

SCD-XA5400ES

SERVICE MANUAL

Ver. 1.2 2010.12

US Model
Canadian Model
AEP Model



Model Name Using Similar Mechanism	NEW
Mechanism Type	CDM66F-DVBU101
Optical Pick-up Block Name	KHM-313CAB

SPECIFICATIONS

When a Super Audio CD is played

Playing frequency range	2 Hz to 100 kHz
Frequency response	2 Hz to 50 kHz (–3 dB)
Dynamic range	110 dB or more
Total harmonic distortion rate	0.0012 % or less
Wow and flutter	Value of measurable limit (±0.001 % W. PEAK) or less

When a CD is played

Frequency response	2 Hz to 20 kHz (±0.5 dB)
Dynamic range	100 dB or more
Total harmonic distortion rate	0.0017 % or less
Wow and flutter	Value of measurable limit (±0.001 % W. PEAK) or less

Output jacks

	Jack type	Output level	Load impedance
ANALOG OUT UN-BALANCED	Phono jacks	2 Vrms (at 50 kilohms)	Over 10 kilohms
ANALOG OUT BALANCED	XLR	2 Vrms (at 50 kilohms)	Over 600 ohms
HDMI	HDMI		
DIGITAL OUT (CD) OPTICAL*	Square optical output connector	–18 dBm	(Light emitting wave length: 660 nm)
DIGITAL OUT (CD) COAXIAL*	Coaxial output connector	0.5 Vp-p	75 ohms
PHONES	Stereo phone jack	5 mW	32 ohms

* Outputs only the audio signals of the CD

General

Laser Diode Properties

Emission duration:
Continuous
Laser Output*: Less than 44.6 μ W
* This output is the value measurement at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Power requirements

North America:
120 V AC, 60 Hz
Europe:
230 V AC, 50/60 Hz
25 W

Power consumption

Power consumption (during standby mode)
0.5 W

Dimensions (w/h/d)

430 × 124 × 390 mm
(17 × 5 × 15 3/8 inch) incl. projecting parts

Mass (approx.)

10.2 kg (22 lb 8 oz)

NOTES ON CHIP COMPONENT REPLACEMENT

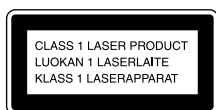
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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.

CAUTION

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



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

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

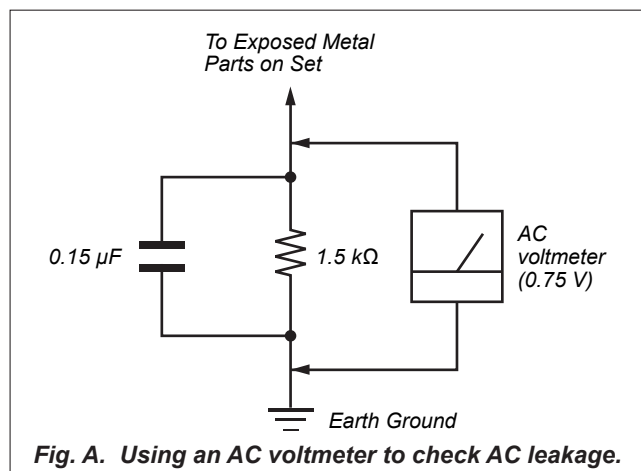
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.

Check leakage as described below.

LEAKAGE TEST

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 2 V AC range are suitable. (See Fig. A)



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.

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SECTION 1

SERVICING NOTES

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 pickup block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

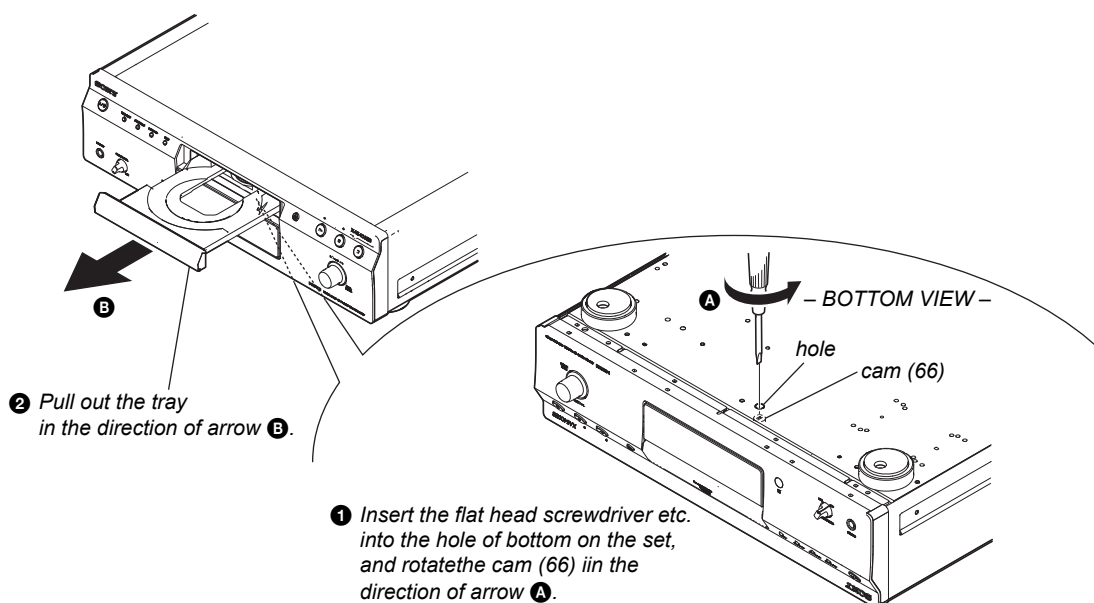
: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350 °C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

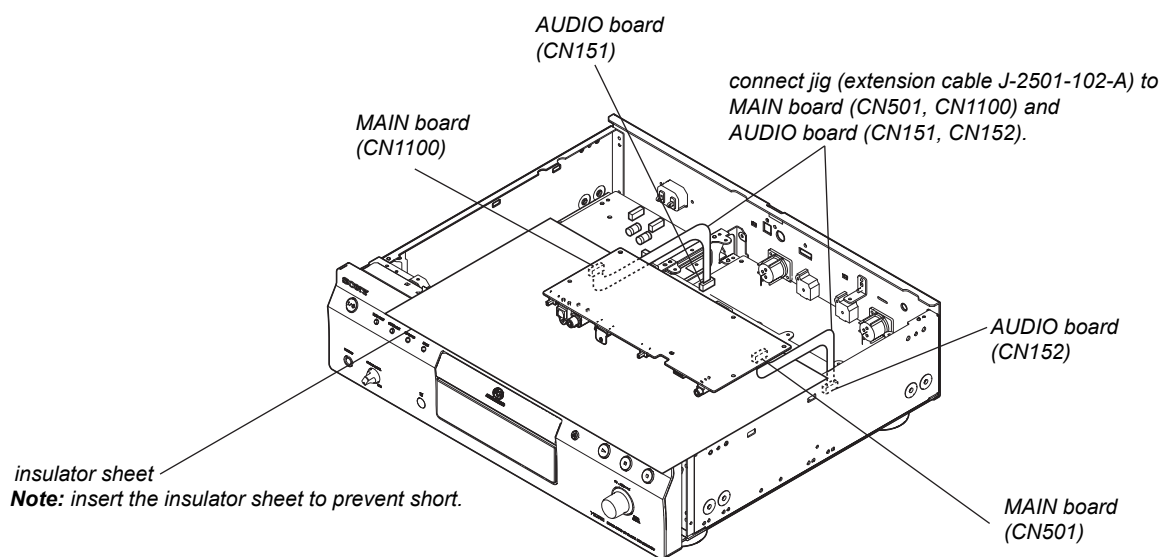
NOTE OF REPLACING THE IC1103 ON THE MAIN BOARD

HOW TO OPEN THE TRAY WHEN POWER SWITCH TURNS OFF



MAIN BOARD SERVICE POSITION

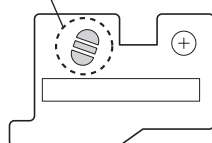
In checking the MAIN board, prepare jig (extension cable J-2501-102-A: 1 mm Pitch, 13 cores, Length 300 mm).



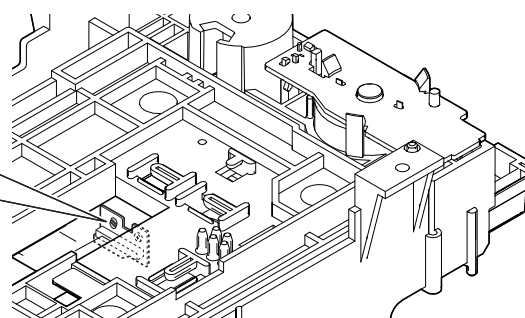
PRECAUTION WHEN REMOVING OPTICAL PICK-UP BLOCK

CAUTION

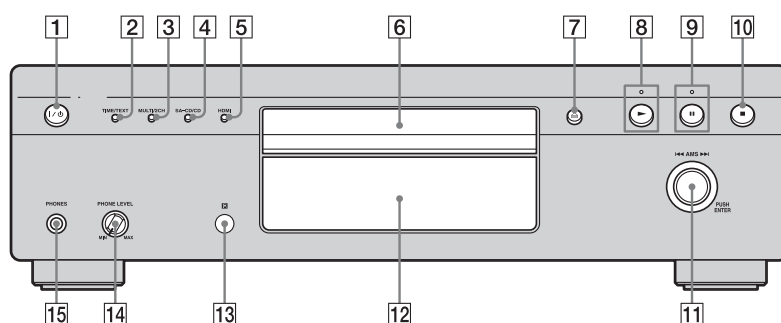
Be sure to execute a solder bridge as a measure against static electricity when removing the optical pick-up block. (Otherwise, the optical pick-up block will be destroyed.)



– MECHANISM DECK BOTTOM VIEW –

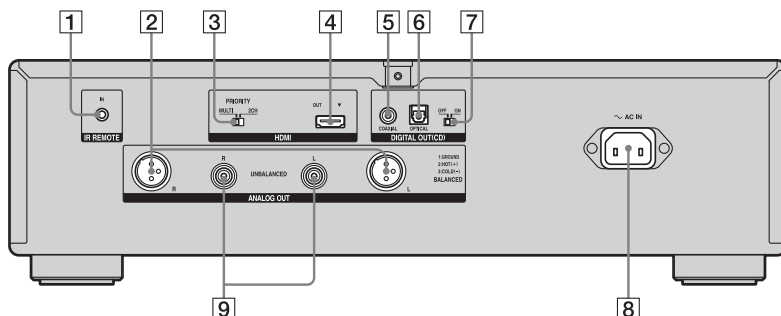


Front Panel



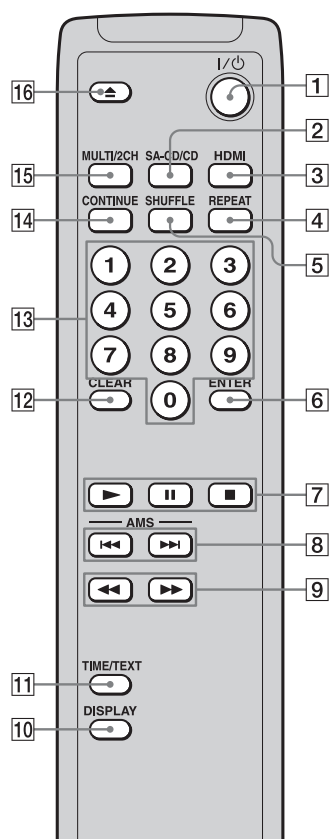
- 1 I/O (power) switch**
Turns the power of the player on or off.
To let the player enter power-saving mode (standby mode), press I/O (power) on the remote or on the player.
- 2 TIME/TEXT button**
Switches the playing time of the track, the remaining time of the disc, or TEXT information on the display.
- 3 MULTI/2CH button**
Selects the playback area when a disc with the 2-channel area and the multi-channel area (page 8) is loaded.
- 4 SA-CD/CD button**
Switches between the Super Audio CD layer and the CD layer of a hybrid disc.
- 5 HDMI button/lamp**
Sets whether the audio signal is output from the HDMI OUT jack or not.
When the lamp is lit, sound is output from the HDMI OUT jack.
When the lamp is not lit, sound is output from the ANALOG OUT jacks and DIGITAL OUT (CD) jacks.
- 6 Disc tray**
Holds a disc.
- 7 ≡ button**
Opens and closes the disc tray.
- 8 ► button and lamp**
Plays a disc. The lamp lights up during playback.
- 9 II button and lamp**
Pauses playback. The lamp lights up during playback pause.
- 10 ■ button**
Stops playback
- 11 ◀ AMS ▶ dial (AMS: Automatic Music Sensor)**
Selects a track.
- 12 Display window**
Displays information on the disc or current track.
- 13 Remote sensor**
Receives the signal from the remote.
- 14 PHONE LEVEL**
Adjusts the headphones volume.
- 15 PHONES jack**
Connects the headphones.

Rear Panel



- 1 IR REMOTE IN jack**
Equipped on the models for the U.S. and Canada only.
Connects an IR repeater.
- 2 ANALOG OUT BALANCED L/R jacks**
Connects a component with XLR input jacks, such as stereo amplifiers, etc., using an XLR (balanced) cable (not supplied).
- 3 HDMI PRIORITY MULTI/2CH switch**

Remote



1 I/⏻ (power) switch

Turns the power of the player on or off.
To let the player enter power-saving mode (standby mode), press I/⏻ (power) on the remote or on the player.

2 SA-CD/CD button

Switches between the Super Audio CD layer and the CD layer of a hybrid disc.

3 HDMI button

Sets whether the audio signal is output from the HDMI OUT jack or not.

4 REPEAT button

Performs Repeat Play.

5 SHUFFLE button

Performs Shuffle Play.

6 ENTER button

Select a track directly.

7 ► button

⏸ button

■ button

Plays back discs, pauses playback, and stops playback.

8 AMS ◀◀/▶▶ buttons (AMS: Automatic Music Sensor)

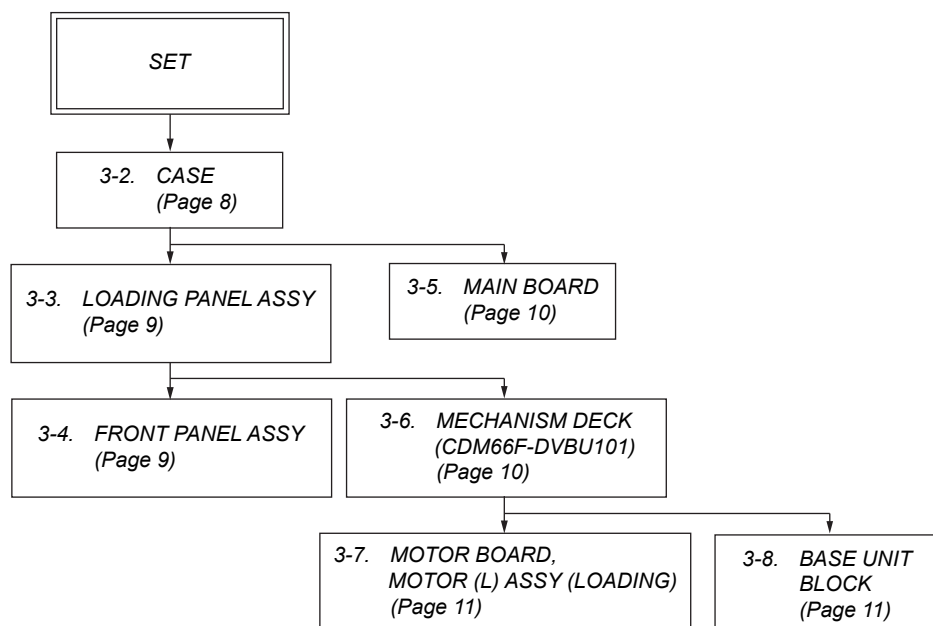
Selects a track.

9

SECTION 3 DISASSEMBLY

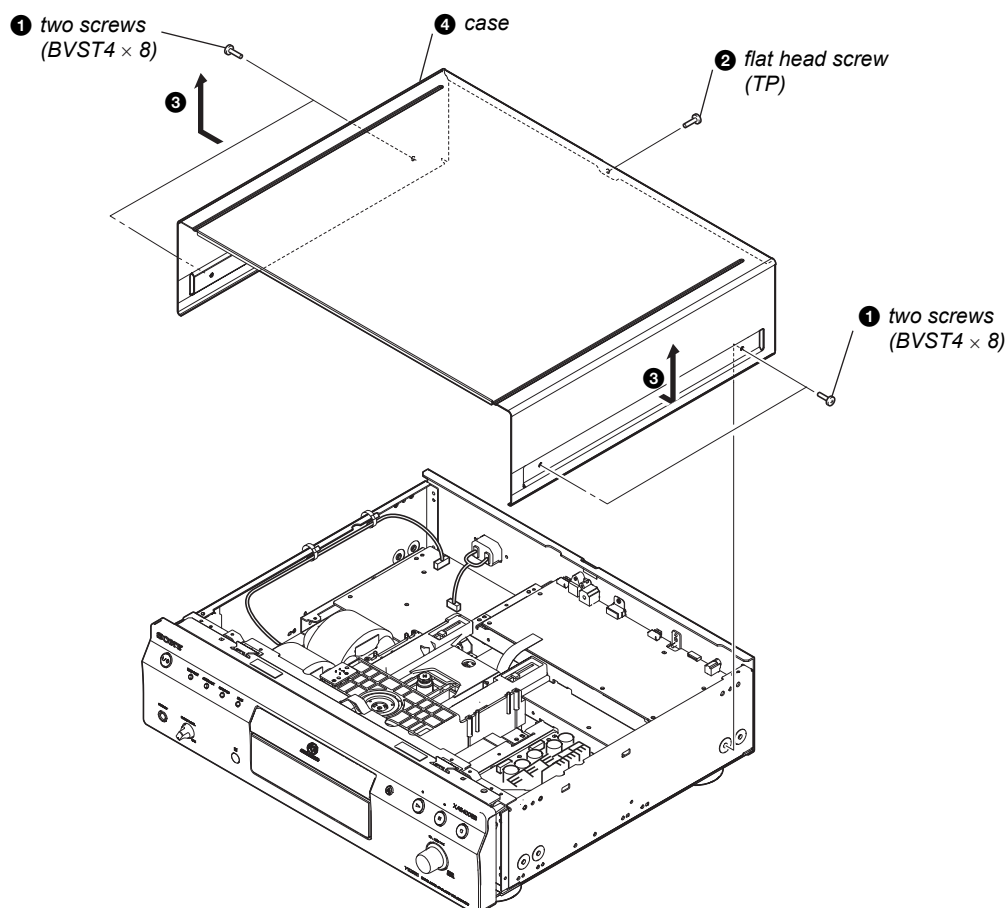
- This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

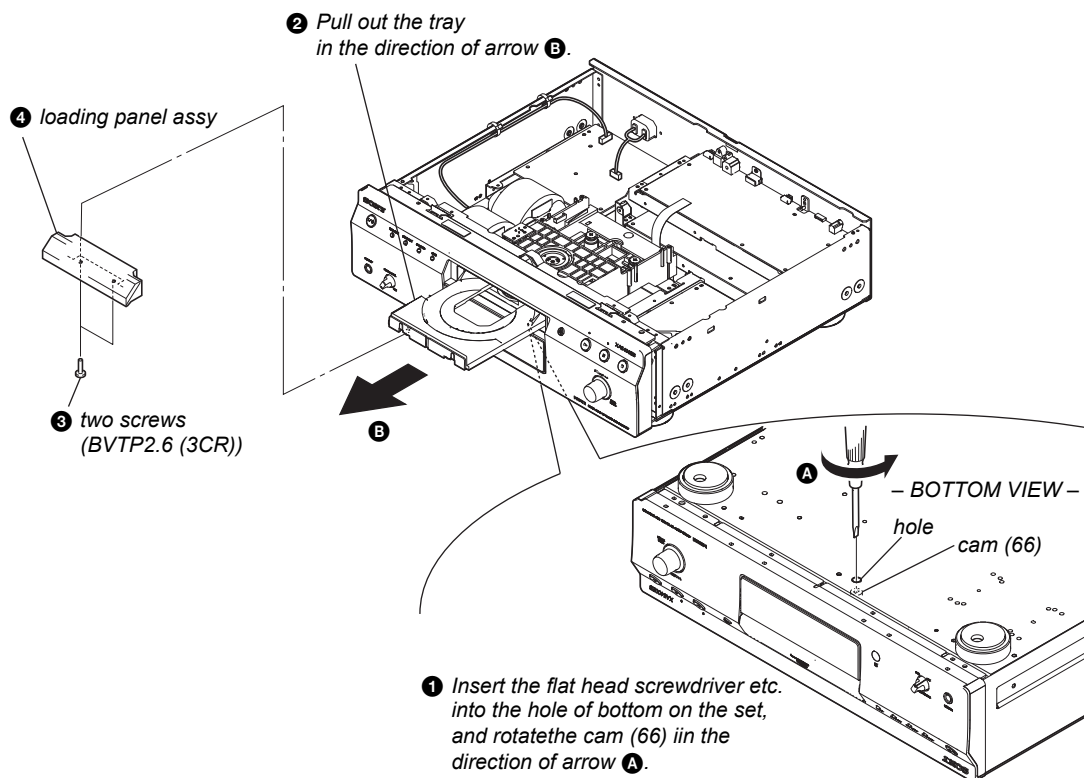


Note: Follow the disassembly procedure in the numerical order given.

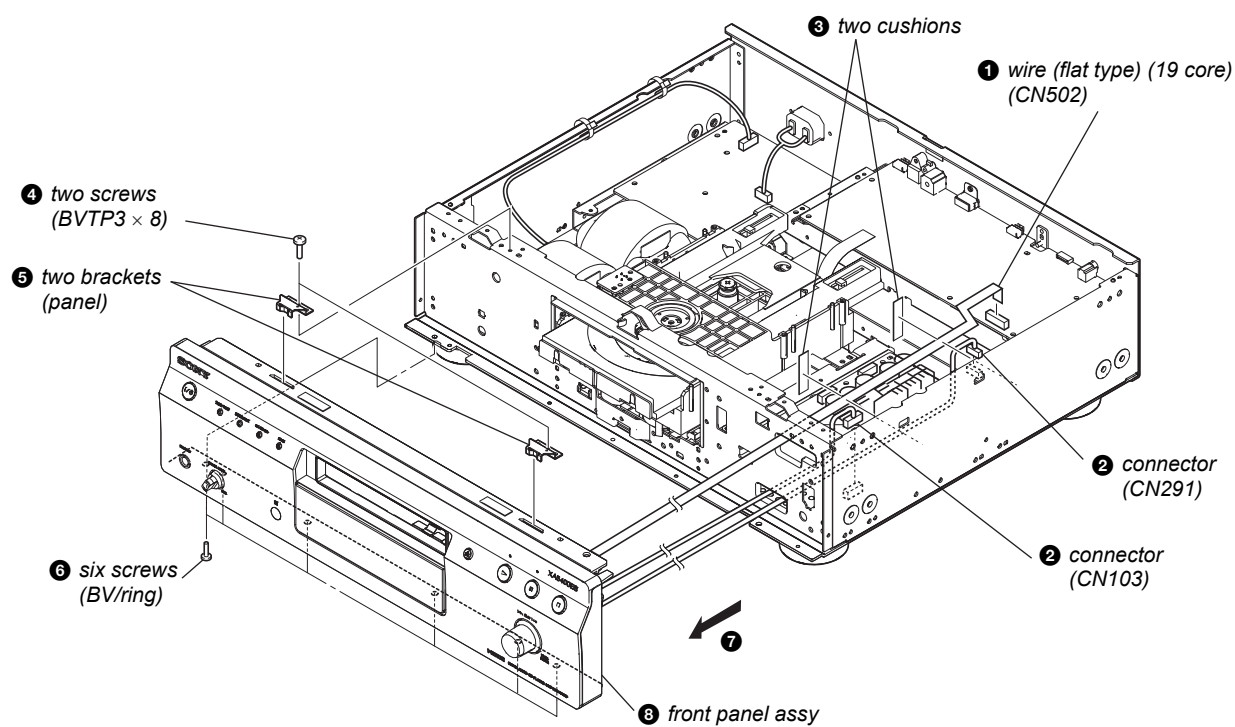
3-2. CASE



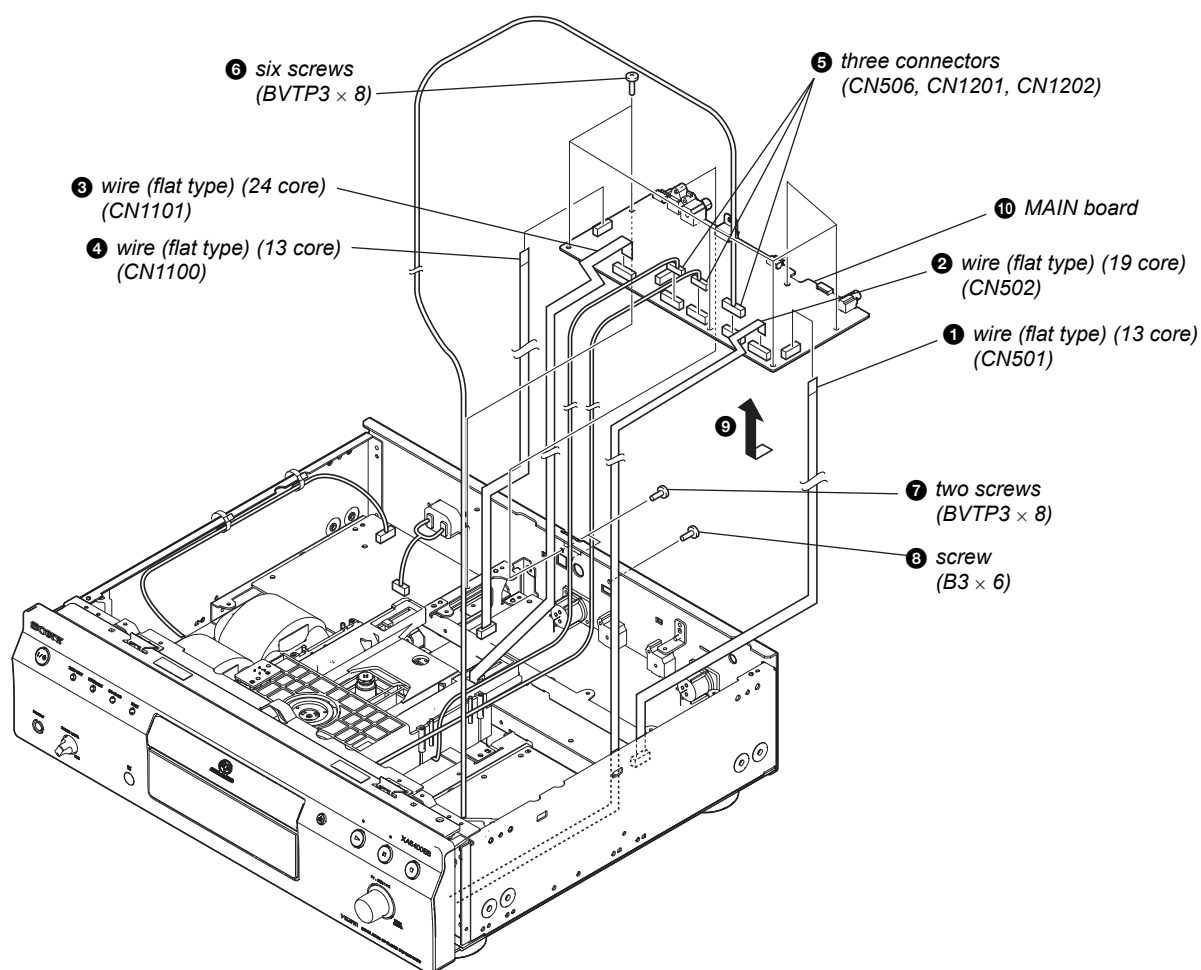
3-3. LOADING PANEL ASSY



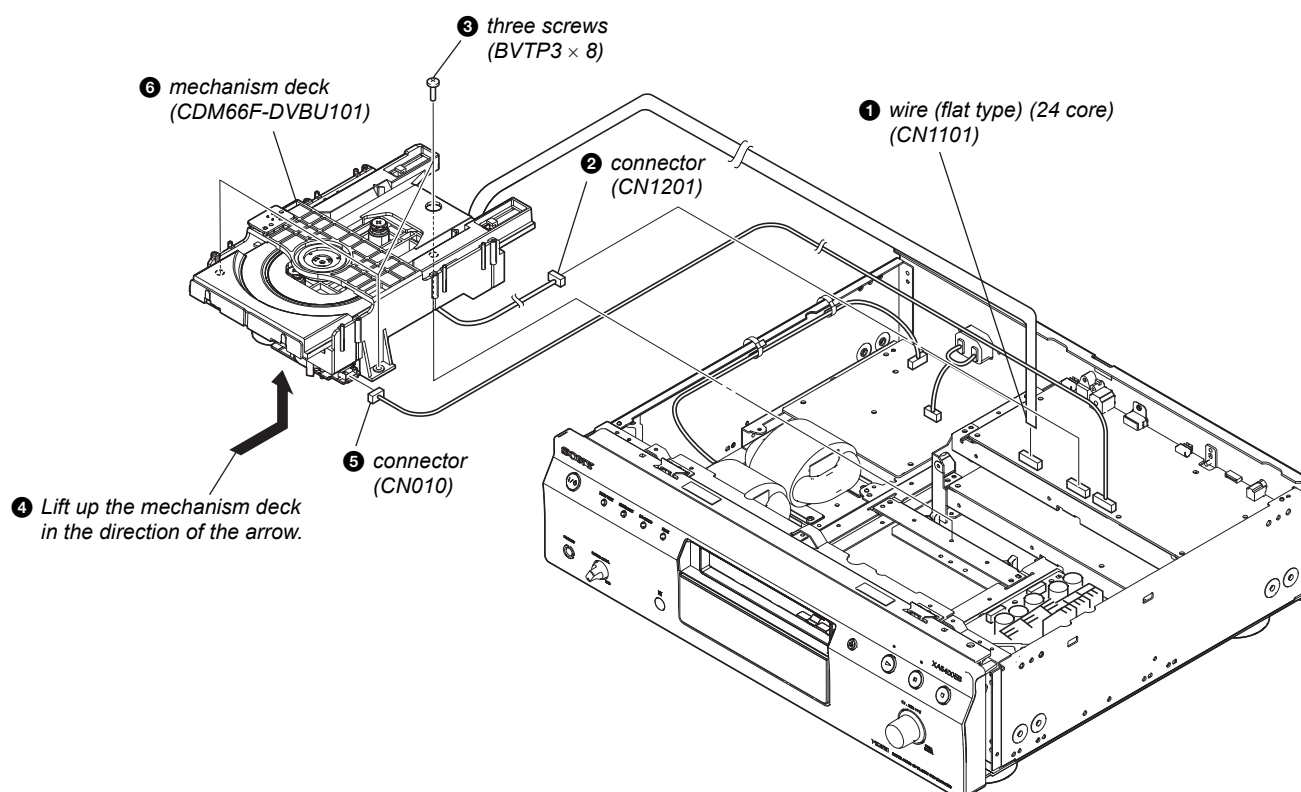
3-4. FRONT PANEL ASSY



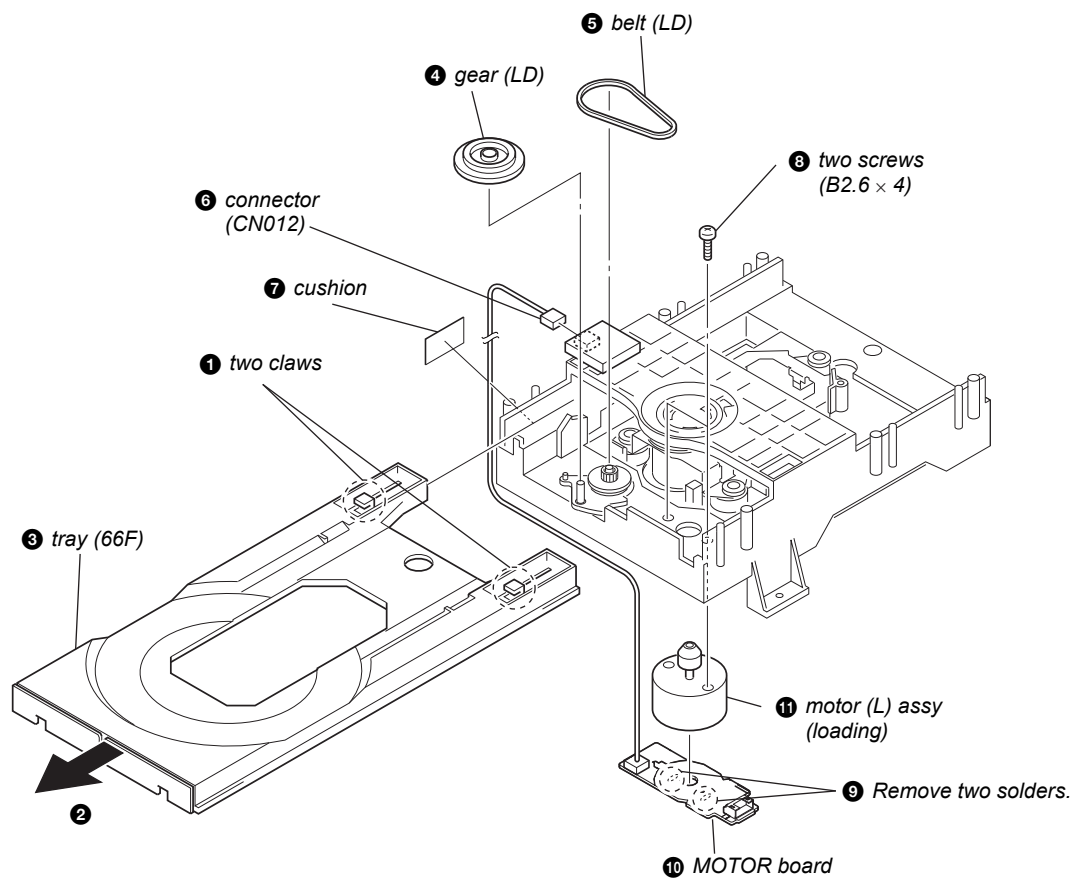
3-5. MAIN BOARD



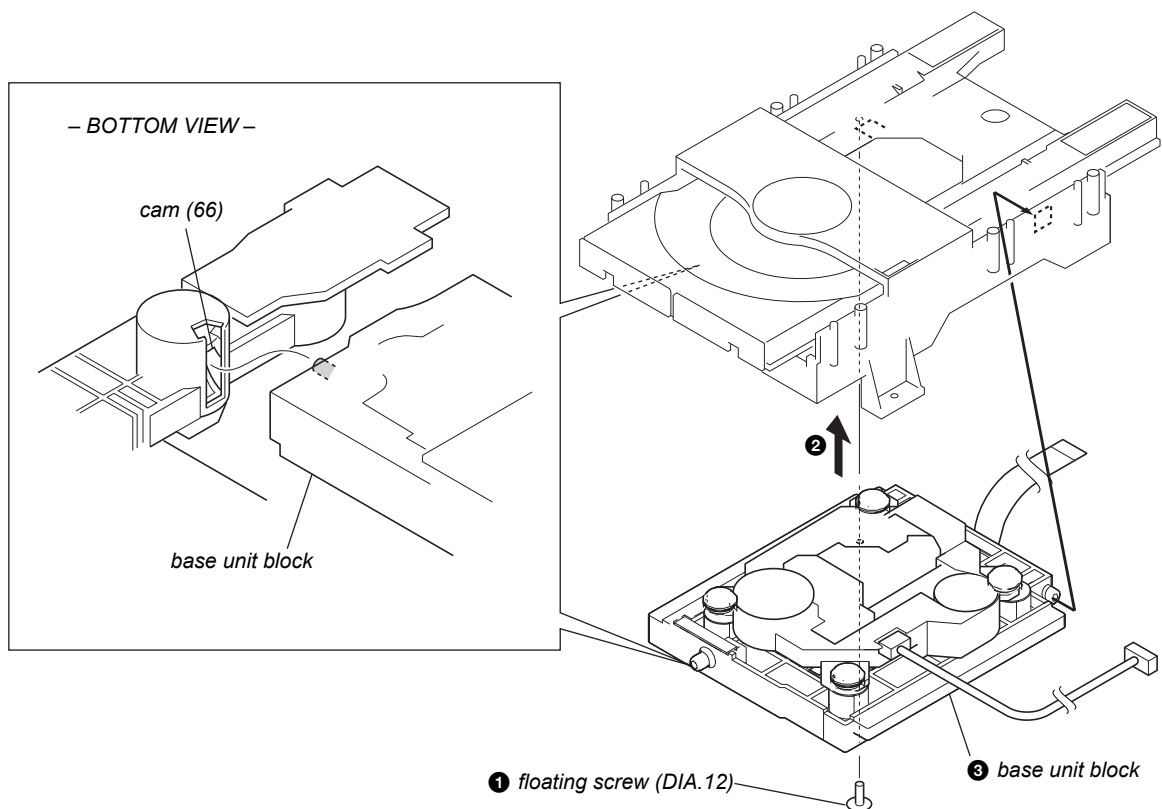
3-6. MECHANISM DECK (CDM66F-DVBU101)



3-7. MOTOR BOARD, MOTOR (L) ASSY (LOADING)



3-8. BASE UNIT BLOCK



List of trouble log

Note: “nnn” of toggle article number is a generation frequency of the error.

Type	Test key (Remote commander)	Toggle article number	Content
Rebooting emergence (Rebooting emergence factor)	Test key2 (↑)	2Annn	It was not possible to communicate with MTK five seconds more continuously
		2Bnnn	Compulsion power off demand was received from MTK
		2Cnnn	Only MTK reset it (Destination, model and region for are the disagreements)
		2Dnnn	Fails in the start of MTK
		2Ennn	Fails in the switch of the input mode of MTK
		2Fnnn	Input mode of MTK changed without permission
		2Gnnn	Reacts to the key notification no though the communication with MTK is alive
Serial communications (MTK communication error factor)	Test key3 (→)	3Annn	It was not possible to communicate with MTK with 48ms
		3Bnnn	A non-standard packet length was received (Excluding 16 bytes)
		3Cnnn	Checksum NG
		3Dnnn	Type of the communication header is NG
MTK power control (Power ON/OFF error factor)	Test key4 (↓)	4Annn	Fails in AC ON Initial
		4Bnnn	Fails in power on of MTK
		4Cnnn	Initialization response of CDM is abnormal
		4Dnnn	CDM mechanism error notification is received
		4Ennn	Input mode is NG MTK is started
		4Fnnn	MTK input mode switch at time fails usually
		4Gnnn	Fails in power off of MTK

SERVICE MODE

About The Remote Commander Used In The Service Mode:

When the service mode is operated, the following, remote commander is necessary.

(The service mode cannot be operated by remote commander to which this machine is attached)

Remote commander (RM-ASP004): Part No. 1-479-272-21

Note: Above-mentioned remote commander is one example. If it is the one printed under a remote commander as “DVD”, any remote commander can be operated.

1. Service Mode General Description

This mode let you make diagnosis and adjustment easily by using the remote commander and the TV screen for HDMI input. The instructions, diagnostic results, etc. are given on the TV screen. Be sure to execute “3. IOP measurement” when the optical pickup block is replaced.

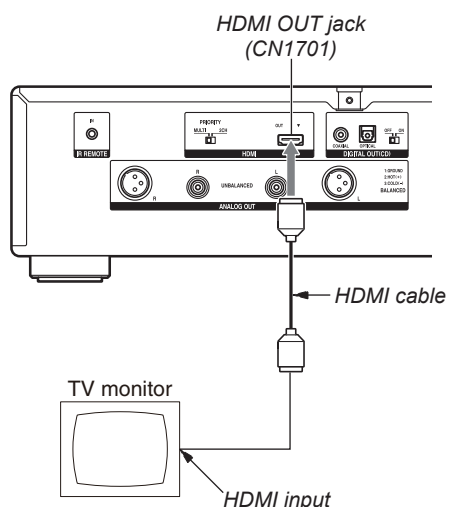
Preparations:

- TV monitor with HDMI input
- HDMI cable
- Remote commander for service mode (refer to “About The Remote Commander Used In The Service Mode”)

Connection procedure:

Connect the TV monitor to the HDMI OUT jack (CN1701).

– Rear View –



2. Entering Service Mode

Procedure:

- 62: Read Q data/ID error
- 70: Lead in data read fail
- 71: TOC read time out (CD)
- 80: Can't buffering
- 81: Unknown media type

B. Parameter of error code

This is the detail of error code.

Example of Error code															
01.	01	05 04 04				00 92 46 00									
		00 00 00 00				00 00				23 45					

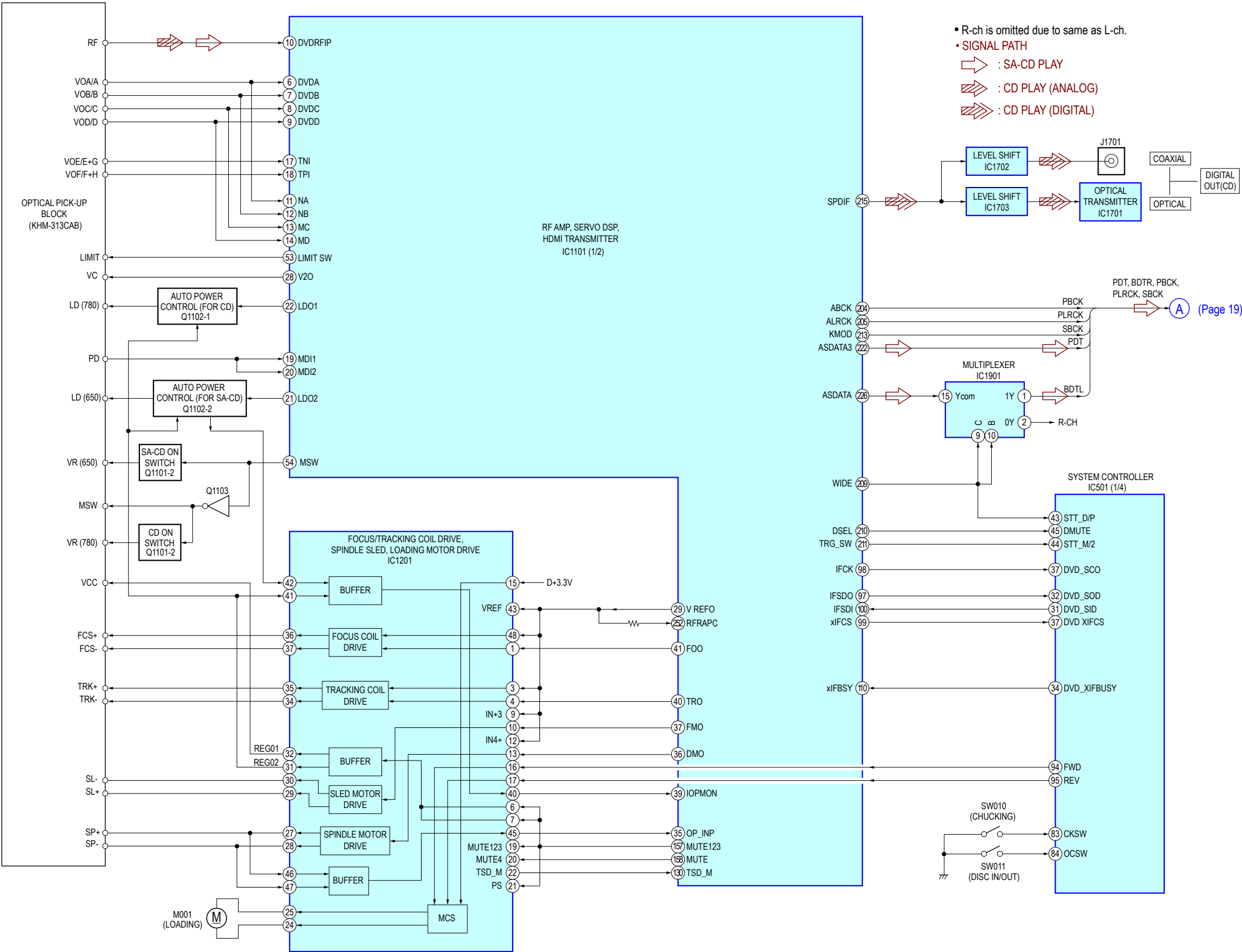
C. Time of error code

This is the laser time when an error occurred.

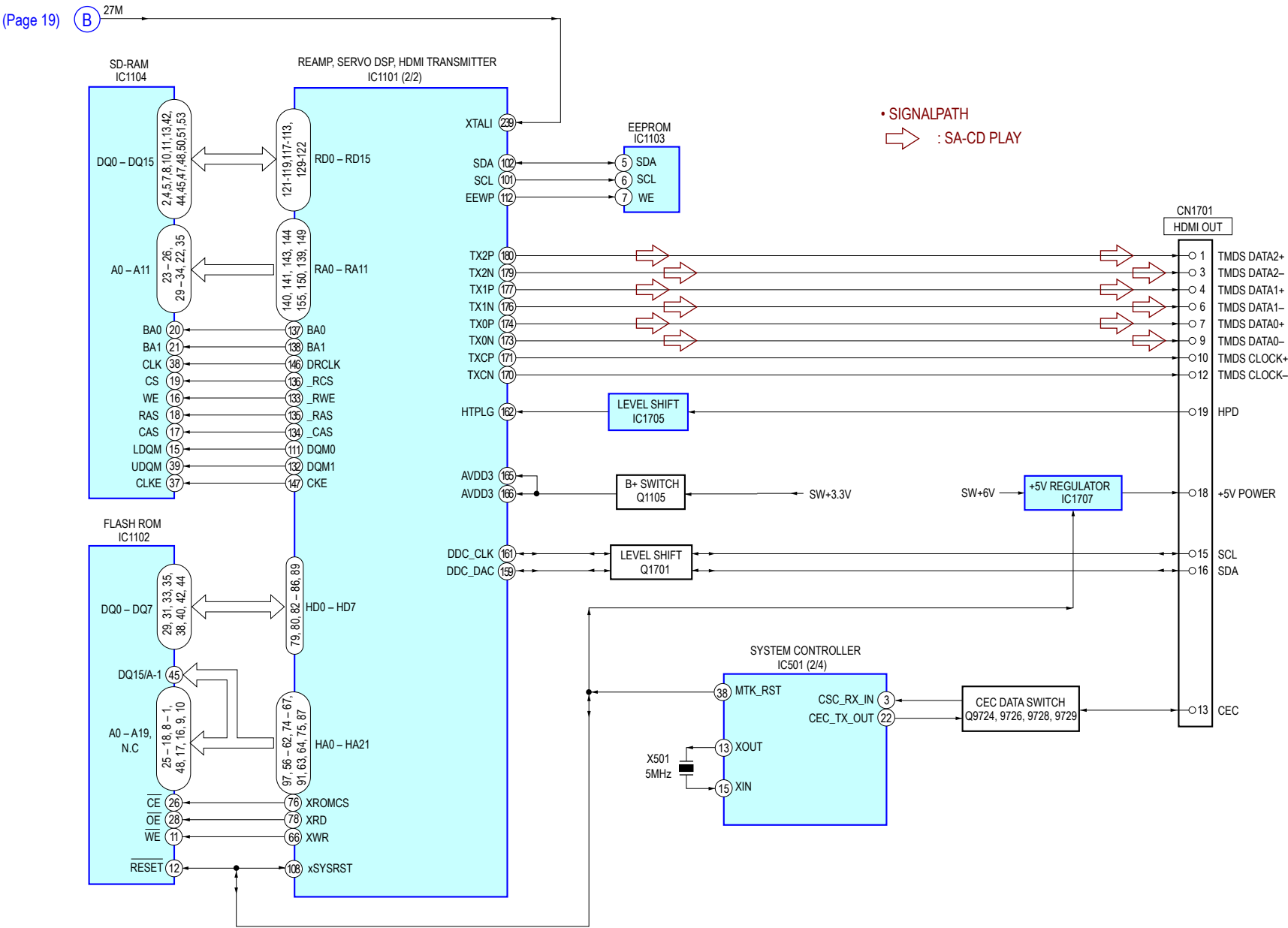
Example of Error code															
01.	01	05 04 04				00 92 46 00									

SECTION 5
DIAGRAMS

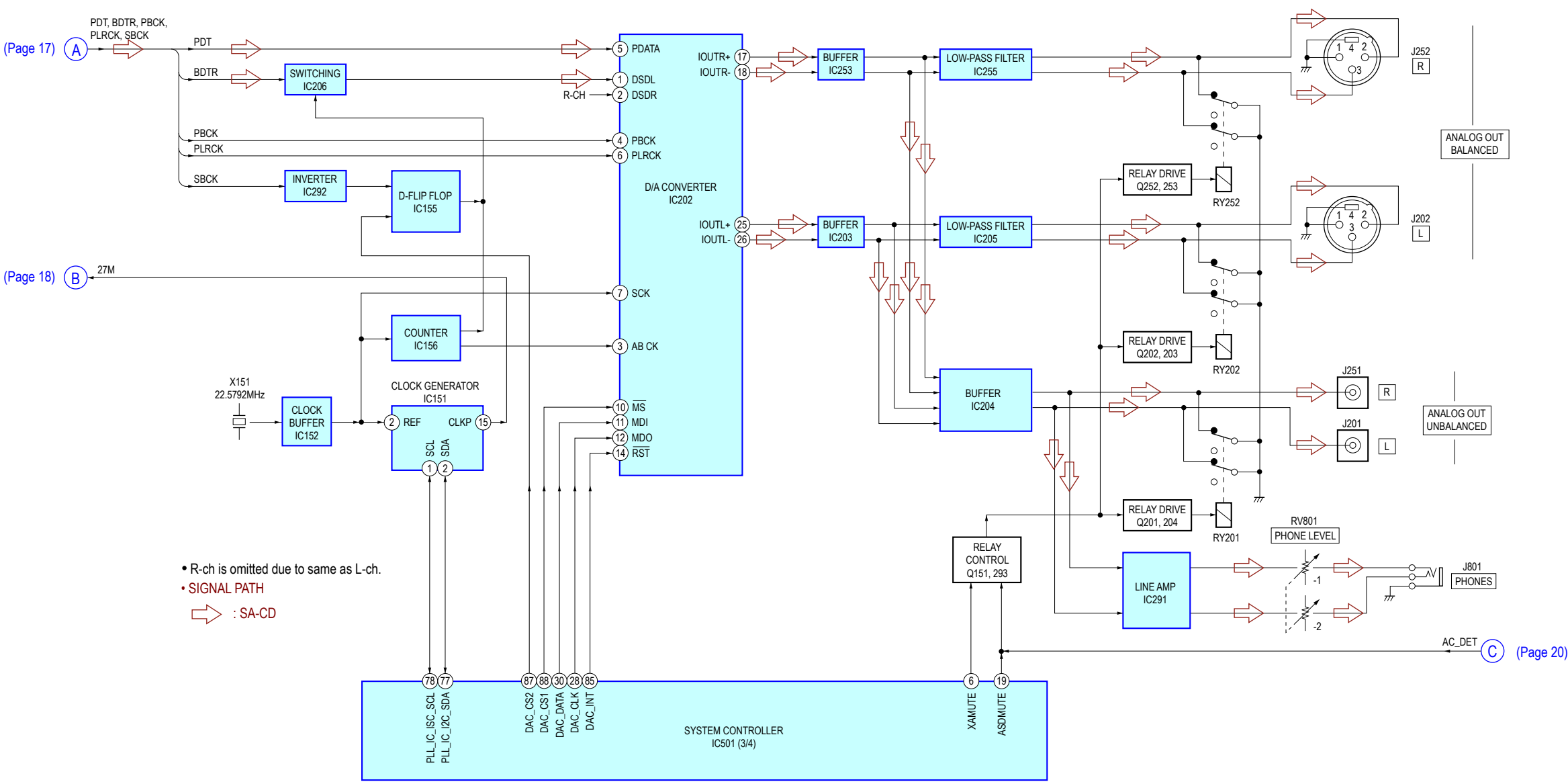
5-1. BLOCK DIAGRAM - SA-CD/CD SERVO Section -



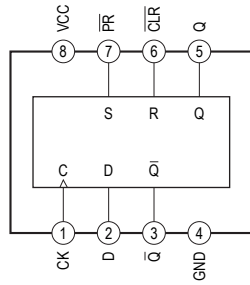
5-2. BLOCK DIAGRAM - HDMI Section -



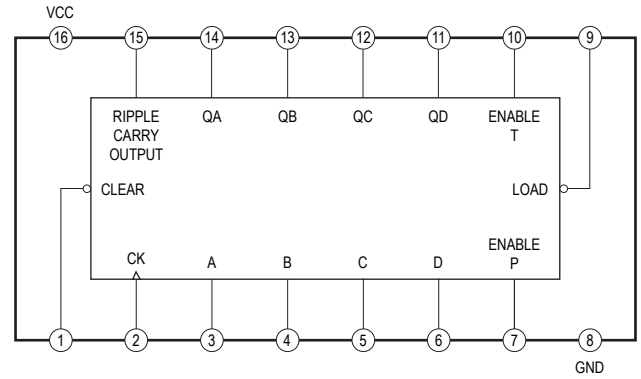
5-3. BLOCK DIAGRAM - MAIN Section -



IC155 TC7W74FU



IC156 HD74LV161ATELL



IC202 DSD1796DBR

