AD0303010C8

Service Manual

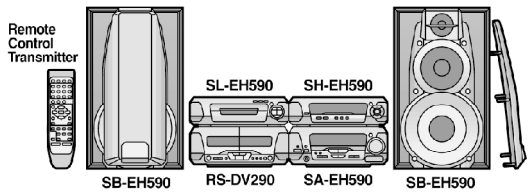
Cassette Deck

DOLBY B NR

RS-DV290EG

Colour

(S).....Silver Type



SPECIFICATIONS

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System	SC-EH590
Sound Processor	SH-EH590
Tuner/Amplifier	SA-EH590
CD Player	SL-EH590
Cassette Deck	**RS-DV290**
Front Speakers*	SB-EH590

* : Made in Singapore.

Specifications

Deck system:	Stereo cassette deck
Track system:	4 track, 2 channel
Recording system:	AC bias
Bias frequency;	100 kHz
Erasing system:	AC erase
Heads:	
Deck 1	
(Playback head);	Permalloy head
Deck 2	
(Recording/Playback head);	Permalloy head
(Erasing head);	Double gap ferrite head
Motors:	
Deck 1, 2 Capstan drive;	DC servo motor
Tape speed:	4.8 cm/s
Wow and flutter:	0.16 % (WRMS)
Fast forward and rewind times:	Approx. 110 seconds with C-60 cassette tape
Frequency response (Dolby NR off):	
TYPE I (NORMAL);	20 Hz – 16 kHz (DIN)
TYPE II (HIGH);	20 Hz – 16 kHz (DIN)
TYPE IV (METAL);	20 Hz – 16 kHz (DIN)
S/N (Signal level = max recording level, TYPE II type tape):	
NR off;	56 dB (A weighted)
Dolby B NR on;	66 dB (A weighted)
Input sensitivity and impedance:	
REC (IN);	150 mV/ 23 kΩ
Output voltage and impedance:	
PLAY (OUT);	280 mV/ 360 Ω

General

Dimensions (W×H×D):	294×118.5×281 mm
Mass:	2.1 kg

Notes: Specifications are subject to change without notice.
Mass and dimensions are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

1. Note

Refer to the service manual for Model No. SA-EH590EG, SA-EH590EP (Order No. AD0302008C8) for information on Accessories and Packaging.

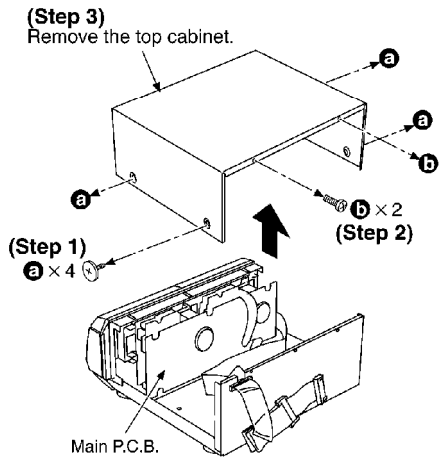
2. Location of Controls

3. Operation Checks and Component Replacement / Procedures

- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

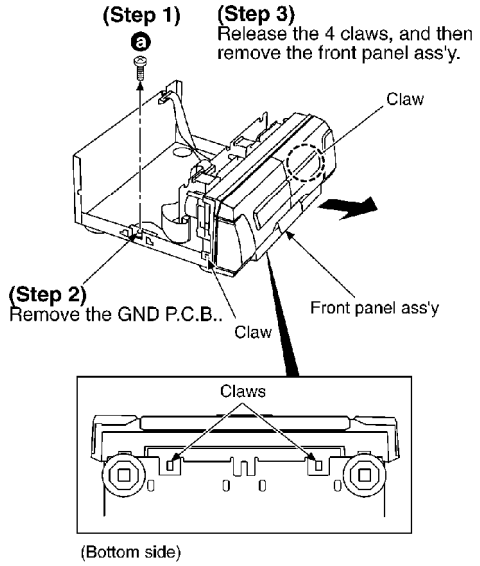
3.1. Checking for the main P.C.B.

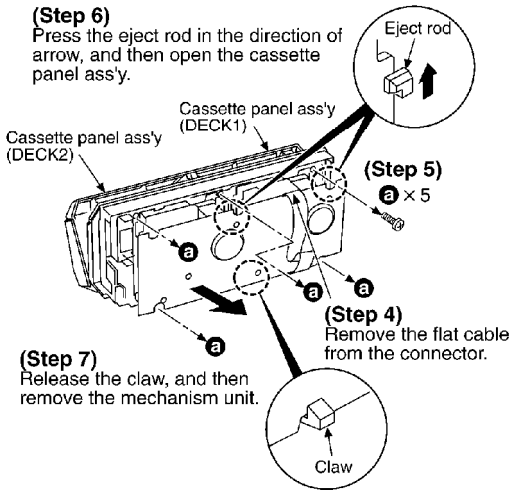


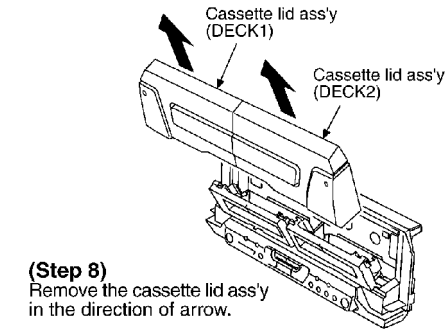
- Check the main P.C.B. as shown above.

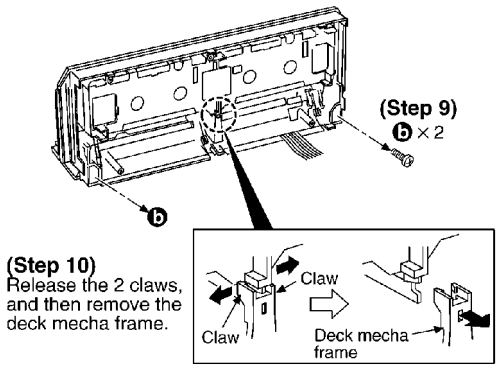
3.2. Checking for the operation P.C.B.

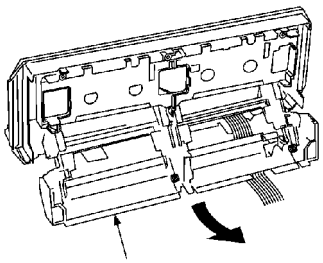
- Follow the (Step 1) - (Step 3) of item 3.1.

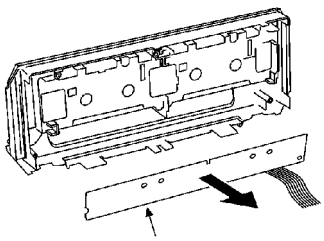

(Step 1)
ⓐ
(Step 3)
Release the 4 claws, and then remove the front panel ass'y.
Claw
(Step 2)
Remove the GND P.C.B..
Claw
Front panel ass'y
Claws
(Bottom side)


(Step 6)
Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.
Eject rod
Cassette panel ass'y (DECK1)
Cassette panel ass'y (DECK2)
(Step 5)
ⓐ × 5
(Step 4)
Remove the flat cable from the connector.
(Step 7)
Release the claw, and then remove the mechanism unit.
Claw

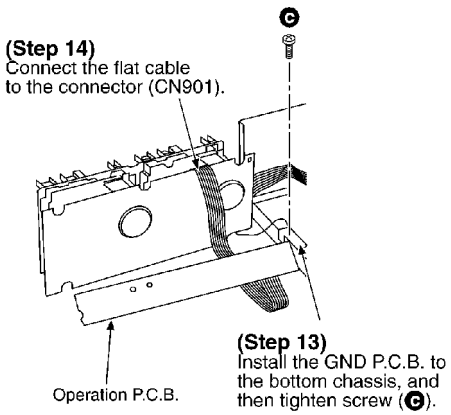

Cassette lid ass'y (DECK1)
Cassette lid ass'y (DECK2)
(Step 8)
Remove the cassette lid ass'y in the direction of arrow.







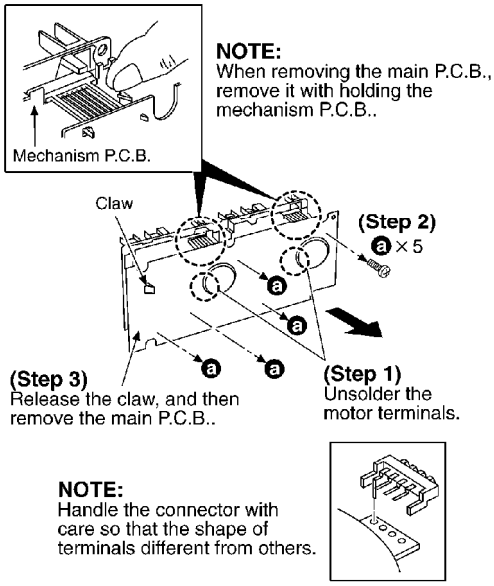
- Check the operation P.C.B. as shown below.



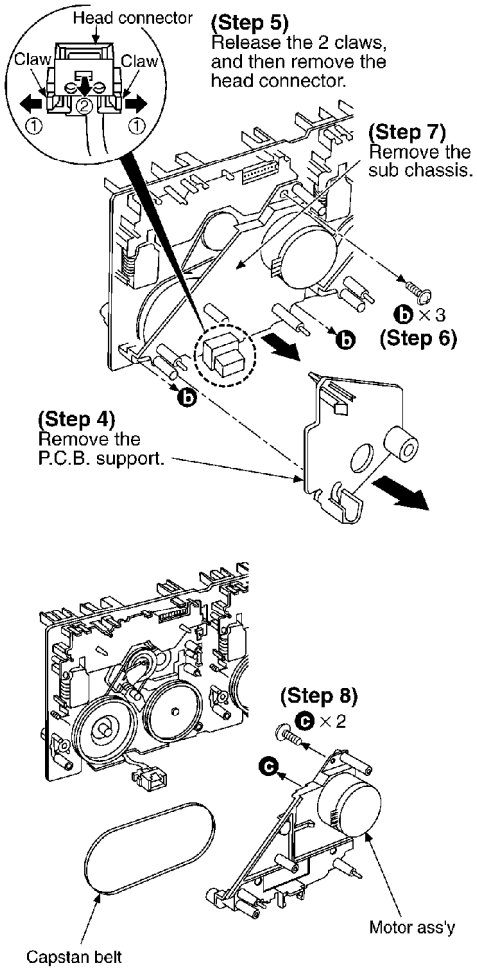
3.3. Replacement for the motor ass'y, capstan belt and winding belt

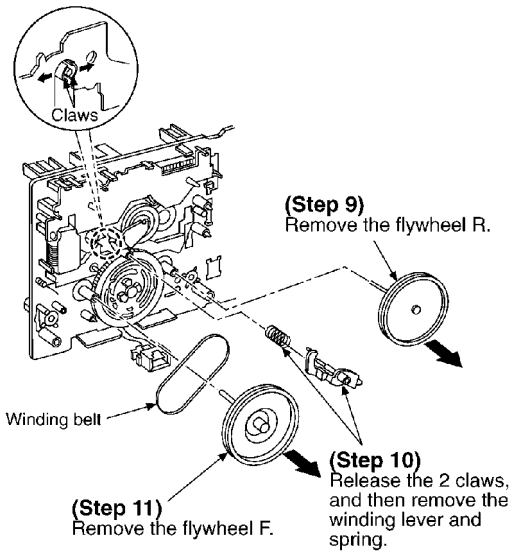
- Follow the (Step 1) - (Step 3) of item 3.1.

- Follow the (Step 1) - (Step 7) of item 3.2.

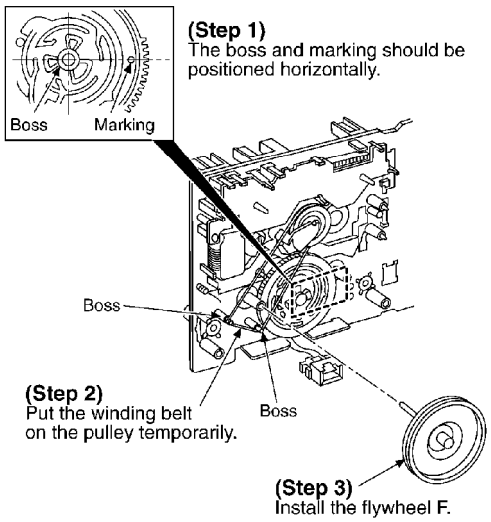


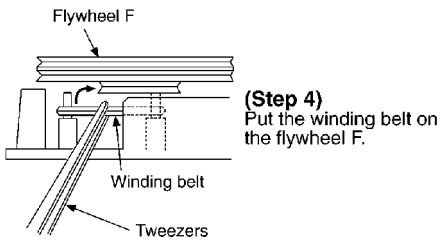
※ The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

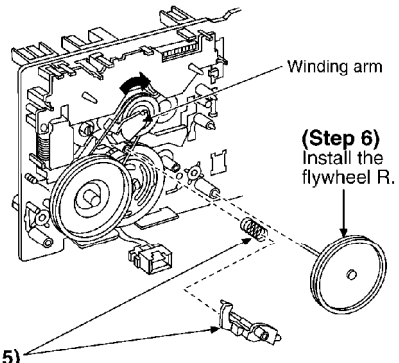




Installation of the belt

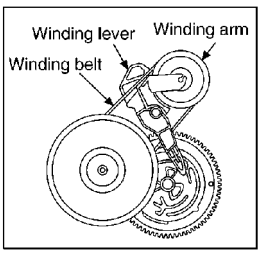




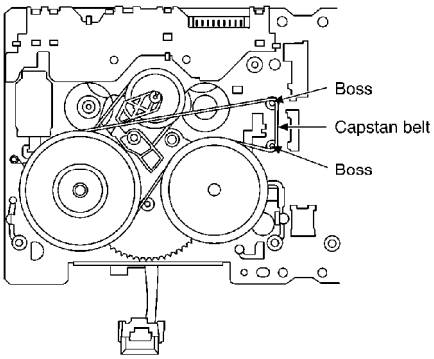


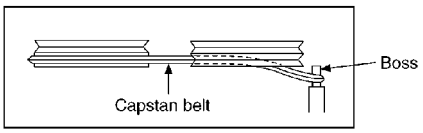
(Step 5)
Install the winding lever and spring while pressing the winding arm in the direction of arrow.
(The winding lever must be inserted completly and latched with claws.)

NOTE:
The winding lever should be positioned as shown right.

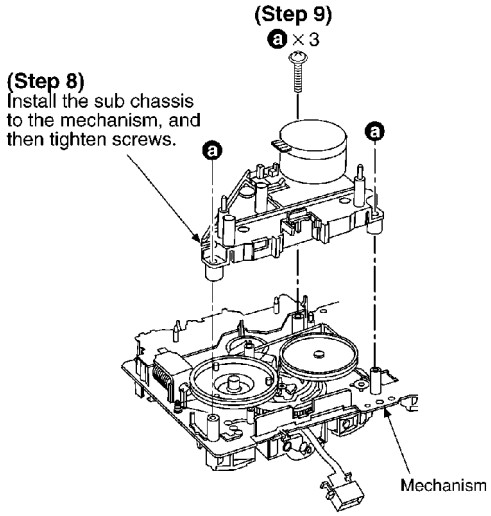


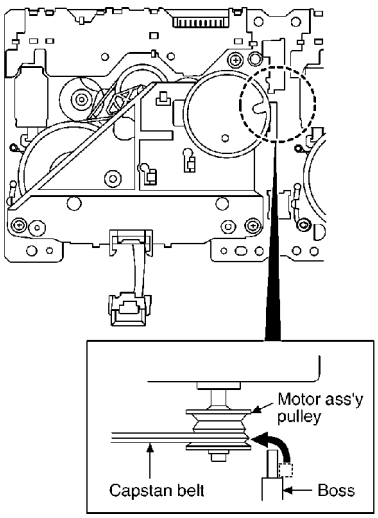
(Step 7)
Put the capstan belt temporarily as shown below.





(Side view)

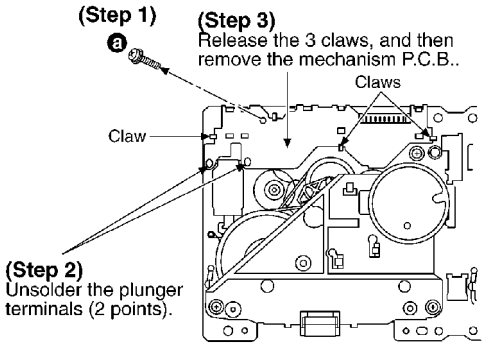




(Step 10)
Put the capstan belt on the motor ass'y pulley.

3.4. Replacement for the components parts on the mechanism P.C.B.

- Follow the (Step 1) - (Step 3) of item 3.1.
- Follow the (Step 1) - (Step 7) of item 3.2.
- Follow the (Step 1) - (Step 4) of item 3.3.



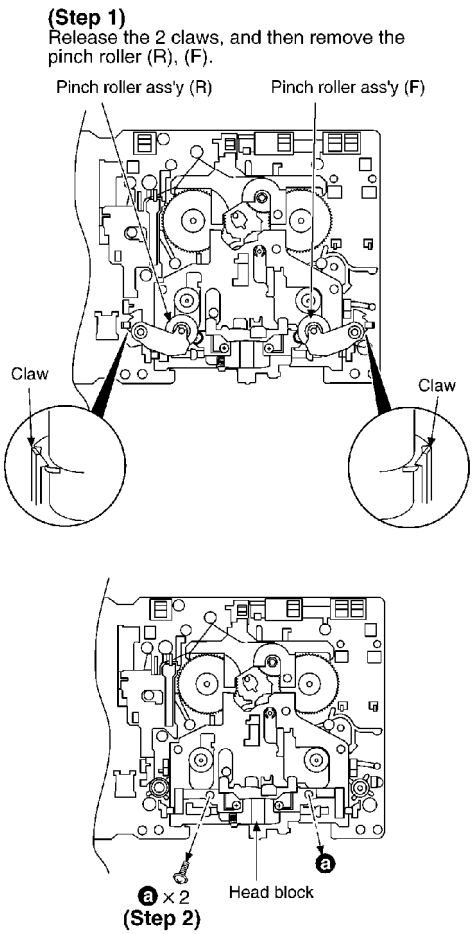
3.5. Replacement for the pinch roller ass'y and head block

- Follow the (Step 1) - (Step 3) of item 3.1.

- Follow the (Step 1) - (Step 7) of item 3.2.

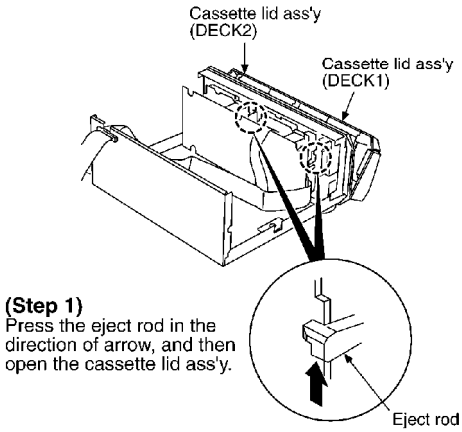
- Follow the (Step 1) - (Step 5) of item 3.3.

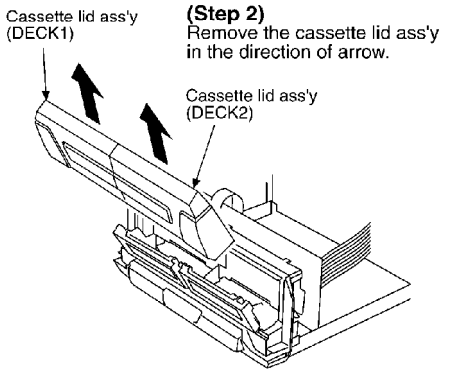
※ The mechanism as shown below is for DECK2.
For the one of DECK1, perform the same procedures.



3.6. Replacement for the cassette lid ass'y

- Follow the (Step 1) - (Step 3) of item 3.1.

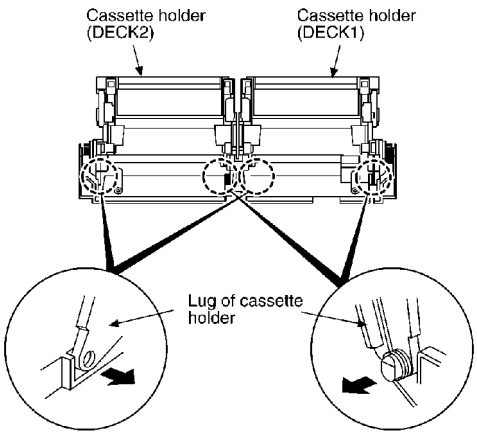




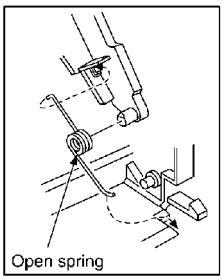
3.7. Replacement for the cassette holder

- Follow the (Step 1) - (Step 3) of item 3.1.

- Follow the (Step 1) - (Step 11) of item 3.2.



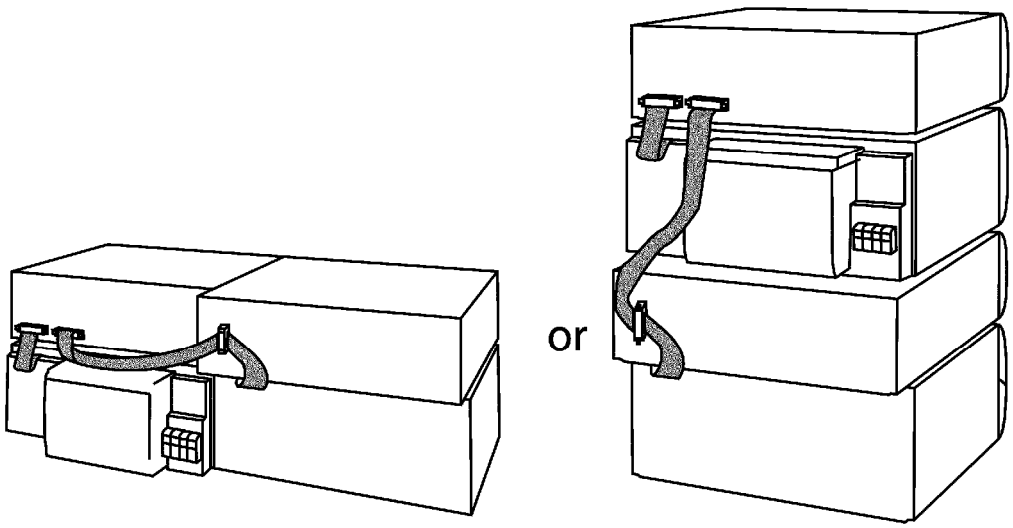
■ Open spring installation



4. To Supply Power Source

This unit is designed to operate on power supplied from system connected. / When a component requires service, use the system connections to supply power source. / For system connections, refer to Fig.4-1.

Fig. 4-1.



5. Service Mode Function of Cassette Mechanism

This unit is equipped with a service mode function of cassette mechanism, so that if the unit operates incorrectly, the fault displayed using an error code on the FL display of the Tuner/ Amplifier (SA-EH590). The system control IC and FLdisplay are part of the Tuner/Amplifier so make sure the system has been connected properly before using this function. Use this function during maintenance to check faults of items below.

5.1. Cassette tape to be prepared

Metal tape:

Recorded music tape with only one erasure prevention tab intact. / (use middle portion of tape)

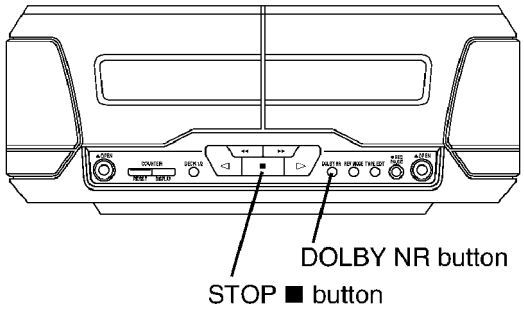
Normal tape: / CrO2 tape:

Recorded music tape with both erasure prevention tabs intact. / (use middle portion of tape)

5.2. Selecting service mode

1. Turn on the power to the unit.
2. Make sure that no tape is inserted in the cassette deck. (Service mode cannot be selected with a tape inserted in the cassette deck.)
3. Press the DOLBY NR button for about 2 seconds, and keep pressing it, also press the STOP button for about 2 seconds. Refer to Fig. 5-1.

Fig. 5-1.



5.3. Deck 1 mechanism check

1. Press the Deck 1/deck 2 select button to change the flashing Deck 2 indicator to Deck 1. Refer to Fig. 5-2. / (No change required if Deck 1 indicator already flashing.)
2. Press the Deck 1 cassette holder open button to open the Deck 1 cassette holder. Refer to Fig. 5-2.
3. Insert a CrO2 tape into the Deck 1 and close the cassette holder.
4. Press the Fast forward button. Refer to Fig. 5-2. / (Tape fast forwards for about 2 seconds then stops.)
5. Press the PLAY button. Refer to Fig. 5-2. / (After TPS operation and check, the tape stops.)
6. Open the Deck 1 cassette holder and replace the tape with a normal tape.
7. Close the Deck 1 cassette holder.
8. Press the Record pause button. Refer to Fig. 5-2. / (No record operation.)
9. Press the STOP button. Refer to Fig. 5-2. A mechanism error code is displayed. Refer to Table 5-1. Each time the STOP button is

pressed, the fault items are displayed in sequence.

Fig. 5-2.

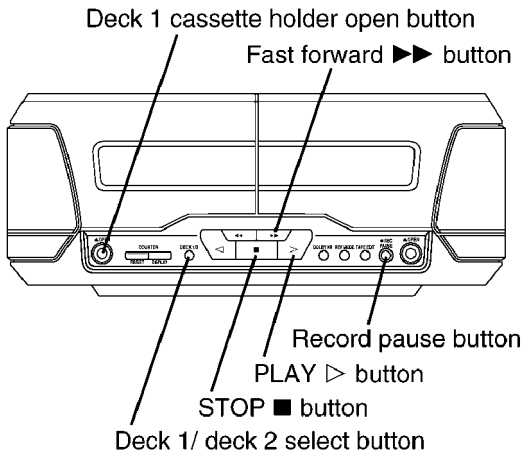


Table 5-1.

FL display	Symptom	Cause
H01	Cassette deck does not operate correctly.	Faulty cassette deck mechanism mode switch (Deck 1: S951, Deck 2: S971), pl and capstan motor. / (Check and repla
H02	Unit does not record or the unit goes into recording mode even when the erasure prevention tabs have been removed from the cassette.	Faulty erasure prevention tabs detect s (S974, S975) or short-circuit. (Check ar replace)
H03	Tape does not play even when the tape deck play button is pressed. The motor operates when the tape deck play button is pressed even if cassette is loaded in the deck.	Faulty tape detect switch (Deck 1: S95 S972) or short-circuit. (Check and repl
H06	Cassette deck does not detect CrO2 tape.	Faulty CrO2 tape detect switch (Deck 1 Deck 2: S973). / (Check and replace)
H07	Cassette deck does not detect Metal tape.	Faulty Metal tape detect switch (S976). and replace)
F01	When the tape play button is pressed, tape advances only slightly and then stops.	Reel pulse error (Faulty Hall IC). (Chec replace)
F02	TPS (tape program search) does not work.	Faulty TPS signal detection or faulty pl control. / (Check and replace mechani control IC)

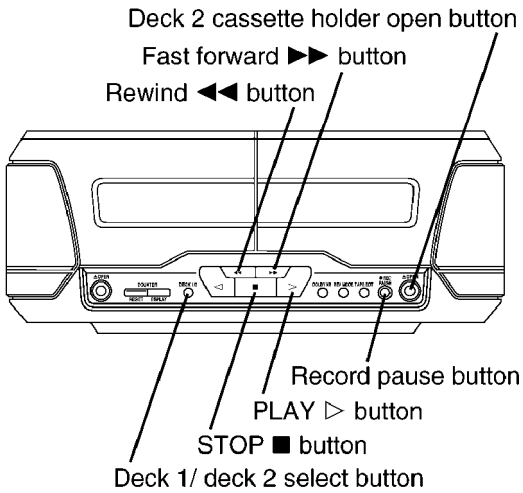
5.4. Deck 2 mechanism check

1. Press the Deck 1/deck 2 select button to change the flashing Deck 1 indicator to Deck 2. Refer to Fig. 5-3.
2. Press the Deck 2 cassette holder open button to open the Deck 2

cassette holder. Refer to Fig. 5-3.

3. Insert a metal tape into the Deck 2 with an intact erasure prevention tab on the right side.
4. Close the Deck 2 cassette holder.
5. Press the Fast forward button. Refer to Fig. 5-3. / (Tape fast forwards for about 2 seconds then stops.)
6. Open the Deck 2 cassette holder and turn over the metal tape. (intact erasure prevention tab on the left side.)
7. Close the Deck 2 cassette holder.
8. Press the Rewind button. Refer to Fig. 5-3. / (Tape rewinds for about 2 seconds then stops.)
9. Open the Deck 2 cassette holder and replace the metal tape with a CrO2 tape.
10. Close the Deck 2 cassette holder.
11. Press the PLAY button. Refer to Fig. 5-3. / (After TPS operation and check, the tape stops.)
12. Open the Deck 2 cassette holder and replace the CrO2 tape with a normal tape.
13. Close the Deck 2 cassette holder.
14. Press the Record pause button. Refer to Fig. 5-3. / (No record operation.)
15. Press the STOP button. Refer to Fig. 5-3. A mechanism error code is displayed. Refer to Table 5-1. Each time the STOP button is pressed, the fault items are displayed in sequence.

Fig. 5-3.



5.5. Exiting service mode

1. Press the STOP button for more than 5 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)
2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.

6. Schematic Diagram Notes

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

S900:

Stop switch (■)

S901:

Deck 2 cassette holder open switch (⏏ OPEN)

S903:

Tape edit switch (TAPE EDIT)

S904:

Record pause switch / (● REC PAUSE)

S905:

Dolby noise reduction switch / (DOLBY NR)

S906:

Fast forward, TPS switch ()

S907:

Forward side playback switch ()

S909:

Reverse side playback switch ()

S910:

Rewind, TPS switch ()

S911:

Reverse mode switch / (REV MODE)

S912:

Deck 1/deck 2 select switch / (DECK 1/2)

S913:

Counter display switch / (COUNTER DISPLAY)

S914:

Counter reset switch / (COUNTER RESET)

S915:

Deck 1 cassette holder open switch ( OPEN)

S951:

Deck 1 mode detect switch

S952:

Deck 1 half detect switch

S953:

Deck 1 CrO2 tape detect switch

S971:

Deck 2 mode detect switch

S972:

Deck 2 half detect switch

S973:

Deck 2 CrO2 tape detect switch

S974:

Deck 2 reverse side record prevention tab detect switch

S975:

Deck 2 forward side record prevention tab detect switch

S976:

Deck 2 METAL tape detect switch

VR101:

Deck 1 playback gain adjustment VR / (R ch)

VR102:

Deck 2 playback gain adjustment VR / (L ch)

VR103:

Deck 2 playback gain adjustment VR / (R ch)

VR104:

Deck 1 playback gain adjustment VR / (L ch)

VR801:

Deck 1 tape speed adjustment VR (normal)

VR803:

Deck 2 tape speed adjustment VR (normal)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on theinternal impedance of the DC circuit tester.

No mark

: Playback

( )

: Recording

- Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- The supply part number is described alone in the replacement parts list.

- Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
Cover the parts boxes made of plastics with aluminum foil.
Ground the soldering iron.
Put a conductive mat on the work table.
Do not touch the legs of IC or LSI with the fingers directly.

- Voltage and signal line

: Positive voltage line

: Playback signal line

: Recording signal line

7. Schematic Diagram

8. Printed Circuit Board Diagram

9. Type Illustration of ICs, Transistors and Diodes

10. Wiring Connection Diagram

11. Block Diagram

12. Terminal Function of ICs

12.1. IC701 (M38503M2406F): / System Control

Pin No.	Terminal Name	I/O	Function
1	Vcc	I	Power supply terminal
2	VREF	I	Reference voltage input
3	AVss	-	GND terminal
4	LMT	O	Muting control signal output
5	PL1	O	Deck 1 solenoid control signal output
6	M1	O	Deck 1 motor drive control signal output
7	HALT	I	Power failure detect signal input
8	REQ	I	Serial communication request signal input
9	CS	I	Serial communication complete signal input
10	CLK	O	Serial communication clock signal output
11	DATA OUT	O	Serial communication data signal output
12	DATA IN	I	Serial communication data signal input
13	METAL 2	I	Deck 2 tape detect switch signal (METAL) input
14	CRO2 2	I	Deck 2 tape detect switch signal (CrO2) input
15	Vss	-	GND terminal
16	FWD LED	O	LED drive control signal (FWD) output
17	REV LED	O	LED drive control signal (REV) output
18	RESET	I	Reset signal input
19	XIN	I	Oscillator connected terminal (F =8 MHz)
20	XOUT	O	
21	Vss	-	GND terminal
22	CRO2 1	I	Deck 1 tape detect switch signal (CrO2) input
23	MODE	I	Deck 1 mechanism switch signal (MODE) input
24	HALF1	I	Deck 1 mechanism switch signal (Half) input
25	TPS	I	TPS signal input
26	A DATA	O	Serial data signal output for IC 101
27	A CLK	O	Serial clock signal output for IC 101
28	A LATCH	O	Serial latch signal output for IC 101

Pin No.	Terminal Name	I/O	Function
29	PL2	O	Deck 2 solenoid control signal output
30	M2	O	Deck 2 motor drive control signal output
31	ENC/DEC	O	Dolby NR record/playback mode select signal output
32	DOLBY ON/OFF	O	Dolby NR ON/OFF control signal output
33	E CS	-	EEPROM chip select signal output (Not used, open)
34 | 36	NC	-	Not used, open
37	LED CNT	O	LED color control signal output
38	PHOTO2T	I	Deck 2 reel pulse detect signal input
39	AD SW	I	Deck 2 mechanism switch signal input (Half, Mode, F REC INH., R REC INH.)
40	PHOTO1T	I	Deck 1 reel pulse detect signal input
41	KEY2	I	Operation key signal input
42	KEY1	I	Operation key signal input

13. Measurements and Adjustments

Note:

This unit RS-DV290 is designed to operate on power supplied from system connected.

13.1. Measurement condition

- Dolby NR switch is OFF
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Temperature is 20 ± 5 °C

13.2. Measurement instrument and special tool

- Electronic Voltmeter
- Frequency Counter

- AF Oscillator
- Test tape
- Head azimuth adjustment (8 kHz, -20 dB): QZZCFM
- Tape speed adjustment (3 kHz, -10 dB): QZZCWAT
- Playback gain adjustment (315 Hz, 0 dB): QZZCFM
- Recording/playback frequency response check:
  QZZCFM / (315 Hz, -20 dB, 12.5 kHz~63 Hz, -20 dB)
  QZZCRA4 (Normal blank tape)
  QZZCRX2 (CrO2 blank tape)
  QZZCRZ6 (Metal blank tape)

13.3. Head azimuth adjustment (Deck 1/2)

1. Connect the measuring instrument as shown in Fig. 13-1.
2. Replace azimuth screws for both forward and reverse directions after removing the screw-locking bond left on the head base. (Supply part No. of azimuth screw: RHD17015)
3. Playback the azimuth adjustment portion (8 kHz, -20 dB) of test tape (QZZCFM). Adjust the azimuth screw until the outputs of the L/R ch are maximized. Refer to Fig. 13-2. Make sure that thedifference in the peak level between the left and right channels does not exceed 0.5 dB.
4. Perform the same adjustment in reverse playback mode. Check of the level difference forward and reverse directions.
5. Playback the playback gain adjustment portion (315 Hz, 0 dB) of test tape (QZZCFM). Check if level difference between forward and reverse direction is within 1.5 dB.
6. After the adjustment, apply screw lock to the azimuth screw.

Fig. 13-1.

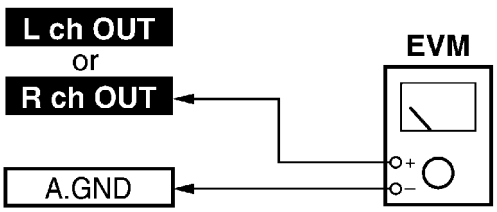
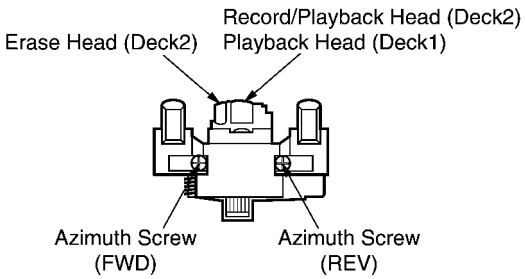


Fig. 13-2.



13.4. Tape speed adjustment / (Deck 1/2)

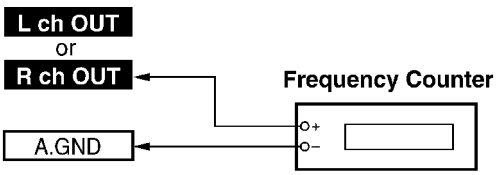
Note:

When connecting the unit to other system components for test, short the section between the test point TP604 and TP609 and turn on the entire system. (The unit is set to the TEST mode, and either Deck 1 or Deck 2 indicatorwill blink.)

Normal speed (Standard value: 3000 ± 45 Hz)

1. **Connect the measuring instrument as shown in Fig. 13-3.**
2. **Playback the middle portion of test tape. (QZZCWAT)**
3. **Adjust VR801 (Deck 1) and VR803 (Deck 2) for output value shown below. (For adjustment point, refer to Fig. 13-11.)**
   Adjustment target: 3000 ± 15 Hz (Normal speed)
   Standard value: 3000 ± 45 Hz (Normal speed)

Fig. 13-3.



Note:

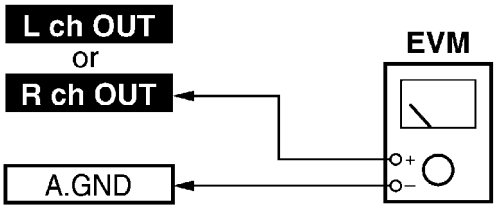
When the unit is finished for adjusting, disconnect the short section between TP604 and TP609 .

13.5. Playback gain adjustment (Deck 1/2)

1. **Connect the measuring instrument as shown in Fig. 13-4.**
2. **Find the start of the 315 Hz, 0 dB section of test tape (QZZCFM), insert the tape into Deck 1 and 2, and play it back (FWD).**
3. **Adjust Deck 2: VR102 (L ch) [VR103 (R ch)] and Deck 1: VR104 (L ch) [VR101 (R ch)] so that the output is within the standard value shown below. (For adjustment point, refer to Fig. 13-11.)**

[Standard value:265 mV ~ 300 mV]

Fig. 13-4.

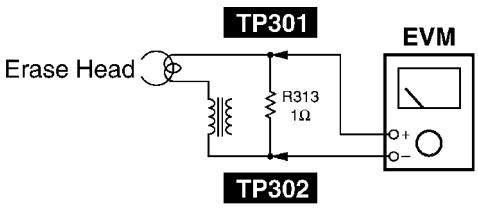


13.6. Erase current confirmation (Deck 2)

1. Connect the measuring instrument as shown in Fig. 13-5.
2. Insert the blank tape into Deck 2, and press the Record pause button.
3. Check if the output at this time between the erase current confirmation point TP301 and TP302 (the output on both edged of R313) is within the standard value shown below. (For the erase current confirmation point, referto Fig. 13-11.)

Standard Value		EVM reading
Normal tape :	85 ± 25 mA	(85 ± 25 mV)
CrO2 tape:	150 ± 25 mA	(150 ± 25 mV)
Metal tape:	185 ± 25 mA	(185 ± 25 mV)

Fig. 13-5.



Note:

The test tape is not required when confirming the erase current.

13.7. Playback frequency response check (Deck 1/2)

1. Connect the measuring instrument as shown in Fig. 13-6.
2. Playback the 315 Hz, -20 dB and 12.5 kHz to 63 Hz, -20 dB sections of test tape (QZZCFM) and then, using the 315 Hz, -20 dB playback

output as a reference (0 dB).

3. Confirm the playback frequency response is within the range shown in Fig. 13-7.

Fig. 13-6.

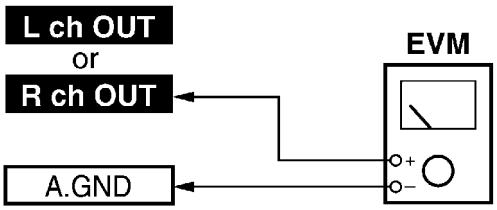
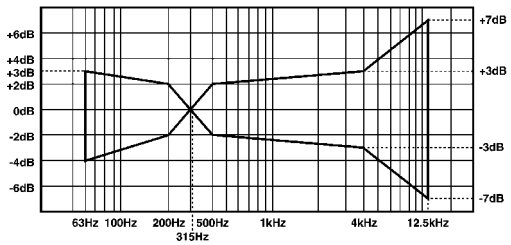


Fig. 13-7.



13.8. Recording/playback / frequency response and gain check (Deck 2)

13.8.1. Normal tape check

1. Connect the measuring instrument as shown in Fig. 13-8.
2. Insert a Normal type blank tape (QZZCRA4) into Deck 2.
3. Record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz (28 mV).
4. Set the playback frequency of recorded signals at 1 kHz as a reference response (0 dB).
5. Playback the recorded signal to confirm that the output is within the range of the overall frequency response shown in Fig. 13-9.

Fig. 13-8.

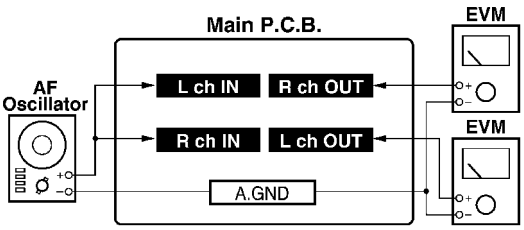
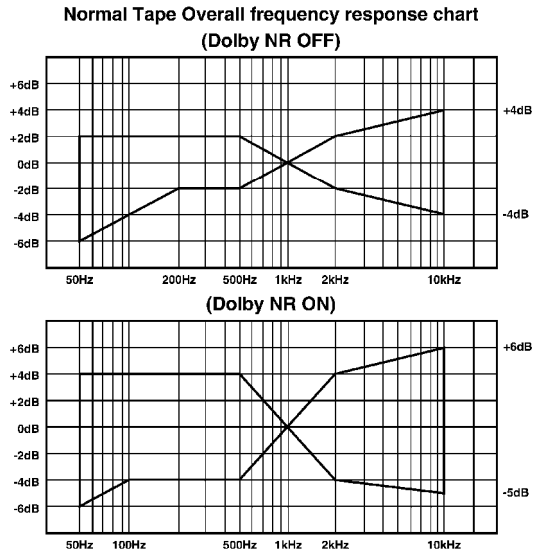


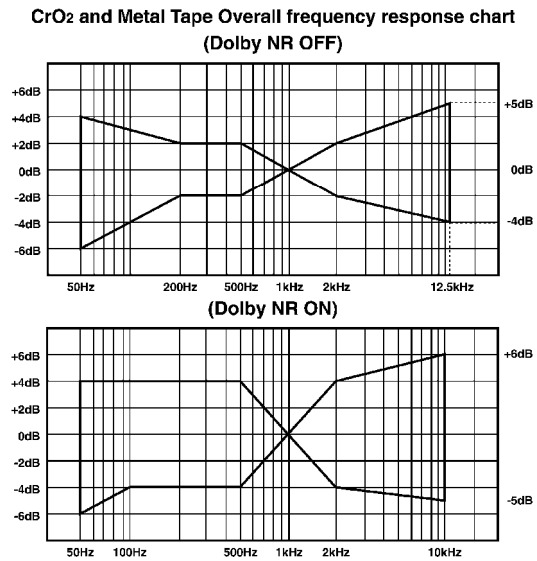
Fig. 13-9.



13.8.2. CrO2/Metal tape check

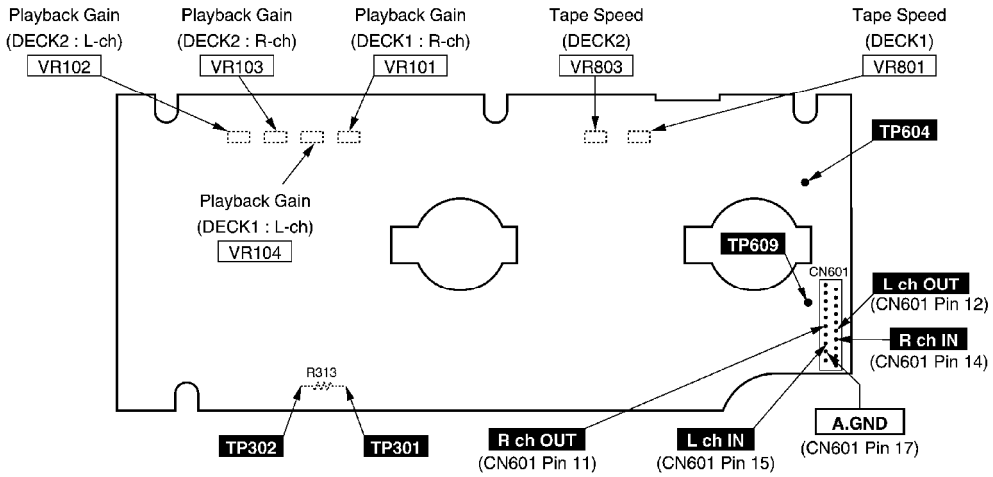
1. Connect the measuring instrument as shown in Fig. 13-8.
2. Insert a CrO2/Metal tape into Deck 2.
3. Record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz (28 mV).
4. Set the playback frequency of recorded signals at 1 kHz as a reference response (0 dB).
5. Playback the recorded signal to confirm that the output is within the range of the overall frequency response shown in Fig. 13-10.

Fig. 13-10.



13.9. Adjustment point and test point

Fig. 13-11.



14. Checking Procedure for Self-operation of Cassette Mechanism Ass'y

- This procedure describes simple methods independent of mechanism controller or governor circuit.

14.1. Operation Check Providing with Cassette Tape

1. Push up the EJECT lever with rubber band. (Refer to Fig. 14-2.)

2. Apply DC 5V to the MOTOR. (MOTOR will be rotated) (Refer to Fig. 14-1.)

3. Provide the cassette tape with mechanism ass'y.

4. Apply DC 9V to the plunger, and then operate it by switching power ON/OFF. (Power: +PL, -PL) (Refer to Fig. 14-1.)

A. FWD PLAY: Supply power to the plunger momentary. (Duration: approx. 50msec.)

B. FWD FF: At FWD PLAY mode, supply power to the plunger momentary. (Duration: approx. 50msec.)

C. STOP: At FWD FF mode, supply power to the plunger momentary. (Duration: approx. 50msec.)

D. REV PLAY: At STOP mode, supply power to the plunger for ordinary duration. (Duration: approx. 200msec.)

E. REV REW: At REV PLAY mode, supply power to the plunger momentary. (Duration: approx. 50msec.)

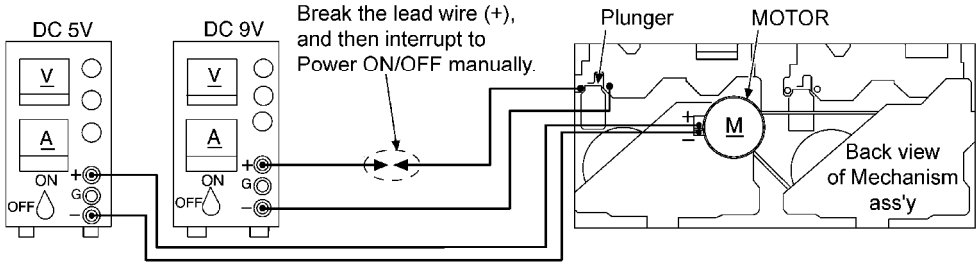
F. STOP: At REV REW mode, supply power to the plunger momentary. (Duration: approx. 50msec.)

Repeat the above operation to FWD PLAY mode.

Note: Incorrect duration for power supply may be operated to other mode.

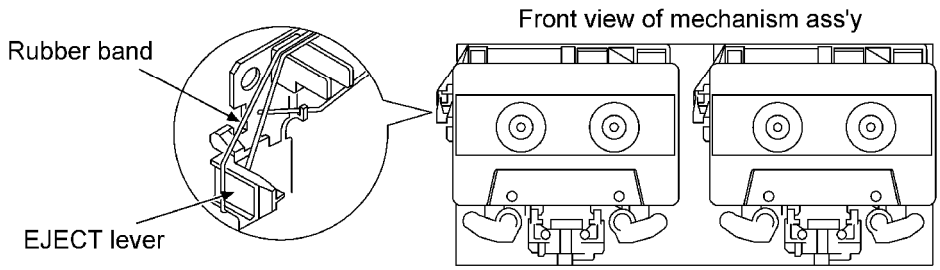
14.1.1. Connection Diagram Between the Mechanism Ass'y and Power Supply / (MOTOR and Plunger)

Fig. 14-1.



14.1.2. Detail View of EJECT Lever / (EJECT lever fixed by rubber band, Plunger rib operation)

Fig. 14-2.

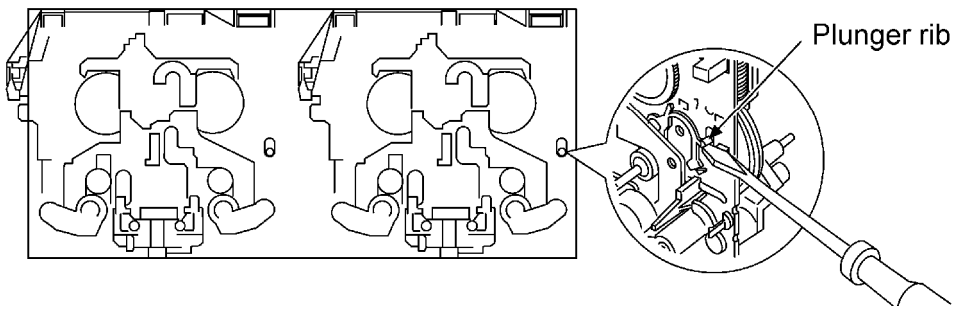


14.2. Operation Check Not Provided with Cassette Tape

1. **Push up the EJECT lever with rubber band. (Refer to Fig. 14-2.)**
2. **Apply DC 5V to the MOTOR. (MOTOR will be rotated)**
3. **Lift up the plunger rib of mechanism ass'y with the tip of minus screwdriver, and then operate it same as power supply duration. (Refer toFig. 14-3.)**

   Note: Operation order is same as the "Operation Check Providing with Cassette Tape" item 4. above.

Fig. 14-3.



15. Replacement Parts List

Notes:

- Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

- The marking [RTL] indicates the retention time is limited for this Item. After the discontinuation of this assembly in production, it will no longer available.

- All parts are supplied by SPC.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0392-S1	CABINET	1	
2	RHD30007-1S	SCREW	4	
3	XTBS3+10JFZ1	SCREW	2	
4	RGR0287A-P	REAR PANEL	1	
5	RKA0105-K	RUBBER	4	
6	RKA0106-N	FOOT RING	4	
7	RMN0539	CABLE HOLDER	1	
8	RDG0129-1	DAMPER GEAR	2	
9	REX0966-1	WIRE ASS'Y	1	
10	RGB0025-A	TECHNICS BADGE	1	
11	RGK1131-2S	ORNAMENT(L)	1	
12	RGK1132-2S	ORNAMENT(R)	1	
13	RGL0441-Q	PANEL LIGHT	1	
14	REZ1194	WIRE ASS'Y	1	
15	RKF0462-K2	CASSETTE HOLDER(L)	1	
16	RKF0463-K2	CASSETTE HOLDER(R)	1	
17	RKF0587G-2S	CASSETTE LID(L)	1	
18	RKF0588-2S	CASSETTE LID(R)	1	
19	RKW0577-Q	CASSETTE WINDOW(L)	1	
20	RKW0578-Q	CASSETTE WINDOW(R)	1	
21	RMB0474	SPRING	2	
22	RMQ0577A-3	FRAME	1	
23	RUS757ZA	SPRING	4	
24	RYP1179-S	FRONT PANEL	1	
25	XTBS26+10J	SCREW	7	
26	XTB3+10JFZ	SCREW	5	
27	XTBS3+8JFZ1	SCREW	3	
28	RMG0161	RUBBER	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
29	RMR0909-X	PCB HOLDER	1	
101	RED0037	HEAD BLOCK ASS'Y / (R/P)	1	L1AA00000008
101-1	RHD17015	SCREW	2	
102	RED0038	HEAD BLOCK ASS'Y / (P.B)	1	
102-1	RHD17015	SCREW	2	
103	RDG0300	REEL TABLE BASE	4	
104	RDG0301	GEAR	2	
105	RDK0026	GEAR	2	
107	RDV0033-4	BELT1	2	
108	RDV0034-1	BELT2	2	
110	RUW147ZA	SPRING	2	
111	RMB0400	SPRING	4	
112	RMB0403	SPRING	2	
113	RMB0404	SPRING	2	
114	RMB0406	SPRING	2	
115	RMB0408	SPRING	2	
116	RML0370-J	LEVER	2	
117	RML0371	LEVER	2	
118	RML0372	LEVER	2	
119	RML0374	LEVER	2	
120	RMM0131	ROD	2	
121	RMM0133-1	ROD	2	
122	RMQ0519	REEL CAP	4	
123	RMS0398-1	SHAFT	2	
124	RSJ0003	PLUNGER ASS'Y	2	
125	RUS609ZC	SPRING	2	
126	RXF0049	FLY WHEEL ASS'Y	2	
127	RXF0050	FLY WHEEL ASS'Y	2	
128	RXG0040	GEAR	4	
129	RMK0283A-J	SUB CHASSIS	2	
130	RXL0124	PINCH ROLLER ASS'Y	2	
130-1	RMB0401	SPRING	2	
131	RXL0125	PINCH ROLLER ASS'Y	2	
131-1	RMB0402	SPRING	2	
132	RXL0126	ARM GEAR	2	
133	RXQ0412	CHASSIS ASS'Y	2	
133-1	RMB0405	SPRING	2	
133-2	RMM0132-J	FR ROD	2	
134	REM0055-1	MOTOR ASS'Y	2	
135	RHD26022	SCREW	4	
136	XTW2+5L	SCREW	4	
137	XTW26+10S	SCREW	6	
138	XYC2+JF17	SCREW	2	
140	RFKJSCH770EK	MAIN CHASSIS ASS'Y	1	
C101-04	ECUV1H681KBN	50V 680P	4	F1J1H681A021
C109,10	ECQB1H183JF3	50V 0.018U	2	
C111,12	ECEA0JKS470	6.3V 47U	2	
C113,14	ECEA1HKS2R2	50V 2.2U	2	
C115,16	ECJ2VB1H471K	50V 470P	2	
C117,18	ECUX1H331KBX	50V 330P	2	
C119,20	ECA1HAK010XI	50V 1U	2	
C123,24	ECEA1EKS4R7	25V 4.7U	2	
C125,26	ECJ2VB1H332K	50V 3300P	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C129	ECEA1AKS220	10V 22U	1	
C130	F2A1C101A133	16V 100U	1	
C131-34	ECJ2VB1H471K	50V 470P	4	
C135,36	ECA1HAK010XI	50V 1U	2	
C137	ECEA1HKS0R1	50V 0.1U	1	
C138	F1J1E4730004	25V 0.047U	1	
C139	ECEA0JKS470	6.3V 47U	1	
C140	ECEA1CKS100	16V 10U	1	
C141	ECA1HAK010XI	50V 1U	1	
C142	ECUVNE104ZFN	25V 0.1U	1	F1J1E1040017
C143,44	ECJ2VB1H471K	50V 470P	2	
C150	RCE1AKA101BG	10V 100U	1	F2A1A1010020
C203,04	ECEA1EKS4R7	25V 4.7U	2	
C205,06	ECA1HAK010XI	50V 1U	2	
C207,08	ECUV1H271KBN	50V 270P	2	
C211,12	ECUV1H152KBN	50V 1500P	2	ECJ2VB1H152K
C213,14	ECEA1EKS4R7	25V 4.7U	2	
C215,16	ECEA1CKS100	16V 10U	2	
C217,18	ECEA1HKS0R1	50V 0.1U	2	
C219	F2A1C101A133	16V 100U	1	
C220	RCE1ARS471BJ	10V 470U	1	F2A1A471A111
C221,22	ECEA1HKAR68B	50V 0.68U	2	
C223	ECEA1EKS4R7	25V 4.7U	1	
C225,26	ECEA1EKS4R7	25V 4.7U	2	
C239,40	ECUV1H681KBN	50V 680P	2	F1J1H681A021
C241	ECJ2VB1H103K	50V 0.01U	1	
C301	ECA1CAM471XB	16V 470U	1	
C302	ECEA2AN2R2S	100V 2.2U	1	
C303	ECQP2E682JZT	250V 6800P	1	F0A2E682A002
C304	F2A1C101A133	16V 100U	1	
C305	ECEA1HKS0R1	50V 0.1U	1	
C306	ECQB1H393JF3	50V 0.039U	1	
C307	ECUV1H102KBN	50V 1000P	1	ECJ2VB1H102K
C308	ECJ2VB1H332K	50V 3300P	1	
C309	ECEA0JKS470	6.3V 47U	1	
C310,11	ECJ2VB1H103K	50V 0.01U	2	
C323	ECUV1H102KBN	50V 1000P	1	ECJ2VB1H102K
C602	ECA1CAM221XB	16V 220U	1	
C603	RCE1CKA470BG	16V 47U	1	F2A1C470A017
C604	ECUV1E103ZFN	25V 0.01U	1	F1J1E103A007
C605	ECA1CAM221XB	16V 220U	1	
C701	ECJ2VB1H103K	50V 0.01U	1	
C702	ECEA0JKS101	6.3V 100U	1	
C705	ECUV1E103ZFN	25V 0.01U	1	F1J1E103A007
C706	RCE1HKA3R3BG	50V 3.3U	1	F2A1H3R3A015
C707	ECUV1E103ZFN	25V 0.01U	1	F1J1E103A007
CN601	RJS2A5520-1	CONNECTOR(20P)	1	K1MP20A00005
CN901	RJS8T6ZA	CONNECTOR(8P)	1	K1MP08B00006
CP101,02	RJS1A6805	CONNECTOR(5P)	2	
CP901,02	RJT071K09A	CONNECTOR(9P)	2	K1KA09B00058
CS951	RJU071H09M	CONNECTOR(9P)	1	K1KB09C00001

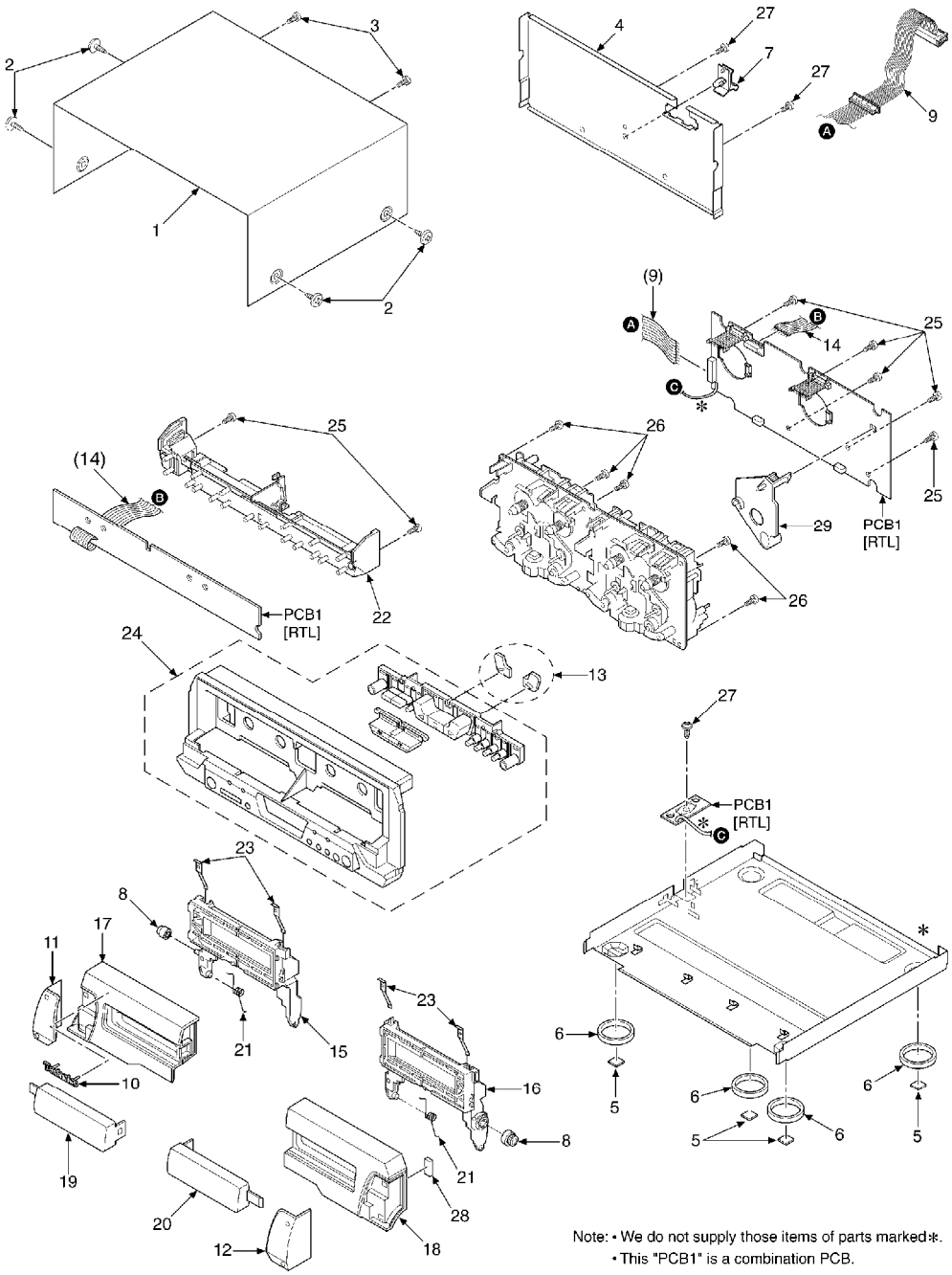
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CS971	RJU071H09M	CONNECTOR(9P)	1	K1KB09C00001
D101,02	MA2J11100L	DIODE	2	
D301	MA2J11100L	DIODE	1	
D606	MAZ40560MF	DIODE	1	
D651,52	MA165TA5	DIODE	2	MA2C16500E
D701	MA2J11100L	DIODE	1	
D705,06	MA2J11100L	DIODE	2	
D707	MA4051M	DIODE	1	MAZ40510M
D708-10	MA2J11100L	DIODE	3	
D904	MA2J11100L	DIODE	1	
D905	B3AHA0000012	LED	1	
D907	B3AHA0000012	LED	1	
D951	MA165TA5	DIODE	1	MA2C165
D971	MA165TA5	DIODE	1	MA2C165
IC101	CXA1998BQT6	IC	1	C1BB00000319
IC102	MC14066BFEL	IC	1	C0JBAR000248
IC103	BA7755AF	IC	1	C1AB00001381
IC201	CXA1552M-T4	IC	1	C1BB00000311
IC202	MC14066BFEL	IC	1	C0JBAR000248
IC701	M38503M2406F	IC	1	C2BBDD000003
IC951	0N2180RLC1	IC	1	
IC971	0N2180RLC1	IC	1	
L201,02	ELELN103KA	COIL	2	
L301	RL08B006-K	COIL	1	G2A142C00002
L302	RLQZB101KT-D	COIL	1	G0C101K00017
L701	G0C100JA0019	COIL	1	
L702	J0JBC0000041	COIL	1	
PCB1	REP2827E-M	MAIN P.C.B.	1	[RTL]
PCB2	REPX0108A	MECHA.SW.P.C.B. / (P.B.)	1	[RTL]
PCB3	REPX0108B	MECHA.SW.P.C.B. / (R/P)	1	[RTL]
Q101,02	2SJ164RTA	TRANSISTOR	2	2SJ01640RA
Q103,04	2SJ164QTA	TRANSISTOR	2	2SJ01640QA
Q105,06	2SD1819ARTX	TRANSISTOR	2	2SD1819ARL
Q107	DTA143EUT106	TRANSISTOR	1	B1GDCFGG0008
Q108	DTC143EUT106	TRANSISTOR	1	B1GBCFGG0006
Q201,02	DTA143EUT106	TRANSISTOR	2	B1GDCFGG0008
Q301	2SD1819ARTX	TRANSISTOR	1	2SD1819ARL
Q302	2SD1328STW	TRANSISTOR	1	2SD13280S2RA
Q303,04	2SD14500HA	TRANSISTOR	2	
Q305,06	DTC144EUT106	TRANSISTOR	2	B1GBCFNN0013
Q602	2SD2144S	TRANSISTOR	1	B1AAGC000006
Q604	2SC3940AQSTA	TRANSISTOR	1	2SC3940ARA
Q701-03	2SD1819ARTX	TRANSISTOR	3	2SD1819ARL
Q706	DTC114EUT106	TRANSISTOR	1	B1GBCFJJ0009
Q803,04	2SD592AR	TRANSISTOR	2	2SD0592AR
Q805,06	DTA143EUT106	TRANSISTOR	2	B1GDCFGG0008
Q807,08	2SB0621AHA	TRANSISTOR	2	
Q809,10	DTC143EUT106	TRANSISTOR	2	B1GBCFGG0006
Q901	DTA143EUT106	TRANSISTOR	1	B1GDCFGG0008

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q902-04	DTC143EUT106	TRANSISTOR	3	B1GBCFGG0006
R101,02	ERJ6GEYJ562V	1/10W 5.6K	2	
R103,04	ERJ6GEYJ104V	1/10W 100K	2	
R105,06	ERJ6GEYJ334V	1/10W 330K	2	
R107,08	ERJ6GEYJ103V	1/10W 10K	2	
R109,10	ERJ6GEYJ102V	1/10W 1K	2	
R111	ERJ6GEYJ820V	1/10W 82	1	D0GD820JA012
R112	ERJ8GEYJ820V	1/8W 82	1	
R113	ERJ6GEYJ123V	1/10W 12K	1	
R114	ERJ6GEYJ273V	1/10W 27K	1	
R117	ERJ6GEYJ102V	1/10W 1K	1	
R118,19	ERDS2FJ220	1/4W 22	2	
R120	ERJ6GEYJ104V	1/10W 100K	1	
R121,22	ERJ6GEYJ103V	1/10W 10K	2	
R125	ERJ6GEYJ104V	1/10W 100K	1	
R126	ERJ6GEYJ223V	1/10W 22K	1	
R127	ERJ6GEYJ472V	1/10W 4.7K	1	
R130	ERJ6GEYJ475V	1/10W 4.7M	1	
R131	ERJ6GEYJ334V	1/10W 330K	1	
R132	ERJ6GEYJ273V	1/10W 27K	1	
R133	ERJ6GEYJ333V	1/10W 33K	1	
R134	ERJ6GEYJ392V	1/10W 3.9K	1	
R135	ERJ6GEYJ682V	1/10W 6.8K	1	
R136,37	ERJ6GEYJ222V	1/10W 2.2K	2	
R138	ERJ6GEYJ472V	1/10W 4.7K	1	
R139,40	ERJ6GEYF473	1/10W 47K	2	
R141	ERJ8GEYJ101V	1/8W 100	1	
R142	ERJ6GEYJ101V	1/10W 100	1	
R143	ERDS2FJ101	1/4W 100	1	
R144	ERJ6GEYJ101V	1/10W 100	1	
R147-50	ERJ6GEYJ562V	1/10W 5.6K	4	
R151,52	ERJ6GEYJ104V	1/10W 100K	2	
R153,54	ERJ6GEYJ272V	1/10W 2.7K	2	
R157,58	ERJ6GEYJ223V	1/10W 22K	2	
R207,08	ERJ6GEYF473	1/10W 47K	2	
R209,10	ERJ6GEYJ102V	1/10W 1K	2	
R211,12	ERJ6GEYJ103V	1/10W 10K	2	
R213,14	ERJ6GEYJ302V	1/10W 3K	2	
R215,16	ERJ6GEYJ123V	1/10W 12K	2	
R217,18	ERJ6GEYJ222V	1/10W 2.2K	2	
R219	ERJ6GEYJ183V	1/10W 18K	1	
R220	ERDS2FJ220	1/4W 22	1	
R221,22	ERJ6GEYJ101V	1/10W 100	2	
R223,24	ERJ6GEYJ103V	1/10W 10K	2	
R225,26	ERJ6GEYF473	1/10W 47K	2	
R230,31	ERJ6GEYJ102V	1/10W 1K	2	
R232	ERJ6GEYJ103V	1/10W 10K	1	
R233,34	ERJ6GEYJ101V	1/10W 100	2	
R237	ERDS2FJ220	1/4W 22	1	
R301	ERJ6GEYJ103V	1/10W 10K	1	
R302	ERJ6GEYJ182V	1/10W 1.8K	1	
R303	ERJ6GEYJ222V	1/10W 2.2K	1	
R304	ERJ6GEYJ153V	1/10W 15K	1	

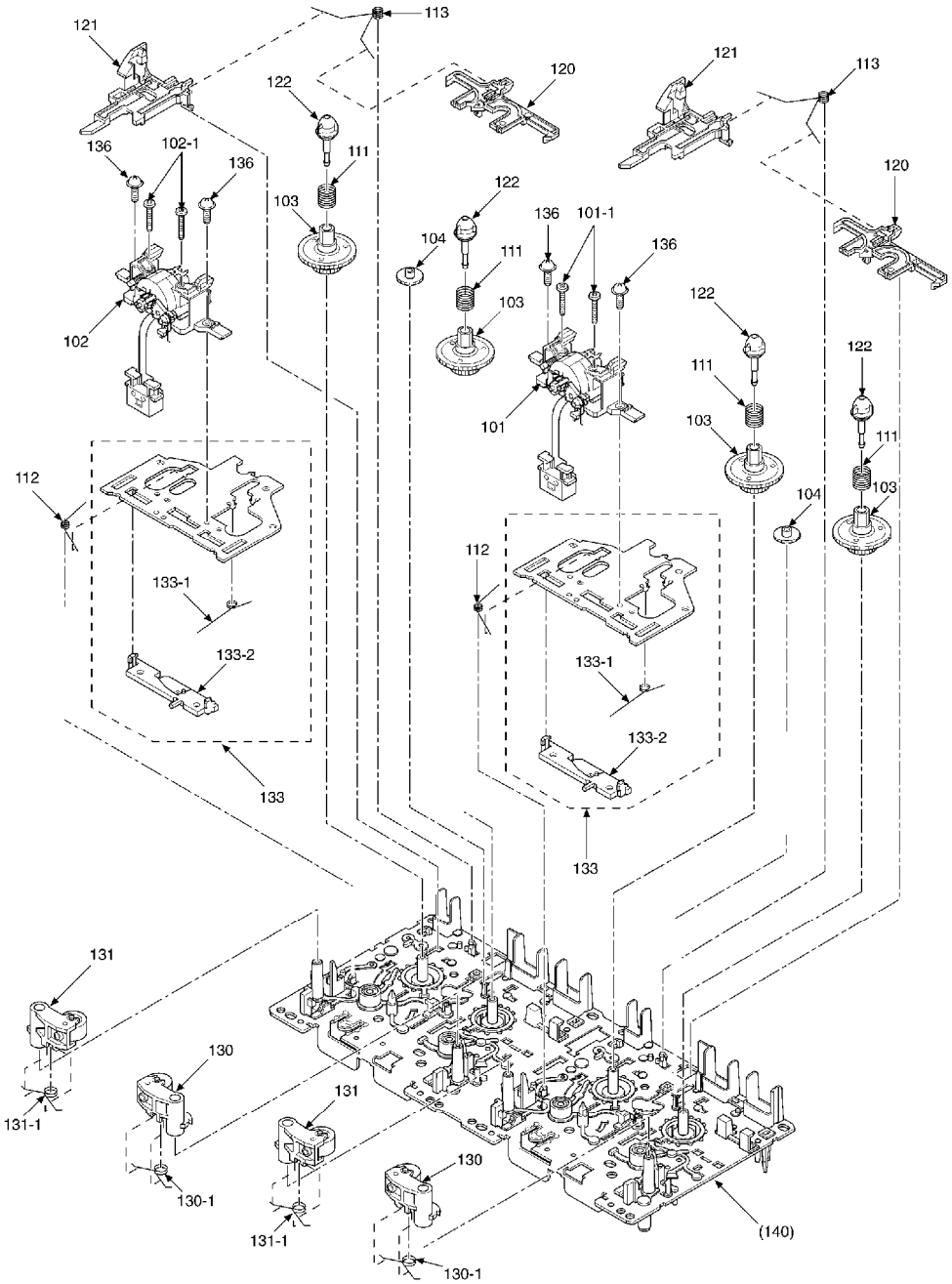
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R305	ERJ6GEYJ183V	1/10W 18K	1	
R306	ERJ6GEYJ333V	1/10W 33K	1	
R307	ERDS1FJ2R2	1/2W 2.2	1	
R308	ERJ6GEYJ102V	1/10W 1K	1	
R309-11	ERJ6GEYJ472V	1/10W 4.7K	3	
R313	ERDS2TJ1R0	1/4W 1.0	1	
R602	ERQ16NKWR33E	1/6W 0.33	1	
R603	ERD2FCG100	1/4W 10	1	
R604	ERJ6GEYJ331V	1/10W 330	1	
R606	ERJ6GEYJ152V	1/10W 1.5K	1	
R609	ERDS2FJ101	1/4W 100	1	
R630	ERQ16NKWR33E	1/6W 0.33	1	
R632	ERDS2FJ473	1/4W 47K	1	
R701,02	ERJ6GEYJ103V	1/10W 10K	2	
R703	ERJ6GEYJ562V	1/10W 5.6K	1	
R704	ERJ6GEYJ472V	1/10W 4.7K	1	
R705	ERJ6GEYF473	1/10W 47K	1	
R708	ERJ6GEYJ472V	1/10W 4.7K	1	
R710	ERJ6GEYJ102V	1/10W 1K	1	
R711	ERJ6GEYJ104V	1/10W 100K	1	
R712	ERJ8GEYJ683V	1/8W 68K	1	
R718	ERJ8GEYJ683V	1/8W 68K	1	
R721	ERJ6GEYJ472V	1/10W 4.7K	1	
R722	ERJ6GEYJ101V	1/10W 100	1	
R723,24	ERJ6GEYJ102V	1/10W 1K	2	
R725,26	ERJ6GEYJ222V	1/10W 2.2K	2	
R727	ERJ6GEYJ472V	1/10W 4.7K	1	
R728	ERJ6GEYJ103V	1/10W 10K	1	
R729	ERJ6GEYJ472V	1/10W 4.7K	1	
R730	ERJ6GEYJ222V	1/10W 2.2K	1	
R732	ERJ6GEYJ104V	1/10W 100K	1	
R735	ERJ6GEYJ472V	1/10W 4.7K	1	
R736	ERJ6GEYJ103V	1/10W 10K	1	
R737	ERJ8GEYJ103V	1/8W 10K	1	
R738	ERJ6GEYJ102V	1/10W 1K	1	
R741	ERJ6GEYJ223V	1/10W 22K	1	
R743	ERJ6GEYF473	1/10W 47K	1	
R744	ERJ6GEYJ102V	1/10W 1K	1	
R745	ERJ6GEYJ101V	1/10W 100	1	
R747	ERJ8GEYJ102V	1/8W 1K	1	
R802	ERJ6GEYJ561V	1/10W 560	1	
R803	ERJ6GEYJ103V	1/10W 10K	1	
R805	ERJ6GEYJ392V	1/10W 3.9K	1	
R806	ERJ6GEYJ103V	1/10W 10K	1	
R808	ERJ6GEYJ392V	1/10W 3.9K	1	
R810,11	ERJ6GEYJ103V	1/10W 10K	2	
R812	ERJ6GEYJ561V	1/10W 560	1	
R813,14	ERJ6GEYJ471V	1/10W 470	2	
R818	ERDS2FJ2R2	1/4W 2.2	1	
R820	ERDS2FJ2R2	1/4W 2.2	1	
R823,24	ERJ6GEYJ561V	1/10W 560	2	
R900	ERJ6GEYJ821V	1/10W 820	1	
R901	ERJ6GEYJ102V	1/10W 1K	1	
R902	ERJ6GEYJ122V	1/10W 1.2K	1	D0GD122JA003

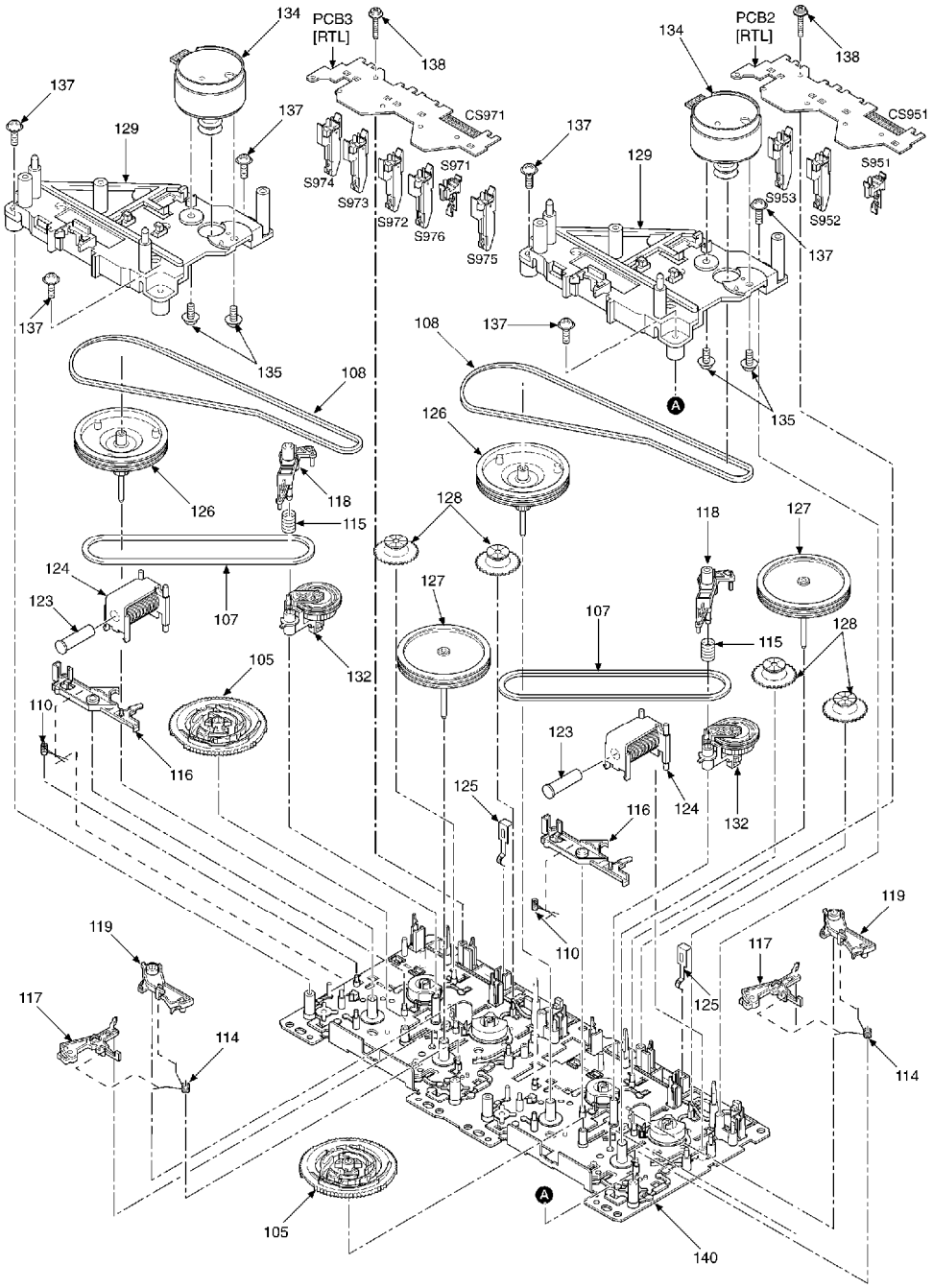
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R903	ERJ6GEYJ152V	1/10W 1.5K	1	
R904	ERJ6GEYJ182V	1/10W 1.8K	1	
R905	ERJ6GEYJ222V	1/10W 2.2K	1	
R906	ERJ6GEYJ332V	1/10W 3.3K	1	D0GD332JA003
R908	ERJ6GEYJ122V	1/10W 1.2K	1	D0GD122JA003
R909	ERJ6GEYJ152V	1/10W 1.5K	1	
R910	ERJ6GEYJ182V	1/10W 1.8K	1	
R911	ERJ6GEYJ222V	1/10W 2.2K	1	
R914	ERJ6GEYJ331V	1/10W 330	1	
R915	ERJ6GEYJ681V	1/10W 680	1	
R916	ERJ6GEYJ331V	1/10W 330	1	
R917	ERJ6GEYJ681V	1/10W 680	1	
R924	ERJ6GEYJ821V	1/10W 820	1	
R925	ERJ6GEYJ102V	1/10W 1K	1	
R952	ERDS2FJ821	1/4W 820	1	
R953	ERDS2FJ393	1/4W 39K	1	
R972	ERDS2FJ821	1/4W 820	1	
R973	ERDS2FJ393	1/4W 39K	1	
RJ504	ERJ6GEY0R00V	CHIP JUMPER	1	
RJ507-09	ERJ8GEY0R00V	CHIP JUMPER	3	D0YFR0000002
S900,01	EVQ11G05R	SW,PUSH	2	
S903-07	EVQ11G05R	SW,PUSH	5	
S909-15	EVQ11G05R	SW,PUSH	7	
S951	RSH1A018-3U	SW,MECHA DET	1	
S952,53	RSH1A019-2U	SW,MECHA DET	2	
S971	RSH1A018-3U	SW,MECHA DET	1	
S972-76	RSH1A019-2U	SW,MECHA DET	5	
VR101-04	EVNDCAA03B24	V.R.,PLAYBACK GAIN / ADJ.	4	
VR801	EVNDCAA03B53	V.R.,TAPE SPEED / ADJ.	1	
VR803	EVNDCAA03B53	V.R.,TAPE SPEED / ADJ.	1	
X701	RSXY8M00D01T	OSCILLATOR	1	H2B800400005
Z971	EXBF7L355SYV	COMPONENT / COMBINATION	1	

16. Cabinet Parts Location



17. Mechanism Parts Location


113
121
120
122
111
103
136
102-1
102
104
101-1
101
112
133-1
133-2
133
131
131-1
130
130-1
(140)

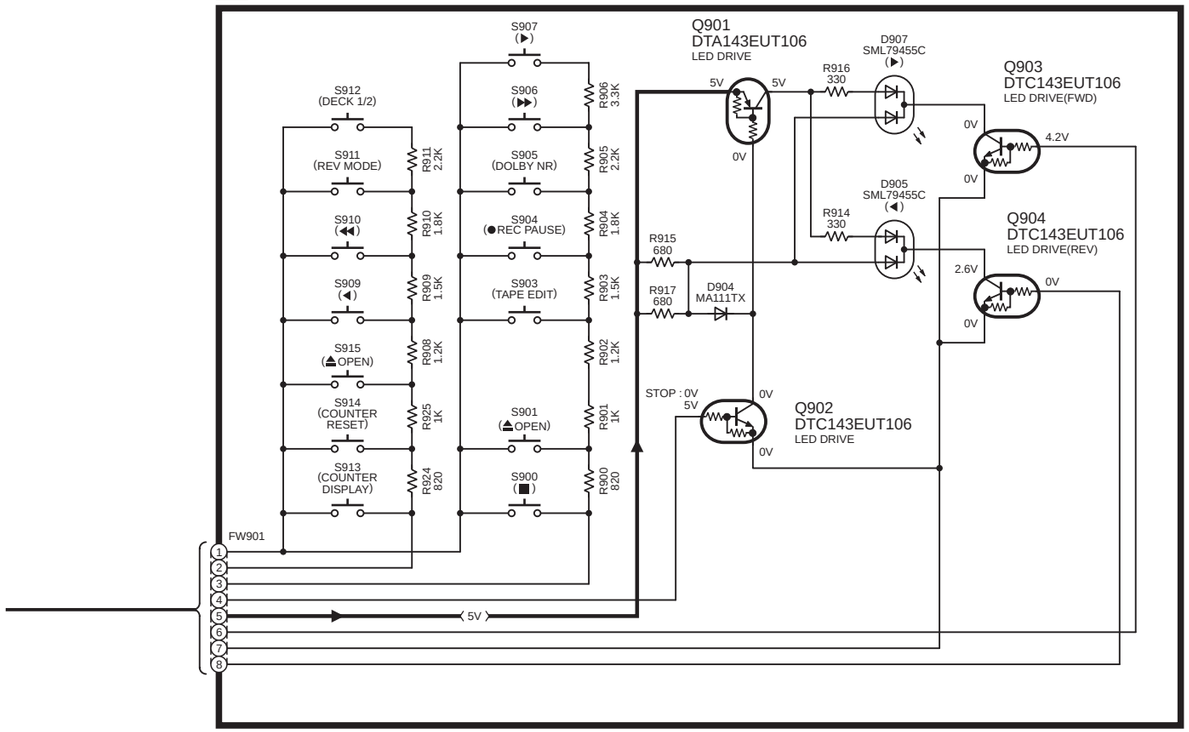


18. Schematic Diagram for printing with letter size

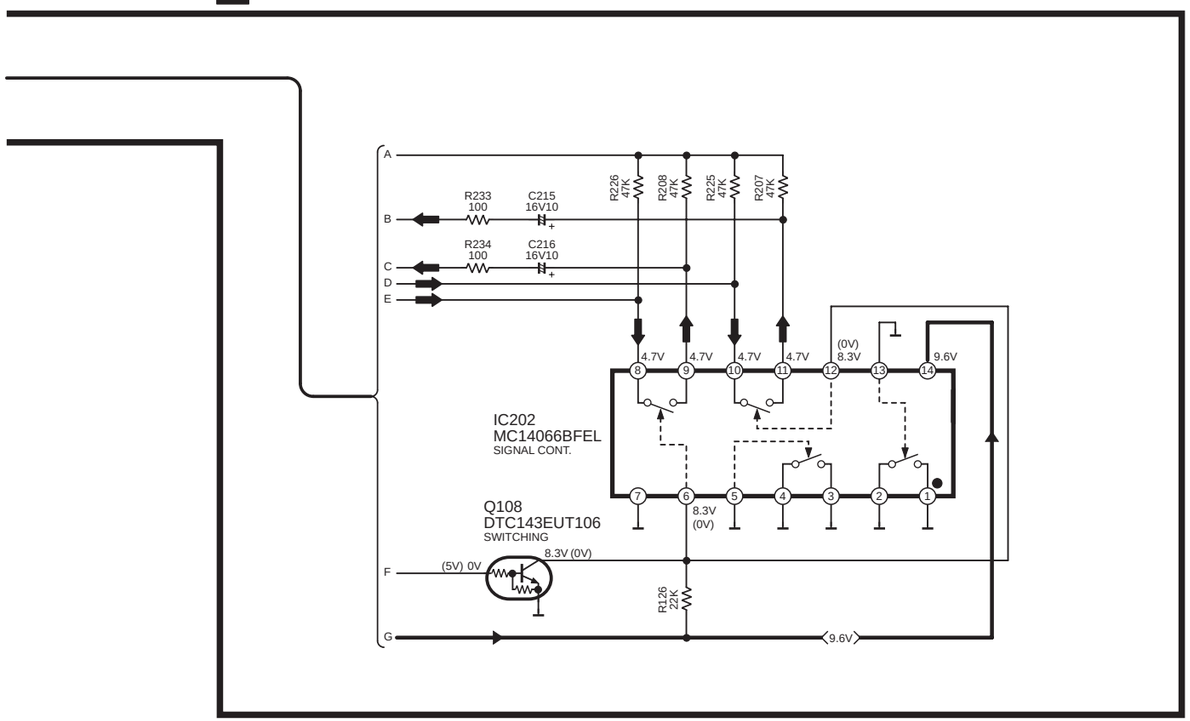
F0302KH

E OPERATION CIRCUIT

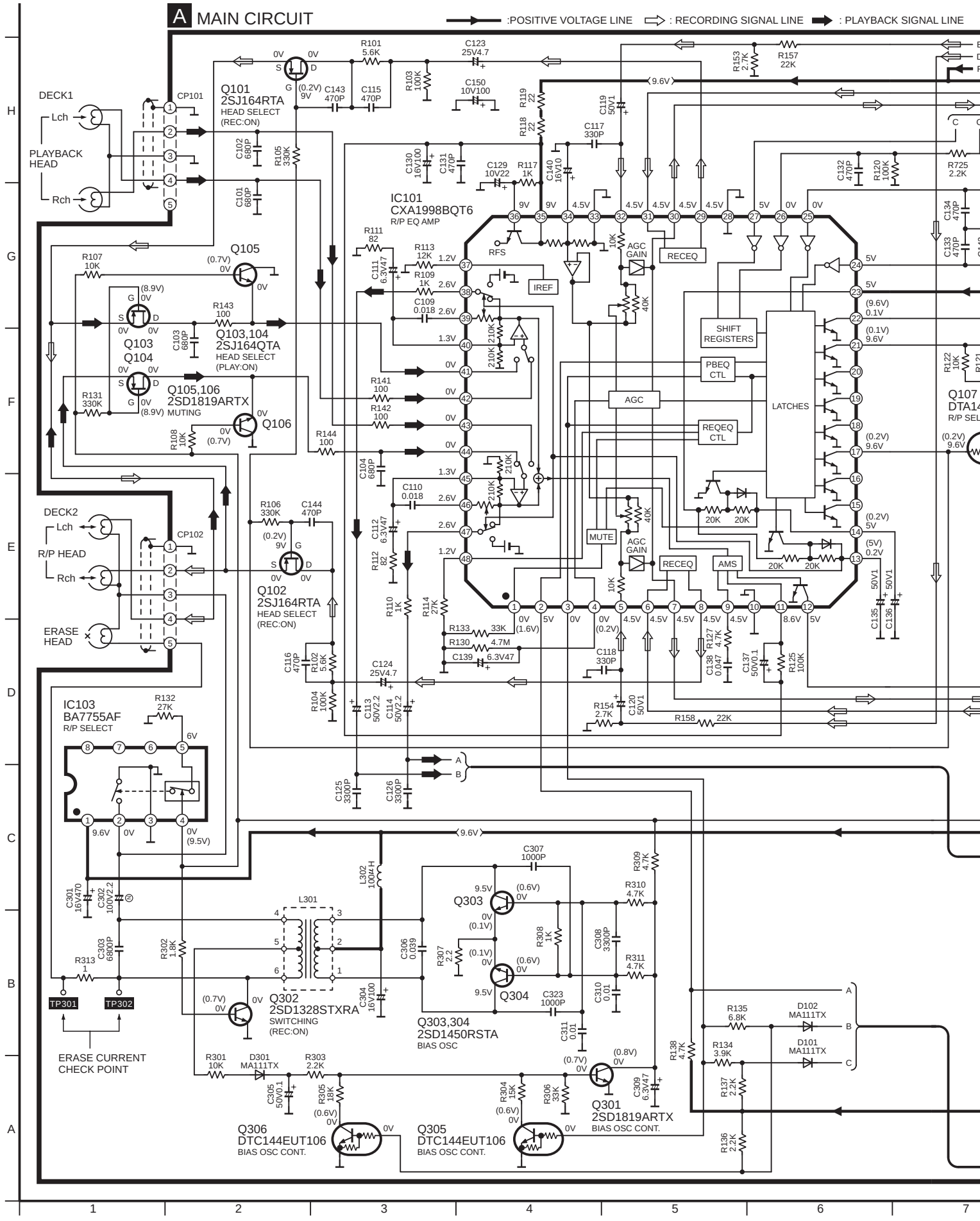
:POSITIVE VOLTAGE LINE　:PLAYBACK SIGNAL LINE



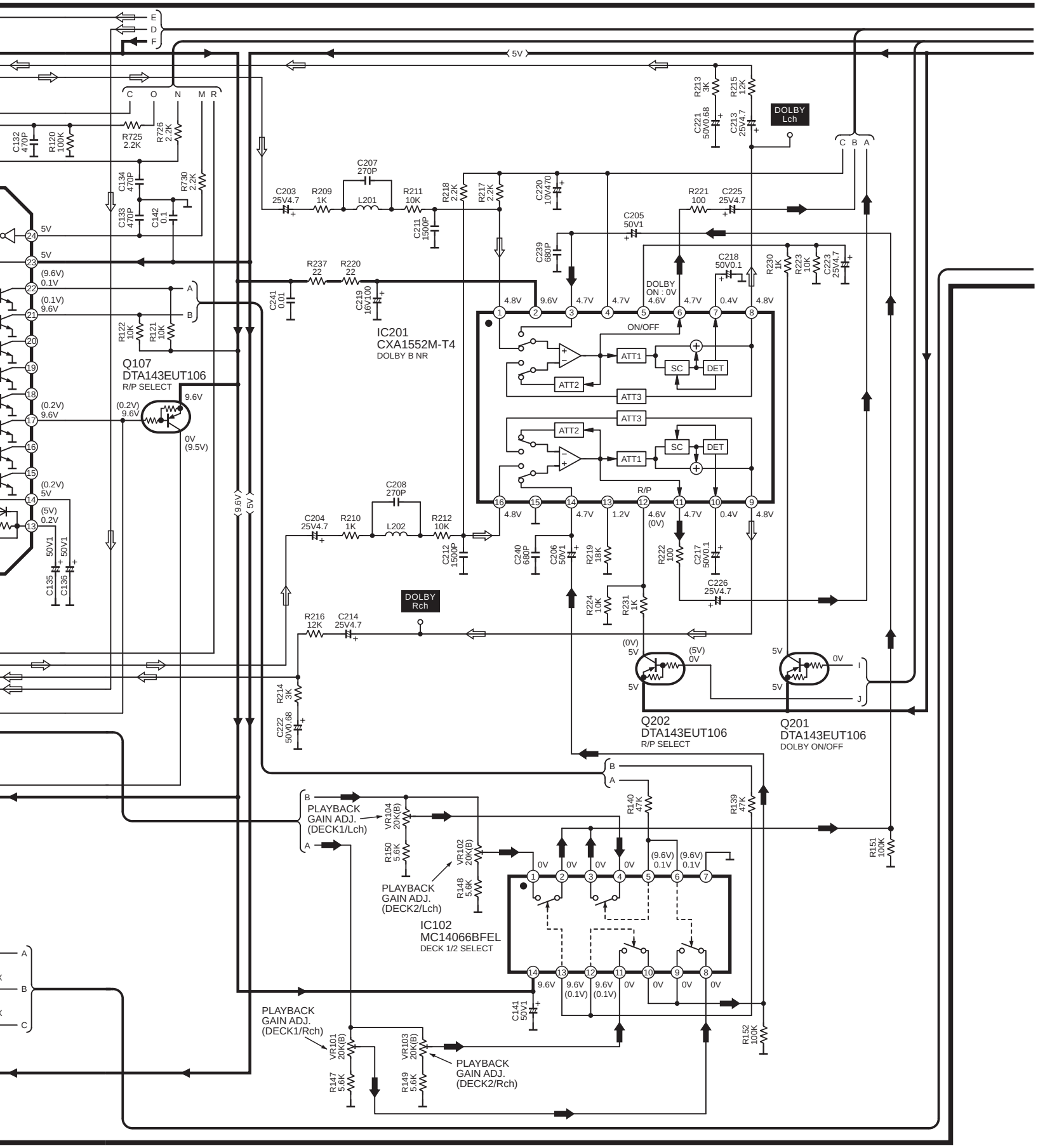
A MAIN CIRCUIT

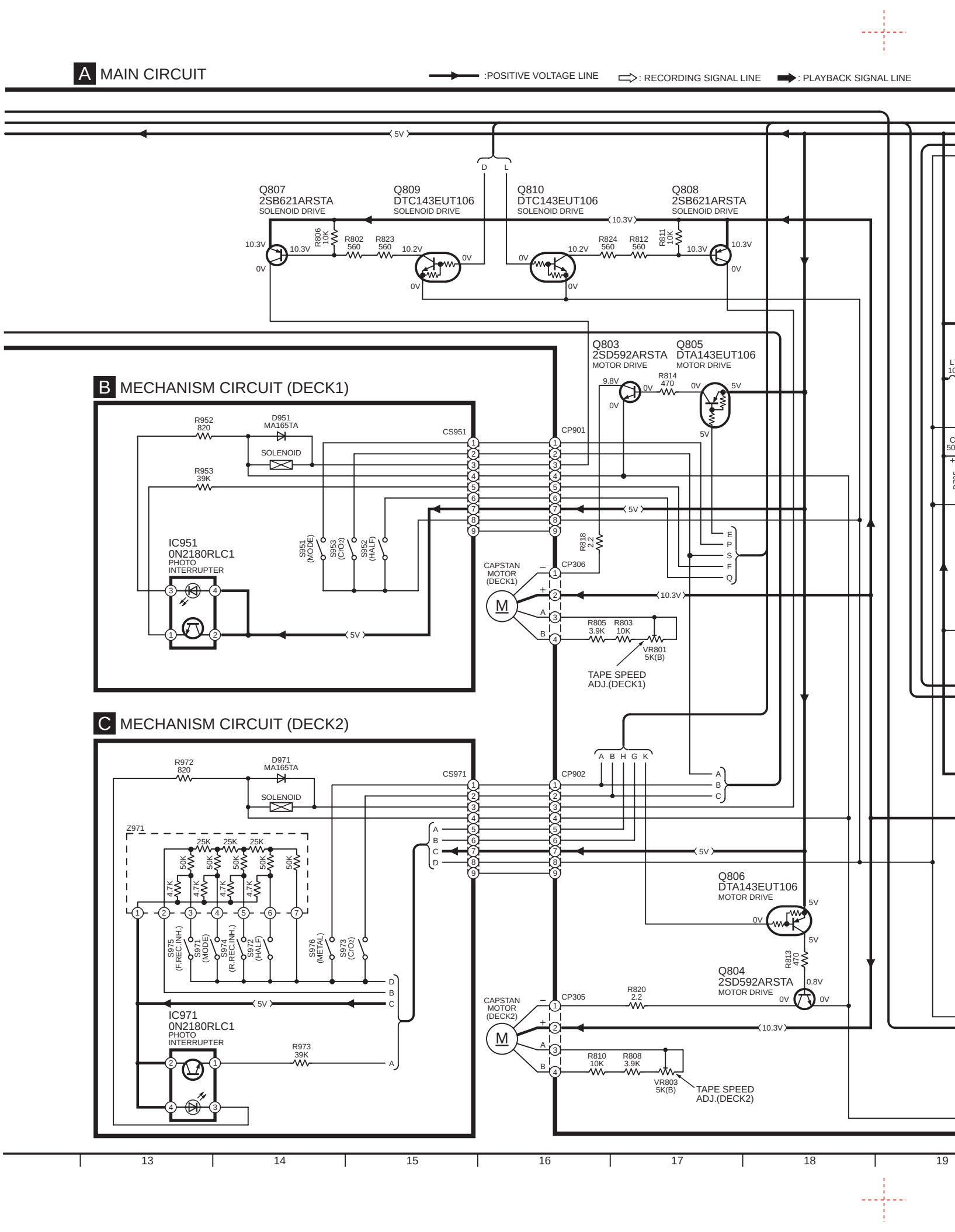


RS-DV290(EG) OPERATION, MAIN CIRCUIT DIAGRAM

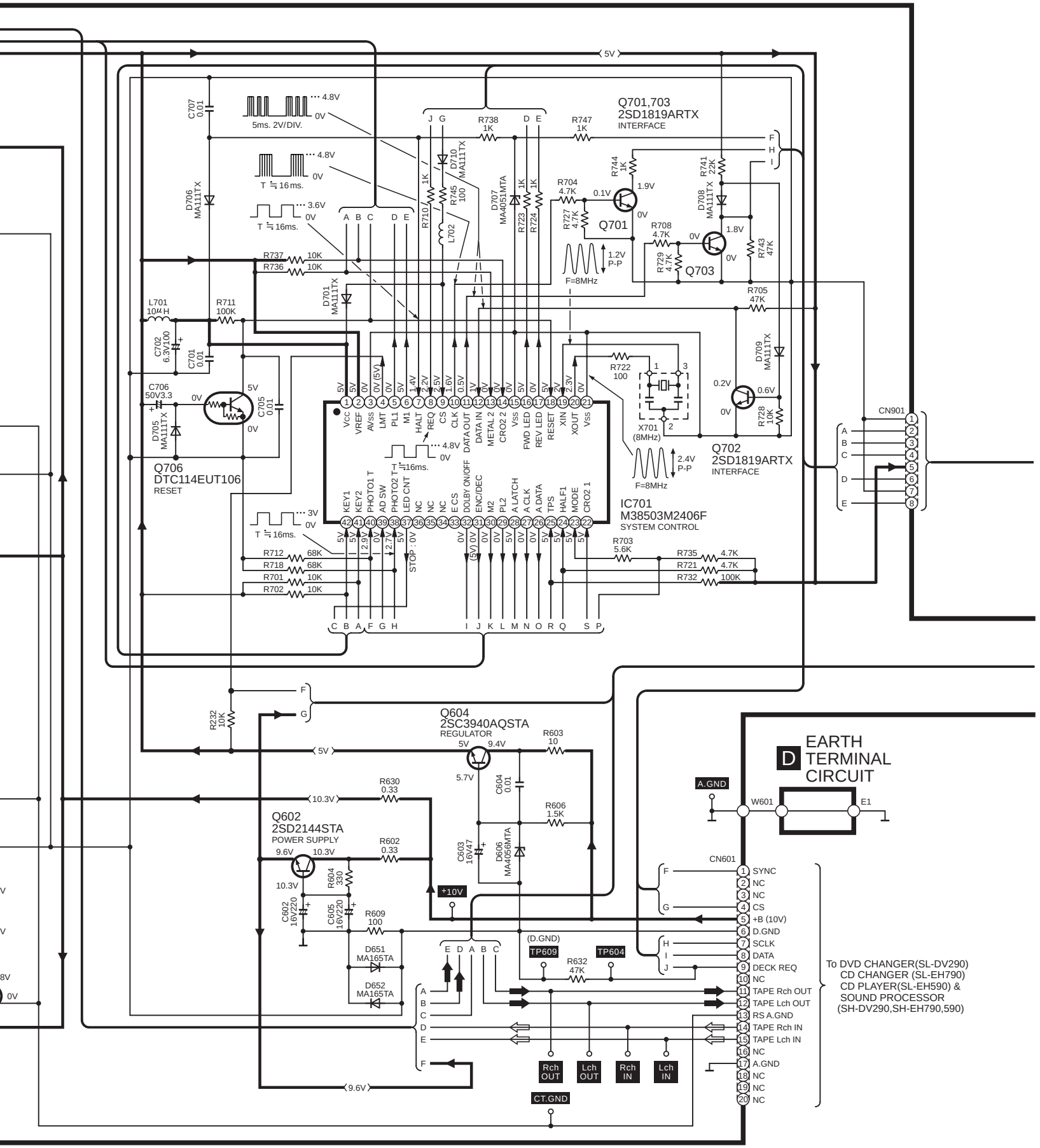

A MAIN CIRCUIT
:POSITIVE VOLTAGE LINE
: RECORDING SIGNAL LINE
: PLAYBACK SIGNAL LINE
DECK1
Lch
PLAYBACK HEAD
Rch
CP101
Q101
2SJ164RTA
HEAD SELECT (REC:ON)
Q103
Q104
Q103,104
2SJ164QTA
HEAD SELECT (PLAY:ON)
Q105,106
2SD1819ARTX
MUTING
Q105
Q106
DECK2
R/P HEAD
CP102
ERASE HEAD
Q102
2SJ164RTA
HEAD SELECT (REC:ON)
IC101
CXA1998BQT6
R/P EQ AMP
RFS
IREF
AGC GAIN
RECEQ
SHIFT REGISTERS
PBEQ CTL
AGC
LATCHES
REQEQ CTL
MUTE
AMS
IC103
BA7755AF
R/P SELECT
TP301
TP302
ERASE CURRENT CHECK POINT
Q302
2SD1328STXRA
SWITCHING (REC:ON)
Q303,304
2SD1450RSTA
BIAS OSC
Q303
Q304
Q306
DTC144EUT106
BIAS OSC CONT.
Q305
DTC144EUT106
BIAS OSC CONT.
Q301
2SD1819ARTX
BIAS OSC CONT.
D301 MA111TX
D102 MA111TX
D101 MA111TX
L301
L302 100μH
9.6V
A
B
C

: PLAYBACK SIGNAL LINE




A MAIN CIRCUIT
:POSITIVE VOLTAGE LINE
: RECORDING SIGNAL LINE
: PLAYBACK SIGNAL LINE
5V
D
L
Q807
2SB621ARSTA
SOLENOID DRIVE
Q809
DTC143EUT106
SOLENOID DRIVE
Q810
DTC143EUT106
SOLENOID DRIVE
Q808
2SB621ARSTA
SOLENOID DRIVE
10.3V
0V
R806 10K
R802 560
R823 560
10.2V
R824 560
R812 560
R811 10K
Q803
2SD592ARSTA
MOTOR DRIVE
Q805
DTA143EUT106
MOTOR DRIVE
9.8V
R814 470
B MECHANISM CIRCUIT (DECK1)
R952 820
D951 MA165TA
SOLENOID
R953 39K
CS951
CP901
IC951
0N2180RLC1
PHOTO INTERRUPTER
S951 (MODE)
S953 (CrO2)
S952 (HALF)
R818 2.2
E
P
S
F
Q
CAPSTAN MOTOR (DECK1)
CP306
M
A
B
R805 3.9K
R803 10K
VR801 5K(B)
TAPE SPEED ADJ.(DECK1)
C MECHANISM CIRCUIT (DECK2)
R972 820
D971 MA165TA
SOLENOID
CS971
CP902
A B H G K
Z971
25K
50K
4.7K
S975 (F.REC.INH.)
S971 (MODE)
S974 (R.REC.INH.)
S972 (HALF)
S976 (METAL)
S973 (CrO2)
IC971
0N2180RLC1
PHOTO INTERRUPTER
R973 39K
Q806
DTA143EUT106
MOTOR DRIVE
R813 470
Q804
2SD592ARSTA
MOTOR DRIVE
0.8V
CAPSTAN MOTOR (DECK2)
CP305
R820 2.2
R810 10K
R808 3.9K
VR803 5K(B)
TAPE SPEED ADJ.(DECK2)

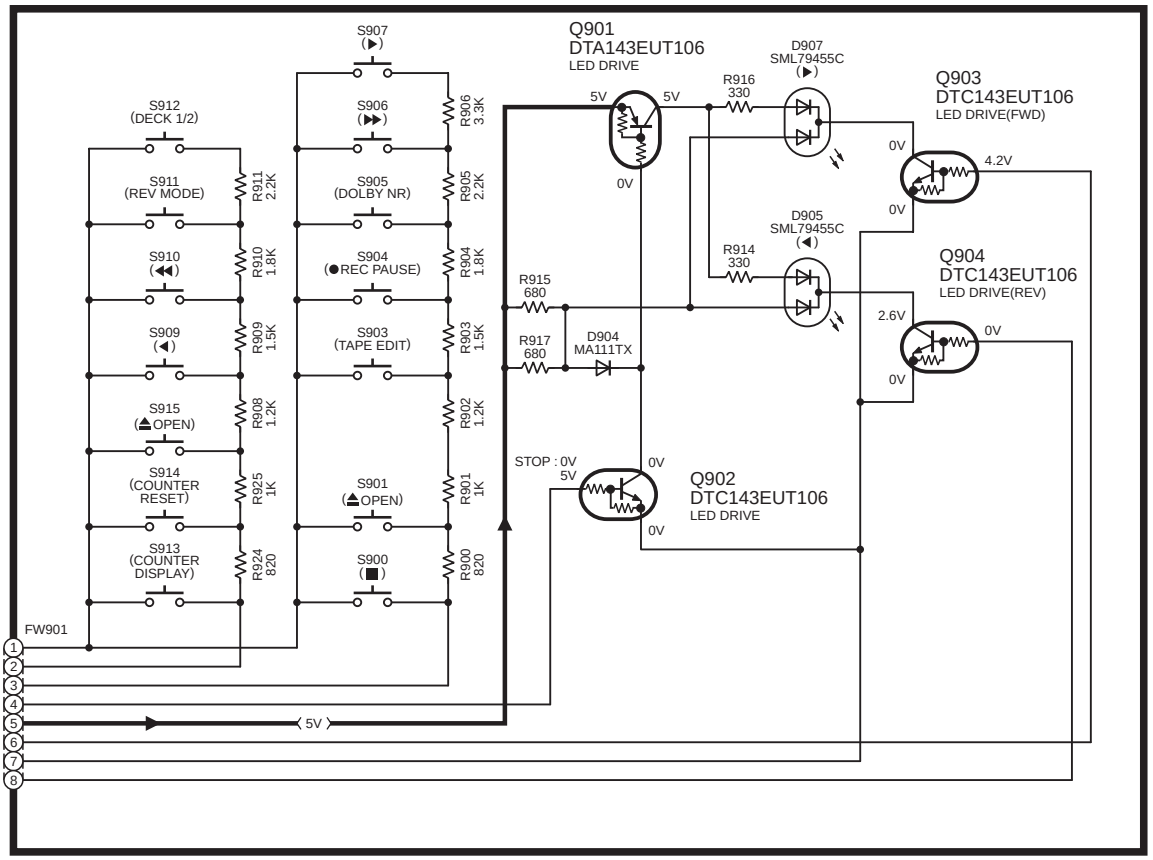
LAYBACK SIGNAL LINE



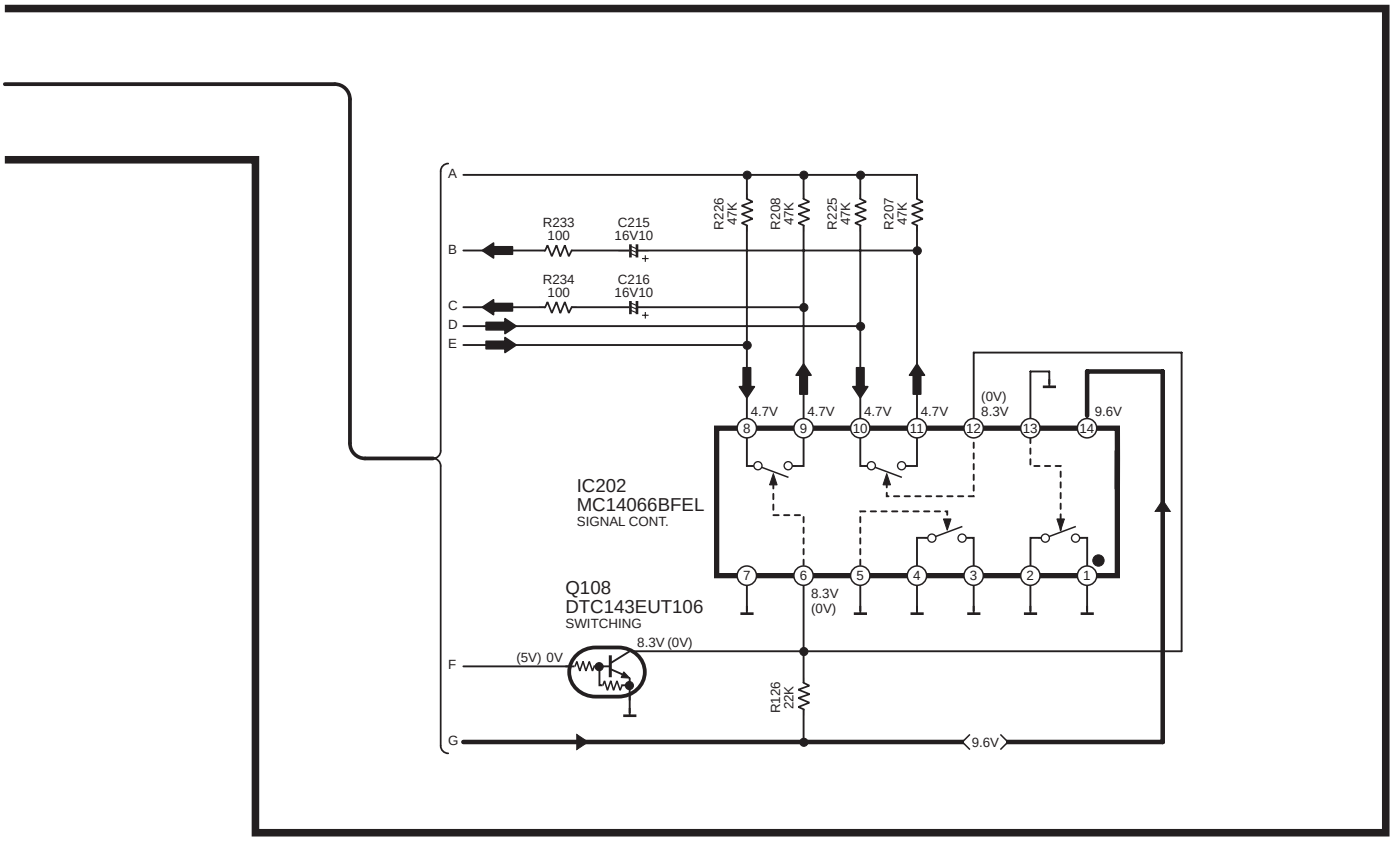
RS-DV290(EG) MAIN,MECHANISM(DECK1,2), EARTH TERMINAL CIRCUIT DIAGRAM

E OPERATION CIRCUIT

:POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE



A MAIN CIRCUIT



H

G

F

E

D

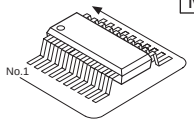
C

B

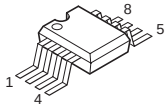
A

30 31 32 33 34 35 36

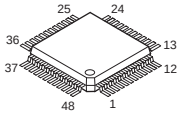
CXA1552M-T4	16PIN
MC14066BFEL	14PIN
M38503M2406F	42PIN



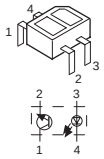
BA7755AF



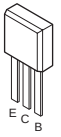
CXA1998BQT6



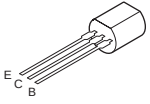
0N2180RLC1

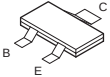


2SD1450RSTA



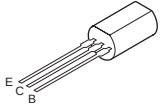
2SB621ARSTA
2SD592ARSTA



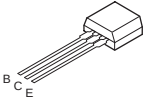


2SD1819ARTX
2SD1328STXRA
DTA143EUT106
DTC114EUT106
DTC143EUT106
DTC144EUT106

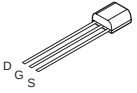
2SC3940AQSTA



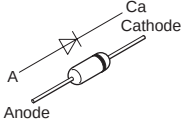
2SD2144STA



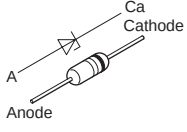
2SJ164QTA
2SJ164RTA



MA165TA



MA4051MTA
MA4056MTA



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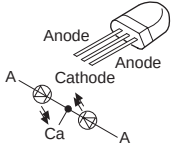
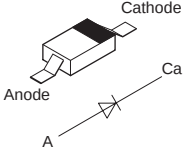
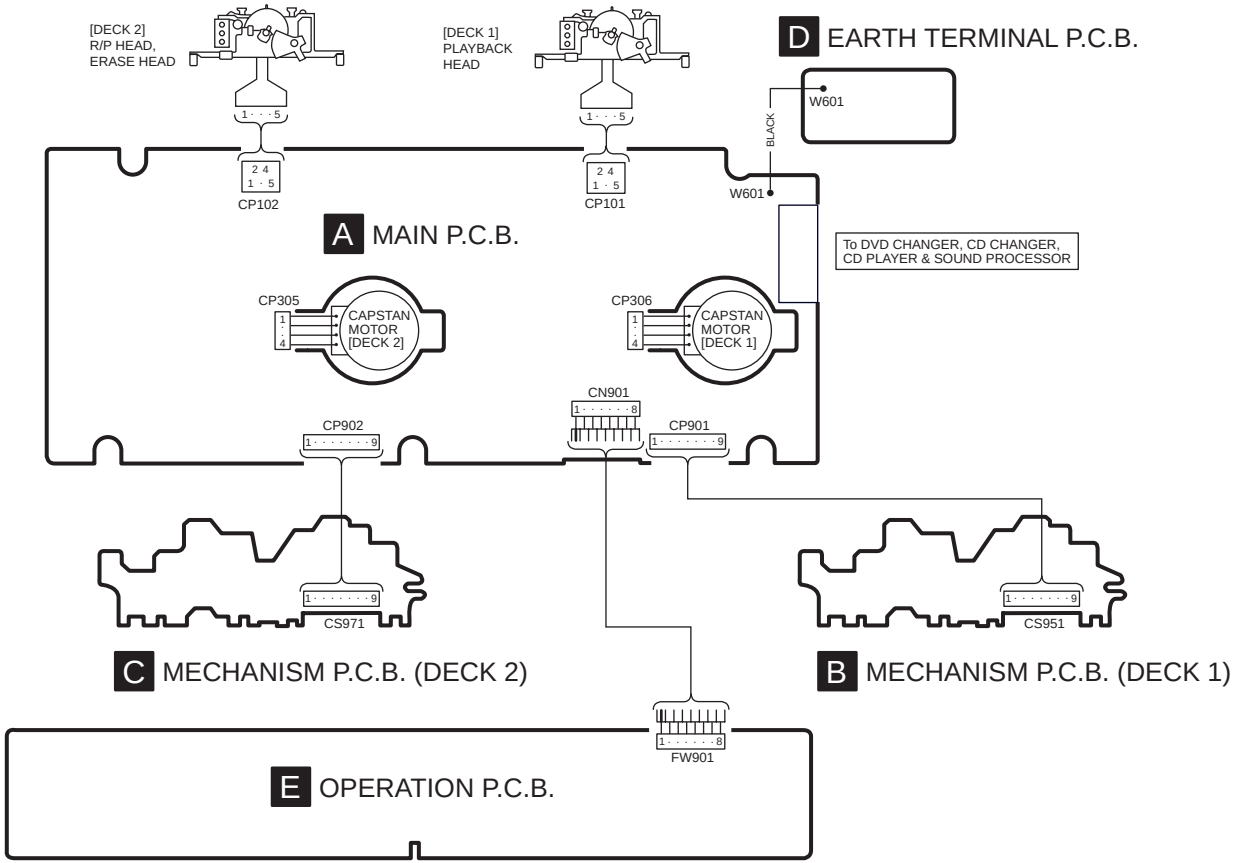
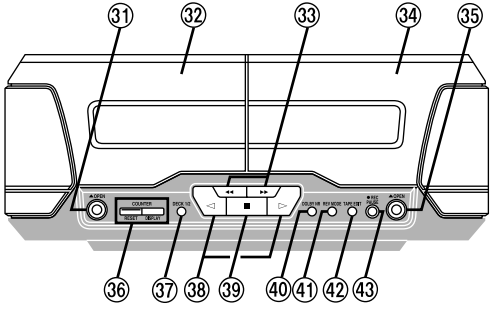


MA111TX




[DECK 2]
R/P HEAD,
ERASE HEAD
[DECK 1]
PLAYBACK
HEAD
D EARTH TERMINAL P.C.B.
W601
BLACK
W601
CP102
CP101
A MAIN P.C.B.
To DVD CHANGER, CD CHANGER,
CD PLAYER & SOUND PROCESSOR
CP305
CAPSTAN
MOTOR
[DECK 2]
CP306
CAPSTAN
MOTOR
[DECK 1]
CN901
CP902
CP901
CS971
CS951
C MECHANISM P.C.B. (DECK 2)
B MECHANISM P.C.B. (DECK 1)
FW901
E OPERATION P.C.B.



㉛ **Deck 1 cassette holder open button (⏏ OPEN)**
㉜ **Deck 1**
㉝ **Fast forward/rewind, TPS buttons (◀◀, ▶▶)**
㉞ **Deck 2**
㉟ **Deck 2 cassette holder open button (⏏ OPEN)**
㊱ **Counter reset, display buttons (COUNTER, RESET, DISPLAY)**
㊲ **Deck 1/deck 2 select button (DECK 1/2)**
㊳ **Playback buttons and indicators (◁, ▷)**
The colour of the indicators depends on the operation taking place.
If stopped, fast forwarding or rewinding: orange
If playing or recording: green
While carrying out TPS or recording is on standby: flashes
㊴ **Stop button (■)**
㊵ **Dolby noise reduction button (DOLBY NR)**
㊶ **Reverse mode button (REV MODE)**
㊷ **Tape edit button (TAPE EDIT)**
㊸ **Record pause button (● REC PAUSE)**

NOTES
- ➡ : PLAYBACK SIGNAL LINE
- ⇨ : RECORDING SIGNAL LINE
- ( ) indicates pin No. Right channel.

MC14066BFEL
IC202
SIGNAL CONT.

CXA1552M-T4
IC201
DOLBY B NR

MC14066BFEL
IC102
DECK 1/2 SELECT

VR102(VR103)
PLAYBACK GAIN ADJ.
(DECK2)

VR104(VR101)
PLAYBACK GAIN ADJ.
(DECK1)

CXA1998BQT6
IC101
R/P EQ AMP

DECK1
PLAYBACK HEAD

DECK2
R/P HEAD

DECK2
ERASE HEAD

BA7755AF
IC103
R/P SELECT

M38503M2406F
IC701
SYSTEM CONTROL

0N2180RLC1
IC951
PHOTO
INTERRUPTER

0N2180RLC1
IC971
PHOTO
INTERRUPTER

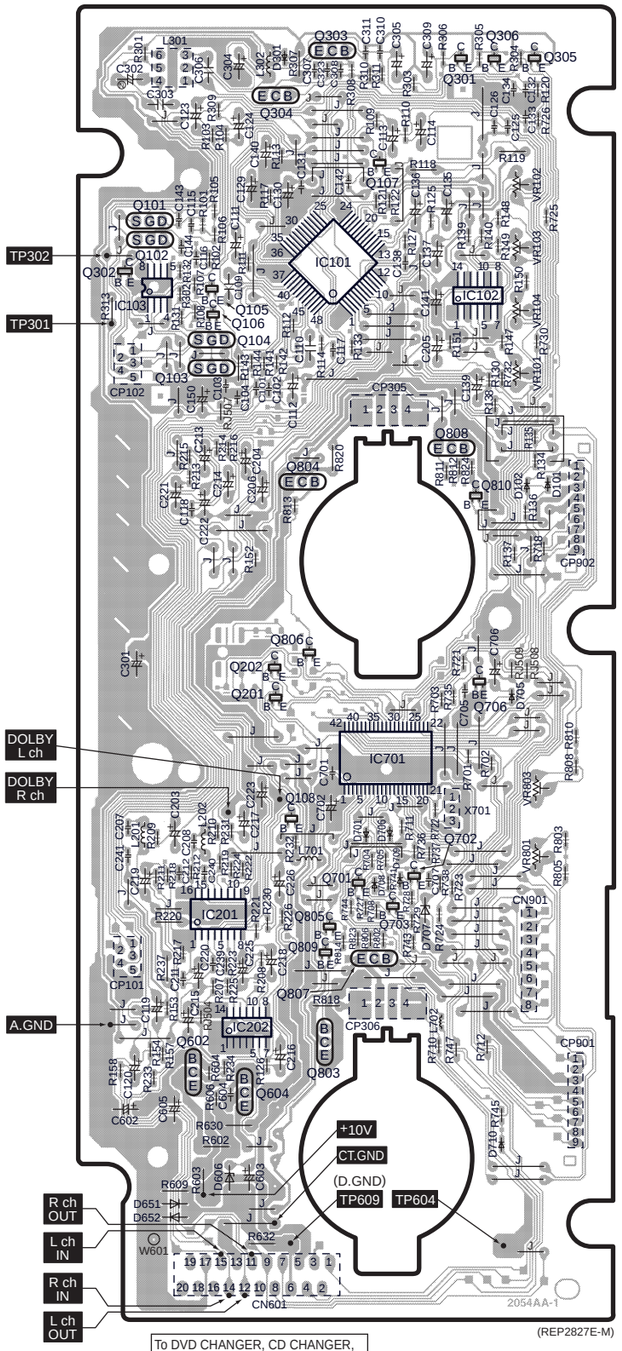
To DVD CHANGER,
CD CHANGER,
CD PLAYER
BLOCK DIAGRAM &
SOUND PROCESSOR
BLOCK DIAGRAM

CN601

RS-DV290(EG) BLOCK DIAGRAM

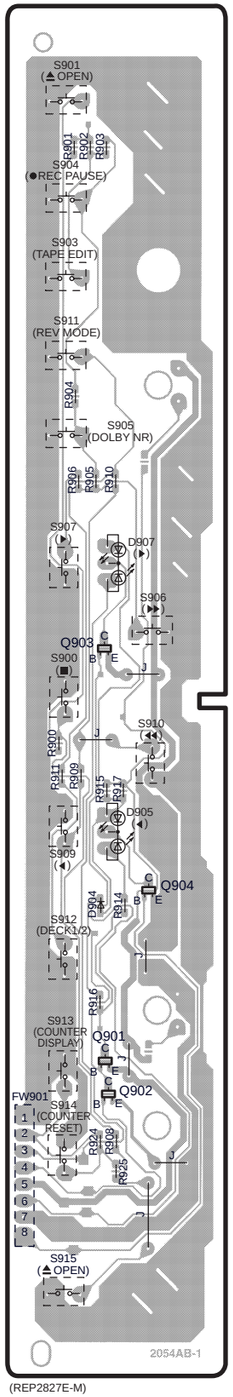
Note: This printed circuit board diagram may be modified at any time with the development of new technology.

A MAIN P.C.B.



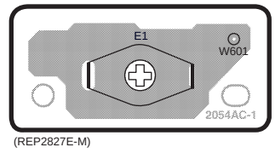
(REP2827E-M)

E OPERATION P.C.B.



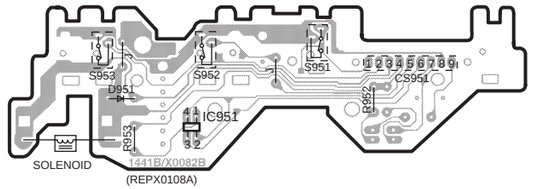
(REP2827E-M)

D EARTH TERMINAL P.C.B.



(REP2827E-M)

B MECHANISM P.C.B. (DECK1)

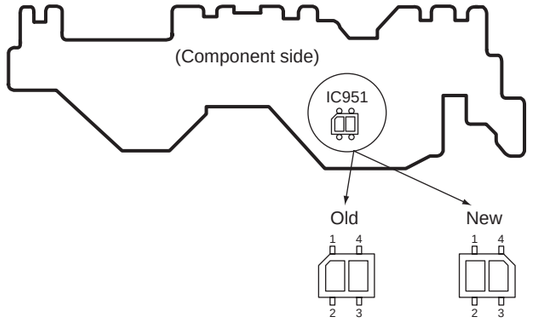


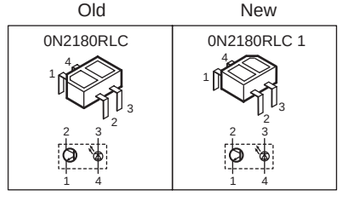
(REPX0108A)

Note for IC951 replacement

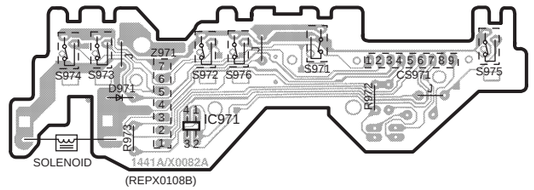
- Two different types (old or new) parts are mounted on P.C.B. as for IC951.
- When servicing, care to replace the parts due to those shape.
- Replacement procedures

	Parts No.	Direction	Remarks
Old	0N2180RLC	Mount the parts on given position. (Printed pattern on P.C.B.)	Refer to the figure below.
New	0N2180RLC1 ≈	For IC951: Mount the parts so the cut corner is located upper right.	





C MECHANISM P.C.B. (DECK2)

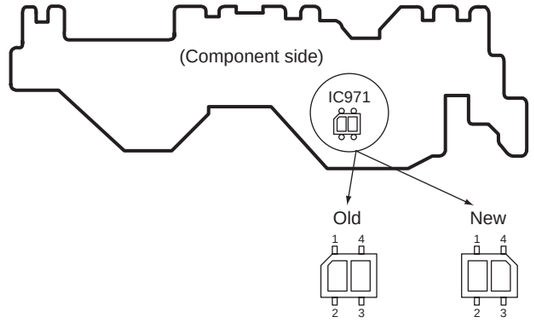


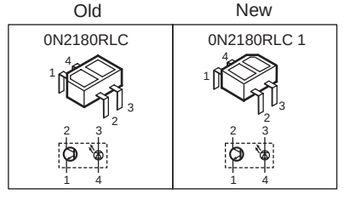
(REPX0108B)

Note for IC971 replacement

- Two different types (old or new) parts are mounted on P.C.B. as for IC971.
- When servicing, care to replace the parts due to those shape.
- Replacement procedures

	Parts No.	Direction	Remarks
Old	0N2180RLC	Mount the parts on given position. (Printed pattern on P.C.B.)	Refer to the figure below.
New	0N2180RLC1 ≈	For IC971: Mount the parts so the cut corner is located upper right.	





A MAIN CIRCUIT

:POSITIVE VOLTAGE LINE ⇨ : RECORDING SIGNAL LINE ➡ : PLAYBACK SIGNAL LINE

DECK1 Lch / PLAYBACK HEAD / Rch — CP101

Q101 2SJ164RTA HEAD SELECT (REC:ON)

Q105 (0.7V) 0V / 0V

Q103 / Q104 (8.9V) 0V

Q103,104 2SJ164QTA HEAD SELECT (PLAY:ON)

Q105,106 2SD1819ARTX MUTING

Q106 0V (0.7V)

DECK2 Lch / R/P HEAD / Rch — CP102

ERASE HEAD

Q102 2SJ164RTA HEAD SELECT (REC:ON)

IC101 CXA1998BQT6 R/P EQ AMP

RFS, IREF, AGC GAIN, RECEQ, SHIFT REGISTERS, LATCHES, PBEQ CTL, AGC, REQEQ CTL, MUTE, AMS

Q107 DTA143EUT106 R/P SELECT

IC201 CXA1552M-T4 DOLBY B NR

DOLBY Lch / DOLBY Rch

ON/OFF, ATT1, ATT2, ATT3, SC, DET, R/P

Q202 DTA143EUT106 R/P SELECT

Q201 DTA143EUT106 DOLBY ON/OFF

IC103 BA7755AF R/P SELECT

IC102 MC14066BFEL DECK 1/2 SELECT

PLAYBACK GAIN ADJ. (DECK1/Lch)

PLAYBACK GAIN ADJ. (DECK2/Lch)

PLAYBACK GAIN ADJ. (DECK1/Rch)

PLAYBACK GAIN ADJ. (DECK2/Rch)

TP301 / TP302 ERASE CURRENT CHECK POINT

Q302 2SD1328STXRA SWITCHING (REC:ON)

Q303,304 2SD1450RSTA BIAS OSC

Q303 / Q304

Q301 2SD1819ARTX BIAS OSC CONT.

Q306 DTC144EUT106 BIAS OSC CONT.

Q305 DTC144EUT106 BIAS OSC CONT.

RS-DV290(EG) MAIN CIRCUIT DIAGRAM

A MAIN CIRCUIT

:POSITIVE VOLTAGE LINE : RECORDING SIGNAL LINE : PLAYBACK SIGNAL LINE

Q807 2SB621ARSTA SOLENOID DRIVE
Q809 DTC143EUT106 SOLENOID DRIVE
Q810 DTC143EUT106 SOLENOID DRIVE
Q808 2SB621ARSTA SOLENOID DRIVE
Q803 2SD592ARSTA MOTOR DRIVE
Q805 DTA143EUT106 MOTOR DRIVE

B MECHANISM CIRCUIT (DECK1)

IC951 0N2180RLC1 PHOTO INTERRUPTER
CAPSTAN MOTOR (DECK1)
TAPE SPEED ADJ.(DECK1)

C MECHANISM CIRCUIT (DECK2)

IC971 0N2180RLC1 PHOTO INTERRUPTER
CAPSTAN MOTOR (DECK2)
TAPE SPEED ADJ.(DECK2)
Q806 DTA143EUT106 MOTOR DRIVE
Q804 2SD592ARSTA MOTOR DRIVE

Q701,703 2SD1819ARTX INTERFACE
Q701
Q703
Q706 DTC114EUT106 RESET
Q702 2SD1819ARTX INTERFACE
IC701 M38503M2406F SYSTEM CONTROL
Q604 2SC3940AQSTA REGULATOR
Q602 2SD2144STA POWER SUPPLY

D EARTH TERMINAL CIRCUIT

CN901
CN601
To DVD CHANGER(SL-DV290)
CD CHANGER (SL-EH790)
CD PLAYER(SL-EH590) &
SOUND PROCESSOR
(SH-DV290,SH-EH790,590)

RS-DV290(EG) MAIN,MECHANISM(DECK1,2), EARTH TERMINAL CIRCUIT DIAGRAM

13 14 15 16 17 18 19 20 21 22 23 24

ORDER NO. AD0305100C8

Service Manual

Tuner/ Amplifier

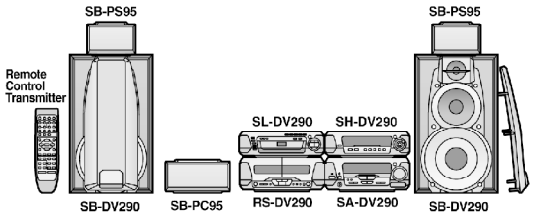
SA-DV290EE / SA-DV290GN

Colour

(S).....Silver Type

System: SC-DV290

Because of unique interconnecting cables, when a compact requires service, send or bring in the entire system.



SPECIFICATIONS

Specification

■ Amplifier section

Power output (L/R both channel driven)		
Stereo Mode		
DIN	1 kHz THD 1%/6 Ω (High)	2×25 W
	100 Hz THD 1%/8 Ω (Low)	2×45 W
RMS	1 kHz THD 10%/6 Ω (High)	2×35 W
	100 Hz THD 10%/8 Ω (Low)	2×65 W
PRO LOGIC mode		
DIN	FRONT	
	1 kHz THD 1%/6 Ω (High)	2×25 W
	100 Hz THD 1%/8 Ω (Low)	2×45 W
	SURROUND 1 kHz THD 1%/8 Ω	2×30 W
	CENTER 1 kHz THD 1%/8 Ω	60 W
RMS	FRONT	
	1 kHz THD 10%/6 Ω (High)	2×35 W
	100 Hz THD 10%/8 Ω (Low)	2×65 W
	SURROUND 1 kHz THD 10%/8 Ω	2×40 W
	CENTER 1 kHz THD 10%/8 Ω	80 W
PMPO 1 kHz/High 6 Ω, Low 8 Ω,		
CENT. 8 Ω, SURR. 8 Ω		3000 W
Total harmonic distortion		
Rated power at 1 kHz		1% (6 Ω)
Half power at 1 kHz		0.1% (6 Ω)
Load impedance		
FRONT (High)		6 Ω
FRONT (Low)		8 Ω
SURROUND		8 Ω
CENTER		8 Ω
DIGITAL S. WOOFER		
Center frequency		60 Hz
LEVEL (VOL -20 db)		MID +3 db
		MAX +6 db

■ FM tuner section

Frequency range	87.50—108.00 MHz
	(0.05 MHz steps)
Sensitivity	1.8 μV (IHF usable)
S/N 26 db	1.5 μV
S/N	
MONO	70 db (75 db, IHF)
Antenna terminal(s)	75 Ω (unbalanced)

■ AM tuner section

Frequency range	522—1629 kHz (9 kHz steps)
	520—1630 (10 kHz steps)
Sensitivity (S/N 20 db)	500 μV/m

■ Timer section

Clock	Quartz-lock type
Function	Play timer (1 time, daily),

Function	Play timer (1 time, daily),
	Rec timer (1 time, daily)
	Sleep (120 min, 30 min intervals)
Setting intervals (Play/Rec)	1 minute—23 hours 59 minutes
	(1 min intervals)

■ General

Power supply	
(For (GN) area)	AC 230—240V 50Hz
(For (EE) area)	AC 230V 50Hz
Power consumption	230 W
Standby	0.5 W
Dimensions (W×H×D)	293×118.5×345 mm
Mass	5.3 kg

Nots
1.Design and specifications are subject to change without notice.
2.Dimensions and weight are approximate.
3.Total harmonic distortion is measured by the digital spectrum analyzer.

■ System/SC-DV290

Sound processor: SH-DV290, DVD/ Video CD/ CD changer: SL-DV290, Tuner/ Amplifier: SA-DV290 , Cassette Deck: RS-DV290, Speakers: Front* (SB-DV290),Center* (SB-PC95),Surround* (SB-PS95) (*Madein MESA.)

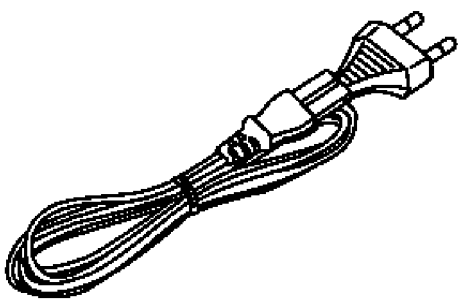
⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

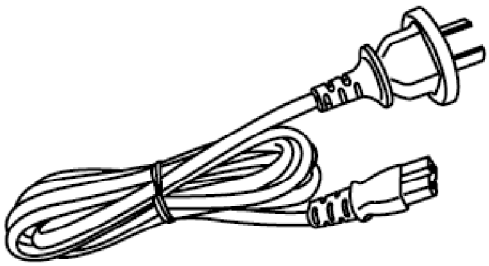
1. Accessories

- AC mains lead for (EE) areas (RJA0019-2X).....1 pc.

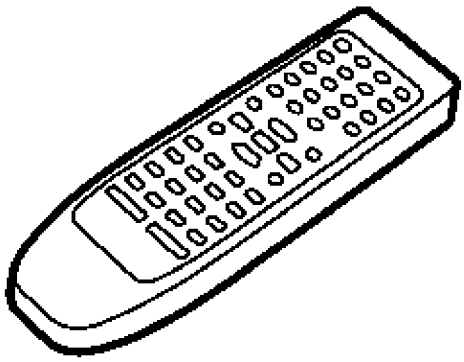


- AC mains lead for (GN) area

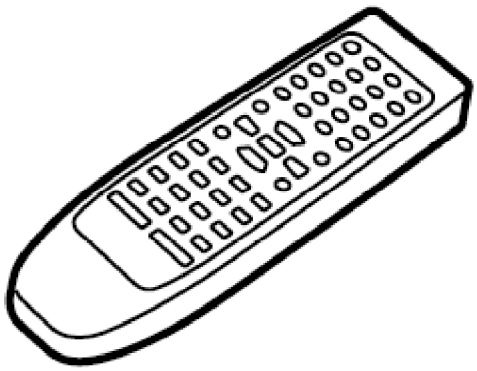
(RJA0035-2X).....1 pc.



- Remote control for (EE) area
  (EUR7702290).....1 pc.

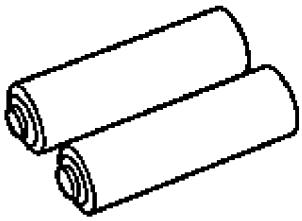


- Remote control for (GN) area
  (EUR7702300).....1 pc.

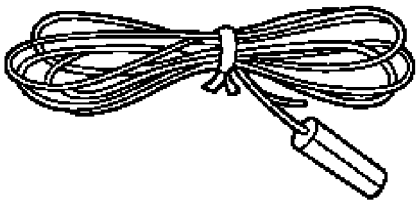


- Remote control batteries
  (R6/LR6,"AA",UM-3).....1 pc.

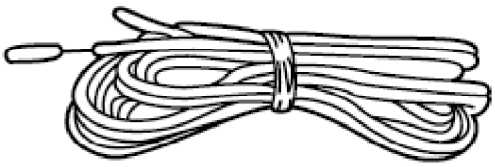
Note: These are available on sales route.



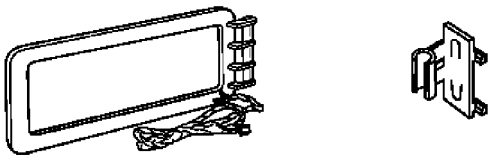
- FM indoor antenna for (EE) area
(N1EAYY000002).....1 pc.



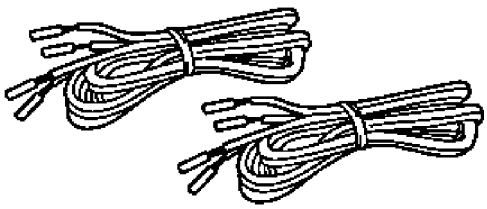
- FM indoor antenna for (GN) area
(N1EAYY000001).....1 pc.



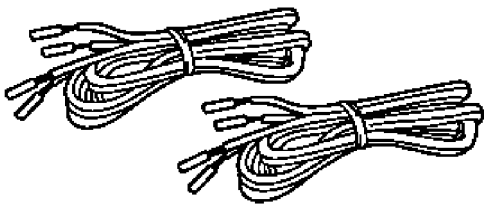
- AM loop antenna set
(N1DAEYA00008).....1 pc.



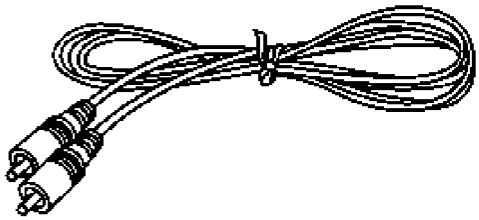
- Speaker leads
(REE1234-1).....2 pc.
(Red/Black)



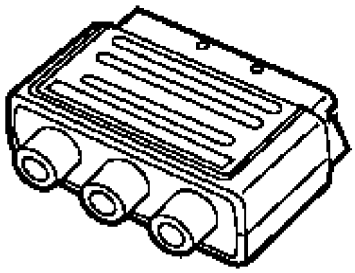
(REE1233-1).....2 pc.
(Gray/Blue)



- Video cord
(K2JA2A000018).....1 pc.



- RCAJ adaptor for (EE) area
(K1JZ24D00002).....1 pc.



2. Before Repair and Adjustment

1. **Turn off the power supply. Using a 10 Ω , 10W resistor, connect both ends of power supply capacitors (C701-704) in order to discharge the voltage.**
2. **Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50 Hz in NO SIGNAL mode should be shown below with respectto supplyvoltage230 V/240 V.**

Areas	(EE)		(GN)	
Power supply voltage	AC 230V		AC 230-240V	
Consumed current	50 Hz	130-380 mA	50 Hz	130-380 mA

3. About the Protection Circuitry

The protection circuitry may have operated if either of the following conditions is noticed:

***No sound is heard when the power is supplied.**
***Sound stops during a performance.**
The functions of this circuitry is to prevent circuitry damage, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedande less than the indicated rated impedance of thisunitareused.
If this occurs, follow the procedure outlined below:

1. Press the STANDBY⏻/ON button, switch to STANDBY mode.

2. Determine the cause of the problem and correct it.

3. Press the STANDBY⏻/ON button once again, supply the power.

Note:

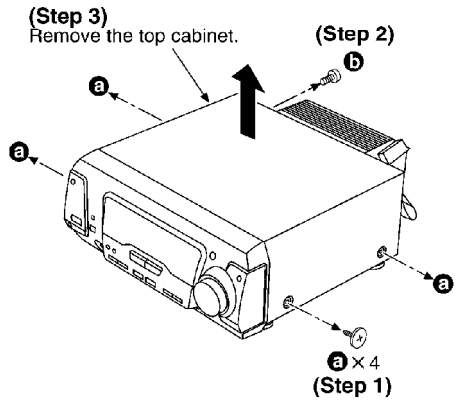
When the protection circuitry functions, the unit will not operate unless the STANDBY⏻/ON button is first switched STANDBY and then ON again.

4. Operating Instructions

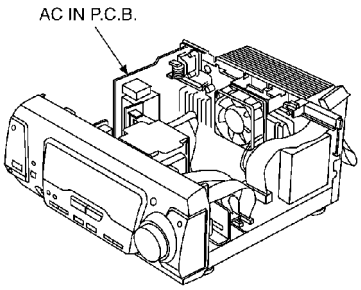
5. Operation Checks and Component Replacement Procedures

- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

5.1. Checking for the AC IN P.C.B.

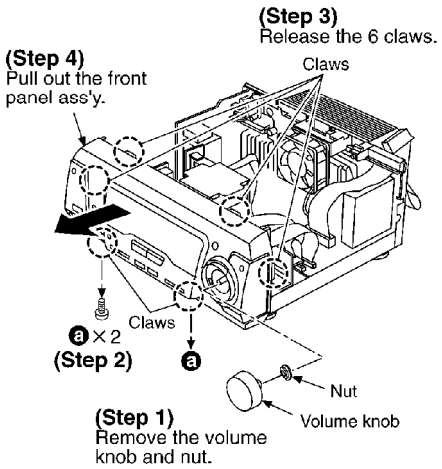


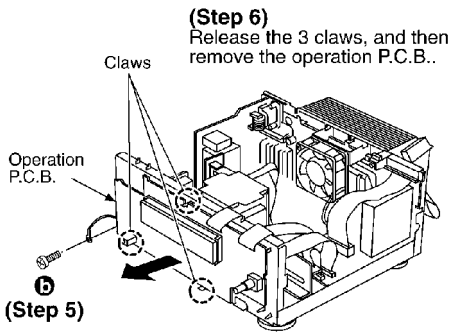
- Check the AC IN P.C.B. as shown below.



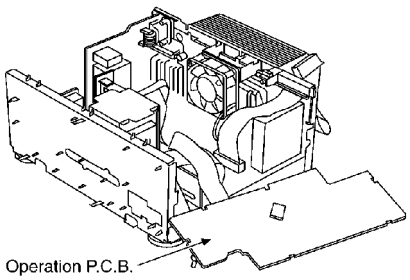
5.2. Checking for the operation P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.



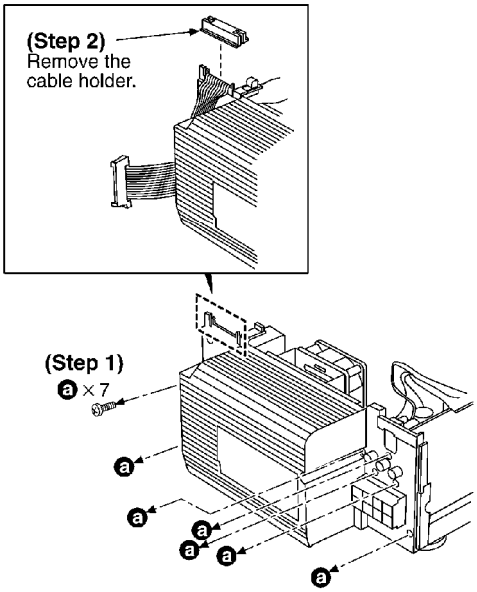


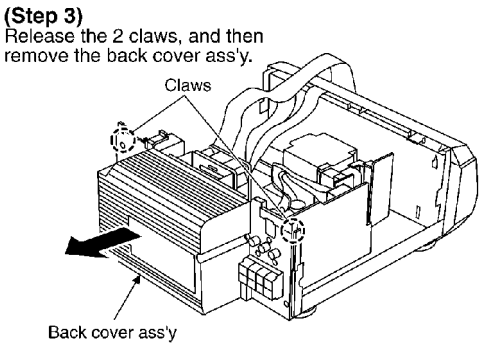
- Check the operation P.C.B. as shown below.

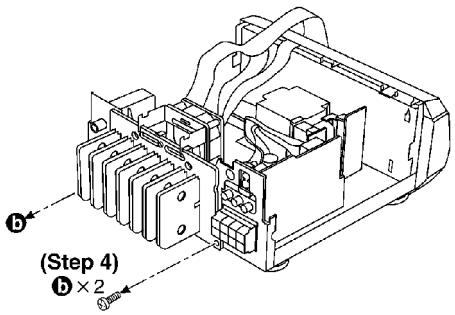


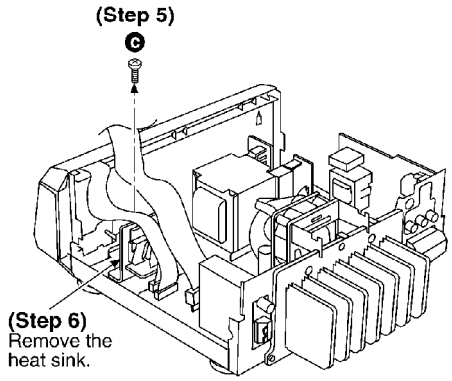
5.3. Checking for the main P.C.B.

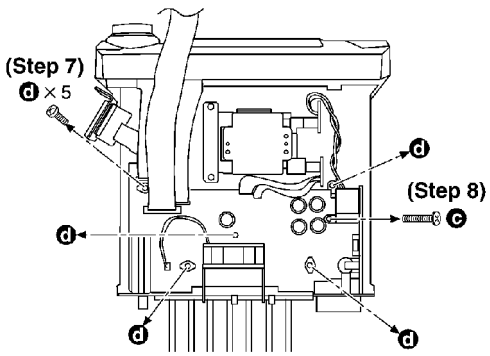
- Follow the (Step 1) - (Step 3) of item 5.1.

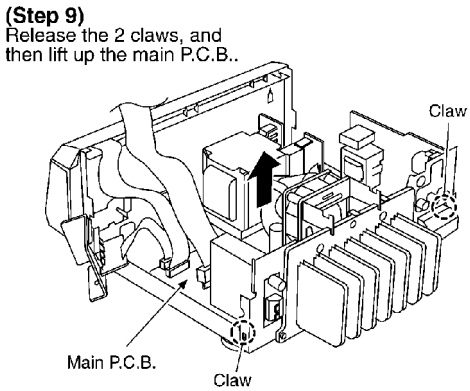




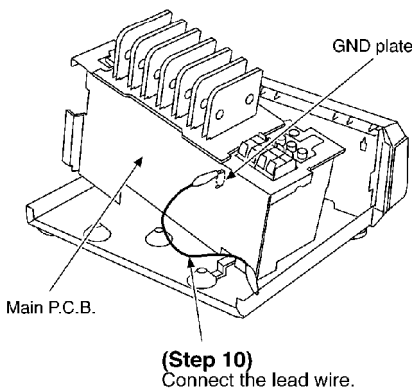






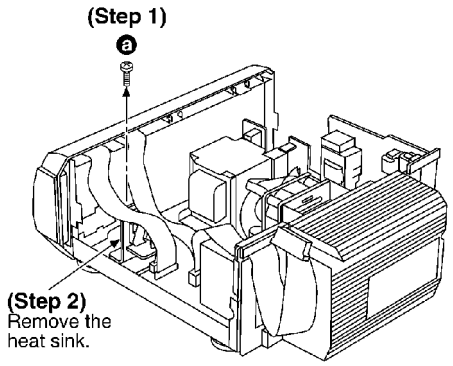


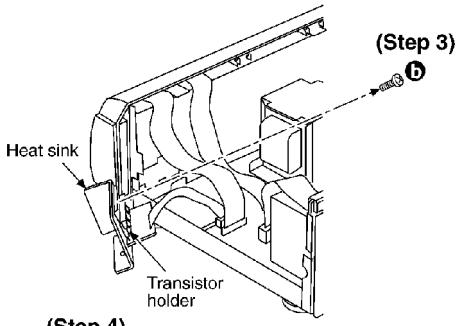
- Check the main P.C.B. as shown below.



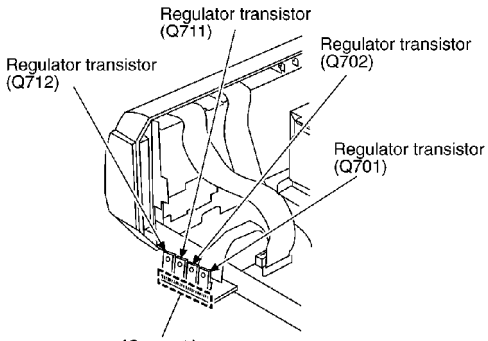
5.4. Replacement for the regulator transistor

- Follow the (Step 1) - (Step 3) of item 5.1.





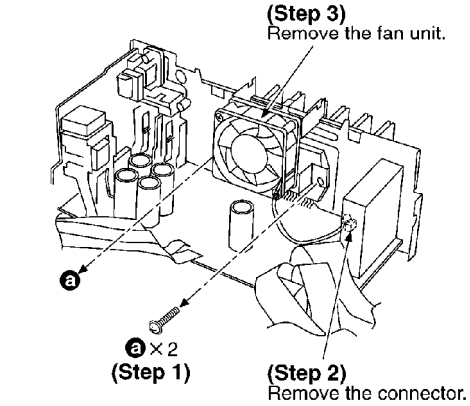
(Step 4)
Remove the heat sink and transistor holder.

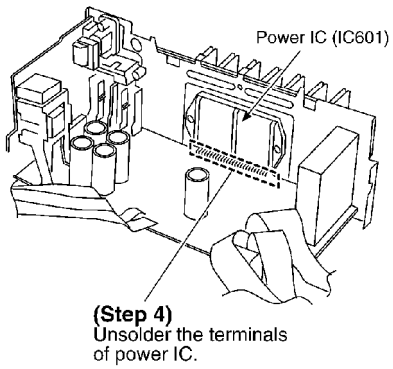


(Step 3)
Unsolder the terminals of
regulator transistors.

5.5. Replacement for the power IC

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 6) of item 5.2.
- Follow the (Step 1) - (Step 10) of item 5.3.





NOTE:
When mounting the power IC apply silicone conpound (RFKX0002) to the rear side of power IC.

6. Self-Diagnostic Function

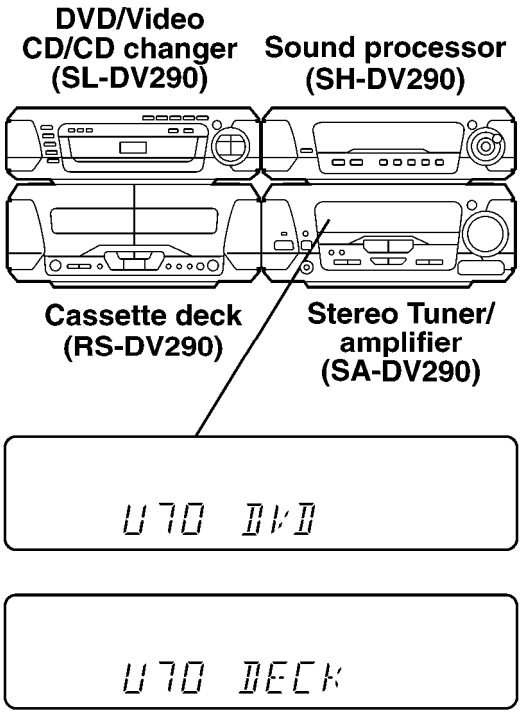
This unit equipped with a self-diagnostic function which, in the event of a malfunction, automatically displays a code indicating the nature of the malfunction.
Use this self-diagnostic function when servicing the unit.

6.1. To display the malfunction code

U70 DVD: **Automatically displays on the**
U70 DECK: **tuner/amplifier when a malfunction occurs. Refer to Fig. 6-1.**

F61: **Automatically displays on the tuner/amplifier when a malfunction occurs. Refer to Fig. 6-1.**

Fig. 6-1



6.2. To return to the normal display

1. For U70 DVD/U70 DECK

- Press an any operation button on the tuner/amplifier.
- To re-display the code, switch the power off (POWER STANDBY button), and then switch power back on again.

2. For F61

- If F61 is displayed, the power will automatically be switched off and the standby indicator will light up.
- F61 will be displayed for 3 seconds, and then the clock will be displayed.
- To re-display the code, switch the power on. F61 will be re-displayed, and then after 3 seconds the clock will be displayed and the power will automatically switch off.

6.3. Display contents

6.3.1. U70 DVD, U70 DECK / (displayed automatically)

- Problem or condition

A bus-line communications error has occurred as a result of the flat cables being inserted incorrectly, thus preventing the system from operating.

- If U70 is displayed on the tuner/amplifier, the Cassette deck or DVD Changer cannot be operated by remote control.
- Correction Procedure

1. To check for correct insertion of the flat cables.

   - Insert each connectors until you hear a click.
   - Insert the flat cables at the back of the unit in the order indicated. Refer to Fig. 6-2.
     Make sure the white side of the cables is on your right side. Refer to Fig. 6-3.

Fig. 6-2.

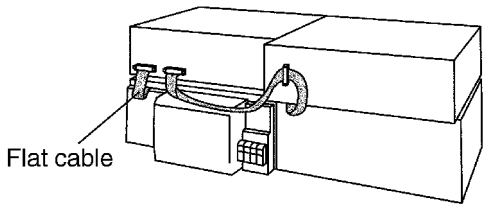
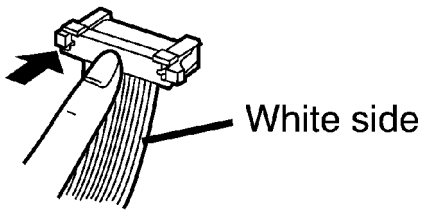


Fig. 6-3.



2. Breakage of the flat cables. (Check and replace.)
3. If the problem is not corrected by items 1 and 2 above, this indicates a faulty IC.
   SA-DV290:
   IC901 (C2BBFD000404)
   SL-DV290:
   IC401 (C2BBFD000402)
   RS-DV290:
   IC701 (M38503M2406F)
   Check these ICs and replace.

6.3.2. F61

- Problem or condition
  When the power switch is switched on, it automatically switches back off, making it impossible to switch power on.

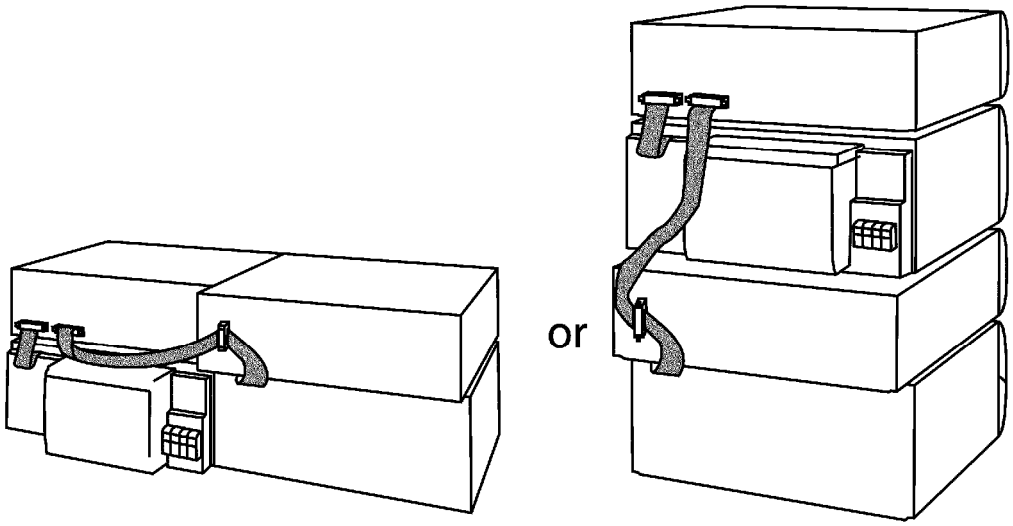
- Correction procedure

Faulty Tuner/Amplifier (SA-DV290) output IC (IC601).
(When a DC voltage is applied to speaker terminals.)

7. To Supply Power Source

This unit SA-DV290 is designed to operate on power supplied form system connected.
For system connection, refer to Fig. 7-1.

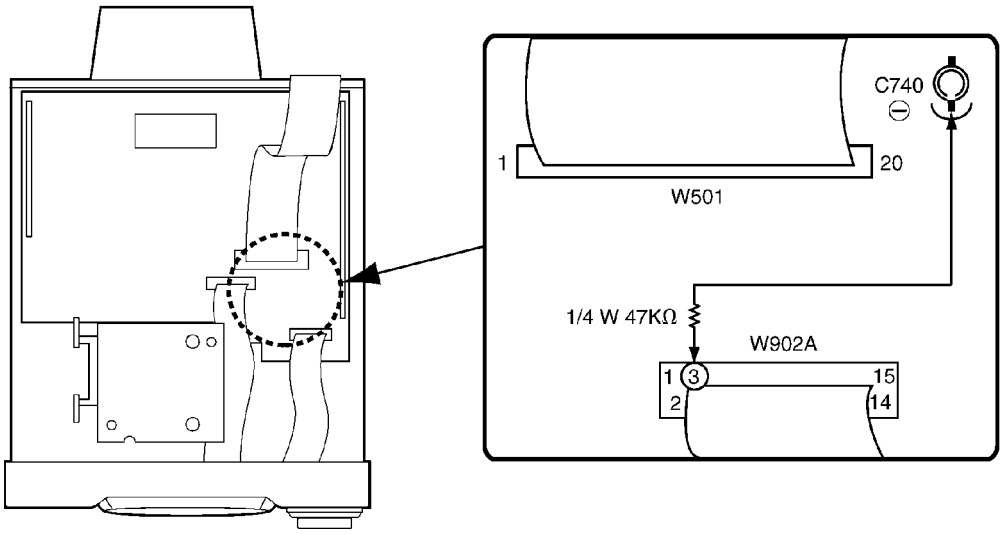
Fig. 7-1.



When the unit SA-DV290 has to test and service alone, use the following method to supply power source.

1. **Short the section between W902A Pin 3 and C740 (-) (GND). (Refer to Fig. 7-2.)**
2. **Connect this unit to an AC power supply cord.**
   (This unit come to stand-by mode.)
3. **Turn the unit ON.**

Fig. 7-2.



Notes:
Use only this method when checking the voltage etc..
In case of checking operations, use the system connections to supply power source.

8. Schematic Diagram Notes

8.1. Type Illustration of IC's, Transistors and Diodes

8.2. Schematic Diagram Notes

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- S901: Power Standby/on (⏻/I) switch.
- S902: Clock/timer (CLOCK/TIMER) switch.
- S903: Demo (-DEMO) switch.
- S904: Play timer/record timer (PLAY/ REC) switch.
- S905: FM mode (FM AUTO/MONO) switch.
- S906: Tuning mode (TUNING MODE) switch.
- S907: Set (SET) switch.
- S908: Source input (INPUT SELECTOR) switch.
- S909: Echo (ECHO) switch. For [GN] area.
- S910: Tuning (TUNING, ∨) switch. For [EE] area.
S910: Tuning (TUNING, ∨, ♭) switch. For [GN] area.
- S911: Tuning (TUNING, ∧) switch. For [EE] area.
S911: Tuning (TUNING, ∧, #) switch. For [GN] area.
- S912: Tuner/band (TUNER/BAND) switch.

- S913: Digital super woofer (DIGITAL S. WOOFER) switch.
- S914, 915: RDS display mode (RDS, PS-DISP, MODE-PTY) switches.
  For [EE] area.
  S914, 915: KARAOKE, Voice mute (KARAOKE, V.MUTE) switch.
  For [GN] area.
- S916: Key control (KEY CON) switch. For [GN] area.
- S917: MIC effect (MIC EFFECT, LOUNGE) switch. For [GN] area.
- S918: MIC effect (MIC EFFECT, CHORUS) switch. For [GN] area.
- VR901: Main volume V.R..
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance)with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internalimpedanceofthe DC circuit tester.
  No mark: Power ON
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
  When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

Caution!

- Secondary trouble can be prevented by taking care during repair.
- IC and LSI are sensitive to static electricity.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.
- Voltage and signal lines
  : Positive voltage line
  : Negative voltage line
  : Audio signal line
  : Tuner signal line
  : MIC signal line

9. Schematic Diagram

10. Printed Circuit Board Diagram

11. Block Diagram

12. Wiring Connection Diagram

13. Terminal Function of ICs

13.1. IC901 (C2BBFD000404): System Control/FL Drive

Pin No.	Terminal Name	I/O	Function
1	CHECK	I	Clock check signal input
2	LC72 DO	O	PLL data signal output for tuner unit (Z101)
3	LC72 CE	O	Chip enable signal output for tuner unit (Z101)
4	LC72 DI/ ST	I	IF count data/stereo detect signal input from tuner unit (Z101)
5	LC72 CK	O	Clock signal output for tuner unit (Z101)
6	ST/ AV.6CH	O	Signal select output
7	NC	—	Not used, open
8			
9	SEL TUNER	—	Not used, open
10	SEL/ TUNER	—	Not used, connected to GND
11	AC IN	I	Power failure detect signal input
12	RESET	I	Reset signal input
13	X IN	I	Oscillator connected terminal (32.7kHz)
14	X OUT	O	
15	V_{SS}	—	GND terminal
16	XC IN	I	Oscillator connected terminal (6 MHz)
17	XC OUT	O	
18	V_{DD} 1	I	Power supply terminal
19	KEY TU	I	Operation key signal input
20	KEY KARAOKE	I	Operation key signal input

Pin No.	Terminal Name	I/O	Function
21	SH REQ	O	Request signal output to Sound Processor
22	NC(GND)	—	Not used, connected to GND
23	VR JOGB	I	Volume control signal input
24	VR JOGA		
25	MIC DET	I	Microphone connecting detect signal input (Not used, connected to V_{DD})
26	HP SW	I	Headphone connecting detect signal input
27	RDS CLK	I	RDS clock signal input
28	RDS DATA	I	RDS data signal input
29	REMOCON	I	Remote control signal input
30-37	8G-1G	O	Grid signal output
38-45	P1-P8	O	Segment signal output
46	V_{DD} 3	I	Power supply terminal
47-50	P9-P12	O	Segment signal output
51	-VP	I	Power supply terminal (Negative)
52-71	P13-P32	O	Segment signal output
72	V_{DD} 4	I	Power supply terminal
73-78	P33-P38	O	Segment signal output
79	REGIN0	—	Not used, connected to GND
80	REGIN1		
81	STANDBY	O	LED (STANDBY) drive signal output
82	TIMER	O	LED (TIMER) drive signal output
83	S.W.LED	O	LED (DIGITAL S.WOOFER) drive signal output
84	LOUNGE	—	LED (LOUNGE) drive signal output (Not used, connected to GND)

Pin No.	Terminal Name	I/O	Function
85	CHORUS	—	LED (CHORUS) drive signal output (Not used, connected to V_{DD})
86	MUTE	O	Muting signal output
87	NC	—	Not used, oppen
88	POWER	O	Power control signal output
89	V_{SS} 2	—	GND terminal
90	V_{DD} 2	I	Power supply terminal
91	MUTE2	O	Muting signal output
92	NC	—	Not used, open
93	MUTE3	O	Muting signal output
94	SH CS	I/O	Chip select signal for Sound Processor
95	SH DO	O	Serial communication signal to Sound Processor (Data signal output)
96	SH DI	I	Serial communication signal to Sound Proccessor (Data signal input)
97	SH CK	I	Serial communication signal to Sound Processor (Clock signal input)
98	E DET	I	Unusual condition detect signal input
99	CR TIMER	—	Not used, open
100	SD	I	Station detector signal input from tuner unit (Z101)

14. Replacement Parts List

Notes:

*** Important safety notice:**

Components identified by ⚠ mark have special characteristics important for safety. / Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. / Whenreplaciganyof components, be sure to use only manufacture's specified parts shown in the parts list.

*** The parenthesized indications in the Remarks columns specify the areas. / Parts without these indications can be used for all areas.**

*** Remote Control Ass'y: Supply period for three years from terminal of production.**
*** Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF), F=Farads (F)**
*** Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM), 1M=1,000K (OHM)**
***The markings (RTL) indicate that the retention time is limited for these items. After the discontinuation of these assemblies in production, it will no longer be available.**
***All parts are supplied by SPC.**

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RGN2398-K	NAME PLATE	1	(EE)
1	RGN2399-K	NAME PLATE	1	(GN)
2	RMQ1018	GASKET	1	
3	REM0115	FAN UNIT	1	
4	REX0967	SYSTEM CONNECT.ASS'Y(20P)	1	
5	J0KD00000028	FERRITE CORE	1	
6	RGW0386-S	KNOB,VOLUME	1	
7	RHN90001	NUT	1	
8	RKA0106-N	FOOT RING	4	
9	RKF0606AD-K1	BACK COVER	1	(EE)
9	RKF0606AE-K1	BACK COVER	1	(GN)
10	RKW0581-1V	FL WINDOW	1	
11	RMF0284	CUSHION	1	(GN)
12	RMN0427A	CABLE HOLDER	1	
13	RYP1168-S	FRONT PANEL ASS'Y	1	(EE)
13	RYP1168A-S	FRONT PANEL ASS'Y	1	(GN)
13-1	RGB0025-A	TECHNICS BADGE	1	
13-2	RGU1748-Q	BUTTON,MIC EFFECT	1	(GN)
14	SHG1654	RUBBER	4	
15	XTB3+10JFZ	SCREW	12	
16	XTB3+20JFZ	SCREW	1	
17	XTB3+8JFZ	SCREW	12	
18	XTW3+15T	SCREW	2	
19	XTB3+12FFZ	SCREW	1	
20	XTBS3+8JFZ1	SCREW	2	
21	RHD30007-1S	SCREW	4	
22	RKM0395G-2S	TOP CABINET	1	
23	XTBS3+10JFZ1	SCREW	1	
24	RAN0005EM-2	TUNER PACK(Z101)	1	(EE)
24	ENG06502Q	TUNER PACK(Z101)	1	(GN)
25	RMN0526	FL HOLDER	1	
26	RMN0744	FAN SUPPORTER	1	
27	RMN0745	FAN SUPPORTER	1	
28	REZ1300	WIRE ASS'Y	1	
29	REZ1205	WIRE ASS'Y	1	(GN)
30	RGW0178-1S	KNOB,MIC VOL	1	(GN)
31	XTB3+8JFZ	SCREW	1	(GN)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	EUR7702290	REMOTE CONTROL	1	(EE)
A1	EUR7702300	REMOTE CONTROL	1	(GN)
A1-1	UR64EC2337E	BATTERY COVER	1	
A2	K2JA2A000018	VIDEO CORD	1	
A3	REE1233-1	SPEAKER LEADS(GRAY/BLUE)	1	
A4	REE1234-1	SPEAKER LEADS(RED/BLACK)	1	
A5	RJA0019-2X	AC MAINS LEAD	1	(EE) ⚠
A5	RJA0035-2X	AC MAINS LEAD	1	(GN) ⚠
A7	RQCA0801	QUICK SET-UP GUIDE	1	
A8	RQT6895-R	O/I BOOK	1	(EE) Russian
A9	RQT6894-B	O/I BOOK	1	English
A10	N1EAYY000002	FM INDOOR ANTENNA	1	(EE)
A10	N1EAYY000001	FM INDOOR ANTENNA	1	(GN)
A11	N1DAEYA00008	AM LOOP ANTENNA	1	
A13	K1JZ24D00002	RCAJ ADAPTOR	1	(EE)
C151	ECA1CAK100XB	16V 10U	1	(EE)
C152	ECBT1H331KB3	50V 330P	1	(EE)
C153	ECBT1H102KB3	50V 1000P	1	(EE)
C154	ECBT1H561KB3	50V 560P	1	(EE)
C155	ECBT1H102KB3	50V 1000P	1	(EE)
C156,57	ECBT1H470J3	50V 47P	2	(EE)
C158,59	ECEA0JKS470	6.3V 47U	2	(EE)
C160	ECBT1H102KB3	50V 1000P	1	(EE)
C201,02	F1D1H1040002	50V 0.1U	2	
C371	ECA0JAK101XB	6.3V 100U	1	
C395,96	F1D1H473A012	50V 0.047U	2	
C401	ECBT1H223KB5	50V 0.022U	1	F1D1H223A012 (GN)
C403	ECBT1C472KR5	16V 4700P	1	F1D1C472A010 (GN)
C404	RCE1HKA3R3BG	50V 3.3U	1	F2A1H3R3A015 (GN)
C405	ECBT1H102KB3	50V 1000P	1	(GN)
C406	ECEA1EKS4R7	25V 4.7U	1	(GN)
C407	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001 (GN)
C408	ECBT1H223KB5	50V 0.022U	1	F1D1H223A012 (GN)
C409	ECEA1HKS010	50V 1U	1	(GN)
C410	F2A1C100A034	16V 10U	1	(GN)
C411	ECBA1H101KB3	50V 100P	1	(GN)
C412	ECBT1H102KB3	50V 1000P	1	(GN)
C413	ECEA1HKS010	50V 1U	1	(GN)
C414	ECA1CAM471XB	16V 470U	1	(GN)
C415	ECEA1HKS010	50V 1U	1	(GN)
C416	ECA1CAK100XB	16V 10U	1	(GN)
C417	ECBT1H223KB5	50V 0.022U	1	F1D1H223A012 (GN)
C421	F1D1H1040002	50V 0.1U	1	(GN)
C509,10	ECBT1H103KB5	50V 0.01U	2	F1E1H1030001
C550	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C551	ECA1HAK2R2XB	50V 2.2U	1	
C552	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C554	ECA1CAM221XB	16V 220U	1	
C555	ECEA1HSN010	50V 1U	1	
C556	ECEA1CKN100	16V 10U	1	
C559	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C601,02	ECA1CAK100XB	16V 10U	2	
C603,04	ECBT1H471KB3	50V 470P	2	
C605,06	ECBT1H102KB3	50V 1000P	2	
C607,08	ECBT1H471KB3	50V 470P	2	
C609,10	ECBT1H560J3	50V 56P	2	
C611	F1D1H390A006	50V 39P	1	
C612	ECBT1H150JC3	50V 15P	1	
C613,14	ECBT1H470J3	50V 47P	2	
C616	ECEA1HKNR47B	50V 0.47U	1	
C617,18	ECKR2H103ZU	500V 0.01U	2	
C619-21	F1D1H1040002	50V 0.1U	3	
C622	F2A1A1010020	10V 100U	1	
C624-31	F1D1H1040002	50V 0.1U	8	
C632	F1D1H473A012	50V 0.047U	1	
C633,34	F1D1H1040002	50V 0.1U	2	
C635-37	F1D1H473A012	50V 0.047U	3	
C639-44	ECBT1H102KB3	50V 1000P	6	
C645,46	F1D1H473A012	50V 0.047U	2	
C647-50	ECBT1H102KB3	50V 1000P	4	
C651	F1D1H473A012	50V 0.047U	1	
C652	ECBT1H102KB3	50V 1000P	1	
C655,56	ECA1CAK100XB	16V 10U	2	
C659,60	ECA1CAK100XB	16V 10U	2	
C664	ECA1CAK100XB	16V 10U	1	
C701-04	ECA1VM472E	35V 4700U	4	
C705	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C706	RCE1VKA100BG	35V 10U	1	F2A1V1000011
C707,08	F1D1H473A012	50V 0.047U	2	
C709	ECQV1H104JM3	50V 0.1U	1	
C710	F1D1H473A012	50V 0.047U	1	
C714	ECBT1H102KB3	50V 1000P	1	
C715	ECA1EAM682XE	25V 6800U	1	
C717	ECA1CAK330XB	16V 33U	1	
C718	ECA1EAM101XB	25V 100U	1	
C719,20	F1D1H473A012	50V 0.047U	2	
C721	F2A1A1010020	10V 100U	1	
C722	ECA1EAM101XB	25V 100U	1	
C723,24	F1D1H473A012	50V 0.047U	2	
C725	ECA1CAK470XB	16V 47U	1	
C731	ECBT1H102KB3	50V 1000P	1	
C732	ECBT1H223KB5	50V 0.022U	1	F1D1H223A012
C733	F1D1H473A012	50V 0.047U	1	
C734	RCE1HKA3R3BG	50V 3.3U	1	F2A1H3R3A015
C735	F1D1H473A012	50V 0.047U	1	
C737	ECA1HAM101XB	50V 100U	1	
C740	ECA1CAK100XB	16V 10U	1	
C741	ECQE1104KF3	100V 0.1U	1	
C753	F1B1H1030001	50V 0.01U	1	
C754	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C755	ECA1CAM102X	16V 1000U	1	
C758	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C759	RCE1AKA470BG	10V 47U	1	F2A1A470A011
C761	ECQE1104KF3	100V 0.1U	1	
C791	ECKWRS102MBC	250V 1000P	1	⚠

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C901	EEAFC0J101B	6.3V 100U	1	
C902	F2A1A102A018	10V 1000U	1	
C903,04	ECBT1H103KB5	50V 0.01U	2	F1E1H1030001
C905	ECBT1H102KB3	50V 1000P	1	
C907,08	ECBT1H471KB3	50V 470P	2	
C909	ECBT1H102KB3	50V 1000P	1	
C910	ECBT1H200JC5	50V 20P	1	F1D1H200A015
C911	F1D1H180A006	50V 18P	1	
C912	F1D1H1040002	50V 0.1U	1	
C914	ECA1HAK2R2XB	50V 2.2U	1	
C915	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C916	EEAFC0J101B	6.3V 100U	1	
C917	ECBT1H103KB5	50V 0.01U	1	F1E1H1030001
C918	ECA0JAK101XB	6.3V 100U	1	
C919,20	ECA1EAK220XB	25V 22U	2	
C921	ECBT1H102KB3	50V 1000P	1	
C922	ECA1VAK330XB	35V 33U	1	
C923,24	F1D1H1040002	50V 0.1U	2	
C925,26	ECBT1H102KB3	50V 1000P	2	
C927,28	ECA1EAK220XB	25V 22U	2	
C931	ECEA1CKN100	16V 10U	1	
CN601	RJU057W012	CONNECTOR(12P)	1	K1KB12B00033
CN602	RJU057W008	CONNECTOR(8P)	1	K1KB08B00034
CN701-13	RJS1A1101T1	CONNECTOR(1P)	13	
CN781	RJS10T5ZA	CONNECTOT(10P)	1	K1MP10A00007
CN904	RJS4T5ZA	CONNECTOR(4P)	1	K1MP04A00007 (GN)
CP101	K1KA11A00093	CONNECTOR(11P)	1	
CP601	RJT057W012-1	CONNECTOR(12P)	1	K1KA12A00160
CP602	RJT057W008-1	CONNECTOR(8P)	1	K1KA08A00187
D151	MA4051M	DIODE	1	MAZ40510M (EE)
D201	MAZ40560MF	DIODE	1	
D306	SELS5223C	LED	1	B3AAA0000486
D500	MA165TA5	DIODE	1	MA2C16500E
D551,52	MA165TA5	DIODE	2	MA2C16500E
D553	MA700	DIODE	1	MA2C700
D554	MA165TA5	DIODE	1	MA2C16500E
D555	MA4100M	DIODE	1	MAZ41000MF
D558	MA165TA5	DIODE	1	MA2C16500E
D581-83	B0AAMM000009	DIODE	3	
D601,02	SB360L6508	DIODE	2	B0JAPG000014
D607	1SS291TA	DIODE	1	
D611	MA4051M	DIODE	1	MAZ40510M
D657-59	MA165TA5	DIODE	3	MA2C16500E
D701-04	1N5402BF	DIODE	4	
D705	B0AAMM000009	DIODE	1	
D711	B0AAMM000009	DIODE	1	
D718	B0JANG000008	DIODE	1	
D720	B0JANG000008	DIODE	1	
D721	MA4300M	DIODE	1	MAZ43000M
D723	MA4150-M	DIODE	1	MAZ41500M
D725	MA4082LTA	DIODE	1	MAZ40820LF

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D730	MA4091H	DIODE	1	MAZ40910H
D737	MA4082LTA	DIODE	1	MAZ40820LF
D738-40	MA165TA5	DIODE	3	MA2C16500E
D741-44	B0AAMM000009	DIODE	4	
D745	MA4051M	DIODE	1	MAZ40510M
D746	B0AAMM000009	DIODE	1	
D747	MA4068L	DIODE	1	MAZ40680L
D751,52	1N5402BF	DIODE	2	
D753-55	B0AAMM000009	DIODE	3	
D756,57	MA700	DIODE	2	MA2C700
D758	MA165TA5	DIODE	1	MA2C16500E
D761	B0AAMM000009	DIODE	1	
D901,02	1SS291TA	DIODE	2	
D904	MA165TA5	DIODE	1	MA2C16500E
D905	1SS291TA	DIODE	1	
D906,07	MA165TA5	DIODE	2	MA2C16500E
D931	MA165TA5	DIODE	1	MA2C16500E
D933	MA165TA5	DIODE	1	MA2C16500E (EE)
D935	MA165TA5	DIODE	1	MA2C16500E (GN)
D951	LNJ301MPUJAD	LED	1	
D952,53	LNJ301MPUJAD	LED	2	(GN)
D954	SELS5923C	LED	1	B3ADA0000083
D961	MA4075M	DIODE	1	MAZ40750M
D973	MA4030M	DIODE	1	MAZ40300M
D974	MA165TA5	DIODE	1	MA2C16500E
F1	K5D202BL0001	FUSE	1	⚠
FL901	A2BB00000115	FL DISPLAY TUBE	1	
FP791,92	K5G502AA0002	FUSE PROTECTOR	2	⚠
IC151	C1BB00000527	IC	1	(EE)
IC201	C0JBAR000292	IC	1	
IC401	C1BA00000152	IC	1	(GN)
IC601	RSN311W64B	IC	1	
IC901	C2BBFD000404	IC	1	
JK551	K1KA02A00008	CONNECTOR(2P)	1	
JK601,02	K4BC04B00028	JACK,SPEAKERS	2	
JK603	K2HA103B0015	JACK,SPEAKERS	1	
JK701	K2AA2B000002	JACK,AC INLET	1	⚠
JK901,02	RJJ65MA01	JACK,MIC	2	K2HB102J0032 (GN)
JK903	RJJ37TN02-C	JACK,HEADPHONES	1	K2HC103A0009
L151,52	ELEXT101KA9	COIL	2	(EE)
L153	G0C1R0JA0019	COIL	1	(EE)
L401	RLQA3R3JT1-Y	COIL	1	G0C3R3JA0019 (GN)
L601-06	RLQYR73MW1-0	COIL	6	G0ZZ00001606
L701	ELF15N035AN	COIL	1	⚠
L901	G0C100JA0019	COIL	1	
L902	G0C1R0JA0019	COIL	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
P1	RPG4396	PACKING CASE(SA)	1	
P1	RPG4397	PACKING CASE(RS)	1	
P1	RPG4398	PACKING CASE(SH)	1	
P1	RPG4399	PACKING CASE(SL)	1	
P2	RPN1194	POLYFOAM(SA)	1	
P2	RPN1195-2	POLYFOAM(RS)	1	
P2	RPN1196	POLYFOAM(SH)	1	
P2	RPN1197	POLYFOAM(SL)	1	
P3	SPP740-1	PROTECTION COVER	4	
P4	RPF0139-1	PROTECTION BAG(ACCESS.)	1	
P5	RPG6349	PACKING CASE(SYSTEM)	1	(EE)
P5	RPG6350	PACKING CASE(SYSTEM)	1	(GN)
P6	RPQ0951	PAD	1	
PCB1	REP3337K-M	MAIN P.C.B. ASS'Y	1	[RTL](EE)
PCB1	REP3337L-M	MAIN P.C.B. ASS'Y	1	[RTL](GN)
PCB2	REP3338A-S	SUB P.C.B. ASS'Y	1	[RTL](EE)
PCB2	REP3338B-S	SUB P.C.B. ASS'Y	1	[RTL](GN)
Q401	2SC5398RSTA	TRANSISTOR	1	B1AACF000059 (GN)
Q503	2SC5398RSTA	TRANSISTOR	1	B1AACF000059
Q551	2SA1995RSTA	TRANSISTOR	1	B1ACDF000006
Q553	B1AAGC000006	TRANSISTOR	1	
Q554	2SA1995RSTA	TRANSISTOR	1	B1ACDF000006
Q555	B1AAGC000006	TRANSISTOR	1	
Q556	2SC5398RSTA	TRANSISTOR	1	B1AACF000059
Q557	2SA1995RSTA	TRANSISTOR	1	B1ACDF000006
Q601,02	2SC5398RSTA	TRANSISTOR	2	B1AACF000059
Q605-10	B1AAGC000006	TRANSISTOR	6	
Q612	UN411FTA	TRANSISTOR	1	UNR411F00A
Q701	2SD2374PQAU	TRANSISTOR	1	2SD23740J1AU
Q702	2SB1548PQAU	TRANSISTOR	1	2SB15480J1AU
Q703,04	2SD2137PQTA	TRANSISTOR	2	2SD21370PA
Q705	2SA1995RSTA	TRANSISTOR	1	B1ACDF000006
Q707	2SB14170JA	TRANSISTOR	1	
Q708	UN4211	TRANSISTOR	1	UNR4211
Q709	B1AAGC000006	TRANSISTOR	1	
Q711,12	2SB1548PQAU	TRANSISTOR	2	2SB15480J1AU
Q723	2SC3940AQSTA	TRANSISTOR	1	2SC3940ARA
Q725	2SC5398RSTA	TRANSISTOR	1	B1AACF000059
Q726	2SC3940AQSTA	TRANSISTOR	1	2SC3940ARA
Q791	B1AAGC000006	TRANSISTOR	1	
Q901	UN4212	TRANSISTOR	1	UNR4212
Q902	UN411FTA	TRANSISTOR	1	UNR411F00A
R151,52	ERDS2FJ102	1/4W 1K	2	(EE)
R153,54	ERDS2FJ104	1/4W 100K	2	(EE)
R155	ERDS2FJ121	1/4W 120	1	(EE)
R157,58	ERDS2FJ102	1/4W 1K	2	(EE)
R202-05	ERDS2FJ104	1/4W 100K	4	
R211	ERDS2FJ271	1/4W 270	1	
R229,30	ERDS2FJ102	1/4W 1K	2	
R401,02	ERDS2FJ681	1/4W 680	2	(GN)
R403	ERDS2FJ223	1/4W 22K	1	(GN)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R404	ERDS2FJ471	1/4W 470	1	(GN)
R405	ERDS2FJ472	1/4W 4.7K	1	(GN)
R406	ERDS2FJ474	1/4W 470K	1	(GN)
R407	ERDS2FJ472	1/4W 4.7K	1	(GN)
R409	ERDS2FJ472	1/4W 4.7K	1	(GN)
R410	ERDS2FJ222	1/4W 2.2K	1	(GN)
R411	ERDS2FJ331	1/4W 330	1	(GN)
R412	ERDS2TJ105	1/4W 1M	1	(GN)
R415	ERDS2FJ471	1/4W 470	1	(GN)
R416	ERDS2FJ331	1/4W 330	1	(GN)
R421	ERDS2FJ223	1/4W 22K	1	(GN)
R509-12	ERDS2FJ470	1/4W 47	4	
R544	ERDS2FJ103	1/4W 10K	1	
R546,47	ERDS2TJ183	1/4W 18K	2	
R551	ERDS2TJ183	1/4W 18K	1	
R552	ERDS2FJ473	1/4W 47K	1	
R555	ERDS2FJ223	1/4W 22K	1	
R556	ERDS2FJ104	1/4W 100K	1	
R557	ERDS2FJ103	1/4W 10K	1	
R558	ERDS2FJ222	1/4W 2.2K	1	
R559	ERDS2FJ472	1/4W 4.7K	1	
R560,61	ERDS2FJ104	1/4W 100K	2	
R563,64	ERDS2TJ272T	1/4W 2.7K	2	
R566	ERDS2FJ683	1/4W 68K	1	
R567	ERG1SJ220	1W 22	1	
R568	ERDS2FJ101	1/4W 100	1	
R569	ERDS2FJ103	1/4W 10K	1	
R570	ERDS2TJ225	1/4W 2.2M	1	
R572	ERDS2FJ153	1/4W 15K	1	
R591	ERDS2FJ472	1/4W 4.7K	1	
R597,98	ERDS2FJ222	1/4W 2.2K	2	
R601-04	ERDS2FJ332	1/4W 3.3K	4	
R605,06	ERDS2FJ472	1/4W 4.7K	2	
R607-09	ERDS2FJ563	1/4W 56K	3	
R610	ERDS2FJ154	1/4W 150K	1	
R611,12	ERDS2FJ563	1/4W 56K	2	
R614,15	ERDS2FJ472	1/4W 4.7K	2	
R617,18	ERDS2FJ472	1/4W 4.7K	2	
R619,20	ERDS2TJ124	1/4W 120K	2	
R621	ERDS2FJ154	1/4W 150K	1	
R622,23	ERDS2TJ124	1/4W 120K	2	
R624	ERDS2FJ154	1/4W 150K	1	
R627	ERDS2FJ474	1/4W 470K	1	
R628	ERDS2FJ223	1/4W 22K	1	
R631,32	ERDS2TJ392	1/4W 3.9K	2	
R635	ERDS2FJ222	1/4W 2.2K	1	
R637	ERDS2FJ153	1/4W 15K	1	
R638	ERDS2FJ683	1/4W 68K	1	
R639,40	ERDS1FJ100	1/2W 10	2	
R641,42	ERDS2FJ100	1/4W 10	2	
R643,44	ERDS1FJ100	1/2W 10	2	
R645,46	ERDS2FJ100	1/4W 10	2	
R647	ERDS2FJ271	1/4W 270	1	
R648	ERD2FCG121	1/4W 120	1	

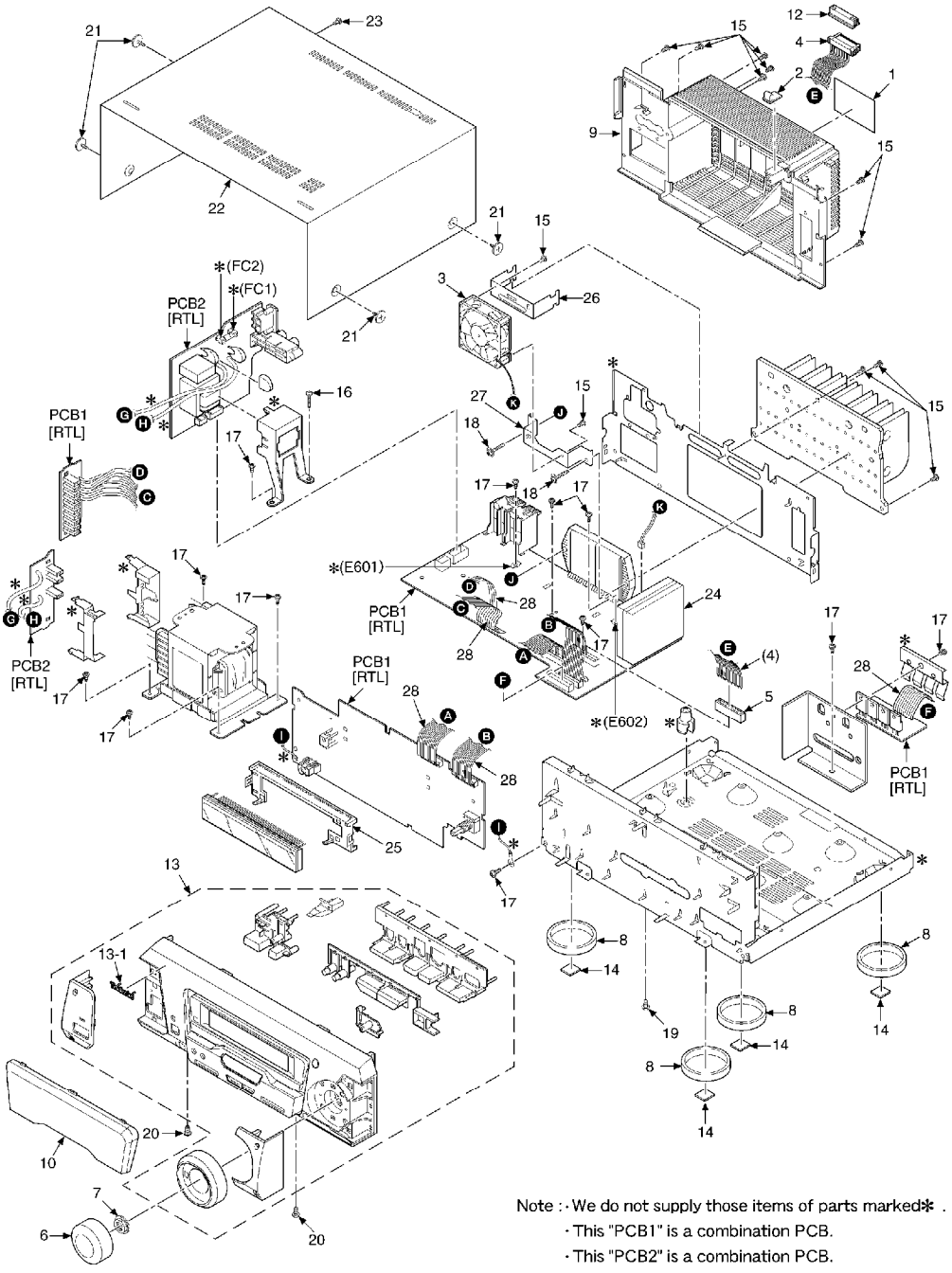
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R649-52	ERDS1FJ100	1/2W 10	4	
R683-86	ERDS2FJ102	1/4W 1K	4	
R687,88	ERDS2FJ152	1/4W 1.5K	2	
R691	ERDS1FJ680	1/2W 68	1	
R692,93	ERDS2FJ102	1/4W 1K	2	
R694	ERDS2FJ223	1/4W 22K	1	
R695	ERDS2FJ471	1/4W 470	1	
R696	ERDS2FJ473	1/4W 47K	1	
R708	ERDS2FJ472	1/4W 4.7K	1	
R712	ERDS2FJ222	1/4W 2.2K	1	
R719	ERDS2FJ332	1/4W 3.3K	1	
R720	ERDS2TJ392	1/4W 3.9K	1	
R721	ERD2FCJ4R7	1/4W 4.7	1	
R722	ERQ16NKW2R2E	1/6W 2.2	1	
R723	ERDS2FJ562	1/4W 5.6K	1	
R724	ERDS2TJ392	1/4W 3.9K	1	
R725	ERDS2FJ100	1/4W 10	1	
R727	ERDS2TJ392	1/4W 3.9K	1	
R729	ERDS2FJ221	1/4W 220	1	
R738	ERDS2TJ392	1/4W 3.9K	1	
R739	ERDS2FJ473	1/4W 47K	1	
R749	ERDS2FJ102	1/4W 1K	1	
R753,54	ERX1SJR47	1W 0.47	2	
R761	ERG1SJ221	1/2W 220	1	
R763	ERDS2FJ472	1/4W 4.7K	1	
R764	ERDS2FJ331	1/4W 330	1	
R765	ERDS1FJ471	1/2W 470	1	
R767	ERG1SJ270	1W 27	1	
R768	ERDS2FJ101	1/4W 100	1	
R769	ERG1SJ270	1W 27	1	
R771	ERDS2FJ222	1/4W 2.2K	1	
R772	ERDS2FJ223	1/4W 22K	1	
R773,74	ERDS1FJ180	1/2W 18	2	
R776	ERDS2FJ103	1/4W 10K	1	
R777	ERDS2FJ102	1/4W 1K	1	
R793	ERDS2TJ1R0	1/4W 1.0	1	(EE)
R794	ERDS2FJ473	1/4W 47K	1	
R794A	ERQ16NKW1R0E	1/6W 1	1	(GN)
R795	ERDS2TJ392	1/4W 3.9K	1	
R796,97	ERDS2FJ2R2	1/4W 2.2	2	
R798	ERQ16NKW2R2E	1/6W 2.2	1	
R901	ERDS2FJ821	1/4W 820	1	
R902	ERDS2FJ102	1/4W 1K	1	
R903	ERDS2FJ122	1/4W 1.2K	1	
R904	ERDS2FJ152	1/4W 1.5K	1	
R905	ERDS2FJ182	1/4W 1.8K	1	
R906	ERDS2FJ222	1/4W 2.2K	1	
R907	ERDS2FJ332	1/4W 3.3K	1	
R908	ERDS2FJ472	1/4W 4.7K	1	(GN)
R909	ERDS2FJ182	1/4W 1.8K	1	
R910	ERDS2FJ222	1/4W 2.2K	1	
R911	ERDS2FJ332	1/4W 3.3K	1	
R912	ERDS2FJ472	1/4W 4.7K	1	
R913	ERDS2FJ821	1/4W 820	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R914	ERDS2FJ102	1/4W 1K	1	
R915	ERDS2FJ122	1/4W 1.2K	1	
R916	ERDS2FJ152	1/4W 1.5K	1	
R918	ERDS2FJ103	1/4W 10K	1	
R919	ERDS2FJ153	1/4W 15K	1	
R921,22	ERDS2FJ103	1/4W 10K	2	
R924,25	ERDS2FJ102	1/4W 1K	2	
R926	ERDS2FJ222	1/4W 2.2K	1	
R928	ERDS2FJ473	1/4W 47K	1	
R929-32	ERDS2FJ102	1/4W 1K	4	
R934-36	ERDS2FJ101	1/4W 100	3	
R937	ERDS2FJ103	1/4W 10K	1	
R939	ERDS2FJ152	1/4W 1.5K	1	
R940,41	ERDS2FJ102	1/4W 1K	2	
R942	ERDS2FJ222	1/4W 2.2K	1	
R943	ERDS2FJ101	1/4W 100	1	
R944	ERDS2FJ222	1/4W 2.2K	1	
R945	ERDS2FJ101	1/4W 100	1	
R946	ERDS2FJ102	1/4W 1K	1	
R947,48	ERDS2FJ104	1/4W 100K	2	(GN)
R949	ERDS2FJ472	1/4W 4.7K	1	
R950	ERDS2FJ101	1/4W 100	1	
R951	ERDS2FJ334	1/4W 330K	1	
R952	ERDS2TJ106T	1/4W 10M	1	
R953	ERDS2FJ101	1/4W 100	1	
R954	ERDS2FJ104	1/4W 100K	1	
R956-58	ERDS2FJ102	1/4W 1K	3	
R959	ERDS2FJ470	1/4W 47	1	
R960	ERDS2FJ152	1/4W 1.5K	1	
R961,62	ERDS2FJ223	1/4W 22K	2	
R965,66	ERDS2TJ392	1/4W 3.9K	2	
R969	ERDS2TJ272T	1/4W 2.7K	1	
R974	ERDS2FJ102	1/4W 1K	1	
R975	ERDS2FJ223	1/4W 22K	1	
R976	ERDS2FJ104	1/4W 100K	1	
R986	ERDS2FJ152	1/4W 1.5K	1	
R987,88	ERDS2FJ102	1/4W 1K	2	
R990	ERDS2FJ104	1/4W 100K	1	
R991	ERDS2FJ473	1/4W 47K	1	
R992	ERDS2FJ221	1/4W 220	1	(GN)
R993,94	ERDS2FJ104	1/4W 100K	2	
R995	ERDS2FJ221	1/4W 220	1	
R996,97	ERDS2FJ151	1/4W 150	2	
R998	ERDS2FJ221	1/4W 220	1	(GN)
R999	ERDS2FJ104	1/4W 100K	1	
RL702	K6B1AEA00003	RELAY	1	⚠
S901-08	EVQ11G05R	SW,OPERATION	8	
S909	EVQ11G05R	SW,OPERATION	1	(GN)
S910-15	EVQ11G05R	SW,OPERATION	6	
S916-18	EVQ11G05R	SW,OPERATION	3	(GN)

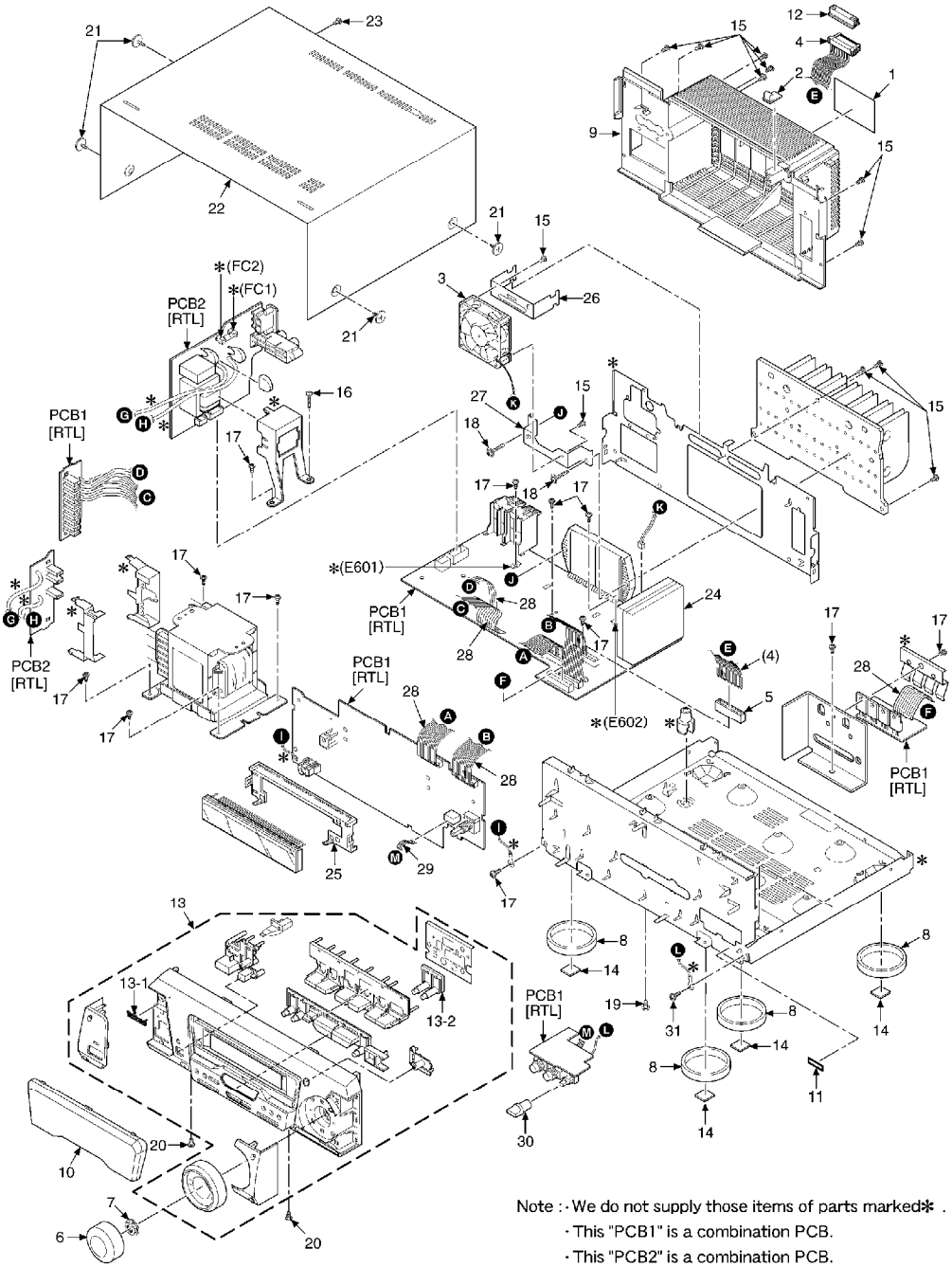
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
T701	ETP76VST617A	POWER TRANSFORMER	1	⚠
T702	ETP28KBZ21BG	POWER TRANSFORMER	1	⚠
VR401	EVUE27FK3B53	V.R.,MIC VOLUME	1	(GN)
VR901	EVQVBXFK124B	V.R.,VOLUME	1	
X151	H0H433400001	OSCILLATOR	1	(EE)
X901	EF0EC6004T4	OSCILLATOR	1	EFOEC6004T4
X902	H0A327200027	OSCILLATOR	1	
Z701	ENC471D5A	ZNR	1	J0LG00000008 ⚠
Z901	B3RAD0000028	REMOTE SENSOR	1	

15. Cabinet Parts Location

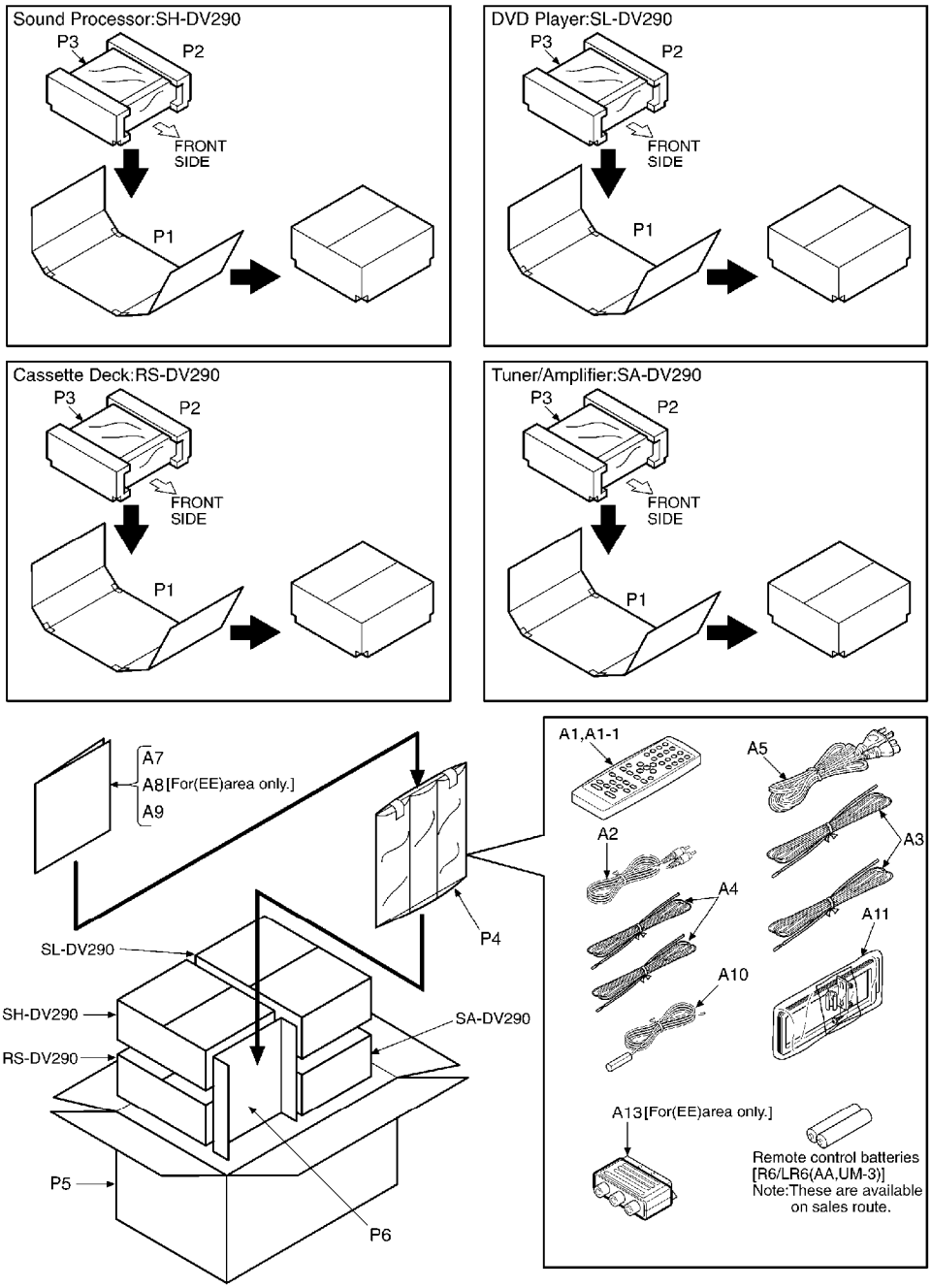
15.1. SA-DV290EE



15.2. SA-DV290GN



16. Packaging



17. Schematic Diagram for printing with A4 size

K0305 YH/HM

B MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE

IC601
RSN311W64B
POWER AMP

D756 MA700ATA
D757 MA700ATA

Q556
2SC5398RSTA
MOTOR DRIVE

Q557
2SA1995RSTA
MOTOR DRIVE

Q555
2SD2144STA
SIGNAL LEVEL DET.

Q551
2SA1995RSTA
SIGNAL LEVEL DET.

Q554
2SA1995RSTA
SIGNAL LEVEL DET.

Q553
2SD2144STA
MOTOR DRIVE

FAN MOTOR
JK551

Q607
Q608
Q605
Q605,607,608
2SD2144STA
MUTING

Q601
Q602
Q601,602
2SC5398RSTA
PROTECTOR

Q503
2SC5398RSTA
SWITCHING

Q708
UN4211TA
SWITCHING (POWER)

Q709
2SD2144STA
SWITCHING (POWER)

Q704
Q703,704
2SD2137PQTA
REGULATOR

Q703
REGULATOR

Q712
Q711,712
2SB1548PQAU
REGULATOR

Q711
REGULATOR

Q702
2SB1548PQAU
REGULATOR

Q701
2SD2374PQAU
REGULATOR

Q725
2SC5398RSTA
STABILIZER

Q705
2SA1995RSTA
STABILIZER

D703 1N5402BM21
D704 1N5402BM21

D658 MA165TA
D659 MA165TA
D657 MA165TA
D554 MA165TA
D552 MA165TA
D555 MA4100MTA
D551 MA165TA
D607 1SS291TA
D558 MA165TA
D602 SB360L6508
D601 SB360L6508
D753 RL1N4003N02
D751 1N5402BM21
D701 1N5402BM21
D761 RL1N4003N02
D754 RL1N4003N02
D702 1N5402BM21
D752 1N5402BM21
D755 RL1N4003N02
D583 RL1N4003N02
D582 RL1N4003N02
D553 MA700ATA
D581 RL1N4003N02
D738 MA165TA
D730 MA4091HTA
D758 MA165TA
D759 MA165TA
D725 MA4082LTA
D723 MA4150HTA

CN781
W701B
JK551
E601
E602

C POWER SUPPLY CIRCUIT

SA-DV290(EE,GN) MAIN,POWER SUPPLY CIRCUIT DIAGRAM

25 26 27 28 29 30 31 32 33 34 35 36

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
: AUDIO SIGNAL LINE

B MAIN CIRCUIT

L605 R649 10 — B
L602 R640 10 — C
L606 R650 10 — A
L601 R639 10 — D

JK601
HF(6 Ω)
LF(8 Ω)
Lch
JK602
HF(6 Ω)
LF(8 Ω)
Rch
SPEAKERS

CP601
1 GND
2 GND
3 C OUT
4 C OUT
5 GND
6 GND
7 GND
8 GND
9 SUR L OUT
10 SUR L OUT
11 SUR R OUT
12 SUR R OUT

CP602
1 ECO
2 SH SYNC
3 SA SYNC
4 D.GND
5 BU5V
6 RS13V
7 +B
8 NC

W722A
W721A

D AC IN CIRCUIT

CN601
GND 1
GND 2
C OUT 3
C OUT 4
GND 5
GND 6
GND 7
GND 8
SUR L IN 9
SUR L IN 10
SUR R IN 11
SUR R IN 12

CN602
ECO 1
SH SYNC 2
SA SYNC 3
D.GND 4
BU5V 5
RS13V 6
+B 7
NC 8

JK603
CENTER(8 Ω)
R ch
L ch
SPEAKERS
SURROUND(8 Ω)

L604 R644 10 — C
L603 R643 10 — B

R712 2.2K
R795 3.9K
R772 22K
R777 1K
R771 22K
R794 47K
R773 18
R774 18

Q726
2SC3940AQSTA
REGULATOR
6V
10.7V
6.7V

Q791
2SD2144STA
RELAY DRIVE
0V
0.7V

D745 MA4051MTA
D746 RL1N4003N02
D740 MA165STA
D747 MA4068LTA
D711 RL1N4003N02
D741 RL1N4003N02
D743 RL1N4003N02
D742 RL1N4003N02
D744 RL1N4003N02

C754 0.01
C758 0.01
C759 10V47
C755 16V1000
C753 0.01

T702
F1 T2A
L701
JK701
AC IN
230-240V 50Hz ···[GN]
230 50Hz ·····[EE]
AC9.4V
Z701
RL702
D500 MA165TA
C791 1000P
W2/W3
W1
6V

E POWER TRANSFORMER (A) CIRCUIT

For [GN] area.
R794A 1
R793 1 — For [EE] area.

W722B
W721B

FP791 K5G502AA0002
FP792 K5G502AA0002

R798 2.2

CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
CN710

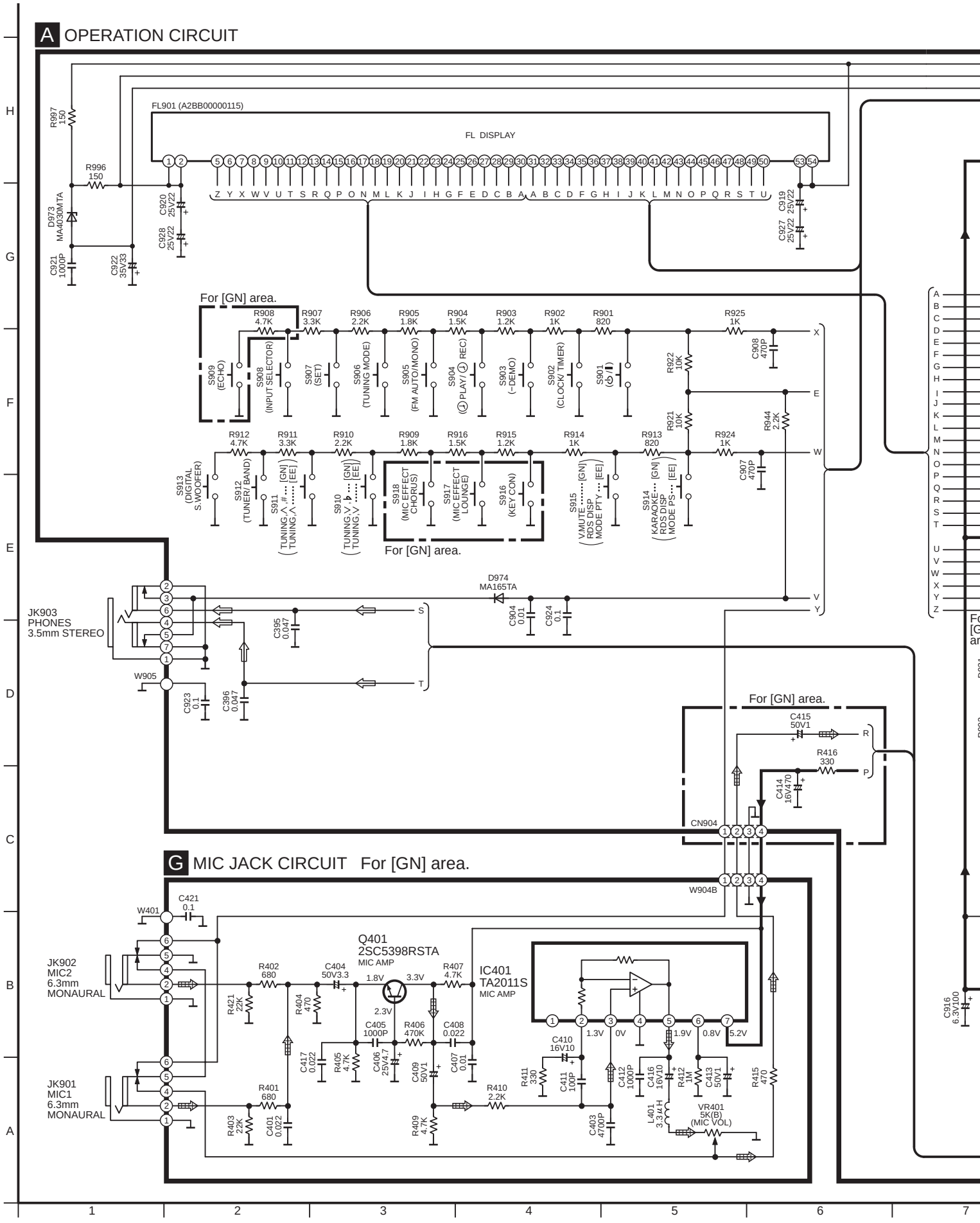
AC22.6V
AC22.6V
AC11.7V
AC11.7V
AC 29.2V
AC4.7V

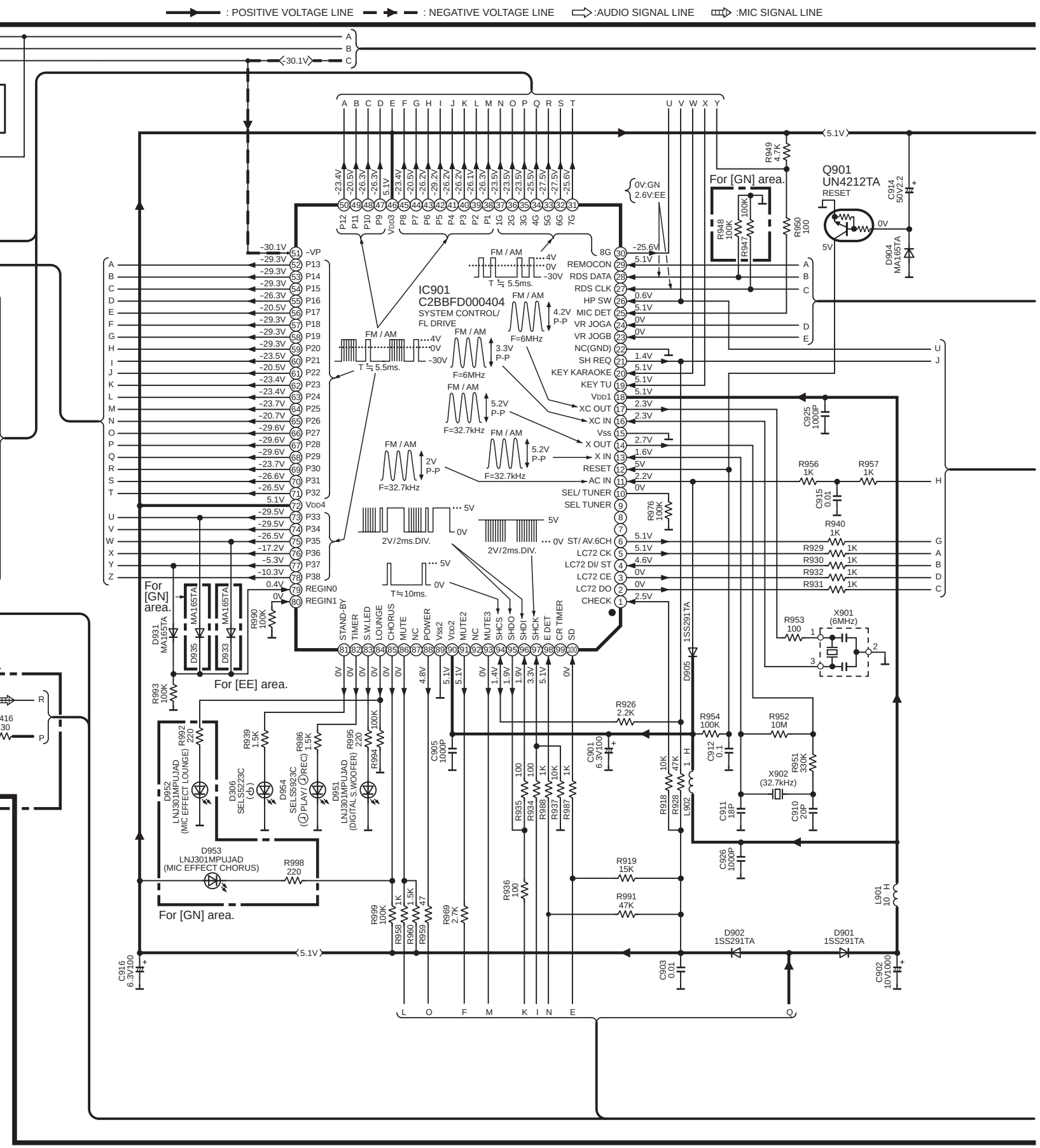
F POWER TRANSFORMER (B) CIRCUIT

T701
CN711
CN712
CN713
W1
For [EE] area.
W3
For [GN] area.
W2

SA-DV290(EE,GN) MAIN, AC IN, POWER TRANSFORMER(A)&(B) CIRCUIT DIAGRAM

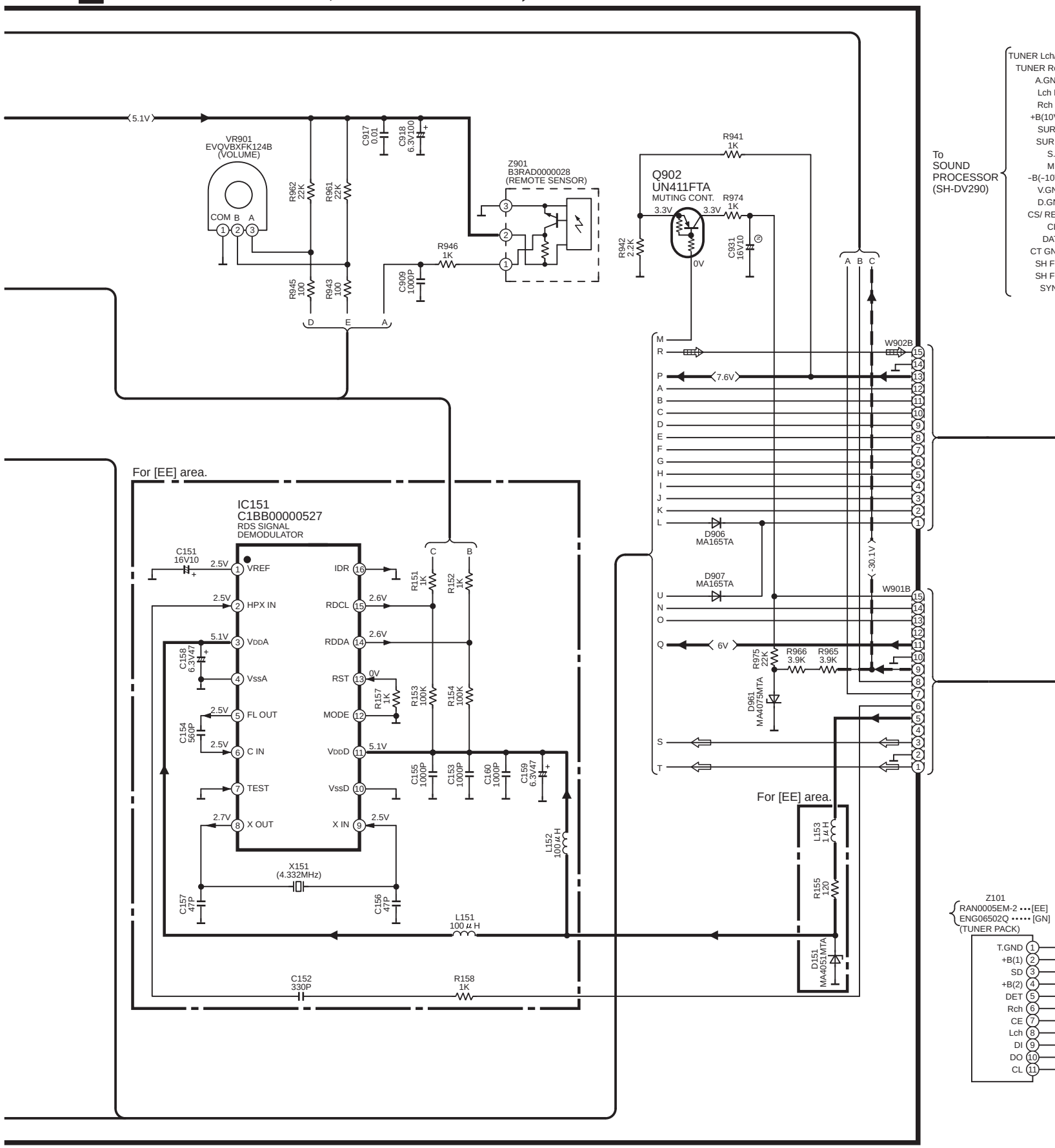
37 38 39 40 41 42 43 44 45 46 47 48
H G F E D C B A


A OPERATION CIRCUIT
FL901 (A2BB00000115)
FL DISPLAY
R997 150
R996 150
D973 MA4030MTA
C920 25V22
C928 25V22
C921 1000P
C922 35V33
C919 25V22
C927 25V22
For [GN] area.
R908 4.7K
R907 3.3K
R906 2.2K
R905 1.8K
R904 1.5K
R903 1.2K
R902 1K
R901 820
R925 1K
S909 (ECHO)
S908 (INPUT SELECTOR)
S907 (SET)
S906 (TUNING MODE)
S905 (FM AUTO/MONO)
S904 (▷II PLAY/ REC)
S903 (–DEMO)
S902 (CLOCK/ TIMER)
S901 (⏻/I)
R922 10K
C908 470P
R921 10K
R944 2.2K
R912 4.7K
R911 3.3K
R910 2.2K
R909 1.8K
R916 1.5K
R915 1.2K
R914 1K
R913 820
R924 1K
S913 (DIGITAL S.WOOFER)
S912 (TUNER/ BAND)
S911 (TUNING ∧ #.... [GN] TUNING ∧ ..... [EE])
S910 (TUNING ∨ ▷ [GN] TUNING ∨ ..... [EE])
S918 (MIC EFFECT CHORUS)
S917 (MIC EFFECT LOUNGE)
S916 (KEY CON)
S915 (V.MUTE ..... [GN] RDS DISP MODE PTY ... [EE])
S914 (KARAOKE .... [GN] RDS DISP MODE PS ... [EE])
C907 470P
For [GN] area.
D974 MA165TA
C904 0.01
C924 0.1
JK903 PHONES 3.5mm STEREO
C395 0.047
W905
C923 0.1
C396 0.047
For [GN] area.
C415 50V1
R416 330
C414 16V470
CN904
G MIC JACK CIRCUIT For [GN] area.
W904B
W401
C421 0.1
JK902 MIC2 6.3mm MONAURAL
JK901 MIC1 6.3mm MONAURAL
Q401 2SC5398RSTA MIC AMP
IC401 TA2011S MIC AMP
R402 680
C404 50V3.3
R407 4.7K
1.8V
3.3V
2.3V
R421 22K
R404 470
C405 1000P
R406 470K
C408 0.022
C417 0.022
R405 4.7K
C406 25V4.7
C409 50V1
C407 0.01
R401 680
R403 22K
C401 0.022
R409 4.7K
R410 2.2K
C403 4700P
1.3V
0V
1.9V
0.8V
5.2V
C410 16V10
R411 330
C411 100P
C412 1000P
C416 16V10
R412 1M
C413 50V1
R415 470
L401 3.3μH
VR401 5K(B) (MIC VOL)
C916 6.3V100

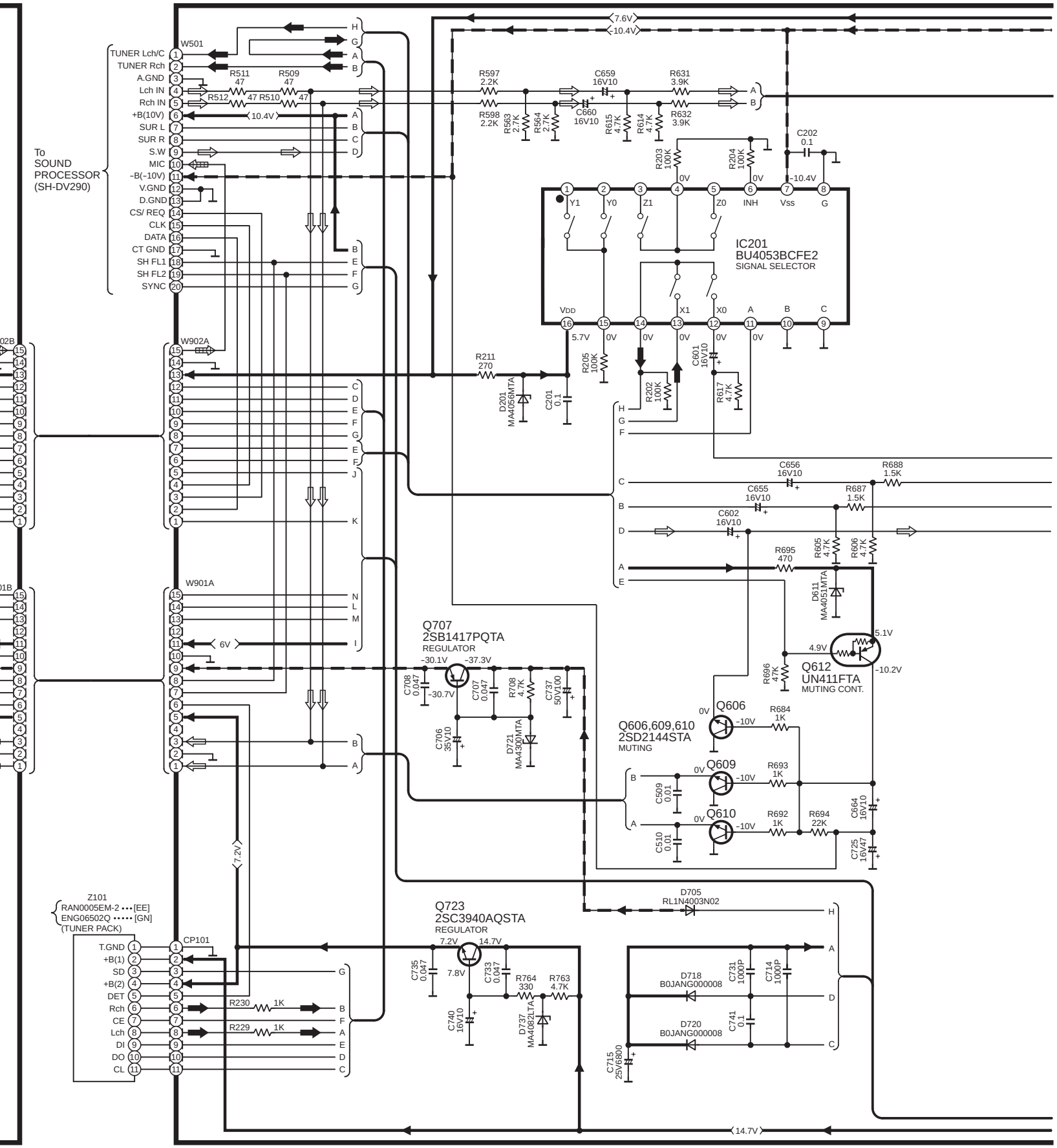

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE
:MIC SIGNAL LINE
IC901
C2BBFD000404
SYSTEM CONTROL/
FL DRIVE
REMOCON
RDS DATA
RDS CLK
HP SW
MIC DET
VR JOGA
VR JOGB
NC(GND)
SH REQ
KEY KARAOKE
KEY TU
XC OUT
XC IN
X OUT
X IN
RESET
AC IN
SEL/ TUNER
SEL TUNER
ST/ AV.6CH
LC72 CK
LC72 DI/ ST
LC72 CE
LC72 DO
CHECK
Q901
UN4212TA
RESET
X901
(6MHz)
X902
(32.7kHz)
For [GN] area.
For [EE] area.
D952
LNJ301MPUJAD
(MIC EFFECT LOUNGE)
D953
LNJ301MPUJAD
(MIC EFFECT CHORUS)
D954
SEL5S923C
(PLAY/ REC)
D951
LNJ301MPUJAD
(DIGITAL S.WOOFER)
D306
SEL5S223C
5.1V
-30.1V

A OPERATION CIRCUIT

: NEGATIVE VOLTAGE LINE
: POSITIVE VOLTAGE LINE
:AUDIO SIGNAL LINE
:MIC SIGNAL LINE
:TUNER SIGNAL LINE

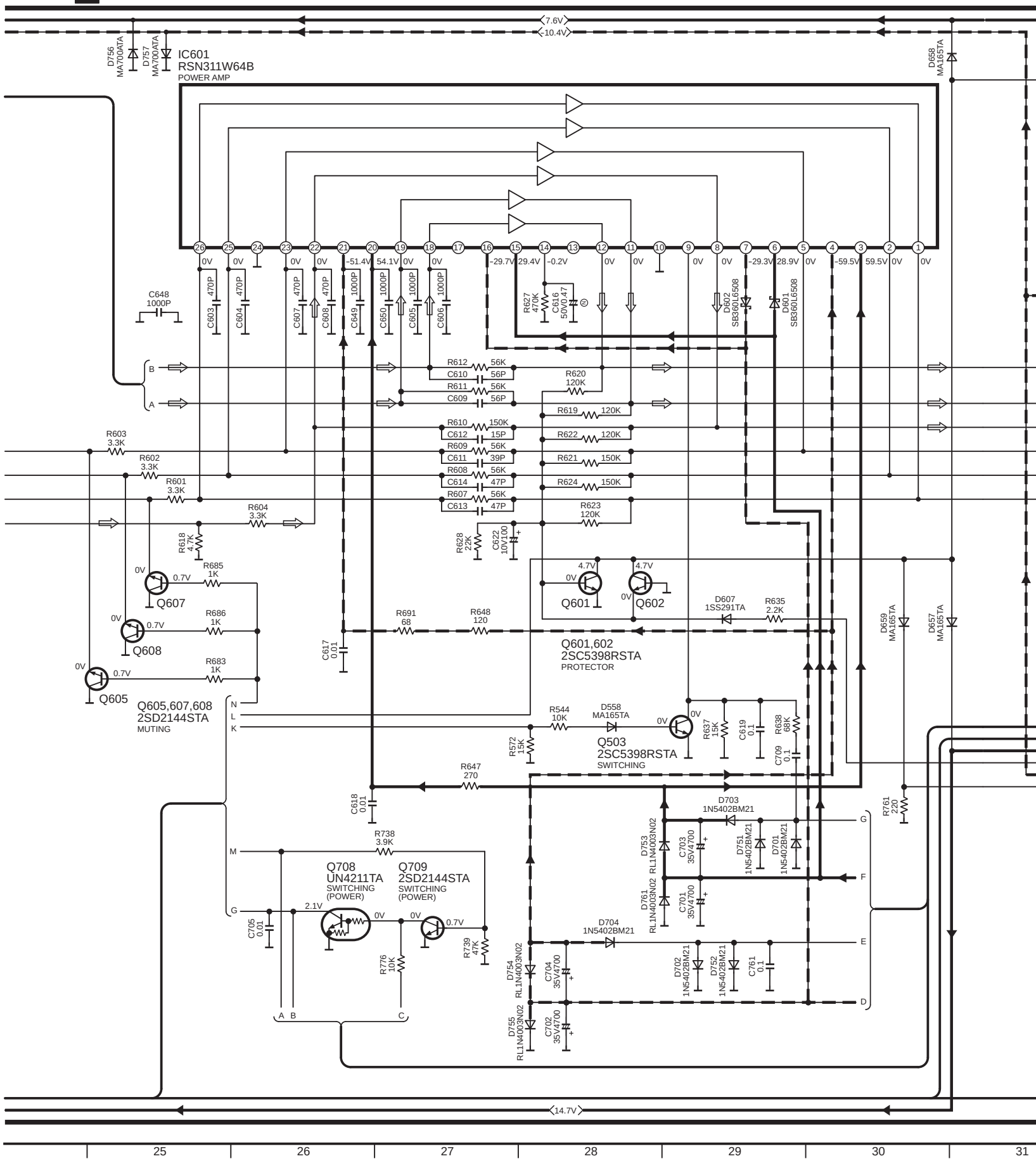


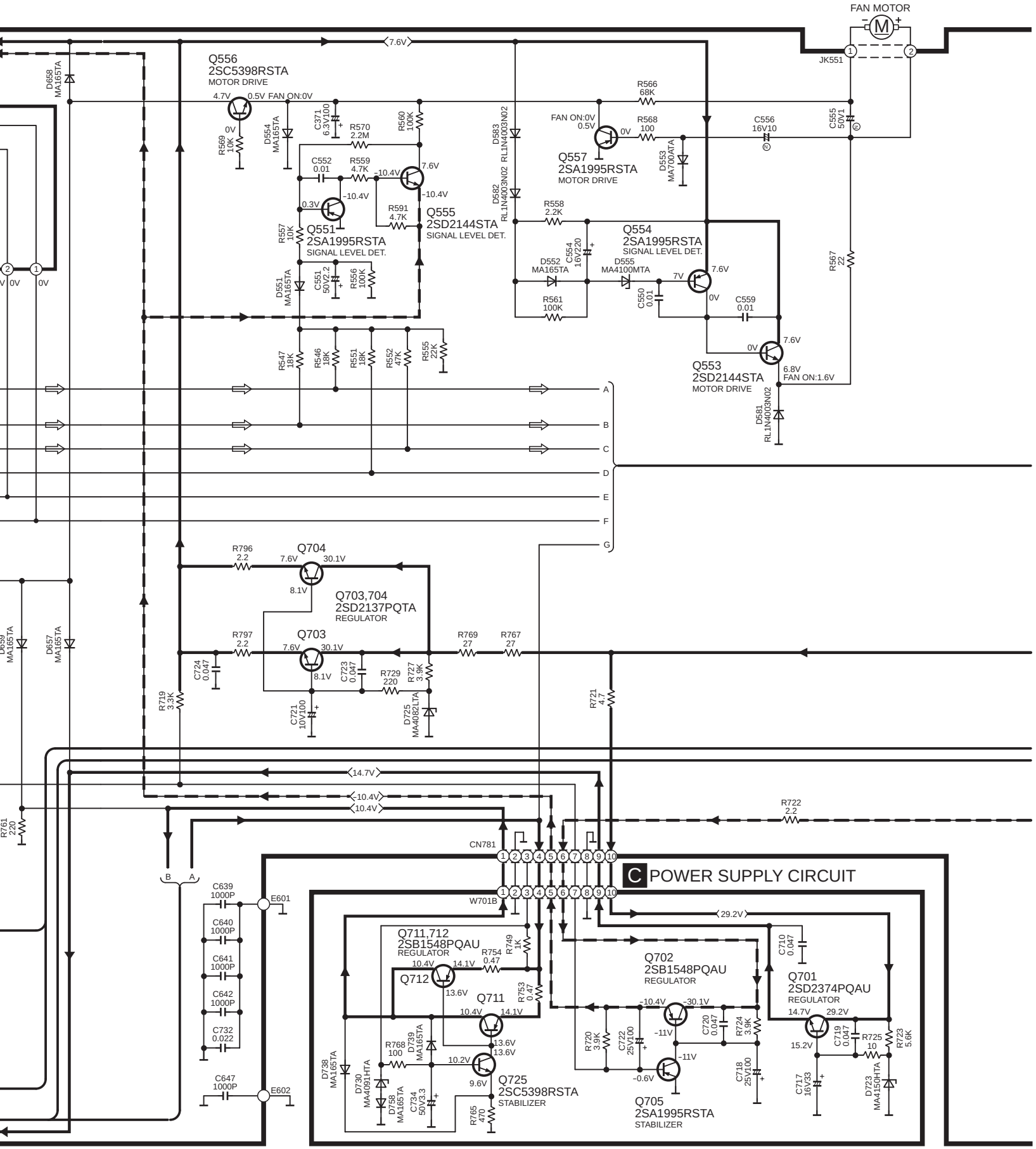
B MAIN CIRCUIT



B MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE :AUDIO SIGNAL LINE

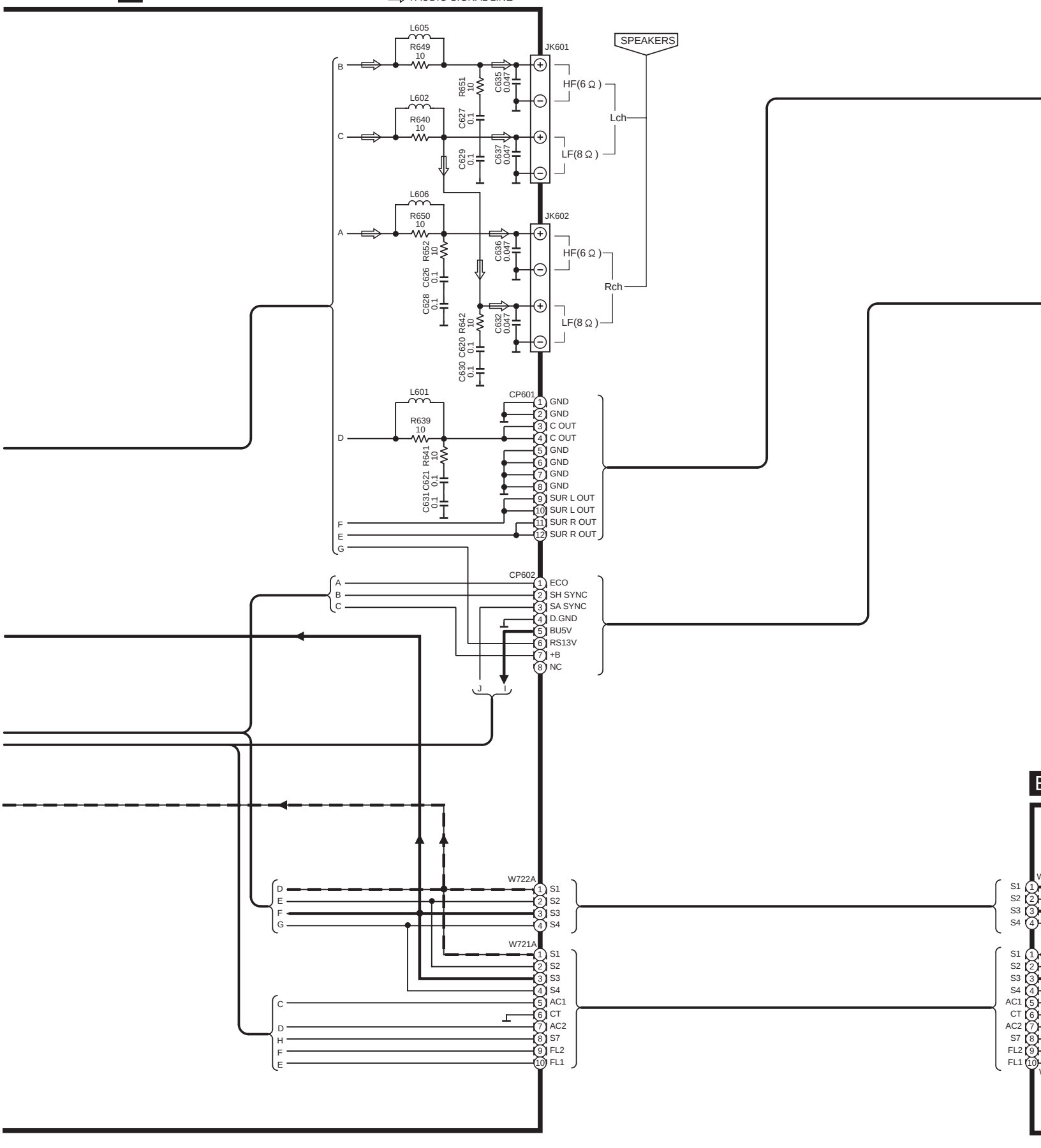


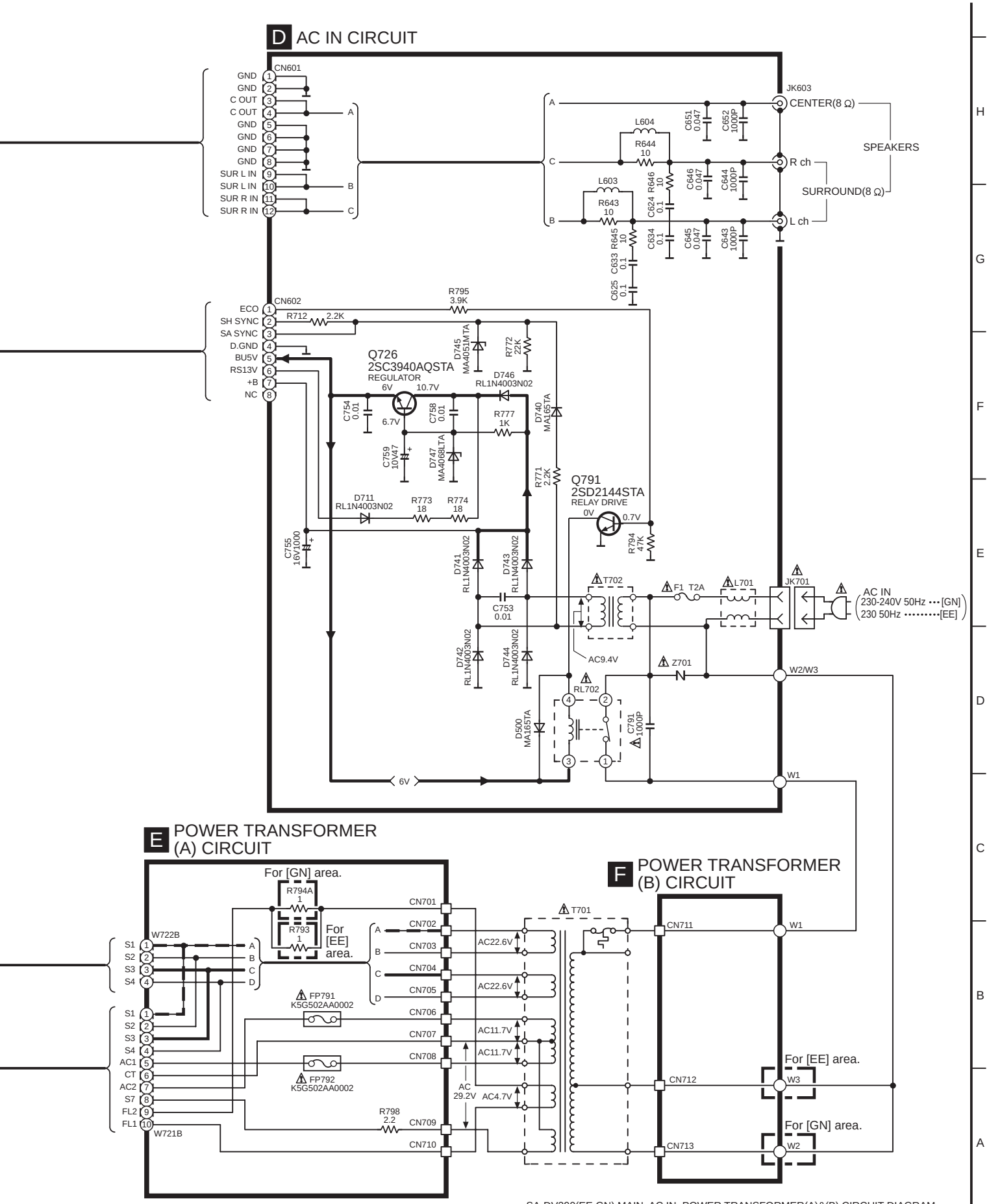


SA-DV290(EE,GN) MAIN,POWER SUPPLY CIRCUIT DIAGRAM

B MAIN CIRCUIT

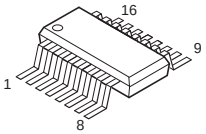
: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
: AUDIO SIGNAL LINE



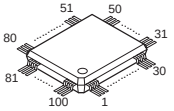


SA-DV290(EE,GN) MAIN, AC IN, POWER TRANSFORMER(A)&(B) CIRCUIT DIAGRAM

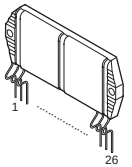
BU4053BCFE2
C1BB00000527



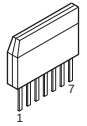
C2BBFD000404



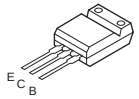
RSN311W64B



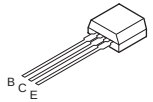
TA2011S



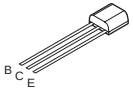
2SB1417PQTA
2SD2137PQTA



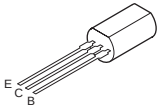
2SD2144STA



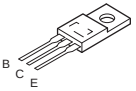
2SA1995RSTA
2SC5398RSTA



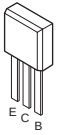
2SC3940AQSTA



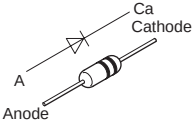
2SB1548PQAU
2SD2374PQAU



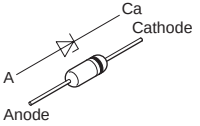
UN411FTA
UN4211TA
UN4212TA



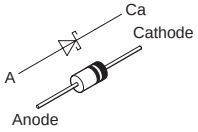
1SS291TA
MA700ATA



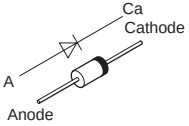
MA4100MTA
MA4150HTA
MA4300MTA

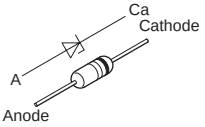


SB360L6508



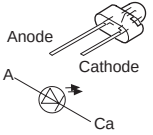
1N5402BM21
RL1N4003N02
B0JANG000008



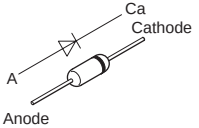


MA4030MTA
MA4051MTA
MA4056MTA
MA4068LTA
MA4075MTA
MA4082LTA
MA4091HTA

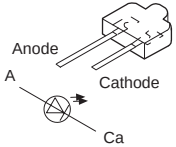
LNJ301MPUJAD

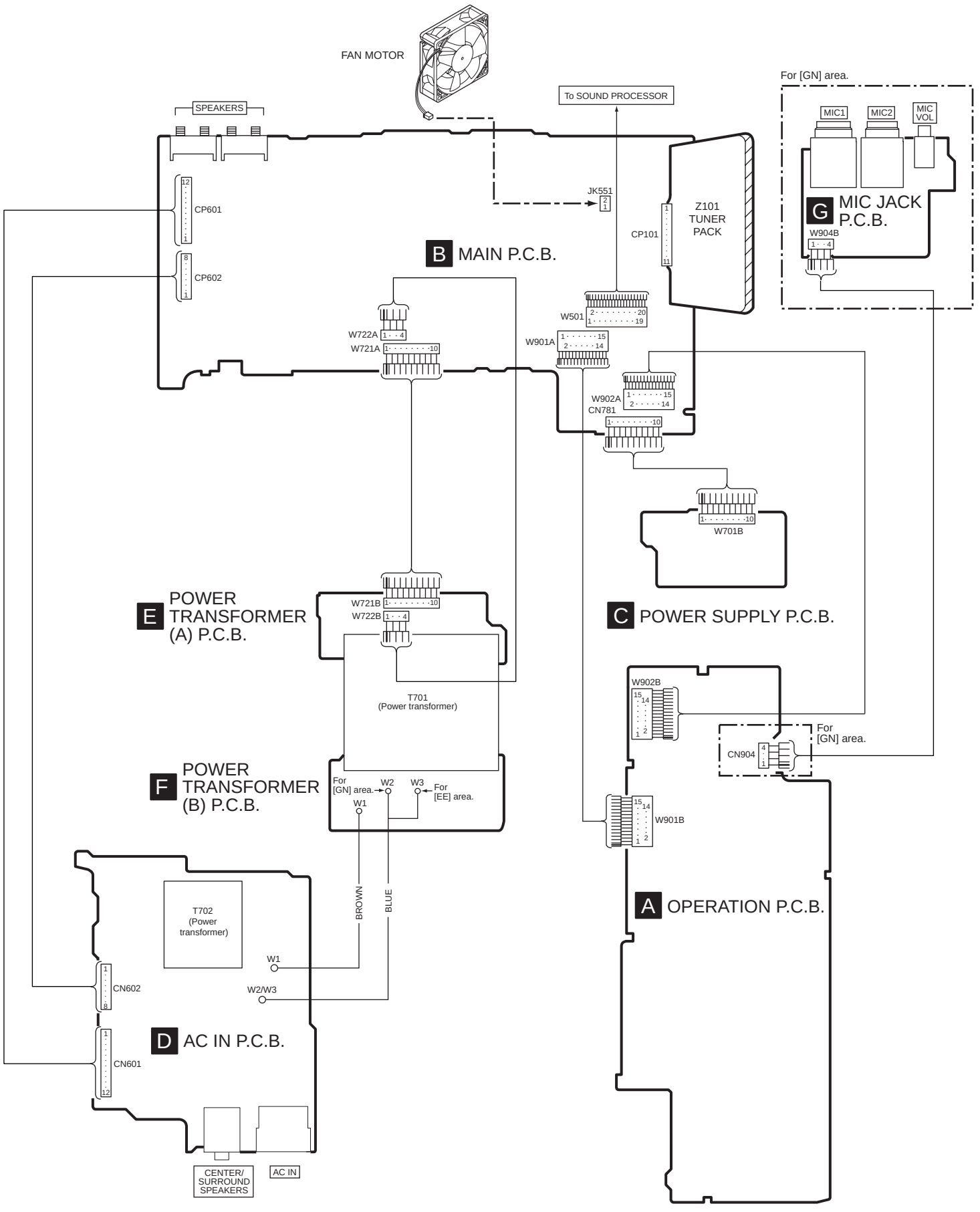


MA165TA

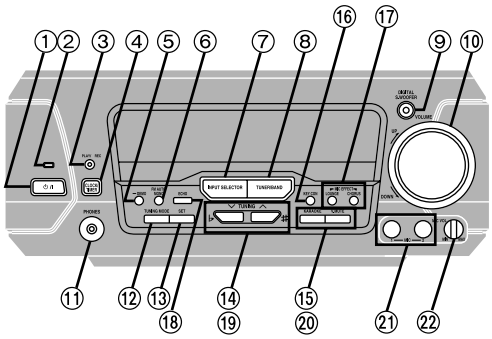


SELS5223C
SELS5923C

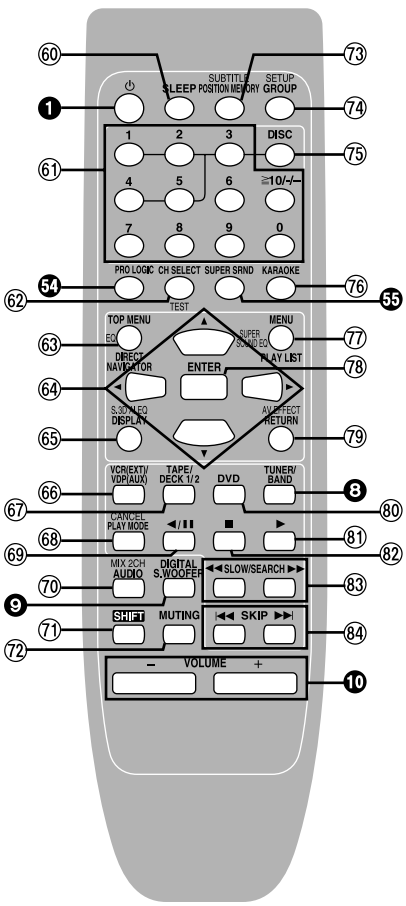



FAN MOTOR
SPEAKERS
To SOUND PROCESSOR
For [GN] area.
MIC1
MIC2
MIC VOL
G MIC JACK P.C.B.
W904B
JK551
CP601
CP602
CP101
Z101 TUNER PACK
B MAIN P.C.B.
W501
W722A
W721A
W901A
W902A
CN781
W701B
E POWER TRANSFORMER (A) P.C.B.
W721B
W722B
T701 (Power transformer)
C POWER SUPPLY P.C.B.
W902B
CN904
For [GN] area.
F POWER TRANSFORMER (B) P.C.B.
For [GN] area.
W1
W2
W3
For [EE] area.
W901B
A OPERATION P.C.B.
T702 (Power transformer)
BROWN
BLUE
W1
W2/W3
CN602
CN601
D AC IN P.C.B.
CENTER/ SURROUND SPEAKERS
AC IN

A



B



A Stereo tuner/amplifier

① **Standby/on switch (⏻/I)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
② **Standby indicator (⏻)**
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.
③ **Play timer/record timer button and indicator (◴PLAY/◴REC)**
④ **Clock/timer button (CLOCK/TIMER)**
⑤ **Demo button (–DEMO)**
⑥ **FM mode button (FM AUTO/MONO)**
⑦ **Source input button (INPUT SELECTOR)**
⑧ **Tuner/band button (TUNER/BAND)**
⑨ **Digital super woofer button and indicator (DIGITAL S.WOOFER)**
⑩ **Volume control (VOLUME)**
⑪ **Headphone jack (PHONES)**
⑫ **Tuning mode button (TUNING MODE)**
⑬ **Set button (SET)**
[For (EE) area]
⑭ **Tuning buttons (∨, ∧ TUNING)**
⑮ **RDS display mode button (RDS, PS–DISP MODE–PTY)**
[For (GN) area]
⑯ **Key control button (KEY CON)**
⑰ **MIC effect buttons (MIC EFFECT, LOUNGE, CHORUS)**
⑱ **Echo button (ECHO)**
⑲ **Tuning, Key up/down buttons (∨, ∧ TUNING, ♭, ♯)**
⑳ **KARAOKE, Voice mute buttons (KARAOKE, V.MUTE)**
㉑ **Microphone jacks (1–MIC–2)**
㉒ **Microphone volume control (MIC VOL)**

B Remote control

Buttons ❶, ❽, ❾, ❿, ⓴ and ㉕ function in the same way as the controls on the main unit.

㊿ **Sleep timer button (SLEEP)**
(61) **Numbered buttons (1–9, 0, ≧10/-/–)**
(62) **Channel select, Test signal button (CH SELECT, TEST)**
(63) **Top menu, Direct navigator, EQ button (TOP MENU, DIRECT NAVIGATOR, EQ)**
(64) **Cursor buttons (◄, ►, ▲, ▼)**
(65) **Display, Super 3D AI EQ button (DISPLAY, S.3D AI EQ)**
(66) **Input select button [VCR (EXT)/VDP (AUX)]**
(67) **Tape select, deck 1/deck 2 select button (TAPE/DECK 1/2)**
(68) **Play mode, Cancel button (PLAY MODE, CANCEL)**
(69) **Disc pause, Tape reverse play button (◄/❚❚)**
(70) **Audio select, 2 channel down mixing button (AUDIO, MIX 2CH)**
(71) **Shift button (SHIFT)**
To operate functions labeled in orange, press [SHIFT] and then the corresponding button at the same time.
(72) **Muting button (MUTING)**
(73) **Position memory, Subtitle select button (POSITION MEMORY, SUBTITLE)**
(74) **Group, Initial setting button (GROUP, SETUP)**
(75) **Disc button (DISC)**
(76) **[For (GN) area]**
Karaoke, Karaoke effect button (KARAOKE, KARAOKE EFFECT)
(77) **Menu, Play list, Super sound EQ button (MENU, PLAY LIST, SUPER SOUND EQ)**
(78) **Enter button (ENTER)**
(79) **Return, AV effect button (RETURN, AV EFFECT)**
(80) **DVD button (DVD)**
(81) **Disc play, Tape forward play button (►)**
(82) **Disc stop, Tape stop button (■)**
(83) **Disc slow/search buttons (◄◄, ►► SLOW/SEARCH)**
(84) **Disc skip buttons (|◄◄, ►►| SKIP)**

FM ANT

AM ANT

8 (6)

Lch (Rch)

Z101 TUNER PACK
(RAN0005EM-2:EE
ENG06502Q:GN)

SD 3 | CE 7 | DI 9 | CL 11 | DO 10 | DET 5 | GND 1 | +15V 2 | +7V 4

+B1 +B2

For [EE] area.

C1BB00000527
IC151
RDS SIGNAL DEMODULATOR

+B2

3,11 VDDA/D | 1 VREF | 5 FLOUT | 6 CIN

REFERENCE VOLTAGE

PLL (57kHz)

CLOCK RECOVERY (1187.5kHz)

VREF

4,10 VssA/D

2 MPX IN

ANTIALIASING FILTER

57kHz BPF (SCF)

SMOOTHING FILTER

DATA DECODER

RDCL 15 | RDDR 14

7 TEST

TEST

CLK(4.332MHz)

OSC/DIVIDER

RDS-ID DETECT/ RAM

IDR 16

XIN 9 | XOUT 8 | MODE 12 | RST 13

X151 (4.332MHz)

To SOUND PROCESSOR BLOCK DIAGRAM

W501

TUNER L/C 1 | TUNER Rch 2 | A.GND 3 | Lch IN 4 | Rch IN 5 | +B(10V) 6 | SUR L 7 | SUR R 8 | S.W 9 | MIC 10 | -B(-10V) 11 | V.GND 12 | D.GND 13 | CS/REQ 14 | CLK 15 | DATA 16 | CT.GND 17 | SH FL1 18 | SH FL2 19 | SYNC 20

Rch

Rch

Rch

+B5

-B3

FL1

FL2

From POWER TRANSFORMER

SHSYNC

BU4053BCFE2
IC201
SIGNAL SELECTOR

13 X1 | 14 X0 | 12 | 1 | Y1 15 | 2 Y0

8 G

SW CONT.

+B4 16 VDD

-B3 7 VSS

A 11 | B 10 | C 9

For [GN] area.

TA2011S
IC401

Q401

MIC2

MIC1

MIC AMP

MIC AMP

+B4

VR401 (MIC VOL)

+B8

25 MIC DET

SH DI 96 | SH DO 95 | SH CK 97 | SH CS 94 | SH REQ 21 | ST/AV 6CH 6

C2BBFD000404
IC901
SYSTEM CONTROL / FL DRIVE

LC72 CE 3 | LC72 DI/ST 4 | LC72 CK 5 | LC72 DO 2 | SD 100 | RDS DATA 28 | RDS CLK 27

SD | CE1 | DATA1 | CLK1 | DATA IN | RDDR | RDCL

For [GN] area.

RSN311W64B
IC601
POWER AMP

Q607 (Q608) MUTING
Q606 MUTING
Q609 (Q610) MUTING
Q605 MUTING
Q902 MUTING CONT. +B4
Q612 MUTING CONT. +B5

POWER CONTROL CIRCUIT
POWER CONTROL/ PROTECTION CIRCUIT
D601 +B7 +B3
D602 -B1 -B2
GND

R ch
PHONES
D974
SURROUND (8 Ω)
CENTER (8 Ω)
SPEAKERS
HF (6 Ω)
LF (8 Ω)

Q503,D558 SWITCH-ING
D907
D906
AC IN

-B3 +B4
Q551,554, 555 SIGNAL LEVEL DET.
Q553,556, 557 MOTOR DRIVE
M FAN MOTOR
Q601,602 PRO-TECTOR

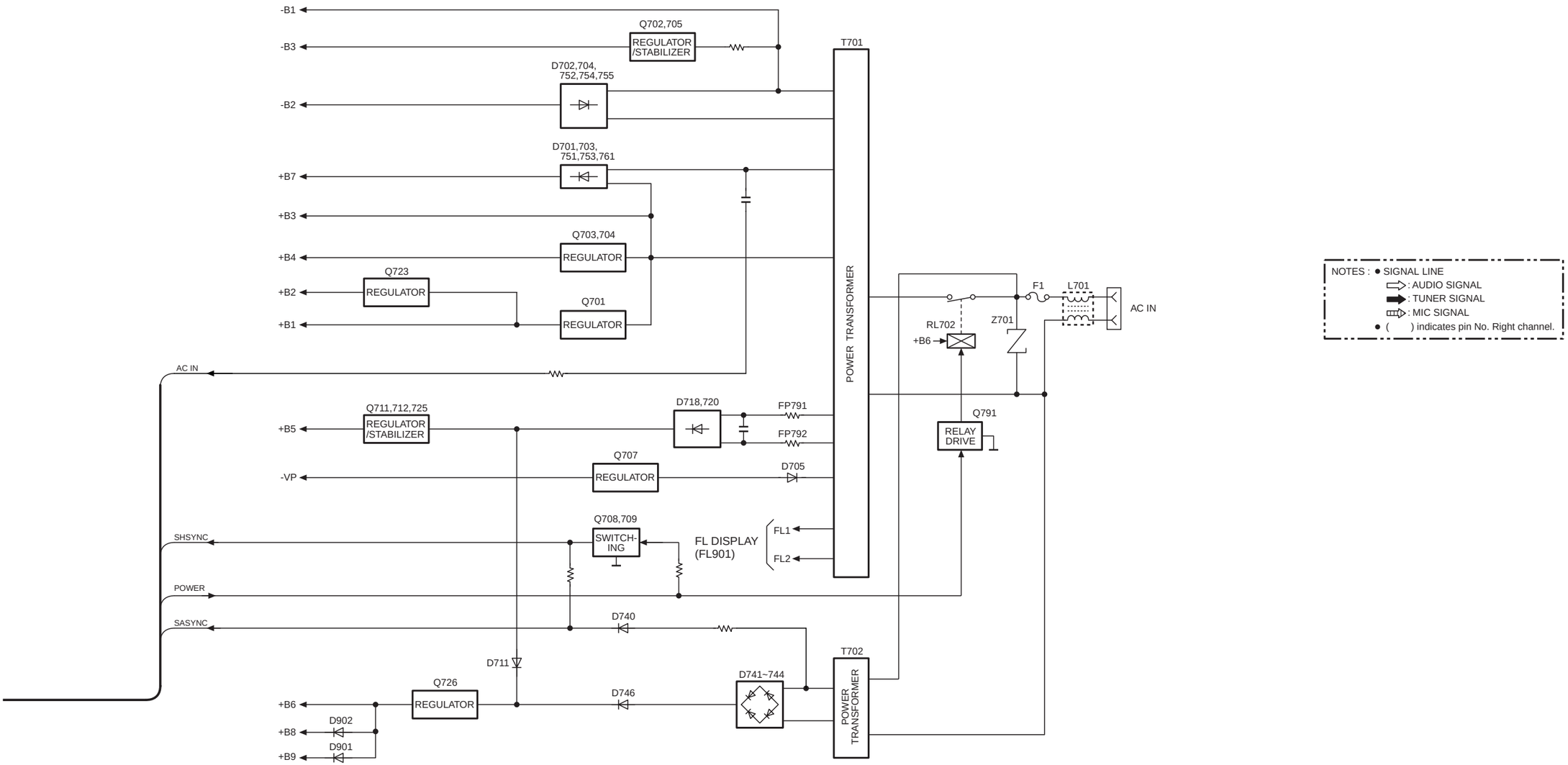
VR901 (VOLUME)
X901 (6MHz)
X902 (32.7kHz)
Z901 (REMOTE SENSOR) +B8
SASYNC

C2BBFD000404
IC901
SYSTEM CONTROL / FL DRIVE

MUTE3 VR JOGA VR JOGB MUTE2 XC IN XC OUT X IN X OUT REMO-CON AC IN E DET POWER MUTE HP SW -VP

SEL/TUNER MIC DET 1~8G P1~38 REGIN0 REGIN1 LOUNGE TIMER S.W LED STAND-BY CHORUS KEY TU KEY KARAOKE RESET VDD2 VDD1 VDD3 VDD4 CHECK VSS VSS2

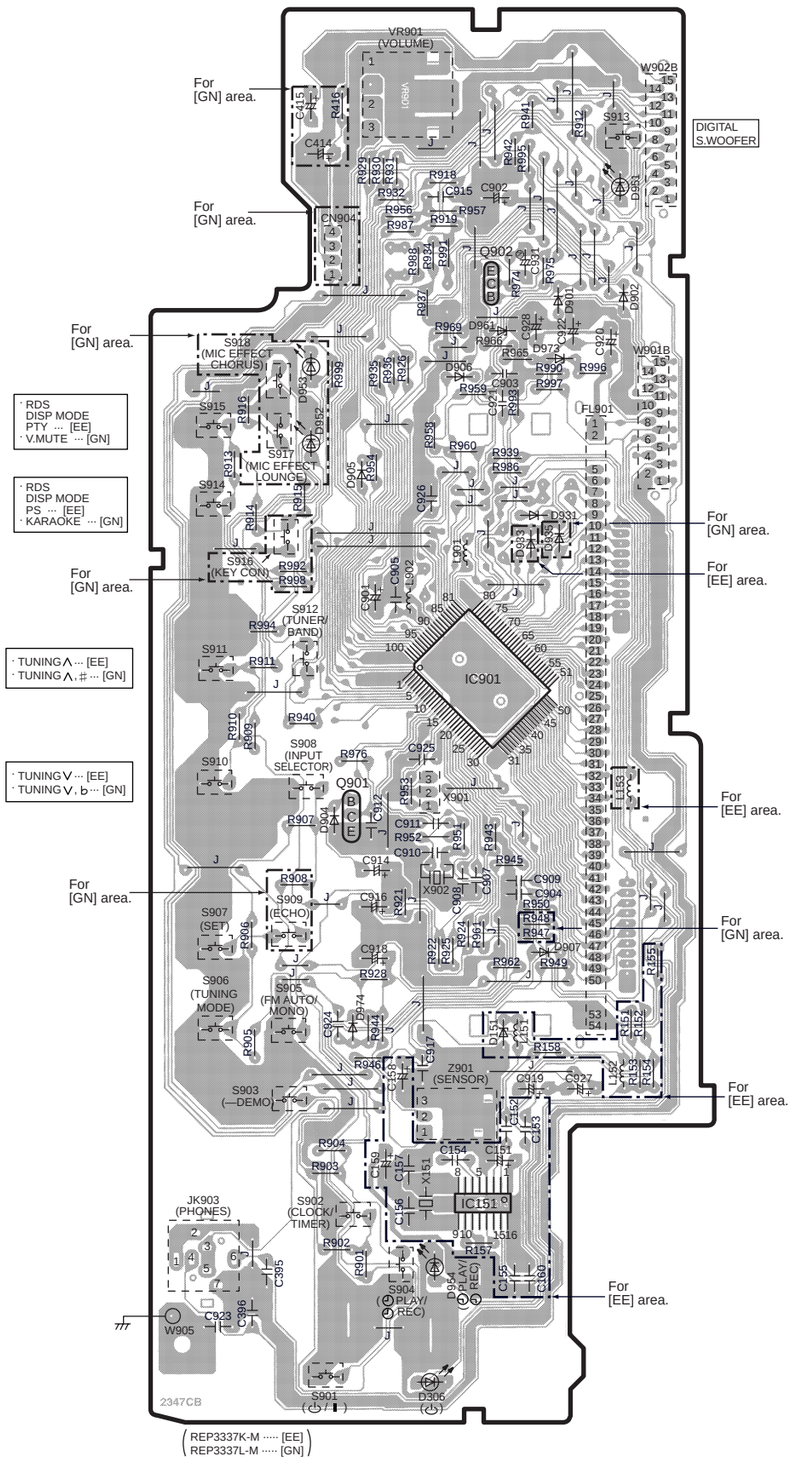
FL901 FL DISPLAY
FL1,2
D931
D933 ··· [EE]
D935 ··· [GN]
D952 (MIC EFFECT LOUNGE)
For [GN] area.
D954 (PLAY/REC)
D951 (DIGITAL S.WOOFER)
D306 (⏻)
D953 (MIC EFFECT CHORUS)
For [GN] area.
KEY SWITCH
Q901, D904 RESET +B8
+B9
+B8



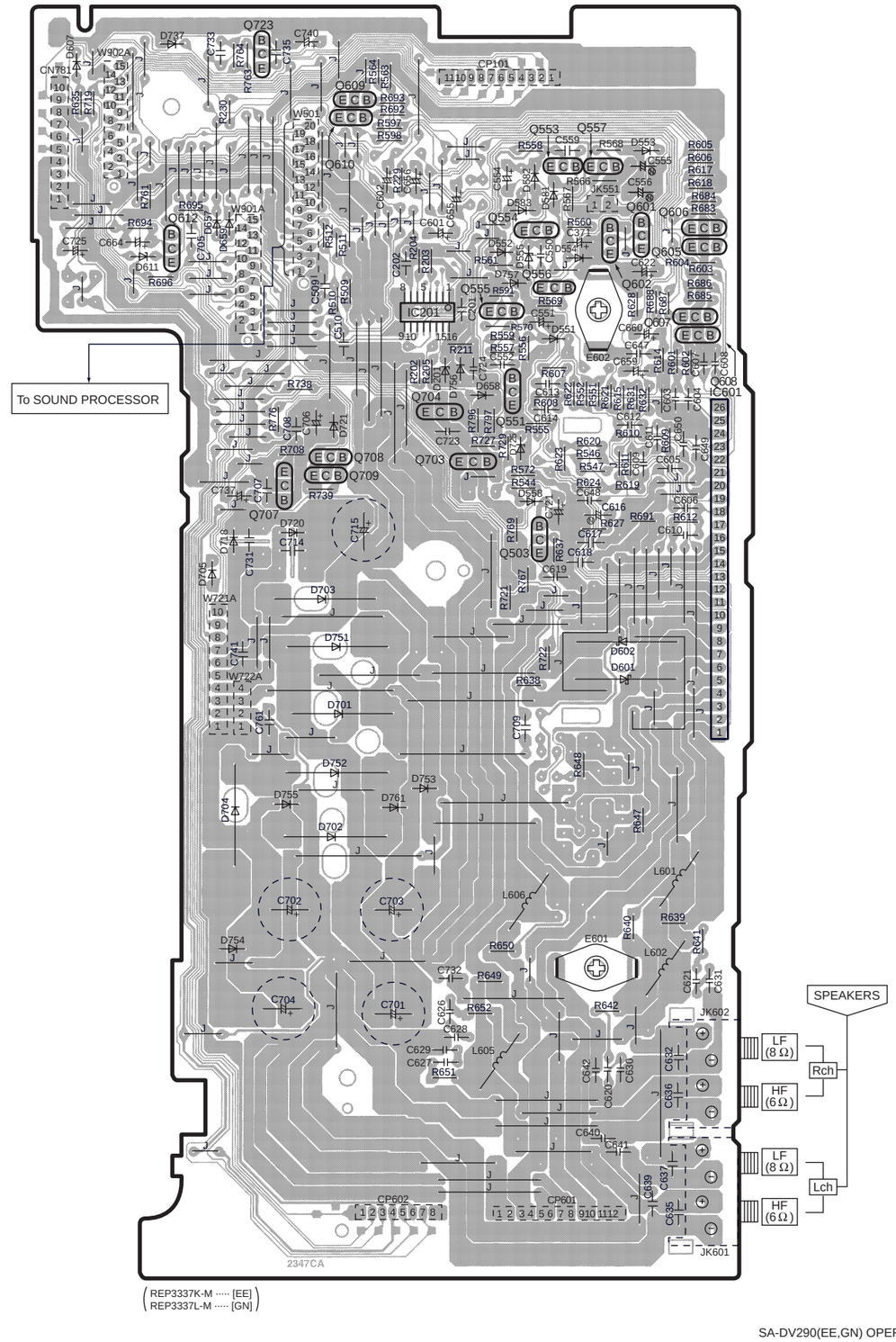
NOTES : ● SIGNAL LINE
⇨ : AUDIO SIGNAL
➡ : TUNER SIGNAL
⇨ : MIC SIGNAL
● ( ) indicates pin No. Right channel.

Note: This printed circuit board diagram may be modified at any time with the development of new technology.

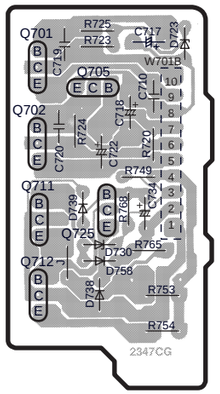
A OPERATION P.C.B.



B MAIN P.C.B.

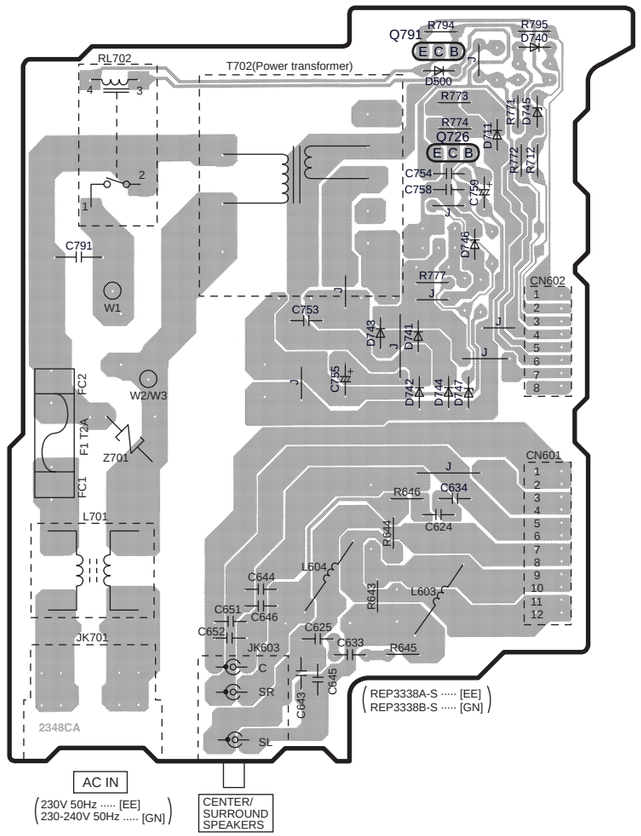


C POWER SUPPLY P.C.B.



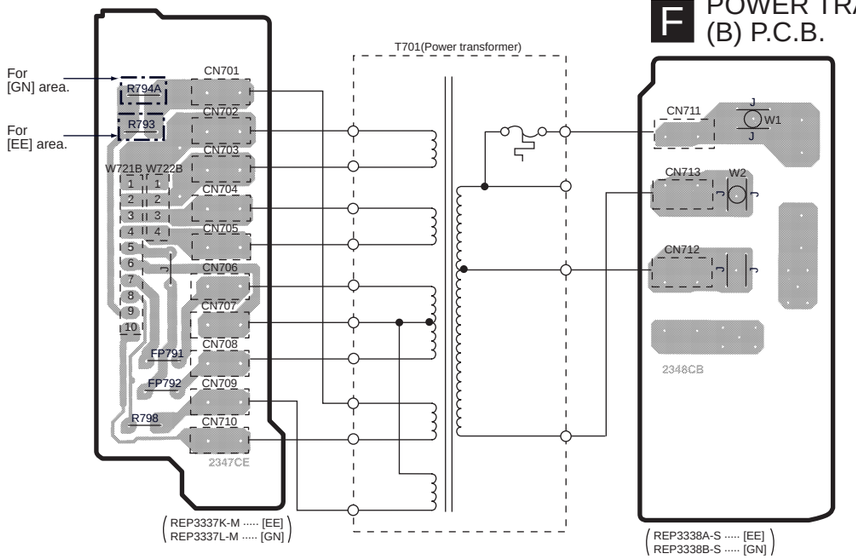
(REP3337K-M ..... [EE]
REP3337L-M ..... [GN])

D AC IN P.C.B.



E POWER TRANSFORMER (A) P.C.B.

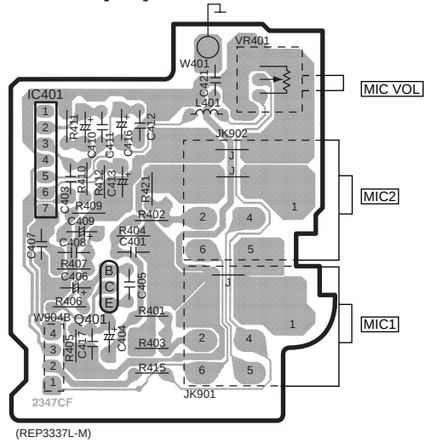
F POWER TRANSFORMER (B) P.C.B.



(REP3337K-M ..... [EE]
REP3337L-M ..... [GN])

(REP3338A-S ..... [EE]
REP3338B-S ..... [GN])

G MIC JACK P.C.B.
For [GN] area.



(REP3337L-M)

A OPERATION CIRCUIT

: POSITIVE VOLTAGE LINE — : NEGATIVE VOLTAGE LINE — :AUDIO SIGNAL LINE — :MIC SIGNAL LINE

FL901 (A2BB00000115)

FL DISPLAY

For [GN] area.

For [EE] area.

IC901
C2BBFD000404
SYSTEM CONTROL/
FL DRIVE

Q901
UN4212TA
RESET

JK903
PHONES
3.5mm STEREO

JK902
MIC2
6.3mm
MONAURAL

JK901
MIC1
6.3mm
MONAURAL

G MIC JACK CIRCUIT For [GN] area.

Q401
2SC5398RSTA
MIC AMP

IC401
TA2011S
MIC AMP

SA-DV290(EE,GN) OPERATION,MIC JACK CIRCUIT DIAGRAM

A OPERATION CIRCUIT

: NEGATIVE VOLTAGE LINE
: POSITIVE VOLTAGE LINE
:AUDIO SIGNAL LINE
:TUNER SIGNAL LINE
:MIC SIGNAL LINE

5.1V
VR901 EVQVBXFK124B (VOLUME)
COM B A
R962 22K
R961 22K
C917 0.01
C918 6.3V100
R945 100
R943 100
D E A
Z901 B3RAD0000028 (REMOTE SENSOR)
R946 1K
C909 1000P
R941 1K
Q902 UN411FTA MUTING CONT.
3.3V
R974 1K
R942 2.2K
C931 16V10
0V
A B C
M R P A B C D E F G H I J K L
W902B
7.6V
D906 MA165TA
D907 MA165TA
-30.1V
U N O Q S T
W901B
6V
R975 22K
R966 3.9K
R965 3.9K
D961 MA4075MTA

For [EE] area.

IC151 C1BB00000527 RDS SIGNAL DEMODULATOR
C151 16V10
2.5V VREF
2.5V HPX IN
5.1V VDDA
VSSA
2.5V FL OUT
2.5V C IN
TEST
2.7V X OUT
IDR
2.6V RDCL
2.6V RDDA
0V RST
MODE
5.1V VDDD
VSSD
2.5V X IN
C158 6.3V47
C154 560P
X151 (4.332MHz)
C157 47P
C156 47P
C152 330P
R158 1K
L151 100μH
R151 1K
R152 1K
R153 100K
R154 100K
R157 1K
C155 1000P
C153 1000P
C160 1000P
C159 6.3V47
L152 100μH
L153 1.4H
R155 120
D151 MA4051MTA

To SOUND PROCESSOR (SH-DV290)
TUNER Lch/C
TUNER Rch
A.GND
Lch IN
Rch IN
+B(10V)
SUR L
SUR R
S.W
MIC
-B(-10V)
V.GND
D.GND
CS/ REQ
CLK
DATA
CT GND
SH FL1
SH FL2
SYNC
W501
R511 47
R509 47
R512 47
R510 47
10.4V
W902A
W901A
7.2V
Z101
RAN0005EM-2 ••• [EE]
ENG06502Q ••••• [GN]
(TUNER PACK)
T.GND
+B(1)
SD
+B(2)
DET
Rch
CE
Lch
DI
DO
CL
CP101
R230 1K
R229 1K

B MAIN CIRCUIT

7.6V
10.4V
R597 2.2K
R598 2.2K
R563 2.7K
R564 2.7K
C659 16V10
C660 16V10
R631 3.9K
R632 3.9K
R615 4.7K
R614 4.7K
C202 0.1
R203 100K
R204 100K
IC201 BU4053BCFE2 SIGNAL SELECTOR
Y1 Y0 Z1 Z0 INH Vss G
VDD X1 X0 A B C
5.7V
R205 100K
R202 100K
C601 16V10
R617 4.7K
R211 270
D201 MA4056MTA
C201 0.1
C656 16V10
C655 16V10
C602 16V10
R688 1.5K
R687 1.5K
R695 470
R605 4.7K
R606 4.7K
D611 MA4051MTA
Q707 2SB1417PQTA REGULATOR
-30.1V
-37.3V
-30.7V
C708 0.047
C707 0.047
R708 4.7K
C737 50V100
C706 35V10
D721 MA4300MTA
4.9V
5.1V
-10.2V
R696 47K
Q612 UN411FTA MUTING CONT.
Q606,609,610 2SD2144STA MUTING
Q606
Q609
Q610
R684 1K
R693 1K
R692 1K
R694 22K
C509 0.01
C510 0.01
C664 16V10
C725 16V47
D705 RL1N4003N02
Q723 2SC3940AQSTA REGULATOR
7.2V
14.7V
7.8V
C735 0.047
C733 0.047
R764 330
R763 4.7K
C740 16V10
D737 MA4082LTA
D718 B0JANG000008
D720 B0JANG000008
C731 1000P
C714 1000P
C741 0.1
C715 25V6800
14.7V

SA-DV290(EE,GN) OPERATION, MAIN CIRCUIT DIAGRAM

13 14 15 16 17 18 19 20 21 22 23 24

ORDER NO.AD0303068C8

Service Manual

Sound Processor

DOLBY SURROUND PRO•LOGIC

SH-DV290EG

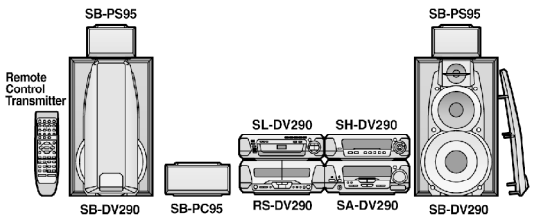
Colour

(S) .....Silver Type

System: SC-DV290

Because of unique interconnecting cables,when a component requires servise,send or bring in the entire system.

Note: Refer to the service manual for Model No. SA-DV290E/EG/EB (ORDER NO.AD0303067C2) for information on “ACCESSORIES”and “PACKAGING”.



SPECIFICATIONS

Specification

■ **EQ/SFP section**

MANUAL GEQ

5-Band EQ

Center frequency	**70/300/1 k/3.15 k/10 kHz**
Level control	**±2.0, 4.0, 6.0 dB**

EQ/Space mode

4 modes	**HEAVY, CLEAR, SOFT, HALL**

SUPER 3D AI EQ

3 modes	**AI EQ, SUPER 3D AI 1, SUPER 3D AI 2**

■ **Pre-amplifier section**

Input sensitivity/impedance

VCR (EXT)	**250 mV/15 k Ω**
VDP (AUX)	**250 mV/15 k Ω**

Output level

VCR REC OUT	**150 mV/1.5 k Ω**

■ **DOLBY PRO LOGIC section**

PRO LOGIC mode	**SURROUND**
CENTER mode	**NORMAL**
DELAY TIME	**20 ms (Fixed)**

■ **AV SURROUND section**

AV surround mode

SUPER SURROUND (MUSIC, MOVIE)

■ **DSP CONTROL section**

DSP control mode	**SUPER SOUND EQ**
	CENTER FOCUS
	VIRTUAL REAR SURROUND
	MULTI REAR SURROUND
	SEAT POSITION

■ **Spectrum analyzer section**

Display mode	**NORMAL, PEAKHOLD, AURORA**

■ **General**

Dimensions (W×H×D)	**293×89×270 mm**
Mass	**1.5 kg**
Power Supply	**DC±10V/ -25V, AC4.6V**
Power Consumption	**7W**

Nots

1.Design and specifications are subject to change without notice.

2.Dimensions and weight are approximate.

3.Total harmonic distortion is measured by the digital spectrum analyzer.

■ **System/SC-DV290**

Sound processor: SH-DV290, DVD/ Video CD/ CD changer: SL-DV290, Tuner/ Amplifier: SA-DV290 , Cassette Deck: RS-DV290, Speakers: Front* (SB-DV290),Center* (SB-PC95),Surround* (SB-PS95) (*Made in MAES.)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

1. Before Repair

This equipment (SH-DV290), which is the component of the system, is supplied with power from the amplifier (SA-DV290).When repairing this equipment or checking operation of the system, be sure to connect the amplifier with it.
Power supply and operation check in the state of it as a single equipmenet are impracticable.

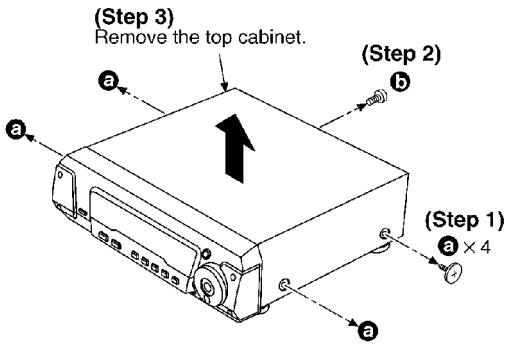
2. Operating Instructions

3. Operation Checks and Component Replacement Procedures

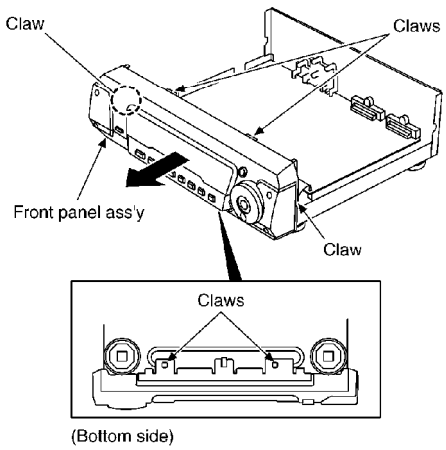
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

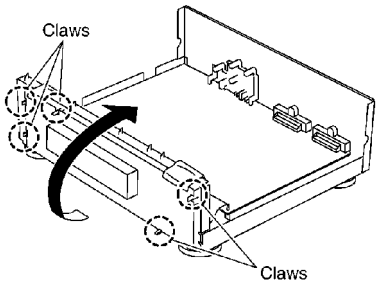
3.1. Checking for the FL P.C.B.



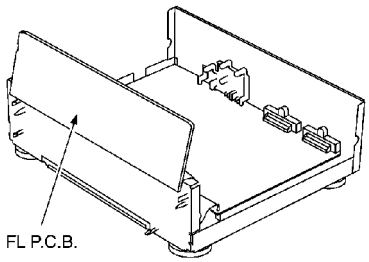
(Step 4)
Release the 6 claws, and then remove the front panel ass'y.



(Step 5)
Release the 5 claws, and then remove the FL P.C.B..

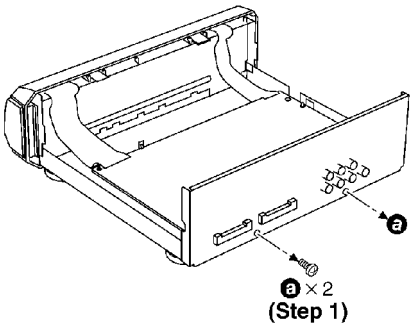


- Check the FL P.C.B. as shown below.

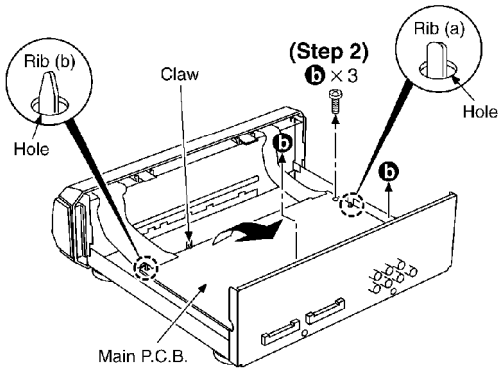


3.2. Checking for the main P.C.B.

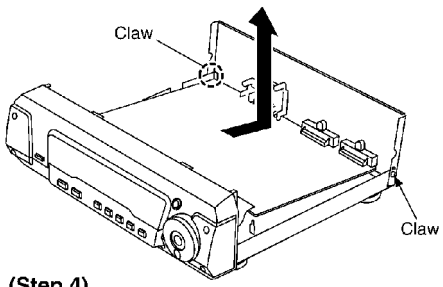
- Follow the (Step 1) - (Step 3) of item 3.1.



(Step 1)

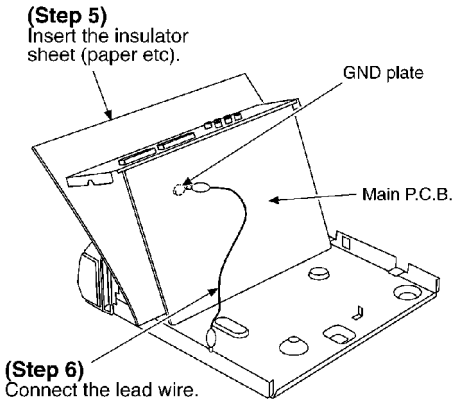


(Step 3)
Release the claw, and then lift up the main P.C.B..
(Lift up the main P.C.B. until the rib (a) and rib (b) are released from the hole of main P.C.B..)



(Step 4)
Release the 2 claws, and then remove the main P.C.B. in the direction of arrow.

- Check the main P.C.B. as shown below.



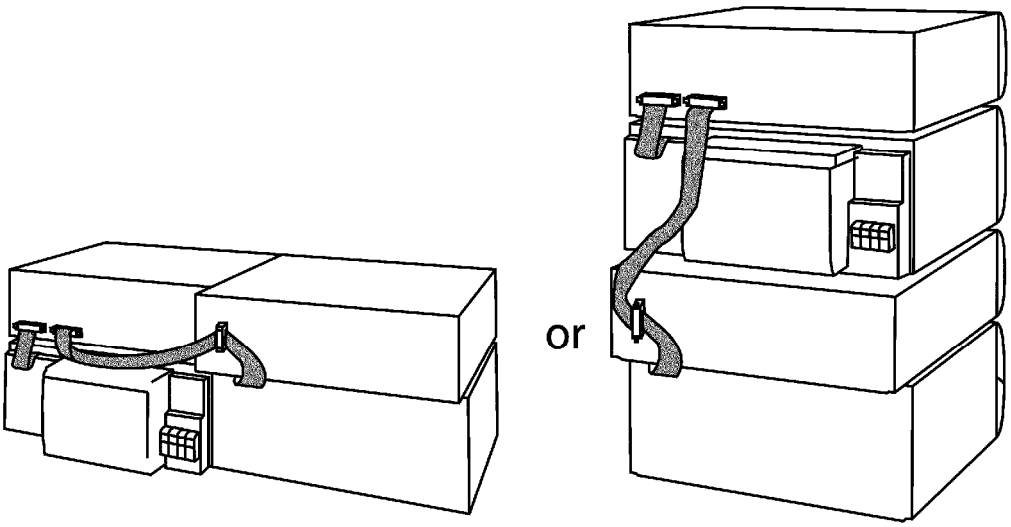
4. Wiring Connection Diagram

5. Block Diagram

6. To Supply Power Source

This unit is designed to operate on power supplied from system connected.
When a component requires service, use the system connections to supply power source.
For system connections. (Refer to Fig. 1)

Fig. 1



7. Schematic Diagram Notes

7.1. Type Illustrations of IC's, Transistors and Diodes

7.2. Schematic Diagram Notes

- This schematic diagram may be modified at any time with development of new technology.

Notes:

- **S601: Display mode (DISPLAY MODE) switch.**
- **S602: DOLBY PRO LOGIC (PRO LOGIC, OFF/ ON) switch.**
- **S603: Super surround (SUPER SURROUND) switch .**
- **S604: Super sound EQ (SUPER SOUND EQ) switch .**
- **S605: Center focus (CENTER FOCUS) switch.**
- **S606: Virtual rear surround (VIRTUAL REAR SURROUND) switch.**
- **S607: Multi rear surround (MULTI REAR SURROUND) switch.**
- **S608: Jog control ( ) switch.**
- **S609: Jog control ( ) switch.**
- **S610: Jog control ( ) switch.**
- **S611: Jog control ( ) switch.**
- **S612: Super 3D AI EQ (SUPER 3D AI EQ) switch.**
- **S613: Seat position (SEAT POSITION) switch.**
- **S614: Joystick (MULTI JOG) switch.**
- **Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internalimpedanceof the DC circuit tester. /**

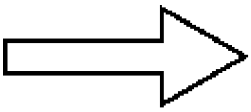
No mark: Power on

Important safety notice:
Components identified by ⚠ mark have special characteristics impotant for safety. Furthermore, special parts which have purpose of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts showninthe parts list.

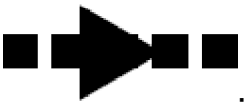
Caution!
- **IC and LSI are sensitive to static electricity.**
- **Secondary trouble can be prevented by taking care during repair.**
- **Cover the parts boxes made of plastics with aluminum foil.**
- **Ground the soldering iron.**
- **Put a conductive mat on the work table.**
- **Do not touch the legs of IC or LSI with the fingers directly.**

Voltage and signal line

: Positive voltage line



: CD Playback signal line



: Negative voltage line

8. Schematic Diagram

9. Printed Circuit Board Diagram

10. Terminal Function of IC's

10.1. IC601(C2BBGF000425):System control/FL drive

Pin No.	Mark	I/O / Division	Function
1	KEY1	I	Operation key1 signal input terminal
2	KEY2	I	Operation key2 signal input terminal
3	SP IN	I	A/D signal input terminal from IC602
4	SP A	O	Band select signal output terminal for IC602
5	SP B	O	Band select signal output terminal for IC602
6	SP C	O	Band select signal output terminal for IC602
7	SA CS	I	Chip select signal input terminal
8	DSP RST	O	Reset signal output terminal for IC401
9	DSP CS	O	Chip select signal output terminal for IC401
10	DSP SNS	I	Sense signal input terminal from IC401
11	DSP ACK	I	Acknowledge signal input terminal from IC401
12	DSP CK	O	Clock signal output terminal for IC401

Pin No.	Mark	I/O / Division	Function
13	DSP DO	O	Data signal output terminal for IC401
14	DSP DI	I	Data signal input terminal for IC401
15	JOGA	I	JOG A signal input terminal
16	JOGB	I	JOG B signal input terminal
17	CNVSS	I	Connected to GND through resistor
18	RESET	I	System reset signal input terminal
19	NC	-	Not used, open
20	NC	-	Not used, open
21	VSS	-	GND terminal
22	XIN	I	Ceramic oscillator input terminal (f=4MHz)
23	XOUT	O	Ceramic oscillator output terminal (f=4MHz)
24	VCC	I	Power supply input terminal
25	NC	-	Not used, open
26	NC	-	Not used, open
27	LED CFO	O	ORANGE LED(CENTER FOCUS) signal output terminal
28	LED CFG	O	GREEN LED(CENTER FOCUS) signal output terminal
29	BR93 DATA	I	Data signal input terminal from EEPROM
30	BR93 CS	-	Not used, open
31	BR93 CK	-	Not used, open
32	SYNC	I	Power failure detect signal input terminal
33	SA REQ	O	Request signal output terminal for Tuner/Amplifier
34	SA CK	O	Serial communication signal output terminal for Tuner/Amplifier
35	SA DO	O	Serial communication signal output terminal for Tuner/Amplifier
36	SA DI	I	Serial communication signal input terminal from Tuner/Amplifier

Pin No.	Mark	I/O / Division	Function
37	LED SSS	O	LED(SUPER SURROUND)signal output terminal
38	LED DPL	O	LED(DOLBY PRO LOGIC) signal output terminal
39	LED SPO	O	ORANGE LED (SEAT POSITION) signal output terminal
40	LED SPG	O	GREEN LED (SEAT POSITION) signal output terminal
41	LED 3DO	O	ORANGE LED (3D ENHANCED SURROUND) signal output terminal
42	LED 3DG	O	GREEN LED (3D ENHANCED SURROUND) signal output terminal
43	LED MRO	O	ORANGE LED (MULTI REAR SURROUND) signal output terminal
44	LED MRG	O	GREEN LED (MULTI REAR SURROUND) signal output terminal
45	LED VRO	O	ORANGE LED (VIRTUAL REAR SURROUND) signal output terminal
46	LED VRG	O	GREEN LED (VIRTUAL REAR SURROUND) signal output terminal
47-80	P1-P34	O	Segment signal output terminal
81	---	-	Not used, open
82-88	7G-1G	O	Grid signal output terminal
89	VEE	I	Power supply input terminal
90	CD& DECK DI	I	Data signal input terminal (DVD and deck machanism)
91	CD& DECK DO	O	Data signal output terminal (DVD and deck machanism)
92	CD& DECK CK	I	Clock signal input terminal (DVD and deck machanism)
93	NC	-	Not used, open

Pin No.	Mark	I/O / Division	Function
94	CD REQ	O	Serial data request signal output terminal for DVD
95	DECK REQ	O	Serial data request signal output terminal for deck machanism
96	CD& DECK CS	I	Chip select signal input terminal (DVD and deck machanism)
97	AVSS	-	GND terminal
98	VREF	I	Reference voltage input terminal
99	REG IN0	I	Destination select signal input terminal
100	REG IN1	I	Destination select signal input terminal

11. Replacement Parts List

Note:

***Important safety notice:**
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fireretardant (resistors), high-quality sound (capacitors), lownoise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
***The markings (RTL) indicate the retention time is limited for this items. After the discontinuation of this assemblies in production, it will no longer be available.**
***Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)**
***Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM), 1M=1,000K (OHM)**
***All parts are supplied by SPC.**

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKA0105-K	RUBBER	4	
2	RKA0106-N	FOOT RING	4	
3	RYP1176-S	FRONT PANEL ASS'Y	1	
3-1	RGB0025-A	TECHNICS BADGE	1	
3-2	RKW0576A-1V	FL WINDOW	1	
3-3	RGK1242-S	JOG RING ORNAMENT	1	
3-4	RGW0344-S1	JOG KNOB	1	
3-5	RGW0345-S	JOY KNOB	1	
3-6	RMB0594	JOY SPRING	1	
3-7	RMQ0882	JOY LEVER	1	
3-8	RMQ0883	JOY SUPPORT	1	
3-9	RMQ0884	JOY BASE	1	
3-10	RMQ0885	JOG KNOB BASE	1	
3-11	RMX0169	RING	1	
4	XTB3+8JFZ	SCREW	11	
5	RHD30007-1S	SCREW	4	
6	RKM0400-S1	TOP CABINET	1	
7	RMN0526	FL HOLDER	1	
8	REZ1299	WIRE ASS'Y	1	
9	RGR0285E-F	REAR PANEL	1	
C109	ECA1CAK100XB	16V 10U	1	
C131-36	ECUV1H101KCV	50V 100P	6	ECJ1VC1H101K
C143	ECUV1H101KCV	50V 100P	1	ECJ1VC1H101K
C201-04	ECBT1H331KB3	50V 330P	4	
C205,06	ECBT1H330J5	50V 33P	2	F1D1H330A006
C207,08	ECEA1HKA4R7	50V 4.7U	2	
C209,10	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C211,12	ECBT1H104KB5	50V 0.1U	2	F1D1H1040002
C213-15	ECBT1H470J3	50V 47P	3	
C216,17	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C221,22	ECBA1H101KB5	50V 100P	2	
C223,24	ECA1CAK100XB	16V 10U	2	
C225-33	ECBA1H101KB5	50V 100P	9	
C288,89	ECA1CAK100XB	16V 10U	2	
C301-04	ECEA1HKA4R7	50V 4.7U	4	
C305,06	ECBA1H101KB5	50V 100P	2	
C307,08	ECBT1H100JC5	50V 10P	2	F1D1H100A015
C309,10	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C311	ECA1CAK100XB	16V 10U	1	
C312	ECA1CAK220XB	16V 22U	1	
C313,14	ECA1CAK100XB	16V 10U	2	
C315,16	ECBA1H101KB5	50V 100P	2	
C317	ECBT1C562KR5	16V 5600P	1	F1D1C562A010
C318	ECBT1H270J5	50V 27P	1	ECBT1H270J3
C319-22	ECA1CAK100XB	16V 10U	4	
C323,24	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C327	ECBT1H333KB5	50V 0.033U	1	ECBT1H333KB3
C328,29	ECA1CAK220XB	16V 22U	2	
C343,44	ECA1CAK100XB	16V 10U	2	
C345,46	ECBA1H101KB5	50V 100P	2	
C347,48	ECBT1H220J5	50V 22P	2	F1D1H220A006
C349,50	ECA1CAK100XB	16V 10U	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C351,52	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C354	ECA1CAK100XB	16V 10U	1	
C356	ECA1CAK100XB	16V 10U	1	
C401	ECJ1VB1E223K	25V 0.022U	1	
C402,03	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C404	ECA0JAK470XH	6.3V 47U	1	
C501	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C502	ECBT1H331KB3	50V 330P	1	
C503,04	ECBA1H101KB5	50V 100P	2	
C505	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C506	ECA1CAK330XB	16V 33U	1	
C507	RCE1HKAR47BG	50V 0.47U	1	F2A1HR47A015
C508	ECA1CAK100XB	16V 10U	1	
C509,10	ECA1CAK220XB	16V 22U	2	
C511	ECA1CAK100XB	16V 10U	1	
C512	ECA1CAK330XB	16V 33U	1	
C601	ECBT1H104KB5	50V 0.1U	1	F1D1H1040002
C602	ECA0JM102	6.3V 1000U	1	
C603,04	ECBT1H102KB3	50V 1000P	2	
C605	ECA1VAK330XB	35V 33U	1	
C606,07	ECBT1H471KB3	50V 470P	2	
C608	ECBT1H221KB3	50V 220P	1	
C609,10	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C611	ECA1HAK3R3XB	50V 3.3U	1	
C612,13	F2A1C220A034	16V 22U	2	
C614	ECA1CAK100XB	16V 10U	1	
C615	ECA1VAK330XB	35V 33U	1	
C616	ECEA1VKS330Q	35V 33U	1	
C618,19	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C620,21	ECA1HAK0R1XB	50V 0.1U	2	
C622,23	ECBT1H104KB5	50V 0.1U	2	F1D1H1040002
C624	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C625	ECA0JAK101XB	6.3V 100U	1	
C626	ECBT1H473KB5	50V 0.047U	1	F1D1H473A012
C627,28	F2A1C220A034	16V 22U	2	
C753,54	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C761-63	ECBT1C103MS5	16V 0.01U	3	F1D1C103A004
C764	ECA1AAK221XH	10V 220U	1	
C765	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C766	ECA1CAK100XB	16V 10U	1	
C767	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C768	ECA1CAK100XB	16V 10U	1	
C769	ECBT1C103MS5	16V 0.01U	1	F1D1C103A004
C770	ECA1CAK100XB	16V 10U	1	
C771,72	ECBT1C103MS5	16V 0.01U	2	F1D1C103A004
C773	ECA1AAK221XH	10V 220U	1	
C774	ECA1CAM221XB	16V 220U	1	
C801	ECJ1VC1H120J	50V 12P	1	
C802	ECJ1VC1H050C	50V 5P	1	
C803	ECJ1VB1H102K	50V 1000P	1	
C804	ECJ1VB1C104K	16V 0.1U	1	
C805	ECJ1VB0J105K	6.3V 1U	1	
C806,07	ECJ1VB1H222K	50V 2200P	2	
C808-10	ECUVNH103KBV	50V 0.01U	3	F1H1H103A748

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C811	ECJ1VB1E223K	25V 0.022U	1	
C812	ECJ1VB1C104K	16V 0.1U	1	
C813	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C814	ECJ1VB0J105K	6.3V 1U	1	
C815	ECJ1VB1E223K	25V 0.022U	1	
C816	ECJ1VB1C104K	16V 0.1U	1	
C818,19	ECJ1VB1H681K	50V 680P	2	
C820,21	ECEA1HKA4R7	50V 4.7U	2	
C822	ECA0JAK470XH	6.3V 47U	1	
C823	EEAFC0J101B	6.3V 100U	1	
C824	ECA0JAK470XH	6.3V 47U	1	
C825-32	ECEA1HKA4R7	50V 4.7U	8	
C833-35	ECA0JAK470XH	6.3V 47U	3	
C836,37	ECA1CAK100XB	16V 10U	2	
C838,39	ECA1HAK010XI	50V 1U	2	
C851,52	ECJ1VB1H222K	50V 2200P	2	
C853,54	ECA1CAK100XB	16V 10U	2	
C855,56	ECEA1HKA4R7	50V 4.7U	2	
C857,58	ECJ1VB1C104K	16V 0.1U	2	
C859	ECEA1HKA4R7	50V 4.7U	1	
C860	ECJ1VB1H222K	50V 2200P	1	
C861	ECJ1VB1H561K	50V 560P	1	
C862	ECUV1H471KBV	50V 470P	1	F1H1H471A013
C863,64	ECA0JAK470XH	6.3V 47U	2	
C865	ECJ1VB0J105K	6.3V 1U	1	
C866-68	ECA1HAK010XI	50V 1U	3	
C869	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C870	EEAFC0J101B	6.3V 100U	1	
C871,72	ECJ1VB1H222K	50V 2200P	2	
C873-76	ECA1HAK010XI	50V 1U	4	
C877,78	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C879,80	ECJ1VB1H222K	50V 2200P	2	
C881,82	ECA1HAK010XI	50V 1U	2	
C883	ECA0JAK470XH	6.3V 47U	1	
C884	ECJ1VB1H222K	50V 2200P	1	
C886	EEAFC0J101B	6.3V 100U	1	
C887,88	ECA0JAK470XH	6.3V 47U	2	
C891	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C892	ECA0JAK470XH	6.3V 47U	1	
C893	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C894-97	ECJ1VB1E223K	25V 0.022U	4	
C898	EEAFC0J101B	6.3V 100U	1	
C899	ECA0JAK470XH	6.3V 47U	1	
CN201	RJT065A20	SYSTEM CONNECTOR(20P)	1	K1FA220B0007
CN202	RJT065K20	SYSTEM CONNECTOR(20P)	1	K1FA220B0006
D201	MAZ40560MF	DIODE	1	
D203	MA165TA5	DIODE	1	MA2C16500E
D204	MA719	DIODE	1	MA2C719
D301	MA700	DIODE	1	MA2C700
D302	MA165TA5	DIODE	1	MA2C16500E
D304,05	MA719	DIODE	2	MA2C719
D601-04	1SS291TA	DIODE	4	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D605-10	MA165TA5	DIODE	6	MA2C16500E
D611,12	LNJ301MPUJAD	LED	2	
D613-17	B3AHA0000012	LED	5	
D653	MA165TA5	DIODE	1	MA2C16500E
D761	MA4082LTA	DIODE	1	MAZ40820LF
D762	B0AAMM000009	DIODE	1	
D763-66	MA165TA5	DIODE	4	MA2C16500E
D767	MA4051M	DIODE	1	MAZ40510M
D770	MA4062H	DIODE	1	MAZ40620H
D771	MA4051-L	DIODE	1	MAZ40510L
D772	MA165TA5	DIODE	1	MA2C16500E
FL601	A2BD00000041	FL DISPLAY TUBE	1	
IC201	NJU7313AMT2	IC	1	C0JZAS000002
IC202	NJM4558MTE1	IC	1	C0ABBB000109
IC203	C0JBAR000292	IC	1	
IC301	M5218AP	IC	1	C0AABB000055
IC302,03	NJM4558MTE1	IC	2	C0ABBB000109
IC401	C2BBFD000246	IC	1	
IC501	NJM4558MTE1	IC	1	C0ABBB000109
IC601	C2BBGF000425	IC	1	
IC602	M62457AFPE1	IC	1	C1BB00000486
IC801	C2HBZC000010	IC	1	
IC802	C2HBZC000008	IC	1	
JK101	SJF3068-7N	JACK,VDP(AUX)	1	K2HA102B0046
JK102	SJF3069-5N	JACK,VCR(EXT)IN/OUT	1	K2HA204B0083
JK103	SJFD7	JACK,SUB WOOFER OUT	1	K4BK01B00002
L101	RLBV252AV-Y	COIL	1	J0JBC0000019
L301,02	RLQA3R3JT1-Y	COIL	2	G0C3R3JA0019
L401	RLQB100JTD-D	COIL	1	G0C100JA0030
L502	RLBV252AV-Y	COIL	1	J0JBC0000019
L601	G0C100JA0019	COIL	1	
L801	J0JCC0000077	COIL	1	
L802	RLBV102V-Y	COIL	1	J0JBC0000014
L804	RLBV102V-Y	COIL	1	J0JBC0000014
L806	RLBV102V-Y	COIL	1	J0JBC0000014
L807	G0A200D00002	COIL	1	⚠
L808	RLQB100JTD-D	COIL	1	G0C100JA0030
L811	RLBV102V-Y	COIL	1	J0JBC0000014
L814	G0A200D00002	COIL	1	⚠
L821,22	RLBV252AV-Y	COIL	2	J0JBC0000019
PCB1	REP3073H-M	MAIN P.C.B. ASS'Y	1	[RTL]
Q301-04	2SD2144S	TRANSISTOR	4	
Q305,06	UN411FTA	TRANSISTOR	2	UNR411F00A
Q307-10	2SD2144S	TRANSISTOR	4	
Q313-16	2SD2144S	TRANSISTOR	4	
Q501,02	UN411FTA	TRANSISTOR	2	UNR411F00A
Q503-05	2SD2144S	TRANSISTOR	3	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q506	UN411FTA	TRANSISTOR	1	UNR411F00A
Q507	2SD2144S	TRANSISTOR	1	
Q601	UN4211	TRANSISTOR	1	UNR4211
Q602-04	2SC3311A	TRANSISTOR	3	2SC3311AW
Q605,06	UN5211TX	TRANSISTOR	2	UNR521100L
Q761,62	2SD2137PQTA	TRANSISTOR	2	2SD21370PA
Q763	2SD592A	TRANSISTOR	1	2SD0592AW
Q764	2SB0621AHA	TRANSISTOR	1	
Q765	2SC3311A	TRANSISTOR	1	2SC3311AW
Q766	2SA1309ATA	TRANSISTOR	1	2SA1309AWA
Q767	2SC3311A	TRANSISTOR	1	2SC3311AW
Q768	2SC3940AQSTA	TRANSISTOR	1	2SC3940ARA
R101,02	ERDS2FJ104	1/4W 100K	2	
R103,04	ERDS2FJ102	1/4W 1K	2	
R105,06	ERDS2FJ123	1/4W 12K	2	
R107,08	ERDS2FJ332	1/4W 3.3K	2	
R111,12	ERDS2FJ332	1/4W 3.3K	2	
R113,14	ERDS2FJ123	1/4W 12K	2	
R127	ERDS2FJ104	1/4W 100K	1	
R128	ERDS2FJ102	1/4W 1K	1	
R129,30	ERDS2T0	1/4W 0	2	
R131	ERJ3GEY0R00V	1/16W 0	1	
R203,04	ERDS2FJ222	1/4W 2.2K	2	
R205,06	ERDS2FJ563	1/4W 56K	2	
R207,08	ERDS2FJ273	1/4W 27K	2	
R209,10	ERDS2FJ104	1/4W 100K	2	
R211-14	ERDS2FJ222	1/4W 2.2K	4	
R219	ERDS2FJ391	1/4W 390	1	
R220	ERDS2FJ104	1/4W 100K	1	
R221,22	ERDS2FJ221	1/4W 220	2	
R223,24	ERDS2FJ223	1/4W 22K	2	
R225,26	ERDS2FJ102	1/4W 1K	2	
R227,28	ERDS2TJ682	1/4W 6.8K	2	
R229,30	ERDS2FJ822	1/4W 8.2K	2	
R233-36	ERDS2FJ102	1/4W 1K	4	
R237,38	ERDS2FJ822	1/4W 8.2K	2	
R239	ERDS2FJ473	1/4W 47K	1	
R240	ERDS2FJ102	1/4W 1K	1	
R249,50	ERDS2FJ152	1/4W 1.5K	2	
R255,56	ERDS2FJ472	1/4W 4.7K	2	
R257,58	ERDS2FJ822	1/4W 8.2K	2	
R259,60	ERDS2T0	1/4W 0	2	
R284,85	ERDS2T0	1/4W 0	2	
R286,87	ERDS2FJ393	1/4W 39K	2	
R288-91	ERDS2T0	1/4W 0	4	
R295,96	ERDS2T0	1/4W 0	2	
R297,98	ERDS2FJ471	1/4W 470	2	
R303,04	ERDS2FJ223	1/4W 22K	2	
R305-08	ERDS2FJ102	1/4W 1K	4	
R309,10	ERDS2FJ561	1/4W 560	2	
R311	ERDS2FJ223	1/4W 22K	1	
R312	ERDS2FJ182	1/4W 1.8K	1	
R313,14	ERDS2TJ392	1/4W 3.9K	2	

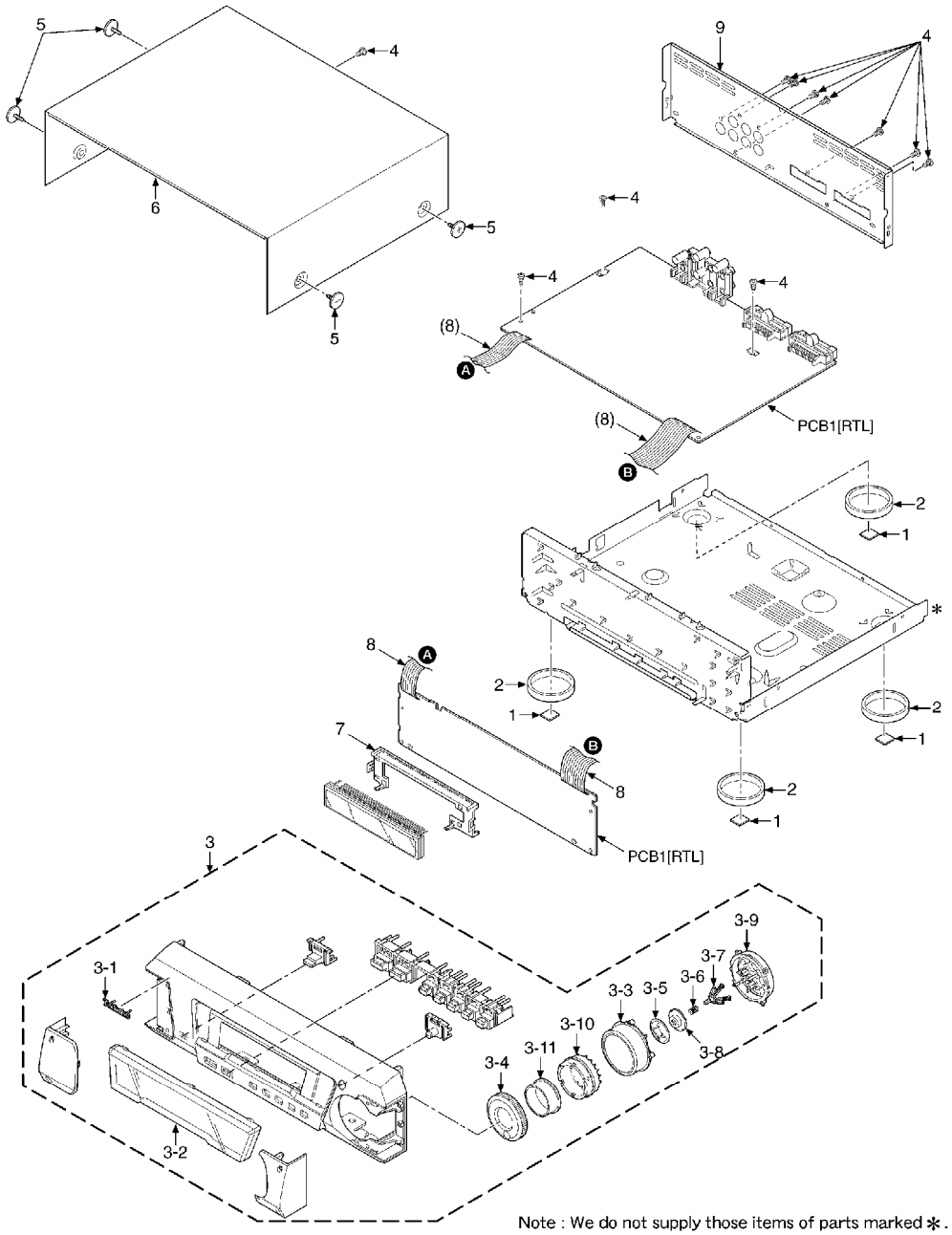
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R315,16	ERDS2FJ274	1/4W 270K	2	
R317	ERDS2FJ223	1/4W 22K	1	
R318	ERDS2FJ101	1/4W 100	1	
R319	ERDS2FJ154	1/4W 150K	1	
R322	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R323,24	ERDS2FJ120	1/4W 12	2	
R325,26	ERDS2FJ102	1/4W 1K	2	
R327,28	ERDS2FJ561	1/4W 560	2	
R329	ERDS2FJ564	1/4W 560K	1	
R330	ERDS2TJ184T	1/4W 180K	1	
R331,32	ERDS2FJ222	1/4W 2.2K	2	
R333,34	ERDS2FJ563	1/4W 56K	2	
R335,36	ERDS2FJ102	1/4W 1K	2	
R337	ERDS2FJ391	1/4W 390	1	
R338	ERDS2FJ471	1/4W 470	1	
R345-47	ERDS2FJ102	1/4W 1K	3	
R348	ERDS2FJ222	1/4W 2.2K	1	
R349	ERDS2FJ123	1/4W 12K	1	
R350	ERDS2FJ103	1/4W 10K	1	
R351	ERDS2FJ224	1/4W 220K	1	
R352	ERDS2FJ103	1/4W 10K	1	
R353	ERDS2FJ224	1/4W 220K	1	
R354	ERDS2FJ562	1/4W 5.6K	1	
R357,58	ERDS2FJ223	1/4W 22K	2	
R359,60	ERDS2FJ821	1/4W 820	2	
R361,62	ERDS2TJ682	1/4W 6.8K	2	
R363,64	ERDS2FJ102	1/4W 1K	2	
R365,66	ERDS2TJ184T	1/4W 180K	2	
R367,68	ERDS2FJ471	1/4W 470	2	
R372	ERDS2T0	1/4W 0	1	
R374	ERDS2T0	1/4W 0	1	
R402	ERJ3GEYJ104	1/16W 100K	1	
R403	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R404	ERJ3GEYJ104	1/16W 100K	1	
R405-10	ERJ3GEYJ221V	1/16W 220	6	
R411	ERDS2FJ102	1/4W 1K	1	
R414,15	ERDS2FJ102	1/4W 1K	2	
R417	ERJ3GEYJ221V	1/16W 220	1	
R419	ERDS2FJ101	1/4W 100	1	
R420	ERDS2FJ102	1/4W 1K	1	
R421	ERDS2FJ101	1/4W 100	1	
R424	ERDS2FJ102	1/4W 1K	1	
R425,26	ERDS2FJ472	1/4W 4.7K	2	
R429	ERDS2FJ472	1/4W 4.7K	1	
R430,31	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R432	ERDS2FJ102	1/4W 1K	1	
R501	ERDS2FJ152	1/4W 1.5K	1	
R502	ERDS2FJ102	1/4W 1K	1	
R503	ERDS2FJ122	1/4W 1.2K	1	
R504	ERDS2TJ124	1/4W 120K	1	
R505	ERDS2FJ102	1/4W 1K	1	
R506	ERDS2TJ272T	1/4W 2.7K	1	
R507	ERDS2TJ105	1/4W 1M	1	
R508	ERDS2FJ104	1/4W 100K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R509	ERDS2FJ222	1/4W 2.2K	1	
R510	ERDS2FJ104	1/4W 100K	1	
R511	ERDS2TJ105	1/4W 1M	1	
R512	ERDS2FJ154	1/4W 150K	1	
R513	ERDS2FJ102	1/4W 1K	1	
R514	ERDS2FJ101	1/4W 100	1	
R515	ERDS2FJ223	1/4W 22K	1	
R517	ERDS2FJ821	1/4W 820	1	
R518	ERDS2FJ222	1/4W 2.2K	1	
R519	ERDS2FJ154	1/4W 150K	1	
R520	ERDS2FJ122	1/4W 1.2K	1	
R601-03	ERDS2FJ102	1/4W 1K	3	
R604,05	ERDS2FJ103	1/4W 10K	2	
R606	ERDS2FJ102	1/4W 1K	1	
R607,08	ERDS2FJ221	1/4W 220	2	
R609	ERDS2FJ222	1/4W 2.2K	1	
R610	ERDS2FJ332	1/4W 3.3K	1	
R611	ERDS2FJ101	1/4W 100	1	
R612	ERDS2FJ102	1/4W 1K	1	
R613	ERDS2FJ562	1/4W 5.6K	1	
R614-17	ERDS2FJ102	1/4W 1K	4	
R618	ERDS2FJ104	1/4W 100K	1	
R619	ERDS2FJ681	1/4W 680	1	
R622,23	ERDS2FJ104	1/4W 100K	2	
R624-29	ERDS2TJ181	1/4W 180	6	
R631	ERDS2FJ821	1/4W 820	1	
R632	ERDS2FJ102	1/4W 1K	1	
R633	ERDS2FJ122	1/4W 1.2K	1	
R634	ERDS2FJ152	1/4W 1.5K	1	
R635	ERDS2FJ182	1/4W 1.8K	1	
R636	ERDS2FJ222	1/4W 2.2K	1	
R637	ERDS2FJ821	1/4W 820	1	
R638	ERDS2FJ102	1/4W 1K	1	
R639	ERDS2FJ122	1/4W 1.2K	1	
R640	ERDS2FJ152	1/4W 1.5K	1	
R641	ERDS2FJ182	1/4W 1.8K	1	
R642	ERDS2FJ222	1/4W 2.2K	1	
R647	ERDS2FJ223	1/4W 22K	1	
R648-50	ERDS2FJ104	1/4W 100K	3	
R651	ERDS2FJ102	1/4W 1K	1	
R652,53	ERDS2FJ472	1/4W 4.7K	2	
R654-56	ERDS2FJ103	1/4W 10K	3	
R657	ERDS2FJ473	1/4W 47K	1	
R658,59	ERDS2FJ472	1/4W 4.7K	2	
R660	ERDS2FJ473	1/4W 47K	1	
R661	ERDS2FJ223	1/4W 22K	1	
R662	ERDS2FJ102	1/4W 1K	1	
R663,64	ERDS2FJ331	1/4W 330	2	
R665-67	ERDS2FJ473	1/4W 47K	3	
R668	ERDS2FJ222	1/4W 2.2K	1	
R671-80	ERJ6GEYJ104V	1/10W 100K	10	
R681	ERJ3GEYJ222V	1/16W 2.2K	1	
R682	ERJ3GEY0R00V	1/16W 0	1	
R686	ERJ3GEY0R00V	1/16W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R691,92	ERDS2FJ221	1/4W 220	2	
R716	ERDS2FJ821	1/4W 820	1	
R761,62	ERDS2FJ2R2	1/4W 2.2	2	
R763	ERQ16NKWR33E	1/6W 0.33	1	
R764	ERDS2FJ821	1/4W 820	1	
R765	ERDS2FJ221	1/4W 220	1	
R766	ERDS2FJ182	1/4W 1.8K	1	
R767	ERDS2FJ102	1/4W 1K	1	
R768,69	ERDS2FJ122	1/4W 1.2K	2	
R770	ERD2FCJ4R7	1/4W 4.7	1	
R771	ERDS2FJ102	1/4W 1K	1	
R772	ERDS2FJ122	1/4W 1.2K	1	
R773	ERDS2FJ102	1/4W 1K	1	
R774	ERDS2FJ221	1/4W 220	1	
R801	ERJ3GEYJ221V	1/16W 220	1	
R802	ERJ3GEYJ105V	1/16W 1M	1	
R803	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R804-07	ERJ3GEYJ271V	1/16W 270	4	
R808-10	ERJ3GEYJ331V	1/16W 330	3	
R811	ERJ3GEYJ472V	1/16W 4.7K	1	
R812	ERJ3GEYJ331V	1/16W 330	1	
R813	ERJ3GEYJ472V	1/16W 4.7K	1	
R814	ERJ3GEYJ104	1/16W 100K	1	
R815-20	ERJ3GEYJ102V	1/16W 1K	6	
R821	ERJ3GEYJ331V	1/16W 330	1	
R823	ERJ3GEYJ331V	1/16W 330	1	
R824,25	ERDS2TJ823	1/4W 82K	2	
R827	ERJ3GEY0R00V	1/16W 0	1	
R829	ERJ3GEYJ222V	1/16W 2.2K	1	
R830	ERJ3GEYJ472V	1/16W 4.7K	1	
R833,34	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R835,36	ERJ3GEYJ152V	1/16W 1.5K	2	
R851,52	ERJ3GEYJ102V	1/16W 1K	2	
R854	ERJ3GEYJ183V	1/16W 18K	1	D0GB183JA002
R855	ERJ3GEYJ393V	1/16W 39K	1	D0GB393JA002
R856	ERJ3GEY0R00V	1/16W 0	1	
R857-59	ERJ3GEYJ103V	1/16W 10K	3	D0GB103JA002
R860	ERJ3GEYJ560V	1/16W 56	1	
R861	ERJ3GEYJ104	1/16W 100K	1	
R863,64	MCR03PZHJ561	1/16W 560	2	
R866	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R867,68	MCR03PZHJ561	1/16W 560	2	
R869-72	ERJ3GEYJ271V	1/16W 270	4	
R873,74	ERJ3GEYJ331V	1/16W 330	2	
R875,76	ERJ3GEYJ271V	1/16W 270	2	
R877,78	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R879,80	ERJ3GEYJ222V	1/16W 2.2K	2	
R881	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R882	ERJ3GEYJ105V	1/16W 1M	1	
R888,89	ERJ3GEYJ331V	1/16W 330	2	
R890	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R891,92	ERJ3GEYJ222V	1/16W 2.2K	2	
R898	ERJ3GEY0R00V	1/16W 0	1	
R900	ERJ3GEY0R00V	1/16W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R903	ERDS2TJ124	1/4W 120K	1	
S601-07	EVQ11G05R	SW,PUSH	7	
S608-11	EVQ11G07K	SW,JOY STICK	4	
S612,13	EVQ11G05R	SW,PUSH	2	
S614	ESE24SV7	SW,MULTI JOG	1	
X401	RSXY8M00D01T	OSCILLATOR	1	H2B800400005
X601	H2B400400013	OSCILLATOR	1	
X801	RSXZ36M8M01T	OSCILLATOR	1	

12. Cabinet Parts Location



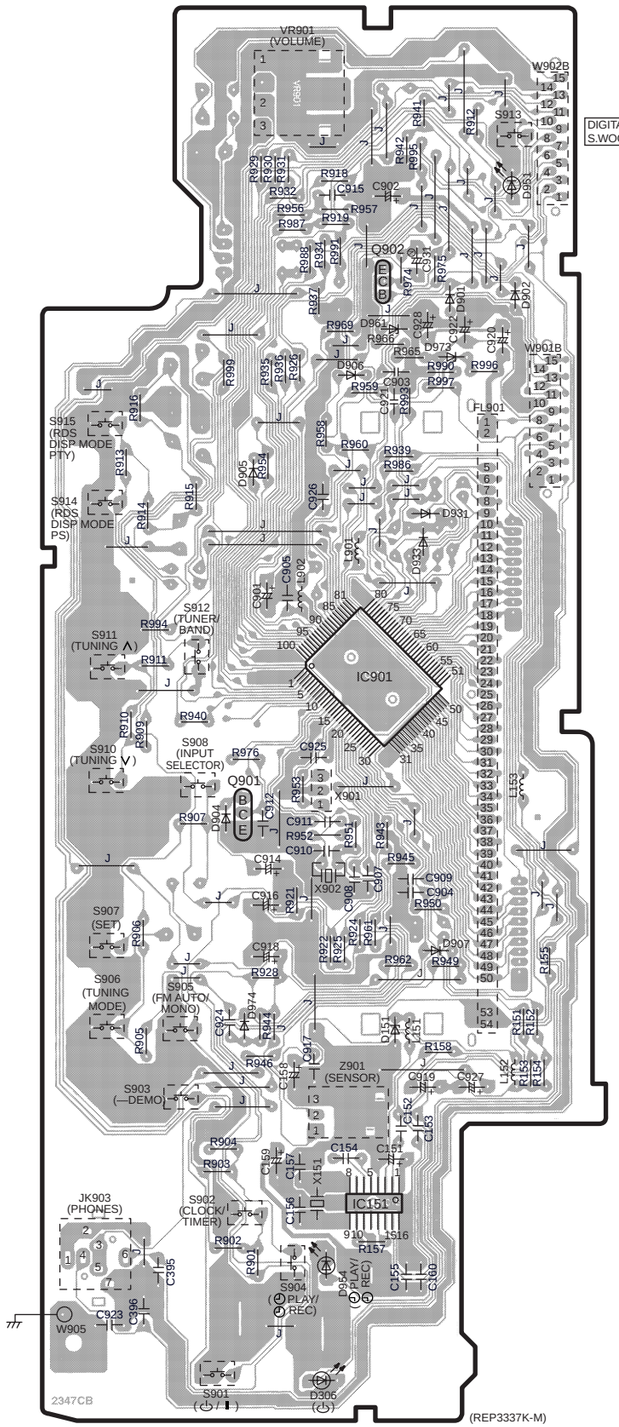
Note : We do not supply those items of parts marked ✻.
This "PCB1" is a combination PCB.

13. Schematic Diagram for printing with A4 size

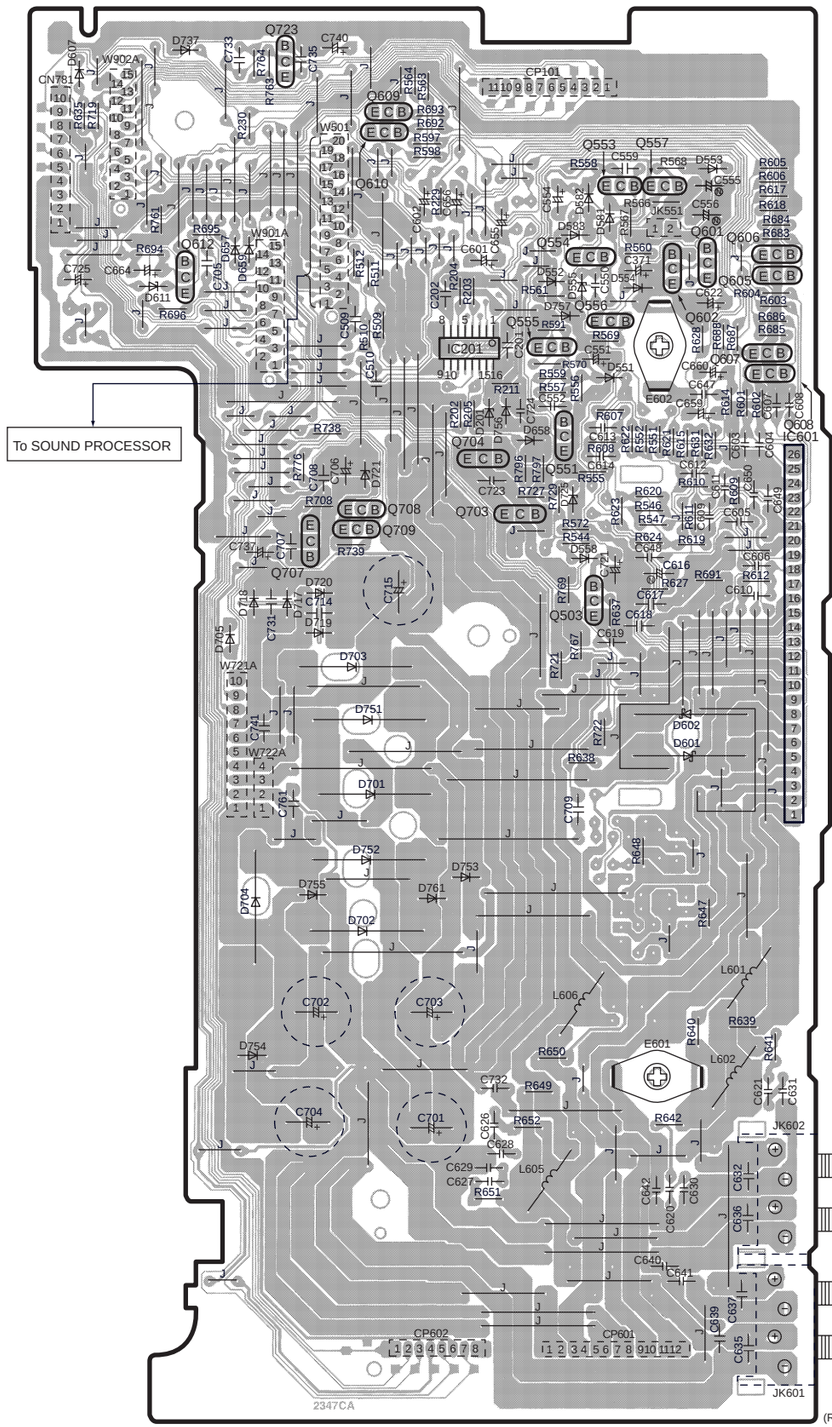
K0304YH/HM

Note: This printed circuit board diagram may be modified at any time with the development of new technology.

A OPERATION P.C.B.

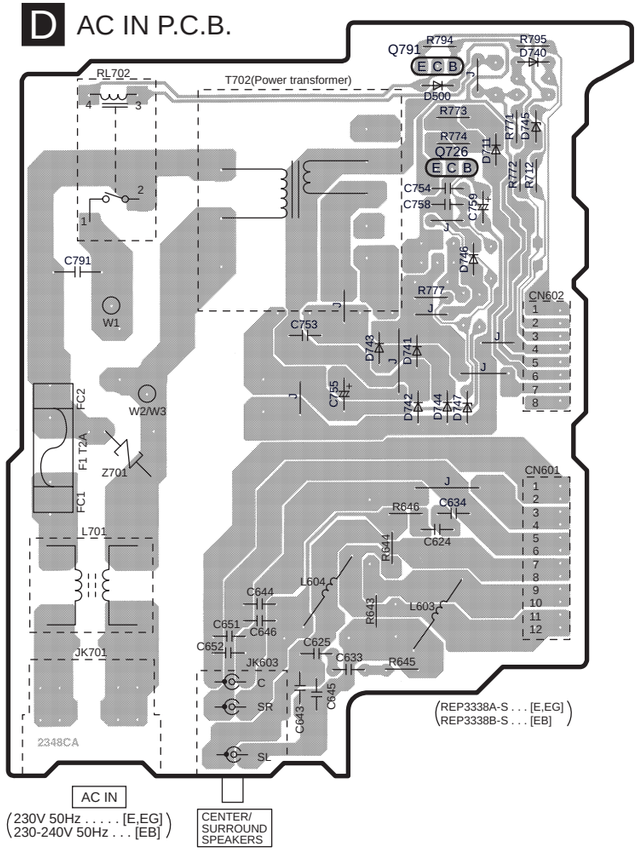


B MAIN P.C.B.

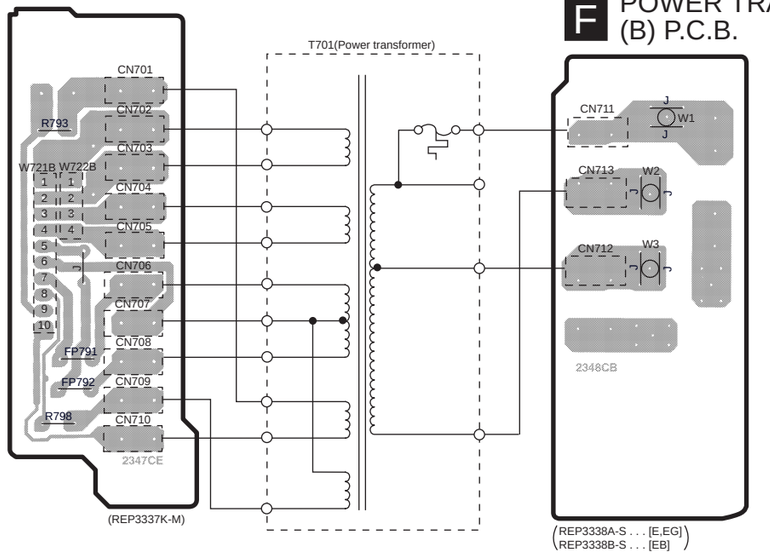


SA-DV290(E,EB,EG) OPERATION, MAIN P.C.B.

D AC IN P.C.B.

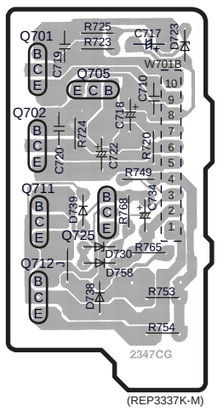


E POWER TRANSFORMER (A) P.C.B.



F POWER TRANSFORMER (B) P.C.B.

C POWER SUPPLY P.C.B.



A OPERATION CIRCUIT

: POSITIVE VOLTAGE LINE — : NEGATIVE VOLTAGE LINE — :AUDIO SIGNAL LINE

FL901 (A2BB00000115)

FL DISPLAY

IC901
C2BBFD000404
SYSTEM CONTROL/
FL DRIVE

Q901
UN4212TA
RESET

X901
(6MHz)

X902
(32.7kHz)

JK903
PHONES
3.5mm STEREO

W905

SA-DV290(E,EB,EG) OPERATION CIRCUIT DIAGRAM

A OPERATION CIRCUIT

: NEGATIVE VOLTAGE LINE
: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
: TUNER SIGNAL LINE

5.1V
VR901
EVQVBXFK124B
(VOLUME)
COM B A
R962 22K
R961 22K
C917 0.01
C918 6.3V100
R945 100
R943 100
D E A
C909 1000P
R946 1K
Z901
B3RAD0000028
(REMOTE SENSOR)
R941 1K
Q902
UN411FTA
MUTING CONT.
3.3V
3.3V
R974 1K
R942 2.2K
0V
C931 16V10
A B C
W902B
M A B C D E F G H I J K L
D906 MA165TA
D907 MA165TA
-30.1V
W901B
R N O Q 6V S P
R975 22K
R966 3.9K
R965 3.9K
D961 MA4075MTA
IC151
C1BB00000527
RDS SIGNAL
DEMODULATOR
C151 16V10
2.5V VREF
2.5V HPX IN
5.1V VDDA
VssA
2.5V FL OUT
2.5V C IN
TEST
2.7V X OUT
IDR
2.6V RDCL
2.6V RDDA
0V RST
MODE
5.1V VDDD
VssD
2.5V X IN
C B
R151 1K
R152 1K
R157 1K
R153 100K
R154 100K
C158 6.3V47
C154 560P
C155 1000P
C153 1000P
C160 1000P
C159 6.3V47
L152 100μH
L153 1μH
R155 120
D151 MA4051MTA
X151
(4.332MHz)
C157 47P
C156 47P
L151 100μH
C152 330P
R158 1K

B MAIN CIRCUIT

To SOUND PROCESSOR (SH-DV290)
W501
TUNER Lch/C 1
TUNER Rch 2
A.GND 3
Lch IN 4
Rch IN 5
+B(10V) 6
SUR L 7
SUR R 8
S.W 9
MIC 10
-B(-10V) 11
V.GND 12
D.GND 13
CS/ REQ 14
CLK 15
DATA 16
CT GND 17
SH FL1 18
SH FL2 19
SYNC 20
H G A B
R511 47
R509 47
R512 47
R510 47
10.4V
A B C D
B E F G
W902A
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
C D E F G E F J K
W901A
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
L M I 6V
A B C
7.2V
Z101
RAN0005EM-2
(TUNER PACK)
T.GND 1
+B(1) 2
SD 3
+B(2) 4
DET 5
Rch 6
CE 7
Lch 8
DI 9
DO 10
CL 11
CP101
R230 1K
R229 1K
G B F A E D C
7.6V
10.4V
R597 2.2K
R598 2.2K
R563 2.7K
R564 2.7K
C659 16V10
C660 16V10
R615 4.7K
R614 4.7K
R631 3.9K
R632 3.9K
A B
C202 0.1
R203 100K
R204 100K
0V
0V
-10.4V
IC201
BU4053BCFE2
SIGNAL SELECTOR
1 Y1
2 Y0
3 Z1
4 Z0
5 INH
6 Vss
7 G
8
VDD 16
15 5.7V
14 0V
13 X1 0V
12 X0 0V
11 A 0V
10 B
9 C
R211 270
D201 MA4056MTA
C201 0.1
R205 100K
R202 100K
C601 16V10
R617 4.7K
H G F
R603 3.3K
C656 16V10
R688 1.5K
C655 16V10
R687 1.5K
C602 16V10
R695 470
R605 4.7K
R606 4.7K
D611 MA4051MTA
C B D A E
Q605,606
2SD2144STA
MUTING
0.7V 0V
Q605
-10V 0V
Q606
4.9V 5.1V
Q612
UN411FTA
MUTING CONT.
-10.2V
R683 1K
R684 1K
R696 47K
Q707
2SB1417PQTA
REGULATOR
-30.1V -37.3V
-30.7V
C708 0.047
C707 0.047
R708 4.7K
C737 50V100
C706 35V10
D721 MA4300MTA
Q609,610
2SD2144STA
MUTING
A B C
Q609
0V -10V
Q610
0V -10V
C509 0.01
C510 0.01
R693 1K
R692 1K
R694 22K
C664 16V10
C725 16V47
Q723
2SC3940AQSTA
REGULATOR
7.2V 14.7V
7.8V
C735 0.047
C733 0.047
R764 330
R763 4.7K
C740 16V10
D737 MA4082LTA
D705 RL1N4003N02
D718 RL1N4003N02
D717 RL1N4003N02
D720 RL1N4003N02
D719 RL1N4003N02
H A D C
C731 1000P
C714 1000P
C741 0.1
C715 25V6800
14.7V

SA-DV290(E,EB,EG) OPERATION, MAIN CIRCUIT DIAGRAM

B MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE

IC601
RSN311W64B
POWER AMP

Q607
Q608
Q607, 608
2SD2144STA
MUTING

Q601
Q602
Q601,602
2SC5398RSTA
PROTECTOR

Q503
2SC5398RSTA
SWITCHING

Q708
UN4211TA
SWITCHING
(POWER)

Q709
2SD2144STA
SWITCHING
(POWER)

Q556
2SC5398RSTA
SWITCHING

Q551
2SA1995RSTA
SIGNAL LEVEL DET.

Q555
2SD2144STA
SIGNAL LEVEL DET.

Q557
2SA1995RSTA
MOTOR DRIVE

Q554
2SA1995RSTA
SIGNAL LEVEL DET.

Q553
2SD2144STA
MOTOR DRIVE

FAN MOTOR

Q704
Q703,704
2SD2137PQTA
REGULATOR

Q703

Q712
Q711,712
2SB1548PQAU
REGULATOR

Q711

Q702
2SB1548PQAU
REGULATOR

Q701
2SD2374PQAU
REGULATOR

Q725
2SC5398RSTA
STABILIZER

Q705
2SA1995RSTA
STABILIZER

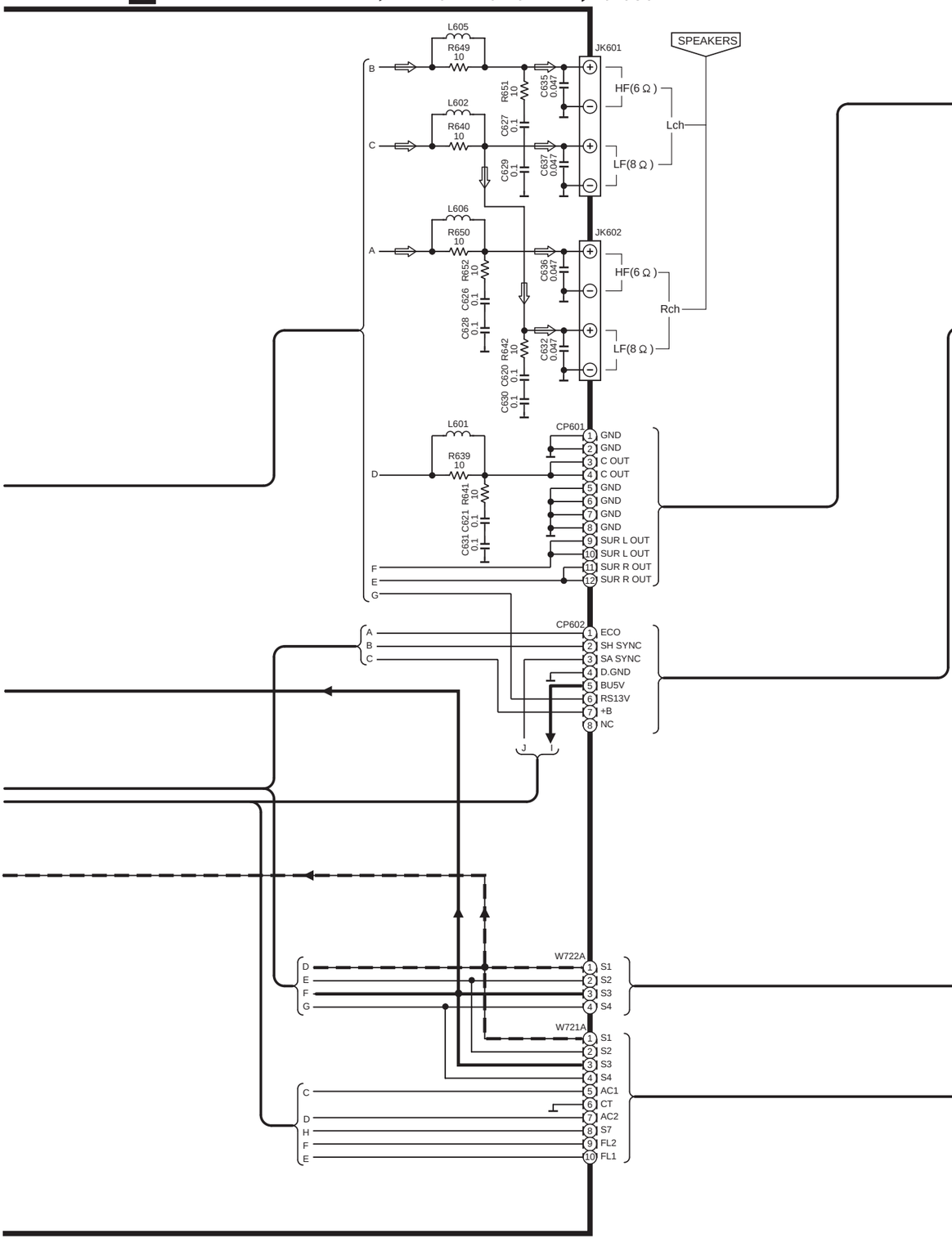
C POWER SUPPLY CIRCUIT

SA-DV290(E,EB,EG) MAIN,POWER SUPPLY CIRCUIT DIAGRAM

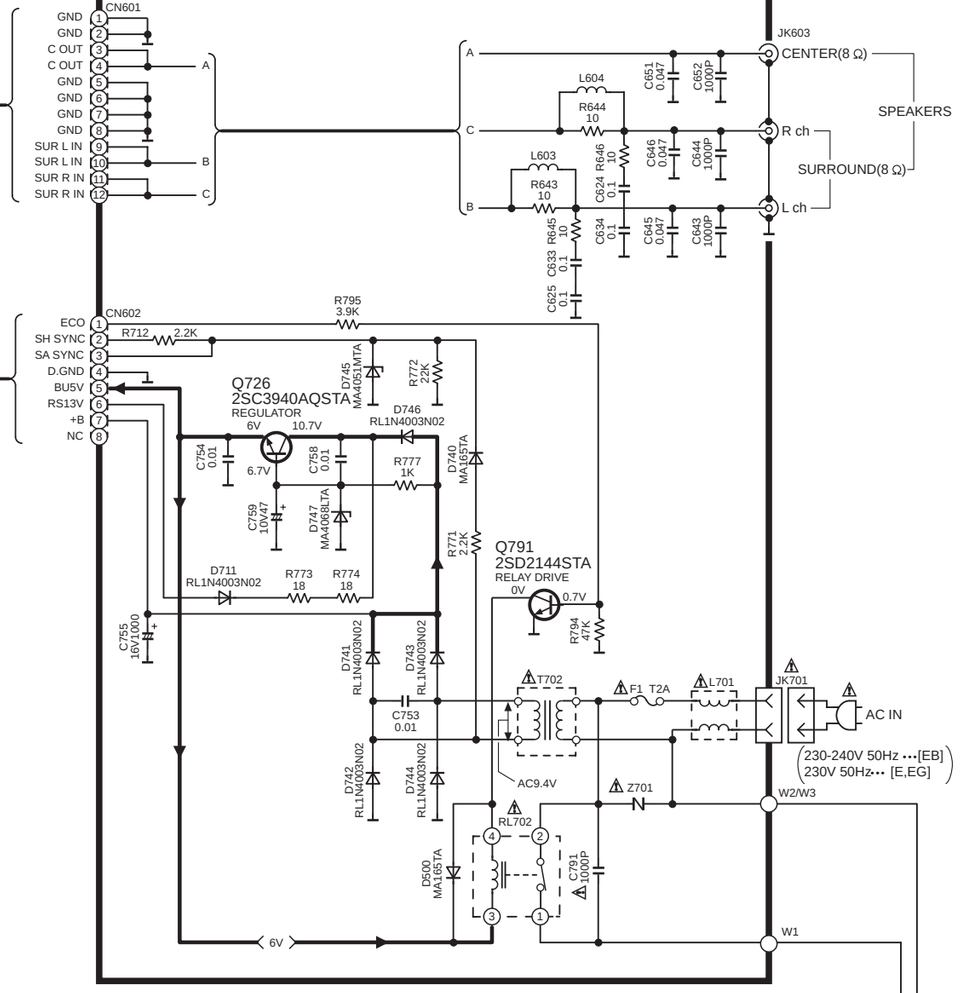
25 26 27 28 29 30 31 32 33 34 35 36

B MAIN CIRCUIT

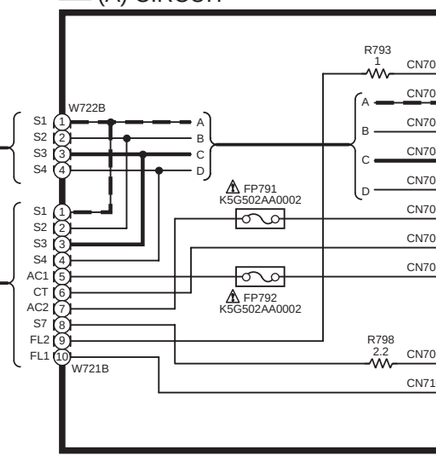
: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE



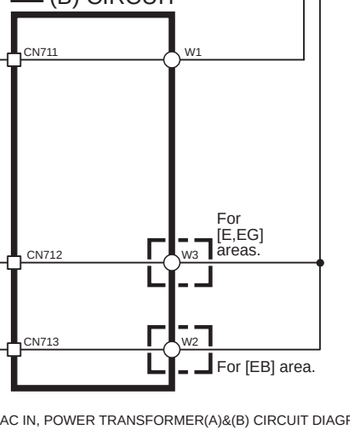
D AC IN CIRCUIT



E POWER TRANSFORMER (A) CIRCUIT

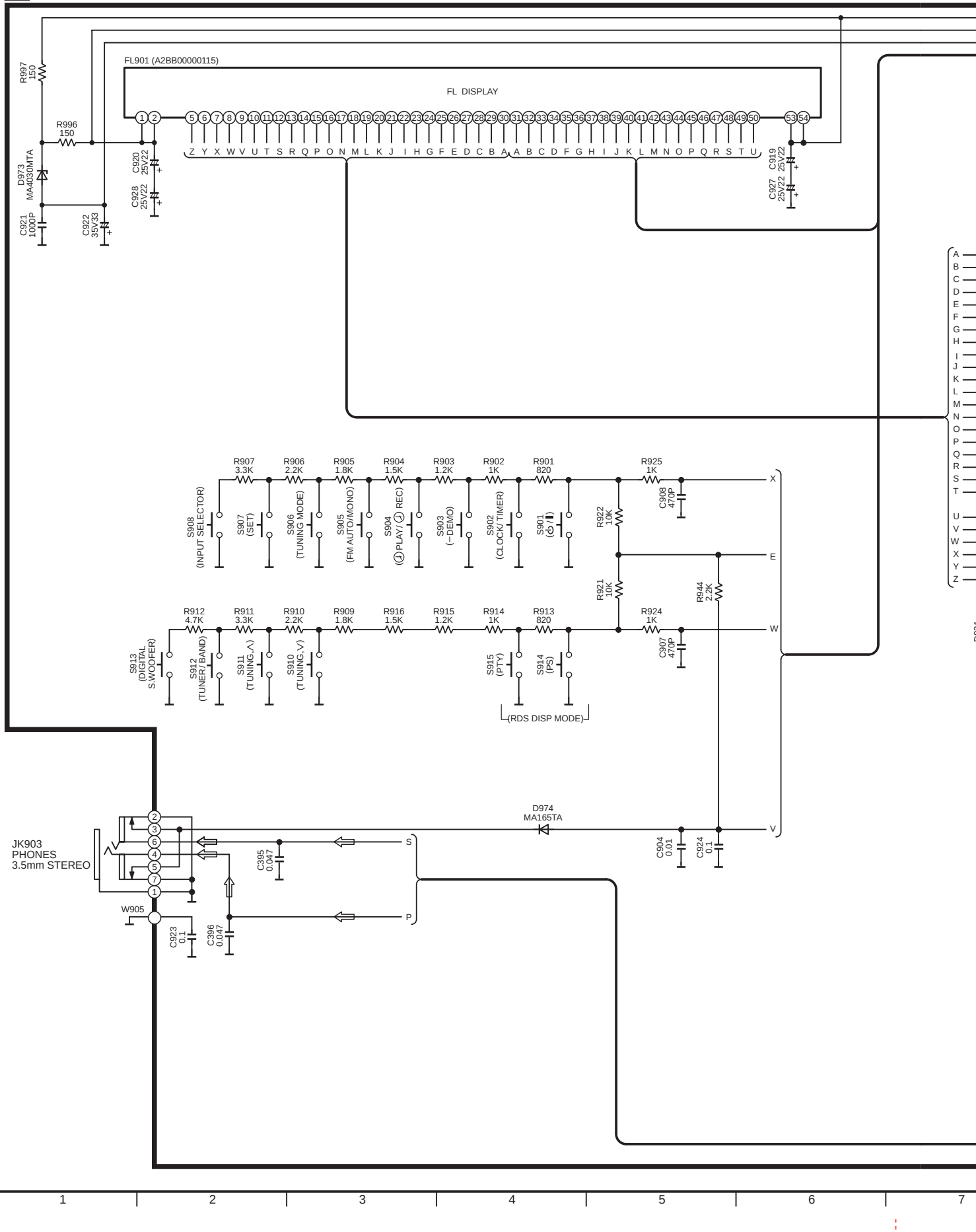


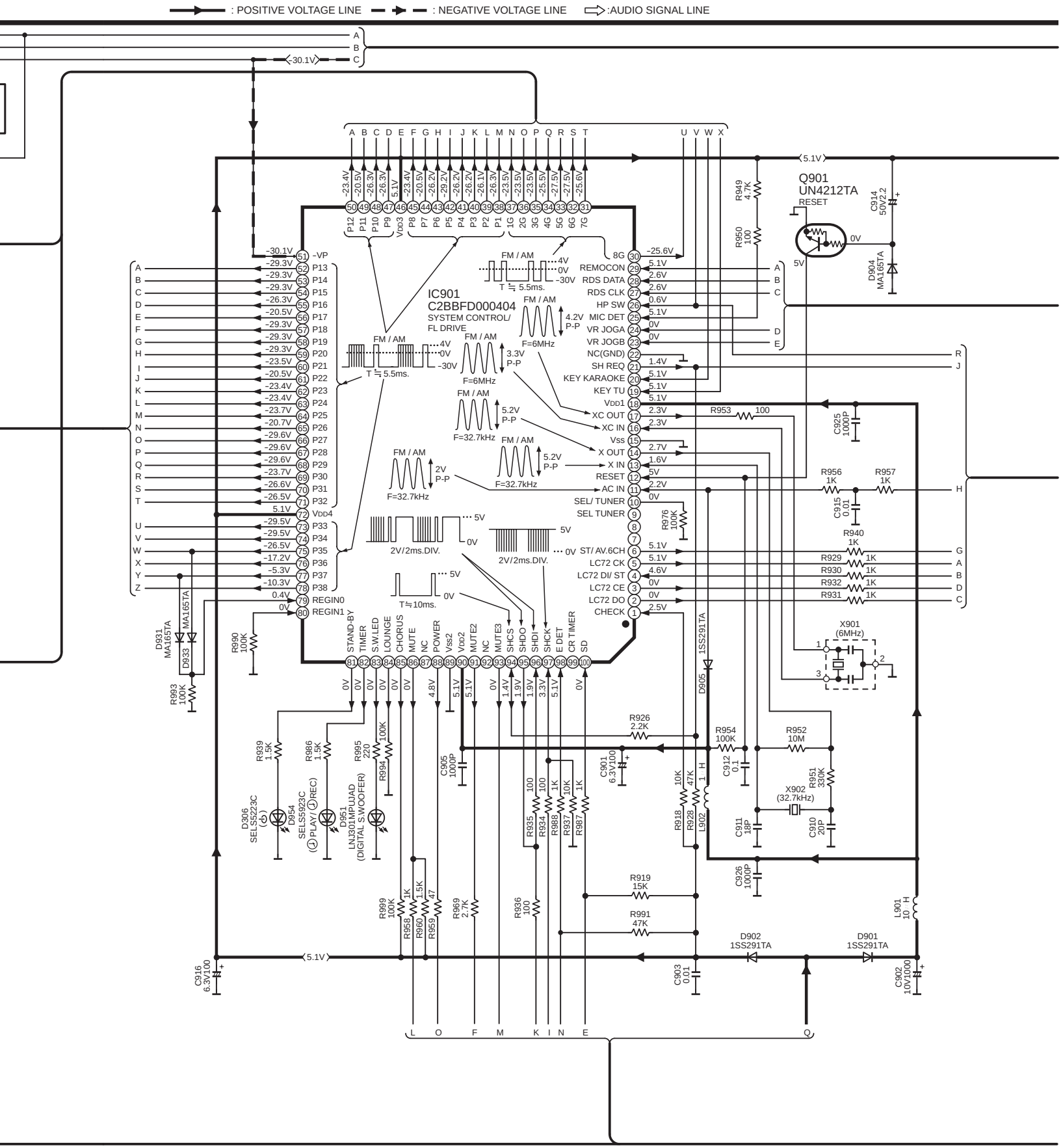
F POWER TRANSFORMER (B) CIRCUIT



SA-DV290(E,EB,EG) MAIN, AC IN, POWER TRANSFORMER(A)&(B) CIRCUIT DIAGRAM

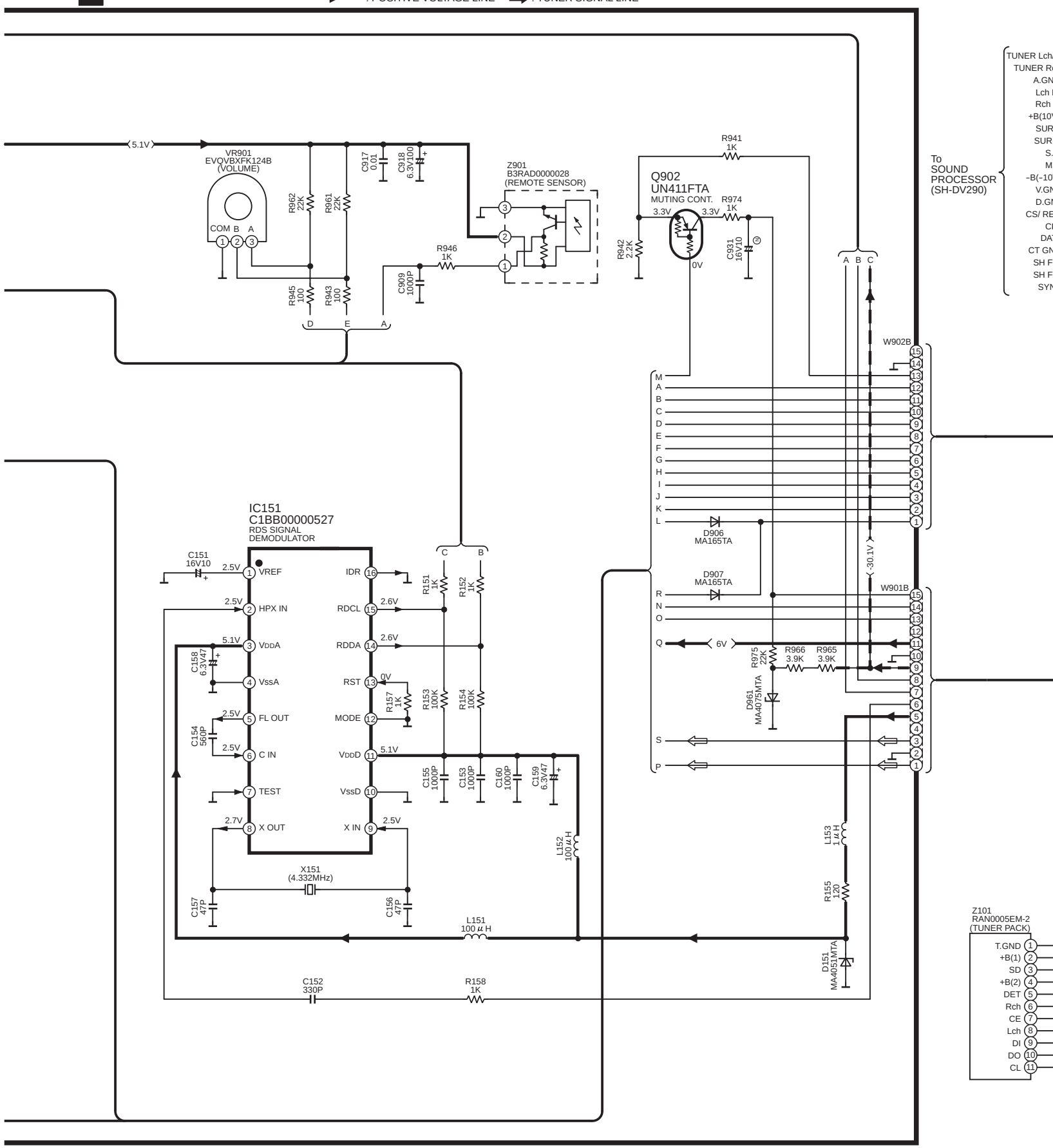
A OPERATION CIRCUIT



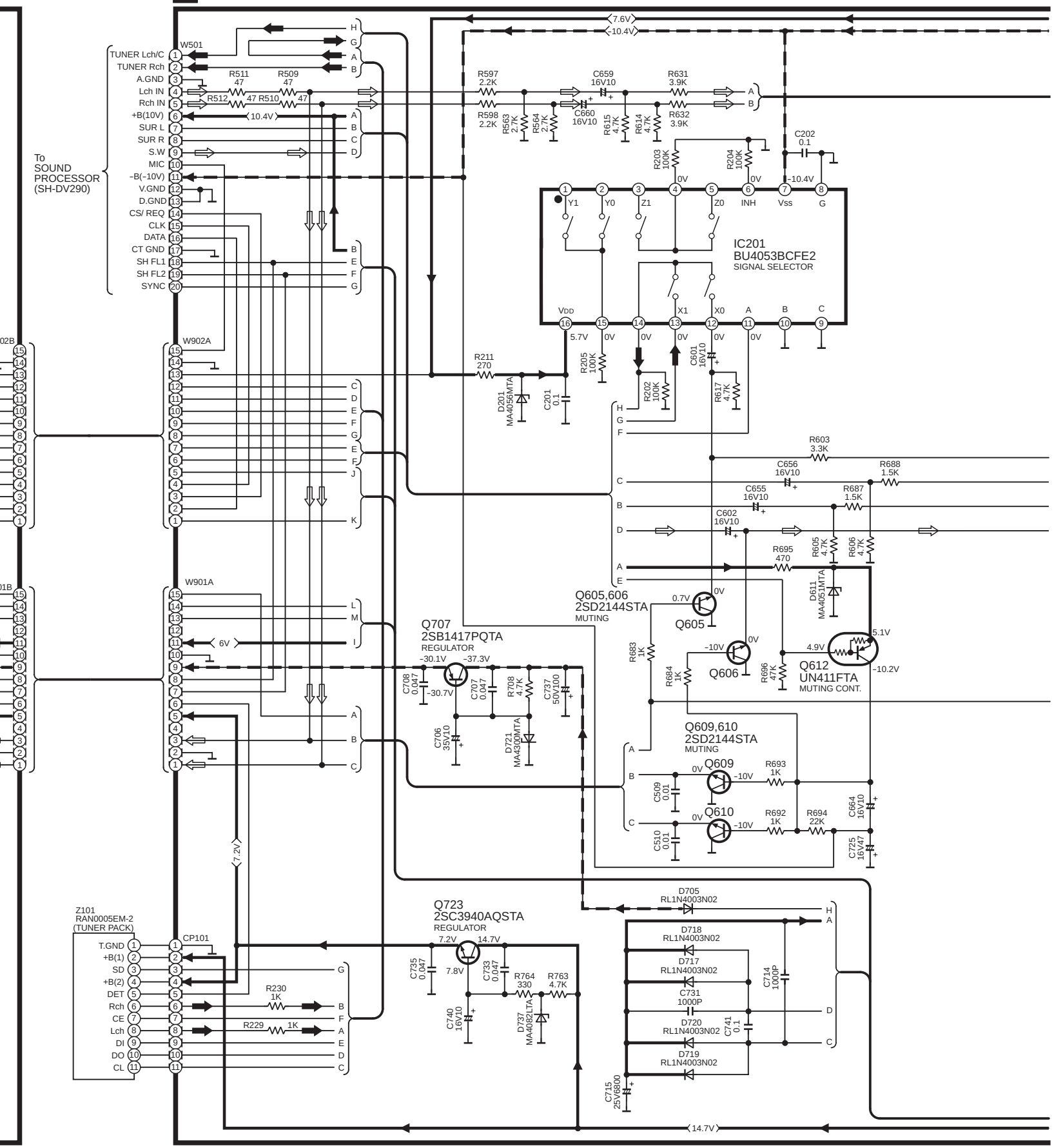

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE
IC901
C2BBFD000404
SYSTEM CONTROL/
FL DRIVE
Q901
UN4212TA
RESET
REMOCON
RDS DATA
RDS CLK
HP SW
MIC DET
VR JOGA
VR JOGB
NC(GND)
SH REQ
KEY KARAOKE
KEY TU
VDD1
XC OUT
XC IN
Vss
X OUT
X IN
RESET
AC IN
SEL/ TUNER
SEL TUNER
ST/ AV.6CH
LC72 CK
LC72 DI/ ST
LC72 CE
LC72 DO
CHECK
STAND-BY
TIMER
S.W.LED
LOUNGE
CHORUS
MUTE
NC
POWER
Vss2
VDD2
MUTE2
NC
MUTE3
SHCS
SHDO
SHDI
SHCK
E DET
CR TIMER
SD
REGIN0
REGIN1
VDD4
-VP
X901
(6MHz)
X902
(32.7kHz)
D306
SELS5223C
(⏻)
D954
SELS5923C
(▶PLAY/ ⏺REC)
D951
LNJ301MPUJAD
(DIGITAL S.WOOFER)
D931
MA165TA
D933
MA165TA
D904
MA165TA
D905
1SS291TA
D902
1SS291TA
D901
1SS291TA
FM / AM
F=6MHz
F=32.7kHz
T ≒ 5.5ms.
T≒10ms.
2V/2ms.DIV.
5V
0V
4V
-30V
4.2V P-P
3.3V P-P
5.2V P-P
2V P-P
5.1V
30.1V

A OPERATION CIRCUIT

: NEGATIVE VOLTAGE LINE
: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
: TUNER SIGNAL LINE

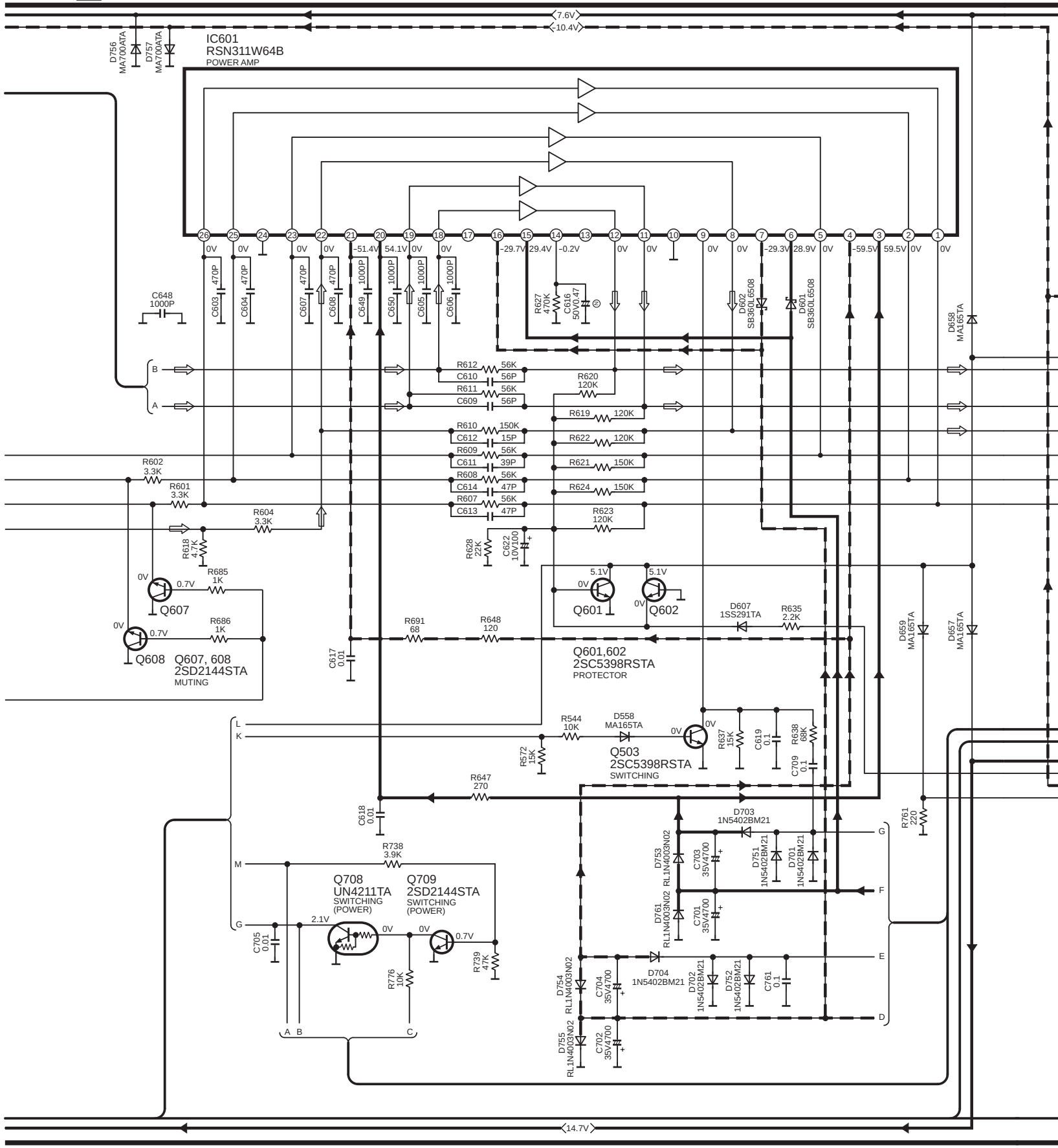


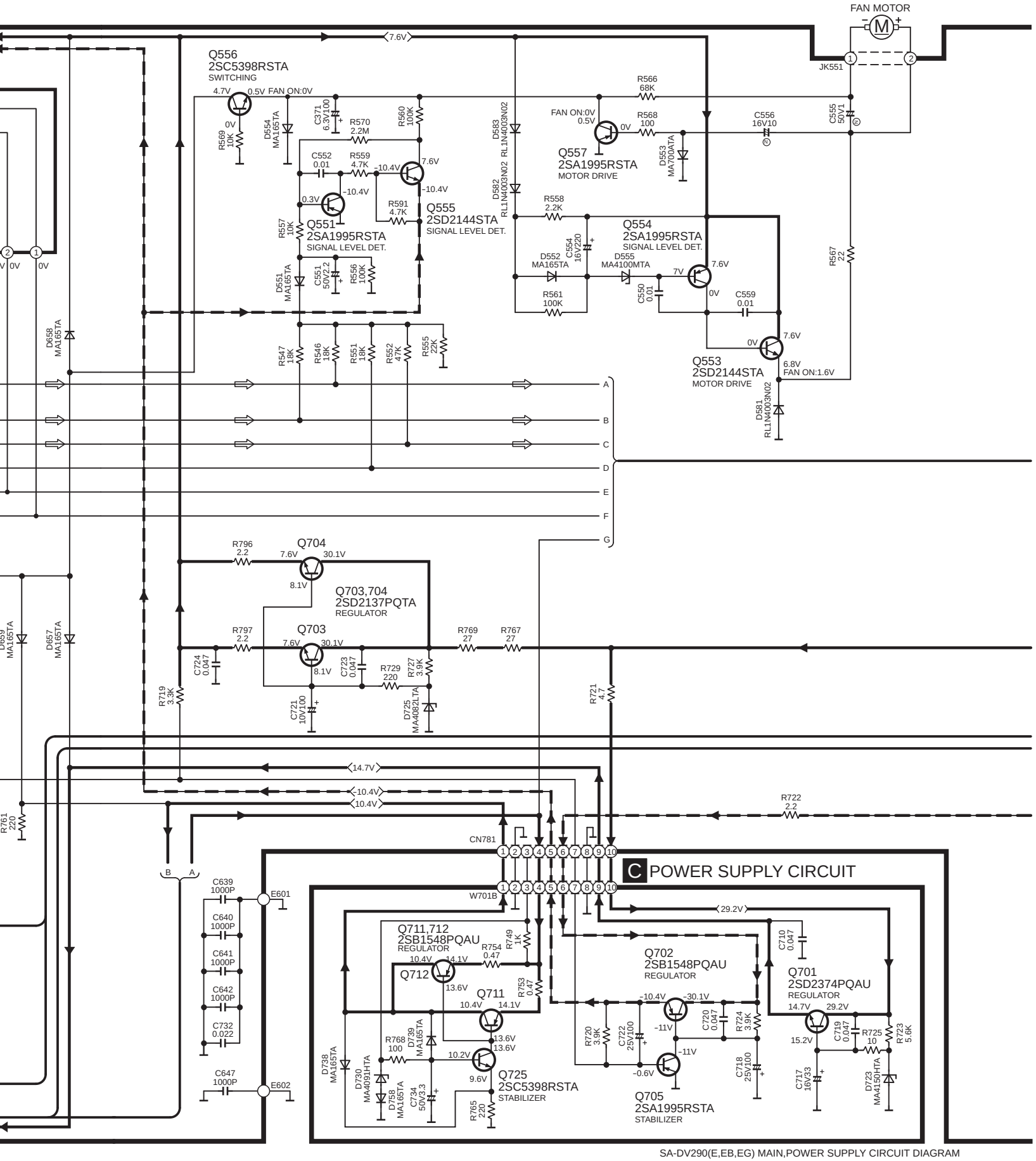
B MAIN CIRCUIT



B MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE :AUDIO SIGNAL LINE

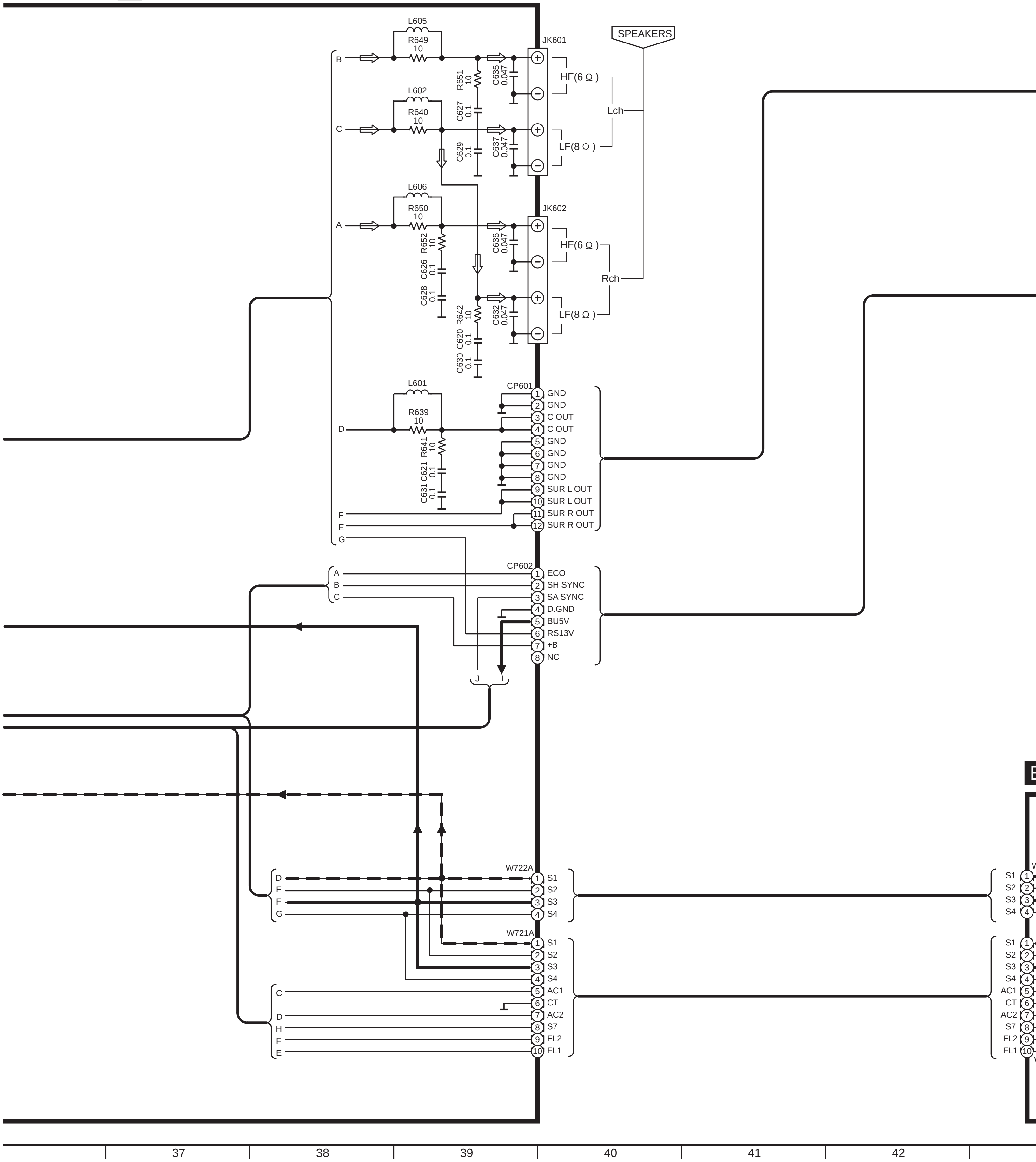




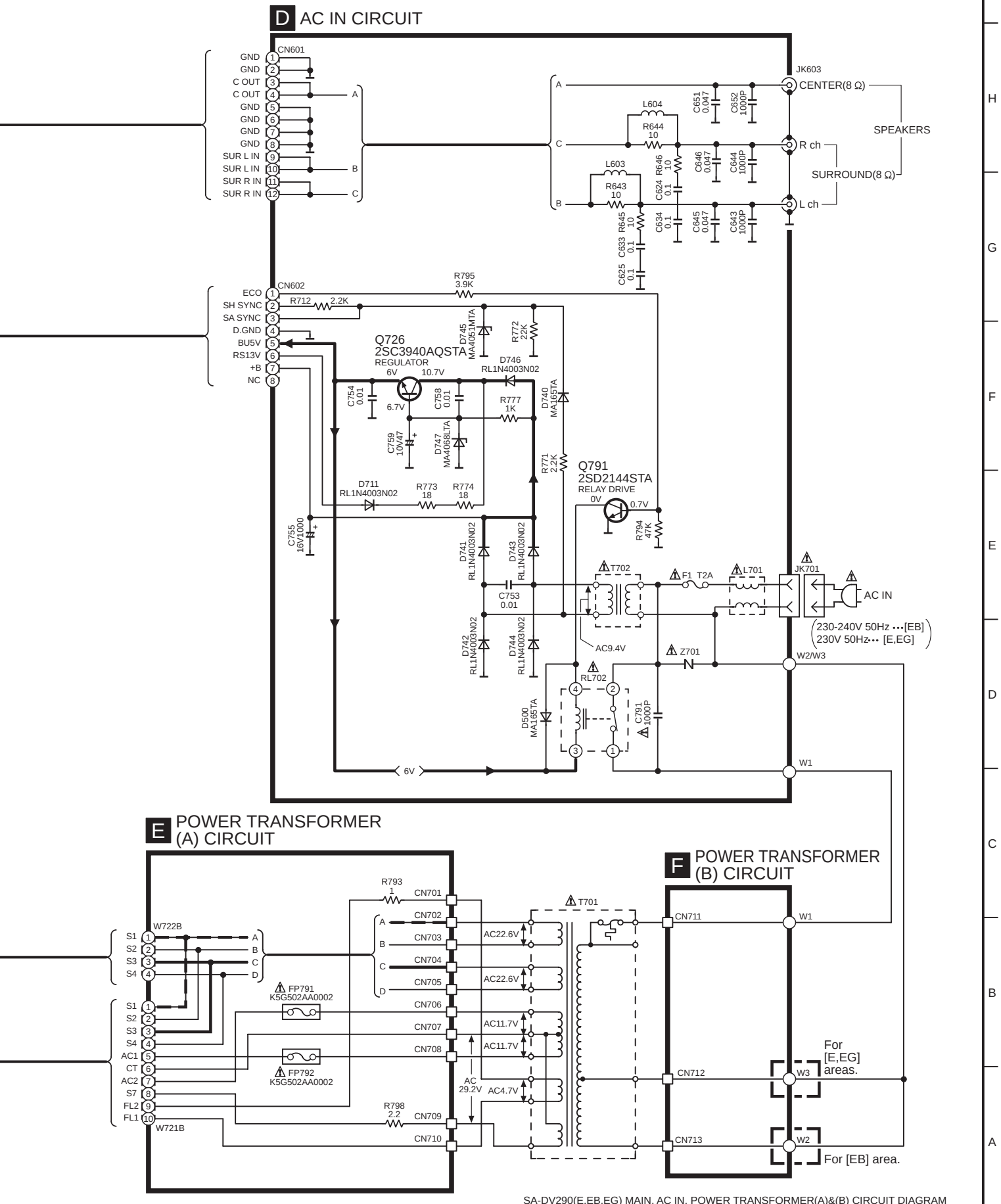
SA-DV290(E,EB,EG) MAIN,POWER SUPPLY CIRCUIT DIAGRAM

B MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: NEGATIVE VOLTAGE LINE
:AUDIO SIGNAL LINE

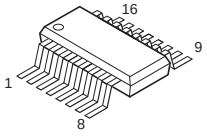


SPEAKERS
JK601
JK602
L605
R649
10
L602
R640
L606
R650
L601
R639
R651
R652
R642
R641
C635
0.047
C627
0.1
C629
C637
C636
C626
C628
C632
C620
C630
C621
C631
HF(6 Ω)
LF(8 Ω)
Lch
Rch
CP601
1 GND
2 GND
3 C OUT
4 C OUT
5 GND
6 GND
7 GND
8 GND
9 SUR L OUT
10 SUR L OUT
11 SUR R OUT
12 SUR R OUT
CP602
1 ECO
2 SH SYNC
3 SA SYNC
4 D.GND
5 BU5V
6 RS13V
7 +B
8 NC
W722A
1 S1
2 S2
3 S3
4 S4
W721A
1 S1
2 S2
3 S3
4 S4
5 AC1
6 CT
7 AC2
8 S7
9 FL2
10 FL1
37
38
39
40
41
42

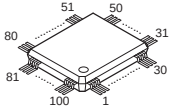


SA-DV290(E,EB,EG) MAIN, AC IN, POWER TRANSFORMER(A)&(B) CIRCUIT DIAGRAM

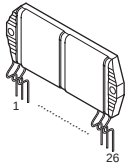
BU4053BCFE2
C1BB00000527



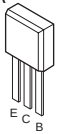
C2BBFD000404



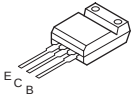
RSN311W64B



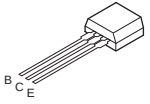
UN411FTA
UN4211TA
UN4212TA



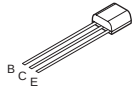
2SB1417PQTA
2SD2137PQTA



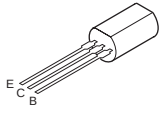
2SD2144STA



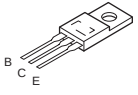
2SA1995RSTA
2SC5398RSTA



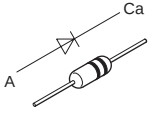
2SC3940AQSTA



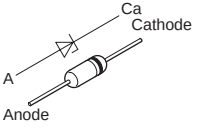
2SB1548PQAU
2SD2374PQAU



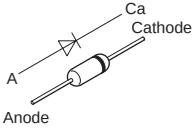
1SS291TA
MA700ATA



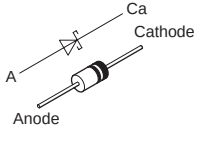
MA4100MTA
MA4150HTA
MA4300MTA



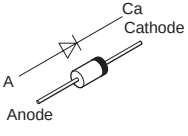
MA165TA

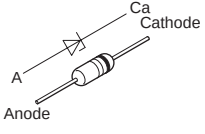


SB360L6508



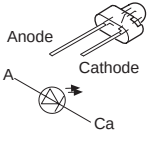
1N5402BM21
RL1N4003N02



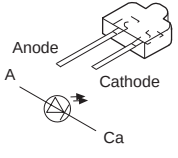


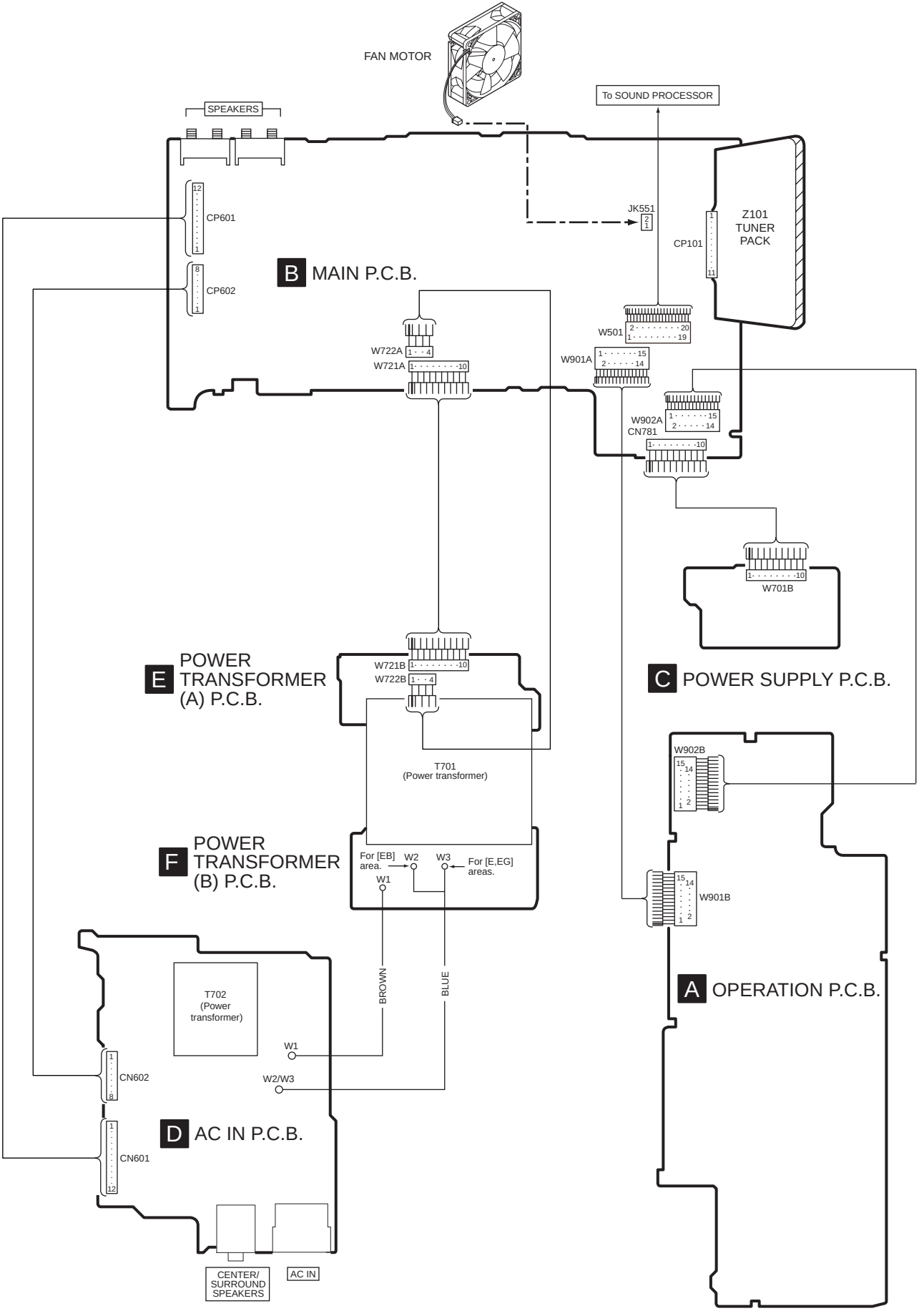
MA4030MTA
MA4051MTA
MA4056MTA
MA4068LTA
MA4075MTA
MA4082LTA
MA4091HTA

LNJ301MPUJAD



SELS5223C
SELS5923C




FAN MOTOR
To SOUND PROCESSOR
SPEAKERS
CP601
CP602
B MAIN P.C.B.
JK551
CP101
Z101
TUNER
PACK
W501
W901A
W722A
W721A
W902A
CN781
W701B
C POWER SUPPLY P.C.B.
E POWER
TRANSFORMER
(A) P.C.B.
W721B
W722B
T701
(Power transformer)
F POWER
TRANSFORMER
(B) P.C.B.
For [EB] area.
W2
W3
For [E,EG] areas.
W1
W902B
W901B
A OPERATION P.C.B.
T702
(Power
transformer)
BROWN
BLUE
W1
W2/W3
CN602
CN601
D AC IN P.C.B.
CENTER/
SURROUND
SPEAKERS
AC IN

(For United Kingdom)

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF - KEEP DRY.

Before use

Remove the connector cover.

How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

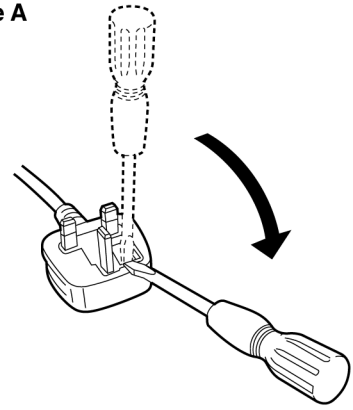
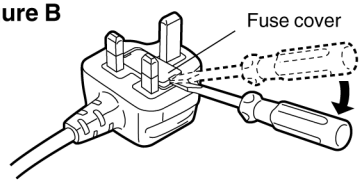


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

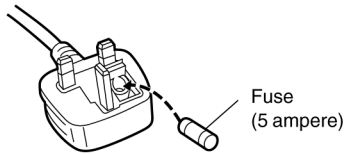
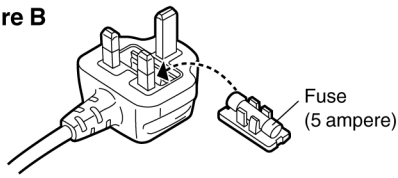
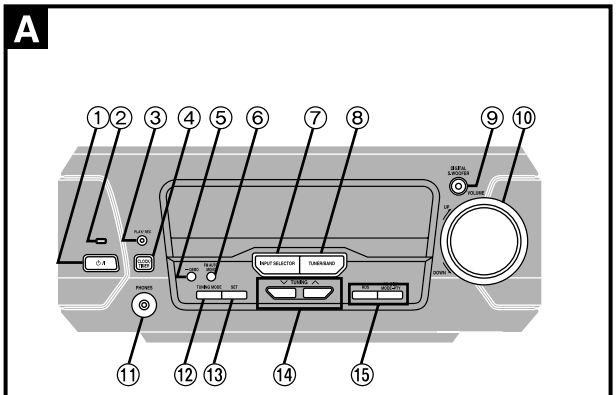
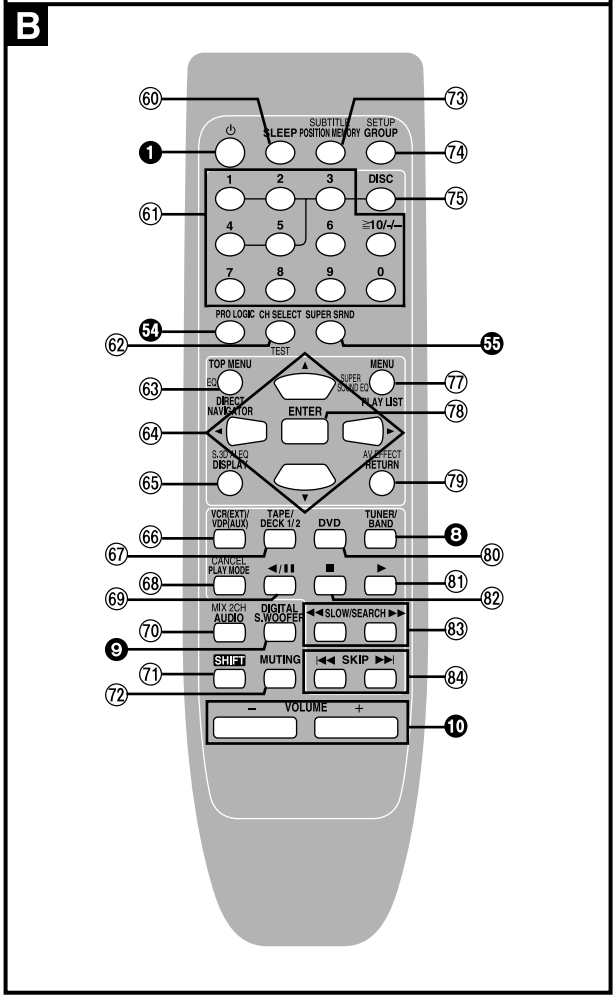


Figure B







A Stereo tuner/amplifier

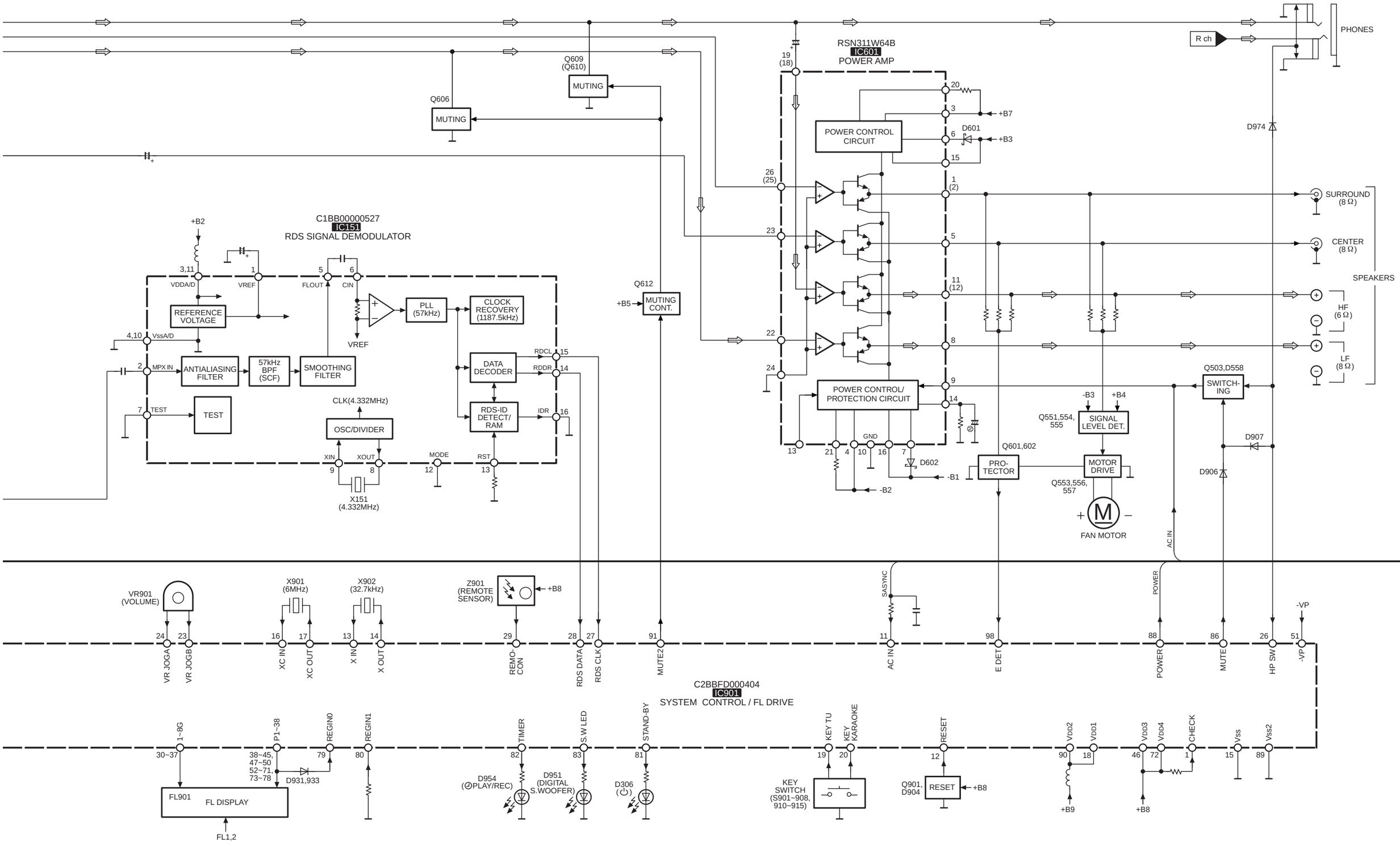
① **Standby/on switch (⏻/I)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
② **Standby indicator (⏻)**
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.
③ **Play timer/record timer button and indicator (◴PLAY/◴REC)**
④ **Clock/timer button (CLOCK/TIMER)**
⑤ **Demo button (–DEMO)**
⑥ **FM mode button (FM AUTO/MONO)**
⑦ **Source input button (INPUT SELECTOR)**
⑧ **Tuner/band button (TUNER/BAND)**
⑨ **Digital super woofer button and indicator (DIGITAL S.WOOFER)**
⑩ **Volume control (VOLUME)**
⑪ **Headphone jack (PHONES)**
⑫ **Tuning mode button (TUNING MODE)**
⑬ **Set button (SET)**
⑭ **Tuning buttons (∨, ∧ TUNING)**
⑮ **RDS display mode button (RDS, PS–DISP MODE–PTY)**

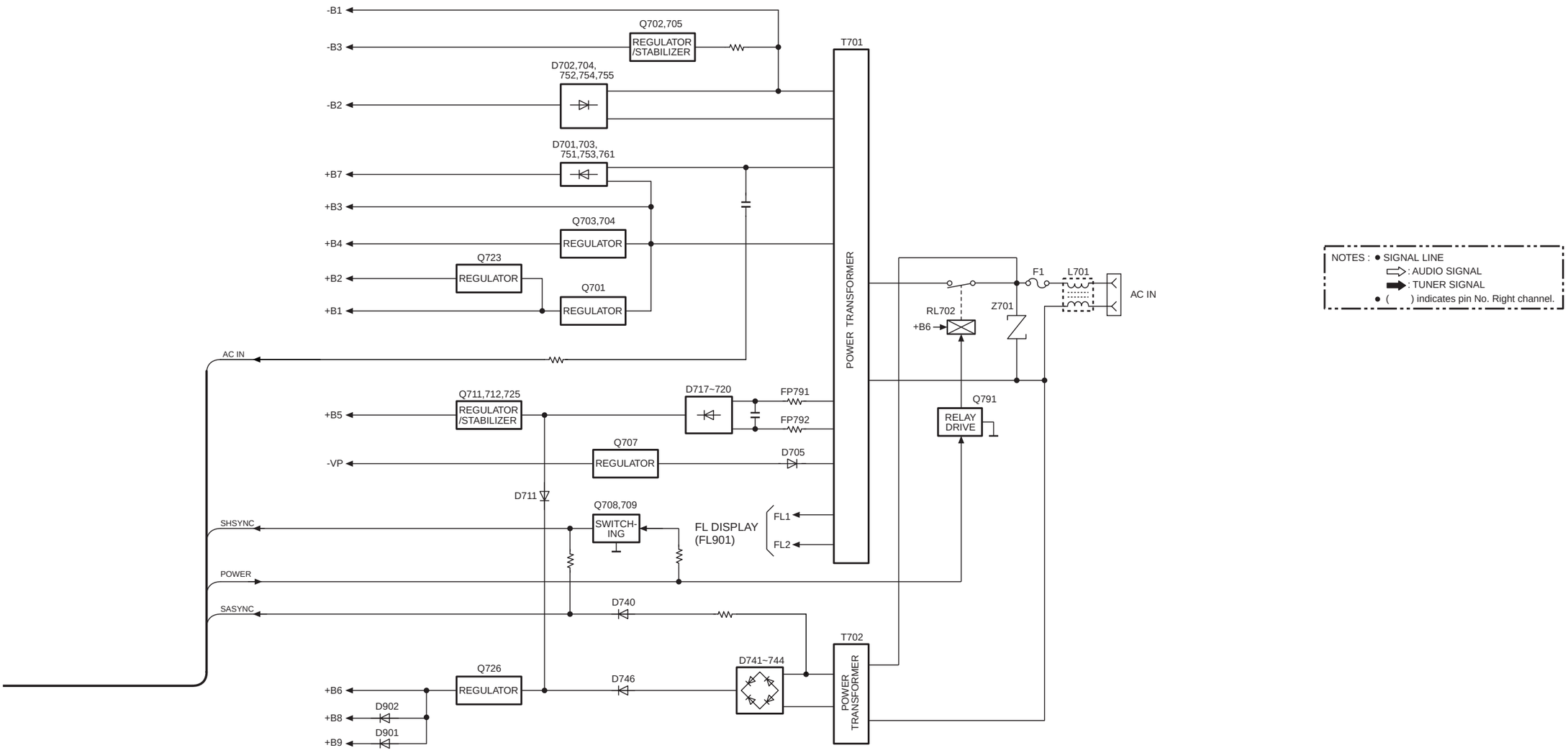
B Remote control

Buttons ❶, ❽, ❾, ❿, 54 and 55 function in the same way as the controls on the main unit.

60 **Sleep timer button (SLEEP)**
61 **Numbered buttons (1–9, 0, ≧10/-/--)**
62 **Channel select, Test signal button (CH SELECT, TEST)**
63 **Top menu, Direct navigator, EQ button (TOP MENU, DIRECT NAVIGATOR, EQ)**
64 **Cursor buttons (◀, ▶, ▲, ▼)**
65 **Display, Super 3D AI EQ button (DISPLAY, S.3D AI EQ)**
66 **Input select button [VCR (EXT)/VDP (AUX)]**
67 **Tape select, deck 1/deck 2 select button (TAPE/DECK 1/2)**
68 **Play mode, Cancel button (PLAY MODE, CANCEL)**
69 **Disc pause, Tape reverse play button (◀/❚❚)**
70 **Audio select, 2 channel down mixing button (AUDIO, MIX 2CH)**
71 **Shift button (SHIFT)**
To operate functions labeled in orange, press [SHIFT] and then the corresponding button at the same time.
72 **Muting button (MUTING)**
73 **Position memory, Subtitle select button (POSITION MEMORY, SUBTITLE)**
74 **Group, Initial setting button (GROUP, SETUP)**
75 **Disc button (DISC)**
77 **Menu, Play list, Super sound EQ button (MENU, PLAY LIST, SUPER SOUND EQ)**
78 **Enter button (ENTER)**
79 **Return, AV effect button (RETURN, AV EFFECT)**
80 **DVD button (DVD)**
81 **Disc play, Tape forward play button (▶)**
82 **Disc stop, Tape stop button (■)**
83 **Disc slow/search buttons (◀◀, ▶▶ SLOW/SEARCH)**
84 **Disc skip buttons (|◀◀, ▶▶| SKIP)**

FM ANT
AM ANT
8 (6) Lch (Rch)
Z101 TUNER PACK (RAN0005EM-2)
GND 1
+15V 2
+7V 4
SD 3
CE 7
DI 9
CL 11
DO 10
DET 5
+B1
+B2
To SOUND PROCESSOR BLOCK DIAGRAM
W501
TUNER L/C 1
TUNER Rch 2
A.GND 3
Lch IN 4
Rch IN 5
+B(10V) 6
SUR L 7
SUR R 8
S.W 9
MIC 10
-B(-10V) 11
V.GND 12
D.GND 13
CS/REQ 14
CLK 15
DATA 16
CT.GND 17
SH FL1 18
SH FL2 19
SYNC 20
Rch
+B5
-B3
FL1
FL2
From POWER TRANSFORMER
SHSYNC
BU4053BCFE2
IC201
SIGNAL SELECTOR
13 X1
14
X0
12
1
Y1 15
2 Y0
8 G
16 VDD
7 VSS
+B4
-B3
SW CONT.
A 11
B 10
C 9
Q607 (Q608)
MUTING
Q605
MUTING
Q902
+B4
MUTING CONT.
C2BBFD000404
IC901
SYSTEM CONTROL / FL DRIVE
100 SD
3 LC72 CE
2 LC72 DO
5 LC72 CK
4 LC72 DI/ST
96 SH DI
95 SH DO
97 SH CK
94 SH CS
21 SH REQ
6 ST/AV, 6CH
93 MUTE3
10 SEL/ TUNER
25 MIC DET
+B8


RSN311W64B
IC601
POWER AMP
19 (18)
20
3
+B7
6
D601
+B3
15
POWER CONTROL CIRCUIT
26 (25)
23
22
24
1 (2)
5
11 (12)
8
9
14
POWER CONTROL/ PROTECTION CIRCUIT
13
21
4
GND
10
16
7
D602
-B1
-B2
PRO-TECTOR
Q601,602
Q609 (Q610)
MUTING
Q606
MUTING
Q612
+B5
MUTING CONT.
R ch
PHONES
D974
SURROUND (8 Ω)
CENTER (8 Ω)
SPEAKERS
HF (6 Ω)
LF (8 Ω)
Q503,D558
SWITCH-ING
D907
D906
-B3
+B4
Q551,554, 555
SIGNAL LEVEL DET.
MOTOR DRIVE
Q553,556, 557
M
FAN MOTOR
AC IN
C1BB00000527
IC151
RDS SIGNAL DEMODULATOR
+B2
3,11
VDDA/D
1
VREF
5
FLOUT
6
CIN
REFERENCE VOLTAGE
4,10
VssA/D
VREF
PLL (57kHz)
CLOCK RECOVERY (1187.5kHz)
2
MPX IN
ANTIALIASING FILTER
57kHz BPF (SCF)
SMOOTHING FILTER
DATA DECODER
RDCL
15
RDDR
14
RDS-ID DETECT/ RAM
IDR
16
7
TEST
TEST
CLK(4.332MHz)
OSC/DIVIDER
XIN
9
XOUT
8
X151 (4.332MHz)
MODE
12
RST
13
VR901 (VOLUME)
24
23
VR JOGA
VR JOGB
X901 (6MHz)
16
17
XC IN
XC OUT
X902 (32.7kHz)
13
14
X IN
X OUT
Z901 (REMOTE SENSOR)
+B8
29
REMO-CON
28
RDS DATA
27
RDS CLK
91
MUTE2
SASYNC
11
AC IN
98
E DET
POWER
88
POWER
86
MUTE
26
HP SW
-VP
51
-VP
C2BBFD000404
IC901
SYSTEM CONTROL / FL DRIVE
1~8G
30~37
FL901
FL DISPLAY
FL1,2
P1~38
38~45, 47~50 52~71, 73~78
79
D931,933
REGIN0
REGIN1
80
TIMER
82
D954 (PLAY/REC)
S.W LED
83
D951 (DIGITAL S.WOOFER)
STAND-BY
81
D306
KEY TU
19
KEY KARAOKE
20
KEY SWITCH (S901~908, 910~915)
RESET
12
Q901, D904
RESET
+B8
VDD2
90
VDD1
18
+B9
VDD3
46
VDD4
72
CHECK
1
+B8
Vss
15
Vss2
89



NOTES : ● SIGNAL LINE
⇨ : AUDIO SIGNAL
➡ : TUNER SIGNAL
● ( ) indicates pin No. Right channel.

ORDER NO.AD0305101C8

Service Manual

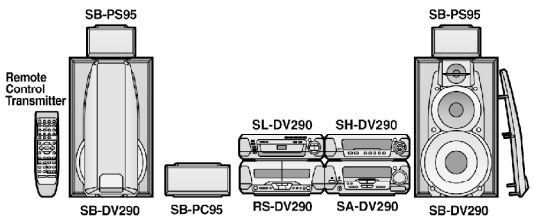
DVD/Video CD/CD changer

SL-DV290EE / SL-DV290GN

Colour
(s).....Silver Type
System:SC-DV290

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Note: Refer to the service manual for Model No.SA-DV290EE/GN (ORDER NO.AD0305100C8) for information on “ACCESSORIES” and “PACKAGING”.



SPECIFICATIONS

Specification

■ **Discs played (8 cm or 12 cm)**

DVD-Video/DVD-Audio
DVD-RAM/R (DVD-Video format discs)
Video CD, CD (CD-DA)
MP3/WMA/JPEG format discs)

■ **Audio**

No. of channels 5.1 channel (FL, FR, SL, SR, C, SW)

■ **Video**

Signal system	**PAL 625/50, PAL 525/60, NTSC**
Output level	
Composite video	**1 Vp-p (75 Ω)**
S-video Y	**1 Vp-p (75 Ω)**
S-video C	**0.300 Vp-p (75 Ω) PAL**
	0.286 Vp-p (75 Ω) NTSC

■ **Pickup**

Beam source	**Semiconductor laser**
Wavelength	**658/790 nm**

■ **General**

Dimensions (W×H×D)	**293×89×288 mm**
Mass	**2.5 kg**
Power Supply:	**DC10V**
Power Consumption:	**12W**

Nots
1.Design and specifications are subject to change without notice.
2.Dimensions and weight are approximate.
3.Total harmonic distortion is measured by the digital spectrum analyzer.

■ **System/SC-DV290**

Sound processor: SH-DV290, DVD/ Video CD/ CD changer: SL-DV290, Tuner/ Amplifier: SA-DV290 , Cassette Deck: RS-DV290, Speakers: Front* (SB-DV290),Center* (SB-PC95),Surround* (SB-PS95) (*Madein MESA.)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

1. Before Repair

This equipment (SL-DV290),which is the component of this system, is supplied with power from the tuner/amplifier (SA-DV290) through the sound processor (SH-DV290). When repairing this equipment or checking operation of the system, be suretoconnectthe tuner/amplifier and sound

processor with it.
This equipment, even in the state of it as a single equipment, permits power supply and operation check. When operating it as a single equipment without the tuner/amplifierand sound processor, refer to the paragraph of "Measurements and Adjustments.

2. Precaution of Laser Diode

CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.
Wave length:658/790 nm
Maximum output radiation power from pickup: 100 μ W/VDE
Laser radiation from the pickup lens is safety level,but be sure the followings:

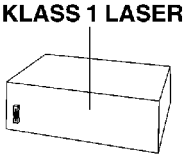
1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG:

Dieses Produkt enthält eine Laserdiode.
Im eingeschalteten Zustand wird unsichtbare Leserstrahlung von der Laserinheit adgestrahit.
Wellenlänge: 658/790 nm
Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE
Die Strahlungan der Lasereinheit ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT



DVD/Video CD/CD Changer
(Back of product)

(Inside of product)

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

3. Operating Instructions

4. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

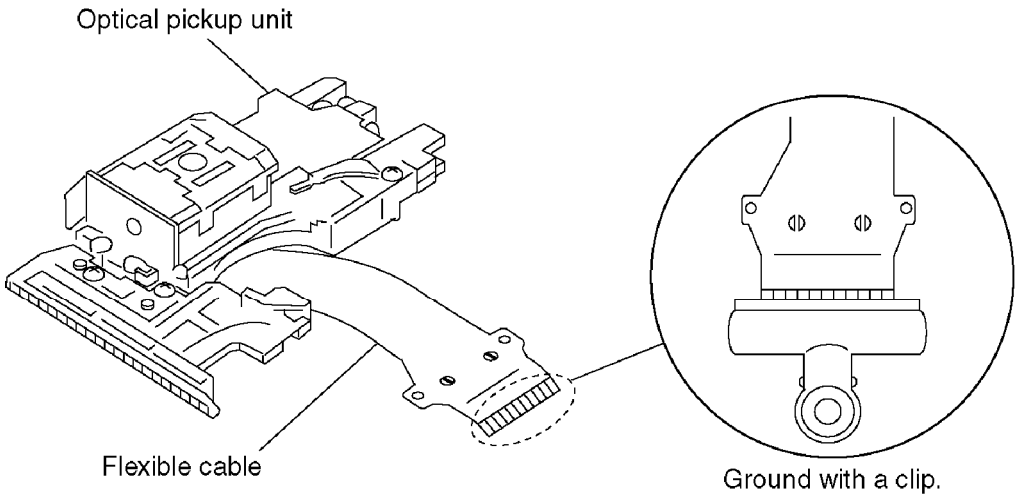
4.1. Handling of traverse deck (optical pickup)

1. **Do not give considerable shock to the traverse unit (optical pickup) as it has an extremely high-precise structure.**
2. **When replacing the optical pickup, install the flexible cable and cut its short land with a nipper. See the optical pickup replacement procedure in this Technical Guide. Before replacing the traverse unit, remove the short pin for preventingstaticelectricity andinstall**

a new unit. Connect the connector as short time as possible.

3. The flexible cable may be cut off if an excessive force is applied to it. Use caution when handling the cable.
4. The half-fixed resistor for laser power adjustment cannot be adjusted. Do not turn the resistor.

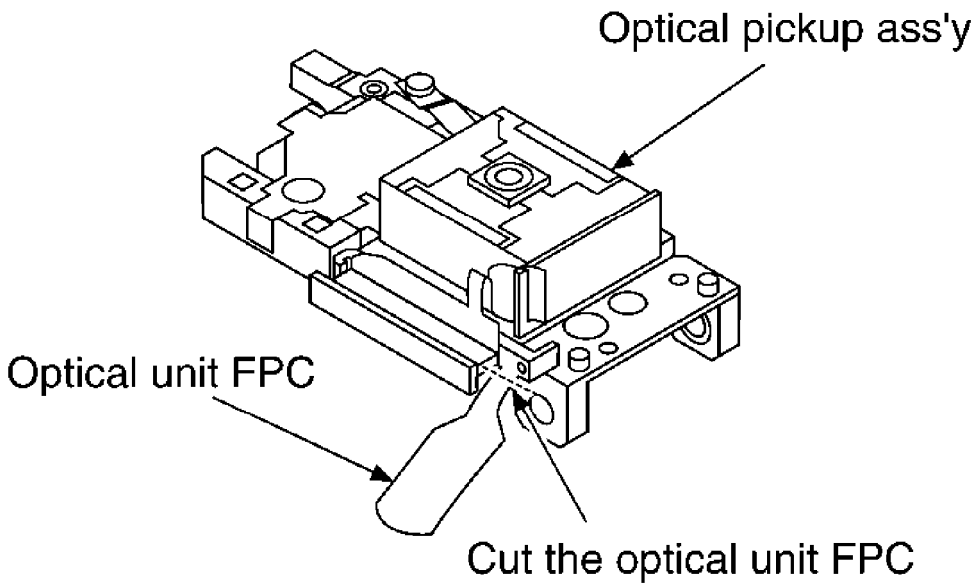
Fig. 1



4.2. Replacement procedure for the optical pickup

1. Connect the Flexible cable to the connector on the terminal P.C.B..
2. Cut the optical unit FPC at the point shown below. (As shown in Fig. 2.)

Fig. 2



4.3. Grounding for electrostatic breakdown prevention

1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. (As shown in Fig. 3 .)

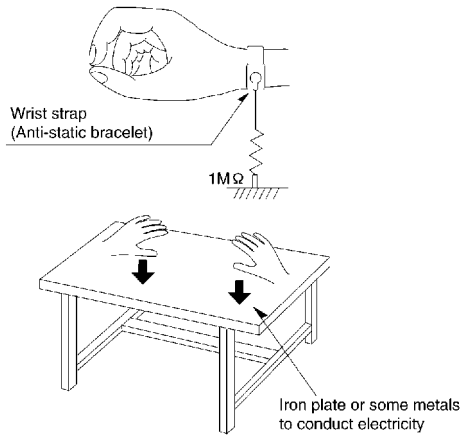
2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Fig. 3



5. Operation Checks and Component Replacement Procedures

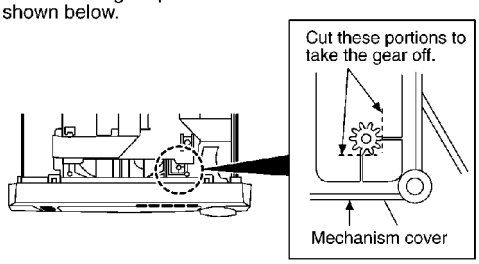
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

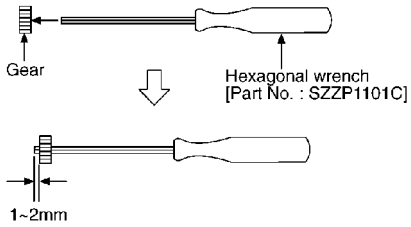
Gear for servicing (as jig) information

1. This unit has a gear which used for checking items (Open/close of disc tray, up/down operation of traverse unit by manually) when servicing. (For gear information, that is described on the items for disassembly procedures.)
2. For preparation of gear (for servicing), perform the procedures as follows.
3. In case of re-servicing the same set, the "gear for servicing" may be took off because it had been used. So, the "gear for servicing" must be stored.

1. Remove the gear provided with mechanism cover as shown below.

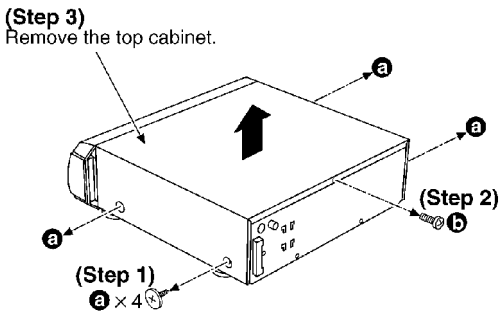


2. Insert the hexagonal wrench (2mm) into the gear, and then project the tip of wrench for 1~2mm length.

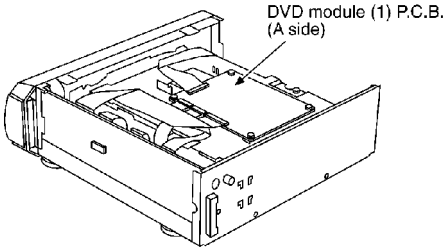


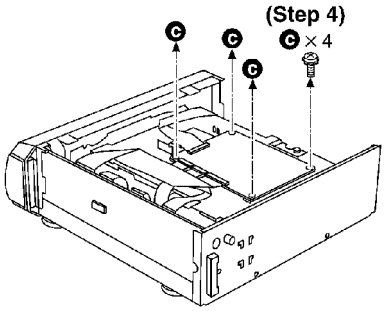
(Preparation of gear as jig is completed.)

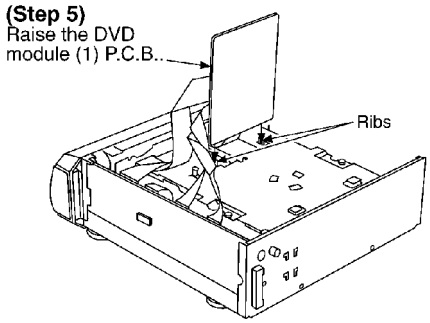
5.1. Checking for the DVD module (1) P.C.B.



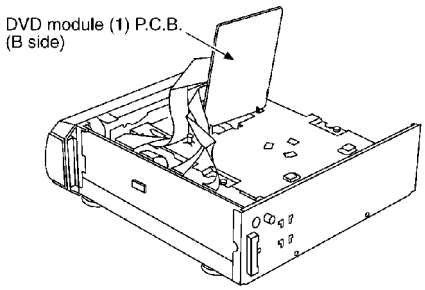
- Check the DVD module (1) P.C.B. (A side) as shown below.





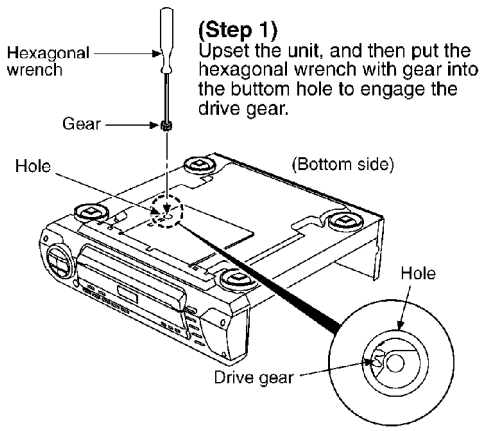


- Check the DVD module (1) P.C.B. (B side) as shown below.

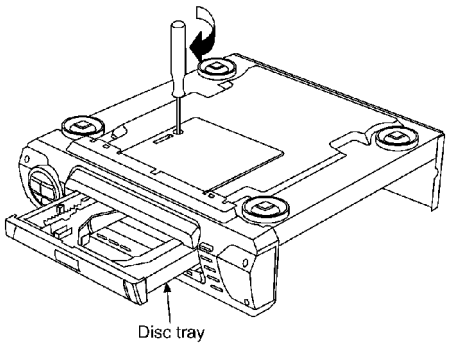


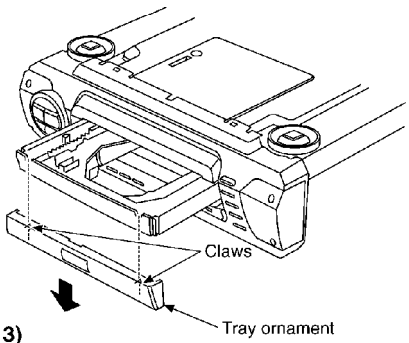
5.2. Checking for the operation P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.

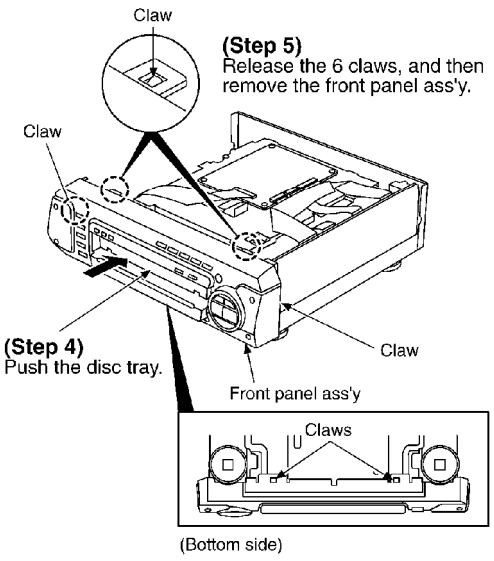


(Step 2)
Rotate the hexagonal wrench with gear in direction of arrow, and then open the disc tray.





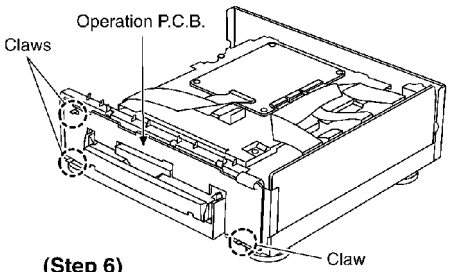
(Step 3)
Release the 2 claws, and then remove the tray ornament.



(Step 5)
Release the 6 claws, and then remove the front panel ass'y.

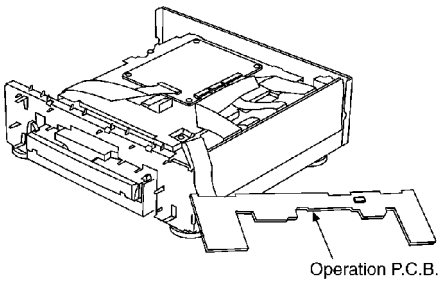
(Step 4)
Push the disc tray.

(Bottom side)



(Step 6)
Release the 3 claws, and then remove the operation P.C.B..

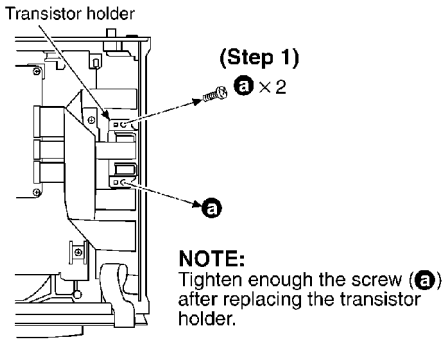
- Check the operation P.C.B. as shown below.

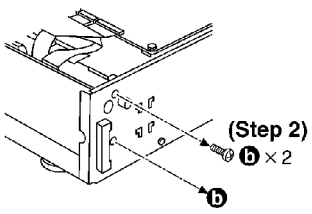


5.3. Checking for the main P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.

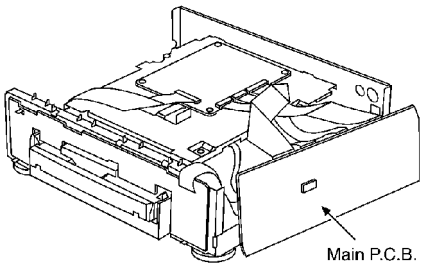
- Follow the (Step 1) - (Step 5) of item 5.2.





- Check the main P.C.B. as shown below.

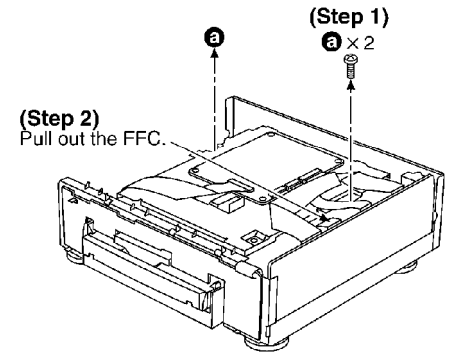
(Step 3)
Remove the main P.C.B., and then place it on the side of unit.



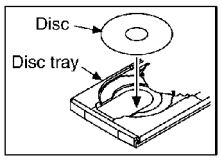
5.4. Checking for the DVD module (2) P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.

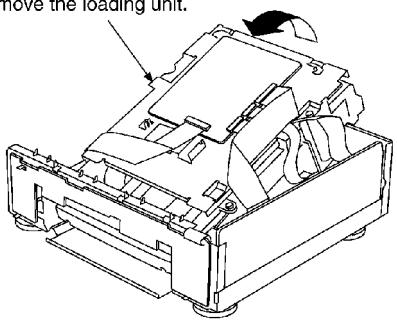
- Follow the (Step 1) - (Step 5) of item 5.2.



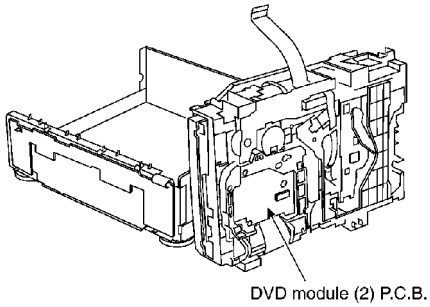
NOTE:
Put in the disc to disc tray.



(Step 3)
Remove the loading unit.



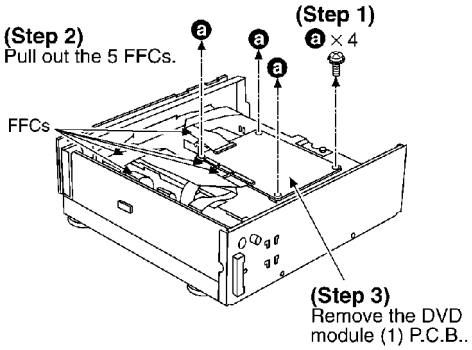
- Check the DVD module (2) P.C.B. as shown below.

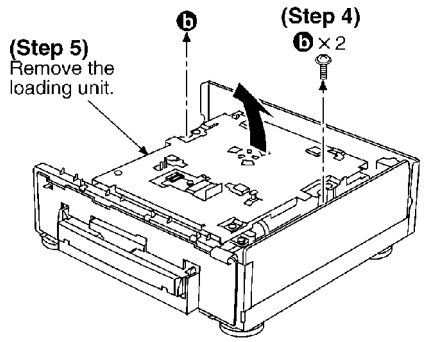


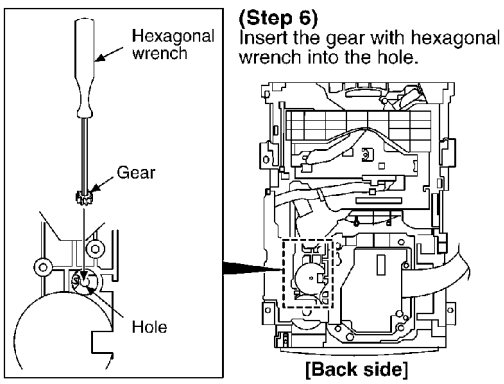
5.5. Replacement for the traverse unit

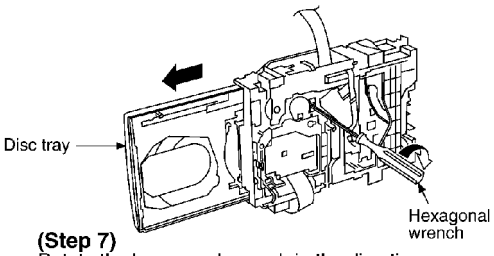
- Follow the (Step 1) - (Step 3) of item 5.1.

- Follow the (Step 1) - (Step 5) of item 5.2.



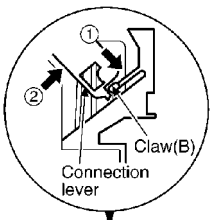




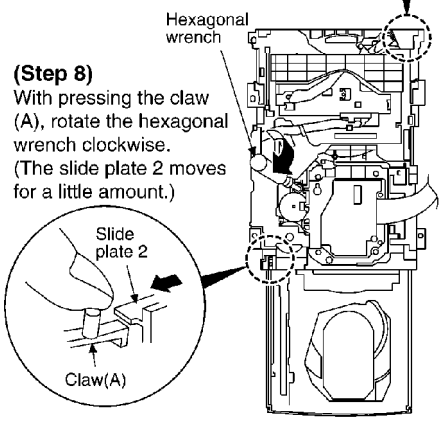


(Step 7)
Rotate the hexagonal wrench in the direction of arrow, and then open the disc tray fully.

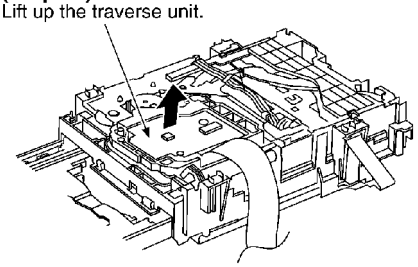
(Step 9)
Pressing the claw (B) in the direction of arrow①, the connection lever moves in the direction of arrow②.

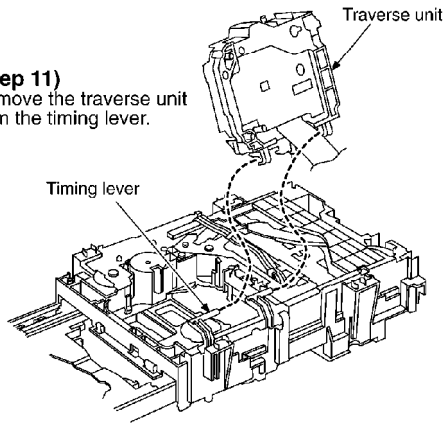


(Step 8)
With pressing the claw (A), rotate the hexagonal wrench clockwise.
(The slide plate 2 moves for a little amount.)



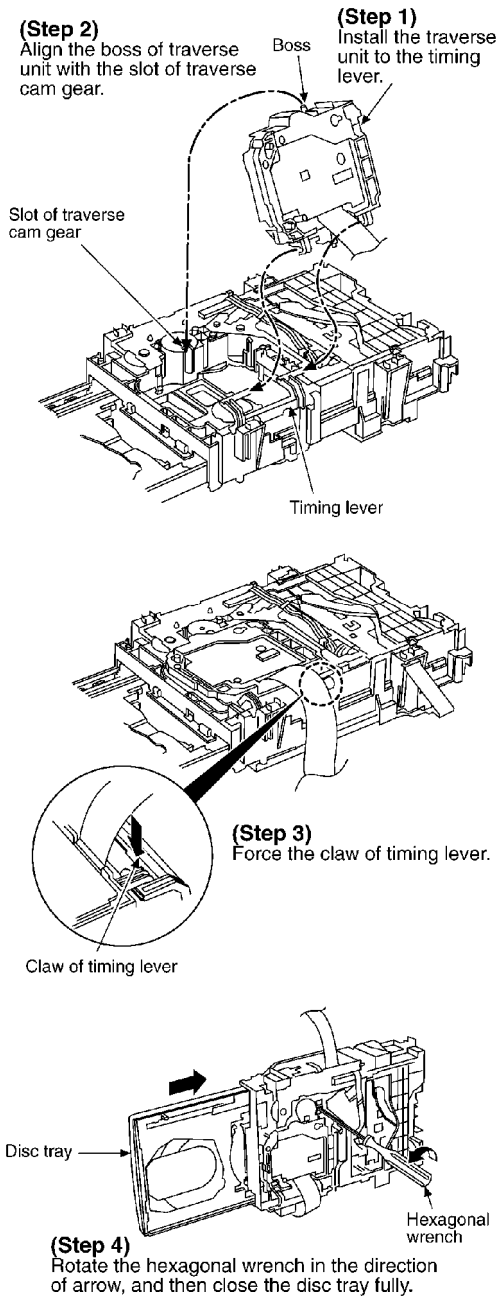
(Step 10)
Lift up the traverse unit.

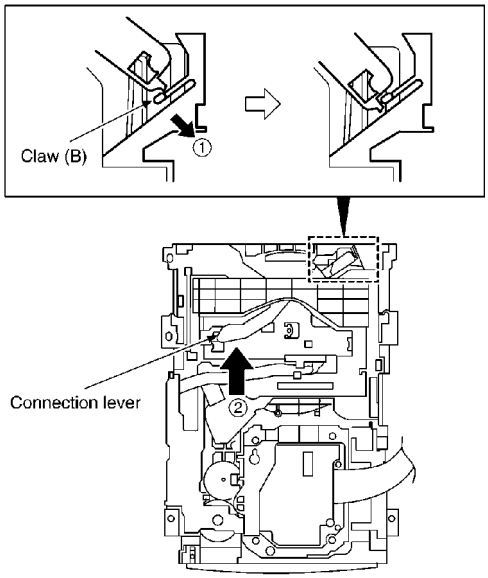




(Step 11)
Remove the traverse unit from the timing lever.

Installation for traverse unit



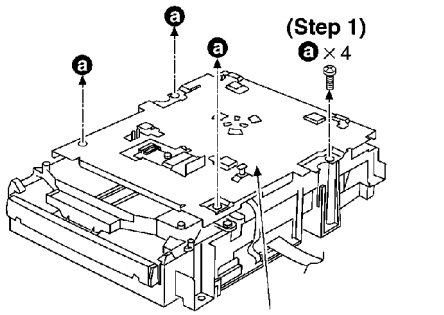


(Step 5)
With pressing the claw (B) in the direction of arrow ①, force the connection lever in the direction of arrow ②.

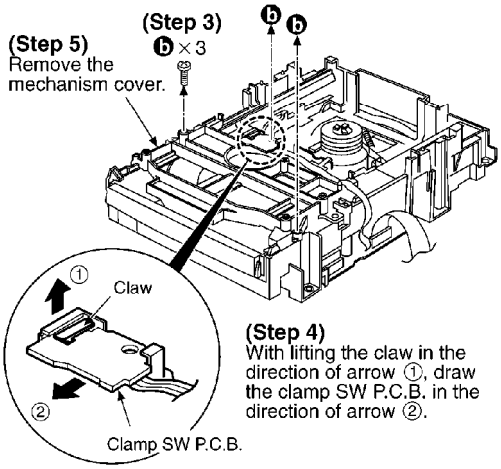
5.6. Replacement for the disc tray

- Follow the (Step 1) - (Step 3) of item 5.1.

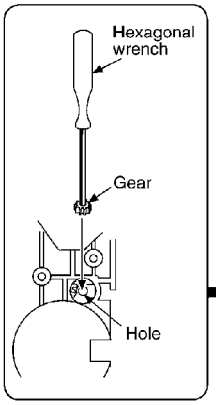
- Follow the (Step 1) - (Step 5) of item 5.5.



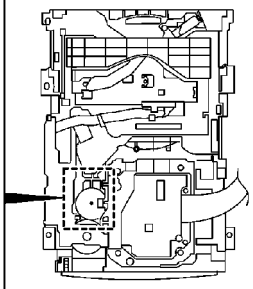
(Step 2)
Remove the upper plate.



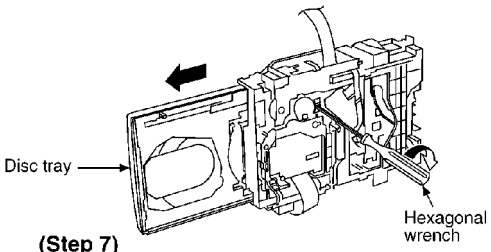
(Step 4)
With lifting the claw in the direction of arrow ①, draw the clamp SW P.C.B. in the direction of arrow ②.



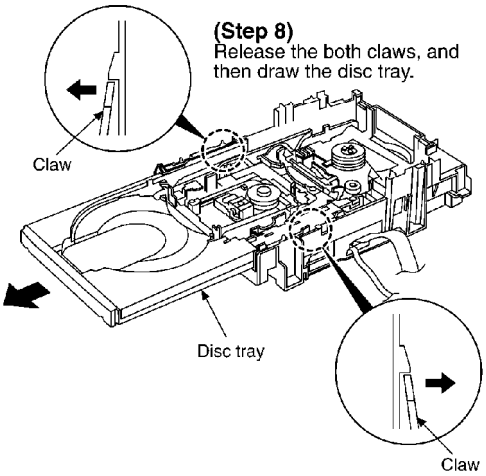
(Step 6)
Insert the gear with hexagonal wrench into the hole.



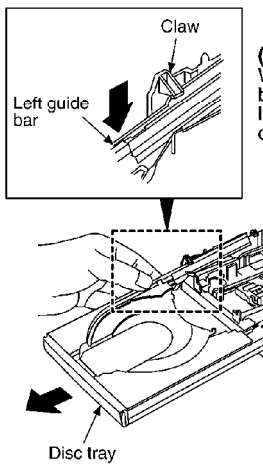
(Back side)



(Step 7)
Rotate the hexagonal wrench in the direction of arrow, and then open the disc tray fully.



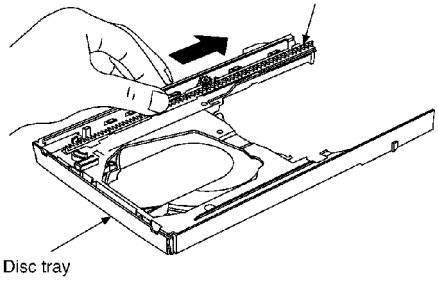
(Step 8)
Release the both claws, and then draw the disc tray.

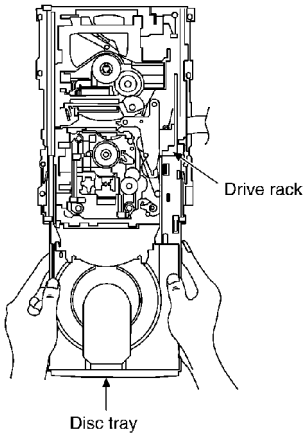


(Step 9)
With forcing the left guide bar manually because the left guide bar interfers with claw, draw the disc tray.

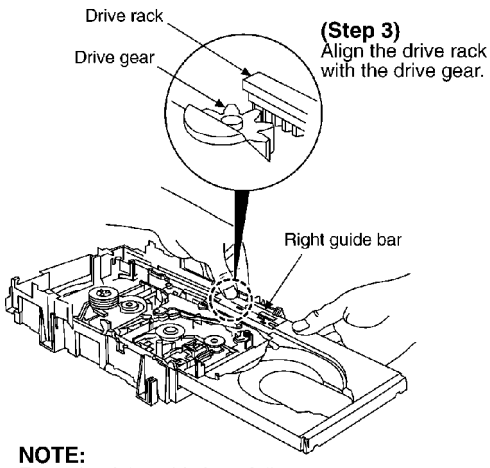
Installation of the disc tray after replacement

(Step 1)
Slide the drive rack fully in the direction of arrow.





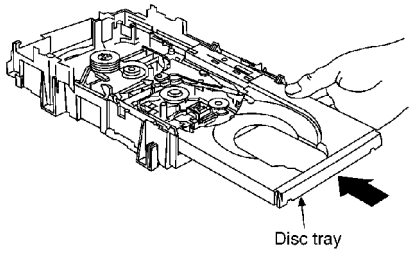
(Step 2)
Holding the drive rack not to move, install the disc tray.



(Step 3)
Align the drive rack with the drive gear.

NOTE:
Force the right guide bar of disc tray manually not to move upwards.

(Step 4)
Holding the disc tray manually, push the disc tray in the direction of arrow.

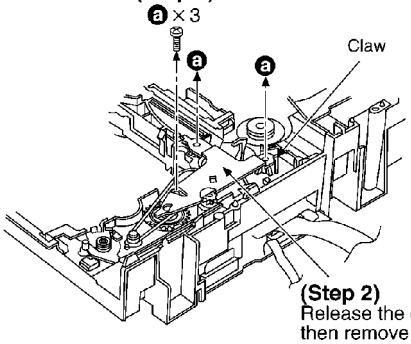


5.7. Disassembly and reassembly for mechanism base drive unit

Disassembly for mechanism base drive unit

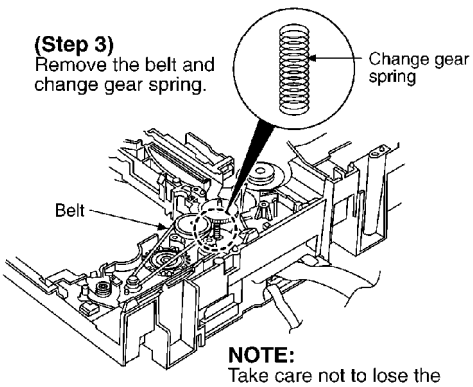
- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 11) of item 5.5.
- Follow the (Step 1) - (Step 9) of item 5.6.

(Step 1)
ⓐ × 3



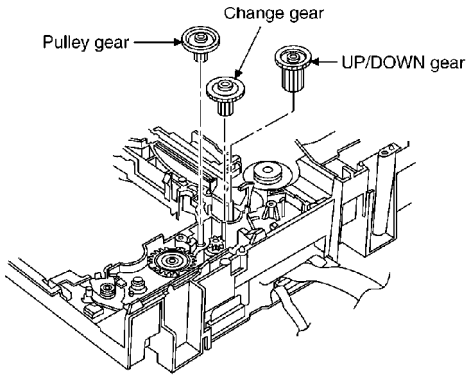
(Step 2)
Release the claw, and then remove the gear holder.

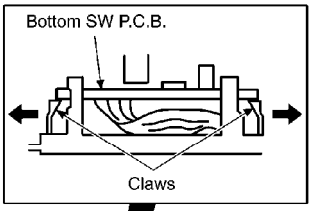
(Step 3)
Remove the belt and change gear spring.



NOTE:
Take care not to lose the change gear spring.

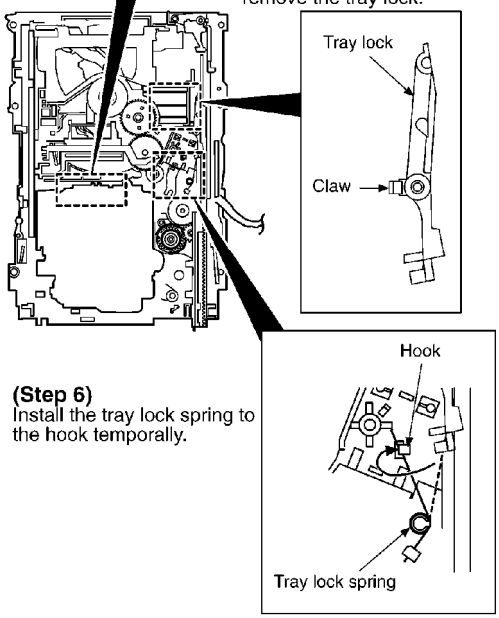
(Step 4)
Remove the pulley gear, change gear and UP/DOWN gear.





(Step 5)
Release the 2 claws, and then remove the bottom SW P.C.B..

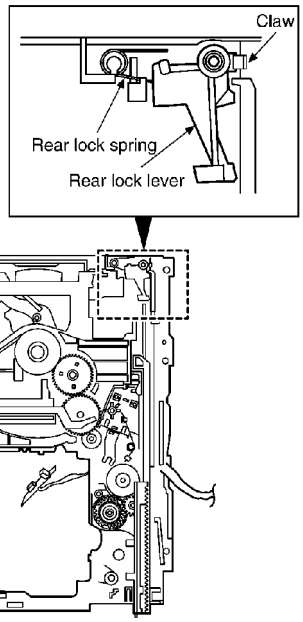
(Step 7)
Release the claw, and then remove the tray lock.



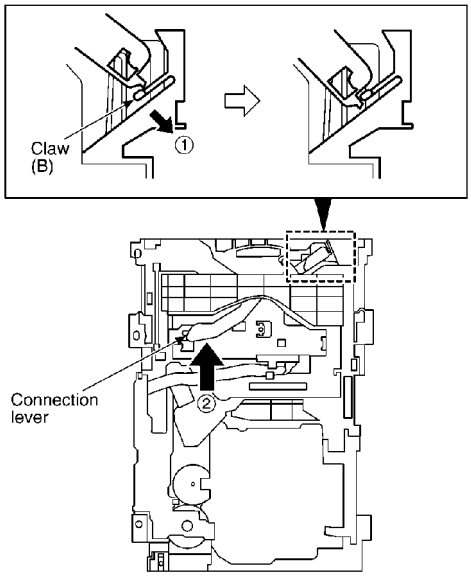
(Step 6)
Install the tray lock spring to the hook temporally.

(Step 8)
Release the claw, and then remove the rear lock lever.

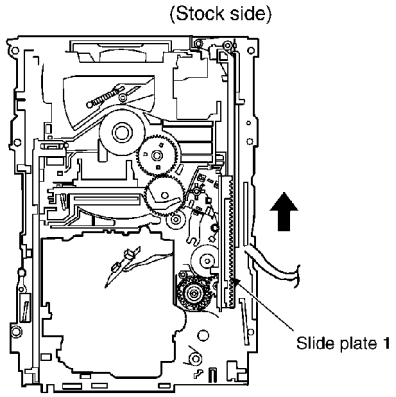
NOTE:
Take care not take the rear lock spring off.



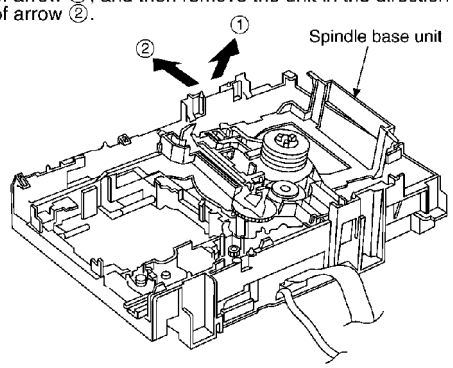
(Step 9)
Pressing the claw (B) in the direction of arrow ①, force the connection lever in the direction of arrow ②.

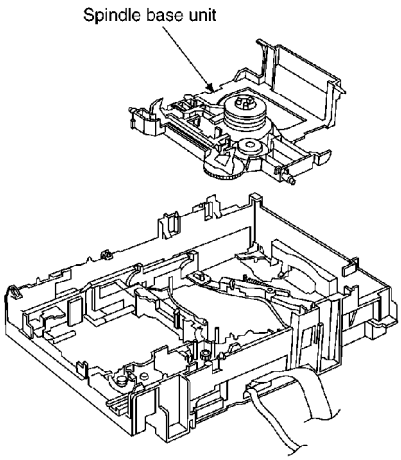


(Step 10)
Move the slide plate 1 to the end of stock side.

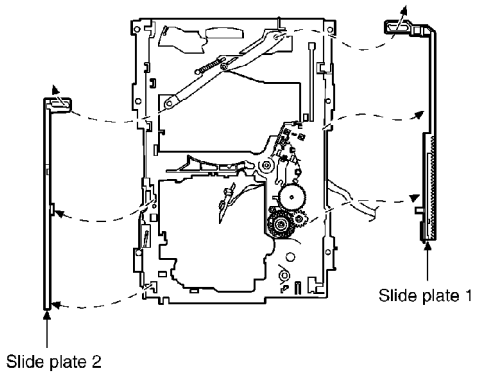


(Step 11)
Lift up the left end of spindle base unit in the direction of arrow ①, and then remove the unit in the direction of arrow ②.

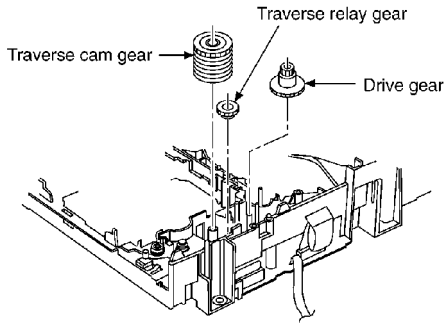




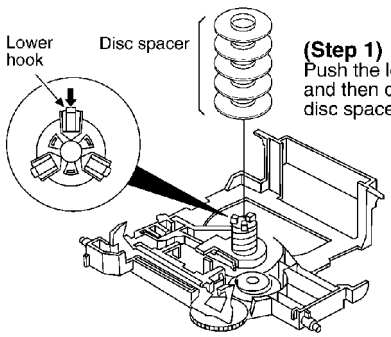
(Step 12)
Remove the slide plate 1 and slide plate 2.



(Step 13)
Remove the traverse relay gear, traverse cam gear and drive gear.

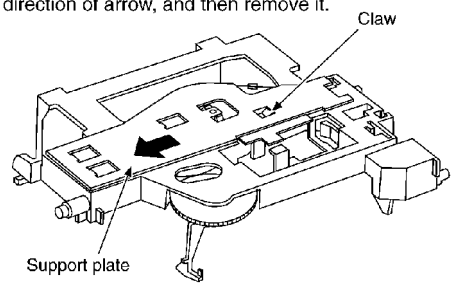


Diassembly/reassembly for the spindle base unit

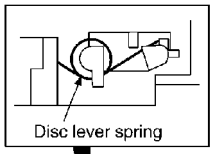


(Step 1)
Push the lower hook, and then draw the 5 disc spacers.

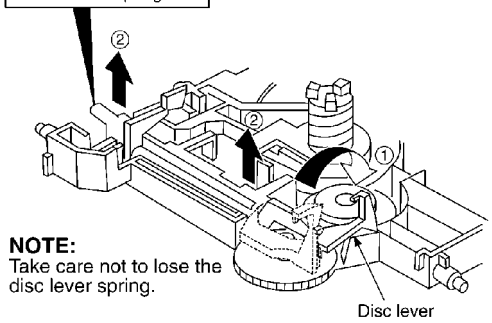
(Step 2)
Pushing the claw, slide the support plate in the direction of arrow, and then remove it.



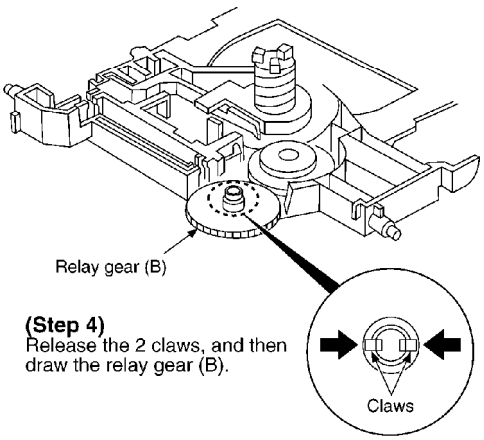
(Installation for disc lever spring)



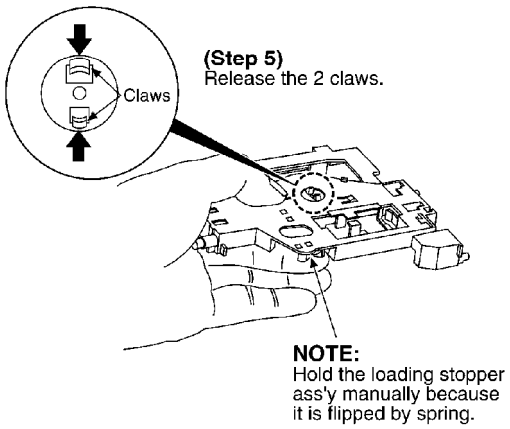
(Step 3)
Rotate the disc lever in the direction of arrow ①, draw the disc lever.



NOTE:
Take care not to lose the disc lever spring.

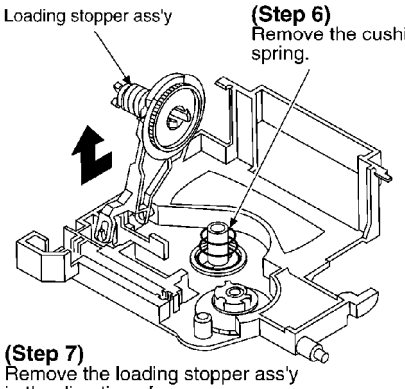


(Step 4)
Release the 2 claws, and then draw the relay gear (B).



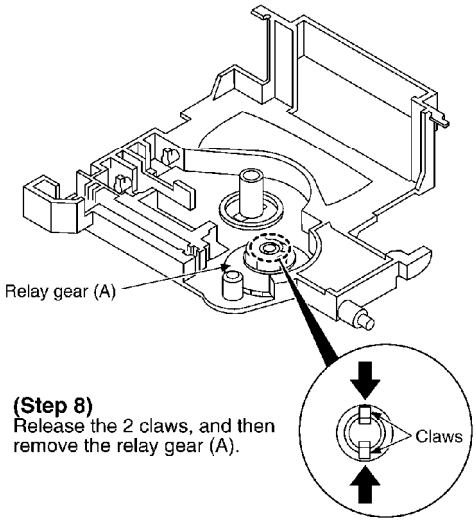
(Step 5)
Release the 2 claws.

NOTE:
Hold the loading stopper ass'y manually because it is flipped by spring.



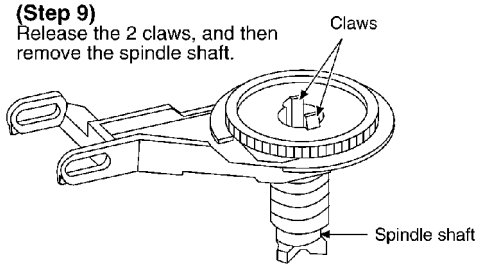
(Step 6)
Remove the cushion spring.

(Step 7)
Remove the loading stopper ass'y in the direction of arrow.

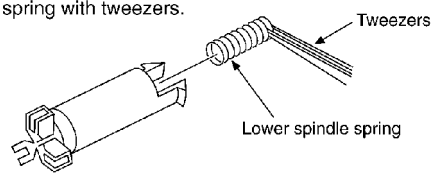


(Step 8)
Release the 2 claws, and then remove the relay gear (A).

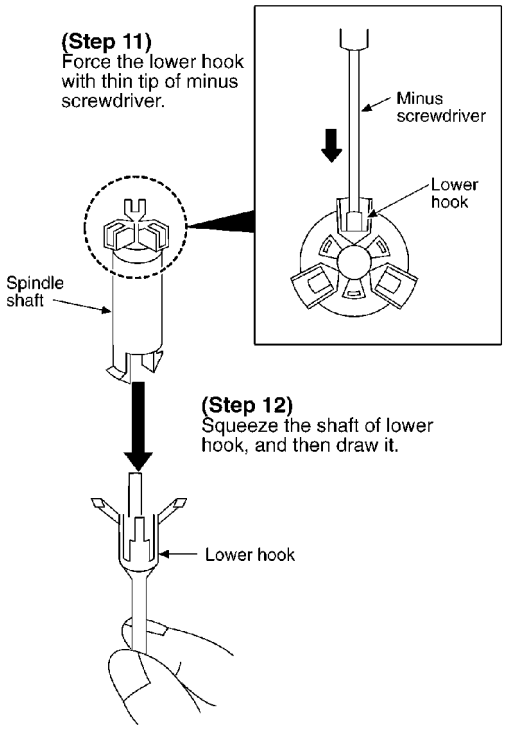
(Step 9)
Release the 2 claws, and then remove the spindle shaft.



(Step 10)
Remove the lower spindle spring with tweezers.

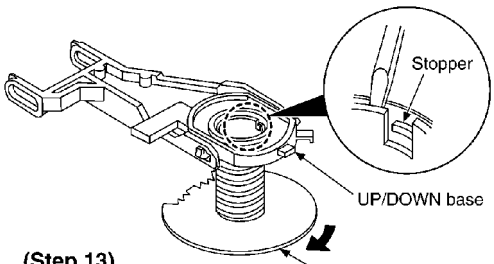


(Step 11)
Force the lower hook with thin tip of minus screwdriver.

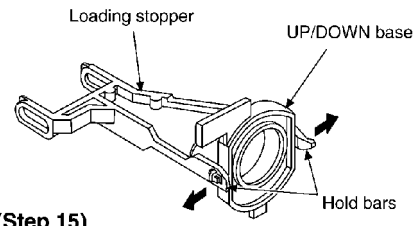


(Step 12)
Squeeze the shaft of lower hook, and then draw it.

(Step 14)
Insert the thin tip of minus screwdriver between the lower spindle and UP/DOWN base, and then slacken the lower spindle to release the stopper.
Then, rotate the lower spindle and remove it.



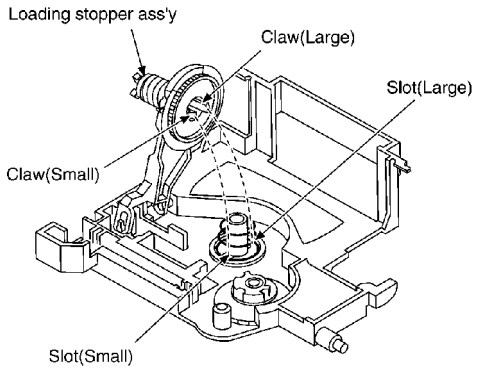
(Step 13)
Rotate the lower spindle in the direction of arrow until the lower spindle interferes with stopper.



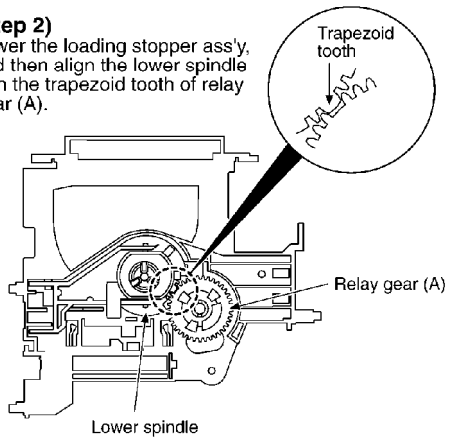
(Step 15)
Rotate the UP/DOWN base at a 90 degree angle.
Then, spread the hold bars of loading stopper and remove the UP/DOWN base.

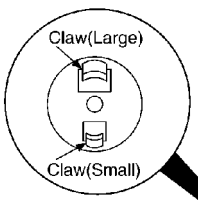
Installation for loading stopper ass'y

(Step 1)
Align the claw of loading stopper ass'y with the slot of spindle base. (Caution should be exercised when alignment of claw due to the size of claws.)

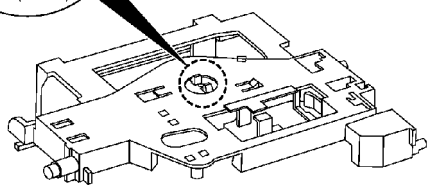


(Step 2)
Lower the loading stopper ass'y, and then align the lower spindle with the trapezoid tooth of relay gear (A).

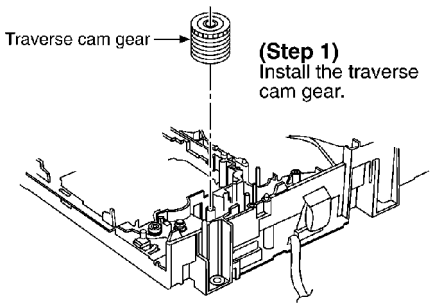




(Step 3)
Force the loading stopper ass'y, latch the claw firmly.

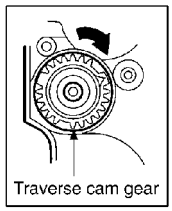


Reassembling for mechanism base drive unit

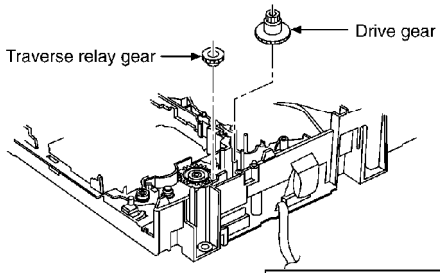


(Step 1)
Install the traverse cam gear.

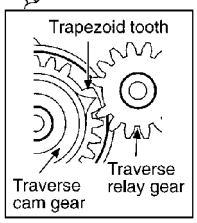
(Step 2)
Rotate the traverse cam gear to the direction of arrow.

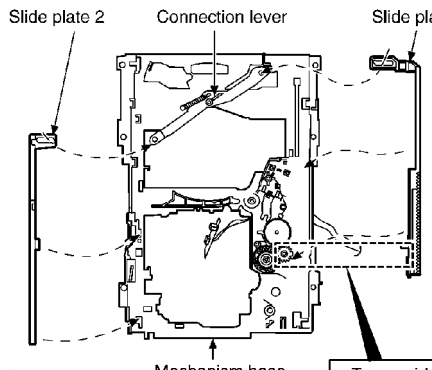


(Step 3)
Install the drive gear and traverse relay gear.



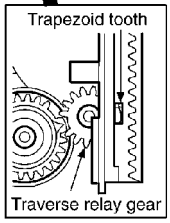
※ When installing the traverse relay gear, align the trapezoid tooth of gear with tooth of traverse cam gear.

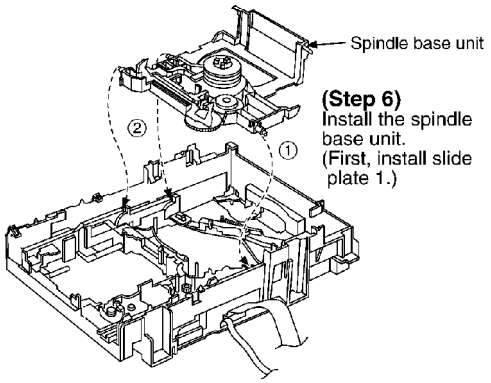




(Step 4)
Install the slide plate 2 to the mechanism base, and then match to the connection lever.

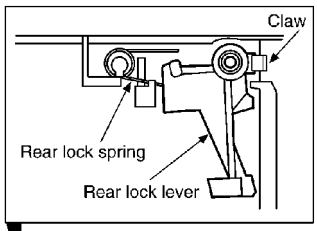
(Step 5)
Install the slide plate 1 to the mechanism base, and then match to the connection lever and align the trapezoid tooth of traverse relay gear with the slide plate 1.

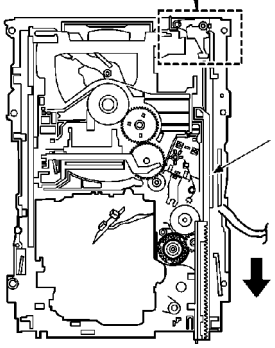




(Step 6)
Install the spindle base unit.
(First, install slide plate 1.)

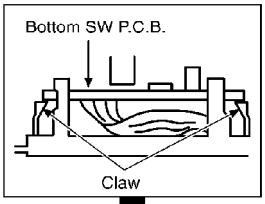
(Step 8)
Install the rear lock lever.
(The claw should be latched.)





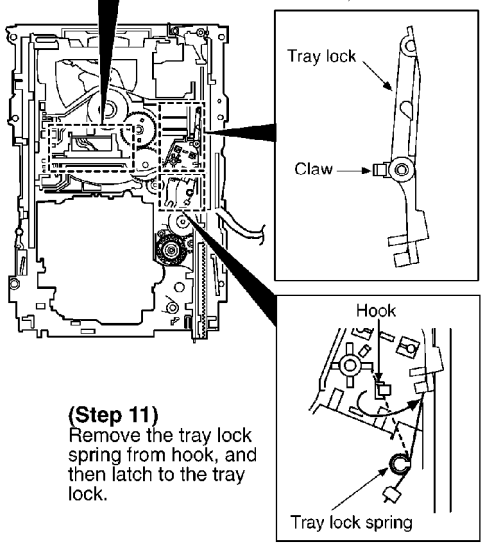
(Step 7)
Move the slide plate **1** to forward fully.

(Front side)



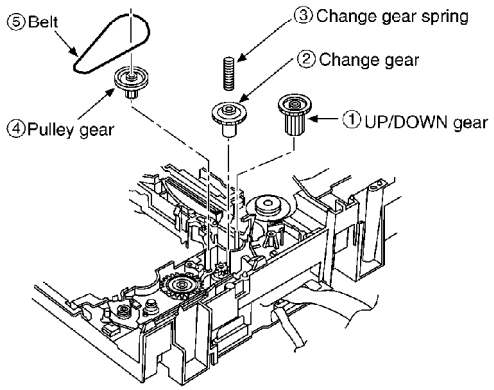
(Step 9)
Install the bottom SW P.C.B..
(The claw should be latched.)

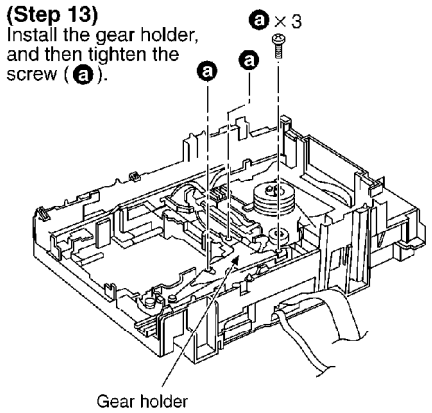
(Step 10)
Install the tray lock.
(The claw should be latched.)



(Step 11)
Remove the tray lock spring from hook, and then latch to the tray lock.

(Step 12)
Install the UP/DOWN gear, change gear, change gear spring, pulley gear and belt in the order of ①-⑤ .



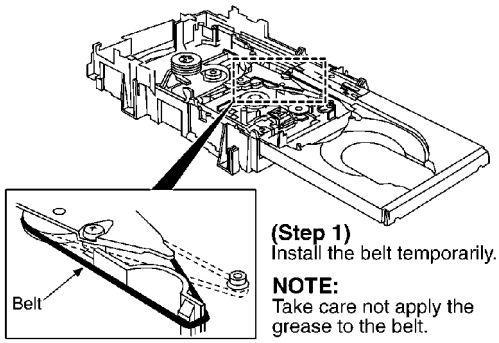


(Step 14)
Install the tray base, traverse ass'y, mechanism cover and upper plate.
(Refer to the items 5.5. and 5.6. of Main Component Replacement Procedures.)

[Operation check after servicing]
Check the proper operation of following items with gear and hexagonal screwdriver.
1) Open/close of disc tray.
2) Moving the disc tray to the stock side.
3) UP/DOWN operation of spindle base unit.
4) UP/DOWN operation of traverse ass'y.

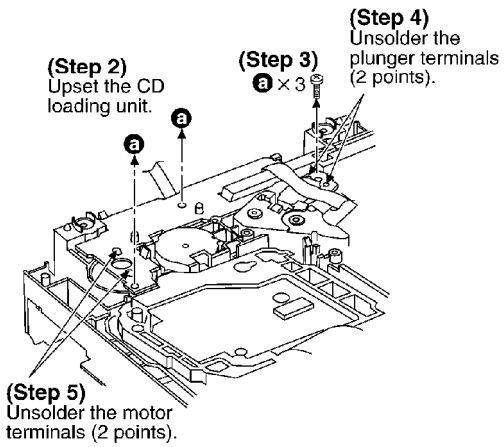
5.8. Replacement for the motor ass'y

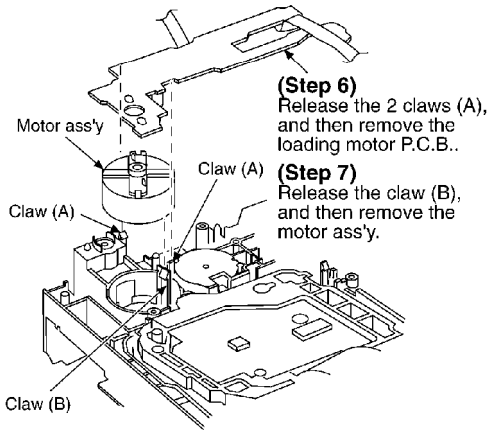
- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.5.
- Follow the (Step 1) - (Step 7) of item 5.6.



(Step 1)
Install the belt temporarily.

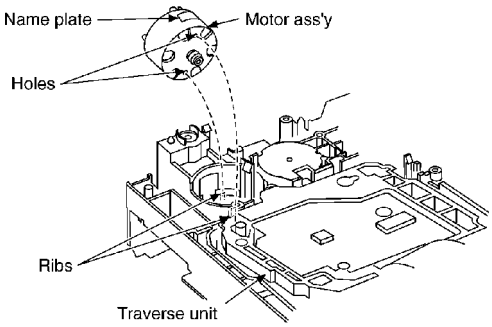
NOTE:
Take care not apply the grease to the belt.





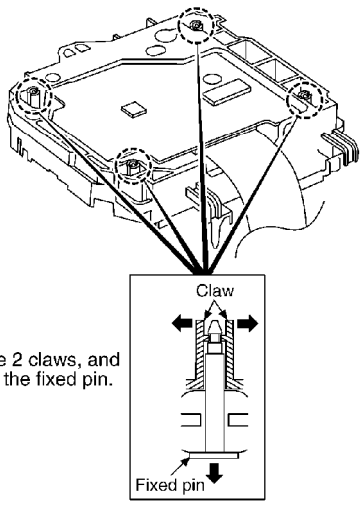
Notice for motor ass'y installation

1. Locate the name plate of motor to the traverse ass'y.
2. Align the hole of motor with the ribs.



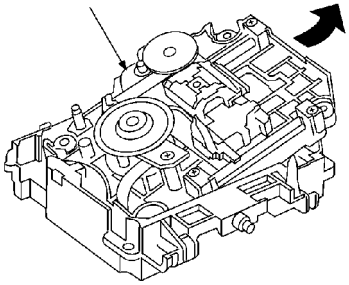
5.9. Replacement for the optical pick-up

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.2.
- Follow the (Step 1) - (Step 11) of item 5.5.

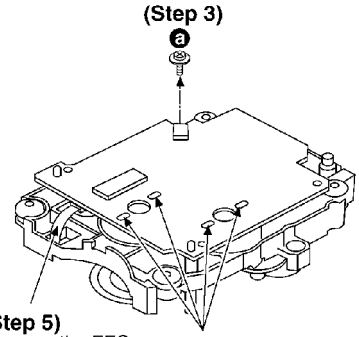


(Step 1)
Release the 2 claws, and the pull out the fixed pin.

(Step 2)
Remove the traverse deck unit.



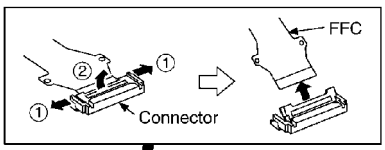
(Step 3)

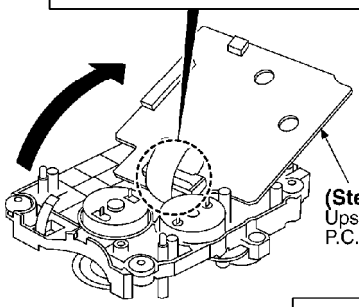


(Step 5)
Remove the FFC.

(Step 4)
Unsolder the motor terminals.

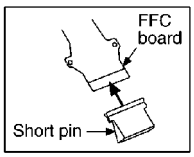
(Step 7)
Pull out the FFC from connector.

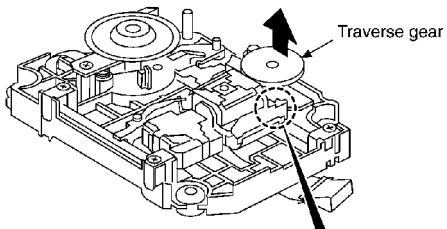




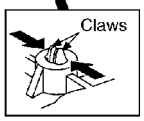
(Step 6)
Upset the terminal P.C.B..

Caution:
Insert short pin into the traverse unit FFC board.
(Refer to **"Handling Precautions for Traverse Deck"**.)



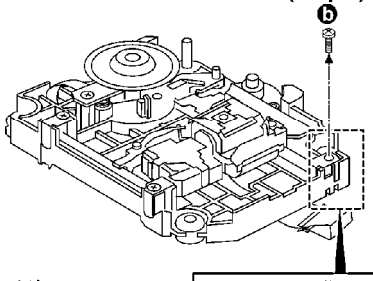


(Step 8)
Release the claws, and then pull out the traverse gear.

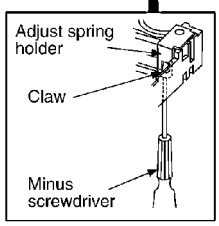


(Bottom side)

(Step 9)

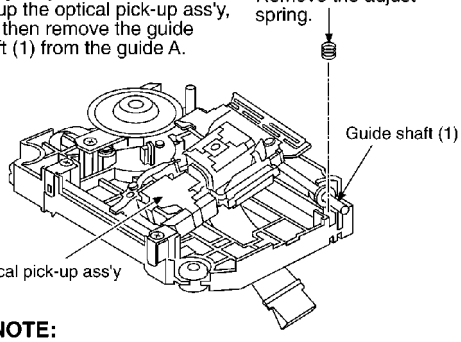


(Step 10)
Release the claw, and then remove the adjust spring holder.

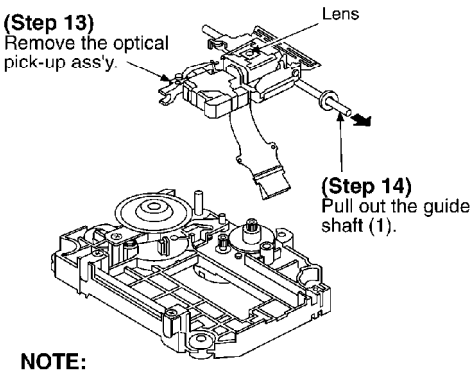


(Step 12)
Lift up the optical pick-up ass'y, and then remove the guide shaft (1) from the guide A.

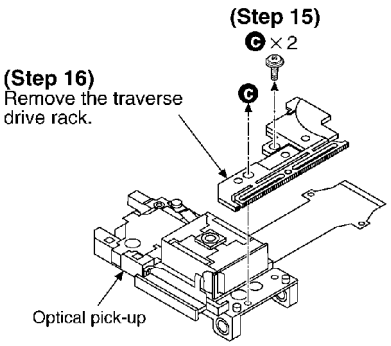
(Step 11)
Remove the adjust spring.



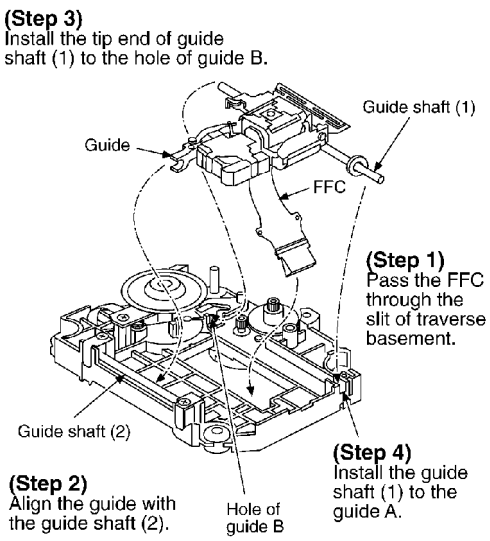
NOTE:
Take care not to lose the adjust spring.



NOTE:
1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not tough the lens of the optical pick-up.



Installing the optical pick-up



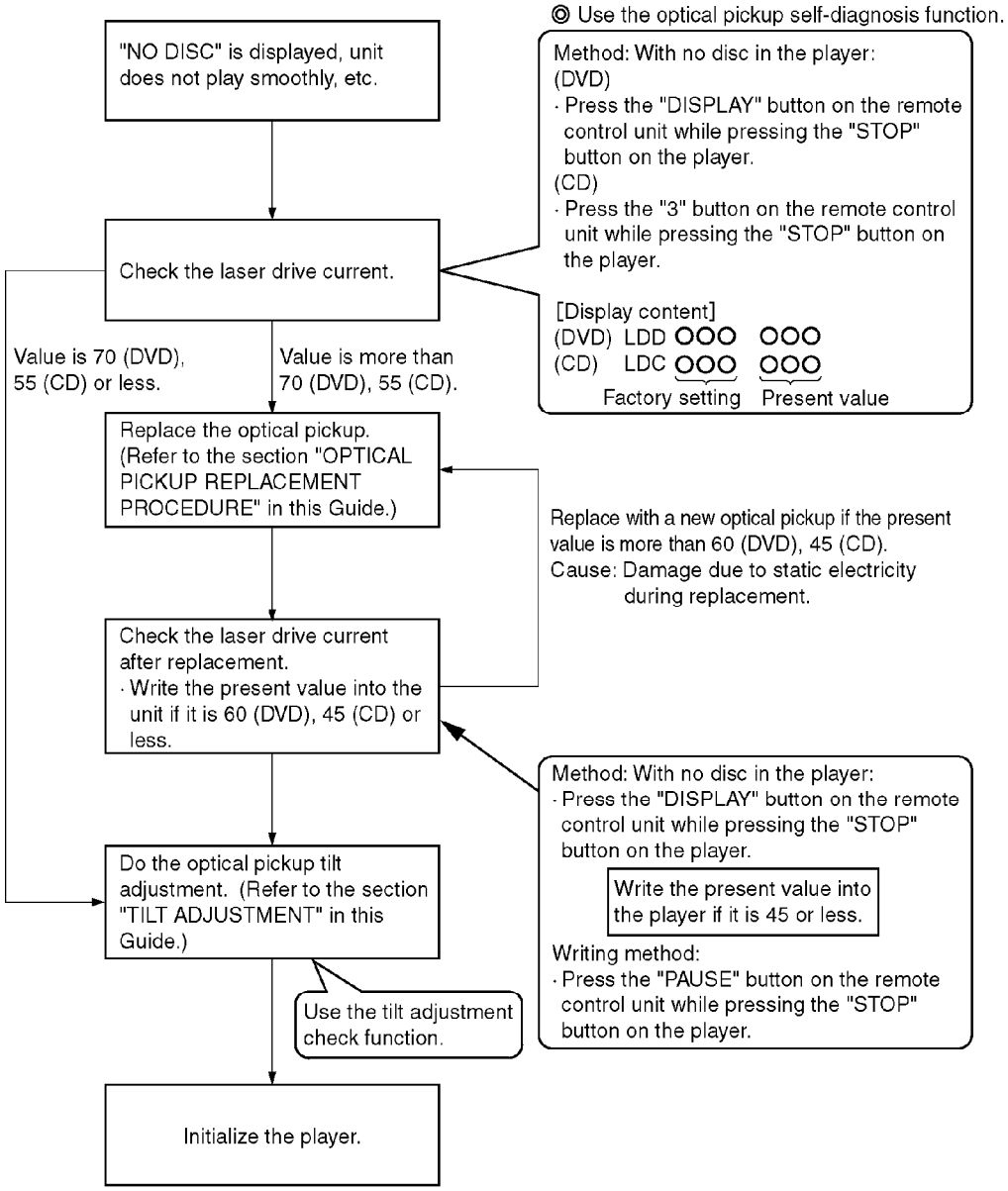
6. Optical Pickup Self-Diagnosis and Replacement Procedure

6.1. Self-diagnosis

The optical pickup self-diagnosis function and tilt adjustment check function have been included in this unit. When repairing, use the following procedure for effective Self-diagnosis and tilt

adjustment.Be sure to use the self-diagnosis functionbeforereplacingthe optical pickup when "NO DISC" is displayed. As a guideline, you should replace the optical pickup when the value of the laser drive current is more than 55.

Note:
Press the power button to turn on the power, and check the value within three minutes before the unit warms up. (Otherwise, the result will be incorrect.)



6.2. Cautions to Be Used Before Replacing the Optical Pickup Unit and Spindle Motor Assembly

Before replacing the optical pickup unit and spindle motor assembly, check the total using hours for each of them. The checking method is as follows:

	Operating state & Key operation	Display
Using hours of DVD and CD lasers	Press "STOP" button on the player, and " ▲ " on the remote control .	T1_xxxx_yyyy: total hours are displayed by 4-digit figures (unit: 10 hours).
Using hours of SP motor	Press "STOP" button on the player, and " ▶ " on the remote control.	T2_xxxx: total hours are displayed by 4-digit figures (unit: 10 hours).
Resetting using hours of DVD and CD lasers (Simultaneous resetting)	Press "STOP" button on the player, and " ▼ " on the remote control.	T1_0000_0000
Resetting using hours of the SP motor	Press "STOP" button on the player, and " ◀ " on the remote control .	T2_0000

Cautions to be taken when replacing the optical pickup
The optical pickup may break down due to the static electricity of human body. Take proper protection measures against static electricity before repairing the parts around the optical pickup.

1. Do not touch the areas around the laser diode and actuator.

2. Do not judge the laser diode with a tester. (The tester will be damaged easily.)

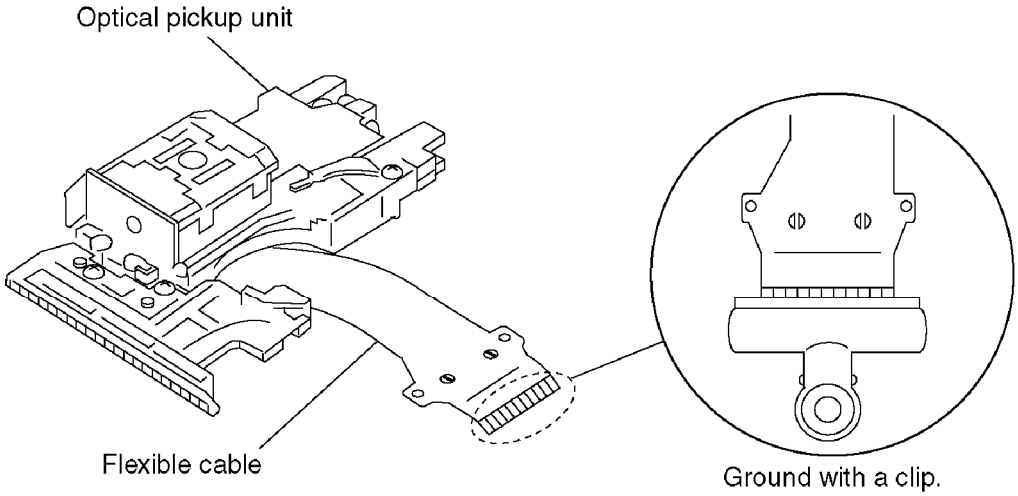
3. It is recommended to use a destaticized soldering iron for short-circuiting or removing the laser diode. (Recommended soldering iron) HAKKO ESD Product

4. Solder the land of the flexible cable in the optical pickup.

Note:

- When using a soldering iron which is not destaticized, short-circuit the terminal face of the flexible case with a clip. After that, short-circuit the land.

- After the repairing work is completed, remove the solder according to the correct procedure shown in this Technical Guide.



7. Self-Diagnosis Function and Service Modes

Each results of self-diagnostic function and service mode is displayed on the LCD of Tuner / Amplifier (SA-DV290). When using these function, confirm the unit to be connected by system cable.

7.1. Self-diagnostic function for loading mechanism

7.1.1. How to enter the mode and display

1. Turn on the power.
2. Press “SELECT” button on the Tuner / Amplifier (SA-DV290) to select DVD.
3. With no disc on the unit, hold down REPEAT button for at least 2 seconds, and then press ■(STOP) button for at least 2 seconds.
4. A loading mechanism error code is displayed if any. (No error is detected, “-- T-- ----- ” is displayed. - indicates a space.) Refer to Table 7-1. If there are multiple error, they canbesuccessivelyby pressing ▶▶ / ▶▶|(F-SKIP) button.

7.1.2. Canceling self-diagnostic function

- Press “Standby/on” button to turn off. And then press “Standby/on” button again to turn it on again.

7.1.3. Clearing self-diagnostic function

- After repairing, continue to press ■(STOP) button for at least 5 seconds in the situation of having displayed the error code. / (Clearing the contents of self-diagnostic function)
- Always be sure to clear memories after completing repair.

Table 7-1

Display code	Cause
H15	Disc tray open detect switch (S3) fault. / (Check and replace)
F16	Clamp switch (S4) fault. / (Check and replace)
F17	Bottom switch (S5) fault. / (Check and replace)
F27	Tray position detect switch (S1, S2) fault. / (Check and replace)
F28	Disc load error.
F29	Disc unload error.

7.2. Service mode table 1

Pressing various button combinations on the unit and remote control can activate the service modes.

Unit button	Remote control button	Application
■	0	Displaying the error code. (Refer to the item 7.3. “DVD/CD error display”.)
	5	Jitter check, optical pick-up tilt adjustment.
	6	Checking the region numbers and broadcast system.
	7	Checking the program version.
	DISPLAY	Checking DVD laser drive current measurement.
	3	Checking CD laser drive current measurement.
	▮▮	Writing the laser drive current value after replacing the optical p (Do not perform this mode except for replacing the optical pick-
	≧10	Initialization (Restore factory preset settings) / Perform this moc replacing the microcomputer, its peripheral parts and P.C.B..

7.3. DVD Self Diagnostic Function-Error Code

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3
	U, H error				
U11	Focus error				
H01	Tray loading error				
H02	Spindle servo error	(Spindle servo, DSC SP motor, CLV servo error)			
H03	Traverse servo error				
H04	Tracking servo error				
H05	Seek error				
H06	Power error	Cannot switch off the power because of the panel and system computer communication error			
	DSC related				
F500	DSC error	DSC stops in the occurence of servo error (starup, focus error, etc)	OPU	ADSC	FEP
F501	DSC not Ready	DSC-system computer communication error (Communication failure caused by idling of DSC)	ADSC	CPU	
F502	DSC Time out error	Similar disposal as F500	OPU	ADSC	FEP
F503	DSC communication Failure	Communication error (result error occured although communication command was sent)	ADSC	FEP	EEPROM
F505	DSC Attention error	Similar disposal as F500	OPU	ADSC	FEP
F506	Invalid media	Disc is flipped over, TOC unreadable, incompatible disc	DISC	FEP	ADSC
	ODC related				
F600	Access failure to management information caused by demodulation error	Operation stopped because navigation data is not accessible caused by the demodulation defect	ODC	FEP	ADSC
F601	Indeterminate sector ID requested	Operation stopped caused by the request to access abnormal ID data	ODC	FEP	ADSC
F602	Access failure to LEAD-IN caused by demodulation error	LEAD IN data unreadable			

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3
F603	Access failure to KEYDET caused by demodulation error	Access failure to CSS data of disc			
F610	ODC abnormality	No permission for command execution	ODC		
F611	6626 QCODE don't read Error	Access failure to seek address in CD series	ODC		
F612	No CRC OK for a specific time	Access failure to ID data in DVD series	ODC		
F630	No reply to KEY DET enquiry	(for internal use only)			
F631	CPPM KEY DET is not available till the FILE terminal	(CPPM file system is unreadable caused by scratches)	DISC	CPPM	
F632	CPPM KEY DET is not available	Been revoked or falsified	DISC	EEPROM	CPPM
	Disc code				
F103	Illegal highlight Position	Big possibility of disc specification violation during highlight display	DISC		
	HIC Error				
F4FF	Force initialize failure (time out)		EEPROM	CPU	FEP
	Micro computer error				
F700	MBX overflow	When replying message to disc manager			
F701	Message command does not end	Next message is sent before replying to disc manager			
F702	Message command changes	Message is changed before it is sent as a reply to disc manager			
F880	Task number is not appropriate	Message coming from a non-existing task			
F890	Sending message when message is being sent to AV task	Sending message to AV task			
F891	Message couldn't be sent to AV task	Begin sending message to AV task			
F893	FROM falsification		FROM	CPU	

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3
F894	EEPROM abnormality		EEPROM	Serial / communication on lone	
F8A0	Message command is not appropriate	Begin sending message to AV task			

7.4. Last Error Code saved during NO PLAY

Error code	Error Content	System computer	Setting task	System computer i error code
F0BF	6) Cannot playback because physical layer is not recoginizable	PCND_NOPLAY PHYSICAL 0x50	DriveManager	0xDOBF
F0C0	8) DVD: Cannot playback because it is not DVD Video /Adio/VR	PCND_NOPLAY VIDEO 0x70	DiscManager	0xDOC0
F0C1	9) DVD: Prohibited by the restricted region code	PCND_NOPLAY RCD 0x80	DiscManager	0xDOC1
F0C2	A) DVD: PAL restricted playback	PCND_NOPLAY PAL 0x90	DiscManager	0xDOC2
F0C3	B) DVD: Parental lock setting prohibits the playback of the entire title	PCND_NOPLAY PTL 0xA0	DiscManager	0xDOC3
F0C4	C) VCD: Prohibited because it is in PHOTO CD fromat	PCND_NOPLAY PHOTO CD 0xB0	DiscManager	0xDOC4
F0C5	VCD/CD: Prohibited because it is CDROM without CD-DA	PCND_NOPLAY CDROM 0xC0	DiscManager	0xDOC5

7.5. Service mode table 2

Pressing various button combinations on the player and remote control unit can activate the service modes.

Item	Play mode and button combination	Function	Display	Cancellation method
Jitter check	In PLAY mode, press "STOP" button on the player, and "5" button on the remote control unit.	Jitter check Jitter rate is measured and displayed. Measurement is repeatedly done in the cycle of one second. Read error counter starts from zero upon mode setting. When target block data failed to be read out, the counter advances by one increment. When the failure is caused by minor error, it may be corrected when retried to enable successful reading. In this case, the counter advances by one. When the error persists even after retry, the counter may jump by two or more.	J _xxx_yyy_zz Focus drive value Read error counter Jitter rate Jitter check mode Jitter rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation.	Press STOP button.
Error code check	Press "STOP" button on the player, and "0" button on the remote control unit.	Error code check The latest error code stored in EEPROM is displayed.	Error code (play_err) is expressed in the following convention. Error code = 0 x DAXX is expressed: -> DVD UXX Error code = 0 x DBXX is expressed: -> DVD HXX Error code = 0 x DXXX is expressed: -> DVD FXXX Error code = 0 x 0000 is expressed: -> DVD FXXX	Cancelled automatically 5 seconds later.
Initial setting of laser drive current	In STOP mode, press "STOP" button on the player, and "PAUSE" button on the remote control unit.	Initial setting of laser drive current. Initial current value for each of DVD laser and CD laser is separately saved in EEPROM.	LDO_034_028 CD laser current measurement DVD laser current measurement Laser current measurement mode	Cancelled automatically 5 seconds later.
DVD laser drive current measurement	In STOP mode, press "STOP" button on the player, and "DISPLAY" button on the remote control unit.	DVD laser drive current measurement ·DVD laser drive current is measured and the result is displayed together with the initial value stored in EEPROM. After the measurement, DVD laser emission is kept on. It is turned off when POWER key is switched off. (It is also turned off when the primary power is switched off.)	LDD_034_032 Measured current Initial current stored in EEPROM DVD laser current measurement mode The value denotes the current in decimal notation. The above example shows the initial current is 34mA and the measured value is 32mA.	Cancelled automatically 5 seconds later.
ADSC internal RAM data check	Press "STOP" button on the player, and "1" button on the remote control unit.	ADSC internal RAM data check ·ADSC internal RAM data is read out and displayed. Change the address with "CANCEL" key operation to show the data for 14 addresses.	A_DFA_6901 RAM data for specified address Address ADSC internal RAM data check mode The value is shown in hexadecimal notation. The above example shows the data in ADSC address DFAh is 6901h.	Press STOP button.
CD laser drive current measurement	In STOP mode, press "STOP" button on the player, and "3" button on the remote control unit.	CD laser drive current measurement CD laser drive current is measured and the result is displayed together with the initial value stored in EEPROM. After the measurement, CD laser emission is kept on. It is turned off when POWER key is switched off. (It is also turned off when the primary power is switched off.)	LDC_028_026 Measured current Initial current stored in EEPROM CD laser current measurement mode The value denotes the current in decimal notation. The above example shows the initial current is 28mA and the measured value is 26mA.	Cancelled automatically 5 seconds later.

Item	Play mode and button combination	Function	Display	Cancellation method
Version display	In STOP mode, press "STOP" button on the player, and "7" button on the remote control unit.	Version display	xx_y_zzz System controller release number System controller model number System controller generation	Cancelled automatically 5 seconds later.
Dealer's lock	In STOP mode, press "STOP" on the player, and "PLAY" button on the remote control unit for 3 second.	Dealer's lock The lock is switched ON or OFF. When dealer's lock is ON, it prohibits the tray opening. When the lock is switched, its ON/OFF status is stored in EEPROM.	· "LOCKED" sign appears when dealer's lock is switched on, or when secondary power key or tray opening key is pressed while the lock is on. ·"UNLOCKED" sign appears when dealer's lock is switched off.	Repeat the same operation.
Initialization	In STOP mode, press "STOP" button on the player and "≥10" button on the remote control unit.	Initialization User settings are cancelled and player is initialized to factory setting.	"INITIALIZED"	
Region display	In STOP mode, press "STOP" button on the player, and "6" button on the remote control unit.	Region display	x__yy__zzz N: NTSC / 6: PAL60 N: noPAL / P: PAL Region No.	Cancelled automatically 5 seconds later.
Timer 1 check	In STOP mode, press "STOP" button on the player, and "▲" button on the remote control unit.	Timer 1 check Operation time of laser operation timer is measured separately for DVD laser and CD laser.	T1_1234_5678 Shown to the left is DVD laser time, and to the right CD laser time. Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999".	Cancelled automatically 5 seconds later.
Timer 1 reset	While displaying Timer 1 data, press "STOP" button on the player, and "▼" button on the remote control unit.	Timer 1 reset Operation time of laser operation timer of both DVD laser and CD laser is reset all at once.	T1_0000_0000	Cancelled automatically 5 seconds later.
Timer 2 check	In STOP mode, press "STOP" button on the player, and "▶" button on the remote control unit.	Timer 2 check Spindle motor operation timer	T2_1234 Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999".	Cancelled automatically 5 seconds later.
Timer 2 reset	While displaying Timer 2 data, press "STOP" button on the player, and "◀" button on the remote control unit.	Timer 2 reset Spindle motor operation timer	T2_0000	Cancelled automatically 5 seconds later.

7.6. Sales demonstration lock function

This function prevents discs from being lost when the unit is used for sales demonstrations by disabling the disc eject function. "LOCKED" is displayed on the unit, and ordinary operation is disabled.

7.6.1. Setting

The sales demonstration lock is set by simultaneously pressing “STOP” button on the player and “PLAY” button on the remote control unit.

7.6.2. Cancellation

The lock can be cancelled by the same procedure as used in setting. ("UNLOCKED" is displayed on cancellation. Disconnecting the power cable from power outlet does not cancel the lock.)

7.7. Handling After Completing Repairs

Use the following procedure after completing repairs.

7.7.1. Method

Confirm that the power is turned on:

1. Press the “OPEN/CLOSE” button to close the tray.

2. Press the “POWER” button to turn off the power.

3. Disconnect the power plug from the outlet.

7.7.2. Precautions

Do not disconnect the power plug from the outlet with the tray still open, then close the tray manually.

8. Service Precautions

8.1. Recovery after the DVD player is repaired

- When a FROM or module P.C.B. is replaced, carry out the recovery processing to optimize the drive.
  Playback the recovery disc to process the recovery automatically.
- Recovery disc (Product number: RFKZD5TR006 or RFKZD03R004)
- Performing recovery

1. Load the recovery disc (RFKZD5TR006 or RFKZD03R004) on to the unit and run it.
2. Recovery is performed automatically. When it is finished, a message appears on the screen.
3. Remove the recovery disc.
4. Turn off the power.

Note:
This unit requires no initialization process carried out after the traditional DVD players were repaired.
When the recovery measure are taken, the customer setting will return to the factory preset settings as same as the procedure described in item of "Initialization" in 7.6. is carried out. Write down the contents of the settingbeforerecoveryprocessing, and reset the unit.

8.2. Firmware version-up of the DVD player

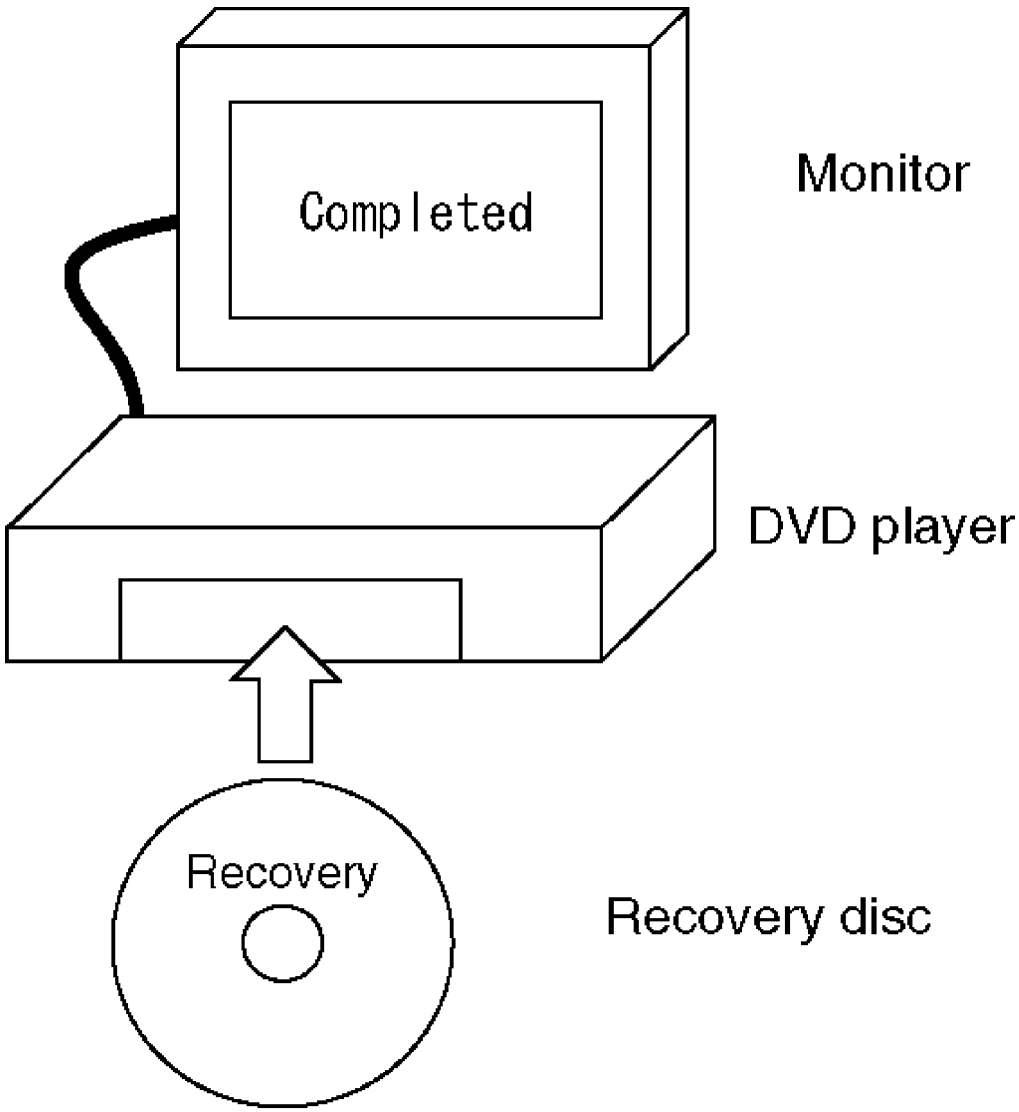
- The firmware of the DVD player may be renewed to improve the quality including operationality and playback ability to the substandard discs processing to optimize the drive.
  The recovery disc has also firmware version-up.
- After version-up, recovery processing is executed automatically.
- Part number of the recovery disc for version-up will be noticed when it is supplied.
- Updating firmware

1. Load the recovery disc that is supplied to the unit and run it.
2. Firmware version of the unit is automatically checked.
   Appropriate message appears whenever necessary.
3. Using remote control cursor key, select whether version updating is to be done or not. (Selection of Yes/No)
4. a. If Yes is selected, version updating is performed.

b. If No is selected, only recovery is performed.

5. **a. When updating is finished, remove the disc according to the message appearing on the screen.**
   b. Remove the disc according to the message appearing on the screen.
6. **Turn off the power.**

Note:
If the AC power supply is shut down during version-up due to a power failure, the version-up is improperly carried out.
In such a case, replace the FROM and carry out the version-up again.



8.3. Overview of each function

8.3.1. Cumulative operation time display

1. Operation/display

DVD/CD laser operation time
Unit: 10 hours in decimal notation

Spindle motor operation time
Unit: 10 hours in decimal notation

Key operations are as follows.
Laser operation time ..... In STOP mode, main unit [STOP]+ remote controller [▲]
Spindle motor operation time ..... In STOP mode, main unit [STOP]+ remote controller [▶]
To reset the timer, perform the following while displaying the time with above key operation.
Laser operation time ..... In STOP mode, main unit [STOP]+ remote controller [▼]
Spindle motor operation time ..... In STOP mode, main unit [STOP]+ remote controller [◀]

2. How to utilize

Reference information in fault diagnosis of laser or spindle motor system
Review of faulty point in repeated repair

9. Adjustment Procedures

9.1. Service Tools and Equipment

Application	Name	Number
Tilt adjustment	DVD test disc	DVDT-S15 or DVDT-S01
	Hex wrench	Commercially available hex wrench
Others	Screw lock	RZZ0L01
	Grease	RFKXGAK152
	Oil	RFKXGA1280, JZS0648
Confirmation	CD test disc	PVCD-K06 or any other commercially available disc
	VCD test disc	PVCD-K06 or any other commercially available disc
	Recovery disc	RFKZD5TR006 or RFKZD03R004

9.2. Important points in adjustment

9.2.1. Important points in optical adjustment

- Before starting optical adjustment, be sure to take anti-static measures.
- Optical pickup tilt adjustment is needed after replacement of the following components.

1. Optical pickup unit
2. Spindle motor unit
3. Optical pickup peripheral parts (such as rail)

Notes
Adjustment is generally unnecessary after replacing other parts of the traverse unit. However, make adjustment if there is a noticeable degradation in picture quality. Optical adjustments cannot be made inside the optical pickup. Adjustment isgenerally unnecessaryafterreplacing the traverse unit.

9.2.2. Important points in electrical adjustment

- Follow the adjustment procedures described in this Manual.

9.3. Storing and Handling Test Discs

- Surface precision is vital for DVD test discs. Be sure to store and handle them carefully.

1. Do not place discs directly onto the workbench, etc., after use.
2. Handle discs carefully in order to maintain their flatness. Place them into their case after use and store them vertically. Store discs in a cool place where they are not exposed to direct sunlight or air from air conditioners.
3. Accurate adjustment will not be possible if the disc is warped when placed on a surface made of glass, etc. If this happens, use a new test disc to make optical adjustments.
4. If adjustment is done using a warped disc, the adjustment will be incorrect and some discs will not be playable.

9.4. Optical adjustment

9.4.1. Optical pickup tilt adjustment

Measurement point	Adjustment point	Mode	Disc
	Tangential adjustment screw Tilt adjustment screw	T01 (inner periphery) play T43 (outer periphery) play	DVDR-S15 or DVD
Measuring equipment		Adjustment value	
None (Main unit display for servicing is used.)		Adjust to the minimum jitter value.	

9.4.1.1. Adjustment procedure

1. While pressing “STOP” button on the main unit, press "5" on the remote control unit.
2. Confirm that "J_xxx_yyy_zz" is shown on the front display.

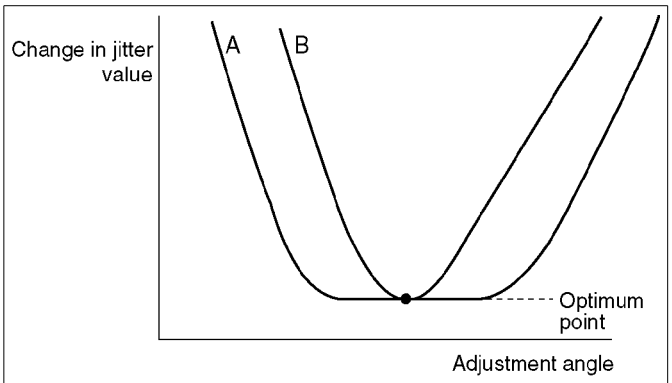
For your information:
"yyy" and "zz" shown to the right have nothing to do with the jitter value. "yyy" is the error counter, while "zz" is the focus drive value.

Note:
Jitter value appears on the front display.

3. Play test disc T01 (inner periphery).
4. Adjust tangential adjustment screw so that the jitter value is minimized.
5. Play test disc T43 (outer periphery).
6. Adjust tilt adjustment screw 1 so that the jitter value is minimized.
7. Play test disc T43 (outer periphery).
8. Adjust tilt adjustment screw 2 so that the jitter value is minimized.
9. Repeat adjusting tilt adjustment screws 1 and 2 alternately until the jitter value is minimized.

9.4.1.2. Important points

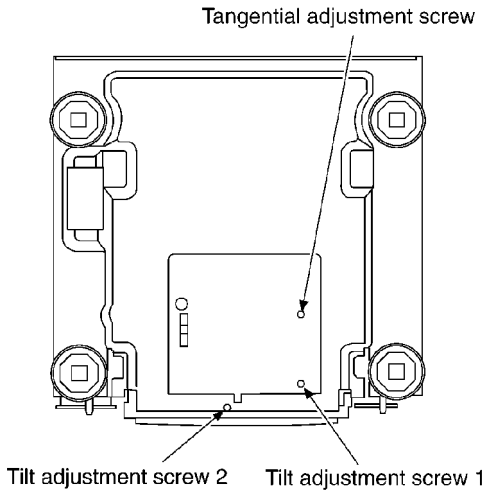
1. Make tangential adjustment first, and then make tilt adjustment.
2. Repeat adjusting two or three times to find the optimum point.
3. Finish the procedure with tilt adjustment.



Jitter value depends on the model:

1. If the jitter value changes like B, the optimum point is easy to find.

2. If the jitter value changes like A, set the optimum point near the middle.

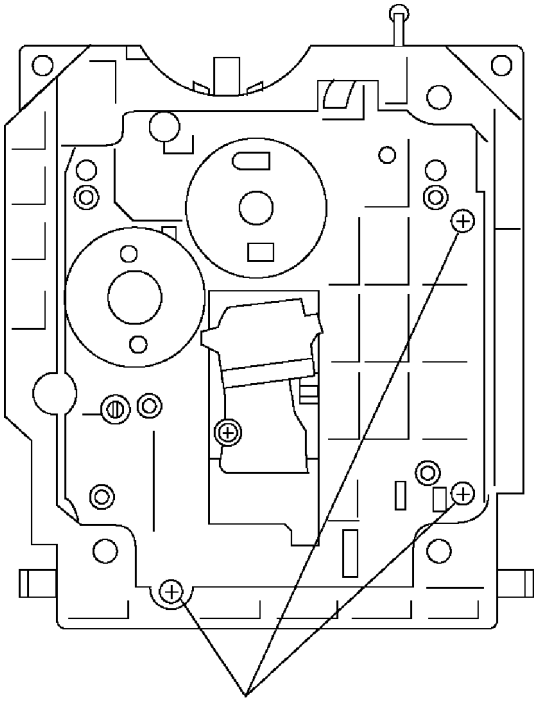


9.4.1.3. Check after adjustment

Play test disc or any other disc to make sure there is no picture degradation in the inner, middle and outer peripheries, and no audio skipping. After adjustment is finished, lock each adjustment screw in position using screw lock.

9.4.1.4. Procedure for screw lock

1. **After adjustment, remove top cover, tray, clamper base and traverse unit in this sequence.**
2. **Lay the traverse unit upside down, and fix adjustment screw with screw lock.**
3. **After fixing, reassemble traverse unit, clamper base, tray and top cover.**



Screw lock
(adjustment screw)

10. To Supply Power Source

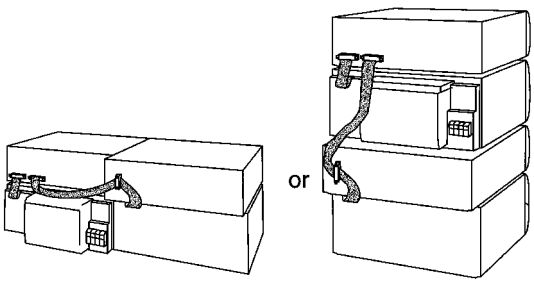
Cautions:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned “on”, laser radiation is emitted from the pickup lens.

- Avoid exposure to the lase beam, especially when performing adjustments.

This unit SL-DV290 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig. 4.)

Fig. 4



When the unit SL-DV290 has to test and service alone, use the following method to supply power source.

1. Connect a DC power supply to JK1-5pin and JK1-6pin and .
Then adjust the outputs to 10V for 5pin (refer to Fig. 5 and Fig. 6)

Fig. 5

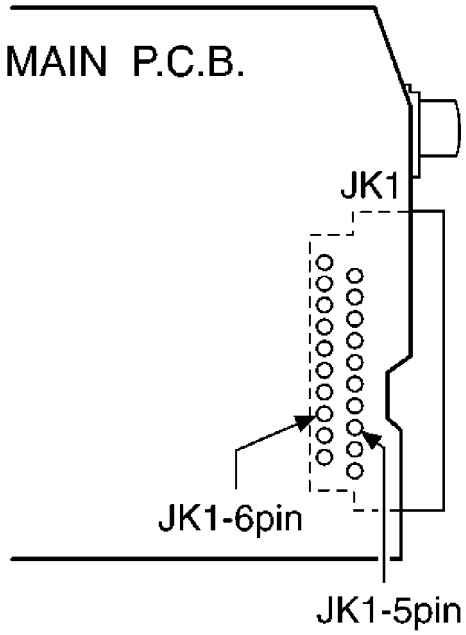
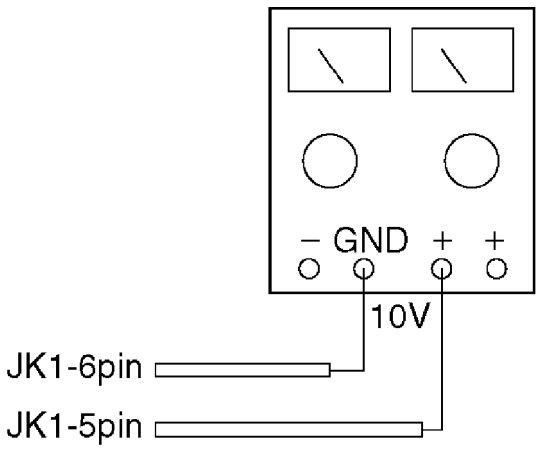


Fig. 6



Note:
Use only this method when checking the voltage etc..
In case of checking operations, use the system connections to supply power source.

11. Block Diagram

12. Schematic Diagram Notes

12.1. Type Illustration of IC's, Transistors and Diodes

12.2. Schematic Diagram Notes

This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S1 : Tray position 1 detect switch.**
- **S2 : Tray position 2 detect switch.**
- **S3 : Tray open detect switch.**
- **S4 : Clamp detect switch.**
- **S5 : Bottom detect switch.**
- **S601 : Disc select (DISC5) switch.**
- **S602 : Disc select (DISC4) switch.**
- **S603 : Disc select (DISC3) switch.**
- **S604 : Disc select (DISC2) switch.**
- **S605 : Disc select (DISC1) switch.**
- **S606 : Disc direct open (DIRECT OPEN, DISC1) switch.**
- **S607 : Disc direct open (DIRECT OPEN, DISC2) switch.**
- **S608 : Disc direct open (DIRECT OPEN, DISC3) switch.**
- **S609 : Disc direct open (DIRECT OPEN, DISC4) switch.**
- **S610 : Disc direct open (DIRECT OPEN, DISC5) switch.**
- **S611 : Disc tray open/close (⏏, OPEN/CLOSE) switch.**
- **S612 : A-B repeat (A-B REPEAT) switch.**
- **S613 : Repeat (REPEAT) switch.**
- **S614 : CD edit (CD EDIT) switch.**
- **S615 : Cinema mode (CINEMA MODE) switch.**
- **S616 : Double re-master (DOUBLE RE-MASTER) switch.**
- **S617 : Pause (❚❚) switch.**
- **S618 : Stop (■) switch.**
- **S619 : Play (▷) switch.**
- **S620 : R. skip/search (⏮ / ◀◀) switch.**
- **S621 : F. skip/search (▶▶ / ⏭) switch.**
- **Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internalimpedanceofthe DC circuit tester.**

No mark: CD STOP

( ): CD play [1kHz, L+R, 0dB]

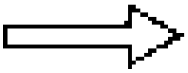
Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purpose of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts showninthe parts list.

Caution!

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

Voltage and signal lines


: Positive voltage line


: AUDIO signal line


: AUDIO/VIDEO signal line


: VIDEO signal line


: Surround SP. signal line


: Center SP. signal line


: Sub woofer signal line

13. Schematic Diagram

14. Abbreviations

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVOAMPOUTPUT
	ASYNC	AUDIOWORDDISTINCTION SYNC
B	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
	BYTCK	BYTE CLOCK
C	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSCK	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEMCLOCKSELECT
	CLV	CONSTANTLINEARVELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPWR	CPU WRITE ENABLE
	CS	CHIPSELECT
	CSYNCIN	COMPOSITESYNCIN
	CSYNCOUT	COMPOSITESYNC OUT

INITIAL/LOGO		ABBREVIATIONS
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DEEMPHASIS BIT ON/OFF
	DEMPH	DEEMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK
	DMUTE	
	DO	DIGITAL MUTE CONTROL
	DOUT0~UP	DROPOUT
		DATAOUTPUT
	DRF	DATASLICERF (BIAS)
	DRPOUT	DROP OUT SIGNAL
	DREQ	DATA REQUEST
	DRESP	DATA RESPONSE
	DSC	DIGITAL SERVO CONTROLLER
	DSLF	DATA SLICE LOOP FILTER
	DVD	DIGITAL VIDEO DISC

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL REFERENCE
	ENCSEL	ENCODER SELECT
	ETMCLK	EXTERNAL M CLOCK (81MHz/
	ETSCLK	40.5MHz)
		EXTERNAL S CLOCK (54MHz)
F	FBAL	FOCUS BALANCE
	FCLK	FRAME CLOCK
	FE	FOCUS ERROR
	FFI	FOCUS ERROR AMP INVERTED
	FEO	INPUT
	FG	FOCUS ERROR AMP OUTPUT
	FSC	FREQUENCY GENERATOR
	FSCK	FREQUENCY SUB CARRIER
		FS (384 OVER SAMPLING)CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE

INITIAL/LOGO		ABBREVIATIONS
I	IECOUT	IEC958 FORMAT DATA OUTPUT
	IPFRAG	
	IREF	INTERPOLATION FLAG
	ISEL	I (CURRENT) REFERENCE
		INTERFACE MODE SELECT
L	LDON	LASER DIODE CONTROL
	LPC	LASER POWER CONTROL
	LRCK	L CH/R CH DISTINCTION CLOCK
M	MA0~UP	MEMORY ADDRESS
	MCK	MEMORY CLOCK
	MCKI	MEMORY CLOCK INPUT
	MCLK	MEMORY SERIAL COMMAND CLOCK
	MDATA	MEMORY SERIAL COMMAND DATA
	MDQ0~UP	MEMORY DATA INPUT/OUTPUT
	MDQM	MEMORY DATA I/OMASK
	MLD	MEMORYSERIALCOMMANDLOAD
	MPEG	MOVING PICTURE EXPERTS GROUP
O	ODC	OPTICAL DISC CONTROLLER
	OFTR	OFF TRACKING
	OSCI	OSCILLATOR INPUT
	OSCO	OSCILLATOR OUTPUT
	OSD	ON SCREEN DISPLAY
P	P1~UP	PORT
	PCD	CD TRACKING PHASE DIFFERENCE
	PCK	PLL CLOCK
	PDVD	DVD TRACKING PHASE DIFFERENCE
	PEAK	CAP. FOR PEAK HOLD
	PLLCLK / PLLOK	CHANNEL PLL CLOCK
	PWMCTL	PLL LOCK
	PWMDA	PWM OUTPUT CONTROL
	PWMOA, B	PULSEWAVEMOTORDRIVEA
		PULSE WAVE MOTOR OUT A, B

INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE
	RS	OUTPUT
	RSEL	(CD-ROM) REGISTER SELECT
	RST	RF POLARITY SELECT
	RSV	RESET
		RESERVE
S	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK
	SCL	RECEIVER
	SCLK	SERIAL CLOCK
	SDA	SERIAL CLOCK
	SEG0~UP	SERIAL DATA
	SELCLK	FL SEGMENTOUTPUT
	SEN	SELECTCLOCK
	SIN1, 2	SERIALPORTENABLE
	SOUT1, 2	SERIAL DATA IN
	SPDI	SERIAL DATA OUT
	SPDO	SERIAL PORT DATA INPUT
	SPEN	SERIAL PORT DATA OUTPUT
	SPRCLK	SERIAL PORT R/W ENABLE
	SPWCLK	SERIAL PORT READ CLOCK
	SQCK	SERIALPORT WRITE CLOCK
	SQCX	SUB CODE Q CLOCK
	SRDATA	SUBCODEQDATA READ CLOCK
	SRMADR	
	SRMDT0~7	SERIAL DATA
		SRAM ADDRESS BUS
	SS	SRAM DATA BUS 0~7
	STAT	START/STOP
	STCLK	STATUS
	STD0~UP	STREAM DATA CLOCK
	STENABLE	STREAM DATA
		STREAMDATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY
	STVALID	SELECT
	SUBC	STREAMDATAVALIDITY
	SBCK	SUBCODE SERIAL
	SUBQ	SUB CODE CLOCK
	SYSCLK	SUB CODE Q DATA
		SYSTEM CLOCK

		SYSTEM CLOCK

INITIAL/LOGO		ABBREVIATIONS
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACKCROSSSIGNAL
	TRON	TRACKINGON
	TRSON	TRAVERSESERVO ON

INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING
	VDD	BALANCE)
	VFB	DRAIN POWER SUPPLY
	VREF	VOLTAGE
	VSS	VIDEO FEED BACK VOLTAGE REFERENCE SOURCEPOWERSUPPLYVOLTAGE
W	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
	WSR	WORD SELECT RECEIVER

INITIAL/LOGO		ABBREVIATIONS
X	X	X' TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XHINTERRUPTREQUEST
	XI	X' TALOSCILLATORINPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X' TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	XV-DEC CHIPSELECT
	XVDS	XV-DEC CONTROLBUS
	XVSYNCO	STROBE X VERTICAL SYNC OUTPUT

15. Printed Circuit Board Diagram

16. Wiring Connection Diagram

17. Terminal Function of IC's

17.1. IC401 (C2BBFD000402): SYSTEM CONTROL

Pin No.	Mark	I/O Division	Function
1	VCC	I	Connected to power supply
2	VREF		
3	AVSS	—	Connected to GND
4	MUTE	O	Mute control output terminal
5	PWCONT	O	DVD module power supply control output terminal
6	SYNC	I	Power failure detect signal input terminal
7	C/SW SEL	O	Center/sub woofer speaker select signal output terminal
8	B_REQ	I	Serial communication request signal input terminal
9	B_CS	O	Serial communication chip select signal output terminal
10	B_CLK	O	Serial communication clock signal output terminal
11	DATA O	O	Serial communication data signal output terminal
12	DATA I	I	Serial communication data signal input terminal
13	MIXSEL	O	Select control output terminal for wide picture
14	WIDE1		
15	CNVss	—	Connected to GND
16	TEST	I	Test mode input terminal
17	E-CS	—	Connected to GND
18	RESET	I	Reset signal input terminal
19	XIN	I	Crystal oscillator input terminal (f=8MHz)
20	XOUT	O	Crystal oscillator output terminal (f=8MHz)
21	Vss	—	Connected to GND
22	LED-STB	O	Serial signal output to LED drive
23	LED/ / E-CLK	O	Serial signal output terminal to LED drive or EEPROM
24	LED/ / E-DATA	O	Serial signal output terminal to LED drive or EEPROM
25	LED-CLR	O	Latch clear signal output terminal to LED drive
26	PLG	O	Plunger control signal output terminal
27	SW5	I	Bottom switch detect signal input terminal

			input terminal

Pin No.	Mark	I/O Division	Function
28	PSTN	I	Position sensor detect signal input terminal
29	SW2	I	Disc tray position 2 detect signal input terminal
30	SW1	I	Disc tray position 1 detect signal input terminal
31	SW3	I	Disc tray open detect signal input terminal
32	CCW	O	Motor drive control signal output terminal (forward direction)
33	CW	O	Motor drive control signal output terminal (reverse direction)
34	HALF	O	Motor drive control signal output terminal (speed)
35	DVD-CLK	I	Serial communication signal input terminal for DVD main micro-computer
36	DVD-CMD	O	Serial communication signal output terminal for DVD main micro-computer
37	DVD-STAT	I	Serial communication signal input for DVD main micro-computer
38	DISC CS	—	Connected to GND through resistor
39	SW4	I	Clamp switch detect signal input terminal
40	KEY2	I	Operation key signal input terminal
41	KEY1		
42	RGN CS	I	Area select signal input terminal

18. Replacement Parts List

Notes:

***Important safety notice: / Components identified by ⚠ mark have special characteristics important for safety. / Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors),low-noise(resistors),etc. are used. / When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list. / * Warning: This product uses a laser diode. Refer to caution statements.**

***ACHTUNG:Die lasereinheit nicht zerlegen. Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden. / *Capacity values are in microfarads (uF) unless**

specified otherwise, P=Pico-farads(pF)F=Farads(F) / *Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000K (OHM)
*The markings (RTL) indicate that the retention time is limited for these items. After the discontinuation of these assemblies in production, it will no longer be available.
*All parts are supplied by SPC.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	REZ1225-1J	FFC(14P)	1	
2	REZ1390-J	FFC(15P)	1	
3	REZ1391-J	FFC(17P)	1	
4	REZ1392-J	FFC(26P)	1	
5	RMX0210	SPACER	1	
6	RYF0592-1S	TRAY ORNAMENT	1	
7	RKA0105-K	RUBBER	4	
8	RKA0106-N	FOOT RING	4	
9	RYP1174-S1	FRONT PANEL ASS'Y	1	
9-1	RGB0025-A	TECHNICS BADGE	1	
10	XTB3+5JFZ	SCREW	2	
11	XTBS3+8JFZ1	SCREW	5	
12	XTW3+8T	SCREW	2	
13	RHD30007-1S	SCREW	4	
14	RKM0399-S1	TOP CABINET	1	
15	REZ1377-J	FFC(50P)	1	
16	RHD30090	SCREW	4	
17	REZ1314	FLAT CABLE	1	
18	RGR0315A-J1	REAR PANEL	1	(EE)
18	RGR0315A-K1	REAR PANEL	1	(GN)
19	RQLS0233	LASER CAUTION LABEL	1	
301	RML0517	TIMING LEVER	1	
302	RML0516	LEVER	1	
303	RMB0551	UPPER SPINDLE SPRING	1	
304	RMQ0744	LOWER HOOK	1	
305	RDV0056	BELT	1	
306	RML0525	FRONT LOCK LEVER	1	
307	RML0526	DISC LEVER	1	
308	RDG0424	DRIVE GEAR	1	
309	RDG0425	CHANGE GEAR	1	
310	RDG0427	TRAVERSE CAM GEAR	1	
311	RDG0428	TRAVERSE RELAY GEAR	1	
312	RDG0426	UP/DOWN GEAR	1	
313	RDG0429	PULLEY GEAR	1	
314	RMB0549-1	CHANGE GEAR SPRING	1	
315	RMQ0748	GEAR HOLDER	1	
316	RMB0553	SPRING	1	
317	RML0530	LEVER	1	
318	RML0518	CONNECTION LEVER	1	
319	RMM0201	SLIDE PLATE(1)	1	
320	RME0258	REAR LOCK SPRING	1	
321	RML0521	REAR LOCK LEVER	1	
322	RME0257	TRAY LOCK LEVER SPRING	1	
323	RML0520	TRAY LOCK	1	
324	RMM0202	SLIDE PLATE(2)	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
325	XTB3+10J	SCREW	9	
326	RMR0624-W5	CLAMPER	1	
327	RMR1367-K	FIXED PLATE	1	
328	RMB0561	ASSIST LEVER SPRING	1	
329	RMR1121-K	MECHANISM COVER	1	
330	RMQ0742	SPINDLE BASE	1	
331	RXQ0561	DISC TRAY	1	
332	RME0261	FRONT LOCK SPRING	1	
333	RMX0140	DISC SPACER	5	
334	RHM0001	MAGNET	1	
335	RMQ0749	UPPER SPINDLE	1	
336	RMX0141	SPACER	1	
337	XTW3+10T	SCREW	4	
339	RXQ0595	MOTOR ASS'Y	1	
341	RSJ0003	SOLENOLD	1	
342	RHM212ZD	MOVING CORE	1	
344	RML0519	CD LEVER	1	
346	RML0522	LOADING STOPPER	1	
347	RMQ0745	LOWER SPINDLE	1	
348	RMQ0746	UP/DOWN BASE	1	
349	RMB0550	LOWER SPINDLE SPRING	1	
350	RMQ0747	UPPER HOOK	1	
351	RME0263	SPRING	1	
352	RMQ0743	SPINDLE SHAFT	1	
353	RMB0552	CUSHION SPRING	1	
354	RDG0430	RELAY GEAR(A)	1	
355	RDG0431	RELAY GEAR(B)	1	
356	RME0262	DISC LEVER SPRING	1	
376	RMC0387	SUPPORT SPRING	1	
377	RMA1003	BACK YOKE	1	
378	XTV2+6G	SCREW	1	
401	RDG0499	TRAVERSE GEAR(A)	1	
402	RHD17045	SCREW	2	
404	RMC0415	ADJUST SPRING HOLDER	3	
407	RME0320	ADJUST SPRING	3	
408	RMM0234-1	TRV DRIVE RACK	1	
409	RMS0710-1	GUIDE SHAFT(1)	1	
410	RMS0711-1	GUIDE SHAFT(2)	1	
411	RDG0500	TRAVERSE GEAR(B)	1	
412	RDG0501	TRAVERSE GEAR(C)	1	
413	RME0319	TRAVERSE GEAR SPRING	1	
414	RAF3023A-1	OPTICAL PICK-UP	1	⚠
415	RJB2308A-1	INTERFACE FPC	1	
417	RHD14095	SCREW	1	
418	VHD1224	SCREW	4	
419	RMX0192	INNER STOPPER	1	
420	RMG0561-T	CUSHION RUBBER	1	
422	RMG0545-A1	FLOATING RUBBER	4	
423	RXQ1028	SPINDLE MOTOR ASS'Y	1	
424	RMR1366-K1	TRAVERSE CHASSIS	1	
425	RMS0712-1	FIXED PIN	4	
428	RHD20060	SCREW	1	
429	RMG0558-K	RUBBER	4	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1	ECEA1CKS101	16V 100U	1	
C2	ECBA1E103ZF5	25V 0.01U	1	
C3	ECA1CM332	16V 3300U	1	
C4	ECA1CM471	16V 470U	1	
C7	EEUFC0J821B	6.3V 820U	1	
C10	ECJ1VB1H102K	50V 1000P	1	
C11	ECEA1CKS100	16V 10U	1	
C12	ECJ1VB1H102K	50V 1000P	1	
C13	F1H1H103A748	50V 0.01U	1	
C14	ECEA1AKS101	10V 100U	1	
C15	ECEA1AKS221	10V 220U	1	
C16	ECA0JM222	6.3V 2200U	1	
C19	ECJ1VB1H102K	50V 1000P	1	
C20	ECEA1AKS470	10V 47U	1	
C21	ECJ1VB1H102K	50V 1000P	1	
C22	ECEA1CKS100	16V 10U	1	
C23	ECEA1AKS470	10V 47U	1	
C24	ECJ1VB1H102K	50V 1000P	1	
C26	ECEA1CKS100	16V 10U	1	
C27	F1J1C474A091	16V 0.47U	1	
C28	ECJ1VF1C104Z	16V 0.1U	1	
C29	F1H1H103A748	50V 0.01U	1	
C30	ECJ1VB1H102K	50V 1000P	1	
C80	F1H1H470A736	50V 47P	1	
C305	F1H1H103A748	50V 0.01U	1	
C308	ECEA1HKS010	50V 1U	1	
C401	F2A0J4700007	6.3V 47U	1	
C402	ECEA1HKS3R3	50V 3.3U	1	
C403	F1H1H103A748	50V 0.01U	1	
C404	ECJ1VB1H102K	50V 1000P	1	
C405	ECJ1VF1C104Z	16V 0.1U	1	
C406	EEAFC0J101B	6.3V 100U	1	
C407	F1H1H101A004	50V 100P	1	
C408,09	F1H1H471A736	50V 470P	2	
C410	F1H1H101A004	50V 100P	1	
C411,12	ECJ1VF1C104Z	16V 0.1U	2	
C501,02	F1H1H103A748	50V 0.01U	2	
C503,04	ECA1HAK010XI	50V 1U	2	
C505	F1H1H470A736	50V 47P	1	
C506,07	F1H1H103A748	50V 0.01U	2	
C508	ECA0JAK101XB	6.3V 100U	1	
C509	ECA0JAM102XB	6.3V 1000U	1	
C510	ECJ1VF1C104Z	16V 0.1U	1	
C511	ECA0JAK101XB	6.3V 100U	1	
C512	ECA0JAM102XB	6.3V 1000U	1	
C513,14	F1H1H103A748	50V 0.01U	2	
C515	ECA0JAK221XH	6.3V 220U	1	
C601-04	F1H1H101A004	50V 100P	4	
C605	ECJ1VF1C104Z	16V 0.1U	1	
C801,02	ECEA1CKS100	16V 10U	2	
C803,04	F1H1H471A736	50V 470P	2	
C806	F1H1H470A736	50V 47P	1	
C807	F2A0J4700007	6.3V 47U	1	
C808	ECJ1VF1C104Z	16V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C809,10	ECEA1CKS220	16V 22U	2	
C811,12	ECJ1VB1H222K	50V 2200P	2	
C813-16	ECEA1CKS100	16V 10U	4	
C817	ECJ1VF1C104Z	16V 0.1U	1	
C818	F2A0J4700007	6.3V 47U	1	
C819	ECEA1AKS101	10V 100U	1	
C821,22	ECEA1CKS100	16V 10U	2	
C823,24	F1H1H471A736	50V 470P	2	
C825,26	F1H1H470A736	50V 47P	2	
C827	F2A0J4700007	6.3V 47U	1	
C828	ECJ1VF1C104Z	16V 0.1U	1	
C829,30	F2A0J4700007	6.3V 47U	2	
C831,32	ECJ1VB1H222K	50V 2200P	2	
C833,34	F2A0J4700007	6.3V 47U	2	
C835,36	ECEA1CKS100	16V 10U	2	
C837,38	F1H1H471A736	50V 470P	2	
C839,40	F1H1H470A736	50V 47P	2	
C841	F2A0J4700007	6.3V 47U	1	
C842	ECJ1VF1C104Z	16V 0.1U	1	
C843,44	F2A0J4700007	6.3V 47U	2	
C845,46	ECJ1VB1H222K	50V 2200P	2	
C847-49	F2A0J4700007	6.3V 47U	3	
C892	ECJ1VF1C104Z	16V 0.1U	1	
C2001,02	EEE0JA101SP	6.3V 100U	2	
C2003-18	ECJ1ZF1C104Z	16V 0.1U	16	
C2021	EEE0JA101SP	6.3V 100U	1	
C2022-25	ECJ1ZF1C104Z	16V 0.1U	4	
C2031,32	ECJ1VB1C104K	16V 0.1U	2	
C2034	ECJ1VB1C393K	16V 0.039U	1	
C2035	ECJ1VB1H822K	50V 8200P	1	
C2036	ECJ1VB1C104K	16V 0.1U	1	
C2038	ECJ1VB1C104K	16V 0.1U	1	
C2039	ECJ1VB1H103K	50V 0.01U	1	
C2040	ECJ1VC1H102J	50V 1000P	1	
C2041,42	ECJ1VC1H331J	50V 330P	2	
C2043	ECJ1VC1H101J	50V 100P	1	
C2044	ECJ1VC1H391J	50V 390P	1	
C2045,46	ECJ1VC1H102J	50V 1000P	2	
C2047	ECJ1VB1H103K	50V 0.01U	1	
C2048	ECJ1VB1C153K	16V 0.015U	1	
C2050	ECJ1VB1C333K	16V 0.033U	1	
C2051	ECJ1VC1H680J	50V 68P	1	
C2052,53	ECJ1ZF1C104Z	16V 0.1U	2	
C2054	ECJ1VC1H681J	50V 680P	1	
C2055	ECJ1VB1H682K	50V 6800P	1	
C2056,57	ECJ1VB1H272K	50V 2700P	2	
C2058	ECJ1VC1H102J	50V 1000P	1	
C2059	ECJ1VC1H821J	50V 820P	1	
C2060	ECJ1VC1H102J	50V 1000P	1	
C2061,62	ECJ1VC1H331J	50V 330P	2	
C2063-65	ECJ1VC1H102J	50V 1000P	3	
C2066,67	ECJ1VB1H472K	50V 4700P	2	
C2073	ECJ1ZF1C104Z	16V 0.1U	1	
C2101,02	ECJ1ZF1C104Z	16V 0.1U	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C2501	EEVFC0J221P	6.3V 220U	1	
C2502	ECEV1CA101WP	16V 100U	1	
C2503	ECEV1CA220WR	16V 22U	1	
C2504-08	ECJ1VF1C104Z	16V 0.1U	5	
C2509	EEVFC1C100R	16V 10U	1	
C2510-13	ECJ1VF1C104Z	16V 0.1U	4	
C3001,02	F2G0J331A015	6.3V 330U	2	
C3003-18	ECJ1ZF1C104Z	16V 0.1U	16	
C3019	F1H0J1050013	6.3V 1U	1	
C3020	ECJ1ZF1C104Z	16V 0.1U	1	
C3021	F1H0J1050013	6.3V 1U	1	
C3022-36	ECJ1ZF1C104Z	16V 0.1U	15	
C3037	F2G0J331A015	6.3V 330U	1	
C3038,39	ECJ1ZF1C104Z	16V 0.1U	2	
C3051	ECJ1VC1H220J	50V 22P	1	
C3061-74	ECJ1ZF1C104Z	16V 0.1U	14	
C3110	EEE0JA101SP	6.3V 100U	1	
C4207-10	ECJ1ZF1C104Z	16V 0.1U	4	
C4211	F3F1A1060002	10V 10U	1	
C4215	ECJ1ZF1C104Z	16V 0.1U	1	
C4216	F2G0J101A015	6.3V 100U	1	
C4217	ECJ1ZF1C104Z	16V 0.1U	1	
C4219,20	F3F1A1060002	10V 10U	2	
C4222,23	F2G0J331A015	6.3V 330U	2	
C4234-37	ECJ1ZF1C104Z	16V 0.1U	4	
C5101	EEVHB1C100R	16V 10U	1	
C5102,03	ECJ1VF1C104Z	16V 0.1U	2	
C5111	EEVHB0J470R	6.3V 47U	1	
C5115	EEVHB0J470R	6.3V 47U	1	
C5123	ECJ1VF1C104Z	16V 0.1U	1	
C5151	ECJ1VF1C104Z	16V 0.1U	1	
C5152	F3K1A1060001	10V 10U	1	
C5201,02	EEE1CA100SR	16V 10U	2	
C5203-05	ECJ1ZF1C104Z	16V 0.1U	3	
C5221	ECJ1ZF1C104Z	16V 0.1U	1	
C5232-34	ECJ1ZF1C104Z	16V 0.1U	3	
C5235,36	ECJ1VB1C104K	16V 0.1U	2	
C5254	ECJ1VB1H391K	50V 390P	1	
C5256	ECJ1VB1H222K	50V 2200P	1	
C5262	ECJ1VC1H181J	50V 180P	1	
C5264	ECJ1VB1C183K	16V 0.018U	1	
C5271	ECJ1VB1H102K	50V 1000P	1	
C5272	ECJ1VB1A224K	10V 0.22U	1	
C5273	ECJ1VB1H182K	50V 1800P	1	
C5274	ECJ1VB1C104K	16V 0.1U	1	
C5282	ECJ1VB1H103K	50V 0.01U	1	
C5283	ECJ1VC1H561J	50V 560P	1	
C5290	ECJ1VB1H102K	50V 1000P	1	
C5291	ECJ1VB1H272K	50V 2700P	1	
C5292	ECJ1VC1H101J	50V 100P	1	
C5299	ECJ1VC1H331J	50V 330P	1	
C6201	EEE0JA330WR	6.3V 33U	1	
C6202-06	ECJ1ZF1C104Z	16V 0.1U	5	
C6211	ECJ1VC1H101J	50V 100P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6215	ECJ1VB1C104K	16V 0.1U	1	
C6221-23	ECJ1ZF1C104Z	16V 0.1U	3	
C6251-53	F3F1A1060002	10V 10U	3	
C6254,55	ECJ1ZF1C104Z	16V 0.1U	2	
C6256	ECJ1VB1C104K	16V 0.1U	1	
C6257	EEE0JA101SP	6.3V 100U	1	
C6301,02	ECJ1ZF1C104Z	16V 0.1U	2	
C6503	ECJ1VC1H120J	50V 12P	1	
C6505	ECJ1VC1H150J	50V 15P	1	
C6561	EEE0GA470SR	4V 47U	1	
C6563	EEE0GA470SR	4V 47U	1	
C6564	ECJ1ZF1C104Z	16V 0.1U	1	
C6566	ECJ1ZF1C104Z	16V 0.1U	1	
C6568	ECJ1ZF1C104Z	16V 0.1U	1	
CN1	K1MN14A00049	CONNECTOR(14P)	1	
CN2	K1MN17B00037	CONNECTOR(17P)	1	
CN3	RJS1A6714-Q	CONNECTOR(14P)	1	K1MN14B00054
CN301	K1MN26B00045	CONNECTOR(26P)	1	
CN501	K1MN15B00057	CONNECTOR(15P)	1	
D1	GP1S94	PHOTO COUPLER	1	
D2	B0BA4R600003	DIODE	1	
D3	B0JCPC000004	DIODE	1	
D4	MA2J11100L	DIODE	1	
D6	MA2J11100L	DIODE	1	
D7	MA2J72800L	DIODE	1	
D8	MA2J11100L	DIODE	1	
D10	MA2J11100L	DIODE	1	
D11	MAZ80910ML	DIODE	1	
D12,13	MA2J11100L	DIODE	2	
D14	MAZ80820ML	DIODE	1	
D17,18	MA2J11100L	DIODE	2	
D301	MA2J11100L	DIODE	1	
D302-04	B0AAMM000009	DIODE	3	
D305-07	MA2J11100L	DIODE	3	
D401-06	MA2J11100L	DIODE	6	
D601,02	B3ADA0000083	LED	2	
D603-07	LNJ301MPUJAD	LED	5	
D608	B3AHA0000012	LED	1	
D801-06	MA2J11100L	DIODE	6	
D2001	MA2J72800L	DIODE	1	
D5151	MA2J72800L	DIODE	1	
D6215	MA2J72800L	DIODE	1	
E1	RSC0540-1	GROUND PLATE	1	
FL4201	F1H0J1050018	CHIP FILTER	1	
FL6251	F1H0J1050018	CHIP FILTER	1	
FL6253,54	F1H0J1050018	CHIP FILTER	2	
FL6255	F1J1E1040022	CHIP FILTER	1	
FP2501	K1MN04B00036	CONNECTOR(4P)	1	
FP3202	K1MN17B00041	CONNECTOR(17P)	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
FP3203	K1MN15B00037	CONNECTOR(15P)	1	
FP4202	K1MN26B00037	CONNECTOR(26P)	1	
FP5101	K1MN30B00098	CONNECTOR(30P)	1	
FP5102	K1MN50B00010	CONNECTOR(50P)	1	
FP5201	K1MN50B00010	CONNECTOR(50P)	1	
IC1	C0GAM0000005	IC	1	
IC2	C0DBAJG00002	IC	1	
IC3	C0CAADG00019	IC	1	
IC4	C0CAADE00007	IC	1	
IC401	C2BBFD000402	IC	1	
IC501	C9ZB00000431	IC	1	
IC601	C0ZBZ0000040	IC	1	
IC801	C0JBAS000138	IC	1	
IC802-04	C0ABBB000125	IC	3	
IC805	C0ABBB000210	IC	1	
IC891	C0JBAR000292	IC	1	
IC2001	MN103S26EGA	IC	1	
IC2101	C0JBAS000116	IC	1	
IC2501	C0GBG0000033	IC	1	
IC3001	MN6775511	IC	1	
IC3061,62	C3ABPG000102	IC	2	
IC4211	C0FBBK000036	IC	1	
IC5201	AN22030A-VT	IC	1	
IC6201	MN102H60GFD	IC	1	
IC6211	C0EBE0000070	IC	1	
IC6221	C3EBGC000033	IC	1	
IC6222,23	C0JBAA000001	IC	2	
IC6251	C0DBEZG00011	IC	1	
IC6252	C0DBFFG00004	IC	1	
IC6253	C0DBCGE00002	IC	1	
IC6301	RFKFMA66M320	IC	1	
IC6561	C1DB00000582	IC	1	
JK1	K1FA220B0006	SYSTEM CONNECTOR(20P)	1	
JK501	K1U208B00003	JK,VIDEO OUT	1	
K2004	ERJ3GEY0R00Z	1/16W 0	1	
K3002,03	ERJ3GEY0R00Z	1/16W 0	2	
K3007	ERJ3GEY0R00Z	1/16W 0	1	
K3009	ERJ3GEY0R00Z	1/16W 0	1	
K3011	ERJ3GEY0R00Z	1/16W 0	1	
K3101	ERJ3GEY0R00Z	1/16W 0	1	
K3106	ERJ3GEY0R00Z	1/16W 0	1	
K4202-05	ERJ3GEY0R00Z	1/16W 0	4	
K4207	ERJ3GEYJ470V	1/16W 47	1	
K6201	ERJ3GEY0R00Z	1/16W 0	1	
K6301	ERJ3GEY0R00Z	1/16W 0	1	
K6303	ERJ3GEY0R00Z	1/16W 0	1	
L1	G0A200D00002	COIL	1	⚠
L2	G0ZZ00001930	COIL	1	
L4	G0A200D00002	COIL	1	⚠

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L501,02	G0BYYYY00016	COIL	2	
L503	ELJFCR68KF	COIL	1	
L2001,02	G1C100K00020	COIL	2	
L2021	G1C100K00020	COIL	1	
L3001	G1C100K00020	COIL	1	
L3091	G1C100K00020	COIL	1	
L4211	G1C220KA0038	COIL	1	
L5101	ELJEA100KF	COIL	1	
L5201,02	G1C100K00020	COIL	2	
L6561,62	G1C220KA0038	COIL	2	
LB3001,02	J0JHC0000045	COIL	2	
LB3201-03	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
LB3205,06	J0JBC0000015	COIL	2	
LB4200	J0JBC0000015	COIL	1	
LB4201	J0JCC0000119	COIL	1	
LB4207-12	J0JCC0000119	COIL	6	
LB4214,15	ERJ3GEY0R00Z	1/16W 0	2	
LB5101	J0JHC0000045	COIL	1	
LB5105,06	J0JBC0000015	COIL	2	
LB5202,03	J0JHC0000045	COIL	2	
LB5205-10	J0JBC0000015	COIL	6	
LB5213	J0JBC0000015	COIL	1	
LB5217-19	J0JBC0000015	COIL	3	
LB5221-24	J0JCC0000119	COIL	4	
LB5225	J0JBC0000015	COIL	1	
LB5226	J0JCC0000119	COIL	1	
LB5227	J0JBC0000015	COIL	1	
LB5228-31	J0JCC0000119	COIL	4	
LB5232	J0JBC0000015	COIL	1	
LB5233	J0JCC0000119	COIL	1	
LB5235-38	J0JCC0000119	COIL	4	
LB5239,40	J0JBC0000015	COIL	2	
LB6201	J0JBC0000015	COIL	1	
LB6202	J0JCC0000119	COIL	1	
LB6221	J0JBC0000015	COIL	1	
LB6561	J0JBC0000015	COIL	1	
LB6562,63	J0JCC0000119	COIL	2	
LB6564	ERJ3GEYJ470V	1/16W 47	1	
LB6565	J0JCC0000077	COIL	1	
LB6566	J0JCC0000119	COIL	1	
LB6567	J0JBC0000015	COIL	1	
PCB1	REP3384G-N	DVD MODULE P.C.B.	1	[RTL]
PCB2	REP3513B-M	MAIN P.C.B.	1	[RTL](GN)
PCB2	REP3513C-M	MAIN P.C.B.	1	[RTL](EE)
PCB3	REP2578A-N	LOADING MOTOR P.C.B.	1	[RTL]
PCB4	REP3406A-1N	TERMINAL P.C.B.	1	[RTL]
PCB5	REP3383A	FG P.C.B.	1	[RTL]
PS6201	K1MN10A00030	CONNECTOR(10P)	1	
Q1	B1GACFGG0004	TRANSISTOR	1	
Q3	B1GBCFJJ0007	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q6	FMW1T98	TRANSISTOR	1	
Q7	2SB14170JA	TRANSISTOR	1	
Q8	FMW1T98	TRANSISTOR	1	
Q9	2SB14170JA	TRANSISTOR	1	
Q11	FMW1T98	TRANSISTOR	1	
Q12	2SB14170JA	TRANSISTOR	1	
Q13	2SB1218A	TRANSISTOR	1	
Q14	FMW1T98	TRANSISTOR	1	
Q15	2SB0766A0L	TRANSISTOR	1	
Q16	2SD08740WL	TRANSISTOR	1	
Q303	B1GBCFJJ0007	TRANSISTOR	1	
Q304	2SB0621AHA	TRANSISTOR	1	
Q305	UNR521N00L	TRANSISTOR	1	
Q307,08	B1GBCFJJ0007	TRANSISTOR	2	
Q401	UNR521400L	TRANSISTOR	1	
Q402-04	2SD1819A0L	TRANSISTOR	3	
Q501	B1GBCFJJ0007	TRANSISTOR	1	
Q801-06	2SD132800L	TRANSISTOR	6	
Q807	UNR511100L	TRANSISTOR	1	
Q891	B1GBCFJJ0007	TRANSISTOR	1	
Q2001	2SD1819A0L	TRANSISTOR	1	
Q5111	B1BDBF000004	TRANSISTOR	1	
Q5115	B1BDBF000004	TRANSISTOR	1	
Q5271	UN5211	TRANSISTOR	1	UNR5211
Q6215	UNR521200L	TRANSISTOR	1	
QR5221	UNR212100L	TRANSISTOR	1	
QR5241	UNR511M00L	TRANSISTOR	1	
R1	ERDS2FJ102	1/4W 1K	1	
R2	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R3	ERJ3GEYJ222V	1/16W 2.2K	1	
R4	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R16	ERJ3GEYJ471V	1/16W 470	1	
R17	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R20	ERJ3GEYJ151V	1/16W 150	1	
R21,22	ERJ3GEYJ222V	1/16W 2.2K	2	
R27	ERJ6GEYJ122V	1/10W 1.2K	1	
R28	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R29	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R30	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R31	ERJ6GEYJ681V	1/10W 680	1	
R32	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R33	ERJ3GEYJ472V	1/16W 4.7K	1	
R34	ERJ3GEYJ471V	1/16W 470	1	
R35	ERJ6GEYJ122V	1/10W 1.2K	1	
R36	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R37	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R38	ERD2FCG100	1/4W 10	1	
R39	ERJ3GEYJ102V	1/16W 1K	1	
R40	ERJ3GEY0R00V	1/16W 0	1	
R41,42	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R43	ERQ16NKWR33E	1/6W 0.33	1	
R44	ERJ3GEYJ122	1/16W 1.2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R305,06	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R307	ERJ3GEYJ102V	1/16W 1K	1	
R308	ERJ3GEYJ221V	1/16W 220	1	
R312	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R314	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R401	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R402	ERJ3GEYJ104	1/16W 100K	1	
R403	ERJ3GEYJ472V	1/16W 4.7K	1	
R404	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R405	ERJ3GEYJ471V	1/16W 470	1	
R406	ERJ3GEYJ472V	1/16W 4.7K	1	
R407	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R408	ERJ3GEYJ472V	1/16W 4.7K	1	
R409	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R410,11	ERJ3GEYJ472V	1/16W 4.7K	2	
R412	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R413	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R414	ERJ3GEYJ221V	1/16W 220	1	
R415	ERJ3GEYJ472V	1/16W 4.7K	1	
R416	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R417	ERJ3GEYJ102V	1/16W 1K	1	
R418	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R419	ERJ3GEYJ102V	1/16W 1K	1	
R420	ERJ3GEYJ472V	1/16W 4.7K	1	
R421	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R422-24	ERJ3GEYJ472V	1/16W 4.7K	3	
R425,26	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R427	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002 (EE)
R427	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002 (GN)
R428	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R429-32	ERJ3GEYJ101	1/16W 100	4	D0GB101JA002
R433-35	ERJ3GEYJ221V	1/16W 220	3	
R436	ERJ3GEYJ472V	1/16W 4.7K	1	
R438,39	ERJ3GEYJ821V	1/16W 820	2	
R440-42	ERJ3GEYJ102V	1/16W 1K	3	
R443	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R444	ERJ3GEYJ104	1/16W 100K	1	
R445	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R446	ERJ3GEYJ472V	1/16W 4.7K	1	
R447,48	ERJ3GEYJ221V	1/16W 220	2	
R450,51	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R452	ERJ3GEYJ821V	1/16W 820	1	
R454,55	ERJ3GEYJ472V	1/16W 4.7K	2	
R456	ERJ3GEYJ222V	1/16W 2.2K	1	
R501,02	ERJ3GEYJ1R0V	1/16W 1	2	
R503	ERJ3EKF75R0	1/16W 75	1	
R504,05	ERJ3GEYJ1R0V	1/16W 1	2	
R506,07	ERJ3EKF75R0	1/16W 75	2	
R508-10	ERJ3GEYJ104	1/16W 100K	3	
R512	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R513	ERJ3GEYJ222V	1/16W 2.2K	1	
R601-04	ERJ3GEYJ101	1/16W 100	4	D0GB101JA002
R605,06	ERJ3GEYJ271V	1/16W 270	2	
R607-11	ERJ3GEYJ221V	1/16W 220	5	

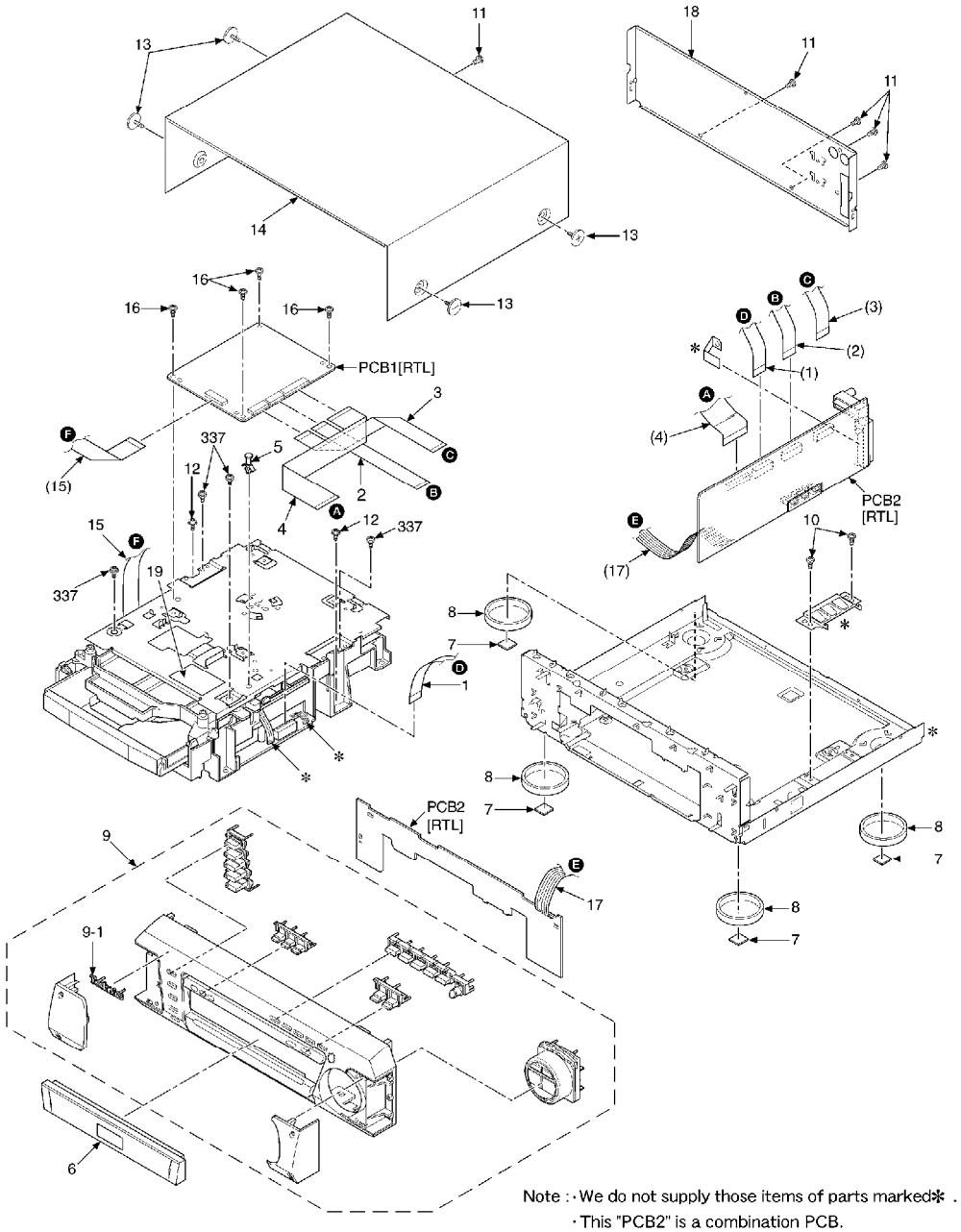
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R612	ERJ3GEYJ181V	1/16W 180	1	
R613	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R614	ERJ3GEYJ123V	1/16W 12K	1	
R615	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002
R616	ERJ3GEYJ472V	1/16W 4.7K	1	
R617	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R618	ERJ3GEYJ222V	1/16W 2.2K	1	
R619	ERJ3GEYJ182V	1/16W 1.8K	1	
R620	ERJ3GEYJ152V	1/16W 1.5K	1	
R621	ERJ3GEYJ122	1/16W 1.2K	1	
R622	ERJ3GEYJ102V	1/16W 1K	1	
R623	ERJ3GEYJ123V	1/16W 12K	1	
R624	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002
R625	ERJ3GEYJ472V	1/16W 4.7K	1	
R626	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R627	ERJ3GEYJ222V	1/16W 2.2K	1	
R628	ERJ3GEYJ182V	1/16W 1.8K	1	
R629	ERJ3GEYJ152V	1/16W 1.5K	1	
R630	ERJ3GEYJ122	1/16W 1.2K	1	
R631	ERJ3GEYJ102V	1/16W 1K	1	
R801	ERJ3GEYJ102V	1/16W 1K	1	
R802	ERJ3GEYJ182V	1/16W 1.8K	1	
R803,04	ERJ3GEYJ104	1/16W 100K	2	
R805,06	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R807,08	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R809	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R810	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R811,12	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R813,14	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R815	ERJ3GEYJ102V	1/16W 1K	1	
R816	ERJ3GEYJ471V	1/16W 470	1	
R817,18	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R819-24	ERJ3GEYJ104	1/16W 100K	6	
R825	ERJ3GEYJ122	1/16W 1.2K	1	
R826	ERJ3GEYJ562V	1/16W 5.6K	1	D0GB562JA002
R827,28	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R829,30	ERJ3GEYJ104	1/16W 100K	2	
R831,32	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R833,34	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R835,36	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R837,38	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R839,40	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R841,42	ERJ3GEYJ102V	1/16W 1K	2	
R843,44	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R845,46	ERJ3GEYJ104	1/16W 100K	2	
R847,48	ERJ3GEYJ102V	1/16W 1K	2	
R849,50	ERJ3GEYJ104	1/16W 100K	2	
R851,52	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R853,54	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R855,56	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R857,58	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R859,60	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R861,62	ERJ3GEYJ102V	1/16W 1K	2	
R863,64	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R865,66	ERJ3GEYJ104	1/16W 100K	2	
R867	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R891,92	ERJ3GEYJ104	1/16W 100K	2	
R893	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R899	ERJ3GEY0R00V	1/16W 0	1	
R2021	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R2022,23	ERJ3GEYJ752V	1/16W 7.5K	2	
R2025,26	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R2027,28	ERJ3GEYJ563V	1/16W 56K	2	
R2029	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2030	ERJ3GEYJ102V	1/16W 1K	1	
R2031	MCR03PZHJ561	1/16W 560	1	
R2032	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2033	ERJ3GEYJ472V	1/16W 4.7K	1	
R2034	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R2035	ERJ3GEYJ272V	1/16W 2.7K	1	
R2036	ERJ3GEY0R00Z	1/16W 0	1	
R2037	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R2038	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R2039	ERJ3GEYJ105V	1/16W 1M	1	
R2040,41	ERJ3GEYJ822V	1/16W 8.2K	2	D0GB822JA002
R2042-47	ERJ3GEYD153V	1/16W 15K	6	D0HB153ZA002
R2048	ERJ3GEYJ475V	1/16W 4.7M	1	
R2049	ERJ3GEYJ102V	1/16W 1K	1	
R2051,52	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R2053,54	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R2501	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R2502,03	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R2504,05	ERJ3GEYJ823V	1/16W 82K	2	D0GB823JA002
R2507	ERJ6GEYJ6R8V	1/8W 6.8	1	
R3001	ERJ3GEYJ220V	1/16W 22	1	
R3006	ERJ3RBD153	1/16W 15K	1	
R3007	ERJ3RBD202	1/16W 2K	1	
R3008	ERJ3RBD132V	1/16W 1.3K	1	
R3009,10	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R3051,52	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R3101	ERJ3RED620V	1/16W 62	1	
R3102	ERJ3RED150V	1/16W 15	1	
R3106	ERJ3RED620V	1/16W 62	1	
R3107	ERJ3RED180	1/16W 18	1	
R5101-03	ERJ3GEYJ560V	1/16W 56	3	
R5105	ERJ12Y0R00U	1/12W 0	1	
R5107-09	ERJ3GEY0R00V	1/16W 0	3	
R5111	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R5112	ERJ12YJ270H	1/2W 27	1	
R5113	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R5114	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R5115	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R5116	ERJ12YJ270H	1/2W 27	1	
R5117	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R5120	ERJ3GEY0R00V	1/16W 0	1	
R5121-23	ERJ3GEYJ560V	1/16W 56	3	
R5124	ERJ3GEYJ472V	1/16W 4.7K	1	
R5152	ERJ3GEYJ102V	1/16W 1K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R5201	ERJ3GEY0R00Z	1/16W 0	1	
R5203	ERJ3GEY0R00Z	1/16W 0	1	
R5204	ERJ3GEYJ102V	1/16W 1K	1	
R5221	ERJ3GEY0R00Z	1/16W 0	1	
R5231,32	ERJ3GEYJ822V	1/16W 8.2K	2	D0GB822JA002
R5241	ERJ3GEYJ221V	1/16W 220	1	
R5242	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002
R5257	ERJ3GEY0R00Z	1/16W 0	1	
R5262	ERJ3GEY0R00Z	1/16W 0	1	
R5281	ERJ3GEYJ105V	1/16W 1M	1	
R5294	ERJ3GEYJ123V	1/16W 12K	1	
R5295	D0GB243JA002	1/16W 24K	1	
R5320	ERJ3GEY0R00Z	1/16W 0	1	
R6201	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R6202	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6206	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6207,08	ERJ3GEYJ472V	1/16W 4.7K	2	
R6210	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R6211	ERJ3GEYJ472V	1/16W 4.7K	1	
R6215	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6216	ERJ3GEYJ102V	1/16W 1K	1	
R6251,52	ERJ3RBD101	1/16W 100	2	ERJ3RBD101V
R6253	ERJ3RBD102V	1/16W 1K	1	
R6503	ERJ3RBD331	1/16W 330	1	
R6504,05	ERJ3GEY0R00Z	1/16W 0	2	
R6563	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6565	ERJ3GEYJ470V	1/16W 47	1	
R6566	ERJ3GEYJ100	1/16W 10	1	
RA2021	EXBV4V102JV	1/32W 1K	1	
RA2022	EXBV4V472JV	1/32W 4.7K	1	
RA2501	EXBV8V473JV	1/16W 47K	1	
RA3001	EXBV4V102JV	1/32W 1K	1	
RA3002-12	EXBV8V820J	1/16W 82	11	
RA3013	EXBV4V220JV	1/32W 22	1	
RA3051	EXBV4V101JV	1/32W 100	1	
RA3053	EXBV4V101JV	1/32W 100	1	
RA5101	EXBV4V560J	1/32W 56	1	
RA5102	EXBV8V560JV	1/16W 56	1	
RA5103	EXBV4V560J	1/32W 56	1	
RA5201	EXBV8V101JV	1/16W 100	1	
RA6201,02	EXBV4V103JV	1/32W 10K	2	
RA6203	EXBV4V472JV	1/32W 4.7K	1	
RA6204	EXBV4V103JV	1/32W 10K	1	
RA6205	EXBV8V103J	1/16W 10K	1	
RA6206	EXBV4V473JV	1/32W 47K	1	
S1,S2	RSH1A032-U	SW,TRAY POSITION DET.	2	K0F111B00057
S3	RSH1A005	SW,OPEN/CLOSE DET.	1	
S4	RSH1A91ZA-A	SW,CLAMP	1	K0L1BA000007
S5	K0L1BB000005	SW,BOTTOM	1	
S601-21	EVQ11G05R	SW,OPERATION	21	
S2501	RSH1A048-A	SW,REST DET.	1	

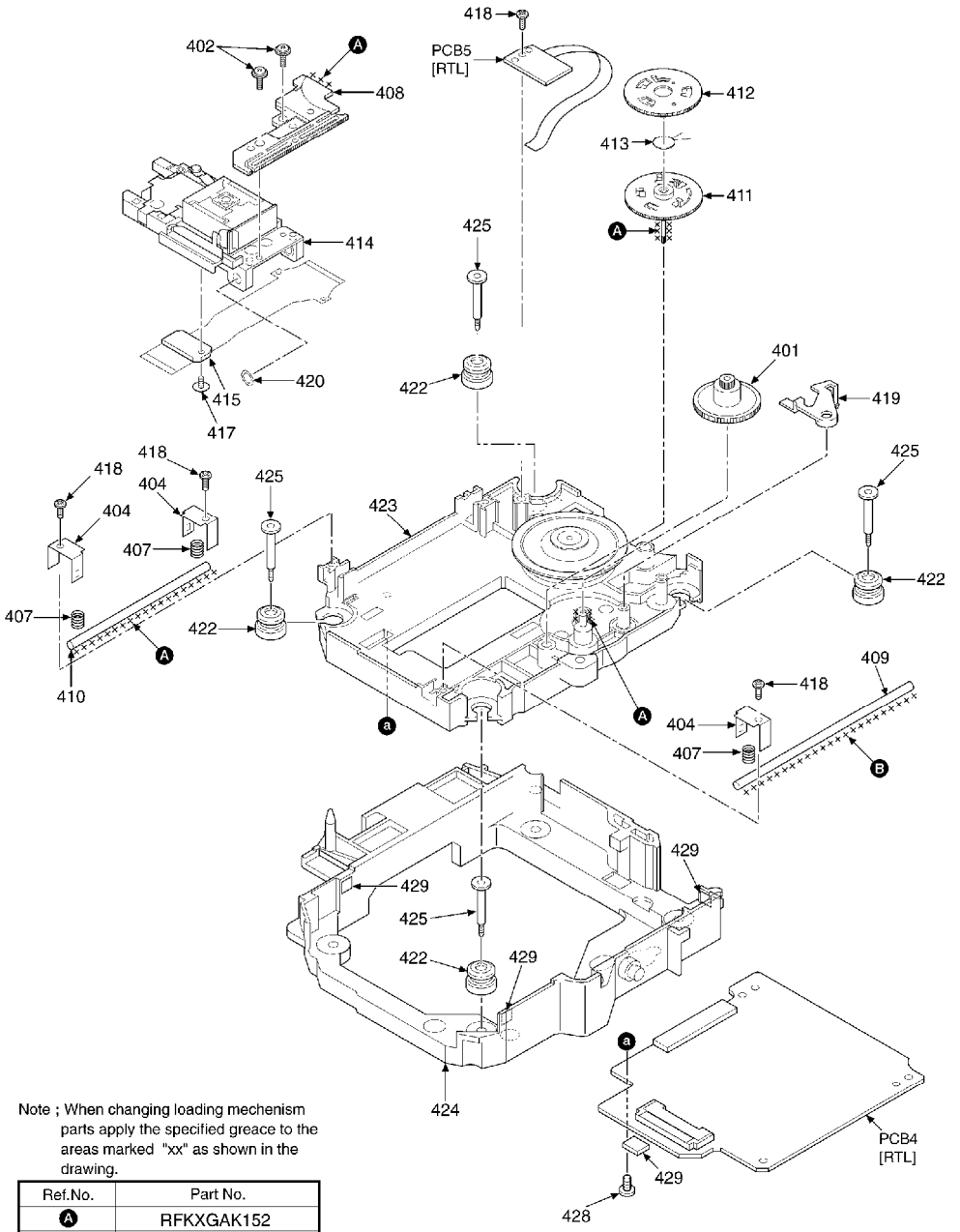
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
SJ313	ERJ3GEY0R00V	1/16W 0	1	
X401	H2B800400005	OSCILLATOR	1	
X6501	H0J368600005	OSCILLATOR	1	
Z501-03	J0JBC0000015	COIL	3	

19. Cabinet parts Location



Note : · We do not supply those items of parts marked✻ .
· This "PCB2" is a combination PCB.

20. Loading Mechanism Parts Location

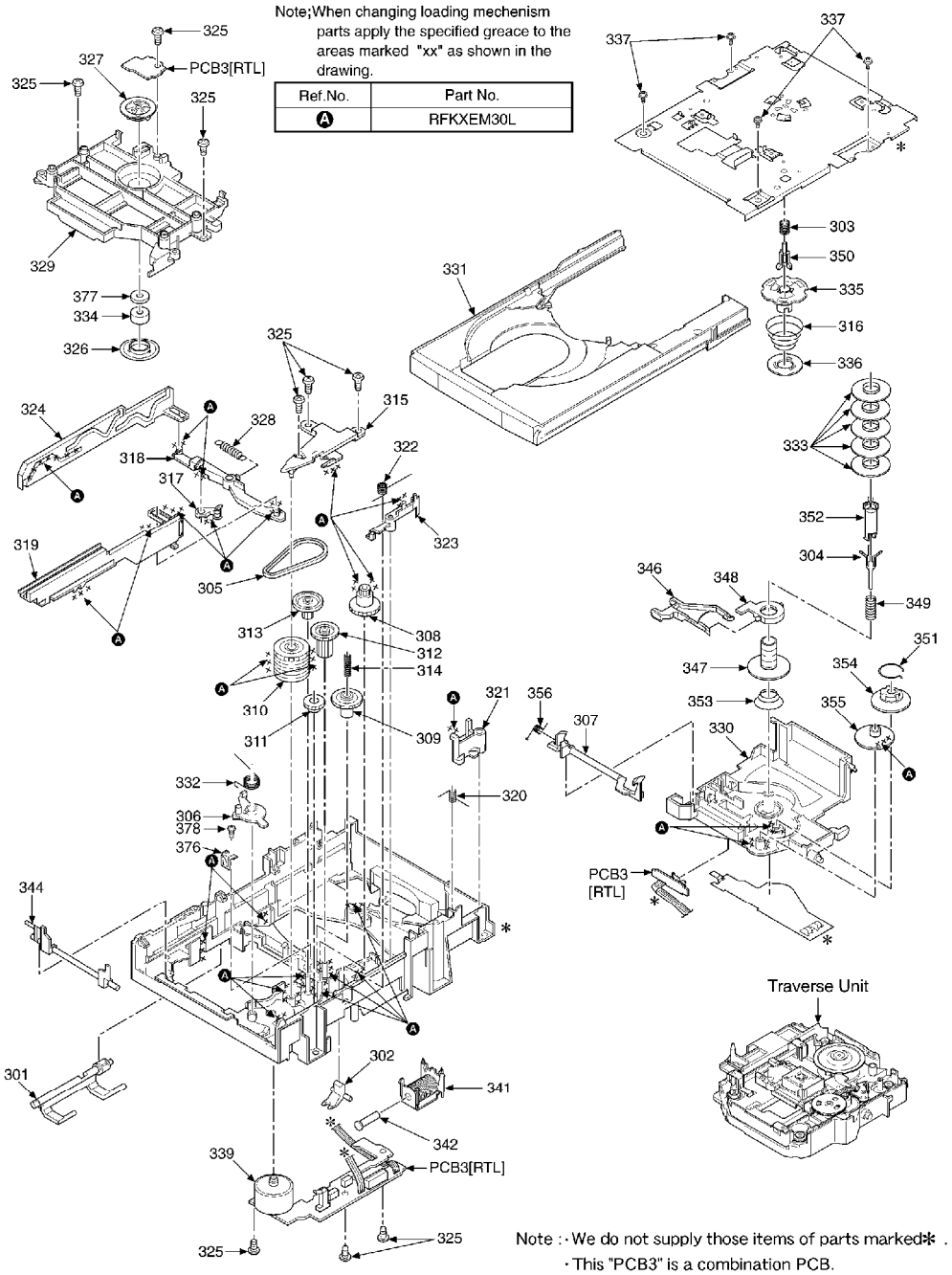


Note ; When changing loading mechenism parts apply the specified greace to the areas marked "xx" as shown in the drawing.

Ref.No.	Part No.
Ⓐ	RFKXGAK152
Ⓑ	RFKXPG641

Note : ･We do not supply those items of parts marked✻ .

21. Traverse Mechanism Parts Location



22. Schematic Diagram for printing with A4 size

K0305 YH/HM

SCHEMATIC DIAGRAM–4

B DVD MODULE(AVDEC) CIRCUIT

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE :AUDIO SIGNAL LINE :VIDEO SIGNAL LINE

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-G — DB2 D+1.5V, DG1 D.GND

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-D — DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-H — FS18 NRST

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-G — CD1 AV1IRQ, CD2 AV2IRQ, SC27 WAIT, CD3 NWEH, SC29 NWEL

SCHEMATIC DIAGRAM-7/1-E,F — SC28 NRD, CD4 NAVCS

SCHEMATIC DIAGRAM-7/1-D — CD5 SYSCLK

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-D — SC10 CPUADR1 … SC26 CPUADR17

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-A,B — SC1 CPUDT0 … SD10 STVALID, SD11 STCLK, SD1 STENABLE

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/12-H — SD9 STD7 … SD2 STD0

LB3001 J0JHC0000045 — C3002 6.3V330

LB3002 J0JHC0000045 — C3001 6.3V330

C3005 0.1, C3003 0.1

RA3001 1K

RA3002 82 — MDQ5, MDQ10, MDQ4, MDQ11

RA3003 82 — MDQ3, MDQ12, MDQ2, MDQ13

RA3004 82 — MDQ1, MDQ14, MDQ0, MDQ15

K3002 0 Ω

C3006 0.1, C3004 0.1, C3007 0.1, C3008 0.1, C3009 0.1

RA3012 82 — MDQ9, MDQ6, MDQ8, MDQ7

RA3013 22 — DQM0, DQM1

RA3011 82 — MA9, MA11, MA8, MA10

RA3010 82 — CLK

RA3009 82 — MA7, MA0, MA6, MA1

RA3008 82 — MA5, MA2, MA4, MA3

RA3007 82 — DQM2, DQM3

RA3006 82 — MDQ16, MDQ31, MDQ17, MDQ30

RA3005 82 — MDQ18, MDQ29, MDQ19, MDQ28

RA3006 82 — MDQ20, MDQ27, MDQ21, MDQ26

R3001 22

C3034 0.1, C3031 0.1, C3030 0.1

C3036 0.1, C3035 0.1, C3032 0.1, C3033 0.1, C3025 0.1, C3027 0.1, C3028 0.1, C3029 0.1

IC3001 MN6775511 AV DECODER

C3010 0.1, C3011 0.1, C3012 0.1, C3013 0.1, C3014 0.1, C3015 0.1, C3016 0.1, C3017 0.1

R3010 100

C3026 0.1, C3024 0.1, K3003 0 Ω

L3001 10 μ H — C3037 6.3V330

C3038 0.1, C3039 0.1, K3007 0 Ω

R3006 15K, C3022 0.1

C3021 1, R3007 2K, C3019 1

R3008 1.3K, C3023 0.1, C3020 0.1, C3018 0.1

R3101 82, R3102 82, R3107 82, R3106 82

K3106 0 Ω, K3101 0 Ω

C3110 6.3V100, L3091 10 μ H

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/12-D — C VD5, Y VD4, V.GND VG1

SCHEMATIC DIAGRAM-5/1-F — A+5V AB1, A.GND AG1

To B DVD MODULE (AUDIO DAC) CIRCUIT on

SCHEMATIC DIAGRAM-6/1-C — CLK27M AD2, CLK54M AD10

SCHEMATIC DIAGRAM-6/12-A — EXTCLK1 AD1, AOUT2 AD3

SCHEMATIC DIAGRAM-6/1-F — AOUT1 AD4, AOUT0 AD5

SCHEMATIC DIAGRAM-6/1-H — DMIXOUT AD6

SCHEMATIC DIAGRAM-6/1-F — SRCK AD7, LRCK AD8

SCHEMATIC DIAGRAM-6/12-E — AUDIO DIGITAL AD9

K3009 0 Ω, K3011 0 Ω, R3052 100, RA3053 100, R3051 100, RA3051 100, R3009 100, C3051 22P

IC3062 C3ABPG000121 MEMORY

IC3061 C3ABPG000121 MEMORY

C3068 0.1, C3069 0.1, C3071 0.1, C3073 0.1, C3074 0.1

C3070 0.1, C3072 0.1

C3061 0.1, C3062 0.1, C3064 0.1, C3066 0.1, C3067 0.1

C3065 0.1, C3063 0.1

SL-DV290(EE,GN) DVD MODULE(AVDEC) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM–5

B DVD MODULE(VIDEO DAC) CIRCUIT

:POSITIVE VOLTAGE LINE :VIDEO SIGNAL LINE

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-G — MB1 M+9V, MG1 M.GND

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-A — DB3 D+5V, DG1 D.GND

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-H — DB3 D+5V, DG1 D.GND

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-G — DB2 D+1.5V, DG1 D.GND

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-G — AB1 A+5V, AG1 A.GND

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-C — AB1 A+5V, AG1 A.GND

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/12-E — AB1 A+5V, AG1 A.GND

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-H — DB4 D+1.8V, DG1 D.GND

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-G — DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-H — DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-G — DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/1-F — DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-H — DB1 D+3.3V, DG1 D.GND

C6257 6.3V100 (+)

IC6251 C0DBEZG00011 REGULATOR — 1.5V OUT, IN 2.5V, R6251 100, R6252 100, 1.3V VR, R6253 1K, ON/OFF, GND; C6251 10V10 (+), C6254 0.1

IC6252 C0DBFFG00004 REGULATOR — 1.8V OUT, IN 2.5V, NC, ON/OFF, GND; C6252 10V10 (+), C6255 0.1

IC6253 C0DBCGE00002 REGULATOR — 3.3V OUT, IN 5V, NC, ON/OFF, GND; C6253 10V10 (+), C6256 0.1

FL6255 VLF1491S104T — 9V

FL6253 F1H0J1050018 — 5V

FL6251 F1H0J1050018 — 2.5V

FL6254 F1H0J1050018 — 5V

FP3202

1	D.GND	17	
2	M+9V	16	
3	M+9V	15	
4	M.GND	14	
5	M.GND	13	
6	D+5V	12	
7	D+5V	11	
8	D.GND	10	
9	D.GND	9	
10	D+2.5V	8	
11	D+2.5V	7	
12	D.GND	6	
13	D.GND	5	
14	A+5V	4	
15	A+5V	3	
16	A.GND	2	
17	A.GND	1	

To C MAIN CIRCUIT(CN2) on SCHEMATIC DIAGRAM–8/11,12-H

LB3203 100; LB3202 100; LB3201 100 — CMD CV4, STATUS CV5, DSPCLK CV6

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-C

DSPCLK CV6, STATUS CV5, CMD CV4

To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/12-E

C VD5, Y VD4, V.GND VG1

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-C

LB3205 VLP0146-T; LB3206 VLP0146-T

FP3203

1	Y-OUT	15	
2	V.GND	14	
3	C-OUT	13	
4	V.GND	12	
5	YC-OUT/CR/PR/R	11	
6	V.GND	10	
7	CB/ PB/ B	9	
8	V.GND	8	
9	Y/ PY/ G	7	
10	D.GND	6	
11	TRAY REF	5	
12	TRAY DRV	4	
13	TRAY MUT	3	
14	TRV-SW+	2	
15	TRAY/ TRV	1	

To C MAIN CIRCUIT (CN501) on SCHEMATIC DIAGRAM-9/15,16-H

TRV-SW+ VD9

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-C

TRAY/ TRV VD10, TRV-SW+ VD9, MUTE4 VD8, TRAY DRV VD7, TRAY REF VD6

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-H

SCHEMATIC DIAGRAM–6

B DVD MODULE(AUDIO DAC) CIRCUIT

:POSITIVE VOLTAGE LINE :AUDIO SIGNAL LINE :SURROUND SP. SIGNAL LINE :CENTER SP. SIGNAL LINE :SUB WOOFER SIGNAL LINE

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-A
AD6 DMIXOUT

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-G
AC1 SBI1
AC2 SBO1
AC3 SBT1
AC4 STBDAC2

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-H
FS18 NRST

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-A
AD7 SRCK
AD8 LRCK

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-C
DB1 D+3.3V
DG1 D.GND

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-A
AD5 AOUT0
AD4 AOUT1
AD3 AOUT2

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-B
AD10 CLK54M
AD2 CLK27M

IC4211
C0FBBK000036
8ch AUDIO D/A CONVERTER

IC6561
C1DB00000582
CLOCK GENERATOR

FL4201
F1H0J1050018

FP4202

1	SW	26	
2	A.GND	25	
3	CNT	24	
4	A.GND	23	
5	SR	22	
6	A.GND	21	
7	SL	20	
8	A.GND	19	
9	FR	18	
10	A.GND	17	
11	FL	16	
12	A.GND	15	
13	MIX R	14	
14	A.GND	13	
15	MIX L	12	
16	ADAC5V	11	
17	ADAC5V	10	
18	AC3H/DACMUT	9	
19	AMUT	8	
20	ZFLAG	7	
21	D.GND	6	
22	CMD	5	
23	STAT	4	
24	CLK	3	
25	D.GND	2	
26	AUDIO DIGITAL	1	

To C MAIN CIRCUIT (CN301) on SCHEMATIC DIAGRAM–8/9,10-H

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-A
LB4201 VLP0155-T
AUDIO DIGITAL AD9

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/12-E
DSPCLK CV6
STATUS CV5
CMD CV4

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-G
AC3H AC6
AMUT AC7
CLK33M AC8
CLKSEL AC5

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-A
CLK16M1 SA1

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/12-B
EXTCLK1 AD1

SL-DV290(EE,GN) DVD MODULE(AUDIO DAC) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM–7

B DVD MODULE(CPU) CIRCUIT

:POSITIVE VOLTAGE LINE

To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/1-G (FS18 NRST)
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-F (FS18 NRST)
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-D (FS18 NRST)
To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-B (FS18 NRST)
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-E (CD2 AV2IRQ, CD1 AV1IRQ)
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-G (SC32 ODCIRQ, SC31 ADSCIRQ)
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-G (SC27 WAIT, SC28 NRD, SC29 NWEL, SC30 NSODCCS)
SCHEMATIC DIAGRAM-3/1-E
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-D,E (SC27 WAIT, SC28 NRD, SC29 NWEL, CD3 NWEH, CD4 NAVCS)
To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/12-C (AC7 AMUT, AC5 CLKSEL)
To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-D (FC1 HFMON)
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-D (CD5 SYSCLK) — LB6202 VLP0155-T
To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/12-C (AC8 CLK33M) — K6201 0Ω
To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/12-F (CV4 CMD, CV5 STATUS, CV6 DSPCLK)
To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-B (FC3 DCFLT)
To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-G (DB3 D+5V, DG1 D.GND) — 5V

IC6211 PST596JNR RESET — 1 M/R, 2 SUB, 3 GND, 4 VOUT, 5 Vcc — 3.3V — R6211 4.7K
Q6215 UN5212TX RESET — 0V / 3.3V — D6215 MA728TX — C6215 0.1
R6215 10K
C6211 100P
R6216 1K
RA6206 47K
R6202 10K
RA6201 10K
R6201 47K
C6206 0.1
RA6205 10K
RA6204 10K
R6207 4.7K
R6208 4.7K
RA6202 10K
R6206 10K
C6205 0.1
C6221 0.1
C6202 0.1
C6203 0.1
C6204 0.1
C6223 0.1
C6222 0.1
R6210 100
K6303 0Ω
K6201 0Ω
LB6221 VLP0146-T
LB6202 VLP0155-T

IC6201 MN102H60GFD CPU
1.5V P-P, 0.2 µs. 0.5V/DIV.

IC6223 C0JBAA000001 AND GATE — GND, 3V, Vcc
IC6222 C0JBAA000001 AND GATE — GND, 2.7V, Vcc
IC6221 C3EBGC000033 EE PROM — A0, A1, A2, GND, Vcc, WP, SCL, SDA

IC6301 C3FBND000098 32M FLASH MEMORY
A15, A14, A13, A12, A11, A10, A9, A8, A19, A20, XWE, XRESET, N.C., WP/Acc, RDY/XBSY, A18, A17, A7, A6, A5, A4, A3, A2, A1
A16, XBYTE, Vss, DQ15/A-1, DQ7, DQ14, DQ6, DQ13, DQ5, DQ12, DQ4, Vdd, DQ11, DQ3, DQ10, DQ2, DQ9, DQ1, DQ8, DQ0, XOE, Vss, XCE, A0
C6302 0.1
C6301 0.1

LB6201 VLP0146-T
C6201 6.3V33
PS6201 — 10 D+3.3V, 9 RESERVED, 8 KMODE, 7 SCSIEN, 6 258SY, 5 1968SY, 4 SBI1, 3 SBO1, 2 SBT1, 1 D.GND — TEST TERMINAL
RA6203 4.7K

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-C (DB1 D+3.3V, DG1 D.GND)
To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/1-H (AC1 SBI1, AC2 SBO1, AC3 SBT1, AC4 STBDAC2)
SCHEMATIC DIAGRAM-6/12-C (AC6 AC3H)
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-C,D (CPUADR0–CPUADR17 / SC9–SC26)
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-E,F (CPUADR0–CPUADR17 / SC9–SC26)
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-D,E (CPUDT0–CPUDT7 / SC1–SC8)
To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-B,C (CPUDT0–CPUDT15 / SC1–SC8, CD6–CD13)

SL-DV290(EE,GN) DVD MODULE(CPU) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM–8

: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
:SURROUND SP. SIGNAL LINE
:CENTER SP. SIGNAL LINE
:SUB WOOFER SIGNAL LINE

E LOADING MOTOR CIRCUIT

IC1
TA7291P
MOTOR DRIVE

RM1 (LOADING MOTOR)
C2 0.01
R1 1K
C1 16V100
D2 MTZJ4R7BTA
Q1 RVTDTC143EST
MOTOR DRIVE

F CLAMP SW CIRCUIT

S4 (CLAMP)

G BOTTOM SW CIRCUIT

S5 (BOTTOM)
D1 GP1S94 (POSITION SENSOR)

D OPERATION CIRCUIT

D608 SML79455C
D601 SELS5923C (CINEMA)
D602 SELS5923C (DOUBLE RE-MASTER)
D603 (DISC5)
D604 (DISC4)
D605 (DISC3)
D606 (DISC2)
D607 (DISC1)
D603-607 LNJ301MPUJAD

S612 (A-B REPEAT)
S613 (REPEAT)
S614 (CD EDIT)
S615 (CINEMA)
S616 (DOUBLE RE-MASTER)
S617
S618
S619
S620
S621

S601 (DISC5)
S602 (DISC4)
S603 (DISC3)
S604 (DISC2)
S605 (DISC1)
S606 (DISC1)
S607 (DISC2)
S608 (DISC3)
S609 (DISC4)
S610 (DISC5)
S611 (OPEN/CLOSE)
(DIRECT OPEN)

IC601
NJU3713GTE1
LED DRIVE

C MAIN CIRCUIT

Q304 2SB621ARSTA PLUNGER DRIVE
Q305 UN521NTX PLUNGER DRIVE
D302-304 RL1N4003N02

PLUNGER
S2 (TRAY POSITION 2 DET.)
S1 (TRAY POSITION 1 DET.)
S3 (OP/ CL DET.)

CN1 CN3 CN301 CN2

To B MODULE CIRCUIT (FP4202) on SCHEMATIC DIAGRAM–6/12-D,E
To B MODULE CIRCUIT (FP3202) on SCHEMATIC DIAGRAM–5/12-F,G

Q307 DTC114EUA106 MUTING CONT.
Q308 DTC114EUA106 MUTING CONT.
Q401 UN5214TX RESET
Q402 0.9V 0.6V
Q402-404 2SD1819ATX INTERFACE
Q403 0.7V 0V
Q404 0.8V 1.5V

IC401
C2BBFD000402
SYSTEM CONTROL

X401 (8MHz)

SJ313 0 Ω

SL-DV290(EE,GN) LOADING MOTOR,CLAMP SW,BOTTOM SW,OPERATION,MAIN CIRCUIT DIAGRAM

To B MODULE CIRCUIT(FP3203) on SCHEMATIC DIAGRAM–5/12-C

: POSITIVE VOLTAGE LINE : AUDIO SIGNAL LINE : VIDEO SIGNAL LINE :SURROUND SP. SIGNAL LINE :CENTER SP. SIGNAL LINE :SUB WOOFER SIGNAL LINE

CN501 TRAY/ TRV, TRV-SW+, TRAYMUT, TRAYDRV, TRAYREF, V.GND, G, V.GND, CD/ B, V.GND, C-OUT/ CR/ R, V.GND, C-IN, V.GND, Y-IN

IC891 BU4053BCFE2 SIGNAL SELECTOR

Q891 DTC114EUA106 SWITCHING

IC501 C9ZB00000431 VIDEO BUFFER

Q501 DTC114EUA106 SWITCHING(WIDE)

IC802 NJM4580EDTE1 BUFFER AMP(C/SW)

IC803 NJM4580EDTE1 BUFFER AMP(SL/SR)

IC804 NJM4580EDTE1 BUFFER AMP(FL/FR)

Q801,802 2SD1328TX MUTING

Q803,804 2SD1328TX MUTING

Q805,806 2SD1328TX MUTING

Q303 DTC114EUA106 SIGNAL SELECTOR CONT.

IC801 C0JBAS000138 SIGNAL SELECTOR

IC805 BA4558FHTT1 VREF

Q807 UN5111TX MUTING CONT.

IC4 NJM78M05FA REGULATOR

IC3 LM2940T5M REGULATOR

Q9 2SB1417PQTA POWER SUPPLY

Q8 FMW1T98 POWER SUPPLY CONT.

SCHEMATIC DIAGRAM-10

C MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
: VIDEO SIGNAL LINE
:CENTER SP. SIGNAL LINE
:SUB WOOFER SIGNAL LINE
:SURROUND SP. SIGNAL LINE

R503 75 Z501 VLP0146-T L501 JK501 VIDEO OUT
R501 1 R502 1 C501 0.01
R506 75 Z502 VLP0146-T L502
R507 75 Z503 VLP0146-T JK501 S-VIDEO OUT
R504 1 R505 1 C502 0.01

JK1
To SOUND PROCESSOR(SH-DV290) & CASSETTE DECK(RS-DV290)
20 SYNC
19 CD REQ
18 CT.GND
17 CS
16 +B (10V)
15 D.GND
14 SCLK
13 DATA
12 NC
11 V.GND
10 S.WOOFER
9 CENTER
8 NC
7 NC
6 NC
5 CD Rch OUT
4 CD A.GND
3 CD Lch OUT
2 SUR R
1 SUR L

C816 16V10 C815 16V10 R823 10K R824 100K

Q16 2SD874QRSTX REGULATOR
R38 10 C24 1000P R37 100 R39 1K C23 10V47 D14 MA8082MTX

Q12 2SB1417PQTA POWER SUPPLY
C19 1000P R29 22K

DC+10V

Q11 FMW1T98 P. SUPPLY CONT.
R30 100 R31 680

Q13 2SB1218TX POWER SUPPLY CONT.
R32 47K R33 4.7K

D10 MA111TX R35 1K R27 1.2K C20 10V47 R28 47K D11 MA8091MTX

Q15 2SB766ATX POWER SUPPLY

J F Q G

Q14 FMW1T98 P. SUPPLY CONT.
C21 1000P R44 1.2K R34 470 D12 MA111TX C22 16V10 R36 22K D13 MA111TX R42 100

D4 MA111TX Q3 DTC114EUA106 SWITCHING

R3 2.2K R4 10K R2 8.2K

IC2 PQ1CZ31H2ZP DC-DC CONVERTER
4 ADJ 5 ON/ OFF 3 GND 2 VOUT 1 VIN

Q7 2SB1417PQTA POWER SUPPLY
C10 1000P Q6 FMW1T98 P. SUPPLY CONT.
R17 22K D7 MA728TX D6 MA111TX R16 470 C11 10V10

L4 L2 L1
C7 6.3V820 D8 SFPB-72V C4 16V470 C3 16V3300

D.GND A.GND
C30 1000P C29 0.01 C26 16V10 R41 100 D17 MA111TX D18 MA111TX
CT.GND R40 0 Ω E1

SL-DV290(EE,GN) MAIN CIRCUIT DIAGRAM

H G F E D C B A

25 26 27 28 29 30 31 32 33 34 35 36

SCHEMATIC DIAGRAM-1

NOTE:
The number which noted at the connectors on the schematic diagram as
"SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2"
indicates the schematic diagram serial number located on the left corner in the schematic d

A INTERFACE CIRCUIT

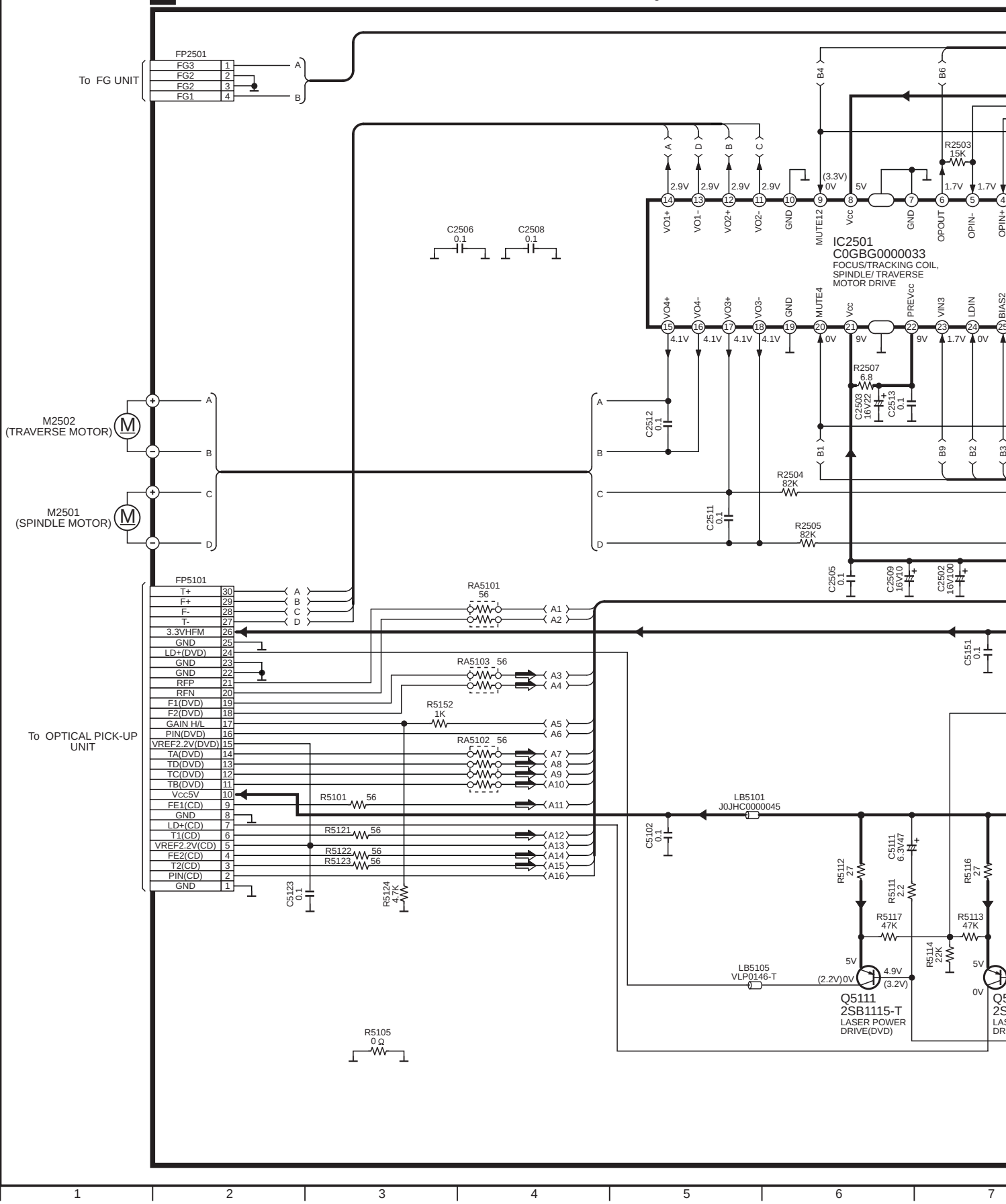
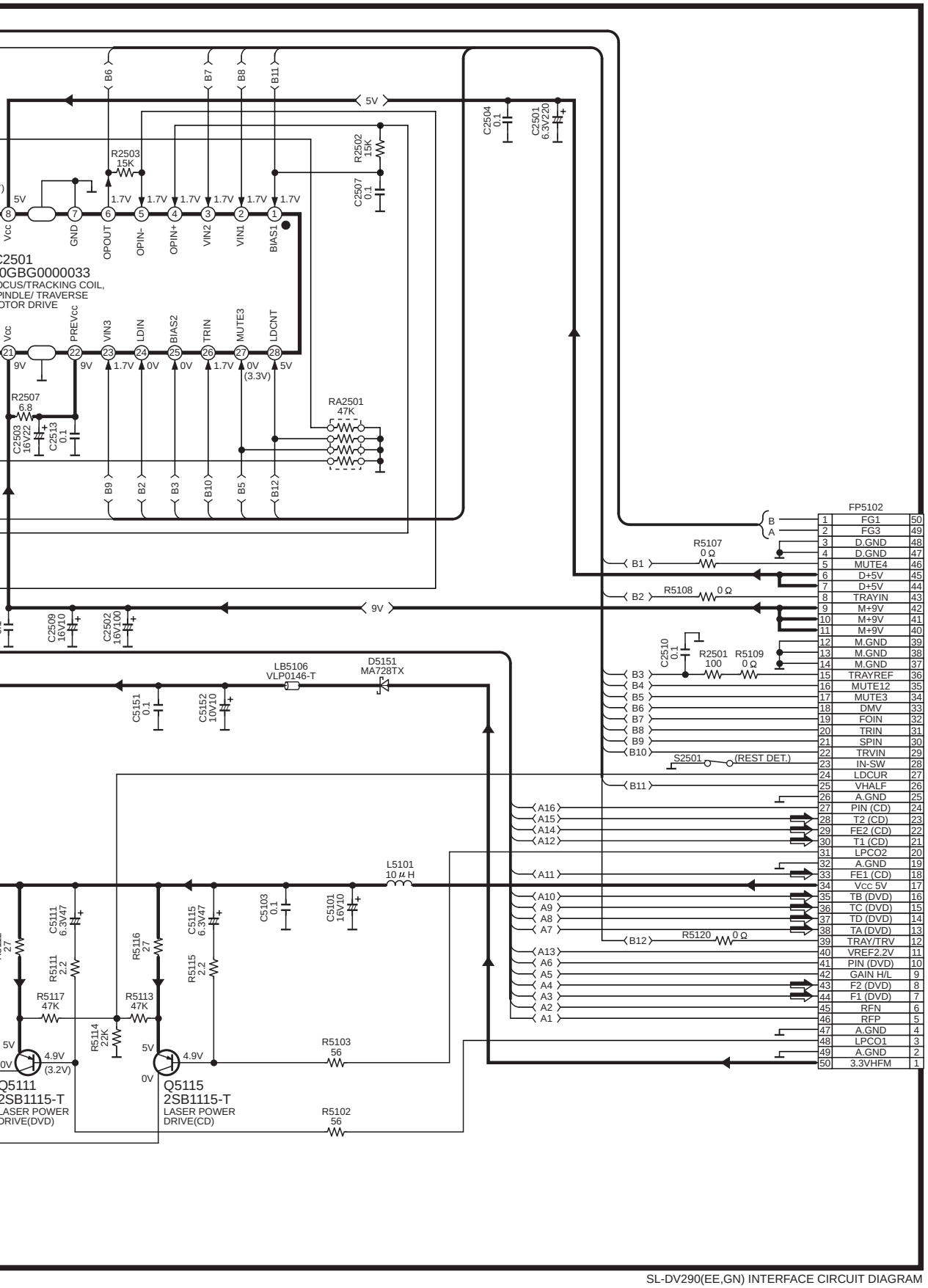


diagram as

left corner in the schematic diagram.

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE



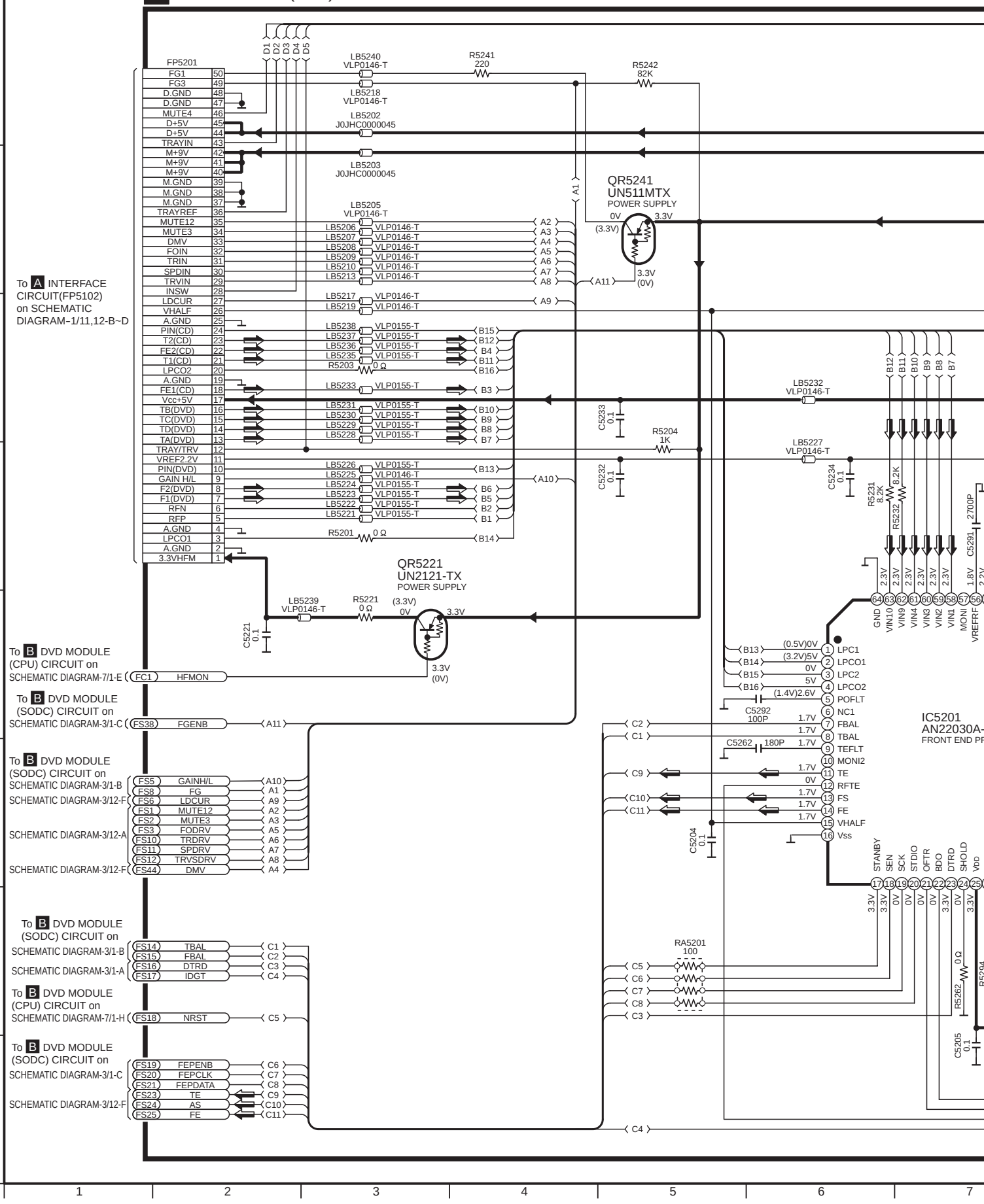
To B DVD MODULE (FEP) CIRCUIT(FP5201) on SCHEMATIC DIAGRAM-2/1,2-E~H

SL-DV290(EE,GN) INTERFACE CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-2

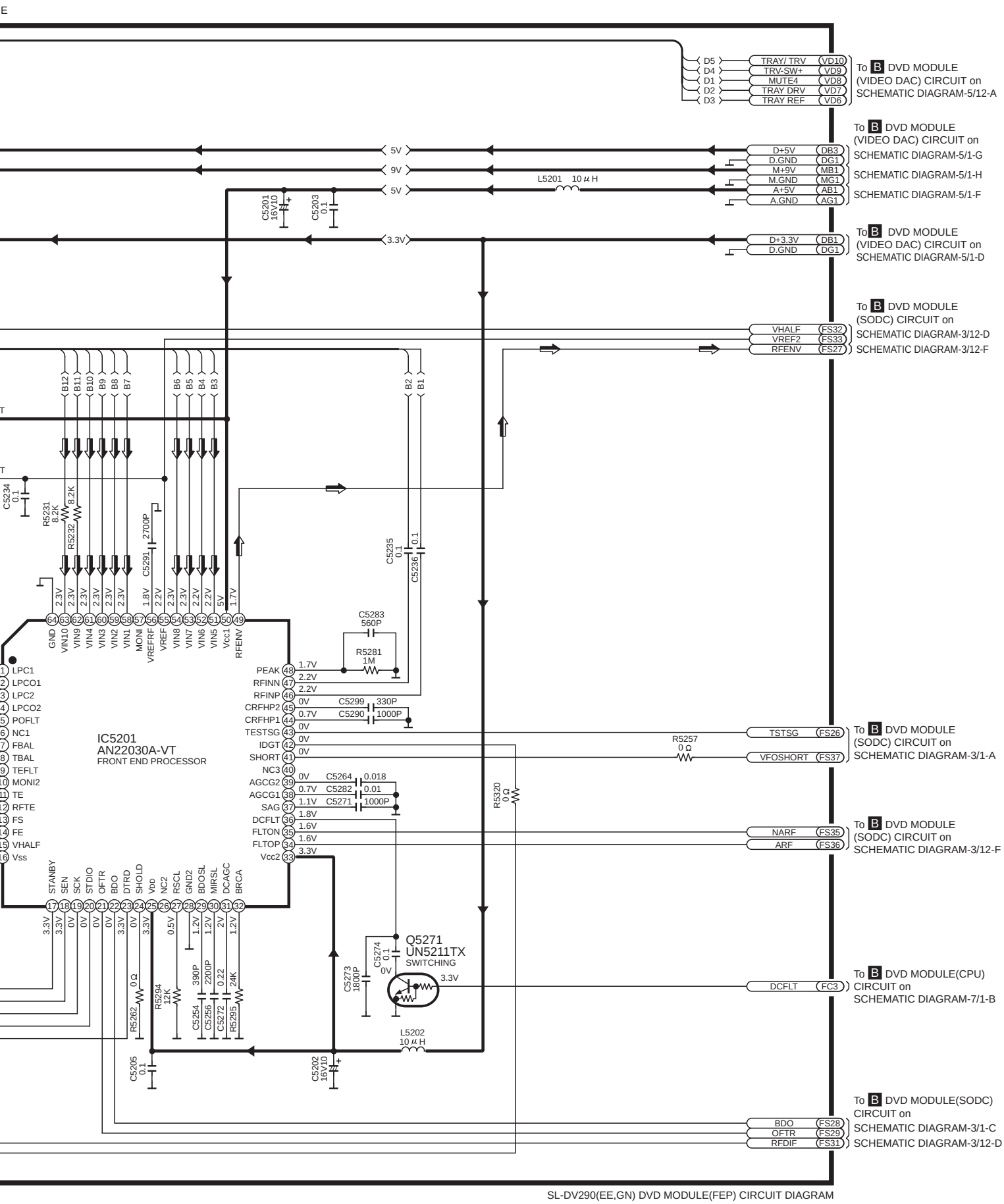
B DVD MODULE(FEP) CIRCUIT

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE



1 2 3 4 5 6 7

A B C D E F G H

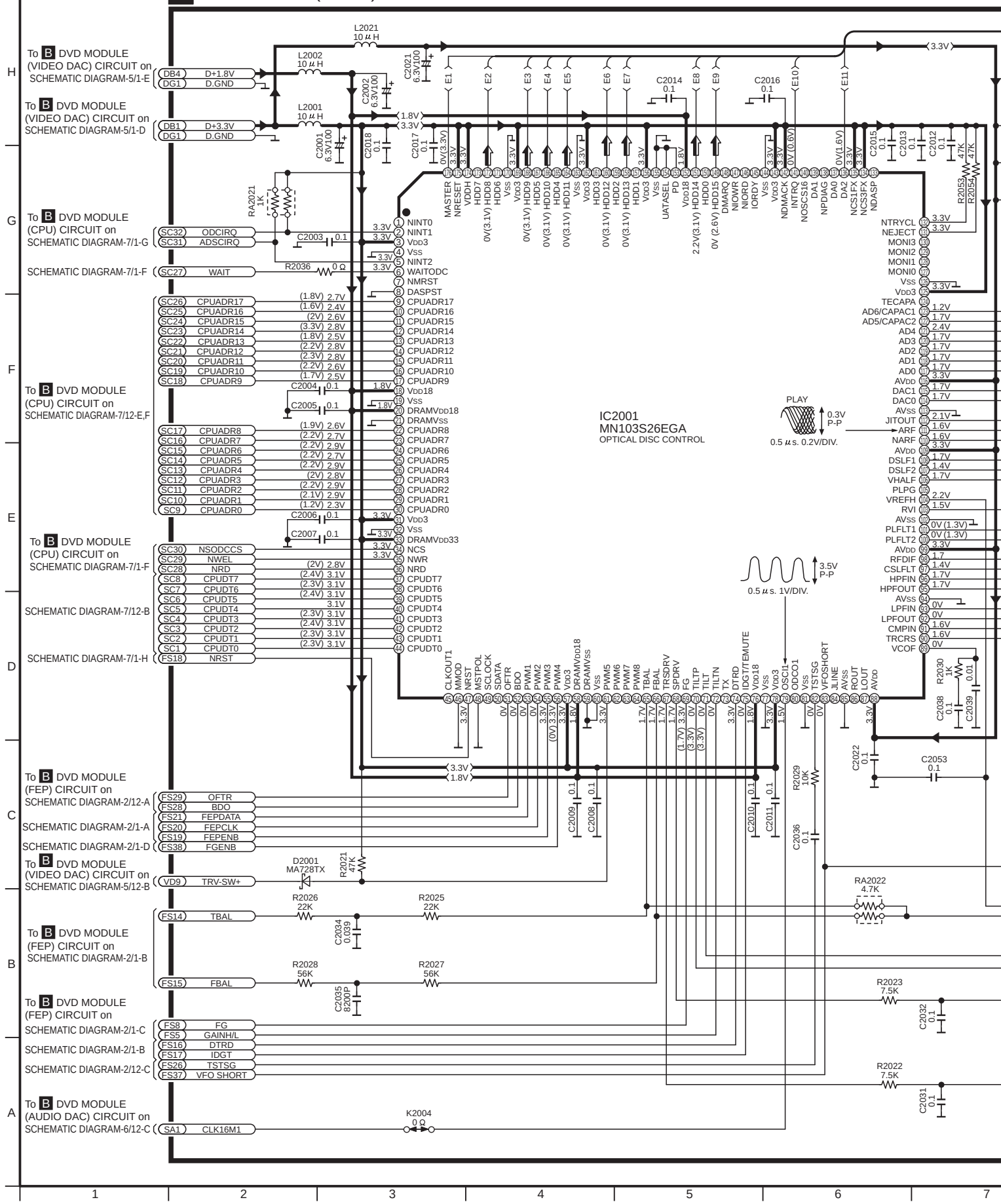


SL-DV290(EE,GN) DVD MODULE(FEP) CIRCUIT DIAGRAM

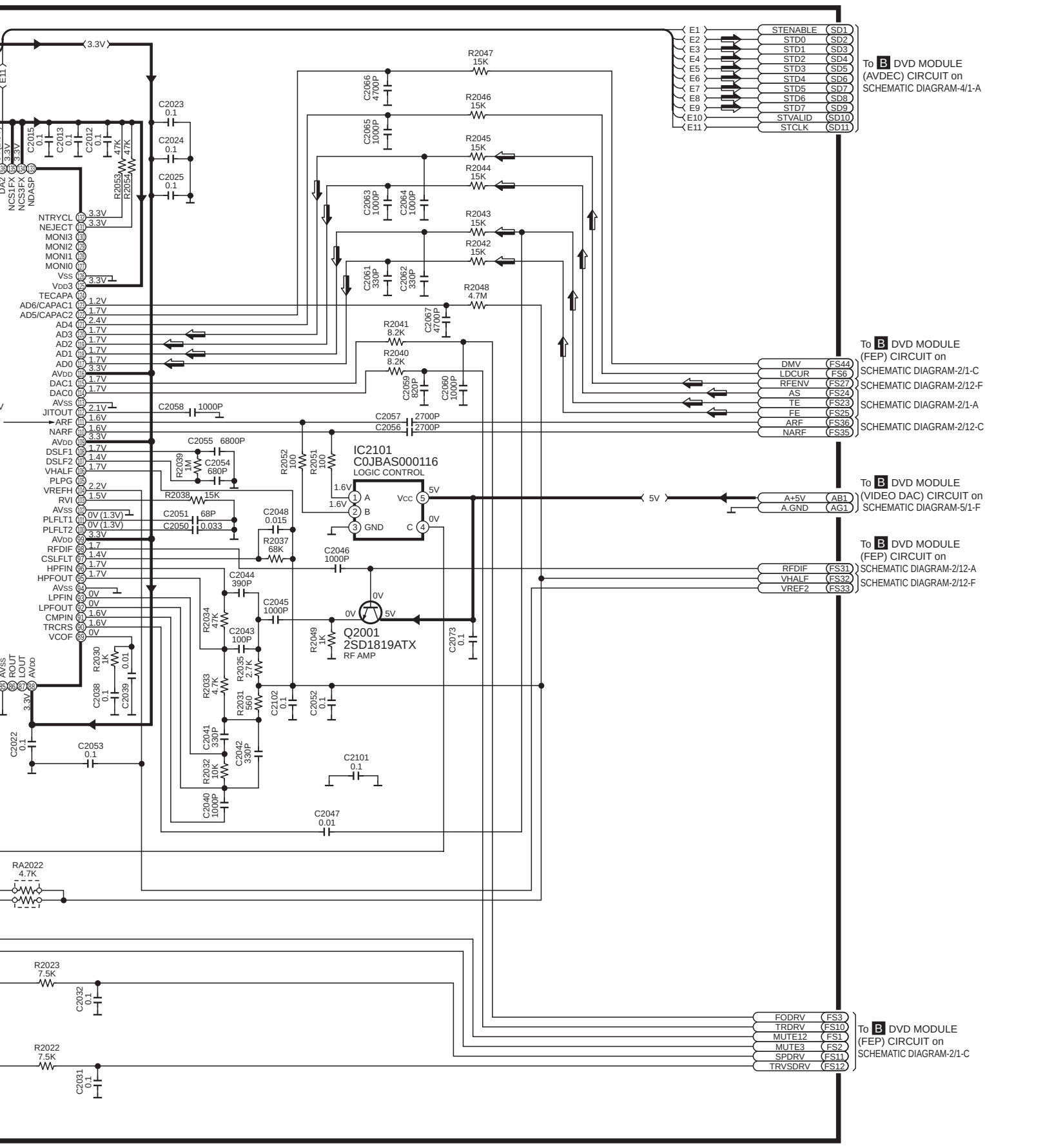
SCHEMATIC DIAGRAM-3

B DVD MODULE(SODC) CIRCUIT

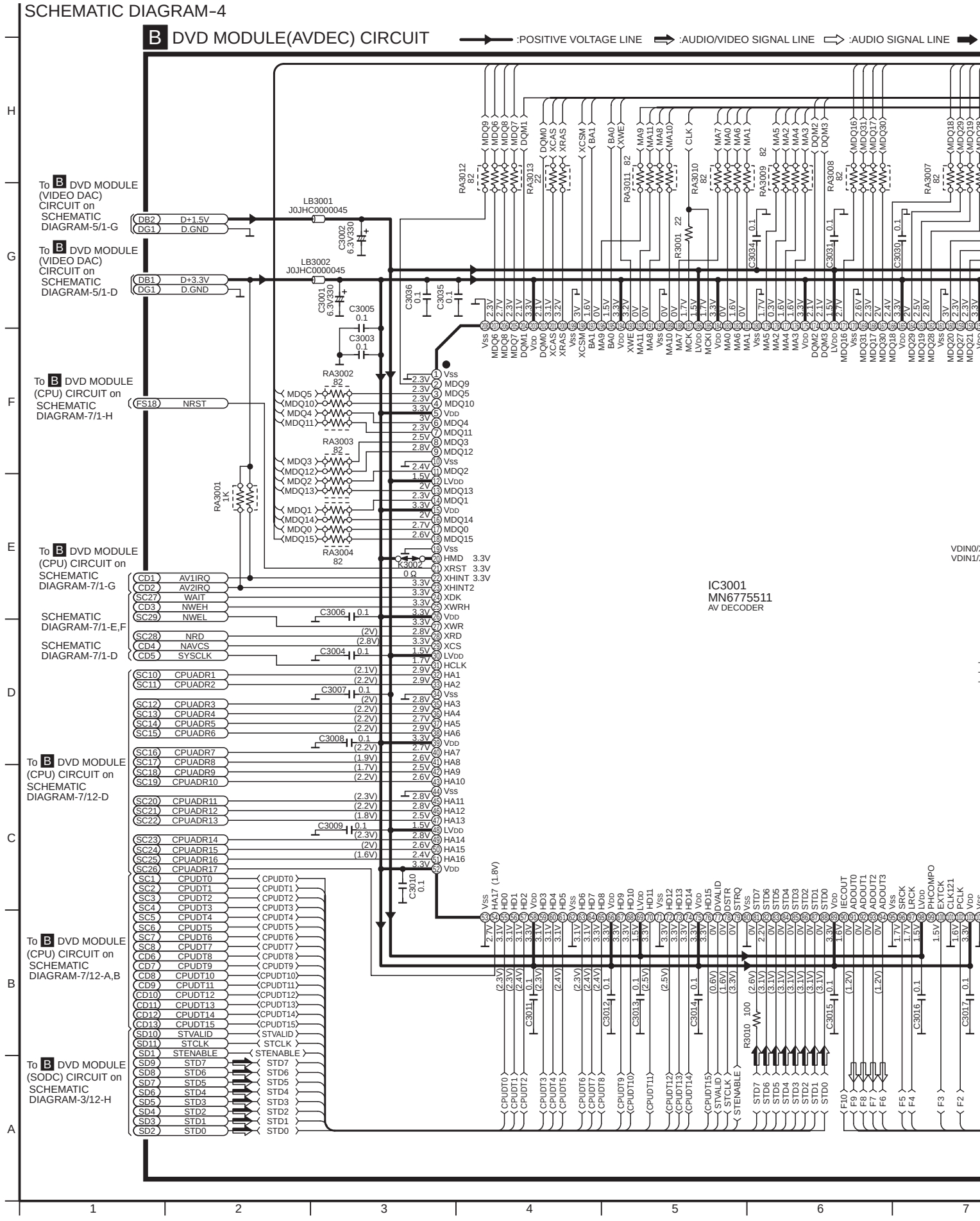
:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE



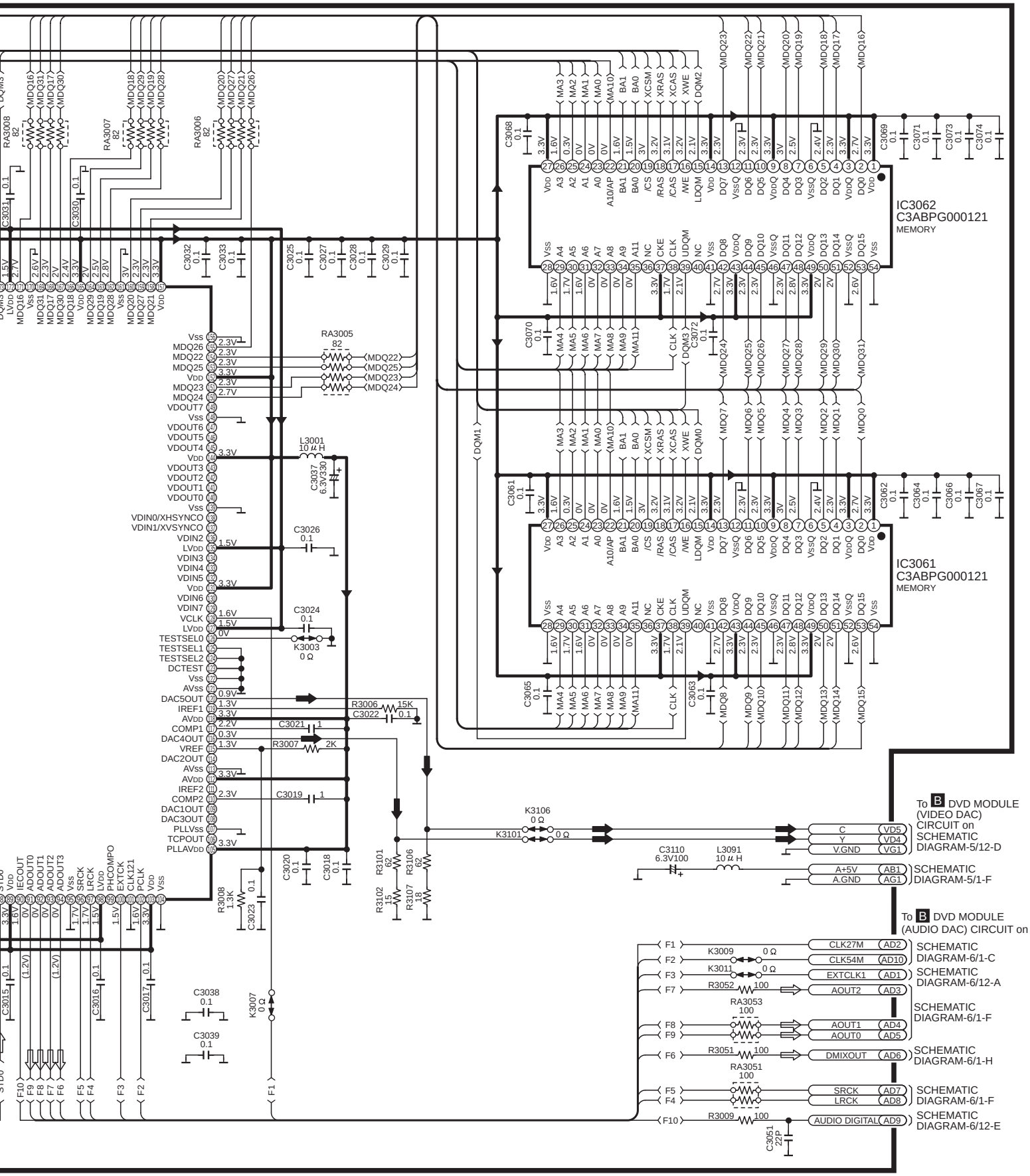
L LINE



SL-DV290(EE,GN) DVD MODULE(SODC) CIRCUIT DIAGRAM


SCHEMATIC DIAGRAM-4
B DVD MODULE(AVDEC) CIRCUIT
:POSITIVE VOLTAGE LINE
:AUDIO/VIDEO SIGNAL LINE
:AUDIO SIGNAL LINE
IC3001
MN6775511
AV DECODER
To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-G
To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-D
To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-H
To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-G
SCHEMATIC DIAGRAM-7/1-E,F
SCHEMATIC DIAGRAM-7/1-D
To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-D
To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-A,B
To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/12-H
LB3001 J0JHC0000045
LB3002 J0JHC0000045
D+1.5V
D+3.3V
D.GND
NRST
AV1IRQ
AV2IRQ
WAIT
NWEH
NWEL
NRD
NAVCS
SYSCLK
CPUADR1
CPUADR2
CPUADR3
CPUADR4
CPUADR5
CPUADR6
CPUADR7
CPUADR8
CPUADR9
CPUADR10
CPUADR11
CPUADR12
CPUADR13
CPUADR14
CPUADR15
CPUADR16
CPUADR17
CPUDT0
CPUDT1
CPUDT2
CPUDT3
CPUDT4
CPUDT5
CPUDT6
CPUDT7
CPUDT8
CPUDT9
CPUDT10
CPUDT11
CPUDT12
CPUDT13
CPUDT14
CPUDT15
STVALID
STCLK
STENABLE
STD7
STD6
STD5
STD4
STD3
STD2
STD1
STD0
HMD 3.3V
XRST 3.3V
XHINT 3.3V
XHINT2
XDK
XWRH
XWR
XRD
XCS
HCLK
HA1
HA2
HA3
HA4
HA5
HA6
HA7
HA8
HA9
HA10
HA11
HA12
HA13
HA14
HA15
HA16
HA17 (1.8V)
HD0
HD1
HD2
HD3
HD4
HD5
HD6
HD7
HD8
HD9
HD10
HD11
HD12
HD13
HD14
HD15
DVALID
DSTR
STRQ
IECOUT
ADOUT0
ADOUT1
ADOUT2
ADOUT3
SRCK
LRCK
PHCOMPO
EXTCK
CLK121
PCLK
MDQ0
MDQ1
MDQ2
MDQ3
MDQ4
MDQ5
MDQ6
MDQ7
MDQ8
MDQ9
MDQ10
MDQ11
MDQ12
MDQ13
MDQ14
MDQ15
MDQ16
MDQ17
MDQ18
MDQ19
MDQ20
MDQ21
MDQ27
MDQ28
MDQ29
MDQ30
MDQ31
DQM0
DQM1
DQM2
DQM3
XCAS
XRAS
XCSM
XWE
CLK
MCK
MCKI
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
BA0
BA1
LVDD
VDD
VSS
RA3001 1K
RA3002 82
RA3003 82
RA3004 82
RA3007 82
RA3008 82
RA3009 82
RA3010 82
RA3011 82
RA3012 82
RA3013 22
R3001 22
R3010 82
R3010 100
K3002 0 Ω
C3001 6.3V330
C3002 6.3V330
C3003 0.1
C3004 0.1
C3005 0.1
C3006 0.1
C3007 0.1
C3008 0.1
C3009 0.1
C3010 0.1
C3011 0.1
C3012 0.1
C3013 0.1
C3014 0.1
C3015 0.1
C3016 0.1
C3017 0.1
C3030 0.1
C3031 0.1
C3034 0.1
C3035 0.1
C3036 0.1
VDIN0/
VDIN1/
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H

:AUDIO SIGNAL LINE :VIDEO SIGNAL LINE

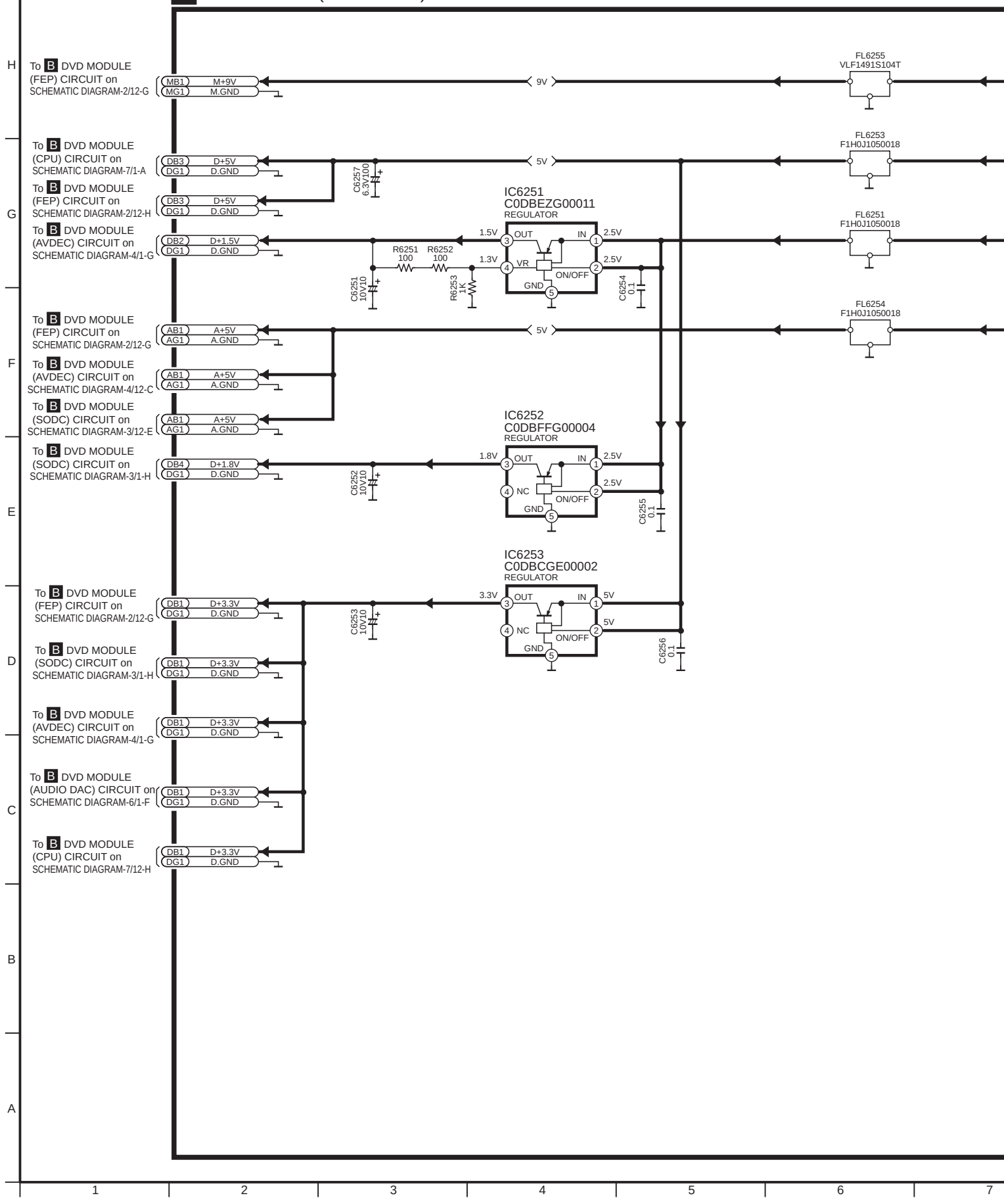


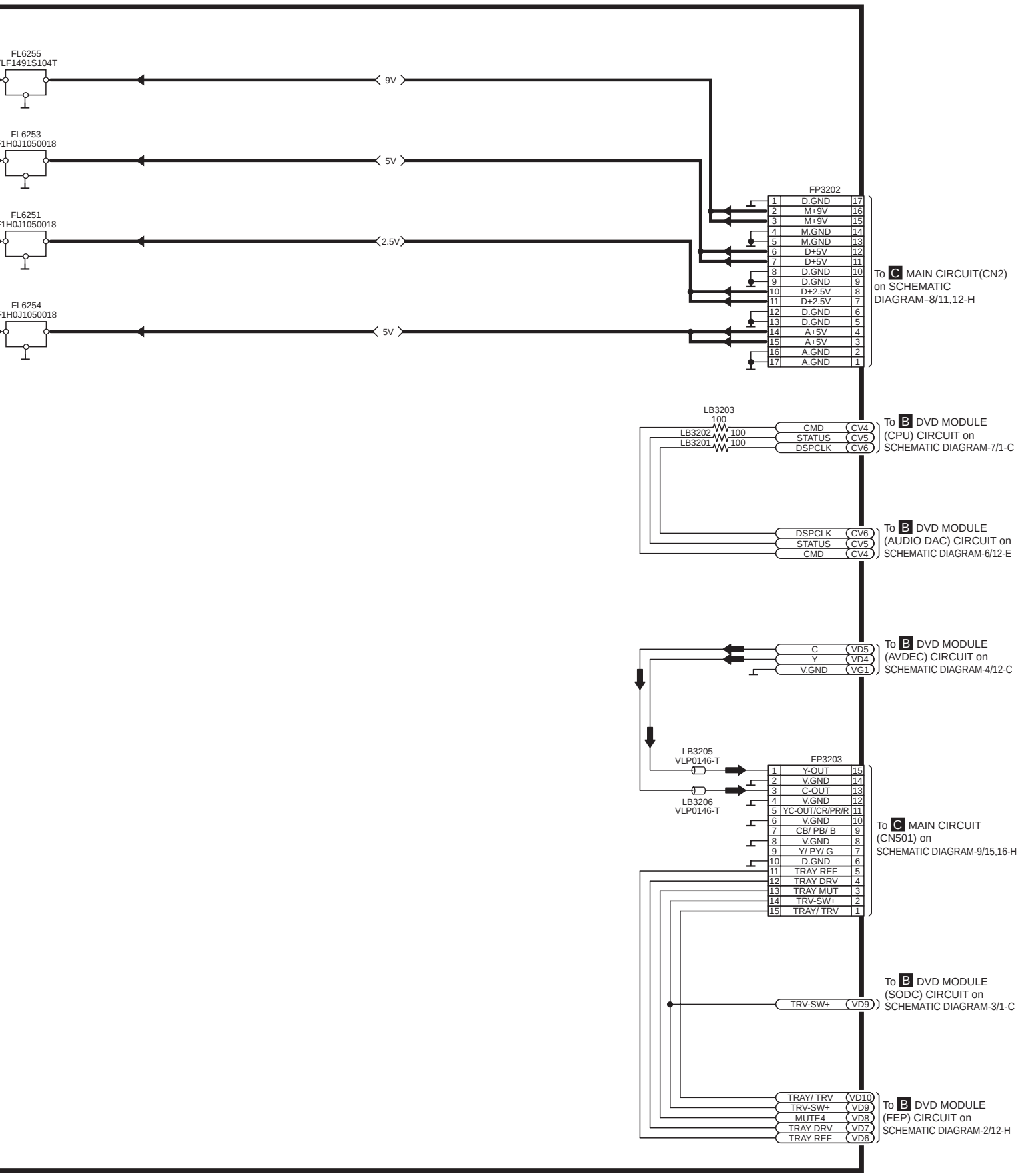
SL-DV290(EE,GN) DVD MODULE(AVDEC) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-5

B DVD MODULE(VIDEO DAC) CIRCUIT

:POSITIVE VOLTAGE LINE :VIDEO SIGNAL LINE



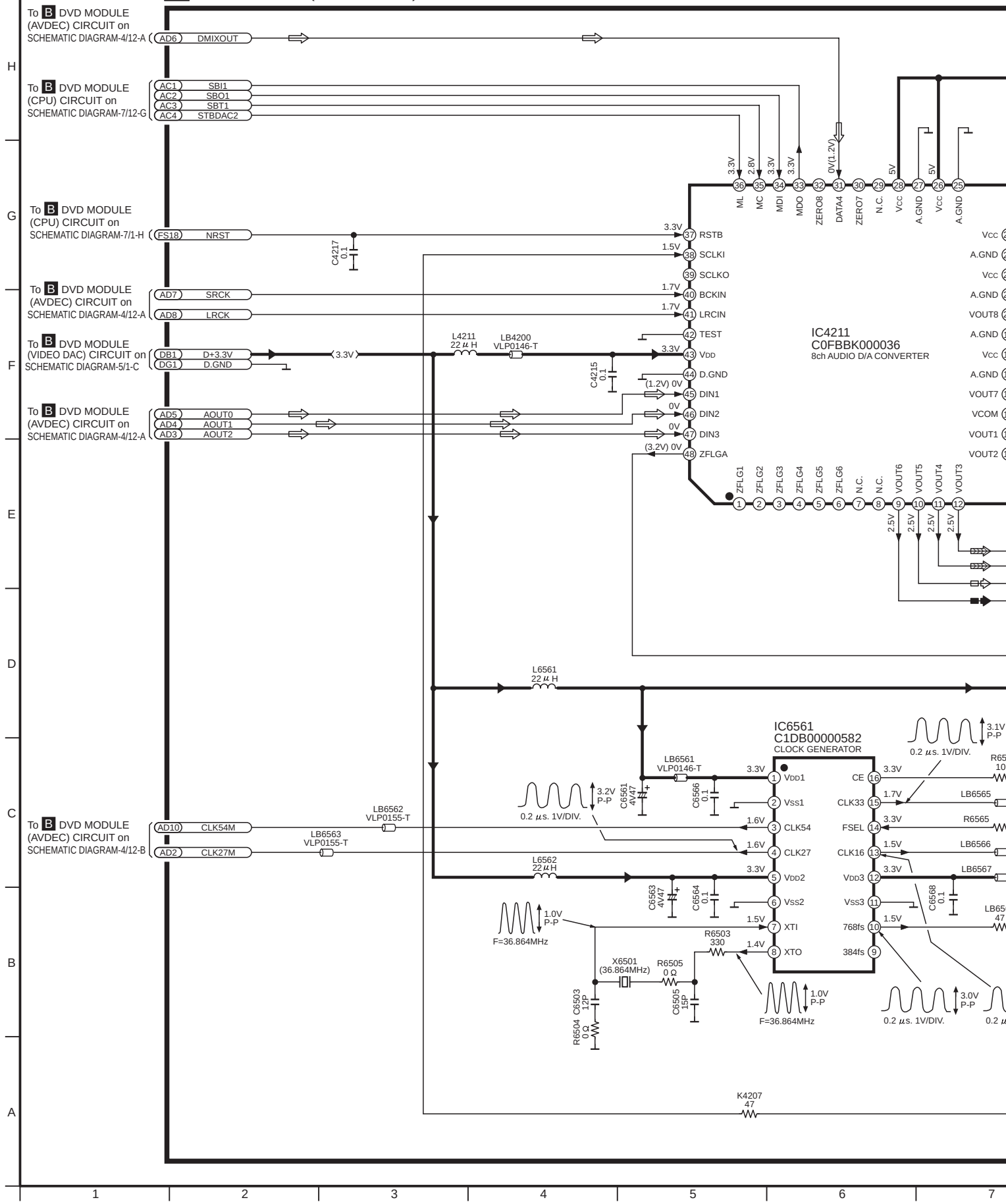


SL-DV290(EE,GN) DVD MODULE(VIDEO DAC) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-6

B DVD MODULE(AUDIO DAC) CIRCUIT

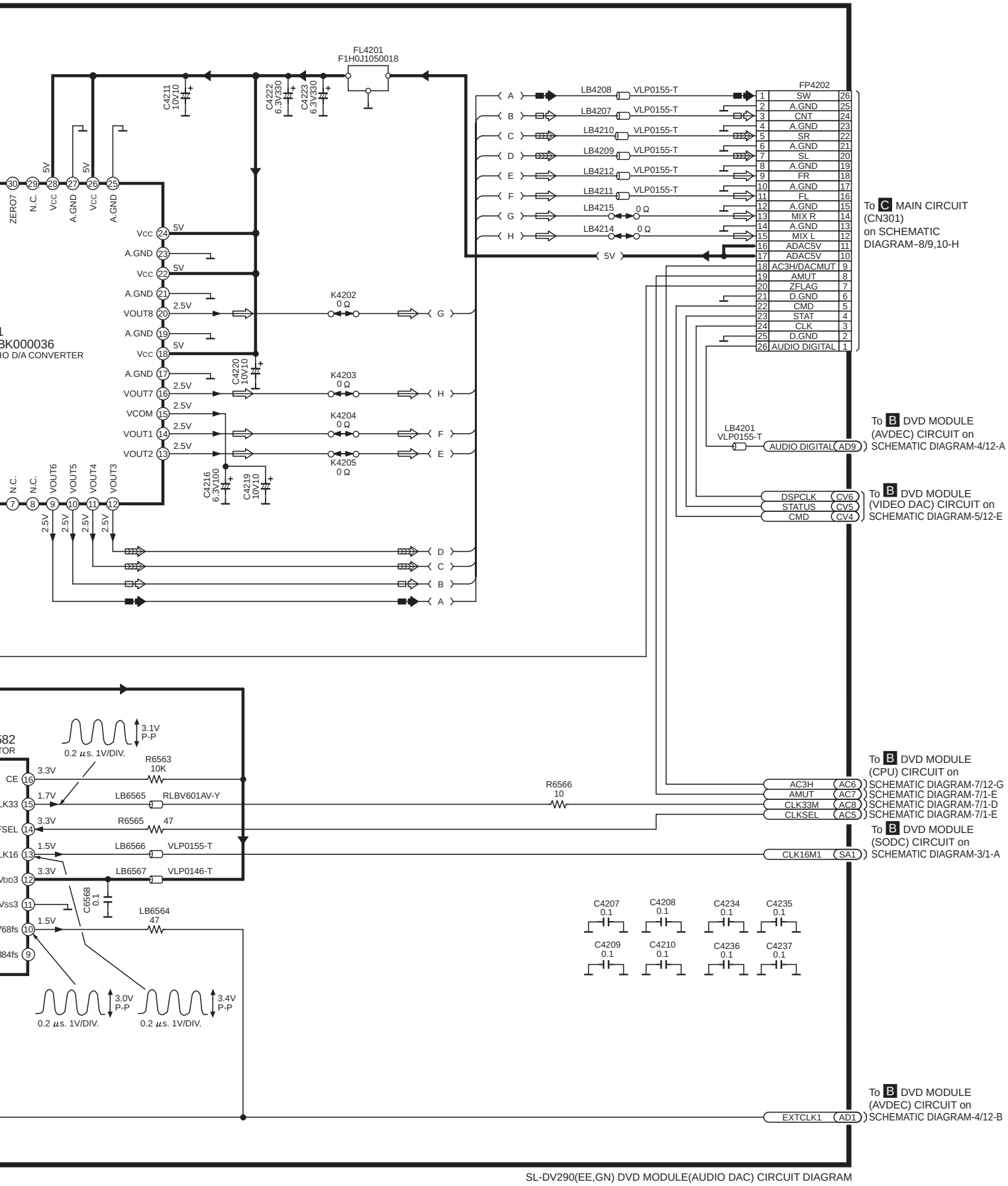
:POSITIVE VOLTAGE LINE :AUDIO SIGNAL LINE :SURROUND SP. SIGNAL



H G F E D C B A

1 2 3 4 5 6 7

:SURROUND SP. SIGNAL LINE :CENTER SP. SIGNAL LINE :SUB WOOFER SIGNAL LINE

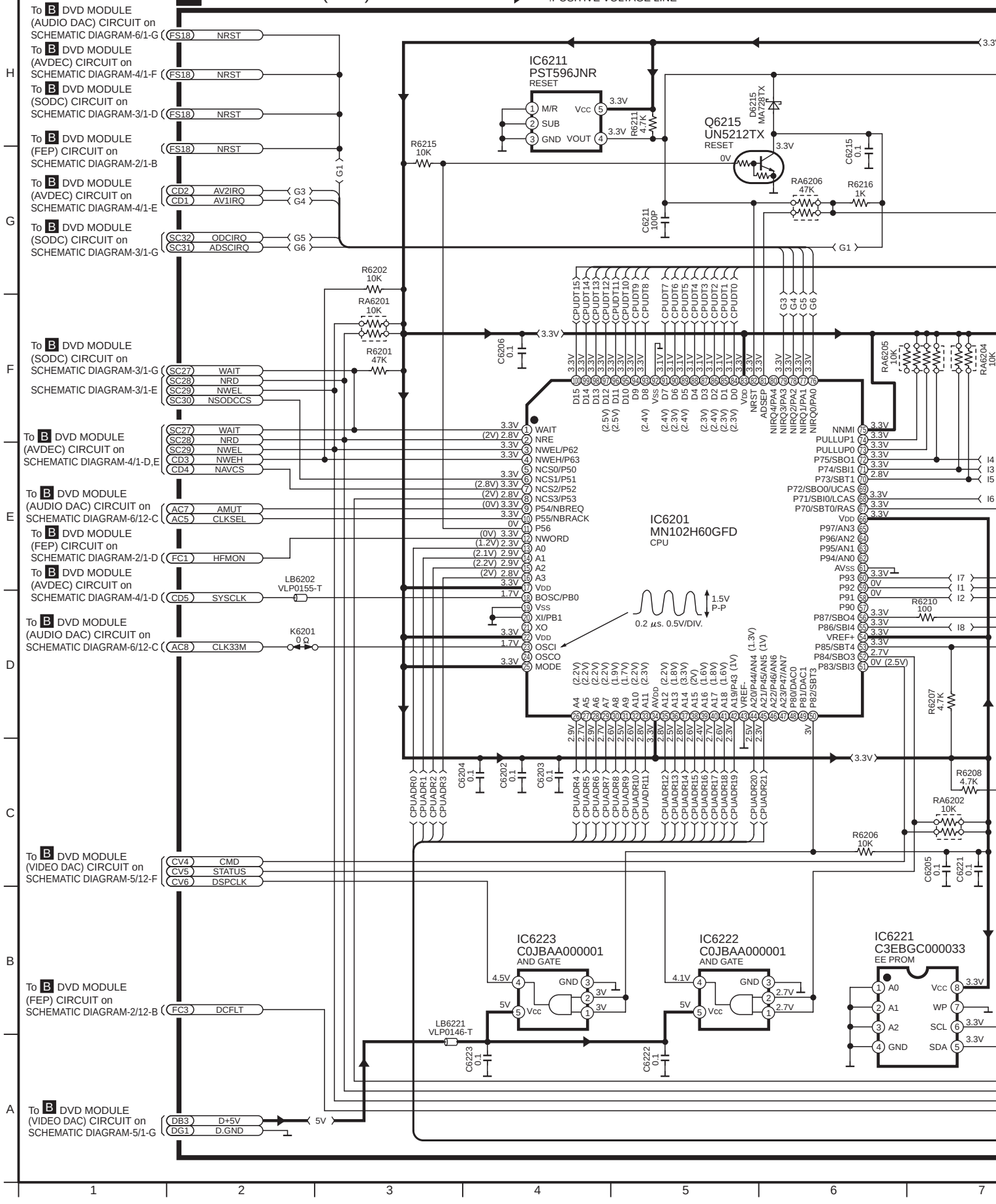


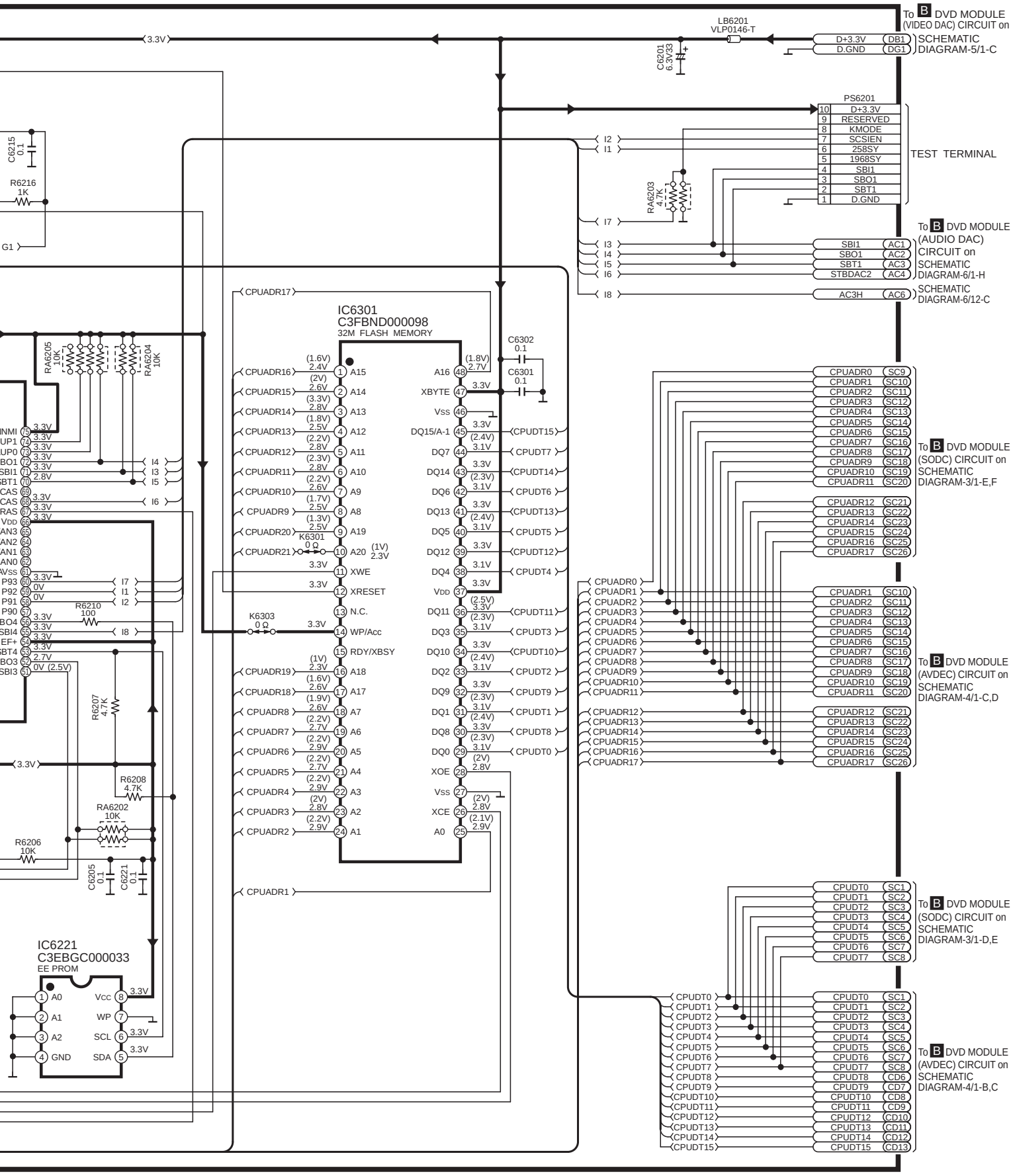
SL-DV290(EE,GN) DVD MODULE(AUDIO DAC) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-7

B DVD MODULE(CPU) CIRCUIT

:POSITIVE VOLTAGE LINE





SL-DV290(EE,GN) DVD MODULE(CPU) CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-8

: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
:SURROUND SP. SIGNAL LINE
:CENTER SP. SIGNAL LINE
:SUB WOOFER SIGNAL LINE

E LOADING MOTOR CIRCUIT

IC1
TA7291P
MOTOR DRIVE

C2 0.01
RM1 (LOADING MOTOR)
R1 1K
C1 16V100
D2 MTZJ4R7BTA
Q1 RVTDTC143EST
MOTOR DRIVE

F CLAMP SW CIRCUIT

S4 (CLAMP)
W2
D1 GP1S94 (POSITION SENSOR)

G BOTTOM SW CIRCUIT

S5 (BOTTOM)
W1

C MAIN CIRCUIT

Q304
2SB621ARSTA
PLUNGER DRIVE

Q305
UN521NTX
PLUNGER DRIVE

D301 MA111TX
R307 1K
R306 10K
D302 D303 D304
D302-304 RL1N4003N02
C305 0.01
PLUNGER
S2 (TRAY POSITION 2 DET.)
S1 (TRAY POSITION 1 DET.)
S3 (OP/ CL DET.)
CN1
CN3
R308 220
C401 6.3V47
C402 50V3.3
D401 MA111TX

D OPERATION CIRCUIT

D608 SML79455C
D601 SELS5923C (CINEMA)
D602 SELS5923C (DOUBLE RE-MASTER)
D603 (DISC5)
D604 (DISC4)
D605 (DISC3)
D606 (DISC2)
D607 (DISC1)
D603-607 LNJ301MPUJAD

C605 0.1
C601 100P
C604 100P
C603 100P
C602 100P
R603 100
R601 100
R604 100
R602 100

IC601
NJU3713GTE1
LED DRIVE

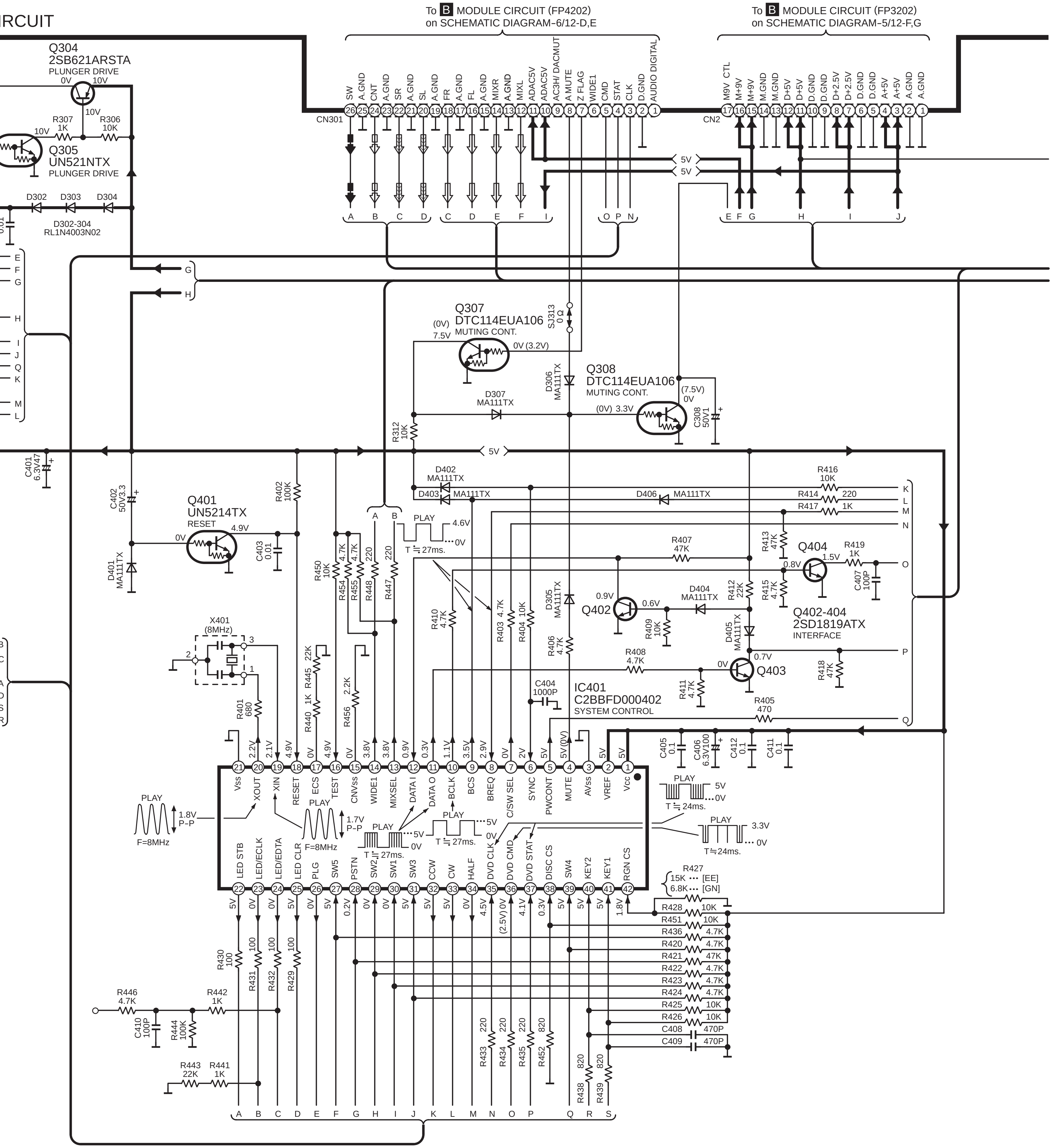
WB601
WA601

S612 (A-B REPEAT)
S613 (REPEAT)
S614 (CD EDIT)
S615 (CINEMA)
S616 (DOUBLE RE-MASTER)
S617 (II)
S618 (■)
S619 (▲)
S620 (▼)
S621 (▲)

S601 (DISC5)
S602 (DISC4)
S603 (DISC3)
S604 (DISC2)
S605 (DISC1)
S606 (DISC1)
S607 (DISC2)
S608 (DISC3)
S609 (DISC4)
S610 (DISC5)
S611 (OPEN/CLOSE)
(DIRECT OPEN)

R446 4.7K
C410 100P

IRCUIT



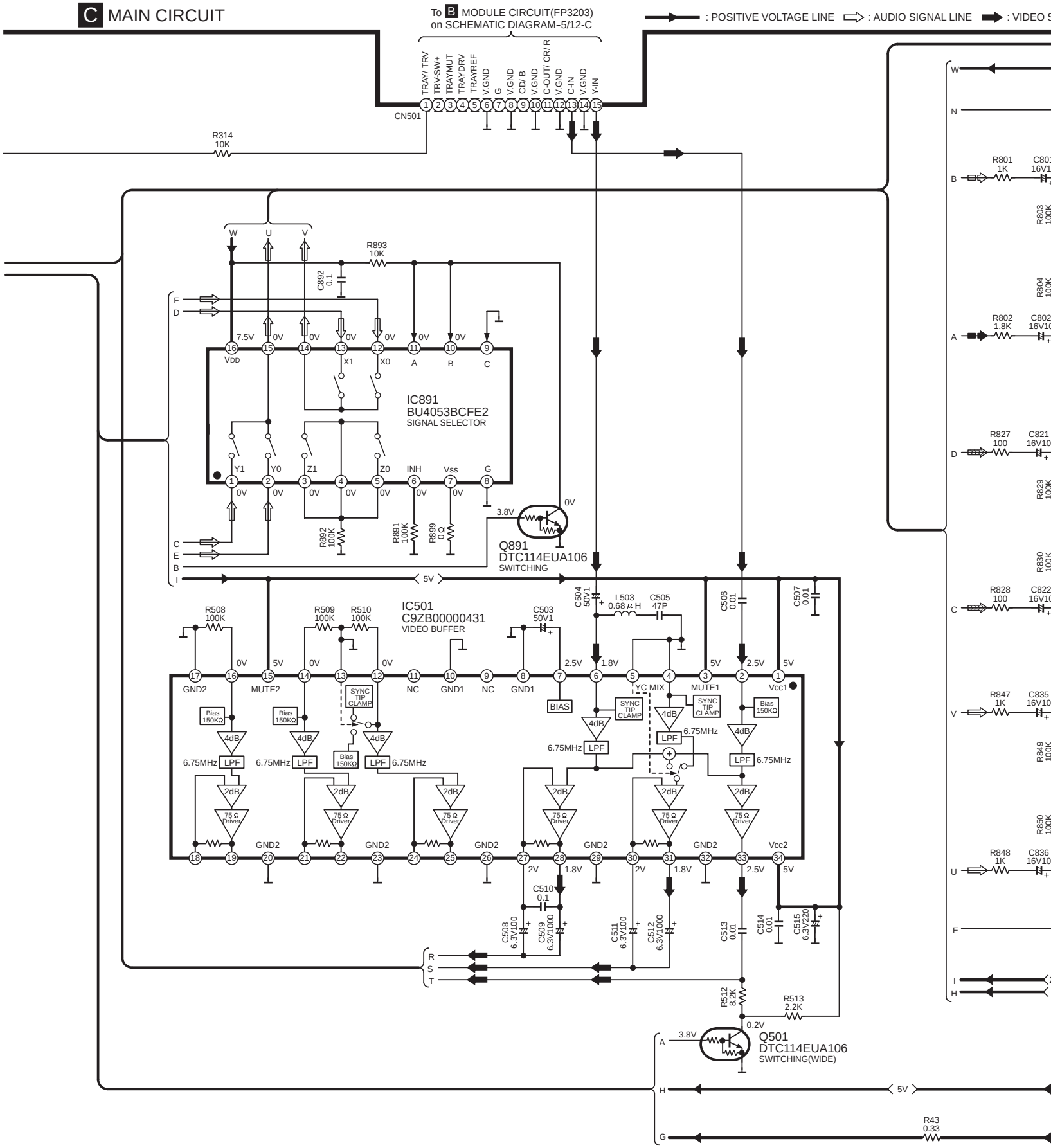
To B MODULE CIRCUIT (FP4202) on SCHEMATIC DIAGRAM-6/12-D,E
To B MODULE CIRCUIT (FP3202) on SCHEMATIC DIAGRAM-5/12-F,G
CN301
SW
A.GND
CNT
A.GND
SR
A.GND
SL
A.GND
FR
A.GND
FL
A.GND
MIXR
A.GND
MIXL
ADAC5V
ADAC5V
AC3H/ DACMUT
A MUTE
Z FLAG
WIDE1
CMD
STAT
CLK
D.GND
AUDIO DIGITAL
CN2
M9V CTL
M+9V
M+9V
M.GND
M.GND
D+5V
D+5V
D.GND
D+2.5V
D+2.5V
D.GND
D.GND
A+5V
A+5V
A.GND
A.GND
Q304
2SB621ARSTA
PLUNGER DRIVE
Q305
UN521NTX
PLUNGER DRIVE
R307 1K
R306 10K
D302
D303
D304
D302-304
RL1N4003N02
Q307
DTC114EUA106
MUTING CONT.
SJ313 0 Ω
Q308
DTC114EUA106
MUTING CONT.
D306 MA111TX
D307 MA111TX
R312 10K
C308 50V1
C401 6.3V47
C402 50V3.3
Q401
UN5214TX
RESET
D401 MA111TX
R402 100K
C403 0.01
X401 (8MHz)
R401 680
D402 MA111TX
D403 MA111TX
D406 MA111TX
R416 10K
R414 220
R417 1K
R413 47K
Q404
R419 1K
C407 100P
R407 47K
Q402
D404 MA111TX
R412 22K
R415 4.7K
Q402-404
2SD1819ATX
INTERFACE
D405 MA111TX
R409 10K
R408 4.7K
Q403
R411 4.7K
R418 47K
R405 470
D305 MA111TX
R406 4.7K
C404 1000P
IC401
C2BBFD000402
SYSTEM CONTROL
C405 0.1
C406 6.3V100
C412 0.1
C411 0.1
R450 10K
R454 4.7K
R455 4.7K
R448 220
R447 220
R445 22K
R440 1K
R456 2.2K
R410 4.7K
R403 4.7K
R404 10K
PLAY
T ≒ 27ms.
T ≒ 24ms.
F=8MHz
1.8V P-P
1.7V P-P
Vss
XOUT
XIN
RESET
ECS
TEST
CNVss
WIDE1
MIXSEL
DATA I
DATA O
BCLK
BCS
BREQ
C/SW SEL
SYNC
PWCONT
MUTE
AVss
VREF
Vcc
LED STB
LED/ECLK
LED/EDTA
LED CLR
PLG
SW5
PSTN
SW2
SW1
SW3
CCW
CW
HALF
DVD CLK
DVD CMD
DVD STAT
DISC CS
SW4
KEY2
KEY1
RGN CS
R427
15K ••• [EE]
6.8K ••• [GN]
R428 10K
R451 10K
R436 4.7K
R420 4.7K
R421 47K
R422 4.7K
R423 4.7K
R424 4.7K
R425 10K
R426 10K
C408 470P
C409 470P
R430 100
R431 100
R432 100
R429 100
R446 4.7K
R442 1K
C410 100P
R444 100K
R443 22K
R441 1K
R433 220
R434 220
R435 220
R452 820
R438 820
R439 820

SL-DV290(EE,GN) LOADING MOTOR,CLAMP SW,BOTTOM SW,OPERATION,MAIN CIRCUIT DIAGRAM

7	8	9	10	11	12

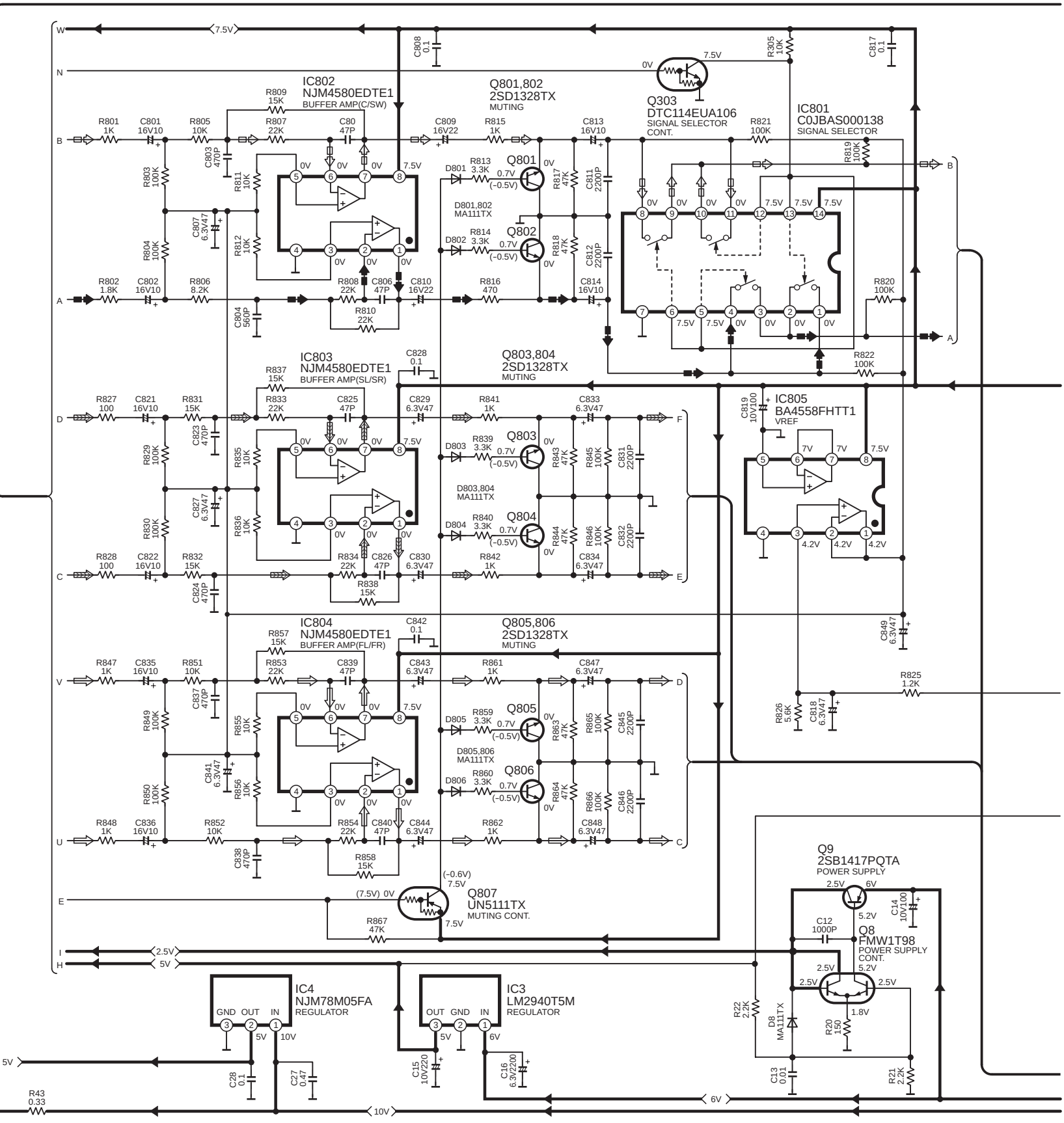
SCHEMATIC DIAGRAM–9

C MAIN CIRCUIT



13	14	15	16	17	18	19

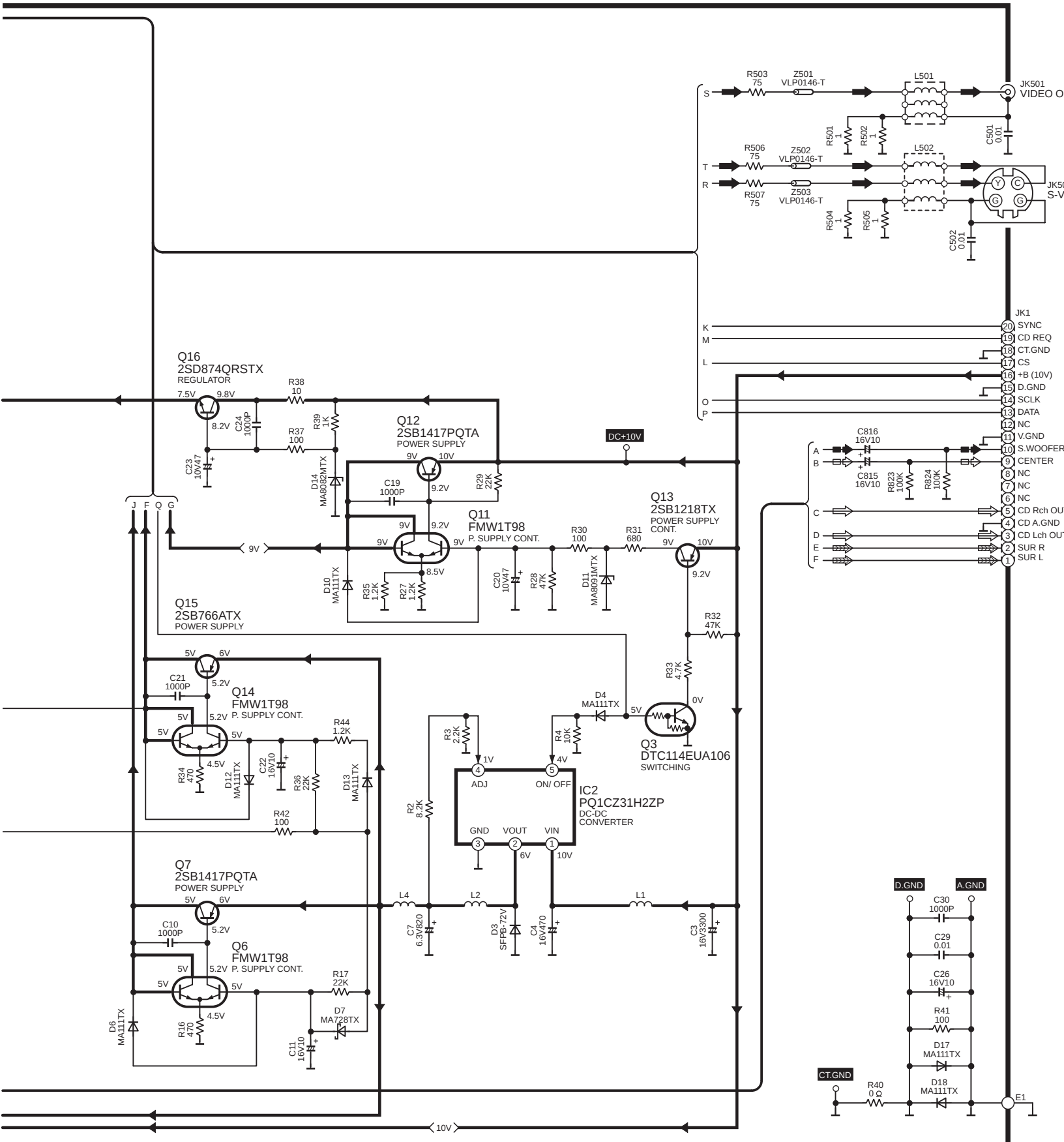
IO SIGNAL LINE : VIDEO SIGNAL LINE :SURROUND SP. SIGNAL LINE :CENTER SP. SIGNAL LINE :SUB WOOFER SIGNAL LINE



SCHEMATIC DIAGRAM-10

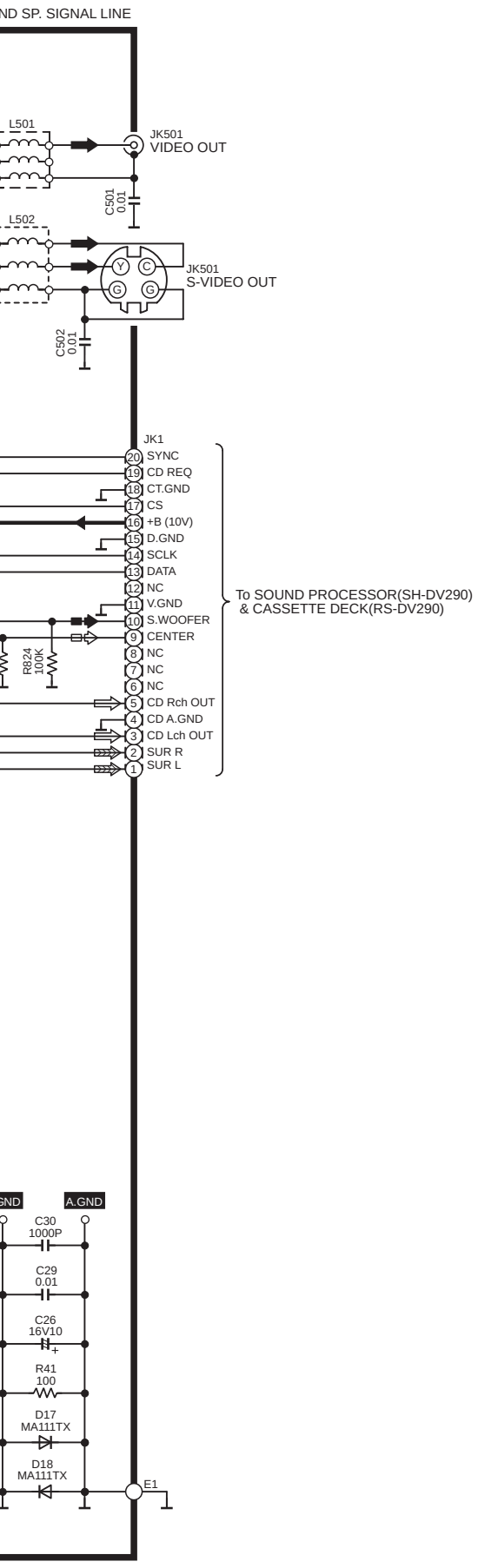
C MAIN CIRCUIT

: POSITIVE VOLTAGE LINE
: AUDIO SIGNAL LINE
: VIDEO SIGNAL LINE
:CENTER SP. SIGNAL LINE
:SUB WOOFER SIGNAL LINE
:SURROUND SP. SIGNAL LINE



SL-DV290(EE,GN) MAIN CIRCUIT DIAGRAM

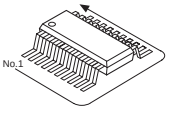
25	26	27	28	29	30



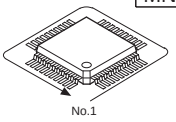
N CIRCUIT DIAGRAM

H G F E D C B A

30 31 32 33 34 35 36

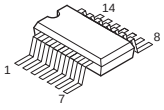


C1DB00000582	16PIN	C9ZB00000431	34PIN
C2BBFD000402	42PIN	BU4053BCFE2	16PIN
NJM4580EDTE1	8PIN	C3ABPG000121	54PIN
NJU3713GTE1	18PIN		

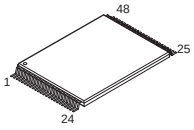


C0FBBK000036	48PIN	MN103S26EGA	176PIN
MN102H60GFD	100PIN	AN22030A-VT	64PIN
MN6775511	208PIN		

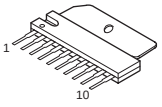
C0JBAS000138



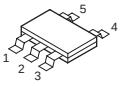
C3FBND000098



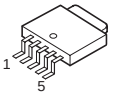
TA7291P



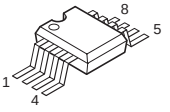
PST596JNR
C0JBAA000001
C0JBAS000116



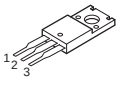
PQ1CZ31H2ZP
C0DBEZG00011
C0DBFFG00004
C0DBCGE00002



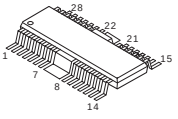
BA4558FHTT1
C3EBGC000033



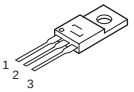
NJM78M05FA



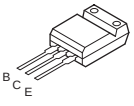
C0GBG0000033

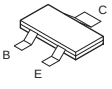


LM2940T5M



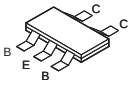
2SB1417PQTA



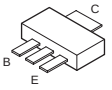


2SB1218TX UN2121-TX
2SD1328TX UN5111TX
2SD1819ATX UN5212TX
DTC114EUA106 UN5214TX
UN511MTX UN521NTX
UN5211TX

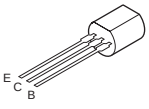
FMW1T98



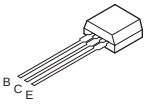
2SB1115-T
2SB766ATX
2SD874QRSTX



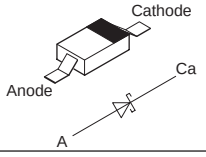
2SB621ARSTA



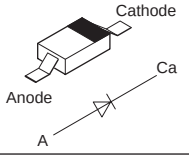
RVTDTC143EST



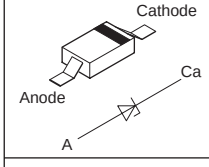
MA728TX



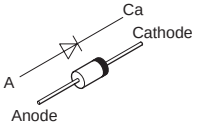
MA111TX
SFPB-72V



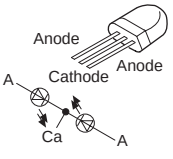
MA8082MTX
MA8091MTX



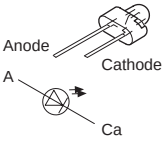
RL1N4003N02



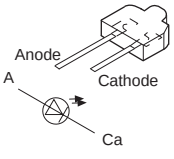
SML79455C



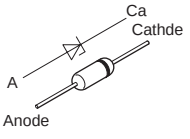
LNJ301MPUJAD



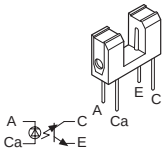
SELS5923C

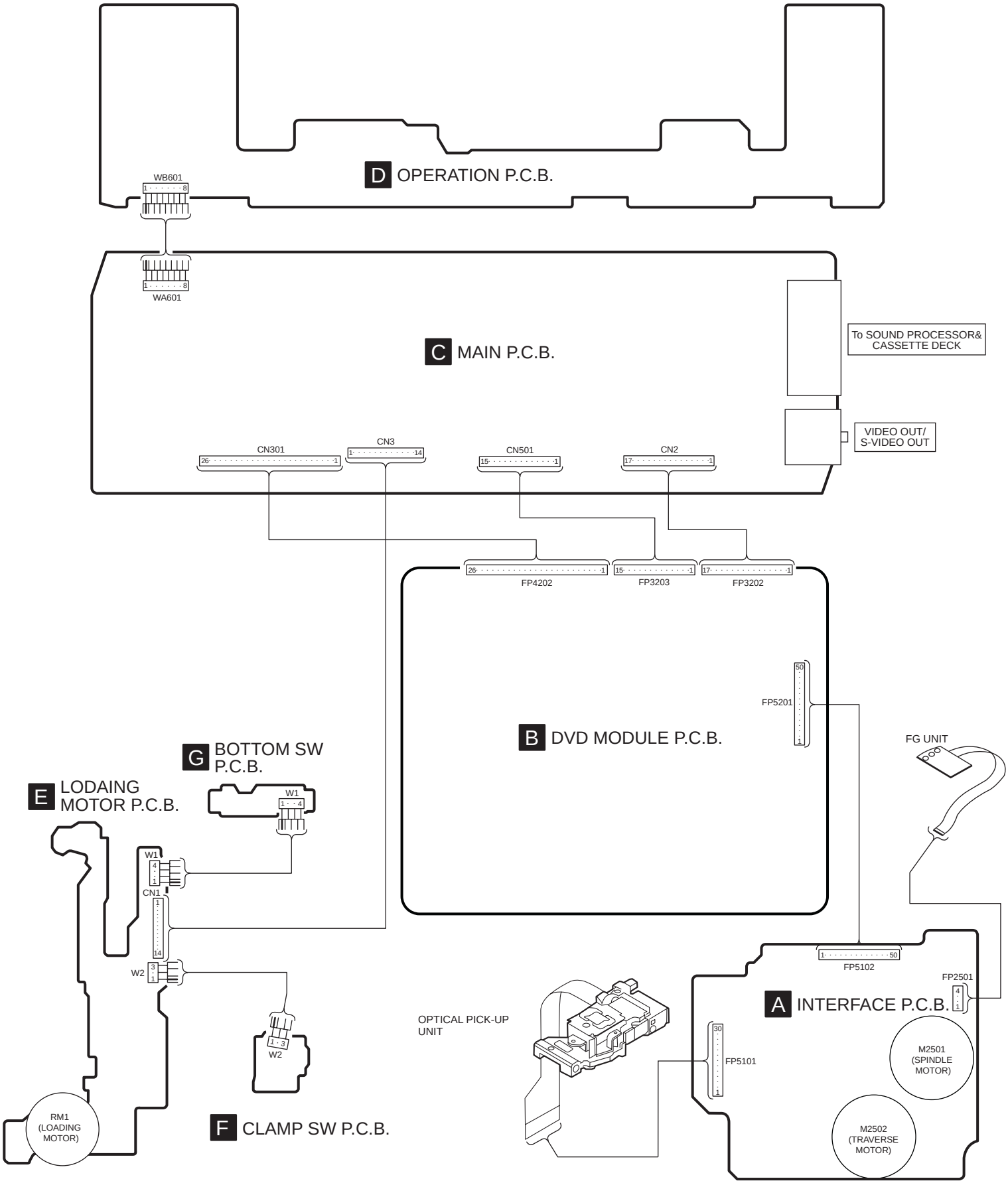


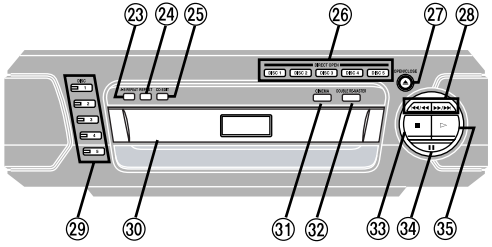
MTZJ4R7BTA



GP1S94




D OPERATION P.C.B.
WB601
WA601
C MAIN P.C.B.
To SOUND PROCESSOR& CASSETTE DECK
VIDEO OUT/ S-VIDEO OUT
CN301
CN3
CN501
CN2
FP4202
FP3203
FP3202
B DVD MODULE P.C.B.
FP5201
FG UNIT
G BOTTOM SW P.C.B.
E LODAING MOTOR P.C.B.
W1
CN1
W2
RM1 (LOADING MOTOR)
F CLAMP SW P.C.B.
OPTICAL PICK-UP UNIT
FP5102
FP2501
A INTERFACE P.C.B.
FP5101
M2501 (SPINDLE MOTOR)
M2502 (TRAVERSE MOTOR)



㉓ **A-B repeat button (A-B REPEAT)**
㉔ **Repeat play button (REPEAT)**
㉕ **CD edit button (CD EDIT)**
㉖ **Disc direct open buttons (DIRECT OPEN, DISC 1–DISC 5)**
㉗ **Disc tray open/close button (⏏, OPEN/CLOSE)**
㉘ **Skip/search buttons (|◀◀/◀◀, ▶▶/▶▶|)**
㉙ **Disc select buttons and indicators (DISC, 1–5)**
Green: Indicates that the tray is ready to play its disc or to be opened.
㉚ **Disc tray**
㉛ **Cinema mode button and indicator (CINEMA)**
㉜ **Double re-master button and indicator (DOUBLE RE-MASTER)**
㉝ **Stop button (■)**
㉞ **Pause button (❚❚)**
㉟ **Play button and indicator (▷)**
The colour of the indicator depends on the operation taking place.
If stopped: orange
If playing: green
If paused: flashes green
When the resume function is on: flashes orange

AN22030A-VT
IC5201
FRONT END PROCESSOR

OPTICAL PICK-UP UNIT

PHOTO DETECTOR
B1 B2 A1 A2 A4 A3 B4 B3
HEAD AMP

LASER DIODE
Q5111 LASER P.DRIVE
LASER DIODE
Q5115 LASER P.DRIVE
LPC AMP

A+5V
D5151
QR5221 POWER SUPPLY D+3.3V

MONI
MONI2
ADD
ADD
AMP
HPF COMP
EQ
DEFFERENTIAL PHASE DET.
NW DET.
LEVEL CONT.
FBAL
TBAL
HOLD
TE FLT
S LINE
L.P.F.
ENV DET.
DPDOFT DET.
MIRROR DET.
BDO DET.
AGC CONT.
FC CONT.
BOOST CONT.
EQ
VGA
GD CONT.
REG-LOGIC

57	MONI	48	PEAK
10	MONI2	12	RFTE
53	VIN7	49	RFENV
54	VIN8	9	TE FLT
58	VIN1	11	TE
59	VIN2	13	FS
60	VIN3	27	RSCL
61	VIN4	14	FE
51	VIN5	8	TBAL
52	VIN6	7	FBAL
62	VIN9	36	DCFLT
63	VIN10	22	BDO
2	LPCO1	34	FLTOP
1	LPC1	35	FLTON
4	LPCO2	37	SAG
3	LPC2	21	OFTR
44	CRFHP1	39	AGCG2
45	CRFHP2	38	AGCG1
46	RFINP	29	BDOSL
47	RFINN	30	MIRSL
43	TESTSG		
24	SHOLD		
41	SHORT		
23	DTRD		

42	IDGT	5	POFLT
17	STANBY	15	VHALF
19	SCK	55	VREF
18	SEN	32	RBCA
20	STDIO	56	VREFRF
		31	DCAGC
		64	GND
		28	GND2
		16	VSS
		50	VCC1
		33	VCC2
		25	VDD

Q2001 RF AMP A+5V
CRnet.

98	RFDIF
96	HPFIN
95	HPFOUT
92	LPFOUT
93	LPFIN
120	AD3
4,19,32, 60,77,81, 126,144, 155,163,170	VSS
118	AD1
119	AD2
117	AD0
65	TBAL
66	FBAL
85,94, 102,113	AVSS
52	BDO
111	ARF
110	NARF
51	OFTR
104	VREF2
75	IDGT
83	VFOSHORT
74	DTRD

Q5271 SWITCH-ING

C0JBAS000116
IC2101
LOGIC CONTROL

D2001 S2501 (REST DET.)

MN103S26EGA
IC2001
OPTICAL DISC CONTROL

61	PWM5	149,151,158,160, 164,166,168,172	HDD8~15
		3,31,57, 78,125,143, 156,162,169	VDD3 D+3.3V
		88,99, 109,116	AVDD D+3.3V
		174	VDDH D+3.3V
		67	TRSDRV
		106	VHALF
		18,76, 152	VDD18 D+1.8V
		68	SPDRV
		122	CAPAC2
		114	DAC0
		20,58	DRAMVDD18 D+1.8V
		33	DRAMVDD33 D+3.3V
		70	TIL TP
		71	TILT
		115	DAC1
		21	DRAMVSS
		47	NRST
		6	WAITODC
		69	FG
		56	PWM4
82	TSTSG		
53	PWM1		
54	PWM2		
55	PWM3		
9~17, 22~30	CPUADR0~17		
37~44	CPUDT0~7		
35	NWR		
36	NRD		
79	OSCI1		

NRST
WAIT

IDGT NRST FEPCLK FEPENB FEPDATA
VHALF VREF2
DCFLT
VREF2 IDGT VFOSHORT DTRD
TSTSG FEPDATA FEPCLK FEPENB
CPUADR0~17 CPUDT0~7 NWEL NRD CLK16M
HFMON

C0GBG0000033
IC2501
FOCUS/TRACKING
COIL,SPINDLE/TRAVERSE
MOTOR DRIVE

D+5V
M+9V
8 VCC
21 VCC
22 PREVCC

26 TRIN
1 BIAS1
23 VIN3
6 OPOUT
2 VIN1
24 LDIN
25 BIAS2
27 MUTE3
9 MUTE12
3 VIN2
28 LDCNT
7,10, 19 GND

CH3 MUTE
CH1,2 MUTE
LEVEL SHIFT

VO4+ 15
VO4- 16
OPIN+ 4
VO3+ 17
VO3- 18
OPIN- 5
VO1+ 14
VO1- 13
VO2+ 12
VO2- 11

M2502 (TRAVERSE MOTOR)
M2501 (SPINDLE MOTOR)
TRACKING COIL
FOCUS COIL
OPTICAL PICKUP UNIT

D+5V D+3.3V
VHALF

C0DBCGE00002
IC6253
D+5V → REGULATOR → D+3.3V

C0DBEZG00011
IC6251
D+2.5V → REGULATOR

C0DBFFG00004
IC6252
D+2.5V → REGULATOR → D+1.8V

C3ABPG000121
IC3061
MEMORY
D+3.3V 1,14,27 VDD

C3ABPG000121
IC3062
MEMORY
D+3.3V 3,9,43, 49, VDDQ

A0~11 ← 22~26, 29~35
DQ0~15 ← 2,4,5,7,8, 10,11,13,42, 44,45,47,48, 50,51,53
LDQM 15
/RAS 18
/CAS 17
/WE 16
/CS 19
CLK 38
VSS 28,41, 54
VSSQ 6,12, 46,52

FG UNIT
QR5241
POWER SUPPLY
D+3.3V

HFMON
DCFLT

C3EBGC000033
IC6221
EE PROM
D+3.3V → 8 VCC
4 GND
SDA 5
SCL 6

Q6215
RESET
NRST

67 RAS
12 NWORD

SBO4 56
SBT4 53
P56 11
NIRQ3 79
NIRQ2 78
LCAS 68
NWEH 4
NCS2 7
BOSC 18
NRE 2
NWEL 3
WAIT 1
SBT1 70
SBO1 72
SBI1 71
OSCI 23
EXTCK 100
NBRACK 10
D0~15 ← 84~91, 93~100
A0~21 ← 13~16, 26~33, 35~42, 44,45
NBREQ 9
SBI3 51

AV2IRQ
AV1IRQ
STBDAC2
NWEH
NAVCS
SYSCLK
NRD
NWEL
WAIT
SBT1
SBO1
SBI1
CLK33M
EXTCLK
CLKSEL
CPUDT0~15
CPUADR0~21
AMUT
DCMD
DCLK
DSTAT

MN102H60GFD
IC6201
CPU

VDD 17,22, 66,83 → D+3.3V
AVDD 34 → D+3.3V
VREF+ 54 → D+3.3V
VREF- 43
VSS 19,92
AVSS 61
NCS3 8
NRST 82

SBT3 50 → C0JBAA000001 IC6223 AND GATE
SBO3 52 → C0JBAA000001 IC6222 AND GATE

D+3.3V → RESET PST596JNR IC6211

MN6775511
IC3001
AV DECODER

81~88 STD0~7
5,15,26,39,52,58,66,75,89,103,131,144,152,157,165,175,184,194,203 VDD
12,30,48,69,98,127,135,172,186 LVDD
105 PLLAVDD
112,118 AVDD
176~179,181~183,189,191,192,196 MA0~11
2~4,6~9,11,13,14,16~18,150,151,153~155,158~160,162~164,166~169,171,205~207 MDQ0~31
174,204 DQM1,2
200 XRAS
201 XCAS
193 XWE
198 XCSM
185 MCKI
187 MCK

SRCK 96
LRCK 97
ADOUT0 91
ADOUT1 92
ADOUT2 93
ADOUT3 94
PLLVSS 107
113,121 AVSS
1,10,19,34,44,53,62,71,80,95,104,122,139,148,156,161,170,180,190,199,208 VSS
DAC5OUT 120
DAC4OUT 116
PCLK 102

XWRH 25
XDK 24
XHINT2 23
XHINT 22
XRST 21
VCLK 128
32,33,35~38,40~43,45~47,49~51,54 HA1~17
55~57,59~61,63~65,67,68,70,76,72~74 HD0~15
XCS 29
HCLK 31
XRD 28
XWR 27

NWEH
WAIT
AV2IRQ
AV1IRQ
NRST
CLK27M
CPUADR1~17
NAVCS
SYSCLK
NRD
NWEL

C0FBBK000036
IC4211
8CH AUDIO D/A CONVERTER

BCKIN 40
LRCIN 41
DIN1 45
DIN2 46
DIN3 47
DATA4 31
NRST 37 RSTB
STBDAC2 36 ML
SBT1 35 MC
SBO1 34 MDI
SBI1 33 MDO

SERIAL INPUT I/F
FUNCTION CONTROL I/F
OVERSAMPLING DIGITAL FILTER WITH FUNCTION CONTROLLER
ENHANCED MULTI-LEVEL DELTA-SIGMA MODULATOR
SYSTEM CLOCK MANAGER
SYSTEM CLOCK
ZERO DETECT
DAC
OUTPUT AMP AND LOW-PASS FILTER

VOUT1 (VOUT2) 14 (13)
VOUT3 (VOUT4) 12 (11)
VOUT6 9
VOUT5 10
VOUT7 (VOUT8) 16 (20)

SCLKI 38
ZFLG1~6 1~6
ZERO8 32
ZERO7 30
ZFLGA 48
VCC 18,22,24,26,28 ADAC5V
AGND 17,19,21,23,25,27
DGND 44
VDD 43 D+3.3V

BU4053BCFE2
IC891
SIGNAL SELECTOR
13(1) 14(15)
12(2) GND 8
7 VSS 3
4
5
+B2 16
SW CONT.
INH 6
A B C
11 10 9

Q891
SWITCH-ING
MIXSEL
ZFLAG

C9ZB00000431
IC501
VIDEO BUFFER
A+5V 15
MUTE2

YC-MIX 5
C IN 2 Bias 150kΩ 4dB LPF 6.75MHz 2dB 75Ω Driver C OUT 33
V IN 4 Sync tip clamp 4dB LPF 6.75MHz 2dB 75Ω Driver VOUT 31 VSAG 30
Y IN 6 Sync tip clamp 4dB LPF 6.75MHz 2dB 75Ω Y OUT 28 YSAG 27
CY IN 12 4dB LPF 6.75MHz 2dB 75Ω CY OUT 25 CYSAG 24
CLP 13 Sync tip clamp Bias 150kΩ
Cb IN 14 Bias 150kΩ 4dB LPF 6.75MHz 2dB 75Ω Cb OUT 22 Cb SAG 21
Cr IN 16 Bias 150kΩ 4dB LPF 6.75MHz 2dB 75Ω Cr OUT 19 Cr SAG 18

MUTE1 3 A+5V
Vcc1 1 A+5V
Vcc2 34 A+5V
GND1 8,10
GND2 17,20,23,26,29,32

S-VIDEO OUT
VIDEO OUT

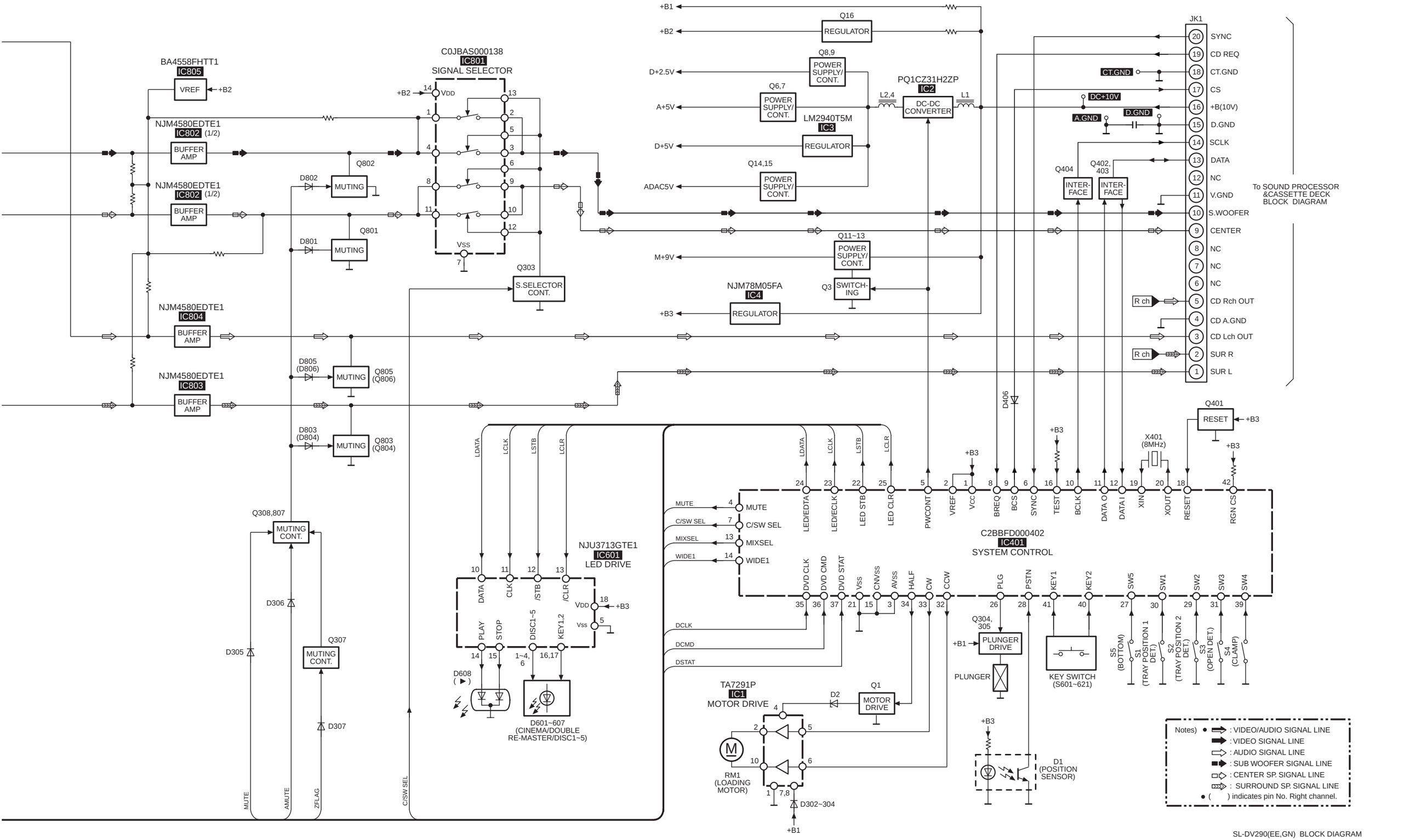
Q501
SWITCH-ING
WIDE1

C3FBND000098
IC6301
32M FLASH MEMORY

NRD
NWEL
CPUADR1~21
CPUDT0~15
11 XWE
28 XOE
47 XBYTE D+3.3V
12 XRESET
XCE 26
A0~20 1~10,16~25,48
DQ0~15 29~36,38~45
WP/ACC 14 D+3.3V
VDD 37 D+3.3V
VSS 27,46

C1DB00000582
IC6561
CLOCK GENERATOR

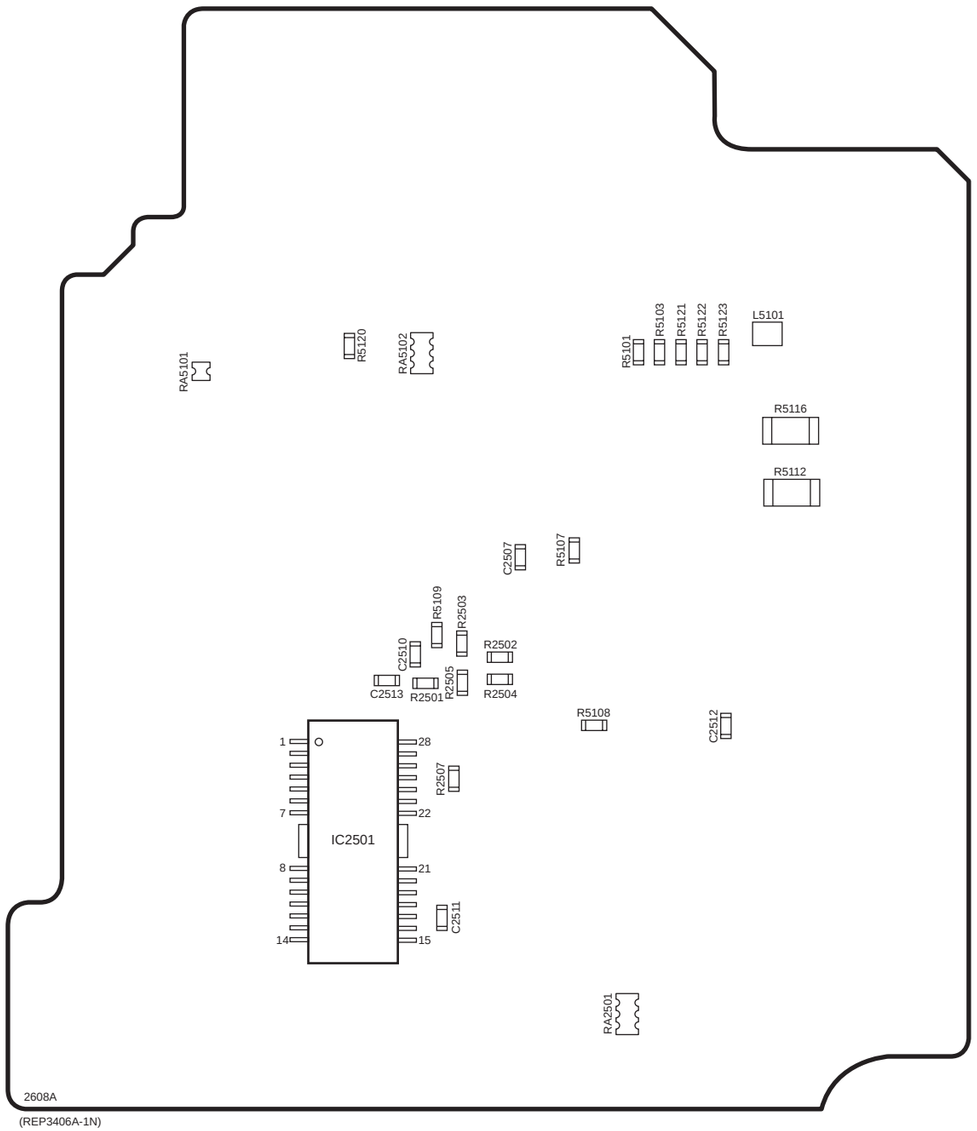
CLK54 3
CLK27 4
CLK16 13
FSEL 14
CLK33 15
768fs 10
EXTCLK
VDD1 1 D+3.3V
VDD2 5 D+3.3V
VDD3 12 D+3.3V
CE 16 D+3.3V
XTI 7
XTO 8
VSS1 2
VSS2 6
VSS3 11
X6561 (36.864MHz)



SL-DV290(EE,GN) BLOCK DIAGRAM

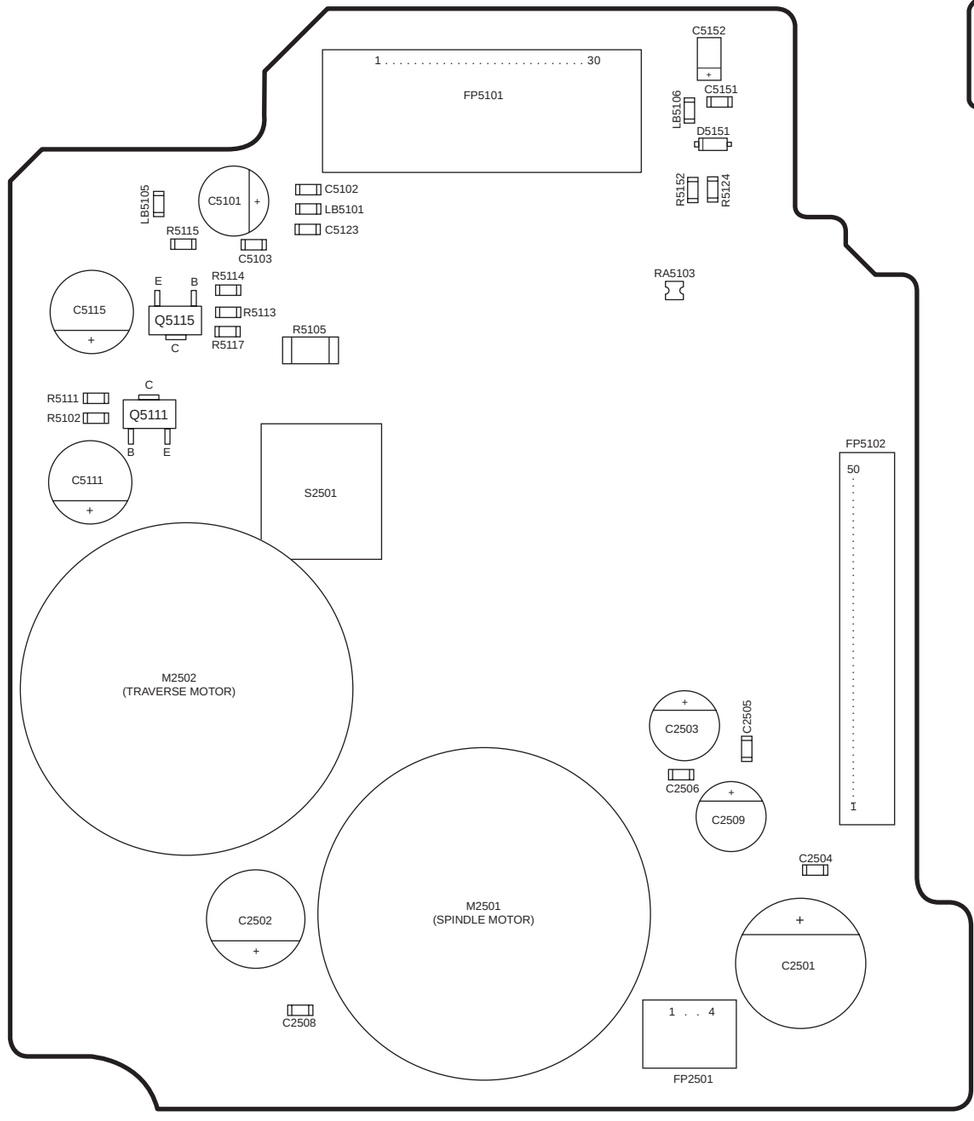
Note: This printed circuit board diagram may be modified at any time with the development of new technology.

A INTERFACE P.C.B. (SIDE : A)

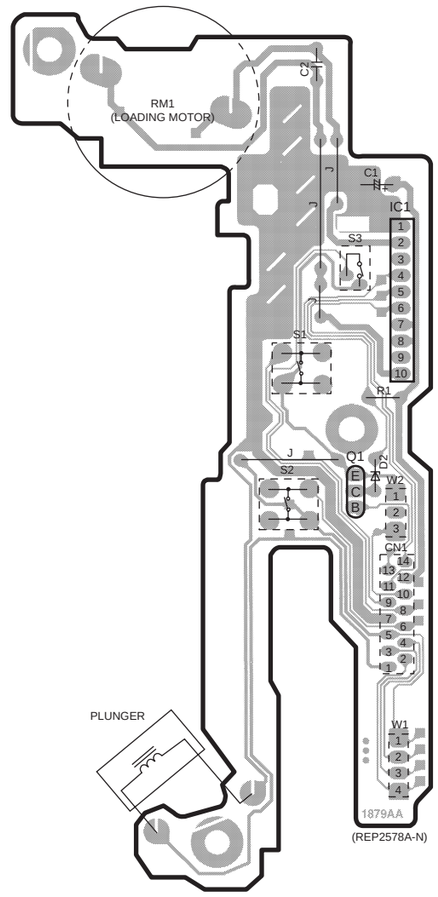


(REP3406A-1N)

A INTERFACE P.C.B. (SIDE : B)

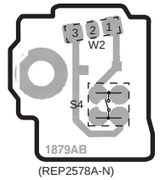


E LOADING MOTOR P.C.B.



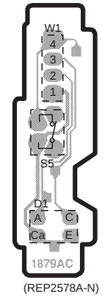
(REP2578A-N)

F CLAMP SW P.C.B.



(REP2578A-N)

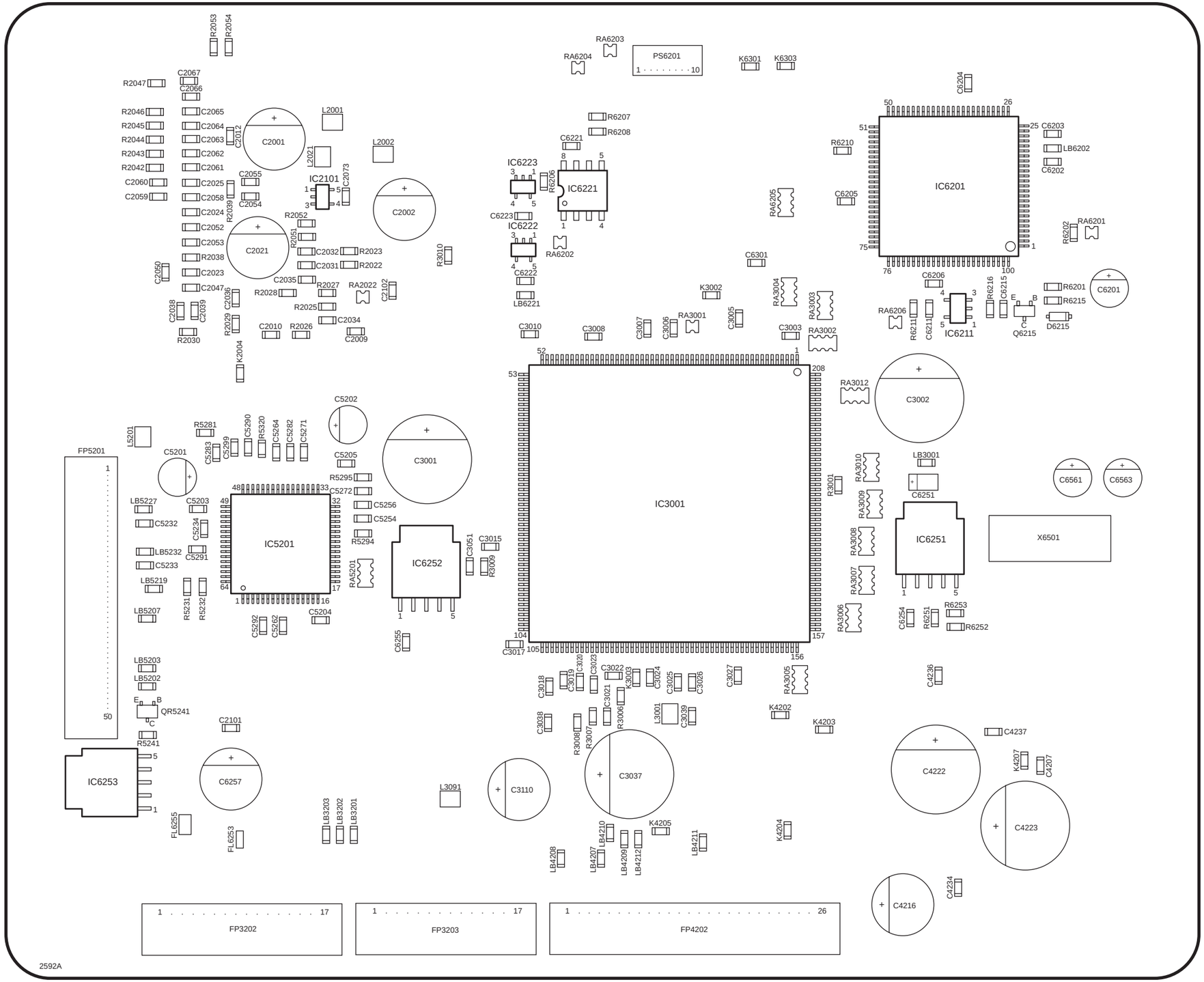
G BOTTOM SW P.C.B.



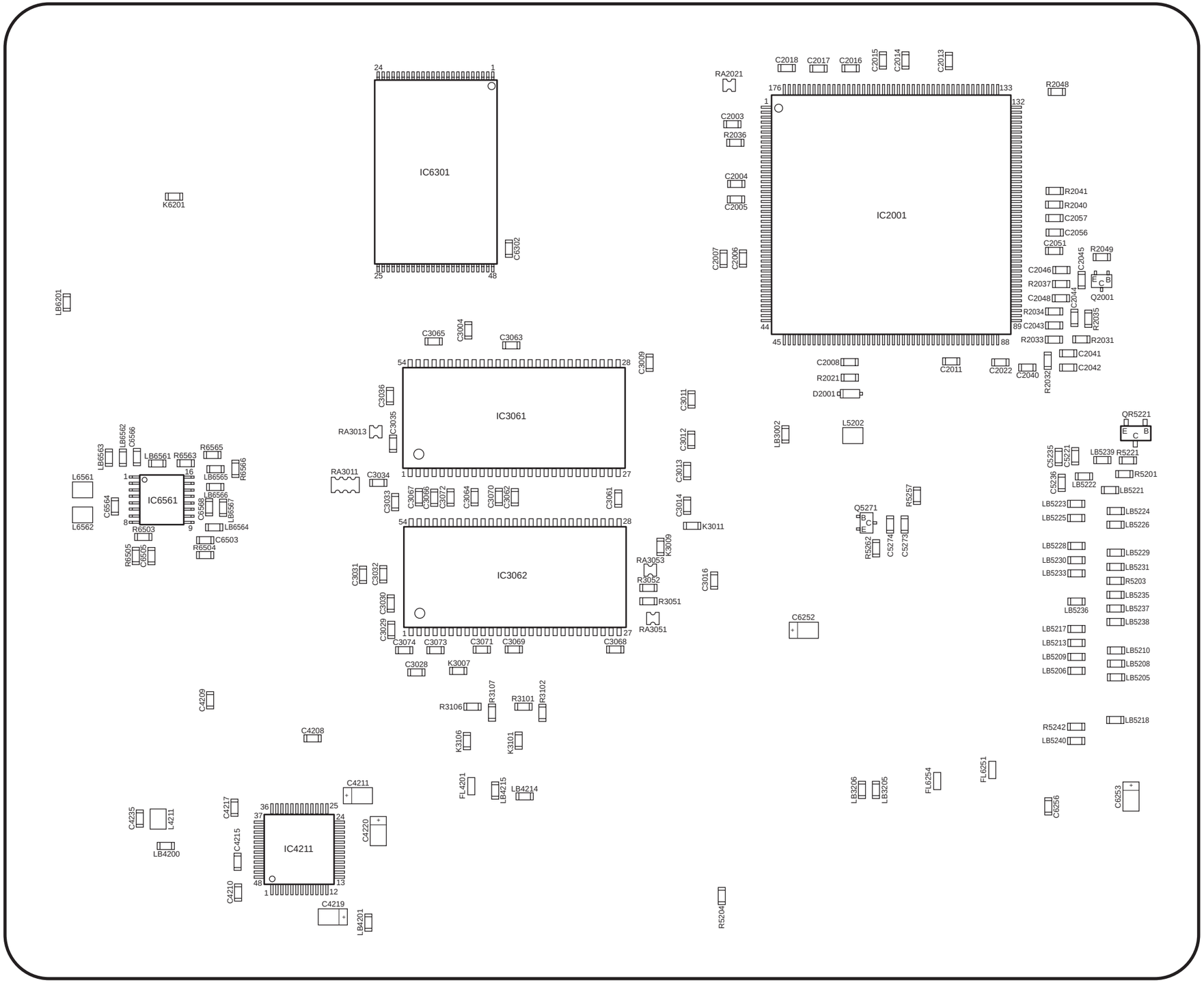
(REP2578A-N)

SL-DV290(EE,GN) INTERFACE,LOADING MOTOR,CLAMP SW,BOTTOM SW P.C.B.

B DVD MODULE P.C.B. (SIDE : A)

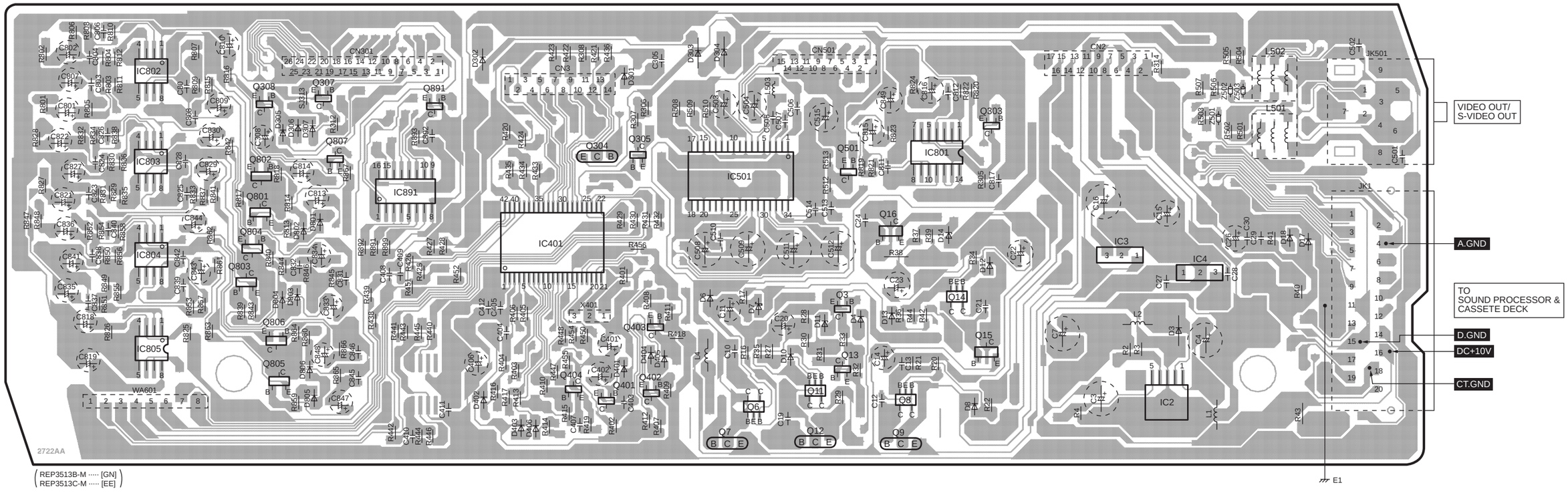


B DVD MODULE P.C.B. (SIDE : B)



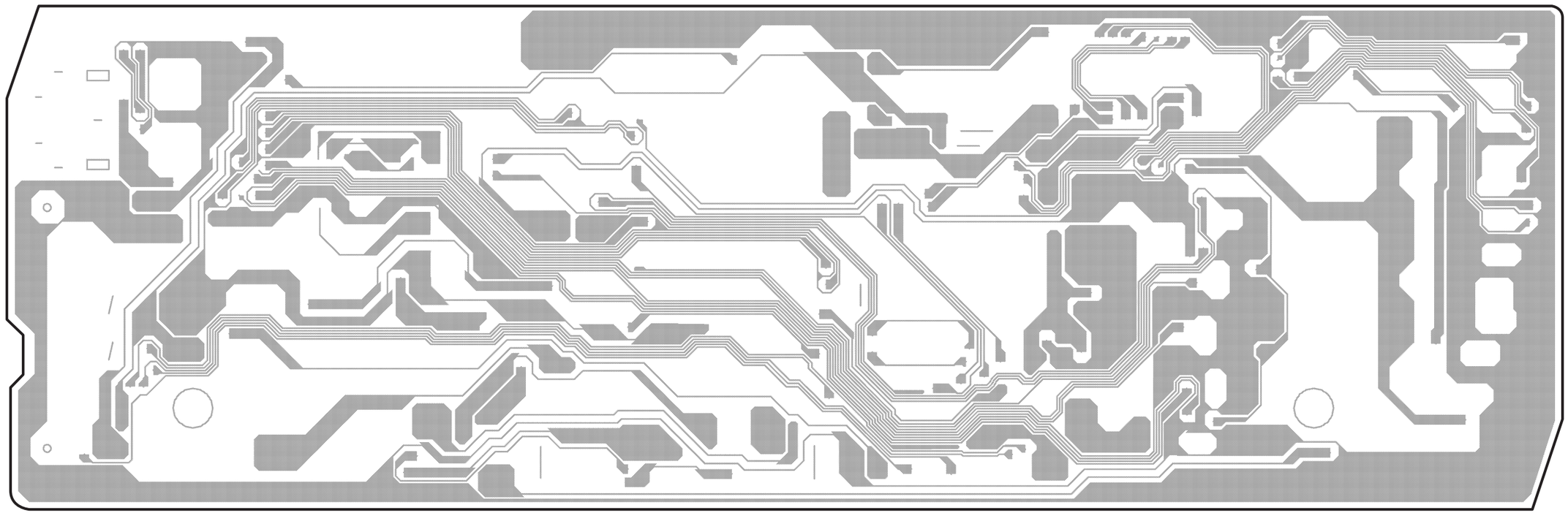
SL-DV290(EE,GN) DVD MODULE(SIDE: B) P.C.B.

C MAIN P.C.B. (SIDE : A)



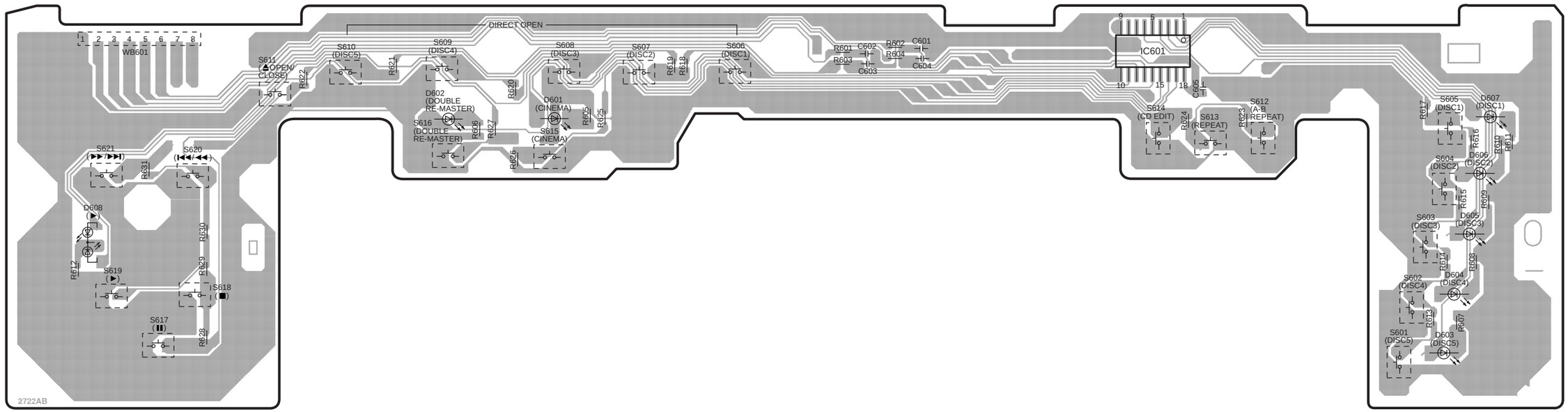
(REP3513B-M ····· [GN]
REP3513C-M ····· [EE])

C MAIN P.C.B. (SIDE :B)



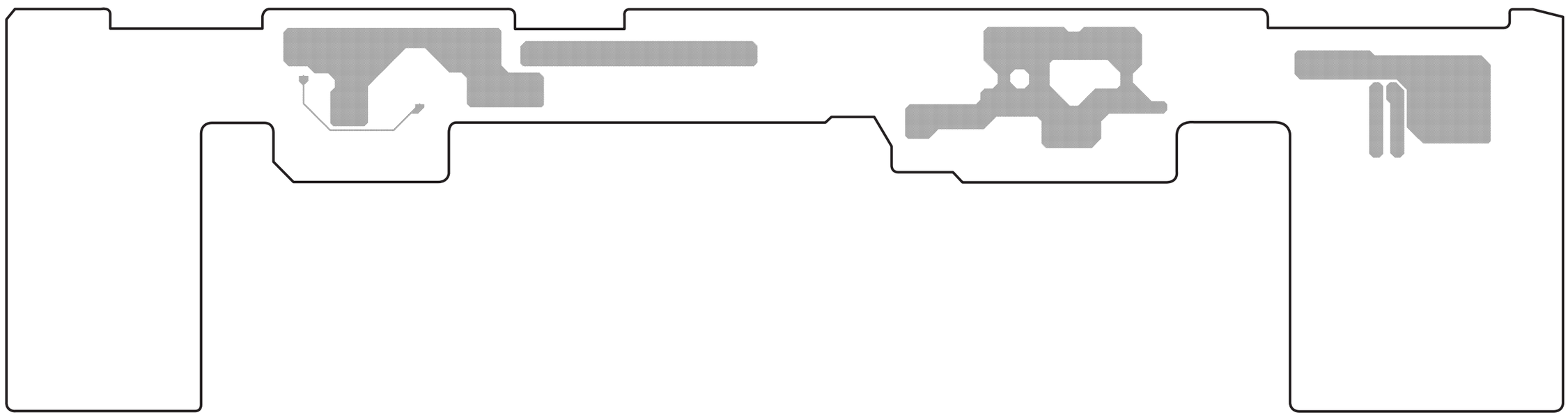
SL-DV290(EE,GN) MAIN P.C.B.

D OPERATION P.C.B. (SIDE : A)



(REP3513B-M ····· [GN]
REP3513C-M ····· [EE])

D OPERATION P.C.B. (SIDE : B)



SCHEMATIC DIAGRAM–1

NOTE:
The number which noted at the connectors on the schematic diagram as "SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2" indicates the schematic diagram serial number located on the left corner in the schematic diagram.

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE

A INTERFACE CIRCUIT

To FG UNIT — FP2501: FG3 1, FG2 2, FG2 3, FG1 4

M2502 (TRAVERSE MOTOR)

M2501 (SPINDLE MOTOR)

To OPTICAL PICK-UP UNIT — FP5101: T+ 30, F+ 29, F- 28, T- 27, 3.3VHFM 26, GND 25, LD+(DVD) 24, GND 23, GND 22, RFP 21, RFN 20, F1(DVD) 19, F2(DVD) 18, GAIN H/L 17, PIN(DVD) 16, VREF2.2V(DVD) 15, TA(DVD) 14, TD(DVD) 13, TC(DVD) 12, TB(DVD) 11, Vcc5V 10, FE1(CD) 9, GND 8, LD+(CD) 7, T1(CD) 6, VREF2.2V(CD) 5, FE2(CD) 4, T2(CD) 3, PIN(CD) 2, GND 1

IC2501
C0GBG0000033
FOCUS/TRACKING COIL, SPINDLE/ TRAVERSE MOTOR DRIVE

VO1+ VO1- VO2+ VO2- GND MUTE12 Vcc GND OPOUT OPIN- OPIN+ VIN2 VIN1 BIAS1
VO4+ VO4- VO3+ VO3- GND MUTE4 Vcc PREVcc VIN3 LDIN BIAS2 TRIN MUTE3 LDCNT

Q5111 2SB1115-T LASER POWER DRIVE(DVD)

Q5115 2SB1115-T LASER POWER DRIVE(CD)

LB5101 J0JHC0000045
LB5105 VLP0146-T
LB5106 VLP0146-T
D5151 MA728TX
L5101 10 μH
RA5101 56
RA5102_56
RA5103_56
RA2501 47K

FP5102

1	FG1	50	
2	FG3	49	
3	D.GND	48	
4	D.GND	47	
5	MUTE4	46	
6	D+5V	45	
7	D+5V	44	
8	TRAYIN	43	
9	M+9V	42	
10	M+9V	41	
11	M+9V	40	
12	M.GND	39	
13	M.GND	38	
14	M.GND	37	
15	TRAYREF	36	
16	MUTE12	35	
17	MUTE3	34	
18	DMV	33	
19	FOIN	32	
20	TRIN	31	
21	SPIN	30	
22	TRVIN	29	
23	IN-SW	28	
24	LDCUR	27	
25	VHALF	26	
26	A.GND	25	
27	PIN (CD)	24	
28	T2 (CD)	23	
29	FE2 (CD)	22	
30	T1 (CD)	21	
31	LPCO2	20	
32	A.GND	19	
33	FE1 (CD)	18	
34	Vcc 5V	17	
35	TB (DVD)	16	
36	TC (DVD)	15	
37	TD (DVD)	14	
38	TA (DVD)	13	
39	TRAY/TRV	12	
40	VREF2.2V	11	
41	PIN (DVD)	10	
42	GAIN H/L	9	
43	F2 (DVD)	8	
44	F1 (DVD)	7	
45	RFN	6	
46	RFP	5	
47	A.GND	4	
48	LPCO1	3	
49	A.GND	2	
50	3.3VHFM	1	

S2501 (REST DET.)

To B DVD MODULE (FEP) CIRCUIT(FP5201) on SCHEMATIC DIAGRAM-2/1,2-E~H

SL-DV290(EE,GN) INTERFACE CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM–2

B DVD MODULE(FEP) CIRCUIT

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE

FP5201

FG1	50	
FG3	49	
D.GND	48	
D.GND	47	
MUTE4	46	
D+5V	45	
D+5V	44	
TRAYIN	43	
M+9V	42	
M+9V	41	
M+9V	40	
M.GND	39	
M.GND	38	
M.GND	37	
TRAYREF	36	
MUTE12	35	
MUTE3	34	
DMV	33	
FOIN	32	
TRIN	31	
SPDIN	30	
TRVIN	29	
INSW	28	
LDCUR	27	
VHALF	26	
A.GND	25	
PIN(CD)	24	
T2(CD)	23	
FE2(CD)	22	
T1(CD)	21	
LPCO2	20	
A.GND	19	
FE1(CD)	18	
Vcc+5V	17	
TB(DVD)	16	
TC(DVD)	15	
TD(DVD)	14	
TA(DVD)	13	
TRAY/TRV	12	
VREF2.2V	11	
PIN(DVD)	10	
GAIN H/L	9	
F2(DVD)	8	
F1(DVD)	7	
RFN	6	
RFP	5	
A.GND	4	
LPCO1	3	
A.GND	2	
3.3VHFM	1	

To A INTERFACE CIRCUIT(FP5102) on SCHEMATIC DIAGRAM–1/11,12-B–D

D1 D2 D3 D4 D5

LB5240 VLP0146-T
R5241 220
R5242 82K
LB5218 VLP0146-T
LB5202 J0JHC0000045
LB5203 J0JHC0000045
LB5205 VLP0146-T
LB5206 VLP0146-T
LB5207 VLP0146-T
LB5208 VLP0146-T
LB5209 VLP0146-T
LB5210 VLP0146-T
LB5213 VLP0146-T
LB5217 VLP0146-T
LB5219 VLP0146-T
LB5238 VLP0155-T
LB5237 VLP0155-T
LB5236 VLP0155-T
LB5235 VLP0155-T
R5203 0 Ω
LB5233 VLP0155-T
LB5231 VLP0155-T
LB5230 VLP0155-T
LB5229 VLP0155-T
LB5228 VLP0155-T
LB5226 VLP0155-T
LB5225 VLP0146-T
LB5224 VLP0155-T
LB5223 VLP0155-T
LB5222 VLP0155-T
LB5221 VLP0155-T
R5201 0 Ω

A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11

QR5241 UN511MTX POWER SUPPLY
0V (3.3V) 3.3V
3.3V (0V)

QR5221 UN2121-TX POWER SUPPLY
LB5239 VLP0146-T
R5221 0 Ω
(3.3V) 0V 3.3V
C5221 0.1
3.3V (0V)

B15 B12 B4 B11 B16 B3 B10 B9 B8 B7 B13 B6 B5 B2 B1 B14

C5233 0.1
R5204 1K
C5232 0.1
LB5232 VLP0146-T
LB5227 VLP0146-T
C5234 0.1
R5231 8.2K
R5232 8.2K
C5291 2700P

B12 B11 B10 B9 B8 B7 B6 B5 B4 B3 B2 B1

C5235 0.1
C5236 0.1

64 GND 2.3V
63 VIN10 2.3V
62 VIN9 2.3V
61 VIN4 2.3V
60 VIN3 2.3V
59 VIN2 2.3V
58 VIN1 2.3V
57 MONI 1.8V
56 VREFRF 2.2V
55 VREF 2.3V
54 VIN8 2.3V
53 VIN7 2.2V
52 VIN6 2.2V
51 VIN5 5V
50 Vcc1 1.7V
49 RFENV

C5283 560P
R5281 1M

B13	(0.5V)0V	1	LPC1
B14	(3.2V)5V	2	LPCO1
B15	0V	3	LPC2
B16	5V	4	LPCO2
	(1.4V)2.6V	5	POFLT
C5292 100P		6	NC1
	1.7V	7	FBAL
	1.7V	8	TBAL
C5262 180P	1.7V	9	TEFLT
	1.7V	10	MONI2
	0V	11	TE
	1.7V	12	RFTE
	1.7V	13	FS
	1.7V	14	FE
	1.7V	15	VHALF
		16	Vss

IC5201 AN22030A-VT FRONT END PROCESSOR

C5204 0.1

PEAK	48	1.7V	
RFINN	47	2.2V	
RFINP	46	2.2V	
CRFHP2	45	0V	C5299 330P
CRFHP1	44	0.7V	C5290 1000P
TESTSG	43	0V	
IDGT	42	0V	
SHORT	41	0V	
NC3	40		
AGCG2	39	0V	C5264 0.018
AGCG1	38	0.7V	C5282 0.01
SAG	37	1.1V	C5271 1000P
DCFLT	36	1.8V	
FLTON	35	1.6V	
FLTOP	34	1.6V	
Vcc2	33	3.3V	

R5320 0 Ω

STANBY	17	3.3V	
SEN	18	3.3V	
SCK	19	0V	
STDIO	20	0V	
OFTR	21	0V	
BDO	22	0V	
DTRD	23	3.3V	
SHOLD	24	0V	
Vdd	25	3.3V	
NC2	26		
RSCL	27	0.5V	
GND2	28	1.2V	
BDOSL	29	1.2V	
MIRSL	30	2V	
DCAGC	31	2V	
BRCA	32	1.2V	

RA5201 100
R5262 0 Ω
R5294 22K
C5254 390P
C5256 2200P
C5272 0.22
R5295 24K
C5205 0.1

C5273 1800P
C5274 0.1
Q5271 UN5211TX SWITCHING
0V 3.3V
C5202 16V10
L5202 10 μ H

L5201 10 μ H
C5201 1000 16V
C5203 0.1

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-E
FC1 HFMON

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-C
FS38 FGENB A11

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-B, 3/12-F, 3/12-A, 3/12-F
FS5 GAINH/L A10
FS8 FG A1
FS6 LDCUR A9
FS1 MUTE12 A2
FS2 MUTE3 A3
FS3 FODRV A5
FS10 TRDRV A6
FS11 SPDRV A7
FS12 TRVSDRV A8
FS44 DMV A4

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-B, 3/1-A
FS14 TBAL C1
FS15 FBAL C2
FS16 DTRD C3
FS17 IDGT C4

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-H
FS18 NRST C5

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-C, 3/12-F
FS19 FEPENB C6
FS20 FEPCLK C7
FS21 FEPDATA C8
FS23 TE C9
FS24 AS C10
FS25 FE C11

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/12-A
D5 TRAY/ TRV VD10
D4 TRV-SW+ VD9
D1 MUTE4 VD8
D2 TRAY DRV VD7
D3 TRAY REF VD6

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-G, 5/1-H, 5/1-F
D+5V DB3
D.GND DG1
M+9V MB1
M.GND MG1
A+5V AB1
A.GND AG1

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-D
D+3.3V DB1
D.GND DG1

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/12-D, 3/12-F
VHALF FS32
VREF2 FS33
RFENV FS27

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-A
R5257 0 Ω
TSTSG FS26
VFOSHORT FS37

To B DVD MODULE (SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/12-F
NARF FS35
ARF FS36

To B DVD MODULE(CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-B
DCFLT FC3

To B DVD MODULE(SODC) CIRCUIT on SCHEMATIC DIAGRAM-3/1-C, 3/12-D
BDO FS28
OFTR FS29
RFDIF FS31

SL-DV290(EE,GN) DVD MODULE(FEP) CIRCUIT DIAGRAM

H G F E D B C A

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

SCHEMATIC DIAGRAM–3

B DVD MODULE(SODC) CIRCUIT

:POSITIVE VOLTAGE LINE :AUDIO/VIDEO SIGNAL LINE

IC2001
MN103S26EGA
OPTICAL DISC CONTROL

IC2101
C0JBAS000116
LOGIC CONTROL

Q2001
2SD1819ATX
RF AMP

PLAY 0.3V P-P, 0.5 µs. 0.2V/DIV.

3.5V P-P, 0.5 µs. 1V/DIV.

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-E: DB4 D+1.8V, DG1 D.GND

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-D: DB1 D+3.3V, DG1 D.GND

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-G: SC32 ODCIRQ, SC31 ADSCIRQ

SCHEMATIC DIAGRAM-7/1-F: SC27 WAIT

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/12-E,F: SC26 CPUADR17, SC25 CPUADR16, SC24 CPUADR15, SC23 CPUADR14, SC22 CPUADR13, SC21 CPUADR12, SC20 CPUADR11, SC19 CPUADR10, SC18 CPUADR9, SC17 CPUADR8, SC16 CPUADR7, SC15 CPUADR6, SC14 CPUADR5, SC13 CPUADR4, SC12 CPUADR3, SC11 CPUADR2, SC10 CPUADR1, SC9 CPUADR0

To B DVD MODULE (CPU) CIRCUIT on SCHEMATIC DIAGRAM-7/1-F: SC30 NSODCCS, SC29 NWEL, SC28 NRD, SC8 CPUDT7, SC7 CPUDT6, SC6 CPUDT5, SC5 CPUDT4, SC4 CPUDT3, SC3 CPUDT2, SC2 CPUDT1, SC1 CPUDT0

SCHEMATIC DIAGRAM-7/12-B

SCHEMATIC DIAGRAM-7/1-H: FS18 NRST

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-A: FS29 OFTR, FS28 BDO, FS21 FEPDATA

SCHEMATIC DIAGRAM-2/1-A: FS20 FEPCLK, FS19 FEPENB

SCHEMATIC DIAGRAM-2/1-D: FS38 FGENB

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/12-B: VD9 TRV-SW+

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-B: FS14 TBAL, FS15 FBAL

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-C: FS8 FG, FS5 GAINH/L

SCHEMATIC DIAGRAM-2/1-B: FS16 DTRD, FS17 IDGT

SCHEMATIC DIAGRAM-2/12-C: FS26 TSTSG, FS37 VFO SHORT

To B DVD MODULE (AUDIO DAC) CIRCUIT on SCHEMATIC DIAGRAM-6/12-C: SA1 CLK16M1

To B DVD MODULE (AVDEC) CIRCUIT on SCHEMATIC DIAGRAM-4/1-A: E1 STENABLE SD1, E2 STD0 SD2, E3 STD1 SD3, E4 STD2 SD4, E5 STD3 SD5, E6 STD4 SD6, E7 STD5 SD7, E8 STD6 SD8, E9 STD7 SD9, E10 STVALID SD10, E11 STCLK SD11

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-C: DMV FS44, LDCUR FS6

SCHEMATIC DIAGRAM-2/12-F: RFENV FS27, AS FS24

SCHEMATIC DIAGRAM-2/1-A: TE FS23, FE FS25

SCHEMATIC DIAGRAM-2/12-C: ARF FS36, NARF FS35

To B DVD MODULE (VIDEO DAC) CIRCUIT on SCHEMATIC DIAGRAM-5/1-F: A+5V AB1, A.GND AG1

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/12-A: RFDIF FS31

SCHEMATIC DIAGRAM-2/12-F: VHALF FS32, VREF2 FS33

To B DVD MODULE (FEP) CIRCUIT on SCHEMATIC DIAGRAM-2/1-C: FODRV FS3, TRDRV FS10, MUTE12 FS1, MUTE3 FS2, SPDRV FS11, TRVSDRV FS12

SL-DV290(EE,GN) DVD MODULE(SODC) CIRCUIT DIAGRAM