

CDP-XB740/XB740E

SERVICE MANUAL

AEP Model
CDP-XB740

UK Model
CDP-XB740E



Photo: CDP-XB740

Model Name Using Similar Mechanism	CDP-XB720/XB720E
CD Mechanism Type	CDM14FLS-5BD25
Base Unit Type	BU-5BD25
Optical Pick-up Type	KSS-213BA/F-NP

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max 44.6 μW * * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.
Frequency response	2 Hz to 20 kHz $\pm 0.5 \text{ dB}$
Dynamic range	More than 98 dB
Harmonic distortion	Less than 0.0035%

Outputs

	Jack type	Maximum output level	Load impedance
ANALOG OUT	Phono jacks	2 V (at 50 kilohms)	Over 50 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	-18 dBm	Wave length: 660 nm
DIGITAL OUT (COAXIAL)	Coaxial output connector	0.5 Vp-p (at 75 ohms)	75 ohms
PHONES (only for CDP-XB740)	Stereo phone jacks	10 mW	32 ohms

General

Power requirements	220 V – 230 V AC, 50/60 Hz
Power consumption	14 W
Dimensions (approx.) (w/h/d)	430 × 111 × 290 mm projecting parts
Mass (approx.)	4.8 kg (10 lbs 9 oz)

Supplied accessories

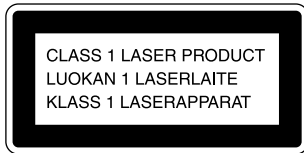
Audio connecting cord (1)
Remote commander (remote) (1)
R6 (size AA) batteries (2)

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER

SONY®

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

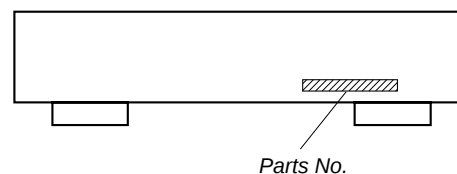
- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

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MODEL IDENTIFICATION

— BACK PANEL —



PARTS No.	MODEL
4-997-214-6□	XB740
4-997-214-7□	XB740E

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK $\triangle$ OR DOTTED LINE WITH MARK $\triangle$ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

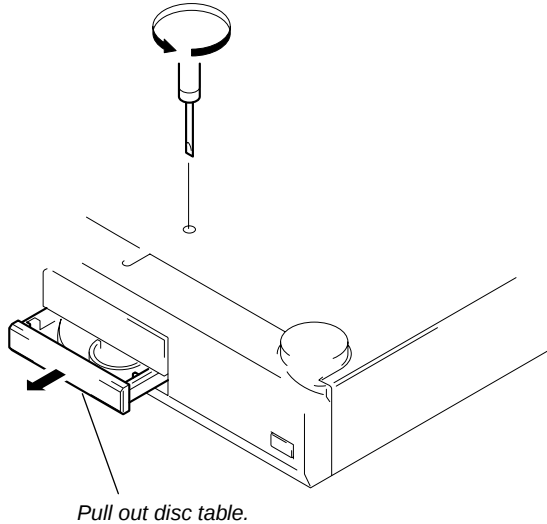
SECTION 1

SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

Insert a tapering driver into the aperture of the unit bottom, and turn in the direction of arrow.

** To close the disc table, turn the driver in the reverse direction.*



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output continuously.

CD-TEXT TEST DISC

This unit is able to display the TEXT data (character information) written in the CD on its fluorescent indicator tube.

The CD-TEXT TEST DISC (TGCS-313: J-2501-126-A) is used for checking the display.

To check, perform the following procedure.

Procedure:

1. Turn ON the power and set the test disc.
2. Press the  button and play back the disc.
3. The following will be displayed on the fluorescent indicator tube.
Display : CD TEXT-----
4. Rotate the  knob to switch the track. The text data of each track will be displayed.

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to “Table 2 : CD-TEXT DISC Recorded Contents and Display”.

Table 1 : CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41:Normal Characters)

TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/-90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/-10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
7	1kHz/0dB/L&R	28	19kHz+20kHz(1:1)/-10dB/L&R
8	5kHz/0dB/L&R	29	100Hz/0dB/L*
9	7kHz/0dB/L&R	30	1kHz/0dB/L*
10	10kHz/0dB/L&R	31	10kHz/0dB/L*
11	16kHz/0dB/L&R	32	20kHz/0dB/L*
12	18kHz/0dB/L&R	33	100Hz/0dB/R*
13	20kHz/0dB/L&R	34	1kHz/0dB/R*
14	1kHz/0dB/L&R	35	10kHz/0dB/R*
15	1kHz/-1dB/L&R	36	20kHz/0dB/R*
16	1kHz/-3dB/L&R	37	100Hz Squer Wave//L&R
17	1kHz/-6dB/L&R	38	1kHz Squer Wave//L&R
18	1kHz/-10dB/L&R	39	1kHz w/emphasis/-0.37dB/L&R
19	1kHz/-20dB/L&R	40	5kHz w/emphasis/-4.53dB/L&R
20	1kHz/-60dB/L&R	41	16kHz w/emphasis/-9.04dB/L&R
21	1kHz/-80dB/L&R		

NOTE : The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

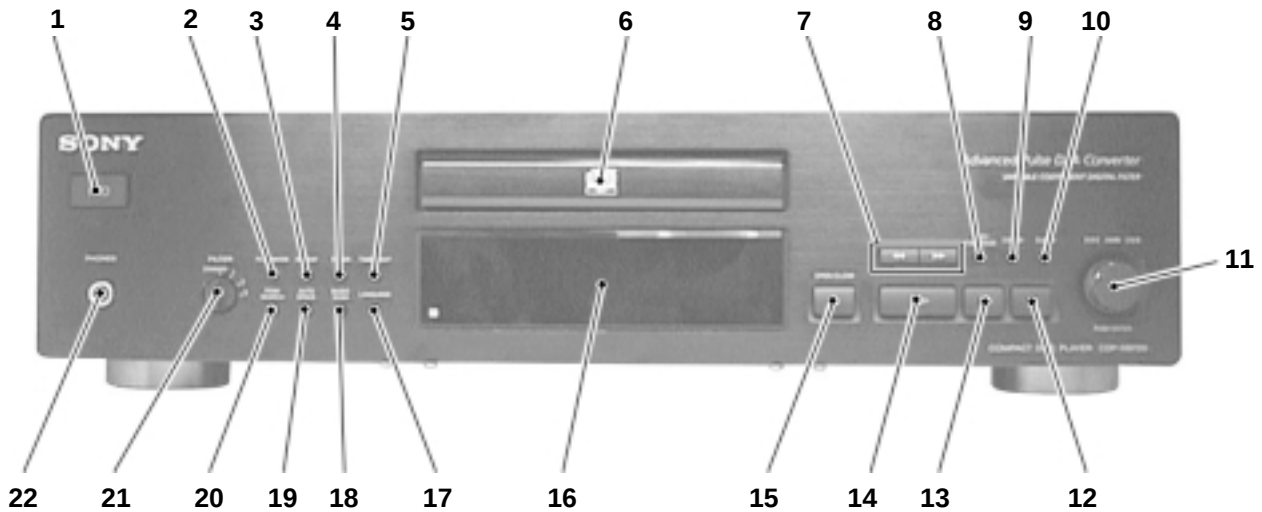
However, only 8 digits are displayed, and the 9th digit onwards are displayed as “-----”.

Table 2: CD-TEXT TEST DISC Recorded Contents and Display
(In this unit, some special characters cannot be displayed. This is no a fault.)

TRACK No.	Recorded contents	Display
42	! " # \$ % & ' (21h to 27h)1kHz 0dB L&R	: ... ! " # \$ % & are not displayed
43	() * + , - . / (28h to 2Fh)	() * + - / ... , . are not displayed
44	0 1 2 3 4 5 6 7 (30h to 37h)	0 1 2 3 4 5 6 7 ...
45	8 9 : ; < = > ? (38h to 3Fh)	8 9 = ? ... : ; < > are not displayed
46	@ A B C D E F G (40h to 47h)	A B C D E F G ... @ is not displayed
47	H I J K L M N O (48h to 4Fh)	H I J K L M N O ...
48	P Q R S T U V W (50h to 57h)	P Q R S T U V W ...
49	X Y Z [\] ^ _ (58h to 5Fh)	X Y Z [/] ^ _ ...
50	` a b c d e f g (60h to 57h)	` A B C D E F G ...
51	h i j k l m n o (68h to 6Fh)	H I J K L M N O ...
52	p q r s t u v w (70h to 77h)	P Q R S T U V W ...
53	x y z { } ~ ■ (78h to 7Fh)	X Y Z ... { } ~ ■ are not displayed
54	▯ i ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	... ▯ i ¢ £ ¤ ¥ ¦ § are not displayed
55	♪ © ª « ¬ ® ¯ (A8h to AFh)	¬ ¯ ... ♪ © ª « ® are not displayed
56	· ± ² ³ ´ μ ¶ • (B0h to B7h)	÷ ± ´ ... ² ³ μ ¶ • are not displayed
57	† †° » ¼ ½ ¾ ¿ (B8h to BFh)	¿ ... † †° » ¼ ½ ¾ are not displayed
58	À Á Â Ã Ä Å Æ Ç (C0h to C7h)	À Á Â Ã Ä Å ... Æ Ç are not displayed
59	È É Ê Ë Ì Í Î Ï (C8h to CFh)	È É Ê Ë Ì Í Î Ï ...
60	Ð Ñ Ò Ó Ô Õ Ö × (D0h to C7h)	Ñ Ò Ó Ô Õ Ö ... Ð × are not displayed
61	Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh)	Ù Ú Û Ü Ý ... Ø Þ ß are not displayed
62	à á â ã ä å æ ç (E0h to E7h)	À Á Â Ã Ä Å ... æ ç are not displayed
63	è é ê ë ì í î ï (E8h to FFh)	È É Ê Ë Ì Í Î Ï ...
64	ð ñ ò ó ô õ ö ÷ (F0h to F7h)	Ñ Ò Ó Ô Õ Ö ... ð ÷ are not displayed
65	ø ù ú û ü ý þ ÿ (F8h to FFh)	Ù Ú Û Ü Ý ... ø þ ÿ are not displayed
66	No.66	← All the same
67	No.67	← All the same
to	to	to
99	No.99	← All the same

SECTION 2 GENERAL

Front Panel



LOCATION OF PARTS AND CONTROLS

- 1 POWER switch
- 2 PLAY MODE button
- 3 REPEAT button
- 4 FADER button
- 5 TIME/TEXT button
- 6 Disc tray
- 7 ◀▶ button
- 8 EDIT/TIME FADE button
- 9 CHECK button
- 10 CLEAR button
- 11 AMS knob (PUSH ENTER)
- 12 ■ (stop) button
- 13 || (pause) button
- 14 ▷ (play) button
- 15 ⌂ OPEN CLOSE button
- 16 Window display
- 17 LANGUAGE button
- 18 MUSIC SCAN button
- 19 AUTO SPACE button
- 20 PEAK SEARCH button
- 21 FILTER (STANDARD-1-2-3) switch
- 22 PHONE jack (AEP, AED model)

* AMS is the abbreviation for Automatic Music Sensor.

• Abbreviation

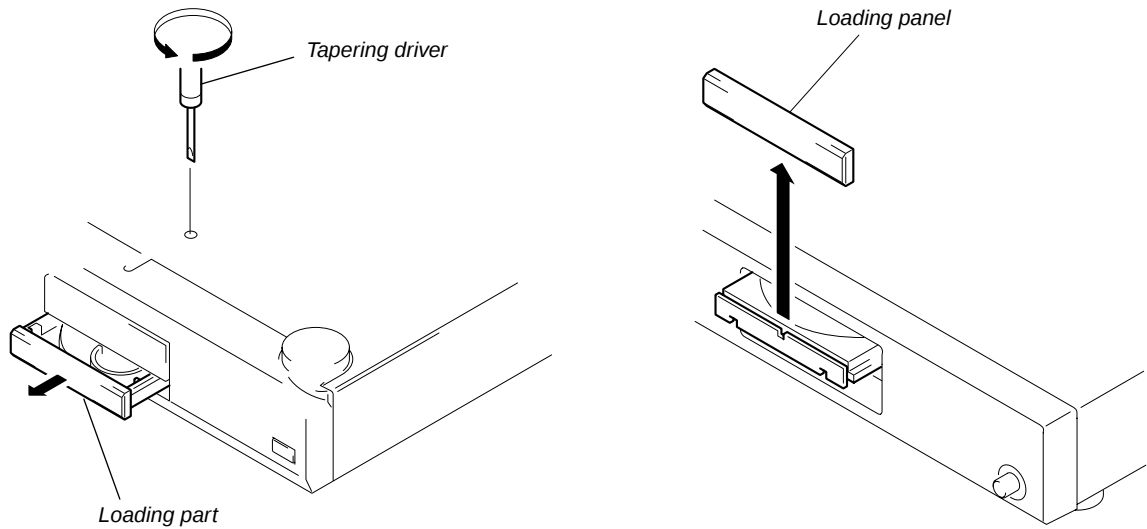
AED : North European

SECTION 3 DISASSEMBLY

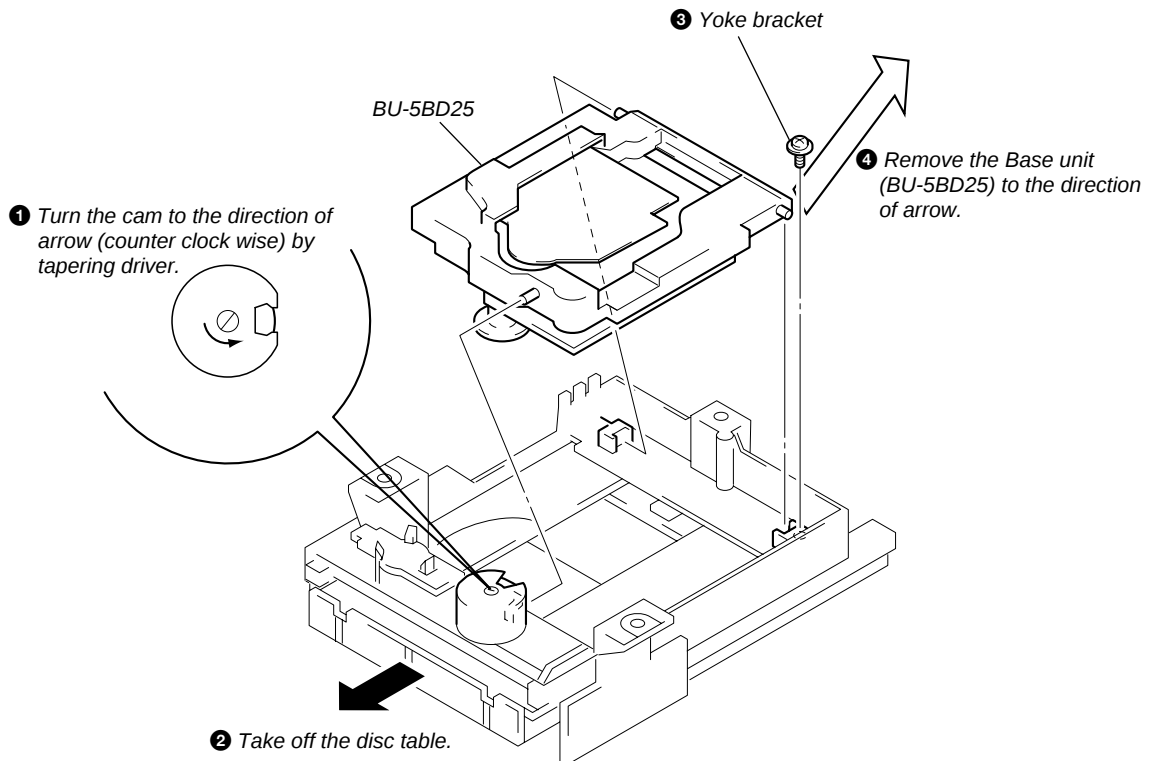
Note : Follow the disassembly procedure in the numerical order given.

3-1. FRONT PANEL

- In order to remove the front panel block when the power supply does not turn on, rotate the cam with tapering driver as the figure shows, and the loading part will be moved. Then pull out the loading part by your hand to remove the loading panel as the figure shows. After that take out the front panel block.



3-2. BASE UNIT (BU-5BD25)



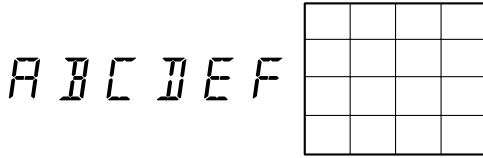
SECTION 4 TEST MODE

4-1. AF MODE

The following checks can be performed in the AF mode, which is set by connecting the JW004 (AFADJ) terminal on MAIN board to the Ground and turning on the power.

• FL tube check

After all segments light up, when the  button is pressed, the following will be displayed. (Partial lighting 1)



(Partial lighting 1)

When the  button is pressed, the following will be displayed. (partial lighting 2)

	2		4	
6		8		10
	12		14	
16		18		20

(Partial lighting 2)

The display will light up as follows (partial lighting 3) when the AMS  knob is rotated to the right, and as follows (partial lighting 4) when rotated to the left.



(Partial lighting 3)

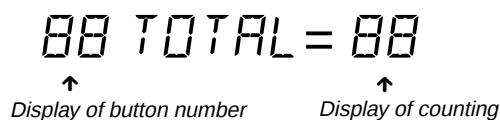


(Partial lighting 4)

When the  button is pressed, all will light up again.

• Key check

All buttons have corresponding button numbers. When a button is pressed, the counter will count up and display the button's number. However, the counter will only count to "16". It will not count for buttons already pressed once, but will display the button's number.



Button	Button No. Displayed	Button	Button No. Displayed
LANGUAGE	0	EDIT/	10
MUSIC SCAN	1	TIME FADE	
AUTO SPACE	2	◀◀	11
PEAK SEARCH	3	▶▶	12
PLAY MODE	4		18
REPEAT	5	ENTER (AMS)	20
FADER	6	OPEN/	All lit
TIME EDIT	7	CLOSE 	
CLEAR	8	PLAY 	Partial lighting 1
CHECK	9	STOP 	Partial lighting 2

• Remote commander check

When buttons other than the  button are pressed when the whole display is lit, the display will change to partial lighting 2. When the "▶" button is pressed, the display will light up as follows.



(Partial lighting 5)

4-2. ADJ MODE

The following operations are performed in the ADJ mode, which is set by connecting the JW003 (ADJ) terminal to the Ground and turning on the power.

Table of Button Operations in ADJ Mode

The functions of the number buttons are shown in the following table.

Function of Number Buttons (With the General Remote Commander)

Button	Function
4	Tracking servo, sled servo off
9	Tracking servo, sled servo on
11	S curve continuous output check mode

* **NOTE** : Other buttons are not used for servicing and should not be pressed without a reason.

4-3. AGING MODE

This unit is equipped with an aging mode to check operations of the mechanism deck.

- When faults occur:

Aging stops, and the state when aging stopped is displayed on the fluorescent display tube.

- When no fault has occurred:

Aging is continued repeatedly.

Aging method 1

(When using the aging mode remote controller (J-2501-123-A)):

1. Press the **POWER** button and turn ON the power.
2. Set the disc on the tray.
3. Press the **AGING START** button of the aging remote controller.
4. Aging starts and the message shown in Fig. 1 is displayed on the fluorescent display tube.
5. To end, press the **POWER** button.

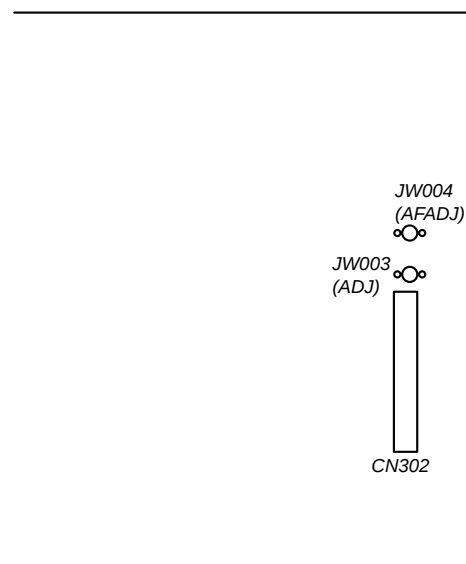
Aging method 2 (When no aging mode remote controller):

1. Press the **POWER** button and turn ON the power.
2. Set the disc on the tray.
3. Press the **OPEN/CLOSE** button, **STOP** button, and **MUSIC SCAN** button at the same time. (If these buttons are not pressed at the same time, nothing performs.)
4. Aging starts and the message shown in Fig. 1 is displayed on the fluorescent display tube.
5. To end, press the **POWER** button.

Fig. 1 Message in Aging Mode

Code No.	State	Display when normal	Display when abnormal
0	Load in	AGING-0	ERROR-0
1	Access to TOC	AGING-1	ERROR-1
2	Access to last track	AGING-2	ERROR-2
3	Playback of last track (3 seconds)	Counter display	ERROR-3
4	Access to first track	AGING-4	ERROR-4
5	Playback of first track (3 seconds)	Counter display	ERROR-5
6	Load out	AGING-6	ERROR-6

[MAIN BOARD] – Component Side –

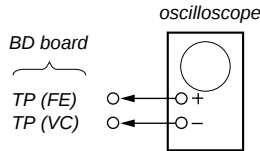


SECTION 5 ELECTRICAL BLOCK CHECKING

Note:

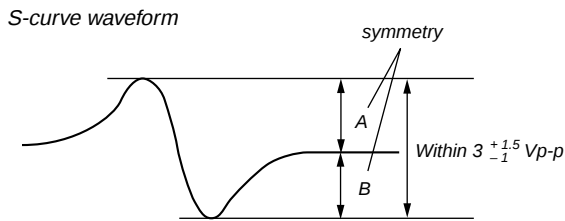
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10M Ω impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check (With general remote commander)



Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect the test point JW003 (ADJ) on MAIN board to the ground with a lead wire.
3. Turn ON the power.
4. Put disc (YEDS-18) in press (play) button.
5. When the **[11]** button of the remote commander is pressed, the S curve will be output continuously.
6. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3 ± 1.5 Vp-p.

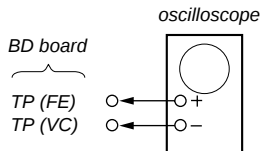


7. After check, remove the lead wire connected in step 2.

Note :

- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

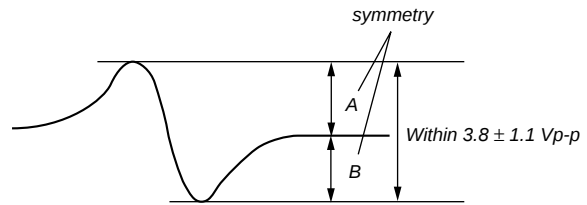
S Curve Check (Without general remote commander)



Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Connect both ends of TP R151 of the BD board to the lead wire.
4. Turn ON the power.
5. Put disc (YEDS-18) in and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
6. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.8 ± 1 Vp-p.

S-curve waveform

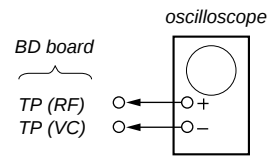


7. After check, remove the lead wire connected in step 2 and 3.

Note :

- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check



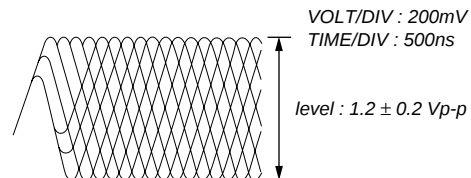
Procedure :

1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn ON the power.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

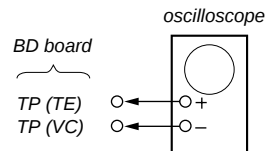
Note:

A clear RF signal waveform means that the shape “ $\diamond$ ” can be clearly distinguished at the center of the waveform.

RF signal waveform



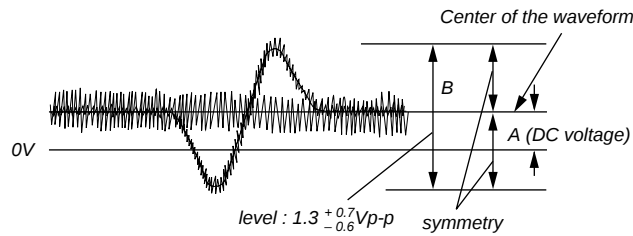
E-F Balance (1 Track Jump) Check (Without general remote commander)



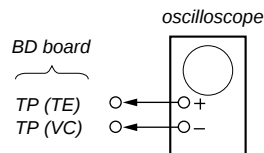
Procedure :

1. Connect oscilloscope to test point TP (TE) on BD board.
 2. Turn ON the power.
 3. Put disc (YEDS-18) in to play the number five track.
 4. Press the (Pause) button. (Becomes the 1 track jump mode)
 5. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
- Confirm the following :
- $A/B \times 100 = \text{less than } \pm 22\%$

1 track jump waveform



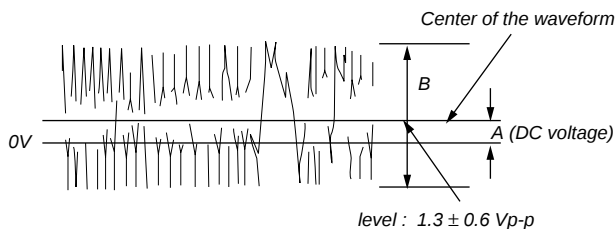
E-F Balance Check (With general remote commander)



Procedure :

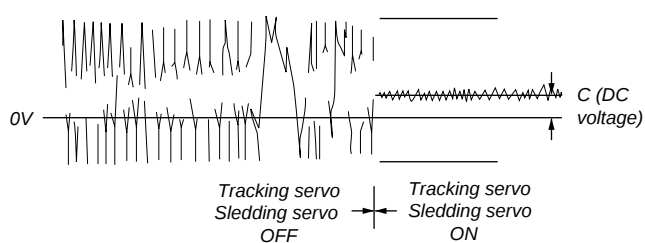
1. Connect the test point JW003 (ADJ) on MAIN board to the ground with a lead wire on main board.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turn ON the power and to set the ADJ mode.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the **[4]** button. (The tracking servo and the sledding servo are turned OFF.)
6. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$

Traverse waveform



7. Press the **[9]** button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

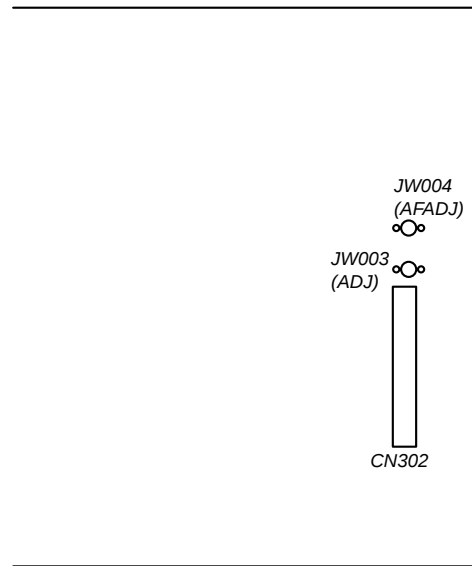
Traverse waveform



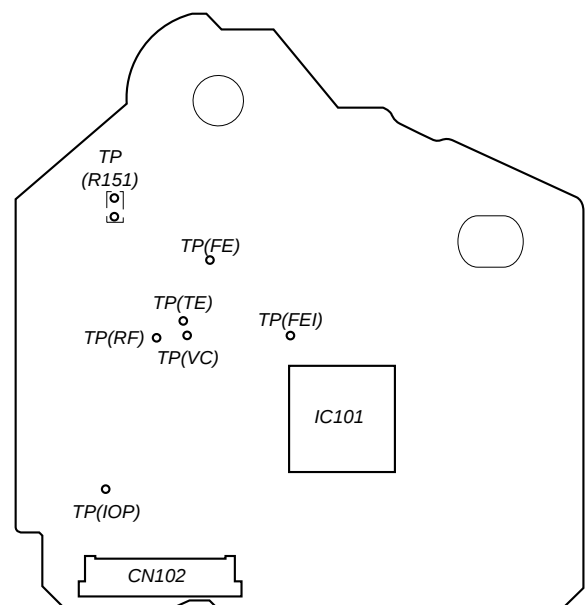
8. Disconnect the lead wire of JW003 (ADJ) connected in step 1.

Adjustment Location :

[MAIN BOARD] – Component Side –



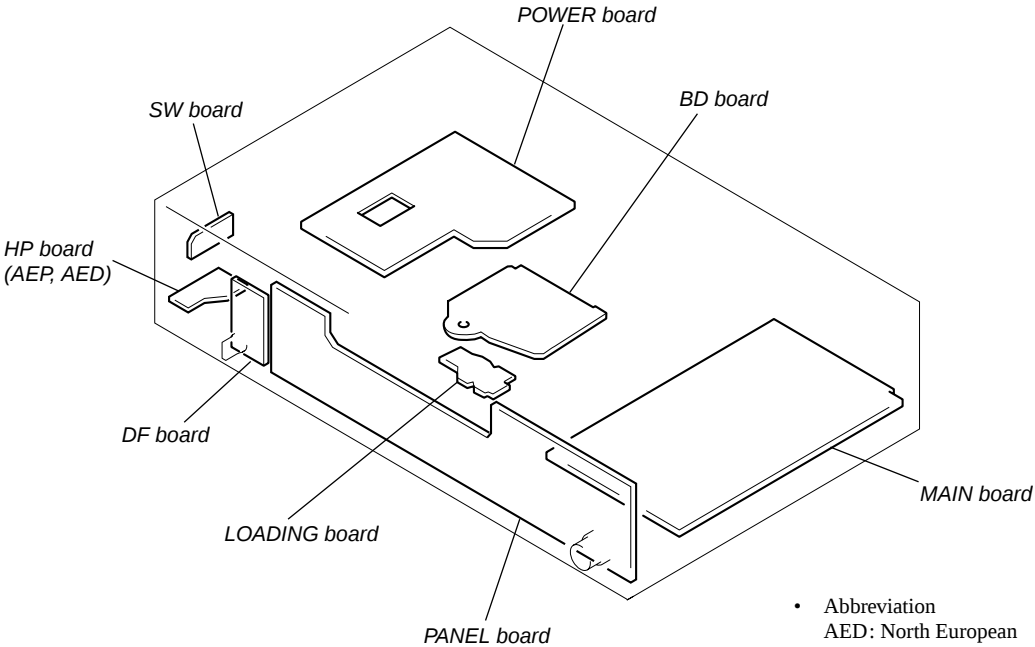
[BD BOARD] – Side A –



SECTION 6

DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- $\square$: panel designation.

Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

- $\text{B}+$: B+ Line.
- $\text{B}-$: B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : STOP
() : PLAY
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 $\Rightarrow$: CD
 $\Rightarrow\Rightarrow$: digital out

For printed wiring boards.

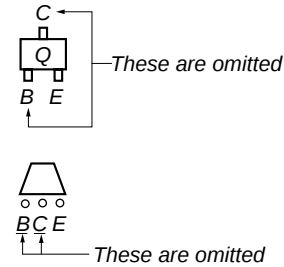
Note:

- $\circ$: parts extracted from the component side.
- $\square$: parts extracted from the conductor side.
- $\blacksquare$: parts mounted on the conductor side.
- $\circ$: Through hole.
- $\square$: Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)

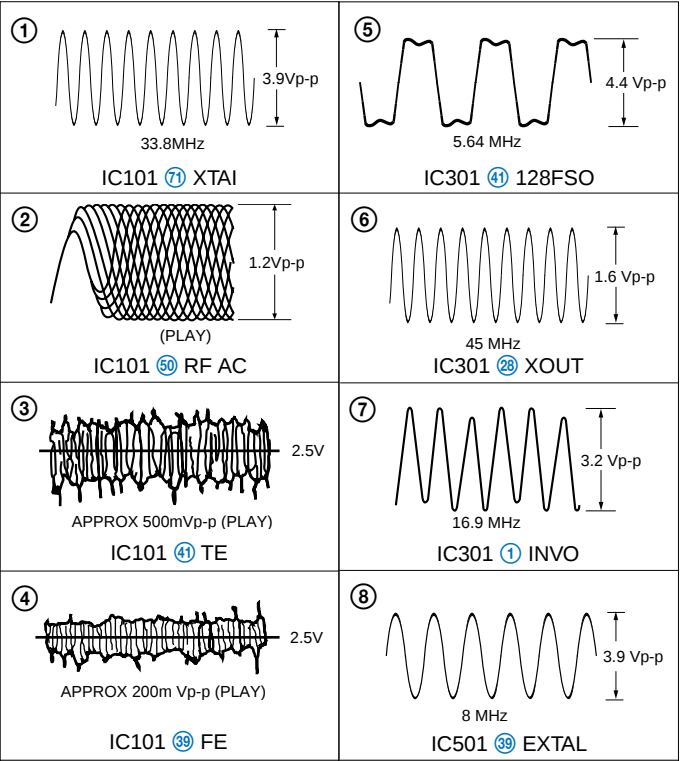
Caution:
Pattern face side: Parts on the pattern face side seen from the (Side B) pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Side A) parts face are indicated.

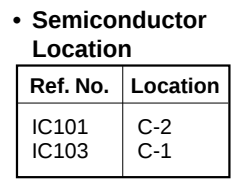
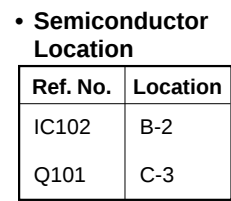
- Abbreviation
AED : North European

Indication of transistor



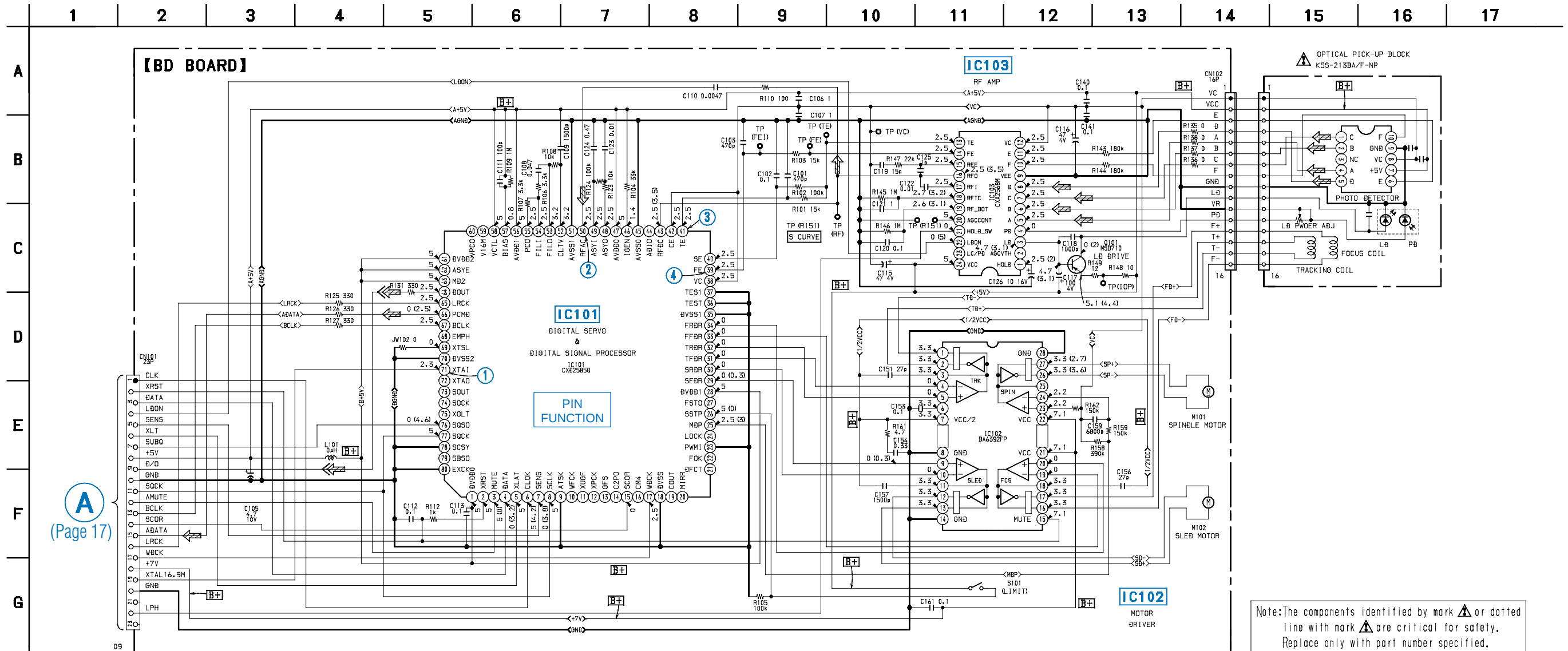
Waveforms





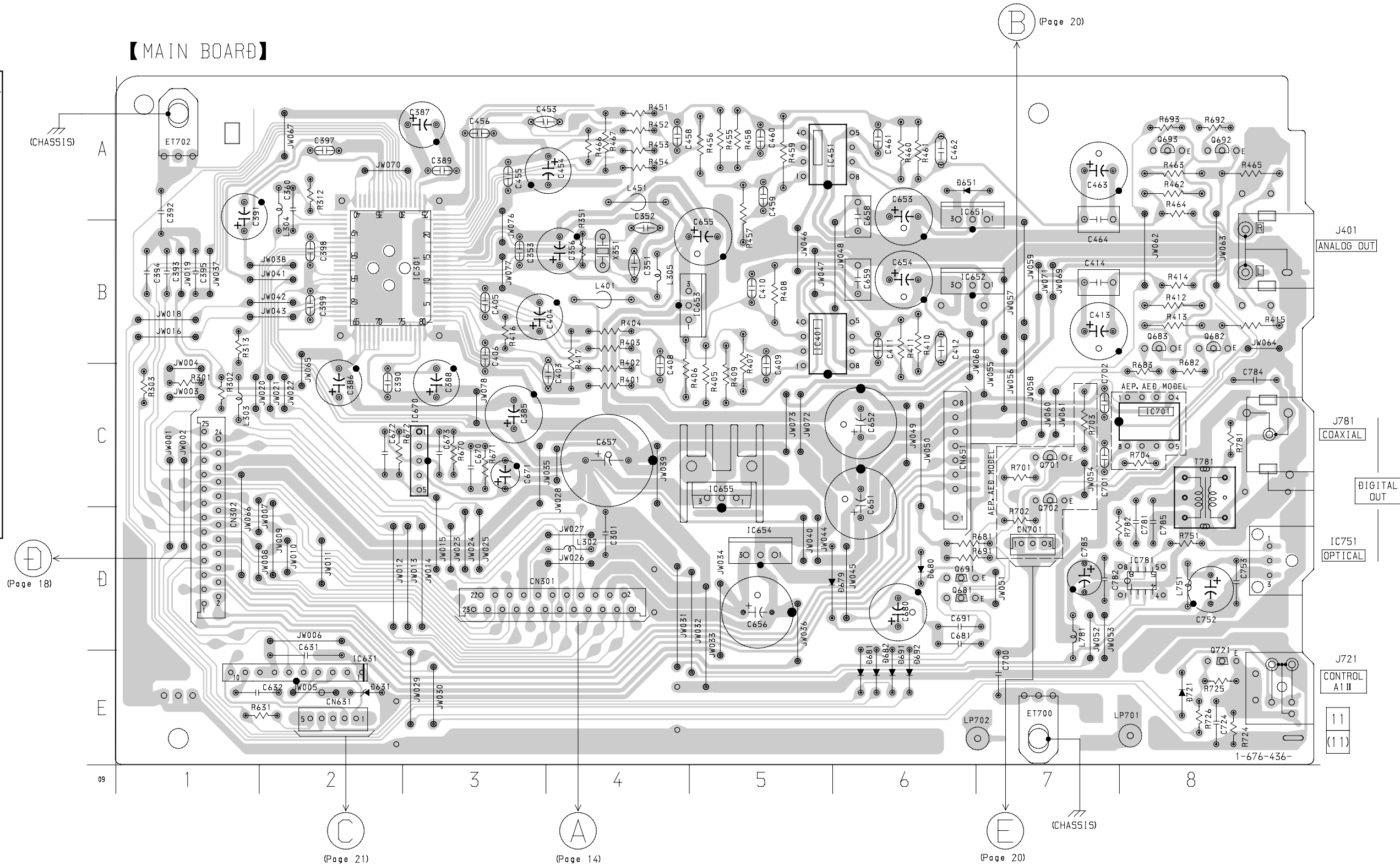
6-3. Schematic Diagram – BD Section –

- See page 13 for Waveforms.
- See page 22 for IC Pin Functions.
- See page 26 for IC Block Diagrams.

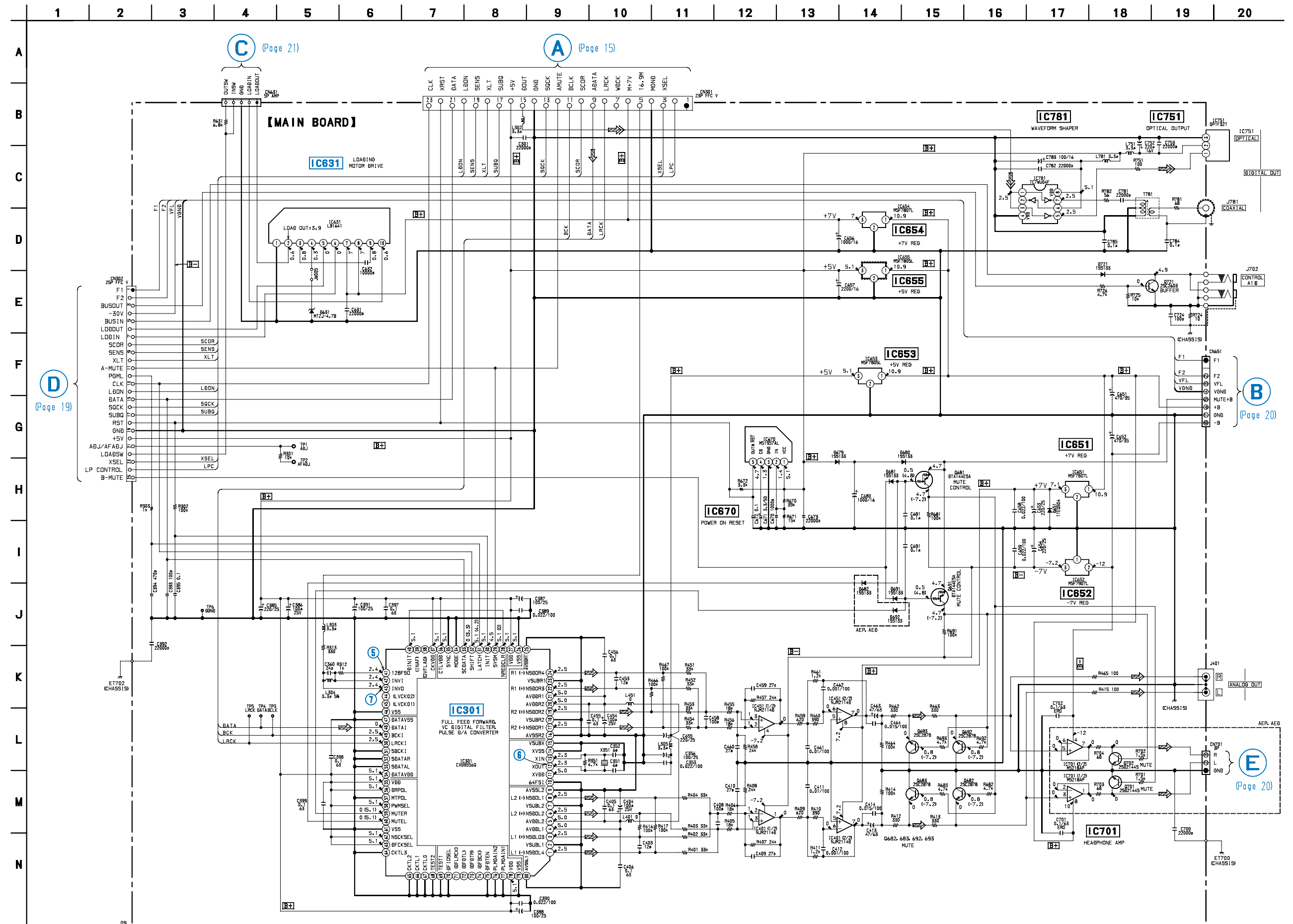


【MAIN BOARD】

Ref. No.	Location
D631	E-2
D651	A-6
D679	D-6
D680	D-6
D681	E-6
D682	E-6
D691	E-6
D692	E-6
D721	E-8
IC301	B-3
IC401	B-5
IC451	A-5
IC631	E-2
IC651	A-7
IC652	B-7
IC653	B-5
IC654	D-5
IC655	C-5
IC670	C-3
IC701	C-8
IC751	D-9
IC781	D-8
Q681	D-6
Q682	B-8
Q683	B-8
Q691	D-6
Q692	A-8
Q693	A-8
Q701	C-7
Q702	C-7
Q721	E-8



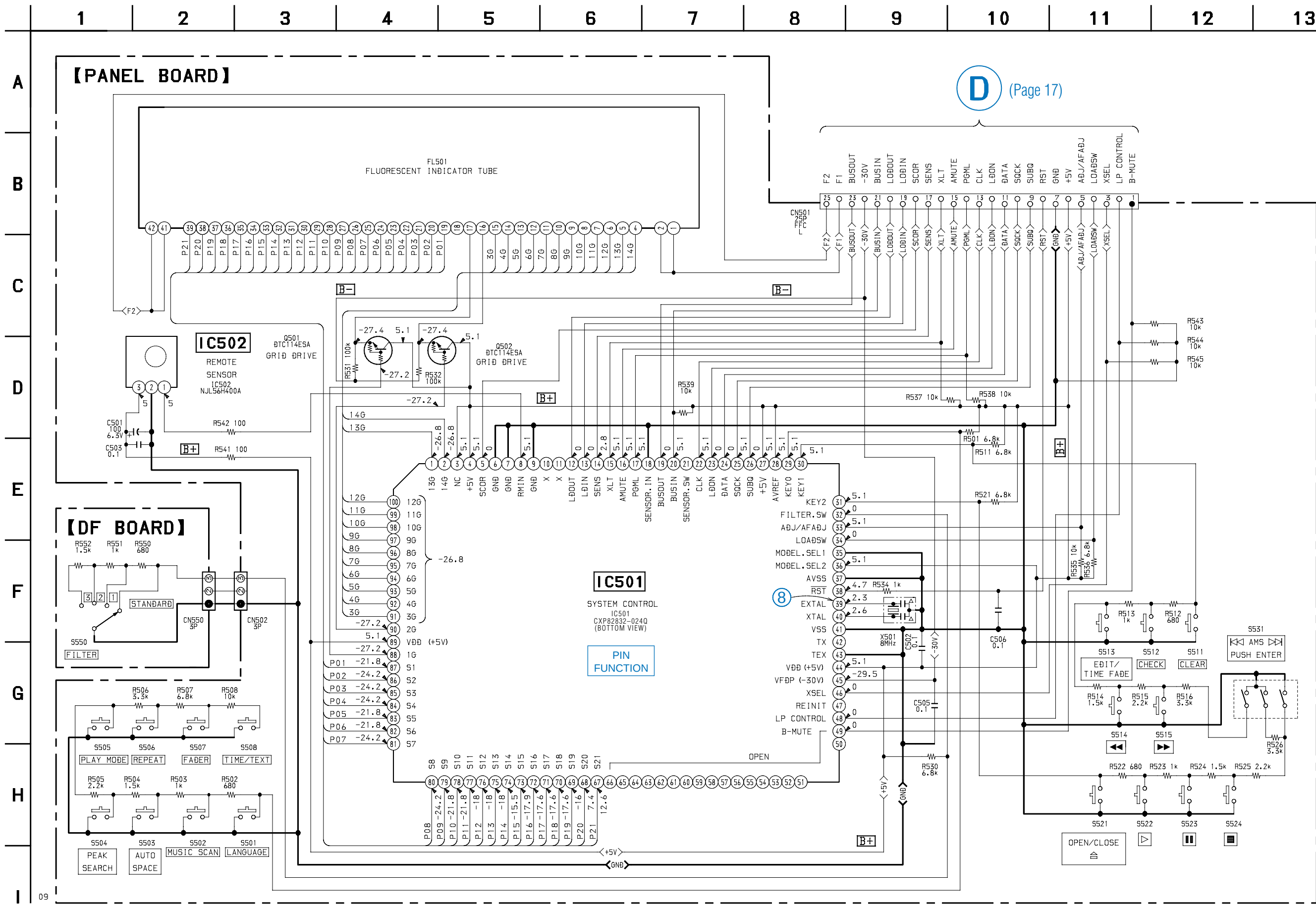
6-5. Schematic Diagram – MAIN Section –
• See page 28 for IC Block Diagrams.



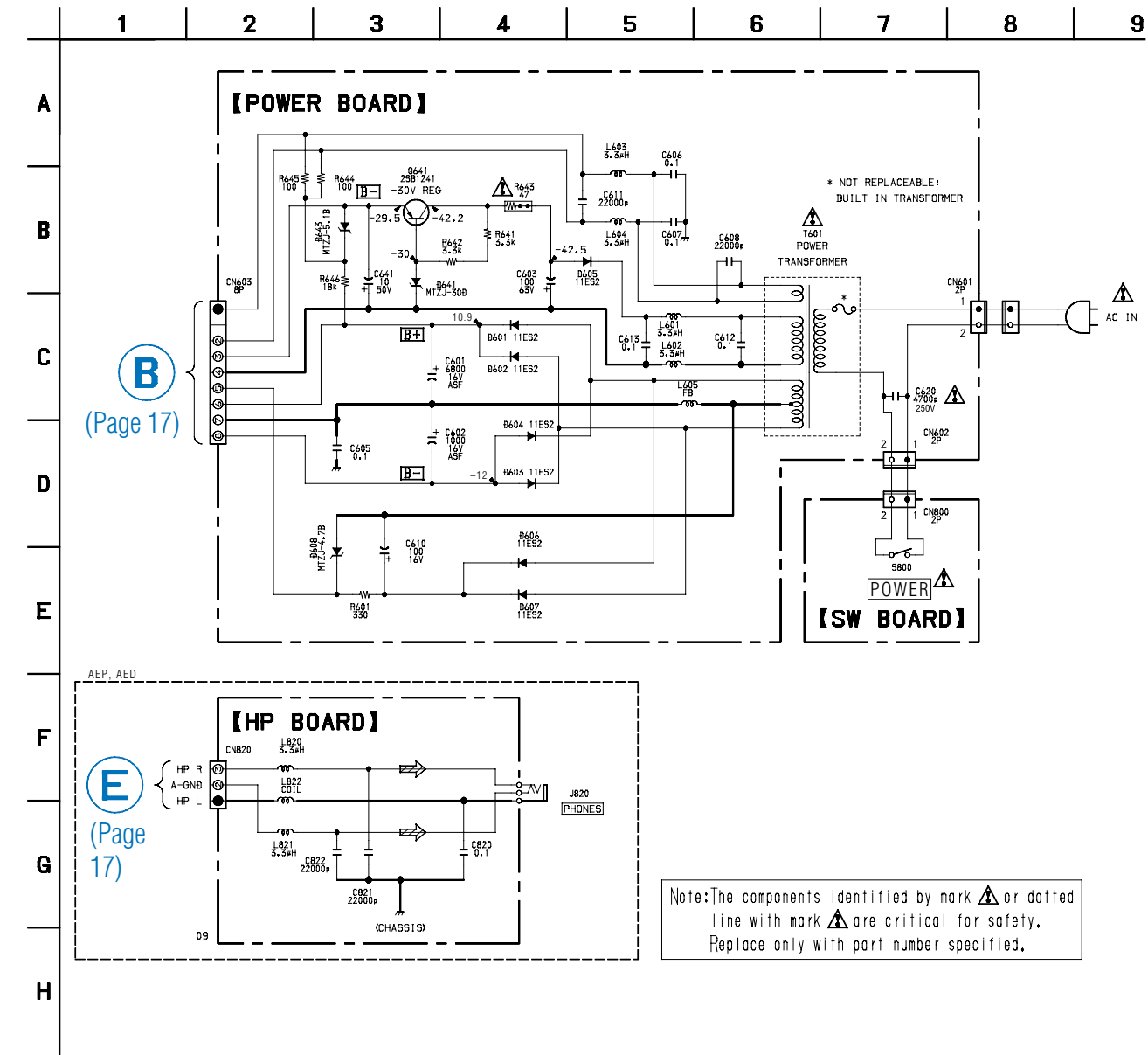
[illegible]

Ref. No.	Location
IC501	A-7
IC502	A-3
Q501	A-6
Q502	A-6

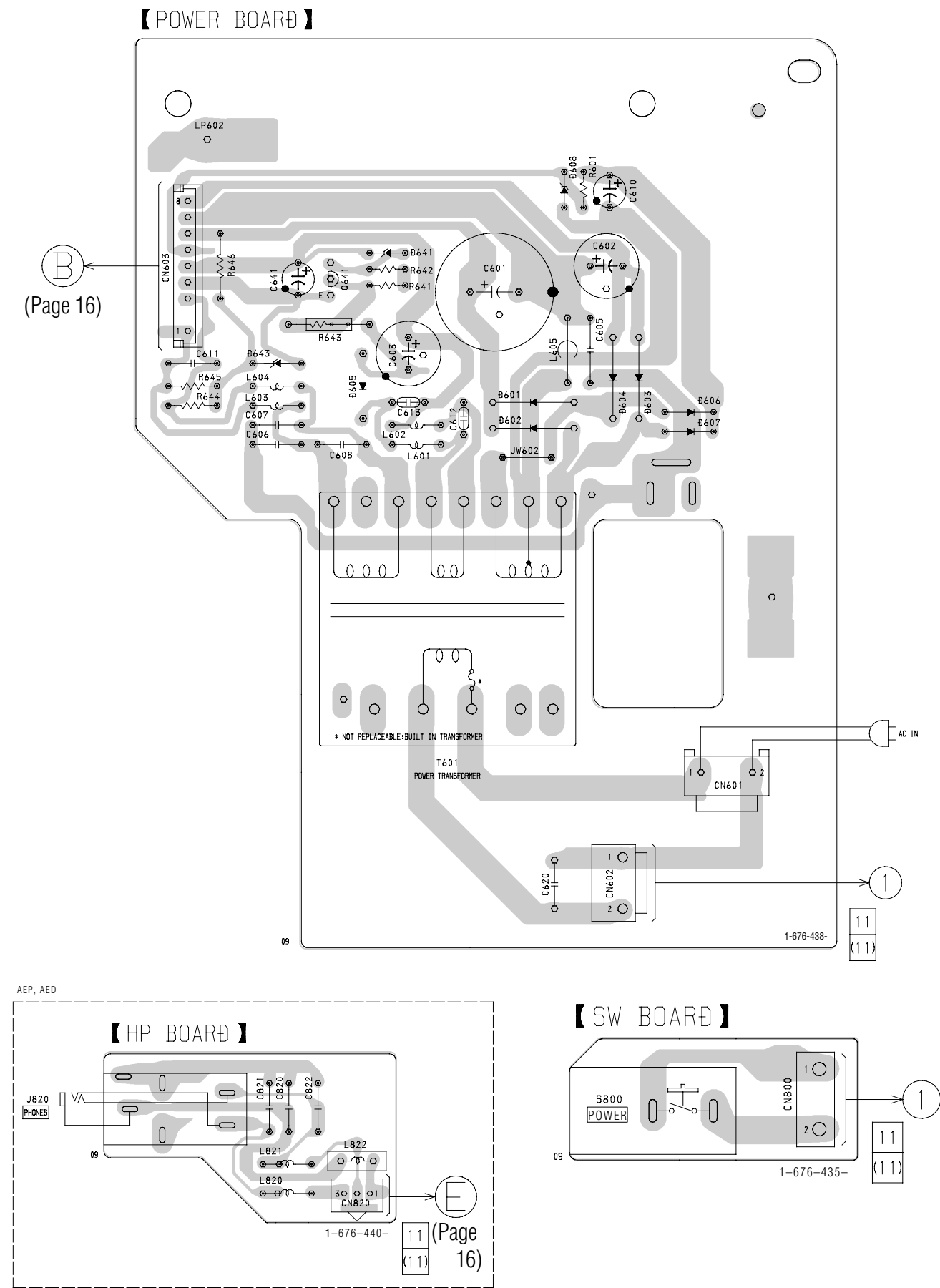
6-7. Schematic Diagram – DISPLAY Section –
• See page 24 for IC Pin Functions.



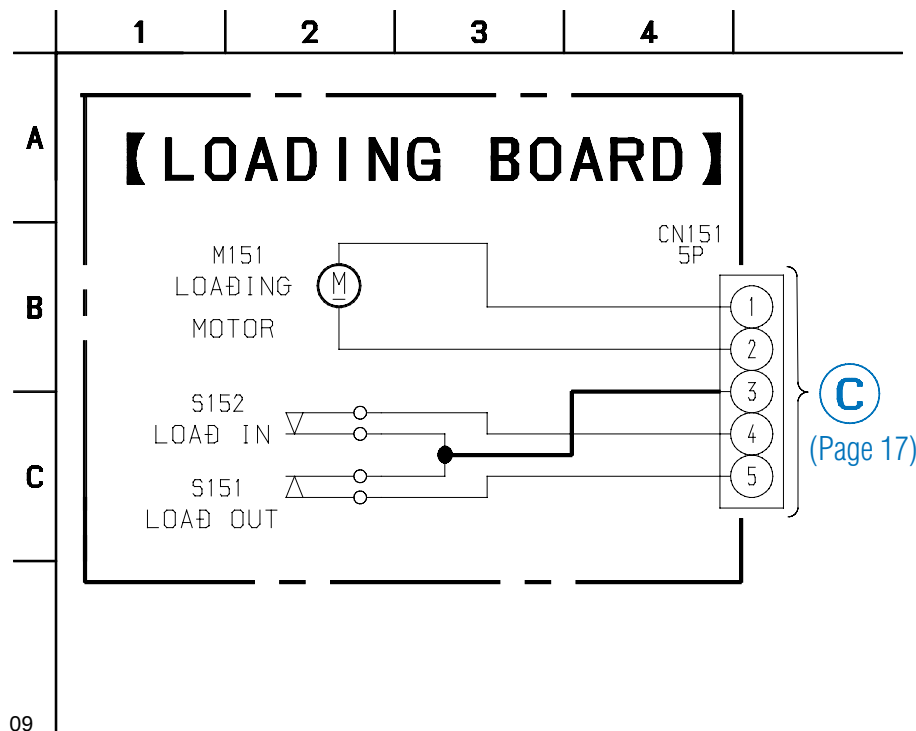
6-8. Schematic Diagram – POWER/HP Section –



6-9. Printed Wiring Board – POWER/HP Section –
• See page 12 for Circuit Boards Location.

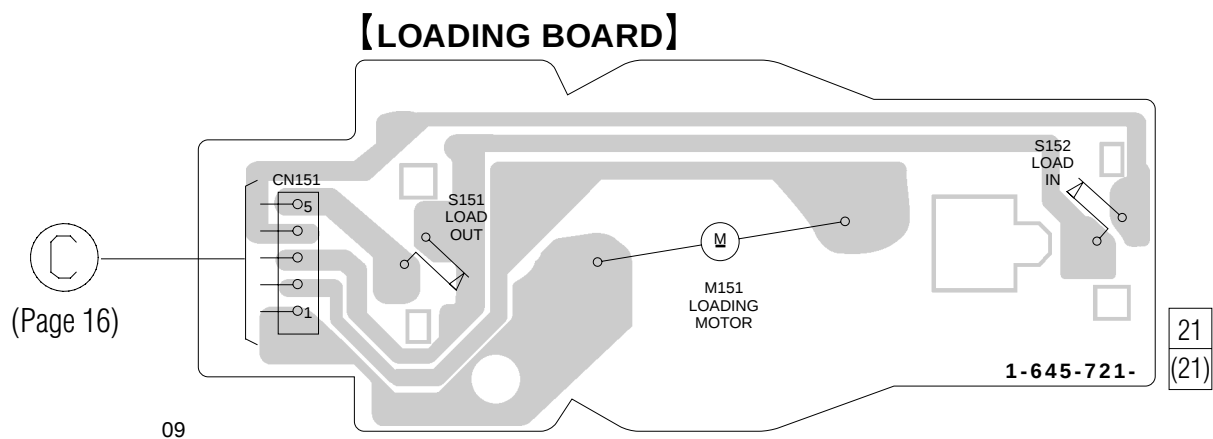


6-10. SCHEMATIC DIAGRAM – LOADING MOTOR SECTION –



6-11. PRINTED WIRING BOARD – LOADING MOTOR SECTION –

- See page 12 for Circuit Boards Location.



6-12. IC PIN FUNCTIONS

• IC101 DIGITAL SIGNAL PROCESSOR (CXD2585Q) (BD BOARD)

Pin No.	Pin Name	I/O	Function
1	DVDD	–	Digital power supply
2	XRST	I	System reset “L” : reset
3	MUTE	I	Muting input “H” : mute
4	DATA	I	Serial data input, supplied from CPU
5	XLAT	I	Latch input, supplied from CPU
6	CLOCK	I	Serial data transfer clock input, supplied from CPU
7	SENS	O	SENS signal output to CPU
8	SCLK	I	SENS serial data read-out clock input
9	ATSK	I	Input pin for anti-shock (Connected to ground)
10	WFCK	O	WFCK output (Not used)
11	XUGF	O	Not used
12	XPCK	O	Not used
13	GFS	O	Not used
14	C2PO	O	Not used
15	SCOR	O	Sub-code sync output
16	CM4	O	4.2336 MHz output (Not used)
17	WDCK	O	Word clock output ($f = 2Fs$)
18	DVSS	–	Digital ground
19	COUT	I/O	Numbers of track counted signal input/output (Not used)
20	MIRR	I/O	Mirror signal input/output
21	DFCT	I/O	Defect signal input/output
22	FOK	I/O	Focus OK input/output
23	PWMI	I	Spindle motor external control input (Connected to ground)
24	LOCK	I/O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
25	MDP	O	Output to control spindle motor servo
26	SSTP	I	Input signal to detect disc inner most track
27	FSTO	O	2/3 divider output of pin 71
28	DVDD1	–	Digital power supply
29	SFDR	O	Sled drive output
30	SRDR	O	Sled drive output
31	TFDR	O	Tracking drive output
32	TRDR	O	Tracking drive output
33	FFDR	O	Focus drive output
34	FRDR	O	Focus drive output
35	DVSS1	–	Digital ground
36	TEST	I	TEST pin connected normally to ground
37	TES1	I	TEST pin connected normally to ground
38	VC	I	Center voltage input pin
39	FE	I	Focus error signal input
40	SE	I	Sled error signal input

- Abbreviation
GFS : Guarded Frame Sync

Pin No.	Pin Name	I/O	Function
41	TE	I	Tracking error signal input
42	CE	I	Center servo analog input
43	RFDC	I	RF signal input
44	ADIO	O	Test pin (Not used)
45	AVSS0	–	Analog ground
46	IGEN	I	Stabilized current input for operational amplifiers
47	AVDD0	–	Analog power supply
48	ASYO	O	EFM full swing output
49	ASYI	I	Asymmetry compare voltage input
50	RFAC	I	EFM signal input
51	AVSS1	–	Analog ground
52	CLTV	I	Control voltage input for master VCO1
53	FILO	O	Filter output for master PLL
54	FILI	I	Filter input for master PLL
55	PCO	O	Charge-pump output for master PLL
56	AVDD1	–	Analog power supply
57	BIAS	I	Asymmetry circuit constant current input
58	VCTL	I	VCO2 control voltage input for wide band EFM PLL (Connected to VDD)
59	V16M	I/O	VCO2 oscillator input/output for wide band EFM PLL (Not used)
60	VPCO	O	Charge-pump output for wide band EFM PLL (Not used)
61	DVDD2	–	Digital power supply
62	ASYE	I	Asymmetry circuit ON/OFF input “L” OFF, “H” : ON (Connected to VDD)
63	MD2	I	Digital-out ON/OFF control input (Connected to VDD)
64	DOUT	O	Digital-out output pin
65	LRCK	O	D/A interface LR clock output ($f = F_s$)
66	PCMD	O	D/A interface serial data output
67	BCLK	O	D/A interface bit clock output
68	EMPH	O	Playback disc output in emphasis mode (Not used)
69	XTSL	I	X'tal selection input (Connected to ground)
70	DVSS2	–	Digital ground
71	XTAI	I	X'tal oscillator circuit input
72	XTAO	O	X'tal oscillator circuit output (Not used)
73	SOUT	O	Serial data output in servo block (Not used)
74	SOCK	O	Serial data read clock output in servo block (Not used)
75	XOLT	O	Serial data latch output in servo block (Not used)
76	SQSO	O	Sub-Q 80-bit and PCM peak level data output (CD text data output)
77	SQCK	I	Clock input for SQSO read-out
78	SCSY	I	Connected to ground
79	SBSO	O	Sub-P through Sub-W serial output (Not used)
80	EXCK	I	Clock input for SBSO read-out (Connected to ground)

- Abbreviation
EFM : Eight to Fourteen Modulation
PLL : Phase Locked Loop

• IC501 SYSTEM CONTROL (CXP82832-024Q) (PANEL BOARD)

Pin No.	Pin Name	I/O	Function
1	13G	O	FL grid signal output
2	14G	O	FL grid signal output
3	NC	–	Connected to VDD
4	+5V	–	Power supply (+5V)
5	SCOR	I	Sub code sync input
6, 7	GND	–	Ground
8	RMIN	I	Remote control signal input
9	GND	–	Ground
10, 11	X	–	Not used (Open)
12	LD OUT	O	Loading motor control
13	LD IN	O	Loading motor control
14	SENS	I	Sense signal input
15	XLT	O	Serial latch output
16	AMUTE	O	Audio mute output
17	PGML	O	Digital filter latch output
18	SENSOR. IN	–	Connected to VDD
19	BUSOUT	O	CONTROL-A1 transmission output
20	BUSIN	I	CONTROL-A1 receive input
21	SENSOR. SW	–	Not used (Open)
22	CLK	O	Serial clock output
23	LDON	O	Optical pick-up laser diode control output
24	DATA	O	Serial data output
25	SQCK	O	Subcode Q data readout clock output
26	SUBQ	I	Subcode Q data input
27	+5V	–	Power supply (+5V)
28	AVREF	I	Analog reference voltage input
29	KEY 0	I	Key input
30	KEY 1	I	Key input
31	KEY 2	I	Key input
32	FILTER. SW	–	Connected to ground
33	ADJ/AFADJ	I	Test mode terminal
34	LOADSW	O	Load in/out select control output
35	MODEL. SEL1	–	Model select pin (Connected to ground)
36	MODEL. SEL2	–	Model select pin (Connected to VDD)
37	AVSS	–	Analog ground
38	$\overline{\text{RST}}$	I	Reset signal input
39	EXTAL	I	8 MHz clock input
40	XTAL	O	8 MHz clock output

• Abbreviation

FL : Fluorescent indicator tube

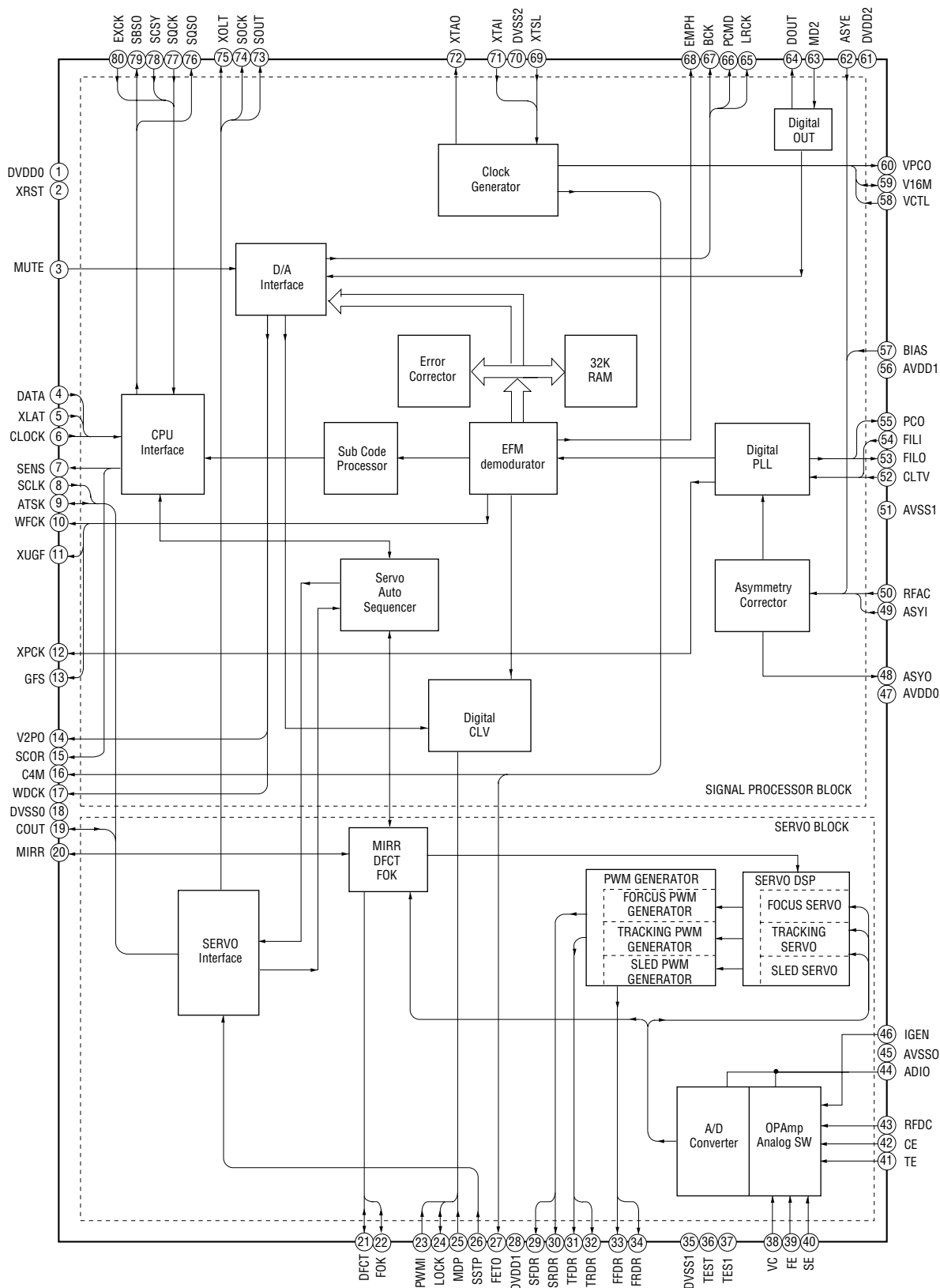
Pin No.	Pin Name	I/O	Function
41	VSS	–	Ground
42	TX	–	Not used
43	TEX	–	Connected to ground
44	VDD (+5V)	–	Power supply (+5V)
45	VFDP (–30V)	–	Pull down voltage (–30V)
46	XSEL	O	Not used
47	REINIT	–	Not used
48	LP CONTROL	O	LP control hold output
49	B-MUTE	O	Line mute control output
50 to 66	OPEN	–	Not used
67 to 87	S21 to S1	O	FL segment signal output
88	1G	O	FL grid signal output
89	VDD (+5V)	–	Power supply (+5V)
90 to 100	2G to 12G	O	FL grid signal output

- Abbreviation
FL : Fluorescent indicator tube

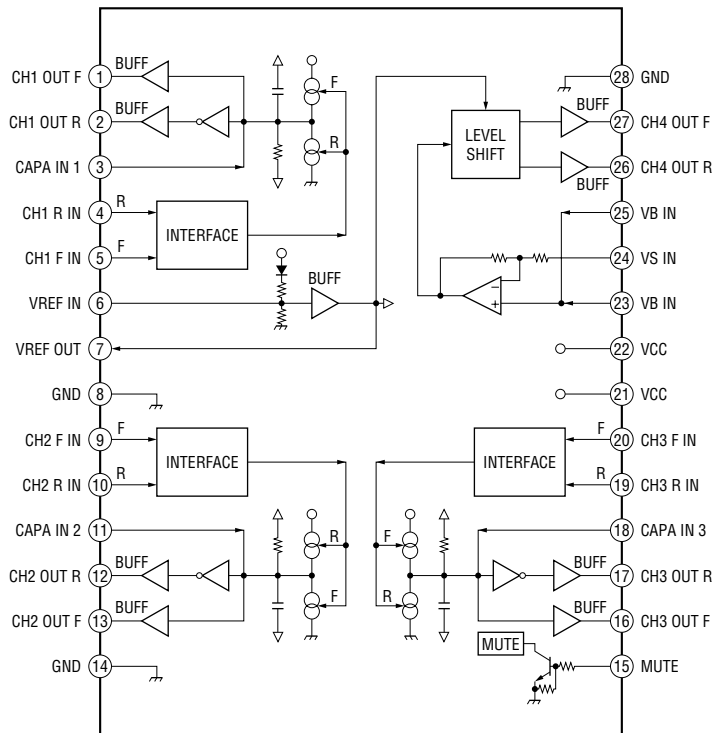
6-13. IC BLOCK DIAGRAMS

• BD section

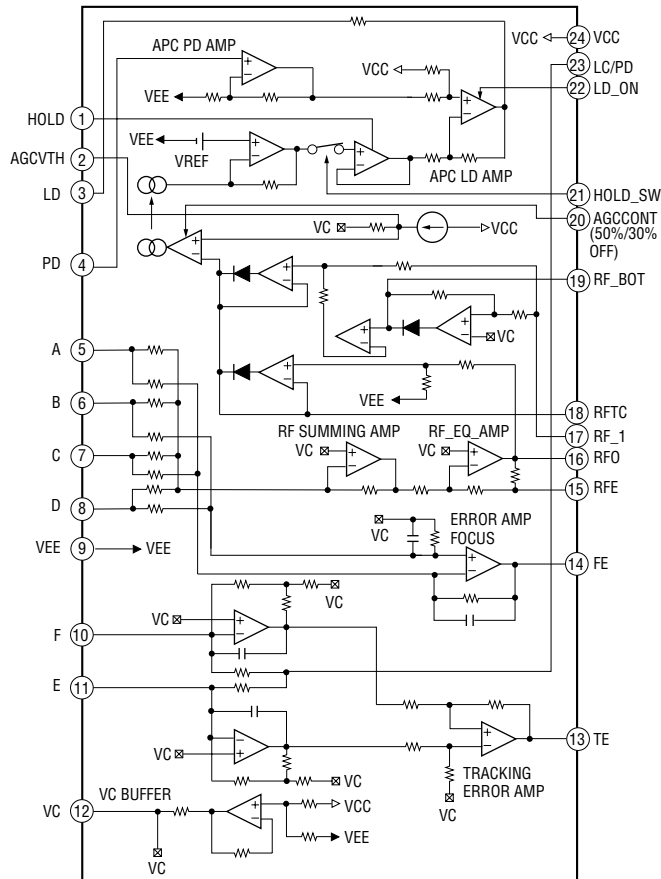
IC101 CXD2585Q



IC102 BA6392FP

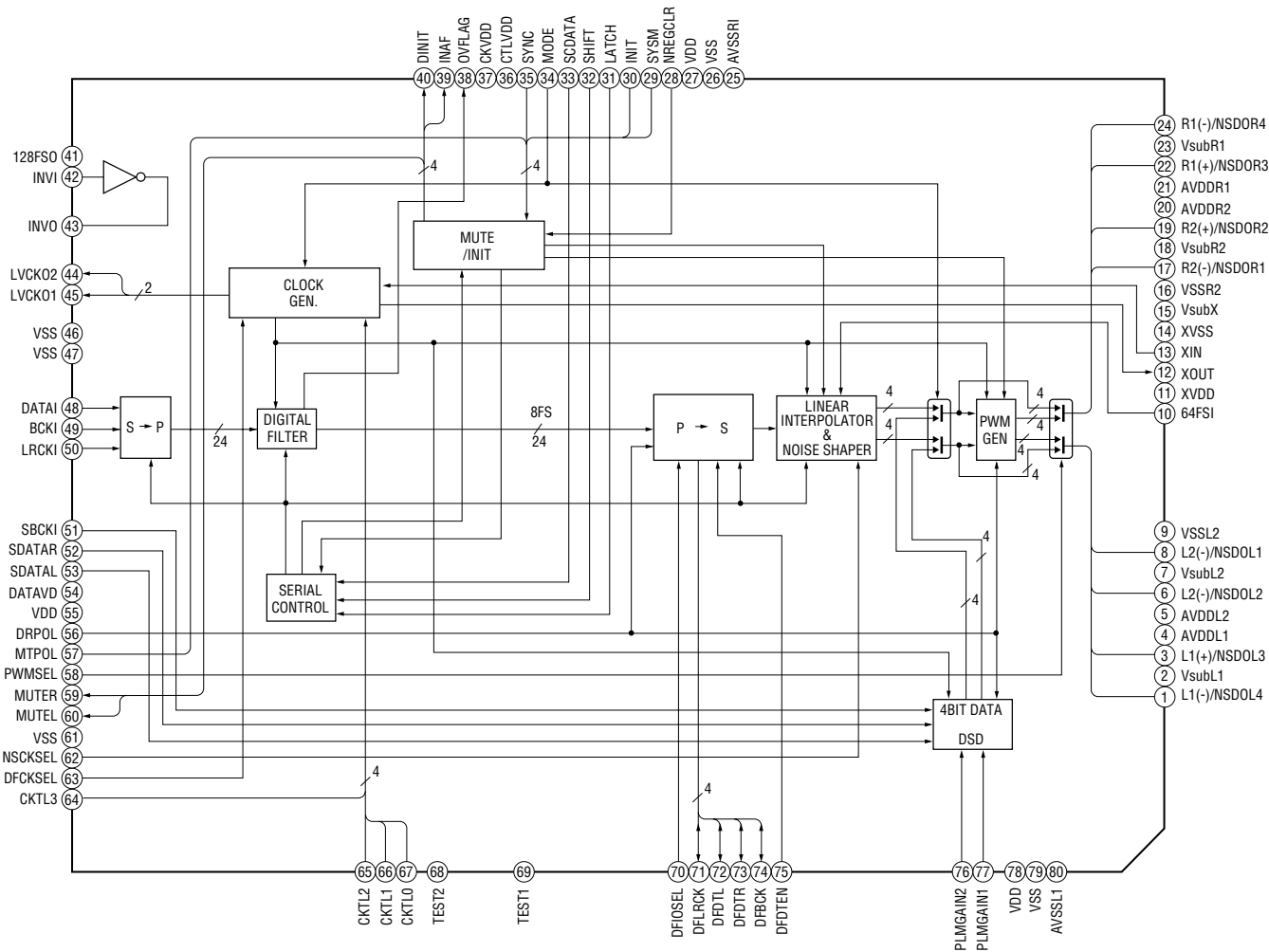


IC103 CXA2568M

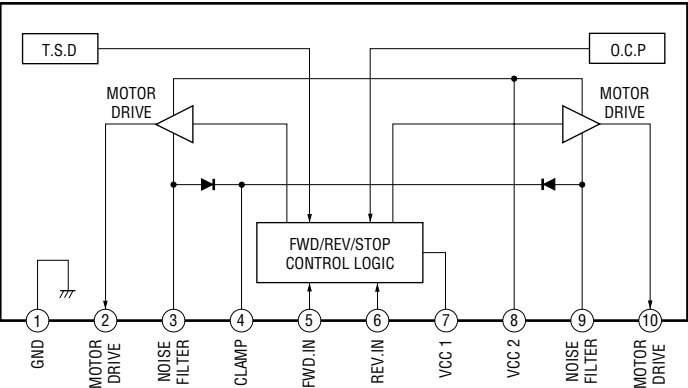


• Main section

IC301 CXD9556Q



IC631 LB1641



SECTION 7

EXPLODED VIEWS

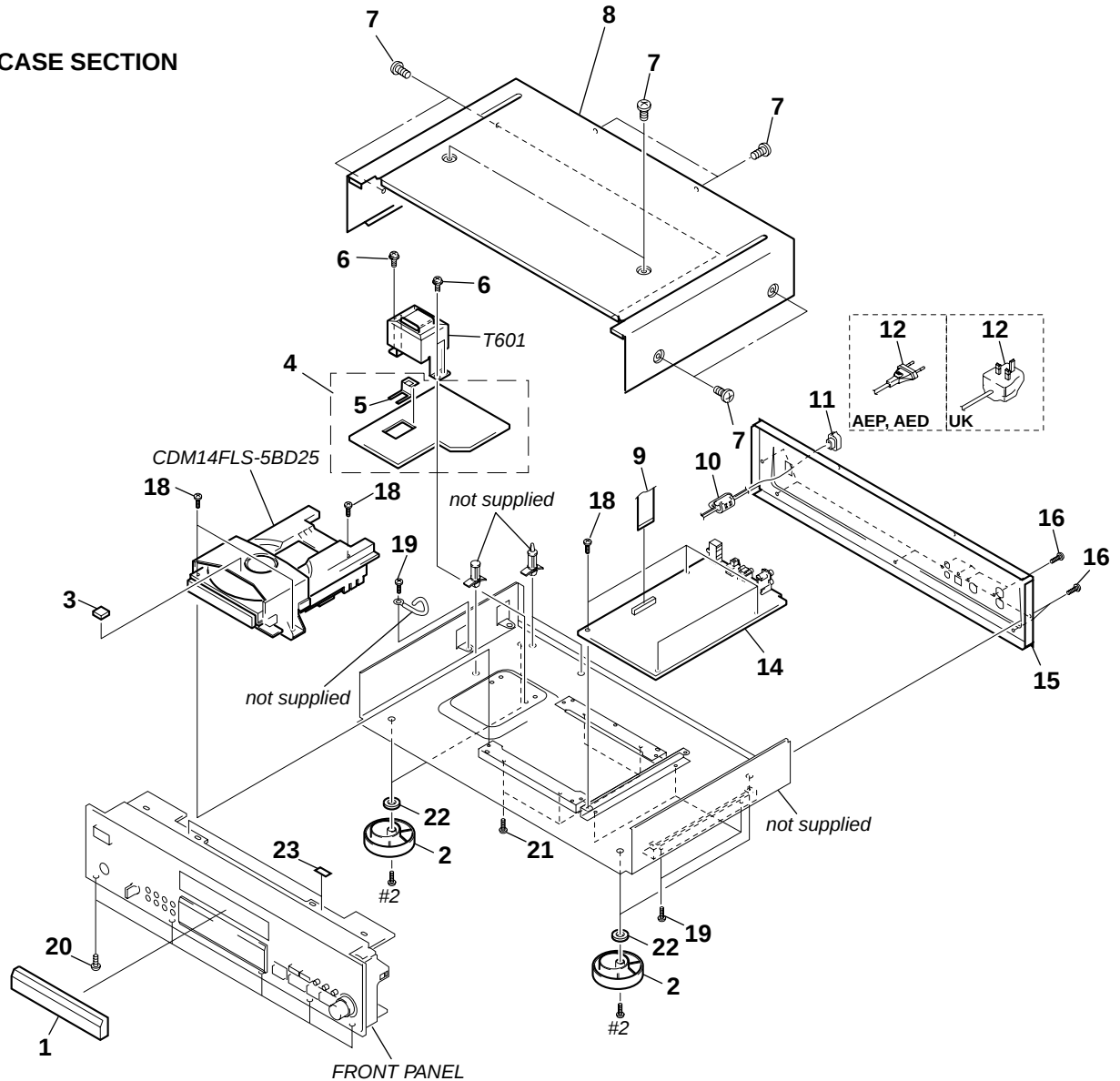
NOTE:

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
AED: North European

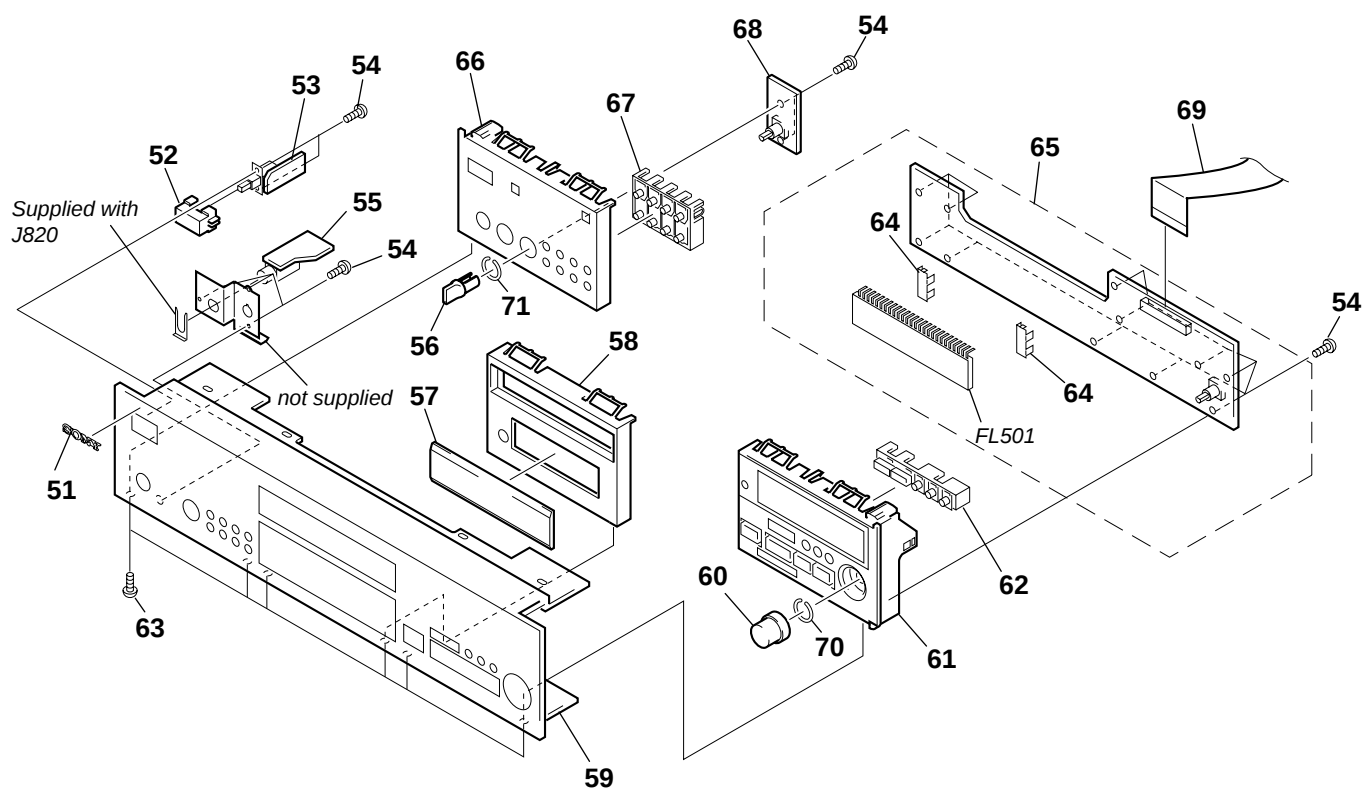
The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

7-1. CASE SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-997-218-01	PANEL, LOADING		14	A-4725-019-A	MAIN BOARD, COMPLETE (AEP,AED)	
2	X-4949-523-1	FOOTASSY (F50180S)					
3	4-222-658-01	SHEET, MAGNET		14	A-4725-024-A	MAIN BOARD, COMPLETE (UK)	
4	1-676-438-11	POWER BOARD		15	4-997-214-63	PANEL, BACK (AEP,AED)	
* 5	4-962-200-11	PLATE (TR), GROUND		15	4-997-214-71	PANEL, BACK (UK)	
				16	3-704-515-21	SCREW (BV/RING) (AEP,AED)	
6	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6		16	3-704-515-51	SCREW (BV/RING) (UK)	
7	4-227-843-01	SCREW(TP), FLAT HEAD (AEP,AED)					
7	4-227-843-21	SCREW(TP), FLAT HEAD (UK)		18	4-974-510-01	SCREW (+BV 3X8 CU)	
* 8	4-997-138-02	CASE(4095269)		19	3-704-515-51	SCREW (BV/RING) (UK)	
9	1-773-179-11	WIRE(FLAT TYPE) (23 CORE)		19	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S (AEP,AED)	
				20	3-704-515-31	SCREW (BV/RING) (AEP,AED)	
10	1-500-386-11	FILTER, CLAMP (FERRITE CORE)		20	4-967-961-01	SCREW (3X8) (UK)	
11	4-966-267-11	BUSHING (FBS001), CORD					
△ 12	1-575-651-21	CORD, POWER (AEP,AED)		21	4-967-961-01	SCREW (3X8) (UK)	
△ 12	1-751-529-11	CORD, POWER (UK)		21	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S (AEP,AED)	
				22	3-311-623-01	SPACER	
				* 23	3-378-400-01	CUSHION, SARANET	
				△ T601	1-435-329-11	TRANSFORMER, POWER	

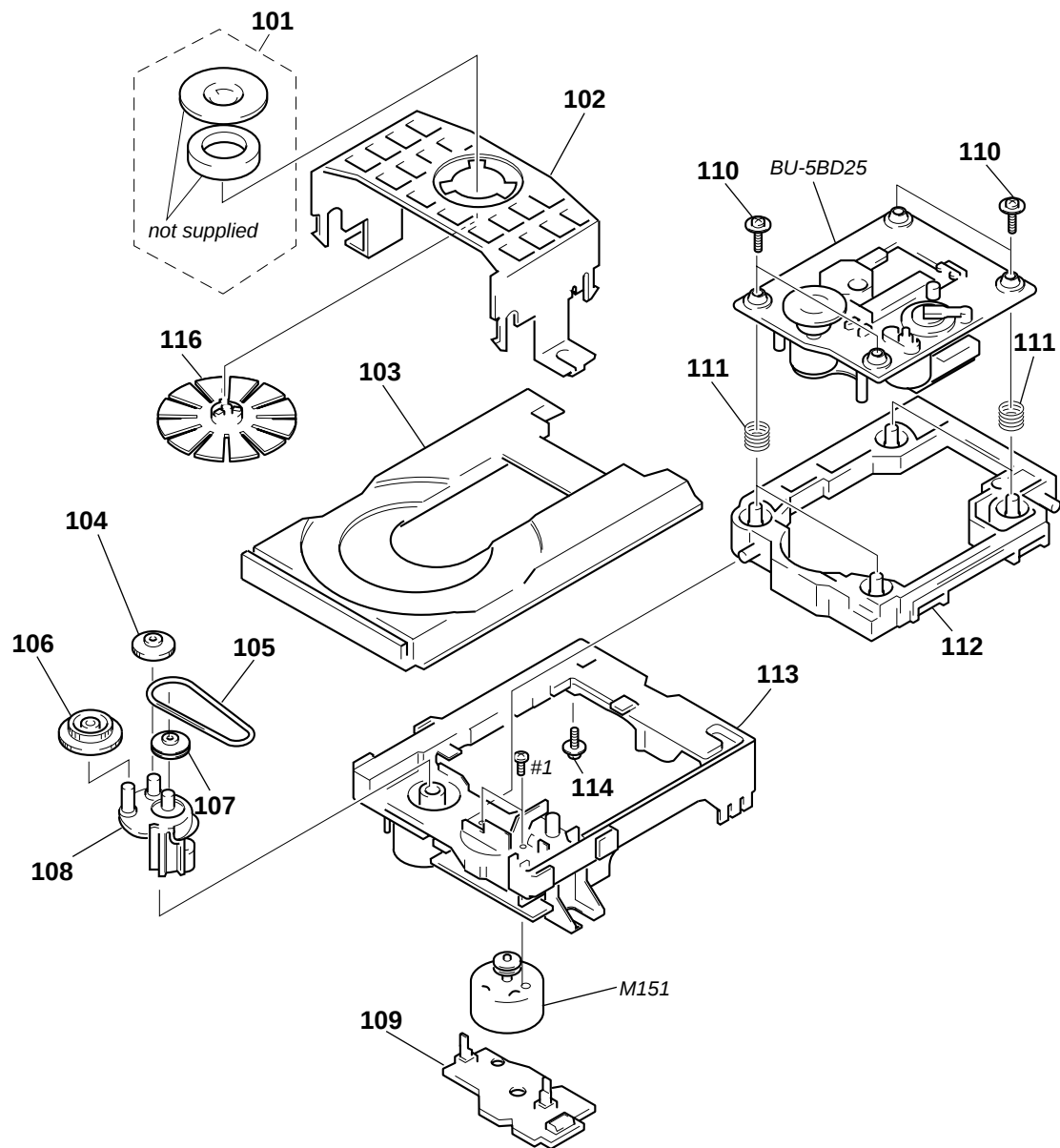
7-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	4-942-568-41	EMBLEM (NO.5), SONY	
52	4-998-790-31	KNOB, POWER	
53	1-676-435-11	SW BOARD	
54	4-951-620-01	SCREW (2.6X8), +BVTP	
55	1-676-440-11	HP BOARD (AEP,AED)	
56	4-950-189-01	KNOB(A) (VOL)	
57	4-997-219-01	PLATE, INDICATION	
58	4-997-216-03	BASE(M2), PANEL	
59	4-997-215-52	PANEL, FRONT (AEP,AED)	
59	4-997-215-62	PANEL, FRONT (UK)	
60	4-996-687-51	KNOB(AMS)	
61	X-4949-458-1	BASE(R) ASSY, PANEL	

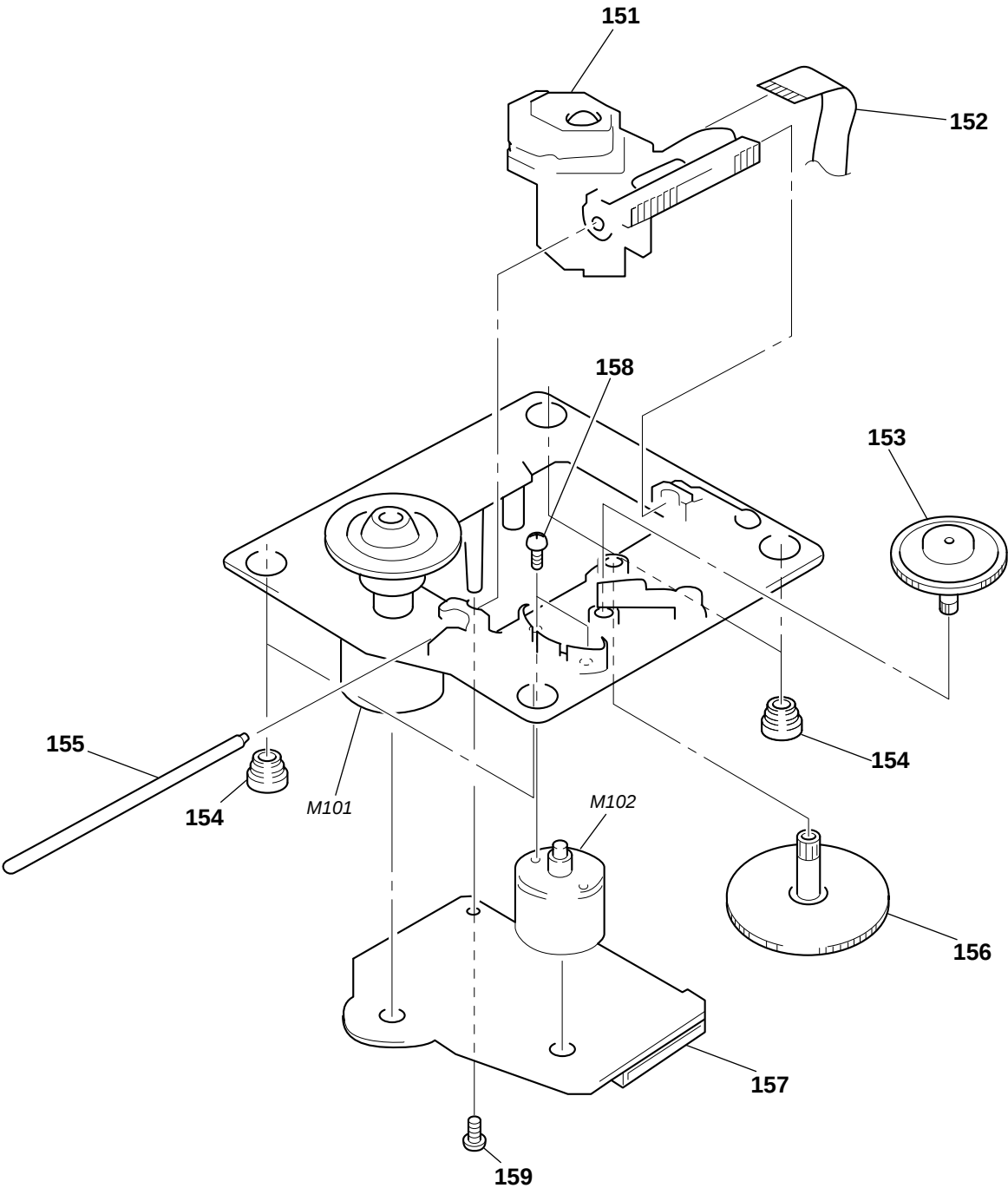
Ref. No.	Part No.	Description	Remark
62	4-997-213-01	BUTTON (FR)	
63	4-967-961-01	SCREW (3X8) (UK)	
63	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S (AEP,AED)	
* 64	4-997-495-01	GUIDE (FL)	
65	A-4725-020-A	PANEL BOARD, COMPLETE	
66	4-997-200-04	BASE(L), PANEL	
67	4-997-211-01	BUTTON (MODE)	
68	1-676-439-11	DF BOARD	
69	1-773-211-11	WIRE(FLAT TYPE) (25 CORE)	
70	3-354-981-11	SPRING (SUS), RING	
71	4-948-469-01	SPRING, RING	
FL501	1-517-740-11	INDICATOR TUBE, FLUORESCENT	

7-3. MECHANISM DECK SECTION (CDM14FLS-5BD25)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-452-925-21	MAGNET ASSY		110	4-933-134-01	SCREW (+PTPWH M2.6X6)	
102	4-933-110-71	HOLDER (MG)		111	4-959-996-01	SPRING (932), COMPRESSION	
103	4-995-814-42	TABLE (FL), DISC		112	4-933-129-01	HOLDER (BU)	
104	4-967-268-01	GEAR (C)		113	4-933-111-41	CHASSIS (MD)	
105	4-927-649-01	BELT		114	7-685-903-21	BRACKET, YOKE	
106	4-933-107-01	GEAR (PL)		116	4-993-142-21	PULLEY (L), PRESS	
107	4-927-651-01	PULLEY (S)					
108	4-933-109-01	CAM		M151	A-4604-363-A	MOTOR (L) ASSY	
109	1-645-721-11	LOADING BOARD					

7-4. BASE UNIT SECTION (BU-5BD25)



The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety.
 Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
$\triangle$ 151	8-848-379-31	OPTICAL PIC-UP KSS-213BA/F-NP		156	4-917-564-01	GEAR (P), FLATNESS	
152	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)		* 157	A-4724-002-A	BD BOARD COMPLETE	
153	4-917-567-01	GEAR (M)		158	3-713-786-51	SCREW +P 2X3	
154	4-951-940-01	INSULATOR (BU)		159	4-951-620-01	SCREW (2.6X8), +BVTP	
155	4-917-565-01	SHAFT, SLED		M101	X-4917-523-4	MOTOR ASSY (SPINDLE)	
				M102	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 8 ELECTRICAL PARTS LIST

BD

Note:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ P A..., uPB...: μ PB ...,
uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H
- Abbreviation
AED : North European

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4724-002-A	BD BOARD, COMPLETE *****		IC103	8-752-085-51	IC CXA2568M-T6	
		< CAPACITOR >				< JUMPER RESISTOR >	
C101	1-163-005-11	CERAMIC CHIP 470PF 10% 50V		JW102	1-216-295-91	SHORT 0	
C102	1-163-038-91	CERAMIC CHIP 0.1uF 25V				< COIL >	
C103	1-163-005-11	CERAMIC CHIP 470PF 10% 50V		L101	1-414-234-22	INDUCTOR CHIP 0uH	
C105	1-135-214-21	TANTAL. CHIP 4.7uF 20.00% 10V				< TRANSISTOR >	
C106	1-164-346-11	CERAMIC CHIP 1uF 16V		Q101	8-729-010-08	TRANSISTOR MSB710-RT1	
C107	1-164-346-11	CERAMIC CHIP 1uF 16V				< RESISTOR >	
C108	1-163-035-00	CERAMIC CHIP 0.047uF 50V		R101	1-216-077-91	RES-CHIP 15K 5% 1/10W	
C109	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V		R102	1-216-097-91	RES-CHIP 100K 5% 1/10W	
C110	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V		R103	1-216-077-91	RES-CHIP 15K 5% 1/10W	
C111	1-163-251-11	CERAMIC CHIP 100PF 5.00% 50V		R104	1-216-085-00	METAL CHIP 33K 5% 1/10W	
C112	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R105	1-216-097-91	RES-CHIP 100K 5% 1/10W	
C113	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R106	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C115	1-126-607-11	ELECT CHIP 47uF 20% 4V		R107	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C116	1-126-607-11	ELECT CHIP 47uF 20% 4V		R108	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C117	1-126-209-11	ELECT CHIP 100uF 20.00% 4V		R109	1-216-121-91	RES-CHIP 1M 5% 1/10W	
C118	1-163-275-11	CERAMIC CHIP 0.001uF 5.00% 50V		R110	1-216-025-91	RES-CHIP 100 5% 1/10W	
C119	1-163-231-11	CERAMIC CHIP 15PF 5.00% 50V		R112	1-216-049-91	RES-CHIP 1K 5% 1/10W	
C120	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V		R123	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C121	1-109-982-11	CERAMIC CHIP 1uF 10.00% 10V		R124	1-216-097-91	RES-CHIP 100K 5% 1/10W	
C122	1-163-021-91	CERAMIC CHIP 0.01uF 10.00% 50V		R125	1-216-037-00	METAL CHIP 330 5% 1/10W	
C123	1-163-021-91	CERAMIC CHIP 0.01uF 10.00% 50V		R126	1-216-037-00	METAL CHIP 330 5% 1/10W	
C124	1-164-005-11	CERAMIC CHIP 0.47uF 25V		R127	1-216-037-00	METAL CHIP 330 5% 1/10W	
C125	1-163-217-11	CERAMIC CHIP 1PF 0.25PF 50V		R131	1-216-037-00	METAL CHIP 330 5% 1/10W	
C126	1-135-216-11	TANTALUM CHIP 10uF 20% 10V		R135	1-216-295-91	SHORT 0	
C140	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R136	1-216-295-91	SHORT 0	
C141	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R137	1-216-295-91	SHORT 0	
C151	1-163-237-11	CERAMIC CHIP 27PF 5.00% 50V		R138	1-216-295-91	SHORT 0	
C153	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R143	1-216-103-00	METAL CHIP 180K 5% 1/10W	
C154	1-164-336-11	CERAMIC CHIP 0.33uF 25V		R144	1-216-103-00	METAL CHIP 180K 5% 1/10W	
C156	1-163-237-11	CERAMIC CHIP 27PF 5.00% 50V		R145	1-216-121-91	RES-CHIP 1M 5% 1/10W	
C157	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V		R146	1-216-121-91	RES-CHIP 1M 5% 1/10W	
C159	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V		R147	1-216-081-00	METAL CHIP 22K 5% 1/10W	
C161	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R148	1-216-001-00	METAL CHIP 10 5% 1/10W	
		< CONNECTOR >		R149	1-216-003-11	RES-CHIP 12 5% 1/10W	
CN101	1-770-072-11	CONNECTOR, (LIF(NON-ZIF)) FFC23P		R158	1-216-111-00	METAL CHIP 390K 5% 1/10W	
CN102	1-777-937-11	CONNECTOR, FFC/FPC 16P		R159	1-216-101-00	METAL CHIP 150K 5% 1/10W	
		< IC >		R161	1-216-308-00	METAL CHIP 4.7 5% 1/10W	
IC101	8-752-389-34	IC CXD2585Q		R162	1-216-101-00	METAL CHIP 150K 5% 1/10W	
* IC102	8-759-455-91	IC BA6392FP-E2					

Ref. No.	Part No.	Description	Remark			
< SWITCH >						
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	*****			
	1-676-439-11	DF BOARD	*****			
< RESISTOR >						
R550	1-249-415-11	CARBON	680	5%	1/4W	F
R551	1-249-417-11	CARBON	1K	5%	1/4W	F
R552	1-249-419-11	CARBON	1.5K	5%	1/4W	F
< SWITCH >						
S550	1-771-312-11	SWITCH, ROTARY (FILTER)	*****			
	1-676-440-11	HP BOARD (AEP, AED)	*****			
< CAPACITOR >						
C820	1-164-159-11	CERAMIC	0.1uF	50V (AEP, AED)		
C821	1-161-494-00	CERAMIC	0.022uF	25V (AEP, AED)		
C822	1-161-494-00	CERAMIC	0.022uF	25V (AEP, AED)		
< JACK >						
J820	1-770-307-11	JACK (LARGE TYPE) (PHONES) (AEP, AED)				
< COIL >						
L820	1-410-322-11	INDUCTOR 3.3uH (AEP, AED)				
L821	1-410-322-11	INDUCTOR 3.3uH (AEP, AED)				
L822	1-424-122-11	FILTER, NOISE (AEP, AED)	*****			
	1-645-721-11	LOADING BOARD	*****			
< CONNECTOR >						
* CN151	1-568-943-11	PIN, CONNECTOR 5P				
< SWITCH >						
S271	1-572-086-11	SWITCH, LEAF (LOAD OUT)				
S272	1-572-086-11	SWITCH, LEAF (LOAD IN)	*****			
	A-4725-019-A	MAIN BOARD, COMPLETE (AEP, AED)				
	A-4725-024-A	MAIN BOARD, COMPLETE (UK)	*****			
	1-690-123-21	REED (WITH CONNECTOR) (2 CORE)				
	4-211-300-01	RING, RUBBER				
	7-685-871-01	SCREW +BVT 3X6 (S)				
< CAPACITOR >						
C301	1-161-494-00	CERAMIC	0.022uF	25V		
C351	1-102-943-00	CERAMIC	6.0PF	+0.5PF	50V	
C352	1-102-943-00	CERAMIC	6.0PF	+0.5PF	50V	
C353	1-130-973-00	FILM	0.022uF	5.00%	100V	
C356	1-115-197-11	ELECT	100uF	20.00%	25V	

Ref. No.	Part No.	Description	Remark			
C360	1-162-208-31	CERAMIC	24PF	5.00%	50V	
C385	1-119-801-11	ELECT	220uF	20.00%	25V	
C386	1-119-800-11	ELECT	100uF	20.00%	25V	
C387	1-119-800-11	ELECT	100uF	20.00%	25V	
C388	1-119-800-11	ELECT	100uF	20.00%	25V	
C389	1-130-973-00	FILM	0.022uF	5.00%	100V	
C390	1-130-973-00	FILM	0.022uF	5.00%	100V	
C391	1-119-800-11	ELECT	100uF	20.00%	25V	
C392	1-161-494-00	CERAMIC	0.022uF	25V		
C393	1-162-282-31	CERAMIC	100PF	10%	50V	
C394	1-162-290-31	CERAMIC	470PF	10%	50V	
C395	1-164-159-11	CERAMIC	0.1uF		50V	
C397	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C398	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C399	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C403	1-102-949-00	CERAMIC	12PF	5%	50V	
C404	1-119-800-11	ELECT	100uF	20.00%	25V	
C405	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C406	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C408	1-102-973-00	CERAMIC	100PF	5%	50V	
C409	1-102-961-00	CERAMIC	27PF	5%	50V	
C410	1-102-961-00	CERAMIC	27PF	5%	50V	
C411	1-130-955-00	FILM	0.01uF	5.00%	100V	
C412	1-136-250-11	FILM	0.001uF	5.00%	100V	
C413	1-109-857-11	ELECT	47uF	20.00%	63V	
C414	1-130-892-00	FILM	0.015uF	5.00%	100V	
C453	1-102-949-00	CERAMIC	12PF	5%	50V	
C454	1-119-800-11	ELECT	100uF	20.00%	25V	
C455	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C456	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C458	1-102-973-00	CERAMIC	100PF	5%	50V	
C459	1-102-961-00	CERAMIC	27PF	5%	50V	
C460	1-102-961-00	CERAMIC	27PF	5%	50V	
C461	1-130-955-00	FILM	0.01uF	5.00%	100V	
C462	1-136-250-11	FILM	0.001uF	5.00%	100V	
C463	1-109-857-11	ELECT	47uF	20.00%	63V	
C464	1-130-892-00	FILM	0.015uF	5.00%	100V	
C631	1-161-494-00	CERAMIC	0.022uF	25V		
C632	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	
C651	1-119-813-11	ELECT	470uF	20.00%	35V	
C652	1-119-813-11	ELECT	470uF	20.00%	35V	
C653	1-119-801-11	ELECT	220uF	20.00%	25V	
C654	1-119-801-11	ELECT	220uF	20.00%	25V	
C655	1-119-801-11	ELECT	220uF	20.00%	25V	
C656	1-119-793-11	ELECT	1000uF	20.00%	16V	
C657	1-119-794-21	ELECT	2200uF	20.00%	16V	
C658	1-130-973-00	FILM	0.022uF	5.00%	100V	
C659	1-130-973-00	FILM	0.022uF	5.00%	100V	
C670	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C671	1-126-962-11	ELECT	3.3uF	20.00%	50V	
C672	1-164-159-11	CERAMIC	0.1uF		50V	
C673	1-161-494-00	CERAMIC	0.022uF	25V		
C680	1-126-767-11	ELECT	1000uF	20.00%	16V	
C681	1-164-159-11	CERAMIC	0.1uF		50V	
C691	1-164-159-11	CERAMIC	0.1uF		50V	
C700	1-161-494-00	CERAMIC	0.022uF	25V		
C701	1-136-850-11	MYLAR	0.1uF	5.00%	63V	
C702	1-136-850-11	MYLAR	0.1uF	5.00%	63V	

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
C724	1-162-282-31	CERAMIC	100PF	10%	50V		L451	1-412-473-21	INDUCTOR 0uH				
C752	1-126-024-11	ELECT	220uF	20.00%	16V		L751	1-414-510-21	INDUCTOR 3.3uH				
							L781	1-414-510-21	INDUCTOR 3.3uH				
C753	1-161-494-00	CERAMIC	0.022uF	25V					< TRANSISTOR >				
C781	1-161-494-00	CERAMIC	0.022uF	25V									
C782	1-161-494-00	CERAMIC	0.022uF	25V									
C783	1-126-009-81	ELECT	100uF	20.00%	16V		Q681	8-729-029-56	TRANSISTOR DTA144ESA-TP				
C784	1-164-159-11	CERAMIC	0.1uF		50V		Q682	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2				
							Q683	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2				
C785	1-164-159-11	CERAMIC	0.1uF		50V		Q691	8-729-029-56	TRANSISTOR DTA144ESA-TP				
		< CONNECTOR >					Q692	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2				
CN301	1-784-784-11	CONNECTOR, FFC 23P					Q693	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2				
CN302	1-784-786-11	CONNECTOR, FFC 25P					Q701	8-729-922-37	TRANSISTOR 2SD2144S-TP-UVW (AEP, AED)				
CN701	1-506-468-11	PIN, CONNECTOR 3P (AEP, AED)					Q702	8-729-922-37	TRANSISTOR 2SD2144S-TP-UVW (AEP, AED)				
		< DIODE >					Q721	8-729-620-05	TRANSISTOR 2SC2603TP-EF				
D631	8-719-921-40	DIODE MTZJ-T-72-4.7B							< RESISTOR >				
D651	8-719-210-21	DIODE 11EQS04-TA2B					R301	1-249-429-11	CARBON 10K	5%	1/4W		
D679	8-719-911-19	DIODE 1SS133T-72					R302	1-249-441-11	CARBON 100K	5%	1/4W		
D680	8-719-911-19	DIODE 1SS133T-72					R303	1-249-417-11	CARBON 1K	5%	1/4W	F	
D681	8-719-911-19	DIODE 1SS133T-72					R312	1-249-417-11	CARBON 1K	5%	1/4W	F	
							R313	1-249-411-11	CARBON 330	5%	1/4W		
D682	8-719-911-19	DIODE 1SS133T-72 (AEP, AED)					R351	1-249-425-11	CARBON 4.7K	5%	1/4W	F	
D691	8-719-911-19	DIODE 1SS133T-72					R401	1-249-435-11	CARBON 33K	5%	1/4W		
D692	8-719-911-19	DIODE 1SS133T-72 (AEP, AED)					R402	1-249-435-11	CARBON 33K	5%	1/4W		
D721	8-719-911-19	DIODE 1SS133T-72					R403	1-249-435-11	CARBON 33K	5%	1/4W		
		< TERMINAL EARTH >					R404	1-249-435-11	CARBON 33K	5%	1/4W		
* ET700	1-537-738-21	TERMINAL, EARTH					R405	1-249-953-11	CARBON 18K	5%	1/4W		
* ET702	1-537-738-21	TERMINAL, EARTH					R406	1-249-953-11	CARBON 18K	5%	1/4W		
		< IC >					R407	1-249-956-11	CARBON 24K	5%	1/4W		
IC301	8-759-653-12	IC CXD9556Q					R408	1-249-956-11	CARBON 24K	5%	1/4W		
IC401	8-759-712-02	IC NJM2114D					R409	1-249-547-11	CARBON 620	5%	1/4W		
IC451	8-759-712-02	IC NJM2114D											
IC631	8-759-822-09	IC LB1641					R410	1-249-542-11	CARBON 390	5%	1/4W		
IC651	8-759-604-86	IC M5F7807L					R411	1-249-925-11	CARBON 1.2K	5%	1/4W		
							R412	1-247-706-11	CARBON 330	5%	1/4W	F	
IC652	8-759-604-90	IC M5F7907L					R413	1-247-706-11	CARBON 330	5%	1/4W	F	
IC653	8-759-231-53	IC M5F7805L					R414	1-249-441-11	CARBON 100K	5%	1/4W		
IC654	8-759-604-86	IC M5F7807L											
IC655	8-759-231-53	IC M5F7805L					R415	1-249-405-11	CARBON 100	5%	1/4W	F	
IC670	8-759-636-16	IC M51957AL					R416	1-249-441-11	CARBON 100K	5%	1/4W		
							R417	1-249-441-11	CARBON 100K	5%	1/4W		
IC701	8-759-634-51	IC M5218AP (AEP, AED)					R451	1-249-435-11	CARBON 33K	5%	1/4W		
IC751	8-749-921-12	IC GP1F32T (DIGITAL OUT (OPTICAL))					R452	1-249-435-11	CARBON 33K	5%	1/4W		
IC781	8-759-242-70	IC TC7WU04F-TE12L					R453	1-249-435-11	CARBON 33K	5%	1/4W		
		< JACK >					R454	1-249-435-11	CARBON 33K	5%	1/4W		
J401	1-774-727-11	JACK, PIN 2P (ANALOG OUT)					R455	1-249-953-11	CARBON 18K	5%	1/4W		
J721	1-774-726-11	JACK (CONTROL A1II)					R456	1-249-953-11	CARBON 18K	5%	1/4W		
J781	1-778-228-11	JACK, PIN 1P(DIGITAL OUT (COAXIAL)) (AEP,AED)					R457	1-249-956-11	CARBON 24K	5%	1/4W		
J781	1-784-689-11	JACK, PIN 1P (DIGITAL OUT (COAXIAL)) (UK)											
		< COIL >					R458	1-249-956-11	CARBON 24K	5%	1/4W		
L302	1-414-510-21	INDUCTOR 3.3uH					R459	1-249-547-11	CARBON 620	5%	1/4W		
L303	1-414-510-21	INDUCTOR 3.3uH					R460	1-249-542-11	CARBON 390	5%	1/4W		
L304	1-410-503-11	INDUCTOR 3.3uH					R461	1-249-925-11	CARBON 1.2K	5%	1/4W		
L305	1-414-510-21	INDUCTOR 3.3uH					R462	1-247-706-11	CARBON 330	5%	1/4W	F	
L401	1-412-473-21	INDUCTOR 0uH											
							R463	1-247-706-11	CARBON 330	5%	1/4W	F	
							R464	1-249-441-11	CARBON 100K	5%	1/4W		
							R465	1-249-405-11	CARBON 100	5%	1/4W	F	
							R466	1-249-441-11	CARBON 100K	5%	1/4W		
							R467	1-249-441-11	CARBON 100K	5%	1/4W		
							R631	1-249-427-11	CARBON 6.8K	5%	1/4W	F	
							R670	1-249-436-11	CARBON 39K	5%	1/4W		

MAIN

PANEL

Ref. No.	Part No.	Description			Remark
R671	1-249-431-11	CARBON	15K	5%	1/4W
R672	1-247-843-11	CARBON	3.3K	5%	1/4W
R681	1-249-441-11	CARBON	100K	5%	1/4W
R682	1-249-425-11	CARBON	4.7K	5%	1/4W
R683	1-249-425-11	CARBON	4.7K	5%	1/4W
R691	1-249-441-11	CARBON	100K	5%	1/4W
R692	1-249-425-11	CARBON	4.7K	5%	1/4W
R693	1-249-425-11	CARBON	4.7K	5%	1/4W
R701	1-249-419-11	CARBON	1.5K	5%	1/4W
R702	1-249-419-11	CARBON	1.5K	5%	(AEP, AED) 1/4W
R703	1-249-403-11	CARBON	68	5%	(AEP, AED) 1/4W
R704	1-249-403-11	CARBON	68	5%	(AEP, AED) 1/4W
R724	1-249-393-11	CARBON	10	5%	(AEP, AED) 1/4W
R725	1-249-429-11	CARBON	10K	5%	1/4W
R726	1-249-425-11	CARBON	4.7K	5%	1/4W
R751	1-247-807-31	CARBON	100	5%	1/4W
R781	1-249-403-11	CARBON	68	5%	1/4W
R782	1-249-402-11	CARBON	56	5%	1/4W
< TRANSFORMER >					
T781	1-409-594-11	COIL (WITH CORE)			
< VIBRATOR >					
X351	1-760-955-11	VIBRATOR, CRYSTAL (45MHz)			

	A-4725-020-A	PANEL BOARD, COMPLETE			

*	4-997-495-01	GUIDE (FL)			
< CAPACITOR >					
C501	1-126-382-11	ELECT	100uF	20.00%	6.3V
C502	1-164-159-11	CERAMIC	0.1uF		50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C505	1-164-159-11	CERAMIC	0.1uF		50V
C506	1-164-159-11	CERAMIC	0.1uF		50V
< CONNECTOR >					
CN501	1-784-747-11	CONNECTOR, FFC 25P			
* CN502	1-568-941-11	PIN, CONNECTOR 3P			
< FILTER >					
FL501	1-517-740-11	INDICATOR TUBE, FLUORESCENT			
< IC >					
IC501	8-752-912-87	IC CXP82832-024Q			
IC502	8-759-459-86	IC NJL64H400A			
< TRANSISTOR >					
Q501	8-729-029-66	TRANSISTOR DTC114ESA-TP			
Q502	8-729-029-66	TRANSISTOR DTC114ESA-TP			

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R501	1-249-427-11	CARBON	6.8K	5%	1/4W F
R502	1-249-415-11	CARBON	680	5%	1/4W F
R503	1-249-417-11	CARBON	1K	5%	1/4W F
R504	1-249-419-11	CARBON	1.5K	5%	1/4W F
R505	1-249-421-11	CARBON	2.2K	5%	1/4W F
R506	1-247-843-11	CARBON	3.3K	5%	1/4W
R507	1-249-427-11	CARBON	6.8K	5%	1/4W F
R508	1-249-429-11	CARBON	10K	5%	1/4W
R511	1-249-427-11	CARBON	6.8K	5%	1/4W F
R512	1-249-415-11	CARBON	680	5%	1/4W F
R513	1-249-417-11	CARBON	1K	5%	1/4W F
R514	1-249-419-11	CARBON	1.5K	5%	1/4W F
R515	1-249-421-11	CARBON	2.2K	5%	1/4W F
R516	1-247-843-11	CARBON	3.3K	5%	1/4W
R521	1-249-427-11	CARBON	6.8K	5%	1/4W F
R522	1-249-415-11	CARBON	680	5%	1/4W F
R523	1-249-417-11	CARBON	1K	5%	1/4W F
R524	1-249-419-11	CARBON	1.5K	5%	1/4W F
R525	1-249-421-11	CARBON	2.2K	5%	1/4W F
R526	1-247-843-11	CARBON	3.3K	5%	1/4W
R530	1-249-427-11	CARBON	6.8K	5%	1/4W F
R531	1-249-441-11	CARBON	100K	5%	1/4W
R532	1-249-441-11	CARBON	100K	5%	1/4W
R534	1-249-417-11	CARBON	1K	5%	1/4W F
R535	1-249-429-11	CARBON	10K	5%	1/4W
R536	1-249-427-11	CARBON	6.8K	5%	1/4W F
R537	1-249-429-11	CARBON	10K	5%	1/4W
R538	1-249-429-11	CARBON	10K	5%	1/4W
R539	1-249-429-11	CARBON	10K	5%	1/4W
R541	1-247-807-31	CARBON	100	5%	1/4W
R542	1-247-807-31	CARBON	100	5%	1/4W
R543	1-249-429-11	CARBON	10K	5%	1/4W
R544	1-249-429-11	CARBON	10K	5%	1/4W
R545	1-249-429-11	CARBON	10K	5%	1/4W
< SWITCH >					
S501	1-771-349-21	SWITCH, KEYBOARD (LANGUAGE)			
S502	1-771-349-21	SWITCH, KEYBOARD (MUSIC SCAN)			
S503	1-771-349-21	SWITCH, KEYBOARD (AUTO SPACE)			
S504	1-771-349-21	SWITCH, KEYBOARD (PEAK SEARCH)			
S505	1-771-349-21	SWITCH, KEYBOARD (PLAY MODE)			
S506	1-771-349-21	SWITCH, KEYBOARD (REPEAT)			
S507	1-771-349-21	SWITCH, KEYBOARD (FADER)			
S508	1-771-349-21	SWITCH, KEYBOARD (TIME/TEXT)			
S511	1-771-349-21	SWITCH, KEYBOARD (CLEAR)			
S512	1-771-349-21	SWITCH, KEYBOARD (CHECK)			
S513	1-771-349-21	SWITCH, KEYBOARD (EDIT/TIME FADE)			
S514	1-771-349-21	SWITCH, KEYBOARD (◀▶)			
S515	1-771-349-21	SWITCH, KEYBOARD (▶▶)			
S521	1-771-349-21	SWITCH, KEYBOARD (OPEN/CLOSE ≡)			
S522	1-771-349-21	SWITCH, KEYBOARD (▷)			
S523	1-771-349-21	SWITCH, KEYBOARD (■)			
S524	1-771-349-21	SWITCH, KEYBOARD (■)			
S531	1-475-543-11	ENCODER, ROTARY (⏮◀ AMS ▶▶⏭)			

PANEL

POWER

SW

Ref. No.	Part No.	Description	Remark
		< VIBRATOR >	
X501	1-579-125-11	VIBRATOR, CERAMIC(8MHz)	

	1-676-438-11	POWER BOARD	

*	4-962-200-11	PLATE (TR), GROUND	
		< CAPACITOR >	
C601	1-126-017-11	ELECT 6800uF 20.00% 16V	
C602	1-119-793-11	ELECT 1000uF 20.00% 16V	
C603	1-128-576-11	ELECT 100uF 20.00% 63V	
C605	1-164-159-11	CERAMIC 0.1uF 50V	
C606	1-164-159-11	CERAMIC 0.1uF 50V	
C607	1-164-159-11	CERAMIC 0.1uF 50V	
C608	1-161-494-00	CERAMIC 0.022uF 25V	
C610	1-126-933-11	ELECT 100uF 20.00% 16V	
C611	1-161-494-00	CERAMIC 0.022uF 25V	
C612	1-136-165-00	MYLAR 0.1uF 5.00% 50V	
C613	1-136-165-00	MYLAR 0.1uF 5.00% 50V	
C620	1-127-801-51	CERAMIC 10000PF 20.00% 250V	
C641	1-126-964-11	ELECT 10uF 20.00% 50V	
		< CONNECTOR >	
* CN601	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
CN602	1-564-321-00	PIN, CONNECTOR 2P	
CN603	1-766-270-11	PIN, CONNECTOR (PC BOARD) 8P	
		< DIODE >	
D601	8-719-024-99	DIODE 11ES2-NTA2B	
D602	8-719-024-99	DIODE 11ES2-NTA2B	
D603	8-719-024-99	DIODE 11ES2-NTA2B	
D604	8-719-024-99	DIODE 11ES2-NTA2B	
D605	8-719-024-99	DIODE 11ES2-NTA2B	
D606	8-719-024-99	DIODE 11ES2-NTA2B	
D607	8-719-024-99	DIODE 11ES2-NTA2B	
D608	8-719-921-40	DIODE MTZJ-T-72-4.7B	
D641	8-719-983-84	DIODE MTZJ-T-72-30D	
D643	8-719-109-85	DIODE MTZJ-T-72-5.1B	
		< COIL >	
L601	1-410-322-11	INDUCTOR 3.3uH	
L602	1-410-322-11	INDUCTOR 3.3uH	
L603	1-410-322-11	INDUCTOR 3.3uH	
L604	1-410-322-11	INDUCTOR 3.3uH	
L605	1-412-473-21	INDUCTOR 0uH	
		< TRANSISTOR >	
Q641	8-729-041-38	TRANSISTOR 2SB1241TV2Q	
		< RESISTOR >	
R601	1-249-411-11	CARBON 330 5% 1/4W	
R641	1-247-843-11	CARBON 3.3K 5% 1/4W	
R642	1-247-843-11	CARBON 3.3K 5% 1/4W	
△ R643	1-212-873-11	FUSIBLE 47 5% 1/4W	
R644	1-247-807-31	CARBON 100 5% 1/4W	

Ref. No.	Part No.	Description	Remark
R645	1-247-807-31	CARBON 100 5% 1/4W	
R646	1-249-432-11	CARBON 18K 5% 1/4W	
		< TRANSFORMER >	
△ T601	1-435-329-11	TRANSFORMER, POWER	

	1-676-435-11	SW BOARD	

		< SWITCH >	
△ S800	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)	

		MISCELLANEOUS	

9	1-773-179-11	WIRE (FLAT TYPE) (23 CORE)	
10	1-500-386-11	FILTER, CLAMP (FERRITE CORE)	
△ 12	1-575-651-21	CORD, POWER (AEP, AED)	
△ 12	1-751-529-11	CORD, POWER (UK)	
69	1-773-211-11	WIRE (FLAT TYPE) (25 CORE)	
101	1-452-925-21	MAGNET ASSY	
△ 151	8-848-379-31	OPTICAL PICK-UP KSS-213BA/F-NP	
152	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
FL501	1-517-740-11	INDICATOR TUBE, FLUORESCENT	
M101	X-4917-523-4	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4604-363-A	MOTOR (L) ASSY	
△ T601	1-435-329-11	TRANSFORMER, POWER	

		ACCESSORIES & PACKING MATERIALS	

1-418-765-11		REMOTE COMMANDER (RM-DX740)	
1-558-271-11		CORD, CONNECTION (AUDIO 108cm) (AEP, AED)	
1-590-925-31		CORD, CONNECTION(AUDIO 100cm)(UK)	
3-866-670-11		MANUAL,COMMONNESS INSTRUCTION	
		(ENGLISH) (UK)	
3-866-670-21		MANUAL,COMMONNESS INSTRUCTION	
		(ENGLISH, FRENCH, GERMAN, SPANISH, DUTCH, PORTUGUESE, SWEDISH, ITALIAN, CHINESE) (AEP)	
3-866-670-31		MANUAL,COMMONNESS INSTRUCTION	
		(DANISH, FINNISH, SWEDISH) (AED)	
4-226-662-11		MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH)	
4-226-662-21		MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (AEP, AED)	
4-983-956-01		COVER, BATTERY	

		HARDWARE LIST	

#1	7-621-775-10	SCREW +B 2.6X4	
#2	7-685-885-09	SCREW +BVTT 4X16 (S)	

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

