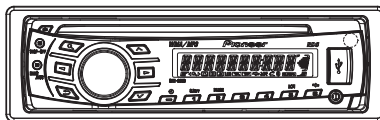


Service Manual



DEH-23UB/XSUC

ORDER NO.
CRT4630

CD RDS RECEIVER

DEH-23UB_{/XSUC}

DEH-2390UB_{/XNID}

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-3269	CRT4488	S11.1STD-DOUT	CD Mech. Module : Circuit Descriptions, Mech. Descriptions, Disassembly



For details, refer to "Important Check Points for Good Servicing".

SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

Where in a manufacturer's service documentation, for example in circuit diagrams or lists of components, a symbol is used to indicate that a specific component shall be replaced only by the component specified in that documentation for safety reasons, the following symbol shall be used:



● Safety Precautions for those who Service this Unit.

When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13 cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

CAUTION:

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

CAUTION

This product is a class 1 laser product classified under the Safety of laser products, IEC 60825-1:2007, and contains a class 1M laser module. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

CLASS 1 LASER PRODUCT

CAUTION—CLASS 1M INVISIBLE LASER
RADIATION WHEN OPEN, DO NOT VIEW
DIRECTLY WITH OPTICAL INSTRUMENTS.

WARNING!

The AEL (accessible emission level) of the laser power output is less than CLASS 1 but the laser component is capable of emitting radiation exceeding the limit for CLASS 1.

A specially instructed person should do servicing operation of the apparatus.

Laser diode characteristics

Wave length : 785 nm to 814 nm

Maximum output : 1 190 μ W(Emitting period : unlimited)

Additional Laser Caution

Transistors Q101 in PCB drive the laser diodes.

When Q101 is shorted between their terminals, the laser diodes will radiate beam.

If the top cover is removed with no disc loaded while such short-circuit is continued, the naked eyes may be exposed to the laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol. Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris. Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs. In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages. If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries. Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification. Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance. Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

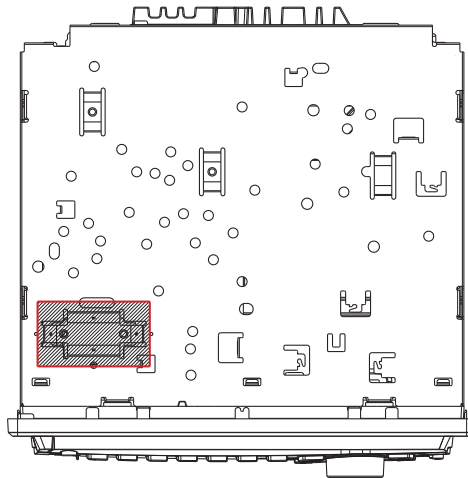
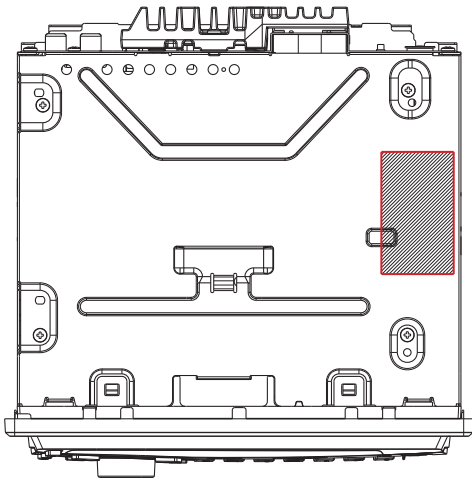
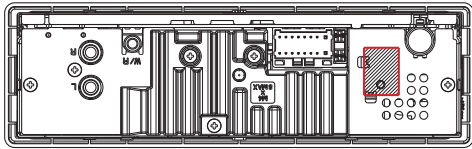
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1. SERVICE PRECAUTIONS

1.1 SERVICE PRECAUTIONS



1. You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
3. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY".
4. After replacing the pickup unit, be sure to check the grating.
5. Be careful in handling ICs. Some ICs such as MOS type are so fragile that they can be damaged by electrostatic induction.
6.  area and a heat sink becomes hot areas. Be careful not to burn yourself.



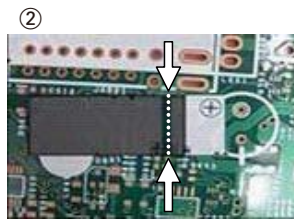
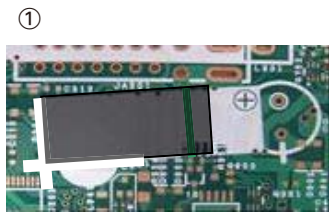
7. Software update
The software of this product is stored in IC671.
Please replace IC671 when making the version upgrade of software.
8. How to Handle Infrared Detecting unit for Remote Control of Grille
The infrared detecting unit for remote control of keyboard unit is not fixed with cushion, etc.
When external force is applied on the infrared detecting unit for remote control, the light receiving sensitivity might be deteriorated since the lead bents and attaching angle of the light receiving part may be varied.
Please do not apply external force onto the infrared detecting unit for remote control. If any external force is applied by mistake, please confirm whether lead bending may exist or not.
If the lead is bent, please correct the angle between the lead and the light receiving part to be 90 degrees or replace the infrared detecting unit for remote control (GP1UXC14RK).

9. Capacitor Bond Lock (UC)

Acetate Tape (GYH1026)

- ① Please stick acetate tape along white line.
- ② Please confirm line hiding with acetate tape.

* length of tape : 24 ± 4 mm



10. Capacitor Bond Lock (ID)

Silicon Glue (GEM1017)

Place the capacitor in the center of the silk print, and confirm it does not touch to the connector. Then, apply silicon glue.



OK



NG



1.2 NOTES ON SOLDERING

● For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

● Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C. Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:
GYP1006 1.0 in dia.
GYP1007 0.6 in dia.
GYP1008 0.3 in dia.

2. SPECIFICATIONS

2.1 SPECIFICATIONS

• DEH-23UB/XSUC

General

Power source.....	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system.....	Negative type
Maximum current consumption	10.0 A
Backup current	4.0 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 mm × 50 mm × 165 mm (7 in. × 2 in. × 6-1/2 in.)
Nose	188 mm × 58 mm × 17 mm (7-3/8 in. × 2-1/4 in. × 5/8 in.)
D	
Chassis	178 mm × 50 mm × 165 mm (7 in. × 2 in. × 6-1/2 in.)
Nose	170 mm × 46 mm × 17 mm (6-3/4 in. × 1-3/4 in. × 5/8 in.)
Weight	1.2 kg (2.6 lbs)

Audio

Maximum power output	50 W × 4
Continuous power output	22 W × 4 (50 Hz to 15 000 Hz, 5 % THD, 4 Ω load, both channels driven)
Load impedance	4 Ω (4 Ω to 8 Ω allowable)
Preout maximum output level	2.0 V
Tone controls:	
Bass	
Frequency	100 Hz
Gain	±12 dB
Mid	
Frequency	1 kHz
Gain	±12 dB
Treble	
Frequency	10 kHz
Gain	±12 dB
Subwoofer (mono):	
Frequency	50/63/80/100/125 Hz
Slope	-18 dB/oct
Gain	+6 dB to -24 dB
Phase	Normal/Reverse

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal-to-noise ratio	94 dB (1 kHz) (IHF-A network)
Number of channels	2 (stereo)

WMA decoding format	Ver. 7, 7.1, 8, 9, 10, 11, 12 (2ch audio) (Windows Media Player)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WAV signal format	Linear PCM & MS ADPCM (Non-compressed)

USB

USB standard specification	USB 2.0 full speed
Maximum current supply	500 mA
USB Class	MSC (Mass Storage Class)
File system	FAT12, FAT16, FAT32
WMA decoding format	Ver. 7, 7.1, 8, 9, 10, 11, 12 (2ch audio) (Windows Media Player)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WAV signal format	Linear PCM & MS ADPCM (Non-compressed)

FM tuner

Frequency range	87.9 MHz to 107.9 MHz
Usable sensitivity	9 dBf (0.8 μV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio	72 dB (IHF-A network)

AM tuner

Frequency range	530 kHz to 1 710 kHz
Usable sensitivity	25 μV (S/N: 20 dB)
Signal-to-noise ratio	62 dB (IHF-A network)

CEA2006 Specifications



Power output	14 W RMS × 4 Channels (4 Ω and ≤ 1 % THD+N)
S/N ratio	91 dBA (reference: 1 W into 4 Ω)

Note

Specifications and the design are subject to modifications without notice. ■

• DEH-2390UB/XNID

General

Rated power source 14.4 V DC
(allowable voltage range:
12.0 V to 14.4 V DC)

Grounding system Negative type

Maximum current consumption
..... 10.0 A

Backup current 4.0 mA or less

Dimensions (W × H × D):

DIN

Chassis 178 mm × 50 mm × 165
mm

Nose 188 mm × 58 mm × 17 mm

D

Chassis 178 mm × 50 mm × 165
mm

Nose 170 mm × 46 mm × 17 mm

Weight 1.2 kg

Audio

Maximum power output 50 W × 4

Continuous power output ... 22 W × 4 (50 Hz to 15 000
Hz, 5 % THD, 4 Ω load, both
channels driven)

Load impedance 4 Ω (4 Ω to 8 Ω allowable)

Preout maximum output level
..... 2.0 V

Tone controls:

Bass

Frequency 100 Hz
Gain ±12 dB

Mid

Frequency 1 kHz
Gain ±12 dB

Treble

Frequency 10 kHz
Gain ±12 dB

Subwoofer (mono):

Frequency 50/63/80/100/125 Hz

Slope -18 dB/oct

Gain +6 dB to -24 dB

Phase Normal/Reverse

CD player

System Compact disc audio system

Usable discs Compact disc

Signal-to-noise ratio 94 dB (1 kHz) (IEC-A net-
work)

Number of channels 2 (stereo)

WMA decoding format Ver. 7, 7.1, 8, 9, 10, 11, 12
(2ch audio)

(Windows Media Player)

MP3 decoding format MPEG-1 & 2 Audio Layer 3

WAV signal format Linear PCM & MS ADPCM
(Non-compressed)

USB

USB standard specification

..... USB 2.0 full speed

Maximum current supply ... 500 mA

USB Class MSC (Mass Storage Class)

File system FAT12, FAT16, FAT32

WMA decoding format Ver. 7, 7.1, 8, 9, 10, 11, 12
(2ch audio)

(Windows Media Player)

MP3 decoding format MPEG-1 & 2 Audio Layer 3

WAV signal format Linear PCM & MS ADPCM
(Non-compressed)

FM tuner

Frequency range 87.5 MHz to 108.0 MHz

Usable sensitivity 9 dBf (0.8 μV/75 Ω, mono,
S/N: 30 dB)

Signal-to-noise ratio 72 dB (IEC-A network)

AM tuner

Frequency range 531 kHz to 1 602 kHz (9 kHz)
530 kHz to 1 640 kHz (10
kHz)

Usable sensitivity 25 μV (S/N: 20 dB)

Signal-to-noise ratio 62 dB (IEC-A network)

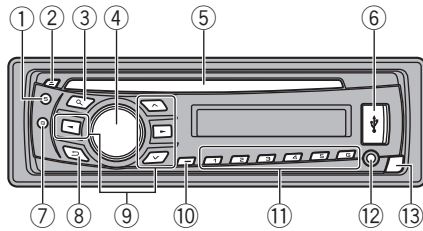
Note

Specifications and the design are subject to mod-
ifications without notice. ■

2.2 DISC/CONTENT FORMAT



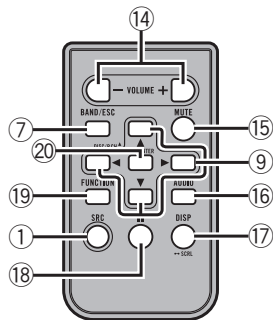
Head unit



Part	Part
① S (SRC/OFF)	⑧ (Back/display/scroll)
② (eject)	⑨
③ (list)	⑩ (clock) (DEH-23UB/XSUC) /DISP OFF (DEH-2390UB/XNID)
④ MULTI-CONTROL (M.C.)	⑪ 1 to 6
⑤ Disc loading slot	⑫ AUX input jack (3.5 mm stereo jack)
⑥ USB port	⑬ Detach button
⑦ B (BAND/ESC)	

- CAUTION**
- Use an optional Pioneer USB cable (CD-U50E) to connect the USB audio player/USB memory as any device connected directly to the unit will protrude out from the unit and may be dangerous.
 - Do not use unauthorized products. ■

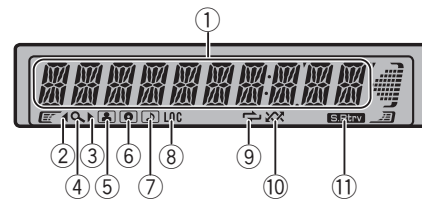
Remote control



Part	Operation
⑭ VOLUME	Press to increase or decrease volume.
⑮ MUTE	Press to mute. Press again to unmute.
⑯ AUDIO	Press to select an audio function.
⑰ DISP/SCRL	Press to select different displays. Press and hold to scroll through the text information.
⑱ II	Press to pause or resume playback.

⑲ FUNCTION	Press to select functions. Press and hold to recall the initial setting menu when the sources are off.
⑳ LIST/ENTER	Press to display the disc title, track title, folder, or file list depending on the source. While in the operating menu, press to control functions.

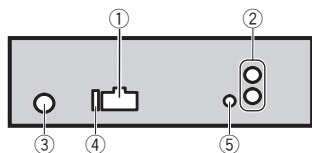
Display indication



Indicator	State
① Main display section	- Tuner: band and frequency - Program service name (DEH-2390UB/XNID) - Built-in CD player and USB: elapsed playback time and text information
② ◀	An upper tier of the folder or menu exists.
③ ▶	A lower tier of the folder or menu exists.
④ (list)	The list function is being operated.
⑤ (artist)	The disc (track) artist name is displayed.
⑥ (disc)	The disc (album) name is displayed.
⑦ (song)	The track (song) name is displayed. A playable audio file has been selected during operation of the list.
⑧ LOC	Local seek tuning is on.
⑨ (repeat)	Track or folder repeat is on.
⑩ (random)	Random play is on.
⑪ S Rtrv (sound retriever)	The sound retriever function is on.

2.4 CONNECTION DIAGRAM

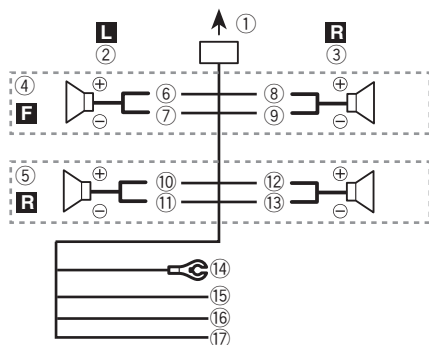
This unit



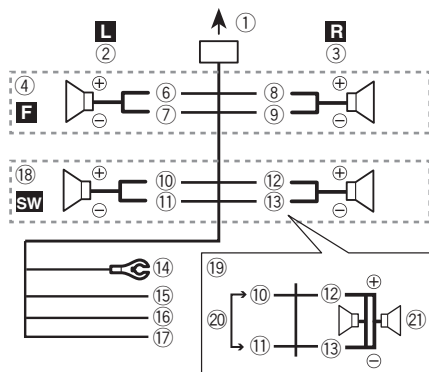
- ① Power cord input
- ② Rear output or subwoofer output
- ③ Antenna input
- ④ Fuse (10 A)
- ⑤ Wired remote input (DEH-2390UB/XNID)
Hard-wired remote control adaptor can be connected (sold separately).

Power cord

Perform these connections when not connecting a rear speaker lead to a subwoofer.



Perform these connections when using a subwoofer without the optional amplifier.



- ① To power cord input
- ② Left
- ③ Right
- ④ Front speaker
- ⑤ Rear speaker
- ⑥ White
- ⑦ White/black

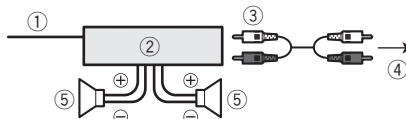
- ⑧ Gray
- ⑨ Gray/black
- ⑩ Green
- ⑪ Green/black
- ⑫ Violet
- ⑬ Violet/black
- ⑭ Black (chassis ground)
Connect to a clean, paint-free metal location.
- ⑮ Yellow
Connect to the constant 12 V supply terminal.
- ⑯ Red
Connect to terminal controlled by ignition switch (12 V DC).
- ⑰ Blue/white
Connect to system control terminal of the power amp or auto-antenna relay control terminal (max. 300 mA 12 V DC).
- ⑱ Subwoofer (4 Ω)
- ⑲ When using a subwoofer of 70 W (2 Ω), be sure to connect the subwoofer to the violet and violet/black leads of this unit. Do not connect anything to the green and green/black leads.
- ⑳ Not used.
- ㉑ Subwoofer (4 Ω) $\times$ 2

Notes

- With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
- Change the initial setting of this unit. Refer to **SW CONTROL** (rear output and subwoofer setting).
The subwoofer output of this unit is monaural.

Power amp (sold separately)

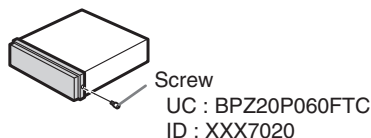
Perform these connections when using the optional amplifier.



- ① System remote control
Connect to Blue/white cable.
- ② Power amp (sold separately)
- ③ Connect with RCA cable (sold separately)
- ④ To Rear output or subwoofer output
- ⑤ Rear speaker or subwoofer

Fastening the front panel

If you do not plan to detach the front panel, the front panel can be fastened with the supplied screw.



3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

To keep the product quality after servicing, please confirm following check points.

No.		Procedures	Item to be confirmed
1		Confirm whether the customer complain has been solved. If the customer complain occurs with the specific media, use it for the operation check.	The customer complain must not be reappeared. Display, audio and operations must be normal.
2	CD	Play back a CD. (Track search)	No malfunction on display, audio and operation.
3	FM/AM tuner	Check FM/AM tuner action. (Seek, Preset) Switch band to check both FM and AM.	Display, audio and operations must be normal.
4		Check whether no disc is inside the product.	The media used for the operating check must be ejected.
5		Appearance check	No scratches or dirt on its appearance after receiving it for service.

See the table below for the items to be checked regarding audio:

Item to be checked regarding audio
Distortion
Noise
Volume too low
Volume too high
Volume fluctuating
Sound interrupted

4



C



E

F

● Jigs List

Name	Jig No.	Remarks
16P FFC	GGD1310	Tuner Amp Unit - CD Core Unit
Test Disc	TCD-782	Checking the grating
L.P.F.		Checking the grating (Two pieces)
Acetate Tape	GYH1026	Capacitor Bond Lock

● Grease List

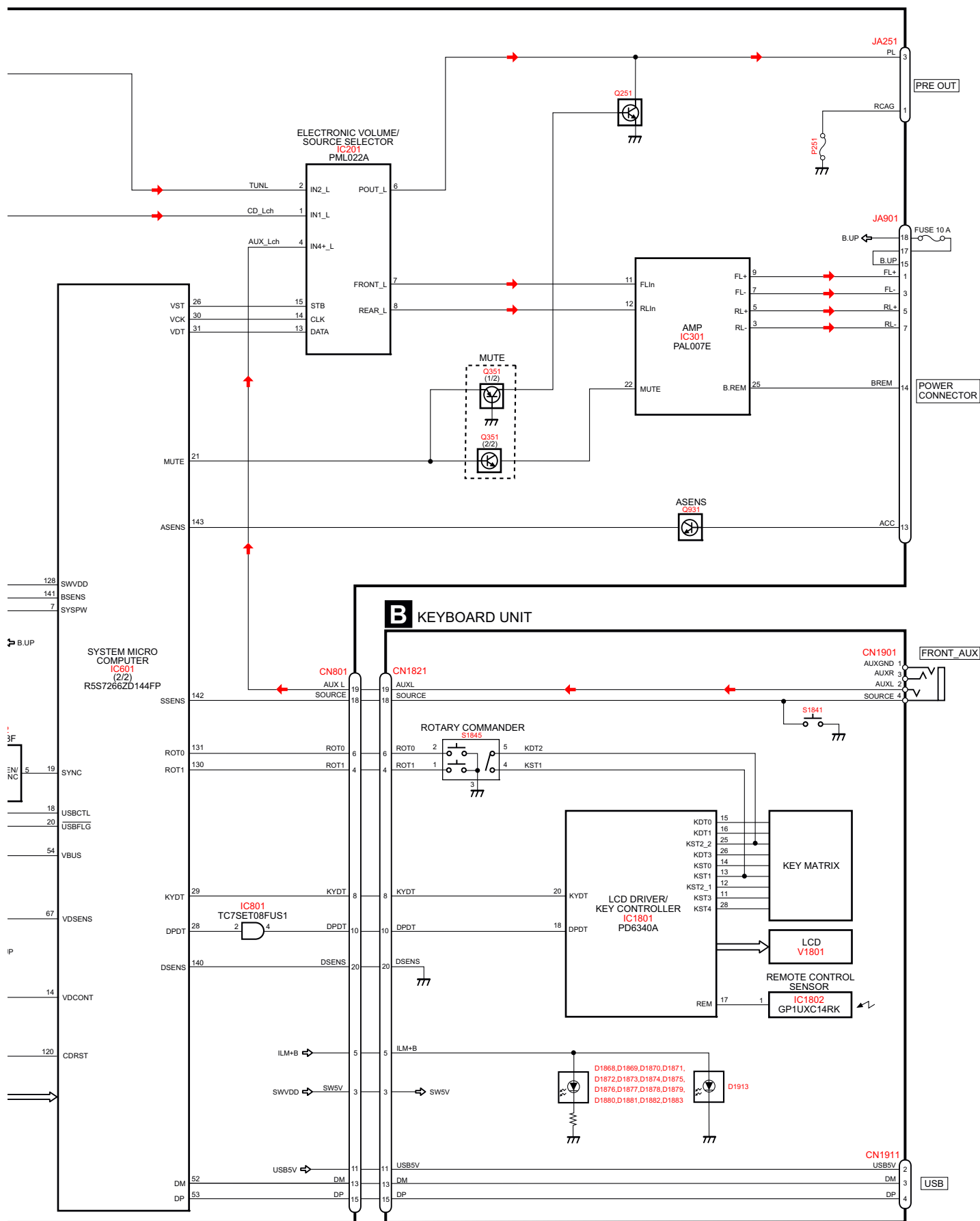
Name	Grease No.	Remarks
Grease	GEM1024	CD Mechanism Module
Grease	GEM1038	CD Mechanism Module
Grease	GEM1043	CD Mechanism Module
Grease	GEM1045	CD Mechanism Module
Silicon Glue	GEM1017	Capacitor Bond Lock

3.4 CLEANING



Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008



1

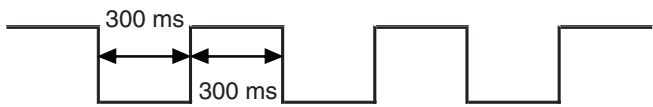
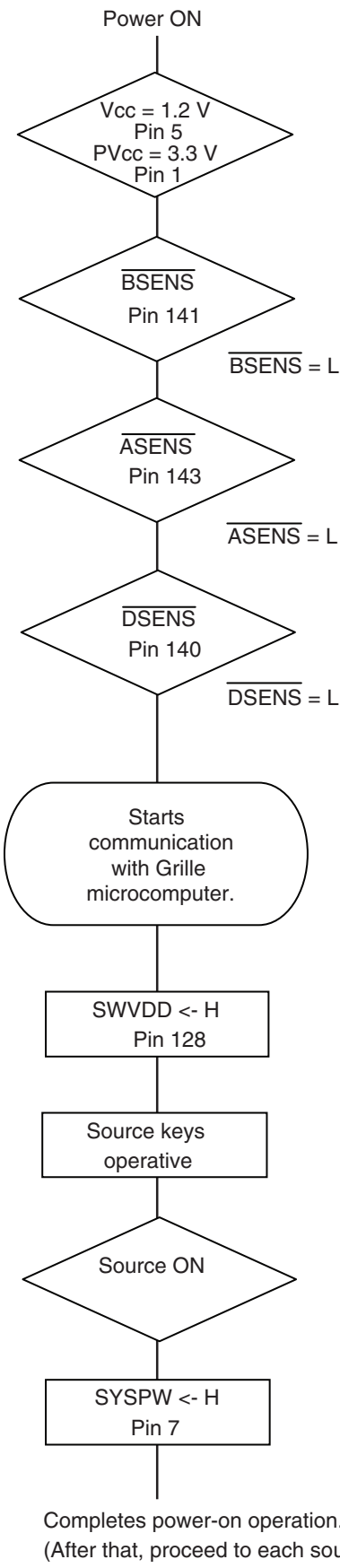
2

3

4

5. DIAGNOSIS

5.1 OPERATIONAL FLOWCHART



In case of the above signal, the communication with Grille microcomputer may fail.
If the time interval is not 300 msec, the oscillator may be defective.

5.2 ERROR CODE LIST

● ERROR CODES

If a CD memory device is inoperable, or operation of such media is stopped by an error, the error mode is established and a cause of the error is displayed by an error code. Indication of error codes is intended to reduce the number of calls from customers and facilitate failure analysis and repair work in servicing.

(1) DISPLAY METHOD

If "0xFD" error mode is displayed in CD MODE (CD MODE area for display), an error code will be displayed in the MIN (minute display) and SEC (second display) areas.

The same code is displayed in the MIN and SEC areas.

The TNO area is blank (#0FFH), as it conventionally was.

- Display example of the main unit

Depending on the display capability of LCDs, the display format varies, as shown below. XX denotes an error number.

Note: In a case of an OEM product, the error display format is subject to the specifications used by the equipment manufacturer.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(2) LIST OF CD ERROR CODES (Error Mode: 0xFD)

Code	Classification	Error code to be displayed	Details and possible causes
7	Servo	TOC reading NG	TOC information cannot be read. --> The partial disk or TOC content is illegal.
10	Servo	Carriage Home NG	The CRG cannot move toward the inner track. The CRG cannot move from the inner track. --> Defective HOME SW; Failure in CRG movement.
11	Servo	Focus Search NG	Focusing not available --> Disc placed upside-down; Stains on the disc; excessive vibration.
12	Servo	Spindle Lock NG Subcode NG RF-amp NG	Spindle not locked. Subcode not readable. Proper RF AMP gain not obtained. --> Defective spindle; Scratches or stains on the disc; excessive vibration. --> A CD-R disc that does not contain data loaded, or in a rare case, disc placed upside-down. --> CD signal error.
15	Servo	Failure in RF data	RF not read --> A CD-R disc that does not contain data loaded --> A CD-RW disc that does not contain data loaded
17	Servo	Setup NG	AGC protection does not work. Focus can be easily lost. --> Scratches or stains on the disc; excessive vibration.
30	Servo	Search Time Out	Failed to reach a target address --> CRG tracking error; Scratches on the disc; Stains on the disc
50	Mechanism	Failure in ejection Load NG	Disc ejection not completed Disc loading not completed --> A foreign object inserted in the mechanism; Disc jammed.
51	Mechanism	Failure in retried turning for ejection	Disc could not be ejected even after disc turning had been retried. --> A foreign object inserted in the mechanism; Disc jammed.

NOTES

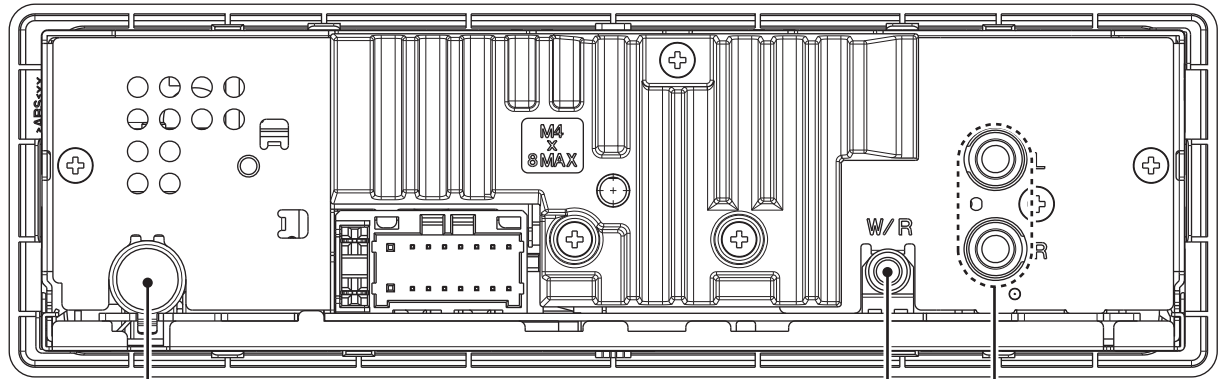
- Indications of error codes are available only during disc operations, because CD operations are unavailable if a mechanical error is generated.
- If the TOC cannot be read, this is not processed as an error, and operation continues accordingly.
- If you design a new head unit, be sure to use one of the display formats indicated in "Display example of the main unit."
- The 2 high-order digits of an error code denote the main classification, shown below.
 - 0x: Servo-related errors
 - 1x: Servo-related errors
 - 3x: Servo-related errors
 - 5x: Mechanism-related errors
- How to restore from each error is shown below.
 - 0x, 1x and 3x: ACC-OFF then ON, CD-OFF then ON, Disc ejection
 - 5X: ACC-OFF then ON, Disc ejection, Disc reloading

A USB storage device

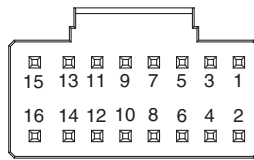
Message	Cause	Action
NO DEVICE	When plug and play is off, no USB storage device is connected.	• Turn the plug and play on. • Connect a compatible USB storage device.
FRMT READ	Sometimes there is a delay between the start of playback and when you start to hear any sound.	Wait until the message disappears and you hear sound.
NO AUDIO	There are no songs.	Transfer the audio files to the USB storage device and connect.
	The connected USB storage device has security enabled	Follow the USB storage device instructions to disable the security.
SKIPPED	The connected USB storage device contains WMA files embedded with Windows Media DRM 9/10	Play an audio file not embedded with Windows Media DRM 9/10.
PROTECT	All the files in the USB storage device are embedded with Windows Media DRM 9/10	Transfer audio files not embedded with Windows Media DRM 9/10 to the USB storage device and connect.
N/A USB	The USB device connected to is not supported by this unit.	• Connect a USB portable audio player or USB memory that is USB Mass Storage Class compliant. • Disconnect your device and replace it with a compatible USB storage device.
CHECK USB	The USB connector or USB cable has short-circuited.	Check that the USB connector or USB cable is not caught in something or damaged.
	The connected USB portable audio player/USB memory consumes more than maximum allowable current.	Disconnect the USB portable audio player/USB memory and do not use it. Turn the ignition switch to OFF, then to ACC or ON and then connect a compliant USB portable audio player/USB memory.

Message	Cause	Action
ERROR-19	Communication failed.	Perform one of the following operations. –Turn the ignition switch OFF and back ON. –Disconnect the USB portable audio player/USB memory. –Change to a different source. Then, return to the USB portable audio player/USB memory.
ERROR-23	USB storage device was not formatted with FAT12, FAT16 or FAT32	USB storage device should be formatted with FAT12, FAT16 or FAT32.

5.3 CONNECTOR FUNCTION DESCRIPTION



ANTENNA



1	FL+	9	NC
2	FR+	10	NC
3	FL-	11	NC
4	FR-	12	NC
5	RL+	13	ACC
6	RR+	14	B.REM
7	RL-	15	B.UP
8	RR-	16	GND

WIRED
REMOTE
CONTROL
(DEH-2390UB/XNID)

REAR OUTPUT or
SUBWOOFER OUTPUT

6. SERVICE MODE

6.1 DISPLAY TEST MODE

A The information such as the system microcomputer version is checked.

[How to enter Test mode]

Press “ ① ” and “ ③ ” keys simultaneously to start resetting.

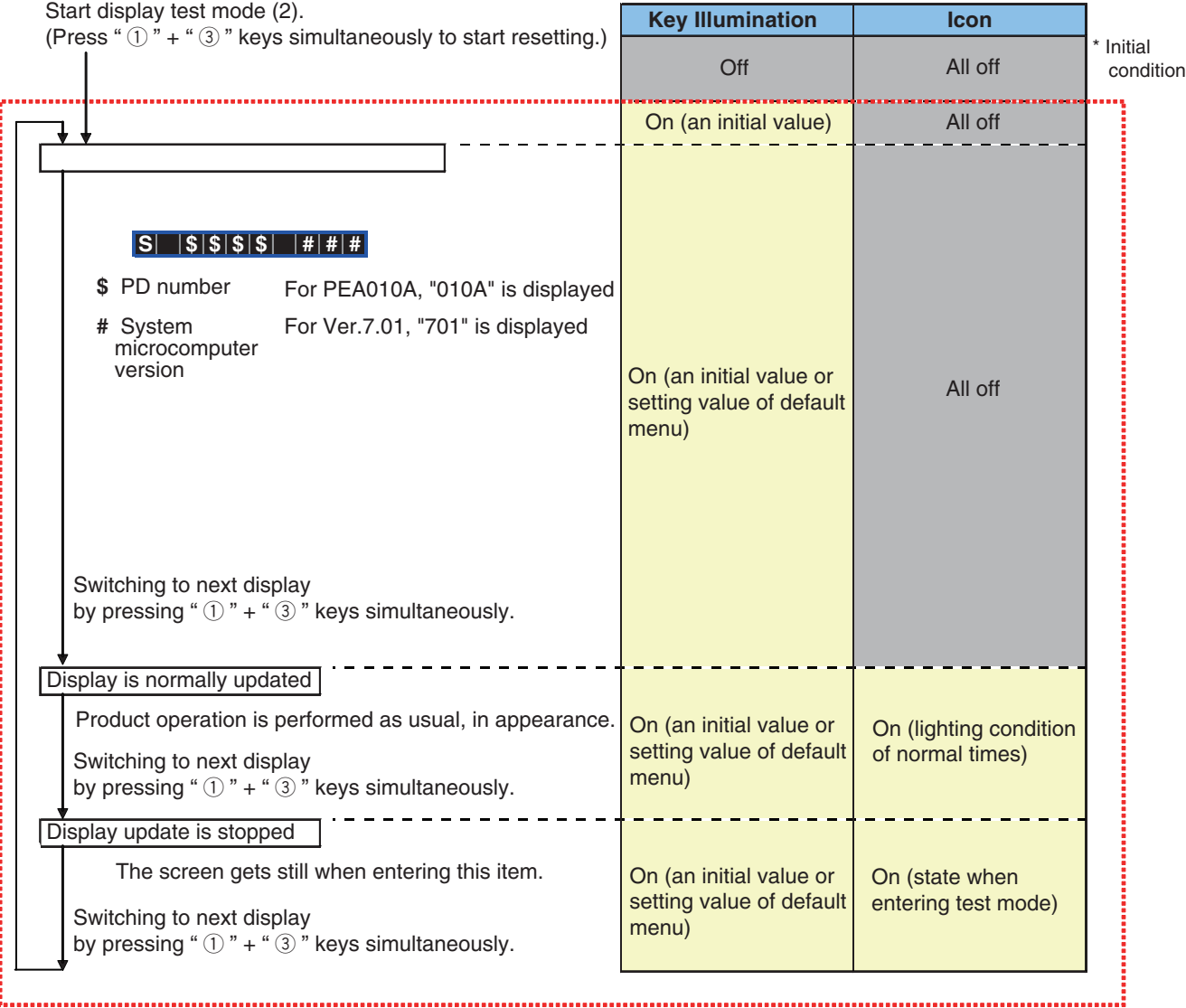
[Operation key]

Operation key	Processing	Remarks
① + ③	Enter display test mode (2) Switch to next test mode	

B

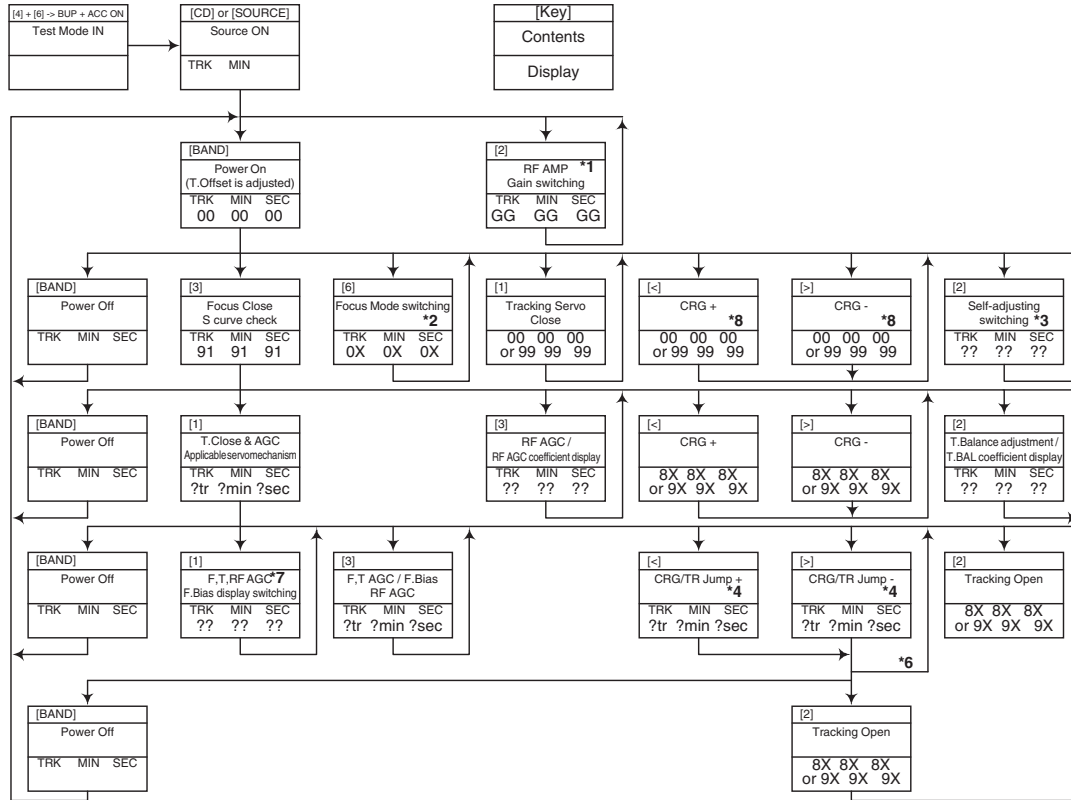
[Test items]

Start display test mode (2).
(Press “ ① ” + “ ③ ” keys simultaneously to start resetting.)



F

Flow Chart



- *1) TYP — + 6 dB — + 12 dB
TRK MIN SEC TRK MIN SEC TRK MIN SEC
06 06 06 12 12 12
- *2) Focus Close — S. Curve — F EQ measurement setting
TRK MIN SEC TRK MIN SEC TRK MIN SEC
00 00 00 01 01 01 02 02 02
(TRK 99 MIN 99 SEC 99)
- *3) F.Offset Display → T.Offset Display → Switch to the order of the original display
- *4) 100TR Jump
- *7) TRK/MIN/SEC → F.AGC → T.AGC Gain → F.Bias → RF AGC

[Key]	Operation
[BAND]	Power On/Off
[<]	CRG + / TR Jump + (Direction of the external surface)
[>]	CRG - / TR Jump - (Direction of the internal surface)
[1]	T. CLS & AGC & Applicable servomechanism / AGC,AGC display setting
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T. Open
[3]	F. Close,S. Curve / Rough Servo and RF AGC / F,T,RF AGC
[6]	F. Mode switching / Tracking Close

*8) CRG motor voltage = 2 [V]

- *9) TYP (1X) — 2X — 1X
TRK MIN SEC TRK MIN SEC TRK MIN SEC
22 22 22 11 11 11
- *10) OFF(TYP) — FORCUS — TRACKING
TRK MIN SEC TRK MIN SEC TRK MIN SEC
70 70 70 71 71 71

- After the [EJECT] key is pressed keys other than the [EJECT] key should not be pressed, until disc ejection is complete.
- When the key [2] or [3] is pressed during the Focus Search, the power supply should be immediately turned off (otherwise the lens sticks to Wall, causing the actuator to be damaged).
- 100TR Jump, the mechanism shall be set to the Tracking Close mode when the key is released.
- When the power is turned on/off the gain of the RFAMP is reset to 0 dB. At the same time all the self-adjusting values shall return to the default setting.
- Do not do Tracking Servo Close before doing Focus Servo Close. (Because the overcurrent flows)

4

A

B

- 1



- 1



C



- D

E

- E



● Removing the Tuner Amp Unit (Fig.5)

- ➡ 1 Remove the two screws.
- ➡ 2 Remove the two screws.
- ➡ 3 Straighten the tabs at two locations indicated and then remove the Tuner Amp Unit.

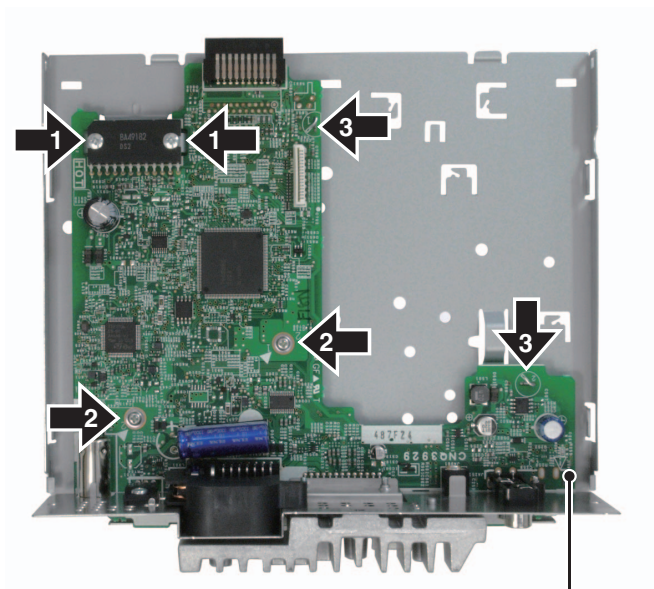


Fig.5

Tuner Amp Unit

● Attention of removing (Fig.6)

Don't remove this screws excluding the dismantlement of the CD Mechanism Module.

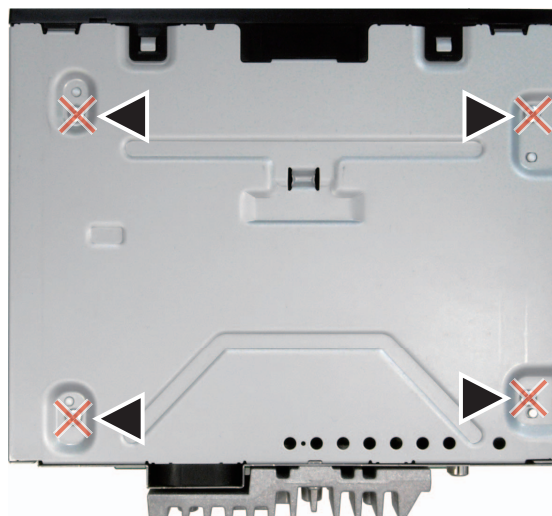


Fig.6

● Disassembling the Panel Part (Fig.7, 8)

1. Remove the arm while bending the rib of the panel upward.

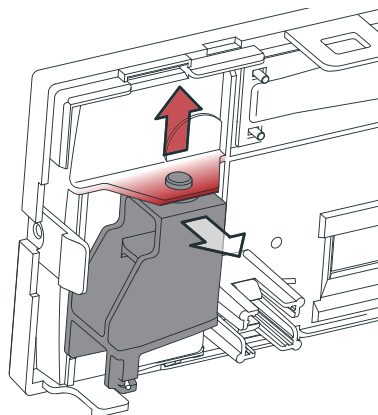


Fig.7

2. Press the upside hook and the bottom side hook of the button at the same time, and pull out the button.

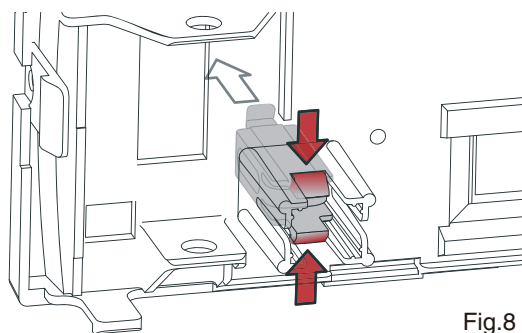


Fig.8

● Assembling the Panel Part (Fig.9, 10, 11)

1. Attach the button from the front side of the panel.

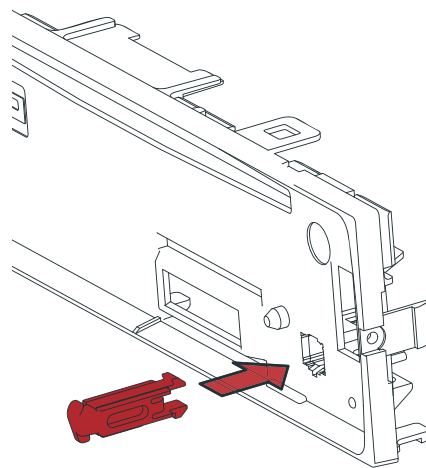


Fig.9

2. Attach the spring to the arm as shown in the figure.

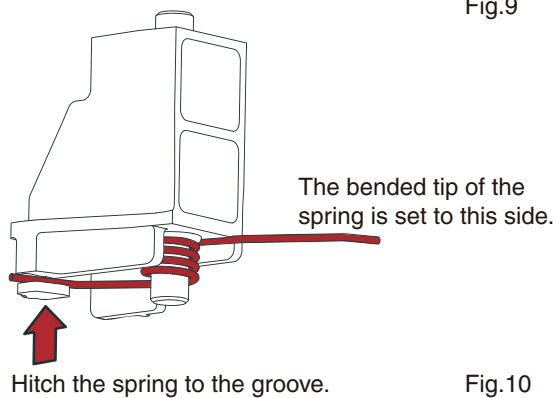


Fig.10

3. Fit the spring in the groove at the position shown in the figure.
4. Fit the boss on the lower side of the arm in the lower hole of the panel, and then warp the rib on the panel in the direction shown in the figure and fit the boss of the arm in the panel.

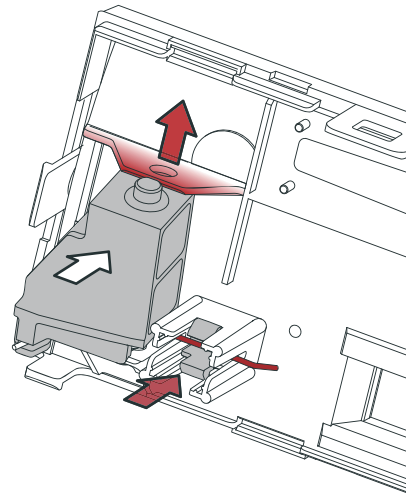
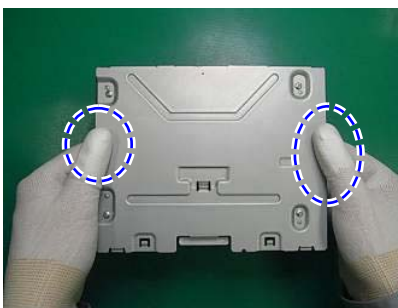


Fig.11

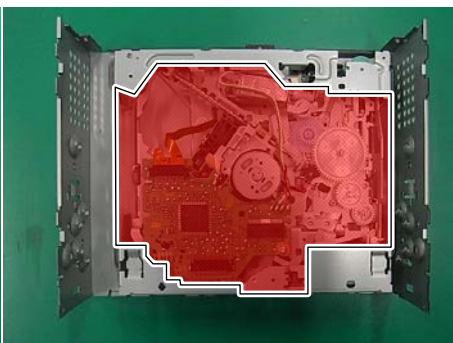
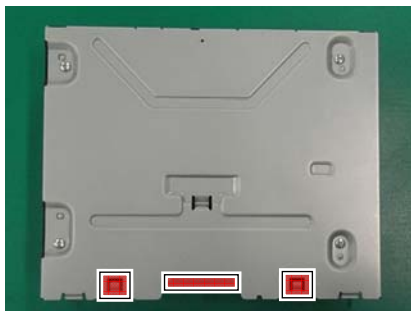
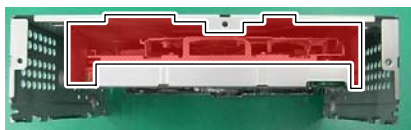
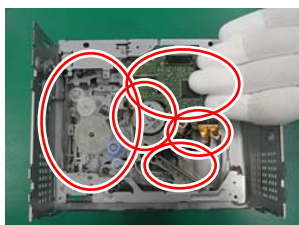
● How to carry the mecha unit

1. Hold the designated points (shown with dashed lines) of the upper chassis and the front/rear bracket.
2. Be careful not to hold the solid line portions or the CRG mecha part or insert foreign substances, to prevent distortion.
3. When holding the sides of the upper chassis, do not apply excessive force to prevent distortion. (Approx. 8N or less)

Correct way of holding the unit



Incorrect way of holding the unit



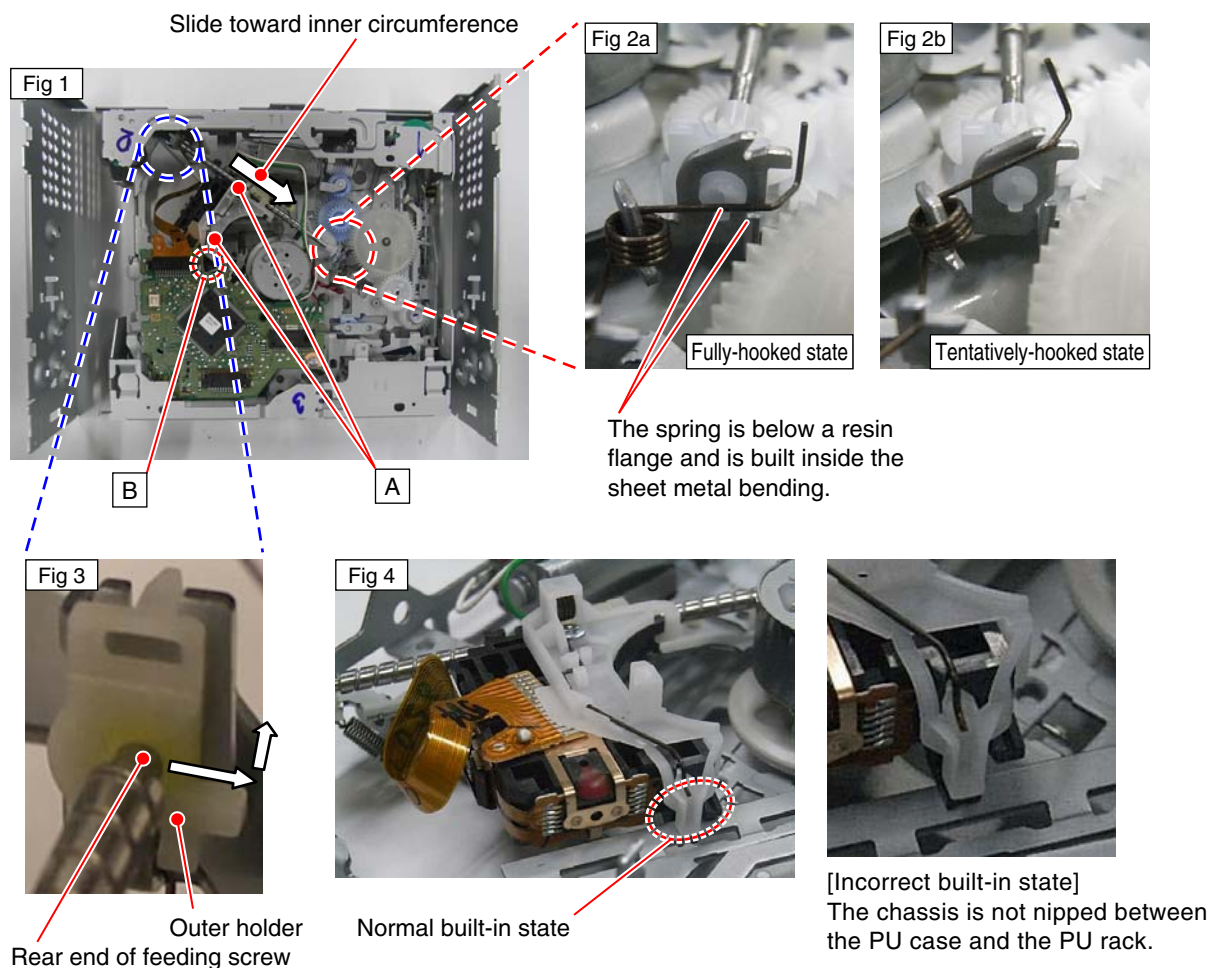
● How to remove the PU unit

1. Create an empty-clamp state according to "How to create empty clamp state (motor drive)".
2. Hook the feeding screw biasing spring to a tentative hooking portion (Fig 2b). Be careful not to get injured by the spring edge.
3. Hold the PU at the position A as shown in Fig 1. Slide the PU as far as possible toward the holder in the feeding screw so that a joint on the outer end of the feeding screw is loosened.
4. As shown in Fig 3, move the rear end of the feeding screw laterally and then upward, to remove it from the outer holder.
5. Lift the PU unit to disengage it from Part B of the chassis (Fig 4), and remove the PU unit.

(Cautions) When re-installing the PU, be sure to first nip the chassis and the PU unit (Fig 4) at the position B.

Also, make sure to fully hook the feeding screw biasing spring (Fig 2a).

Please follow the service manual for adjustment of the PU unit after the re-installation.



● How to move the PU to the outer circumference

1. Create an empty clamp state according to "How to create empty clamp state of mecha module".
 2. Apply 1.5 V to the CRG motor and move the PU to the outer circumference.
- (Caution) After moving the PU to the outer circumference and performing necessary treatment, make sure to solder the lead wires.

8. EACH SETTING AND ADJUSTMENT

8.1 CD ADJUSTMENT

1) Cautions on adjustments

- In this product the single voltage (3.3 V) is used for the regulator. The reference voltage is the REFO1 (1.65 V) instead of the GND.

If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:

- a. Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.
- b. In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.
- c. If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

- Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

- For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

- In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

- The RFAGC and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

- The load and eject operation is not guaranteed with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

2) Test mode

This mode is used to adjust the CD mechanism module.

- To enter the test mode.
[4] + [6] -> BUP + ACC ON

- To exit from the test mode.
Turn off the ACC and back up.

Notes:

- a. During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
- b. If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.
- c. For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
- d. For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
- e. When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0 dB, and the auto-adjustment values are reset to the default settings.

8.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT



• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

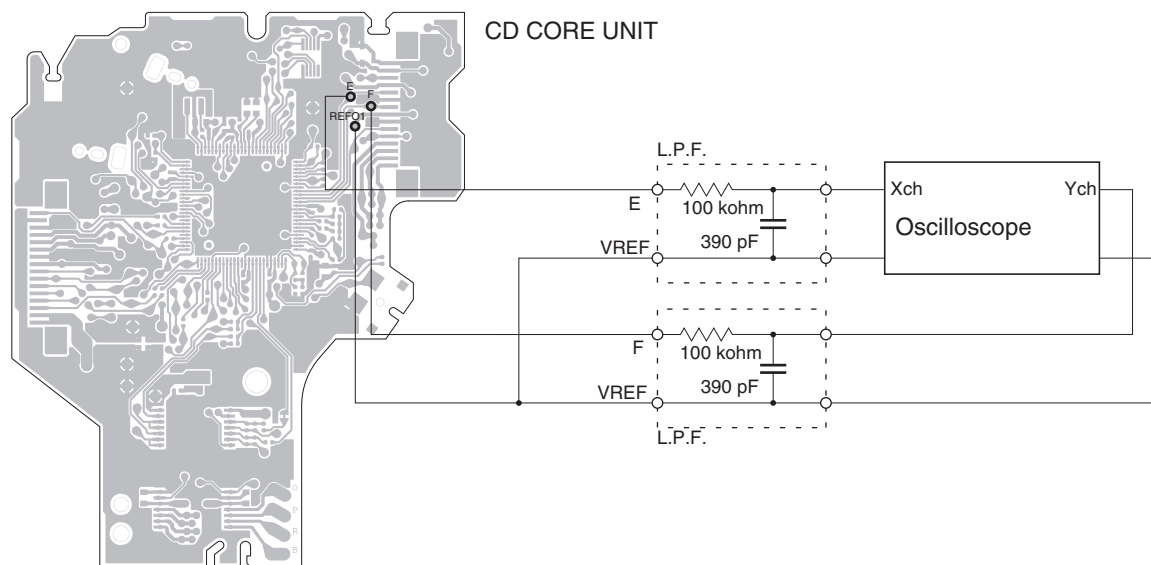
To check that the grating is within an acceptable range when the PU unit is changed.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• Method :

- Measuring Equipment
 - Oscilloscope, Two L.P.F.
- Measuring Points
 - E, F, REFO1
- Disc
 - TCD-782
- Mode
 - TEST MODE



• Checking Procedure

1. In test mode, load the disc and switch the 3 V regulator on.
2. Using the right and left buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

Reloading the disc changes the clamp position and may decrease the "wobble".

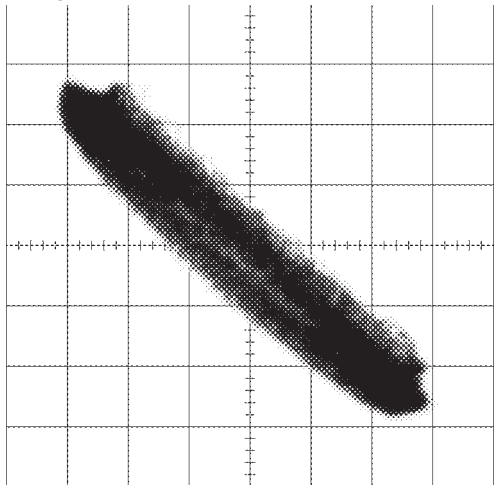
Grating waveform

Ech -> Xch 20 mV/div, AC

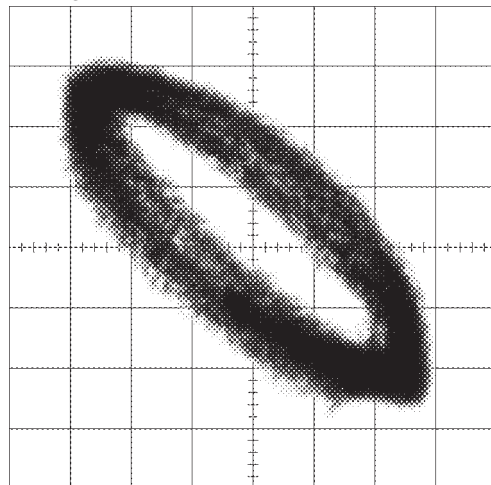
Fch -> Ych 20 mV/div, AC

A

0 degrees

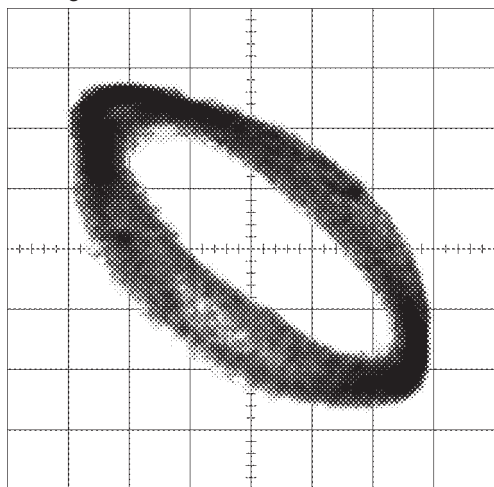


30 degrees



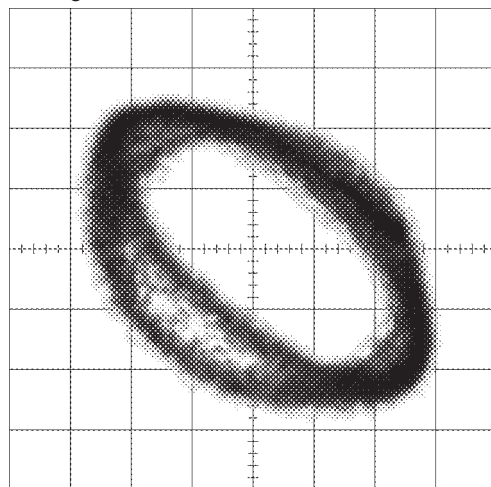
B

45 degrees



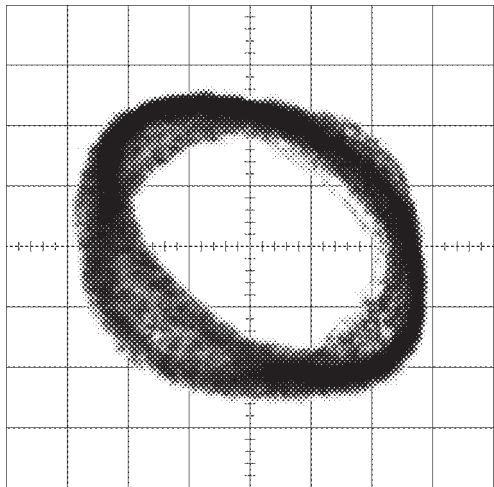
C

60 degrees



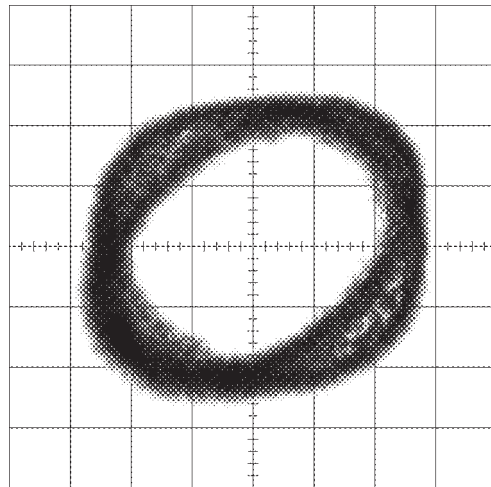
D

75 degrees



E

90 degrees



F

8.3 PCL OUTPUT CONFIRMATION



● PCL output

With the TESTIN (22 pin) status of IC601 to be “H”, it is shifted to PCL Output Test mode after reset started.

Check that square wave of $600.0 \text{ kHz} \pm 25 \text{ Hz}$ is output from PCL (8 Pin) of IC601.

If clock signal is out of this range, this resonator (X602) must be changed for a new one.

4

A

- C

D



<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	Polyethylene Bag	See Contrast table (2)	11	Screw Assy	See Contrast table (2)
2	Unit Box	See Contrast table (2)	* 12	Polyethylene Bag	CEG-127
3	Contain Box	See Contrast table (2)	13	Screw	See Contrast table (2)
4	Protector	See Contrast table (2)	14	Screw	TRZ50P080FTC
5	Protector	See Contrast table (2)	15	Case Assy	See Contrast table (2)
6	Cord Assy	QDP3013	16	Remote Control Unit	CXE3669
* 7	Accessory Assy	See Contrast table (2)	17-1	Owner's Manual	See Contrast table (2)
8	Screw	See Contrast table (2)	* 17-2	Warranty Card	See Contrast table (2)
9	Polyethylene Bag	CEG1160	* 17-3	Service Network	See Contrast table (2)
10	Handle	QNC3021			

(2) CONTRAST TABLE

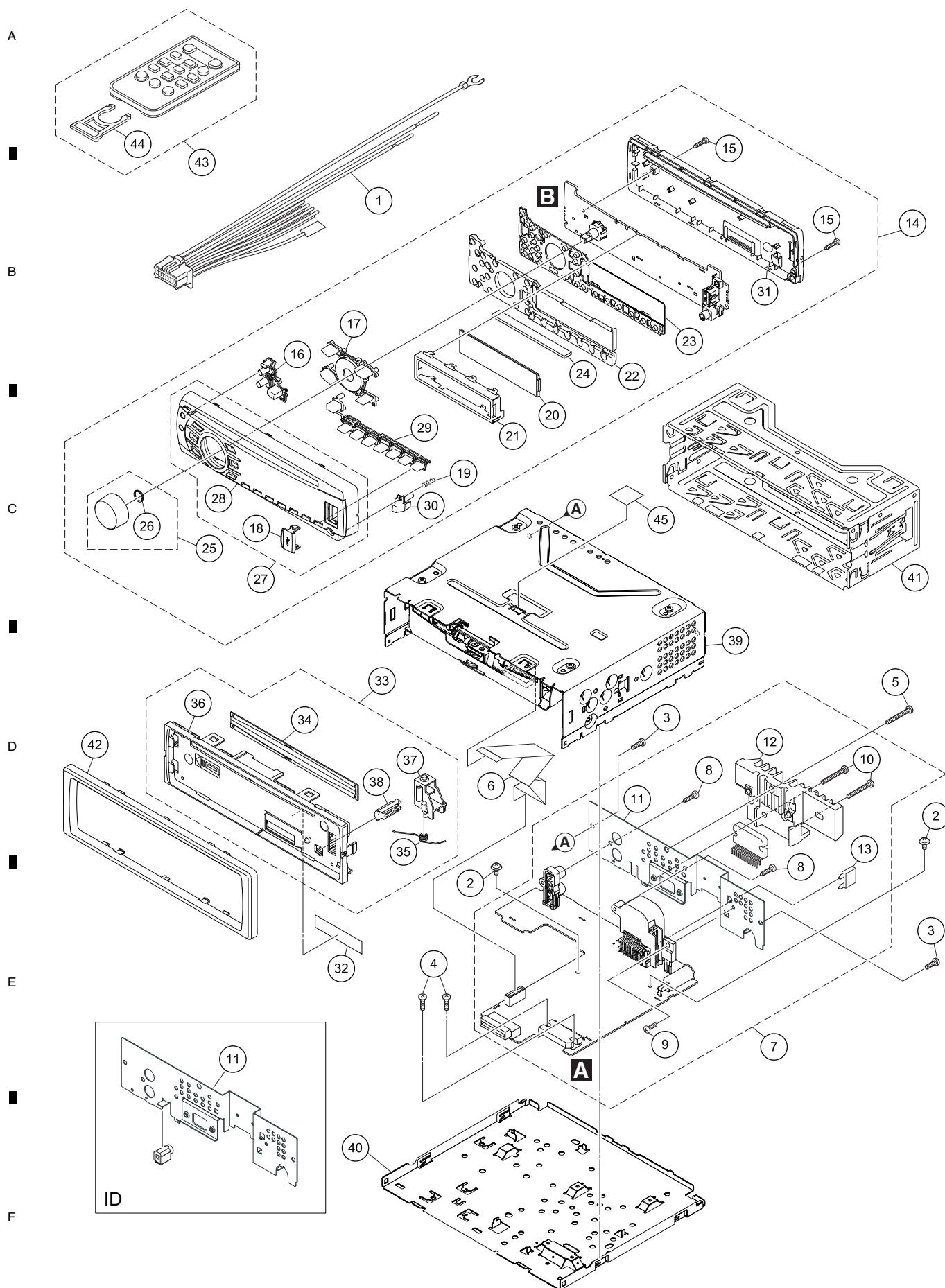
DEH-23UB/XSUC and DEH-2390UB/XNID are constructed the same except for the following:

Mark	No.	Description	DEH-23UB/XSUC	DEH-2390UB/XNID
	1	Polyethylene Bag	CEG1374	QEG3001
	2	Unit Box	CHG7471	CHG7469
	3	Contain Box	CHL7471	CHL7469
	4	Protector	CHP4103	QHP3016
	5	Protector	CHP4104	QHP3016
*	7	Accessory Assy	QEA3008	QEA3009
	8	Screw	BPZ20P060FTC	Not used
	11	Screw Assy	YEA5072	YEA5082
	13	Screw	CRZ50P090FTC	Not used
	15	Case Assy	Not used	QXA3129
	17-1	Owner's Manual	CRD4529	CRB3476
*	17-2	Warranty Card	CRY1276	CRY1304
*	17-3	Service Network	Not used	CRY1305

Owner's Manual,Installation Manual

Part No.	Language
CRD4529	English, French, Spanish(Espanol)
CRB3476	English

9.2 EXTERIOR



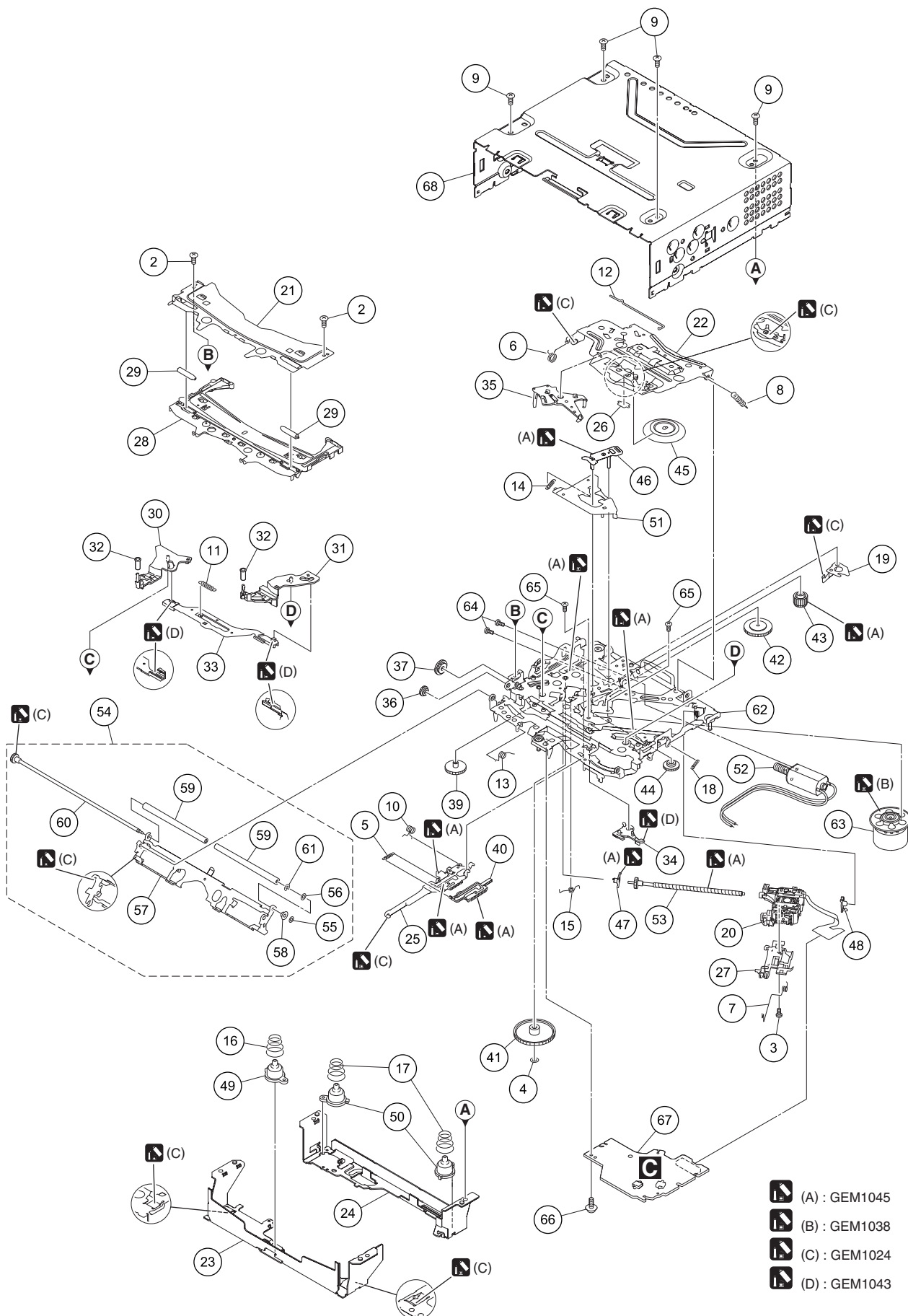
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	QDP3013	24	Connector	YNV5192
2	Screw	ASZ26P050FTC	25	Knob Unit	CXE3692
3	Screw	BSZ26P060FTC			
4	Screw	BSZ26P080FTC	26	Spring	YBL5010
5	Screw	BSZ26P120FTC	27	Grille Unit	See Contrast table (2)
			28	Grille Unit	See Contrast table (2)
6	Cable	CDE9337	29	Button(RIGHT, -, 1-6)	QAC3052
7	Tuner Amp Unit	See Contrast table (2)	30	Button(DETACH)	QAC3053
8	Screw	BPZ26P080FTC			
9	Screw	BSZ26P060FTC	31	Cover	QNS3125
10	Screw	BSZ26P120FTC	* 32	Seal	See Contrast table (2)
			33	Panel Unit	See Contrast table (2)
11	Holder	See Contrast table (2)	34	Cover	See Contrast table (2)
12	Heat Sink	QNR3002	35	Spring	QBH3001
⚠ 13	Fuse(10 A)	YEK5001			
14	Detach Grille Assy	See Contrast table (2)	36	Panel	See Contrast table (2)
15	Screw	BPZ20P100FTC	37	Arm	See Contrast table (2)
			38	Button	See Contrast table (2)
16	Button(EJECT, SRC, BAND, LEFT)	CAI3203	39	CD Mechanism Module(S11.1)	CXK5802
17	Button(LIST, RPT, UP, DOWN)	CAI3204	40	Case	QNB3001
18	Door	CAT2921			
19	Spring	CBH2210	41	Holder	QNC3020
20	LCD(V1801)	CAW1998	42	Panel	QNS3127
			43	Remote Control Unit	CXE3669
21	Holder	See Contrast table (2)	44	Cover	CNS7068
22	Lighting Conductor	QNV3022	45	Label	See Contrast table (2)
23	Rubber Contact	QNV3023			

(2) CONTRAST TABLE

DEH-23UB/XSUC and DEH-2390UB/XNID are constructed the same except for the following:

Mark	No.	Description	DEH-23UB/XSUC	DEH-2390UB/XNID
	7	Tuner Amp Unit	CWN5640	CWN5489
	11	Holder	CND5849	CND5847
	14	Detach Grille Assy	CXE3785	CXE3789
	21	Holder	QNC3018	QNC3027
	27	Grille Unit	Not used	CXE3739
	28	Grille Unit	CXE3733	Not used
*	32	Seal	CAN3984	Not used
	33	Panel Unit	CXE3805	*QXA3261(Panel Assy)
	34	Cover	CNN1665	QNM3029
	36	Panel	QNS3126	QNS3126
	37	Arm	QNV3025	QNV3025
	38	Button	QNV3026	QNV3026
	45	Label	Not used	CNN3533

9.3 CD MECHANISM MODULE



DEH-23UB/XSUC

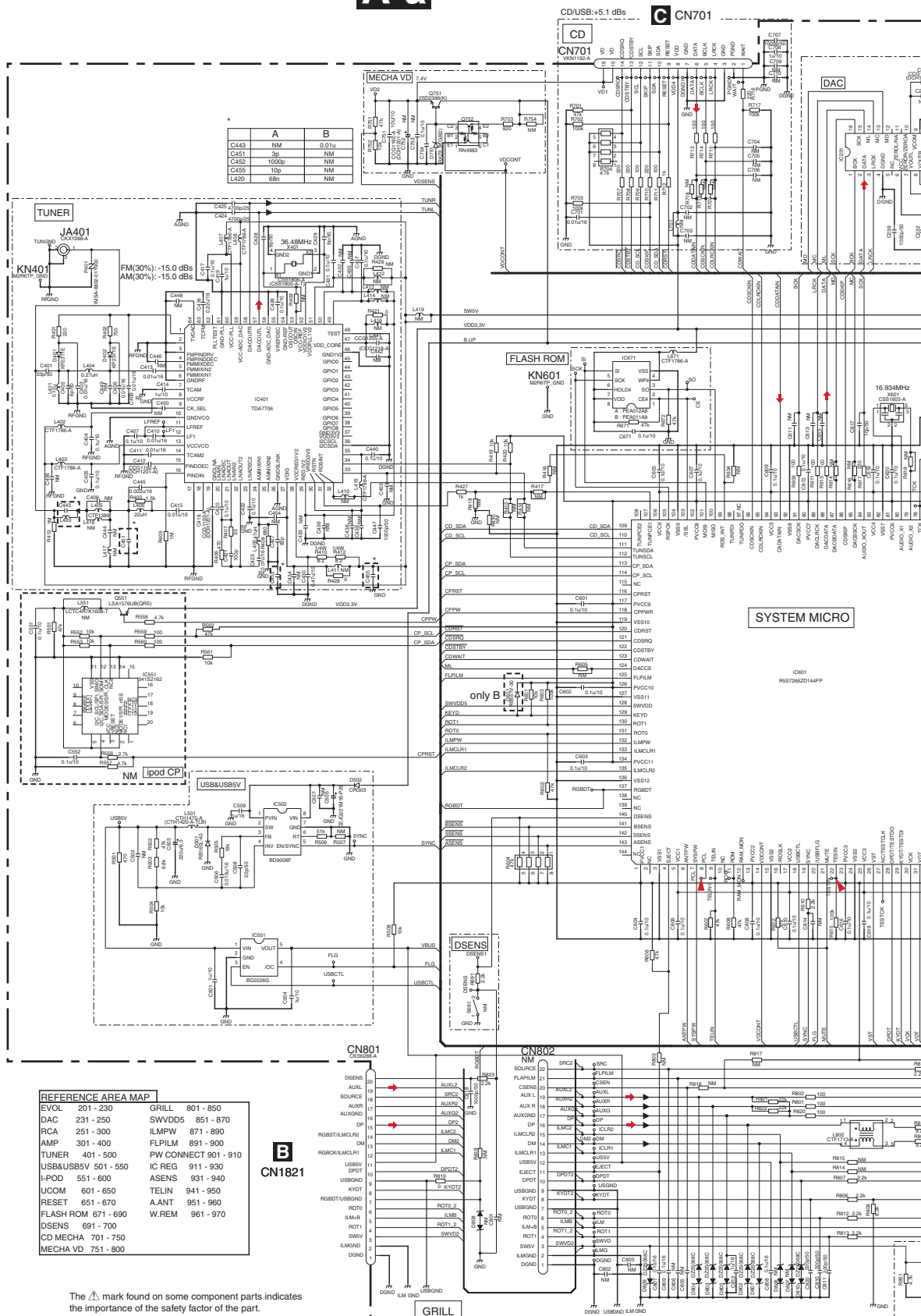
Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1			50	Damper	CNW1198	
2	Screw	BSZ20P040FTC	51	Arm	CNW1726	A
3	Screw(M2 x 4)	CBA1835	52	Motor Unit(M2)(LOAD/CRG)	CXC4026	
4	Washer	CBF1038	53	Screw Unit	CXC8894	
5	Spring	CBH3010	54	Arm Assy	CXE3849	
6	Spring	CBH2855	55	Washer	CBF1037	
7	Spring	CBH2856				
8	Spring	CBH2860	56	Washer	CBF1038	
9	Screw	BSZ26P060FTC	57	Arm	CND5886	
10	Spring	CBH3011	58	Collar	CNV6906	
11	Spring	CBH3012	59	Roller	CNW1196	
12	Spring	CBH3014	60	Gear Unit	CXC8893	B
13	Spring	CBH3015	61	Washer	YE15FTC	
14	Spring	CBH3016	62	Chassis Unit	CXE3818	
15	Spring	CBH3017	63	Motor Unit(M1)(SPDL)	CXE2273	
16	Spring	CBH3086	64	Screw	JFZ20P025FTC	
17	Spring	CBH3019	65	Screw	JGZ17P022FTC	
18			66	Screw	EBA1028	
19	Spring	CBL1822	67	CD Core Unit (S11.1STD-DOUT)	CWX3985	
20	Pickup Unit(S10.5)(Service)	CXX1942	68	Chassis	CNA3181	C
21	Bracket	CND4553				
22	Arm	CND4555				
23	Bracket	CND5709				
24	Bracket	CND5710				
25	Lever	CND5398				
26	Sheet	CNN2280				
27	Rack	CNV8342				
28	Guide	CNW1171				
29	Roller	CNW1172				D
30	Arm	CNW2157				
31	Arm	CNW1174				
32	Roller	CNW1175				
33	Lever	CNW1176				
34	Arm	CNW1177				
35	Arm	CNW1178				
36	Gear	CNW1180				
37	Gear	CNW1181				
38						E
39	Gear	CNW1183				
40	Rack	CNW1184				
41	Gear	CNW1185				
42	Gear	CNW1186				
43	Gear	CNW1187				
44	Gear	CNW1188				
45	Clamper	CNW1190				
46	Arm	CNW1192				
47	Holder	CNW1193				F
48	Holder	CNW1194				
49	Damper	CNW1197				

4

D

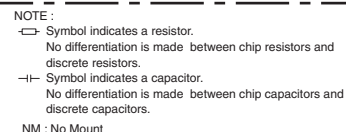


A-a



The mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

A TUNER AMP UNIT



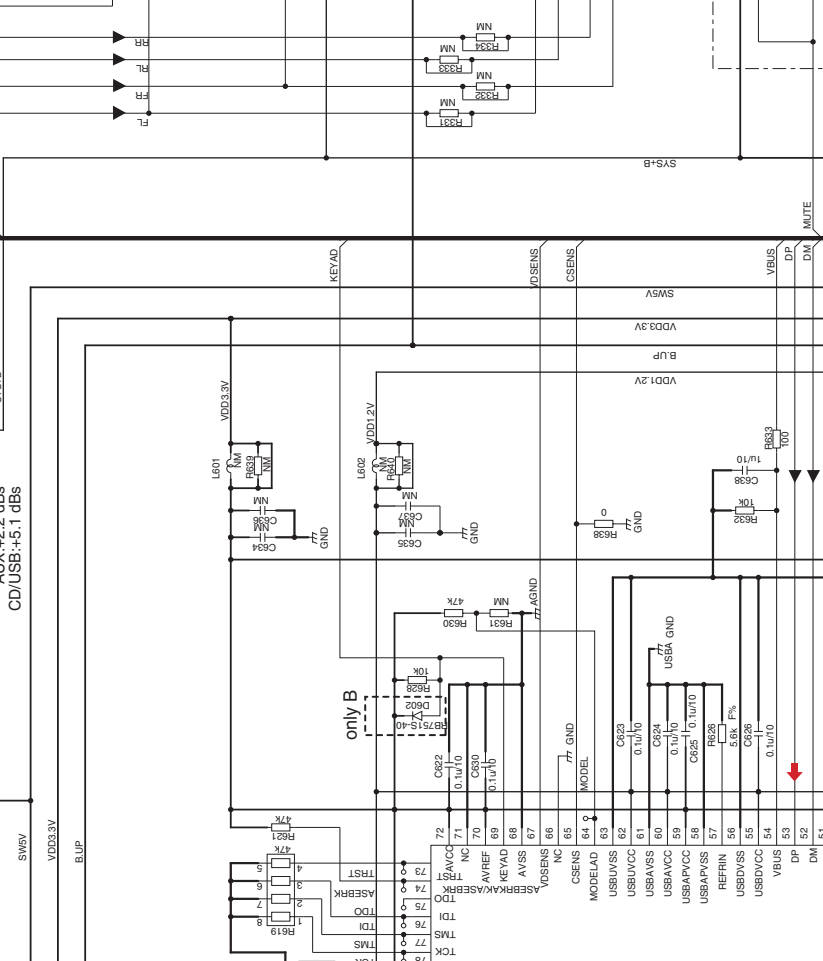
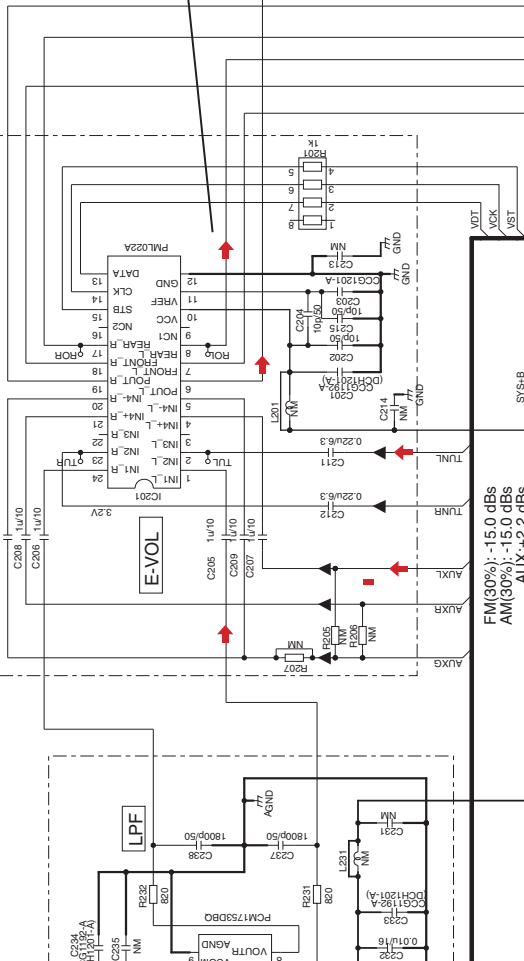
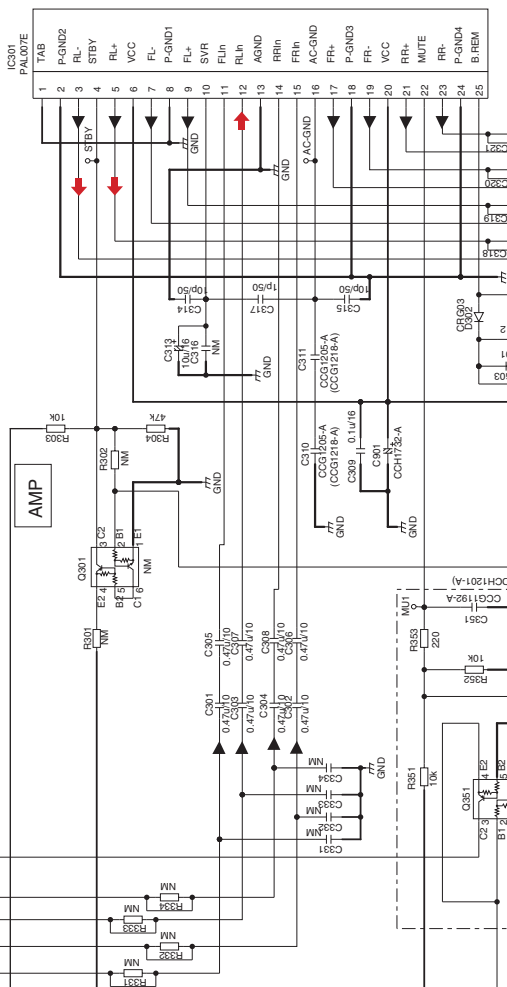
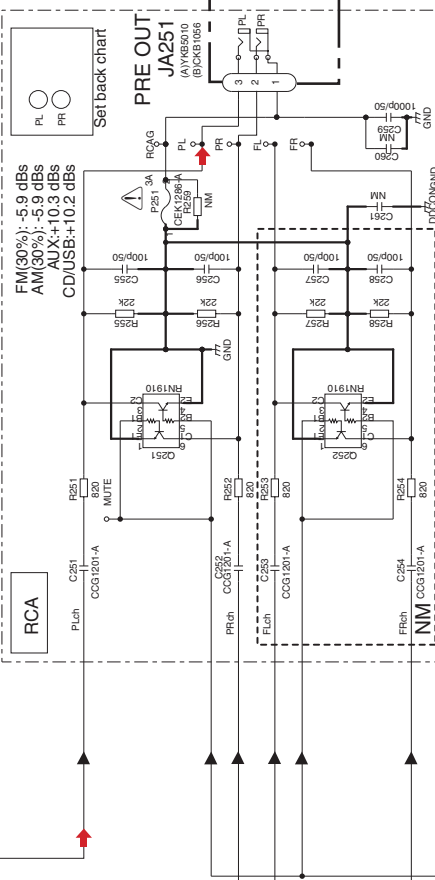
NM : No Mount

DEH-23UB/XSUC

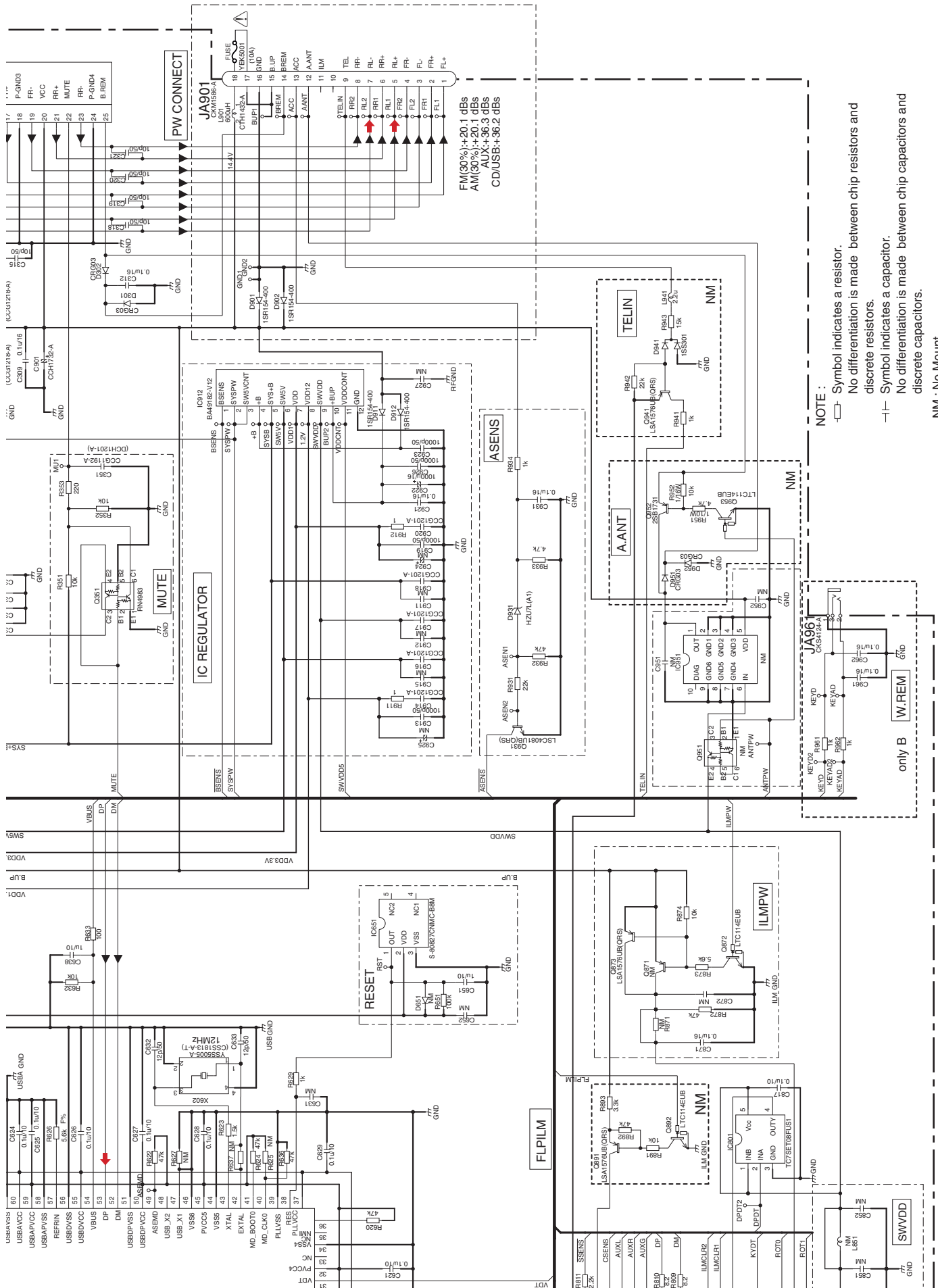
A TUNER AMP UNIT

A : DEH-23UB/XSUC
B : DEH-2390UB/XNID

main sub
FM(30%): -5.9 dBs AM(30%): -5.9 dBs AUX:+10.3 dBs CD/USB:+10.2 dBs
CCG1205-A 2.2u/10
CCG1192-A 10u/10
CCG1201-A 4.7u/10
RN4983 RT3T22M
RN1910 UMH3N.RT3N66M



DEH-23UB/XSUC



DEH-23UB/XSUC

A-b

A-a

D

C

B

A

1

2

3

4

1

2

3

4

A-b

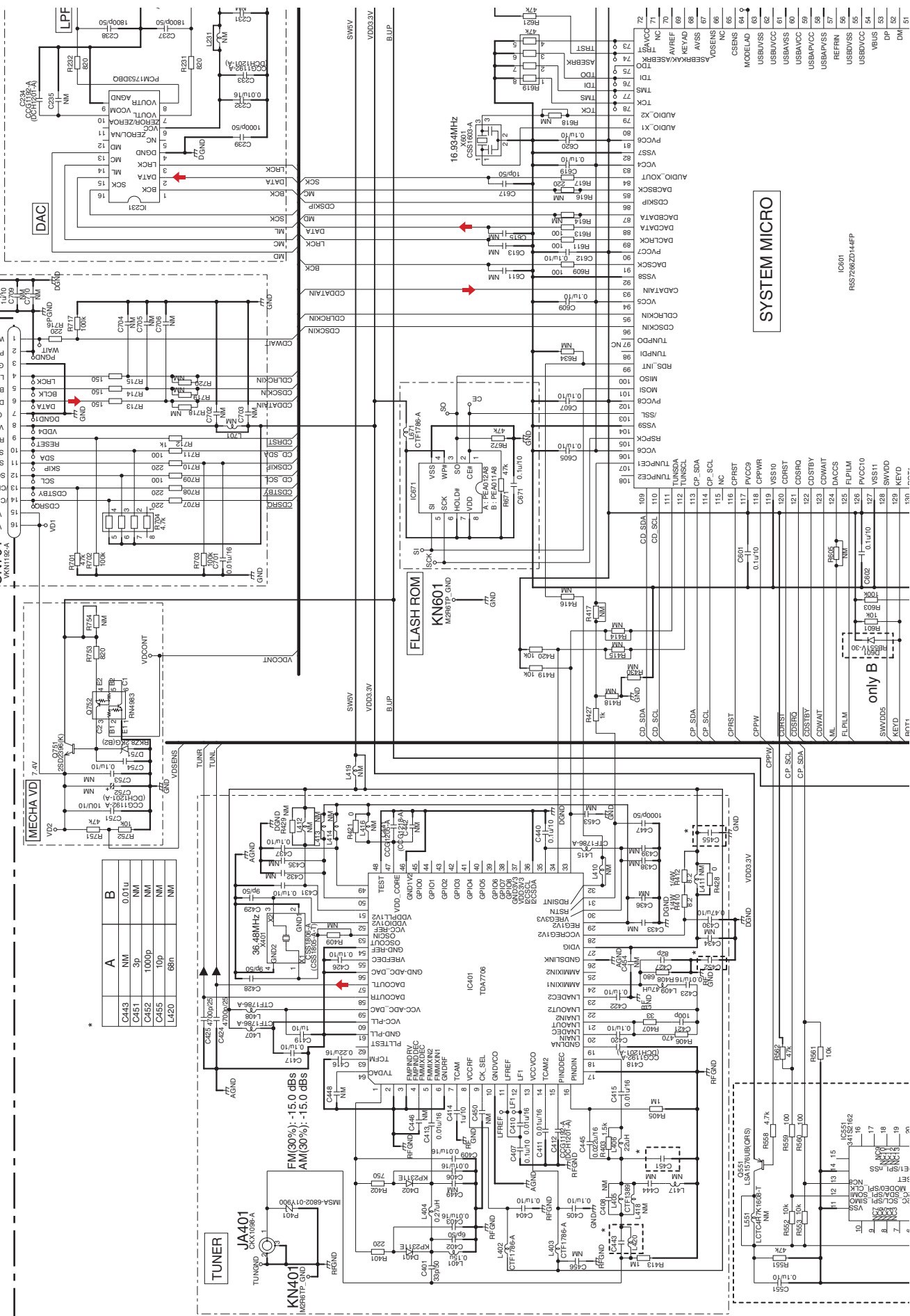
A-a

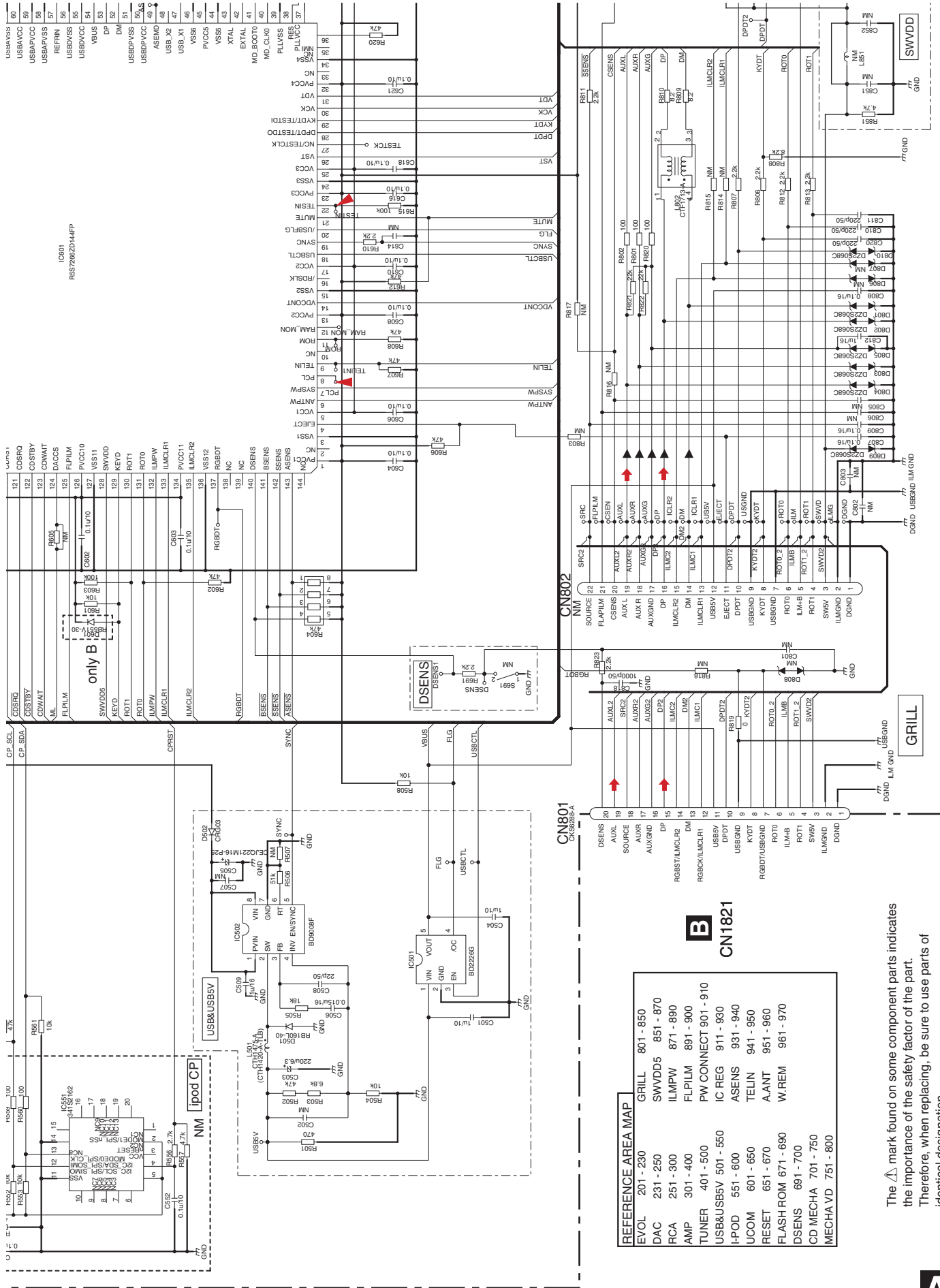
A-a

C CN701

CD/USB+5.1 dBs

DEH-23UB/XSUC





A-b

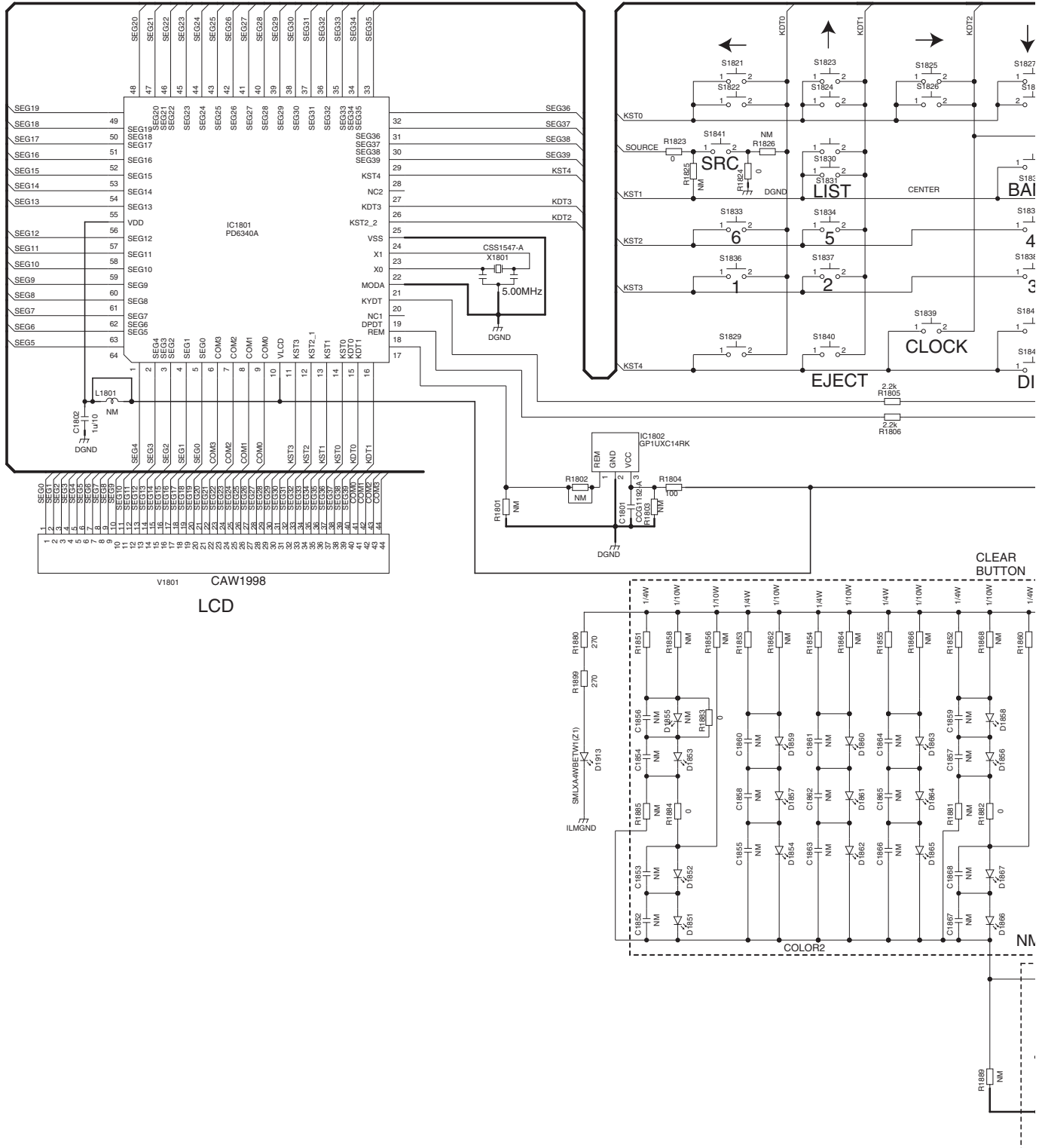
A-a A-b

The mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

A-a

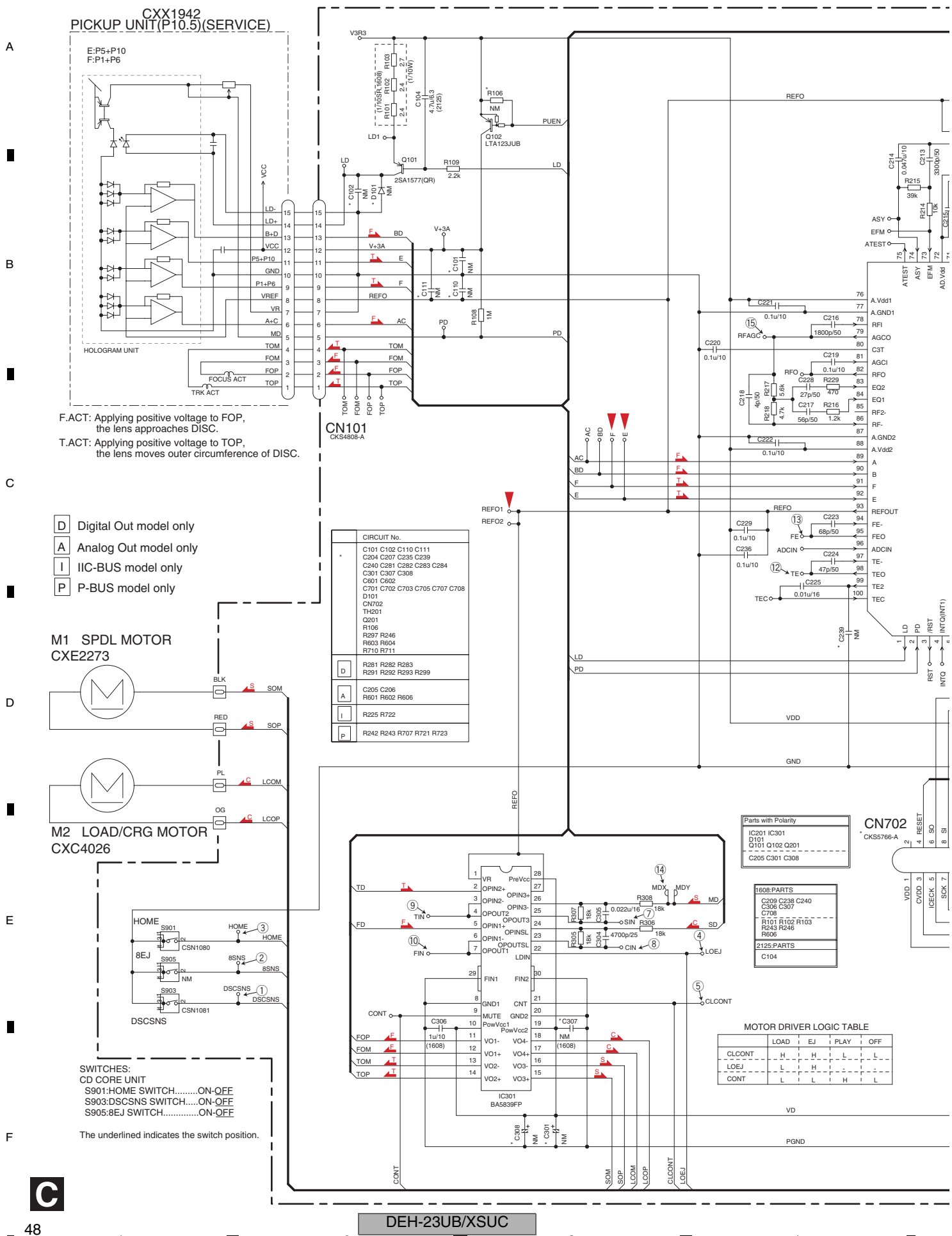
10.2 KEYBOARD UNIT

UCON&LCD	1801-1820
SWITCH&CONNENCTOR	1821-1850
LED	1851-1900
FRONT AUX	1901-1910
USB IN	1911-1920





10.3 CD CORE UNIT (S11.1STD-DOUT)



A

C

□

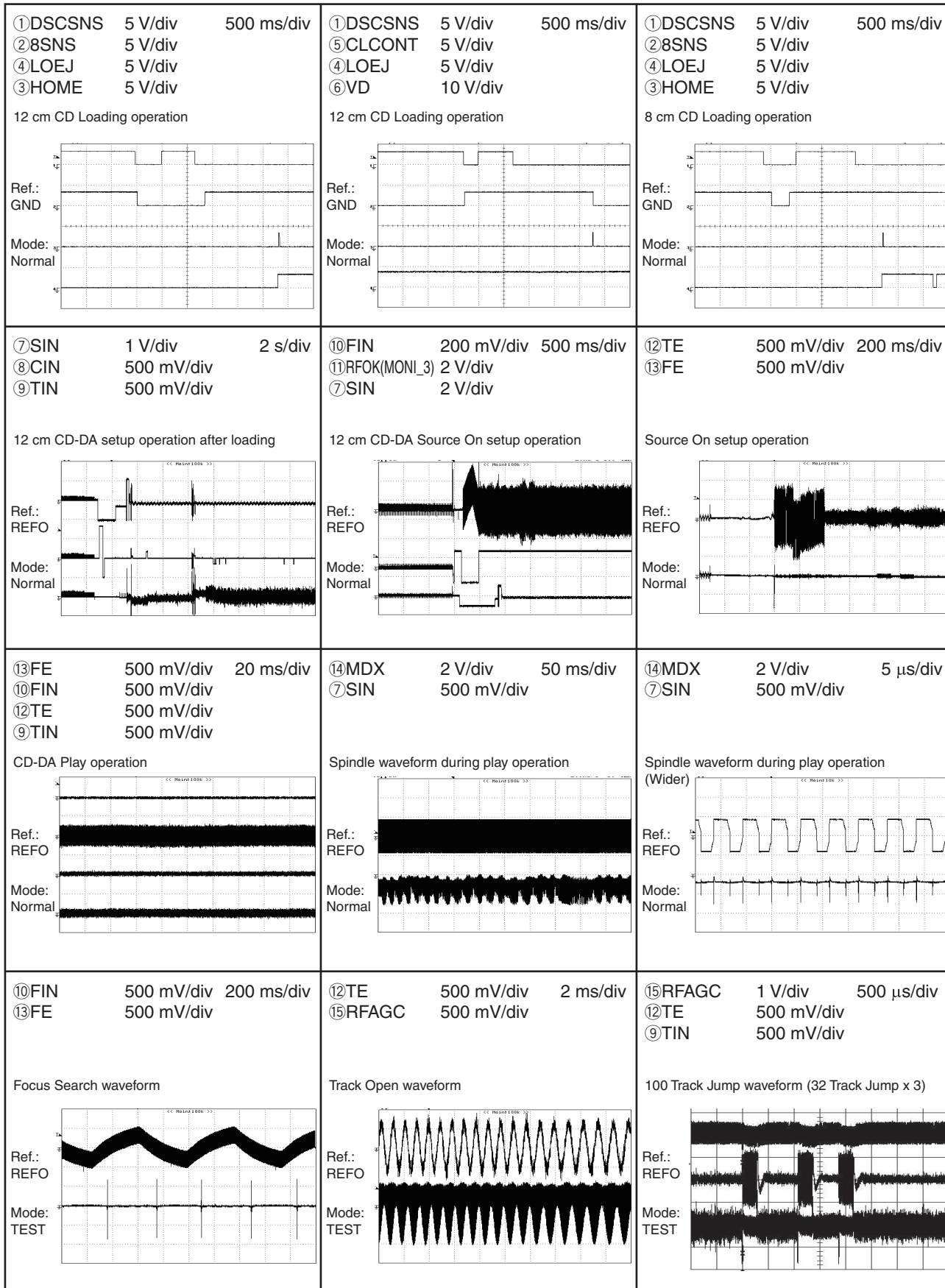
□

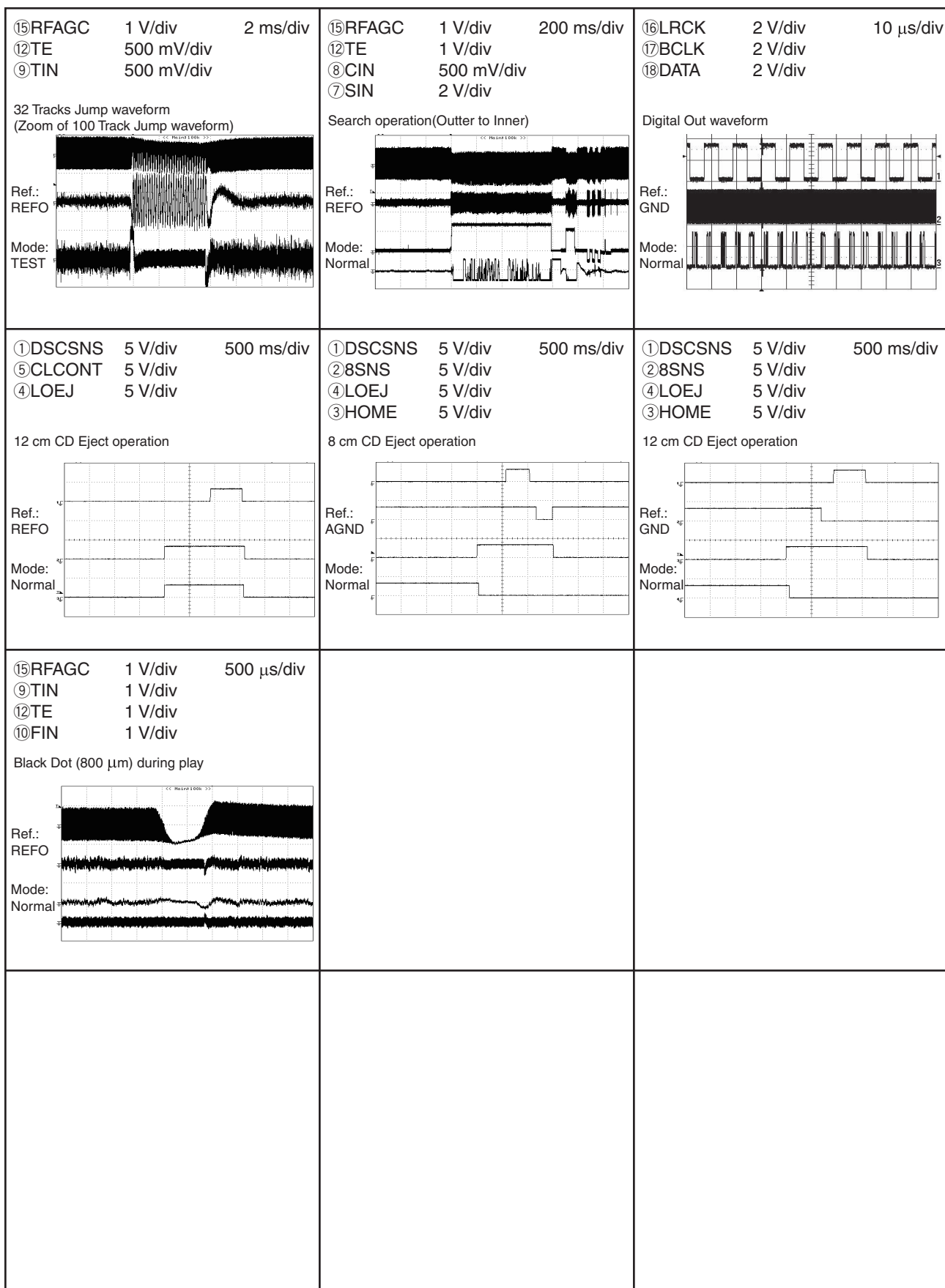
E

10.4 WAVEFORMS

CD CORE UNIT

Note : 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage REFO1(1.65 V)

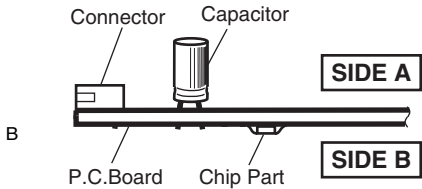




11. PCB CONNECTION DIAGRAM

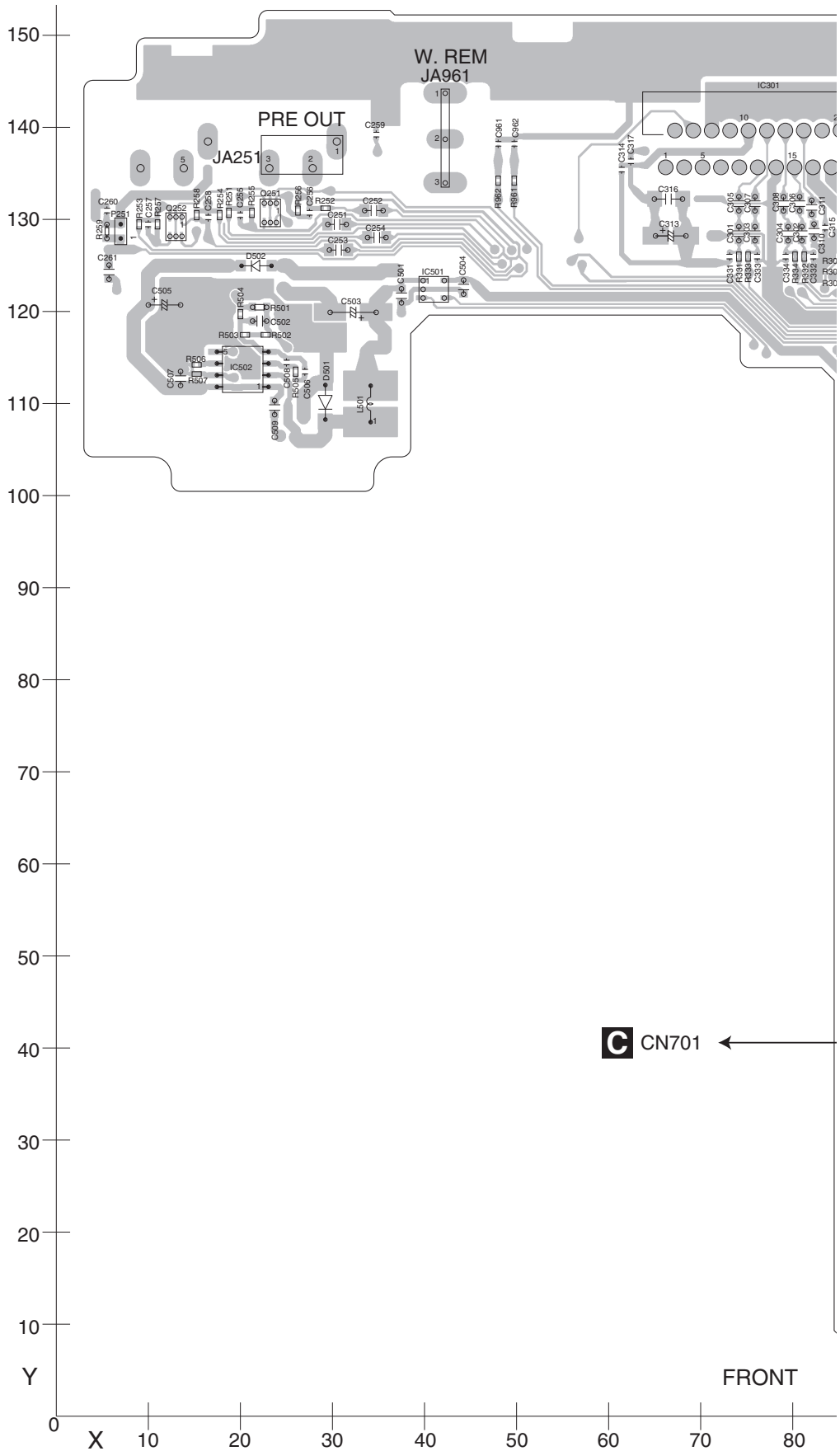
11.1 TUNER AMP UNIT

- A
- NOTE FOR PCB DIAGRAMS
1. The parts mounted on this PCB include all necessary parts for several destination.
- For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



A

TUNER AMP UNIT



A

A TUNER AMP UNIT

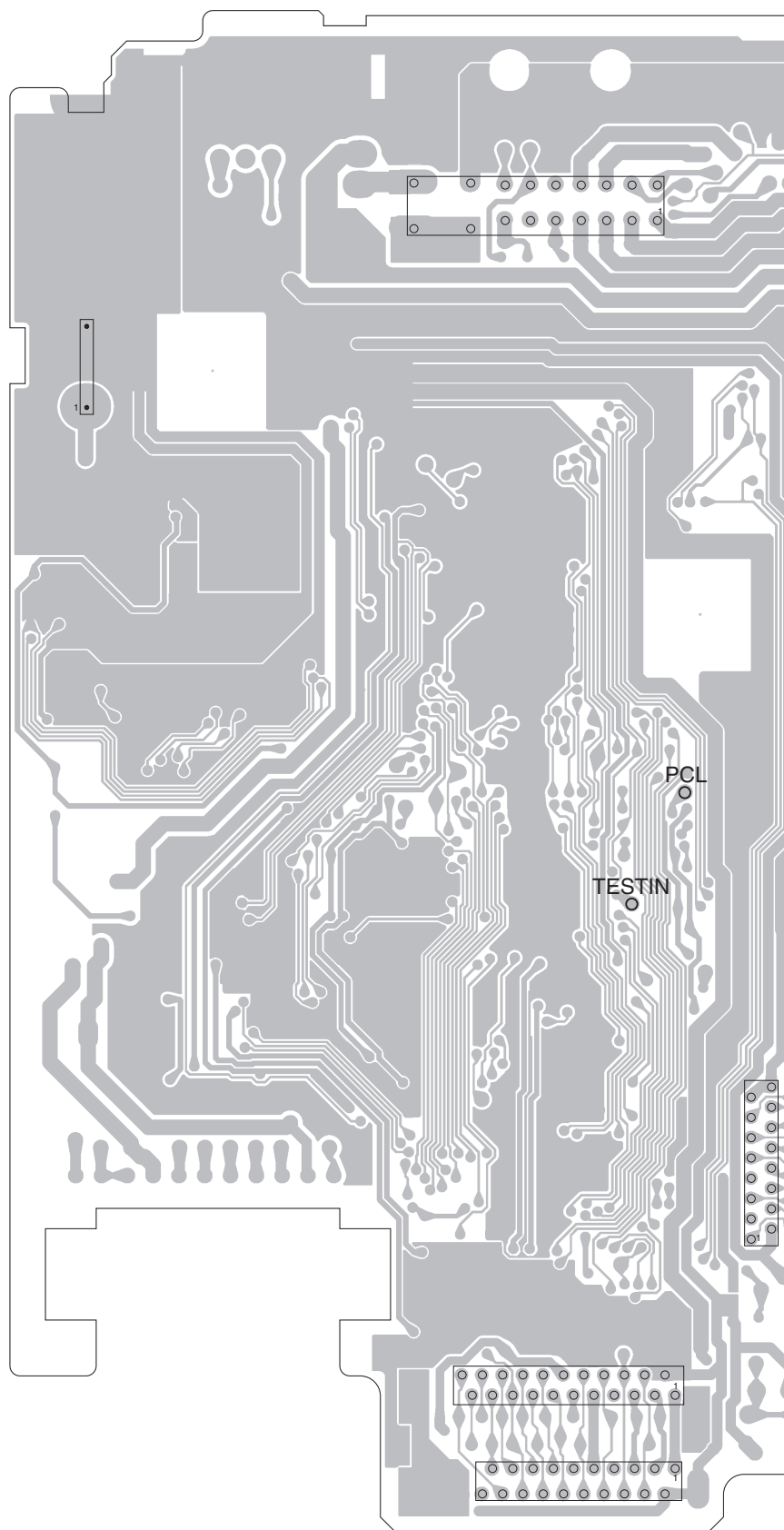
B

C

D

E

F



160

150

140

130

120

110

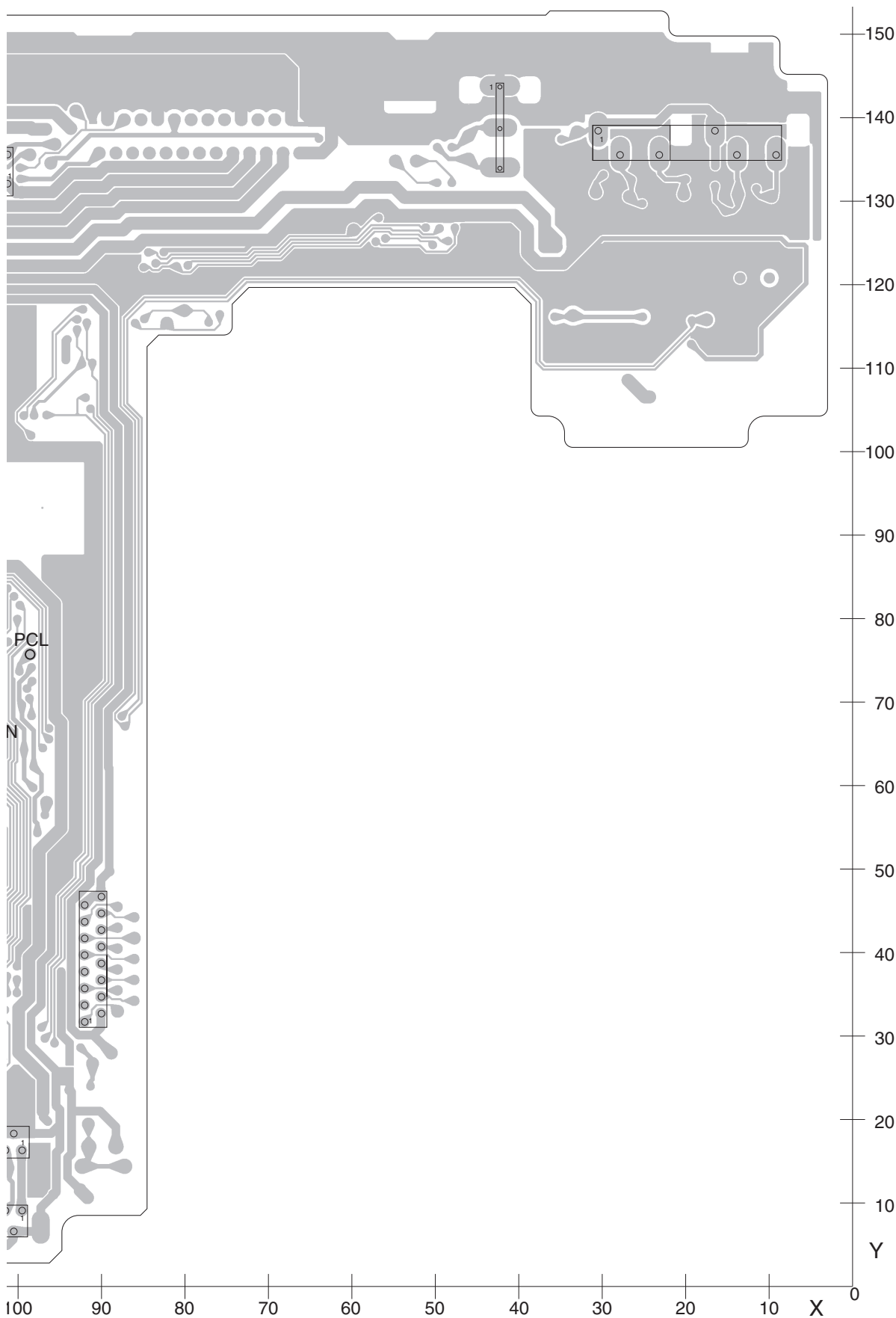
100

90

DEH-23UB/XSUC

A

SIDE B



A

B

C

D

E

F

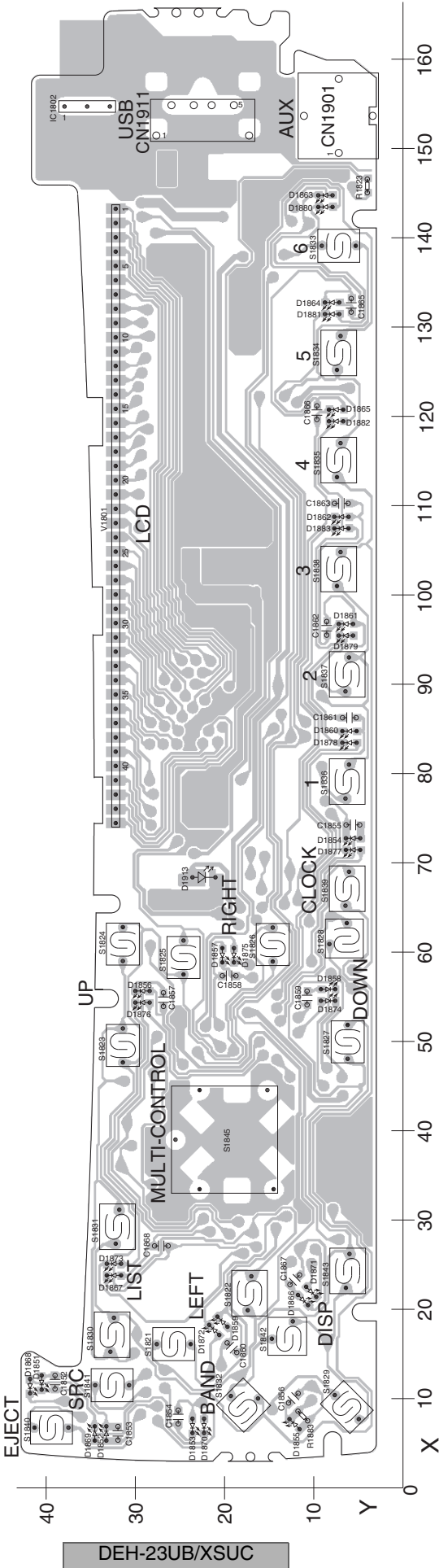
A

DEH-23UB/XSUC

11.2 KEYBOARD UNIT

B KEYBOARD UNIT

SIDE A

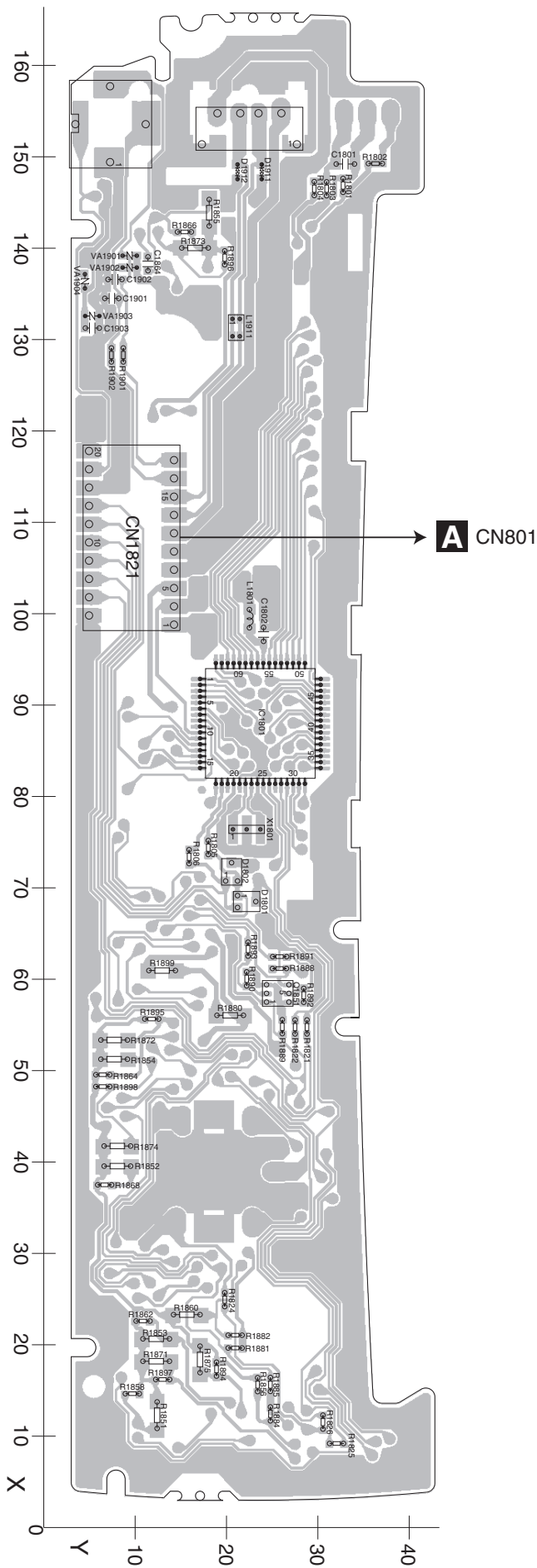


DEH-23UB/XSUC

B

B KEYBOARD UNIT

SIDE B



DEH-23UB/XSUC

B

11.3 CD CORE UNIT (S11.1STD-DOUT)

C CD CORE UNIT (S11.1STD-DOUT)

SIDE A

A

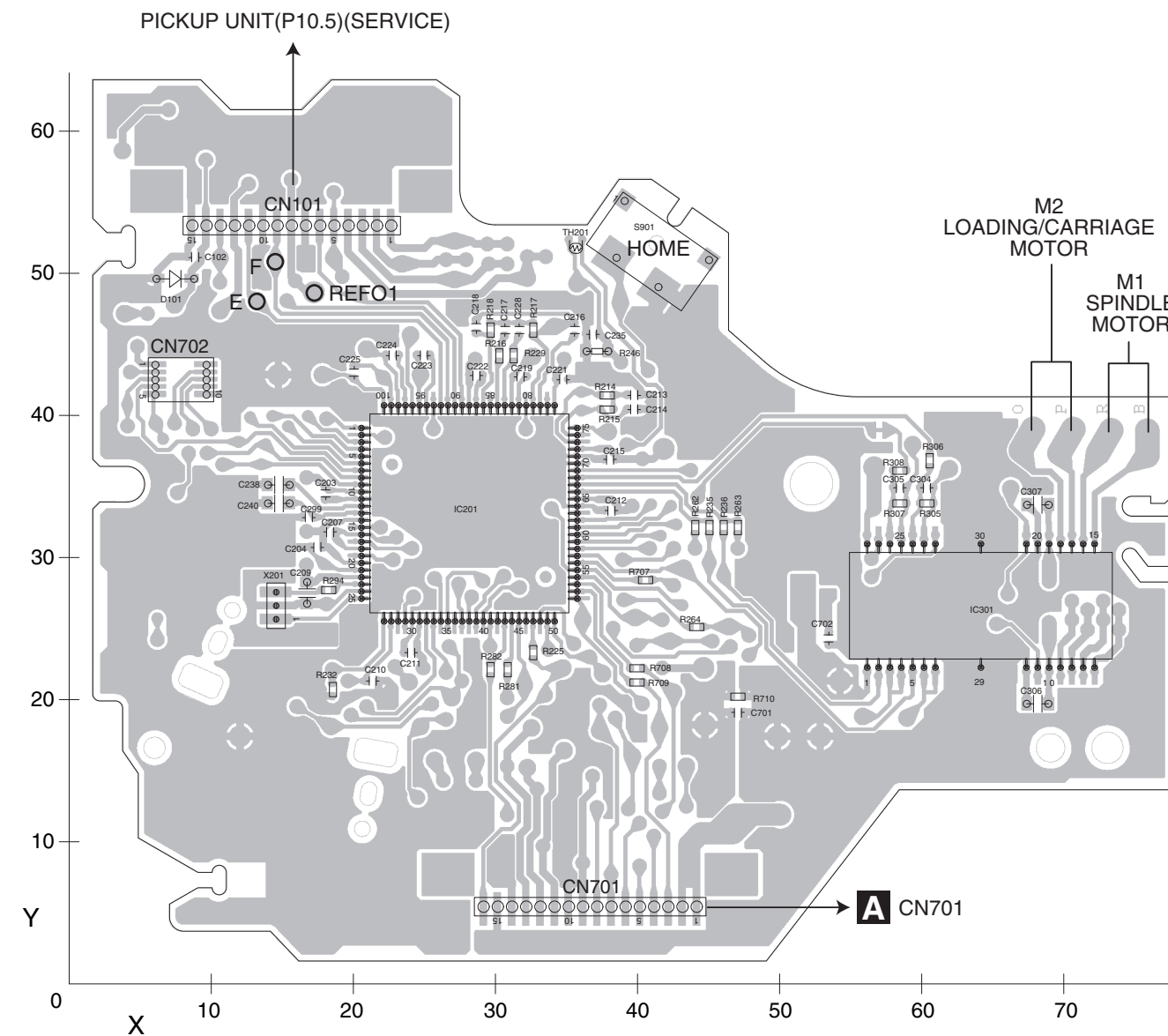
B

C

D

E

F



C

12. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○○○○○J,RS1/○○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

- The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Meaning of the figures and others in the parentheses in the parts list.

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

Circuit Symbol and No.

Part No.

A:DEH-23UB/XSUC

B:DEH-2390UB/XNID

Unit Number : CWN5640(A)

: CWN5489(B)

Unit Name : Tuner Amp Unit

Unit Number :

Unit Name : Keyboard Unit

Unit Number : CWX3985

Unit Name : CD Core Unit(\$11.1STD-DOUT)

A

Unit Number : CWN5640(A)

: CWN5489(B)

Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 201	(A,98,112) IC	PML022A
IC 231	(A,137,60) D/A Converter	PCM1753DBQ
IC 301	(A,78,142) IC	PAL007E
IC 401	(A,150,91) IC	TDA7706
IC 501	(A,41,122) IC	BD2226G
IC 502	(A,20,114) IC	BD9008F
IC 601	(A,113,67) IC	R5S7266ZD144FP
IC 651	(A,92,63) IC	S-80827CNMC-B8M
IC 671	(A,129,82) Flash ROM Unit(A)	PEA012A8
	(A,129,82) Flash ROM Unit(B)	PEA011A8
IC 801	(A,108,25) L-MOS And Gate	TC7SET08FUS1
IC 912	(A,145,28) IC	BA49182-V12
Q 251	(A,23,131) Chip Transistor	RN1910
Q 351	(A,88,127) Chip Transistor	RN4983
Q 751	(A,142,139) Transistor	2SD2396
Q 752	(A,137,132) Chip Transistor	RN4983
Q 872	(A,146,52) Transistor	LTC114EUB
Q 873	(A,147,58) Transistor	LSA1576UB

Circuit Symbol and No.

Part No.

Q 931	(A,118,105) Transistor	LSC4081UB
D 301	(A,100,127) Diode	CRG03
D 302	(A,97,127) Diode	CRG03
D 401	(A,158,106) Diode	KP2311E
D 402	(A,158,100) Diode	KP2311E
D 501	(A,29,110) Diode	RB160L-40
D 502	(A,22,125) Diode	CRG03
D 601	(A,114,84) Diode(B)	RB551V-30
D 602	(A,124,51) Diode(B)	RB751S-40
D 751	(A,141,131) Diode	RKZ8.2KG(B2)
D 801	(A,114,21) Diode	DZ2S068C
D 802	(A,116,21) Diode	DZ2S068C
D 803	(A,117,24) Diode	DZ2S068C
D 804	(A,120,21) Diode	DZ2S068C
D 805	(A,119,25) Diode	DZ2S068C
D 809	(A,99,20) Diode	DZ2S068C
D 810	(A,109,21) Diode	DZ2S068C
D 901	(A,139,120) Diode	1SR154-400
D 902	(A,136,120) Diode	1SR154-400
D 911	(A,156,65) Diode	1SR154-400
D 912	(A,160,65) Diode	1SR154-400
D 931	(A,116,108) Diode	HZU7L(A1)
L 401	(A,159,103) Chip Coil	LCTAWR15J2520
L 402	(A,151,101) Inductor	CTF1786
L 403	(A,146,103) Inductor	CTF1786
L 404	(A,155,104) Chip Coil	LCTAWR27J2520
L 405	(A,142,104) Inductor	CTF1389
L 406	(A,139,101) Inductor	LCTAW220J2520
L 407	(A,162,96) Inductor	CTF1786
L 408	(A,162,94) Inductor	CTF1786
L 409	(A,138,94) Chip Coil	LCTAW470J2520
L 415	(A,146,81) Inductor	CTF1786
L 420	(A,145,107) Inductor(A)	LCYB68NJ1608
L 501	(A,34,110) Coil	CTH1475
L 671	(A,133,78) Inductor	CTF1786
L 802	(A,114,26) Inductor	CTF1713
L 901	(A,112,141) Choke Coil 600 uH	CTH1432
X 401	(A,161,87) Oscillator 36.48 MHz	CSS1805
X 601	(A,129,61) Ceramic Resonator 16.934 MHz	CSS1603
X 602	(A,109,51) Oscillator 12.000 MHz	YSS5005

$\triangle$ P251

(A,7,129) Fuse 3 A CEK1286

DEH-23UB/XSUC

5		6		7		8	
<u>Circuit Symbol and No.</u>		<u>Part No.</u>		<u>Circuit Symbol and No.</u>		<u>Part No.</u>	
P 401	(A,155,109) Surge Protector	IMSA-6802-01Y900		R 617	(A,127,65)	RS1/16SS221J	
CN701	(A,91,39) Connector	VKN1192					
CN801	(A,109,4) Connector	CKS6288		R 619	(A,130,57)	RAB4CQ473J	
JA251	(A,19,138) Pin Jack(A)	YKB5010		R 620	(A,99,60)	RS1/16SS473J	A
	(A,19,138) Pin Jack(B)	CKB1056		R 621	(A,125,54)	RS1/16SS473J	
				R 622	(A,103,50)	RS1/16SS473J	
JA401	(A,158,129) Antenna Jack	YKS5041		R 623	(A,108,54)	RS1/16SS152J	
JA901	(A,113,141) Plug	CKM1586					
JA961	(A,42,139) Connector(B)	CKS4124		R 624	(A,103,52)	RS1/16SS473J	
⚠	Fuse(10 A)	YEK5001		R 626	(A,116,53)	RS1/16SS5601F	
RESISTORS				R 628	(A,123,53)	RS1/16SS103J	
				R 629	(A,97,58)	RS1/16SS102J	
				R 630	(A,122,49)	RS1/16SS473J	
R 201	(A,96,63)	RAB4CQ102J					
R 231	(A,142,60)	RS1/16SS821J		R 632	(A,117,47)	RS1/16SS103J	
R 232	(A,143,60)	RS1/16SS821J		R 633	(A,119,45)	RS1/16SS101J	
R 251	(A,19,131)	RS1/16SS821J		R 636	(A,103,53)	RS1/16SS473J	B
R 252	(A,29,131)	RS1/16SS821J		R 638	(A,123,32)	RS1/16SS0R0J	
				R 651	(A,91,60)	RS1/16SS104J	
R 255	(A,21,131)	RS1/16SS223J					
R 256	(A,26,131)	RS1/16SS223J		R 671	(A,133,83)	RS1/10SR473J	
R 303	(A,86,123)	RS1/16SS103J		R 672	(A,129,88)	RS1/10SR473J	
R 304	(A,86,125)	RS1/16SS473J		R 691	(A,92,22)	RS1/10SR222J	
R 351	(A,92,127)	RS1/16SS103J		R 701	(A,95,45)	RS1/16SS473J	
				R 702	(A,95,39)	RS1/16SS104J	
R 352	(A,90,128)	RS1/16SS103J					
R 353	(A,92,128)	RS1/16SS221J		R 703	(A,97,41)	RS1/16SS104J	
R 401	(A,161,106)	RS1/16SS221J		R 704	(A,96,49)	RAB4CQ472J	
R 402	(A,161,100)	RS1/16SS751J		R 707	(A,95,46)	RS1/16SS221J	
R 403	(A,139,103)	RS1/16SS152J		R 708	(A,95,44)	RS1/16SS221J	C
				R 709	(A,95,43)	RS1/16SS101J	
R 405	(A,142,99)	RS1/16SS105J					
R 406	(A,138,97)	RS1/16SS471J		R 710	(A,95,42)	RS1/16SS221J	
R 407	(A,139,96)	RS1/16SS330J		R 711	(A,95,41)	RS1/16SS101J	
R 408	(A,138,92)	RS1/16SS681J		R 712	(A,95,40)	RS1/16SS102J	
R 410	(A,136,80)	RS1/4SA8R2J		R 713	(A,96,37)	RS1/16SS151J	
				R 714	(A,96,36)	RS1/16SS151J	
R 412	(A,137,85)	RS1/4SA8R2J					
R 413	(A,145,108)	RS1/16SS105J		R 715	(A,96,35)	RS1/16SS151J	
R 419	(A,132,72)	RS1/16SS103J		R 716	(A,95,31)	RS1/16SS221J	
R 420	(A,133,72)	RS1/16SS103J		R 717	(A,95,32)	RS1/16SS104J	
R 421	(A,153,80)	RS1/16SS0R0J		R 751	(A,95,47)	RS1/16SS473J	
				R 752	(A,97,47)	RS1/16SS103J	D
R 427	(A,142,84)	RS1/16SS102J					
R 428	(A,139,87)	RS1/16SS0R0J		R 753	(A,139,134)	RS1/10SR821J	
R 501	(A,22,120)	RS1/10SR471J		R 801	(A,117,30)	RS1/10SR101J	
R 502	(A,23,117)	RS1/16SS4702F		R 802	(A,119,30)	RS1/10SR101J	
R 503	(A,21,117)	RS1/16SS682J		R 806	(A,105,25)	RS1/10SR222J	
				R 807	(A,108,21)	RS1/10SR222J	
R 504	(A,20,120)	RS1/16SS1002F					
R 505	(A,26,113)	RS1/16SS183J		R 808	(A,103,24)	RS1/16SS822J	
R 506	(A,15,114)	RS1/16SS513J		R 809	(A,113,29)	RS1/10SR8R2J	
R 508	(A,95,67)	RS1/16SS103J		R 810	(A,115,29)	RS1/10SR8R2J	
R 561	(A,119,84)	RS1/16SS103J		R 811	(A,122,26)	RS1/10SR222J	
				R 812	(A,102,25)	RS1/10SR222J	
R 562	(A,118,80)	RS1/16SS473J					E
R 601	(A,112,85)	RS1/16SS103J		R 813	(A,100,25)	RS1/10SR222J	
R 602	(A,109,82)	RS1/16SS473J		R 819	(A,105,12)	RS1/10SR0R0J	
R 603	(A,111,85)	RS1/16SS104J		R 820	(A,118,30)	RS1/10SR101J	
R 604	(A,98,81)	RAB4CQ473J		R 821	(A,120,28)	RS1/16SS223J	
				R 822	(A,117,27)	RS1/16SS223J	
R 606	(A,100,78)	RS1/16SS473J					
R 607	(A,100,73)	RS1/16SS473J		R 823	(A,124,7)	RS1/10SR222J	
R 608	(A,97,73)	RS1/16SS473J		R 851	(A,98,23)	RS1/16SS472J	
R 609	(A,127,69)	RS1/16SS101J		R 872	(A,125,28)	RS1/10SR473J	
R 610	(A,100,67)	RS1/16SS222J		R 873	(A,148,53)	RS1/16SS562J	
				R 874	(A,148,55)	RS1/16SS103J	
R 611	(A,132,69)	RS1/16SS101J					
R 612	(A,98,79)	RS1/16SS473J		R 911	(A,141,41)	RS1/10SR1R0J	F
R 613	(A,132,68)	RS1/16SS101J		R 912	(A,144,42)	RS1/10SR1R0J	
R 615	(A,98,64)	RS1/16SS104J		R 931	(A,121,106)	RS1/16SS223J	
				R 932	(A,118,107)	RS1/16SS473J	

1

2

3

4

Circuit Symbol and No.**Part No.****Circuit Symbol and No.****Part No.**

R 933 (A,115,106)

RS1/16SS472J

C 410 (A,148,99)

CKSSYB103K16

R 934 (A,115,114)

RS1/4SA102J

C 411 (A,145,100)

CKSSYB103K16

R 961 (A,50,134) (B)

RS1/16SS102J

C 412 (A,144,101) 10 uF

CCG1192

R 962 (A,48,134) (B)

RS1/16SS102J

C 413 (A,155,101)

CKSSYB103K16

C 414 (A,152,102)

CKSRYB105K10

C 415 (A,140,99)

CKSSYB103K16

C 416 (A,159,96)

CKSRYB224K16

CAPACITORS

C 201 (A,106,108) 10 uF

CCG1192

C 202 (A,100,106)

CCSSCH100D50

C 203 (A,103,108) 4.7 uF

CCG1201

C 204 (A,100,107)

CCSSCH100D50

C 205 (A,94,106)

CKSRYB105K10

C 206 (A,94,118)

CKSRYB105K10

C 207 (A,97,106)

CKSRYB105K10

C 208 (A,96,119)

CKSRYB105K10

C 209 (A,98,106)

CKSRYB105K10

C 210 (A,98,119)

CKSRYB105K10

C 211 (A,95,106)

CKSSYB224K6R3

C 212 (A,95,119)

CKSSYB224K6R3

C 215 (A,102,108)

CCSSCH100D50

C 232 (A,138,56)

CKSSYB103K16

C 233 (A,139,55) 10 uF

CCG1192

C 234 (A,138,66) 10 uF

CCG1192

C 237 (A,142,62)

CCSRCH182J50

C 238 (A,143,64)

CCSRCH182J50

C 239 (A,141,60)

CKSSYB102K50

C 251 (A,31,129) 4.7 uF

CCG1201

C 252 (A,35,131) 4.7 uF

CCG1201

C 255 (A,20,130)

CCSSCH101J50

C 256 (A,28,131)

CCSSCH101J50

C 259 (A,35,139)

CKSSYB102K50

C 301 (A,74,128)

CKSRYB474K10

C 302 (A,81,128)

CKSRYB474K10

C 303 (A,76,128)

CKSRYB474K10

C 304 (A,80,128)

CKSRYB474K10

C 305 (A,74,132)

CKSRYB474K10

C 306 (A,81,132)

CKSRYB474K10

C 307 (A,76,132)

CKSRYB474K10

C 308 (A,79,132)

CKSRYB474K10

C 309 (A,137,135)

CKSRYB104K16

C 310 (A,82,129) 2.2 uF

CCG1205

C 311 (A,82,131) 2.2 uF

CCG1205

C 312 (A,98,128)

CKSRYB104K16

C 313 (A,67,128)

CEVW100M16

C 314 (A,61,135)

CCSSCH100D50

C 315 (A,84,129)

CCSSCH100D50

C 317 (A,62,136)

CCSSCK1R0C50

C 318 (A,107,129)

CCSRCH100D50

C 319 (A,103,129)

CCSRCH100D50

C 320 (A,96,133)

CCSRCH100D50

C 321 (A,92,137)

CCSRCH100D50

C 351 (A,94,127) 10 uF

CCG1192

C 401 (A,155,107)

CCSSCH330J50

C 402 (A,158,105)

CCSSCH6R0D50

C 403 (A,161,105)

CKSSYB103K16

C 404 (A,150,100)

CKSSYB104K10

C 405 (A,147,100)

CKSSYB104K10

C 406 (A,160,101)

CKSSYB103K16

C 407 (A,148,100)

CKSSYB104K10

C 409 (A,162,101)

CKSSYB103K16

C 451 (A,142,103) (A)

CCSSCJ3R0C50

C 452 (A,134,91) (A)

CKSSYB102K50

C 455 (A,137,89) (A)

CCSSCH100D50

C 501 (A,38,122)

CKSRYB105K10

C 503 (A,32,120)

CEVQW221M6R3

C 504 (A,44,123)

CKSRYB105K10

C 505 (A,12,121)

CEJQ221M16

C 506 (A,27,113)

CKSSYB153K16

C 508 (A,25,114)

CCSSCH220J50

C 509 (A,24,110)

CKSRYB105K16

C 601 (A,116,80)

CKSSYB104K10

C 602 (A,113,80)

CKSSYB104K10

C 603 (A,109,80)

CKSSYB104K10

C 604 (A,99,76)

CKSSYB104K10

C 605 (A,126,74)

CKSSYB104K10

C 606 (A,100,75)

CKSSYB104K10

C 607 (A,128,73)

CKSSYB104K10

C 608 (A,100,71)

CKSSYB104K10

C 609 (A,127,70)

CKSSYB104K10

C 610 (A,100,69)

CKSSYB104K10

C 612 (A,130,69)

CKSSYB104K10

C 616 (A,100,64)

CKSSYB104K10

C 617 (A,129,65)

CCSSCH100D50

C 618 (A,99,63)

CKSSYB104K10

C 619 (A,127,64)

CKSSYB104K10

C 620 (A,132,61)

CKSSYB104K10

C 621 (A,100,60)

CKSSYB104K10

C 622 (A,124,53)

CKSSYB104K10

C 623 (A,119,53)

CKSSYB104K10

C 624 (A,118,52)

CKSSYB104K10

C 625 (A,117,53)

CKSSYB104K10

C 626 (A,115,53)

CKSSYB104K10

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5		6
<u>Circuit Symbol and No.</u>		<u>Part No.</u>
C 627 (A,113,52)		CKSSYB104K10
C 628 (A,109,54)		CKSSYB104K10
C 629 (A,104,54)		CKSSYB104K10
C 630 (A,123,54)		CKSSYB104K10
C 632 (A,110,49)		CCSSCH120J50
C 633 (A,108,49)		CCSSCH120J50
C 638 (A,117,45)		CKSRYB105K10
C 651 (A,95,60)		CKSRYB105K10
C 671 (A,133,81)		CKSSYB104K10
C 701 (A,98,41)		CKSSYB103K16
C 707 (A,88,30)		CKSSYB102K50
C 708 (A,87,32)		CKSRYB105K10
C 751 (A,142,127) 10 uF		CCG1192
C 754 (A,140,130)		CKSSYB104K10
C 807 (A,106,21)		CKSRYB104K16
C 808 (A,94,24)		CKSRYB104K16
C 809 (A,122,21)		CKSRYB104K16
C 810 (A,103,21)		CCSRCH221J50
C 811 (A,101,21)		CCSRCH221J50
C 812 (A,120,26)		CKSRYB105K16
C 817 (A,110,28)		CKSSYB104K10
C 818 (A,125,10)		CKSQYB102K50
C 820 (A,105,21)		CCSRCH221J50
C 871 (A,124,26)		CKSRYB104K16
C 901 (A,133,125) 3 300 uF/16 V		CCH1732
C 913 (A,140,40)		CKSSYB102K50
C 914 (A,141,44) 4.7 uF		CCG1201
C 916 (A,150,43) 4.7 uF		CCG1201
C 917 (A,138,41) 4.7 uF		CCG1201
C 918 (A,153,42) 4.7 uF		CCG1201
C 919 (A,145,40)		CKSSYB102K50
C 920 (A,147,42) 4.7 uF		CCG1201
C 921 (A,133,40)		CKSRYB104K16
C 922 (A,155,52)		CEAT102M16(P30)
C 923 (A,154,40)		CKSSYB102K50
C 926 (A,133,41)		CKSRYB102K50
C 931 (A,114,105)		CKSRYB104K16
C 961 (A,48,138) (B)		CKSSYB104K16
C 962 (A,50,138) (B)		CKSSYB104K16

B

Unit Number :

Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1801 (B,88,24) IC	PD6340A
IC 1802 (A,160,35) Remote IC	GP1UXC14RK
D 1868 (A,11,42) LED(RED)	SML-D12V8W(PQ)
D 1869 (A,6,35) LED(RED)	SML-D12V8W(PQ)
D 1870 (A,7,22) LED(RED)	SML-D12V8W(PQ)
D 1871 (A,22,10) LED(RED)	SML-D12V8W(PQ)
D 1872 (A,18,21) LED(RED)	SML-D12V8W(PQ)
D 1873 (A,25,32) LED(RED)	SML-D12V8W(PQ)
D 1874 (A,55,8) LED(RED)	SML-D12V8W(PQ)
D 1875 (A,60,19) LED(RED)	SML-D12V8W(PQ)
D 1876 (A,54,29) LED(RED)	SML-D12V8W(PQ)
D 1877 (A,71,6) LED(RED)	SML-D12V8W(PQ)
D 1878 (A,83,6) LED(RED)	SML-D12V8W(PQ)
D 1879 (A,95,6) LED(RED)	SML-D12V8W(PQ)
D 1880 (A,143,9) LED(RED)	SML-D12V8W(PQ)

7		8
<u>Circuit Symbol and No.</u>		<u>Part No.</u>
D 1881	(A,131,8) LED(RED)	SML-D12V8W(PQ)
D 1882	(A,119,8) LED(RED)	SML-D12V8W(PQ)
D 1883	(A,107,7) LED(RED)	SML-D12V8W(PQ)
D 1913	(A,69,23) White LED	SMLXA4WBETW1(Z1)
X 1801	(B,76,22) Ceramic Resonator 5.00 MHz	CSS1547
S 1845	(A,39,19) Encoder(MULTI-CONTROL)	CSD1168
CN1821	(B,108,10) Connector	CKS6287
CN1901	(A,154,7) Jack(A)	YKN5001
	(A,154,7) Jack(B)	CKN1082
CN1911	(A,155,22) Connector(A)	CKS6266
	(A,155,22) Connector(B)	CKS6267
V 1801	(A,143,32) LCD	CAW1998

RESISTORS

R 1804 (B,147,30)	RS1/10SR101J
R 1805 (B,74,18)	RS1/10SR222J
R 1806 (B,73,16)	RS1/10SR222J
R 1822 (B,55,28)	RS1/10SR273J
R 1823 (A,146,4)	RS1/10SR0R0J
R 1824 (B,25,20)	RS1/10SR0R0J
R 1880 (B,56,20)	RS1/4SA271J
R 1888 (B,61,26)	RS1/10SR0R0J
R 1894 (B,17,19)	RS1/10SR272J
R 1895 (B,56,12)	RS1/10SR272J
R 1896 (B,139,20)	RS1/10SR272J
R 1897 (B,16,13)	RS1/10SR272J
R 1898 (B,48,6)	RS1/10SR102J
R 1899 (B,61,13)	RS1/4SA271J

CAPACITORS

C 1801 (B,149,33) 10 uF	CCG1192
C 1802 (B,98,24)	CKSRYB105K10

C

Unit Number : CWX3985

Unit Name : CD Core Unit(\$11.1STD-DOUT)

MISCELLANEOUS

IC 201 (A,28,33) IC	PE5756A
IC 301 (A,64,27) IC	BA5839FP
Q 101 (B,8,56) Transistor	2SA1577
Q 102 (B,21,51) Chip Digital Transistor	LTA123JUB
X 201 (A,15,27) Ceramic Resonator 16.934 MHz	CSS1603
S 901 (A,42,53) Switch(HOME)	CSN1080
S 903 (B,21,12) Switch(DSCSNS)	CSN1081
CN101 (A,16,58) Connector	CKS4808
CN701 (A,37,10) Connector	CKS6146

RESISTORS

R 101 (B,6,59)	RS1/10SR2R4J
R 102 (B,7,59)	RS1/10SR2R4J
R 103 (B,8,59)	RS1/10SR2R7J
R 108 (B,19,53)	RS1/16SS105J
R 109 (B,11,52)	RS1/16SS222J
R 214 (A,38,41)	RS1/16SS103J
R 215 (A,38,40)	RS1/16SS393J

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Circuit Symbol and No.**Part No.****Circuit Symbol and No.****Part No.**

R 216 (A,30,44)
R 217 (A,33,46)
R 218 (A,30,46)

RS1/16SS122J
RS1/16SS562J
RS1/16SS472J

C 232 (B,45,28)
C 233 (B,25,25)
C 236 (B,26,41)

CKSSYB102K50
CKSSYB103K16
CKSSYB104K10

A

R 225 (A,33,23)
R 229 (A,31,44)
R 232 (A,19,21)
R 235 (A,45,32)
R 236 (A,46,32)

RS1/16SS0R0J
RS1/16SS471J
RS1/16SS0R0J
RS1/16SS103J
RS1/16SS103J

C 238 (A,15,35)
C 299 (A,17,33)
C 304 (A,60,35)
C 305 (A,58,35)
C 306 (A,68,20)

CKSRYB104K16
CKSSYB104K10
CKSSYB472K25
CKSSYB223K16
CKSRYB105K10

R 237 (B,24,25)
R 240 (B,26,30)
R 245 (B,28,30)
R 254 (B,29,30)
R 260 (B,41,21)

RS1/16SS221J
RS1/16SS473J
RS1/16SS104J
RS1/16SS104J
RS1/16SS103J

C 710 (B,43,10)

CKSSYB102K50

B

R 262 (A,44,32)
R 263 (A,47,32)
R 264 (A,44,25)
R 281 (A,31,22)
R 282 (A,30,22)

RS1/16SS472J
RS1/16SS472J
RS1/16SS102J
RS1/16SS560J
RS1/16SS560J

R 283 (B,32,18)
R 291 (B,31,17)
R 292 (B,32,16)
R 293 (B,32,11)
R 294 (A,18,28)

RS1/16SS0R0J
RS1/16SS560J
RS1/16SS0R0J
RS1/16SS0R0J
RS1/16SS471J

C

R 296 (B,32,30)
R 299 (B,31,13)
R 305 (A,60,34)
R 306 (A,61,37)
R 307 (A,58,34)

RS1/16SS0R0J
RS1/16SS0R0J
RS1/16SS183J
RS1/16SS183J
RS1/16SS183J

R 308 (A,58,36)
R 701 (B,37,21)
R 702 (B,38,20)
R 706 (B,43,11)
R 708 (A,40,22)

RS1/16SS183J
RS1/16SS101J
RS1/16SS101J
RS1/16SS221J
RS1/16SS0R0J

D

R 709 (A,40,21)
R 722 (B,37,22)

RS1/16SS0R0J
RS1/16SS0R0J

CAPACITORS

C 104 (B,11,55)
C 203 (A,18,35)
C 209 (A,17,28)
C 210 (A,21,21)
C 211 (A,24,23)

CKSQYB475K6R3
CKSSYB104K10
CKSRYB104K16
CKSSYB104K10
CKSSYB104K10

C 212 (A,38,33)
C 213 (A,40,41)
C 214 (A,40,40)
C 215 (A,38,37)
C 216 (A,36,46)

CKSSYB104K10
CKSSYB332K50
CKSSYB473K10
CKSSYB104K10
CKSSYB182K50

E

C 217 (A,31,46)
C 218 (A,29,46)
C 219 (A,32,43)
C 220 (B,32,41)
C 221 (A,35,43)

CCSSCH560J50
CCSSCH4R0C50
CKSSYB104K10
CKSSYB104K10
CKSSYB104K10

C 222 (A,29,43)
C 223 (A,25,44)
C 224 (A,23,44)
C 225 (A,20,43)
C 228 (A,32,46)

CKSSYB104K10
CCSSCH680J50
CCSSCH470J50
CKSSYB103K16
CCSSCH270J50

F

C 229 (B,28,40)
C 231 (B,44,28)

CKSSYB104K10
CKSSYB102K50

Miscellaneous Parts List

M 1	Motor Unit(SPDL)	CXE2273
M 2	Motor Unit(LOAD/CRG)	CXC4026
	Pickup Unit(S10.5)(Service)	CXX1942