

# SERVICE MANUAL

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COMPACT DISC  
STEREO SYSTEM

BASIC TAPE MECHANISM : TN21ZSC-1653  
BASIC CD MECHANISM : KSM-2131 BDM

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This Service Manual is the "Revision Publishing" and replaces "Simple Manual"  
LCX-K170(HRJST)(S/M Code No.09-993-324-7T1).

## TABLE OF CONTENTS

SPECIFICATIONS .....	3
PROTECTION OF EYES FROM LASER BEAM DURING SERVICING/ Precaution to replace Optical block.....	4
ELECTRICAL MAIN PARTS LIST .....	5-8
TRANSISTOR ILLUSTRATION .....	8
WIRING-1 (MAIN) .....	9, 10
SCHEMATIC DIAGRAM-1 (MAIN).....	11, 12
WIRING-2 (VCD/FRONT) .....	13-16
SCHEMATIC DIAGRAM-2 (VCD) .....	17, 18
SCHEMATIC DIAGRAM-3 (VCD) .....	19, 20
SCHEMATIC DIAGRAM-4 (FRONT) .....	21, 22
VOLTAGE CHART .....	23-25
IC DESCRIPTION .....	26-38
IC BLOCK DIAGRAM.....	39, 40
ELECTRICAL ADJUSTMENT .....	41, 42
PRACTICAL SERVICE FIGURE .....	43
LCD DISPLAY .....	44
MECHANICAL EXPLODED VIEW 1/1 .....	45, 46
MECHANICAL PARTS LIST 1/1 .....	47
TAPE MECHANISM EXPLODED VIEW 1/1 .....	48
TAPE MECHANISM PARTS LIST 1/1 .....	49
CD MECHANISM EXPLODED VIEW 1/1 .....	50
CD MECHANISM PARTS LIST 1/1 .....	50
ACCESSORIES/PACKAGE LIST .....	51

# SPECIFICATIONS

## Main unit

### FM tuner section

Tuning range 87.5 MHz to 108 MHz  
Antenna terminals 75 ohms (unbalanced)

### AM tuner section

Tuning range 530 kHz to 1710 kHz (10 kHz step)  
531 kHz to 1602 kHz (9 kHz step)  
Antenna Loop antenna

### Amplifier section

Power output Rated 3.5 W + 3.5 W (4 ohms, T.H.D. 1%, 1 kHz)  
Reference 5 W + 5 W (4 ohms, T.H.D. 10%, 1 kHz)

### Cassette deck section

Track format 4 tracks, 2 channels stereo  
Frequency response Normal tape: 50 Hz – 12500 Hz  
Recording system AC bias  
Erasure system Magnet erase  
Heads Recording/playback head × 1  
Erase head × 1

### Compact disc player section

Laser Semiconductor laser ( $\lambda = 780$  nm)  
D-A converter 1 bit dual  
Wow and flutter Unmeasurable  
Video signal NTSC/PAL color format (selectable)  
Video data MPEG 1  
Audio data MPEG 1, LAYER 2

## Speaker system

Speakers 100 mm cone type, 4 ohms  
Dimensions (W × H × D) 150 × 236.2 × 210.5 mm  
Weight 1.1 kg

## General

Power requirements 110-120V/220-240V AC, switchable 50/60 Hz

### Power consumption

Dimensions of main unit (W × H × D) 160 × 236.2 × 209.3 mm

Weight of main unit 2.6 kg

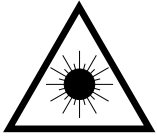
- Design and specifications are subject to change without notice.

# 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 mainituilla 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 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

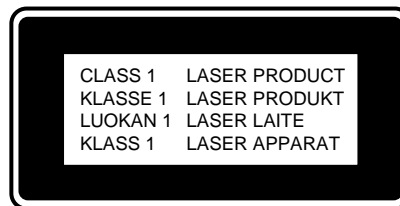
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

## 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.

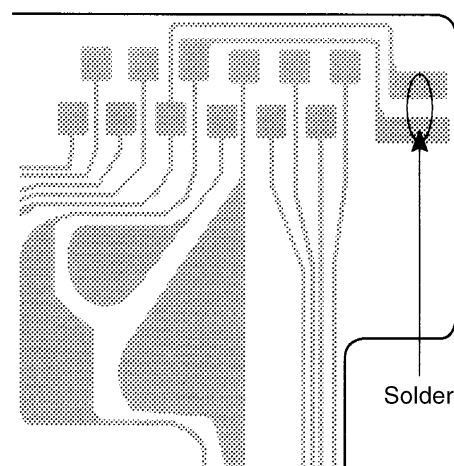


## Precaution to replace Optical block (KSS-213B)

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 the right figure.

PICK-UP Assy P.C.B



# ELECTRICAL MAIN PARTS LIST

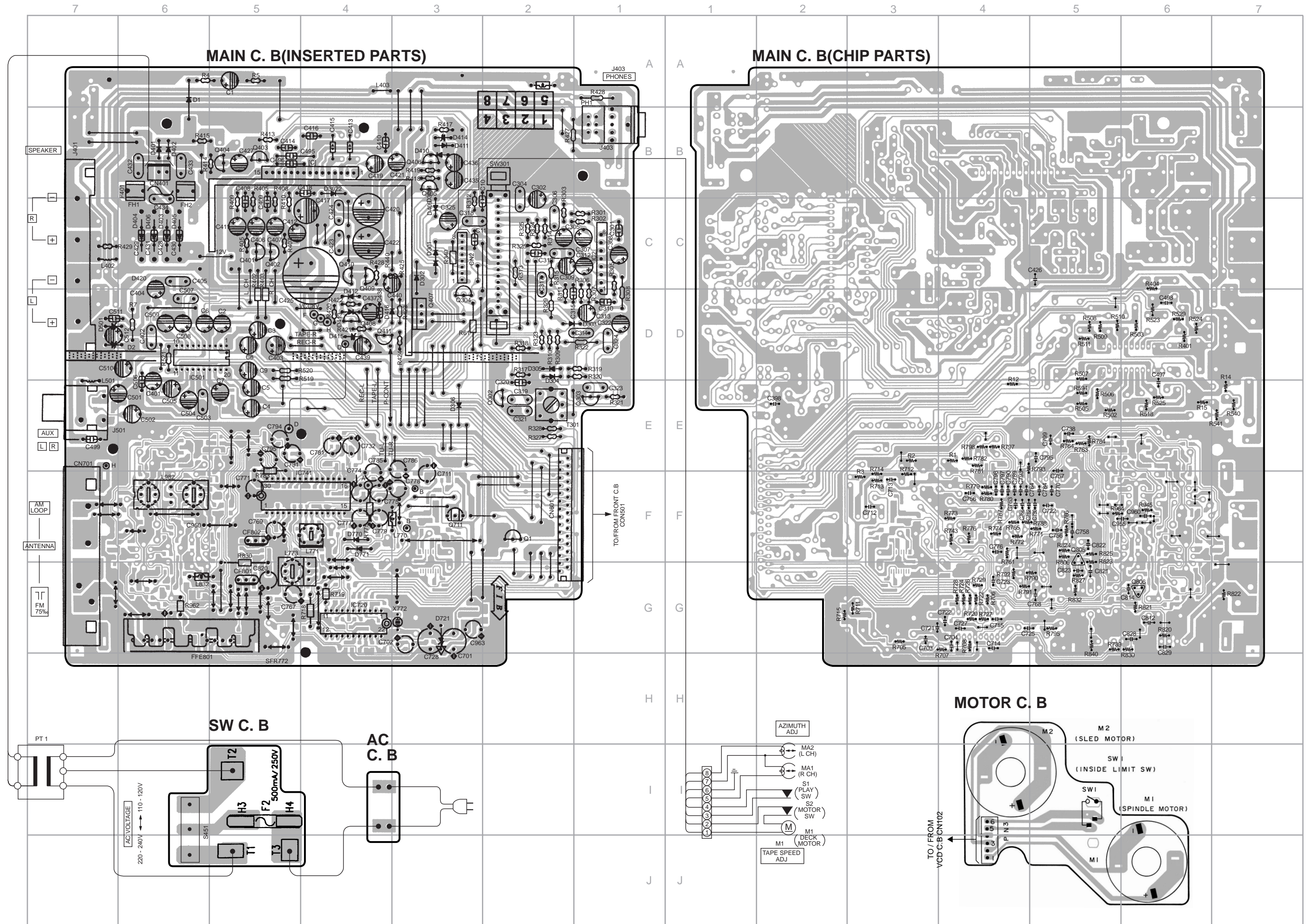
DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C2	87-010-405-080		CAP, ELECT 10-50V
	87-A20-591-010	IC,BA5417		C3	87-010-404-080		CAP, ELECT 4.7-50V
	87-A21-373-010	IC,BA328		C4	87-010-405-080		CAP, ELECT 10-50V
	87-A20-547-010	C-IC,CXA1992AR		C5	87-010-404-080		CAP, ELECT 4.7-50V
	87-A20-919-040	C-IC,BA5915FP		C6	87-010-405-080		CAP, ELECT 10-50V
	87-A20-917-010	C-IC,CXD2540Q-1/2		C7	87-010-405-080		CAP, ELECT 10-50V
	84-ZG1-698-010	C-IC,UPD78016FGC-553		C8	87-010-404-080		CAP, ELECT 4.7-50V
	87-A20-638-080	C-IC,PST9120		C9	87-010-404-080		CAP, ELECT 10-50V
	87-A20-918-040	C-IC,SM5878AN		C10	87-018-131-080		CAP, CER 1000P-50V
	87-A20-602-040	C-IC,M5291FP		C11	87-018-131-080		CAP, CER 1000P-50V
	87-A20-925-040	C-IC,BA05FP		C301	87-018-128-080		CAP, CERA-SOL SS 560P
	87-A20-905-040	C-IC,BA033FP		C302	87-010-378-080		CAP, ELECT 10-16V
	87-A20-920-010	C-IC,CL680-D1		C305	87-010-380-080		CAP, ELECT 47-16V
	87-A20-921-040	C-IC,SN74LVU04APW		C307	87-010-405-080		CAP, ELECT 10-50V
	87-A20-962-040	C-IC,MSM54V16258B/BSL		C308	87-010-248-080		CAP, ELECT 220-10V
	84-ZG1-695-040	C-IC,LH5V2RNI		C309	87-010-405-080		CAP, ELECT 10-50V
	87-A20-975-040	C-IC,SN74LV74APW		C310	87-018-128-080		CAP, CERA-SOL SS 560P
	87-A20-974-040	C-IC,LC74781M-9017		C312	87-010-380-080		CAP, ELECT 47-16V
	88-CG6-608-010	C-IC,LC867248A-XXX		C313	87-010-378-080		CAP, ELECT 10-16V
	87-A20-715-010	IC,M62439SP		C315	87-018-131-080		CAP, CER 1000P-50V
	87-A20-914-010	IC,SPS-442-1-F		C318	87-018-131-080		CAP, CER 1000P-50V
	87-070-127-110	IC,LC72131 D		C319	87-018-127-080		CAP, CER 470P-50V
	87-A20-913-010	IC,LA1837NL		C320	87-018-134-080		CAPACITOR,TC-U 0.01-16
				C322	87-010-112-080		CAP, ELECT 100-16V
				C325	87-010-401-080		CAP, ELECT 1-50V
TRANSISTOR				C398	87-012-368-080		C-CAP,S 0.1-50 F
	87-026-231-080	CHIP-TRANSISTER,DTA124XK		C401	87-010-401-080		CAP, ELECT 1-50V
	89-111-625-080	TR,2SA1162 (0.15W)		C403	87-010-402-080		CAP, ELECT 2.2-50V
	87-026-290-080	TR,DTA124X		C404	87-010-401-080		CAP, ELECT 1-50V
	87-026-463-080	TR,2SA933S (0.3W)		C406	87-010-546-080		CAP, ELECT 0.33-50V
	87-026-237-080	CHIP-TR,DTA124XK		C407	87-010-546-080		CAP, ELECT 0.33-50V
	89-327-125-080	CHIP TR,2SC2712GR		C408	87-018-198-080		CAP,TC-U 2700P-16 X
	87-026-228-080	C-TR,DTA124EK		C409	87-018-198-080		CAP,TC-U 2700P-16 X
	87-026-580-080	C-TR,DTA123JK		C410	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-026-470-080	TR,HM1C03F (0.3W)		C411	87-010-380-080		CAP, ELECT 47-16V
	87-A30-117-010	TR,2SA1357		C412	87-010-380-080		CAP, ELECT 47-16V
	87-CD7-603-080	TR,SS8050		C413	87-018-141-080		CAP, CERA-SOL SS 3.3P CH
	87-026-291-080	TR,DTA124XS		C414	87-018-119-080		CAP, CER 100P-50V
	87-A30-146-080	TR,2SD1468SR		C415	87-018-141-080		CAP, CERA-SOL SS 3.3P CH
	89-113-184-080	TR,2SA1318T		C416	87-018-119-080		CAP, CER 100P-50V
	87-026-462-080	TR,2SC1740 S(RS 0.3W)		C417	87-010-385-080		CAP, ELECT 220-25V
	87-A30-226-010	TR,2SB1655E		C418	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-227-080	TR,2SB1010Q		C419	87-010-380-080		CAP, ELECT 47-16V
	89-320-011-080	TR,2SC2001 (15W)		C420	87-010-237-080		CAP, ELECT 1000-16V
	87-A30-196-080	TR,2SC4115SRS		C421	87-010-380-080		CAP, ELECT 47-16V
	89-327-143-080	TR,2SC2714 (0.1W)		C422	87-010-237-080		CAP, ELECT 1000-16V
	87-026-230-080	CHIP-TR,DTA114YK		C425	87-016-658-090		CAP,E 4700-35 SMG
				C426	87-010-197-080		CAP, CHIP 0.01 DM
				C427	87-010-403-080		CAP, ELECT 3.3-50V
				C428	87-018-205-080		CAP, CERA-SOL 0.022
DIODE				C429	87-018-205-080		CAP, CERA-SOL 0.022
	87-020-465-080	DIODE,1SS133 (110MA)		C430	87-018-205-080		CAP, CERA-SOL 0.022
	87-070-136-080	ZENER,MTZJ5.1B		C431	87-018-205-080		CAP, CERA-SOL 0.022
	87-A40-246-080	DIODE,IN4148 T-72		C432	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-020-027-080	CHIP-DIODE 1SS184		C433	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-017-024-040	C-DIODE,DA204K		C434	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A40-180-040	C-DIODE,SB07-015C		C435	87-010-248-080		CAP, ELECT 220-10V
	87-A40-465-010	DIODE,FR202		C436	87-010-544-080		CAP, ELECT 0.1-50V
	87-070-345-080	DIODE,IN4148		C437	87-010-380-080		CAP, ELECT 47-16V
	87-070-022-010	DIODE,IN5402 (RECT)		C438	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A40-234-080	ZENER,MTZJ5.6A		C439	87-010-248-080		CAP, ELECT 220-10V
	87-070-334-080	ZENER,MTZJ10B		C440	87-010-404-080		CAP, ELECT 4.7-50V
	87-070-335-080	ZENER,MTZJ8.2B		C497	87-010-178-080		CHIP CAP 1000P
	87-017-931-080	ZENER,MTZJ5.6B		C498	87-010-178-080		CHIP CAP 1000P
	87-A40-347-080	ZENER,MTJ2.2B		C499	87-018-209-080		CAP, CER 0.1-50V
				C501	87-010-401-080		CAP, ELECT 1-50V
MAIN C.B				C502	87-010-401-080		CAP, ELECT 1-50V
	87-033-213-080	CLAMP, FUSE		C504	87-010-545-080		CAP, ELECT 0.22-50V
△	87-010-404-080	CAP, ELECT 4.7-50V		C505	87-010-545-080		CAP, ELECT 0.22-50V
C1				C506	87-018-119-080		CAP, CER 100P-50V

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C508	87-010-545-080	CAP,	ELECT 0.22-50V	CF802	87-008-261-010		FILTER, SFE10.7MA5-A
C509	87-010-545-080	CAP,	ELECT 0.22-50V	CN401	87-099-043-010		CONN 2P EH
C510	87-010-263-080	CAP,	ELECT 100-10V	CN601	87-099-719-010		CONN,30P TYK-B(X)
C511	87-018-132-080	CAP,	CER 2200P-16V	CN701	87-033-239-010		TERMINAL,HSP-154V-2
C512	87-010-263-080	CAP,	ELECT 100-10V	△F401	87-035-457-010		FUSE,3.15A 250V TW/C
C701	87-010-381-080	CAP,	ELECT 330-16V	FFE801	A8-8ZA-193-070		8ZA-1 YFEUNC
C702	87-010-404-080	CAP,	ELECT 4.7-50V	J401	88-CL5-609-010		TERMINAL,SP 4P
C703	87-010-197-080	CAP,	CHIP 0.01 DM	J403	88-CL5-608-010		JACK,3.6 S W/SW
C704	87-010-197-080	CAP,	CHIP 0.01 DM	J501	87-A60-354-010		JACK,PIN 2P MSP -242V-05
C711	87-010-263-080	CAP,	ELECT 100-10V	L401	87-005-192-080		COIL,4.7UH K EL0606
C712	87-010-196-080	CHIP	CAPACITOR,0.1-25	L770	87-005-847-080		COIL,2.2UH(CECS)
C713	87-010-197-080	CAP,	CHIP 0.01 DM	L771	87-A50-165-010		COIL,FM DET-N(TOK)
C714	87-010-197-080	CAP,	CHIP 0.01 DM	L773	87-A90-733-010		FLTR,PCFAZH-450 (TOK)
C715	87-010-322-080	C-CAP,S	100P-50 CH	L832	87-005-847-080		COIL,2.2UH(CECS)
C721	87-010-312-080	C-CAP,S	15P-50 CH	L982	87-NF4-650-010		COIL,AM PACK 4N(TOK)
C722	87-010-312-080	C-CAP,S	15P-50 CH	R340	87-029-370-010		RES,FUSE 2.2-1/2W
C723	87-010-178-080	CHIP	CAP 1000P	R440	87-029-370-010		RES,FUSE 2.2-1/2W
C725	87-010-178-080	CHIP	CAP 1000P	SW301	88-CL6-608-010		SW,RP 8CL6
C727	87-010-196-080	CHIP	CAPACITOR,0.1-25	T301	88-CL6-609-010		COIL,BIAS 8CL6
C728	87-010-248-080	CAP,	ELECT 220-10V	X772	87-A70-061-010		VIB,XTAL 4.500MHZ CSA-309
C756	87-010-197-080	CAP,	CHIP 0.01 DM				
C757	87-010-318-080	C-CAP,S	47P-50 CH	VCD C.B			
C758	87-010-149-080	C-CAP,S	5P-50 CH				
C762	87-010-197-080	CAP,	CHIP 0.01 DM	C101	87-010-182-080		C-CAP,S 2200P-50 B
C763	87-010-194-080	CAP,	CHIP 0.047	C102	87-016-669-080		C-CAP,S 0.1-25 K B
				C103	87-016-669-080		C-CAP,S 0.1-25 K B
C764	87-010-319-080	C-CAP,S	56P-50 CH	C104	87-016-669-080		C-CAP,S 0.1-25 K B
C765	87-010-197-080	CAP,	CHIP 0.01 DM	C105	87-010-404-040		CAP,E 4.7-50 SME
C766	87-010-197-080	CAP,	CHIP 0.01 DM				
C767	87-010-405-080	CAP,	ELECT 10-50V	C106	87-016-369-080		C-CAP,S 0.033-50 B K
C768	87-010-197-080	CAP,	CHIP 0.01 DM	C107	87-010-197-080		CAP, CHIP 0.01 DM
				C108	87-010-401-040		CAP,E 1-50 SME
C769	87-010-408-080	CAP,	ELECT 47-50V	C109	87-010-382-040		CAP,E 22-25 SME
C770	87-010-194-080	CAP,	CHIP 0.047	C110	87-010-213-080		C-CAP,S 0.015-50 B
C771	87-010-407-080	CAP,	ELECT 33-50V				
C772	87-010-194-080	CAP,	CHIP 0.047	C111	87-010-263-040		CAP,E 100-10
C774	87-010-263-080	CAP,	ELECT 100-10V	C112	87-010-197-080		CAP, CHIP 0.01 DM
				C113	87-016-369-080		C-CAP,S 0.033-50 B K
C775	87-010-404-080	CAP,	ELECT 4.7-50V	C114	87-016-369-080		C-CAP,S 0.033-50 B K
C776	87-010-197-080	CAP,	CHIP 0.01 DM	C115	87-016-369-080		C-CAP,S 0.033-50 B K
C777	87-010-400-080	CAP,	ELECT 0.47-50V				
C778	87-010-401-080	CAP,	ELECT 1-50V	C116	87-012-158-080		C-CAP,S 390P-50 CH
C779	87-010-401-080	CAP,	ELECT 1-50V	C117	87-012-154-080		C-CAP,S 150P-50 CH
				C118	87-010-494-040		CAP,E 1-50 GAS
C780	87-010-196-080	CHIP	CAPACITOR,0.1-25	C119	87-010-313-080		CAP, CHIP 18P
C781	87-010-405-080	CAP,	ELECT 10-50V	C120	87-010-992-080		C-CAP,S 0.047-25 B
C782	87-010-405-080	CAP,	ELECT 10-50V				
C783	87-010-197-080	CAP,	CHIP 0.01 DM	C121	87-010-992-080		C-CAP,S 0.047-25 B
C784	87-010-197-080	CAP,	CHIP 0.01 DM	C123	87-016-669-080		C-CAP,S 0.1-25 K B
				C125	87-010-198-080		CAP, CHIP 0.022
C785	87-010-403-080	CAP,	ELECT 3.3-50V	C126	87-016-669-080		C-CAP,S 0.1-25 K B
C786	87-010-403-080	CAP,	ELECT 3.3-50V	C127	87-010-555-040		CAP,E 100-10 GAS
C789	87-010-179-080	CAP,CHIP	S B1200P				
C790	87-010-179-080	CAP,CHIP	S B1200P	C130	87-010-555-040		CAP,E 100-10 GAS
C791	87-010-405-080	CAP,	ELECT 10-50V	C131	87-010-555-040		CAP,E 100-10 GAS
				C132	87-010-178-080		CHIP CAP 1000P
C793	87-010-177-080	C-CAP,S	820P-50 SL	C133	87-010-555-040		CAP,E 100-10 GAS
C794	87-010-406-080	CAP,	ELECT 22-50	C136	87-010-196-080		CHIP CAPACITOR,0.1-25
C795	87-010-194-080	CAP,	CHIP 0.047				
C796	87-010-403-080	CAP,	ELECT 3.3-50V	C137	87-010-196-080		CHIP CAPACITOR,0.1-25
C797	87-010-180-080	C-CER	1500P	C138	87-010-184-080		CHIP CAPACITOR 3300P(K)
				C139	87-010-197-080		CAP, CHIP 0.01 DM
C798	87-010-180-080	C-CER	1500P	C140	87-010-112-040		CAP,E 100-16
C799	87-010-194-080	CAP,	CHIP 0.047	C141	87-010-196-080		CHIP CAPACITOR,0.1-25
C812	87-010-197-080	CAP,	CHIP 0.01 DM				
C814	87-010-197-080	CAP,	CHIP 0.01 DM	C142	87-010-196-080		CHIP CAPACITOR,0.1-25
C820	87-010-380-080	CAP,	ELECT 47-16V	C143	87-010-213-080		C-CAP,S 0.015-50 B
				C151	87-010-263-040		CAP,E 100-10
C821	87-010-197-080	CAP,	CHIP 0.01 DM	C152	87-010-197-080		CAP, CHIP 0.01 DM
C822	87-010-197-080	CAP,	CHIP 0.01 DM	C153	87-016-251-040		CAP,E 220-16 SMG
C823	87-010-197-080	CAP,	CHIP 0.01 DM				
C828	87-010-196-080	CHIP	CAPACITOR,0.1-25	C154	87-010-190-080		S CHIP F 0.01
C829	87-010-196-080	CHIP	CAPACITOR,0.1-25	C155	87-010-184-080		CHIP CAPACITOR 3300P(K)
				C156	87-010-992-080		C-CAP,S 0.047-25 B
C942	87-010-147-080	C-CAP,S	3P-50 CH	C157	87-010-992-080		C-CAP,S 0.047-25 B
C959	87-010-196-080	CHIP	CAPACITOR,0.1-25	C158	87-012-156-080		C-CAP,S 220P-50 CH
C960	87-010-196-080	CHIP	CAPACITOR,0.1-25				
C961	87-010-152-080	C-CAP,S	8P-50 CH	C159	87-016-526-080		C-CAP,S 0.47-16 BK
CF801	87-018-209-080	CAP,	CER 0.1-50V	C160	87-010-314-080		C-CAP,S 22P-50V

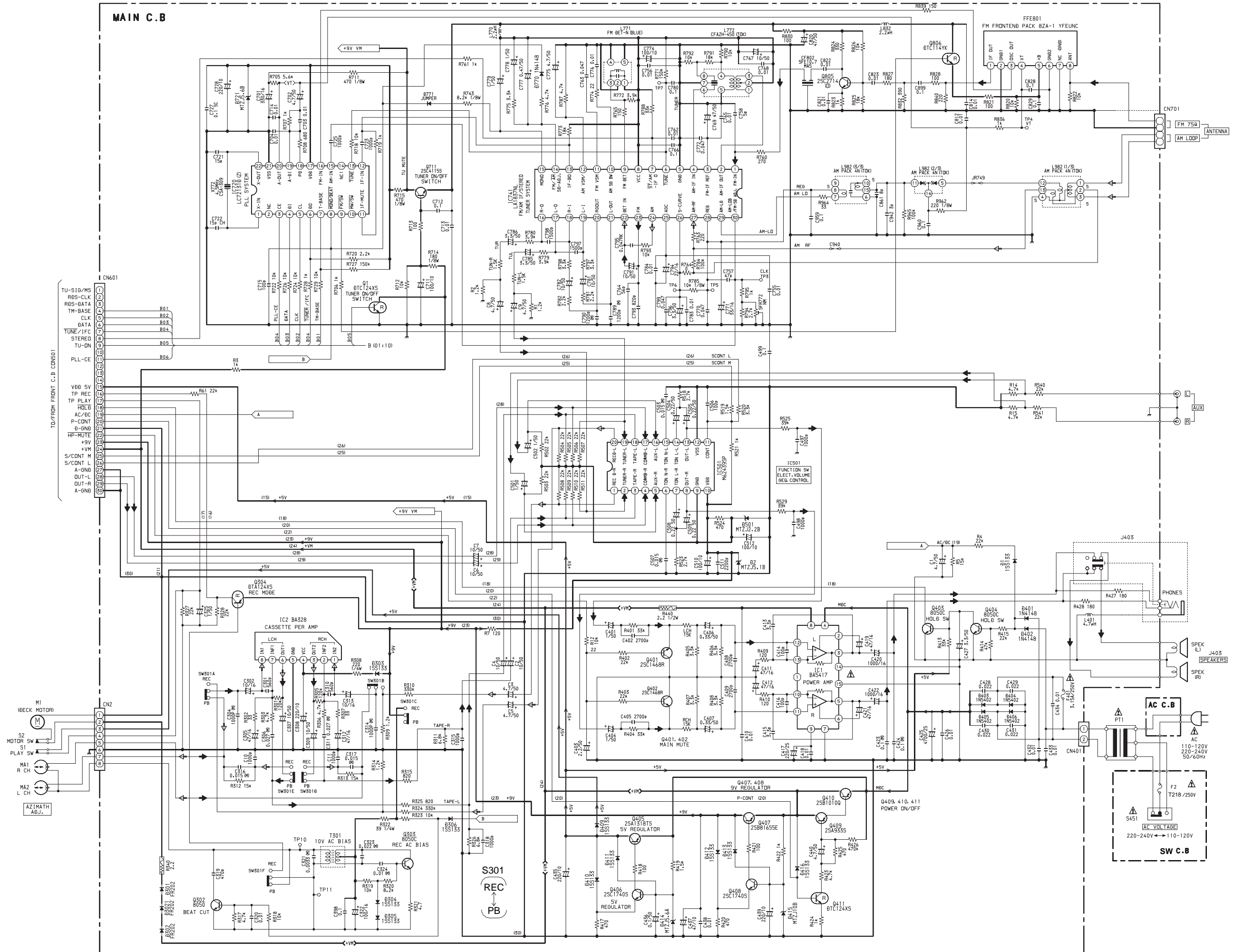


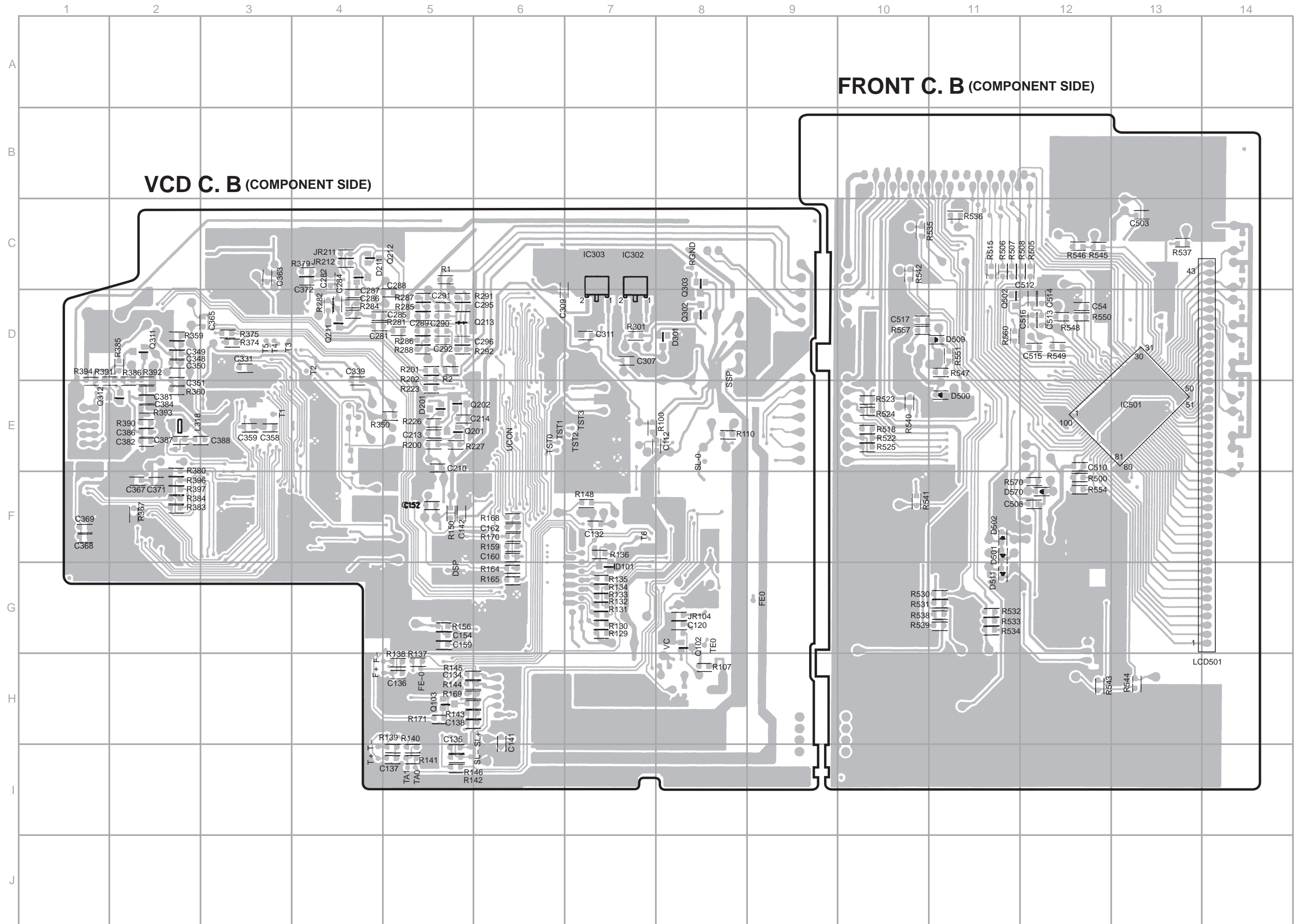
WIRING-1 (MAIN)

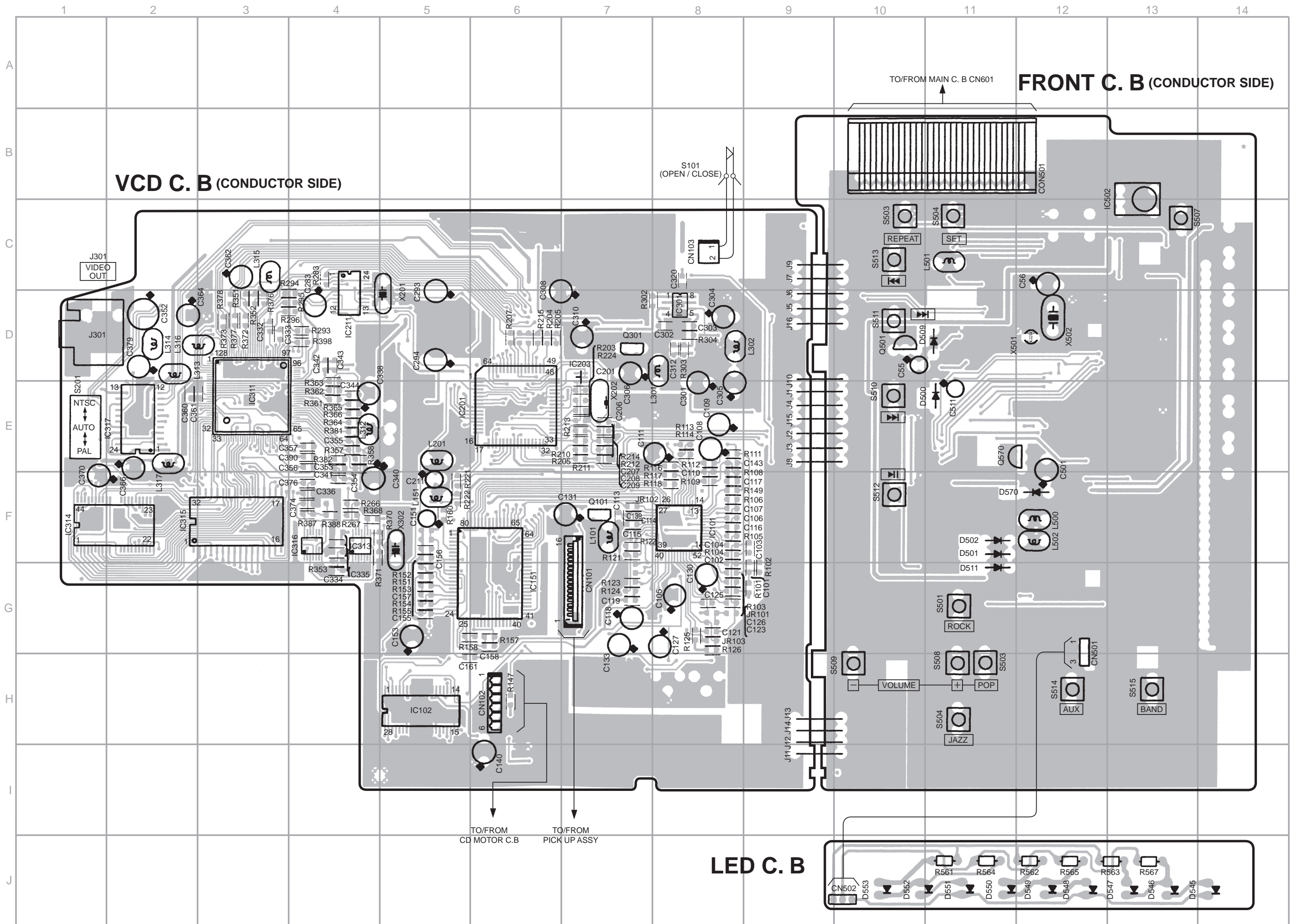




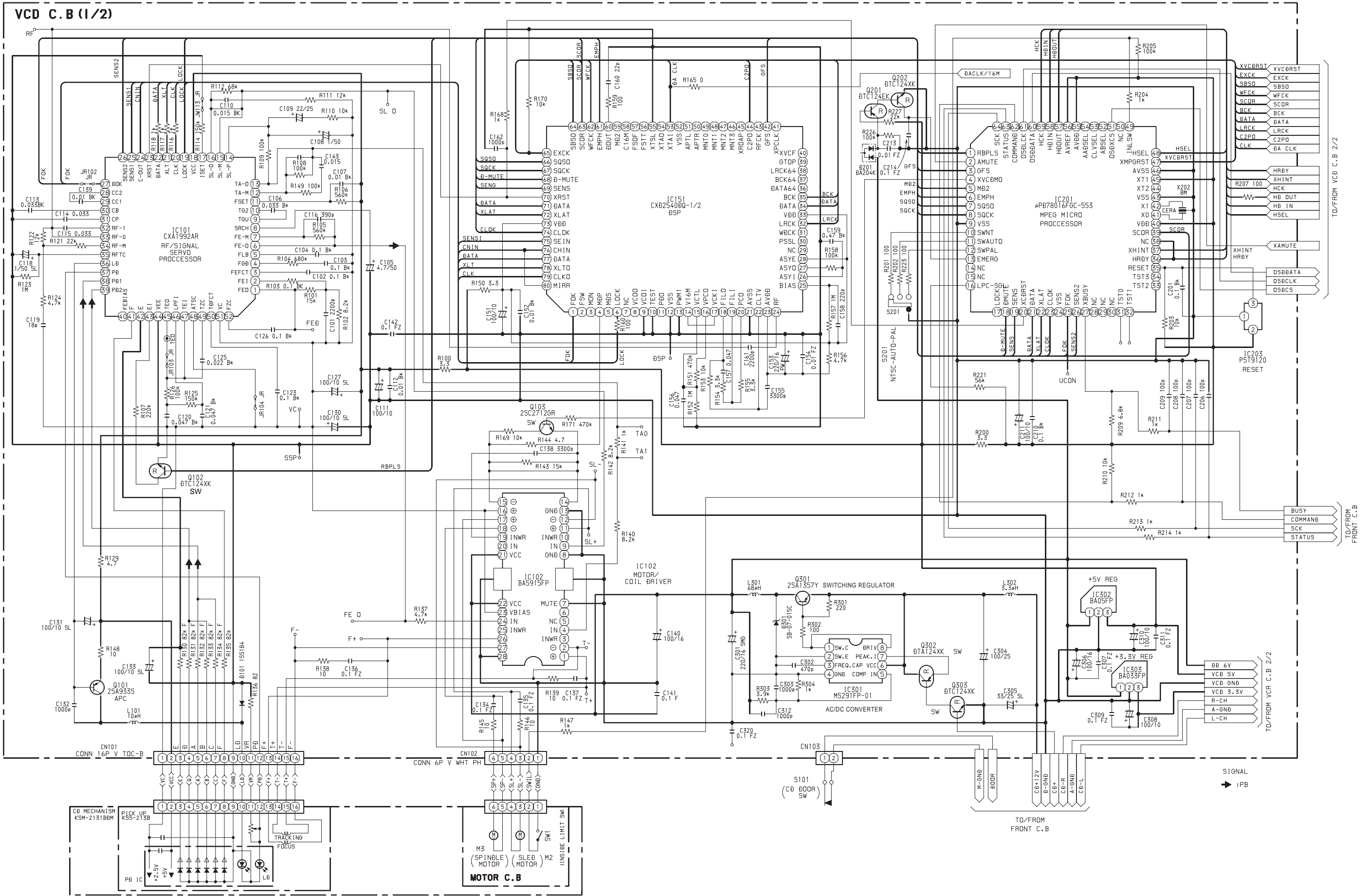
SCHEMATIC DIAGRAM-1 (MAIN)

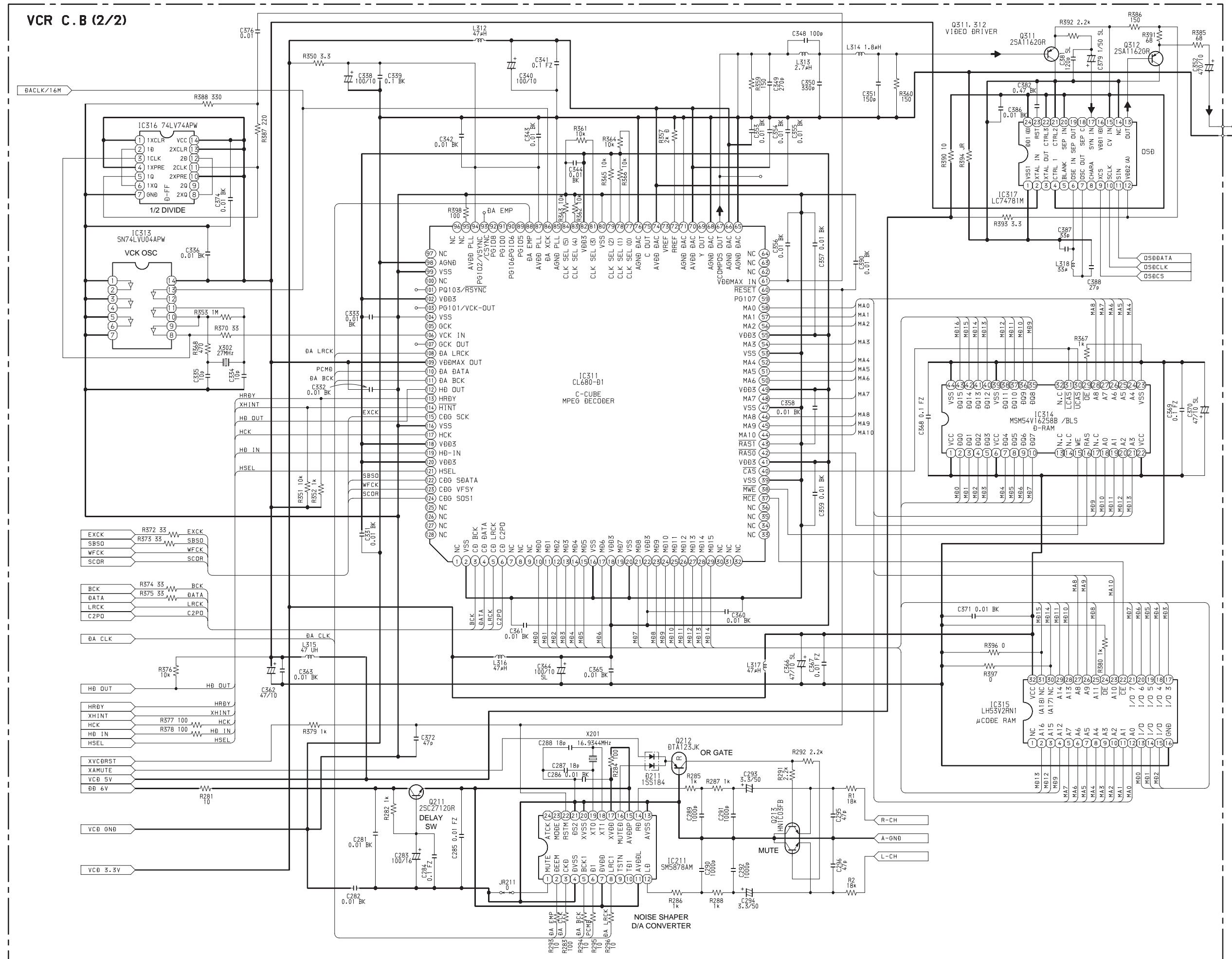






SCHEMATIC DIAGRAM-2 (VCD 1/2)







## VOLTAGE CHART

Test Condition: DC12V, Battery “ - ” as reference.

### IC316 74LV74APW

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	4.99	2.47	2.39	4.99	2.34	2.47	0	2.48	2.49	4.99	2.34	2.48	4.99	4.99

### IC313 SN74LVU04APW

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0	4.99	0	4.99	0	4.99	0	2.4	2.42	2.42	2.42	2.64	2.2	4.99

### IC311 CL680

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage	0	0	2.44	0	2.59	4.96	0	0	0	0.56	0.53	0.56	0.49	0.48	0.55	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Voltage	0.93	3.15	0.45	0	0	3.16	0.57	0.54	0	0.56	0	0	0	0	0	0
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Voltage	0	0	0	0	3.15	3.14	0	3.12	3.15	3.11	3.13	0	0	0	0	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Voltage	3.15	0	3.10	3.08	0	0	3.15	0	3.10	0	0	4.97	4.99	0	0	0
Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	0	3.27	0.63	0	0.49	3.27	0	1.27	3.16	3.27	0.35	0	3.15	3.15	3.15	0
Pin No.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Voltage	3.14	3.15	0	0	0	2.20	3.29	0	0	0	3.29	0	3.26	3.29	0	2.60
Pin No.	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
Voltage	0.70	0	0	0	2.91	3.16	3.28	0	0.39	2.43	3.03	2.60	4.99	0	2.55	4.96
Pin No.	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
Voltage	4.99	4.99	0	0	4.95	3.16	4.50	3.16	4.83	3.40	2.51	0	1.14	0	0	0

### IC315 LH53V2R00N

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage	0	0	0	0	2.5	1.43	1.06	0.47	0	1.34	1.39	0.47	1.96	1.95	0	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Voltage	1.96	0	0	0	1.95	3.15	0	0	0	0.85	1.92	0	0	0	0	3.3

### IC314 MSM54V16258BS-40

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Voltage	3.3	1.95	1.95	0	1.96	3.3	0	0	0	1.95			0	0	3.14
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Voltage	2.11	0.85	0.47	1.39	0.73	1.06	3.31	0	0	1.32	0.98	1.28	1.28	0	3.13
Pin No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
Voltage	3.13	0			0.58	0.34	0.45	0.45	0	0.78	0.85	1.01	0.85	0	

IC211 SM5878AM

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	0	0	2.15	0	2.55	0	4.60	2.60	4.50	0	4.60	2.26
Pin No.	13	14	15	16	17	18	19	20	21	22	23	24
Voltage	0	0	4.60	4.53	4.56	2.21	2.09	0	0	4.97	4.48	4.48

IC317 LC74781

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	0	2.47	5.02	5.01	4.53	2.44	2.52	5.01	4.80	4.94	0	4.82
Pin No.	13	14	15	16	17	18	19	20	21	22	23	24
Voltage	1.35	0	1.34	5.01	2.38	2.02	4.65	5.01	0	5.01	5.00	5.01

IC151 CXD2540Q-2

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage	0	0	0	2.47	0.95	0	0	4.96	0	0	2.16	0	0	1.69	0	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Voltage	1.68	3.19	2.56	2.55	0	3.19	4.95	2.49	0.87	2.49	2.56	4.97	0	0	2.65	2.59
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Voltage	4.97	0	2.44	0	2.44	2.59	4.96	4.96	2.38	0	2.51	4.96	0	4.35	3.29	3.29
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Voltage	0	1.35	1.35	0	2.20	3.17	0	3.00	2.39	1.72	0	0	0	2.51	0	3.70
Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	0	0	4.96	0	2.23	4.97	0	4.97	4.97	4.97	0	0	0	4.96	4.96	0

IC101 CXA1992AR

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Voltage	1.77	2.23	2.21	2.46	2.44	2.90	2.47	2.70	2.46	2.38	0.79	2.47	2.47
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	26
Voltage	2.46	2.47	2.46	1.29	4.43	0	4.96	4.96	0	4.97	0	0	4.92
Pin No.	27	28	29	30	31	32	33	34	35	36	37	38	39
Voltage	0	2.22	3.68	3.07	1.26	2.47	2.48	2.47	2.59	4.71	0.77	2.48	2.48
Pin No.	40	41	42	43	44	45	46	47	48	49	50	51	52
Voltage	2.48	2.48	2.48	2.48	0	2.47	2.42	2.47	2.48	2.47	2.45	2.48	2.47

IC102 BA5915FP

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0	0	0	2.47	0	0	0	0	2.47	2.47	2.91	2.51	0	2.47
Pin No.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Voltage	0	0	2.52	2.50	2.47	2.47	5.56	5.56	2.48	0	0	0	0	0



No.	b	c	e
Q202	0	2.43	2.48
Transistor	DTC124XK		

No.	b	c	e
Q211	5.30	5.38	4.60
Transistor	2SC2712GR		

No.	b	c	e
Q212	0	3.96	3.99
Transistor	DTA123JK		

No.	1	2	3
D211	4.53	4.60	3.98
Diode	1SS184		

No.	1	2	3
D301	0	0	5.78
Diode	5B-07-015C		

No.	b	c	e
Q201	0	5.41	5.57
Transistor	DTA124EK		

No.	b	c	e
Q302	0	0	0
Transistor	DTC124XK		

No.	b	c	e
Q101	4.71	1.72	4.95
Transistor	2SA933S		

# IC DESCRIPTION

## IC, CXA1992AR

Pin No.	Pin Name	I/O	Description
1	FEO	O	Output terminal for focus error amplifier. Internally connected to window comparator input for bias condition.
2	FEI	I	Input terminal for focus error.
3	DFDCT	I	Capacitor connection terminal for time constant used when there is defect.
4	FGD	I	This pin is connected to GND via capacitor when high frequency gain of the focus servo is attenuated.
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	FE_O	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	TA_M	I	Tracking amplifier inverted input pin.
13	TA_O	O	Tracking drive output.
14	SL_P	I	Sled amplifier non-inverted input pin.
15	SL_M	I	Sled amplifier inverted input pin.
16	SL_O	O	Sled drive output.
17	ISSET	I	The current which determines height of the focus search, track jump and sled kick is input with external resistance connected.
18	Vcc	I	Power supply.
19	LOCK	I	“L” setting starts sled disorder-prevention circuit. (Not pull-up resistance)
20	CLK	I	Clock input for serial data transfer from CPU. (No pull-up resistance)
21	XLT	I	Latch input from CPU. (No pull-up resistance)
22	DATA	I	Serial data input from CPU. (No pull-up resistance)
23	XRST	I	Reset system at “L” setting. (No pull-up resistance)
24	C_OUT	O	Signal output for track number counting.
25	SENS1	O	FZC, DFCT1, TZC, BALH, TGH, FOH, or ATSC is output depending on the command from CPU.
26	SENS2	O	DFCT2, MIRR, BALL, TGL or FOL is output depending on the command from CPU.
27	FOK	O	Output terminal for focus OK comparator.
28	CC2	I	Input pin where the DEFECT bottom hold output is capacitance coupled.
29	CC1	O	DEFECT bottom-hold output terminal. Internally connected to interruption comparator input.
30	CB	I	Connection terminal for DEFECT bottom-hold capacitor.
31	CP	I	Connection terminal for MIRR hold-capacitor. Anti-reverse input terminal for MIRR comparator.

Pin No.	Pin Name	I/O	Description
32	RF_I	I	Input terminal by capacity combination of RF summing amplifier.
33	RF_O	O	Output terminal of RF summing amplifier. Checkpoint of Eye pattern.
34	RF_M	I	Anti-reverse input terminal for RF summing amplifier. The gain of RF amplifier is decided by the connection resistance between RF_M and RFO terminals.
35	RFTC	I	This is a pin where the selection time constant is externally connected to control the RF level.
36	LD	O	APC amplifier output terminal.
37	PD	I	APC amplifier input terminal.
38, 39	PD1, PD2	I	RFI-V amplifier inverted input pin. These pins are connected to the A+C and B+C pins of the optical pickup, receiving by currents input.
40	FEBIAS	I/O	Bias adjustment pin of the focus error amplifier.
41, 42	F, E	I	F and EIV amplifier inverted input pins. These pins are connected to the F and E of the optical pickup, receiving by current input.
43	EI	—	Gain adjustment pin of the I-V amplifier E. (When not in use of BAL automatic adjustment)
44	VEE	—	GND connection pin.
45	TEO	O	Output terminal for tacking-error amplifier. Output E-F signal.
46	LPFI	I	BAL adjustment comparator input pin. (Input through LPF from TEO)
47	TEI	I	Input terminal for tracking error.
48	ATSC	I	Window-comparator input terminal for detecting ATSC.
49	TZC	I	Input terminal for tracking-zero cross comparator.
50	TDFCT	I	Capacitor connection pin for the time constant used when there is defect.
51	VC	O	Output terminal for DC voltage reduced to half of VCC+VEE.
52	FZC	I	Input terminal for focus-zero cross comparator.

## IC, CXD2540Q

Pin No.	Pin Name	I/O	Description
1	FOK	I	Focus OK input. Used for SENS output and the servo auto sequencer.
2	FSW	O	Spindle motor output filter switching output.
3	MON	O	Spindle motor on/off control output.
4	MDP	O	Spindle motor servo control.
5	MDS	O	
6	LOCK	O	High, when sampled value of GFS at 460Hz is high. Low, when sampled value of GFS at 460Hz is low by 8 times successively.
7	NC		
8	VCOO	O	Analog EFM PLL oscillation circuit output.
9	VCOI	I	Analog EFM PLL oscillation circuit input. $f_{LOCK}=8.6436\text{MHz}$ .
10	TEST	I	TEST pin.
11	PDO	O	Analog EFM PLL charge pump output.
12	VSS		GND.
13	PWMI	I	Spindle motor external control input.
14	V16M	O	VCO2 oscillation output for the wide-band EFM PLL.
15	VCTL	I	VCO2 control voltage input for the wide-band EFM PLL.
16	VPCO	O	Wide-band EFM PLL charge pump output.
17	VCKI	I	VCO2 oscillation input for the wide-band EFM PLL.
18	FILO	O	Multiplier PLL (slave=digital PLL) filter output.
19	FILI	I	Multiplier PLL filter input.
20	PCO	O	Multiplier PLL charge pump output.
21	AVSS		Analog GND.
22	CLTV	I	Multiplier VCO1 control voltage input.
23	AVDD		Analog power supply (5V).
24	RF	I	EFM signal input.
25	BIAS	I	Constant current input of the asymmetry circuit.
26	ASYI	I	Asymmetry comparator voltage input.
27	ASYO	O	EFM full-swing output.
28	ASYE	I	Low: asymmetry circuit off; high: asymmetry circuit on.
29	NC		
30	PSSL	I	Audio data output mode switching input. Low: serial output; high: parallel output.
31	WDCK	O	D/A interface for 48-bit slot. Word clock $f=2F_s$ .
32	LRCK	O	D/A interface for 48-bit slot. LR clock $f=F_s$ .
33	VDD		Power supply (5V).
34	DA16	O	DA16 (MSB) output when PSSL=1. 48-bit slot serial data (two's complement, MSB first) when PSSL=0.
35	DA15	O	DA15 output when PSSL=1. 48-bit slot bit clock when PSSL=0.
36	DA14	O	DA14 output when PSSL=1. 64-bit slot serial data (two's complement, LSB first) when PSSL=0.
37	DA13	O	DA13 output when PSSL=1. 64-bit slot bit clock when PSSL=0.
38	DA12	O	DA12 output when PSSL=1. 64-bit slot LR clock when PSSL=0.

Pin No.	Pin Name	I/O	Description
39	DA11	O	DA11 output when PSSL=1. GTOP output when PSSL=0.
40	DA10	O	DA10 output when PSSL=1. XUGF output when PSSL=0.
41	DA09	O	DA09 output when PSSL=1. XPLCK output when PSSL=0.
42	DA08	O	DA08 output when PSSL=1. GFS output when PSSL=0.
43	DA07	O	DA07 output when PSSL=1. RFCK output when PSSL=0.
44	DA06	O	DA06 output when PSSL=1. C2PO output when PSSL=0.
45	DA05	O	DA05 output when PSSL=1. XRAOF output when PSSL=0.
46	DA04	O	DA04 output when PSSL=1. MNT3 output when PSSL=0.
47	DA03	O	DA03 output when PSSL=1. MNT2 output when PSSL=0.
48	DA02	O	DA02 output when PSSL=1. MNT1 output when PSSL=0.
49	DA01	O	DA01 output when PSSL=1. MNT0 output when PSSL=0.
50	APTR	O	Aperture compensation control output. This pin outputs a high signal when the right channel is used.
51	APTL	O	Aperture compensation control output. This pin outputs a high signal when the left channel is used.
52	VSS		GND.
53	XTAI	I	Crystal oscillation circuit input.
54	XTAO	O	Crystal oscillation circuit output.
55	XTSL	I	Crystal selector input.
56	FSTT	O	2/3 frequency divider output for Pins 53 and 54.
57	FSOF	O	1/4 frequency divider output for Pins 53 and 54.
58	C16M	O	16.9344MHz output. (V16M output in CLV-W and CAV-W modes)
59	MD2	I	Digital-out on/off control. High: on; low: off
60	DOUT	O	Digital-out output.
61	EMPH	O	Outputs a high signal when the playback disc has emphasis, and a low signal when there is no emphasis.
62	WFCK	I	WFCK (write frame clock) output.
63	SCOR	O	Outputs a high signal when either subcode sync S0 or S1 is detected.
64	SBSO	O	Sub P to W serial output.
65	EXCK	I	SBSO readout clock input.
66	SQSO	O	Sub Q 80-bit and PCM peak, level meter and internal status outputs.
67	SQCK	I	SQSO readout clock input.
68	MUTE	I	High: mute; low: release
69	SENS	—	SENS output to CPU.
70	XRST	I	System reset. Reset when low.
71	DATA	O	Serial data input from CPU.
72	XLAT	O	Latch input from CPU. Serial data is latched at the falling edge.
73	VDD		Power supply (5V).
74	CLOK	O	Serial data transfer clock input from CPU.
75	SEIN	I	SENS input from SSP.
76	CNIN	I	Track jump count signal input.

Pin No.	Pin Name	I/O	Description
77	DATO	O	Serial data output to SSP.
78	XLTO	O	Serial data latch output to SSP. Latched at the falling edge.
79	CLKO	O	Serial data transfer clock output to SSP.
80	MIRR	I	Mirror signal input. Used when the number of tracks is 128 or more for the 2N-track jump and M track move of the auto sequencer.

Notes)

- The 64-bit slot is an LSB first, two's complement output, and the 48-bit slot is an MSB first, two's complement output.
- GTOP is used to monitor the frame sync protection status. (High: sync protection window open.)
- XUGF is the negative pulse for the frame sync obtained from the EFM signal. It is the signal before sync protection.
- XPLCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived from the crystal accuracy, and has a cycle of 136 $\mu$ .
- C2PO represents the data error status.
- XRAOF is generated when the 32K RAM exceeds the  $\pm 28F$  jitter margin.

## IC, CL680-D1

Pin No.	Pin Name	I/O	Description
1	NC	—	No connection.
2	VSS	—	GND.
3	CD BCK	I	Bit clock input from CD DSP.
4	CD DATA	I	Data input from CD DSP.
5	CD LRCK	I	LRCK input from CD DSP.
6	CD C2PO	I	C2 pointer input from CD DSP.
7-9	NC	—	No connection.
10-15	MD0-MD5	I/O	DRAM/ROM interface. (DATA)
16	VSS	—	Ground.
17	MD6	I/O	DRAM/ROM interface. (DATA)
18	VDD3	—	Power supply 3.3V.
19	MD7	I/O	DRAM/ROM interface. (DATA)
20	VSS	—	Ground.
21	MD8	I/O	DRAM/ROM interface. (DATA)
22	VDD3	—	Power supply 3.3V.
23-29	MD9-MD15	I/O	DRAM/ROM interface. (DATA)
30-36	NC	—	No connection.
37	$\overline{\text{MCE}}$	—	ROM chip enable.
38	$\overline{\text{MWE}}$	O	DRAM write enable.
39	VSS	—	Ground.
40	$\overline{\text{CAS}}$	O	DRAM/ROM interface.
41	VDD3	—	Power supply 3.3V.
42	$\overline{\text{RASO}}$	O	DRAM/ROM interface.
43	$\overline{\text{RASI}}$	O	
44-46	MA10-MA8	O	DRAM/ROM interface. (Address)
47	VSS	—	Ground.
48	MA7	O	DRAM/ROM interface. (Address)
49	VDD3	—	Power supply 3.3V.
50-52	MA6-MA4	O	DRAM/ROM interface. (Address)
53	VSS	—	Ground.
54	MA3	O	DRAM/ROM interface. (Address)
55	VDD3	—	Power supply 3.3V.
56-58	MA2-MA0	O	DRAM/ROM interface. (Address)
59	PGIO7	I/O	Programmable I/O.
60	$\overline{\text{RESET}}$	I	Reset input.
61	VDD MAX IN	—	Power supply - VDDMAX. (5.0V)
62-64	NC	—	No connection.
65	AGND DAC	—	Analog ground.
66	A DAC	—	Analog power supply (DAC) : 3.3V.
67	COMP OUT	O	Composite out.
68	AGND DAC	—	Analog ground.

Pin No.	Pin Name	I/O	Description
69	Y OUT	O	Video signal “Y” OUT.
70	AVDD DAC	—	Analog power supply (DAC) 3.3V.
71	AGND DAC	—	Analog ground.
72	R REF	I	Reference resistor input.
73	V REF	I	Voltage reference input.
74	AVDD DAC	—	Analog power supply (DAC) : 3.3V.
75	C OUT	O	Video signal “C” out.
76	AGND DAC	—	Analog ground.
77-79	CLK SEL0-2	I	Clock selection input.
80	VSS	—	Ground.
81	CLK SEL3	I	Clock selection input.
82	VDD3	—	Power supply 3.3V.
83, 84	CLK SEL4, 5	I	Clock selection input.
85	AGND PLL	—	Analog ground.
86	DA XCK	I	DA XCK (16.933MHz) input.
87	AVDD PLL	—	Analog power supply 3.3V.
88	DA EMP	O	DAC-emphasis output.
89, 90	PGIO5, O6	I/O	Programmable I/O.
91	PGIO0	I/O	
92	PGIO8	I/O	
93	$\overline{\text{VSYNC/CSYNC}}$	O	$\overline{\text{VSYNC/CSYNC}}$ output.
94	AVDD PLL	—	Analog power supply (PLL) 3.3V.
95	VID_DAC_CK	O	Video DAC clock.
96	PROC_CK	O	Processor clock.
97	AUD_XCK	O	Audio XCK.
98	AGND PLL	—	Analog ground.
99	VSS	—	Ground.
100	NC	—	No connection.
101	$\overline{\text{HSYNC}}$	O	$\overline{\text{HSYNC}}$ output.
102	VDD3	—	Power supply 3.3V.
103	VCK OUT	O	VCK out.
104	VSS	—	Ground.
105	GCK	I	Global clock signal input. (42.3MHz)
106	VCK	I	Video clock signal input. (27.0MHz)
107	GCK OUT	O	Global clock signal output. (27.0MHz)
108	DA LRCK	O	DAC-LRCK output.
109	VDD MAX OUT	—	Power supply (VDD MAX) : 5.0V.
110	DA DATA	O	DAC-PCM data output.
111	DA BCK	O	DAC-BIT clock output.
112	HD OUT	O	Micon interface. (Data out)
113	HRDY	O	Micon interface. (Host ready)



Pin No.	Pin Name	I/O	Description
114	$\overline{\text{HINT}}$	O	Micon interface. (Host interrupt)
115	CDG SCK	I	CD-G serial clock input.
116	VSS	—	Ground.
117	HCK	I	Micon interface. (Host clock)
118	VDD3	—	Power supply 3.3V.
119	HD IN	I	Micon interface. (Host data in)
120	VDD3	—	Power supply 3.3V.
121	HSEL	I	Micon interface. (Host select in)
122	CDG DATA	I	CD-G data input.
123	CDG VFSY	I	CD-G VFSY input.
124	CDG SOSI	I	CD-G SOSI input.
125	DSP-XCK	O	DSP-XCK output.
126-128	NC	—	No connection.

# IC, LC867248A-5H31

Pin No.	Pin Name	I/O	Description
1	O-SCONTM	O	M62439SP control. open drain output.
2	O-SCONTL	O	
3	O-TUDI	O	Tuner control. CMOS output.
4	I-TUDO	I	Tuner control.
5	O-TUCL	O	Tuner control. CMOS output.
6	O-COIN	O	CD control. open drain output.
7	I-SQOUT	I	CD control.
8	O-CQCK	O	CD control. open drain output.
9	O-RWC	O	
10	O-CLKSFT	O	Clock shift output. "L" during shift. open drain output.
11	I-TMBASE	I	8 Hz time base input.
12	I-RESET	I	Reset input.
13, 14	NC	I/O	Not used.
15	VSS1	—	GND.
16, 17	CF1, CF2	I/O	Main clock input/output 5.76 MHz.
18	VDD1	—	+5V.
19	I-KEY0	I	KEY0 A/D input.
20	I-KEY1	I	KEY1 A/D input.
21	I-RDSIG	I	RDS signal level input. (A/D input)
22	I-WRQ	I	CD control.
23	I-DRF	I	
24	I-DOOR	I	CD door SW detection SW input. "L" at CLOSE.
25	I-PUIN	I	CD pick-up detection SW input. "L" at ON.
26	I-SWTAPE	I	Tape detection SW input. (A/D input)
27	I-STEREO	I	Monaural/stereo indication selector input. "L" at stereo.
28	I-RDCL	I	RDS clock input.
29	I-REM	I	Remote control input. (fall-down edge interrupt input)
30	I-HOLD	I	Hold mode detection. "L" at hold mode.
31	I-RDDT	I	RDS data input.
32	I-TPREC	I	Tape REC detection input. "H" at REC.
33	I-TPPLAY	I	Tape PLAY detection input. "H" at PLAY.
34	O-PL	O	Mechanism deck plunger solenoid ON/OFF output. "H" at ON. CMOS output .
35	O-MOTOR	O	Mechanism deck motor ON/OFF output. "H" at ON. CMOS output.
36-38	NC	O	Not used.
39-55	S9-S25	O	LCD SEG terminal Initial setting output. (S10 to S16)
56	VDD2	—	+5V.
57	VSS2	—	GND.
58-79	S26-S47	O	LCD SEG terminal .
80	I-CLKDSP	I	Watch indication select input "L": 12H. "H": 24H.
81	I-AS	I	Auto stop. counter input .
82	I-STOP	I	Tape stop input.

Pin No.	Pin Name	I/O	Description
83-86	COM0-COM3	O	LCD common output.
87	I-INIT	I	Initial setting input.
88	O-BEAT	O	Beat selector output. "H" during selection. CMOS output .
89	VSS3	—	GND.
90	VDD3	—	5V.
91	O-QSDON	O	Q sound ON/OFF output. "H" at ON. CMOS output .
92	O-TUCE	O	Tuner chip enable output. CMOS output .
93	O-CD-ON	O	"H" output during CD function. CMOS output.
94	O-TU-ON	O	"H" output during TU function. Open drain output.
95	O-RMT	O	REC mute output. "H" during mute. Open drain output.
96	O-REC/PB	O	REC/PB select output. "H" during PB. Open drain output.
97	O-MUTE	O	Mute output. "H" during mute. Open drain output.
98	O-PCONT	O	Power control output. "H" at ON. CMOS output.
99	O-BIAS	O	REC bias ON/OFF output. "H" at ON. Open drain output.
100	NC	O	Not used.

## IC, SM5878AN

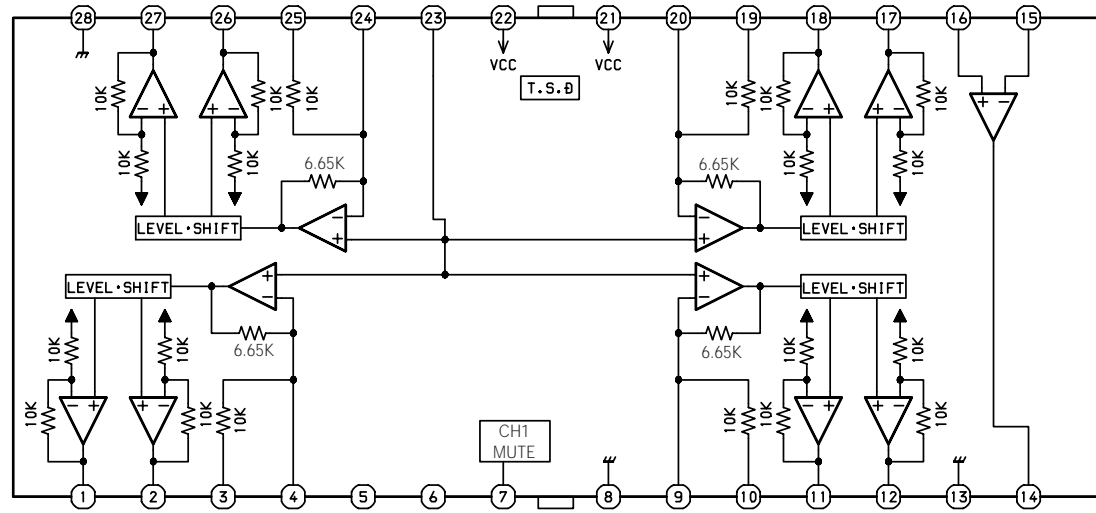
Pin No.	Pin Name	I/O	Description
1	MUTE	I	MODE = H: Soft mute ON/OFF terminal. (Mute at H). MODE = L: Attenuator level DOWN/UP terminal. (DOWN at H).
2	DEEM	I	De-emphasis ON/OFF terminal. (De-emphasis ON at H).
3	CKO	O	Oscillator clock output. (16.9344 MHz).
4	DVSS	—	Digital VSS terminal.
5	BCKI	I	Bit clock input terminal.
6	DI	I	Serial data input terminal.
7	DVDD	—	Digital VDD terminal.
8	LRCI	I	Sample rate clock (fs) input terminal. (H = L ch/L = R ch).
9	TSTN	I	Test input. ("H" or open during normal operation)
10	TO1	O	Test output 1. (Normally low level output).
11	AVDDL	—	Analog VDD terminal. (For L ch).
12	LO	O	Left channel analog output terminal.
13	AVSS	—	Analog VSS terminal.
14	RO	O	Right channel analog output terminal.
15	AVDDR	—	Analog VDD terminal. (For R ch).
16	MUTEO	O	Infinity zero detection output.
17	XVDD	—	X'tal system VDD terminal.
18	XTI	I	X'tal oscillator terminal. (Or external clock input terminal of 16.9344 MHz).
19	XTO	O	X'tal oscillator terminal.
20	XVSS	—	X'tal system VSS terminal.
21	DS	I	Double-speed/normal playback selection. (Double-speed at H).
22	RSTN	I	Reset terminal. (Reset at L).
23	MODE	I	Soft mute/Attenuator mode selection. (Soft mute at H).
24	ATCK	I	Attenuator level setup clock (Ignored when MODE = H).

## IC, LC74781M-9017

Pin No.	Pin Name	I/O	Description
1	VSS1	—	GND connection terminal. (Digital ground terminal).
2	Xtal IN	I	External X'tal and capacitor for internal sync generator, or the external clock are connected to this terminal. (2fsc or 4fsc).
3	Xtal OUT	O	
4	CTRL1	I	Either the external clock input mode or the X'tal generator mode is selected by this selector terminal. L: X'tal generator mode, H: External clock input.
5	BLANK	O	Blank signal (character and the green ORed signal) is output from this terminal. (MODE 0: composite sync signal is output at H.) When reset ( $\overline{\text{RST}}$ terminal = L), the X'tal clock signal is output. (It is not output when reset by the reset command).
6	OSC IN	I	External coil and capacitor for the character output dot clock generator are connected to this terminal.
7	OSC OUT	O	
8	CHARA	O	The character signal is output from this terminal. (MOD 0: when H, the external sync signal identification signal is output from this terminal. This output signal tells whether the external sync signal is present or not. When external sync signal is present, H is output.) When reset ( $\overline{\text{RST}}$ terminal = L), the dot clock signal (LC oscillator) is output. (It is not output when reset by the reset command).
9	$\overline{\text{CS}}$	I	Enable signal for the serial data input is input to this terminal. The serial data input is enabled at L. Pull-up resistor is built-in. (Hysteresis input).
10	SCLK	I	Clock of the serial data input is input to this terminal. Pull-up resistor is built-in. (Hysteresis input).
11	SIN	I	Serial data input terminal. Pull-up resistor is built-in. (Hysteresis input).
12	VDD2	—	Power supply for the composite video signal level adjustment. (Analog power supply).
13	CV OUT	O	Composite video signal output terminal.
14	NC	—	Connected to GND or not connected.
15	CV IN	I	Composite video signal input terminal.
16	VDD1	—	Power supply (+5V digital power supply).
17	SYN IN	I	Video signal for the internal sync separator circuit is input to this terminal. (When the internal sync separator circuit is not used, the horizontal sync signal or composite sync signal is input to this terminal).
18	SEP C	—	Internal sync separator circuit bias voltage monitoring terminal.
19	SEP OUT	O	The composite sync output signal of the internal sync separator circuit is output from this terminal. (H: MOD 1. H: during internal sync mode. L: during external sync mode.) (When internal sync separator circuit is not used, the SYN IN input signal is output from this terminal).
20	SEP IN	I	The output signal of the SEP OUT terminal is integrated so that the vertical sync signal is input to this terminal. An integrator circuit must be connected between the SEP OUT terminal and this terminal. When this terminal is not used, it must be connected to VDD1.
21	CTRL2	I	When selecting any of the NTSC or PAL or PAL-M or PAL-N system, the pin setting has priority. When L, the NTSC system is selected after resetting. Selection of either NTSC or PAL or PAL-M or PAL-N system by the command becomes effective. H: PAL-M system.

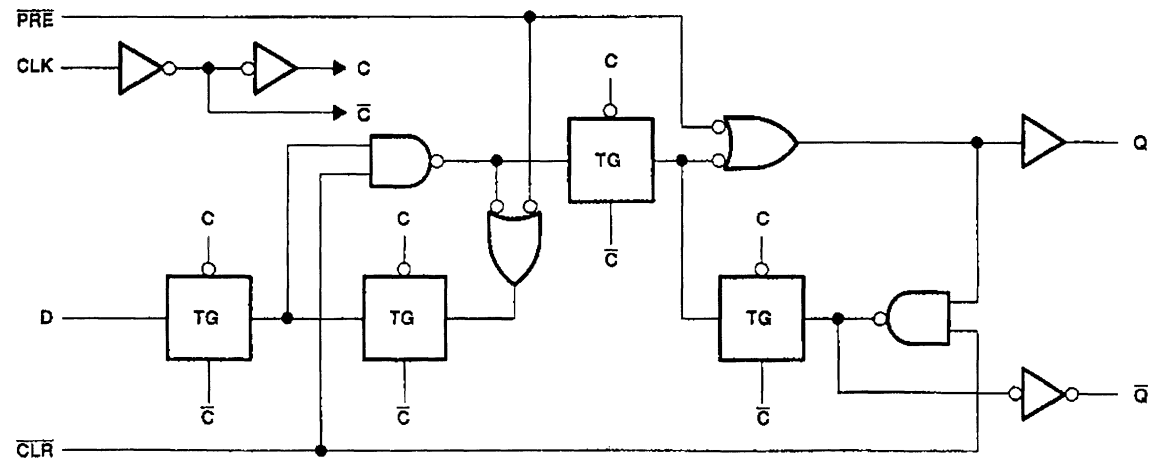
Pin No.	Pin Name	I/O	Description
22	CTRL3	I	Controls whether or not to input the $\overline{\text{VSYNC}}$ signal to the SEPIN input. L: to input the $\overline{\text{VSYNC}}$ signal. H: not to input the $\overline{\text{VSYNC}}$ signal.
23	$\overline{\text{RST}}$	I	System reset input terminal. Pull-up resistor is built-in. (Hysteresis input).
24	VDD1	—	Power supply. (+5V digital power supply).

IC BLOCK DIAGRAM  
IC, BA5915FP

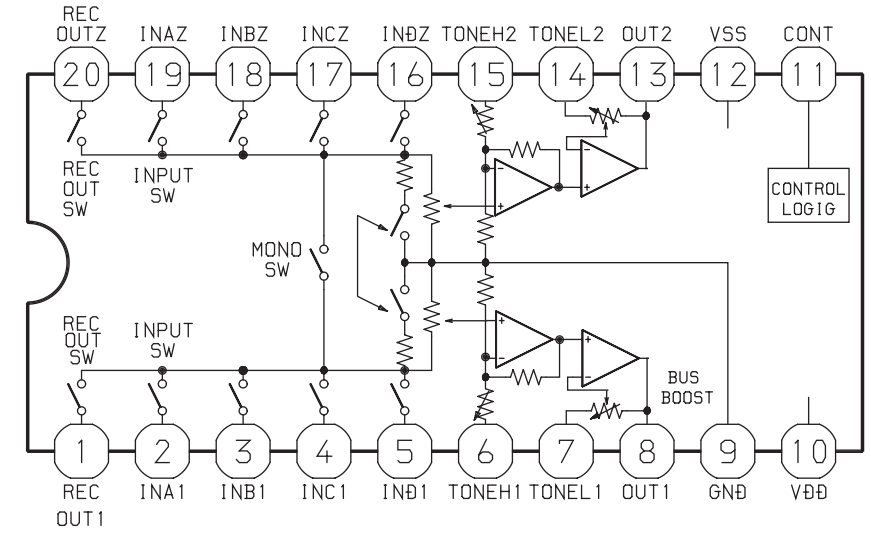


T.S.D: Thermal shut-down  
Resistors are in units of  $\Omega$ .

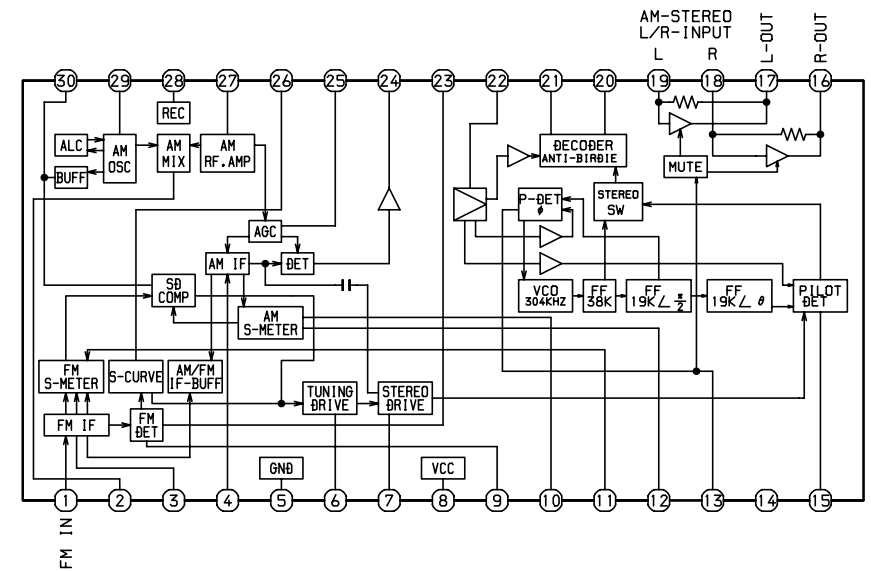
IC, SN74LV74APW



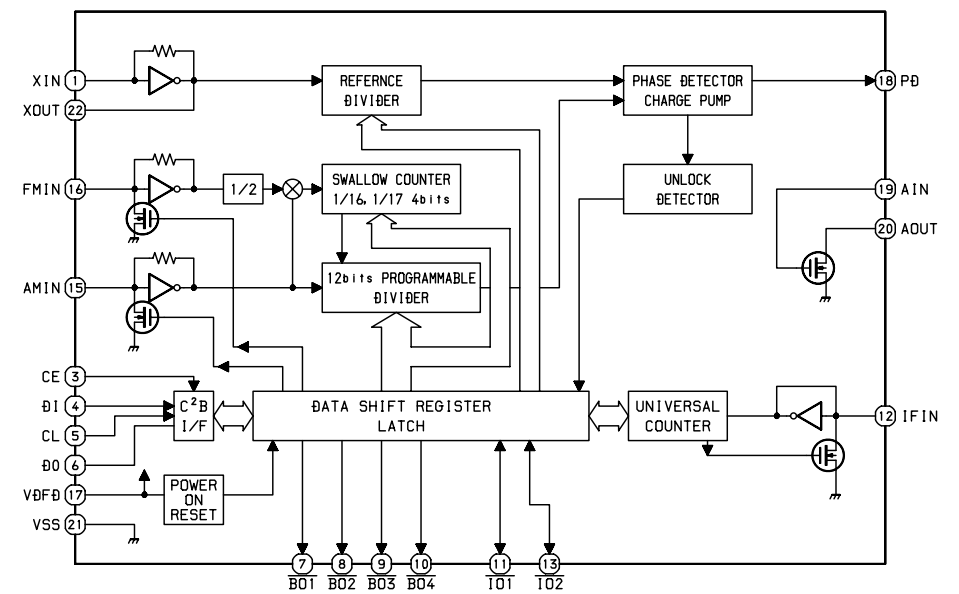
IC, M62439SP



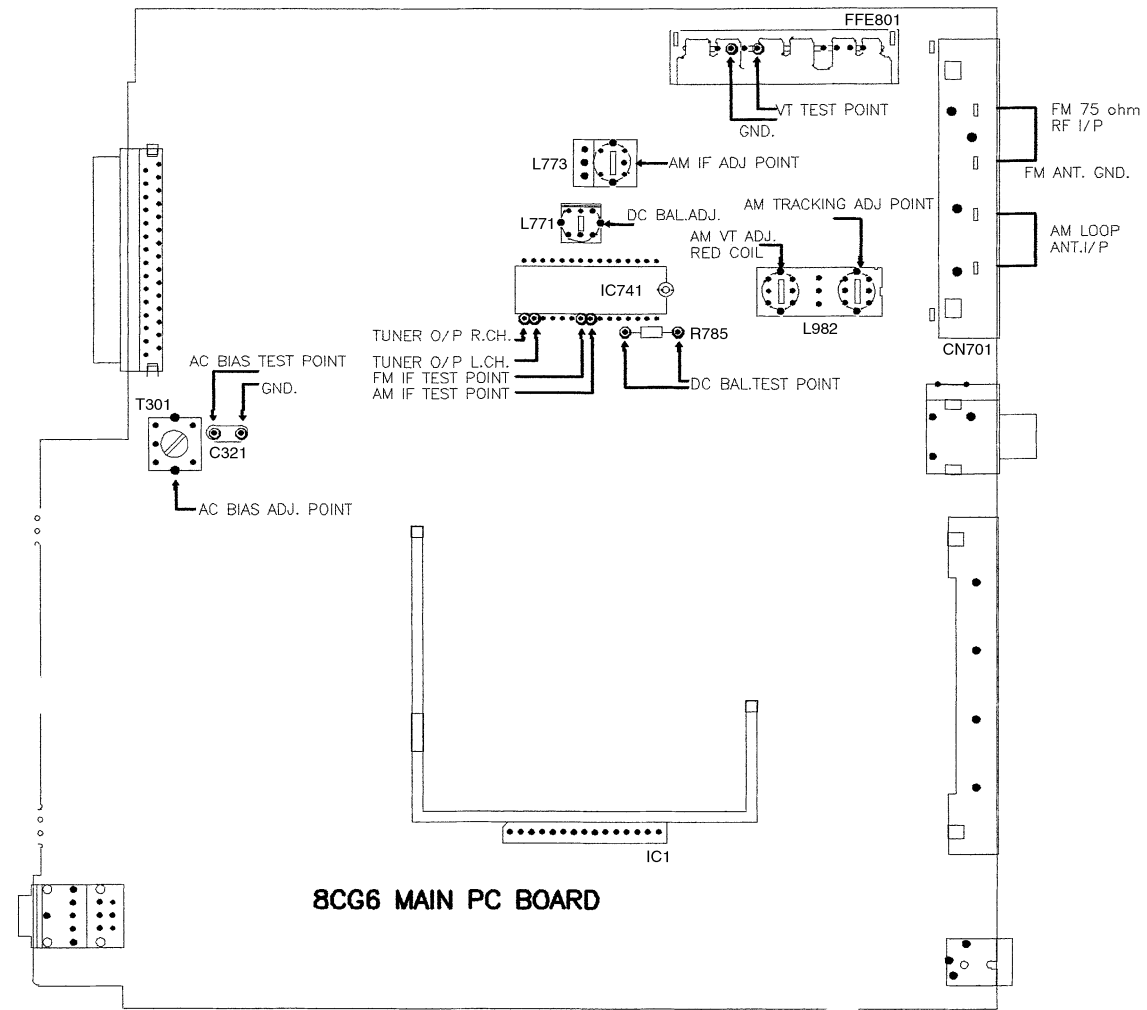
IC, LA1837NL



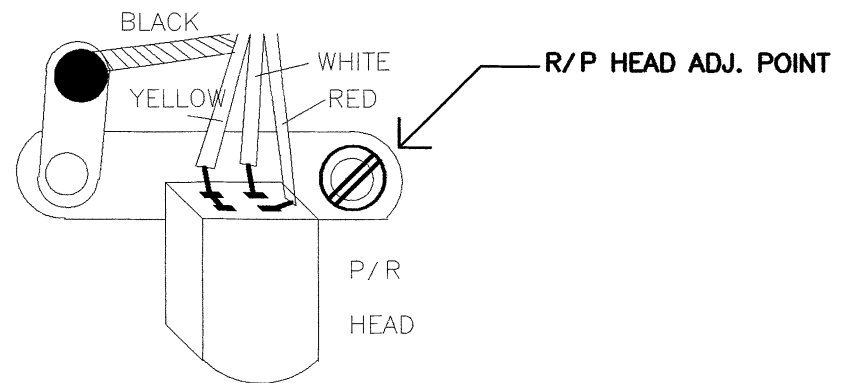
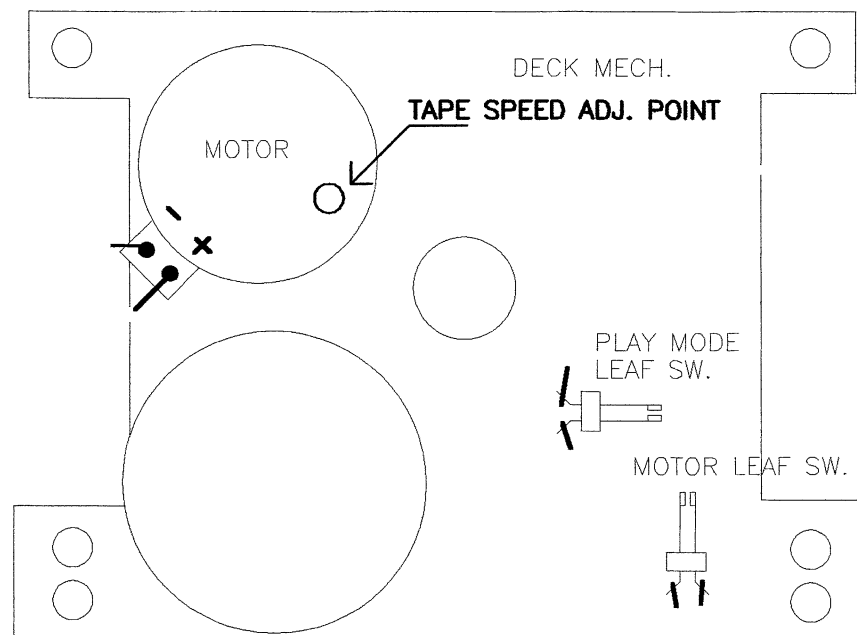
IC, LC72131



ELECTRICAL ADJUSTMENT



ADJUSTMENT ITEM	ADJ. POINT	TEST POINT	SET FREQ.	SETTING
AM VT ADJ.	L982 RED COIL	FFE801 4PIN TO GND.	1710KHz (1602KHz)	5.5V+/-0.1V(U/LH) (5.1V+/-0.1V)(D/HR)
AM VT CHECK	-	FFE801 4PIN TO GND.	530KHz (531KHz)	0.9V+/-0.5V(U/LH) (1.1V+/-0.5V)(D/HR)
AM TRACKING ADJ.	L982 YELLOW COIL	TUNER O/P L/R	600KHz (603KHz)	MAX. Output Sine Wave(Min. Dist.)
FM VT ADJ.	-	FFE801 4PIN TO GND.	108 MHz	7.2V+/-0.5V(U/LH/HR) (8.4V+/-0.5V)( D )
FM VT CHECK	-	FFE801 4PIN TO GND.	87.5MHz (76 MHz)	1.1V+/-0.5V(U/LH/HR) (0.8V+/-0.5V)( D )
DC BAL. ADJ.	L771	Both Terminal OF R785	98 MHz (92 MHz)	0 mv ( +/- 20 mv )
FM IF CHECK	-	IC 741 PIN 22	10.7 MHz	-
AM IF ADJ.	L773	IC 741 PIN 24	450 KHz	-
REC. BIAS FREQ. ONLY CHECK	-	C319,321 Common/GND	-	77KHz +/-5KHz ( With R/P HEAD)
REC. BIAS LEVEL ADJ.	T301	C319,321 Common/GND	-	10 V +/- 0.5V (With R/P HEAD)
BEAT CUT ST / ON MONO/OFF	TEST ONLY	C319,321 Common/GND	FM 98MHz Deck REC.	4 KHz +/- 1 KHz
TAPE SPEED	MOTOR	SPEAKER OUTPUT	-	3000Hz +3/-2%
DECK R/P HEAD ADJ.	R/P HEAD	SPEAKER OUTPUT	8 KHz TEST TAPE	-





# PRACTICAL SERVICE FIGURE

## < TUNER SECTION >

### < FM SECTION >

IHF Sensitivity: Less than 15dB (at 87.5MHz)  
 (THD 3%) Less than 19dB  
 (at 98.0/108.0MHz)  
 Signal to noise ratio: More than 60dB  
 (Input 54dB) (at 98.0MHz)  
 Distortion: Less than 2.0%  
 (Input 54dB) (at 98.0MHz)  
 Auto stop level: 25±10dB (at 98.0MHz)  
 Stereo separation: More than 30dB (at 98.0MHz)  
 Intermediate frequency: 10.7MHz

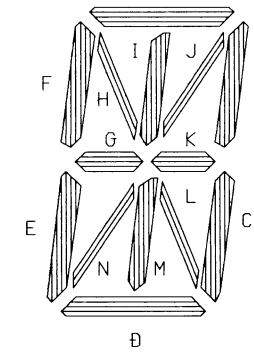
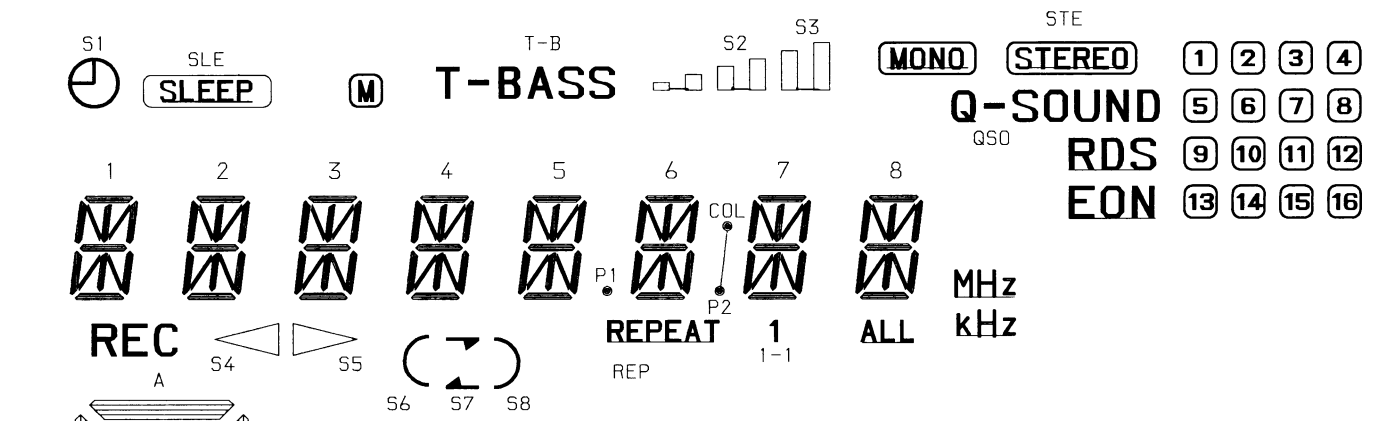
### < AM SECTION >

Sensitivity: Less than 50dB (at 603kHz)  
 (S/N 10dB) Less than 49dB (at 999kHz)  
 Less than 47dB (at 1404kHz)  
 Signal to noise ratio: More than 33dB  
 (Input 74dB) (at 999kHz)  
 Distortion: Less than 2.0%  
 (Input 74dB) (at 999kHz)  
 Auto stop level: 35-60dB (at 1000kHz)  
 Intermediate frequency: 450kHz

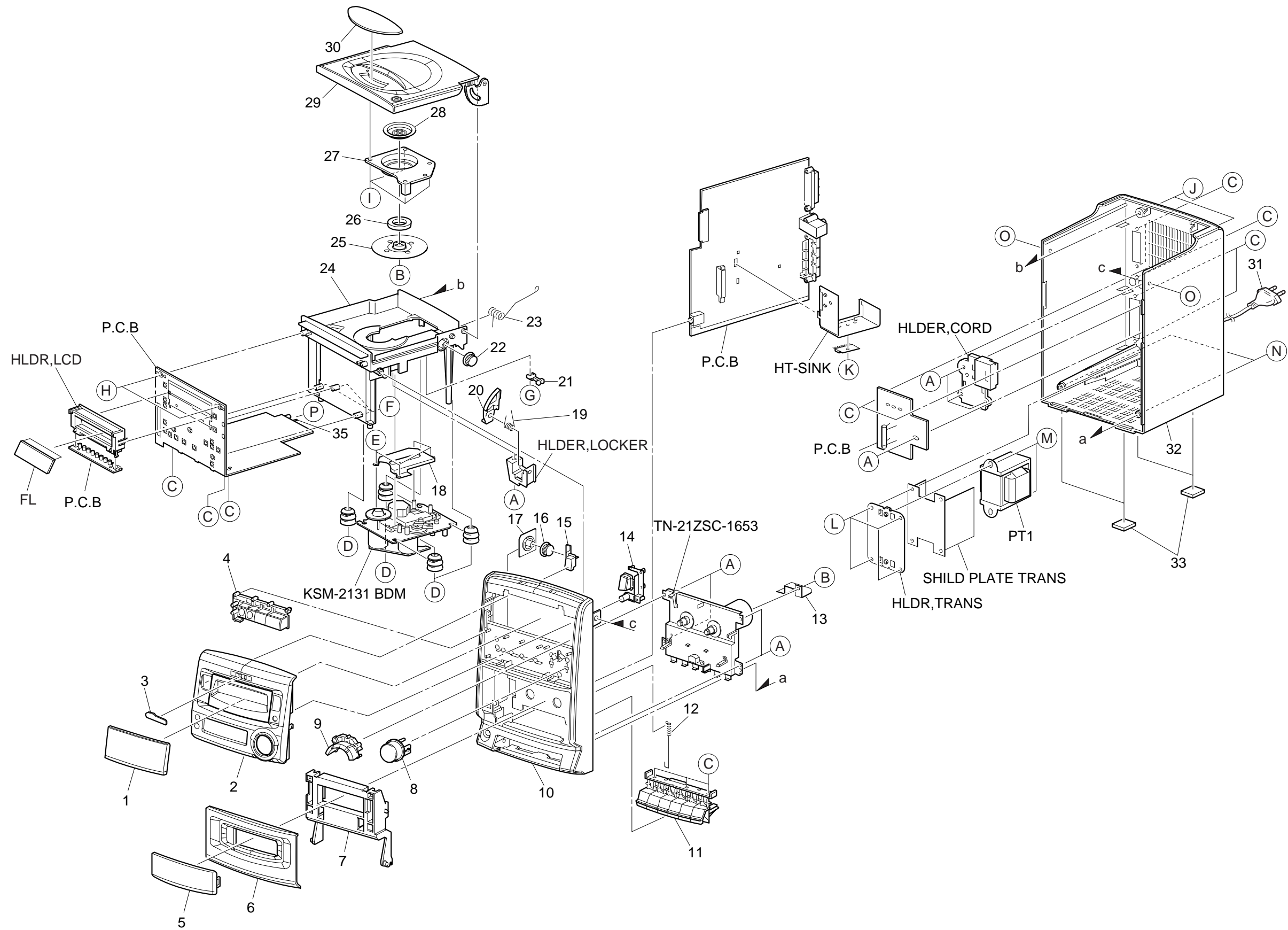
## < TAPE SECTION >

Tape speed: 3000Hz+3%/-2%  
 Wow & flutter: Less than 0.35%  
 (JIS, R.M.S)  
 Distortion: Less than 3.0% (PB)  
 Less than 7.0% (REC)  
 Signal to noise ratio: More than 35dB (PB)  
 Erasing ratio: More than 55dB  
 Cross talk: More than 50dB  
 Separation: More than 35dB

# LCD DISPLAY



NO	COM1	COM2	COM3	COM4
1	COM1	—	—	—
2	—	COM2	—	—
3	—	—	COM3	—
4	—	—	—	COM4
5	16	12	8	4
6	15	11	7	3
7	14	10	6	2
8	13	9	5	1
9	EON	RDS	QSO	STE
10	ALL	KHz	MHz	1-1
11	8L	8C	8B	MONO
12	8M	8K	8J	8A
13	8N	8G	8H	8I
14	8D	8E	8F	REP
15	7L	7C	7B	—
16	7M	7K	7J	7A
17	7N	7G	7H	7I
18	7D	7E	7F	P2
19	6L	6C	6B	COL
20	6M	6K	6J	6A
21	6N	6G	6H	6I
22	6D	6E	6F	—
23	P1	S3	S2	T.B
24	5L	5C	5B	S8
25	5M	5K	5J	5A
26	5N	5G	5H	5I
27	5D	5E	5F	S7
28	4L	4C	4B	—
29	4M	4K	4J	4A
30	4N	4G	4H	4I
31	4D	4E	4F	S6
32	3L	3C	3B	M
33	3M	3K	3J	3A
34	3N	3G	3H	3I
35	3D	3E	3F	S5
36	2L	2C	2B	SLE
37	2M	2K	2J	2A
38	2N	2G	2H	2I
39	2D	2E	2F	S4
40	1L	1C	1B	S1
41	1M	1K	1J	1A
42	1N	1G	1H	1I
43	1D	1E	1F	REC



# MECHANICAL PARTS LIST 1/1

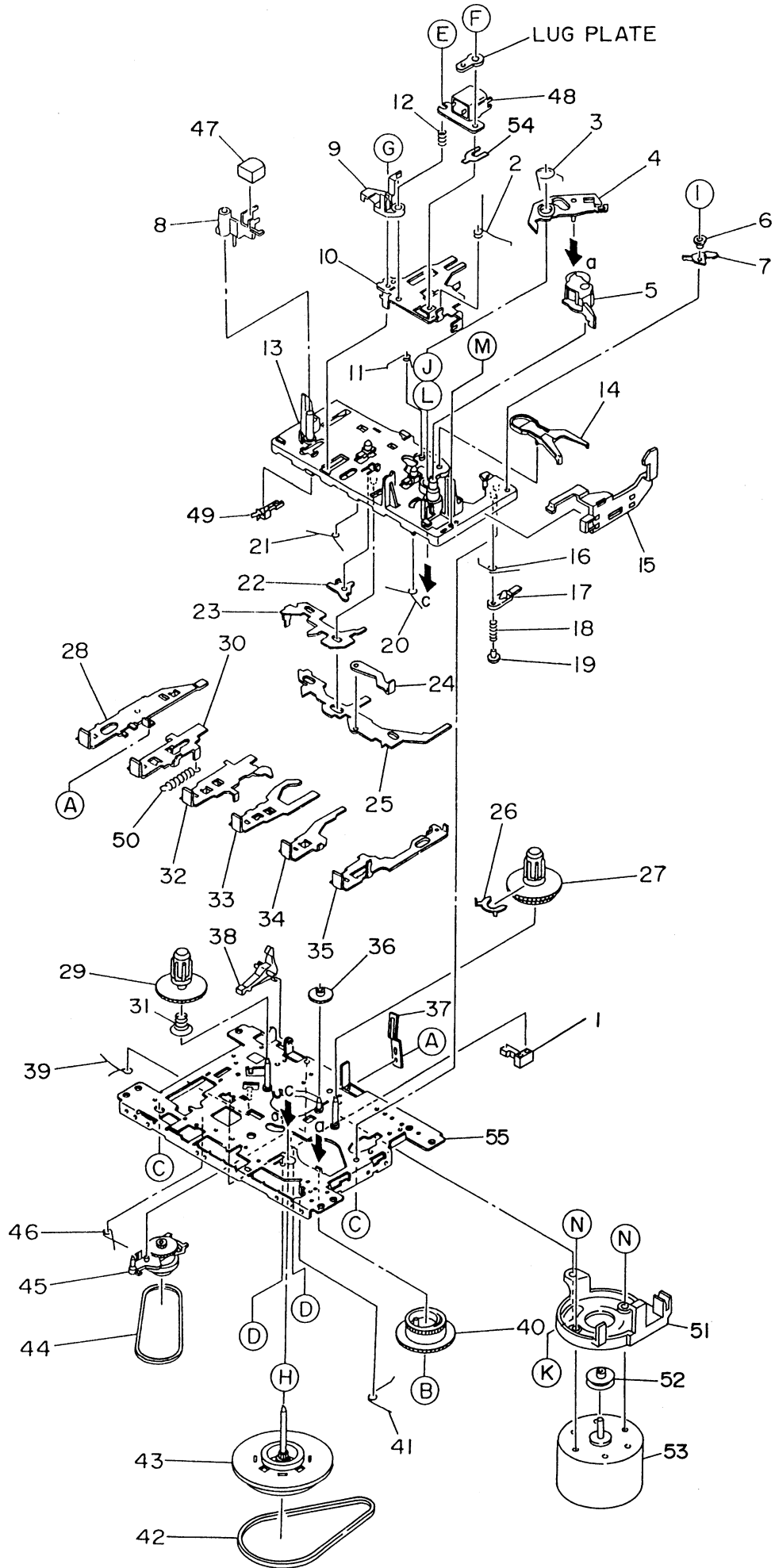
DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	88-CG6-007-010		WINDOW, DISPLAY	26	87-036-368-010		MAGNET
2	88-CG6-005-010		PANEL, FRONT	27	88-CD9-210-010		BASE, CHUCK
3	84-CD8-083-010		BADGE, AIWA 30.5-5.2 2.5LEAD	28	84-CT5-209-010		PLATE, MAGNET
4	88-CL6-019-010		KEY, CD	29	88-CG6-004-010		DOOR, CD
5	88-CL6-007-010		LENS, CASS	30	88-CL6-031-010		WINDOW, CD
6	88-CG6-003-010		DOOR, CASS	△ 31	87-050-079-010		AC-CORD ASSY, E
7	88-CG6-006-010		DOOR, CASS BRACKET	32	88-CG6-002-010		CABI, REAR
8	88-CL6-043-010		KEY, VOLUME EX	33	86-CL9-017-010		FOOT, RBR
9	88-CL6-045-010		KEY, EQ EX	A	87-641-095-410		UT1+3-8
10	88-CG6-001-010		CABI, FRONT	B	87-581-033-410		UIT+2-4
11	88-CG6-008-010		KEY, CASS SET	C	87-654-095-410		VT1+3-8CR
12	86-CL9-208-010		SPR-T, CASS	D	81-CD5-204-110		SCREW, CD
13	88-CL6-203-010		SPR-P, REC	E	87-651-034-410		VT1+2-5
14	88-CL6-044-010		KEY, AUX EX	F	87-651-102-410		VT1+3-20
15	88-CL6-014-010		KEY, POWER	G	87-651-035-410		VT1+2-6
16	84-CD5-215-010		GEAR	H	87-651-034-410		UT1+2-6
17	84-CD5-216-010		BRACKET	I	87-621-073-410		QT1+2.6-6
18	85-CD7-079-010		COVER, CD MECHA	J	87-644-096-410		UT1+3-10CR
19	87-CL5-212-010		DOOR, LOCK SPRIN G	K	87-641-094-410		UT1+3-6
20	87-CD7-206-010		DOOR, CD LOCKER	L	87-661-097-410		TAPPING SCREW, VFT1+3-12
21	81-590-677-010		SWITCH LEAF	M	87-067-566-010		VFTT+3-6
22	87-CD7-210-010		GEAR, CD DOOR	N	87-641-101-410		UT1+3-18
23	88-CL6-202-010		SPR-T, CD	O	87-624-096-410		QT1+3-10CR
24	88-CL6-006-010		CD, BRACKET	P	87-651-096-410		VT1+3-10CR
25	88-CD9-211-010		RING, CHUCK				

## 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		

TAPE MECHANISM EXPLODED VIEW 1/1

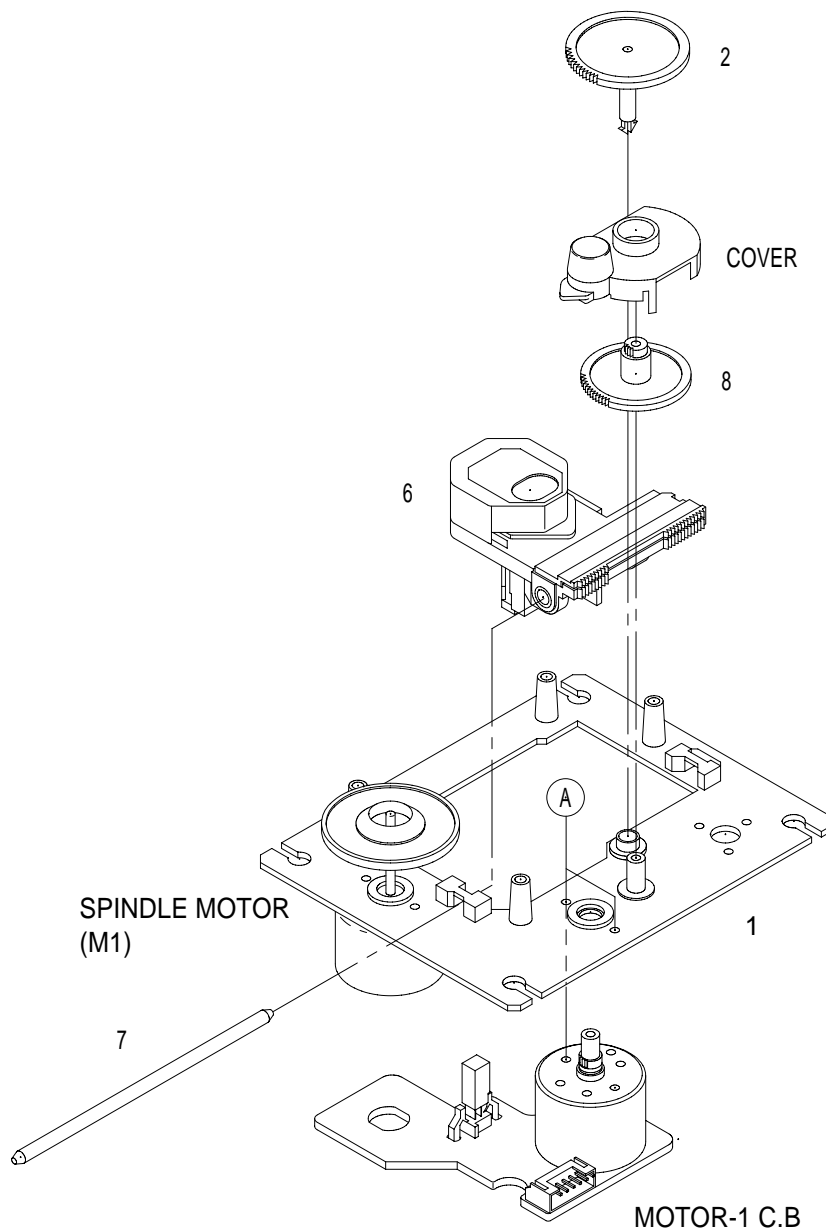


# TAPE MECHANISM PARTS LIST 1/1

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.	カナ NO.	DESCRIPTION
1	S6-401-011-610		LEAF SW MSW-17820MVEI
2	S1-921-030-090		PANEL P SPRING
3	S1-921-260-050		GEAR PLATE SPRING
4	S1-921-265-020		GEAR PLATE ASSY
5	S1-921-043-090		PINCH ROLLER ARM ASY
6	S1-921-140-370		P ARM COLLER
7	S1-921-140-340		P ARM
8	S1-921-030-050		MG ARM
9	S1-921-030-4A0		HEAD BASE
10	S1-921-030-110		HEAD PANEL
11	S1-921-141-8A0		M CONTROL SPRING
12	S1-821-030-070		AZIMUTH SPRING
13	S1-921-143-010		BASE ASSY
14	S1-921-260-4A0		SENSING LEVER
15	S1-921-130-020		EJECT SLIDE LEVER
16	S1-921-141-3A0		P CONTROL SPRING
17	S1-921-140-550		PAUSE LEVER(E)
18	S1-921-140-120		PAUSE LEVER SPRING
19	S1-921-140-110		PAUSE STOPPER
20	S1-921-140-150		BUTTON LEVER SPRING(B)
21	S1-921-140-140		BUTTON LEVER SPRING(A)
22	S1-921-140-200		PR STOPPER
23	S1-921-140-090		SWITCH ACTUATOR
24	S1-821-011-590		E KICK LEVER
25	S1-921-140-080		PUSH BUTTON ACTUATOR
26	S1-921-050-060		SENER
27	S1-921-053-030		TAKE UP REEL ASSY
28	S1-921-140-220		REC BUTTON LEVER
29	S1-921-053-040		SUPPLY REEL ASSY
30	S1-921-140-230		PLAY BUTTON LEVER
31	S1-821-100-990		BACK TENSION SPRING
32	S1-921-140-240		REW BUTTON LEVER
33	S1-921-140-250		FF BUTTON LEVER
34	S1-921-140-260		STOP BUTTON LEVER
35	S1-921-140-610		PAUSE BUTTON LEVER
36	S1-821-100-700		FF GEAR
37	S1-829-100-010		PACK SPRING
38	S1-821-100-690		RECORD SAFETY LEVER
39	S1-921-140-210		REC BUTTON LEVER SPRING
40	S1-921-260-020		CAM GEAR
41	S1-921-140-160		E ACTUATOR SPRING
42	S1-921-090-040		MAIN BBELT
43	S1-921-093-030		FLYWHEEL ASSY
44	S1-921-070-030		RF BELT
45	S1-921-073-080		RF CLUTCH ASSY
46	S1-921-140-170		P.S.LEVER SPRING
47	S6-209-100-100		E HEAD PH-K380-MS1
48	S6-201-011-110		HEAD,RP7442ES-0951
49	S6-401-011-490		LEAF SW MSW-1541T
50	S1-821-010-500		PLAY BUTTON LEVER SPRING
51	S1-821-128-9A0		MOTOR BRACKET
52	S1-921-120-010		MOTOR PULLEY
53	S6-002-030-220		MOTOR EG530AD-2B
54	S9-539-000-000		Y WASHER B.S 0.2T
55	S1-921-015-010		CHASSIS ASSY
A	S9-179-000-000		C TAP SCREW M2-3
B	S9-422-000-000		P WASHER CUT 12-3.8-0.3
C	S9-679-000-000		P TAP SCREW M2-5
D	S9-999-180-090		TAP SCREW M2-4.5
E	S9-922-000-000		AZIMUTH SCREW M2-8
F	S9-115-000-000		+ BIND SCREW M2-3
G	S9-004-000-000		SCREW M2-6
H	S9-882-000-000		P WASHER 2-3.5-0.4
I	S9-999-200-410		P TAP SCREW M2-3
J	S9-999-030-130		P WASHER CUT 1.45-3.8-0.
K	S1-921-120-030		MB SCREW
L	S9-999-000-030		P WASHER2.1-4-0.13

# CD MECHANISM EXPLODED VIEW 1/1



## CD MECHANISM 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.	KANRI NO.	DESCRIPTION
1	9X-262-587-010		MOTOR CHASSIS ASSY
2	92-626-907-010		GEAR (A)
6	98-848-376-110		OPTICAL PICK UP KSS-213B RP
7	92-626-908-010		SHAFT SLED
8	92-627-003-010		GEAR B
A	97-621-255-150		SCREW+P2-3

Note: REF.NOs. 3, 4 and 5 are not used.

## ACCESSORIES/PACKAGE LIST

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.	KANRI NO.	DESCRIPTION
	1 88-CL5-628-010		ANT, LOOP
	2 88-CG6-901-010		IB, H( EC-H)B
△	3 87-A90-312-010		PLUG, CONVERSION WTN-1157R1
	4 88-CG6-951-010		RC UNIT, RC-8AT05



サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

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