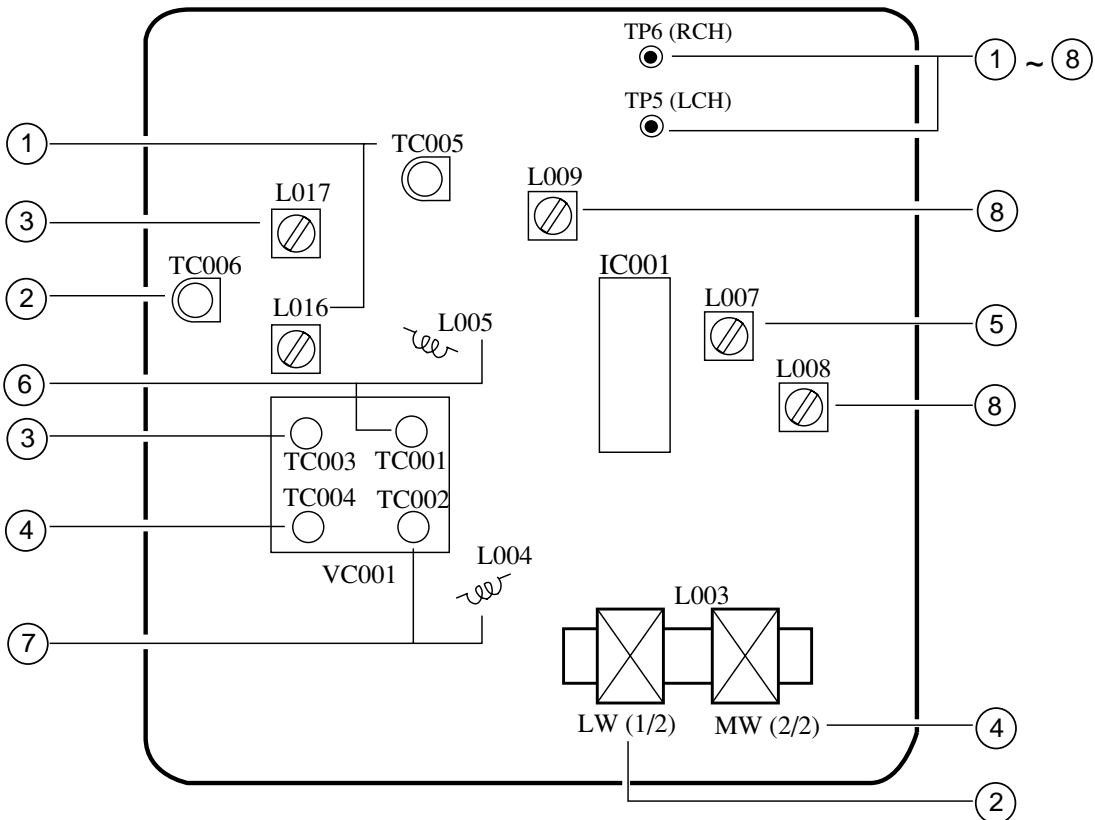
Pin No.	Pin Name	I/O	Description
1	$\overline{\text{SEG E}}$	O	SEG E control.
2	$\overline{\text{SEG F}}$	O	SEG F control.
3	$\overline{\text{SEG G}}$	O	SEG G control.
4	NC	—	Not connected.
5	I-RST	I	Microprocessor reset input.
6	XT1 (IN)	I	Connected to an external 32.768 kHz crystal oscillator.
7	NC	—	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.

B TUNER C.B <LH, HA>



B TUNER C.B <K>



< RADIO SECTION > <LH, HA>

1. AM Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L006, TC003
 - Method:

L006	517kHz
TC003	1750kHz

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
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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
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< RADIO SECTION > <K>

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
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6. FM Frequency Range Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L005, TC001
 - Method:

L005	87.4MHz
TC001	108.3MHz

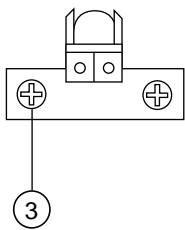
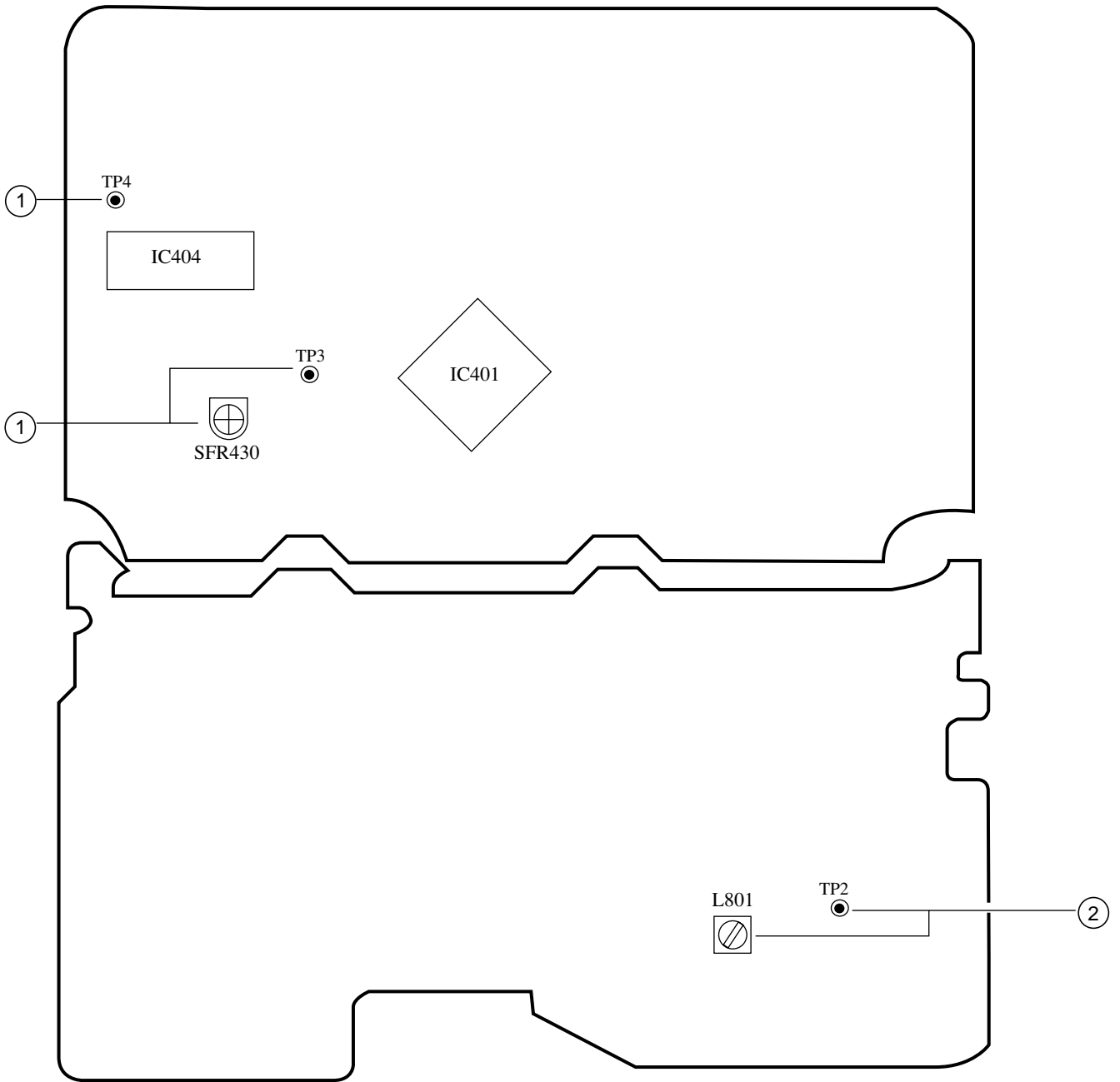
7. FM Tracking Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L004, TC002
 - Method:

L004	88MHz
TC002	108MHz

8. FM IF Adjustment
 - Test Point: TP5 (LCH), TP6 (RCH)
 - Adjustment location: L008, L009
 - Method:

L008, L009	10.7MHz
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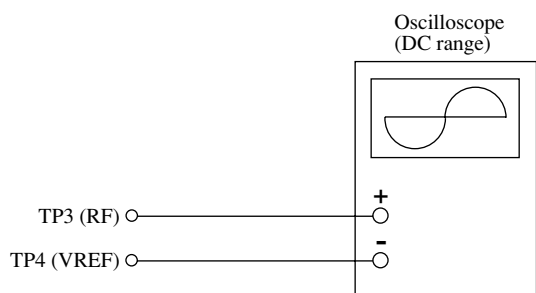
A MAIN C.B



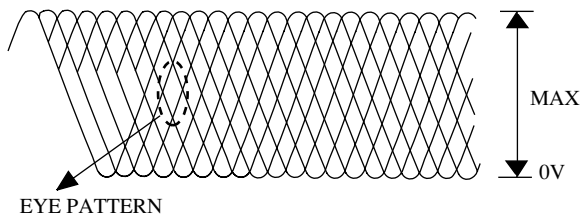
< CD SECTION >

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

< TAPE RECORDER SECTION >

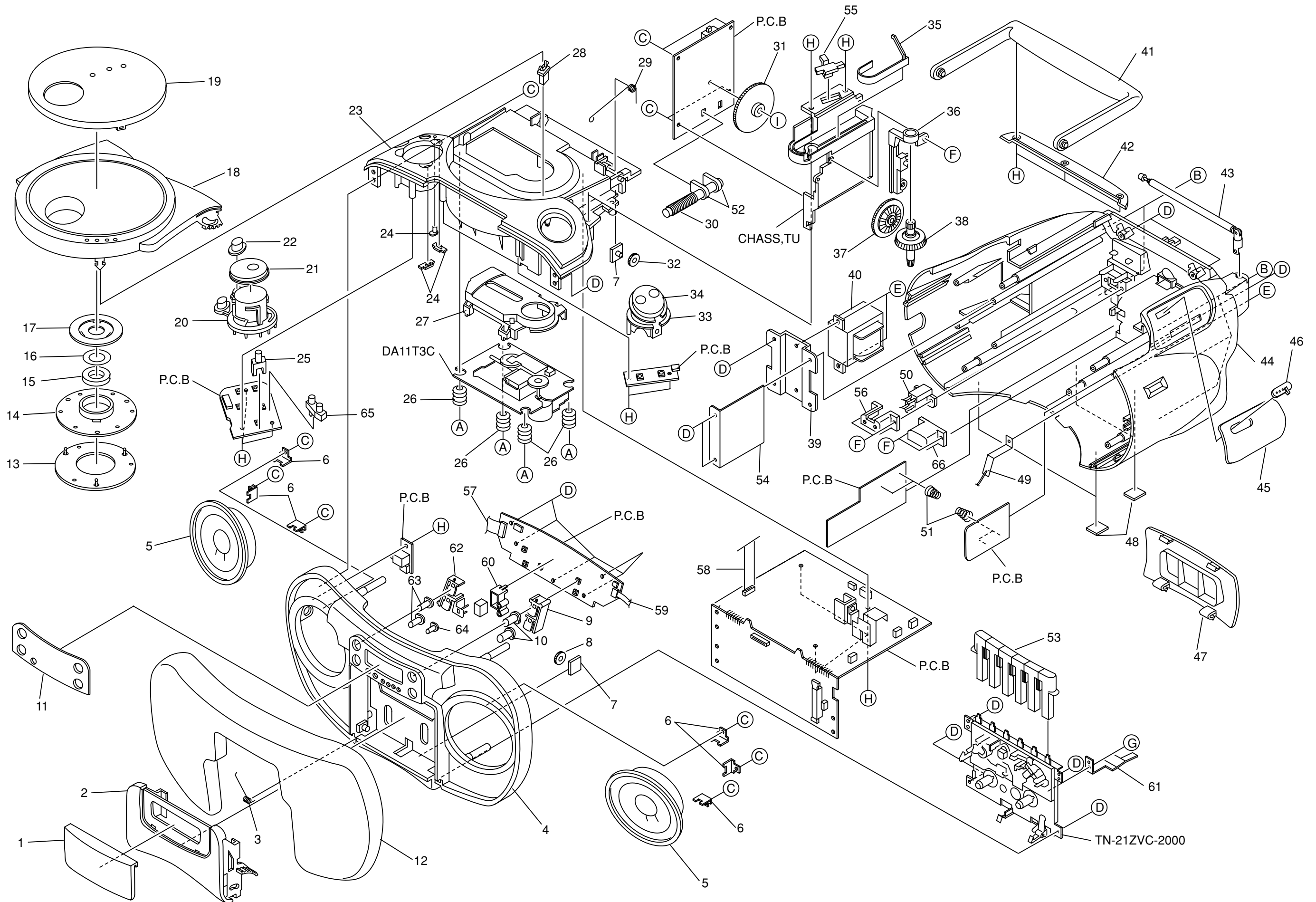
2. Bias Adjustment

- Test tape: TTA-630
- Test Point: TP2
- Adjustment location: L801
- Method:
L801 85kHz±2kHz

3. Azimuth Adjustment

- Condition:
- 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.



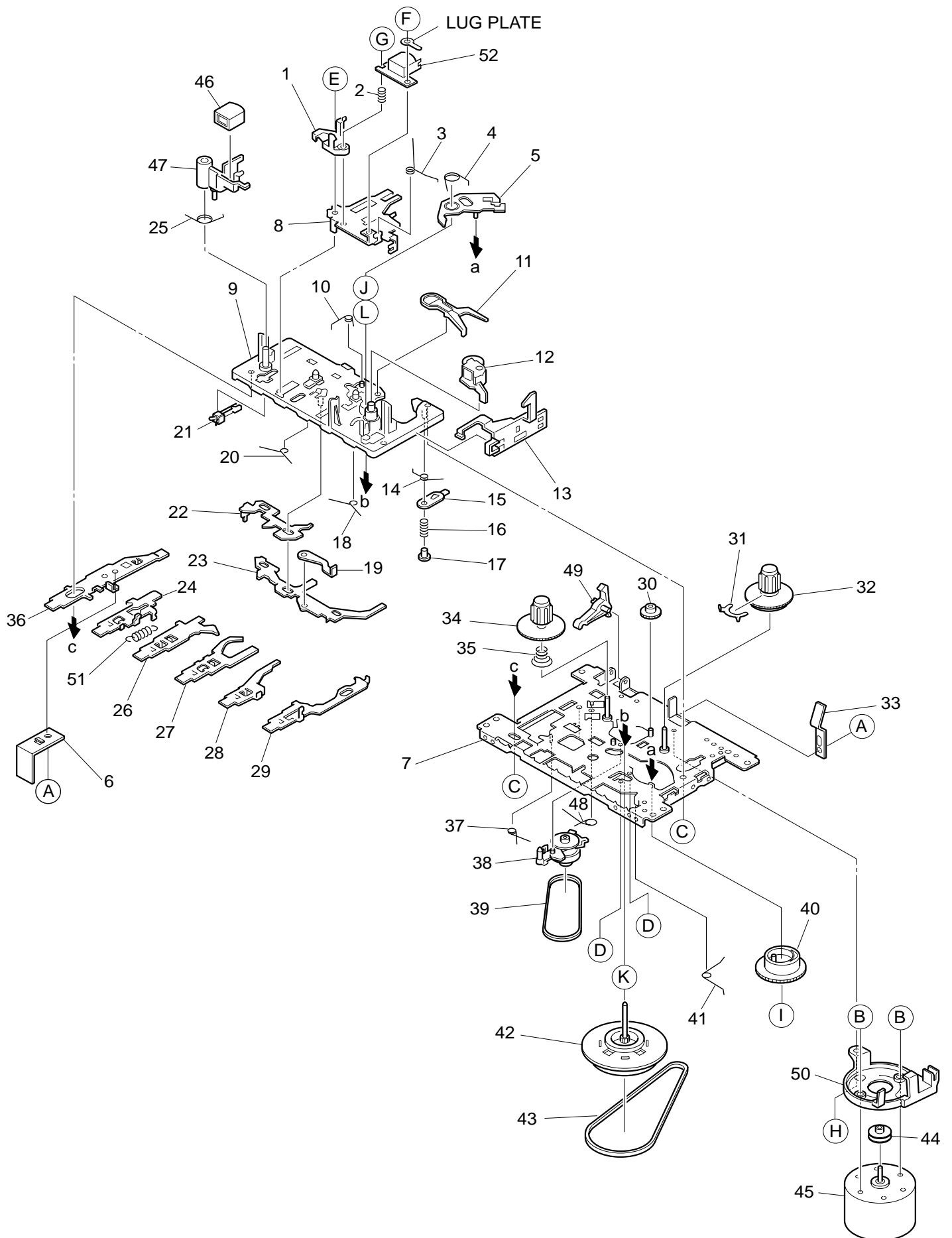
MECHANICAL PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-CDB-006-010		WINDOW, CASS<KSC, LHSC, HASCC>	34	8A-CDB-056-010		BTN, VOL [D] <LHDC>
1	8A-CDB-043-010		WINDOW, CASS [G] <LHGC>	35	8A-CDB-022-010		POINTER, TU
1	8A-CDB-052-010		WINDOW, CASS [D] <LHDC>	36	8A-CDB-209-010		HLDR, BTN TUN
2	8A-CDB-008-010		BOX, CASS<KSC, LHSC, HASCC>	37	8A-CDB-211-010		GEAR, MID TUN
2	8A-CDB-045-010		BOX, CASS [G] <LHGC>	38	8A-CDB-011-010		BTN, TUN
2	8A-CDB-054-010		BOX, CASS [D] <LHDC>	39	8A-CDB-219-010		HLDR, TRAN
3	8A-CDB-204-010		SPR-T, CASS	△	40	8A-CDB-653-010	PT, E 2.5W EI48X23<KSC>
4	8A-CDB-001-010		CABI, FR	△	40	8A-CDB-651-010	PT, H 2.5W EI48X23<EXCEPT KSC>
5	88-CD8-622-010		SPKR, F 77 70HM 3W	41	8A-CDB-019-010		HANDL, GRIP
6	8Z-CDB-208-010		HLDR, SPKR	42	8A-CDB-018-010		COVER, HANDL
7	8A-CDB-205-010		PLATE, OIL DUMP	43	8Z-CH4-640-010		ANT, ROD
8	87-063-164-010		OIL-DMPR 80	44	8A-CDB-002-010		CABI, REAR
9	8A-CDB-206-010		BASE, CD	45	8A-CDB-027-010		WINDOW, TU EZ<KSC>
10	8A-CDB-016-010		BTN, CD	45	8A-CDB-007-010		WINDOW, TU<LHSC, HASCC>
11	8A-CDB-004-010		WINDOW, DISP<KSC, LHSC, HASCC>	45	8A-CDB-044-010		WINDOW, TU [G] <LHGC>
11	8A-CDB-041-010		WINDOW, DISP [G] <LHGC>	45	8A-CDB-053-010		WINDOW, TU [D] <LHDC>
11	8A-CDB-050-010		WINDOW, DISP [D] <LHDC>	46	8A-CDB-217-010		LEVER, BAND
12	8A-CDB-023-010		GRILLE, SPKR<KSC, LHSC, HASCC>	47	8A-CDB-020-010		LID, BATT
12	8A-CDB-049-010		GRILLE, SPEAKER [G] <LHGC>	48	86-CT9-223-010		CUSH, FOOT
12	8A-CDB-058-010		GRILLE, SPKR [D] <LHDC>	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-015-010		KEY, CASS
17	86-CT9-217-010		HLDR, CHUCK A(S)	54	8A-CDB-216-010		PLATE, TRAN
18	8A-CDB-009-010		BOX, CD<KSC, LHSC, HASCC>	55	8A-CDB-010-010		BTN, TU
18	8A-CDB-046-010		BOX, CD [G] <LHGC>	56	87-A90-086-010		COVER, AC JACK
18	8A-CDB-055-010		BOX, CD [D] <LHDC>	57	8A-CDB-618-010		FF-CABLE, 16P 1.25 FR-MAIN
19	8A-CDB-005-010		WINDOW, CD<KSC, LHSC, HASCC>	58	8A-CDB-623-010		FF-CABLE, 16P 1.0 CD-RF
19	8A-CDB-042-010		WINDOW, CD [G] <LHGC>	59	8A-CDB-619-010		FF-CABLE, 8P 1.25 CD-FR
19	8A-CDB-051-010		WINDOW, CD [D] <LHDC>	60	8A-CDB-208-010		HLDR, LED SA/SC36
20	8A-CDB-213-010		BASE, FUNC	61	8A-CDB-212-010		PLATE, REC
21	8A-CDB-013-010		BTN, FUNC<KSC, LHSC, HASCC>	62	8A-CDB-206-010		BASE, CD
21	8A-CDB-048-010		BTN, FUNC [G] <LHGC>	63	8A-CDB-016-010		BTN, CD
21	8A-CDB-057-010		BTN, FUNC [D] <LHDC>	64	8A-CDB-016-010		BTN, CD
22	8A-CDB-014-010		BTN, QSOUND	65	8A-CDB-203-010		HLDR, LED FUNC
23	8A-CDB-003-010		CHAS, CD	△	66	87-A91-369-010	SW, AC SL222 SD KGA41700<EXCEPT KSC>
24	8A-CDB-021-010		LENS, FUNC	A	81-CD5-204-010		SCREW CD
25	8A-CDB-203-010		HLDR, LED FUNC	B	87-651-104-410		VT1+3-30
26	88-CH6-220-010		CUSHION, CD A	C	87-741-096-410		UT2+3-10
27	8Z-CT9-064-010		PANEL CD	D	87-751-097-410		SCREW 3X12
28	87-036-389-010		SW, PUSH LOCK	E	87-261-096-410		SCREW, V+3-10 GLD
29	8A-CDB-218-010		SPR-T, CD	F	87-741-074-410		UT2+2.6-8
30	8A-CD9-661-010		BAR-ANT, MW/LW 3B-ACD(COI) <KSC>	G	87-261-032-410		V+2-3 GLD
30	8A-CD9-660-010		BAR-ANT, MW 2B-ACD(COI) <EXCEPT KSC>	H	87-751-095-410		VT2+3-8 W/O
31	8A-CDB-210-010		DRUM, GEAR	I	87-745-094-410		UT2+3-6
32	87-063-165-010		OIL-DMPR 150				
33	8A-CDB-214-010		BASE, VOL				
34	8A-CDB-012-010		BTN, VOL<KSC, LHSC, HASCC>				
34	8A-CDB-047-010		BTN, VOL [G] <LHGC>				

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		

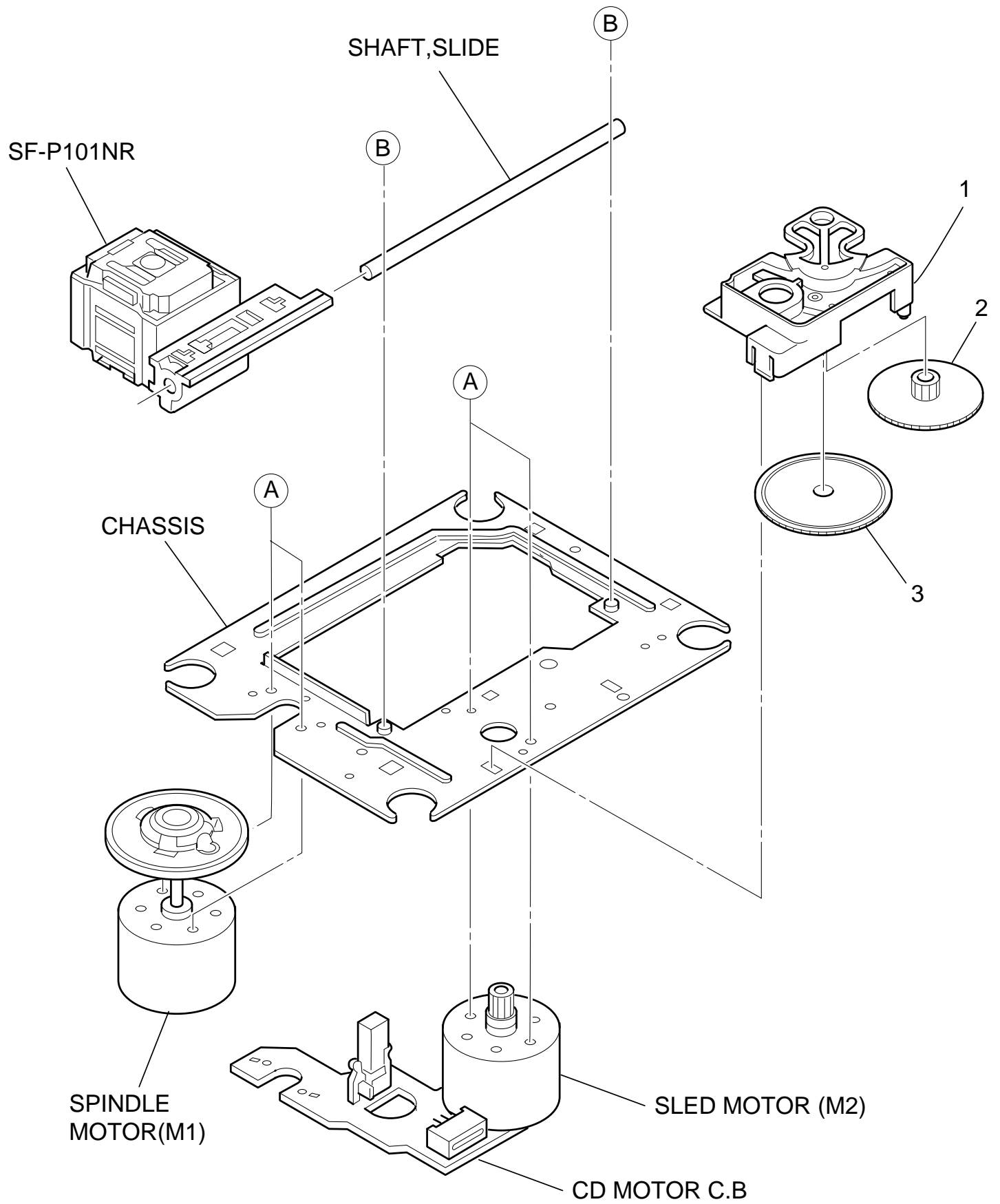
TAPE MECHANISM EXPLODED VIEW 1 / 1



TAPE MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S1-921-030-4A0		HEAD BASE	36	S1-921-140-030		REC BUTTON LEVER
2	S1-821-030-070		AZIMUTH SPRING	37	S1-921-140-170		P.S.LEVER SPRING
3	S1-921-030-090		PANEL P SPRING	38	S1-921-073-040		RF CLUTCH ASSY
4	S1-921-260-050		GEAR PLATE SPRING	39	S1-921-070-030		RF BELT
5	S1-921-265-020		GEAR PLATE ASSY	40	S1-921-260-020		CAM GEAR
6	S1-510-020-020		REC SPRING PLATE	41	S1-921-140-160		E ACTUATOR SPRING
7	S1-921-015-010		CHASSIS ASSY	42	S1-921-093-210		FLYWHEEL ASSY
8	S1-921-030-110		HEAD PANEL	43	S1-921-090-380		MAIN BELT
9	S1-921-143-160		BASE ASSY	44	S1-921-120-590		MOTOR PULLEY
10	S1-921-141-8A0		M CONTROL SPRING	45	S6-002-030-220		MOTOR EG530AD-2B
11	S1-921-260-4A0		SENSING LEVER	46	S6-209-100-100		E HEAD PH-K380-MS1
12	S1-921-043-100		PINCH ROLLER ARM ASSY	47	S1-921-030-050		MG ARM
13	S1-921-130-010		EJECT SLIDE LEVER	48	S1-921-140-210		REC BUTTON LEVER SPRING
14	S1-921-141-3A0		P CONTROL SPRING	49	S1-821-100-690		RECORD SAFETY LEVER
15	S1-921-140-550		PAUSE LEVER(E)	50	S1-821-128-9A0		MOTOR BRACKET
16	S1-921-140-120		PAUSE LEVER SPRING	51	S1-821-010-500		PLAY BUTTON LEVER SPRING
17	S1-921-140-110		PAUSE STOPPER	52	S6-201-011-110		HEAD,RP7442ES-0951
18	S1-921-140-150		BUTTON LEVER SPRING(B)	A	S9-P04-200-310		C TAPPING SCREW 2-3
19	S1-821-011-590		E KICK LEVER	B	S1-921-120-020		MOTOR COLLER SCREW
20	S1-921-141-070		BUTTON LEVER SPRING(A)	C	S9-B10-200-510		P TAPPING BIND SCREW M2-5
21	S6-401-011-490		LEAF SW MSW-1541T	D	S9-C07-204-510		SCREW,TAPPING(CAMERA)M2-4.5
22	S1-921-140-090		SWITCH ACTUATOR	E	S9-P01-200-610		SCREW,M2-6
23	S1-921-140-080		PUSH BUTTON ACTUATOR	F	S9-B01-200-310		(+)BIND SCREW M2-3
24	S1-921-140-190		PLAY BUTTON LEVER	G	S9-F08-200-710		AZIMUTH SCREW M2-7
25	S1-921-030-100		MG ARM SPRING	H	S1-921-120-030		MB SCREW
26	S1-921-140-040		REW BUTTON LEVER	I	S9-W02-300-100		P WASHER CUT 1.2-3.8-0.3
27	S1-921-140-050		FF,BUTTON REVER	J	S9-W02-500-100		P WASHER CUT 1.45-3.8-0.5
28	S1-921-140-060		STOP BUTTON LEVER	K	S9-W01-400-100		P WASHER 2-3.5-0.4
29	S1-921-140-600		PAUSE BUTTON LEVER	L	S9-W01-130-200		P WASHER 2.1-4-0.13
30	S1-821-100-700		FF GEAR				
31	S1-921-050-060		SENER				
32	S1-921-053-100		TAKE UP REEL ASSY				
33	S1-829-100-010		PACK SPRING				
34	S1-921-050-150		S REEL HUB				
35	S1-921-050-220		BACK TENSION SPRING				




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-905-010		IB, K(E) FM<K >
1	8A-CDB-902-010		IB, LH (ESP) FM<EXCEPT K >
	2	87-A80-119-010	AC CORD SET ASSY, AZ<HA>
	2	87-A80-036-010	AC CORD SET ASSY, E W/FLTR VOL<EXCEPT HA>
	3	87-099-726-010	PLUG, ADPTR CONV(K) <K >
	4	87-A91-017-010	PLUG, CONVERSION JT-0476<EXCEPT K >

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