

HCD-MDX10

SERVICE MANUAL




Ver 1.1 2001.06



US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model

HCD-MDX10 is the tuner, deck, CD, MD and amplifier section in MHC-MDX10.

This stereo system is equipped with the Dolby B-type noise reduction system*.

* Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

CD SECTION	Model Name Using Similar Mechanism	NEW
	Mechanism Type	CDM38LH-5BD32L
	Base Unit Type	BU-5BD32L
	Optical Pick-up Type	KSS-213D/Q-NP
MD SECTION	Model Name Using Similar Mechanism	MDS-JE520
	Mechanism Type	MDM-5A
	Optical Pick-up Type	KMS-260A/K1NP
TAPE DECK SECTION	Model Name Using Similar Mechanism	HCD-DR4/DR5/DR6/DR440/W300/W5000/XB500
	Tape Transport Mechanism Type	TCM-230AWR2/230PWR2

SPECIFICATIONS

Amplifier section

Canadian model:

Continuous RMS power output (reference)
50 + 50 watts
(6 ohms at 1 kHz,
10% THD)
Total harmonic distortion less than 0.07%
(6 ohms at 1 kHz, 25 W)

European model:

DIN power output (rated) 60 + 60 watts
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)
80 + 80 watts
(6 ohms at 1 kHz,
10% THD)
Music power output (reference)
140 + 140 watts
(6 ohms at 1 kHz,
10% THD)

Other models:

The following measured at AC 110, 220 V 50/60 Hz
DIN power output (rated) 80 + 80 watts
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)
100 + 100 watts
(6 ohms at 1 kHz,
10% THD)

The following measured at AC 120, 240 V 50/60 Hz

DIN power output (rated) 95 + 95 watts
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)
120 + 120 watts
(6 ohms at 1 kHz,
10% THD)

Inputs
VIDEO (AUDIO) IN:
(phono jacks) voltage 250 mV,
impedance 47 kilohms
MIX MIC:
(phone jack) sensitivity 1 mV,
impedance 10 kilohms

Outputs
PHONES:
(stereo mini jack) accepts headphones of 8
ohms or more
SPEAKER:
accepts impedance of 6 to
16 ohms

SUPER WOOFER (except for European model):
voltage 1V, impedance
1 kilohm

CD player section

System	Compact disc and digital audio system
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 - 20 kHz (± 0.5 dB)
Wavelength	780 - 790 nm
Signal-to-noise ratio	More than 85 dB
Dynamic range	More than 85 dB

— Continued on next page —

COMPACT DISC DECK RECEIVER

9-928-878-12
2001F0200-1
© 2001.6

Sony Corporation
Home Audio Company
Shinagawa Tec Service Manual Production Group

SONY®

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser ($\lambda=780$ nm) Emission duration: continuous Max. 44.6 μ W*
Laser output	*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Recording time	80 minutes max. (using MDW-80, stereo) 160 minutes max. (using MDW-80, monaural)
Sampling frequency	44.1 kHz
Frequency response	20 - 20,000 Hz

OPTICAL DIGITAL IN

(Square optical connector jacks, rear panel)
Wavelength 700 nm

Tape player section

Recording system	4-track 2-channel stereo
Frequency response (DOLBY NR OFF)	40 - 13,000 Hz (± 3 dB), using Sony TYPE I cassette 40 - 14,000 Hz (± 3 dB), using Sony TYPE II cassette

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 - 108.0 MHz
Antenna	FM lead antenna
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range	530 - 1,710 kHz
2 Band type:	(with the interval set at 10 kHz)
North American models:	531 - 1,710 kHz (with the interval set at 9 kHz)
European models:	531 - 1,602 kHz (with the interval set at 9 kHz)
Other models:	531 - 1,602 kHz (with the interval set at 9 kHz)
3 Band type:	530 - 1,710 kHz (with the interval set at 10 kHz)
Middle Eastern models:	

MW:	531 - 1,602 kHz (with the interval set at 9 kHz)
SW:	5.95 - 17.90 MHz (with the interval set at 5 kHz)

Other models:

MW:	531 - 1,602 kHz (with the interval set at 9 kHz)
SW:	5.95 - 17.90 MHz (with the interval set at 5 kHz)
Antenna	AM loop antenna
Antenna terminals	External antenna terminal
Intermediate frequency	450 kHz

General

Power requirements	
North American models:	120 V AC, 60 Hz
European models:	230 V AC, 50/60 Hz
Australian models:	240 V AC, 50/60 Hz
Mexican models:	120 V AC, 50/60 Hz
Other models:	110 - 120 V or 220 - 240 V AC, 50/60 Hz

Power consumption

U.S.A. models:	115 watts
Canadian model:	95 watts
European models:	165 watts
Other models:	170 watts

Dimensions (w/h/d)	Approx. 280 x 360 x 390 mm (11 x 13 ³ / ₈ x 15 in.)
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Mass

North American models:	10.0 kg
European models:	10.2kg
Other models:	11.0kg

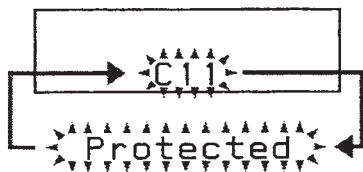
Design and specifications are subject to change without notice.

SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for customers which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following "Procedure for using the Self-Diagnosis Function (Error History Display Mode)".

Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11 / Protected

The MD is protected against erasure.
→Remove the MD and slide the tab to close the slot (page 30).

C12 / Cannot Copy

The MD is an incompatible format type.
→Change the MD with another one.

C13 / REC Error

Recording is not possible.
→Move the system to a stable place and start recording over from the beginning.
The MD is dirty or is scratched or the MD does not meet the standards.
→Change the MD with another one and start recording over from the beginning.

C13 / Read Error

The MD cannot read the disc information correctly.
→Eject the MD once, then insert it again.

C14 / Toc Error

The MD cannot read the disc information correctly.
→Change the MD with another one.
→Erase all the recorded contents of the MD using the Erase function on page 42.

C41 / Cannot Copy

This unit complies with the Serial Copy Management System (SCMS) which limits the number of digital copies that can be made of any given digital audio source (page 79).

C71 / Check OPT-IN

You tried to record from the digital component when no component is connected to OPTICAL IN jack or the digital component is not connected correctly.
→Connect the digital component correctly to OPTICAL IN jack with a digital optical cable.
The power of the connected digital component is off.
→Turn on the digital component.

Procedure for using the Self-Diagnosis Function (Error History Display Mode).

Note: Perform the self-diagnosis function in the "error history display mode" in the test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If you set other modes accidentally, press the **MENU/NO** button to exit the mode.

1. With the power ON, press the **CD-MD SYNC** button while pressing the **■** and **ENTER/YES** buttons together.
2. Rotate the **AMS** dial and when "Service" is displayed, press the **YES** button.
3. Rotate the **AMS** dial and display "ERR DP MODE".
4. Pressing the **ENTER/YES** button sets the error history mode and displays "total rec".
5. Select the contents to be displayed or executed using the **AMS** dial.
6. Pressing the **MD WALKMAN SYNC** button will display or execute the contents selected.
7. Pressing the **MD WALKMAN SYNC** button another time returns to step 4.
8. Pressing the **MENU/NO** button displays "ERROR DP MODE" and exits the error history mode.
9. To exit the test mode, press the **REPEAT/STEREO/MONO** button.

ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS

Selecting the Test Mode

Display	Details of History
total rec	Displays the recording time. Displayed as “r□□□□□□h”. The displayed time is the total time the laser is set to the high power state. This is about 1/4 of the actual recording time. The time is displayed in decimal digits from 0h to 65535h.
total play	Displays the play time. Displayed as “p□□□□□□h”. The time displayed is the total actual play time. Pauses are not counted. The time is displayed in decimal digits from 0h to 65535h.
retry err	Displays the total number of retries during recording and number of retry errors during play. Displayed as “r□□ p□□”. “r” indicates the retries during recording while “p” indicates the retry errors during play. The number of retries and retry errors are displayed in hexadecimal digits from 00 to FF.
total err	Displays the total number of errors. Displayed as “total □□”. The number of errors is displayed in hexadecimal digits from 00 to FF.
err history	Displays the 10 latest errors. Displayed as “0□ E@”. □ indicates the history number. The smaller the number, the more recent is the error. (00 is the latest). @@ indicates the error code. Refer to the following table for the details. The error history can be switched by rotating the [AMS] dial.
er refresh	Mode which erases the “retry err”, “total err”, and “err history” histories. When returning the unit to the customer after completing repairs, perform this to erase the past error history. After pressing the [MD WALKMAN SYNC] button and “er refresh?” is displayed, press the [ENTER/YES] button to erase the history. “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. <ul style="list-style-type: none"> • The data has been erased. • The mechanism operates normally when recording and play are performed.
tm refresh	Mode which erases the “total rec” and “total play” histories. These histories serve as approximate indications of when to replace the optical pickup. If the optical pickup has been replaced, perform this operation and erase the history. After pressing the [ENTER/AMS] button and “tm refresh?” is displayed, press the [MD WALKMAN SYNC] button to erase the history. “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. <ul style="list-style-type: none"> • The data has been erased. • The mechanism operates normally when recording and play are performed.

Table of Error Codes

Error Code	Details of Error	Error Code	Details of Error
E00	No error	E05	FOK has deviated
E01	Read error. PTOC cannot be read (DISC ejected)	E06	Cannot focus (Servo has deviated)
		E07	Recording retry
E02	TOC error. UTOC error (DISC not ejected)	E08	Recording retry error
		E09	Playback retry error
E03	Loading error		
E04	Address cannot be read (Servo has deviated)	E0A	Play retry error (C2 error)

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.



This caution label is located inside the unit.

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

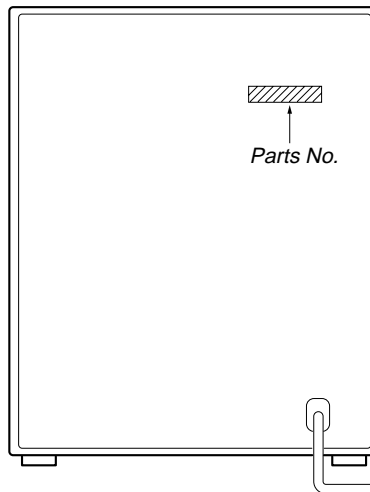
Notes on chip component replacement

- 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.

MODEL IDENTIFICATION — BACK PANEL —



PARTS No.	MODEL
4-216-211-0□	AEP, UK, G, CIS
4-216-211-1□	E, SP, MY, HK, AR
4-216-211-2□	US, CND, KR, AUS

- Abbreviation
 CND : Canadian model
 G : German model
 SP : Singapore model
 MY : Malaysia model
 HK : Hong Kong model
 AR : Argentine model
 KR : Korea model
 AUS : Australian model

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth Ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

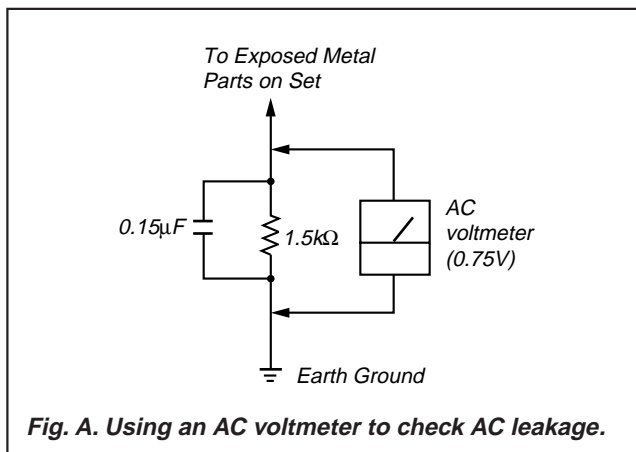


Fig. A. Using an AC voltmeter to check AC leakage.

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

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down 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 four times.

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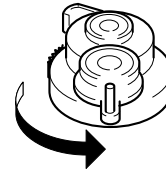
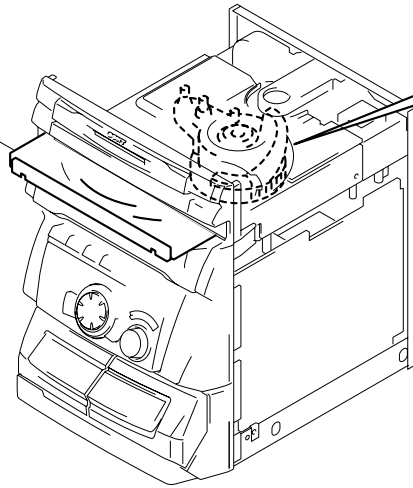
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SECTION 1 SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

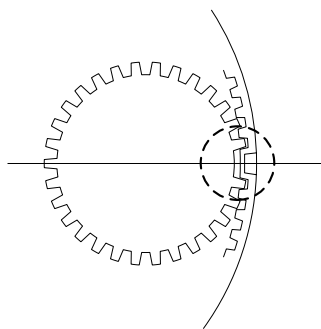
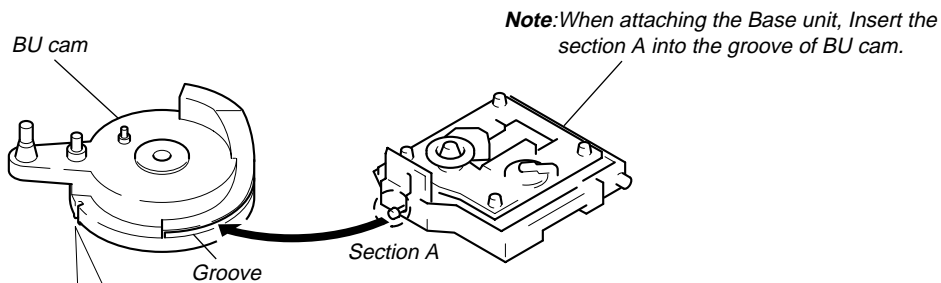
1 Remove the Case.

3 Pull-out the disc tray.



2 Turn the cam to the direction
of arrow.

NOTE FOR INSTALLATION (ROTARY ENCODER)



Note: When attaching the BU cam,
engage the Rotary encoder
switch as shown in the figure.

CD-TEXT

This unit is provided with a simple CD-TEXT display function.

The CD-TEXT contents of 50 tracks are displayed on the fluorescent display tube.

Since the function is simple, some special characters may not be displayed, or may be displayed as other characters.

JIG FOR CHECKING BD BOARD WAVEFORM

The special jig (J-2501-149-A) is useful for checking the waveform of the BD board. The names of terminals and the checking items to be performed are shown as follows.

GND : Ground

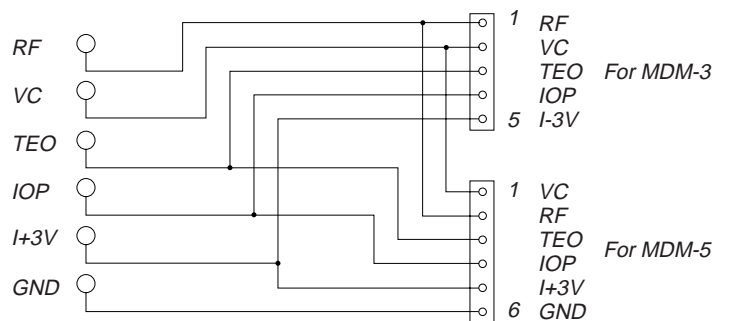
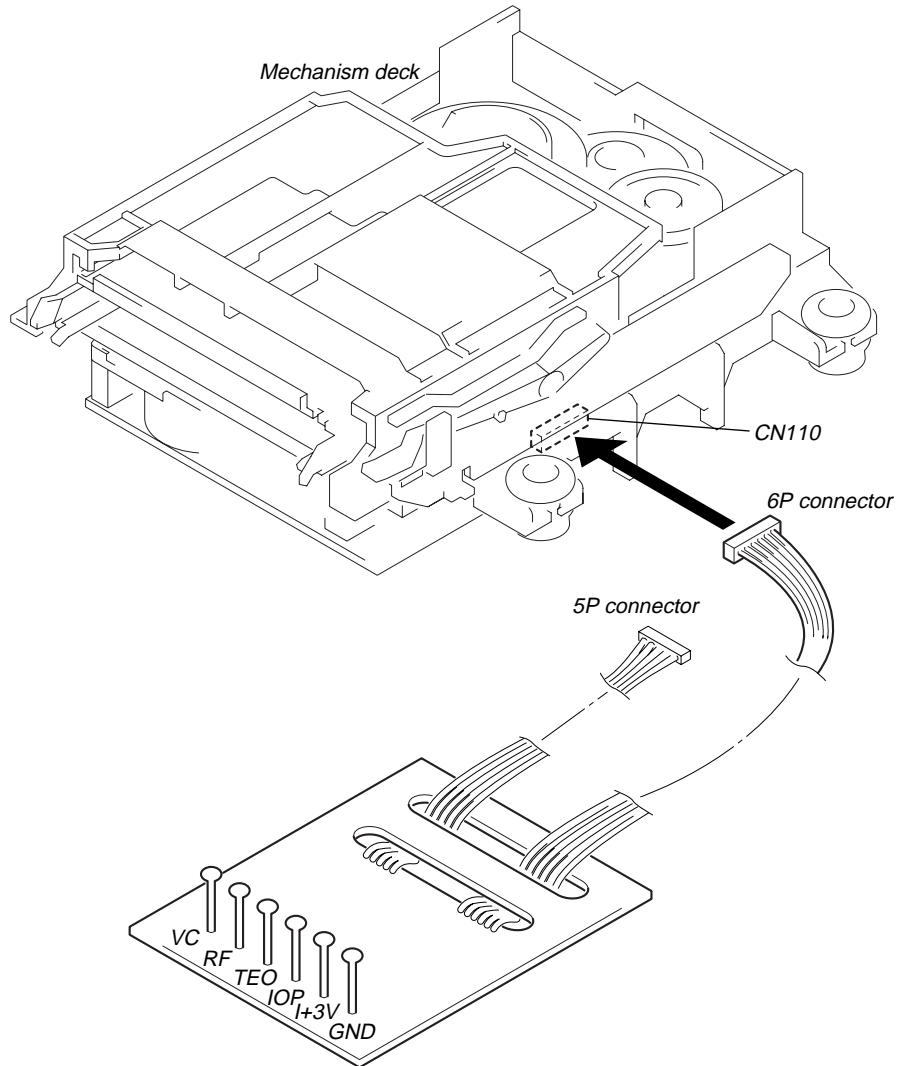
I+3V : For measuring IOP (Check the deterioration of the optical pick-up laser)

IOP : For measuring IOP (Check the deterioration of the optical pick-up laser)

TEO : TRK error signal (Traverse adjustment)

VC : Reference level for checking the signal

RF : RF signal (Check jitter)



IOP DATA RECORDING AND DISPLAY WHEN OPTICAL PICK-UP AND NON-VOLATILE MEMORY (IC171 OF BD BOARD) ARE REPLACED

The IOP value labeled on the optical pick-up can be recorded in the non-volatile memory. By recording the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the optical pick-up or non-volatile memory (IC171 of BD board), record the IOP value on the optical pick-up according to the following procedure.

Record Procedure:

1. With the power ON, press the **CD-MD SYNC** button while pressing the **■** and **ENTER/YES** buttons together.
2. Rotate the **AMS** dial to display "Service", and press the **ENTER/YES** button.
3. Rotate the **AMS** dial to display "Iop.Write", and press the **ENTER/YES** button.
4. The display becomes "Ref=@@.@@" (@ is an arbitrary number) and the numbers which can be changed will blink.
5. Input the IOP value written on the optical pick-up.
To select the number : Rotate the **AMS** dial.
To select the digit : Press the **MD WALKMAN SYNC** button.
6. When the **ENTER/YES** button is pressed, the display becomes "Measu=@@.@@" (@ is an arbitrary number).
7. As the adjustment results are recorded for the 6 value. Leave it as it is and press the **ENTER/YES** button.
8. "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Top Write".
9. Press the **REPEAT/STEREO/MONO** button to complete.

Display Procedure:

1. With the power ON, press the **CD-MD SYNC** button while pressing the **■** and **ENTER/YES** buttons together.
2. Rotate the **AMS** dial to display "Service", and press the **YES** button.
3. Rotate the **AMS** dial to display "Iop.Read".
4. "@@.@/##.#" is displayed and the recorded contents are displayed.
@@.@ : indicates the Iop value labeled on the pick-up.
##.# : indicates the Iop value after adjustment
5. To end, press the **MD WALKMAN SYNC** button or **MENU/NO** button to display "Iop Read". Then press the **REPEAT/STEREO/MONO** button.

CHECKS PRIOR TO PARTS REPLACEMENT AND ADJUSTMENTS

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent. Details of the procedures are described in “5 Electrical Adjustments”.

	Criteria for Determination (Unsatisfactory if specified value is not satisfied)	Measure if unsatisfactory:
Laser power check (7-6-2 : See page 29)	<ul style="list-style-type: none"> 0.9 mW power Specified value : 0.84 to 0.92 mW 7.0 mW power Specified value : 6.8 to 7.2 mW 	<ul style="list-style-type: none"> Clean the optical pick-up Adjust again Replace the optical pick-up
	<ul style="list-style-type: none"> Iop (at 7mW) Labeled on the optical pickup Iop value \pm 10mA 	<ul style="list-style-type: none"> Replace the optical pick-up
Traverse check (7-6-3 : See page 29)	<ul style="list-style-type: none"> Traverse waveform Specified value : Below 10% offset 	<ul style="list-style-type: none"> Replace the optical pick-up
Focus bias check (7-6-4 : See page 30)	<ul style="list-style-type: none"> Error rate check Specified value : For points a, b, and c C1 error : Below 220 AD error : Below 2 	<ul style="list-style-type: none"> Replace the optical pick-up
C PLAY check (7-6-5 : See page 30)	<ul style="list-style-type: none"> Error rate check Specified value: a. When using test disc (MDW-74/AU-1) C1 error : Below 80 AD error : Below 2 b. When using check disc (TDYS-1) C1 error : Below 50 	<ul style="list-style-type: none"> Replace the optical pick-up
Self-recording/playback check (REC/PLAY) (7-6-6 : See page 30)	<ul style="list-style-type: none"> CPLAY error rate check Specified value: C1 error : Below 80 AD error : Below 2 	If always unsatisfactory: <ul style="list-style-type: none"> Replace the overwrite head Check for disconnection of the circuits around the overwrite head
		If occasionally unsatisfactory: <ul style="list-style-type: none"> Check if the overwrite head is distorted Check the mechanism around the sled
TEMP check (Temperature compensation offset check) (7-6-1 : See page 29)	<ul style="list-style-type: none"> Unsatisfactory if displayed as T=@@ (##) NG” NG (@@, ## are both arbitrary numbers) 	<ul style="list-style-type: none"> Check for disconnection of the circuits around D101 (BD board) Check the signals around IC101, IC121, CN102, CN103 (BD board)

Note:

The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments.

When performing adjustments, use the specified values for adjustments.

FORCED RESET

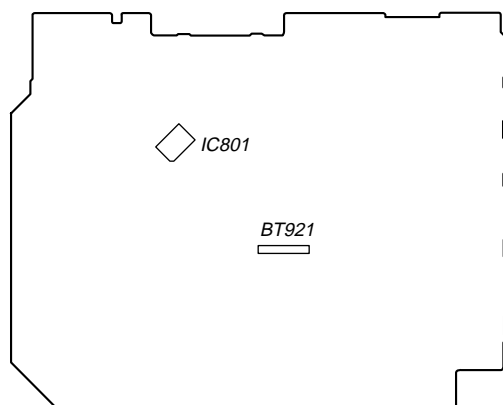
The system microprocessor can be reset in the following procedure.

Use these procedure when the unit cannot be operated normally due to the overrunning of the microprocessor, etc.

Procedure :

Disconnect the power plug, short-circuit both edge of BT921.

[MAIN BOARD] (Component Side)



RETRY CAUSE DISPLAY MODE

- In this test mode, the causes for retry of the unit during recording can be displayed on the fluorescent indicator tube. During playback, the “track mode” for obtaining track information will be set. This is useful for locating the faulty part of the unit.
- The following will be displayed :
 During recording and stop : Retry cause, number of retries, and number of retry errors.
 During playback : Information such as type of disc played, part played, copyright.
 These are displayed in hexadecimal.

Precedure:

1. Load a recordable disc whose contents can be erased into the unit.
2. Press the **FUNCTION** button and set the function to “MD”.
3. Press the **MENU/NO** button. When “Edit/Menu” is displayed on the fluorescent indicator tube, rotate the **AMS** dial to display “All Erase?”.
4. Press the **ENTER/YES** button.
5. “All Erase??” is displayed on the fluorescent indicator tube.
6. Press the **ENTER/YES** button to display “Complete!!”, and press the **■** button immediately. Wait for about 10 seconds while pressing the button.
7. When the “TOC” displayed on the fluorescent display tube goes off, release the **■** button.
8. Press the **REC (MD)** button to start recording. Then press the **▶||/MD** button and start recording.
9. To check the “track mode”, press the **▶||/MD** button to start play.
10. To exit the test mode, press the **I/O** button, and turn OFF the power. When “TOC” disappears, disconnect the power plug from the outlet. If the test mode cannot be exited, refer to “Forced Reset” on page 8.

Fig. 1 Reading the Test Mode Display (During recording and stop)

RTs@@@c##c**

Fluorescent display tube display

- @@ : Cause of retry
- ## : Number of retries
- ** : Number of retry errors

Fig. 2 Reading the Test Mode Display (During playback)

@@####*\$\$

Fluorescent display tube display

- @@ : Parts No. (name of area named on TOC)
- ## : Cluster } Address (Physical address on disc)
- ** : Sector }
- \$\$: Track mode (Track information such as copyright information of each part)

Reading the Retry Cause Display

Hexadecimal	Higher Bits				Lower Bits				Hexadecimal	Cause of Retry	Occurring conditions
	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	shock	When track jump (shock) is detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER was counted more than five times continuously
	0	0	0	0	0	1	0	0	04	Discontinuous address	When ADIP address is not continuous
	0	0	0	0	1	0	0	0	08	DIN unlock	When DIN unlock is detected
	0	0	0	1	0	0	0	0	10	FCS incorrect	When not in focus
	0	0	1	0	0	0	0	0	20	IVR rec error	When ABCD signal level exceeds the specified range
	0	1	0	0	0	0	0	0	40	CLV unlock	When CLV is unlocked
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

Reading the Display:

Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example

When 42 is displayed:

Higher bit : 4 = 0100 → b6

Lower bit : 2 = 0010 → b1

In this case, the retry cause is combined of “CLV unlock” and “ader5”.

When A2 is displayed:

Higher bit : A = 1010 → b7+b5

Lower bit : 2 = 0010 → b2

The retry cause in this case is combined of “access fault”, “IVR rec error”, and “ader5”.

Reading the Track Mode Display

Hexadecimal	Higher Bits				Lower Bits				Hexa- decimal	Details	
	8	4	2	1	8	4	2	1		When 0	When 1
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	Emphasis OFF	Emphasis ON
	0	0	0	0	0	0	1	0	02	Monaural	Stereo
	0	0	0	0	0	1	0	0	04	This is 2-bit display. Normally 01.	
	0	0	0	0	1	0	0	0	08	01:Normal audio. Others:Invalid	
	0	0	0	1	0	0	0	0	10	Audio (Normal)	Invalid
	0	0	1	0	0	0	0	0	20	Original	Digital copy
	0	1	0	0	0	0	0	0	40	Copyright	No copyright
	1	0	0	0	0	0	0	0	80	Write prohibited	Write allowed

Reading the Display:

Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example When 84 is displayed:

Higher bit : 8 = 1000 → b7

Lower bit : 4 = 0100 → b2

In this case, as b2 and b7 are 1 and others are 0, it can be determined that the retry cause is combined of “emphasis OFF”, “monaural”, “original”, “copyright exists”, and “write allowed”.

Example When 07 is displayed:

Higher bit : 0 = 1000 → All 0

Lower bit : 7 = 0111 → b0+b1+b2

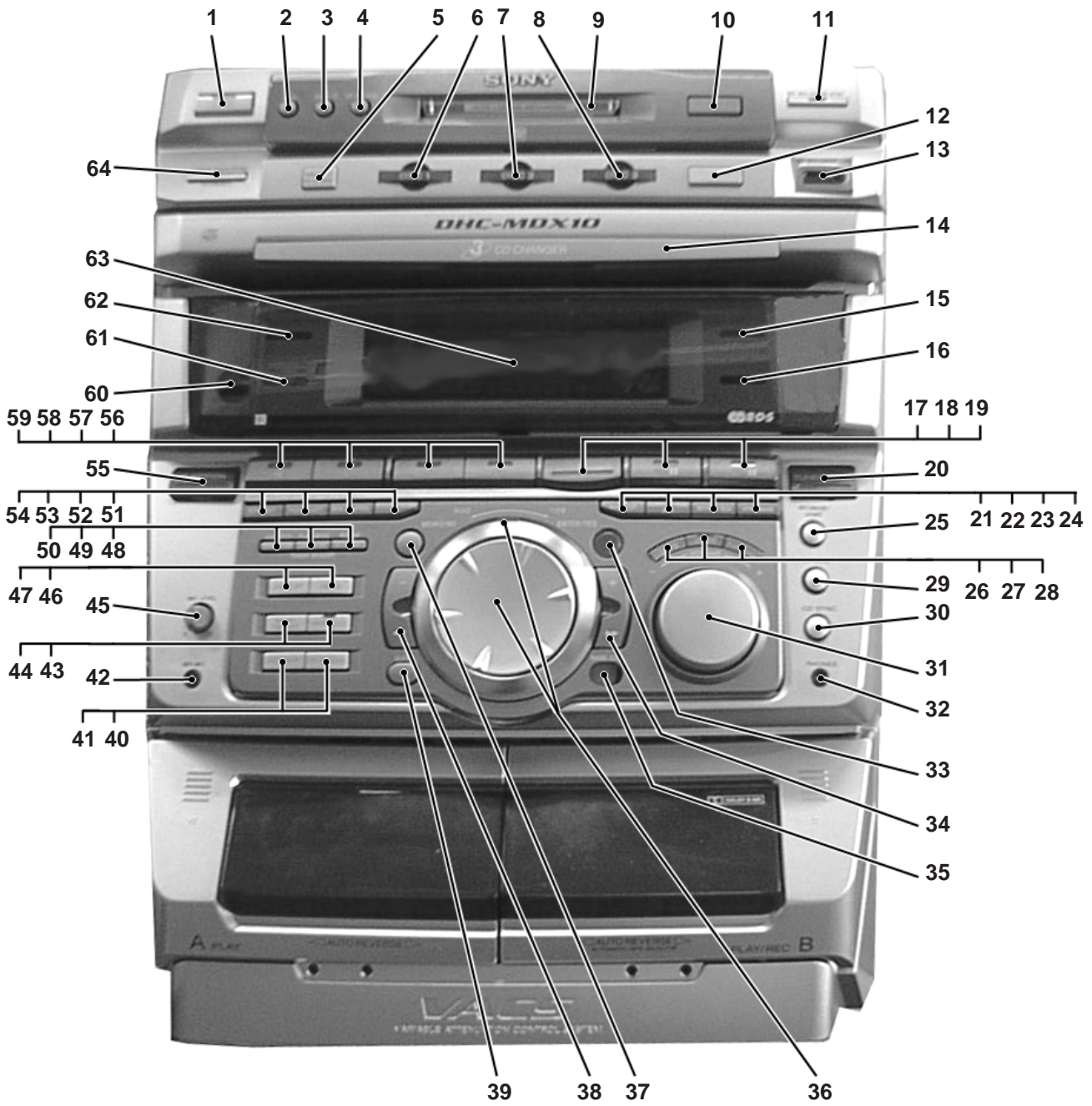
In this case, as b0, b1, and b2 are 1 and others are 0, it can be determined that the retry cause is combined of “emphasis ON”, “stereo”, “original”, “copyright exists”, and “write prohibited”.

Hexadecimal → Binary Conversion Table

Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

SECTION 2 GENERAL

Front Panel



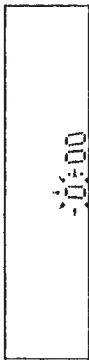
LOCATION OF PARTS AND CONTROLS

- | | | |
|-------------------------------------|---|---------------------------------------|
| 1 I/⏻ (POWER) button and indicator | 24 SYNC BASS button | 45 MIC LEVEL knob |
| 2 REC button and indicator | 25 REC PAUSE/START button and indicator | 46 SPECTRUM ANALYZER button |
| 3 REC IT button | 26 DBFB button | 47 DISPLAY button |
| 4 CD-MD SYNC button | 27 GROOVE button | 48 REPEAT STEREO/MONO button |
| 5 DISC SKIP/EX-CHANGE button | 28 SURROUND button | 49 DOLBY NR/PLAY MODE/PTY button |
| 6 DISC 1 button and indicator | 29 HI DUB button | 50 DIRECTION/EDIT/TUNER MEMORY button |
| 7 DISC 2 button and indicator | 30 CD-TAPE SYNC button | 51 P FILE MEMORY button |
| 8 DISC 3 button and indicator | 31 VOLUME knob | 52 GEQ CONTROL button |
| 9 Disk compartment | 32 PHONES jack | 53 FILE SELECT button |
| 10 ⏻ (Eject) (MD) button | 33 ENTER/YES button and indicator | 54 EFFECT button |
| 11 MD WALKMAN SYNC button | 34 ▶▶ + button and indicator | 55 FUNCTION button and indicator |
| 12 ⏻ (Eject) (CD) button | 35 NAME EDIT/CHAR button | 56 ◀/TAPE B button and indicator |
| 13 MD WALKMAN LINK jack | 36 JOG/◀◀▶▶ dial and indicator | 57 ▶/TAPE B button and indicator |
| 14 Disc tray | 37 MENU/NO button | 58 ◀/TAPE A button and indicator |
| 15 SYNC BASS HIGH indicator | 38 ▶▶ - button and indicator | 59 ▶/TAPE A button and indicator |
| 16 SYNC BASS LOW indicator | 39 CLEAR button | 60 Remote sensor |
| 17 ■ button | 40 CD FLASH button | 61 SYNC EQ indicator |
| 18 ▶▶/CD button and indicator | 41 CD LOOP button | 62 EFFECT indicator |
| 19 ▶▶/MD button and indicator | 42 MIX MIC jack | 63 Display Window |
| 20 TUNER/BAND button and indicator | 43 TIMER SELECT button and indicator | 64 POWER SAVE/DEMO (STANDBY) button |
| 21 CD NON-STOP button and indicator | 44 CLOCK/TIMER SET button | |
| 22 KARAOKE PON/MPX button | | |
| 23 SYNC EQ button | | |

This section is extracted from instruction manual.

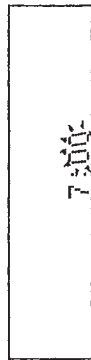
Step 2: Setting the time (continued)

- 1** Press CLOCK/TIMER SET. The hour indication flashes.



- 2** Turn the jog dial to set the hour.

- 3** Press ENTER/YES. The minute indication flashes.



- 4** Turn the jog dial to set the minute.

- 5** Press ENTER/YES. The clock starts working.

Tip

If you've made a mistake, start over from step 1.

To change the time

The previous explanation shows you how to set the time while the power is off. To change the time while the power is on, do the following:

- 1 Press CLOCK/TIMER SET.
- 2 Turn the jog dial to select SET CLOCK.
- 3 Press ENTER/YES.
- 4 Perform steps 2 through 5 above.

Tips

- The demonstration disappears when you set the time. To activate the demonstration, press DISPLAY while the system is off.
- The clock appears in the display while the system is power off. When the system is in the power saving mode, the clock indication disappears.

Note

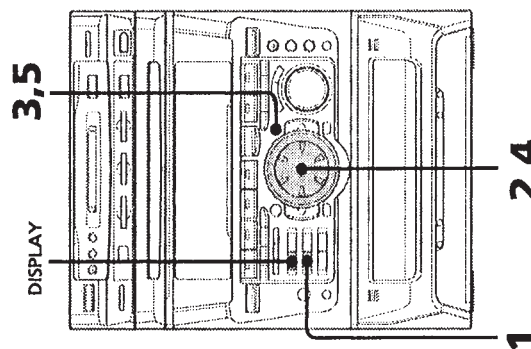
The clock settings are canceled when you disconnect the power cord or if a power failure occurs.

Step 2: Setting the time

You must set the time before using the timer functions.

The clock is on a 24-hour system for the European model and a 12-hour system for other models.

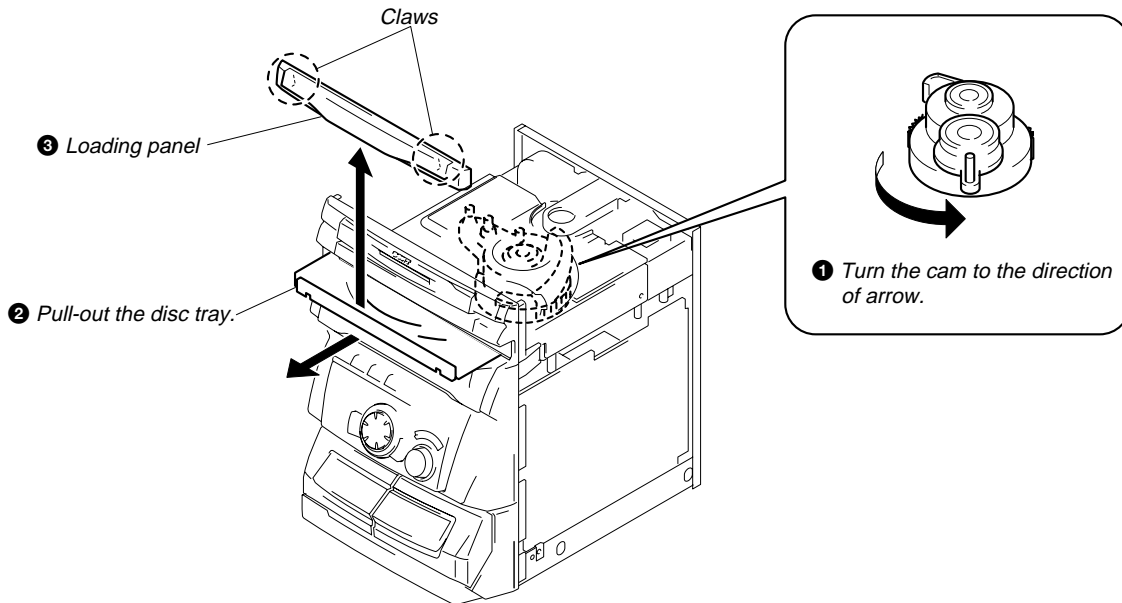
The 24-hour system model is used for illustration purposes.



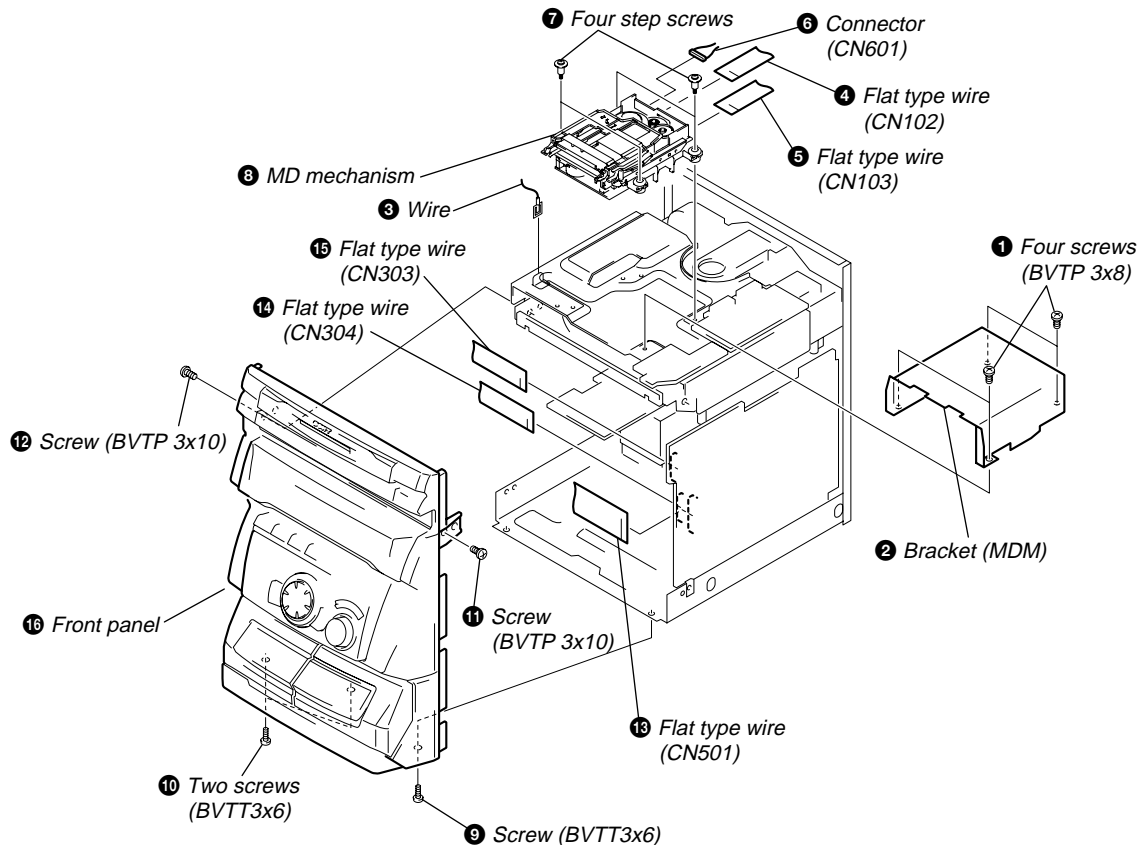
SECTION 3 DISASSEMBLY

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

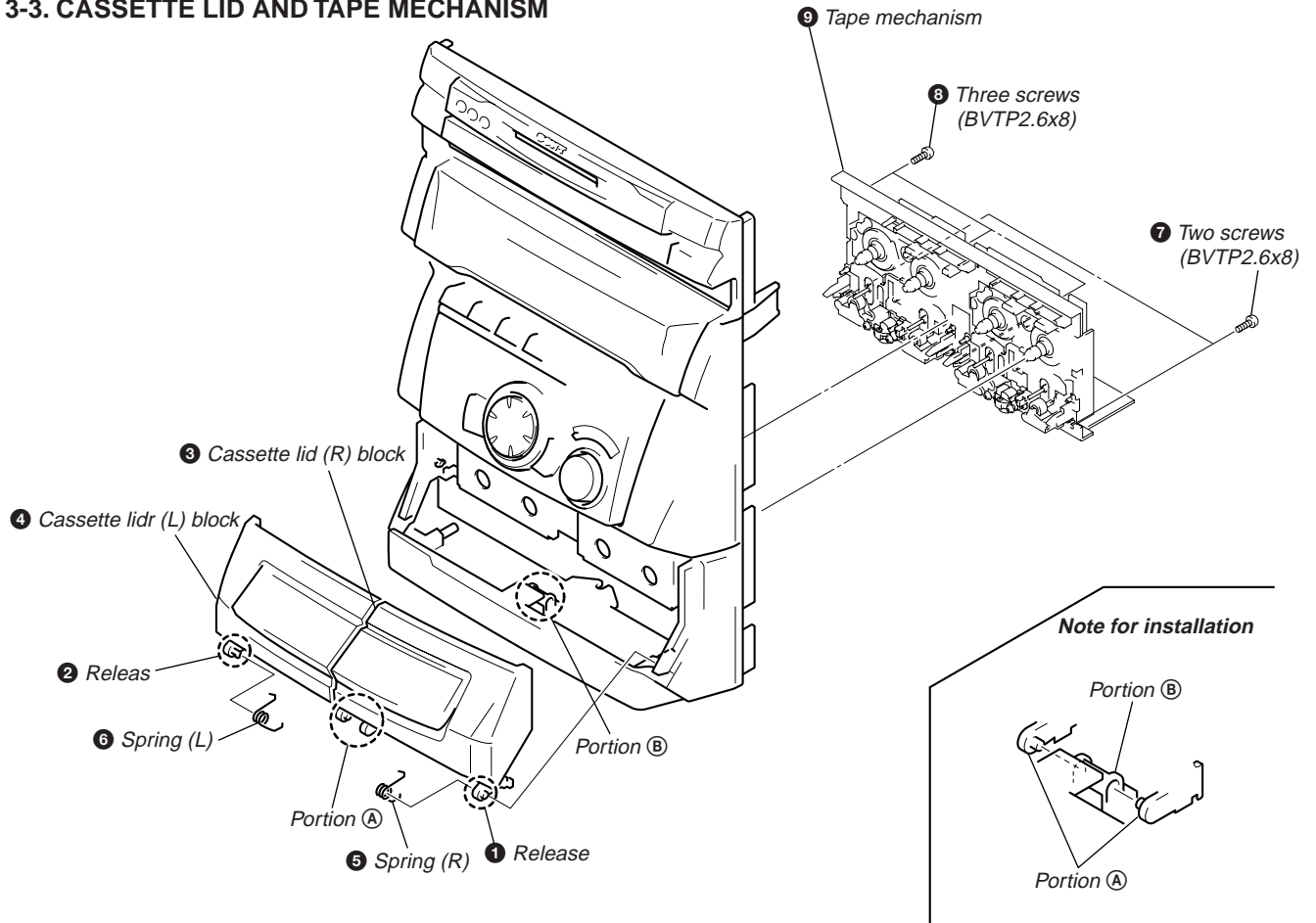
3-1. LOADING PANEL



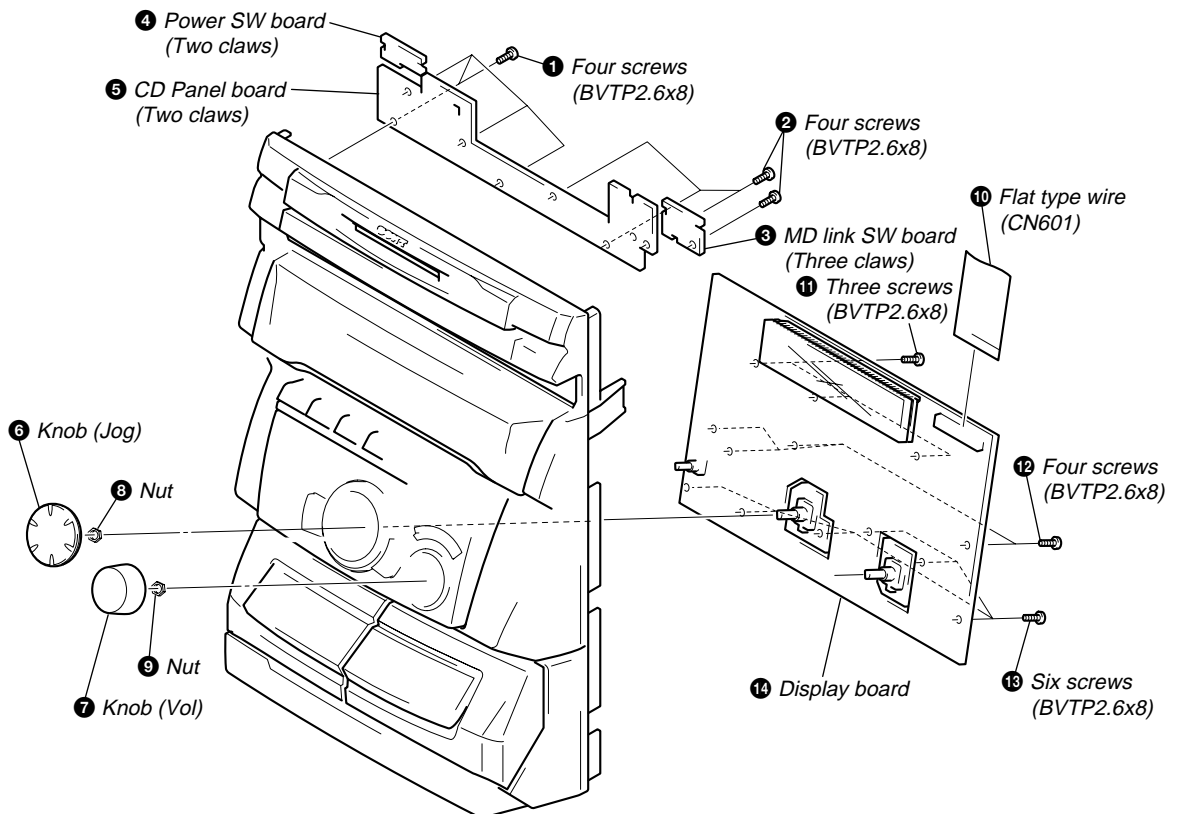
3-2. MD MECHANISM AND FRONT PANEL



3-3. CASSETTE LID AND TAPE MECHANISM



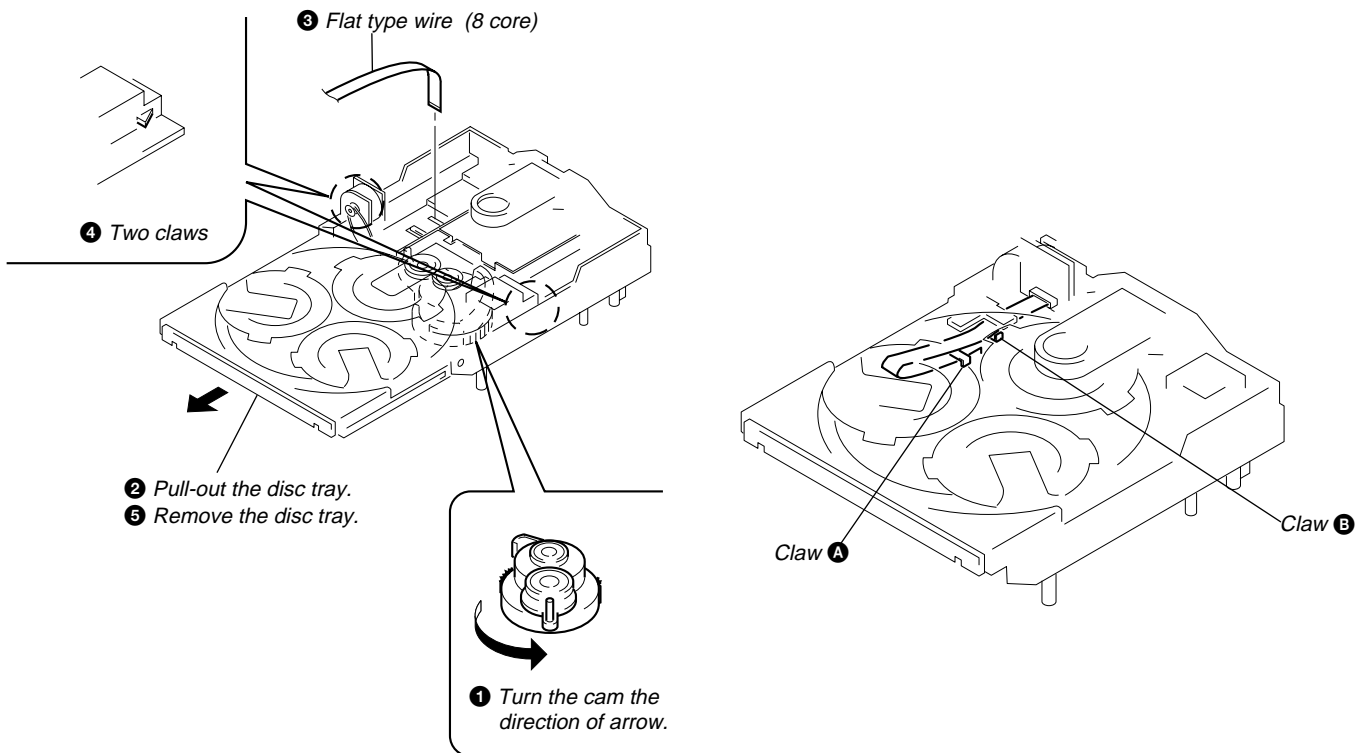
3-4. MD LINK, POWER SW, CD PANEL BOARDS AND DISPLAY BOARD



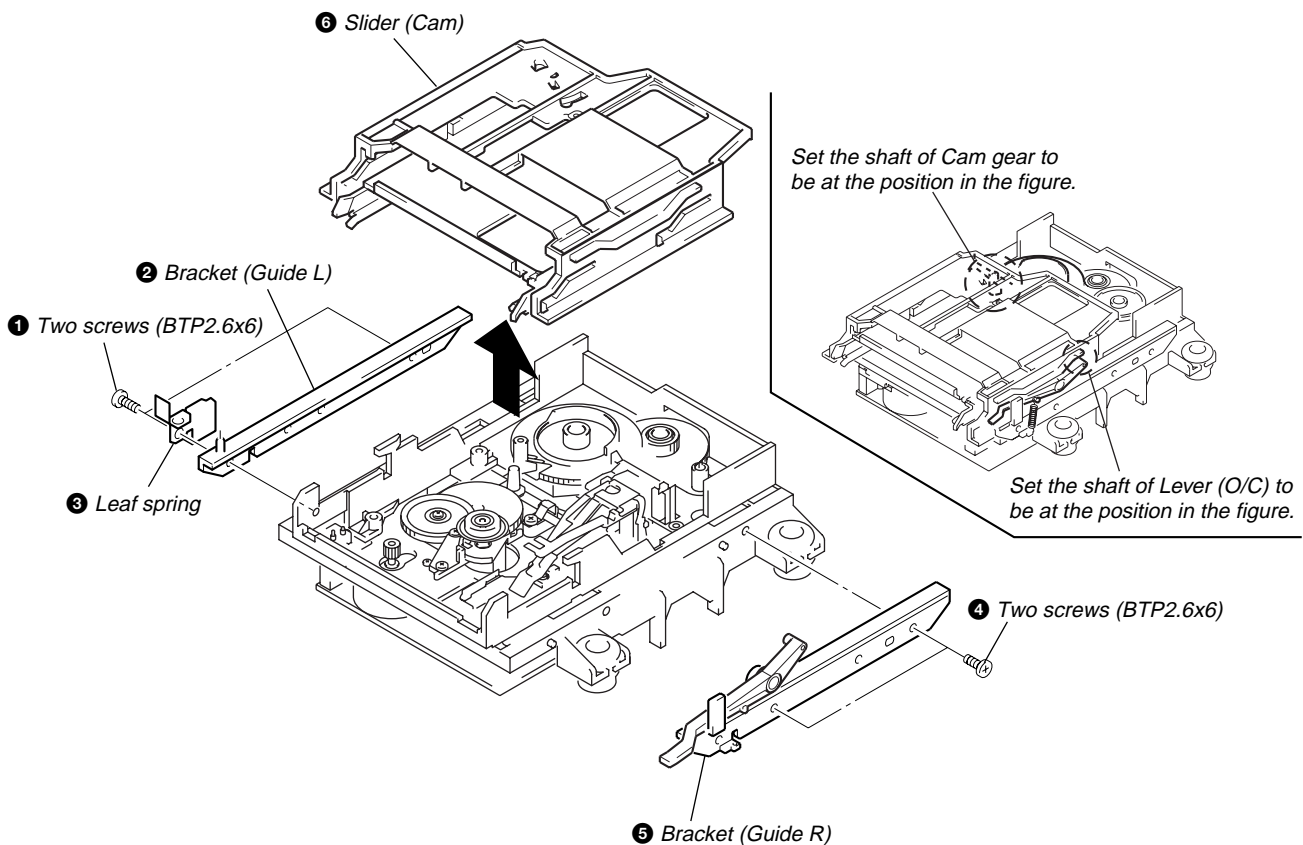
3-5. DISC TRAY

(Perform after removing the front panel.)

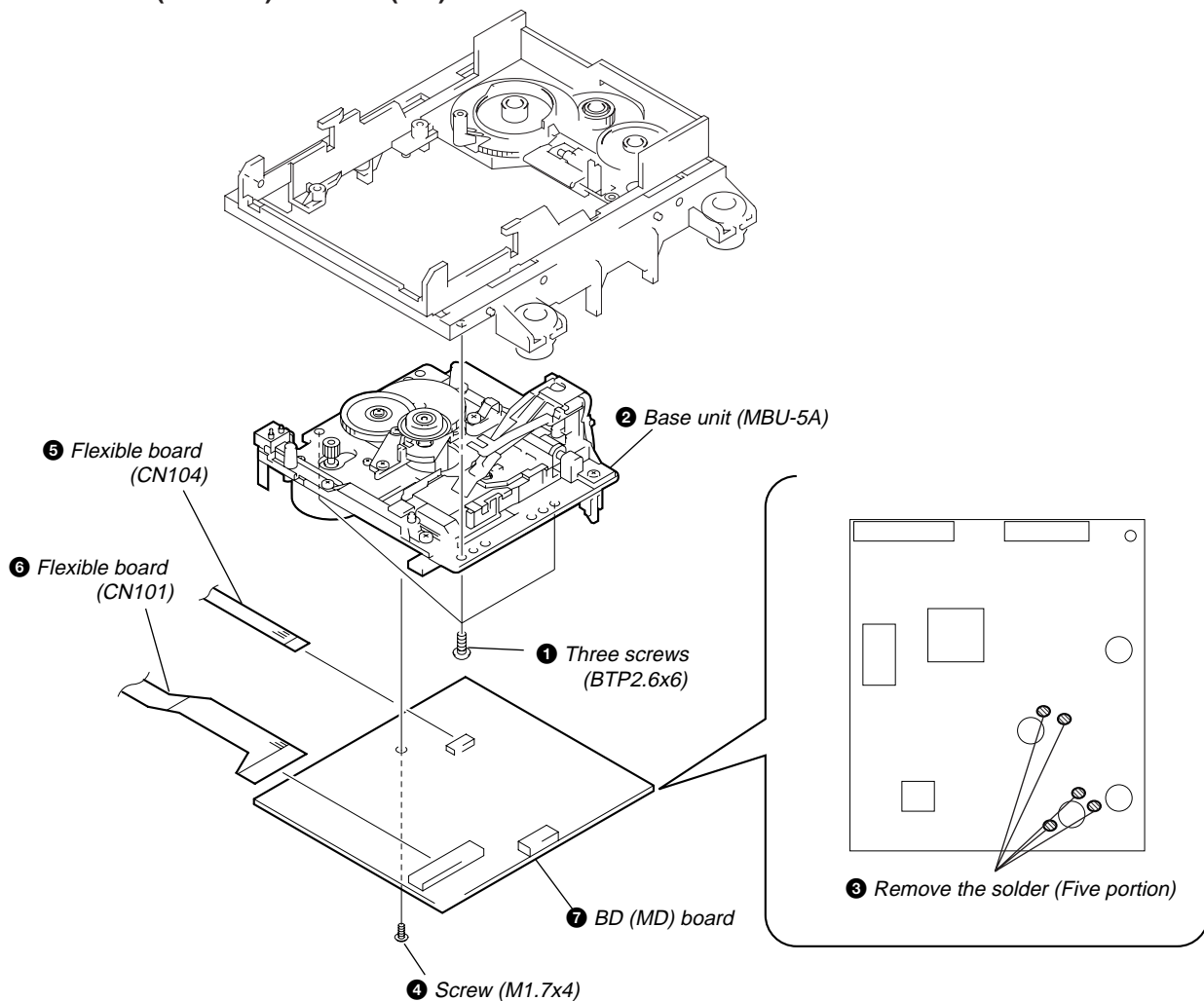
Note:When installing the Disc tray, pull around the flat type wire to pass through the claw **A** and claw **B**, as shown in the figure.



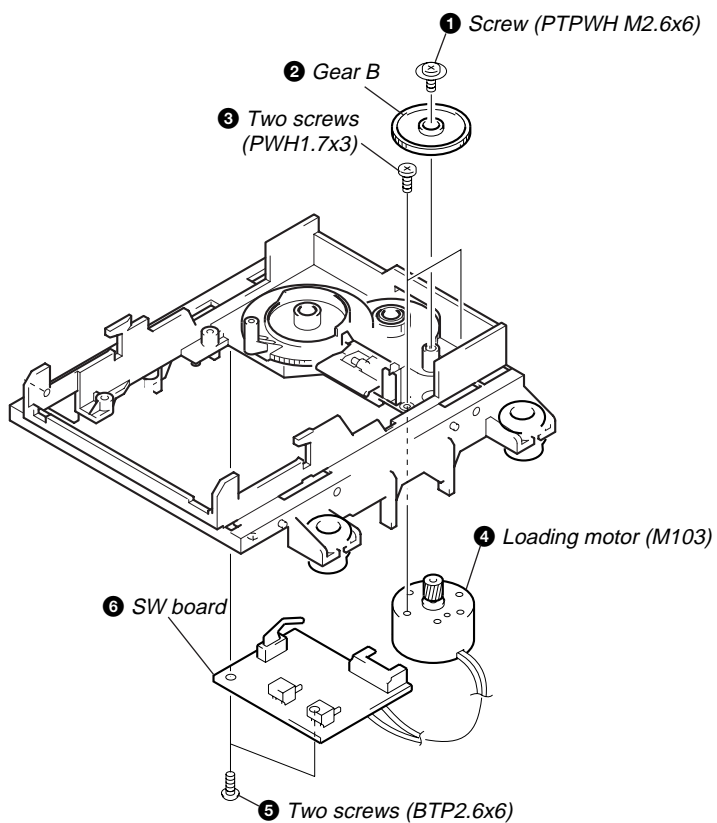
3-6. SLIDER (CAM)



3-7. BASE UNIT (MBU-5A) AND BD (MD) BOARD



3-8. SW BOARD AND LOADING MOTOR (M103)





SECTION 4 SERVICE MODE

MC Cold Reset

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.



Procedure:

1. Press three buttons , **ENTER/YES**, and  simultaneously.
2. “COLD RESET” is displayed on the fluorescent display tube and reset is executed.

CD Delivery Mode

- This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.


Procedure:

1. Press  button to turn the set ON.
2. Press **CD LOOP** button and  button simultaneously.
3. A message “LOCK” is displayed on the fluorescent indicator tube, and the CD delivery mode is set.

MC Hot Reset

- This mode resets the set with the preset data kept stored in the memory. The hot reset mode functions same as if the power cord is plugged in and out.







Procedure:

1. Press three buttons , **ENTER/YES**, and **DISC 1** simultaneously.
2. The fluorescent indicator tube becomes blank instantaneously, and the set is reset.

Sled Servo Mode

- This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the pick-up.

Procedure:

1. Press  button to turn the set ON.
2. Press three buttons , **ENTER/YES**, and  simultaneously.
3. The Sled Servo mode is selected, if “CD” is blanking on the fluorescent indicator tube.
4. With the CD in stop status, When the  knob is rotated in the clockwise direction, the optical pick-up moves outside. When rotated counterclockwise, it moves inside.
5. To exit from this mode, perform as follows:
 - 1) Move the optical pick-up to the most inside track.
 - 2) Execute MC cold reset. (Press the three buttons , **ENTER/YES**, and  button simultaneously.)




Note:

- Always move the pick-up to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
- Do not run the sled motor excessively, otherwise the gear can be chipped.

Change-over of AM Tuner Step between 9kHz and 10kHz



- A step of AM channels can be changed over between 9kHz and 10kHz.

Procedure:

1. Press  button to turn the set ON.
2. Select the function “TUNER”, and press **TUNER/BAND** button to select the BAND “AM”.
3. Press  button to turn the set OFF.
4. Press **ENTER/YES** and  buttons simultaneously, and the display of fluorescent indicator tube changes to “AM 9k STEP” or “AM 10k STEP”, and thus the channel step is changed over.

LED and Fluorescent Indicator Tube All Lit, Key Check Mode

Procedure:

1. Press three buttons , **ENTER/YES**, and **DISC 2** simultaneously.
2. LEDs and fluorescent indicator tube are all turned on. Press **DISC 2** button, and the key check mode is activated.
3. In the key check mode, the fluorescent indicator tube displays “K 0 V0 J0”. Each time a button is pressed, “K” value increases. However, once a button is pressed, it is no longer taken into account.
 - “J” Value increases like 1, 2, 3 ... if rotating  knob in “+” direction, or it decreases like 0, 9, 8 ... if rotating in “-” direction.
 - “V” Value increases like 1, 2, 3 ... if rotating **VOLUME** knob in “+” direction, or it decreases like 0, 9, 8 ... if rotating in “-” direction.
4. To exit from this mode, press three buttons in the same manner as step 1, or disconnect the power cord.







AMS Test Mode

- This mode is used for checking the AMS operations of the tape deck.

JIG

7-819-039-12 Alignment tape, AMS-110A

Procedure:

1. Press the  button to turn the unit ON.
2. Set the tape (AMS-110A).
3. Press the three buttons , , and  button simultaneously.
4. "TEST MODE" is displayed on the fluorescent display tube.
5. Press the  button and switch the function to the deck with the tape (AMS-110A).
6. Press the  button. "AMS CHECK" is displayed on the fluorescent display tube and the tape is rewound.
7. AMS starts in the normal direction. If the AMS count is 2 at shut down, proceed to step 8.
"NG" is displayed at other times, and the deck stops.
8. AMS starts in the opposite direction. If the AMS count is 2 at shut down again, "OK" is displayed.
"NG" is displayed at other times.

Note: The  button of CD section will become effective and the aging of CD section will stop sometime, if the buttons described in step 3 are not pressed simultaneously. In that case, press  button and operate the CD section.

SECTION 5 TEST MODE (MD)

5-1. PRECAUTIONS FOR USE OF TEST MODE

- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the **EJECT (MD)** button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Be sure to press the **EJECT (MD)** button after pressing the **MENU/NO** button and the rotation of disc is stopped.

5-1-1. Recording laser emission mode and operating buttons

- Continuous recording mode (CREC MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUST)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)
- When pressing the **REC (MD)** button.

5-2. SETTING THE TEST MODE

The following are two methods of entering the test mode.

Procedure 1: With the power ON, press the **CD-MD SYNC** button while pressing the **■** and **ENTER/YES** buttons together.

When the test mode is set, "Check" will be displayed. Rotating the **AMS** dial switches between the following four groups;
 ...←→ Check ←→ Adjust ←→ Service ←→ Develop ←→ ...

Procedure 2: With the power ON, press the **REC (MD)** button while pressing the **■** and **ENTER/YES** buttons together.

When the test mode is set, "TEMP CHECK" will be displayed. By setting the test mode using this procedure, only the "Check" group of procedure 1 can be executed.

5-3. EXITING THE TEST MODE

Press the **REPEAT/STEREO/MONO** button.

5-4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the **AMS** dial, **ENTER/YES** button, and **MENU/NO** button.

The functions of these buttons are as follows.

Function name	Function
AMS dial	Changes parameters and modes
ENTER/YES button	Proceeds onto the next step. Finalizes input.
MENU/NO button	Returns to previous step. Stops operations.

5-5. SELECTING THE TEST MODE

There are 31 types of test modes as shown below. The groups can be switched by rotating the **[AMS]** dial. After selecting the group to be used, press the **[MD WALKMAN SYNC]** button. After setting a certain group, rotating the **[AMS]** dial switches between these modes. Refer to “Group” in the table for details selected.

All items used for servicing can be treated using group S. So be carefully not to enter other groups by mistake.

Display	Contents	Mark	Group (*)
TEMP CHECK	Temperature compensation offset check		C S
LDPWR CHECK	Laser power check		C S
EF MO CHECK	Traverse (MO) check		C S
EF CD CHECK	Traverse (CD) check		C S
FBIAS CHECK	Focus bias check		C S
S curve CHECK	S letter check	(X)	C
VERIFY MODE	Non-volatile memory check	(X)	C
DETRK CHECK	Detrack check	(X)	C
TEMP ADJUST	Temperature compensation offset adjustment		A S
LDPWR ADJUST	Laser power adjustment		A S
EF MO ADJUST	Traverse (MO) adjustment		A S
EF CD ADJUST	Traverse (CD) adjustment		A S
FBIAS ADJUST	Focus bias adjustment		A S
EEP MODE	Non-volatile memory control	(X) (!)	D
MANUAL CMD	Command transmission	(X)	D
SVDATA READ	Status display	(X)	D
ERR DP MODE	Error history display, clear		S
SLED MOVE	Sled check	(X)	D
ACCESS MODE	Access check	(X)	D
0920 CHECK	Outermost circumference check	(X)	D
HEAD ADJUST	Head position check	(X)	D
CPLAY2 MODE	Same functions as CPLAY MODE	(X)	D
CREC2 MODE	Same functions as CREC MODE	(X)	D
ADJ CLEAR	Initialization of non-volatile memory of adjustment value		A S
AG Set (MO)	Auto gain output level adjustment (MO)		A S
AG Set (CD)	Auto gain output level adjustment (CD)		A S
Iop Read	IOP data display		C S
Iop Write	IOP data write		A S
INFORMATION	Microprocessing version display		C S
CPLAY MODE	Continuous play mode		C A S D
CREC MODE	Continuous recording mode		C A S D

Group (*)

C: Check

S: Service

A: Adjust

D: Develop

- For details of each adjustment mode, refer to “5. Electrical Adjustments”.
- For details of “ERR DP MODE”, refer to “Self-Diagnosis Function” on page 3.
- If a different mode has been selected by mistake, press the **[MENU/NO]** button to exit that mode.
- Modes with (X) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the **[MENU/NO]** button to exit the mode immediately. Be especially careful not to set the modes with (!) as they will overwrite the non-volatile memory and reset it, and as a result, the unit will not operate normally.

5-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode

- ① Set the disc in the unit. (Whichever recordable discs or discs for playback only are available.)
- ② Rotate the **[AMS]** dial and display “CPLAY MODE”.
- ③ Press the **[ENTER/YES]** button to change the display to “CPLAY MID”.
- ④ When access completes, the display changes to “C1 = [] AD = []”.

Note : The numbers “[]” displayed show you error rates and ADER.

2. Changing the parts to be played back

- ① Press the **[ENTER/YES]** button during continuous playback to change the display as below.

“CPLAY MID” → “CPLAY OUT” → “CPLAY IN”



When pressed another time, the parts to be played back can be moved.

- ② When access completes, the display changes to “C1 = [] AD = []”.

Note : The numbers “[]” displayed show you error rates and ADER.

3. Ending the continuous playback mode

- ① Press the **[MENU/NO]** button. The display will change to “CPLAY MODE”.
- ② Press the **[EJECT (MD)]** button to remove the disc.

Note : The playback start addresses for IN, MID, and OUT are as follows.

IN 40h cluster
MID 300h cluster
OUT 700h cluster

5-5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check.)

1. Entering the continuous recording mode

- ① Set a recordable disc in the unit.
- ② Rotate the **[AMS]** dial and display “CREC MODE”.
- ③ Press the **[ENTER/YES]** button to change the display to “CREC MID”.
- ④ When access completes, the display changes to “CREC ([])” and “REC” indicator lights up.

Note : The numbers “[]” displayed shows you the recording position addresses.

2. Changing the parts to be recorded

- ① When the **[ENTER/YES]** button is pressed during continuous recording, the display changes as below.

“CPLAY MID” → “CPLAY OUT” → “CPLAY IN”



When pressed another time, the parts to be recorded can be changed. “REC” indicator goes off.

- ② When access completes, the display changes to “CREC ([])” and “REC” indicator lights up.

Note : The numbers “[]” displayed shows you the recording position addresses.

3. Ending the continuous recording mode

- ① Press the **[MENU/NO]** button. The display changes to “CREC MODE” and “REC” indicator goes off.
- ② Press the **[EJECT (MD)]** button to remove the disc.

Note 1 : The recording start addresses for IN, MID, and OUT are as follows.

IN 40h cluster
MID 300h cluster
OUT 700h cluster

Note 2 : The **[MENU/NO]** button can be used to stop recording anytime.

Note 3 : Do not perform continuous recording for long periods of time above 5 minutes.

Note 4 : During continuous recording, be careful not to apply vibration.

5-5-3. Non-Volatile Memory Mode (EEP MODE)

This mode reads and writes the contents of the non-volatile memory.

It is not used in servicing. If set accidentally, press the **[MENU/NO]** button immediately to exit it.

5-6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
▶II/MD	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
■	Stops continuous playback and continuous recording.
▶▶ *	The sled moves to the outer circumference only when this is pressed.
◀◀ *	The sled moves to the inner circumference only when this is pressed.
CLEAR	Switches between the pit and groove modes when pressed.
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A).
DISPLAY	Switches the displayed contents each time the button is pressed
⏏ EJECT (MD)	Ejects the disc
REPEAT/STEREO/MONO	Exits the test mode

* This function works only when the ■ button is pressed and “MD” is displayed. In other cases, it works everytime the ■ button is pressed.

5-7. TEST MODE DISPLAYS

Each time the [DISPLAY] button is pressed, the display changes in the following order.

1. Mode display

Displays “TEMP ADJUST”, “CPLAYMODE”, etc.

2. Error rate display

Displays the error rate in the following way.

C1 = □□□□ AD = □□

C1 = Indicates the C1 error.

AD = Indicates ADER.

3. Address display

The address is displayed as follows. (MO:recordable disc, CD:playback only disc)

Pressing the [CLEAR] button switches between the groove display and pit display.

h = □□□□ s = □□□□ (MO pit and CD)

h = □□□□ a = □□□□ (MO groove)

h = Indicates the header address.

s = Indicates the SUBQ address.

a = Indicates the ADIP address.

Note: “-” is displayed when servo is not imposed.

4. Auto gain display (Not used in servicing)

The auto gain is displayed as follows.

AG = □□/□□ □□

5. Detrack check display (Not used in servicing)

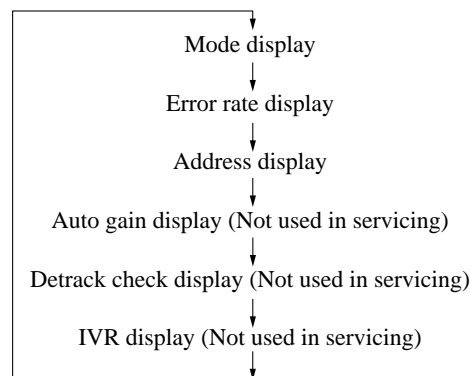
The detrack is displayed as follows.

ADR = □□□□□□□□

6. IVR display (Not used in servicing)

The IVR is displayed as follows.

□□ □□ □□



MEANINGS OF OTHER DISPLAYS

Display	Contents	
	When Lit	When Off
▶II/MD *	During continuous playback (CLV: ON) (Green)	STOP (CLV: OFF) (Light off)
▶II/MD *	Tracking servo OFF (Unber)	Tracking servo ON (Green)
REC	Recording mode ON	Recording mode OFF
SYNC	CLV low speed mode	CLV normal mode
L-SYNC	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
1	Tracking auto gain OK	
REPEAT	Focus auto gain OK	
TRACK	Pit	Groove
DISC	High reflection	Low reflection
SHUFFLE	CLV S	CLV A
MONO	CLV LOCK	CLV UNLOCK

* Differentiate ▶II/MD by the color of the button indicator.

SECTION 6

MECHANICAL ADJUSTMENTS

Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	31 to 71 g • cm (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	2 to 6 g • cm (0.02 – 0.08 oz • inch)
REV	CQ-102RC	31 to 71 g • cm (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	2 to 6 g • cm (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	71 to 143 g • cm (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	100 g or more (3.53 oz or more)
REV tension	CQ-403R	100 g or more (3.53 oz or more)

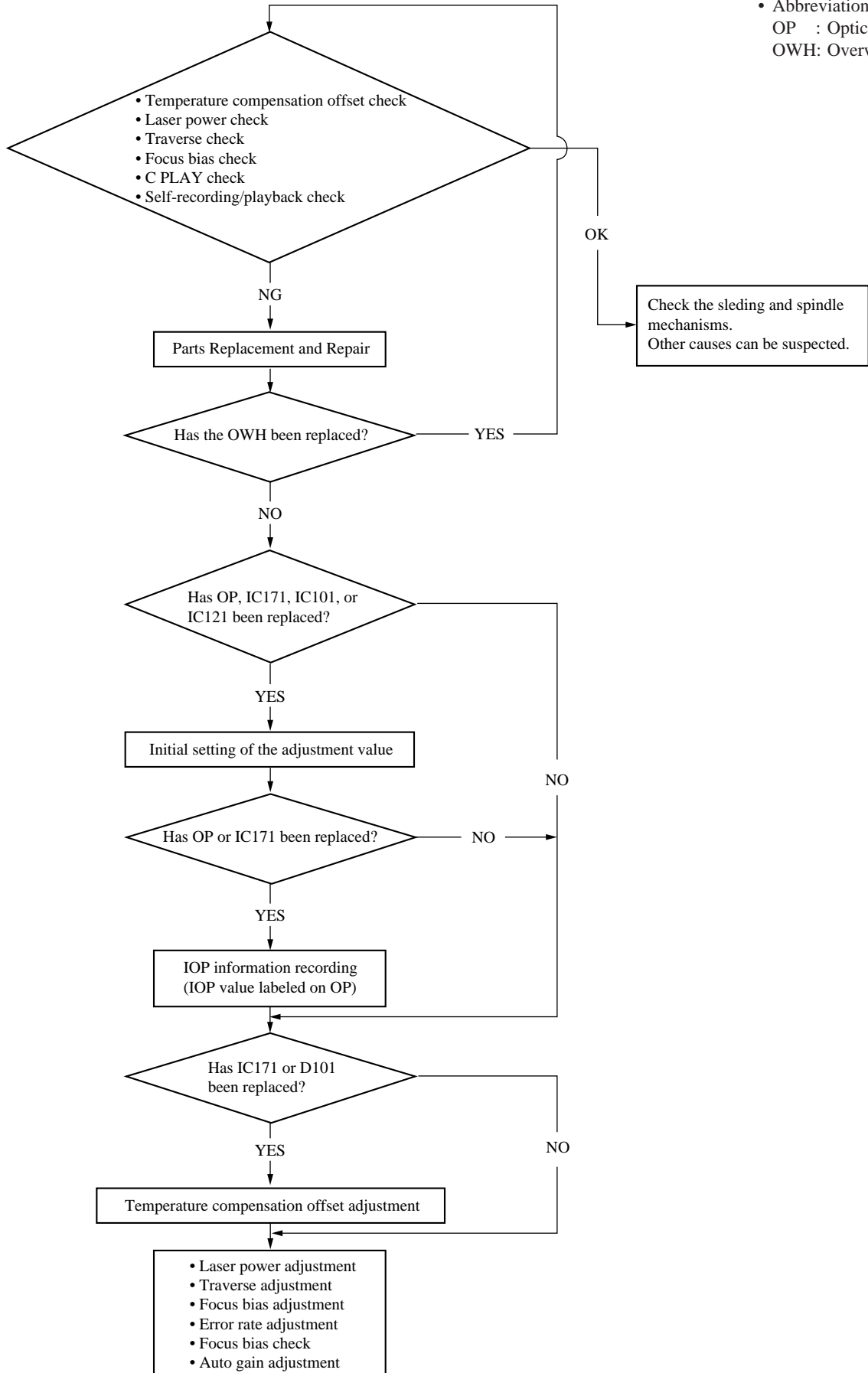
SECTION 7 ELECTRICAL ADJUSTMENTS

MD SECTION

7-1. PARTS REPLACEMENT AND ADJUSTMENT

- Check and adjust the MDM and MBU as follows.
The procedure changes according to the part replaced

- Abbreviation
OP : Optical pick-up
OWH: Overwrite head

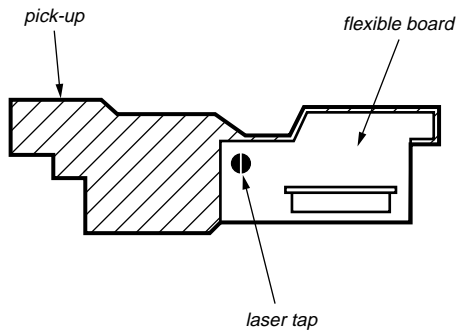


7-2. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

7-3. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

7-4. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

	Optical Pick-up	BD Board			
		IC171	D101	IC101, IC121	IC192
1. Initial setting of adjustment value	○	○	×	○	×
2. Recording of IOP information (Value written in the pick-up)	○	○	×	×	×
3. Temperature compensation offset adjustment	×	○	○	×	×
4. Laser power adjustment	○	○	×	○	○
5. Traverse adjustment	○	○	×	○	×
6. Focus bias adjustment	○	○	×	○	×
7. Error rate check	○	○	×	○	×
8. Auto gain output level adjustment	○	○	×	○	×

- 2) Set the test mode when performing adjustments.
After completing the adjustments, exit the test mode.
Perform the adjustments and checks in "group S" of the test mode.
- 3) Perform the adjustments to be needed in the order shown.

- 4) Use the following tools and measuring devices.
 - Check Disc (MD) TDYS-1 (Parts No. 4-963-646-01)
 - Test Disk (MDW-74/AU-1) (Parts No. 8-892-341-41)
 - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
or
 - MD Laser power meter 8010S (Parts No. J-2501-145-A)
 - Oscilloscope (Measure after performing CAL of prove.)
 - Digital voltmeter
 - Thermometer
 - Jig for checking BD board waveform (Parts No. : J-2501-149-A)
- 5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
(VC and ground will become short-circuited.)
- 6) Using the above jig enables the waveform to be checked without the need to solder.
(Refer to Servicing Note on page 9.)
- 7) As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

Note:

When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (J-2501-145-A) instead of the conventional laser power meter is convenient. It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of the optical pick-up.

7-5. CREATING CONTINUOUSLY RECORDED DISC

- * This disc is used in focus bias adjustment and error rate check.
The following describes how to create a continuous recording disc.
1. Insert a disc (blank disc) commercially available.
 2. Rotate the [AMS] dial and display "CREC MODE".
 3. Press the [ENTER/YES] button again to display "CREC MID".
Display "CREC (0300)" and start to recording.
 4. Complete recording within 5 minutes.
 5. Press the [MENU/NO] button and stop recording .
 6. Press the [EJECT (MD)] button and remove the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

Note :

- Be careful not to apply vibration during continuous recording.

7-6. CHECKS PRIOR TO REPAIRS

These checks are performed before replacing parts according to “approximate specifications” to determine the faulty locations. For details, refer to “Checks Prior to Parts Replacement and Adjustments” (See page 11).

7-6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22 to 28°C.

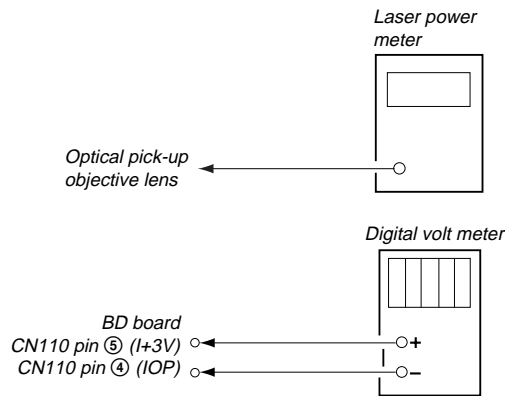
Checking Procedure:

1. Rotate the **[AMS]** dial to display “TEMP CHECK”.
2. Press the **[ENTER/YES]** button.
3. “T=@@ (##) OK” should be displayed. If “T=@@ (##) NG” is displayed, it means that the results are bad.
(@@ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

7-6-2. Laser Power Check

Before checking, check the IOP value of the optical pick-up.
(Refer to 7-8. Recording and Displaying IOP Information.)

Connection :



Checking Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **[STOP]** button and display the “MD”, and then press the **[LEFT]** button or **[RIGHT]** button to move the optical pick-up.)
Connect the digital volt meter to CN110 pin ⑤ (I+3V) and CN110 pin ④ (IOP).
2. Then, rotate the **[AMS]** dial and display “LDPWR CHECK” (C02).
3. Press the **[ENTER/YES]** button once and display “LD 0.9 mW \$ []”. Check that the reading of the laser power meter become 0.84 to 0.92 mW.
4. Press the **[ENTER/YES]** button once more and display “LD 7.0 mW \$ []”. Check that the reading of the laser power meter and digital volt meter satisfy the specified value.

Specified Value :

Laser power meter reading : 7.0 ± 0.2 mW

Digital voltmeter reading : Optical pick-up displayed value ± 10%

(Optical pick-up label)

KMS260A
27X40
B0825

(For details of the method for checking this value, refer to “7-8. Recording and Displaying IOP Information”.)

lop = 82.5 mA in this case

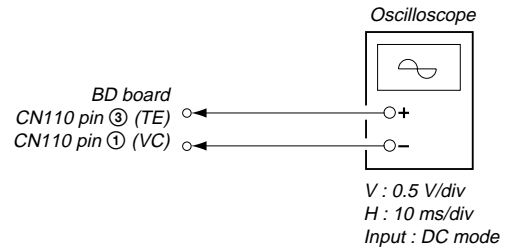
lop (mA) = Digital voltmeter reading (mV)/1 (Ω)

5. Press the **[MENU/NO]** button and display “LDPWR CHECK” and stop the laser emission.
(The **[MENU/NO]** button is effective at all times to stop the laser emission.)

Note 1: After step 4, each time the **[ENTER/YES]** button is pressed, the display will be switched between “LD 0.7 mW \$ []”, “LD 6.2 mW \$ []”, and “LD WP \$ []”. Nothing needs to be performed here.

7-6-3. Traverse Check

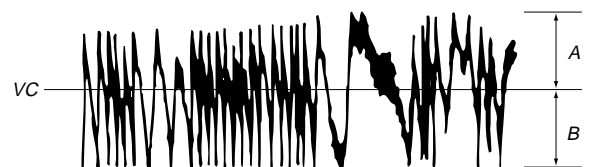
Connection :



Checking Procedure:

1. Connect an oscilloscope to CN110 pin ③ (TE) and CN110 pin ① (VC) of the BD board.
2. Load a disc (any available on the market). (Refer to Note 1.)
3. Press the **[STOP]** button and display the “MD”, and then press the **[RIGHT]** button and move the optical pick-up outside the pit.
4. Rotate the **[AMS]** dial and display “EF MO CHECK”(C03).
5. Press the **[ENTER/YES]** button and display “EFB = [] MO-R”.
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not rotate the **[AMS]** dial.
(Read power traverse checking)

(Traverse Waveform)

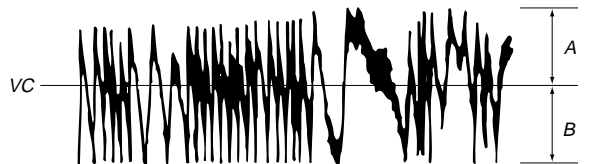


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the **[ENTER/YES]** button and display “EFB = [] MO-W”.
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not rotate the **[AMS]** dial.
(Write power traverse checking)

(Traverse Waveform)



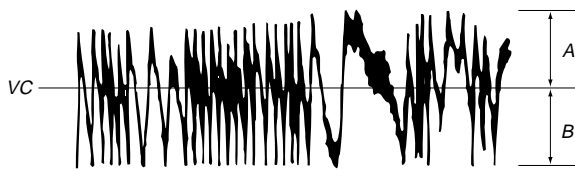
Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **[ENTER/YES]** button display “EFB = [] MO-P”.
Then, the optical pick-up moves to the pit area automatically and servo is imposed.

10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not rotate the **[AMS]** dial.

(Traverse Waveform)

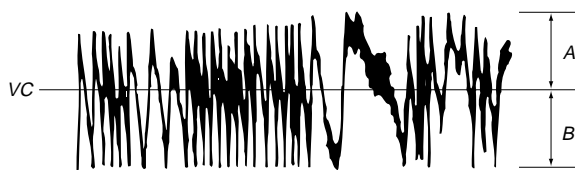


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

11. Press the **[ENTER/YES]** button display “EF MO CHECK”. The disc stops rotating automatically.
12. Press the **[EJECT (MD)]** button and remove the disc.
13. Load the check disc (MD) TDYS-1.
14. Rotate the **[AMS]** dial and display “EF CD CHECK”.
15. Press the **[ENTER/YES]** button and display “EFB = $\square\square$ CD”. Servo is imposed automatically.
16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not rotate the **[AMS]** dial.

(Traverse Waveform)



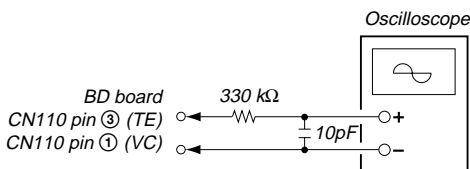
Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

17. Press the **[ENTER/YES]** button and display “EF CD CHECK”.
18. Press the **[EJECT (MD)]** button and remove the check disc (MD) TDYS-1.

Note 1 : MO reading data will be erased during if a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



7-6-4. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a test disk (MDW-74/AU-1).
2. Rotate the **[AMS]** dial and display “CPLAY MODE”.
3. Press the **[ENTER/YES]** button twice and display “CPLAY MID”.
4. Press the **[MENU/NO]** button when “C1 = $\square\square\square\square$ AD = $\square\square$ ” is displayed.
5. Rotate the **[AMS]** dial and display “FBIAS CHECK”.
6. Press the **[ENTER/YES]** button and display “ $\square\square\square\square/\square\square$ c = $\square\square$ ”. The first four digits indicate the C1 error rate, the two digits after “/” indicate ADER, and the 2 digits after “c =” indicate the focus bias value. Check that the C1 error is below 220 and ADER is below 2.
7. Press the **[ENTER/YES]** button and display “ $\square\square\square\square/\square\square$ b = $\square\square$ ”. Check that the C1 error is below 220 and ADER is below 2.
8. Press the **[ENTER/YES]** button and display “ $\square\square\square\square/\square\square$ a = $\square\square$ ”. Check that the C1 error is below 220 and ADER is below 2.
9. Press the **[MENU/NO]** button, next press the **[EJECT (MD)]** button, and remove the test disc.

7-6-5. C PLAY Checking

MO Error Rate Check

Checking Procedure :

1. Load a test disk (MDW-74/AU-1).
2. Rotate the **[AMS]** dial and display “CPLAY MODE”.
3. Press the **[ENTER/YES]** button and display “CPLAY MID”.
4. The display changes to “C1 = $\square\square\square\square$ AD = $\square\square$ ”.
5. If the C1 error rate is below 80, check that ADER is below 2.
6. Press the **[MENU/NO]** button, stop playback, press the **[EJECT (MD)]** button, and test disc.

CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Rotate the **[AMS]** dial and display “CPLAY MODE”.
3. Press the **[ENTER/YES]** button twice and display “CPLAY MID”.
4. The display changes to “C = $\square\square\square\square$ AD = $\square\square$ ”.
5. Check that the C1 error rate is below 50.
6. Press the **[MENU/NO]** button, stop playback, press the **[EJECT (MD)]** button, and the test disc.

7-6-6. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

Checking Procedure :

1. Insert a recordable disc (blank disc) into the unit.
2. Rotate the **[AMS]** dial to display “CREC MODE”.
3. Press the **[ENTER/YES]** button to display the “CREC MID”.
4. When recording starts, “REC” is displayed, this becomes “CREC (@ @ @ @)” (@ @ @ @) is the address), and recording starts.
5. About 1 minute later, press the **[MENU/NO]** button to stop continuous recording.
6. Rotate the **[AMS]** dial to display “C PLAY MODE”.
7. Press the **[ENTER/YES]** button to display “C PLAY MID”.
8. “C1 = $\square\square\square\square$ AD = $\square\square$ ” will be displayed.
9. Check that the C1 error becomes below 80 and the AD error below 2.
10. Press the **[MENU/NO]** button to stop playback, and press the **[EJECT (MD)]** button and remove the disc.

7-7. INITIAL SETTING OF ADJUSTMENT VALUE

Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to “7-4. Precautions on Adjustments” and execute the initial setting before the adjustment as required.

Setting Procedure :

1. Rotate the **[AMS]** dial to display “ADJ CLEAR”.
2. Press the **[ENTER/YES]** button. “Complete!” will be displayed momentarily and initial setting will be executed, after which “ADJ CLEAR” will be displayed.

7-8. RECORDING AND DISPLAYING THE IOP INFORMATION

The IOP data can be recorded in the non-volatile memory. The IOP value on the label of the optical pickup and the IOP value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure :

1. With the power ON, press the **[CD-MD SYNC]** button while pressing the **[]** and **[ENTER/YES]** buttons together.
2. Rotate the **[AMS]** dial to display “Service”, and press the **[ENTER/YES]** button.
3. Rotate the **[AMS]** dial to display “Iop.Write”, and press the **[ENTER/YES]** button.
4. The display becomes Ref=@@@.@ (@ is an arbitrary number) and the numbers which can be changed will blink.
5. Input the IOP value written on the optical pick-up.
To select the number : Rotate the **[AMS]** dial.
To select the digit : Press the **[MD MALKMAN SYNC]** button.
6. When the **[ENTER/YES]** button is pressed, the display becomes “Measu=@@@.@” (@ is an arbitrary number).
7. As the adjustment results are recorded for the 6 value. Leave it as it is and press the **[ENTER/YES]** button.
8. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write”.

Display Procedure :

1. Rotate the **[AMS]** dial to display “Iop.Read”.
2. “@@@.@/###.#” is displayed and the recorded contents are displayed.
@@@.@ indicates the Iop value labeled on the pick-up.
###.# indicates the Iop value after adjustment
3. To end, press the **[MD MALKMAN SYNC]** button or **[MENU/NO]** button to display “Iop Read”.

7-9. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

Note :

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Procedure :

1. Rotate the **[AMS]** dial and display “TEMP ADJUST”.
2. Press the **[ENTER/YES]** button and select the “TEMPADJUST” mode.
3. “TEMP = [] OK” and the current temperature data will be displayed.
4. To save the data, press the **[ENTER/YES]** button.
When not saving the data, press the **[MENU/NO]** button.
5. When the **[ENTER/YES]** button is pressed, “TEMP = [] SAVE” will be displayed and turned back to “TEMP ADJUST” display then. When the **[MENU/NO]** button is pressed, “TEMP ADJUST” will be displayed immediately.

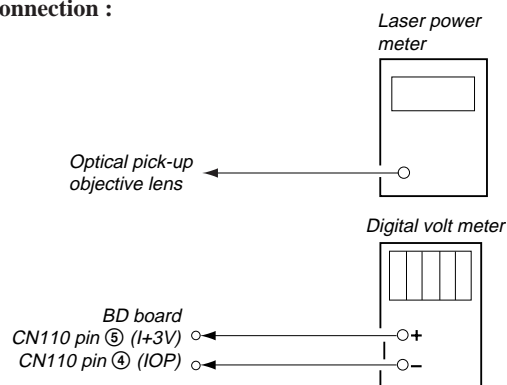
Specified Value :

The “TEMP = []” should be within “E0 - EF”, “F0 - FF”, “00 - 0F”, “10 - 1F” and “20 - 2F”.

7-10. LASER POWER ADJUSTMENT

Check the IOP value of the optical pick-up before adjustments. (Refer to 7-8. Recording and Displaying IOP Information.)

Connection :



Adjusting Procedure :

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **[]** button and display the “MD”, and then press the **[◀]** button or **[▶]** button to move the optical pick-up.)
Connect the digital volt meter to CN110 pin ⑤ (I+3V) and CN110 pin ④ (IOP).
2. Rotate the **[AMS]** dial and display “LDPWR ADJUST”. (Laser power : For adjustment)
3. Press the **[ENTER/YES]** button once and display “LD 0.9 mW []”.
4. Rotate the **[AMS]** dial so that the reading of the laser power meter becomes 0.85 to 0.91 mW. Press the **[ENTER/YES]** button after setting the range knob of the laser power meter, and save the adjustment results. (“LD SAVE []” will be displayed for a moment.)
5. Then “LD 7.0 mW []” will be displayed.

6. Rotate the **[AMS]** dial so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the **[ENTER/YES]** button and save it.

Note : Do not perform the emission with 7.0 mW more than 15 seconds continuously.

7. Then, rotate the **[AMS]** dial and display "LDPWR CHECK".

8. Press the **[ENTER/YES]** button once and display "LD 0.9 mW \$ []". Check that the reading of the laser power meter become 0.85 to 0.91 mW.

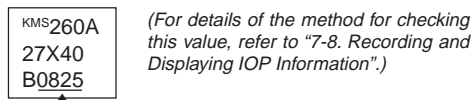
9. Press the **[ENTER/YES]** button once more and display "LD 7.0 mW \$ []". Check that the reading the laser power meter and digital volt meter satisfy the specified value.
Note down the digital voltmeter reading value.

Specified Value :

Laser power meter reading : 7.0 ± 0.1 mW

Digital voltmeter reading : Optical pick-up displayed value $\pm 10\%$

(Optical pick-up label)



(For details of the method for checking this value, refer to "7-8. Recording and Displaying IOP Information".)

$I_{op} = 82.5$ mA in this case

I_{op} (mA) = Digital voltmeter reading (mV)/1 (Ω)

10. Press the **[MENU/NO]** button and display "LDPWR CHECK" and stop the laser emission.

(The **[MENU/NO]** button is effective at all times to stop the laser emission.)

11. Rotate the **[AMS]** knob to display "Iop.Write".

12. Press the **[ENTER/YES]** button. When the display becomes Ref=@ @ . @ (@ is an arbitrary number), press the **[ENTER/YES]** button to display "Measu=@ @ . @" (@ is an arbitrary number).

13. The numbers which can be changed will blink. Input the Iop value noted down at step 9.

To select the number : Rotate the **[AMS]** dial.

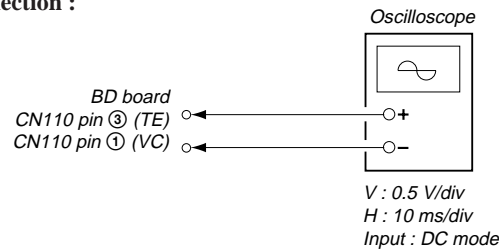
To select the digit : Press the **[AMS]** dial.

14. When the **[ENTER/YES]** button is pressed, "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write".

Note 1: After step 4, each time the **[ENTER/YES]** button is pressed, the display will be switched between "LD 0.7 mW \$ []", "LD 6.2 mW \$ []", and "LD WP \$ []". Nothing needs to be performed here.

7-11. TRAVERSE ADJUSTMENT

Connection :

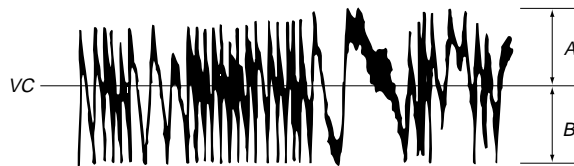


Adjusting Procedure :

1. Connect an oscilloscope to CN110 pin ③ (TE) and CN110 pin ① (VC) of the BD board.
2. Load a disc (any available on the market). (Refer to Note 1.)
3. Press the **[]** button and display the "MD", and then press the **[]** button and display the "MD", and then press the **[]** button and move the optical pick-up outside the pit.
4. Rotate the **[AMS]** dial and display "EF MO ADJUS" (C11).
5. Press the **[ENTER/YES]** button and display "EFB = [] MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Rotate the **[AMS]** dial so that the waveform of the oscilloscope becomes the specified value.

(When the **[AMS]** dial is rotated, the [] of "EFB = []" changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
(Read power traverse adjustment)

(Traverse Waveform)

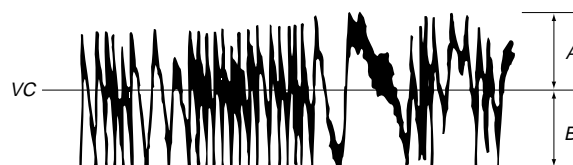


Specification A = B

7. Press the **[ENTER/YES]** button and save the result of adjustment to the non-volatile memory ("EFB = [] SAVE" will be displayed for a moment. Then "EFB = [] MO-W" will be displayed).
8. Rotate the **[AMS]** dial so that the waveform of the oscilloscope becomes the specified value.

(When the **[AMS]** dial is rotated, the [] of "EFB = []" changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
(Write power traverse adjustment)

(Traverse Waveform)

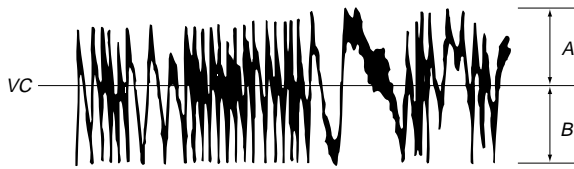


Specification A = B

9. Press the **[ENTER/YES]** button, and save the adjustment results in the non-volatile memory. ("EFB = [] SAVE" will be displayed for a moment.)
10. "EFB = [] MO-P". will be displayed.
The optical pick-up moves to the pit area automatically and servo is imposed.

- Rotate the **[AMS]** dial until the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

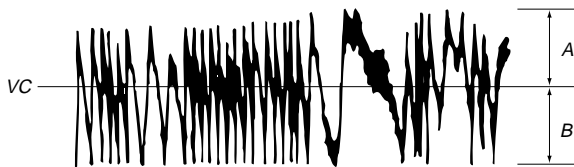
(Traverse Waveform)



Specification A = B

- Press the **[ENTER/YES]** button, and save the adjustment results in the non-volatile memory. (“EFB = **[]** SAVE” will be displayed for a moment.)
Next “EF MO ADJUST” is displayed. The disc stops rotating automatically.
- Press the **[EJECT (MD)]** button and remove the disc.
- Load the check disc (MD) TDYS-1.
- Rotate **[AMS]** dial and display “EF CD ADJUST”.
- Press the **[ENTER/YES]** button and display “EFB = **[]** CD”.
Servo is imposed automatically.
- Rotate the **[AMS]** dial so that the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)

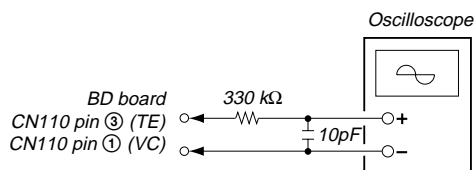


Specification A = B

- Press the **[ENTER/YES]** button, display “EFB = **[]** SAVE” for a moment and save the adjustment results in the non-volatile memory.
Next “EF CD ADJUST” will be displayed.
- Press the **[EJECT (MD)]** button and remove the check disc (MD) TDYS-1.

Note 1 : MO reading data will be erased during if a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



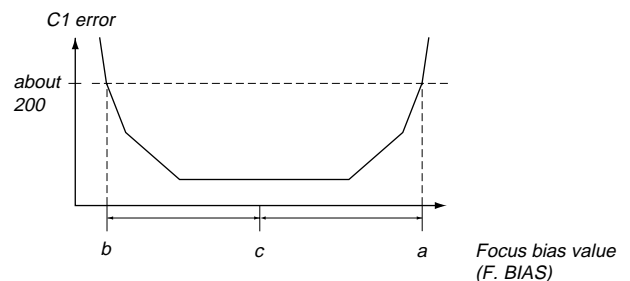
7-12. FOCUS BIAS ADJUSTMENT

Adjusting Procedure :

- Load a test disk (MDW-74/AU-1).
- Rotate the **[AMS]** dial and display “CPLAY MODE”.
- Press the **[ENTER/YES]** button and display “CPLAY MID”.
- Press the **[MENU/NO]** button when “C1 = **[]** AD = **[]**” is displayed.
- Rotate the **[AMS]** dial and display “FBIAS ADJUS”.
- Press the **[ENTER/YES]** button and display “**[]** a = **[]**”.
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a =] indicate the focus bias value.
- Rotate the **[AMS]** dial in the clockwise direction and find the focus bias value at which the C1 error rate becomes about 200 (Refer to Note 2).
- Press the **[ENTER/YES]** button and display “**[]** b = **[]**”.
- Rotate the **[AMS]** dial in the counterclockwise direction and find the focus bias value at which the C1 error rate becomes about 200.
- Press the **[ENTER/YES]** button and display “**[]** c = **[]**”.
- Check that the C1 error rate is below 50 and ADER is 00. Then press the **[ENTER/YES]** button.
- If the “()” in “**[]** - **[]** ()” is above 20, press the **[ENTER/YES]** button.
If below 20, press the **[MENU/NO]** button and repeat the adjustment from step 2.
- Press the **[EJECT (MD)]** button to remove the test disc.

Note 1 : The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

Note 2 : As the C1 error rate changes, perform the adjustment using the average value.



7-13. ERROR RATE CHECK

7-13-1. CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Rotate the [AMS] dial and display "CPLAY MODE".
3. Press the [ENTER/YES] button twice and display "CPLAY MID".
4. The display changes to "C1 = 0000 AD = 00".
5. Check that the C1 error rate is below 20.
6. Press the [MENU/NO] button, stop playback, press the [EJECT (MD)] button, and remove the test disc.

7-13-2. MO Error Rate Check

Checking Procedure :

1. Load a test disc (MDW-74/AU-1).
2. Rotate the [AMS] dial and display "CPLAY MODE".
3. Press the [ENTER/YES] button and display "CPLAY MID".
4. The display changes to "C1 = 0000 AD = 00".
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the [MENU/NO] button, stop playback, press the [EJECT (MD)] button, and remove the test disc.

7-14. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a test disc (MDW-74/AU-1).
2. Rotate the [AMS] dial and display "CPLAY MODE".
3. Press the [ENTER/YES] button twice and display "CPLAY MID".
4. Press the [MENU/NO] button when "C1 = 0000 AD = 00" is displayed.
5. Rotate the [AMS] dial and display "FBIAS CHECK".
6. Press the [ENTER/YES] button and display "0000/00 c = 00".
The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "c =" indicate the focus bias value.
Check that the C1 error is below 50 and ADER is below 2.
7. Press the [ENTER/YES] button and display "0000/00 b = 00".
Check that the C1 error is below 220 and ADER is below 2.
8. Press the [ENTER/YES] button and display "0000/00 a = 00".
Check that the C1 error is below 220 and ADER is below 2.
9. Press the [MENU/NO] button, next press the [EJECT (MD)] button, and remove the continuously recorded disc.

Note 1 : If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

7-15. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the pickup is replaced. If the adjustment results becomes "Adjust NG!", the pickup may be faulty or the servo system circuits may be abnormal.

7-15-1. CD Auto Gain Control Output Level Adjustment

Adjusting Procedure :

1. Insert the check disc (MD) TDYS-1.
2. Rotate the [AMS] dial to display "AG Set (CD)".
3. When the [ENTER/YES] button is pressed, the adjustment will be performed automatically.
"Complete!!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)".
4. Press the [EJECT (MD)] button to remove the disc.

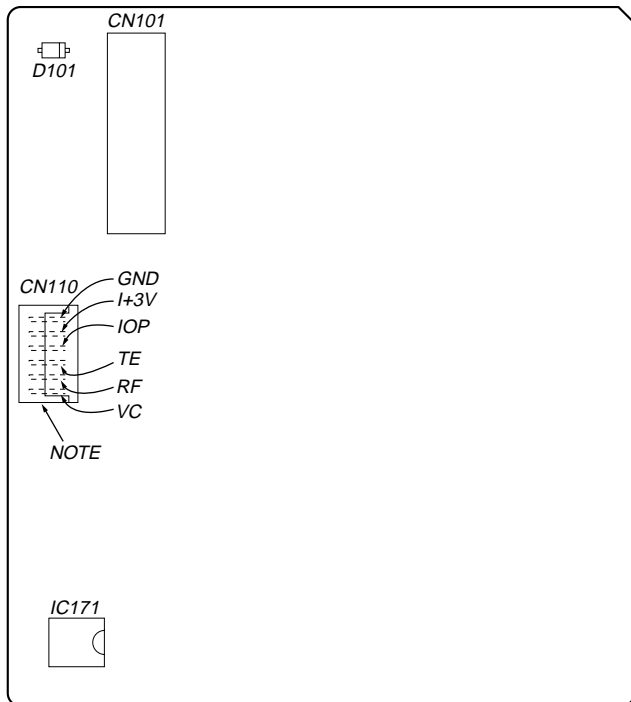
7-15-2. MO Auto Gain Control Output Level Adjustment

Adjusting Procedure :

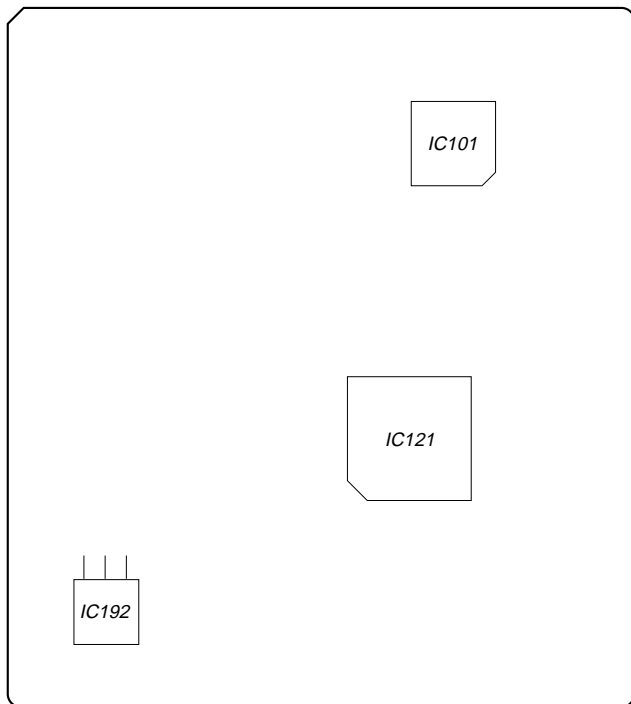
1. Insert the reference disc (MDW-74/AU-1) for recording.
2. Rotate the [AMS] dial to display "AG Set (MO)".
3. When the [ENTER/YES] button is pressed, the adjustment will be performed automatically.
"Complete!!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)".
4. Press the [EJECT (MD)] button to remove the disc.

7-16. ADJUSTING POINTS AND CONNECTING POINTS

[BD BOARD] (SIDE A)



[BD BOARD] (SIDE B)



NOTE: It is useful to use the jig. for checking the waveform. (Refer to Servicing Note on page 9.)

DECK SECTION

0 dB=0.775V

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

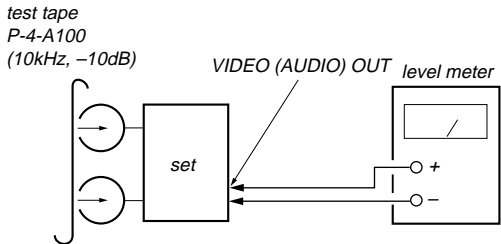
Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

Record/Playback Head Azimuth Adjustment (Deck A, Deck B)

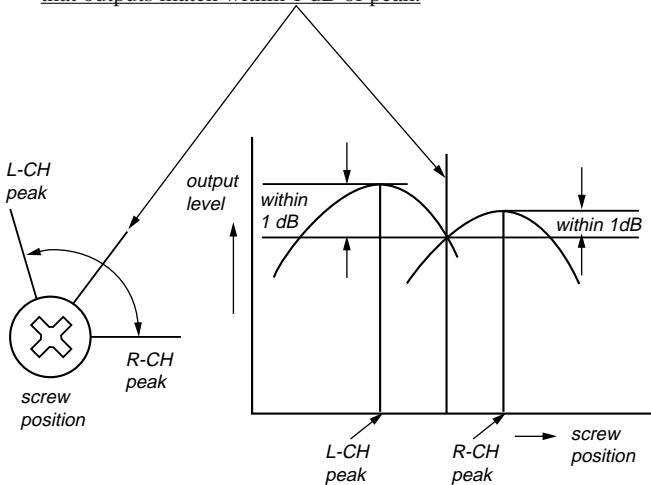
Note: Perform this adjustments for both decks.

Procedure:

1. Mode : Playback

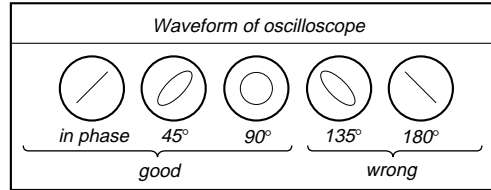
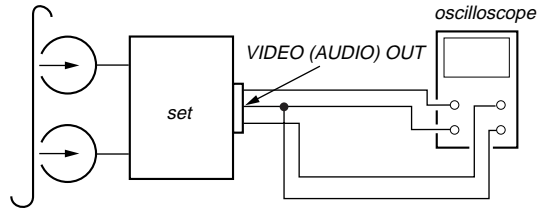


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



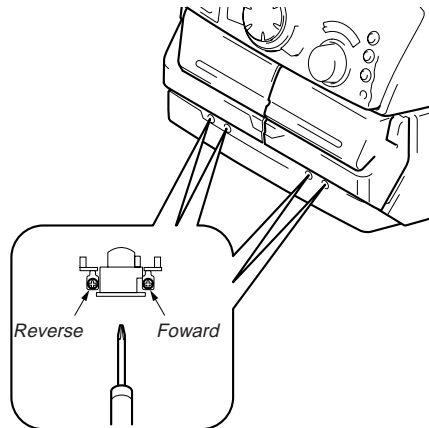
3. Mode: Playback

test tape
P-4-A100
(10kHz, -10dB)



4. After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location: Playback Head (Deck A)
Record/Playback/Erase Head (Deck B)



Tape Speed Adjustment (Deck A)

Note: Set the test mode using the following method and begin tape speed adjustment.

In the test mode, the speed will switch to double speed or normal speed each time the **[HI DUB]** button is pressed.

Procedure:

With the power turned ON, press the **[STOP]** button, **[ENTER/NEXT]** button, and **[DISC 3]** button simultaneously.

(The "CD TYPE INDICATOR" on the fluorescent display tube will blink while in the test mode.)

To exit the test mode, press the **[I/O]** button.

1. Insert the WS-48B into deck B.
2. Press the **[▶]** button of deck B.
3. Press the **[HI DUB]** button and play the tape at double speed.
4. Adjust RV1001 of the LEAF SW board so that the reading of the frequency counter becomes 6000 ± 180 Hz.
5. Press the **[HI DUB]** button and play the tape at normal speed.
6. Adjust RV1002 of the LEAF SW board so that the reading of the frequency counter becomes 3000 ± 90 Hz.

Adjustment Location: LEAF SW board

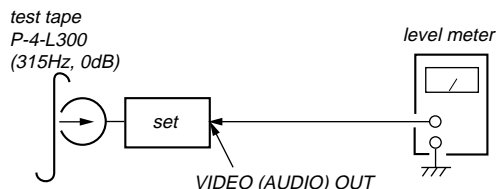
Sample Value of Wow and flutter

W.RMS (JIS) less than 0.3%
(test tape: WS-48B)

Playback Level Adjustment (Deck A, Deck B)

Procedure:

Mode: Playback



Deck A is RV311 (L-CH) and RV411 (R-CH), deck B is RV301 (L-CH) and RV401 (R-CH)

so that adjustment within the following adjustment level.

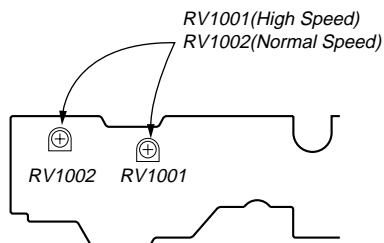
Adjustment level:

CN301 playback level: 301.5 to 338.3 mV (-8.2 to -7.2 dB)

level difference between the channels: within ± 0.5 dB

Adjustment Location: AUDIO board

Adjustment Location [LEAF SW BOARD]



Record Bias Adjustment (Deck B)

Procedure:

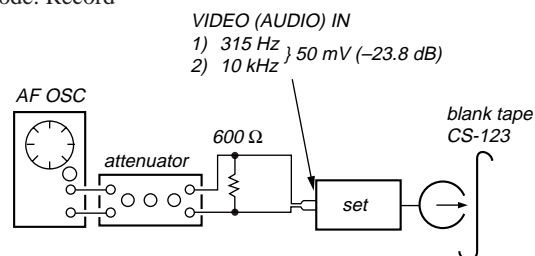
INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.

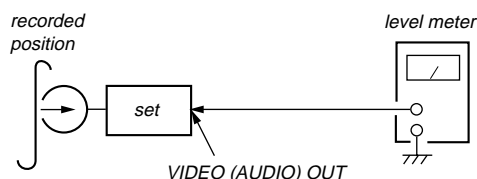
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.

(After recording, press the **[◀◀]** button without stopping will return to the position where recording was started.)

1. Press **[FUNCTION]** button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the **[REC]** button, and then press the **[▶]** button to start recording.
3. Mode: Record



4. Mode: Playback



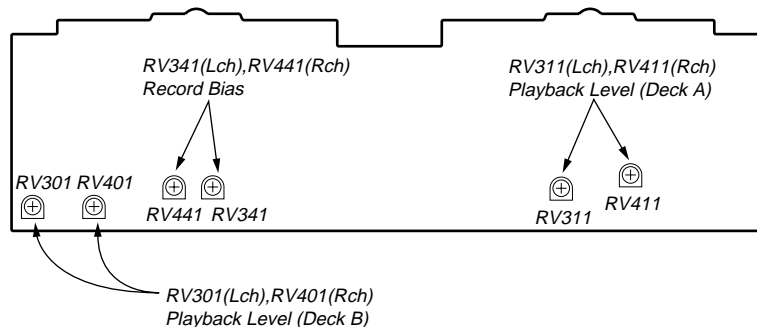
5. Confirm playback the signal recorded in step 2 become adjustment level as follows.

If these levels do not adjustment level, adjust the RV341 (L-CH) and RV441 (R-CH) on the AUDIO board to repeat steps 3 and 4.

Adjustment level: The playback output of 10 kHz level difference against 315 Hz reference should be ± 1.0 dB.

Adjustment Location: AUDIO board

Adjustment Location: [AUDIO BOARD] (Conductor Side)



Record Level Adjustment (Deck B)


Procedure:

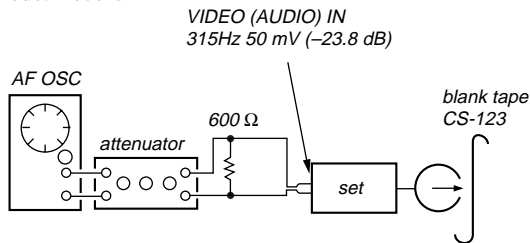
INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.

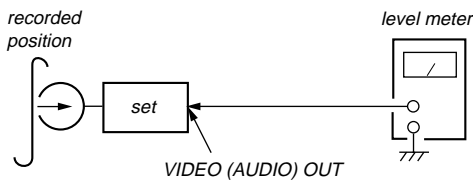
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.

(After recording, press the  button without stopping will return to the position where recording was started.)

1. Press **FUNCTION** button to select VIDEO 1. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the **REC** button, and then press the  button to start recording.
3. Mode: Record



4. Mode: Playback



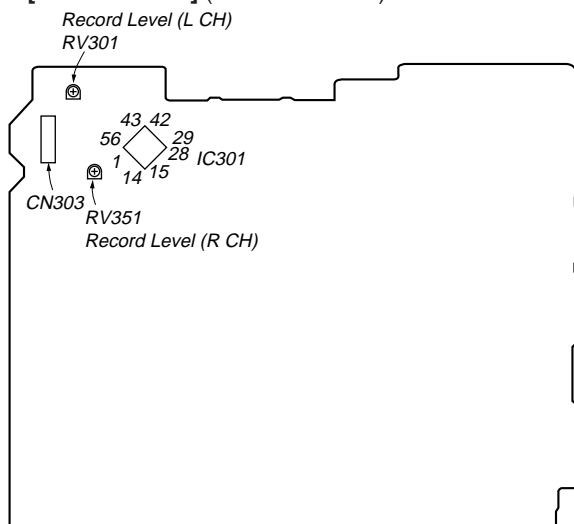
5. Confirm playback the signal recorded in step 2 become adjustment level as follows.
If these levels do not adjustment level, adjust the RV301 (L-CH) and RV351 (R-CH) on the MAIN board to repeat steps 3 and 4.

Adjustment level:

CN403 playback level: 47.2 to 53.0 mV (-24.3 to -23.3 dB)

Adjustment Location: MAIN board

[MAIN BOARD] (Conductor Side)



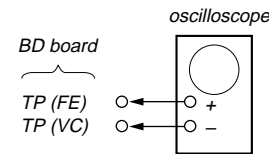
SECTION 8 DIAGRAMS

CD SECTION

Note:

1. CD Block is basically constructed 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 10MΩ 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.

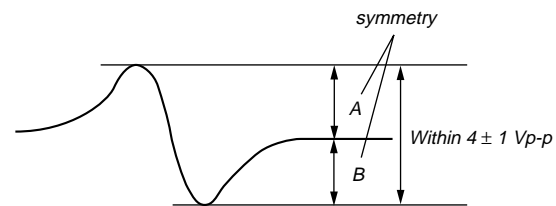
S Curve Check



Procedure :

1. Connect the oscilloscope to test points TP (FE) and TP (VC).
2. Connect TP (FEI) and GND, and TP (AGCCON) and GND of the BD board with lead wires.
3. Press the **I/O** button to turn the set ON.
4. With the disc (YEDS-18) loaded, press the **▶▶** button and perform focus search. (Focus search will be performed in the same way even while the disc table is pushed in and out.)
5. Check the symmetry and peak to peak level of the oscilloscope waveform (S curve) at this time.

S-curve waveform

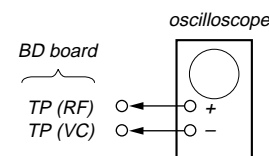


6. After check, remove the lead wire connected in step 2.

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.

Adjustment Location : BD (CD) board

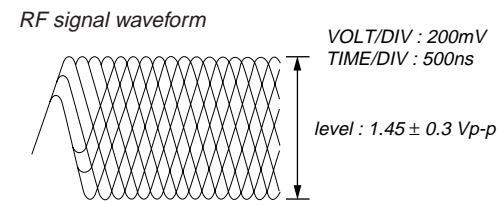
RF Level Check



Procedure :

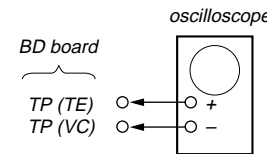
1. Connect oscilloscope to test point TP (RF) and TP (VC) on BD board.
2. Connect TP (AGCCON) and GND of the BD board with lead wires.
3. Press the **I/O** button to turn the set ON.
4. Put disc (YEDS-18) in and playback 5track.
5. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
6. After check, remove the lead wire connected in step 2.

Note: Clear RF signal waveform means that the shape “∩” can be clearly distinguished at the center of the waveform.



Adjustment Location : BD (CD) board

E-F Balance (1 Track Jump) check

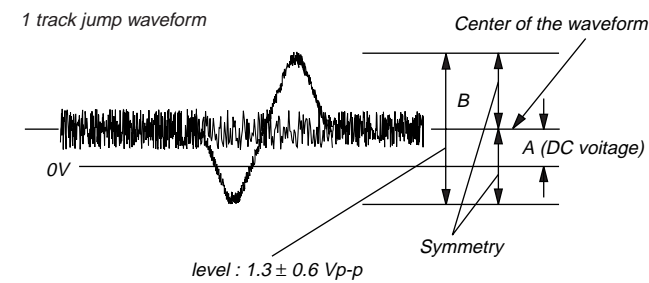


Procedure:

1. Connect oscilloscope to test point TP (TE) on BD board.
2. Press the **I/O** button to turn the unit ON.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the **▶▶** button.
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:

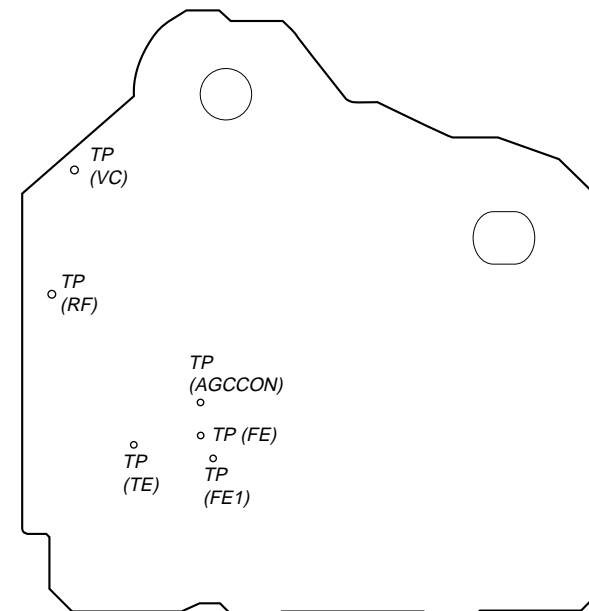
- A/B x 100 = less than ± 22 (%)
- B = 1.3 ± 0.6 Vp-p



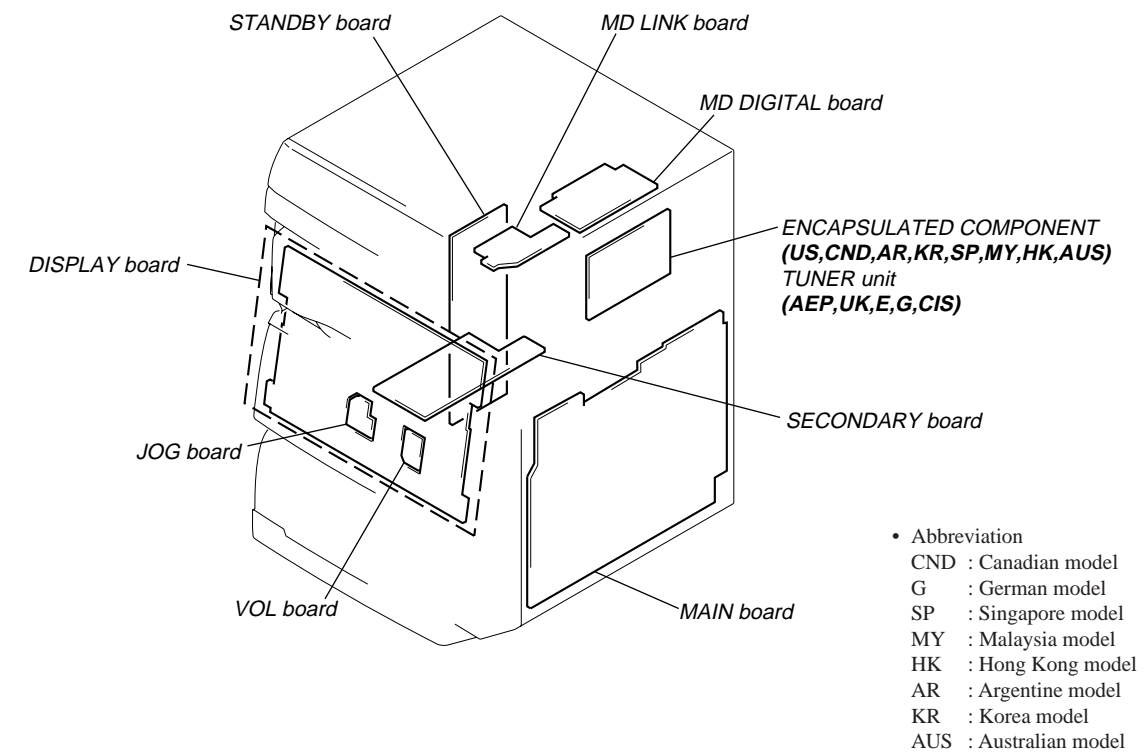
Adjustment Location : BD (CD) board

Adjustment Location :

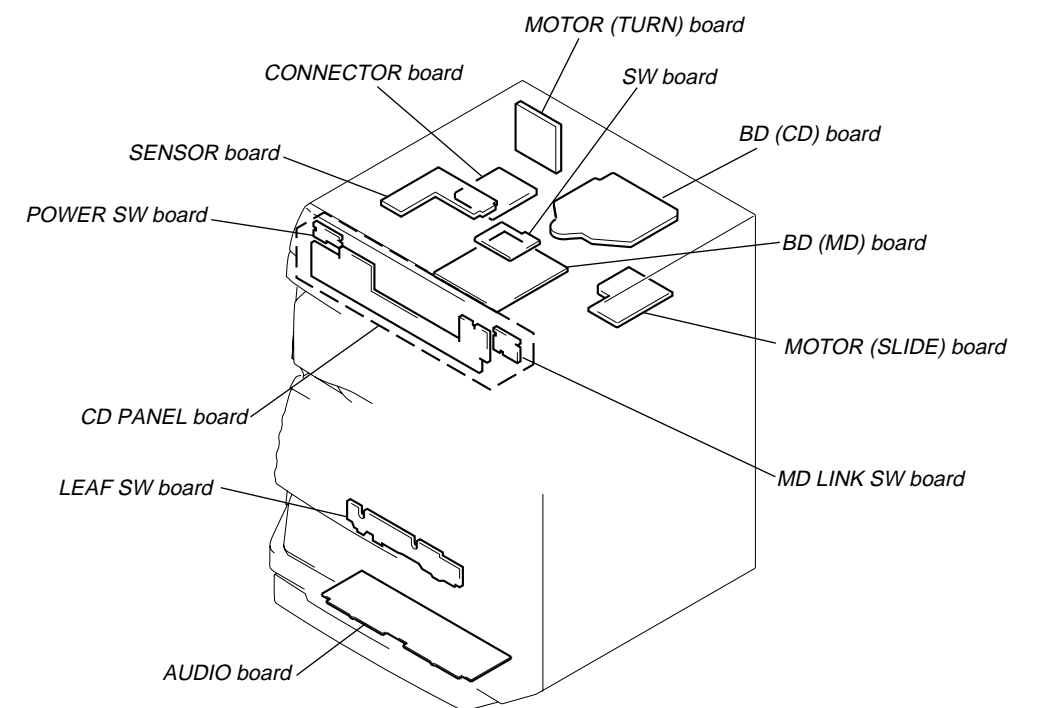
[BD (CD) BOARD] — SIDE A —



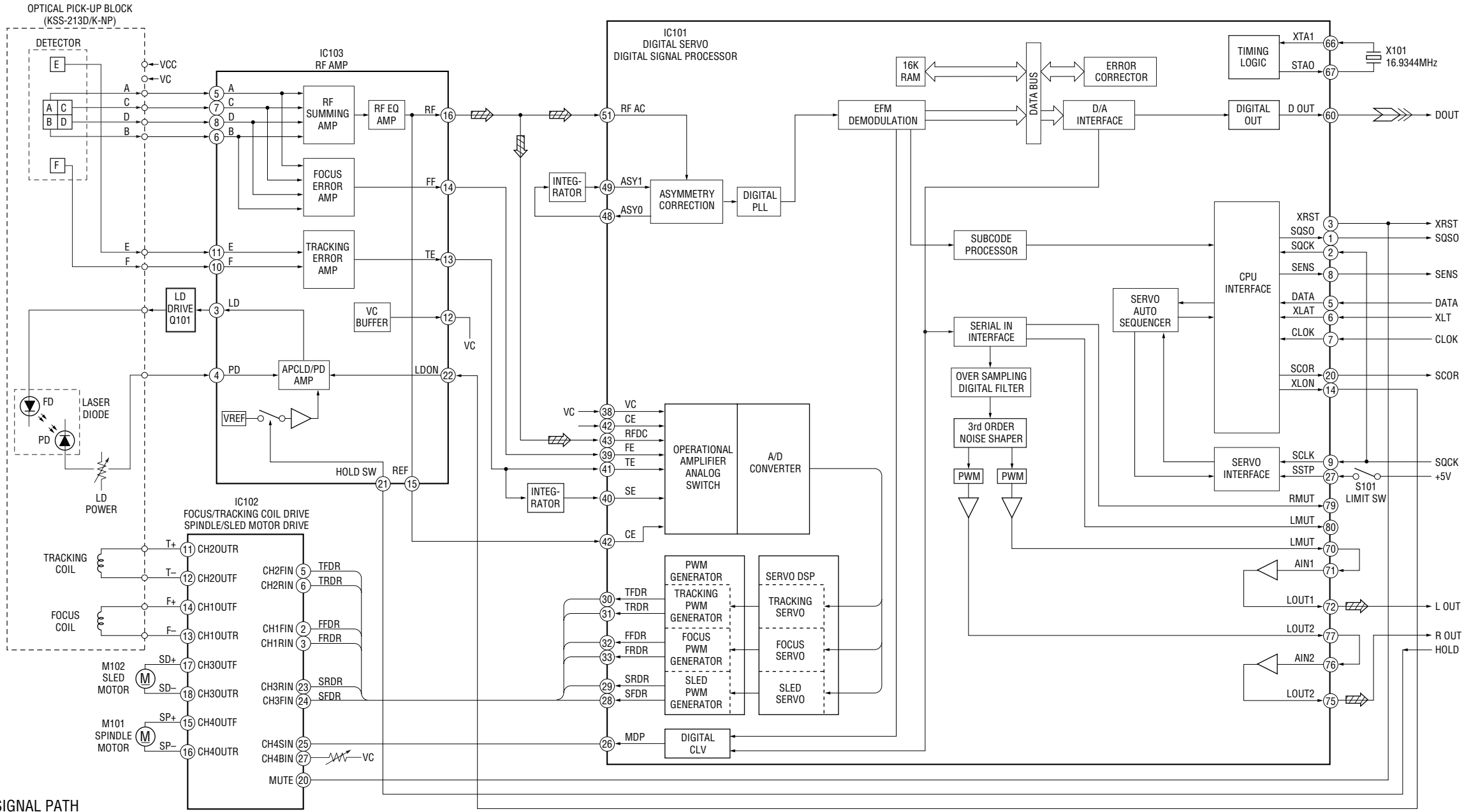
8-1. CIRCUIT BOARDS LOCATION



ENCAPSULATED COMPONENT/TUNER unit is supplied as the assembled block.



8-2. BLOCK DIAGRAMS
- BD (CD) SECTION -



• SIGNAL PATH
 : CD
 : PB (Digital out)

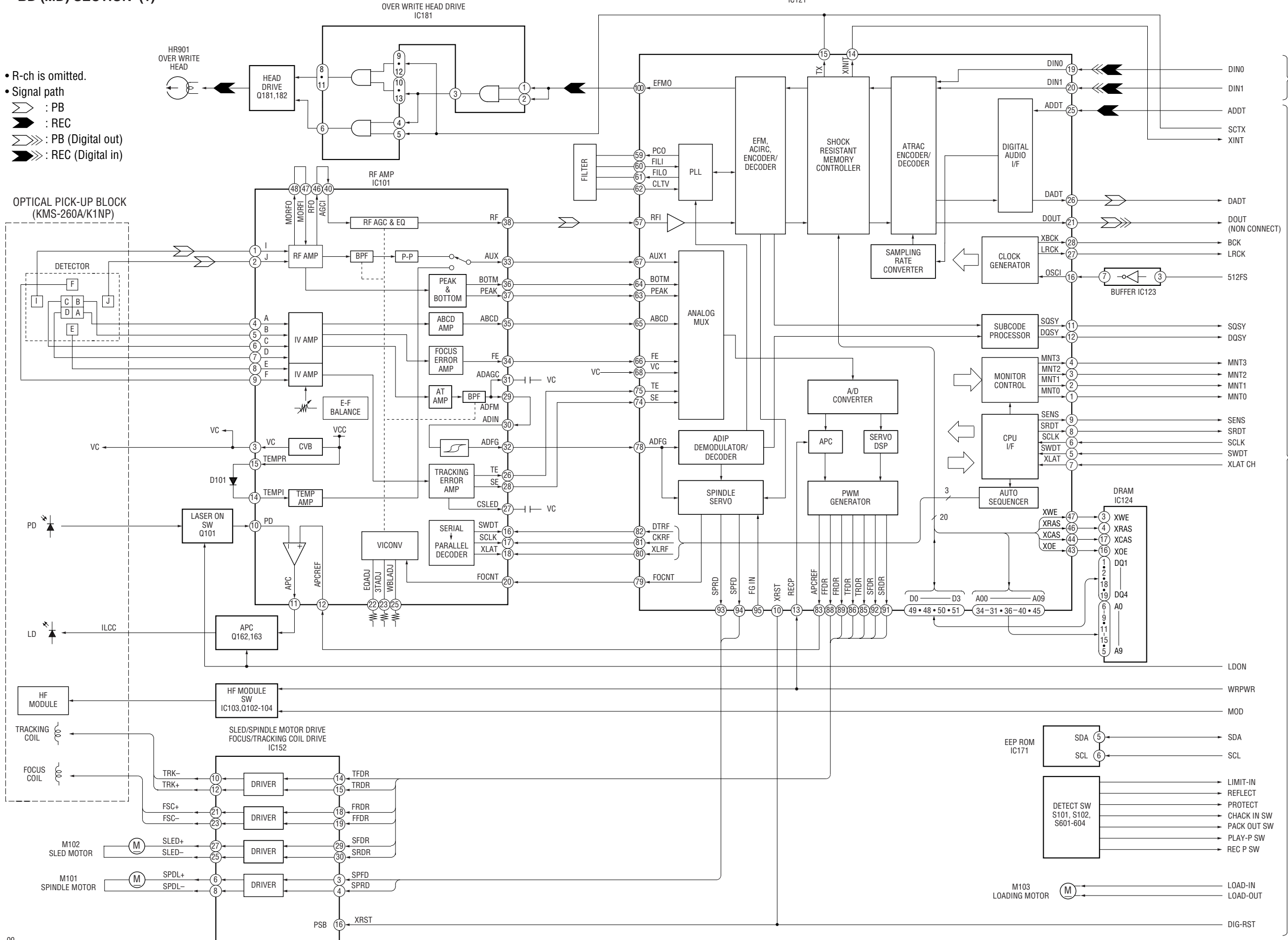
G
 MAIN SECTION
 (Page 47)

DIGITAL SERVO SIGNAL PROCESSOR, DIGITAL SIGNAL PROCESSOR
EFM/ACIRC ENCODER/DECODER, SHOCK-PROOF MEMORY CONTROLLER,
ATRAC ENCODER/DECODER
IC121

- BD (MD) SECTION (1) -

- R-ch is omitted.
- Signal path
 - : PB
 - : REC
 - : PB (Digital out)
 - : REC (Digital in)

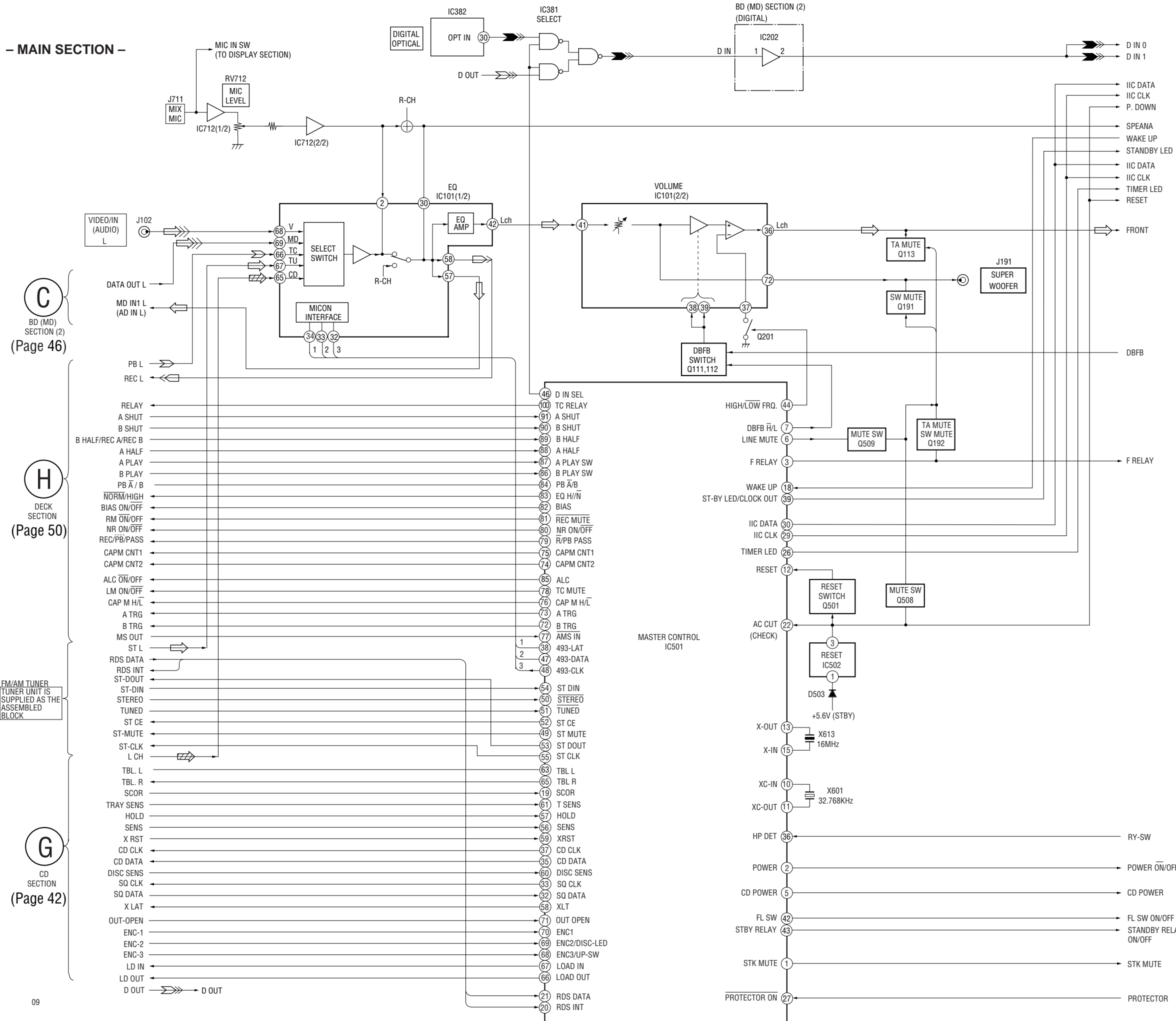
OPTICAL PICK-UP BLOCK
(KMS-260A/K1NP)



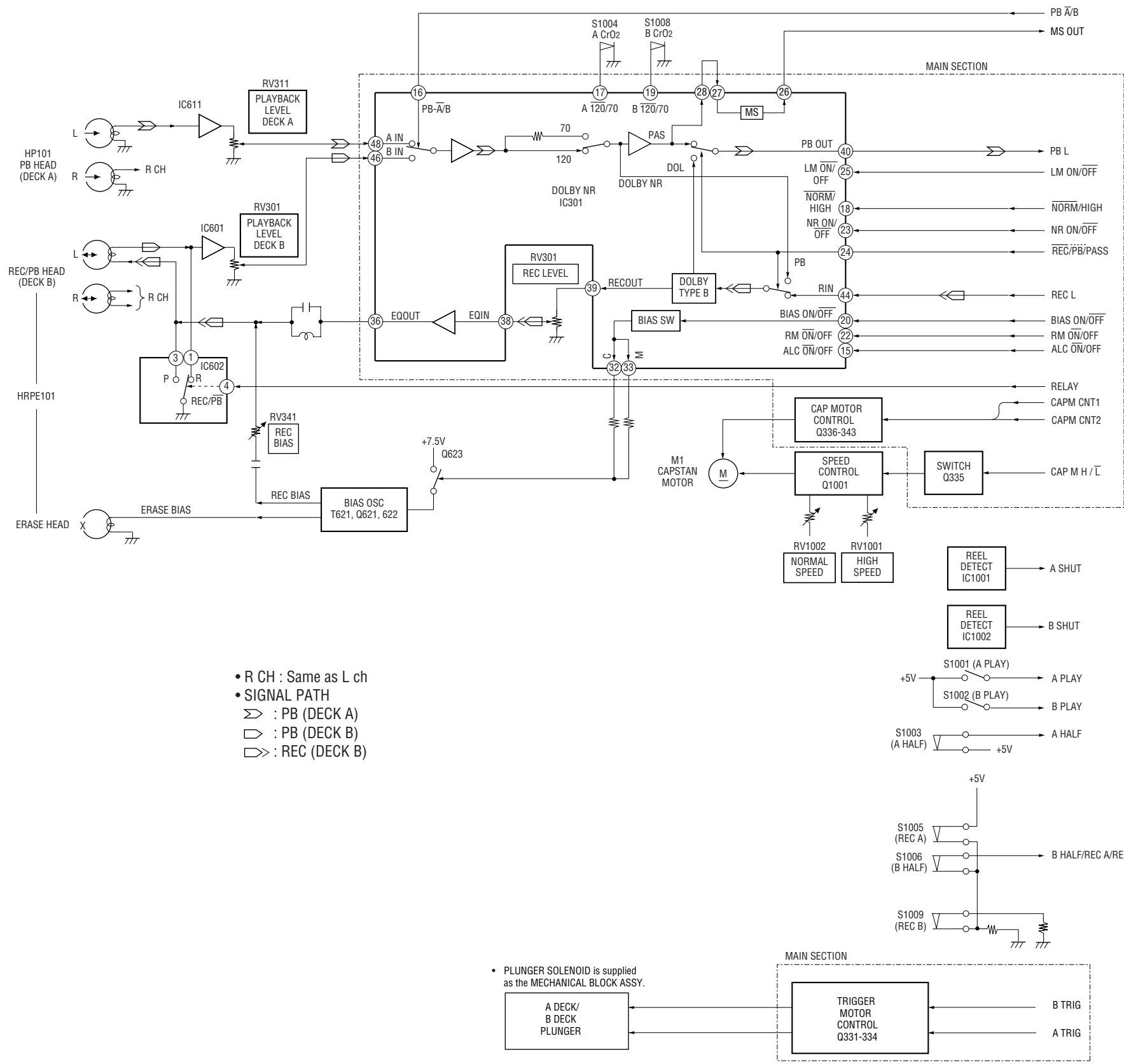
B MAIN SECTION
(Page 48)

A BD (MD) SECTION
(Page 45)

- MAIN SECTION -



- DECK SECTION -



- R CH : Same as L ch
- SIGNAL PATH
 - : PB (DECK A)
 - ◻ : PB (DECK B)
 - ◻➤ : REC (DECK B)

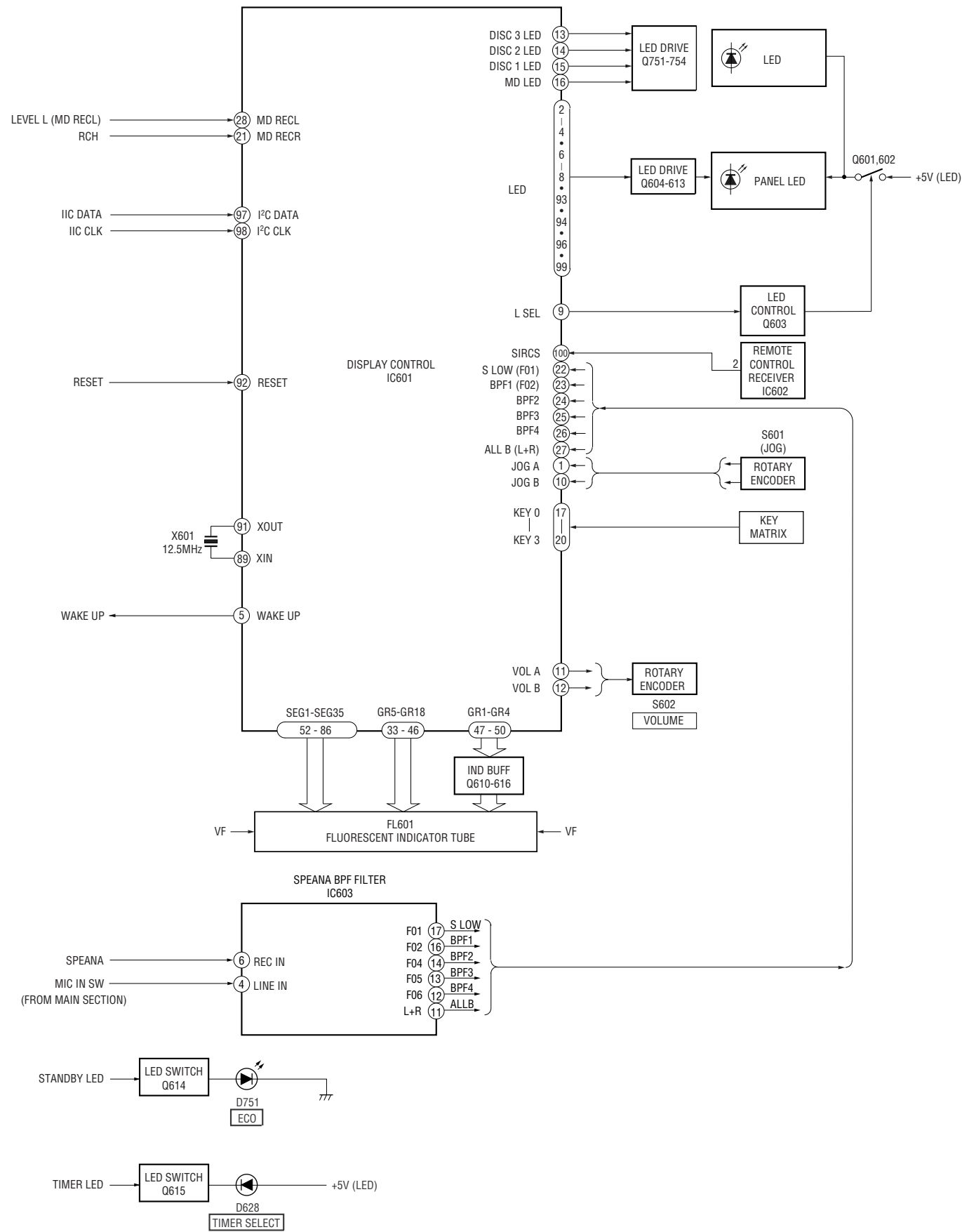
• PLUNGER SOLENOID is supplied as the MECHANICAL BLOCK ASSY.

H
MAIN SECTION
(Page 47)

- DISPLAY SECTION -

E
BD (MD)
SECTION
(Page 46)

I
MAIN
SECTION
(Page 48)



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 $1/4\text{W}$ 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.

Note:
 Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

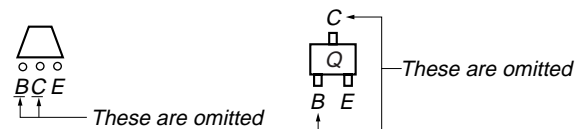
- $\text{B}+$: B+ Line.
- $\text{B}-$: B- Line.
- \square : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 - \rightarrow : FM
 - \Rightarrow : VIDEO
 - \Rightarrow : PB (DECK A)
 - \Rightarrow : PB (DECK B)
 - \Rightarrow : REC (DECK B)
 - \Rightarrow : CD
 - \Rightarrow : CD (digital out)
 - \Rightarrow : PB (MD)
 - \Rightarrow : REC (MD)
 - \Rightarrow : PB (digital out)
 - \Rightarrow : REC (digital in)
- Abbreviation
 - CND : Canadian model.
 - G : German model.
 - SP : Singapore model.
 - MY : Malaysia model.
 - HK : Hong Kong model.
 - AR : Argentine model.
 - KR : Korea model.
 - AUS : Australian model.

For printed wiring boards.

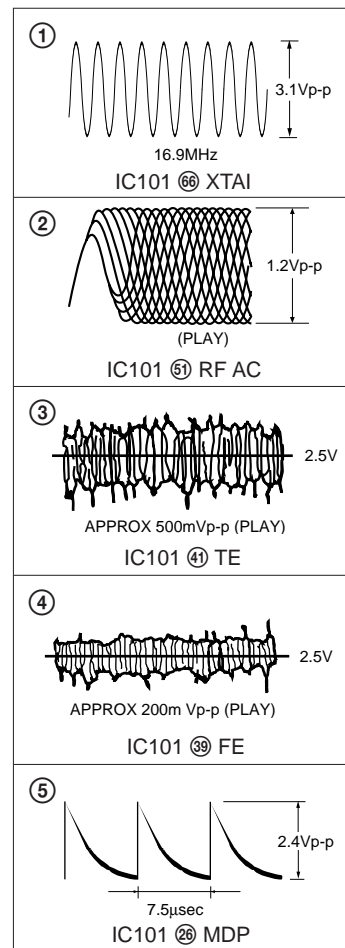
Note:

- \circ : parts extracted from the component 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.)

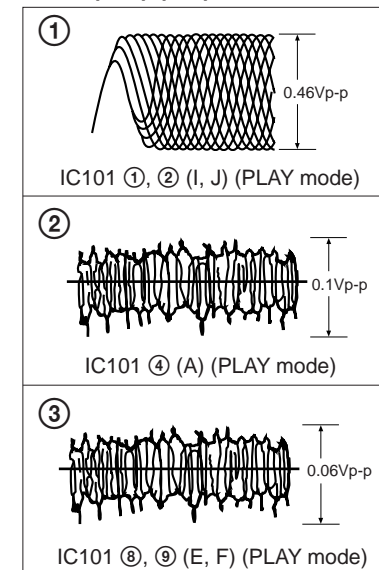
Indication of transistor



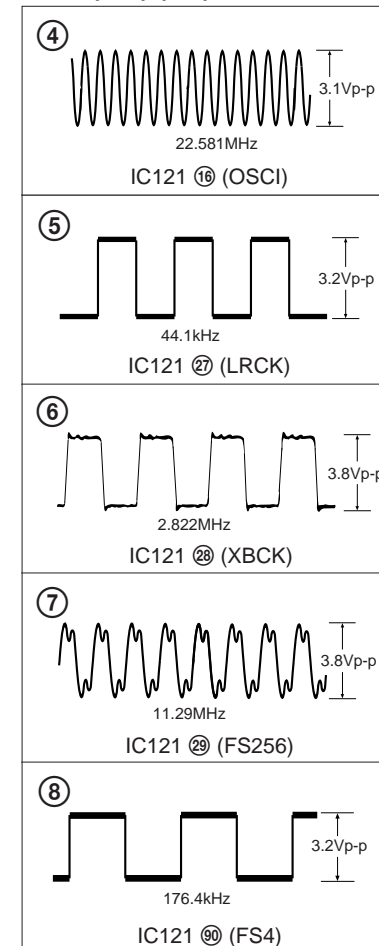
WAVEFORMS
- BD (CD) SECTION -



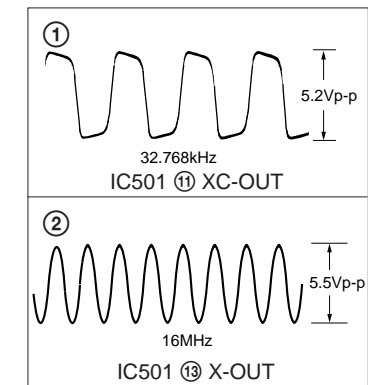
- BD (MD) (1/2) SECTION -



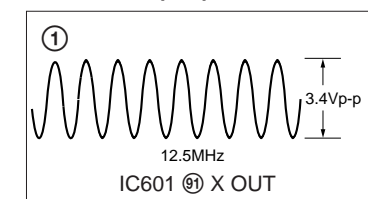
- BD (MD) (2/2) SECTION -



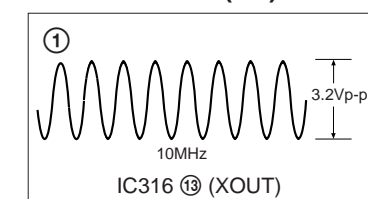
- MAIN (3/4) SECTION -



- PANEL (1/2) SECTION -

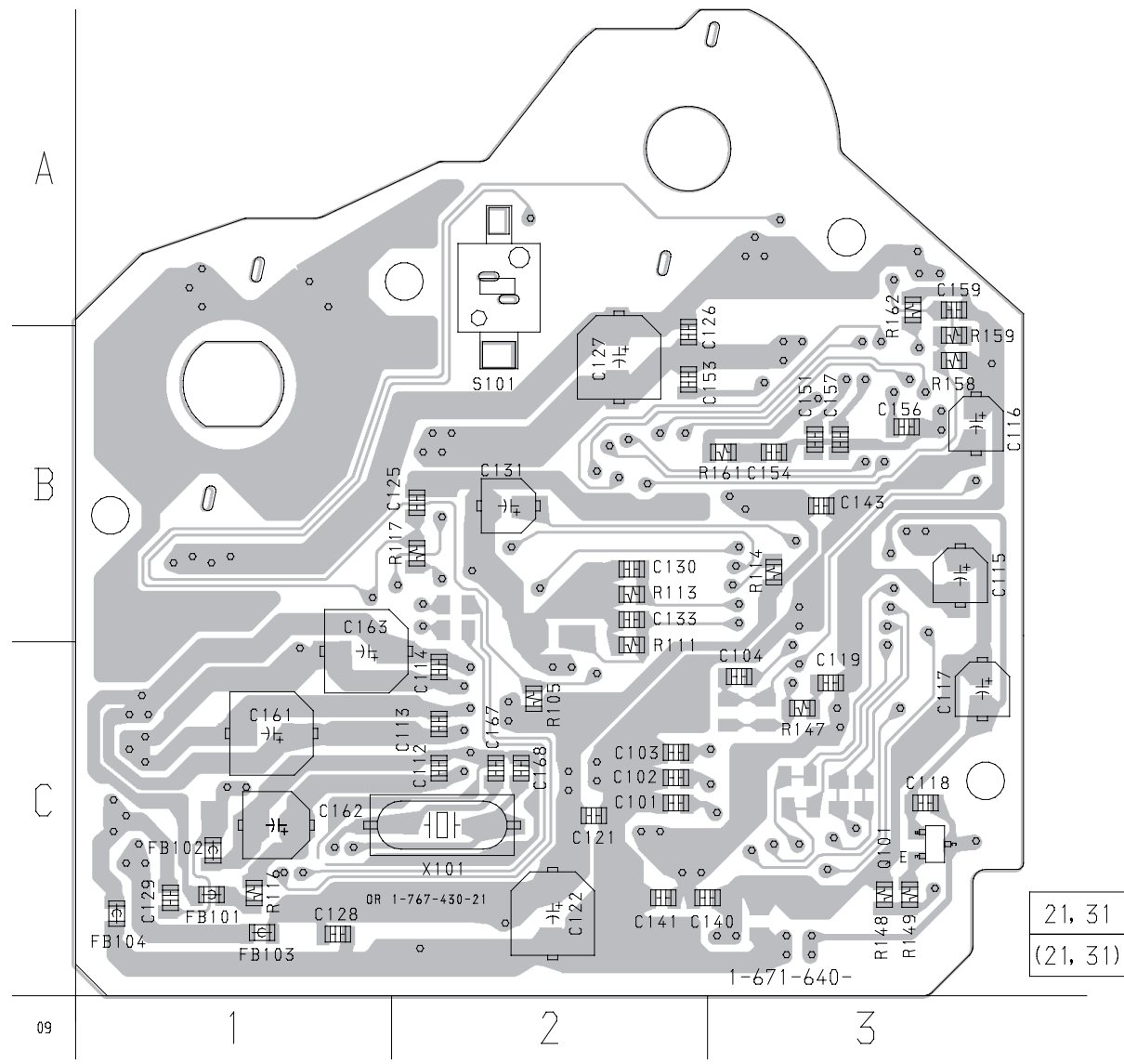


- MD DIGITAL (1/2) SECTION -



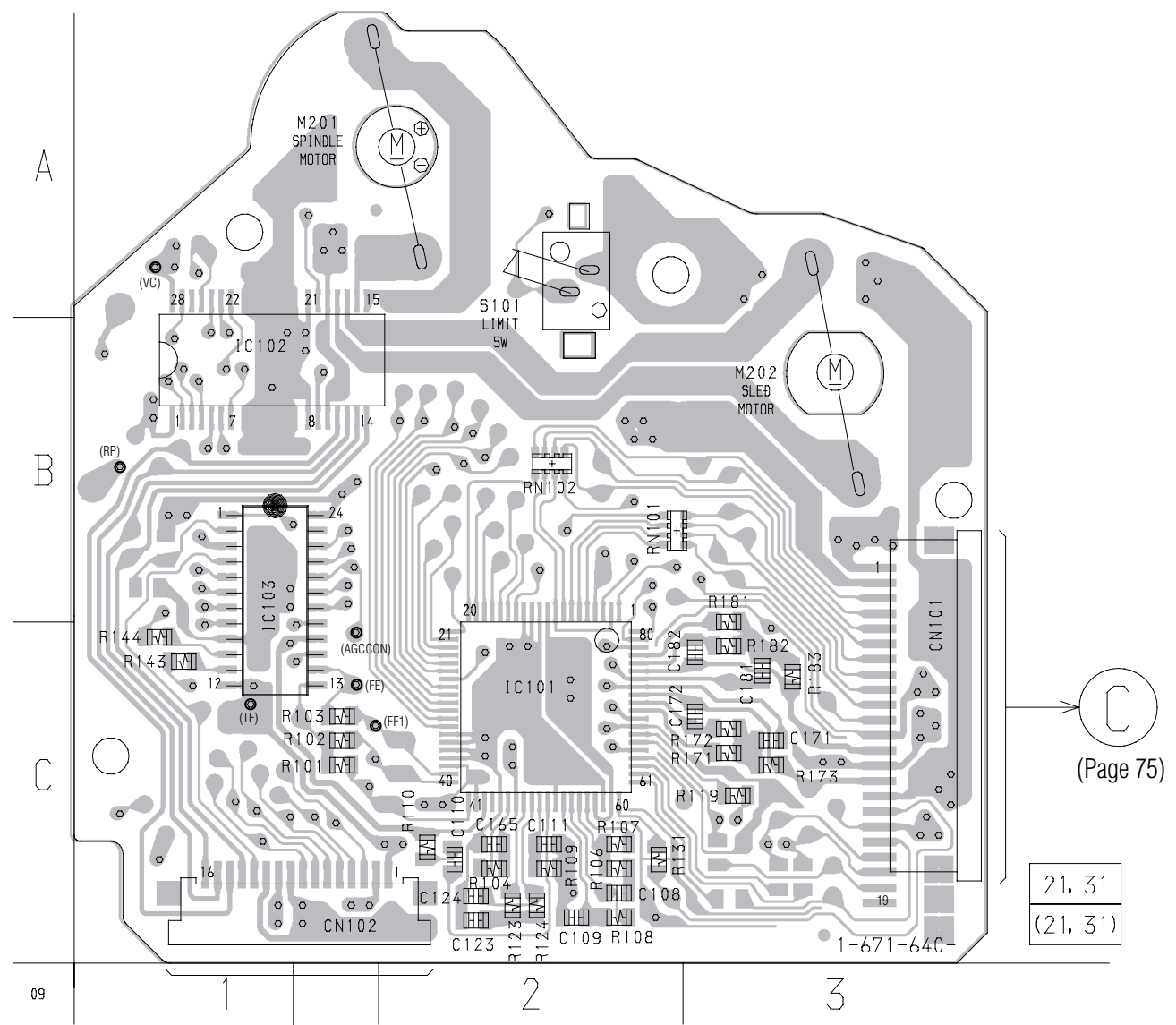
8-3. PRINTED WIRING BOARD – BD (CD) SECTION –
• See page 40 for Circuit Boards Location.

【 BD (CD) BOARD】(SIDE A)



21, 31
(21, 31)

【 BD (CD) BOARD】(SIDE B)

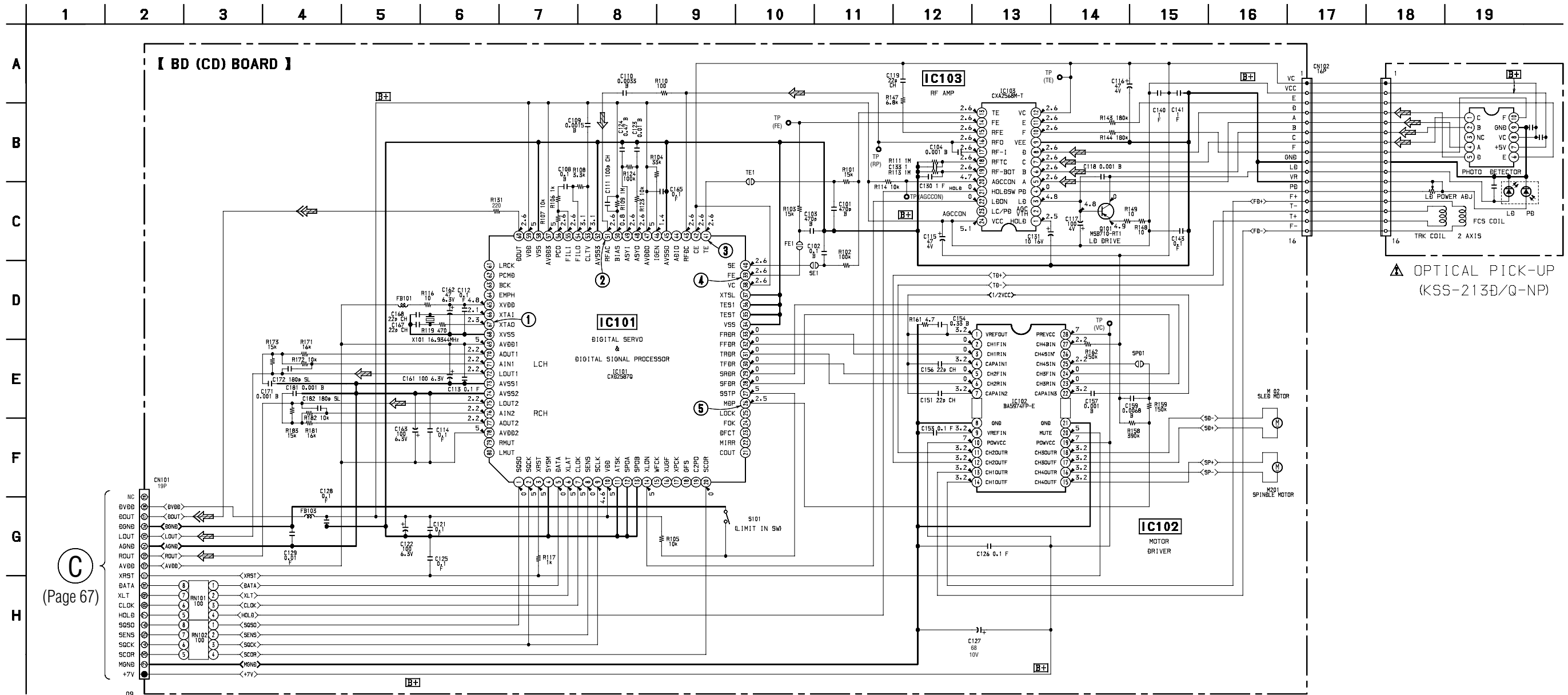


(Page 75)

OPTICAL PICK-UP BLOCK
KSS-213D/Q-NP

21, 31
(21, 31)

8-4. SCHEMATIC DIAGRAM – BD (CD) SECTION –
 • See page 55 for Waveforms.



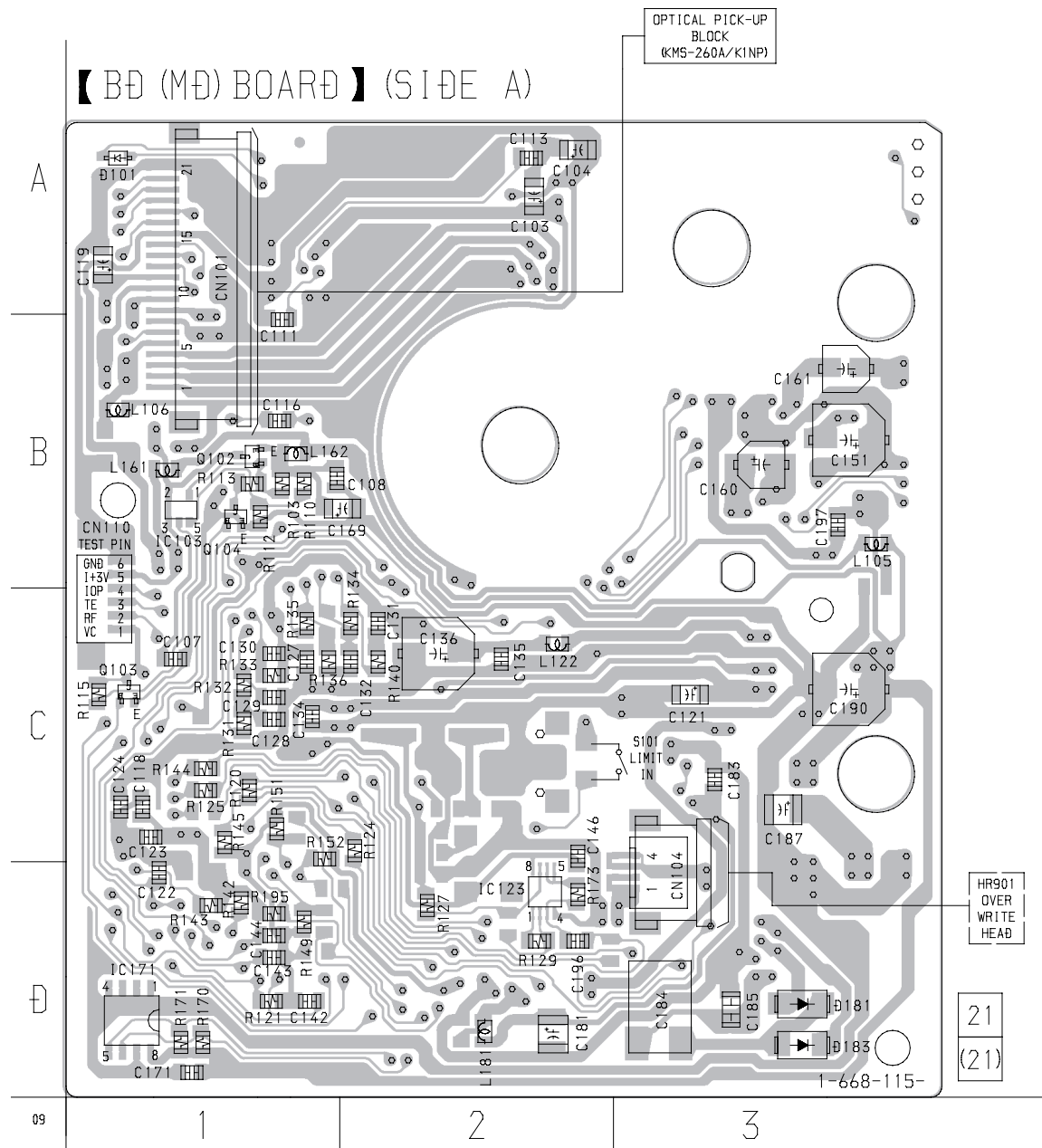
OPTICAL PICK-UP (KSS-213B/Q-NP)

NOTE
 • Voltages and waveforms are dc with respect to ground under no-signal conditions.
 no mark: CD PLAY

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

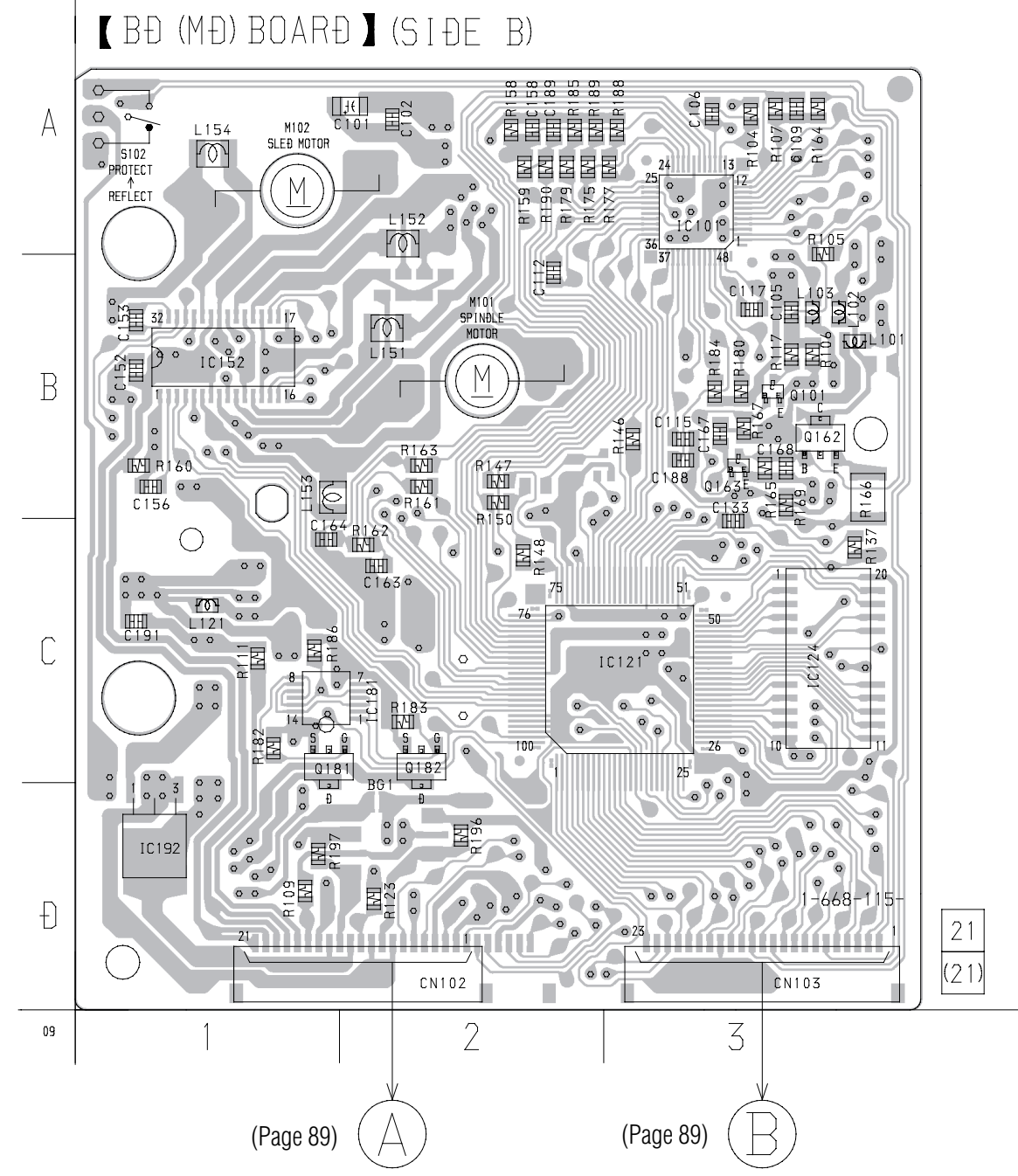
Note:
 Les composants identifiés par une marque **▲** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-5. PRINTED WIRING BOARD – BD (MD) SECTION –
 • See page 40 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D101	A-1
D181	D-3
D183	D-3
IC103	B-1
IC123	D-2
IC171	D-1
Q102	B-1
Q103	B-1
Q104	B-1



• Semiconductor Location

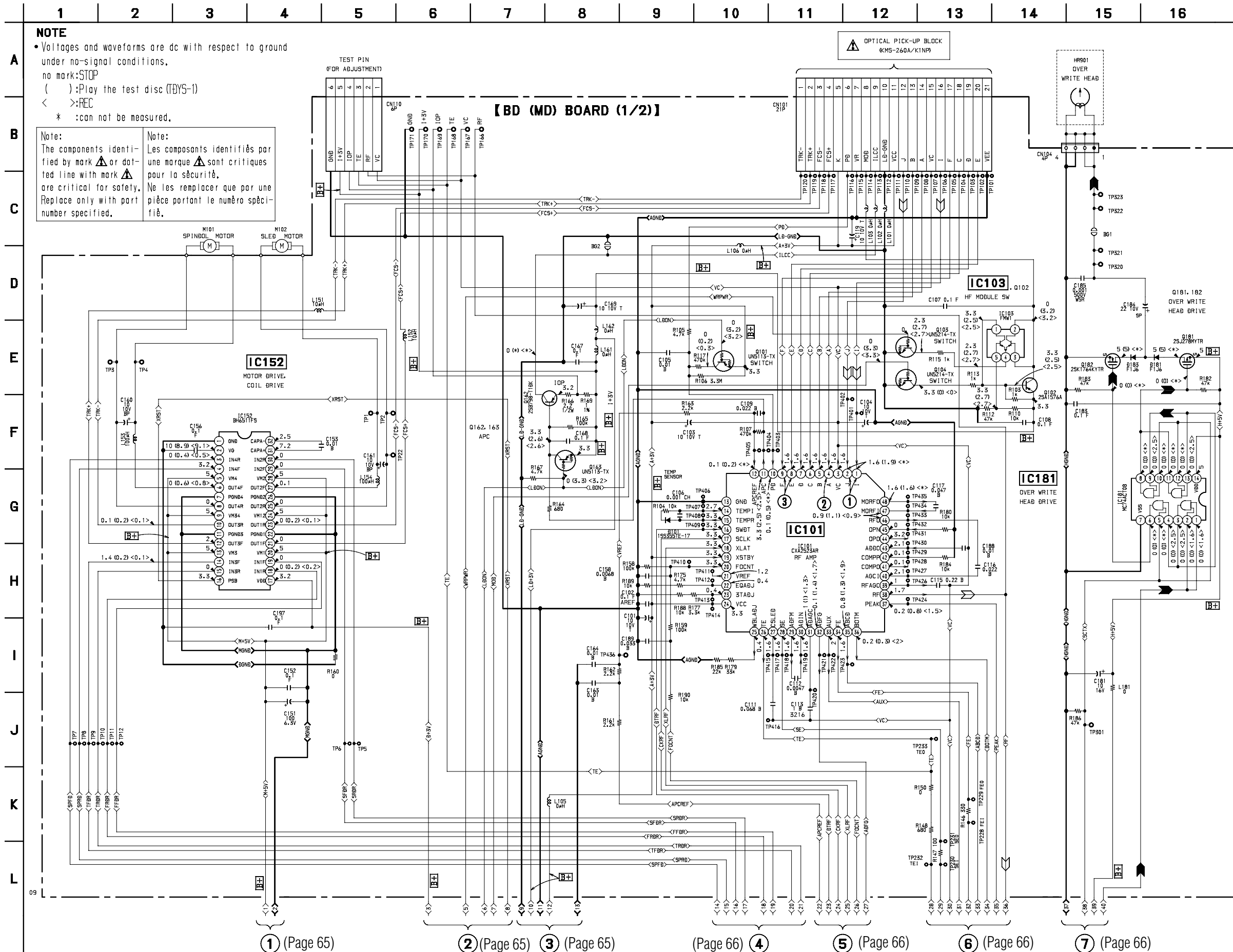
Ref. No.	Location
IC101	A-3
IC121	C-3
IC124	C-3
IC152	B-1
IC181	C-1
IC192	D-1
Q101	B-3
Q162	B-3
Q163	B-3
Q181	C-1
Q182	C-2

(Page 89) A

(Page 89) B

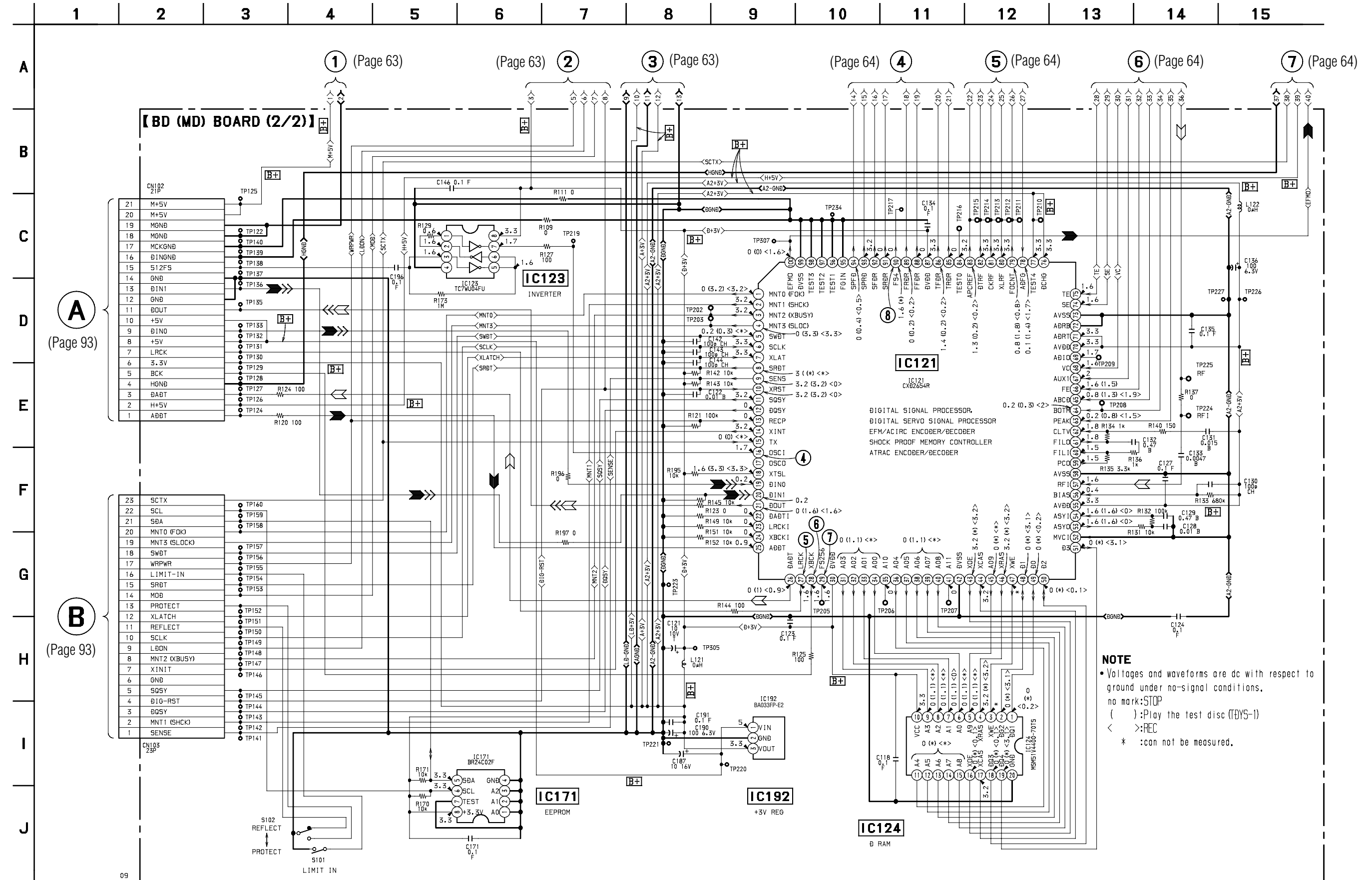
8-6. SCHEMATIC DIAGRAM – BD (MD) (1/2) SECTION –

• See page 56 for Waveforms. • See page 109 for IC Block Diagrams. • See page 112 for IC Pin Functions.



8-7. SCHEMATIC DIAGRAM – BD (MD) (2/2) SECTION –

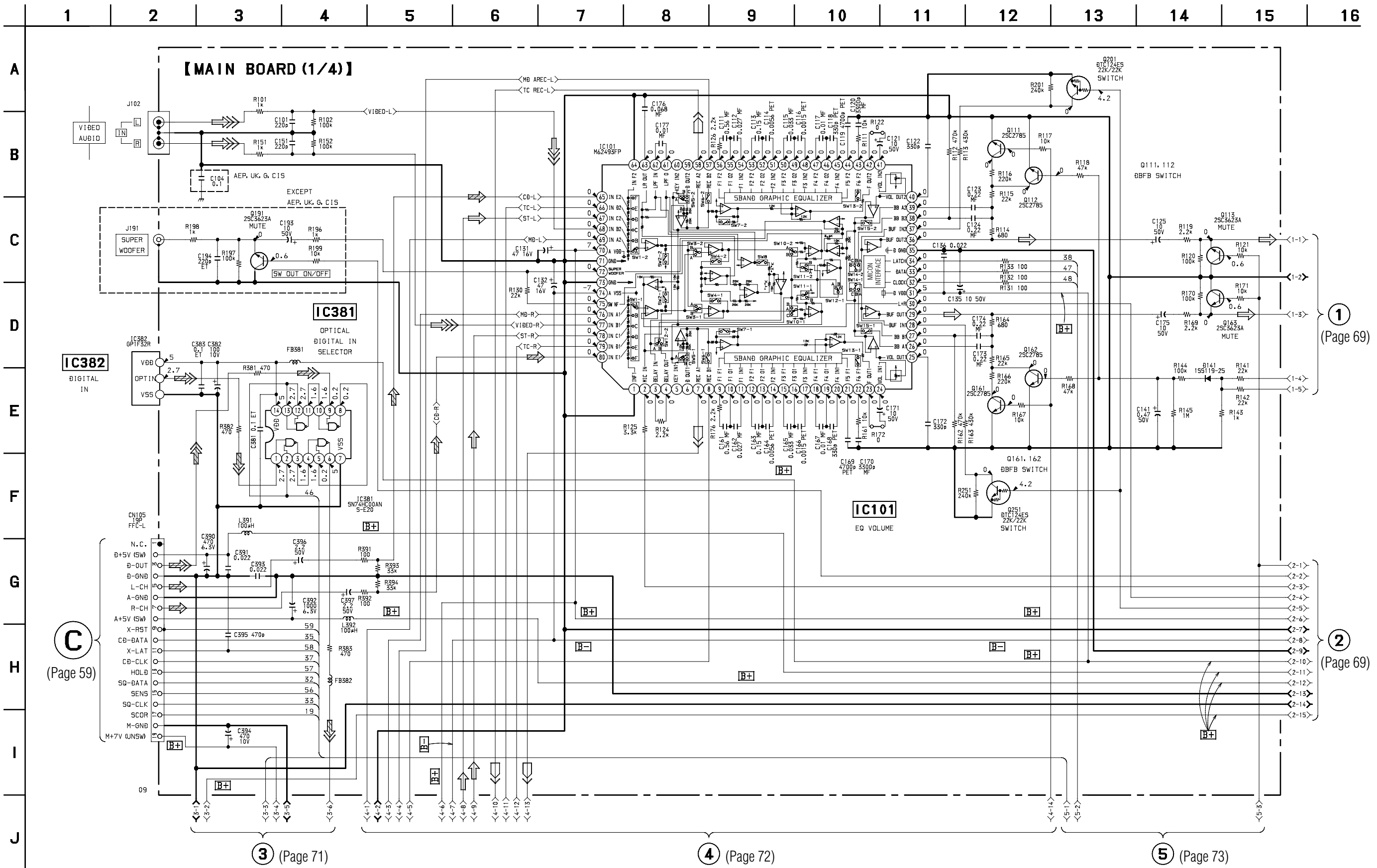
• See page 56 for Waveforms. • See page 109 for IC Block Diagrams. • See page 113 for IC Pin Functions.



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- no mark: STOP
- (): Play the test disc (TBYS-1)
- < >: REC
- * : can not be measured.

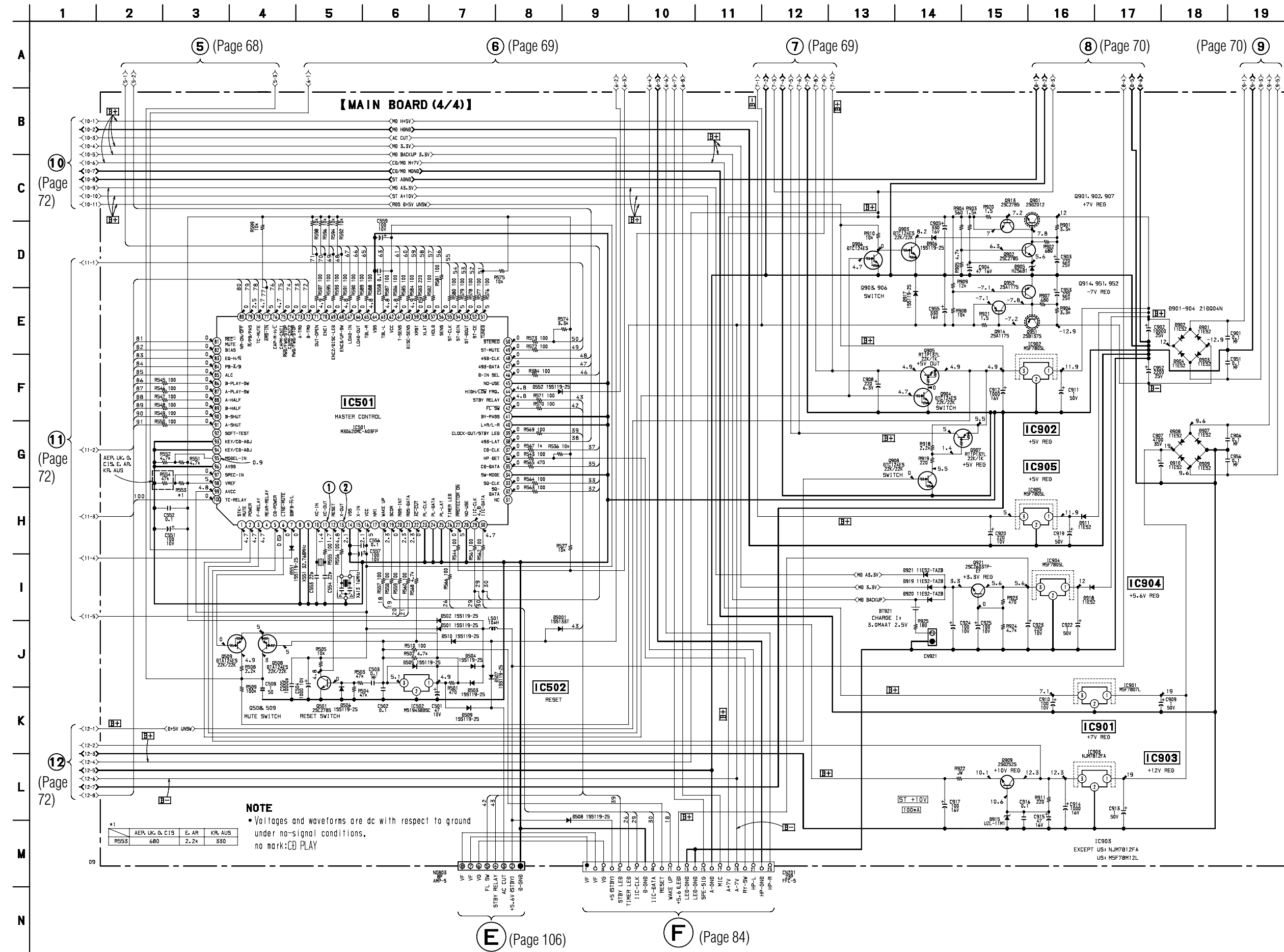
8-8. SCHEMATIC DIAGRAM – MAIN (1/4) SECTION –
• See page 75 for Printed Wiring Board.



NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark:FM

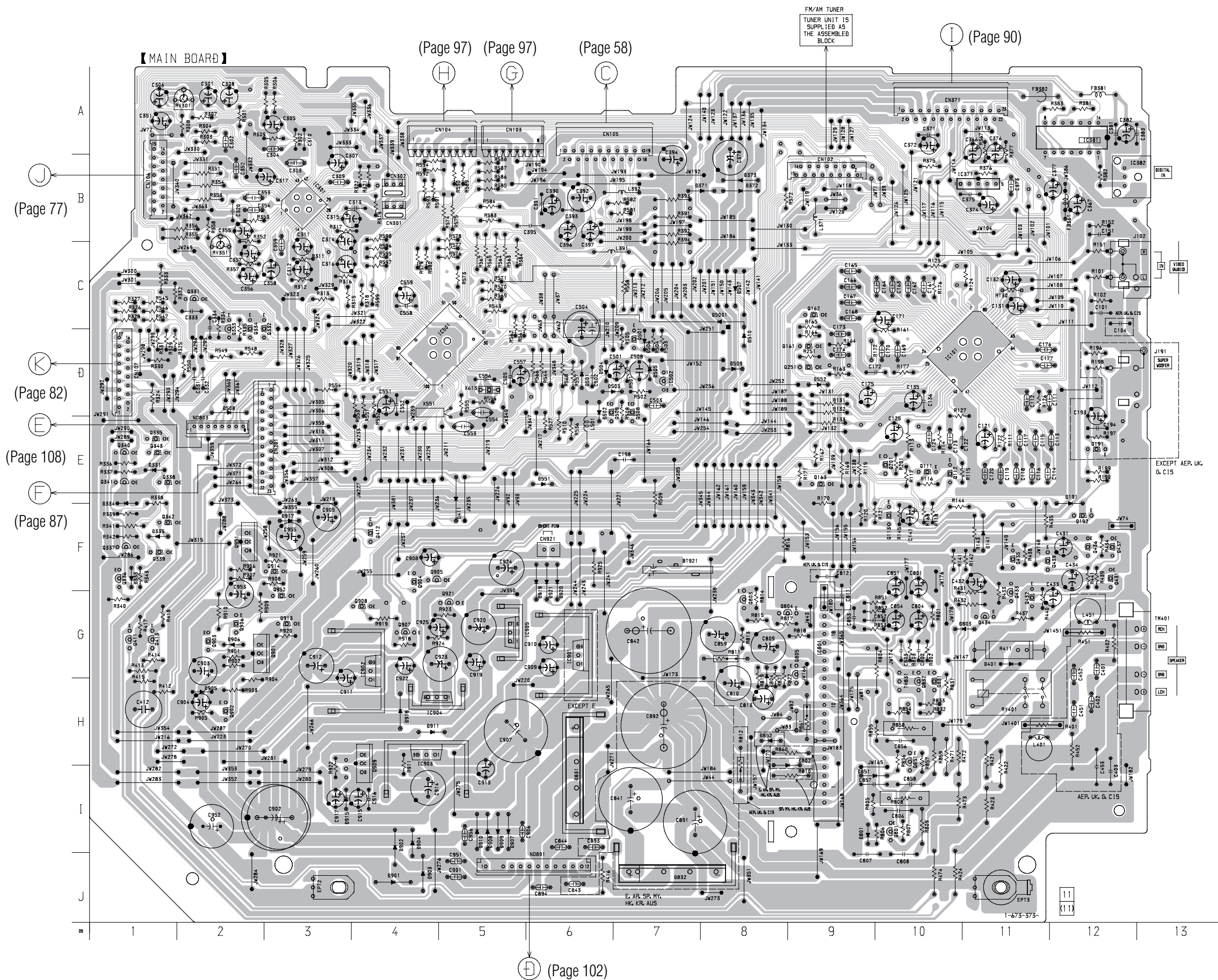
8-11. SCHEMATIC DIAGRAM – MAIN (4/4) SECTION –

- See page 75 for Printed Wiring Board.
- See page 116 for IC Pin Functions.



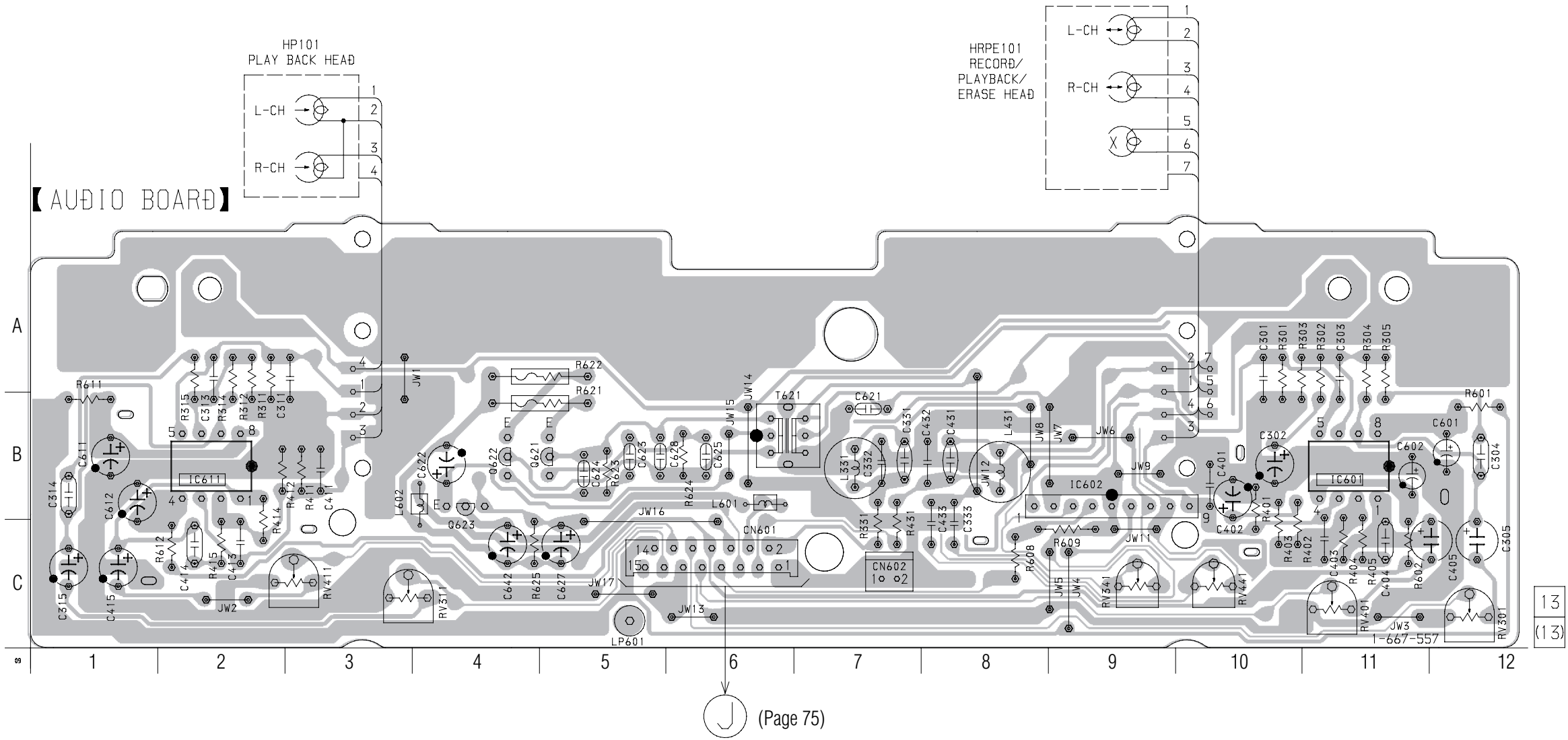
8-12. PRINTED WIRING BOARD – MAIN SECTION –
 • See page 40 for Circuit Boards Location.

• Semiconductor Location

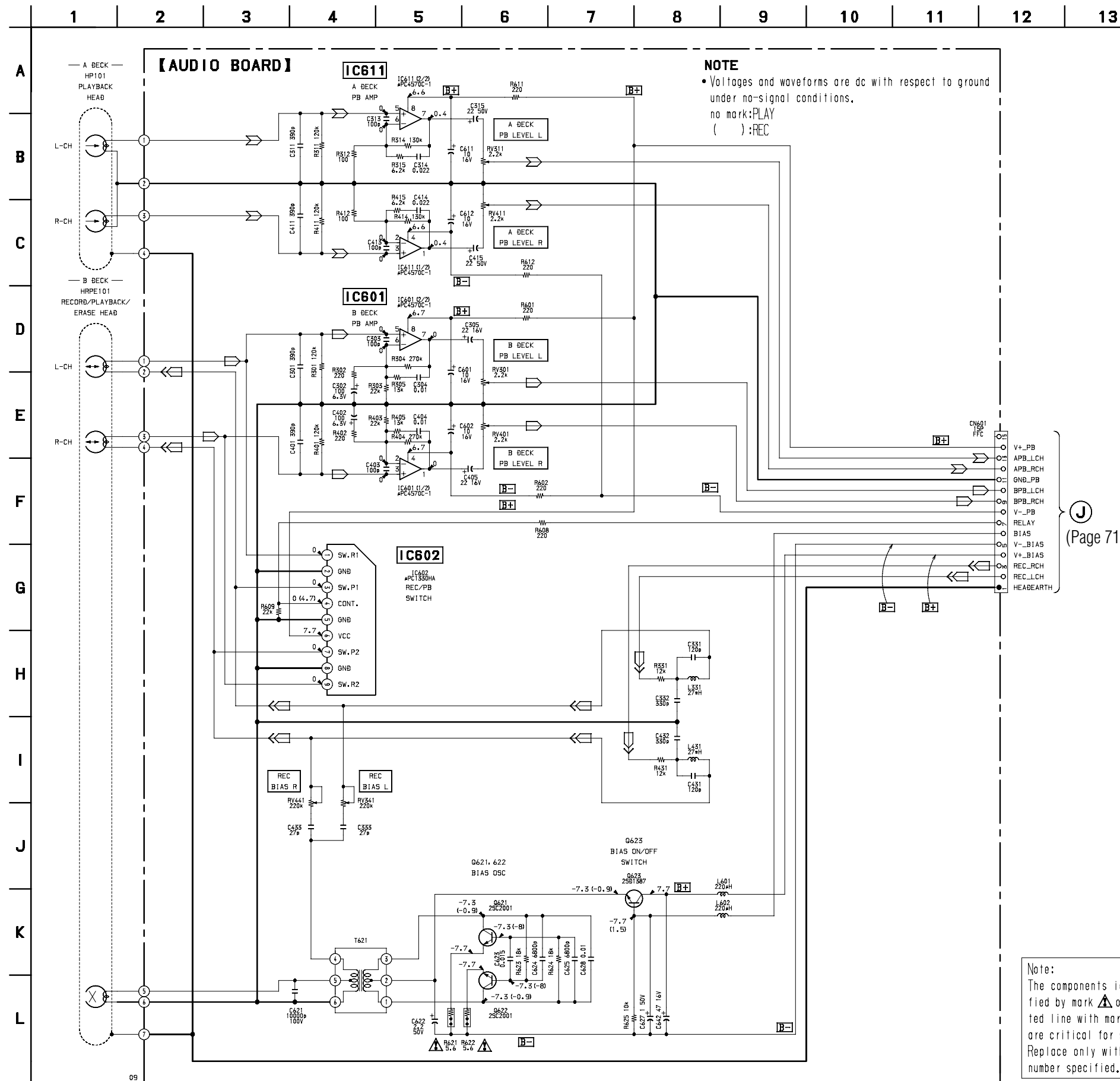


Ref. No.	Location	Ref. No.	Location
D141	F-11	IC905	G-5
D191	F-12		
D331	E-1	Q111	E-10
D333	F-1	Q112	E-10
D334	F-1	Q113	F-10
D335	F-1	Q161	D-10
D371	B-8	Q162	C-9
D372	B-8	Q163	E-9
D373	B-8	Q191	E-12
D401	G-11	Q192	F-12
D411	F-5	Q201	E-10
D501	D-6	Q251	D-10
D502	D-6	Q331	C-2
D503	D-7	Q332	C-2
D504	D-6	Q333	C-2
D505	D-7	Q334	C-2
D506	D-7	Q335	E-1
D507	C-8	Q336	F-1
D508	D-2	Q337	F-1
D509	D-8	Q338	E-1
D510	D-8	Q339	F-1
D551	E-6	Q340	E-1
D552	D-10	Q341	E-1
D801	I-9	Q342	F-1
D802	H-9	Q343	E-1
D803	G-11	Q411	G-1
D804	H-8	Q412	F-4
D831	I-6	Q413	G-1
D832	J-7	Q431	F-12
D851	I-10	Q432	G-11
D852	H-8	Q433	G-11
D901	J-4	Q434	G-11
D902	I-4	Q435	F-11
D903	J-4	Q436	F-12
D904	I-4	Q437	F-12
D905	H-2	Q439	F-12
D906	G-2	Q501	D-7
D907	I-5	Q508	D-7
D908	I-5	Q509	D-7
D909	I-5	Q801	I-10
D910	I-5	Q803	G-8
D911	H-4	Q804	G-9
D915	I-3	Q805	G-9
D917	F-3	Q831	H-10
D918	H-4	Q832	H-10
D919	F-6	Q851	H-10
D920	F-6	Q901	G-2
D921	F-6	Q902	H-2
		Q903	G-2
IC101	D-10	Q904	F-4
IC301	B-3	Q905	F-4
IC371	B-11	Q906	G-2
IC381	A-12	Q907	G-4
IC382	B-13	Q908	G-4
IC501	D-5	Q909	H-4
IC502	D-7	Q913	G-3
IC801	G-9	Q914	F-3
IC901	G-6	Q921	G-5
IC902	G-4	Q951	F-2
IC903	H-4	Q952	G-3
IC904	H-4		

8-13. PRINTED WIRING BOARD – DECK SECTION –
• See page 40 for Circuit Boards Location.



8-14. SCHEMATIC DIAGRAM – DECK SECTION –



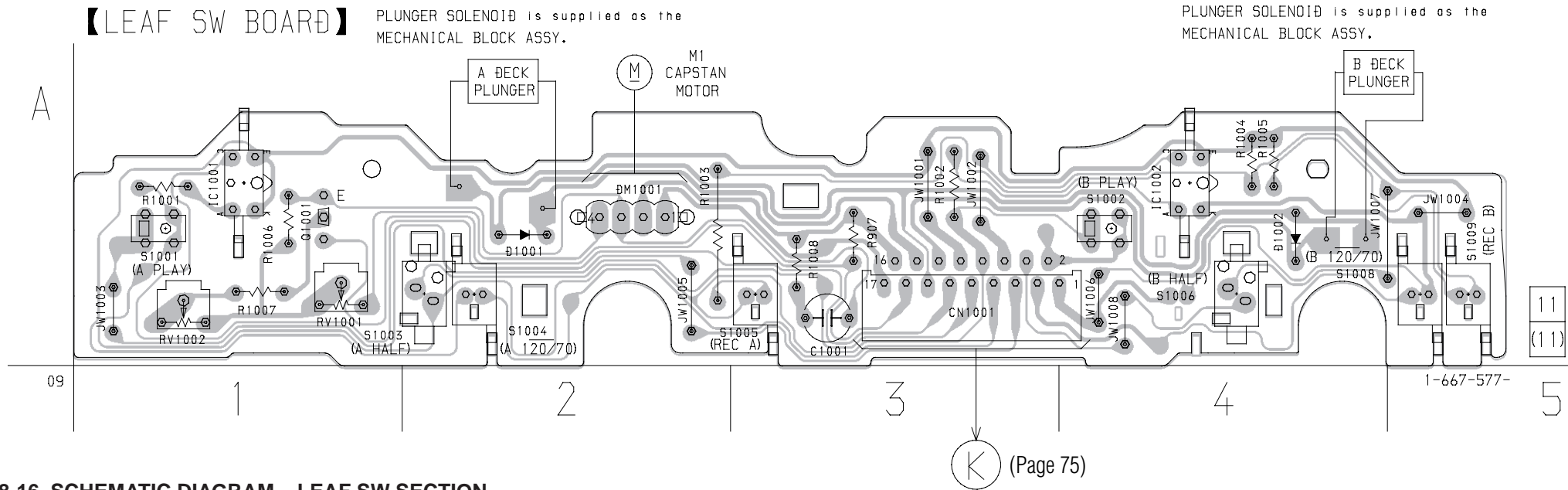
Note:
 The components identified by mark **▲** or dotted line with mark **▲** are critical for safety. Replace only with part number specified.

Note:
 Les composants identifiés par une marque **▲** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

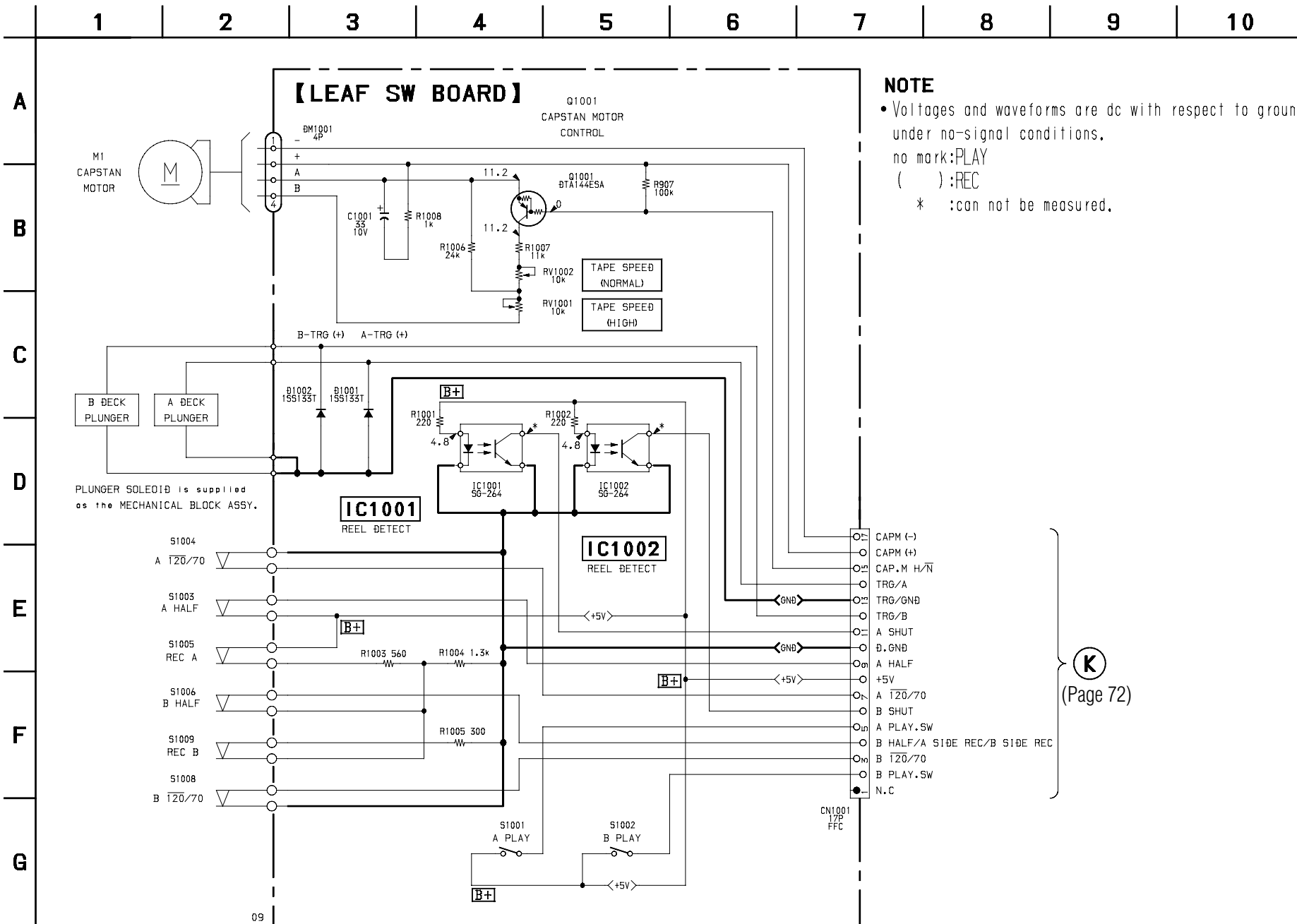
HCD-MDX10

8-15. PRINTED WIRING BOARD – LEAF SW SECTION –

• See page 40 for Circuit Boards Location.

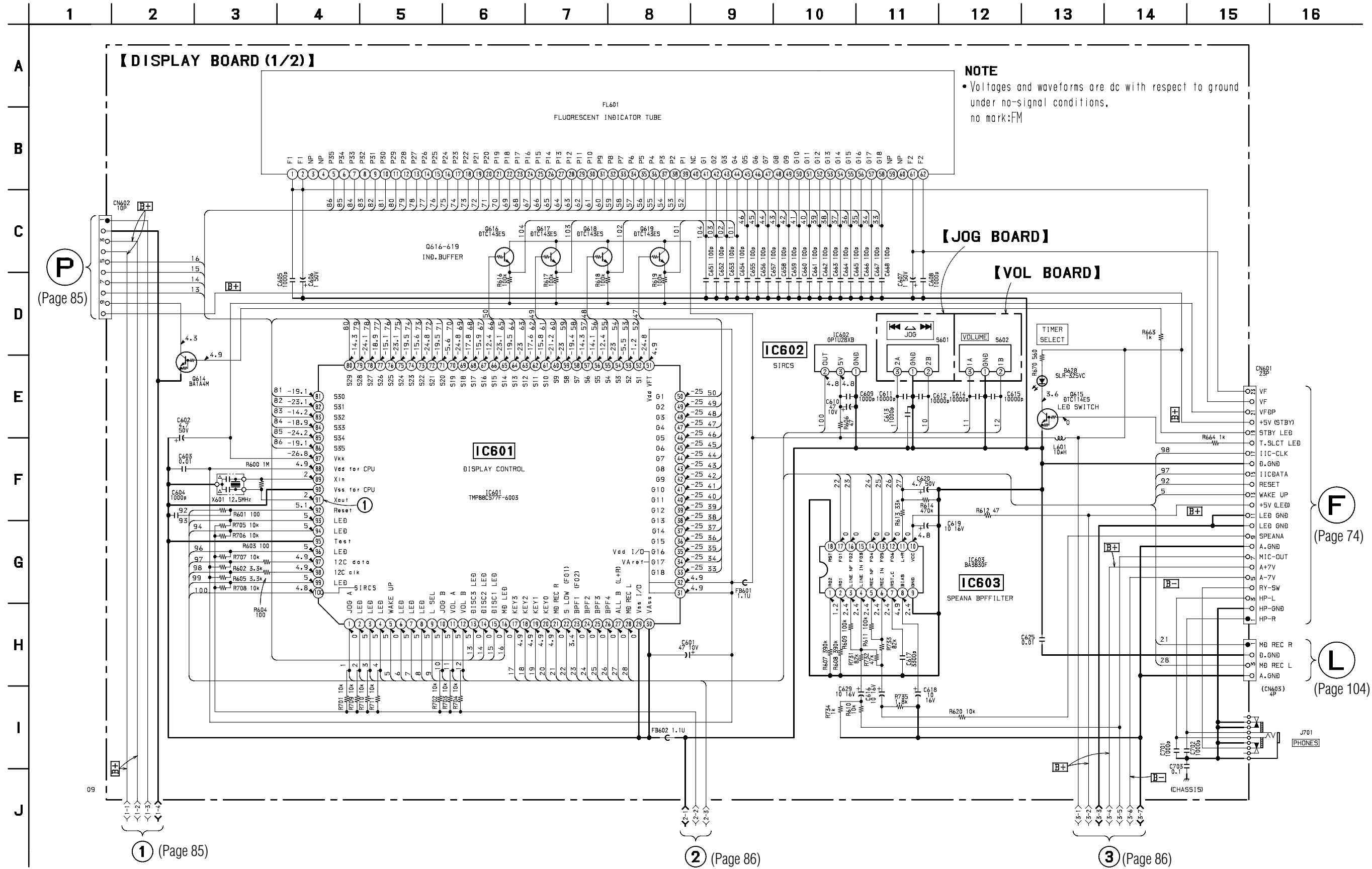


8-16. SCHEMATIC DIAGRAM – LEAF SW SECTION –

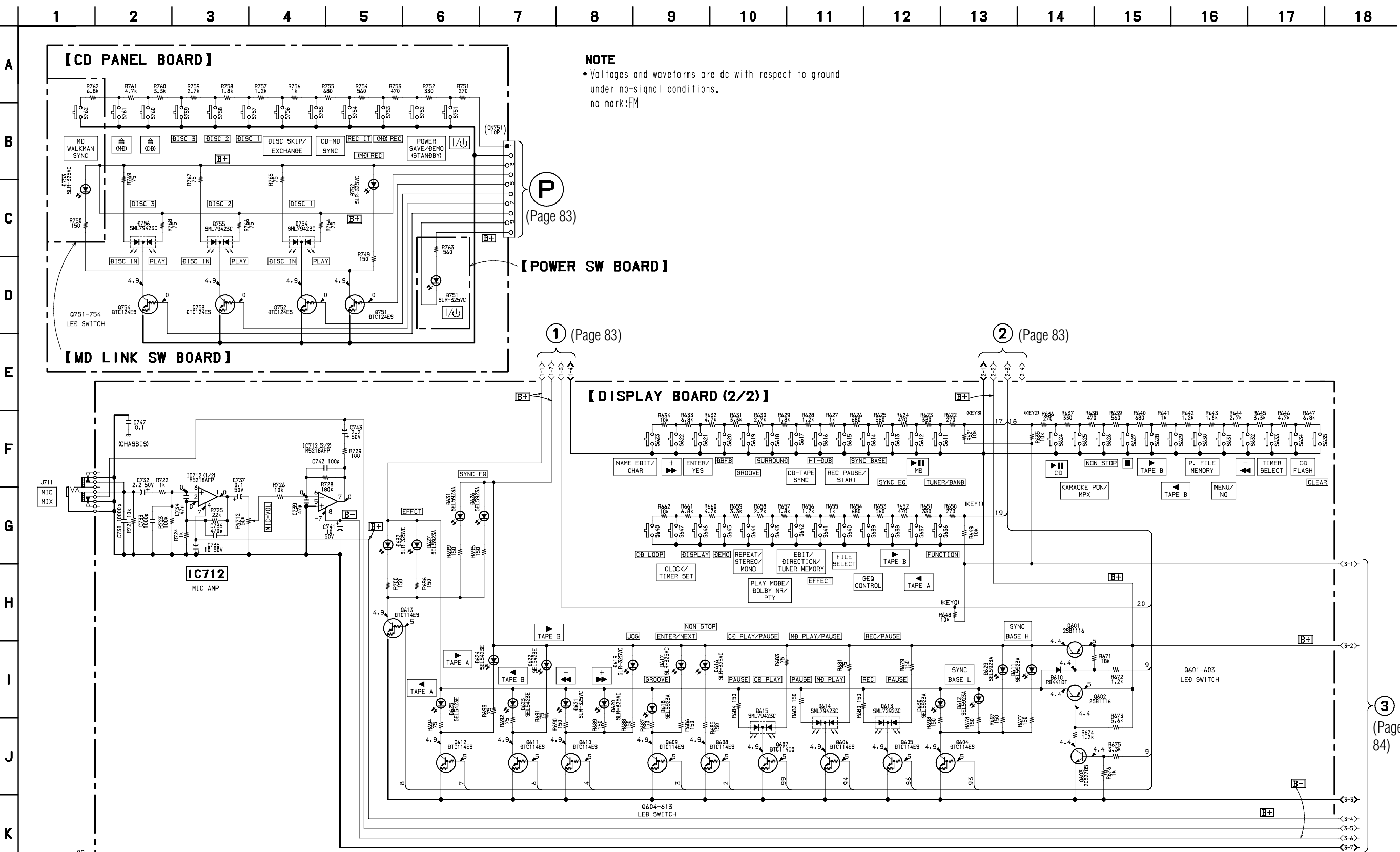


8-17. SCHEMATIC DIAGRAM – DISPLAY (1/2) SECTION –

- See page 87 for Printed Wiring Board.
- See page 111 for IC Block Diagrams.
- See page 118 for IC Pin Functions.



8-18. SCHEMATIC DIAGRAM – DISPLAY (2/2) SECTION –



NOTE
 • Voltages and waveforms are dc with respect to ground under no-signal conditions.
 no mark:FM

P
 (Page 83)

POWER SW BOARD

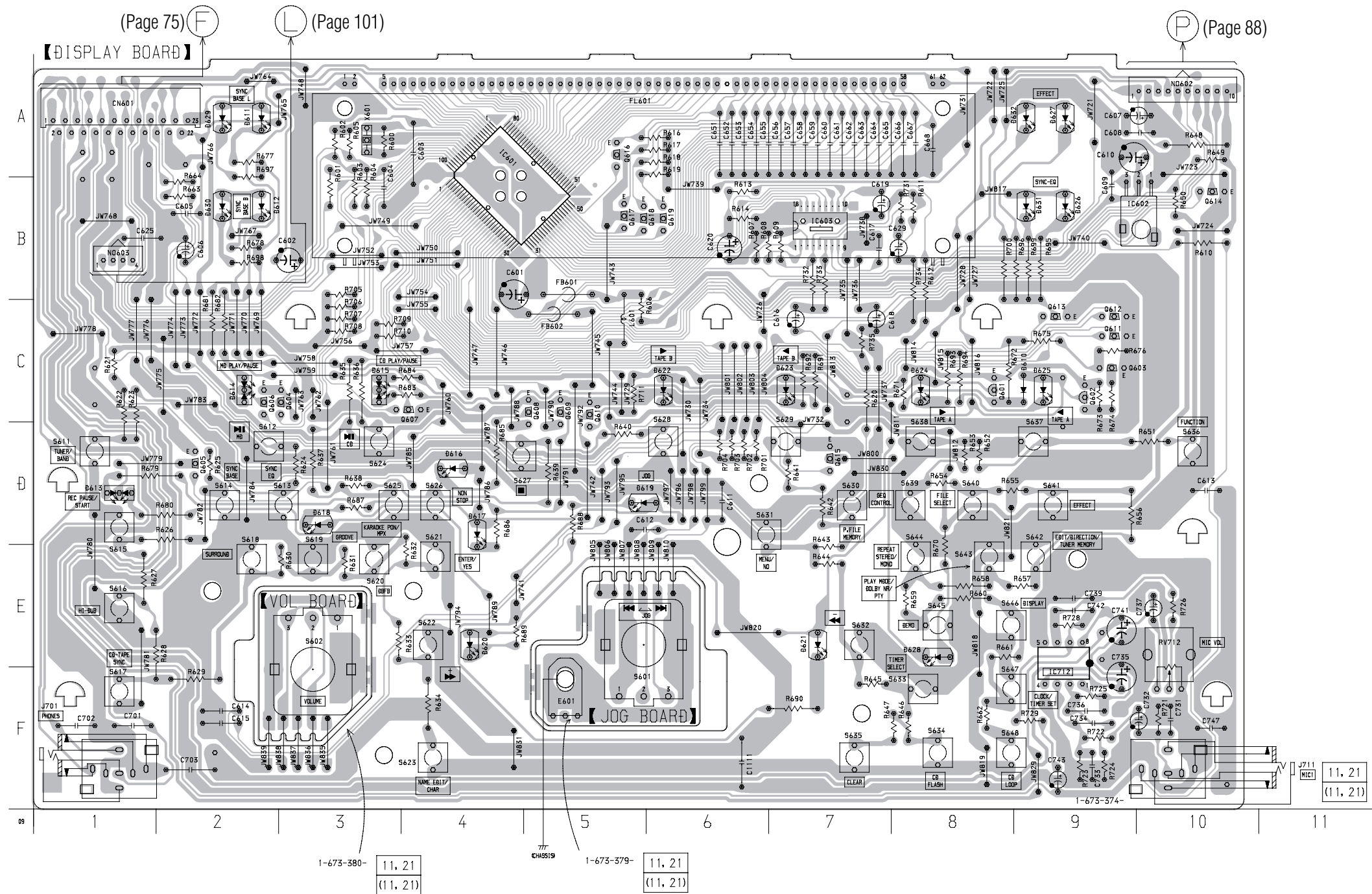
1 (Page 83)

2 (Page 83)

DISPLAY BOARD (2/2)

3
 (Page 84)

8-19. PRINTED WIRING BOARD – DISPLAY SECTION –
 • See page 40 for Circuit Boards Location.



• Semiconductor Location

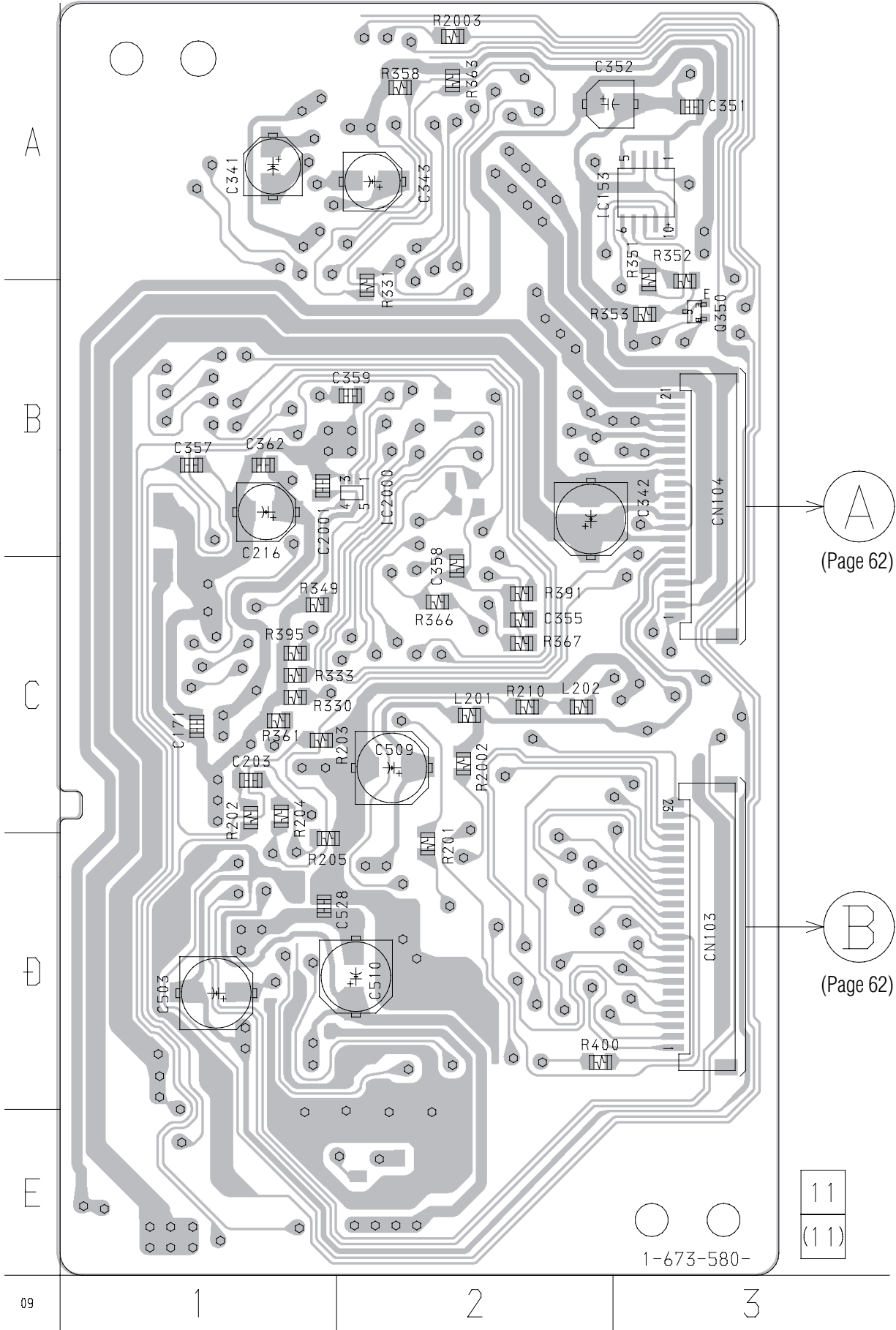
Ref. No.	Location
D610	C-9
D611	A-2
D612	B-2
D613	D-1
D614	C-2
D615	C-3
D616	D-4
D617	D-4
D618	D-3
D619	D-6
D620	E-6
D621	E-7
D622	C-6
D623	C-7
D624	C-8
D625	C-9
D626	B-9
D627	A-9
D628	E-8
D629	A-2
D630	B-2
D631	B-9
D632	A-9
IC601	A-4
IC602	B-10
IC603	B-7
IC712	E-9
Q601	C-8
Q602	C-9
Q603	C-9
Q604	C-3
Q605	D-2
Q606	C-2
Q607	C-4
Q608	C-5
Q609	C-5
Q610	C-5
Q611	C-9
Q612	C-9
Q613	C-9
Q614	B-10
Q615	D-7
Q616	A-5
Q617	B-5
Q618	B-6
Q619	B-6

• Semiconductor Location

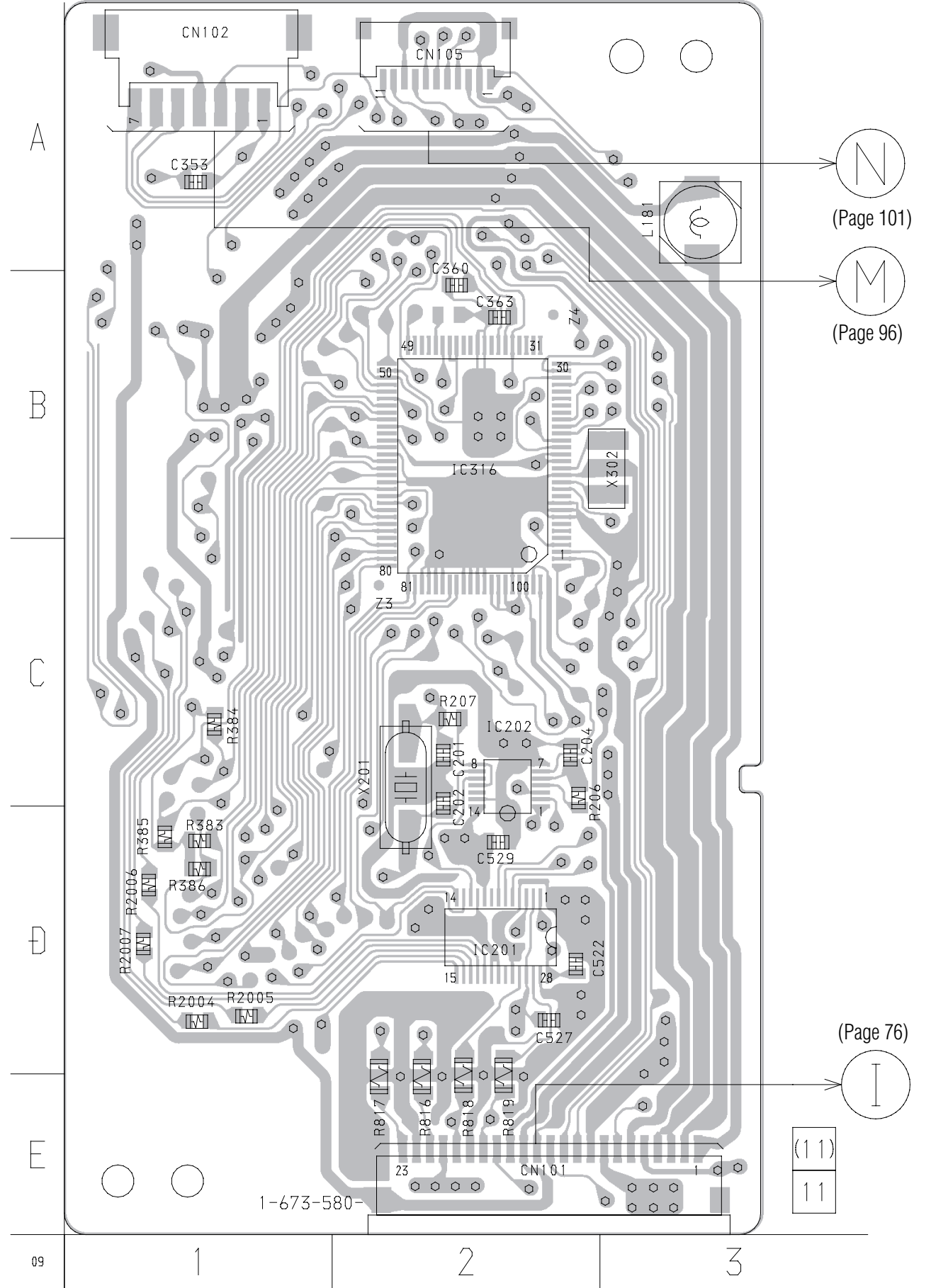
Ref. No.	Location
D751	A-10
D752	A-9
D753	A-1
D754	B-7
D755	B-6
D756	B-4
Q751	B-9
Q752	B-8
Q753	B-5
Q754	A-3

8-20. PRINTED WIRING BOARD – MD DIGITAL SECTION –
 • See page 40 for Circuit Boards Location.

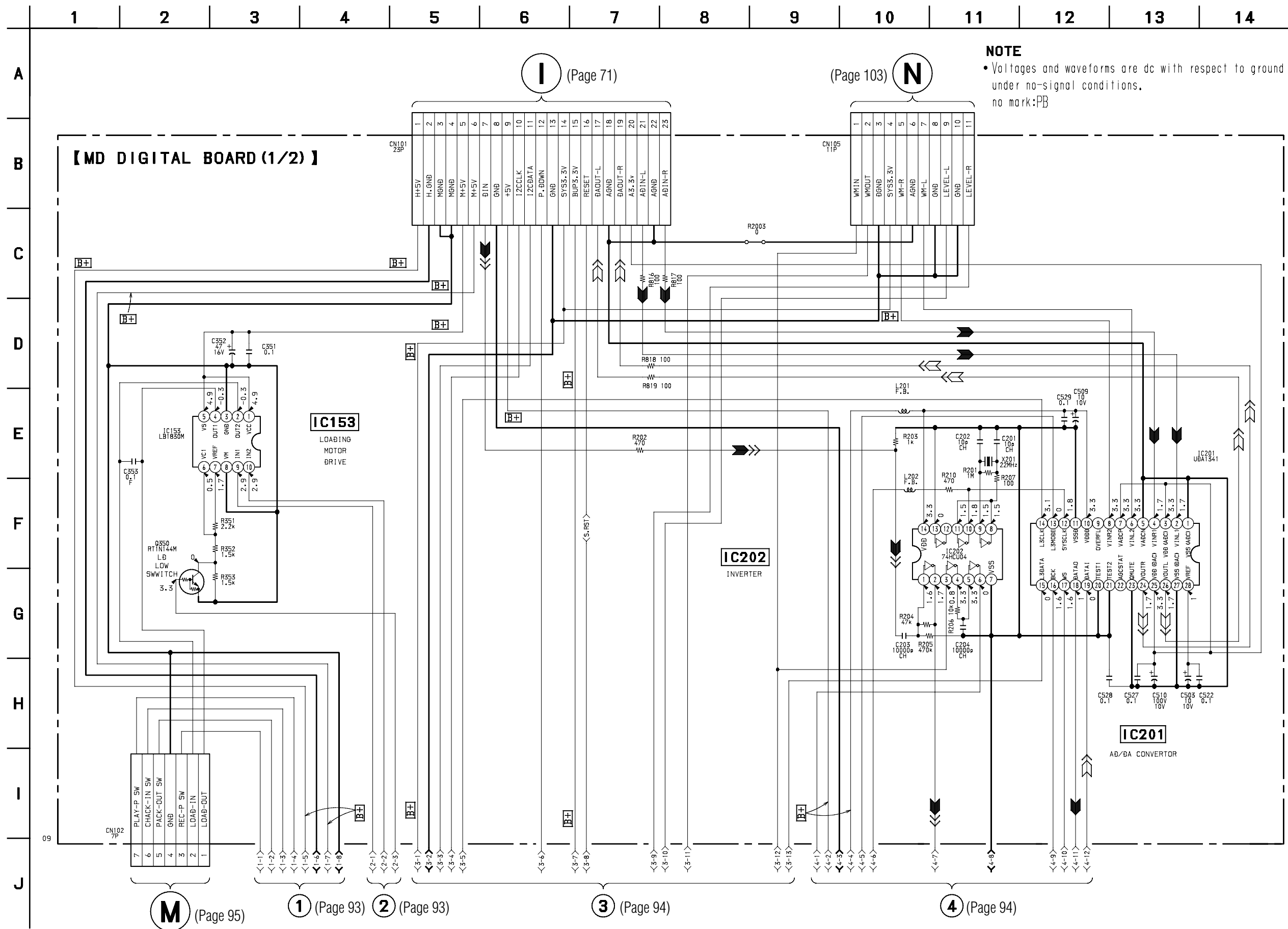
【 MD DIGITAL BOARD】 (SIDE A)



【 MD DIGITAL BOARD】 (SIDE B)

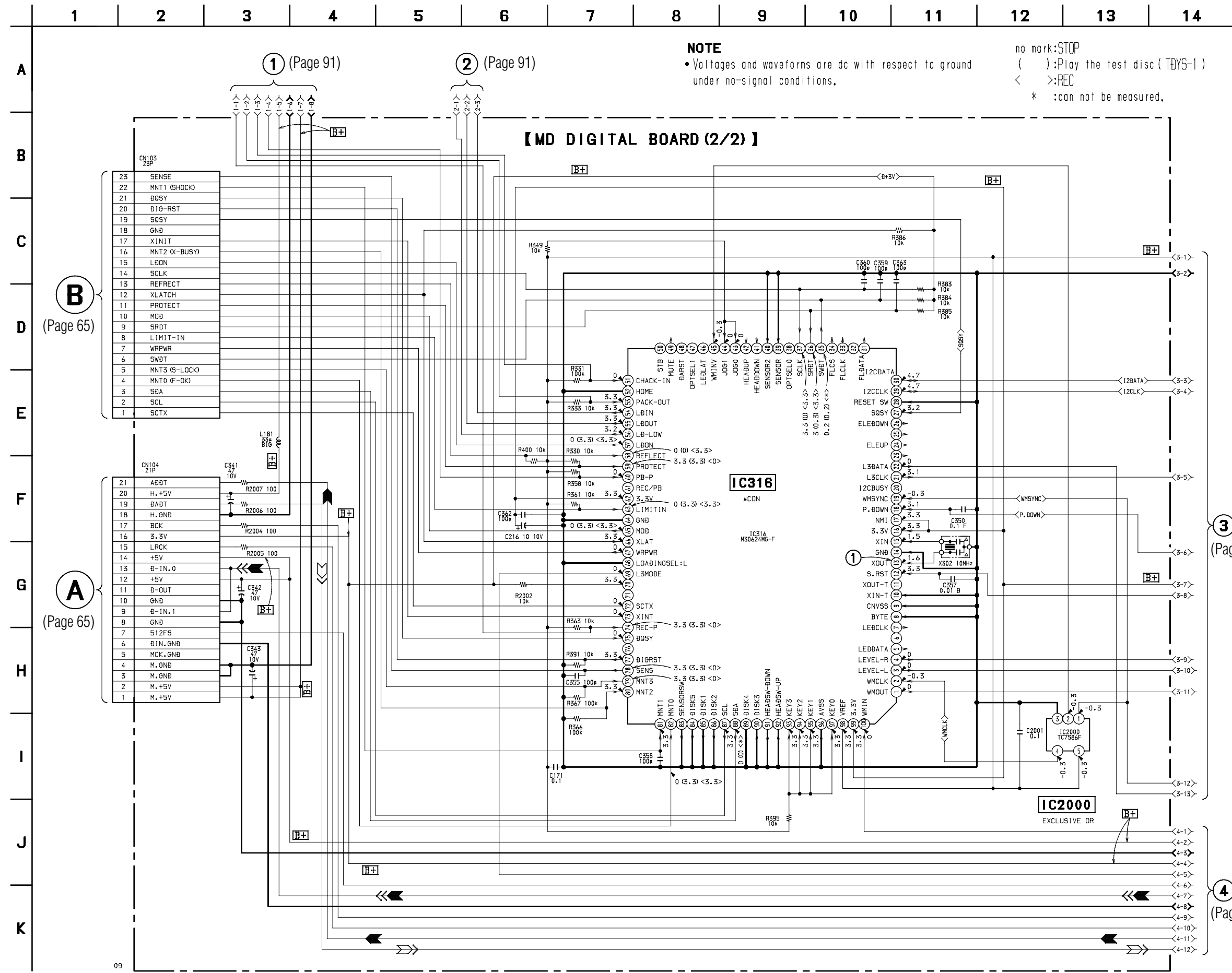


8-21. SCHEMATIC DIAGRAM – MD DIGITAL (1/2) SECTION –
• See page 111 for IC Block Diagrams.

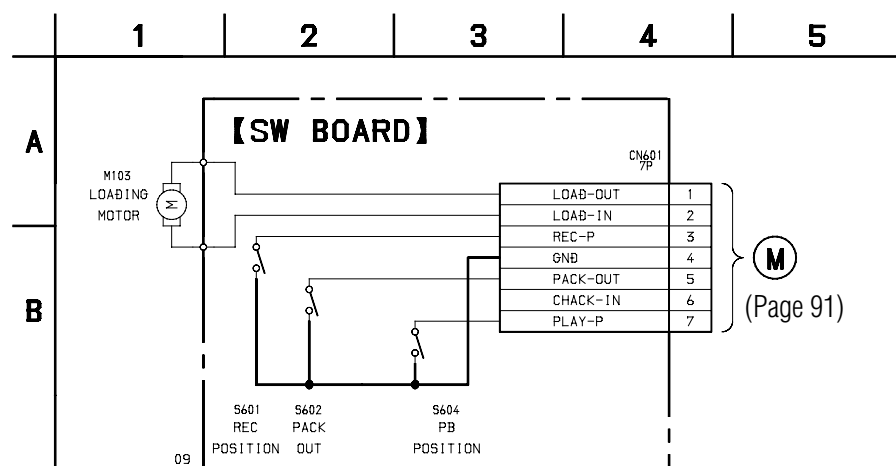


NOTE
 • Voltages and waveforms are dc with respect to ground under no-signal conditions.
 no mark:PB

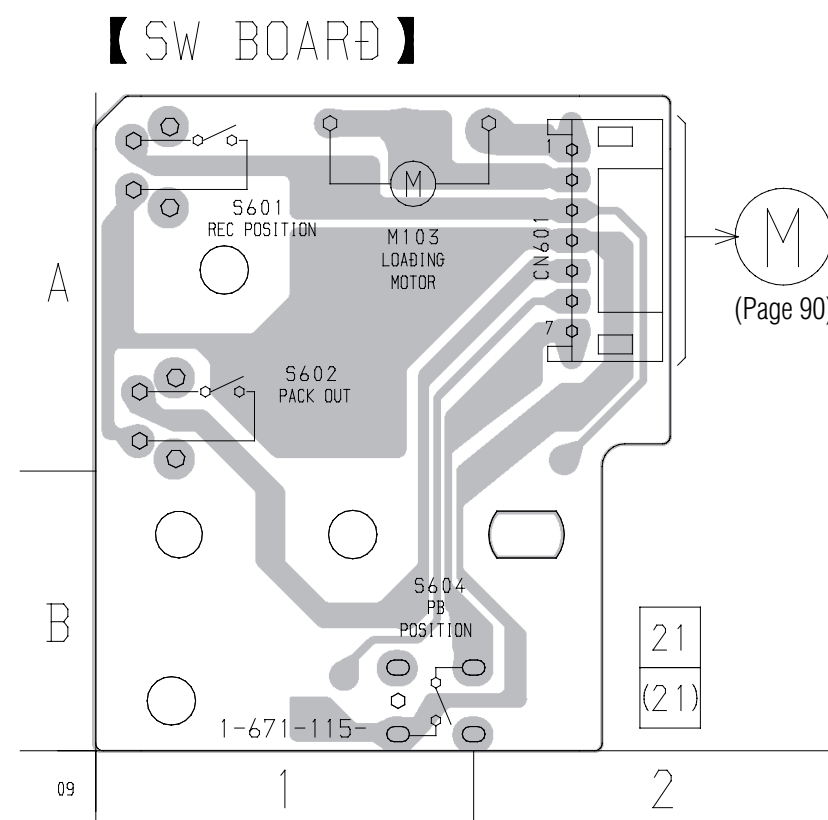
8-22. SCHEMATIC DIAGRAM – MD DIGITAL (2/2) SECTION –
• See page 89 for Printed Wiring Board.



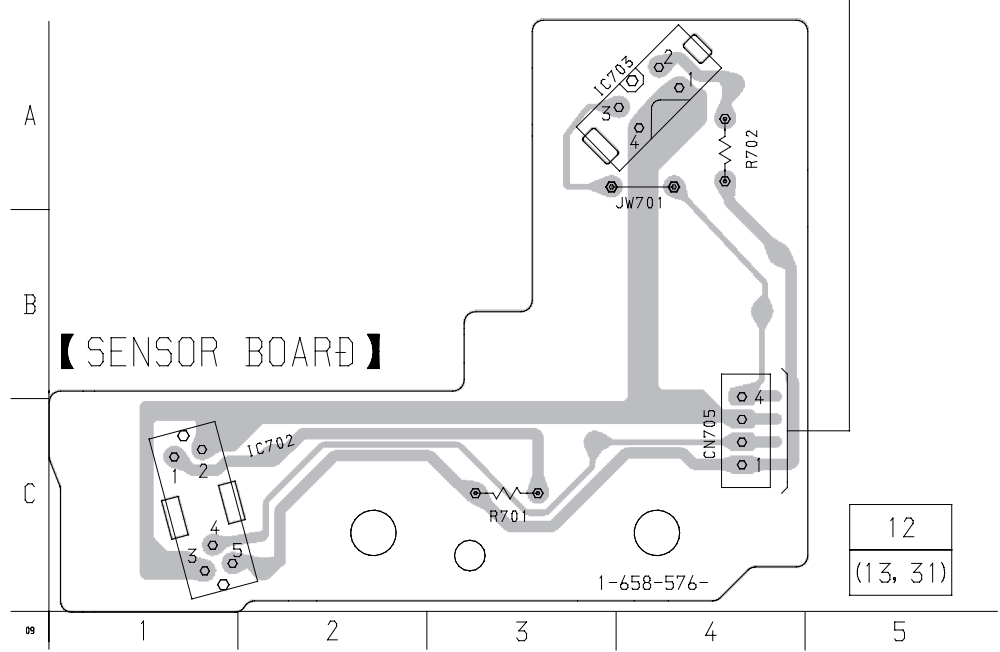
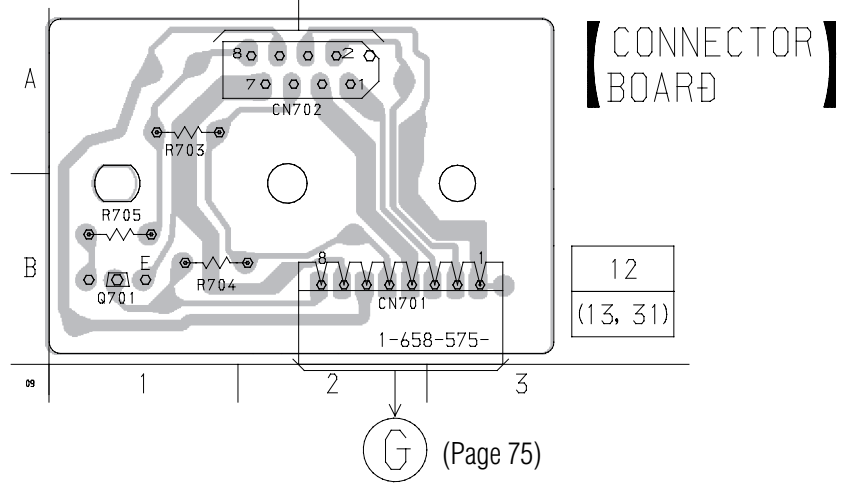
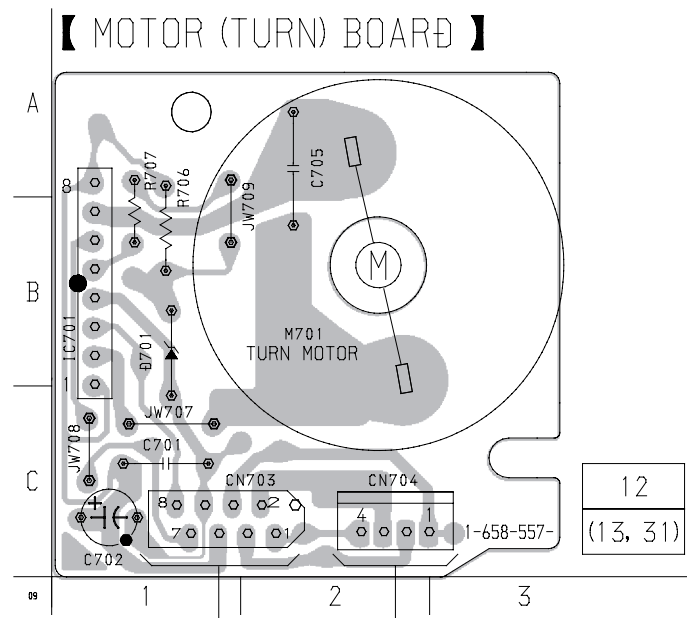
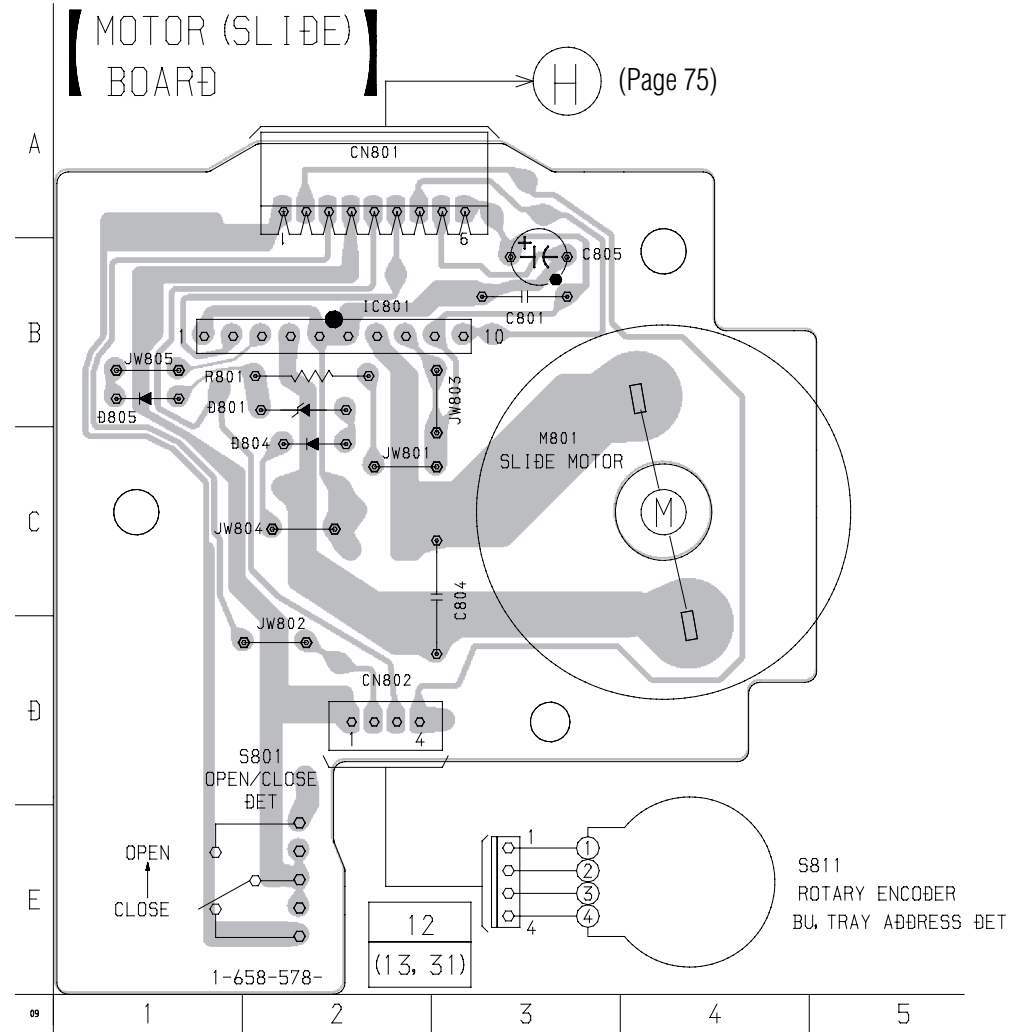
8-23. SCHEMATIC DIAGRAM – BD SWITCH SECTION –



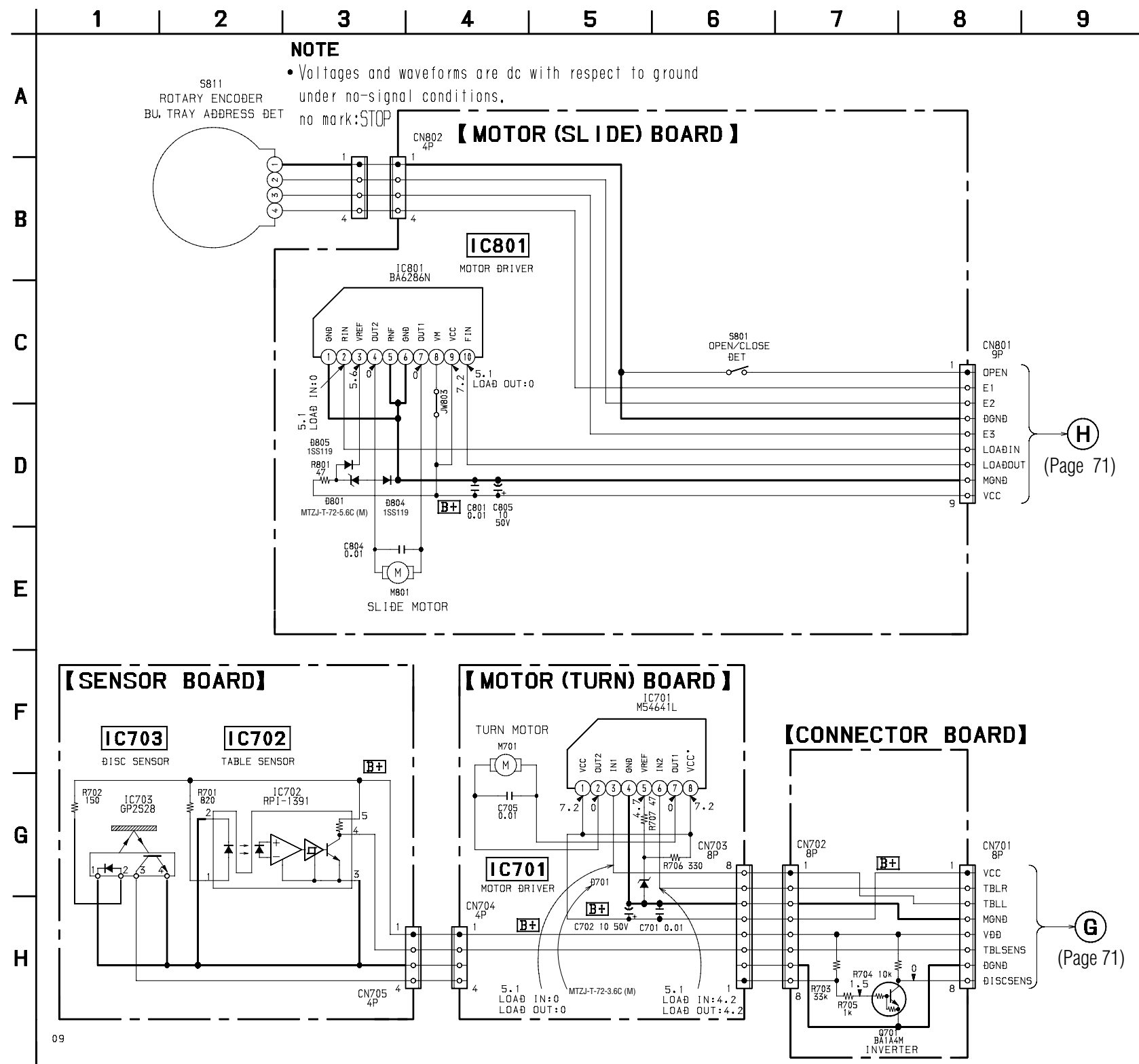
8-24. PRINTED WIRING BOARD – BD SWITCH SECTION –
• See page 40 for Circuit Boards Location.



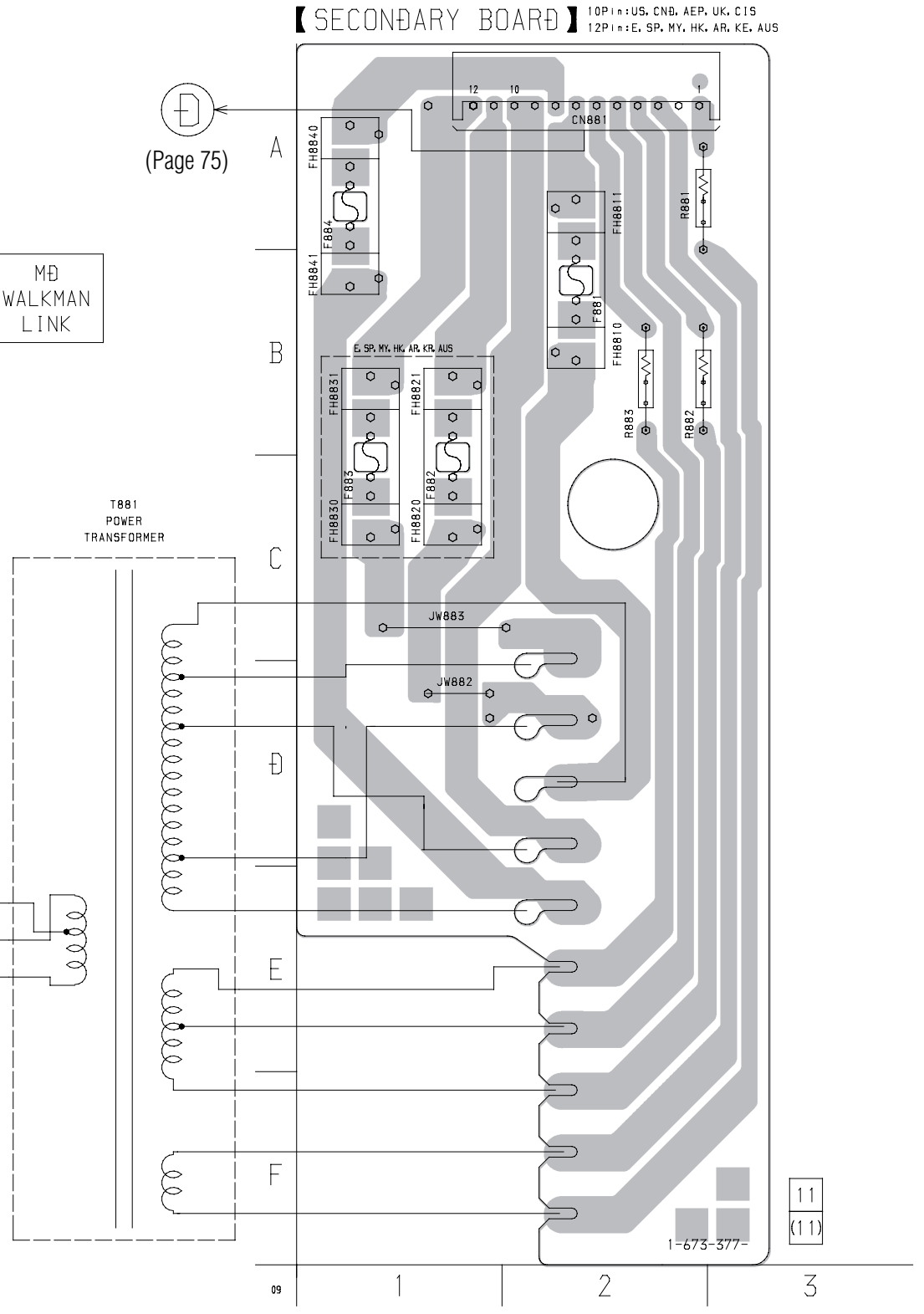
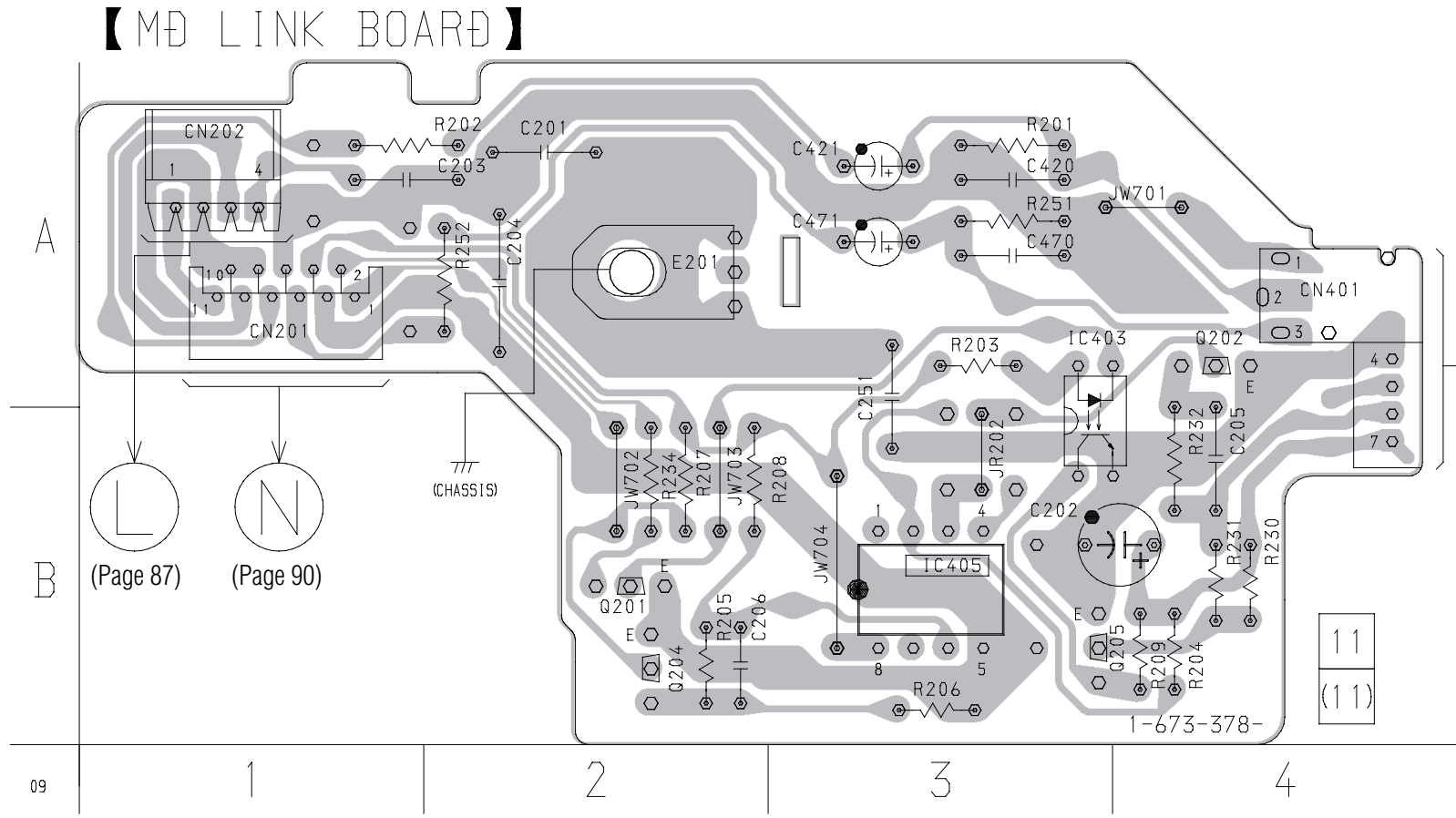
8-25. PRINTED WIRING BOARD – CD MOTOR SECTION –
 • See page 40 for Circuit Boards Location.



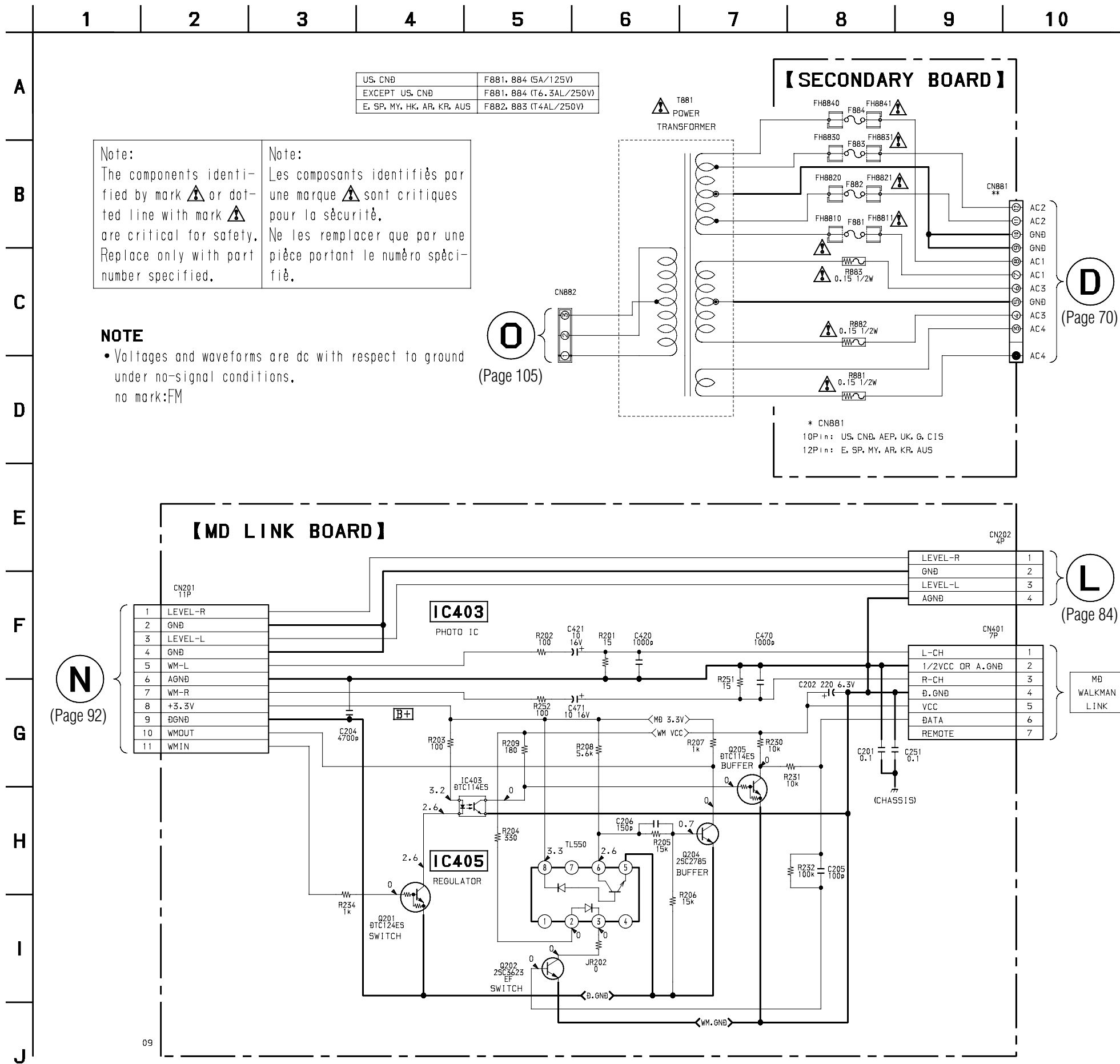
8-26. SCHEMATIC DIAGRAM – CD MOTOR SECTION –



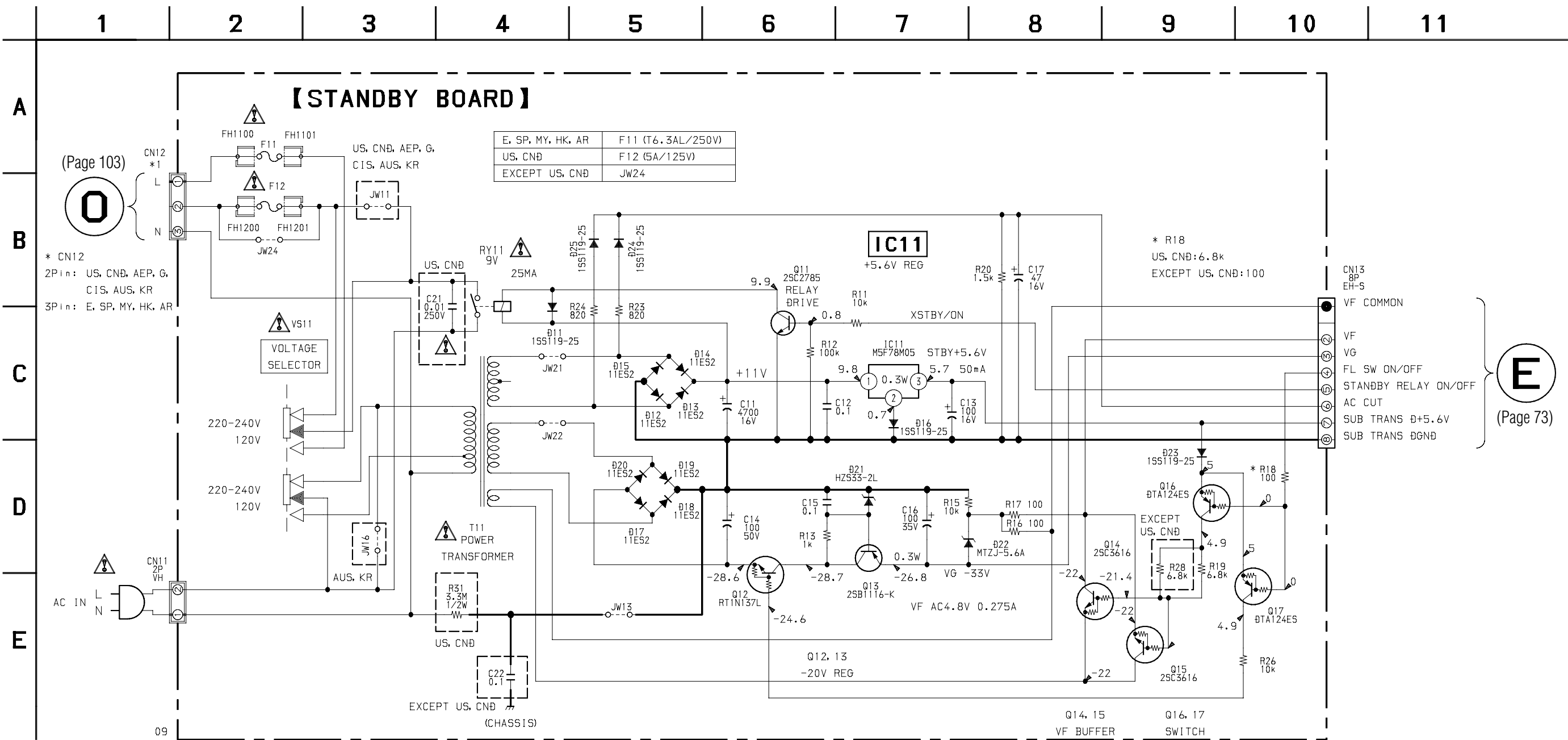
8-27. PRINTED WIRING BOARD – MD LINK SECTION –
 • See page 40 for Circuit Boards Location.



8-28. SCHEMATIC DIAGRAM – MD LINK SECTION –



8-29. SCHEMATIC DIAGRAM – POWER SECTION –



A
B
C
D
E

(Page 103)

O

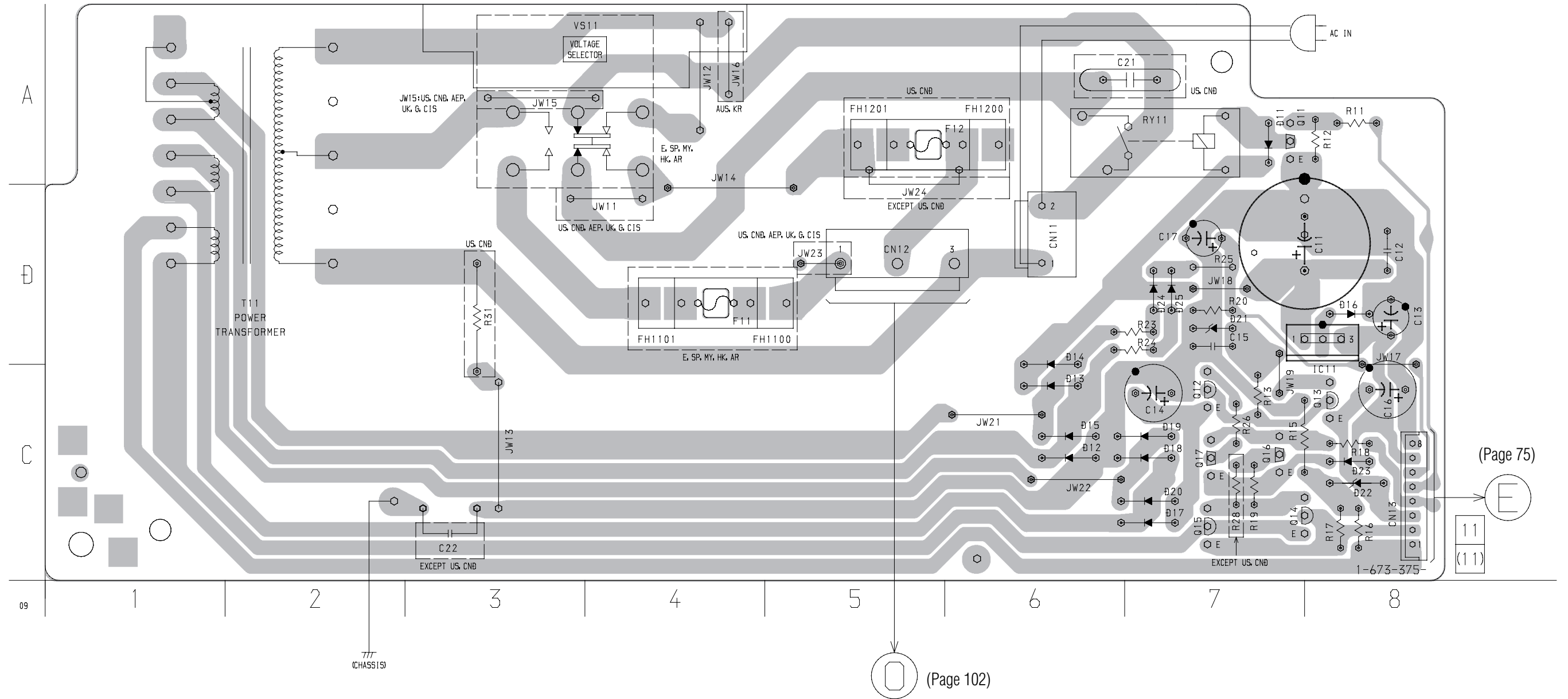
* CN12
2Pin: US, CNB, AEP, G,
CIS, AUS, KR
3Pin: E, SP, MY, HK, AR

E

(Page 73)

8-30. PRINTED WIRING BOARD – POWER SECTION –
• See page 40 for Circuit Boards Location.

【 STANDBY BOARD 】

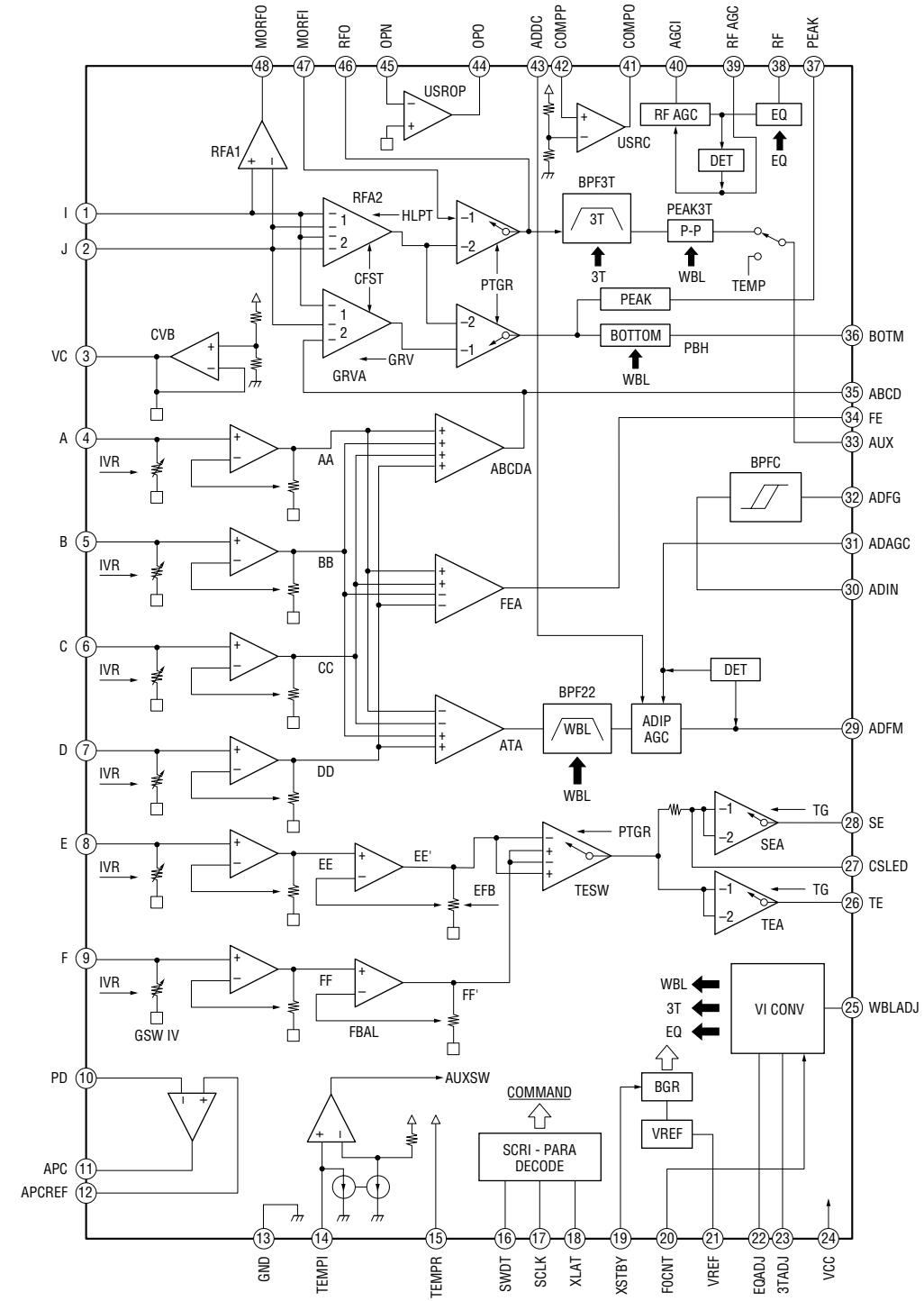


HCD-MDX10

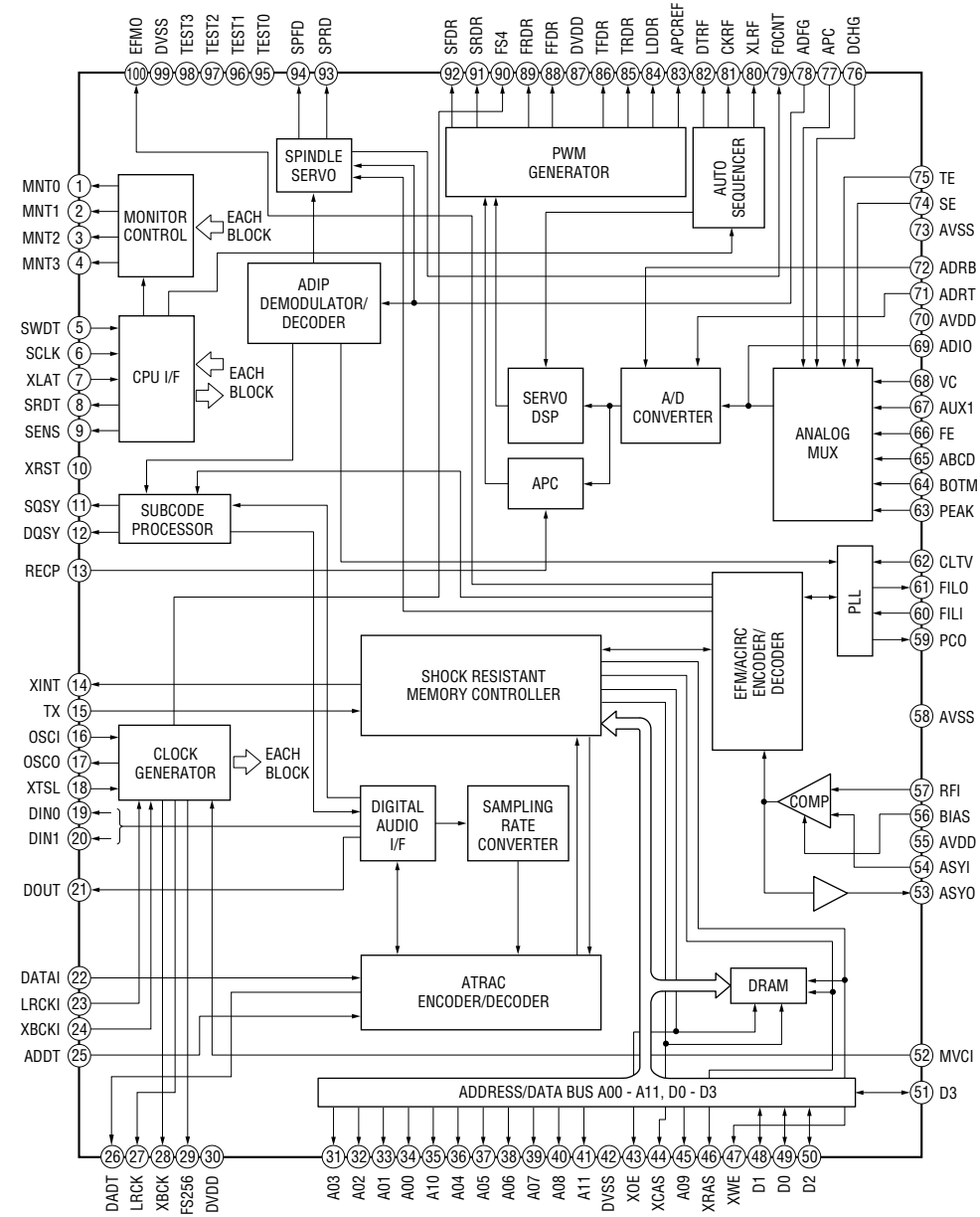
8-31. IC BLOCK DIAGRAMS

• BD (MD) Board

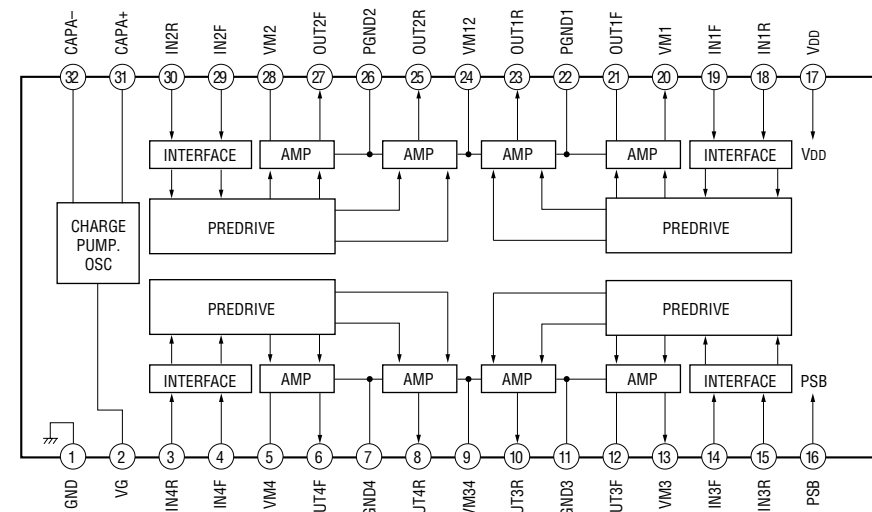
IC101 CXA2523AR



IC121 CXD2654R

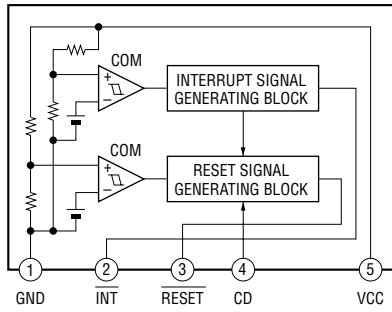


IC152 BH6511FS-E2



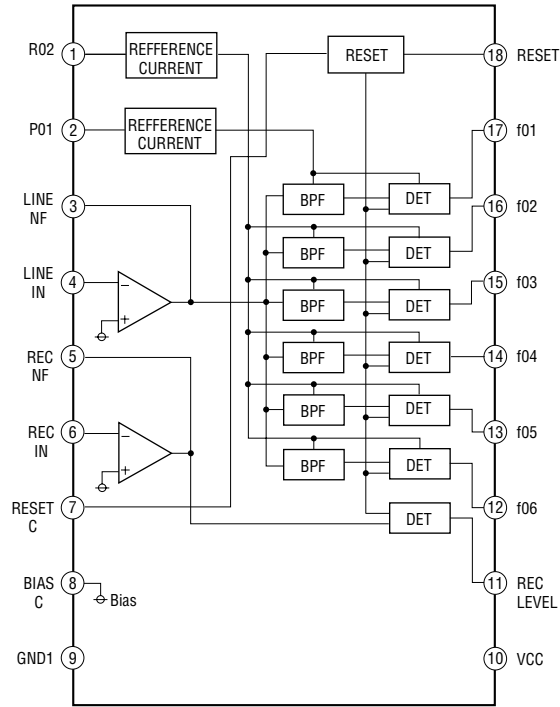
• MAIN (3/4) Board

IC371 M62016L



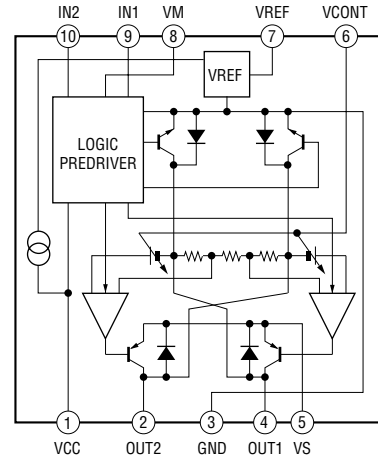
• PANEL (1/2) Board

IC603 BA3830F

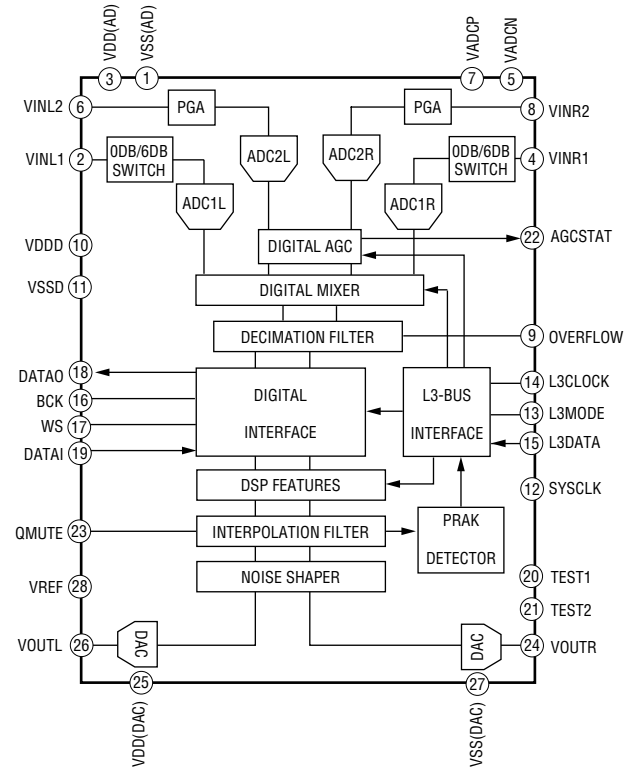


• MD DIGITAL Board

IC153 LB1830M-S-TE-L



IC201 UDA1341TS



8-32. IC PIN FUNCTIONS

• IC101 RF Amplifier (CXA2523AR) (BD (MD) board)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input
2	J	I	I-V converted RF signal J input
3	VC	O	Middle point voltage (+1.5V) generation output
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input
11	APC	O	Laser APC output
12	APCREF	I	Reference voltage input for setting laser power
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection
15	TEMPR	O	Reference voltage output for the temperature sensor
16	SWDT	I	Serial data input from the CXD2650R or CXD2652AR
17	SCLK	I	Serial clock input from the CXD2650R or CXD2652AR
18	XLAT	I	Latch signal input from the CXD2650R or CXD2652AR “L”: Latch
19	XSTBY	I	Stand by signal input “L”: Stand by
20	F0CNT	I	Center frequency control voltage input of BPF22, BPF3T, EQ from the CXD2650R or CXD2652AR
21	VREF	O	Reference voltage output (Not used)
22	EQADJ	I/O	Center frequency setting pin for the internal circuit EQ
23	3TADJ	I/O	Center frequency setting pin for the internal circuit BPF3T
24	Vcc	—	+3V power supply
25	WBLADJ	I/O	Center frequency setting pin for the internal circuit BPF22
26	TE	O	Tracking error signal output to the CXD2650R or CXD2652AR
27	CSLED	—	External capacitor connection pin for the sled error signal LPF
28	SE	O	Sled error signal output to the CXD2650R or CXD2652AR
29	ADFM	O	FM signal output of ADIP
30	ADIN	I	ADIP signal comparator input ADFM is connected with AC coupling
31	ADAGC	—	External capacitor connection pin for AGC of ADIP
32	ADFG	O	ADIP duplex signal output to the CXD2650R or CXD2652AR
33	AUX	O	I3 signal/temperature signal output to the CXD2650R or CXD2652AR (Switching with a serial command)
34	FE	O	Focus error signal output to the CXD2650R or CXD2652AR
35	ABCD	O	Light amount signal output to the CXD2650R or CXD2652AR
36	BOTM	O	RF/ABCD bottom hold signal output to the CXD2650R or CXD2652AR
37	PEAK	O	RF/ABCD peak hold signal output to the CXD2650R or CXD2652AR
38	RF	O	RF equalizer output to the CXD2650R or CXD2652AR
39	RFAGC	—	External capacitor connection pin for the RF AGC circuit
40	AGCI	I	Input to the RF AGC circuit The RF amplifier output is input with AC coupling
41	COMPO	O	User comparator output (Not used)
42	COMPP	I	User comparator input (Fixed at “L”)
43	ADDC	I/O	External capacitor pin for cutting the low band of the ADIP amplifier
44	OPO	O	User operation amplifier output (Not used)
45	OPN	I	User operation amplifier inversion input (Fixed at “L”)
46	RFO	O	RF amplifier output
47	MORFI	I	Groove RF signal is input with AC coupling
48	MORFO	O	Groove RF signal output

• Abbreviation

APC: Auto Power Control

AGC: Auto Gain Control

• IC121 Digital Signal Processor, Digital Servo Signal Processor, EFM/ACIRC Encoder/Decoder, Shock-proof Memory Controller, ATRAC Encoder/Decoder, 2M Bit DRAM (CXD2654R) (BD (MD) board)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	FOK signal output to the system control (monitor output) “H” is output when focus is on
2	MNT1 (SHCK)	O	Track jump detection signal output to the system control (monitor output)
3	MNT2 (XBUSY)	O	Monitor 2 output to the system control (monitor output)
4	MNT3 (SLOC)	O	Monitor 3 output to the system control (monitor output)
5	SWDT	I	Writing data signal input from the system control
6	SCLK	I (S)	Serial clock signal input from the system control
7	XLAT	I (S)	Serial latch signal input from the system control
8	SRDT	O (3)	Reading data signal output to the system control
9	SENS	O (3)	Internal status (SENSE) output to the system control
10	XRST	I (S)	Reset signal input from the system control “L”: Reset
11	SQSY	O	Subcode Q sync (SCOR) output to the system control “L” is output every 13.3 msec. Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format or MD format subcode Q sync (SCOR) output to the system control
13	RECP	I	Laser power switching input from the system control “H”: Recording, “L”: Playback
14	XINT	O	Interrupt status output to the system control
15	TX	I	Recording data output enable input from the system control
16	OSCI	I	System clock input (512Fs=22.5792 MHz)
17	OSCO	O	System clock output (512Fs=22.5792 MHz) (Not used)
18	XTSL	I	System clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (Fixed at “H”)
19	DIN0	I	Digital audio input (Optical input)
20	DIN1	I	Digital audio input (Optical input)
21	DOUT	O	Digital audio output (Optical output)
22	DADTI	I	Serial data input
23	LRCKI	I	LR clock input “H” : Lch, “L” : R ch
24	XBCKI	I	Serial data clock input
25	ADDT	I	Data input from the A/D converter
26	DADT	O	Data output to the D/A converter
27	LRCK	O	LR clock output for the A/D and D/A converter (44.1 kHz)
28	XBCK	O	Bit clock output to the A/D and D/A converter (2.8224 MHz)
29	FS256	O	11.2896 MHz clock output (Not used)
30	DVDD	—	+3V power supply (Digital)
31 to 34	A03 to A00	O	DRAM address output
35	A10	O	DRAM address output (Not used)
36 to 40	A04 to A08	O	DRAM address output
41	A11	O	DRAM address output (Not used)
42	DVSS	—	Ground (Digital)
43	XOE	O	Output enable output for DRAM
44	XCAS	O	$\overline{\text{CAS}}$ signal output for DRAM
45	A09	O	Address output for DRAM
46	XRAS	O	$\overline{\text{RAS}}$ signal output for DRAM
47	XWE	O	Write enable signal output for DRAM (Used : CXD2652AR, Not used : CXD2650R)

* I (S) stands for Schmidt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O

Pin No.	Pin Name	I/O	Function
48	D1	I/O	Data input/output for DRAM
49	D0	I/O	
50, 51	D2, D3	I/O	
52	MVCI	I (S)	Clock input from an external VCO (Fixed at "L")
53	ASYO	O	Playback EFM duplex signal output
54	ASYI	I (A)	Playback EFM comparator slice level input
55	AVDD	—	+3V power supply (Analog)
56	BIAS	I (A)	Playback EFM comparator bias current input
57	RFI	I (A)	Playback EFM RF signal input
58	AVSS	—	Ground (Analog)
59	PCO	O (3)	Phase comparison output for the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for the recording/playback EFM master PLL
61	FILO	O (A)	Filter output for the recording/playback EFM master PLL
62	CLTV	I (A)	Internal VCO control voltage input for the recording/playback EFM master PLL
63	PEAK	I (A)	Light amount signal peak hold input from the CXA2523R
64	BOTM	I (A)	Light amount signal bottom hold input from the CXA2523R
65	ABCD	I (A)	Light amount signal input from the CXA2523R
66	FE	I (A)	Focus error signal input from the CXA2523R
67	AUX1	I (A)	Auxiliary A/D input
68	VC	I (A)	Middle point voltage (+1.5V) input from the CXA2523R
69	ADIO	O (A)	Monitor output of the A/D converter input signal (Not used)
70	AVDD	—	+3V power supply (Analog)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input (Fixed at "H")
72	ADRB	I (A)	A/D converter operational range lower limit voltage input (Fixed at "L")
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from the CXA2523R
75	TE	I (A)	Tracking error signal input from the CXA2523R
76	DCHG	I (A)	Connected to +3V power supply
77	APC	I (A)	Error signal input for the laser digital APC (Fixed at "L")
78	ADFG	I (S)	ADIP duplex FM signal input from the CXA2523R (22.05 ± 1 kHz)
79	F0CNT	O	Filter f0 control output to the CXA2523R
80	XLRF	O	Control latch output to the CXA2523R
81	CKRF	O	Control clock output to the CXA2523R
82	DTRF	O	Control data output to the CXA2523R
83	APCREF	O	Reference PWM output for the laser APC
84	TEST0	O	PWM output for the laser digital APC (Not used)
85	TRDR	O	Tracking servo drive PWM output (-)

- Abbreviation

EFM: Eight to Fourteen Modulation

PLL : Phase Locked Loop

VCO: Voltage Controlled Oscillator

Pin No.	Pin Name	I/O	Function
86	TFDR	O	Tracking servo drive PWM output (+)
87	DVDD	—	+3V power supply (Digital)
88	FFDR	O	Focus servo drive PWM output (+)
89	FRDR	O	Focus servo drive PWM output (-)
90	FS4	O	176.4 kHz clock signal output (X'tal) (Not used)
91	SRDR	O	Sled servo drive PWM output (-)
92	SFDR	O	Sled servo drive PWM output (+)
93	SPRD	O	Spindle servo drive PWM output (-)
94	SPFD	O	Spindle servo drive PWM output (+)
95	FGIN	I (S)	Test input (Fixed at "L")
96 to 98	TEST1 to TEST3	I	
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM output when recording

- Abbreviation

EFM: Eight to Fourteen Modulation

• IC501 MASTER CONTROL (M30620MC-A03FP) (MAIN board (4/4))

Pin No.	Pin Name	I/O	Function
1	STK-MUTE	O	Power amp ON/OFF signal output
2	POWER	O	Power ON/OFF signal output
3	F-RELAY	O	Front speaker relay control output
4	REAR-RELAY	O	Rear speaker relay control output (Not used)
5	CD-POWER	O	CD power on signal output
6	LINE-MUTE	O	Line mute ON/OFF selection output
7	DBFB-H/L	O	DBFB H/L select signal output
8, 9	–	–	Not used
10	XC-IN	I	X'tal (32.768MHz)
11	XC-OUT	O	
12	RESET	I	Reset signal input
13	X-OUT	O	X'tal (16MHz)
14	VSS	–	Ground
15	X-IN	I	X'tal (16MHz)
16	VCC	–	Power supply (+5V)
17	NMI	I	Not used (PULL UP EVER+5V)
18	WAKE UP	I	WAKE UP (Fixed at fixed at "L")
19	SCOR	I	Subcode data request signal output
20	RDS-INT	I	RDS data interrupt input
21	RDS-DATA	I	
22	AC-CUT	I	Back up signal input
23	PL-CLK	O	Clock signal to pro-logic (Not used)
24	PL-DATA	O	Data signal to pro-logic (Not used)
25	PL-LAT	O	Latch signal to pro-logic (Not used)
26	TIMER LED	I	Timer LED ON/OF
27	PROTECTOR ON	I	Speaker protect ON/OF
28	–	–	Not used
29	IIC-CLK	O	Clock output for IC601
30	IIC-DATA	O	Data output for IC601
31	–	–	Not used
32	SQ-DATA	I	Subcode Q data clock input
33	SQ-CLK	I	
34	SW-MODE	O	Not used
35	CD-DATA	O	CD data output
36	HP DET	I	Head phone swich detect
37	CD-CLK	O	CD clock output
38	493-LAT	O	Latch signal output for M62493FP (IC101)
39	ST-BY LED/ CLOCK-OUT	O	Clock ond stand by LED signal output
40	L+R/L-R	I	Not used
41	BY-PASS	I	
42	FL-SW	I	FL switch ON/OFF
43	STBY RELAY	I	Stand by relay ON/OFF
44	HIGH/LOW FRQ	O	FREQ high/low signal for SYNC bass
45	–	–	Not used
46	D-IN SEL	I	Digital input selector
47	493-DATA	O	Data output for M62493FP (IC101)
48	493-CLK	O	Clock output for M62493FP (IC101)
49	ST-MUTE	O	Tuned mute signal output

Pin No.	Pin Name	I/O	Function
50	STEREO	I	Stereo detection for tuner
51	TUNED	I	Tuned detection for tuner
52	ST-CE	O	Tuner chip enable output
53	ST-DOUT	O	Tuner data output
54	ST-DIN	I	Tuner data input
55	ST-CLK	O	Tuned clock output
56	SENS	I	BD Condition signal input
57	HOLD	O	Mode hold signal output
58	XLAT	O	CD latch signal output
59	XRST	O	CD reset signal output
60	DISC-SENS	I	Slit sensor of disc table input
61	T-SENS	I	CD table detection signal input
62	VCC	–	Power supply (+5V)
63	TBL-L	O	Table motor control output
64	VSS	–	Ground
65	TBL-R	O	Table motor control output
66	LOAD-OUT	O	Loading motor control signal output
67	LOAD-IN	O	
68	ENC 3/UP-SW	I	Disc tray address detect encoder input
69	ENC 2/DISC-LED	I	
70	ENC 1	I	
71	OUT-OPEN	O	Loading out detection signal output
72	B-TRG	O	Trigger motor control output
73	A-TRG	O	
74	CAP-M-COT2	O	Capstan motor control 1(-) signal output
75	CAP-M-COT1	O	Capstan motor control 2(-) signal output
76	CAP-M-H/L	O	Capstan motor H/L speed select signal output
77	AMS-IN	I	Connected to ground
78	TC-MUTE	O	TC mute ON/OFF selection output
79	R/PB/PAS	O	REC/PB/PASS selection output
80	NR-ON/OFF	O	NR ON/OFF signal output
81	REC-MUTE	O	REC mute ON/OFF selection output
82	BIAS	O	Bias ON/OFF selection output
83	EQ-H/N	O	Equalizer H/N select output
84	PB-A/B	O	PB Deck A/Deck B select output
85	ALC	O	ALC ON/OFF output
86	B-PLAY-SW	I	Deck B play detect
87	A-PLAY-SW	I	Deck A play detect
88	A-HALF	I	Deck A cassette detect
89	B-HALF	I	Deck B cassette detect
90	B-SHUT	I	B Deck reel pulse detector
91	A-SHUT	I	A Deck reel pulse detector
92	SOFT-TEST	O	Software test port
93, 94	KEY/CD-ADJ	I	CD adjust point port
95	MODEL IN	I	Version select signal input
96	AVSS	–	Ground
97	SPEC-IN	I	Version select signal input
98	VREF	I	Analog reference voltage input
99	AVCC	–	Analog power supply
100	TC-RELAY	O	REC/PB head selection output for IC602

• IC601 DISPLAY CONTROL (TMP88CS77F-6003) (DISPLAY board)

Pin No.	Pin Name	I/O	Function
1	JOG A	I	Rotary encoder (S601) pulse input
2 to 4	LED	O	LED switch signal
5	WAKE UP	O	WAKE UP signal
6 to 8	LED	O	LED switch signal
9	L SEL	O	LED select signal
10	JOG B	I	Rotary encoder (S601) pulse input
11, 12	VOLA, VOL B	I	Rotary encoder (S602) pulse input
13 to 15	DISC 3 LED to DISC 1 LED	O	LED switch signal
16	MD LED	O	LED switch signal
17 to 20	KEY 3 to KEY 0	I	Key input
21	MD REC R	O	MD REC R signal
22	S LOW (F01)	O	Spectrum analyzer input (Super low frequency) (40Hz)
23	BPF 1 (F02)	O	Spectrum analyzer input (100Hz)
24	BBF 2	O	Spectrum analyzer input (400Hz)
25	BBF 3	O	Spectrum analyzer input (2KHz)
26	BBF 4	O	Spectrum analyzer input (6KHz)
27	ALL B (L+R)	I	Spectrum analyzer input (all band)
28	MD REC L	O	MD REC L signal
29	VSS I/O	-	Ground
30	VASS	-	Ground
31	VA ref	I	Analog reference voltage input
32	VDD I/O	-	Power supply (+5V)
33 to 50	G18 to G1	O	FL gride signal output
51	VDD FV7	-	Power supply (+5V)
52 to 86	S1 to S35	O	FL segment signal output
87	VKK	-	Power supply (-30V)
88	VDD for CPU	-	Power supply (+5V)
89	X IN	I	X'tal (12.5MHz)
90	VSS for CPU	-	Ground
91	X OUT	O	X'tal (12.5MHz)
92	Reset	I	Reset signal input from main controller
93, 94	LED	O	LED switch signal
95	TAST	I	Connected ground
96	LED	O	LED switch signal
97	I ² C DATA	O	Data output for IC501
98	I ² C CLK	O	Clock output for IC501
99	LED	O	LED switch signal
100	SIRCS	I	Remote commander signal input

SECTION 9 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.

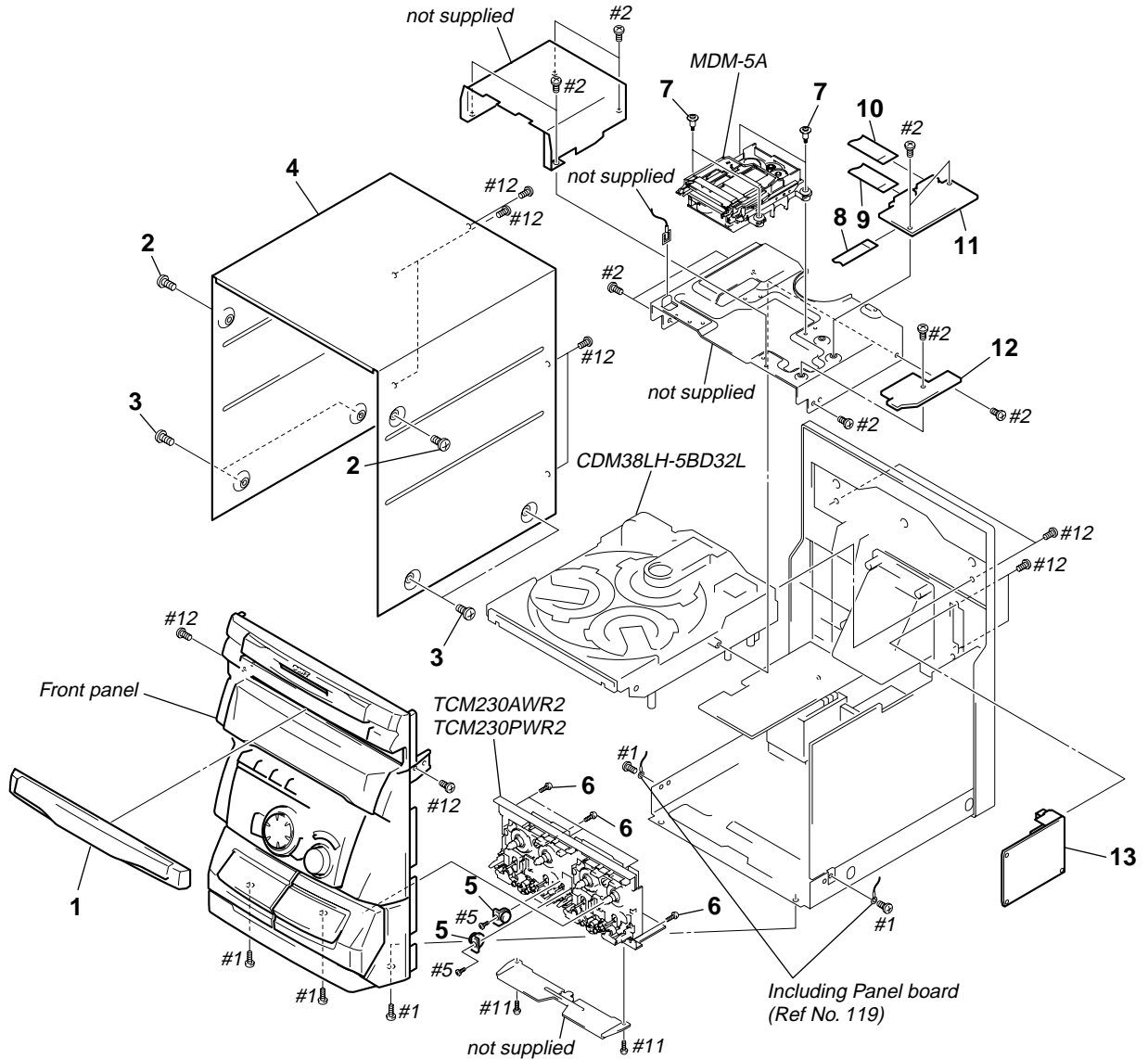
- Abbreviation
 CND : Canadian model
 G : German model
 SP : Singapore model
 MY : Malaysia model
 AR : Argentine model
 KR : Korean model
 AUS : Australian model

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

Les composants identifiés par une marque \triangle sont critiques pour la sécurité.

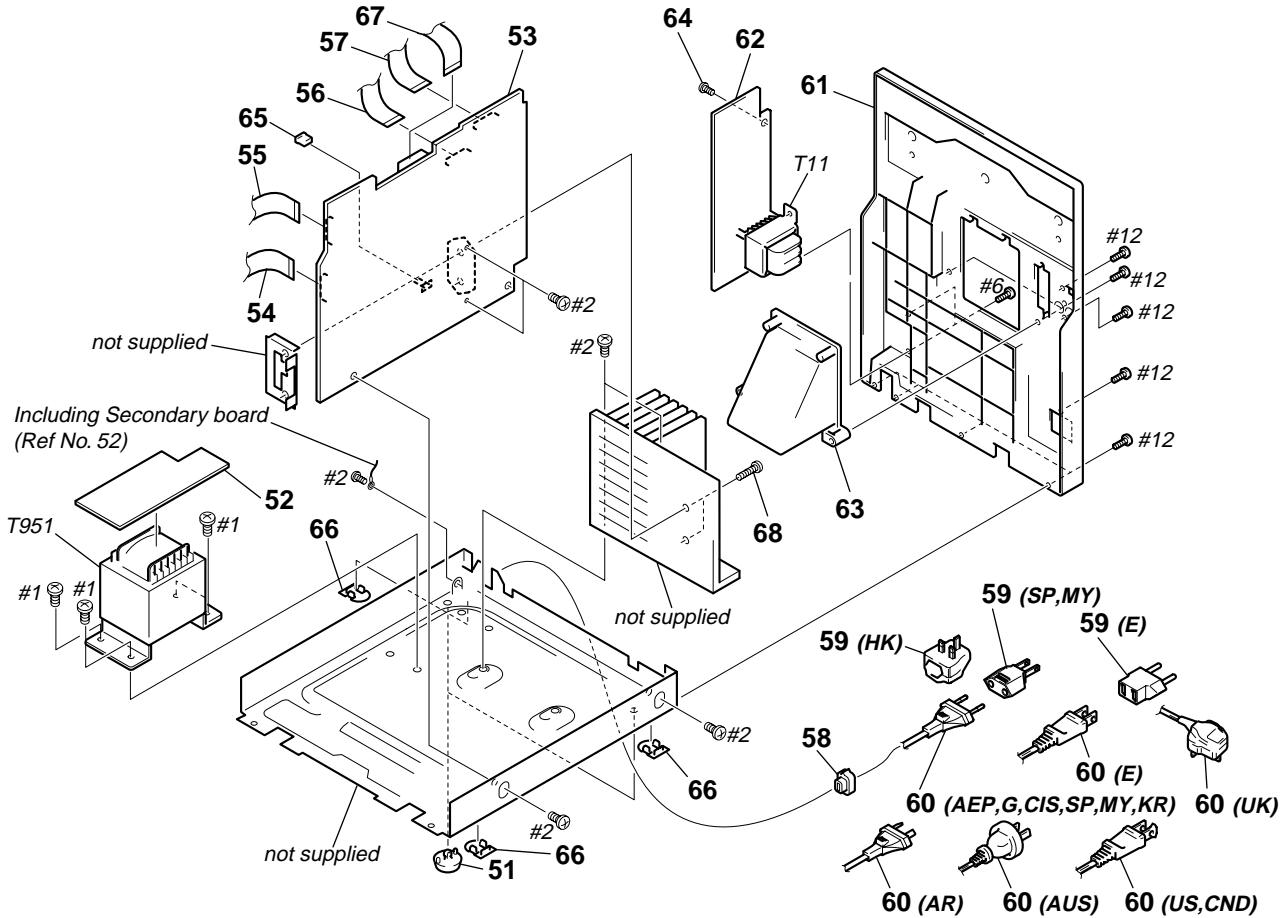
Ne les remplacer que par une pièce portant le numéro spécifié.

9-1. CASE SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4951-202-1	LOADING PANEL ASSY		11	A-4419-305-A	MD DIGITAL BOARD, COMPLETE	
2	3-363-099-71	SCREW (CASE 3 TP2)		12	A-4419-326-A	MD LINK BOARD, COMPLETE (AEP,UK,G,CIS)	
3	3-363-099-11	SCREW (CASE 3 TP2)		12	A-4419-499-A	MD LINK BOARD, COMPLETE (EXCEPT AEP,UK,G,CIS)	
4	4-216-858-01	CASE		13	1-233-544-14	ENCAPSULATED COMPONENT (US,CND)	
5	4-215-062-01	DAMPER		13	1-233-545-14	ENCAPSULATED COMPONENT (AR,KR,AUS)	
6	4-951-620-01	SCREW (2.6x8), +BVTP		13	1-233-546-13	ENCAPSULATED COMPONENT (SP,MY,HK)	
7	4-999-839-11	SCREW (+BVTWH M3), STEP		13	1-693-443-11	TUNER UNIT (FM/AM) (AEP,UK,G,CIS)	
8	1-775-102-11	WIRE (FLAT TYPE) (11 CORE)		13	1-693-453-11	TUNER UNIT (FM/AM) (E)	
9	1-775-192-11	WIRE (FLAT TYPE) (21 CORE) (150mm)					
10	1-775-208-11	WIRE (FLAT TYPE) (23 CORE) (140mm)					

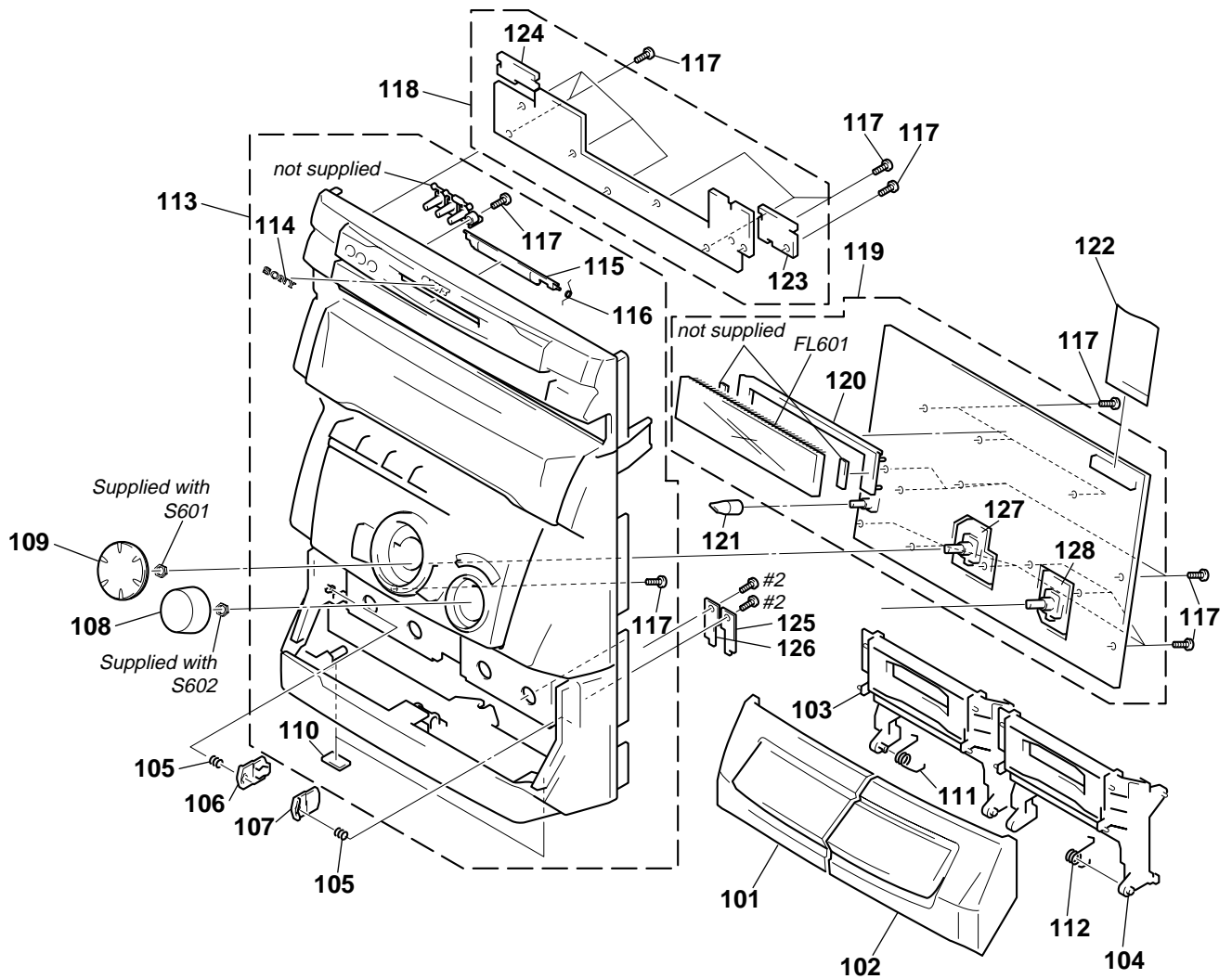
9-2. CHASSIS SECTION



<p>The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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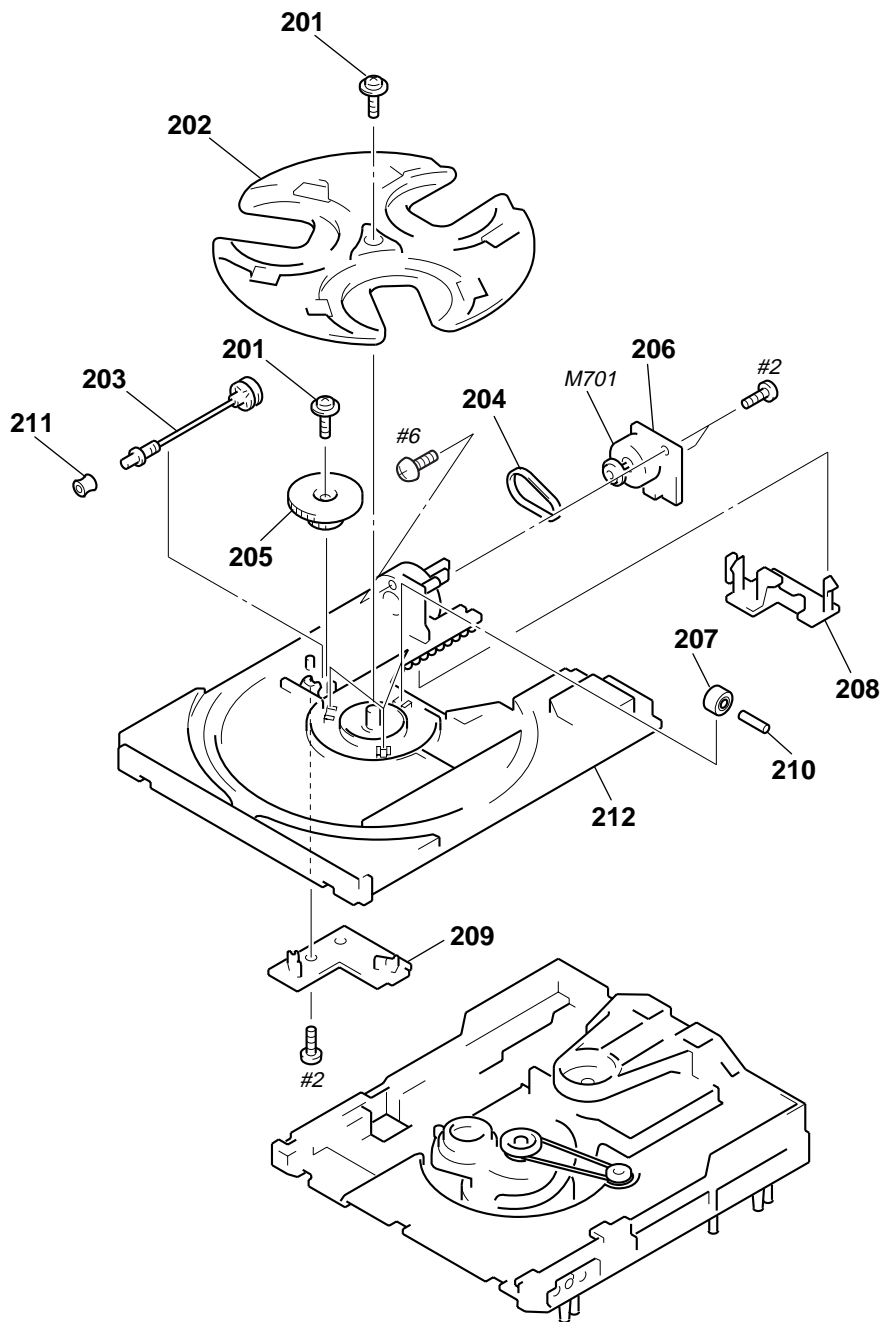
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	4-965-822-01	FOOT		\triangle 60	1-783-941-31	CORD, POWER (AR)	
52	1-673-377-11	SECONDARY BOARD		61	X-4951-203-1	BACK PANEL ASSY (AEP,UK,G,CIS)	
53	A-4405-868-A	MAIN BOARD, COMPLETE (AEP,UK,G,CIS)		61	X-4951-205-1	BACK PANEL ASSY (E,SP,MY,HK,AR)	
53	A-4405-869-A	MAIN BOARD, COMPLETE (SP,MY,HK)		61	X-4951-207-1	BACK PANEL ASSY (US,CND,KR,AUS)	
53	A-4405-871-A	MAIN BOARD, COMPLETE (E,AR)		62	A-4419-327-A	STANDBY BOARD, COMPLETE (AEP,UK,G,CIS)	
53	A-4405-872-A	MAIN BOARD, COMPLETE (AUS)		62	A-4419-328-A	STANDBY BOARD, COMPLETE (E,SP,MY,HK,AR)	
53	A-4405-873-A	MAIN BOARD, COMPLETE (KR)		62	A-4419-329-A	STANDBY BOARD, COMPLETE (US,CND)	
53	A-4405-875-A	MAIN BOARD, COMPLETE (US,CND)		62	A-4419-330-A	STANDBY BOARD, COMPLETE (AUS)	
54	1-773-043-11	WIRE (FLAT TYPE) (17 CORE)		62	A-4419-651-A	STANDBY BOARD, COMPLETE (KR)	
55	1-773-025-11	WIRE (FLAT TYPE) (15 CORE) (330mm)		63	4-216-856-01	DUCT	
56	1-769-976-11	WIRE (FLAT TYPE) (13 CORE) (US,CND,E,AR,KR,AUS)		64	4-951-620-01	SCREW (2.6X8), +BVTP	
56	1-773-008-11	WIRE (FLAT TYPE) (15 CORE) (140mm) (AEP,UK,G,CIS,SP,MY,HK)		65	1-569-972-21	SOCKET, SHORT 2P	
57	1-773-185-11	WIRE (FLAT TYPE) (23 CORE)		66	4-216-857-01	COVER (LIZ)	
* 58	3-703-244-00	BUSHING (2104), CORD (EXCEPT E)		67	1-783-570-11	WIRE (FLAT TYPE)(19 CORE)	
58	3-703-571-11	BUSHING (S) (4516), CORD (E)		68	4-221-078-01	SCREW +BSW 3X20 (S)	
59	1-569-007-11	ADAPTOR, CONVERSION 2P (E)		\triangle T11	1-433-832-11	TRANSFORMER, POWER (E,SP,MY,HK,AR,KR,AUS)	
59	1-569-008-21	ADAPTOR, CONVERSION 2P (SP,MY)		\triangle T11	1-433-833-11	TRANSFORMER, POWER (AEP,UK,G,CIS)	
59	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)		\triangle T11	1-433-835-11	TRANSFORMER, POWER (US,CND)	
\triangle 60	1-696-845-11	CORD, POWER (AUS)		\triangle T951	1-433-790-11	TRANSFORMER, POWER (CND)	
\triangle 60	1-769-079-11	CORD, POWER (KR)		\triangle T951	1-433-791-11	TRANSFORMER, POWER (AEP,UK,G,CIS)	
\triangle 60	1-777-071-41	CORD, POWER (AEP,G,CIS,SP,MY)		\triangle T951	1-433-792-11	TRANSFORMER, POWER (US)	
\triangle 60	1-777-514-11	CORD, POWER (UK)		\triangle T951	1-433-793-11	TRANSFORMER, POWER (KR)	
\triangle 60	1-782-315-21	CORD, POWER (E)		\triangle T951	1-433-794-11	TRANSFORMER, POWER (E,SP,MY,HK,AR,AUS)	
\triangle 60	1-783-820-21	CORD, POWER (US,CND)					

9-3. FRONT PANEL SECTION



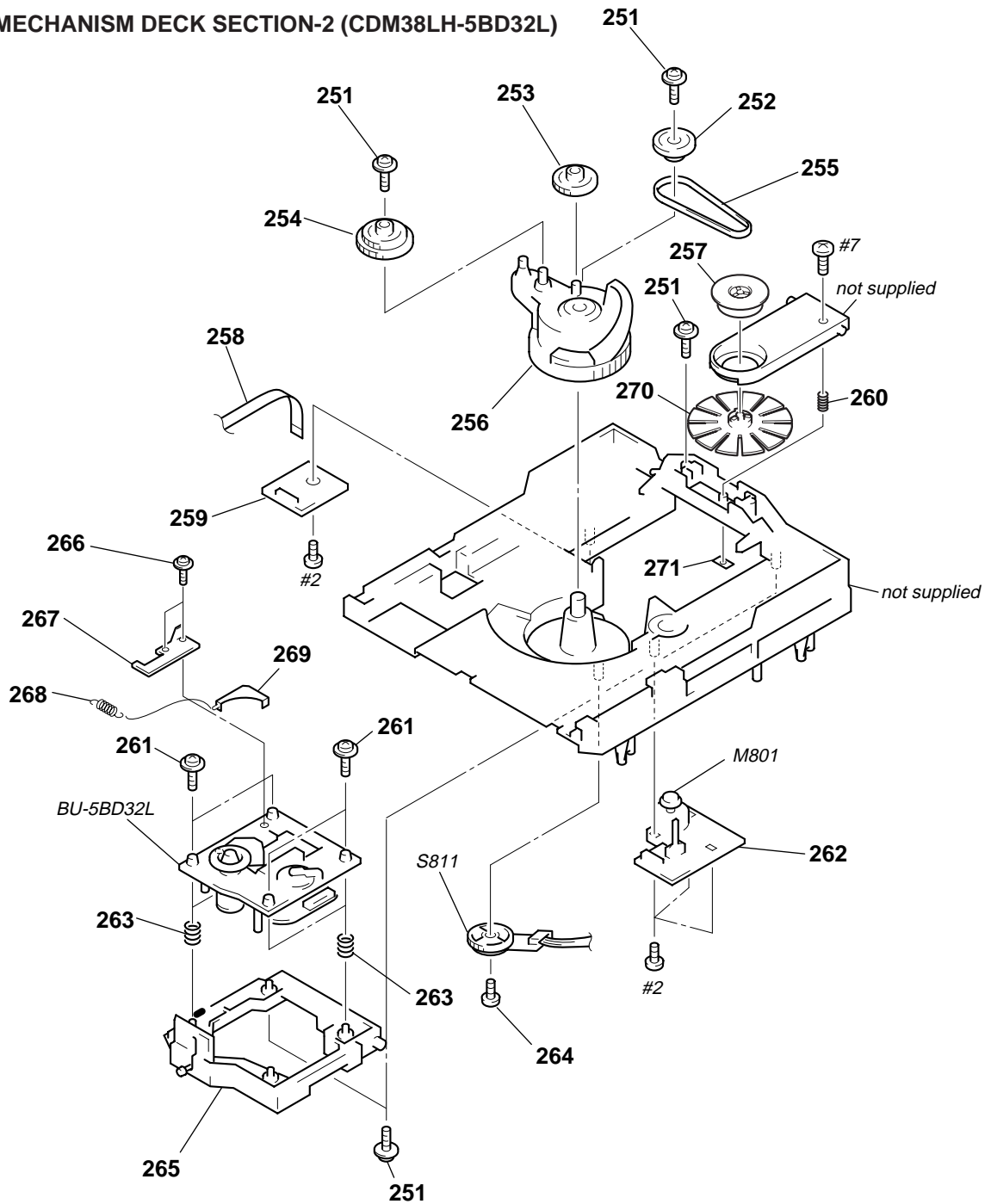
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-4951-200-1	CASSETTE LID (A) ASSY		117	4-951-620-01	SCREW (2.6X8), +BVTP	
102	X-4951-201-1	CASSETTE LID (B) ASSY		118	A-4419-498-A	CD PANEL BOARD, COMPLETE	(EXCEPT AEP,UK,G,CIS)
103	X-4951-198-1	CASSETTE HOLDER (A) ASSY		118	A-4419-325-A	CD PANEL BOARD, COMPLETE (AEP,UK,G,CIS)	
104	X-4951-199-1	CASSETTE HOLDER (B) ASSY		119	A-4419-324-A	DISPLAY BOARD, COMPLETE (AEP,UK,G,CIS)	
105	4-214-775-11	SPRING, PUSH CATCHER RETURN		119	A-4419-497-A	DISPLAY BOARD, COMPLETE	(EXCEPT AEP,UK,G,CIS)
106	4-214-760-11	CATCHER (A), PUSH		* 120	4-214-439-11	HOLDER, FL TUBE	
107	4-214-761-11	CATCHER (B), PUSH		121	4-214-385-81	KNOB (MIC)	
108	4-214-384-11	KNOB (VOL)		122	1-675-345-11	WIRE (FLAT TYPE)(23 CORE)	
109	4-214-383-11	KNOB (JOG)		123	1-673-382-11	MD LINK SW BOARD	
110	4-930-336-61	FOOT (FELT)		124	1-673-381-11	POWER SW BOARD	
111	4-216-415-01	SPRING (L)		125	1-673-837-21	TC STOPPER A BOARD	
112	4-216-416-01	SPRING (R)		126	1-673-838-21	TC STOPPER B BOARD	
113	X-4951-197-1	FRONT PANEL ASSY (AEP,UK,G,CIS)		127	1-673-379-11	JOG BOARD	
113	X-4951-204-1	FRONT PANEL ASSY (EXCEPT AEP,UK,G,CIS)		128	1-673-380-11	VOL BOARD	
114	4-962-708-71	EMBLEM (4-A), SONY		FL601	1-517-841-11	INDICATOR TUBE, FLUORESCENT	
115	4-216-729-41	LID (CARTRIDGE)					
116	4-976-593-11	SPRING (LID), TORSION					

9-4. CD MECHANISM DECK SECTION-1 (CDM38LH-5BD32L)



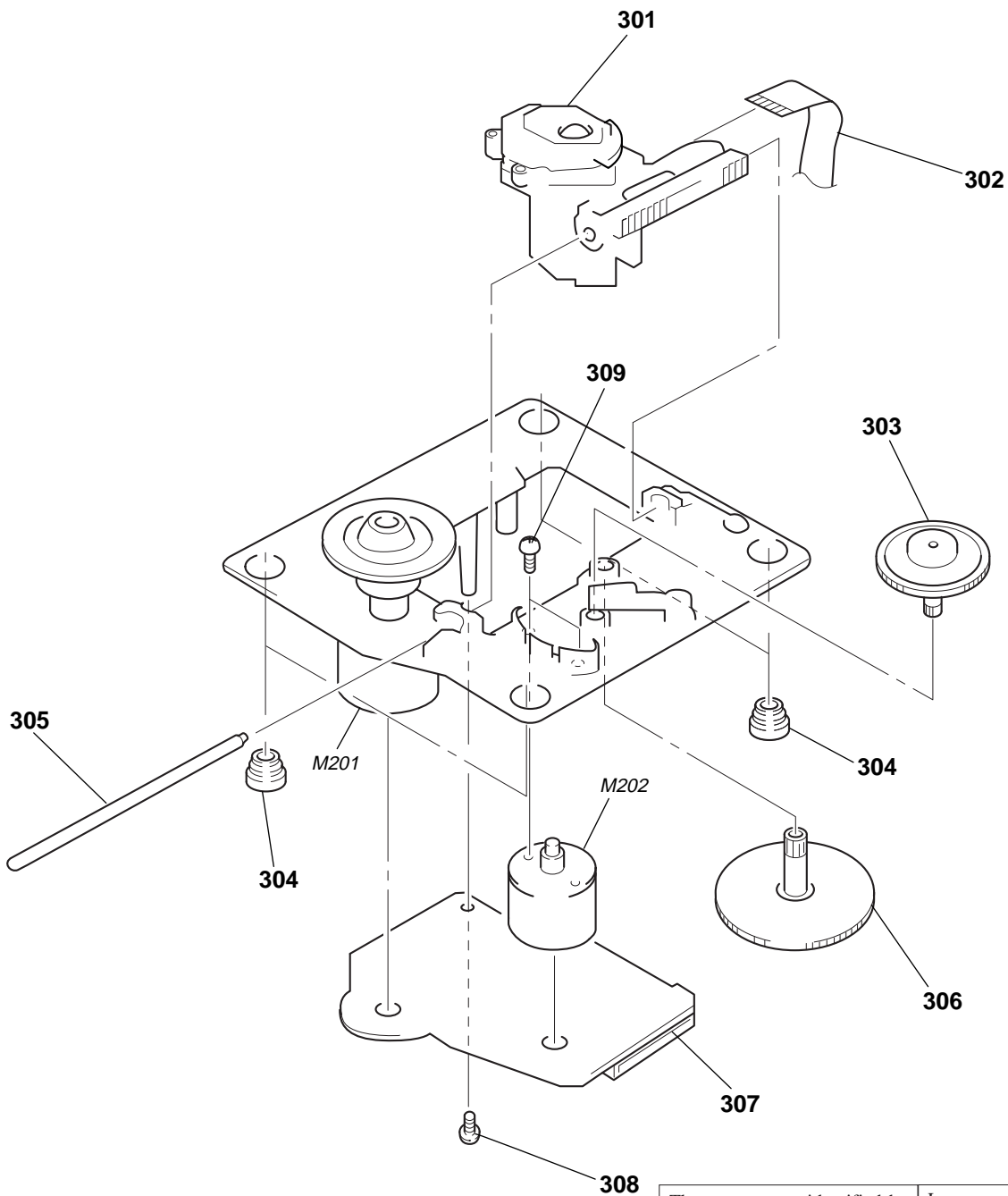
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	4-981-789-01	BRACKET, YOKE		207	4-988-162-01	ROLLER	
202	4-977-945-01	TRAY (TURN)		208	4-977-941-01	BEARING (WORM)	
203	X-4946-665-1	SHAFT ASSY, WORM		* 209	1-658-576-11	SENSOR BOARD	
204	4-977-943-01	BELT (TURN) (1.2)		210	4-934-376-01	SHAFT (ROLLER)	
205	4-977-956-01	WHEEL, WORM		211	4-981-187-01	COLLAR (WORM)	
* 206	1-658-577-11	MOTOR (TURN) BOARD		212	4-977-944-01	TRAY (SLIDE)	
				M701	A-4672-004-A	MOTOR ASSY (TURN)	

9-5. CD MECHANISM DECK SECTION-2 (CDM38LH-5BD32L)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	4-917-583-71	BRACKET, YOKE		263	4-982-447-01	SPRING (BU), COMPRESSION	
252	4-977-954-01	PULLEY (SL)		264	4-951-620-41	SCREW (2.6), +BVTP	
253	4-977-953-01	GEAR (SL-A)		265	X-4949-570-1	HOLDER (BU) ASSY	
254	4-977-955-01	GEAR (SL-B)		266	4-989-494-01	SCREW (SLIDER), STEP	
255	4-977-942-01	BELT (SL) (1.4)		267	4-989-492-11	SLIDER (38)	
256	X-4946-667-1	CAM ASSY, BU		268	4-989-819-02	SPRING, TENSION	
257	1-452-925-21	MAGNET ASSY		269	4-989-491-01	COVER, LENS	
258	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)		270	4-993-142-21	PULLEY (L), PRESS	
* 259	1-658-575-11	CONNECTOR BOARD		* 271	4-900-718-01	BRACKET (ADJUSTMENT)	
260	4-900-743-01	SPRING, COMPRESSION		S811	1-473-335-11	ENCODER, ROTARY	
261	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING		M801	A-4672-004-A	MOTOR ASSY (SLIDE)	
* 262	1-658-578-11	MOTOR (SLIDE) BOARD					

9-6. BASE UNIT SECTION (BU-5BD32L)



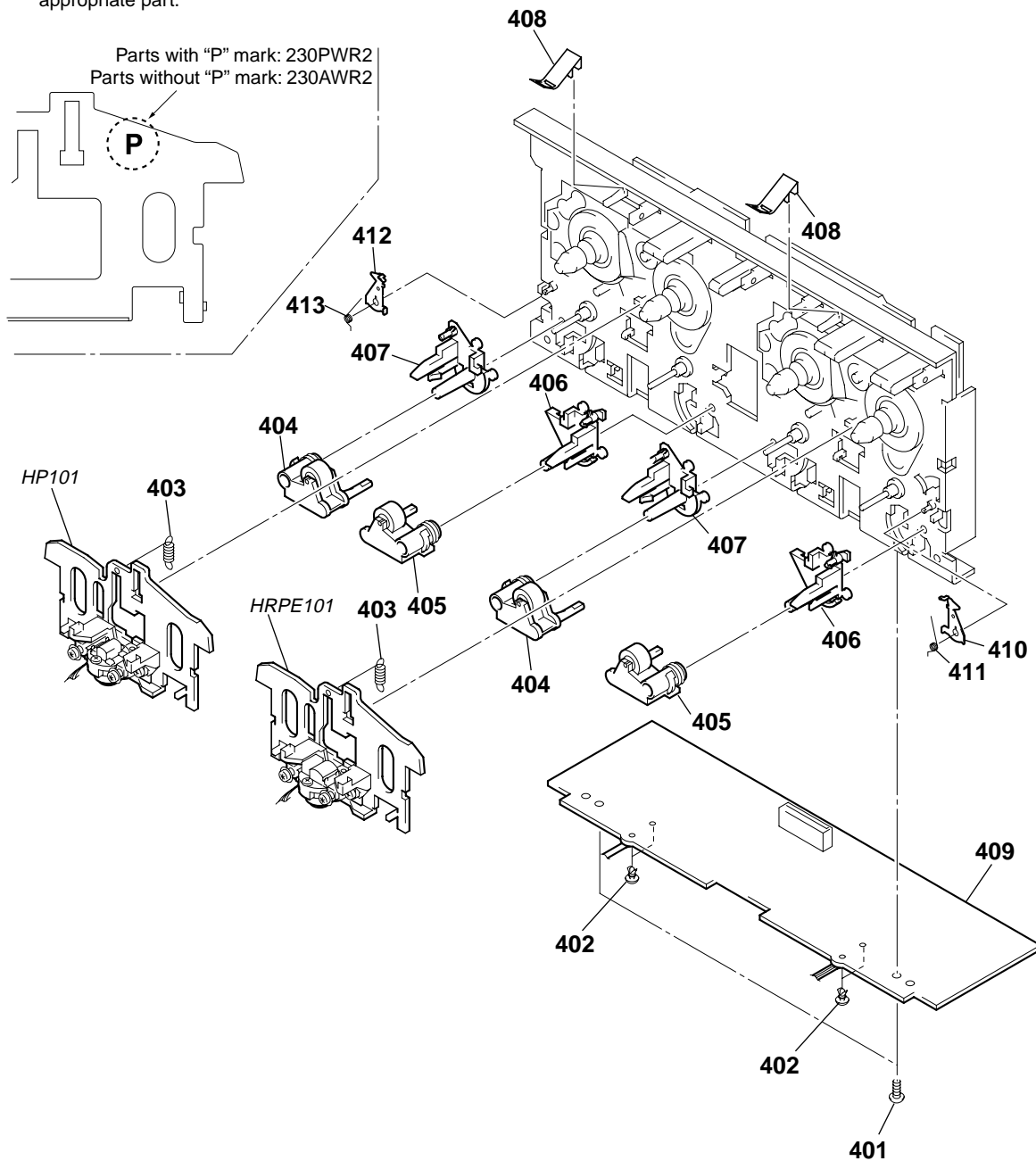
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Δ 301	8-820-020-02	OPTICAL PICK-UP KSS-213D/Q-NP		306	4-917-564-01	GEAR (P), FLATNESS	
302	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)		* 307	A-4724-486-A	BD (CD) BOARD, COMPLETE	
303	4-917-567-01	GEAR (M)		308	4-951-620-01	SCREW (2.6X8), +BVTP	
304	4-951-940-01	INSULATOR (BU)		309	3-713-786-51	SCREW +P 2X3	
305	4-917-565-01	SHAFT, SLED		M201	X-4917-523-3	MOTOR ASSY (SPINDLE)	
				M202	X-4917-504-1	MOTOR ASSY (SLED)	

9-7. TC MECHANISM SECTION-1 (TCM230AWR2/230PWR2)

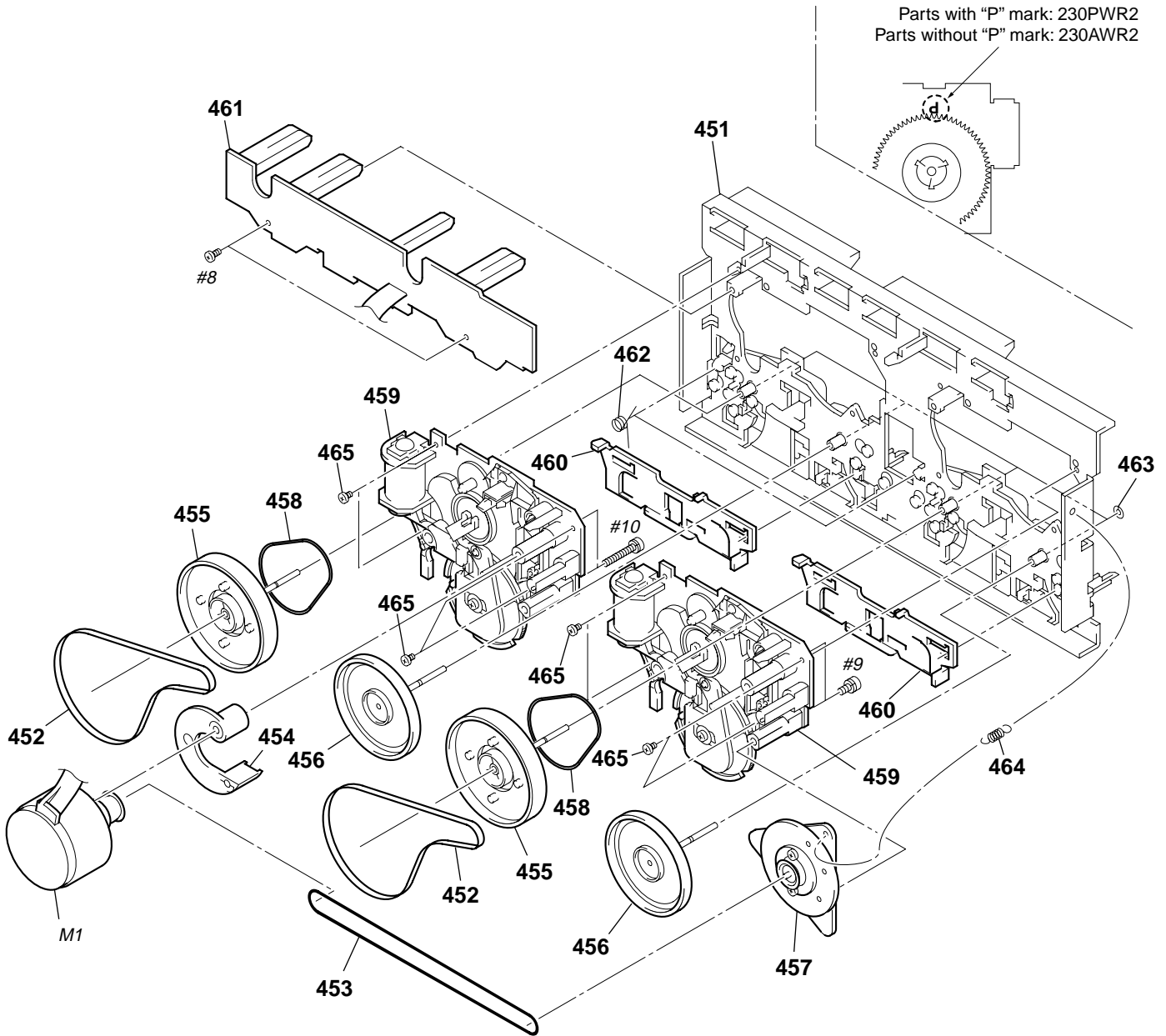
*NOTE: Two types of parts which are not interchangeable are available for the Head deck (A) ASSY and Head deck (B) ASSY. When replacing the parts, refer to the following figure, and use the appropriate part.



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
401	3-376-464-11	SCREW(+PTT 2.6X6),GROUND POINT		410	3-016-573-01	LEVER (EJECT PREVENTION R)	
402	3-911-116-21	RIVET, PUSH		411	3-032-810-02	SPRING (R), TORSION	
403	3-016-574-11	SPRING (HEAD), TENSION		412	3-016-572-01	LEVER (EJECT PREVENTION L)	
404	X-3374-156-4	PINCH LEVER (REV) ASSY		413	3-032-809-02	SPRING (L), TORSION	
405	X-3374-155-4	PINCH LEVER (FWD) ASSY		HP101	A-2056-681-A	DECK (A) ASSY, HEAD (230AWR2)(*NOTE)	
406	3-016-564-01	BASE (PINCH LEVER FWD)		HP101	A-2056-683-B	DECK (A) ASSY, HEAD (230PWR2)(*NOTE)	
407	3-016-565-01	BASE (PINCH LEVER REV)		HRPE101 A-2056-682-A	DECK (B) ASSY, HEAD (230AWR2)(*NOTE)		
408	3-026-892-01	SPRING (CASSETTE), LEAF		HRPE101 A-2056-684-B	DECK (B) ASSY, HEAD (230PWR2)(*NOTE)		
* 409	A-2007-731-A	AUDIO BOARD, COMPLETE					

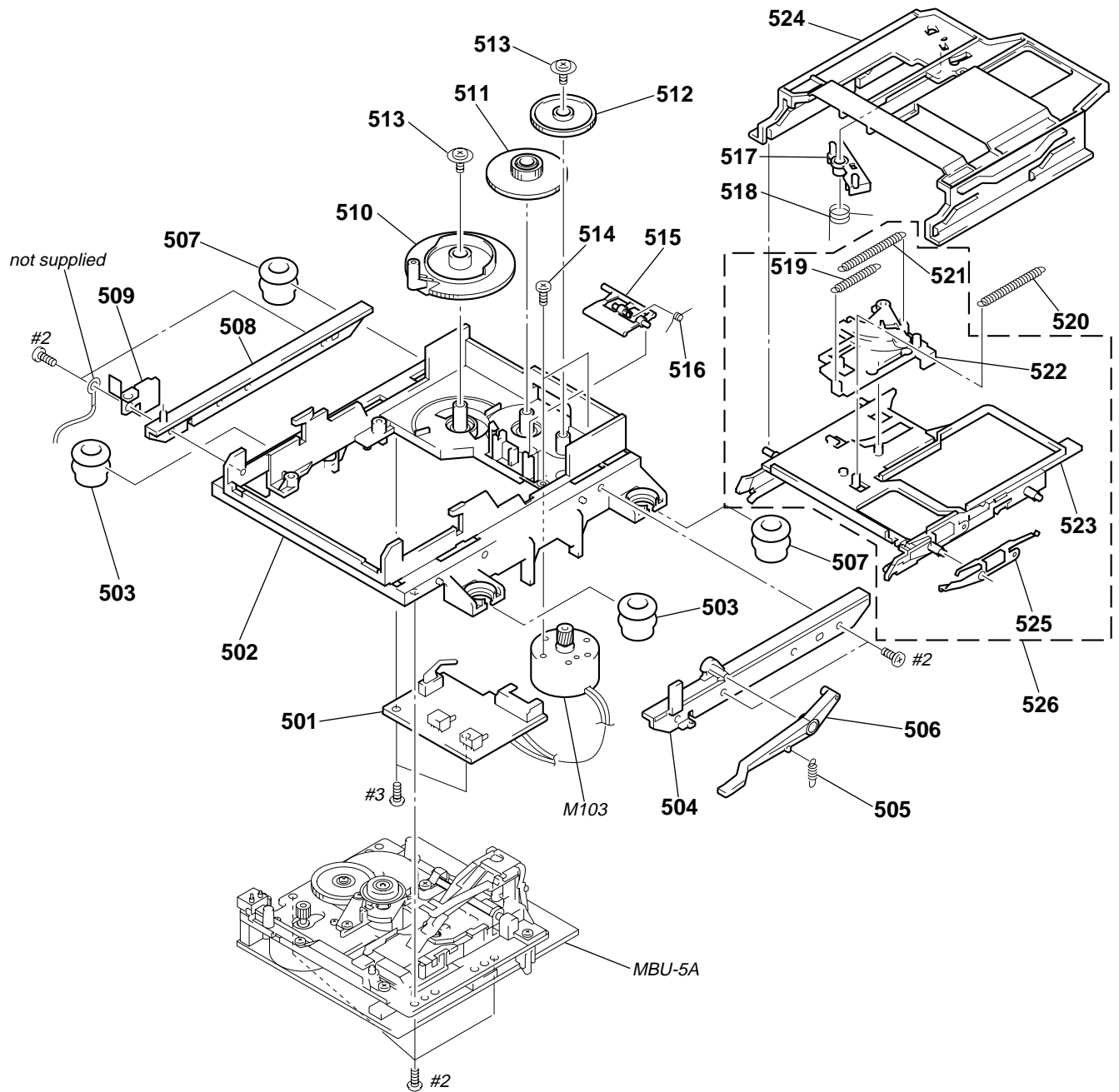
9-8. TC MECHANISM SECTION-2 (TCM230AWR2/230PWR2)

*NOTE: Two types of parts which are not interchangeable are available for the mechanical block assembly. When replacing the parts, refer to the following figure, and use the appropriate part.



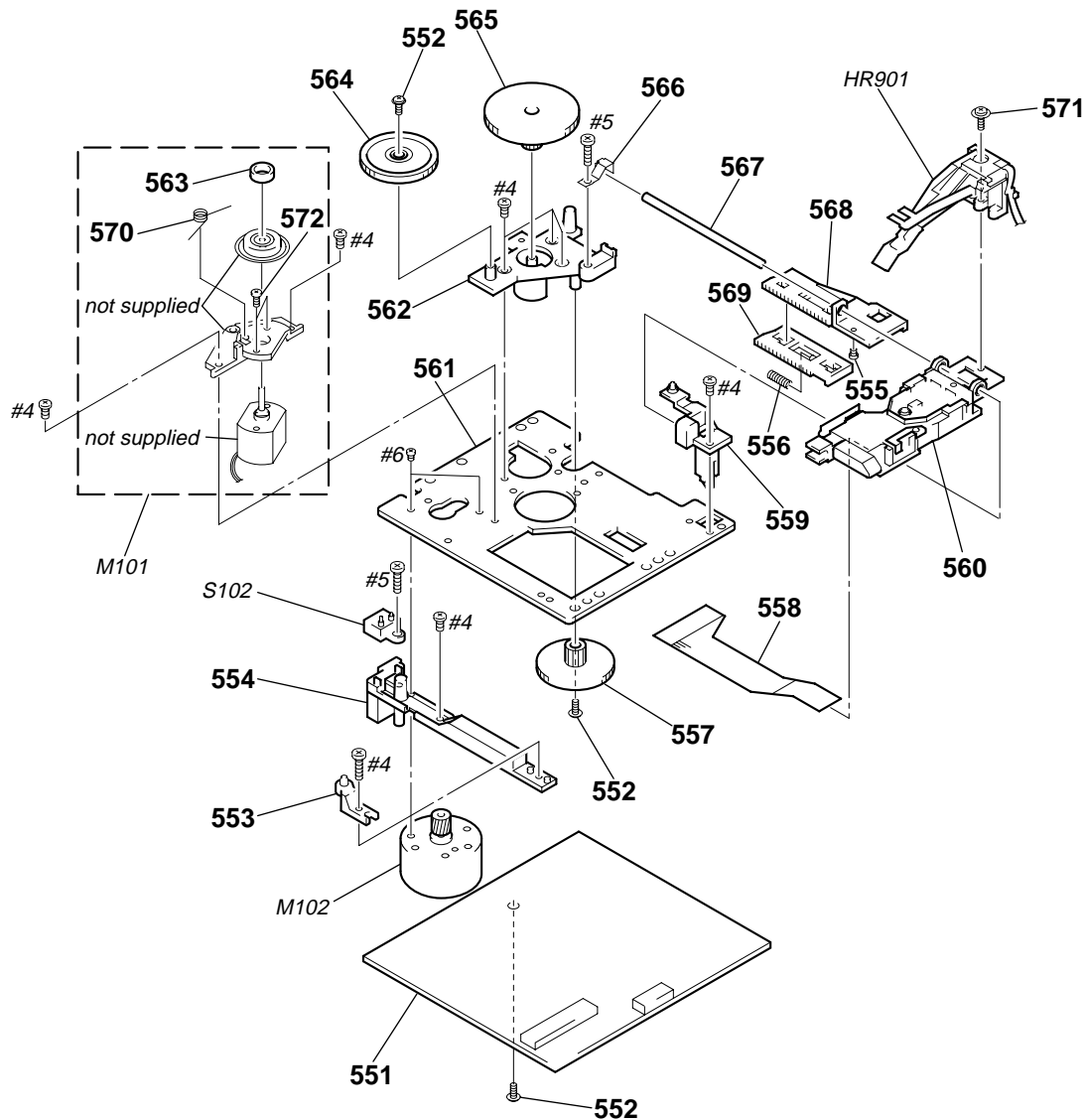
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 451	X-3374-214-3	CHASSIS ASSY, MAIN		459	A-2004-629-B	MECHANICAL BLOCK ASSY (230PWR2)(*NOTE)	
452	3-016-570-01	BELT (CAPSTAN)		460	3-016-566-01	SLIDER, REVERSE	
453	3-016-569-01	BELT (TENSION)		* 461	A-2007-732-A	LEAF SW BOARD, COMPLETE	
454	3-017-360-01	BRACKET (MOTOR)		462	3-016-575-11	SPRING, TORSION	
455	X-3376-497-1	FLYWHEEL (FWD) ASSY		463	3-019-208-01	WASHER, STOPPER	
456	X-3374-235-1	FLYWHEEL (REV) ASSY		464	3-027-453-01	SPRING (GROUND), TENSION	
457	X-3374-238-1	PULLEY ASSY, TENSION		465	3-030-823-01	SCREW (+BVTT) (2X3.5)	
458	3-024-405-01	BELT (FR2)		M1	A-2004-628-A	MOTOR ASSY, CAPSTAN	
459	A-2004-629-A	MECHANICAL BLOCK ASSY (230AWR2)(*NOTE)					

9-9. MD MECHANISM SECTION-1 (MDM-5A)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 501	1-671-115-21	SW BOARD		515	4-996-227-01	LEVER (HEAD)	
* 502	4-996-217-01	CHASSIS		516	4-996-229-01	SPRING (HEAD LEVER), TORSION	
503	4-996-223-11	INSULATOR (F)		517	4-996-212-01	LEVER (LIMITTER)	
* 504	4-996-218-01	BRACKET (GUIDE R)		518	4-996-213-01	SPRING (LIMITTER), TORSION	
505	4-996-277-01	SPRING (O/C), TENSION		519	4-996-214-01	SPRING (SLIDER), TENSION	
506	4-996-226-01	LEVER (O/C)		520	4-966-216-01	SPRING (HOLDER), TENSION	
507	4-999-347-01	INSULATOR (R)		521	4-996-215-11	SPRING (LOCK LEVER), TENSION	
* 508	4-996-225-01	BRACKET (GUIDE L)		522	X-4949-246-1	SLIDER ASSY	
509	4-988-466-11	SPRING (ELECTROSTATIC), LEAF		523	X-4949-245-1	HOLDER ASSY	
510	4-996-219-01	GEAR (CAM GEAR)		* 524	4-996-211-11	SLIDER (CAM)	
511	4-996-220-01	GEAR (A)		525	4-998-763-01	SPRING (SHUTTER), LEAF	
512	4-996-221-01	GEAR (B)		526	A-4680-409-A	HOLDER	
513	4-933-134-01	SCREW (+PTPWH M2.6X6)		M103	X-4949-264-1	MOTOR ASSY, LOADING	
514	4-996-224-01	SCREW (1.7X3), +PWH					

9-10. MD MECHANISM SECTION-2 (MDM-5A)



The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
551	A-4699-893-A	BD (MD) BOARD, COMPLETE		564	4-996-260-01	GEAR (SL-A)	
552	3-372-761-01	SCREW (M1.7), TAPPING		565	4-996-261-01	GEAR (SL-B)	
* 553	4-996-267-01	BASE (BU-D)		566	4-996-264-01	SPRING (SHAFT), LEAF	
* 554	4-996-255-01	BASE (BU-C)		567	4-996-265-01	SHAFT, MAIN	
555	4-900-590-01	SCREW, PRECISION SMALL		568	4-996-256-11	SL (BASE)	
556	4-996-258-01	SPRING, COMPRESSION		569	4-996-257-01	RACK (SL)	
557	4-996-262-01	GEAR (SL-C)		570	4-996-263-01	SPRING (CLV), TORSION	
* 558	1-667-954-11	FLEXIBLE BOARD		571	4-988-560-01	SCREW (+P 1.7X6)	
* 559	4-210-664-11	BASE (BU-A)		572	4-211-036-01	SCREW (1.7X2.5), +PWH	
▲ 560	8-583-028-01	OPTICAL PICK-UP KMS-260A/K1NP		HR901	1-500-502-11	HEAD, OVER WRITE	
* 561	4-996-252-01	CHASSIS, BU		M101	A-4672-475-A	MOTOR ASSY, SPINDLE	
* 562	4-996-254-01	BASE (BU-B)		M102	A-4672-474-A	MOTOR ASSY, SLED	
563	4-967-688-11	MAGNET, ABSORPTION		S102	1-762-148-21	SWITCH, PUSH (2 KEY)	

SECTION 10 ELECTRICAL PARTS LIST

AUDIO

Note:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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 PA..., uPB...: μ PB...,
uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
uF : μ F
• COILS
uH : μ H
• Abbreviation
CND : Canadian model
G : German model
HK : Hong Kong model
SP : Singapore model
MY : Malaysia model
AUS : Australian model
AR : Argentine model
KR : Korean model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-2007-731-A	AUDIO BOARD, COMPLETE *****				< IC >	
		< CAPACITOR >		IC601	8-759-111-44	IC UPC4570C-1	
				IC602	8-759-143-54	IC UPC1330HA	
				IC611	8-759-111-44	IC UPC4570C-1	
						< COIL >	
C301	1-162-289-31	CERAMIC	390PF 10% 50V	L331	1-410-780-11	INDUCTOR	27mH
C302	1-126-968-11	ELECT	100uF 20% 6.3V	L431	1-410-780-11	INDUCTOR	27mH
C303	1-162-282-31	CERAMIC	100PF 10% 50V	L601	1-414-193-41	INDUCTOR	220uH
C304	1-130-483-00	MYLAR	0.01uF 5% 50V	L602	1-414-193-41	INDUCTOR	220uH
C305	1-107-715-11	ELECT	22uF 20% 16V			< TRANSISTOR >	
C311	1-162-289-31	CERAMIC	390PF 10% 50V	Q621	8-729-142-46	TRANSISTOR	2SC2001-LK
C313	1-162-282-31	CERAMIC	100PF 10% 50V	Q622	8-729-142-46	TRANSISTOR	2SC2001-LK
C314	1-130-487-00	MYLAR	0.022uF 5% 50V	Q623	8-729-801-93	TRANSISTOR	2SD1387
C315	1-126-233-11	ELECT	22uF 20% 50V			< RESISTOR >	
C331	1-137-427-11	FILM	120PF 5% 50V	R301	1-247-881-00	CARBON	120K 5% 1/4W
C332	1-162-288-31	CERAMIC	330PF 10% 50V	R302	1-249-409-11	CARBON	220 5% 1/4W F
C333	1-162-209-31	CERAMIC	27PF 5% 50V	R303	1-249-433-11	CARBON	22K 5% 1/4W
C401	1-162-289-31	CERAMIC	390PF 10% 50V	R304	1-247-889-00	CARBON	270K 5% 1/4W
C402	1-126-968-11	ELECT	100uF 20% 6.3V	R305	1-247-858-11	CARBON	13K 5% 1/4W
C403	1-162-282-31	CERAMIC	100PF 10% 50V	R311	1-247-881-00	CARBON	120K 5% 1/4W
C404	1-130-483-00	MYLAR	0.01uF 5% 50V	R312	1-247-807-31	CARBON	100 5% 1/4W
C405	1-107-715-11	ELECT	22uF 20% 16V	R314	1-247-882-11	CARBON	130K 5% 1/4W
C411	1-162-289-31	CERAMIC	390PF 10% 50V	R315	1-247-850-11	CARBON	6.2K 5% 1/4W
C413	1-162-282-31	CERAMIC	100PF 10% 50V	R331	1-249-430-11	CARBON	12K 5% 1/4W
C414	1-130-487-00	MYLAR	0.022uF 5% 50V	R401	1-247-881-00	CARBON	120K 5% 1/4W
C415	1-126-233-11	ELECT	22uF 20% 50V	R402	1-249-409-11	CARBON	220 5% 1/4W F
C431	1-137-427-11	FILM	120PF 5% 50V	R403	1-249-433-11	CARBON	22K 5% 1/4W
C432	1-162-288-31	CERAMIC	330PF 10% 50V	R404	1-247-889-00	CARBON	270K 5% 1/4W
C433	1-162-209-31	CERAMIC	27PF 5% 50V	R405	1-247-858-11	CARBON	13K 5% 1/4W
C601	1-104-396-11	ELECT	10uF 20% 16V	R411	1-247-881-00	CARBON	120K 5% 1/4W
C602	1-104-396-11	ELECT	10uF 20% 16V	R412	1-247-807-31	CARBON	100 5% 1/4W
C611	1-104-396-11	ELECT	10uF 20% 16V	R414	1-247-882-11	CARBON	130K 5% 1/4W
C612	1-104-396-11	ELECT	10uF 20% 16V	R415	1-247-850-11	CARBON	6.2K 5% 1/4W
C621	1-137-150-11	FILM	0.01uF 5% 100V	R431	1-249-430-11	CARBON	12K 5% 1/4W
C622	1-126-961-11	ELECT	2.2uF 20% 50V	R601	1-249-409-11	CARBON	220 5% 1/4W F
C623	1-136-155-00	FILM	0.015uF 5% 50V	R602	1-249-409-11	CARBON	220 5% 1/4W F
C624	1-130-481-00	MYLAR	0.0068uF 5% 50V	R608	1-249-409-11	CARBON	220 5% 1/4W F
C625	1-130-481-00	MYLAR	0.0068uF 5% 50V	R609	1-249-433-11	CARBON	22K 5% 1/4W
C627	1-124-903-11	ELECT	1uF 20% 50V	R611	1-249-409-11	CARBON	220 5% 1/4W F
C628	1-136-153-00	FILM	0.01uF 5% 50V			< CONNECTOR >	
C642	1-104-664-11	ELECT	47uF 20% 16V	R612	1-249-409-11	CARBON	220 5% 1/4W F
CN601	1-695-338-11	PIN, CONNECTOR (PC BOARD) 15P		Δ R621	1-212-851-00	FUSIBLE	5.6 5% 1/4W F

AUDIO

BD (CD)

Ref. No.	Part No.	Description	Remark
△ R622	1-212-851-00	FUSIBLE 5.6 5%	1/4W F
R623	1-249-432-11	CARBON 18K 5%	1/4W
R624	1-249-432-11	CARBON 18K 5%	1/4W
R625	1-249-429-11	CARBON 10K 5%	1/4W
< VARIABLE RESISTOR >			
RV301	1-238-598-11	RES, ADJ, CARBON 2.2K	
RV311	1-238-598-11	RES, ADJ, CARBON 2.2K	
RV341	1-241-768-11	RES, ADJ, CARBON 220K	
RV401	1-238-598-11	RES, ADJ, CARBON 2.2K	
RV411	1-238-598-11	RES, ADJ, CARBON 2.2K	
RV441	1-241-768-11	RES, ADJ, CARBON 220K	
< TRANSFORMER >			
T621	1-423-980-11	TRANSFORMER, BIAS OSCILLATION	

* A-4724-486-A	BD (CD) BOARD, COMPLETE *****		
< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP 470PF 10%	50V
C102	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C103	1-163-005-11	CERAMIC CHIP 470PF 10%	50V
C104	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C108	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C109	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
C110	1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V
C111	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C112	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C113	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C114	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C115	1-126-607-11	ELECT CHIP 47uF 20%	4V
C116	1-126-607-11	ELECT CHIP 47uF 20%	4V
C117	1-126-209-11	ELECT CHIP 100uF 20%	4V
C118	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C119	1-163-235-11	CERAMIC CHIP 22PF 5%	50V
C121	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C122	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C123	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C124	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C125	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C126	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C127	1-128-065-11	ELECT CHIP 68uF 20%	10V
C128	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C129	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C130	1-164-346-11	CERAMIC CHIP 1uF	16V
C131	1-124-779-00	ELECT CHIP 10uF 20%	16V
C133	1-164-346-11	CERAMIC CHIP 1uF	16V
C140	1-164-346-11	CERAMIC CHIP 1uF	16V
C141	1-164-346-11	CERAMIC CHIP 1uF	16V
C143	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C151	1-163-235-11	CERAMIC CHIP 22PF 5%	50V
C153	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C154	1-110-501-11	CERAMIC CHIP 0.33uF 10%	16V
C156	1-163-235-11	CERAMIC CHIP 22PF 5%	50V

Ref. No.	Part No.	Description	Remark
C157	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C159	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C161	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C162	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C163	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C165	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C167	1-163-235-11	CERAMIC CHIP 22PF 5%	50V
C168	1-163-235-11	CERAMIC CHIP 22PF 5%	50V
C171	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C172	1-163-123-00	CERAMIC CHIP 180PF 5%	50V
C181	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C182	1-163-123-00	CERAMIC CHIP 180PF 5%	50V
< CONNECTOR >			
CN101	1-778-874-11	CONNECTOR,FFC(LIF(NON-ZIF))19P	
CN102	1-777-937-11	CONNECTOR, FFC/FPC 16P	

< FERRITE BEAD >			
FB101	1-500-445-21	FERRITE OUH	
FB103	1-500-445-21	FERRITE OUH	
< IC >			
IC101	8-752-386-85	IC CXD2587Q	
IC102	8-759-549-28	IC BA5974FP-E	
IC103	8-752-085-51	IC CXA2568M-T	
< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R	
< RESISTOR >			
R101	1-216-077-00	METAL CHIP 15K 5%	1/10W
R102	1-216-097-91	RES,CHIP 100K 5%	1/10W
R103	1-216-077-00	METAL CHIP 15K 5%	1/10W
R104	1-216-085-00	METAL CHIP 33K 5%	1/10W
R105	1-216-073-00	METAL CHIP 10K 5%	1/10W
R106	1-216-049-91	RES,CHIP 1K 5%	1/10W
R107	1-216-073-00	METAL CHIP 10K 5%	1/10W
R108	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R109	1-216-121-91	RES,CHIP 1M 5%	1/10W
R110	1-216-025-91	RES,CHIP 100 5%	1/10W
R111	1-216-121-91	RES,CHIP 1M 5%	1/10W
R113	1-216-121-91	RES,CHIP 1M 5%	1/10W
R114	1-216-073-00	METAL CHIP 10K 5%	1/10W
R116	1-216-001-00	METAL CHIP 10 5%	1/10W
R117	1-216-049-91	RES,CHIP 1K 5%	1/10W
R119	1-216-041-00	METAL CHIP 470 5%	1/10W
R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
R124	1-216-097-91	RES,CHIP 100K 5%	1/10W
R131	1-216-033-00	METAL CHIP 220 5%	1/10W
R143	1-216-103-00	METAL CHIP 180K 5%	1/10W
R144	1-216-103-00	METAL CHIP 180K 5%	1/10W
R147	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R148	1-216-001-00	METAL CHIP 10 5%	1/10W
R149	1-216-001-00	METAL CHIP 10 5%	1/10W
R158	1-216-111-00	METAL CHIP 390K 5%	1/10W
R159	1-216-101-00	METAL CHIP 150K 5%	1/10W

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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BD (CD)

BD (MD)

Ref. No.	Part No.	Description	Remark
R161	1-216-308-00	METAL CHIP 4.7 5%	1/10W
R162	1-216-101-00	METAL CHIP 150K 5%	1/10W
R171	1-216-078-00	RES,CHIP 16K 5%	1/10W
R172	1-216-073-00	METAL CHIP 10K 5%	1/10W
R173	1-216-077-00	METAL CHIP 15K 5%	1/10W
R181	1-216-078-00	RES,CHIP 16K 5%	1/10W
R182	1-216-073-00	METAL CHIP 10K 5%	1/10W
R183	1-216-077-00	METAL CHIP 15K 5%	1/10W
< NETWORK >			
RN101	1-233-576-11	RES, CHIP NETWORK 100	
RN102	1-233-576-11	RES, CHIP NETWORK 100	
< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN SW)	
< VIBRATOR >			
X101	1-767-408-21	VIBRATOR, CRYSTAL (16.9344MHz)	

A-4699-893-A BD (MD) BOARD, COMPLETE			

< CAPACITOR >			
C101	1-125-822-11	TANTALUM 10uF 20%	10V
C102	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C103	1-125-822-11	TANTALUM 10uF 20%	10V
C104	1-125-822-11	TANTALUM 10uF 20%	10V
C105	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C106	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V
C107	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C108	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C109	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C111	1-164-344-11	CERAMIC CHIP 0.068uF	10% 25V
C112	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C113	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C115	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V
C116	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C117	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C118	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C119	1-125-822-11	TANTALUM 10uF 20%	10V
C121	1-125-822-11	TANTALUM 10uF 20%	10V
C122	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C123	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C124	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C127	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C128	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C129	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V
C130	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C131	1-163-023-00	CERAMIC CHIP 0.015uF 5%	50V
C132	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V
C133	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C134	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C135	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C136	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C142	1-163-251-11	CERAMIC CHIP 100PF	5% 50V

Ref. No.	Part No.	Description	Remark
C143	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C144	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C146	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C151	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C152	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C153	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C156	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C158	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C160	1-104-601-11	ELECT CHIP 10uF 20%	10V
C161	1-104-601-11	ELECT CHIP 10uF 20%	10V
C163	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C164	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C167	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C168	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C169	1-125-822-11	TANTALUM 10uF 20%	10V
C171	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C181	1-104-913-11	TANTAL. CHIP 10uF 20%	16V
C183	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C184	1-117-970-11	ELECT CHIP 22uF 20%	10V
C185	1-164-611-11	CERAMIC CHIP 0.001uF	10% 500V
C187	1-104-913-11	TANTAL. CHIP 10uF 20%	16V
C188	1-163-021-91	CERAMIC CHIP 0.01uF	10% 50V
C189	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C190	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C191	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C196	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C197	1-163-038-91	CERAMIC CHIP 0.1uF	25V
< CONNECTOR >			
CN101	1-569-479-21	CONNECTOR, FPC 21P	
CN102	1-784-833-21	CONNECTOR,FFC(LIF(NON-ZIF))21P	
CN103	1-784-834-21	CONNECTOR,FFC(LIF(NON-ZIF))23P	
CN104	1-770-687-11	CONNECTOR, FFC/FPC 4P	
CN110	1-695-440-21	PIN, CONNECTOR (PC BOARD) 6P	
< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17	
D181	8-719-046-86	DIODE F1J6TP	
D183	8-719-046-86	DIODE F1J6TP	
< IC >			
IC101	8-752-080-95	IC CXA2523AR	
IC103	8-729-903-10	IC TRANSISTOR FMW1	
IC121	8-752-389-44	IC CXD2654R	
IC123	8-759-096-87	IC TC7WU04FU(TE12R)	
IC124	8-759-498-44	IC MSM51V4400-70TS-K	
IC152	8-759-430-25	IC BH6511FS-E2	
IC171	8-759-487-04	IC BR24C02F-E2	
IC181	8-759-481-17	IC MC74ACT08DTR2	
IC192	8-759-460-72	IC BA033FP-E2	
< COIL >			
L101	1-414-813-11	FERRITE 0uH	
L102	1-414-813-11	FERRITE 0uH	
L103	1-414-813-11	FERRITE 0uH	
L105	1-414-813-11	FERRITE 0uH	
L106	1-414-813-11	FERRITE 0uH	

BD (MD)

CD PANEL

Ref. No.	Part No.	Description	Remark
L121	1-414-813-11	FERRITE 0uH	
L122	1-414-813-11	FERRITE 0uH	
L151	1-412-029-11	INDUCTOR CHIP 10uH	
L152	1-412-029-11	INDUCTOR CHIP 10uH	
L153	1-412-032-11	INDUCTOR CHIP 100uH	
L154	1-412-032-11	INDUCTOR CHIP 100uH	
L161	1-414-813-11	FERRITE 0uH	
L162	1-414-813-11	FERRITE 0uH	
L181	1-216-295-91	SHORT 0	
< TRANSISTOR >			
Q101	8-729-403-35	TRANSISTOR UN5113	
Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
Q103	8-729-402-93	TRANSISTOR UN5214	
Q104	8-729-402-93	TRANSISTOR UN5214	
Q162	8-729-101-07	TRANSISTOR 2SB798-DL	
Q163	8-729-403-35	TRANSISTOR UN5113	
Q181	8-729-018-75	TRANSISTOR 2SJ278MY	
Q182	8-729-017-65	TRANSISTOR 2SK1764KY	
< RESISTOR >			
R103	1-216-049-91	RES,CHIP 1K 5%	1/10W
R104	1-216-073-00	METAL CHIP 10K 5%	1/10W
R105	1-216-065-91	RES,CHIP 4.7K 5%	1/10W
R106	1-216-133-00	METAL CHIP 3.3M 5%	1/10W
R107	1-216-113-00	METAL CHIP 470K 5%	1/10W
R109	1-216-295-91	SHORT 0	
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W
R111	1-216-295-91	SHORT 0	
R112	1-216-089-91	RES,CHIP 47K 5%	1/10W
R113	1-216-049-91	RES,CHIP 1K 5%	1/10W
R115	1-216-049-91	RES,CHIP 1K 5%	1/10W
R117	1-216-113-00	METAL CHIP 470K 5%	1/10W
R120	1-216-025-91	RES,CHIP 100 5%	1/10W
R121	1-216-097-91	RES,CHIP 100K 5%	1/10W
R123	1-216-295-91	SHORT 0	
R124	1-216-025-91	RES,CHIP 100 5%	1/10W
R125	1-216-025-91	RES,CHIP 100 5%	1/10W
R127	1-216-025-91	RES,CHIP 100 5%	1/10W
R129	1-216-295-91	SHORT 0	
R131	1-216-073-00	METAL CHIP 10K 5%	1/10W
R132	1-216-097-91	RES,CHIP 100K 5%	1/10W
R133	1-216-117-00	METAL CHIP 680K 5%	1/10W
R134	1-216-049-91	RES,CHIP 1K 5%	1/10W
R135	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R136	1-216-049-91	RES,CHIP 1K 5%	1/10W
R137	1-216-295-91	SHORT 0	
R140	1-216-029-00	METAL CHIP 150 5%	1/10W
R142	1-216-073-00	METAL CHIP 10K 5%	1/10W
R143	1-216-073-00	METAL CHIP 10K 5%	1/10W
R144	1-216-025-91	RES,CHIP 100 5%	1/10W
R145	1-216-073-00	METAL CHIP 10K 5%	1/10W
R146	1-216-037-00	METAL CHIP 330 5%	1/10W
R147	1-216-025-91	RES,CHIP 100 5%	1/10W
R148	1-216-045-00	METAL CHIP 680 5%	1/10W
R149	1-216-073-00	METAL CHIP 10K 5%	1/10W
R150	1-216-295-91	SHORT 0	

Ref. No.	Part No.	Description	Remark
R151	1-216-073-00	METAL CHIP 10K 5%	1/10W
R152	1-216-073-00	METAL CHIP 10K 5%	1/10W
R158	1-216-097-91	RES,CHIP 100K 5%	1/10W
R159	1-216-097-91	RES,CHIP 100K 5%	1/10W
R160	1-216-295-91	SHORT 0	
R161	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R162	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R163	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R164	1-216-045-00	METAL CHIP 680 5%	1/10W
R165	1-216-097-91	RES,CHIP 100K 5%	1/10W
R166	1-220-149-11	REGISTER 2.2 10%	1/2W
R167	1-216-065-91	RES,CHIP 4.7K 5%	1/10W
R169	1-219-724-11	METAL CHIP 1 1%	1/4W
R170	1-216-073-00	METAL CHIP 10K 5%	1/10W
R171	1-216-073-00	METAL CHIP 10K 5%	1/10W
R173	1-216-121-91	RES,CHIP 1M 5%	1/10W
R175	1-216-065-91	RES,CHIP 4.7K 5%	1/10W
R177	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R179	1-216-085-00	METAL CHIP 33K 5%	1/10W
R180	1-216-073-00	METAL CHIP 10K 5%	1/10W
R182	1-216-089-91	RES,CHIP 47K 5%	1/10W
R183	1-216-089-91	RES,CHIP 47K 5%	1/10W
R184	1-216-073-00	METAL CHIP 10K 5%	1/10W
R185	1-216-081-00	METAL CHIP 22K 5%	1/10W
R186	1-216-089-91	RES,CHIP 47K 5%	1/10W
R188	1-216-073-00	METAL CHIP 10K 5%	1/10W
R189	1-216-073-00	METAL CHIP 10K 5%	1/10W
R190	1-216-073-00	METAL CHIP 10K 5%	1/10W
R195	1-216-073-00	METAL CHIP 10K 5%	1/10W
R196	1-216-295-91	SHORT 0	
R197	1-216-295-91	SHORT 0	
< SWITCH >			
S101	1-762-596-21	SWITCH, PUSH (1 KEY)(LIMIT IN)	

A-4419-325-A	CD PANEL BOARD, COMPLETE (AEP,UK,G,CIS) *****		
A-4419-498-A	CD PANEL BOARD, COMPLETE ***** (EXCEPT AEP,UK,G,CIS) (CD PANEL BOARD is supplied with MD LINK SW and POWER SW board.)		
< DIODE >			
D752	8-719-063-93	DIODE SLR325VC-N-T32 ((MD) REC)	
D754	8-719-056-13	DIODE SML79423C-TP15 (DISC 1 IN/PLAY)	
D755	8-719-056-13	DIODE SML79423C-TP15 (DISC 2 IN/PLAY)	
D756	8-719-056-13	DIODE SML79423C-TP15 (DISC 3 IN/PLAY)	
< SWITCH >			
S751	1-762-875-21	SWITCH, KEYBOARD (I/⏻)	
S752	1-762-875-21	SWITCH, KEYBOARD (POWER SAVE/DEMO (STANDBY))	
S753	1-762-875-21	SWITCH, KEYBOARD ((MD) REC)	
S754	1-762-875-21	SWITCH, KEYBOARD (REC IT)	
S755	1-762-875-21	SWITCH, KEYBOARD (CD-MD SYNC)	

CD PANEL

CONNECTOR

DISPLAY

Ref. No.	Part No.	Description	Remark
S756	1-762-875-21	SWITCH, KEYBOARD (DISC SKIP/EXCHANGE)	
S757	1-762-875-21	SWITCH, KEYBOARD (DISC 1)	
S758	1-762-875-21	SWITCH, KEYBOARD (DISC 2)	
S759	1-762-875-21	SWITCH, KEYBOARD (DISC 3)	
S760	1-762-875-21	SWITCH, KEYBOARD (≡ (CD))	
S761	1-762-875-21	SWITCH, KEYBOARD (≡ (MD))	
< TRANSISTOR >			
Q751	8-729-900-80	TRANSISTOR DTC114ES	
Q752	8-729-900-80	TRANSISTOR DTC114ES	
Q753	8-729-900-80	TRANSISTOR DTC114ES	
Q754	8-729-900-80	TRANSISTOR DTC114ES	
< RESISTOR >			
R749	1-249-407-11	CARBON 150 5% 1/4W F	
R751	1-249-410-11	CARBON 270 5% 1/4W F	
R752	1-249-411-11	CARBON 330 5% 1/4W	
R753	1-249-413-11	CARBON 470 5% 1/4W F	
R754	1-249-414-11	CARBON 560 5% 1/4W F	
R755	1-249-415-11	CARBON 680 5% 1/4W F	
R756	1-249-417-11	CARBON 1K 5% 1/4W F	
R757	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R758	1-249-420-11	CARBON 1.8K 5% 1/4W F	
R759	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R760	1-247-843-11	CARBON 3.3K 5% 1/4W	
R761	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R764	1-247-804-11	CARBON 75 5% 1/4W	
R765	1-247-804-11	CARBON 75 5% 1/4W F	
R766	1-247-804-11	CARBON 75 5% 1/4W	
R767	1-247-804-11	CARBON 75 5% 1/4W F	
R768	1-247-804-11	CARBON 75 5% 1/4W	
R769	1-247-804-11	CARBON 75 5% 1/4W F	

* 1-658-575-11	CONNECTOR BOARD	*****	
< CONNECTOR >			
* CN701	1-568-946-11	PIN, CONNECTOR 8P	
CN702	1-750-413-11	CONNECTOR, FFC/FPC 8P	
< TRANSISTOR >			
Q701	8-729-900-80	TRANSISTOR DTC114ES	
< RESISTOR >			
R703	1-249-435-11	CARBON 33K 5% 1/4W	
R704	1-249-429-11	CARBON 10K 5% 1/4W	
R705	1-249-417-11	CARBON 1K 5% 1/4W F	

Ref. No.	Part No.	Description	Remark
A-4419-324-A	DISPLAY BOARD, COMPLETE (AEP,UK,G,CIS)	*****	
A-4419-497-A	DISPLAY BOARD, COMPLETE	*****	(EXCEPT AEP,UK,G,CIS) (DISPLAY BOARD is supplied with JOG board and VOL board)
* 4-214-439-11	HOLDER, FL TUBE		
< CAPACITOR >			
C601	1-124-589-11	ELECT 47uF 20% 16V	
C602	1-126-163-11	ELECT 4.7uF 20% 50V	
C603	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C604	1-164-294-31	CERAMIC 1000PF 10% 50V	
C605	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C606	1-126-160-11	ELECT 1uF 20% 50V	
C607	1-126-160-11	ELECT 1uF 20% 50V	
C608	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C609	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C610	1-124-589-11	ELECT 47uF 20% 16V	
C611	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C612	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C613	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C614	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C615	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C616	1-126-157-11	ELECT 10uF 20% 16V	
C617	1-162-303-11	CERAMIC 0.0033uF 30% 16V	
C618	1-126-157-11	ELECT 10uF 20% 16V	
C619	1-126-157-11	ELECT 10uF 20% 16V	
C620	1-126-163-11	ELECT 4.7uF 20% 50V	
C625	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C629	1-126-157-11	ELECT 10uF 20% 16V	
C651	1-162-282-31	CERAMIC 100PF 10% 50V	
C652	1-162-282-31	CERAMIC 100PF 10% 50V	
C653	1-162-282-31	CERAMIC 100PF 10% 50V	
C654	1-162-282-31	CERAMIC 100PF 10% 50V	
C655	1-162-282-31	CERAMIC 100PF 10% 50V	
C656	1-162-282-31	CERAMIC 100PF 10% 50V	
C657	1-162-282-31	CERAMIC 100PF 10% 50V	
C658	1-162-282-31	CERAMIC 100PF 10% 50V	
C659	1-162-282-31	CERAMIC 100PF 10% 50V	
C660	1-162-282-31	CERAMIC 100PF 10% 50V	
C661	1-162-282-31	CERAMIC 100PF 10% 50V	
C662	1-162-282-31	CERAMIC 100PF 10% 50V	
C663	1-162-282-31	CERAMIC 100PF 10% 50V	
C664	1-162-282-31	CERAMIC 100PF 10% 50V	
C665	1-162-282-31	CERAMIC 100PF 10% 50V	
C666	1-162-282-31	CERAMIC 100PF 10% 50V	
C667	1-162-282-31	CERAMIC 100PF 10% 50V	
C668	1-162-282-31	CERAMIC 100PF 10% 50V	
C701	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C702	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C703	1-164-159-11	CERAMIC 0.1uF 50V	
C731	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C732	1-124-257-00	ELECT 2.2uF 20% 50V	
C733	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C734	1-162-215-31	CERAMIC 47PF 5% 50V	

DISPLAY

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C735	1-124-261-00	ELECT	10uF 20% 50V			< COIL >	
C736	1-162-290-31	CERAMIC	470PF 10% 50V				
C737	1-124-463-00	ELECT	0.1uF 20% 50V	L601	1-410-509-11	INDUCTOR 10uH	
C739	1-162-215-31	CERAMIC	47PF 5% 50V			< TRANSISTOR >	
C741	1-124-261-00	ELECT	10uF 20% 50V				
C742	1-162-282-31	CERAMIC	100PF 10% 50V	Q601	8-729-118-00	TRANSISTOR 2SB1116-L	
C743	1-124-257-00	ELECT	2.2uF 20% 50V	Q602	8-729-118-00	TRANSISTOR 2SB1116-L	
C747	1-164-159-11	CERAMIC	0.1uF 50V	Q603	8-729-119-78	TRANSISTOR 2SC403SP-51	
		< CONNECTOR >		Q604	8-729-900-80	TRANSISTOR DTC114ES	
CN601	1-568-865-21	SOCKET, CONNECTOR 23P		Q605	8-729-900-80	TRANSISTOR DTC114ES	
		< DIODE >		Q606	8-729-900-80	TRANSISTOR DTC114ES	
D610	8-719-050-84	DIODE RB441QT-77		Q607	8-729-900-80	TRANSISTOR DTC114ES	
D611	8-719-057-97	DIODE SEL5923A-TP15 (SYNC BASE H)		Q608	8-729-900-80	TRANSISTOR DTC114ES	
D612	8-719-057-97	DIODE SEL5923A-TP15 (SYNC BASE L)		Q609	8-729-900-80	TRANSISTOR DTC114ES	
D613	8-719-073-47	DIODE SML72923C-TP15 (REC/PAUSE)		Q610	8-729-900-80	TRANSISTOR DTC114ES	
D614	8-719-056-13	DIODE SML79423C-TP15 (MD PLAY/PAUSE)		Q611	8-729-900-80	TRANSISTOR DTC114ES	
D615	8-719-056-13	DIODE SML79423C-TP15 (CD PLAY/PAUSE)		Q612	8-729-900-80	TRANSISTOR DTC114ES	
D616	8-719-063-93	DIODE SLR325VC-N-T32 (NON STOP)		Q613	8-729-900-80	TRANSISTOR DTC114ES	
D617	8-719-063-93	DIODE SLR325VC-N-T32 (ENTER/NEXT)		Q614	8-729-900-80	TRANSISTOR DTC114ES	
D618	8-719-057-97	DIODE SEL5923A-TP15 (GROOVE)		Q615	8-729-900-80	TRANSISTOR DTC114ES	
D619	8-719-063-93	DIODE SLR325VC-N-T32 (JOG)		Q616	8-729-900-74	TRANSISTOR DTC143TS	
D620	8-719-057-97	DIODE SEL5923A-TP15 (+ >>>)		Q617	8-729-900-74	TRANSISTOR DTC143TS	
D621	8-719-057-97	DIODE SEL5923A-TP15 (- <<<)		Q618	8-729-900-74	TRANSISTOR DTC143TS	
D622	8-719-058-03	DIODE SEL5423E-TP15 (▶ TAPE B)		Q619	8-729-900-74	TRANSISTOR DTC143TS	
D623	8-719-058-03	DIODE SEL5423E-TP15 (◀ TAPE B)				< RESISTOR >	
D624	8-719-058-03	DIODE SEL5423E-TP15 (▶ TAPE A)		R600	1-247-903-00	CARBON 1M 5% 1/4W	
D625	8-719-058-03	DIODE SEL5423E-TP15 (◀ TAPE A)		R601	1-247-807-31	CARBON 100 5% 1/4W	
D626	8-719-057-97	DIODE SEL5923A-TP15 (SYNC EQ)		R602	1-247-843-11	CARBON 3.3K 5% 1/4W	
D627	8-719-063-93	DIODE SLR325VC-N-T32 (EFFECT)		R603	1-247-807-31	CARBON 100 5% 1/4W	
D628	8-719-063-93	DIODE SLR325VC-N-T32 (TIMER SELECT)		R604	1-247-807-31	CARBON 100 5% 1/4W	
D629	8-719-057-97	DIODE SEL5923A-TP15 (SYNC BASE H)		R605	1-247-843-11	CARBON 3.3K 5% 1/4W	
D630	8-719-057-97	DIODE SEL5923A-TP15 (SYNC BASE L)		R606	1-249-401-11	CARBON 47 5% 1/4W	F
D631	8-719-057-97	DIODE SEL5923A-TP15 (SYNC EQ)		R607	1-247-893-11	CARBON 390K 5% 1/4W	
D632	8-719-063-93	DIODE SLR325VC-N-T32 (EFFECT)		R608	1-247-889-00	CARBON 270K 5% 1/4W	
		< EARTH TERMINAL >		R609	1-249-441-11	CARBON 100K 5% 1/4W	
* E601	1-537-738-21	TERMINAL, EARTH		R610	1-249-429-11	CARBON 10K 5% 1/4W	
		< FERRITE BEAD >		R611	1-249-441-11	CARBON 100K 5% 1/4W	
FB601	1-412-473-21	INDUCTOR 0UH		R612	1-249-401-11	CARBON 47 5% 1/4W	F
FB602	1-412-473-21	INDUCTOR 0UH		R613	1-249-435-11	CARBON 33K 5% 1/4W	
		< FLUORESCENT INDICATOR >		R614	1-247-895-00	CARBON 470K 5% 1/4W	
FL601	1-517-841-11	INDICATOR TUBE, FLUORESCENT		R616	1-249-441-11	CARBON 100K 5% 1/4W	
		< IC >		R617	1-249-441-11	CARBON 100K 5% 1/4W	
IC601	8-759-582-73	IC TMP88CS77F-6003		R618	1-249-441-11	CARBON 100K 5% 1/4W	
IC602	8-749-011-05	IC GP1U28X		R619	1-249-441-11	CARBON 100K 5% 1/4W	
IC603	8-759-083-77	IC BA3830F		R620	1-249-429-11	CARBON 10K 5% 1/4W	
IC712	8-759-634-51	IC M5218AP		R621	1-249-429-11	CARBON 10K 5% 1/4W	
		< JACK >		R622	1-249-410-11	CARBON 270 5% 1/4W	F
J701	1-785-569-11	JACK (SMALL TYPE)(HEADPHONES)		R623	1-249-411-11	CARBON 330 5% 1/4W	
J711	1-785-569-11	JACK (SMALL TYPE)(MIX MIC)		R624	1-249-413-11	CARBON 470 5% 1/4W	F
				R625	1-249-414-11	CARBON 560 5% 1/4W	F
				R626	1-249-415-11	CARBON 680 5% 1/4W	F
				R627	1-249-417-11	CARBON 1K 5% 1/4W	F
				R628	1-249-418-11	CARBON 1.2K 5% 1/4W	F
				R629	1-249-420-11	CARBON 1.8K 5% 1/4W	F
				R630	1-249-422-11	CARBON 2.7K 5% 1/4W	F
				R631	1-247-843-11	CARBON 3.3K 5% 1/4W	

DISPLAY	JOG	LEAF SW	MAIN
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Ref. No.	Part No.	Description	Remark
S631	1-762-875-21	SWITCH, KEYBOARD (MENU/NO)	
S632	1-762-875-21	SWITCH, KEYBOARD (- ◀◀)	
S633	1-762-875-21	SWITCH, KEYBOARD (TIMER SELECT)	
S634	1-762-875-21	SWITCH, KEYBOARD (CD FLASH)	
S635	1-762-875-21	SWITCH, KEYBOARD (CLEAR)	
S636	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)	
S637	1-762-875-21	SWITCH, KEYBOARD (◀ TAPE A)	
S638	1-762-875-21	SWITCH, KEYBOARD (▶ TAPE A)	
S639	1-762-875-21	SWITCH, KEYBOARD (GEQ CONTROL)	
S640	1-762-875-21	SWITCH, KEYBOARD (FILE SELECT)	
S641	1-762-875-21	SWITCH, KEYBOARD (EFFECT)	
S642	1-762-875-21	SWITCH, KEYBOARD (EDIT/DIRECTION/TUNER MEMORY)	
S643	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE/DOLBY NR/PTY)	
S644	1-762-875-21	SWITCH, KEYBOARD (REPEAT STEREO/MONO)	
S645	1-762-875-21	SWITCH, KEYBOARD (DEMO)	
S646	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)	
S647	1-762-875-21	SWITCH, KEYBOARD (CLOCK/TIMER SET)	
S648	1-762-875-21	SWITCH, KEYBOARD (CD LOOP)	
< VIBRATOR >			
X601	1-579-352-11	VIBRATOR, CERAMIC (12.5MHz)	

	1-673-379-11	JOG BOARD *****	
< SWITCH >			
S601	1-473-534-11	ENCODER, ROTARY (JOG ◀◀ ▶▶)	

*	A-2007-732-A	LEAF SW BOARD, COMPLETE *****	
< CAPACITOR >			
C1001	1-107-716-11	ELECT 33uF 20% 10V	
< CONNECTOR >			
CN1001	1-568-860-11	SOCKET, CONNECTOR 17P	
CN1001	1-784-459-11	CONNECTOR, FFC/FPC 17P	
< DIODE >			
D1001	8-719-911-19	DIODE 1SS119	
D1002	8-719-911-19	DIODE 1SS119	
< HOLDER >			
* DM1001	1-784-581-11	HOLDER, CABLE (2.5MM PITCH) 4P	
< IC >			
IC1001	8-749-014-38	IC PHOTO INTERRUPTER SG-264	
IC1002	8-749-014-38	IC PHOTO INTERRUPTER SG-264	
< TRANSISTOR >			
Q1001	8-729-029-56	TRANSISTOR DTA144ESA	

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
R907	1-247-879-11	CARBON 100K 5%	1/4W
R1001	1-249-409-11	CARBON 220 5%	1/4W F
R1002	1-249-409-11	CARBON 220 5%	1/4W F
R1003	1-249-414-11	CARBON 560 5%	1/4W F
R1004	1-247-834-11	CARBON 1.3K 5%	1/4W
R1005	1-247-818-11	CARBON 300 5%	1/4W
R1006	1-247-864-11	CARBON 24K 5%	1/4W
R1007	1-247-856-00	CARBON 11K 5%	1/4W
R1008	1-249-417-11	CARBON 1K 5%	1/4W F
< VARIABLE RESISTOR >			
RV1001	1-241-785-11	RES, ADJ, CARBON 10K	
RV1002	1-241-785-11	RES, ADJ, CARBON 10K	
< SWITCH >			
S1001	1-570-953-11	SWITCH, PUSH (1 KEY)(A PLAY)	
S1002	1-570-953-11	SWITCH, PUSH (1 KEY)(B PLAY)	
S1003	1-771-333-11	SWITCH, LEAF (A HALF)	
S1004	1-771-205-11	SWITCH, LEAF (A 120/70)	
S1005	1-771-205-11	SWITCH, LEAF (REC A)	
S1006	1-771-333-11	SWITCH, LEAF (B HALF)	
S1008	1-771-205-11	SWITCH, LEAF (B 120/70)	
S1009	1-771-205-11	SWITCH, LEAF (REC B)	

A-4405-868-A	MAIN BOARD, COMPLETE (AEP,UK,G,CIS) *****		
A-4405-869-A	MAIN BOARD, COMPLETE (SP,MY,HK) *****		
A-4405-871-A	MAIN BOARD, COMPLETE (E,AR) *****		
A-4405-872-A	MAIN BOARD, COMPLETE (AUS) *****		
A-4405-873-A	MAIN BOARD, COMPLETE (KR) *****		
A-4405-875-A	MAIN BOARD, COMPLETE (US,CND) *****		
7-685-872-09	SCREW +BVTT 3X8 (S)		
< BATTERY >			
BT921	1-528-887-11	BATTERY, LITHIUM SECONDARY	
< CAPACITOR >			
C101	1-162-286-31	CERAMIC 220PF 10%	50V
C104	1-164-159-11	CERAMIC 0.1uF	50V (AEP,UK,G,CIS)
C111	1-137-195-11	FILM 0.56uF 5%	50V
C112	1-136-158-00	FILM 0.027uF 5%	50V
C113	1-136-167-00	FILM 0.15uF 5%	50V
C114	1-137-437-11	FILM 0.0056uF 5%	50V
C115	1-136-159-00	FILM 0.033uF 5%	50V
C116	1-137-365-11	FILM 0.0015uF 5%	50V

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C117	1-136-153-00	FILM	0.01uF	5%	50V	C334	1-162-600-11	CERAMIC	0.0047uF	30%	16V
C118	1-137-361-11	FILM	330PF	5%	50V	C351	1-126-960-11	ELECT	1uF	20%	50V
C119	1-137-368-11	FILM	0.0047uF	5%	50V	C352	1-137-368-11	FILM	0.0047uF	5%	50V
C120	1-137-367-11	FILM	0.0033uF	5%	50V	C353	1-136-165-00	FILM	0.1uF	5%	50V
C121	1-126-964-11	ELECT	10uF	20%	50V	C354	1-136-165-00	FILM	0.1uF	5%	50V
C122	1-162-288-31	CERAMIC	330PF	10%	50V	C355	1-126-959-11	ELECT	0.47uF	20%	50V
C123	1-136-169-00	FILM	0.22uF	5%	50V	C356	1-126-960-11	ELECT	1uF	20%	50V
C124	1-136-169-00	FILM	0.22uF	5%	50V	C357	1-126-959-11	ELECT	0.47uF	20%	50V
C125	1-126-964-11	ELECT	10uF	20%	50V	C358	1-126-964-11	ELECT	10uF	20%	50V
C131	1-104-664-11	ELECT	47uF	20%	16V	C359	1-137-194-91	FILM	0.47uF	5%	50V
C132	1-104-664-11	ELECT	47uF	20%	16V	C366	1-126-961-11	ELECT	2.2uF	20%	50V
C135	1-126-964-11	ELECT	10uF	20%	50V	C367	1-126-961-11	ELECT	2.2uF	20%	50V
C136	1-161-494-00	CERAMIC	0.022uF		25V	C371	1-162-294-31	CERAMIC	0.001uF	10%	50V
C141	1-126-959-11	ELECT	0.47uF	20%	50V	C372	1-126-964-11	ELECT	10uF	20%	50V
C151	1-162-286-31	CERAMIC	220PF	10%	50V	C373	1-164-159-11	CERAMIC	0.1uF		50V
C161	1-137-195-11	FILM	0.56uF	5%	50V	C374	1-126-960-11	ELECT	1uF	20%	50V
C162	1-136-158-00	FILM	0.027uF	5%	50V	C375	1-162-294-31	CERAMIC	0.001uF	10%	50V
C163	1-136-167-00	FILM	0.15uF	5%	50V	C376	1-126-961-11	ELECT	2.2uF	20%	50V
C164	1-137-437-11	FILM	0.0056uF	5%	50V	C377	1-126-961-11	ELECT	2.2uF	20%	50V
C165	1-136-159-00	FILM	0.033uF	5%	50V	C378	1-126-916-11	ELECT	1000uF	20%	6.3V
C166	1-137-365-11	FILM	0.0015uF	5%	50V	C381	1-164-159-11	CERAMIC	0.1uF		50V
C167	1-136-153-00	FILM	0.01uF	5%	50V	C382	1-104-665-11	ELECT	100uF	20%	10V
C168	1-137-361-11	FILM	330PF	5%	50V	C383	1-164-159-11	CERAMIC	0.1uF		50V
C169	1-137-368-11	FILM	0.0047uF	5%	50V	C390	1-126-935-11	ELECT	470uF	20%	6.3V
C170	1-137-367-11	FILM	0.0033uF	5%	50V	C391	1-161-494-00	CERAMIC	0.022uF		25V
C171	1-126-964-11	ELECT	10uF	20%	50V	C392	1-126-916-11	ELECT	1000uF	20%	6.3V
C172	1-162-288-31	CERAMIC	330PF	10%	50V	C393	1-161-494-00	CERAMIC	0.022uF		25V
C173	1-136-169-00	FILM	0.22uF	5%	50V	C394	1-126-925-11	ELECT	470uF	20%	10V
C174	1-136-169-00	FILM	0.22uF	5%	50V	C395	1-162-290-31	CERAMIC	470PF	10%	50V
C175	1-126-964-11	ELECT	10uF	20%	50V	C396	1-126-961-11	ELECT	2.2uF	20%	50V
C176	1-136-495-11	FILM	0.068uF	5%	50V	C397	1-126-961-11	ELECT	2.2uF	20%	50V
C177	1-136-153-00	FILM	0.01uF	5%	50V	C401	1-136-495-11	FILM	0.068uF	5%	50V (AEP,UK,G,CIS)
C193	1-126-964-11	ELECT	10uF	20%	50V (EXCEPT AEP,UK,G,CIS)	C402	1-136-495-11	FILM	0.068uF	5%	50V (AEP,UK,G,CIS)
C194	1-162-286-31	CERAMIC	220PF	10%	50V (EXCEPT AEP,UK,G,CIS)	C403	1-164-159-11	CERAMIC	0.1uF		50V (AEP,UK,G,CIS)
C301	1-126-960-11	ELECT	1uF	20%	50V	C412	1-107-717-11	ELECT	47uF	20%	50V
C302	1-137-368-11	FILM	0.0047uF	5%	50V	C431	1-126-934-11	ELECT	220uF	20%	10V
C303	1-136-165-00	FILM	0.1uF	5%	50V	C432	1-104-665-11	ELECT	100uF	20%	10V
C304	1-136-165-00	FILM	0.1uF	5%	50V	C433	1-126-964-11	ELECT	10uF	20%	50V
C305	1-126-956-91	ELECT	0.1uF	20%	50V	C434	1-126-933-11	ELECT	100uF	20%	16V
C306	1-126-960-11	ELECT	1uF	20%	50V	C451	1-136-495-11	FILM	0.068uF	5%	50V (AEP,UK,G,CIS)
C307	1-126-959-11	ELECT	0.47uF	20%	50V	C452	1-136-495-11	FILM	0.068uF	5%	50V (AEP,UK,G,CIS)
C308	1-126-964-11	ELECT	10uF	20%	50V	C453	1-164-159-11	CERAMIC	0.1uF		50V (AEP,UK,G,CIS)
C309	1-137-194-91	FILM	0.47uF	5%	50V	C501	1-104-664-11	ELECT	47uF	20%	10V
C310	1-162-290-31	CERAMIC	470PF	10%	50V	C502	1-164-159-11	CERAMIC	0.1uF		50V
C311	1-126-964-11	ELECT	10uF	20%	50V	C503	1-136-165-00	FILM	0.1uF	5%	50V
C312	1-126-959-11	ELECT	0.47uF	20%	50V	C504	1-126-926-11	ELECT	1000uF	20%	10V
C313	1-162-294-31	CERAMIC	0.001uF	10%	50V	C505	1-162-306-11	CERAMIC	0.01uF	20%	16V
C314	1-126-964-11	ELECT	10uF	20%	50V	C508	1-110-948-11	ELECT	1uF	20%	50V
C315	1-126-963-11	ELECT	4.7uF	20%	50V	C551	1-104-665-11	ELECT	100uF	20%	10V
C316	1-104-665-11	ELECT	100uF	20%	10V	C552	1-164-159-11	CERAMIC	0.1uF		50V
C317	1-104-665-11	ELECT	100uF	20%	10V	C553	1-102-959-91	CERAMIC	22PF	5%	50V
C320	1-162-290-31	CERAMIC	470PF	10%	50V	C554	1-102-959-91	CERAMIC	22PF	5%	50V
C331	1-164-159-11	CERAMIC	0.1uF		50V						
C332	1-164-159-11	CERAMIC	0.1uF		50V						
C333	1-162-600-11	CERAMIC	0.0047uF	30%	16V						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D510	8-719-911-19	DIODE 1SS119-25		J191	1-774-785-11	JACK, PIN (EXCEPT AEP,UK,G,CIS)	(SUPER WOOFER)
D551	8-719-911-19	DIODE 1SS119-25					
D552	8-719-911-19	DIODE 1SS119-25					
D801	8-719-911-19	DIODE 1SS119-25				< COIL >	
D802	8-719-947-60	DIODE MTZJ-T-72-15A (E,SP,MY,HK,AR,KR,AUS)		L371	1-410-517-11	INDUCTOR 47uH	
D803	8-719-911-19	DIODE 1SS119-25		L391	1-410-521-11	INDUCTOR 100uH	
D804	8-719-911-19	DIODE 1SS119-25		L392	1-410-521-11	INDUCTOR 100uH	
D831	8-719-302-38	DIODE RBV-602-01		L401	1-420-872-00	COIL, AIR-CORE (AEP,UK,G,CIS)	
D832	8-719-510-68	DIODE D5SBA20F01 (E,SP,MY,HK,AR,KR,AUS)		L451	1-420-872-00	COIL, AIR-CORE (AEP,UK,G,CIS)	
D851	8-719-911-19	DIODE 1SS119-25		L501	1-410-509-11	INDUCTOR 10uH	
D852	8-719-947-60	DIODE MTZJ-T-72-15A (E,SP,MY,HK,AR,KR,AUS)				< TRANSISTOR >	
D901	8-719-024-99	DIODE 11ES2-NTA2B		Q111	8-729-119-79	TRANSISTOR 2SC2785-FEK	
D902	8-719-024-99	DIODE 11ES2-NTA2B		Q112	8-729-119-79	TRANSISTOR 2SC2785-FEK	
D903	8-719-024-99	DIODE 11ES2-NTA2B		Q113	8-729-141-30	TRANSISTOR 2SC3623A-LK	
D904	8-719-024-99	DIODE 11ES2-NTA2B		Q161	8-729-119-79	TRANSISTOR 2SC2785-FEK	
D905	8-719-933-36	DIODE HZS6B1L		Q162	8-729-119-79	TRANSISTOR 2SC2785-FEK	
D906	8-719-911-19	DIODE 1SS119-25		Q163	8-729-141-30	TRANSISTOR 2SC3623A-LK	
D907	8-719-024-99	DIODE 11ES2-NTA2B		Q191	8-729-141-30	TRANSISTOR 2SC3623A-LK	(EXCEPT AEP,UK,G,CIS)
D908	8-719-024-99	DIODE 11ES2-NTA2B		Q192	8-729-900-63	TRANSISTOR DTA124ES	
D909	8-719-024-99	DIODE 11ES2-NTA2B		Q201	8-729-900-36	TRANSISTOR DTC124ES	
D910	8-719-024-99	DIODE 11ES2-NTA2B		Q251	8-729-900-36	TRANSISTOR DTC124ES	
D911	8-719-024-99	DIODE 11ES2-NTA2B		Q331	8-729-118-00	TRANSISTOR 2SB1116-L	
D915	8-719-935-69	DIODE HZS11B1LTA		Q332	8-729-900-80	TRANSISTOR DTC114ES	
D917	8-719-911-19	DIODE 1SS119-25		Q333	8-729-118-00	TRANSISTOR 2SB1116-L	
D918	8-719-024-99	DIODE 11ES2-NTA2B		Q334	8-729-900-80	TRANSISTOR DTC114ES	
D919	8-719-024-99	DIODE 11ES2-NTA2B		Q335	8-729-900-80	TRANSISTOR DTC114ES	
D920	8-719-024-99	DIODE 11ES2-NTA2B		Q336	8-729-118-00	TRANSISTOR 2SB1116-L	
D921	8-719-024-99	DIODE 11ES2-NTA2B		Q337	8-729-045-21	TRANSISTOR 2SD1513TP-LK	
D5001	8-719-911-19	DIODE 1SS119-25		Q338	8-729-422-57	TRANSISTOR UN4111	
		< FERRITE BEAD >		Q339	8-729-900-80	TRANSISTOR DTC114ES	
FB381	1-412-473-21	INDUCTOR 0UH		Q340	8-729-118-00	TRANSISTOR 2SB1116-L	
FB382	1-412-473-21	INDUCTOR 0UH		Q341	8-729-045-21	TRANSISTOR 2SD1513TP-LK	
		< IC >		Q342	8-729-422-57	TRANSISTOR UN4111	
IC101	8-759-571-54	IC M62493FP		Q343	8-729-900-80	TRANSISTOR DTC114ES	
IC301	8-759-495-26	IC HA12215		Q411	8-729-141-30	TRANSISTOR 2SC3623A-LK	
IC371	8-759-481-02	IC M62016L		Q412	8-729-900-63	TRANSISTOR DTA124ES	
IC381	8-759-916-12	IC SN74HC00AN		Q413	8-729-141-30	TRANSISTOR 2SC3623A-LK	
IC382	8-749-921-11	IC GP1F32R		Q431	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC501	8-759-583-18	IC M30620MC-A03FP		Q432	8-729-119-77	TRANSISTOR 2SA1175-FEK	
IC502	8-759-635-63	IC M51943BSL		Q433	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC801	8-749-015-36	IC STK411-230E (E,SP,MY,HK,AR,KR,AUS)		Q434	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC801	8-749-015-43	IC STK407-050E (CND)		Q435	8-729-900-36	TRANSISTOR DTC124ES	
IC801	8-749-015-44	IC STK407-070E (US)		Q436	8-729-119-77	TRANSISTOR 2SA1175-FEK	
IC801	8-749-015-45	IC STK407-090E (AEP,UK,G,CIS)		Q437	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC901	8-759-604-86	IC M5F7807L		Q439	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC902	8-759-231-53	IC TA7805S		Q501	8-729-119-79	TRANSISTOR 2SC2785-FEK	
IC903	8-759-604-39	IC M5F78M12 (US)		Q508	8-729-900-63	TRANSISTOR DTA124ES	
IC903	8-759-701-79	IC NJM7812FA (EXCEPT US,E,AR)		Q509	8-729-900-63	TRANSISTOR DTA124ES	
IC904	8-759-231-53	IC TA7805S		Q801	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
IC905	8-759-231-53	IC TA7805S		Q803	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
		< JACK >		Q804	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
J102	1-770-772-11	JACK, PIN 2P (US,EXCEPT US,CND)	(VIDEO AUDIO IN)	Q805	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
J102	1-778-204-11	JACK, PIN 2P (CND)(VIDEO AUDIO IN)		Q831	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
				Q832	8-729-119-79	TRANSISTOR 2SC2785-FEK	
				Q851	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q901	8-729-209-15	TRANSISTOR 2SD2012		R196	1-249-417-11	CARBON 1K 5% 1/4W F (EXCEPT AEP,UK,G,CIS)	
Q902	8-729-119-79	TRANSISTOR 2SC2785-FEK		R197	1-249-441-11	CARBON 100K 5% 1/4W (EXCEPT AEP,UK,G,CIS)	
Q903	8-729-900-36	TRANSISTOR DTC124ES		R198	1-249-417-11	CARBON 1K 5% 1/4W F (EXCEPT AEP,UK,G,CIS)	
Q904	8-729-900-36	TRANSISTOR DTC124ES		R199	1-249-429-11	CARBON 10K 5% 1/4W (EXCEPT AEP,UK,G,CIS)	
Q905	8-729-040-20	TRANSISTOR RT1P137L-TP		R201	1-247-888-11	CARBON 240K 5% 1/4W	
Q906	8-729-900-36	TRANSISTOR DTC124ES		R251	1-247-888-11	CARBON 240K 5% 1/4W	
Q907	8-729-040-20	TRANSISTOR RT1P137L-TP		R301	1-249-435-11	CARBON 33K 5% 1/4W	
Q908	8-729-900-36	TRANSISTOR DTC124ES		R302	1-249-421-11	CARBON 2.2K 5% 1/4W F	
Q909	8-729-026-68	TRANSISTOR 2SD2525(TP)		R303	1-247-807-31	CARBON 100 5% 1/4W	
Q913	8-729-119-79	TRANSISTOR 2SC2785-FEK		R304	1-247-807-31	CARBON 100 5% 1/4W	
Q914	8-729-119-77	TRANSISTOR 2SA1175-FEK		R305	1-249-421-11	CARBON 2.2K 5% 1/4W F	
Q921	8-729-620-05	TRANSISTOR 2SC2603-EF		R306	1-249-428-11	CARBON 8.2K 5% 1/4W F	
Q951	8-729-141-83	TRANSISTOR 2SB1094-LK		R307	1-249-428-11	CARBON 8.2K 5% 1/4W F	
Q952	8-729-119-77	TRANSISTOR 2SA1175-FEK		R308	1-249-425-11	CARBON 4.7K 5% 1/4W F	
		< RESISTOR >		R309	1-249-433-11	CARBON 22K 5% 1/4W	
R101	1-249-417-11	CARBON 1K 5% 1/4W F		R311	1-247-903-00	CARBON 1M 5% 1/4W	
R102	1-249-441-11	CARBON 100K 5% 1/4W		R312	1-247-884-11	CARBON 160K 5% 1/4W	
R111	1-249-429-11	CARBON 10K 5% 1/4W		R313	1-249-441-11	CARBON 100K 5% 1/4W	
R113	1-247-894-11	CARBON 430K 5% 1/4W		R315	1-249-429-11	CARBON 10K 5% 1/4W	
R114	1-249-415-11	CARBON 680K 5% 1/4W F		R316	1-249-432-11	CARBON 18K 5% 1/4W	
R115	1-249-433-11	CARBON 22K 5% 1/4W		R317	1-249-429-11	CARBON 10K 5% 1/4W	
R116	1-247-887-00	CARBON 220K 5% 1/4W		R318	1-249-429-11	CARBON 10K 5% 1/4W	
R117	1-249-429-11	CARBON 10K 5% 1/4W		R319	1-247-893-11	CARBON 390K 5% 1/4W	
R118	1-249-437-11	CARBON 47K 5% 1/4W		R321	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R119	1-249-421-11	CARBON 2.2K 5% 1/4W F		R322	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R120	1-249-441-11	CARBON 100K 5% 1/4W		R324	1-247-876-11	CARBON 75K 5% 1/4W	
R121	1-249-429-11	CARBON 10K 5% 1/4W		R325	1-247-876-11	CARBON 75K 5% 1/4W	
R124	1-249-421-11	CARBON 2.2K 5% 1/4W F		R326	1-249-437-11	CARBON 47K 5% 1/4W	
R125	1-247-843-11	CARBON 3.3K 5% 1/4W		R327	1-249-437-11	CARBON 47K 5% 1/4W	
R126	1-249-421-11	CARBON 2.2K 5% 1/4W F		R328	1-249-437-11	CARBON 47K 5% 1/4W	
R127	1-247-903-00	CARBON 1M 5% 1/4W		R329	1-249-417-11	CARBON 1K 5% 1/4W F	
R130	1-249-433-11	CARBON 22K 5% 1/4W		R330	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R131	1-247-807-31	CARBON 100 5% 1/4W		R331	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R132	1-247-807-31	CARBON 100 5% 1/4W		R332	1-249-415-11	CARBON 680 5% 1/4W F	
R133	1-247-807-31	CARBON 100 5% 1/4W		R333	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R141	1-249-433-11	CARBON 22K 5% 1/4W		R334	1-249-415-11	CARBON 680 5% 1/4W F	
R142	1-249-433-11	CARBON 22K 5% 1/4W		R335	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R143	1-249-417-11	CARBON 1K 5% 1/4W F		R336	1-249-437-11	CARBON 47K 5% 1/4W	
R144	1-249-441-11	CARBON 100K 5% 1/4W		R337	1-249-417-11	CARBON 1K 5% 1/4W F	
R145	1-247-903-00	CARBON 1M 5% 1/4W		R338	1-249-411-11	CARBON 330 5% 1/4W	
R151	1-249-417-11	CARBON 1K 5% 1/4W F		R339	1-249-437-11	CARBON 47K 5% 1/4W	
R152	1-249-441-11	CARBON 100K 5% 1/4W		R340	1-249-437-11	CARBON 47K 5% 1/4W	
R161	1-249-429-11	CARBON 10K 5% 1/4W		R341	1-249-411-11	CARBON 330 5% 1/4W	
R163	1-247-894-11	CARBON 430K 5% 1/4W		R342	1-249-437-11	CARBON 47K 5% 1/4W	
R164	1-249-415-11	CARBON 680 5% 1/4W F		R343	1-249-417-11	CARBON 1K 5% 1/4W F	
R165	1-249-433-11	CARBON 22K 5% 1/4W		R351	1-249-435-11	CARBON 33K 5% 1/4W	
R166	1-247-887-00	CARBON 220K 5% 1/4W		R352	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R167	1-249-429-11	CARBON 10K 5% 1/4W		R353	1-247-807-31	CARBON 100 5% 1/4W	
R168	1-249-437-11	CARBON 47K 5% 1/4W		R354	1-247-807-31	CARBON 100 5% 1/4W	
R169	1-249-421-11	CARBON 2.2K 5% 1/4W F		R355	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R170	1-249-441-11	CARBON 100K 5% 1/4W		R356	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R171	1-249-429-11	CARBON 10K 5% 1/4W		R357	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R176	1-249-421-11	CARBON 2.2K 5% 1/4W F		R358	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R177	1-247-903-00	CARBON 1M 5% 1/4W		R359	1-249-435-11	CARBON 33K 5% 1/4W	
R190	1-249-441-11	CARBON 100K 5% 1/4W					

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R367	1-249-441-11	CARBON	100K 5% 1/4W	R471	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)
R375	1-249-433-11	CARBON	22K 5% 1/4W	R471	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)
R376	1-249-429-11	CARBON	10K 5% 1/4W	R472	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)
R377	1-249-441-11	CARBON	100K 5% 1/4W	R472	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)
R381	1-249-413-11	CARBON	470 5% 1/4W F	R473	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)
R382	1-249-413-11	CARBON	470 5% 1/4W F	R473	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)
R383	1-249-413-11	CARBON	470 5% 1/4W F	R474	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)
R384	1-247-807-31	CARBON	100 5% 1/4W	R501	1-249-413-11	CARBON	470 5% 1/4W F
R391	1-247-807-31	CARBON	100 5% 1/4W	R502	1-249-425-11	CARBON	4.7K 5% 1/4W F
R392	1-247-807-31	CARBON	100 5% 1/4W	R503	1-249-437-11	CARBON	47K 5% 1/4W
R393	1-249-435-11	CARBON	33K 5% 1/4W	R504	1-249-437-11	CARBON	47K 5% 1/4W
R394	1-249-435-11	CARBON	33K 5% 1/4W	R505	1-249-429-11	CARBON	10K 5% 1/4W
R401	1-260-076-11	CARBON	10 5% 1/2W (AEP,UK,G,CIS)	R508	1-249-421-11	CARBON	2.2K 5% 1/4W F
R402	1-260-076-11	CARBON	10 5% 1/2W (AEP,UK,G,CIS)	R509	1-249-441-11	CARBON	100K 5% 1/4W
△R411	1-215-892-11	METAL OXIDE	1K 5% 2W F (US)	R510	1-247-807-31	CARBON	100 5% 1/4W
△R411	1-215-893-11	METAL OXIDE	1.5K 5% 2W F (E,SP,MY,HK,AR,KR,AUS)	R527	1-249-429-11	CARBON	10K 5% 1/4W
△R411	1-216-456-00	METAL OXIDE	820 5% 2W F (CND)	R533	1-249-411-11	CARBON	330 5% 1/4W (KR,AUS)
△R411	1-216-457-00	METAL OXIDE	1.2K 5% 2W F (AEP,UK,G,CIS)	R536	1-249-429-11	CARBON	10K 5% 1/4W
R412	1-249-417-11	CARBON	1K 5% 1/4W F	R543	1-247-807-31	CARBON	100 5% 1/4W
R413	1-249-417-11	CARBON	1K 5% 1/4W F	R544	1-247-807-31	CARBON	100 5% 1/4W
R414	1-249-417-11	CARBON	1K 5% 1/4W F	R545	1-247-807-31	CARBON	100 5% 1/4W
R415	1-249-429-11	CARBON	10K 5% 1/4W	R546	1-247-807-31	CARBON	100 5% 1/4W
R416	1-249-437-11	CARBON	47K 5% 1/4W	R547	1-247-807-31	CARBON	100 5% 1/4W
R417	1-249-402-11	CARBON	56 5% 1/4W F	R548	1-247-807-31	CARBON	100 5% 1/4W
R418	1-249-402-11	CARBON	56 5% 1/4W F	R549	1-247-807-31	CARBON	100 5% 1/4W
R421	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)	R550	1-247-807-31	CARBON	100 5% 1/4W
R421	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)	R551	1-249-425-11	CARBON	4.7K 5% 1/4W
R422	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)	R552	1-249-425-11	CARBON	4.7K 5% 1/4W
R422	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)	R553	1-249-415-11	CARBON	680 5% 1/4W F (AEP,UK,G,CIS)
R423	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)	R553	1-249-421-11	CARBON	2.2K 5% 1/4W (E,AR)
R423	1-260-091-11	CARBON	220 5% 1/2W (US,CND,AEP,UK,G,CIS)	R554	1-249-425-11	CARBON	4.7K 5% 1/4W (AEP,UK,G,CIS,E,AR,KR,AUS)
R424	1-260-090-11	CARBON	180 5% 1/2W (E,SP,MY,HK,AR,KR,AUS)	R555	1-247-807-31	CARBON	100 5% 1/4W
R431	1-249-438-11	CARBON	56K 5% 1/4W	R556	1-247-807-31	CARBON	100 5% 1/4W
R432	1-249-437-11	CARBON	47K 5% 1/4W	R557	1-247-807-31	CARBON	100 5% 1/4W
R434	1-247-903-00	CARBON	1M 5% 1/4W	R558	1-247-807-31	CARBON	100 5% 1/4W
R435	1-249-425-11	CARBON	4.7K 5% 1/4W F	R559	1-247-807-31	CARBON	100 5% 1/4W (AEP,UK,G,CIS)
R437	1-249-429-11	CARBON	10K 5% 1/4W	R560	1-247-807-31	CARBON	100 5% 1/4W (AEP,UK,G,CIS)
R438	1-249-429-11	CARBON	10K 5% 1/4W	R561	1-247-807-31	CARBON	100 5% 1/4W
R439	1-249-425-11	CARBON	4.7K 5% 1/4W F	R562	1-247-807-31	CARBON	100 5% 1/4W
R440	1-249-433-11	CARBON	22K 5% 1/4W	R563	1-247-807-31	CARBON	100 5% 1/4W
R441	1-249-435-11	CARBON	33K 5% 1/4W	R564	1-247-807-31	CARBON	100 5% 1/4W
R443	1-249-417-11	CARBON	1K 5% 1/4W F	R565	1-249-413-11	CARBON	470 5% 1/4W F
R451	1-260-076-11	CARBON	10 5% 1/2W (AEP,UK,G,CIS)	R566	1-247-807-31	CARBON	100 5% 1/4W
R452	1-260-076-11	CARBON	10 5% 1/2W (AEP,UK,G,CIS)	R567	1-249-417-11	CARBON	1K 5% 1/4W F
				R568	1-249-425-11	CARBON	4.7K 5% 1/4W F

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< TERMINAL >				< COIL >	
TM401	1-537-240-31	TERMINAL BOARD (CHECKER PIN)(SPEAKER)		L181	1-424-675-11	INDUCTOR 33uH	
		< VIBRATOR >		L201	1-500-445-21	FERRITE 0uH	
X551	1-567-098-41	VIBRATOR, CRYSTAL (32.768MHz)		L202	1-500-445-21	FERRITE 0uH	
X613	1-579-930-12	VIBRATOR, CERAMIC (16MHz)				< TRANSISTOR >	
*****				Q350	8-729-028-99	TRANSISTOR RT1N144M-TP-1	
	A-4419-305-A	MD DIGITAL BOARD, COMPLETE				< RESISTOR >	
		*****		R201	1-216-121-91	RES,CHIP 1M 5% 1/10W	
		< CAPACITOR >		R202	1-216-041-00	METAL CHIP 470 5% 1/10W	
C171	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R203	1-216-049-91	RES,CHIP 1K 5% 1/10W	
C201	1-163-227-11	CERAMIC CHIP 10PF 0.5PF 50V		R204	1-216-089-91	RES,CHIP 47K 5% 1/10W	
C202	1-163-227-11	CERAMIC CHIP 10PF 0.5PF 50V		R205	1-216-113-00	METAL CHIP 470K 5% 1/10W	
C203	1-163-021-91	CERAMIC CHIP 0.01uF 10% 50V		R206	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C204	1-163-021-91	CERAMIC CHIP 0.01uF 10% 50V		R207	1-216-025-91	RES,CHIP 100 5% 1/10W	
C216	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R330	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C341	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R331	1-216-097-91	RES,CHIP 100K 5% 1/10W	
C342	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R333	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C343	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R349	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C350	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R351	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
C351	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R352	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
C352	1-126-204-11	ELECT CHIP 47uF 20% 16V		R353	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
C353	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R358	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C355	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R361	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C357	1-163-021-91	CERAMIC CHIP 0.01uF 10% 50V		R363	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C358	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R366	1-216-097-91	RES,CHIP 100K 5% 1/10W	
C359	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R367	1-216-097-91	RES,CHIP 100K 5% 1/10W	
C360	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R383	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C362	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R384	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C363	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R385	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C503	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R386	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C509	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R391	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C510	1-126-206-11	ELECT CHIP 100uF 20% 6.3V		R395	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C522	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R400	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C527	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R816	1-216-216-00	RES,CHIP 5.6K 5% 1/8W	
C528	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R817	1-216-216-00	RES,CHIP 5.6K 5% 1/8W	
C529	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R818	1-216-174-00	RES,CHIP 100 5% 1/8W	
C2001	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R819	1-216-174-00	RES,CHIP 100 5% 1/8W	
		< CONNECTOR >		R2002	1-216-073-00	METAL CHIP 10K 5% 1/10W	
CN101	1-770-072-11	CONNECTOR,(LIF(NON-ZIF))FFC23P		R2004	1-216-025-91	RES,CHIP 100 5% 1/10W	
CN102	1-784-687-41	PIN, CONNECTOR (PC BOARD) 7P		R2005	1-216-025-91	RES,CHIP 100 5% 1/10W	
CN103	1-784-834-21	CONNECTOR,FFC(LIF(NON-ZIF))23P		R2006	1-216-025-91	RES,CHIP 100 5% 1/10W	
CN104	1-784-833-21	CONNECTOR,FFC(LIF(NON-ZIF))21P		R2007	1-216-025-91	RES,CHIP 100 5% 1/10W	
CN105	1-784-863-21	CONNECTOR,FFC(LIF(NON-ZIF))11P				< VIBRATOR >	
		< IC >		X201	1-767-286-11	VIBRATOR, CRYSTAL (22MHz)	
IC153	8-759-481-19	IC LB1830M-S-TE-L		X302	1-781-155-21	VIBRATOR, CERAMIC (10MHz)	
IC201	8-759-553-65	IC UDA1341TS		*****			
IC202	8-759-564-53	IC MC74HCU04ADTR2					
IC316	8-759-585-60	IC M30624MG-A01FP					
IC2000	8-759-195-81	IC TC7S86FU					

MD LINK	MD LINK SW	MOTOR (SLIDE)	MOTOR (TURN)
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Ref. No.	Part No.	Description	Remark
	A-4419-326-A	MD LINK BOARD, COMPLETE (AEP,UK,G,CIS) *****	
	A-4419-499-A	MD LINK BOARD, COMPLETE ***** (EXCEPT AEP,UK,G,CIS)	
		< CAPACITOR >	
C201	1-164-159-11	CERAMIC	0.1uF 50V
C202	1-124-635-00	ELECT	220uF 20% 6.3V
C204	1-162-600-11	CERAMIC	0.0047uF 30% 16V
C205	1-162-282-31	CERAMIC	100PF 5% 50V
C206	1-162-283-31	CERAMIC	150PF 10% 50V
C251	1-164-159-11	CERAMIC	0.1uF 50V
C420	1-162-294-31	CERAMIC	0.001uF 10% 50V
C421	1-126-157-11	ELECT	10uF 20% 16V
C470	1-162-294-31	CERAMIC	0.001uF 10% 50V
C471	1-126-157-11	ELECT	10uF 20% 16V
		< CONNECTOR >	
CN201	1-793-097-11	SOCKET, CONNECTOR 11P	
CN202	1-506-483-21	PIN, CONNECTOR 4P	
CN401	1-790-428-11	JACK	
		< EARTH TERMINAL >	
* E201	1-537-738-21	TERMINAL, EARTH	
		< IC >	
IC403	8-749-015-19	IC PHOTO COUPLER ON3131-SA.S0	
IC405	8-719-802-25	IC PHOTO TRANSISTOR TLP550-O	
		< TRANSISTOR >	
Q201	8-729-900-80	TRANSISTOR DTC114ES	
Q202	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q204	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q205	8-729-900-80	TRANSISTOR DTC114ES	
		< RESISTOR >	
R201	1-249-395-11	CARBON	15 5% 1/4W F
R202	1-247-807-31	CARBON	100 5% 1/4W
R203	1-247-807-31	CARBON	100 5% 1/4W
R204	1-249-411-11	CARBON	330 5% 1/4W
R205	1-249-431-11	CARBON	15K 5% 1/4W
R206	1-249-431-11	CARBON	15K 5% 1/4W
R207	1-249-417-11	CARBON	1K 5% 1/4W F
R208	1-249-426-11	CARBON	5.6K 5% 1/4W
R209	1-249-408-11	CARBON	180 5% 1/4W F
R230	1-249-429-11	CARBON	10K 5% 1/4W
R231	1-249-429-11	CARBON	10K 5% 1/4W
R232	1-249-441-11	CARBON	100K 5% 1/4W
R234	1-249-417-11	CARBON	1K 5% 1/4W F
R251	1-249-395-11	CARBON	15 5% 1/4W F
R252	1-247-807-31	CARBON	100 5% 1/4W

Ref. No.	Part No.	Description	Remark
	1-673-382-11	MD LINK SW BOARD *****	
		< DIODE >	
D753	8-719-063-93	DIODE SLR325VC-N-T32 (MD WALKMAN SYNC)	
		< RESISTOR >	
R750	1-249-407-11	CARBON	150 5% 1/4W F
R762	1-249-427-11	CARBON	6.8K 5% 1/4W F
		< SWITCH >	
S762	1-762-875-21	SWITCH, KEYBOARD (MD WALKMAN SYNC)	

*	1-658-578-11	MOTOR (SLIDE) BOARD *****	
		< CAPACITOR >	
C801	1-162-306-11	CERAMIC	0.01uF 20% 16V
C804	1-162-306-11	CERAMIC	0.01uF 20% 16V
C805	1-126-964-11	ELECT	10uF 20% 50V
		< CONNECTOR >	
* CN801	1-568-947-11	PIN, CONNECTOR 9P	
		< DIODE >	
D801	8-719-921-48	DIODE MTZJ-T-72-5.6C	
D804	8-719-911-19	DIODE 1SS119	
D805	8-719-911-19	DIODE 1SS119	
		< IC >	
IC801	8-759-274-09	IC BA6286N	
		< RESISTOR >	
R801	1-249-401-11	CARBON	47 5% 1/4W F
		< SWITCH >	
S801	1-762-527-11	SWITCH, ROTARY (OPEN/CLOSE)	

*	1-658-577-11	MOTOR (TURN) BOARD *****	
		< CAPACITOR >	
C701	1-162-306-11	CERAMIC	0.01uF 20% 16V
C702	1-126-964-11	ELECT	10uF 20% 50V
C705	1-162-306-11	CERAMIC	0.01uF 20% 16V
		< CONNECTOR >	
CN703	1-750-413-11	CONNECTOR, FFC/FPC 8P	
CN704	1-506-469-11	PIN, CONNECTOR 4P	
		< DIODE >	
D701	8-719-983-66	DIODE MTZJ-T-72-3.6B	

MOTOR (TURN)

POWER SW

SECONDARY

SENSOR

STANDBY

Ref. No.	Part No.	Description	Remark
		< IC >	
IC701	8-759-633-65	IC M54641L	
		< RESISTOR >	
R706	1-249-411-11	CARBON 330 5% 1/4W	
R707	1-249-401-11	CARBON 47 5% 1/4W	F

	1-673-381-11	POWER SW BOARD	
		< DIODE >	
D751	8-719-063-93	DIODE SLR325VC-N-T32 (I/C)	
		< RESISTOR >	
R763	1-249-414-11	CARBON 560 5% 1/4W	F

	1-673-377-11	SECONDARY BOARD	
		< CONNECTOR >	
CN881	1-564-525-11	PLUG (MICRO CONNECTOR) 10P (US,CND,AEP,UK,G,CIS)	
* CN881	1-564-527-11	PLUG (MICRO CONNECTOR) 12P (E,SP,MY,HK,AR,KR,AUS)	
		< FUSE >	
△ F881	1-532-506-31	FUSE (T6.3AL/250V)(EXCEPT US,CND)	
△ F881	1-576-109-21	FUSE (T6.3AL/250V)(US,CND,E,HK,AR)	
△ F882	1-532-504-31	FUSE (T4AL/250V)(E,SP,MY,HK,AR,KR,AUS)	
△ F883	1-532-504-31	FUSE (T4AL/250V)(E,SP,MY,HK,AR,KR,AUS)	
△ F884	1-532-506-31	FUSE (T6.3AL/250V)(EXCEPT US,CND)	
△ F884	1-576-109-21	FUSE (T6.3AL/250V)(US,CND,E,HK,AR)	
		< FUSE HOLDER >	
FH8810	1-533-293-11	FUSE HOLDER	
FH8811	1-533-293-11	FUSE HOLDER	
FH8820	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR,KR,AUS)	
FH8821	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR,KR,AUS)	
FH8830	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR,KR,AUS)	
FH8831	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR,KR,AUS)	
FH8840	1-533-293-11	FUSE HOLDER	
FH8841	1-533-293-11	FUSE HOLDER	
		< RESISTOR >	
△ R881	1-240-877-91	FUSIBLE 0.15 5% 1/2W	F
△ R882	1-240-877-91	FUSIBLE 0.15 5% 1/2W	F
△ R883	1-240-877-91	FUSIBLE 0.15 5% 1/2W	F

Ref. No.	Part No.	Description	Remark
*	1-658-576-11	SENSOR BOARD	
		< IC >	
IC702	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
IC703	8-749-924-30	IC PHOTO REFLECTOR GP2S28	

	A-4419-327-A	STANDBY BOARD, COMPLETE (AEP,UK,G,CIS)	
	A-4419-328-A	STANDBY BOARD, COMPLETE (E,SP,MY,HK,AR)	
	A-4419-329-A	STANDBY BOARD, COMPLETE (US,CND)	
	A-4419-330-A	STANDBY BOARD, COMPLETE (AUS)	
	A-4419-651-A	STANDBY BOARD, COMPLETE (KR)	
		< CAPACITOR >	
C11	1-126-937-11	ELECT 4700uF 20%	16V
C12	1-164-159-11	CERAMIC 0.1uF	50V
C13	1-126-933-11	ELECT 100uF 20%	16V
C14	1-126-968-11	ELECT 100uF 20%	50V
C15	1-164-159-11	CERAMIC 0.1uF	50V
C16	1-126-948-11	ELECT 100uF 20%	35V
C17	1-104-664-11	ELECT 47uF 20%	16V
C21	1-113-925-11	CERAMIC 0.01uF 20%	250V (US,CND)
C22	1-164-159-11	CERAMIC 0.1uF	50V (EXCEPT US,CND)
		< CONNECTOR >	
CN11	1-564-321-00	PIN, CONNECTOR 2P (KR)	
* CN11	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P (EXCEPT KR)	
CN12	1-564-321-00	PIN, CONNECTOR 2P (US,CND,AEP,UK,G,CIS,KR,AUS)	
* CN12	1-564-687-11	PIN, CONNECTOR 3P (E,SP,MY,HK,AR)	
* CN13	1-568-935-11	PIN, CONNECTOR 8P	
		< DIODE >	
D11	8-719-911-19	DIODE 1SS119-25	
D12	8-719-024-99	DIODE 11ES2-NTA2B	
D13	8-719-024-99	DIODE 11ES2-NTA2B	
D14	8-719-024-99	DIODE 11ES2-NTA2B	
D15	8-719-024-99	DIODE 11ES2-NTA2B	
D16	8-719-911-19	DIODE 1SS119-25	
D17	8-719-024-99	DIODE 11ES2-NTA2B	
D18	8-719-024-99	DIODE 11ES2-NTA2B	
D19	8-719-024-99	DIODE 11ES2-NTA2B	
D20	8-719-024-99	DIODE 11ES2-NTA2B	
D21	8-719-986-67	DIODE HZS33-2LTA	
D22	8-719-921-48	DIODE MTZJ-T-72-5.6C	
D23	8-719-911-19	DIODE 1SS119-25	
D24	8-719-911-19	DIODE 1SS119-25	
D25	8-719-911-19	DIODE 1SS119-25	

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STANDBY

SW

VOL

Ref. No.	Part No.	Description	Remark
		< FUSE >	
△ F11	1-532-506-31	FUSE (5A/125V)(E,SP,MY,HK,AR)	
△ F12	1-576-109-21	FUSE (T6.3AL/250V)(US,CND,E)	
		< FUSE HOLDER >	
FH1100	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR)	
FH1101	1-533-293-11	FUSE HOLDER (E,SP,MY,HK,AR)	
FH1200	1-533-293-11	FUSE HOLDER (US,CND,E,HK,AR)	
FH1201	1-533-293-11	FUSE HOLDER (US,CND,E,HK,AR)	
		< IC >	
IC11	8-759-604-35	IC M5F78M05L	
		< TRANSISTOR >	
Q11	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q12	8-729-040-19	TRANSISTOR RT1N137L-TP	
Q13	8-729-118-01	TRANSISTOR 2SB1116	
Q14	8-729-040-19	TRANSISTOR 2SC3616-KLM-T1	
Q15	8-729-040-19	TRANSISTOR 2SC3616-KLM-T1	
Q16	8-729-900-63	TRANSISTOR DTA124ES	
Q17	8-729-900-63	TRANSISTOR DTA124ES	
		< RESISTOR >	
R11	1-249-429-11	CARBON 10K 5% 1/4W	
R12	1-249-441-11	CARBON 100K 5% 1/4W	
R13	1-249-417-11	CARBON 1K 5% 1/4W F	
R15	1-249-429-11	CARBON 10K 5% 1/4W	
R16	1-247-807-31	CARBON 100 5% 1/4W	
R17	1-247-807-31	CARBON 100 5% 1/4W	
R18	1-247-807-31	CARBON 100 5% 1/4W	
R18	1-249-427-11	CARBON 6.8K 5% 1/4W F (US,CND)	
R19	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R20	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R23	1-249-416-11	CARBON 820 5% 1/4W F	
R24	1-249-416-11	CARBON 820 5% 1/4W F	
R25	1-247-807-31	CARBON 100 5% 1/4W	
R26	1-249-429-11	CARBON 10K 5% 1/4W	
R28	1-249-427-11	CARBON 6.8K 5% 1/4W F (EXCEPT US,CND)	
R31	1-202-725-00	SOLID 3.3M 10% 1/2W (US,CND)	
		< RELAY >	
RY11	1-755-276-11	RELAY, POWER	
		< TRANSFORMER >	
△ T11	1-433-832-11	TRANSFORMER, POWER (E,SP,MY,HK,AR,KR,AUS)	
△ T11	1-433-833-11	TRANSFORMER, POWER (AEP,UK,G,CIS)	
△ T11	1-433-835-11	TRANSFORMER, POWER (US,CND)	
		< POWER SWITCH >	
△ VS11	1-771-712-11	SWITCH, POWER (VOLTAGE SELECTOR) (E,SP,MY,HK,AR)	

Ref. No.	Part No.	Description	Remark
*	1-671-115-21	SW BOARD *****	
		< CONNECTOR >	
CN601	1-506-486-11	PIN, CONNECTOR 7P	
		< SWITCH >	
S601	1-572-126-21	SWITCH, PUSH (1 KEY)(REC POSITION)	
S602	1-572-126-21	SWITCH, PUSH (1 KEY)(PACK OUT)	
S604	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (PB POSITION)	

	1-673-380-11	VOL BOARD *****	
		< SWITCH >	
S602	1-473-392-11	ENCODER, ROTARY (VOLUME)	

		MISCELLANEOUS *****	
8	1-775-102-11	WIRE (FLAT TYPE) (11 CORE)	
9	1-775-192-11	WIRE (FLAT TYPE) (21 CORE) (150mm)	
10	1-775-208-11	WIRE (FLAT TYPE) (23 CORE) (140mm)	
13	1-233-544-14	ENCAPSULATED COMPONENT (US,CND)	
13	1-233-545-14	ENCAPSULATED COMPONENT (AR,KR,AUS)	
13	1-233-546-13	ENCAPSULATED COMPONENT (SP,MY,HK)	
13	1-693-443-11	TUNER UNIT (FM/AM) (AEP,UK,G,CIS)	
13	1-693-453-11	TUNER UNIT (FM/AM) (E)	
54	1-773-043-11	WIRE (FLAT TYPE) (17 CORE)	
55	1-773-025-11	WIRE (FLAT TYPE) (15 CORE) (330mm)	
56	1-769-976-11	WIRE (FLAT TYPE) (13 CORE) (US,CND,E,AR,KR,AUS)	
56	1-773-008-11	WIRE (FLAT TYPE) (15 CORE) (140mm) (AEP,UK,G,CIS,SP,MY,HK)	
57	1-773-185-11	WIRE (FLAT TYPE) (23 CORE)	
59	1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
59	1-569-008-21	ADAPTOR, CONVERSION 2P (SP,MY)	
59	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
△ 60	1-696-845-11	CORD, POWER (AUS)	
△ 60	1-769-079-11	CORD, POWER (KR)	
△ 60	1-777-071-41	CORD, POWER (AEP,G,CIS,SP,MY)	
△ 60	1-777-514-11	CORD, POWER (UK)	
△ 60	1-782-315-21	CORD, POWER (E)	
△ 60	1-783-820-21	CORD, POWER (US,CND)	
△ 60	1-783-941-31	CORD, POWER (AR)	
65	1-569-972-21	SOCKET, SHORT 2P	
67	1-783-570-11	WIRE (FLAT TYPE)(19 CORE)	
122	1-675-345-11	WIRE (FLAT TYPE)(23 CORE)	
125	1-673-837-21	TC STOPPER A BOARD	
126	1-673-838-21	TC STOPPER B BOARD	
257	1-452-925-21	MAGNET ASSY	
258	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)	
△ 301	8-820-020-02	OPTICAL PICK-UP KSS-213D/Q-NP	
302	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	

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Ref. No.	Part No.	Description	Remark
* 558	1-667-954-11	FLEXIBLE BOARD	
△ 560	8-583-028-01	OPTICAL PICK-UP KMS-260A/K1NP	
FL601	1-517-841-11	INDICATOR TUBE, FLUORESCENT	
HP101	A-2056-681-A	DECK (A) ASSY, HEAD (230AWR2)	
HP101	A-2056-683-B	DECK (A) ASSY, HEAD (230PWR2)	
HR901	1-500-502-11	HEAD, OVER WRITE	
HRPE101	A-2056-682-A	DECK (B) ASSY, HEAD (230AWR2)	
HRPE101	A-2056-684-B	DECK (B) ASSY, HEAD (230PWR2)	
M1	A-2004-628-A	MOTOR ASSY, CAPSTAN	
M101	A-4672-475-A	MOTOR ASSY, SPINDLE	
M102	A-4672-474-A	MOTOR ASSY, SLED	
M103	X-4949-264-1	MOTOR ASSY, LOADING	
M201	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M202	X-4917-504-1	MOTOR ASSY (SLED)	
M701	A-4672-004-A	MOTOR ASSY (TURN)	
M801	A-4672-004-A	MOTOR ASSY (SLIDE)	
S102	1-762-148-21	SWITCH, PUSH (2 KEY)	
S811	1-473-335-11	ENCODER, ROTARY	
△T11	1-433-832-11	TRANSFORMER, POWER (E,SP,MY,HK,AR,KR,AUS)	
△T11	1-433-833-11	TRANSFORMER, POWER (AEP,UK,G,CIS)	
△T11	1-433-835-11	TRANSFORMER, POWER (US,CND)	
△T951	1-433-790-11	TRANSFORMER, POWER (CND)	
△T951	1-433-791-11	TRANSFORMER, POWER (AEP,UK,G,CIS)	
△T951	1-433-792-11	TRANSFORMER, POWER (US)	
△T951	1-433-793-11	TRANSFORMER, POWER (KR)	
△T951	1-433-794-11	TRANSFORMER, POWER (E,SP,MY,HK,AR,AUS)	

HARDWARE LIST

#1	7-685-871-01	SCREW +BVTT 3X6 (S)
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#3	7-685-880-09	SCREW +BVTT 4X6 (S)
#5	7-685-852-04	SCREW +BVTT 2X5 (S)
#6	7-685-872-09	SCREW +BVTT 3X10 (S)
#7	7-682-553-04	SCREW +P 3X20
#8	7-685-851-04	SCREW +BVTT 2X4 (S)
#9	7-628-254-15	SCREW +PS 2.6X6
#10	7-628-254-50	SCREW +PS 2.6X16
#11	7-685-861-01	SCREW +BVTT 2.6X5 (S)
#12	7-685-647-01	SCREW +BVTP 3X10 TYPE2 N-S

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specified.

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sécurité.
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pièce portant le numéro spécifié.

