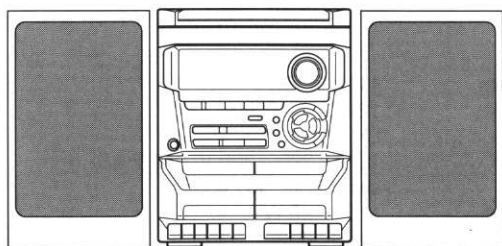


aiwa



NSX-A111 NSX-A115 NSX-S111 NSX-S119



COMPACT DISC /
STEREO CASSETTE RECEIVER

- BASIC TAPE MECHANISM : TN-21ZFW-1815
- BASIC CD MECHANISM : 4ZG-1 Z3RNDSHJM,Z4RNDSHC
- TYPE : U,HA,LH

REVISION PUBLISHING

SYSTEM	SPEAKER	CD - CASSEIVER	REMOTE CONTROLLER
NSX-A111 (TYPE : U)	SX-NA112	CX - NA111	RC UNIT ZAS02
NSX-A115 (TYPE : U)	SX-NA115	CX - NA115	
NSX-S111 (TYPE : HA)	SX-NS112	CX - NS111	
NSX-S111 (TYPE : LH)		CX - NS119	
NSX-S119 (TYPE : LH)		CX - NS119	

- This Service Manual is the "Revision Publishing" and replaces Simple Manual of NSX-A111/A115/S111<U,LH> (S/M Code No. 09-991-404-3T1), NSX-S111<HA> (S/M Code No. 09-991-404-3T2).
- If requiring information about the CD mechanism, see Service Manual of 4ZG-1 (S/M Code No. 09-992-325-4N2).

SPECIFICATIONS

<FM Tuner section>

Tuning range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	13.2 dBf
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)
Usable sensitivity	350 μ V/m
Antenna	Loop antenna

<Amplifier section>

Power output	111U: 10 W + 10 W (60 Hz – 20 kHz, THD less than 1%, 6 ohms) 15 W + 15 W (1 kHz, T.H.D. less than 10%, 6 ohms) 115U: 20 W + 20 W (60 Hz – 20 kHz, THD less than 1%, 6 ohms) 25 W + 25 W (1 kHz, T.H.D. less than 10%, 6 ohms) LH, HA : Rated : 13 W + 13 W (6 ohms, T.H.D. 1 %, 1 kHz) Reference: 15 W + 15W (6 ohms, T.H.D. 10 %, 1 kHz)
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Total harmonic distortion	111U: 0.1 % (6 W, 1 kHz, 6 ohms, DIN AUDIO) 115U: 0.1 % (12 W, 1 kHz, 6 ohms, DIN AUDIO) LH, HA: 0.1 % (7.5W, 1 kHz, 6 ohms, DIN AUDIO)
----------------------------------	--

Inputs	VIDEO/AUX : 500 mV
Outputs	SPEAKERS: accept speakers of 6 ohms or more PHONES (stereo jack): a c c e p t s headphones of 32 ohms or more

<Cassette deck section>

Track format	4 tracks, 2 channels stereo
Frequency response	50 Hz - 8000 Hz
Recording system	AC bias
Heads	Deck 1 : Recording/playback/erase head x 1 Deck 2 : Playback head x 1

<Compact disc player section>

Laser	Semiconductor laser (λ = 780 nm)
D-A converter	1 bit dual
Signal-to-noise ratio	85 dB (1 kHz, 0 dB)
Harmonic distortion	0.05% (1 kHz, 0 dB)
Wow and flutter	Unmeasurable

<Speaker system SX-NA112, SX-NA115, SX-NS112>

Cabinet type	2 way, bass reflex (magnetic shielded type)
Speakers	Woofer : 120 mm ($4\frac{3}{4}$ in.) cone type Tweeter : 20 mm ($1\frac{3}{16}$ in.) ceramic type
Impedance	6 ohms
Output sound pressure level	86 dB/W/m
Dimensions (W x H x D)	220 x 324 x 235 mm ($8\frac{3}{4}$ x $12\frac{7}{8}$ x $10\frac{3}{8}$ in.)
Weight	2.0 kg (4 lbs 7 oz.)

<General>

Power requirements	111U, 115U : 120 V AC, 60Hz LH & HA: 120 V/ 220 – 230 V/ 240 V AC, switchable, 50 / 60 Hz
Power consumption	111U : 45 W 115H : 65W LH, HA : 50 W
Dimensions of main unit (W x H x D)	260 x 324 x 349.5 mm ($10\frac{1}{4}$ x $12\frac{7}{8}$ x $13\frac{7}{8}$ in.)
Weight of main unit	111U : 4.5 kg (9 lbs 15 oz.) 115U : 5.3 kg (11 lbs 11 oz.) LH, HA : 4.9 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 mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, 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

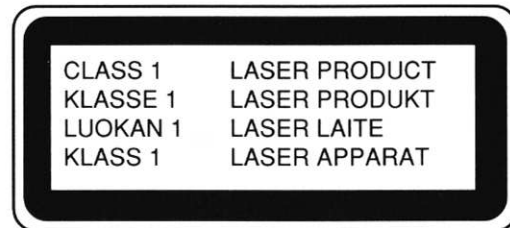
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

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.

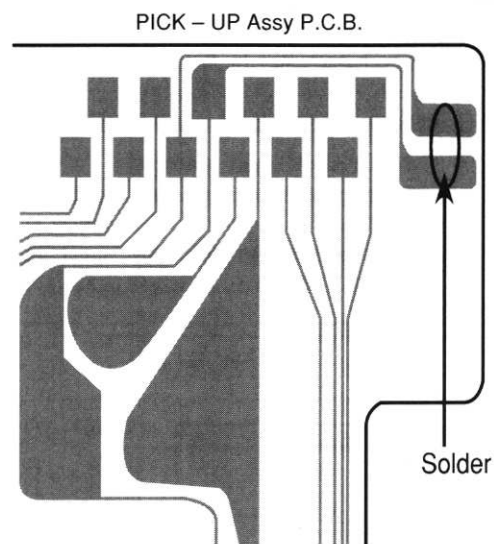


Precaution to replace Optical block

(KSS-213F) <Z3RNDSHJ>
(KSS-213IFAM) <Z4RNDSH>

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

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



NOTE ON BEFORE STARTING REPAIR

1. Forced discharge of electrolytic capacitor of power supply block

When repair is going to be attempted in the set that uses relay circuit in the power supply block, electric potential is kept charged across the electrolytic capacitors (C101, 102) even though AC power cord is removed. If repair is attempted in this condition, secondary defect can occur.

In order to prevent the secondary trouble, perform the following measures before starting repair work.

Discharge procedure

- ① Remove the AC power cord.
- ② Connect a discharging resistor at an end of lead wire that has clips at both ends. Connect the other end of the lead wire to metal chassis.
- ③ Contact the other end of the discharging resistor to the positive (+) side (+VH) of C101. (For two seconds)
- ④ Contact the same end of the discharging resistor as step ③ to the negative (-) side (-VH) of C102 in the same way. (For two seconds)
- ⑤ Check that voltage across C101 and C102 has decreased to 1 V or less using a multimeter or an oscilloscope.

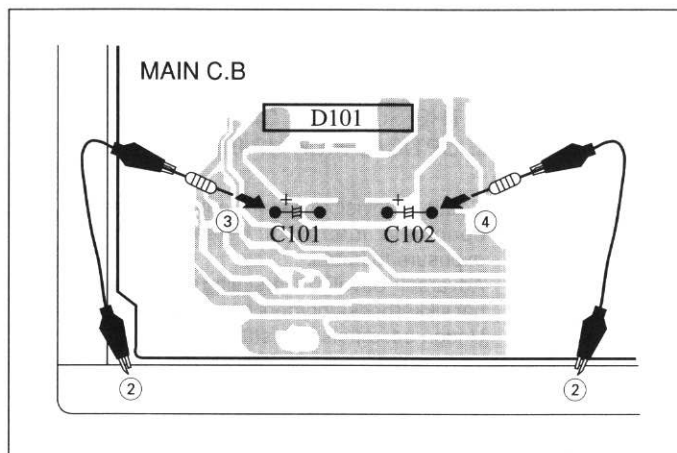


Fig-1

Select a discharging resistor referring to the following table.

Charging voltage (V) (C101, 102)	Discharging resistor (Ω)	Rated power (W)	Parts number
25-48	100	3	87-A00-247-090
49-140	220	5	87-A00-232-090

Note: The reference numbers (C101, C102) of the electrolytic capacitors can change depending on the models. Be sure to check the reference numbers of the charging capacitor on schematic diagram before starting the discharging work.

2. Check items before exchanging the MICROCOMPUTER

Be sure to check the following items before exchanging the MICROCOMPUTER. Exchange the MICROCOMPUTER after confirming that the MICROCOMPUTER is surely defective.

2-1. Regarding the HOLD terminal of the MICROCOMPUTER

When the HOLD terminal (INPUT) of the MICROCOMPUTER is "H", the MICROCOMPUTER is judged to be operating correctly. When this terminal is "L", the main power cannot be turned on. Therefore, be sure to check the terminal voltage of the HOLD terminal before exchange.

When the MICROCOMPUTER is not defective, the HOLD terminal can also go "L" when the POWER AMPLIFIER has any abnormalities that triggers the abnormality detection circuit on the MAIN C. B. that sets the HOLD terminal to "L".

• Good or no good judgment of the MICROCOMPUTER

- ① Turn on the AC main power.
- ② Confirm that the main power is turned on and the HOLD terminal of the MICROCOMPUTER keeps the "H" level or not.
- ③ When the HOLD terminal is "L" level, the abnormality detection circuit is judged to be working correctly and the MICROCOMPUTER is judged to be good.

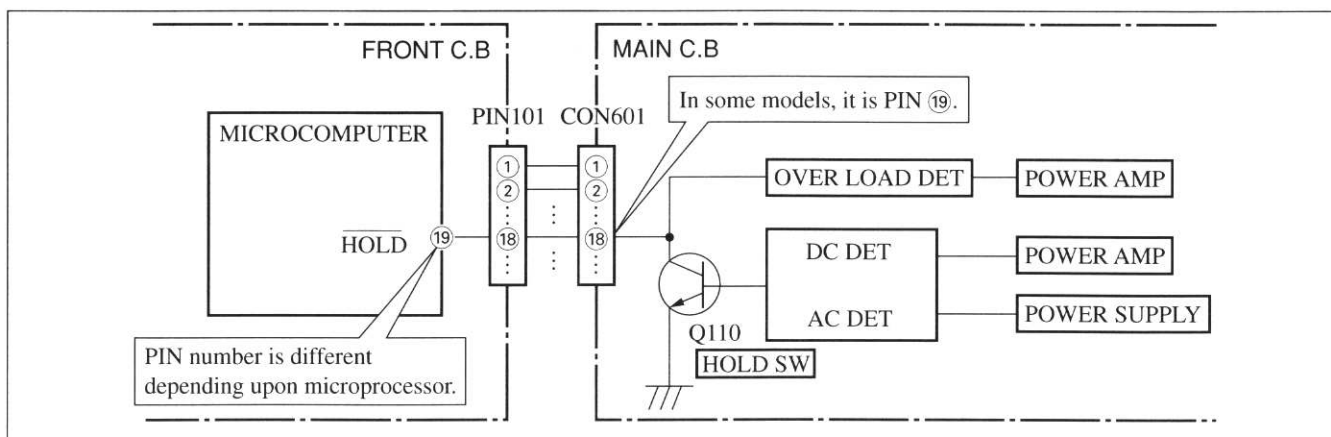


Fig-2-1

In such a case, check also if the POWER AMPLIFIER circuit or power supply circuit has any abnormalities or not.

2-2. Regarding reset

There are cases that the machine does not work correctly because the MICROCOMPUTER is not reset even though the AC power cord is re-inserted, or the software reset (pressing the STOP key + POWER key) is performed.

When the above described phenomenon occurs, it can lead to wrong judgment as if the MICROCOMPUTER is defective and to exchange the MICROCOMPUTER. In such a case, perform the forced-reset by the following procedure and check good or no good of the MICROCOMPUTER.

- ① Remove the AC power cord.

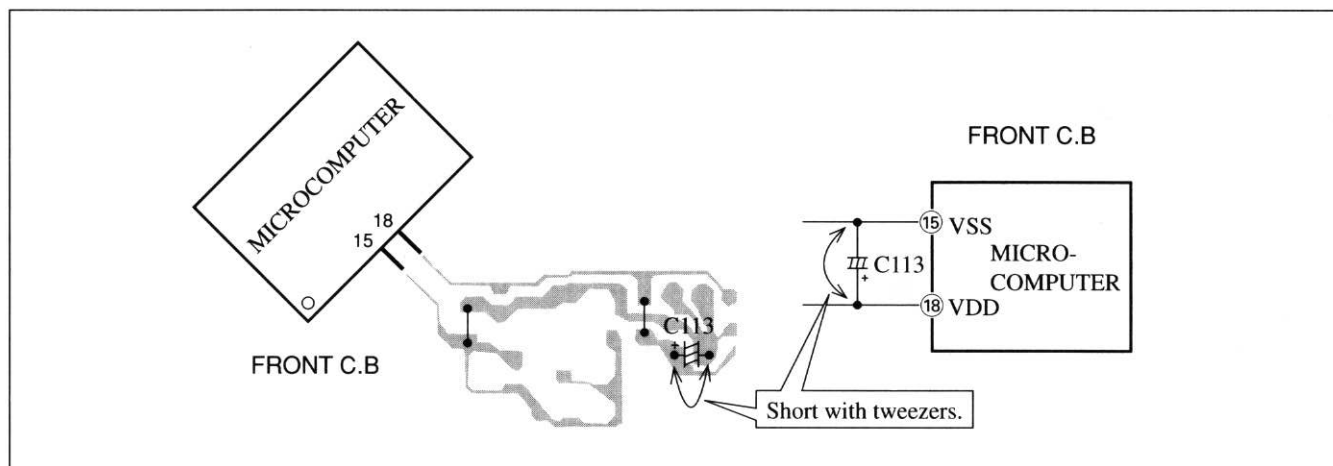


Fig-2-2

- ② Short both ends of the electrolytic capacitor C113 that is connected to VDD of the MICROCOMPUTER with tweezers.
- ③ Connect the AC power cord again. If the MICROCOMPUTER returns to the normal operation, the MICROCOMPUTER is good.

Note: The reference number or MICROCOMPUTER pin number of transistor (Q110) and electrolytic capacitor (C113) can change depending on the models. Be sure to check the reference numbers on schematic diagram before starting the discharging work.

2-3. Confirmation of soldering state of MICROCOMPUTER

Check the soldering state of the MICROCOMPUTER in addition to the above described procedures. Be sure to exchange the MICROCOMPUTER after surely confirming that the trouble is not caused by poor soldering but the MICROCOMPUTER itself.

ELECTRICAL MAIN PARTS LIST

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				C220	87-010-544-080		CAP, ELECT 0.1-50V
	8Z-NFA-631-010		C-IC,M38B59MFH-P109FP	C223	87-A11-155-080		CAP,TC U 0.01-16 Z F
	87-A21-218-010		IC,NJL64H380A	C224	87-A11-155-080		CAP,TC U 0.01-16 Z F
	87-017-889-010		IC,NJM4558LD	C229	87-018-123-080		CAP, CER 220P-50V
	87-A20-715-010		IC,M62439SP	C230	87-018-123-080		CAP, CER 220P-50V
	87-070-127-110		IC,LC72131 D				
	87-A20-913-010		IC,LA1837NL	C235	87-A11-148-080		CAP,TC U 0.1-50 Z F<HA>
TRANSISTOR				C236	87-A11-148-080		CAP,TC U 0.1-50 Z F<HA>
	87-026-610-080		TR,KTC3198GR	C301	87-018-131-080		CAP, CER 1000P-50V
	87-A30-090-080		FET,2SK2541	C302	87-018-131-080		CAP, CER 1000P-50V
	87-A30-234-080		TR,CSC4115BC	C303	87-018-195-080		CAP, CER 1200P-16V
	89-213-702-010		TR,2SB1370 (1.8W)				
	87-026-269-080		TR,DTA114ES	C304	87-018-195-080		CAP, CER 1200P-16V
	87-026-609-080		TR,KTA1266GR	C307	87-010-263-080		CAP, ELECT 100-10V
	87-026-219-080		TR,DTA144ES (0.3W)	C308	87-010-263-080		CAP, ELECT 100-10V
	88-NF9-623-010		TR,2SD2478	C311	87-A10-307-080		CAP,M 0.1-50 J
	88-NF9-622-010		TR,2SB1616	C312	87-A10-307-080		CAP,M 0.1-50 J
	87-A30-190-080		TR,CC5551<5U>				
	87-A30-091-080		FET,2SJ460	C315	87-010-374-080		CAP, ELECT 47-10V
	87-026-218-080		TR,DTC144ES (0.2W)	C317	87-010-546-080		CAP, ELECT 0.33-50V
	87-026-214-080		TR,DTA114YS (0.3W)	C318	87-010-546-080		CAP, ELECT 0.33-50V
DIODE				C326	87-018-205-080		CAP, CERA-SOL 0.022
	87-A40-393-090		DIODE,1N5402GW(F20)<exp 5U>	C327	87-A11-148-080		CAP,TC U 0.1-50 Z F<HA>
	87-020-465-080		DIODE,1SS133 (110MA)<5U>				
	87-A40-455-080		DIODE,RL203 GW<5U>	C360	87-010-401-080		CAP, ELECT 1-50V
	87-A40-291-080		DIODE,1N4148 (CPT)<exp 5U>	C361	87-010-374-080		CAP, ELECT 47-10V
	87-017-932-080		ZENER,MTJ6.2B	C399	87-018-127-080		CAP, CER 470P-50V
	87-A40-336-080		ZENER,MTZJ27D T-72	C401	87-010-545-080		CAP, ELECT 0.22-50V
	87-A40-345-080		ZENER,MTZJ10C	C402	87-010-545-080		CAP, ELECT 0.22-50V
	87-A40-553-080		DIODE,1N4003 LES				
	87-A40-466-080		ZENER,MTZJ2.7A	C403	87-018-118-080		CAP,TC-U 82P-50 B
	87-017-931-080		ZENER,MTZJ5.6B	C404	87-018-118-080		CAP,TC-U 82P-50 B
MAIN C.B				C411	87-010-405-080		CAP, ELECT 10-50V
C101	87-016-495-090		CAP,E 3300-25 SMG<exp 5U>	C412	87-010-405-080		CAP, ELECT 10-50V
C101	87-A10-520-090		CAP,E 3300-35 M SMG<5U>	C452	87-010-382-080		CAP, ELECT 22-25V
C103	87-016-051-090		CAP,E 2200-35 SMG<exp 5U>				
C104	87-A10-011-090		CAP,E 2200-25 SMG<1U>	C459	87-018-128-080		CAP, CERA-SOL SS 560P
C105	87-018-127-080		CAP, CER 470P-50V	C461	87-018-126-080		CAP,TC-U 390P-50 B
C106	87-010-260-080		CAP, ELECT 47-25V<5U>	C462	87-018-126-080		CAP,TC-U 390P-50 B
C106	87-010-246-080		CAP, ELECT 47-35V<exp 5U>	C601	87-018-195-080		CAP, CER 1200P-16V
C108	87-010-381-080		CAP, ELECT 330-16V	C602	87-018-195-080		CAP, CER 1200P-16V
C110	87-010-263-080		CAP, ELECT 100-10V				
C113	87-010-403-080		CAP, ELECT 3.3-50V	C611	87-010-545-080		CAP, ELECT 0.22-50V
C114	87-010-374-080		CAP, ELECT 47-10V	C612	87-010-545-080		CAP, ELECT 0.22-50V
C115	87-A10-303-080		CAP,M 0.047-50 J	C613	87-010-545-080		CAP, ELECT 0.22-50V
C116	87-A10-303-080		CAP,M 0.047-50 J	C614	87-010-545-080		CAP, ELECT 0.22-50V
C122	87-010-384-080		CAP, ELECT 100-25V	C615	87-018-104-080		CAP,TC-U 10P-50 SL
C122	87-010-247-080		CAP, ELECT 100-50V				
C122	87-010-408-080		CAP, ELECT 47-50V<5U>	C616	87-010-260-080		CAP, ELECT 47-25V
C123	87-010-384-080		CAP, ELECT 100-25V	C617	87-010-260-080		CAP, ELECT 47-25V
C123	87-010-408-080		CAP, ELECT 47-50V<5U>	C701	87-010-404-080		CAP, ELECT 4.7-50V
C152	87-010-396-080		CAP,E 470-35 SME<HA>	C702	87-A11-155-080		CAP,TC U 0.01-16 Z F
C207	87-010-545-080		CAP, ELECT 0.22-50V	C703	87-A11-155-080		CAP,TC U 0.01-16 Z F
C208	87-010-545-080		CAP, ELECT 0.22-50V				
C209	87-A11-154-080		CAP,TC U 4700P-16 Z F	C704	87-018-131-080		CAP, CER 1000P-50V
C210	87-A11-154-080		CAP,TC U 4700P-16 Z F	C705	87-018-131-080		CAP, CER 1000P-50V
C211	87-010-403-080		CAP, ELECT 3.3-50V	C706	87-018-131-080		CAP, CER 1000P-50V
C212	87-010-403-080		CAP, ELECT 3.3-50V	C707	87-010-112-080		CAP, ELECT 100-16V
C213	87-010-260-080		CAP, ELECT 47-25V	C708	87-A11-144-080		CAP,TC U 0.1-50 K B
C214	87-010-260-080		CAP, ELECT 47-25V				
C217	87-A10-304-080		CAP,M 0.056-50 J	C709	87-010-248-080		CAP, ELECT 220-10V
C218	87-A10-304-080		CAP,M 0.056-50 J	C710	87-010-112-080		CAP, ELECT 100-16V
C219	87-010-544-080		CAP, ELECT 0.1-50V	C712	87-018-149-080		CAP,TC-U 15P-50 CH
				C713	87-018-149-080		CAP,TC-U 15P-50 CH
				C714	87-010-112-080		CAP, ELECT 100-16V
				C715	87-018-119-080		CAP, CER 100P-50V
				C737	87-A11-155-080		CAP,TC U 0.01-16 Z F
				C751	87-A11-112-080		CAP,TC U 1000P-50 JCH<exp 5U>
				C753	87-010-408-080		CAP, ELECT 47-50V
				C755	87-A11-144-080		CAP,TC U 0.1-50 K B
				C758	87-010-112-080		CAP, ELECT 100-16V
				C759	87-A11-155-080		CAP,TC U 0.01-16 Z F
				C761	87-010-404-080		CAP, ELECT 4.7-50V
				C762	87-010-400-080		CAP, ELECT 0.47-50V
				C763	87-010-401-080		CAP, ELECT 1-50V
				C764	87-010-401-080		CAP, ELECT 1-50V
				C765	87-018-115-080		CAP, CER 47P-50V
				C766	87-010-407-080		CAP, ELECT 33-50V
				C768	87-A11-147-080		CAP,TC U 0.047-50 Z F
				C769	87-010-403-080		CAP, ELECT 3.3-50V

TRANSISTOR ILLUSTRATION



E C B

KTA1266GR
KTC3198GR



E C B

CC5551



B C E

2SB1370



B C E

CSC4115BC



S D G

2SK2541



E C B

DTC144ES
DTA114YS
DTA114ES
DTA144ES



B C E

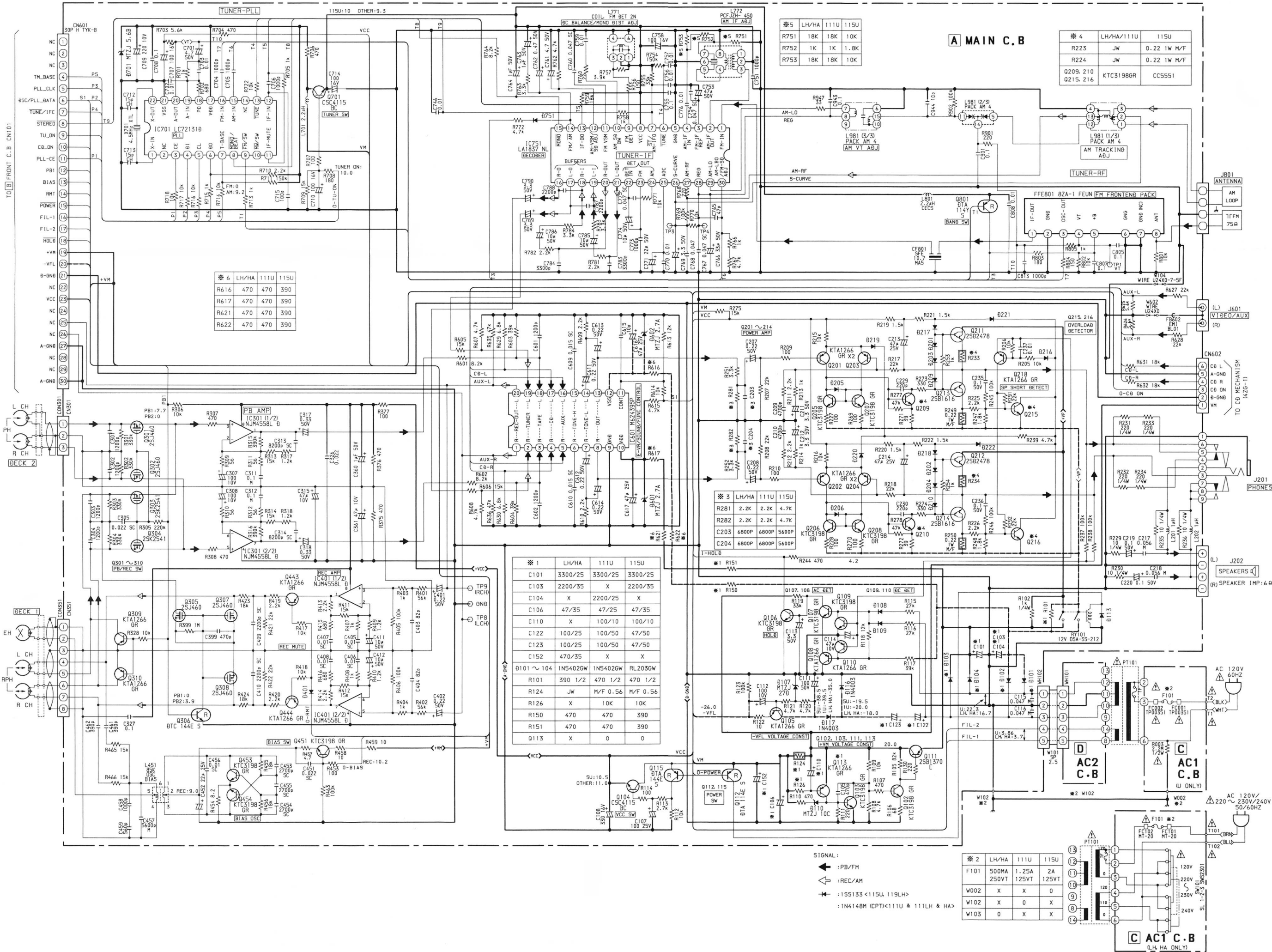
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2SB1616

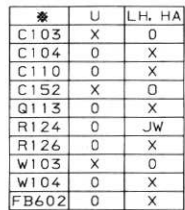


S D G

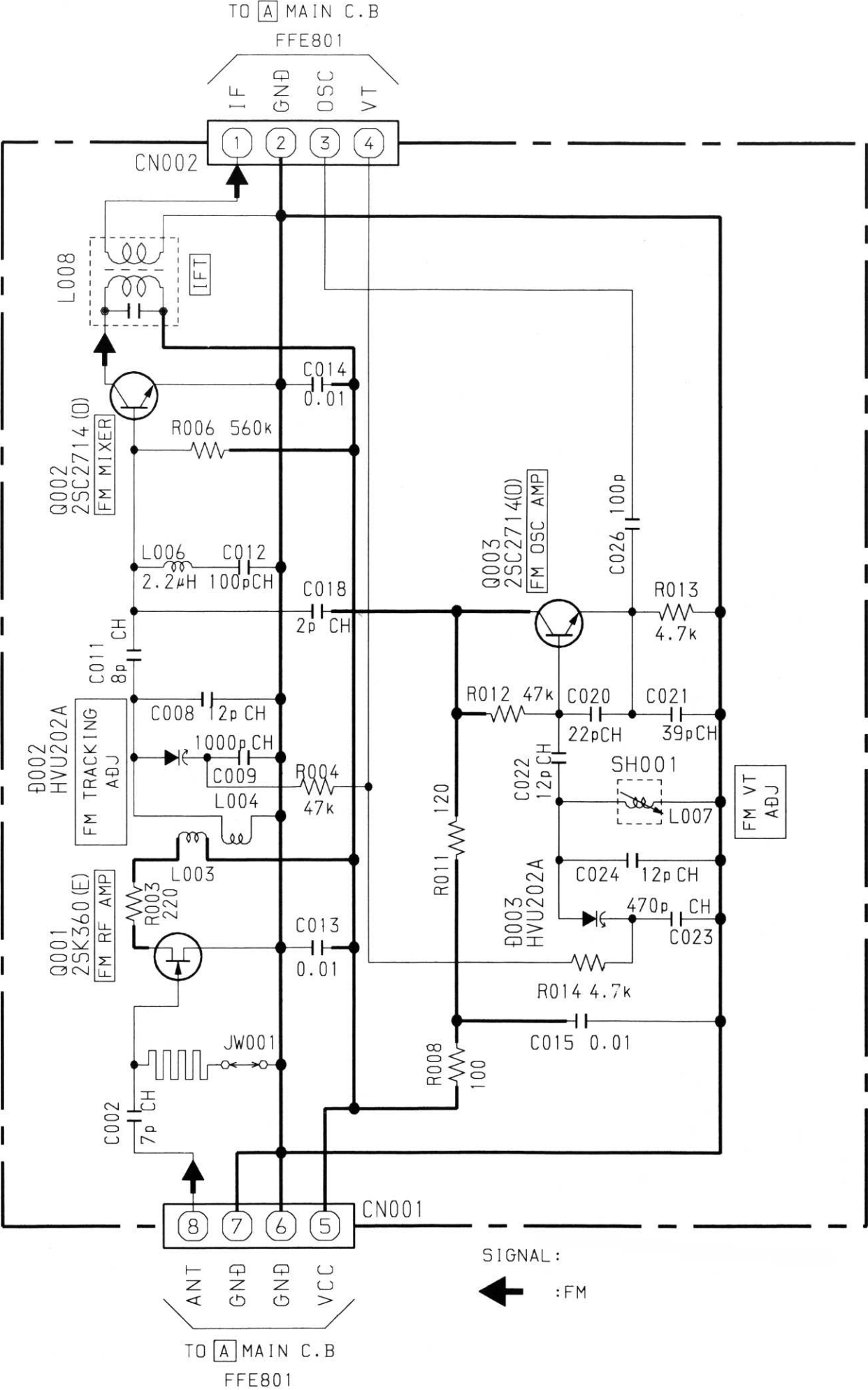
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SCHEMATIC DIAGRAM - 1 (MAIN)

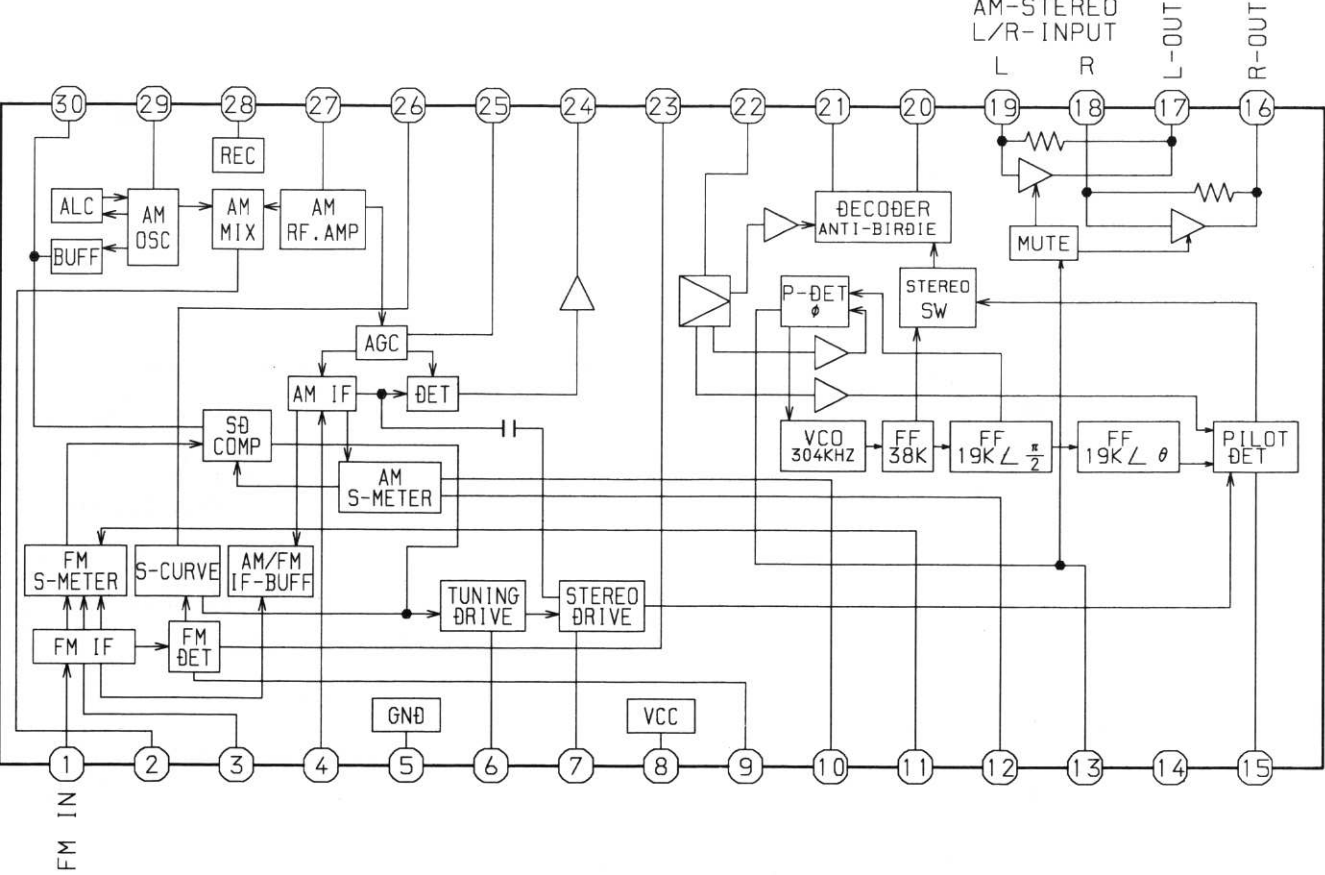




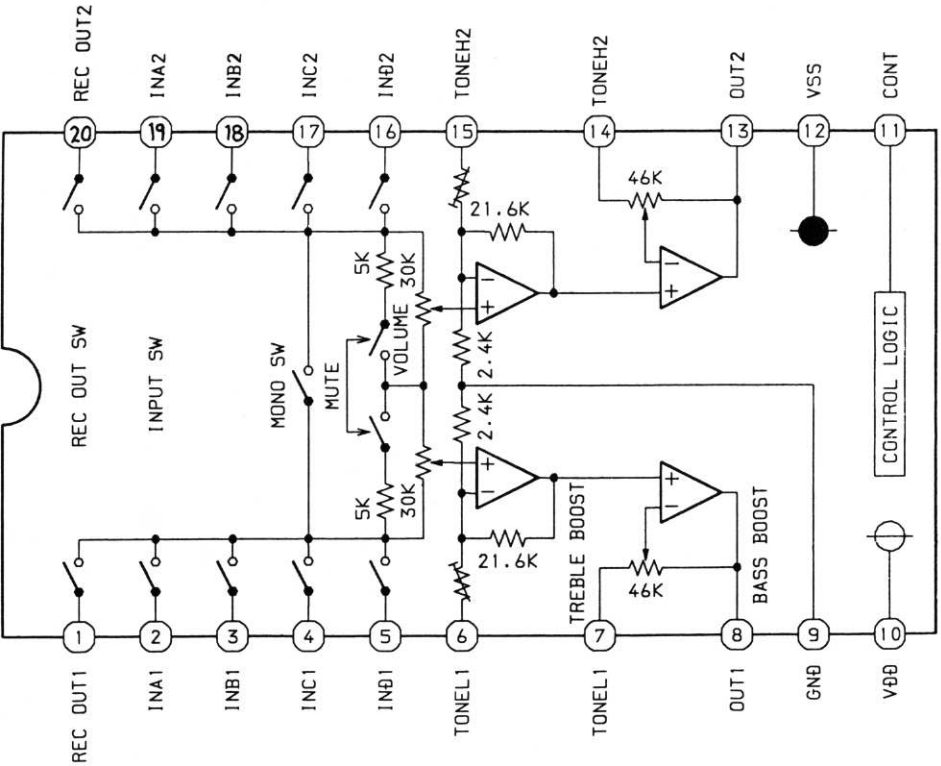
SCHEMATIC DIAGRAM – 2
TUNER FRONT END

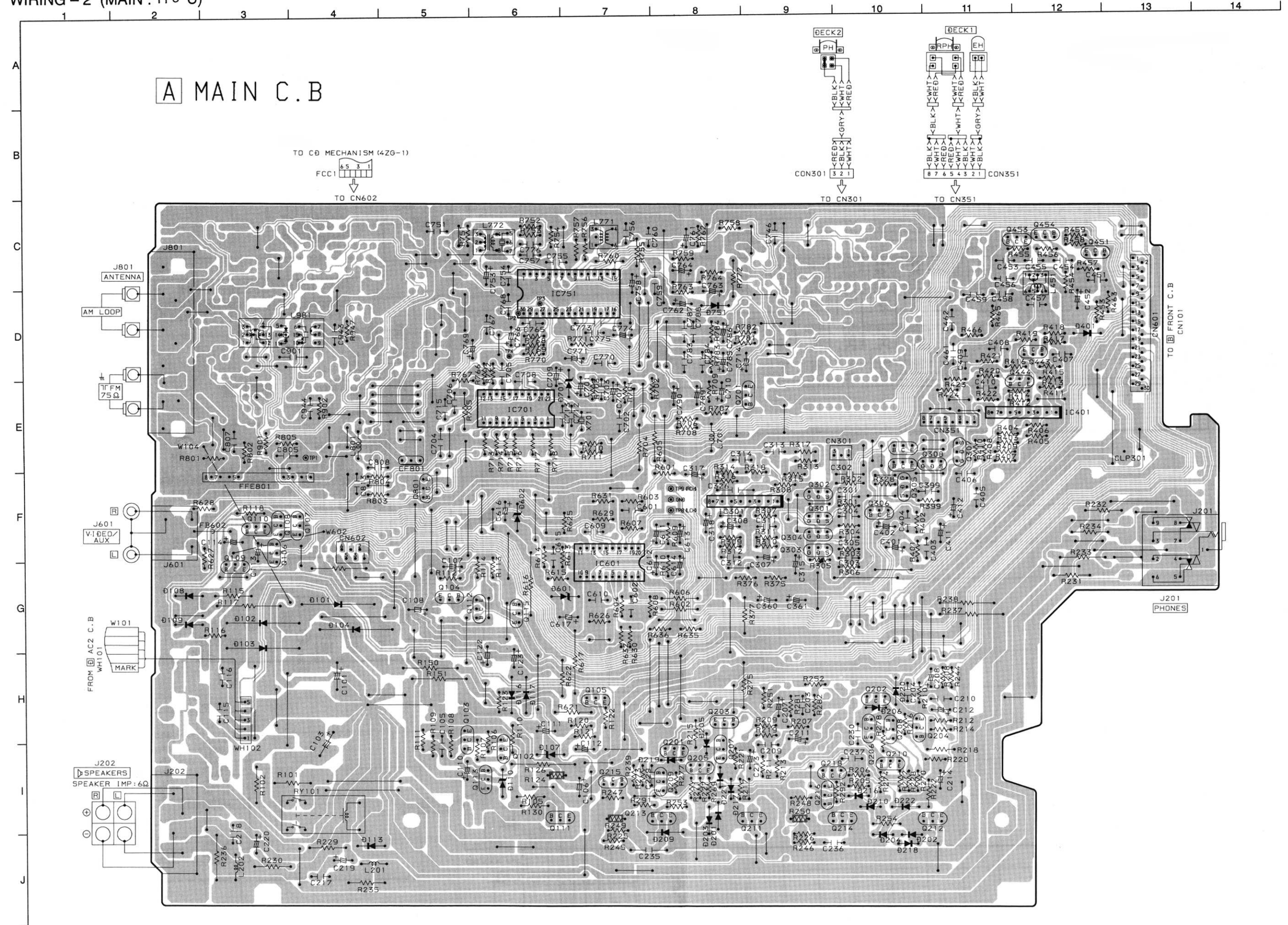


IC BLOCK DIAGRAM
IC, LA1837NL

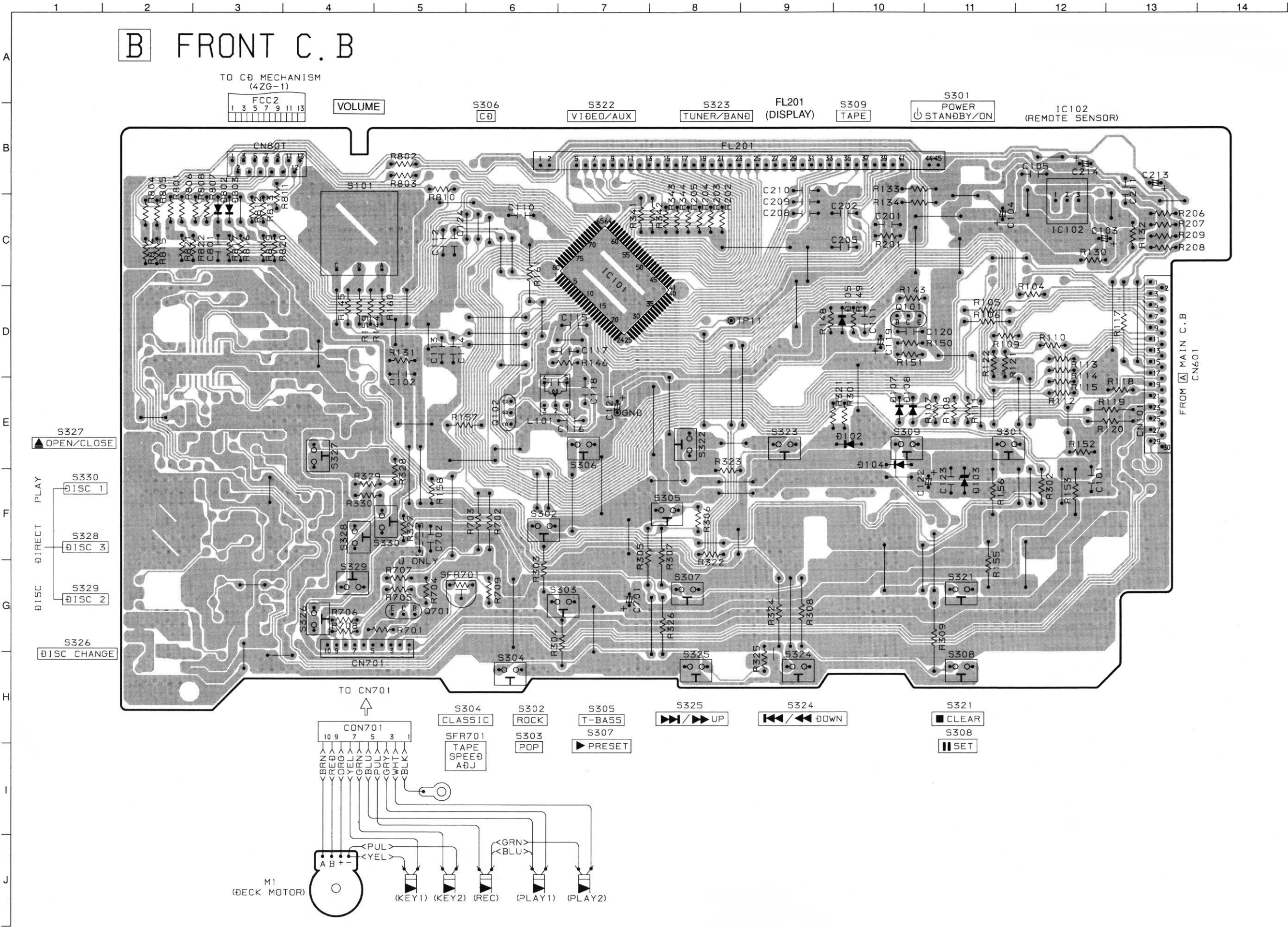


IC, M62439SP









IC DESCRIPTION
IC, M38B59MFH-P109FP

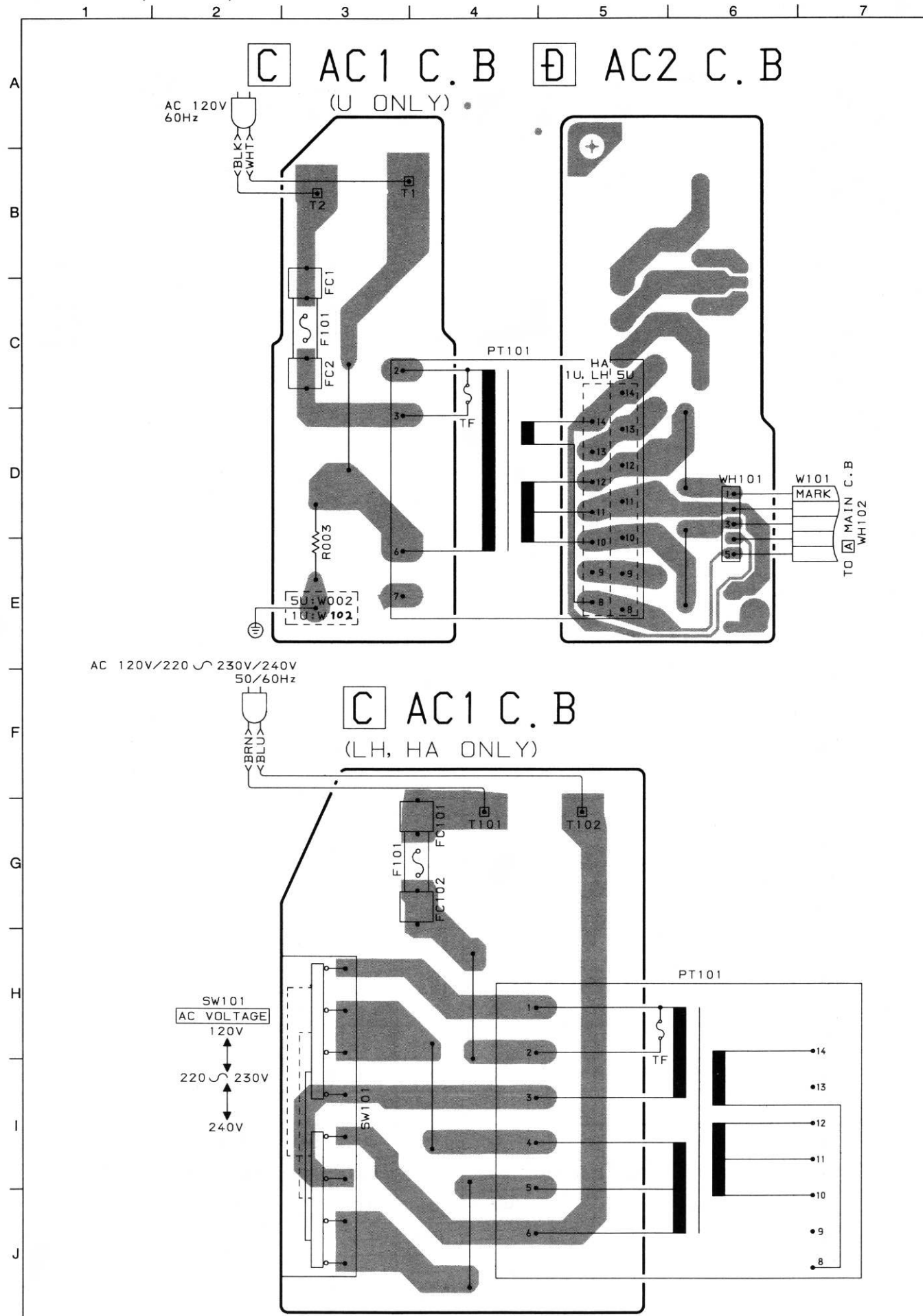
Pin No.	Pin Name	I/O	Description
1	NC	-	Not connected.
2	I-HOLD	I	Hold input.
3	I-SW(CD)	I	CD mechanical switch input.
4	I-DISH-S	I	CD turntable photo sensor input.
5	I-KEY2	I	KEY input 2.
6	I-KEY1	I	KEY input 1.
7	O-C.SHIFT	O	Clock shift output for microcomputer when tuner receiving broadcast.
8	O-MOTOR	O	Cassette deck motor control output.
9	I-RMC	I	System remote control signal input.
10	RESET	I	RESET input.
11	I-RE_A	I	Rotary encoder A input.
12	I-RE_B	I	Rotary encoder B input.
13	VSS	-	Connected to GND.
14	XIN	-	4.19 MHz oscillator circuit.
15	XOUT	-	
16	VCC	-	Power supply.
17	O-PB1	O	Cassette deck output switching.
18	O-POWER	O	Power control output.
19	O-RMT	O	REC MUTE output.
20	O-BIAS	O	Bias output.
21	O-TU_ON	O	Tuner power supply ON/OFF output.
22	O-CD_ON	O	CD power supply ON/OFF output.
23,24	NC	-	Not connected.
25	I-TM_BASE	I	Reference clock input for timer watch.
26	O-CLOSE	O	CD tray close data output.
27	O-OPEN	O	CD tray open data output.
28	VEE	-	Power supply input for FL display.
29	NC	-	Not connected.
30	K-SCAN	O	Initial scan output.
31	NC	-	Not connected.
32~41	G10~G1	O	FL grid output G1~G10.
42, 43	P23, P22	O	FL segment output (Not connected).
44~62	P21~P3	O	FL segment output.
63	P2	I/O	FL segment output.
64	P1	O	FL segment output.
65	O-DISH_REV	O	CD turntable reverse rotation output.
66	O-DISH_FWR	O	CD turntable forward rotation output.
67	NC	-	Not connected.
68	O-XLT	O	CD IC control output.
69	I-SENS	I	CD IC control input.
70	O-CLK(CD)	O	CD clock output.
71	O-DATA(CD)	O	CD data output.

Pin No.	Pin Name	I/O	Description
72	O-SUBQ/ I-TUNE/I-IFC	O/I	CD SUBQ data output/ TUNER signal input/ TUNER IF count serial data input.
73	AVSS	-	Connected to GND.
74	VREF	-	Power supply.
75	O-SQCLK/I-STEREO	O/I	CD SQCLK output/ TUNER STEREO detected input.
76	NC	-	Not connected .
77	O-PLL_CE	O	PLL IC chip enable output.
78	O-PLL_CLK	O	PLL IC clock output.
79	O-DSC/O-PLL DATA	O	Function IC control output / PLL data output.
80	I-TP_SW	I	Cassette deck.

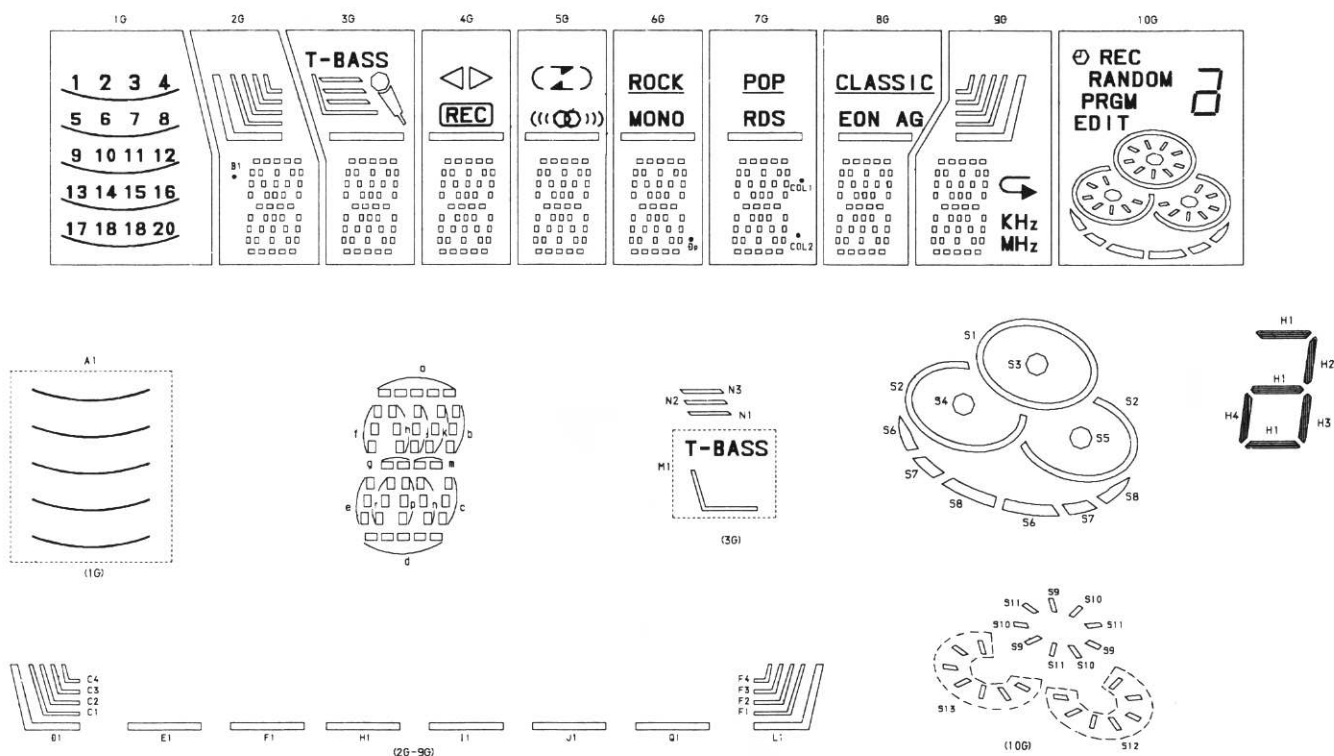
IC, LC72131D

Pin No.	Pin Name	I/O	Description																								
1	XIN	I/O	A crystal oscillator (4.5MHz) is connected between these pins.																								
22	XOUT																										
2	NC	–	Not used.																								
3	CE	I	To enable the IC. Active "H".																								
4	DI	I	Serial data input from CPU (IC, M38B59MFH-P109FP) when relevant key is operated. Active "H".																								
5	CL	I	Synchronization clock for serial data in (DI) or serial data out (DO).																								
6	DO	O	Serial data output to CPU (IC, M38B59MFH-P109FP).																								
7	T-BASE	O	Outputs a reference clock signal (8Hz) for the clock.																								
8	MONO / BEAT	O	Outputs "H" when MONO / BEAT is switched.																								
9	FM / SW	O	Output "L" or "H" as follows: <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr><tr><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>L</td></tr></table>	2 BAND		3 BAND			3 BAND			AM	FM	LW	MW	FM	MW	SW	FM	H	L	H	H	L	H	L	L
2 BAND		3 BAND			3 BAND																						
AM	FM	LW	MW	FM	MW	SW	FM																				
H	L	H	H	L	H	L	L																				
10	MW/SW	O	Outputs "L" or "H" as follows: <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr><tr><td>L</td><td>L</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td><td>L</td></tr></table>	2 BAND		3 BAND			3 BAND			AM	FM	LW	MW	FM	MW	SW	FM	L	L	H	L	L	L	H	L
2 BAND		3 BAND			3 BAND																						
AM	FM	LW	MW	FM	MW	SW	FM																				
L	L	H	L	L	L	H	L																				
11	IF-MUTE	O	To control internal counter.																								
12	IF-IN	I	General purpose counter input.																								
13	TUNE	I	Receives "L" when station is tuned.																								
14	NC	–	Not used.																								
15	AM-IN	I	Receives the AM local oscillator frequency signal.																								
16	FM-IN	I	Receives the FM local oscillator frequency signal.																								
17	VDD	–	Supply power to IC (+5V).																								
18	PD	O	PLL charge pump output.																								
19	A-IN	I	The MOS transistor for PLL active low pass filter.																								
20	A-OUT	O																									
21	VSS	–	Ground.																								

WIRING - 4 (POWER)

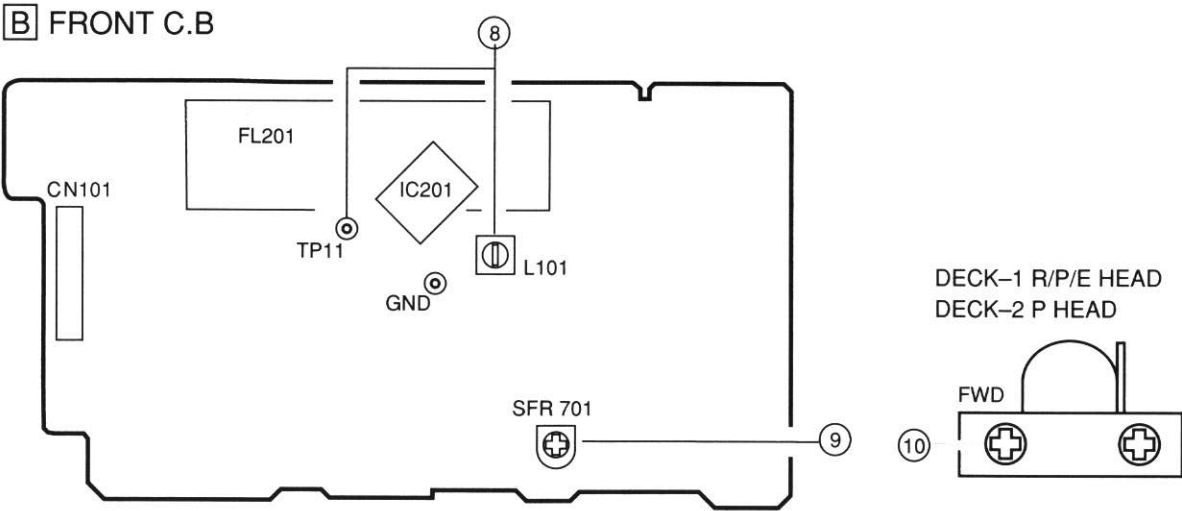
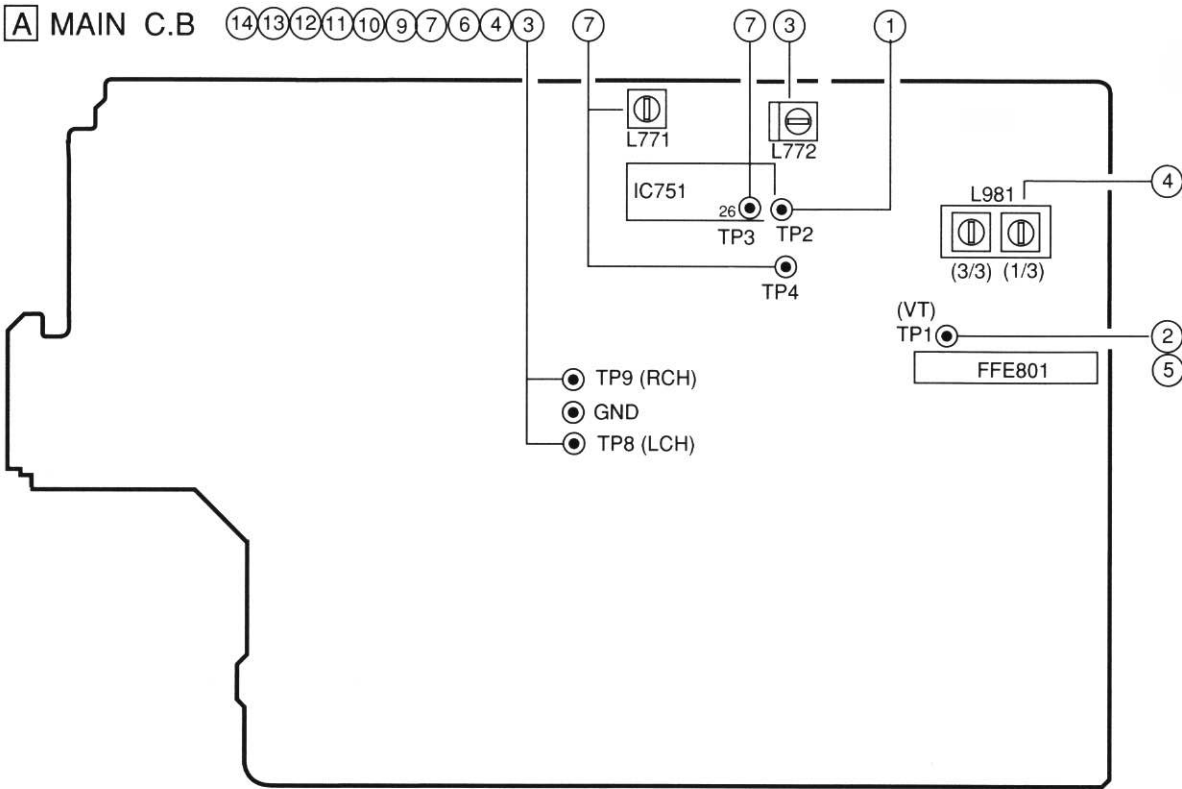


FLGRD ASSIGNMENT AND ANODE CONNECTION GRID ASSIGNMENT



ANODE COLLECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G
P1	20	d	d	d	d	d	d	d	d	S1
P2	19	n	n	n	n	n	n	n	n	S9
P3	18	p	p	p	p	p	p	p	p	S10
P4	17	r	r	r	r	r	r	r	r	S11
P5	16	e	e	e	e	e	e	e	e	S3
P6	15	c	c	c	c	c	c	c	c	S2
P7	14	g	g	g	g	g	g	g	g	S13
P8	13	m	m	m	m	m	m	m	m	S4
P9	12	f	f	f	f	f	f	f	f	S12
P10	11	b	b	b	b	b	b	b	b	S5
P11	10	k	k	k	k	k	k	k	k	S6
P12	9	j	j	j	j	j	j	j	j	S7
P13	8	h	h	h	h	h	h	h	h	S8
P14	7	a	a	a	a	a	a	a	a	EDIT
P15	6	Ø1	E1	F1	H1	Øp	COL2	Q1	MHz	PRGM
P16	5	C1	M1	REC	((Ø))	I1	COL1	EON	KHz	RANDOM
P17	4	C2	N1	◁	⌒	MONO	J1	AG	↪	REC
P18	3	C3	N2	▷	⌒	—	RDS	—	L1	⌚
P19	2	C4	N3		⌒	ROCK	—	CLASSIC	F1	H1
P20	1	B1					POP		F2	H2
P21	A1								F3	H3
P22									F4	H4



< TUNER SECTION >

1. Clock Frequency Check
Settings : • Test point : TP2
Method : Set to AM 1710kHz and check that the test point is 2160kHz $\pm$ 45Hz

2. AM VT Check
Settings : • Test point : TP1
Method : Set to AM 1710kHz and AM 530kHz and check that the test point is less than 8.5V(1710kHz) and more than 0.6V(530kHz).

3. AM IF Adjustment
Settings : • Test point : TP8(Lch), TP9(Rch)
• Adjustment location : L772.....1000kHz
Method : The output level at 1000kHz is adjusted to maximum by L772.
4. AM Tracking Adjustment
Settings : • Test point : TP8(Lch), TP9(Rch)
• Adjustment location : L981(1/3).....1000kHz
Method : The output level at 1000kHz is adjusted to maximum by L981(1/3).

5. FM VT Check
Settings : • Test point : TP1
Method : Set to FM 108.0MHz and check that the test point is less than 8.0V. Set to FM 87.5MHz and check that the test point is more than 0.5V.

6. FM Tracking Check
Settings : • Test point : TP8(Lch), TP9(Rch)
Method : Set to FM 98.0MHz and check that the test point is less than 9.0dB μ V.

<TUNER SECTION>

<FM SECTION>

IHF Sensitivity : (THD 3%)	Less than 10dB μ V [at 87.5MHz] Less than 9.0dB [at 98.0/108.0MHz]
S/N 50dB Quieting sensitivity : (Stereo)	Less than 35dB [at 98.0MHz]
Signal to noise ratio :	More than 68dB (mono) More than 66dB (stereo) [at 98.0MHz]
Distortion :	Less than 1.2% (mono) Less than 2.0% (stereo) [at 98.0MHz]
Stereo separation :	More than 22dB [at 98.0MHz]

<AM SECTION>

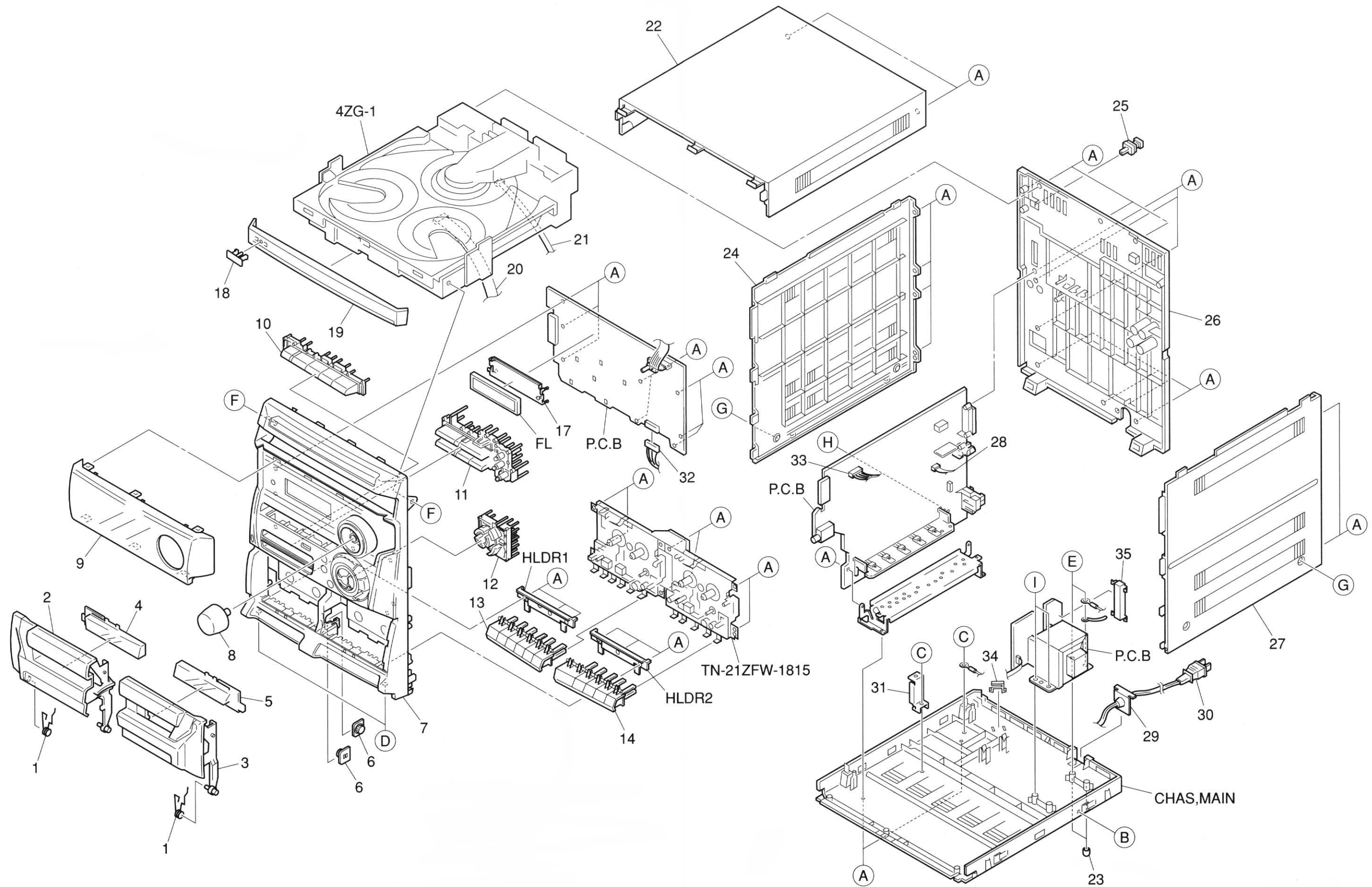
Sensitivity : (S/N 20 dB)	Less than 60dB μ V [at 600kHz] Less than 58dB μ V [at 1000 / 1400kHz]
Signal to noise ratio :	More than 36dB [at 1000kHz]
Distortion :	Less than 1.5% [at 1000kHz]

<DECK SECTION>

Tape speed :	3000Hz $\pm$ 45Hz
Wow & flutter :	Less than 0.35% (R.M.S)
Take-up torque :	30 ~ 60g/cm (FWD)
Back tension :	2 ~ 5g/cm
PB Output level :	2.8V $\pm$ 3dB
Distortion (REC/PB) :	Less than 2.0% (NORM)
Noise level (PB) :	Less than 40mV (NORM)
Noise level (REC/PB) :	Less than 40mV(NORM)
Erasing ratio:	More than 60dB (at 125Hz,+10VU)

7. DC Balance / Mono Distortion Adjustment
Settings : • Test point : TP3,TP4 / TP8(Lch), TP9(Rch)
• Adjustment location : L771
• Input level : 60 dB μ V
Method : Set to FM 98.0MHz and adjust L771 so that the voltage between TP3 and TP4 becomes 0V $\pm$ 0.04V. Next, check that the distortion is less than 1.3%.
8. μ -con OSC Adjustment
Settings : • Test point : TP11
• Adjustment location : L101
Method : Insert AC plug with pressing TUNER function key. Adjust L101 so that the frequency across the test point is 58.48Hz $\pm$ 0.058Hz.
- < DECK SECTION >
9. Tape Speed Adjustment
Settings : • Test tape : TTA-100
• Test point : TP8(Lch), TP9(Rch)
• Adjustment location : SFR701
Method : Play back the test tape and adjust SFR701 so that the frequency counter reads 3000Hz $\pm$ 5Hz.
10. Head Azimuth Adjustment (DECK 1, DECK 2)
Settings : • Test tape : TTA-330
• Test point : TP8(Lch), TP9(Rch)
• Adjustment location : Azimuth adjustment screw
Method : Play back the 8kHz signal of the test tape and adjust screw so that the output becomes maximum. Perform on FWD PLAY and REV PLAY mode.

11. PB Frequency Response Check (DECK 1, DECK 2)
Settings : • Test tape : TTA-330
• Test point : TP8(Lch), TP9(Rch)
Method : Play back the 315Hz and 8kHz signals of the test tape and check that the output ratio of the 8kHz signal with respect to that of the 315Hz signal is within 5dB.
12. PB Sensitivity Check (DECK 1, DECK 2)
Settings : • Test tape : TTA-200
• Test point : TP8(Lch), TP9(Rch)
Method : Play back the test tape and check the signal level of the test point is 110mV $\pm$ 3.0dB.
13. REC/PB Frequency Response Check
Settings : • Test tape : TTA-602
• Test point : TP8(Lch), TP9(Rch)
• Input signal : 1kHz / 8kHz, -26dBV (LINE IN)
Method : Apply 1kHz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8, TP9 becomes 8~10mV. Record and play back the 1kHz and 8kHz signals and check that the output is 0dB $\pm$ 5dB with respect to that of the 1kHz signal.
14. REC/PB Sensitivity Check
Settings : • Test tape : TTA-602
• Test point : TP8(Lch), TP9(Rch)
• Input signal : 1kHz, -6dBV (LINE IN)
Method : Apply a 1kHz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8,TP9 becomes 80~100mV. Record and play back the 1kHz signals and check that the output is -2.0dB $\pm$ 3.5dB.

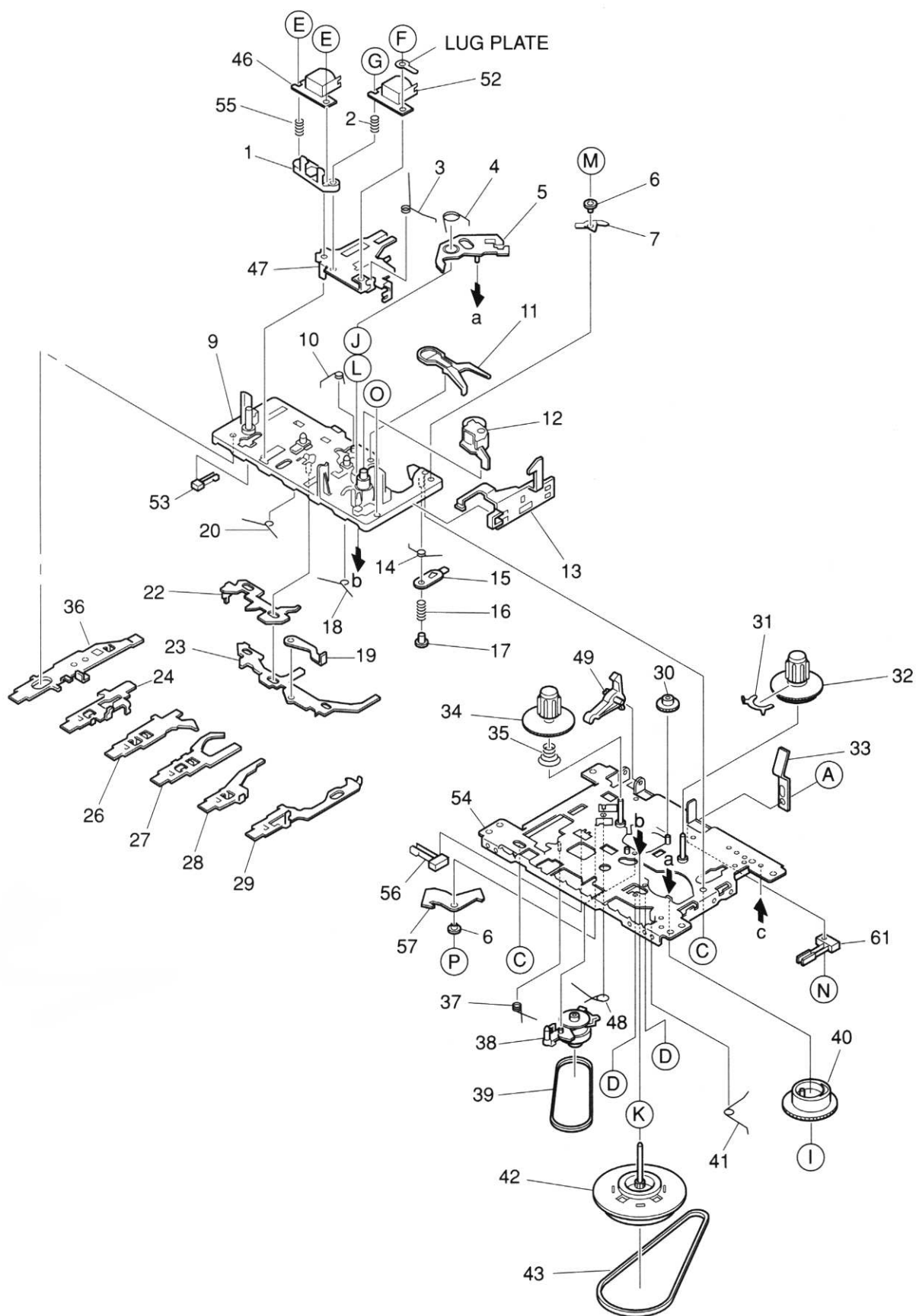


MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	82-NF7-218-010		SPR-T, CASS
2	8Z-NFA-003-010		BOX, CASS 1
3	8Z-NFA-004-010		BOX, CASS 2
4	8Z-NFA-008-010		WINDOW, CASS 1
5	8Z-NFA-009-010		WINDOW, CASS 2
6	86-NFZ-231-010		DMPR, 70
7	8Z-NFA-001-010		CABI, FR U
8	8Z-NFA-017-010		KNOB, RTRY VOL
9	8Z-NFA-023-010		WINDOW, DISP H<111LH, HA>
9	8Z-NFA-044-010		WINDOW, DISP H119<119LH>
9	8Z-NFA-007-010		WINDOW, DISP U<111U>
9	8Z-NFA-028-010		WINDOW, DISP U115<115U>
10	8Z-NFA-010-010		KEY, FUN
11	8Z-NFA-011-010		KEY, OPE
12	8Z-NFA-012-010		KEY, CD
13	8Z-NFA-013-010		KEY, CASS 1
14	8Z-NFA-014-010		KEY, CASS 2P
17	8Z-NFA-204-010		GUIDE, FL 100-25
18	8Z-NE6-067-010		BADGE, AIWA 30N
19	8Z-NFA-006-010		PANEL, TRAY
20	83-NE2-618-110		F-CABEL, 5P-2.5
21	88-913-221-110		FF-CABLE, 13P 1.25 220MM
22	8Z-NFA-005-010		PANEL, TOP
23	8Z-NB8-240-010		COVER, PL<EXCEPT 111U>
24	8Z-NFA-019-010		PANEL, RIGHT M V-2<111U>
24	8Z-NFA-020-010		PANEL, RIGHT S V-2<EXCEPT 111U>
25	84-ZG1-245-210		CAP, OPTICAL
26	8Z-NFA-070-010		CABI, REAR LHSTC<111LH>
26	8Z-NFA-084-110		CABI, REAR LH W/O SPC<119LH>
26	8Z-NFA-083-110		CABI, REAR HASTC<HA>
26	8Z-NFA-075-010		CABI, REAR USTM115<115U>
26	8Z-NFA-068-010		CABI, REAR USTNC<111U>
27	8Z-NFA-018-010		PANEL, LEFT V-2
28	88-906-251-110		FF-CABLE, 6P 1.25
29	87-085-185-010		BUSHING, AC CORD (E)<EXCEPT 111U>
29	88-NF9-203-010		BUSHING, CORD-U<111U>
30	87-A80-110-010		AC CORD ASSY, U SPT-2W<U>
30	87-050-079-010		AC-CORD ASSY, E<LH>
30	87-A80-105-010		AC-CORD ASSY, AZ<HA>
31	88-NF9-213-010		HLDR, PWB MAIN<EXCEPT 111U>
32	88-NF9-635-010		CONN ASSY, 10P MECHA<EXCEPT 115U>
33	88-NF9-634-010		CONN ASSY, 8P RPB<EXCEPT 115U>
34	87-NF4-221-010		HLDR, CABLE<EXCEPT 111U>
35	87-A90-165-010		SW, SL 1-2-3 SWS2301<111LH, 111HA>
A	87-067-703-010		TAPPING SCREW, BVT2+3-10
B	87-721-096-410		QT2+3-10 GLD<115U>
C	87-067-584-010		TAPPING SCREW, BVT2+3-6<EXCEPT 111U>
D	87-067-758-010		BVT2+3-12 W/O SLOT<111U>
D	87-067-688-010		BVTT+3-6<EXCEPT 111U>
E	87-078-191-010		S-SCREW, IT+4-10<EXCEPT 111U>
E	87-741-172-410		UT2+4-12 W/O SLOT<111U>
F	87-721-097-410		QT2+3-12 GLD
G	87-067-641-010		UT2+3-8 (W/O SLOT) BL
H	87-NF4-224-010		S-SCREW, IT3B+3-8 CU
I	87-078-019-010		S-SCREW, IT+4-6<EXCEPT 111U>
I	87-741-172-410		UT2+4-12 W/O SLOT<111U>

TAPE MECHANISM EXPLODED VIEW 1 / 1

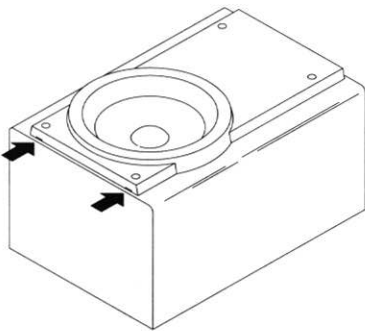


If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

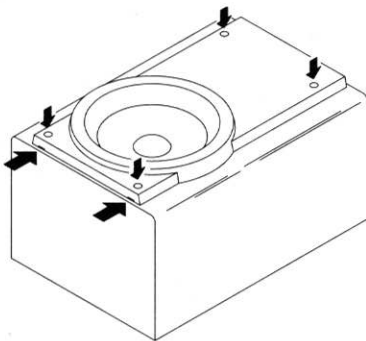
36

SPEAKER DISASSEMBLY INSTRUCTIONS

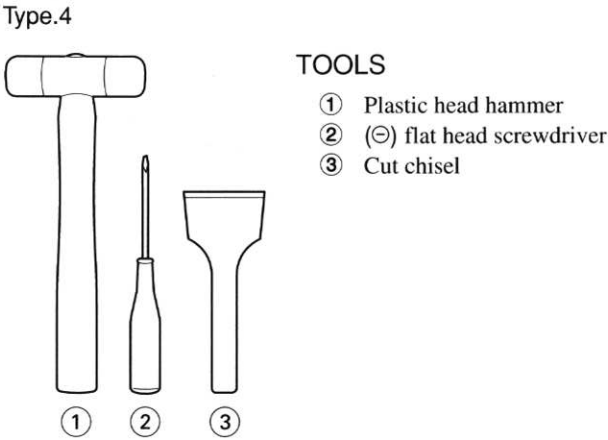
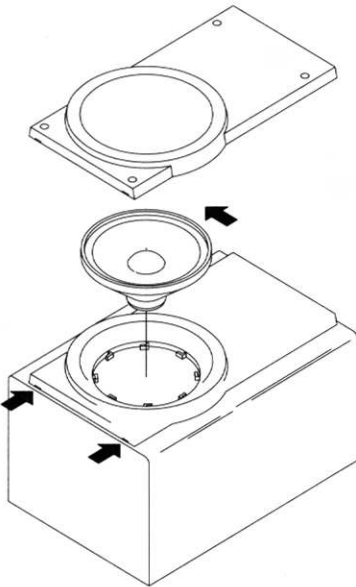
Type.1
Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



Type.2
Remove the grill frame and four pieces of rubber caps by pulling out with a flat-bladed screwdriver. Remove the screws from hole where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units. Insert a flat-bladed screwdriver into the position indicated by the



Type.3
arrows and remove the panel. Turn the speaker unit to counterclockwise direction while inserting a flat-bladed screwdriver into one of the hollows around speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turning to clockwise direction until "click" sound comes out.



How to Remove the PANEL, FR

1. Insert the (⊖) flat head screwdriver tip into the gap between the PANEL, FR and the PANEL, SPKR. Tap the head of the (⊖) flat head screwdriver with the plastic hammer head, and create the clearance as shown in Fig-1.
2. Insert the cut chisel in the clearance, and tap the head of the cut chisel with plastic hammer as shown in Fig-2, to remove the PANEL, FR.
3. Place the speaker horizontally. Tap head of the cut chisel with plastic hammer as shown in Fig-3, and remove the PANEL, FR completely.

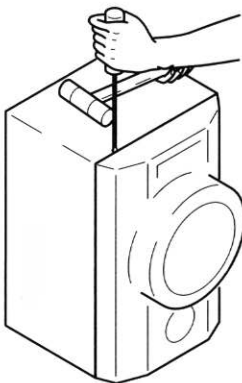


Fig-1

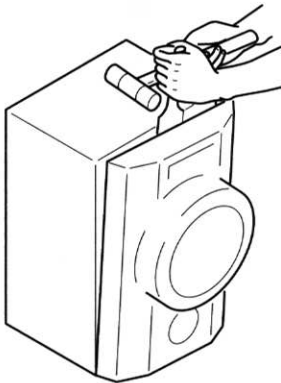


Fig-2

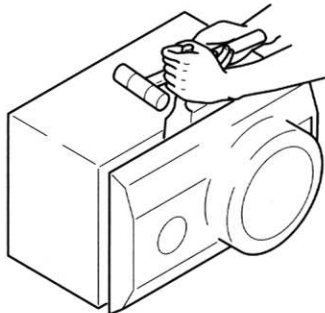


Fig-3

How to Attach the PANEL, FR

Attach the PANEL, FR to the PANEL, SPKR. Tap the four corners of the PANEL, FR with the plastic hammer to fit the PANEL, FR into the PANEL, SPKR completely.

SPEAKER PARTS LIST (SX-NA112 / SX-NA115 : YUSTL, SX-NS112 : YLSTCC, YLJSCM)

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-NSL-001-010		PANEL,FR
2	8Z-NSL-003-010		GRILLE,FRAME ASSY
3	87-NS7-611-010		CORD,SPKR
4	87-NSH-612-010		SPKR,CERAMIC ASSY
5	8Z-NSL-601-110		SPKR, W 120<NA112>
5	8Z-NSL-603-010		SPKR, W 120<NA115>
5	8Z-NSL-601-010		SPKR,W 120<NS112>

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-NFA-922-010		IB, LH (ESP) A<111LH>
1	8Z-NFA-932-010		IB, LH (ESP) A<119LH>
1	8Z-NFA-912-010		IB, LH (ESP) S<HA>
1	8Z-NFA-904-010		IB, U (ESF) M -115<5U>
1	8Z-NFA-914-010		IB, U (ESF) S<1U>
2	87-006-225-010		AM LOOP ANT NC2<exp HA>
2	87-A90-030-010		ANT, LOOP AM-NC C<HA>
3	87-043-115-010		ANT, FEEDER FM
4	87-A91-017-010		PLUG, CONVERSION JT-0476<111LH>
5	8Z-NF9-702-010		RC UNIT, ZAS02<exp 5U, 119LH>
5	8Z-NF9-701-110		RC UNIT, ZAS02<5U, 111LH>

REFERENCE NAME LIST

ELECTRICAL SECTION

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

MECHANICAL SECTION

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



サービス技術ニュース	
番号	連絡内容
Gー	ー
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