

# CDP-CE275/CE375

## SERVICE MANUAL

Ver 1.1 2001.07

US Model  
Canadian Model  
Australian Model  
CDP-CE275/CE375  
AEP Model  
UK Model  
E Model  
CDP-CE375



Photo: CDP-CE375

Model Name Using Similar Mechanism	CDP-CE345
CD Mechanism Type	CDM59-5BD27
Base Unit Name	BU-5BD27
Optical Pick-up Name	PXR-104X

### SPECIFICATIONS

#### Compact disc player

Laser	Semiconductor laser ( $\lambda = 780 \text{ nm}$ ) Emission duration : continuous
Frequency response	2 Hz to 20 kHz $\pm 0.5 \text{ dB}$
Dynamic range	More than 93 dB
Harmonic distortion	Less than 0.0045%

#### Outputs

	Jack type	Maximum output level	Load impedance
ANALOG OUT	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	-18 dBm	Wave length: 660 nm
PHONES (CDP-CE375 only)	Stereo phone jack	10 mW	32 ohms

#### General

Power requirements	120 V AC, 60 Hz
Power consumption	11 W
Dimensions (approx.) (w/h/d)	430 x 110 x 400 mm (17 x 4 3/8 x 15 3/4 in.) incl. projecting parts
Mass (approx.)	5 kg (11 lbs 1 oz)

#### Supplied accessories

Audio cord (2 phono plugs – 2 phono plugs) (1)  
Remote commander (remote) (1) (CDP-CE375 only)  
R6 (size AA) batteries (2) (CDP-CE375 only)

Design and specifications are subject to change without notice.

## COMPACT DISC PLAYER

9-873-822-12  
2001G0500-1  
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**Sony Corporation**  
Home Audio Company  
Shinagawa Tec Service Manual Production Group

# SONY®

## SECTION 4 TEST MODE

### ADJ MODE

**NOTE:** This mode cannot be performed without a general remote commander.

1. Chuck the CD first, and then turn OFF the power.
2. Short-circuit the test point TP1 (ADJ) of the MAIN board and ground with a lead wire.
3. Press the **POWER** button to turn ON the power.  
The CD is playback automatically and the ADJ mode is set.
4. To exit the mode, press the **POWER** button to turn OFF the power.

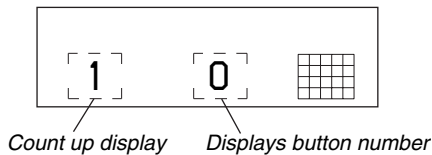
- Prohibits high speed search during accessing
- Ignores even if GFS becomes "L"

#### ADJ Mode Special Function Table

Button	Function
PLAY MODE	Auto gain display (Focus, Tracking and Sledding)
EDIT	RFCK → GFS → Error rate display

### FLUORESCENT INDICATOR TUBE ALL LIT, AND KEY CHECK MODE

1. Short-circuit the test TP2 (AFADJ) of the MAIN board and ground with a lead wire.
2. Press the **POWER** button to turn ON the power.  
The whole fluorescent indicator tube lights up.
3. All buttons have individual button numbers.  
When a button is pressed, the button number is counted up and displayed.



When remote controller signals are received, "RM \*\*" will be displayed.

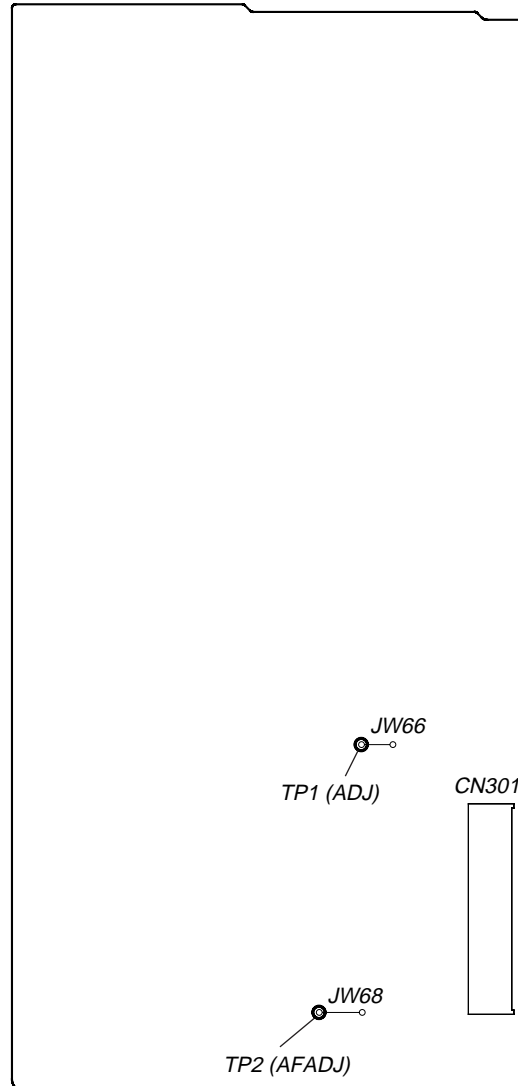
(\* are the numbers corresponding to the remote controller buttons.)

When using the remote controller, switch the **CD1/2/3** switch to CD1.

4. To exit the mode, press the **POWER** button to turn OFF the power.

### Connecting Location:

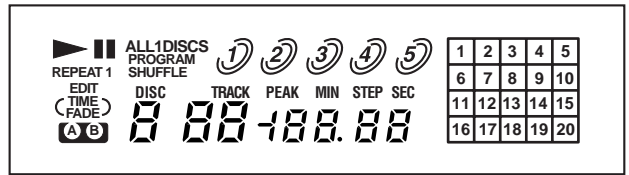
#### – MAIN BOARD (Component Side) –



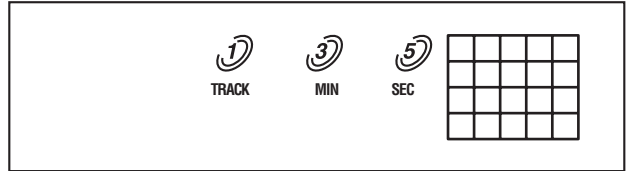
**Buttons and Corresponding Button Numbers**

Button	Button Number or Display
DISC1	12
DISC2	11
DISC3	10
DISC4	9
DISC5	8
PLAY MODE	20
PEAK SEARCH	19
FADER	18
REPEAT	17
TIME	16
▷ (PLAY)	Partial lighting 1
▬ (PAUSE)	Partial lighting 2
■ (STOP)	All lit
EX-CHANGE	35
DISC SKIP	36
◀◀	24
▶▶	25
EDIT	26
CHECK	27
CLEAR	28
AMS (push)	37
AMS (turn)	When rotated clockwise: The music calendar numerals light up in ascending order. When rotated counterclockwise: The music calendar numerals light up in descending order.

All lit



Partial lighting 1



↕ Light alternately



Partial lighting 2



↕ Light alternately



## AGING MODE

For the aging mode, three modes of all mode, disc table mode, and loading mode are available.

This set has the Aging mode for operation check of the mechanism deck.

- If a failure occurred

The aging operation stops and a faulty status is displayed on the fluorescent indicator tube.

- If no failure occurs

The aging operation continues repeatedly.

**Note:** Do not use the test disc when performing aging.

Aging will not be performed properly if discs with tracks shorter than 4 seconds are used.

### Procedure:

1. Press the **POWER** button and turn ON the power.

2. Set discs on all trays.

(More than two discs if five are not available)

3. All mode:

Press the **CHECK**, **PLAY MODE** and **■** buttons at the same time.

Disc table mode:

Press the **CHECK**, **PLAY MODE** and **SKIP** buttons at the same time.

Loading mode:

Press the **CHECK**, **PLAY MODE** and **EX-CHANGE** buttons at the same time.

4. Aging starts, and the fluorescent indicator tube will display the following.

5. To exit the mode, press the **POWER** button to turn OFF the power.

Code No.	Status	All mode	Disc table mode	Loading mode	Display in Normal operation	Display in case of failure
0	CLOSE (Tray closed)	○	×	○	A-0	Err 0
1	TOC reading	○	○	○	A-1	Err 1
2	Access to last track	○	×	×	A-2	Err 2
3	Play of last track (3 sec)	○	×	×	Counter display	Err 3
4	EX OPEN (Tray opened while chucking)	○	×	○	A-4	Err 4
5	EX SKIP (Disc tray rotated)	○	×	×	A-5	Err 5
6	EX CLOSE (Tray closed)	○	×	○	A-6	Err 6
7	Access to first track	○	×	×	A-7	Err 7
8	Play of first track (3 sec)	○	×	×	Counter display	Err 8
9	OPEN (tray opened)	○	×	○	A-9	Err 9
A	DISC SKIP (Disc tray rotated, Ond next disc was selected)	○	○	×	A-A	Err A

The discs are selectie in the order of DISC1 → DISC2 → DISC3 → DISC4 → DISC5 → DISC1 → .... Empty trays are skipped. But the order is random in the disc table mode.

## MECHANISM DECK CHECK MODE

For the mechanism deck check mode, two modes of disc table mode and loading mode are available.

In the mechanism deck check mode, the disc table turning time and the loading time in each section are measured and displayed.

### Procedure:

Disc table mode:

Press the **POWER** switch while pressing **▷**, **OPEN/CLOSE** and **REPEAT** buttons simultaneously.

Loading mode:

Press the **POWER** switch while pressing **▷**, **OPEN/CLOSE** and **TIME** buttons simultaneously.

Display contents

Mode	Check command	Display
Disc table mode ( Table turning time measurement )	0: Right one turn	r 12.5
	1: Left one Turn	L 10.2
	2: Measurement end	r 12.5
	3: Undefined	
Table mode ( Loading time measurement )	4: Star position	Sta --.
	5: Open → Close	CLo 10.2
	6: Close → BU up	UP 0.7
	7: BU up → EX open	EoP 6.2
	8: EX open → EX close	ECL 10.3
	9: EX close → BU down	don 1.2
	A: BU down → Open	oPn 9.3
	FF: Measurement end	CLo 10.2

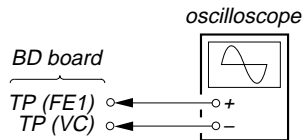
## SECTION 5 ELECTRICAL ADJUSTMENTS

**Note:**

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use PATD-012 disc (4-225-203-01) 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**

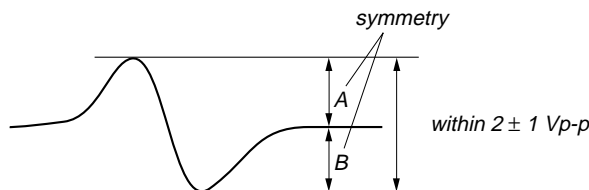
**Connection:**



**Procedure:**

1. Set the test disc (PATD-012). Disc chucking operation is complete, then press the **POWER** button to turn the power off.
2. Connect an oscilloscope to test point TP (FE1) and TP (VC) on the BD board.
3. Connect between test point TP (ADJ) on the MAIN board and GND by lead wire.
4. Press the **POWER** button to turn the power on and enter the ADJ mode.  
Then playback the number two track automatically, press the **STOP** button to stop the playback.
5. Press the **CHECK** button actuate the focus search. (actuate the focus search when disc table is moving in and out)
6. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within  $2 \pm 1$  Vp-p.

S-curve waveform

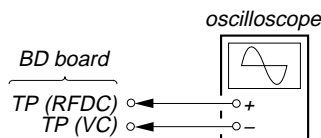


- Note:**
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
  - Take sweep time as long as possible and light up the brightness to obtain best waveform.

**Checking Location:** BD board

**RFDC Level Check**

**Connection:**

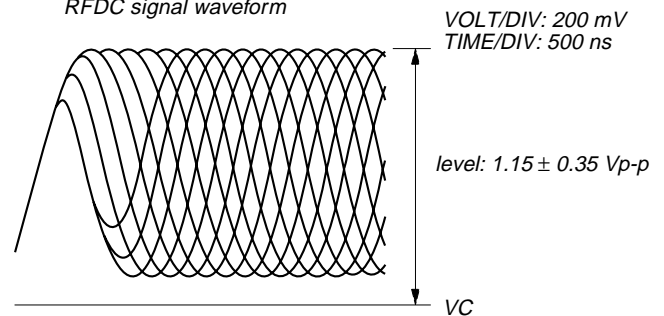


**Procedure:**

1. Set the test disc (PATD-012). Disc chucking operation is complete, then press the **POWER** button to turn the power off.
2. Connect an oscilloscope to test point TP (RFDC) and TP (VC) on the BD board.
3. Connect between test point TP (ADJ) on the MAIN board and GND by lead wire.
4. Press the **POWER** button to turn the power on and enter the ADJ mode, then playback the number two track automatically.
5. Confirm that oscilloscope waveform is clear and check the level of between RFDC top and VC is correct or not.

**Note:** A clear RFDC signal waveform means that the shape “∩” can be clearly distinguished at the center of the waveform.

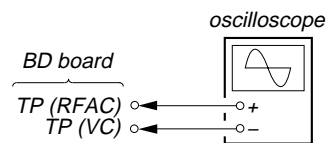
RFDC signal waveform



**Checking Location:** BD board

**RFAC Level Check**

**Connection:**

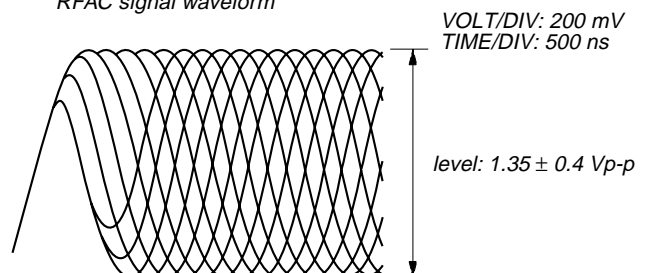


**Procedure:**

1. Set the test disc (PATD-012). Disc chucking operation is complete, then press the **POWER** button to turn the power off.
2. Connect an oscilloscope to test point TP (RFAC) and TP (VC) on the BD board.
3. Connect between test point TP (ADJ) on the MAIN board and GND by lead wire.
4. Press the **POWER** button to turn the power on and enter the ADJ mode, then playback the number two track automatically.
5. Confirm that oscilloscope waveform is clear and check RFAC signal level is correct or not.

**Note:** A clear RFAC signal waveform means that the shape “∩” can be clearly distinguished at the center of the waveform.

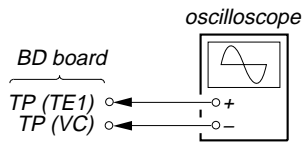
RFAC signal waveform



**Checking Location:** BD board

**E-F Balance Check**

**Connection:**

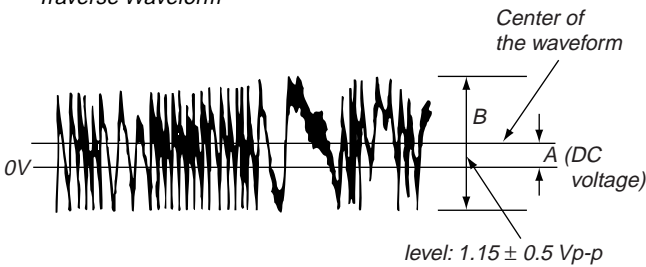


**Procedure:**

1. Set the test disc (PATD-012). Disc chucking operation is complete, then press the **POWER** button to turn the power off.
2. Connect an oscilloscope to test point TP (TE1) and TP (VC) on the BD board.
3. Connect between test point TP (ADJ) on the MAIN board and GND by lead wire.
4. Press the **POWER** button to turn the power on and enter the ADJ mode, then playback the number two track automatically.
5. Press the **TIME** button. (The tracking servo and the sledding servo are turned OFF)
6. Check the level B of the oscilliscope waveform and the A (DC voltage) of the center of the Traverse waveform.

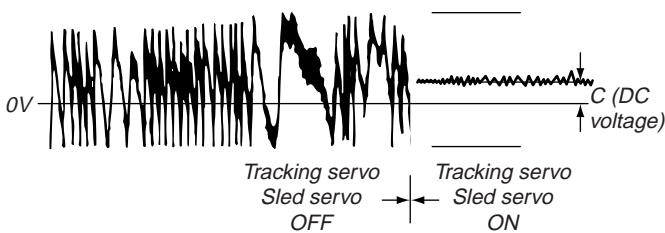
Confirm the following :  
 $A/B \times 100 = \text{less than } \pm 22\%$

*Traverse Waveform*



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

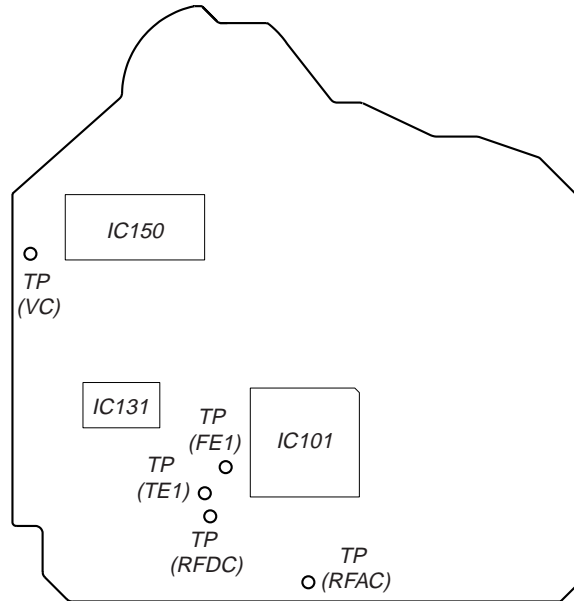
*Traverse Waveform*



**Checking Location:** BD board

**Checking Location:**

– **BD BOARD (Conductor Side) –**



## SECTION 6 DIAGRAMS

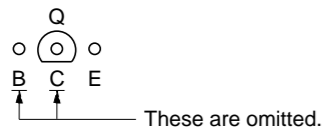
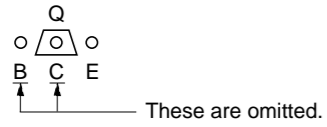
### 6-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

#### Note on Printed Wiring Board:

- — : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

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

- Indication of transistor



#### Note on Schematic Diagram:

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

#### Note:

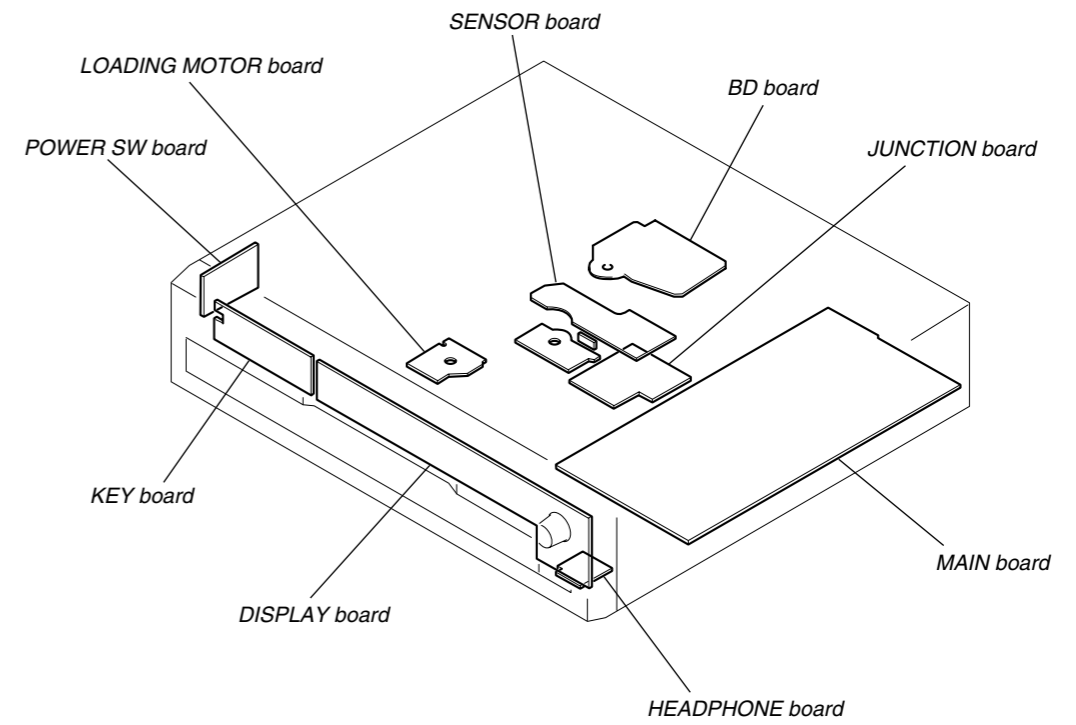
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

#### Note:

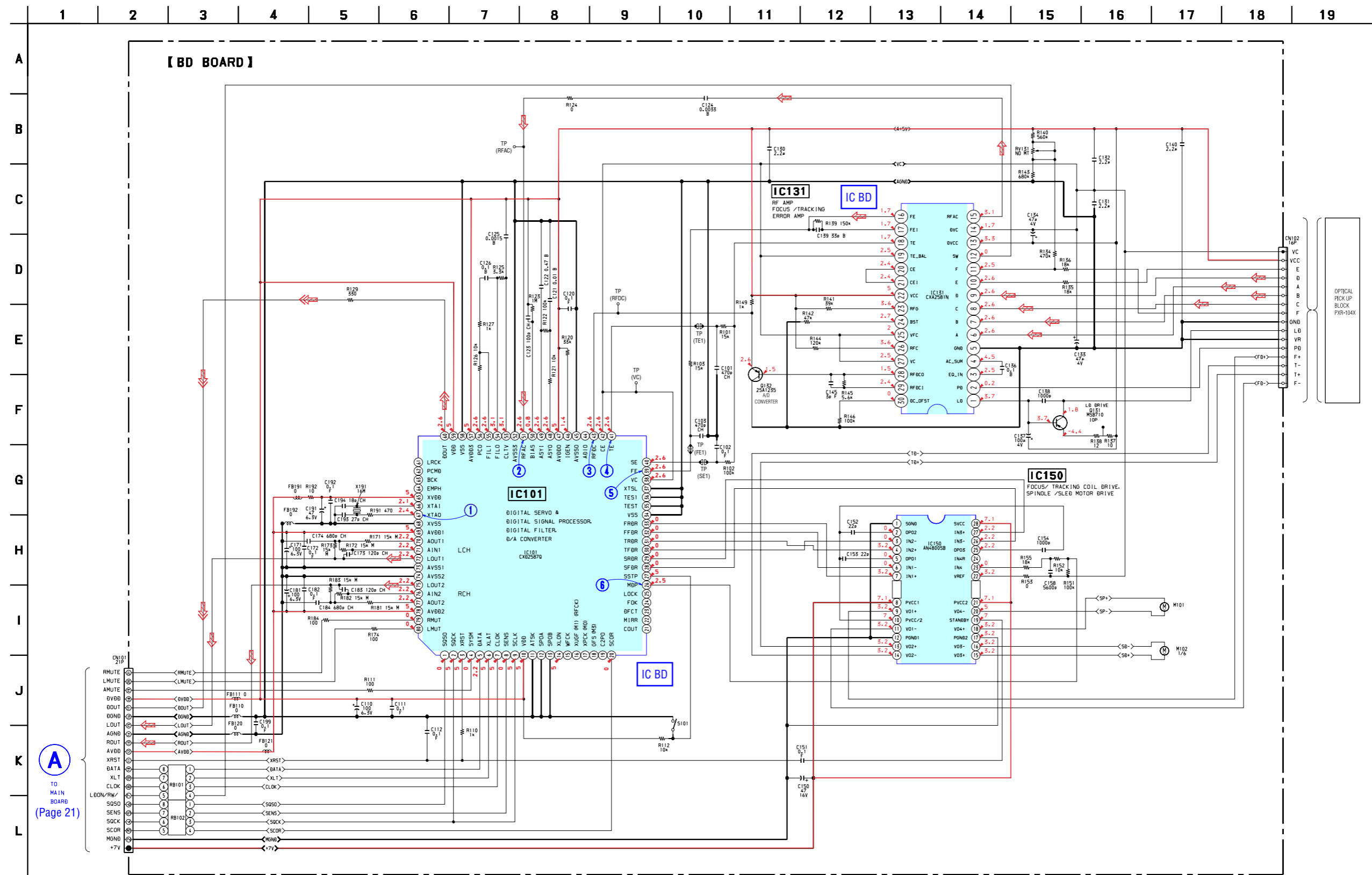
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Voltages and waveforms are dc with respect to ground under no-signal conditions.  
no mark : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). 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.  
⇒ : CD PLAY  
⇒ : DIGITAL OUT
- — : B+ Line
- - - - : B- Line

#### • Circuit Boards Location



6-3. SCHEMATIC DIAGRAM – BD Board – • See page 24 for Waveforms. • See page 24 for IC Block Diagrams.

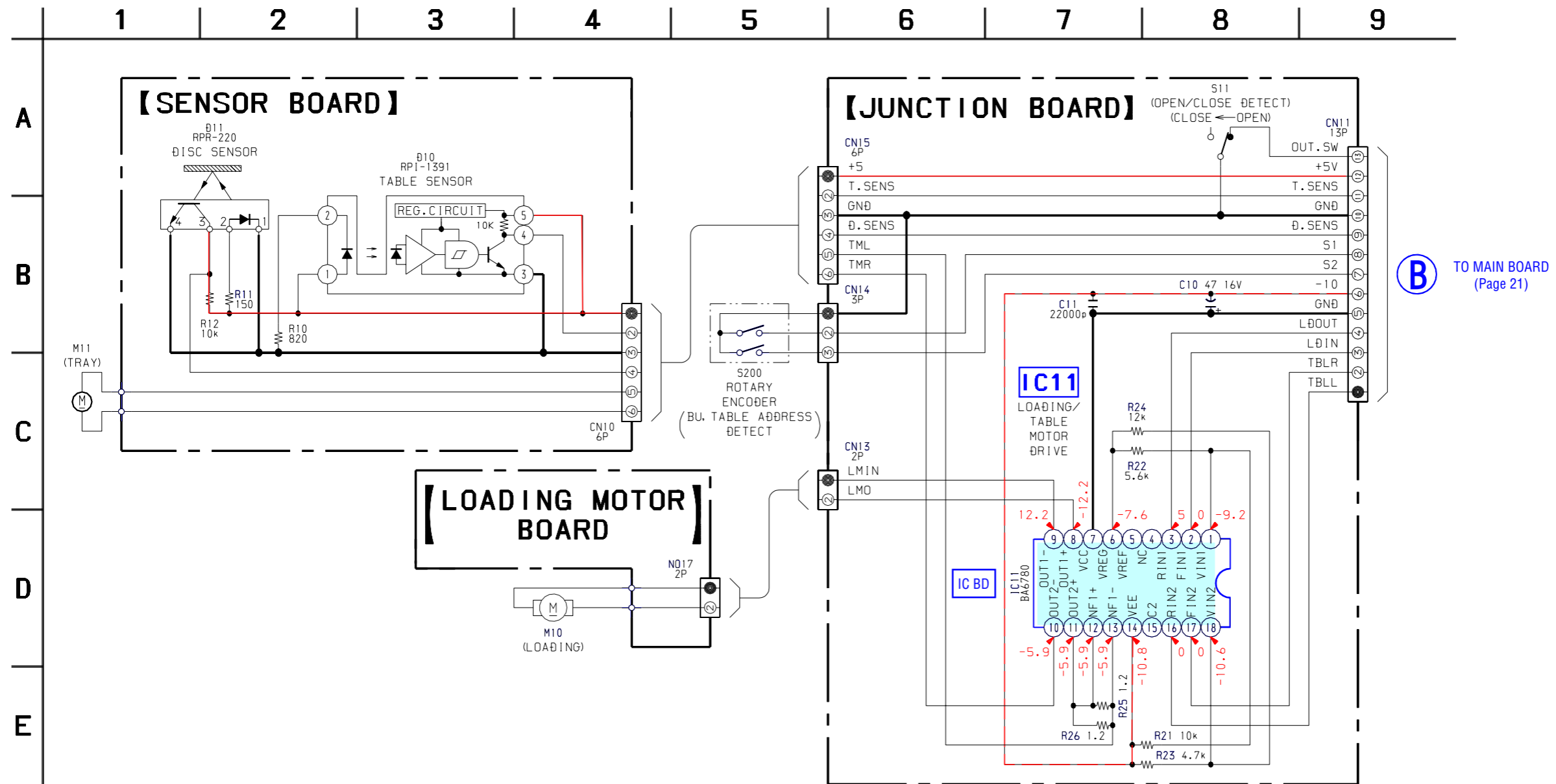


The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

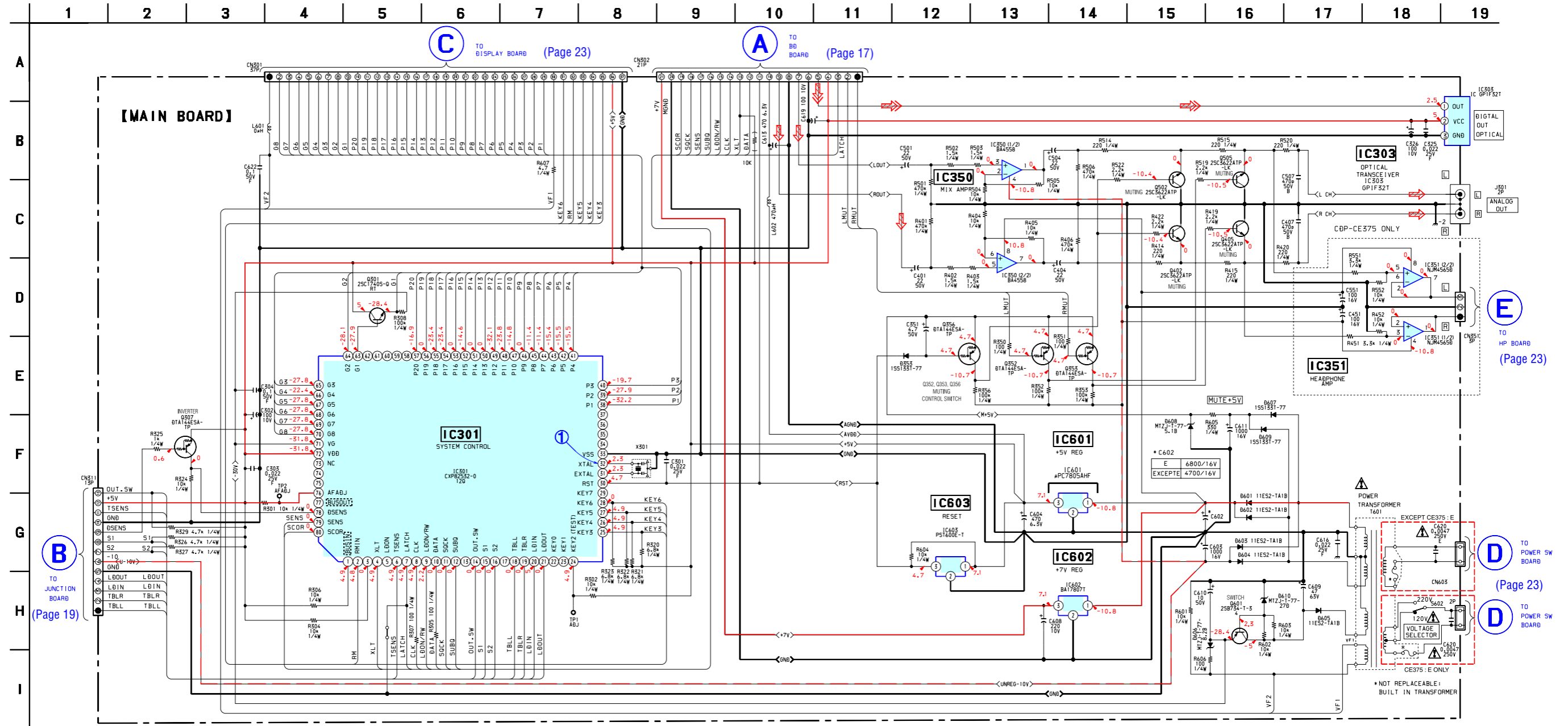
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



6-5. SCHEMATIC DIAGRAM – JUNCTION/SENSOR/LOADING MOTOR Boards – • See page 25 for IC Block Diagram.



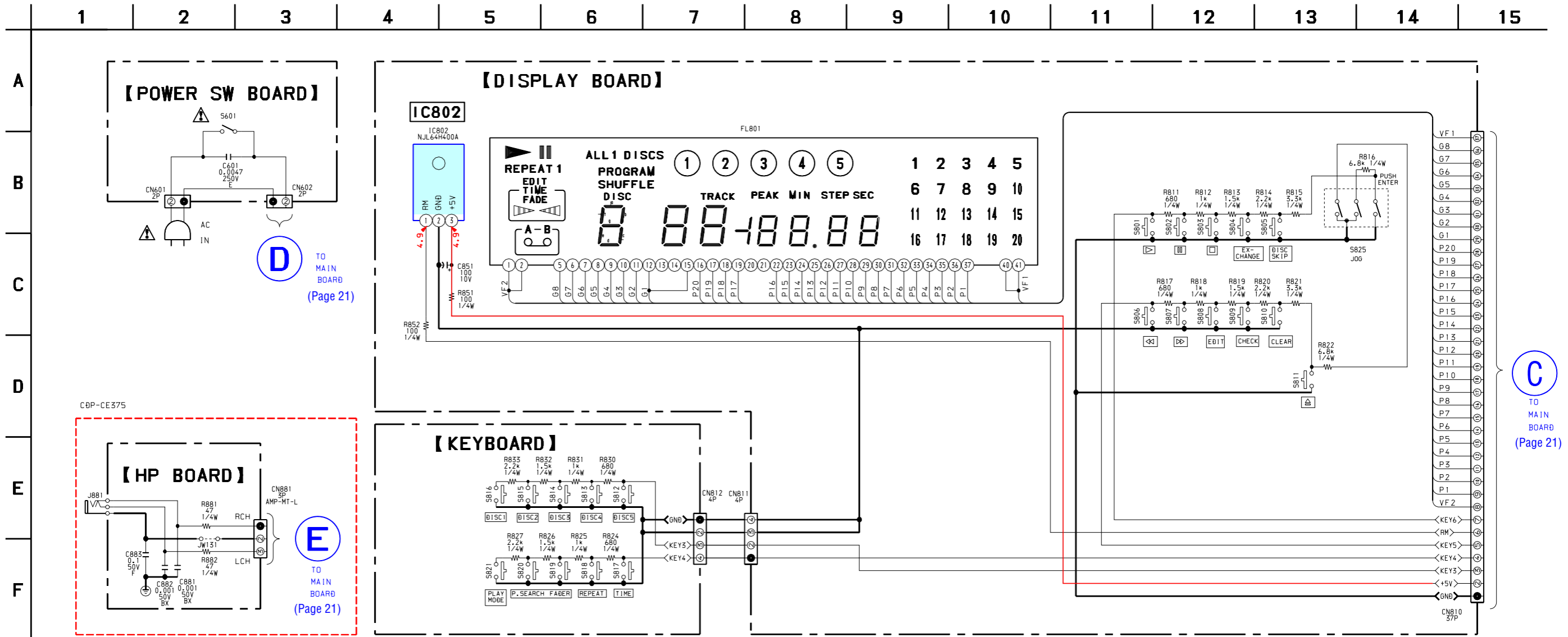
6-7. SCHEMATIC DIAGRAM – MAIN Board – • See page 24 for Waveform.



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

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

6-9. SCHEMATIC DIAGRAM – PANEL Section –



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

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