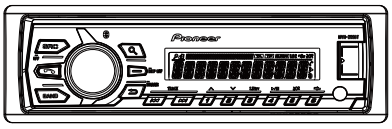
Pioneer

Service Manual

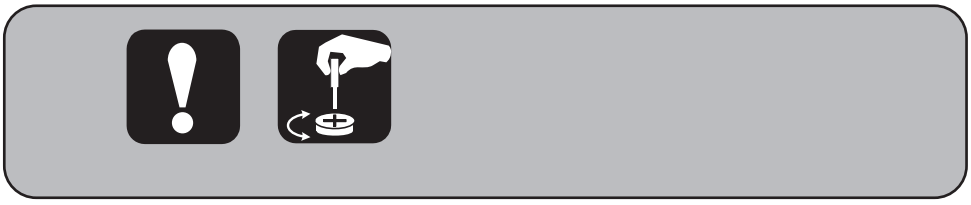


MVH-285BT/XINGS

ORDER NO.
CRT5745

RDS MEDIA CENTER RECEIVER

MVH-285BT /XINGS
MVH-285BT /XINCS
MVH-289BT /XINID



PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

K-ZZZ JULY 2015 Printed in Japan

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.

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:

CONTENTS

1. SERVICE PRECAUTIONS

1.1 SAFETY PRECAUTIONS

- 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.
- Please keep the distance of more than 13 cm from focus lens for safety when you check pickup and make adjustment, and do not look straight at Laser Beam for more than 10 seconds.

1.2 NOTES ON DISASSEMBLY / ASSEMBLY

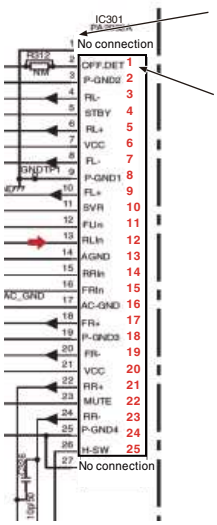
- Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
- Please be sure to conduct line process to original status if you make assembling after repair.

1.3 NOTES ON REPLACING PARTS

- Be careful in handling ICs. Some ICs such as MOS type are so fragile that they can be damaged by electrostatic induction.
- Please be careful of not to apply static charge onto integrated circuits, etc, when you conduct repair work.
  Especially, please use soldering iron with its tip grounded.
  Also, please use a pair of tweezers with static charge protection capability if there is the possibility of contacting to device terminals, and avoid the use of metal-made tweezers.
- Notes about installation and pin number description of Power IC (IC301: PA2032A)
  The Power IC, PA2032A used on the Tuner Amp Unit is a 25 pin IC.
  The same PCB of the Tuner Amp Unit is used for other models that use a 27 pin IC, too.
  So, the PCB has lands for a 27 pin IC.
  When you replace the Power IC, install the Power IC onto 25 pins (2- 26 pin) located in the center of 27 pins for IC301.

Therefore, when you check the Power IC on the schematic diagram and the PCB connection diagram, you have to pay attention as follows.

SCHEMATIC DIAGRAM



The pin number of left side is a number on the PCB (silk printing).

The pin number of right side (in the IC frame) means the pin number of IC itself.

1.4 NOTES ON ADJUSTMENT

- Some of the adjustment is required when the part is replaced.
  Pease refer to “8. EACH SETTING AND ADJUSTMENT”.

1.5 OTHERS

- **Notes on soldring**
  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.

2. SPECIFICATIONS

2.1 SPECIFICATIONS

For all items except the backup current, refer to the Owner's Manual.

Backup current..... 4.0 mA or less

2.2 DISC/CONTENT FORMAT

3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

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

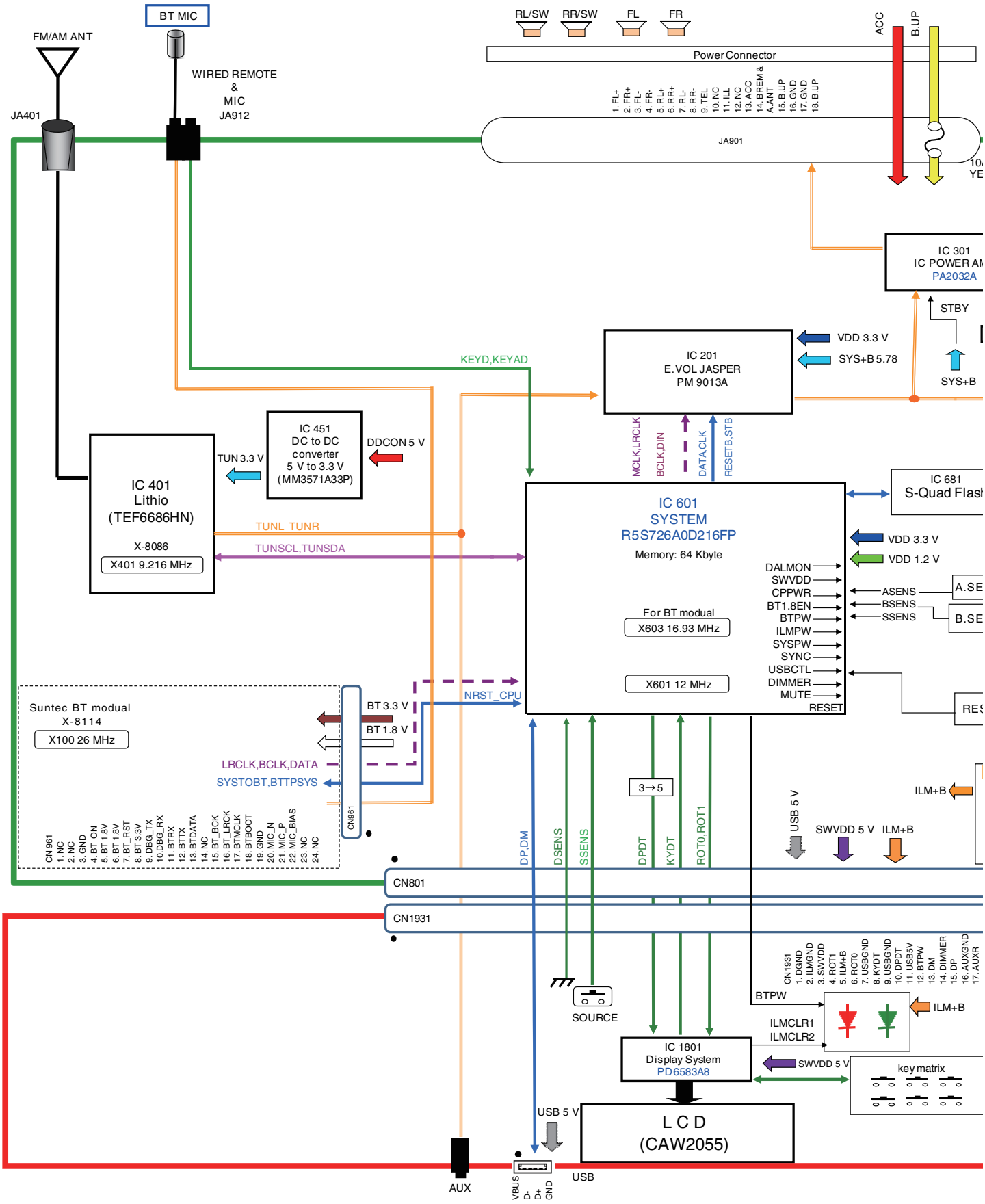
No.		Procedures	Item to be confirmed
1		Confirm whether the customer complain has been solved. If the customer complain occurs with the specific media, use it for the operation check.	The customer complain must not be reappeared. Display, audio and operations must be normal.
2	FM/AM tuner	Check FM/AM tuner action. (Seek, Preset) Switch band to check both FM and AM.	Display, audio and operations must be normal.
3		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:

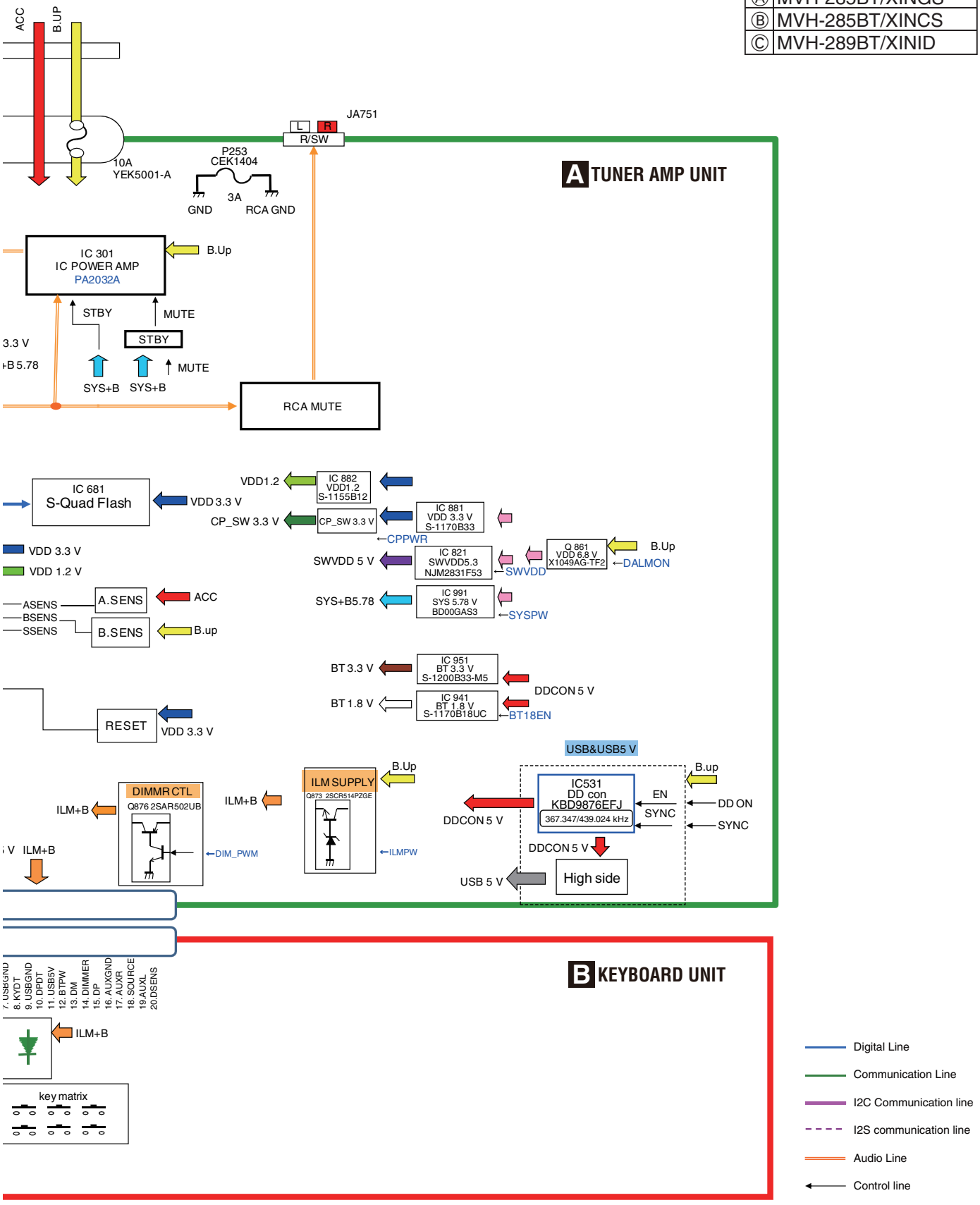
Item to be checked regarding audio
Distortion
Noise
Volume too low
Volume too high
Volume fluctuating
Sound interrupted

4. BLOCK DIAGRAM

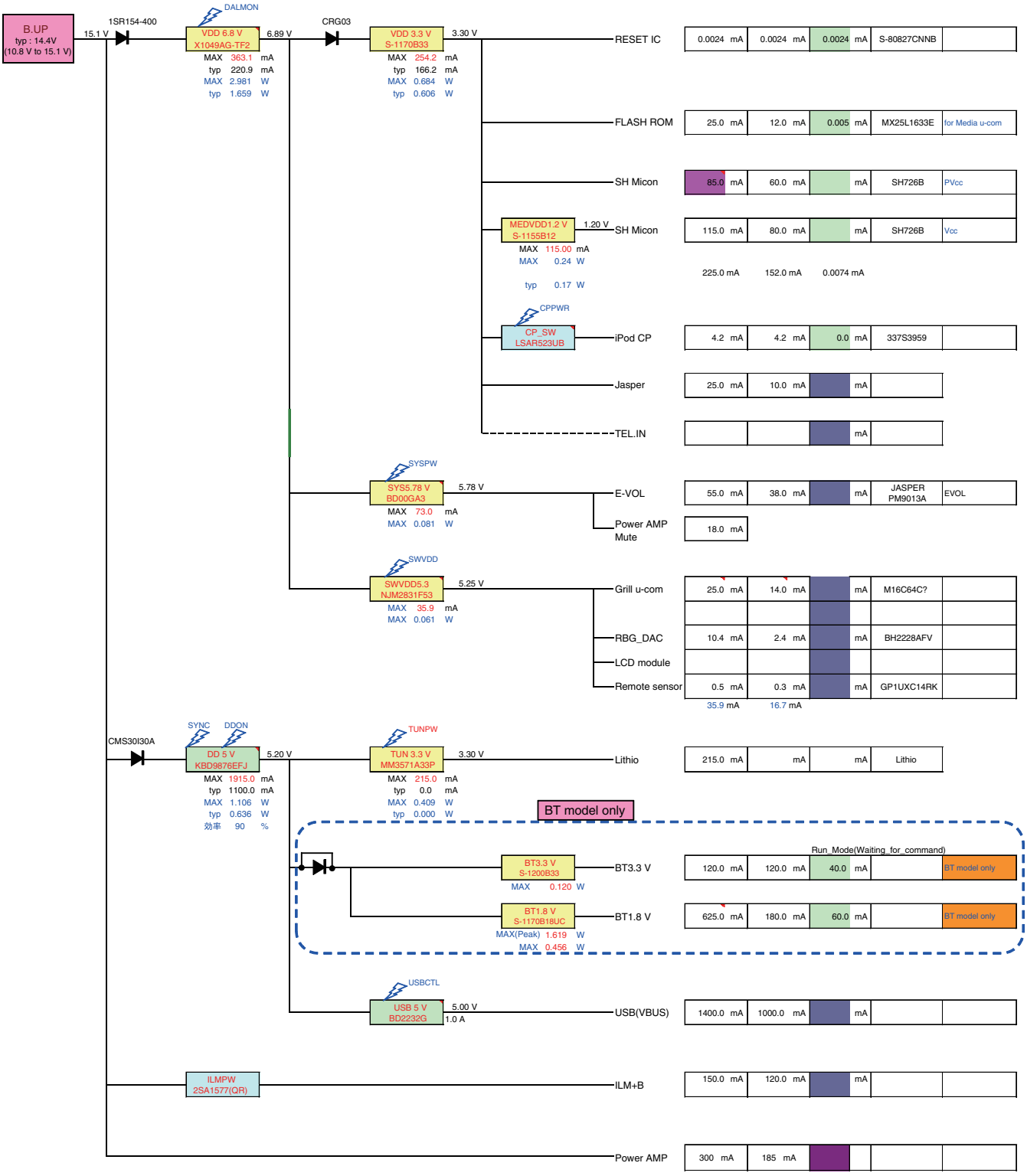
4.1 BLOCK DIAGRAM



Ⓐ	MVH-285BT/XINGS
Ⓑ	MVH-285BT/XINCS
Ⓒ	MVH-289BT/XINID



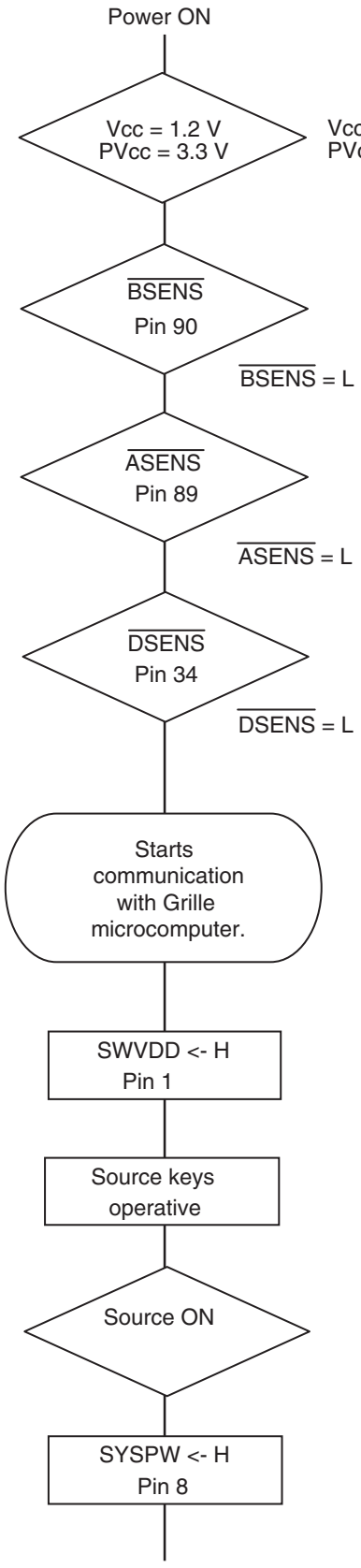
4.2 POWER BLOCK DIAGRAM



Ⓐ	MVH-285BT/XINGS
Ⓑ	MVH-285BT/XINCS
Ⓒ	MVH-289BT/XINID

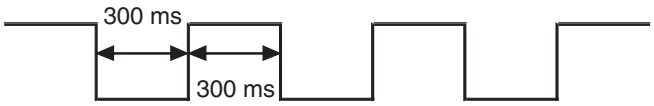
5. DIAGNOSIS

5.1 OPERATIONAL FLOWCHART



Vcc : Pin 12, 20, 43, 78, 86, 109
PVcc : Pin 3, 16, 28, 36, 48, 69, 82,101, 112

Completes power-on operation.
(After that, proceed to each source operation)



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

Common

AMP ERROR

→ This unit fails to operate or the speaker connection is incorrect; the protection circuit is activated.
– Check the speaker connection.
– Check the power IC and its peripheral circuit.

NO XXXX (NO TITLE, for example)

→ There is no embedded text information.
– Switch the display or play another track/file.

USB device/iPod

FORMAT 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 device and connect.

→ The connected USB device has security enabled.
– Follow the USB device instructions to disable the security.

SKIPPED

→ The connected USB device contains DRM protected files.
– The protected files are skipped.

PROTECT

→ All the files on the connected USB device are embedded with DRM.
– Replace the USB device.

N/A USB

→ The connected USB device is not supported by this unit.
– Disconnect your device and replace it with a compatible USB device.

HUB ERROR

→ The USB device connected via a USB hub is not supported by this unit.
– Connect the USB device directly to this unit using a USB cable.

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 device consumes more than maximum allowable current.
– Disconnect the USB device and do not use it. Turn the ignition switch OFF and back to ACC or ON. Connect only compliant USB devices.

→ The iPod operates correctly but does not charge.
– Make sure the connection cable for the iPod has not shorted out (e.g., not caught in metal objects). After checking, turn the ignition switch OFF and back to ON, or disconnect the iPod and reconnect.

ERROR-19

→ Communication failed.
– Perform one of the following operations, then return to the USB source.
• Turn the ignition switch OFF and back to ON.
• Disconnect the USB device.
• Change to a different source.

→ iPod failure.
–Disconnect the cable from the iPod. Once the iPod's main menu is displayed, reconnect the iPod and reset it.

ERROR-23

→ USB device was not formatted properly.
– Format the USB device with FAT12, FAT16 or FAT32.

ERROR-16

→ The iPod firmware version is old.
– Update the iPod version.

→ iPod failure.
– Disconnect the cable from the iPod. Once the iPod's main menu is displayed, reconnect the iPod and reset it.

STOP

→ There are no songs in the current list.
– Select a list that contains songs.

NOT FOUND

→ No related songs.
– Transfer songs to the iPod.

Bluetooth device

ERROR-10

→ The power failed for the Bluetooth module of the unit.
– Turn the ignition switch OFF and back to ACC or ON.

Pandora

ERROR-19

→ Communication failed.
– Disconnect the cable from the device. Once the device's main menu is displayed, reconnect the device and reset it.

START UP APP

→ The Pandora application has not started running yet.
– Start up the Pandora application.

INOPERABLE

→ The operation was disabled.
– Run the same command for another track.

TRY LATER

→ Unable to save thumb rating.
→ Unable to save BookMark.
→ Unable to add station.
– Try again later.

MAINTENANCE

→ Pandora system is undergoing maintenance.
– Try again later.

SKIP LIMIT

→ Due to music licensing restrictions, Pandora limits the total number of skips per hour.
– Wait until Pandora allows you to skip again.

UPDATE APP

→ This version of the Pandora application is not supported.
– Connect a device that has a compatible version of the Pandora application installed.

LOGIN ERROR

→ Your Pandora account is not logged in.
– Disconnect the cable from the device, and log in to your Pandora account. Then reconnect the device.

CHECK DEVICE

→ Device error message displayed in the Pandora application.
– Check the connected device.

PLEASE CREATE A STATION ON THE PHONE

→ No station found.
– Create a station in the Pandora application on your connected device.

SELECT STN

→ No station selected.
– Select a station.

NO BT DEVICE GO TO BT MENU TO REGISTER

→ No Bluetooth device found.
– Connect the unit and the device via Bluetooth.

CONN. FAILED PRESS BAND KEY TO RETRY

→ Bluetooth connection failed.
– Press BAND/ or BAND/ to make a connection again.

CHECK APP PRESS BAND KEY TO RETRY

→ Connection to the Pandora application failed.
– Press BAND/ or BAND/ to make a connection again.

DISCONNECTED PRESS BAND KEY TO RETRY

→ Bluetooth connection lost.
– Press BAND/ or BAND/ to make a connection again.

STATION FULL

→ A new station cannot be added.
– Delete an old station to open a spot for a new one.

CAN.T DELETE

→ The station could not be deleted.
– Run the same command for another station.

NO NETWORK

→ The connected device is out of area.
– Connect the device to a network.

NO SERVICE IN THIS COUNTRY

→ The connected device is out of area.
– Connect the device to a network.

STN DELETED

→ The operation was disabled.
– Run the same command for another station.

Apps

NO BT DEVICE GO TO BT MENU TO REGISTER

→ No Bluetooth device found.
– Connect the unit and the device via Bluetooth.

CONN. FAILED PRESS BAND KEY TO RETRY

→ Bluetooth connection failed.
– Press BAND/ or BAND/ to make a connection again.

DISCONNECTED PRESS BAND KEY TO RETRY

→ Bluetooth connection failed.
– Press BAND/ or BAND/ to make a connection again.

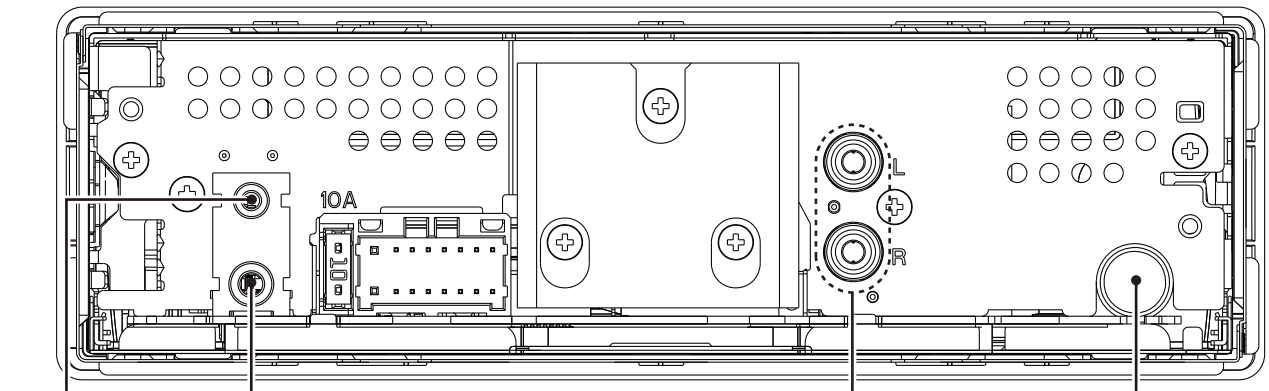
CHECK APP

→ Connection to the application failed.
– Follow the instructions that appear on the screen.

START UP APP

→ The application has not started running yet.
– Operate the mobile device to start up the application.

5.3 CONNECTOR FUNCTION DESCRIPTION

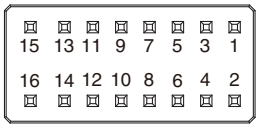


MICROPHONE INPUT

WIRED REMOTE CONTROL

REAR OUTPUT or SUBWOOFER OUTPUT

FM/AM ANTENNA INPUT



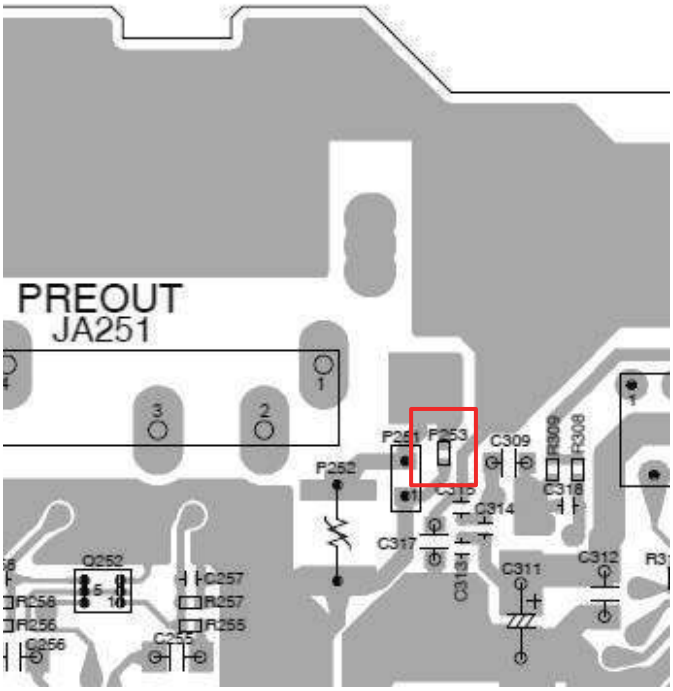
1	FL+	9	NC
2	FR+	10	NC
3	FL-	11	ILL
4	FR-	12	NC
5	RL+	13	ACC
6	RR+	14	B.REM & A.ANT
7	RL-	15	B.UP
8	RR-	16	GND

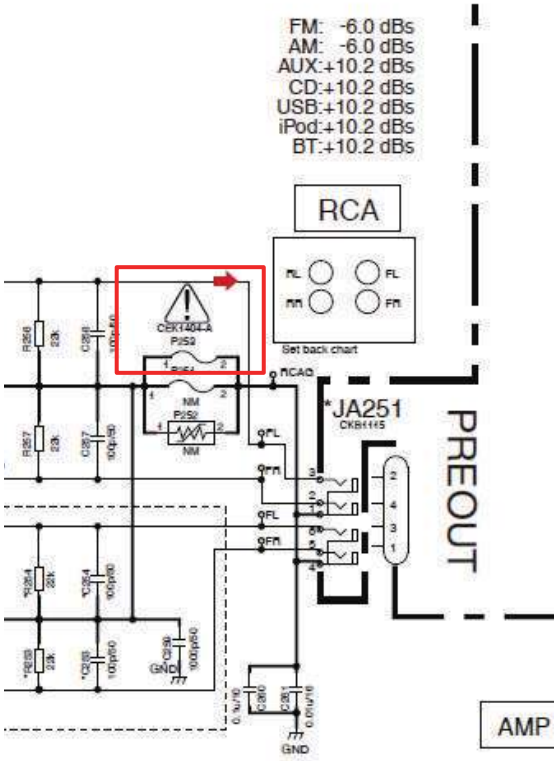
5.4 FUSE CHECK

■ **No sounds and display output of external unit (the condition when the fuse is blown)**

This product may receive excessive current if the power line connection of the external product is incorrect, such as Ground connection failure.
The fuse P253 on TUNER AMP UNIT is used to protect this product from this excessive current.
Even though fuse is blown, the sounds of Pre-out output and AUX input are output properly and also other functions work correctly.
However, you cannot turn on the external product connected to this product as the power is not supplied if the fuse is blown.
(The symptom in this case is the sounds of external product are not output on this product when the external product is connected on a vehicle.)

If you find the symptoms above, check if the fuse is not blown.
If you replace to a new fuse and the fuse is blown again (you cannot turn on the power of external product), check the power connection (Ground) of external product.



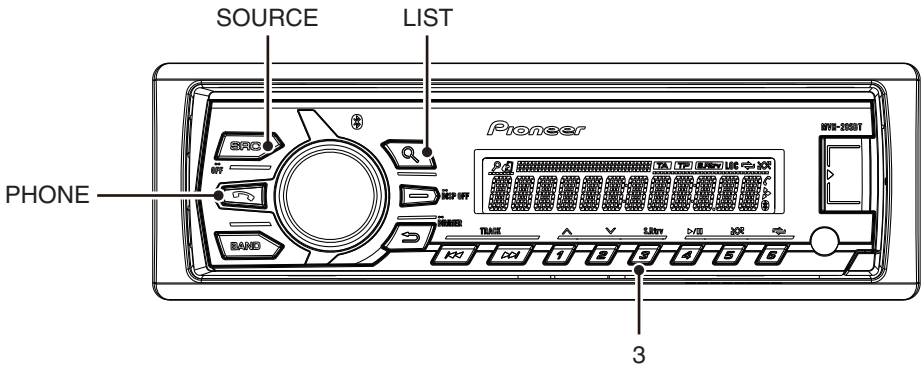


6. SERVICE MODE

6.1 DISPLAY TEST MODE 1

[How to enter Test mode]

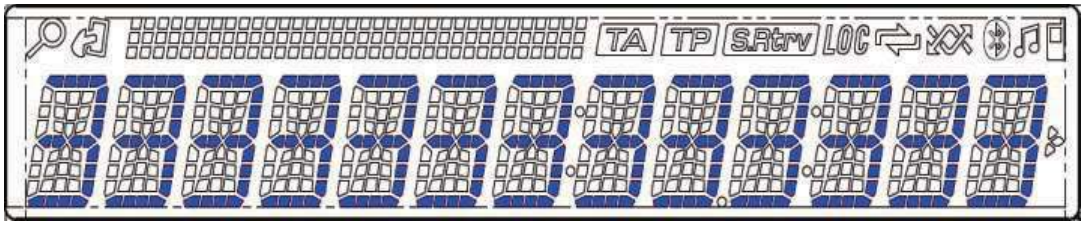
Press and hold "PHONE" and "LIST" buttons together, and turn BUP and ACC on.



		Grille condition	
Confirmation item	Operate	LCD	ILM
All light up	PHONE + LIST	States 1	Light on
All light off	SOURCE	States 2 (No light)	No light
Button feeling (and ILM light)	3	States 3	Light on

LCD States

Status 1: All light up
States 2: All light off
Status 3: Refer to below draw.



6.2 DISPLAY TEST MODE 2

The information such as the system microcomputer version is checked.

[How to enter Test mode]

Press and hold "1" and "3" buttons together, and turn BUP and ACC on.

[Operation key]

Operation key	Processing	Remarks
① + ③	Enter display test mode 2 Switch display status	

[Test items]

Start display test mode.
Press and hold "1" and "3" buttons together, and turn BUP and ACC on.

	Key Illumination	Icon
	Off	All off
	On (an initial value)	All off
System Version information is displayed.	On (an initial value or setting value of default menu)	All off
Display is normally updated	On (an initial value or setting value of default menu)	On (lighting condition of normal times)
Display update is stopped	On (an initial value or setting value of default menu)	On (state when entering test mode)

* Initial condition

S $ $ $ $ # # #

$ PD number — For PEA010A, "010A" is displayed

System microcomputer version — For Ver.7.01, "701" is displayed

Switching to next display by pressing " ① " + " ③ " buttons together.

Product operation is performed as usual, in appearance.

Switching to next display by pressing " ① " + " ③ " buttons together.

The screen gets still when entering this item.

Switching to next display by pressing " ① " + " ③ " buttons together.

6.3 SOFTWARE VERSION UP METHOD

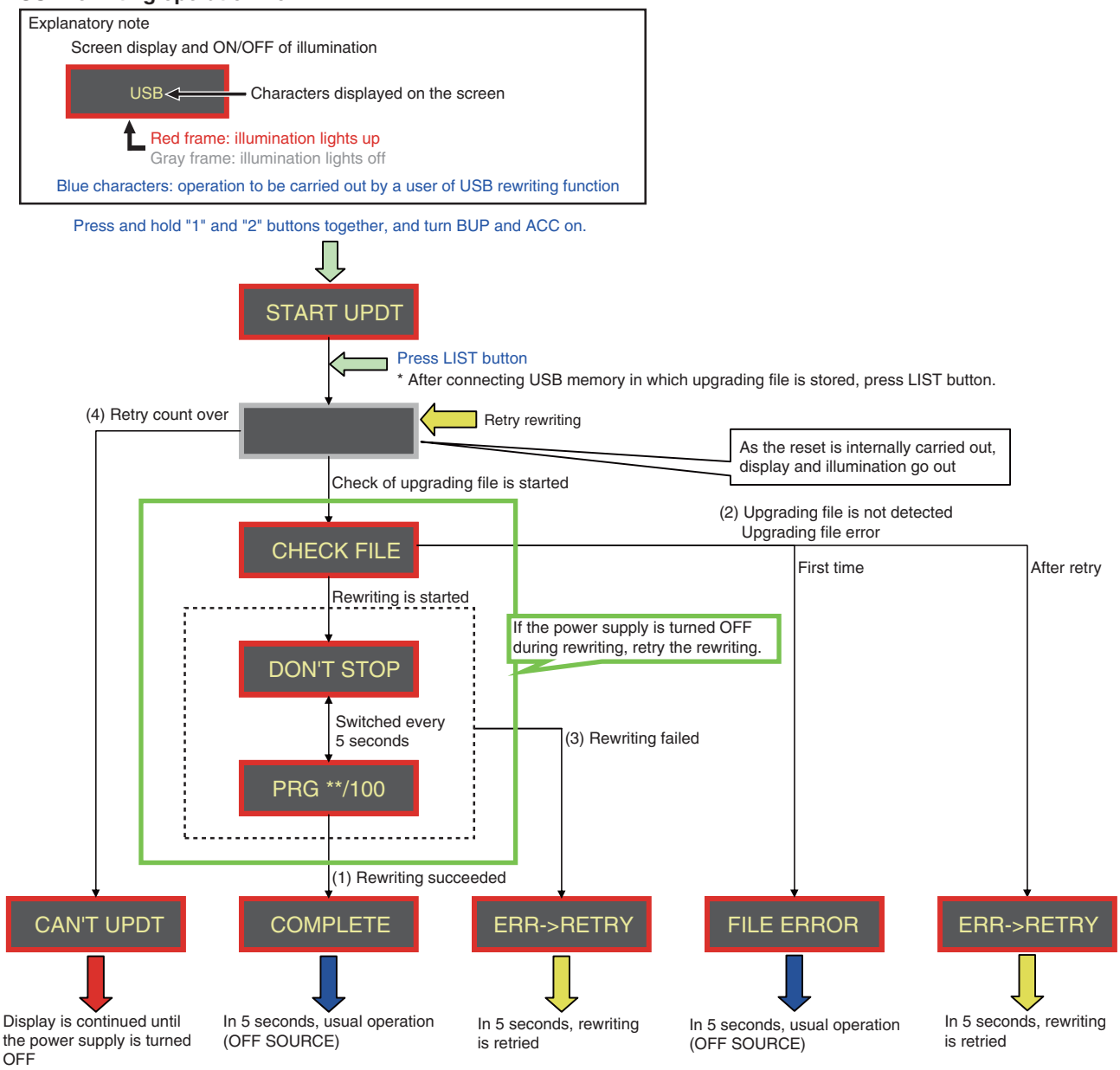
Overview

This mode is used for upgrading the MCU software of system using USB memory.

How to enter in USB rewriting mode

Press and hold "1" and "2" buttons together, and turn BUP and ACC on.

USB rewriting operation flow



Result of rewriting

(1) Rewriting succeeded	Displayed when USB rewriting is normally terminated. In 5 seconds, usual operation (OFF SOURCE) is started.
(2) Upgrading file error Upgrading file is not detected	Displayed when there is no upgrading file in USB memory or the data of upgrading file is different. In 5 seconds, usual operation (OFF SOURCE) is started. If the upgrading file error is detected or the upgrading file is not detected after the rewriting is retried, the rewriting is failed. In 5 seconds, rewriting is retried.
(3) Rewriting failed	Displayed when the writing of upgrading file in serial Flash is not normally terminated. Or, displayed if the upgrading file error is detected or the upgrading file is not detected after the rewriting is retried. In 5 seconds, rewriting is retried.
(4) Retry count over	Displayed when the retry becomes unavailable because the retry count is exceeded. The display is continued until the power supply is turned OFF. If the power supply is turned ON again, the display is not changed. Since USB Updating is disabled, it is necessary to replace Tuner Amp Unit.

Notes: Flash ROM in which software is written is NSP.

7. DISASSEMBLY

While the photograph shown is slightly different from this model in shape, the disassembly procedure is the same.

● Removing the Panel Assy (Fig.1)

1 Release the two latches.

2 Release the two latches and then remove the Panel Assy.

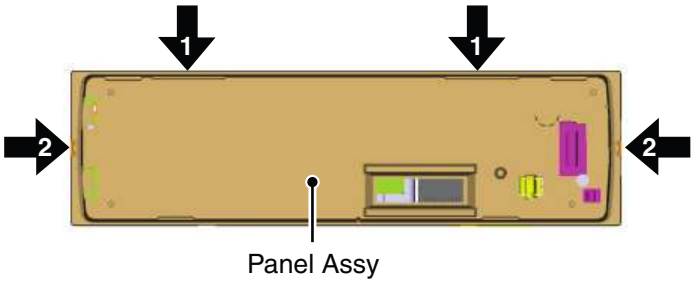
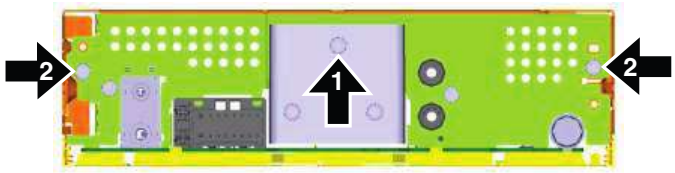


Fig.1

● Removing the Tuner Amp Assy (Fig.2)

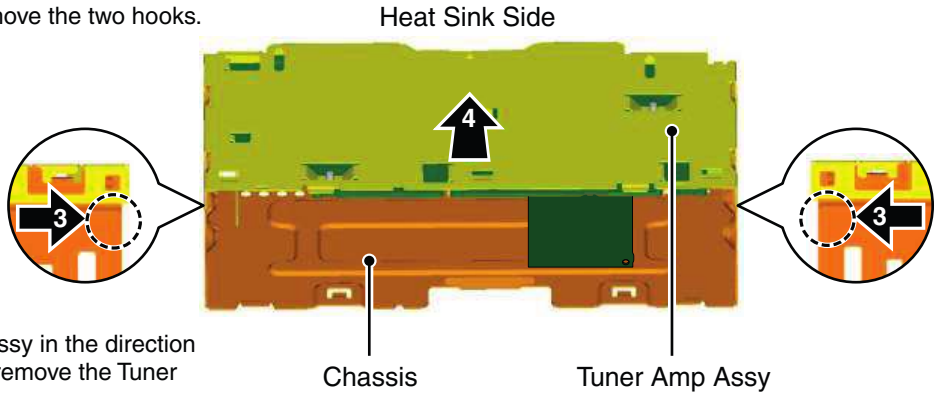
1 Remove the screw.

2 Remove the two screws.



The Chassis side is made a bottom.

3 Push the area and remove the two hooks.



4 Slide the Tuner Amp Assy in the direction of the arrow and then remove the Tuner Amp Assy.

Fig.2

● Removing the Tuner Amp Unit (Fig.3)

1 Remove the two screws.

2 Straighten the tab at location indicated and then remove the Tuner Amp Unit.

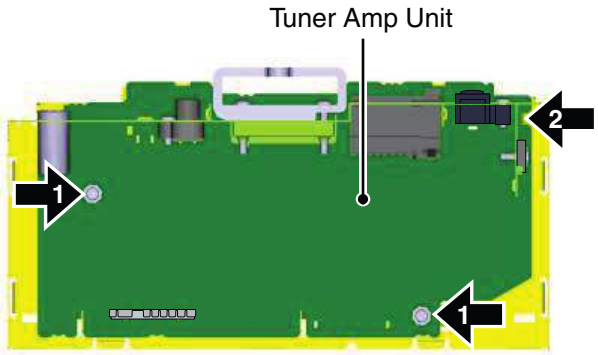


Fig.3

● Disassembling the Panel Part (Fig.4, 5)

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

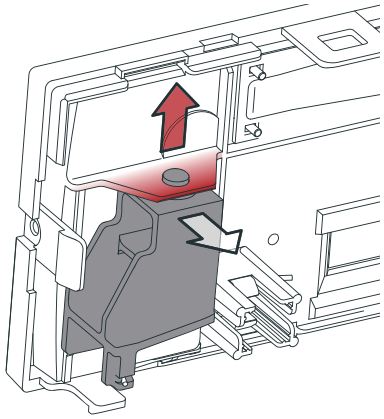


Fig.4

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

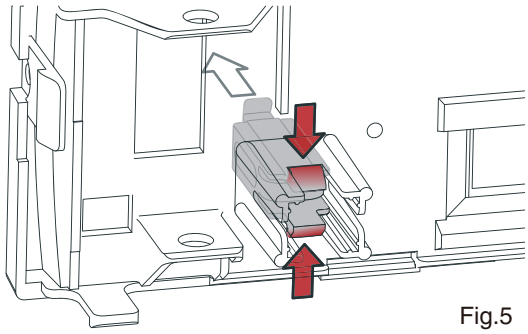


Fig.5

● Assembling the Panel Part (Fig.6, 7, 8)

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

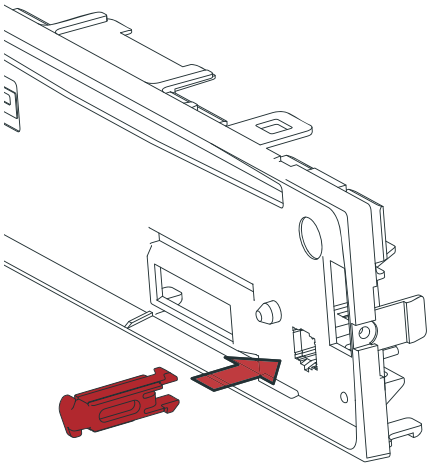


Fig.6

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

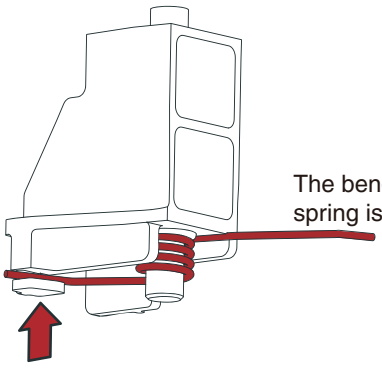


Fig.7

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.

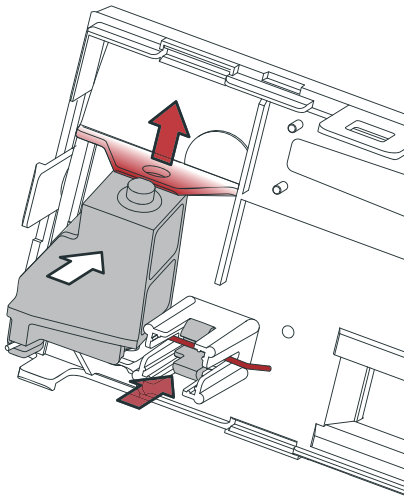


Fig.8

8. EACH SETTING AND ADJUSTMENT

8.1 PCL OUTPUT CONFIRMATION

● PCL Output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN IC601(Pin 99) terminal to H.
The clock signal is output from the RAM_MON terminal IC601(Pin116).
The frequency of the clock signal is 600 kHz that is divided by 20th of the oscillation frequency of X601 (12 MHz).
The clock signal should be 600 kHz(- 25 Hz, + 25 Hz).
If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

A

B

C

D

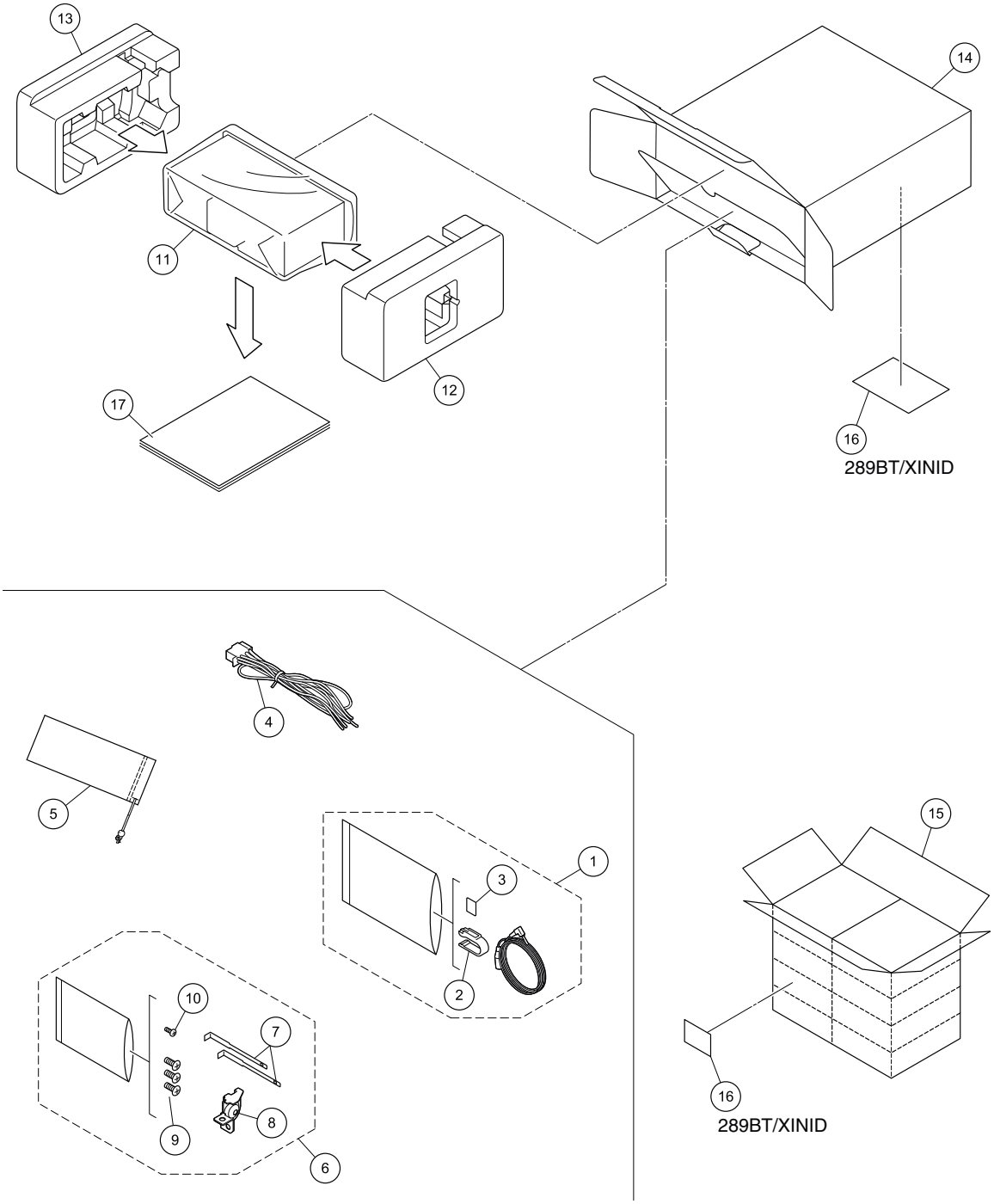
E

F

9. EXPLODED VIEWS AND PARTS LIST

NOTES : • *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
• *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.*
• *Screw adjacent to▽ mark on the product are used for disassembly.*
• *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)*

9.1 PACKING



(1) PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Microphone Assy	CPM1083
	2	Holder	CZN7192
	3	Cushion	CZN7193
	4	Cord Assy	CDP1480
	5	Detach Grille Case	See Contrast table (2)
	6	Accessory Assy	QEA3341
	7	Handle	QNC3119
	8	Bracket	QNC3086
	9	Screw	CBA2384
	10	Screw	BSZ26P060FTC
	11	Polyethylene Bag	CEG1260
	12	Protector	QHP3042
	13	Protector	QHP3043
	14	Unit Box	See Contrast table (2)
	15	Contain Box	See Contrast table (2)
	16	Label	See Contrast table (2)
	17-1	Owner's Manual	See Contrast table (2)
*	17-2	Warranty Card	See Contrast table (2)
*	17-3	Service Network	See Contrast table (2)

(2) CONTRAST TABLE

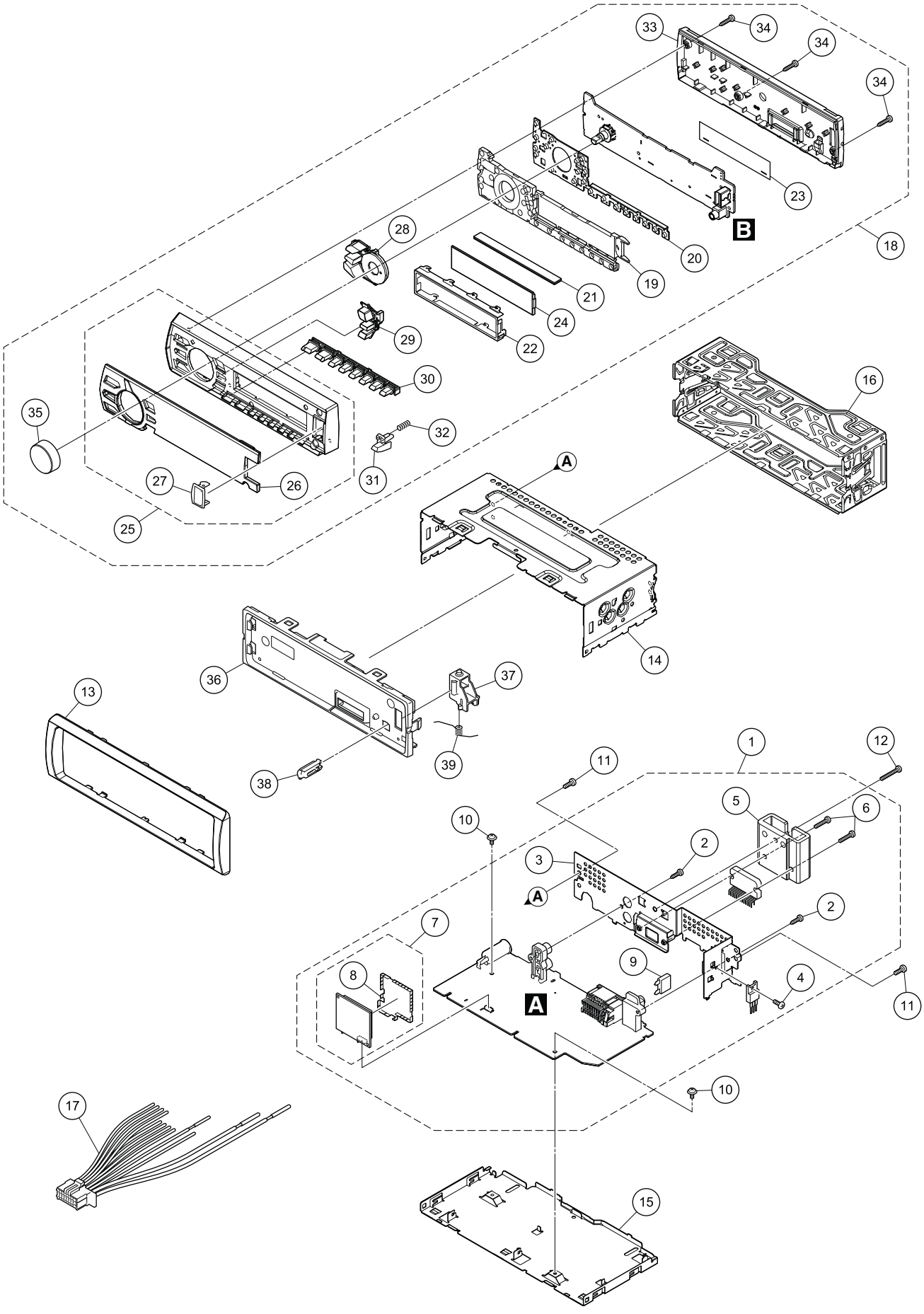
MVH-285BT/XINGS, MVH-285BT/XINCS and MVH-289BT/XINID are constructed the same except for the following:

Mark	No.	Description	MVH-285BT/XINGS	MVH-285BT/XINCS	MVH-289BT/XINID
	5	Detach Grille Case	QEG3004	QEG3004	QXA3129
	14	Unit Box	QHG3863	QHG3862	QHG3864
	15	Contain Box	QHL3863	QHL3862	QHL3864
	16	Label	Not used	Not used	QAN3399
	17-1	Owner's Manual	QRD3334	QRD3333	QRB3532
*	17-2	Warranty Card	Not used	Not used	CRY1304
*	17-3	Service Network	Not used	Not used	CRY1305

Owner's Manual

Part No.	Language
QRD3333	English, Spanish(Espanol), Portuguese(B)
QRD3334	English, Traditional Chinese, Arabic, Persian
QRB3532	English

9.2 EXTERIOR


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
34
34
35
36
37
38
39
A
A
A
B

(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Tuner Amp Unit	See Contrast table (2)
	2	Screw	BPZ26P080FTC
	3	Holder	QNC3100
	4	Screw	BSZ26P060FTC
	5	Heat Sink	QNR3012
	6	Screw	BSZ26P160FTC
	7	BT Module	CWX4771
	8	Shield Case	YNC5123
⚠	9	Fuse (10 A)	YEK5001
	10	Screw	ASZ26P050FTC
	11	Screw	BSZ26P060FTC
	12	Screw	BSZ26P160FTC
	13	Panel	QNS3568
	14	Chassis	QNA3027
	15	Case	QNB3041
	16	Holder	QNC3118
	17	Cord Assy	CDP1480
	18	Detach Grille Assy	See Contrast table (2)
	19	Lighting Conductor	QNV3098
	20	Contact Rubber	QNV3102
	21	Rubber Connector	QNV3071
	22	Holder	QNC3067
	23	Sheet	QNM3128
	24	LCD (V1801)	CAW2055
	25	Grille Unit	See Contrast table (2)
	26	Plate	See Contrast table (2)
	27	Door	QAT3014
	28	Button (SRC, PHONE, BAND)	QAC3184
	29	Button (LIST, DISP, BACK)	QAC3179
	30	Button (TRACK, 1-6)	QAC3180
	31	Button (DETACH)	QAC3181
	32	Spring	CBH2210
	33	Cover	QNS3767
	34	Screw	BPZ20P100FTC
	35	Knob Unit	QXA3673
	36	Panel	QNS3289
	37	Arm	QNV3025
	38	Button	QNV3026
	39	Spring	QBH3001

(2) CONTRAST TABLE

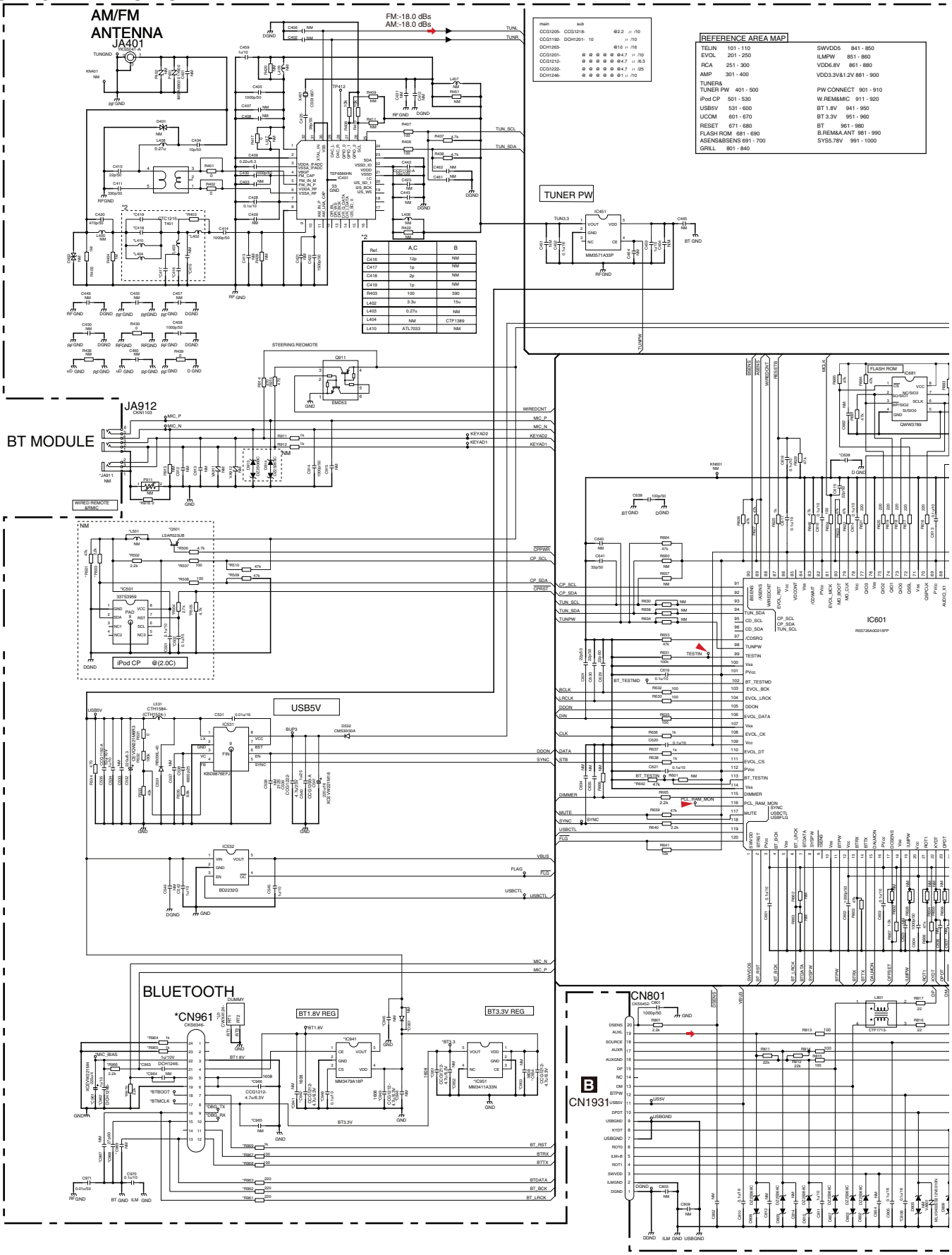
MVH-285BT/XINGS, MVH-285BT/XINCS and MVH-289BT/XINID are constructed the same except for the following:

Mark	No.	Description	MVH-285BT/XINGS	MVH-285BT/XINCS	MVH-289BT/XINID
	1	Tuner Amp Unit	QWM4093	QWM4092	QWM4094
	18	Detach Grille Assy	QXA4512	QXA4512	QXA4514
	25	Grille Unit	QXA4462	QXA4462	QXA4464
	26	Plate	QNS3902	QNS3902	QNS3904

10. SCHEMATIC DIAGRAM

10.1 TUNER AMP UNIT (1/2 scale)

Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



Ref.	A,C	B
C416	12p	NM
C417	1p	NM
C418	2p	NM
C419	1p	NM
R403	100	390
L402	3.3u	15u
L403	0.27u	NM
L404	NM	CTF1369
L410	ATL7033	NM

A TUNER AMP UNIT

A	MVH-285BT/XINGS
B	MVH-285BT/XINCS
C	MVH-289BT/XINID

FM: -6.0 dBs
AM: -6.0 dBs
AUX:+10.2 dBs
CD:+10.0 dBs
USB:+10.0 dBs
iPod:+10.0 dBs
BT:+10.0 dBs

RCA

PREOUT

JA251
CKS1113

AMP

The pin number of left side is a number on the PCB (silk printing).
The pin number of right side (in the IC frame) means the pin number of IC itself.

IC601
R5S726AGD216FP

IC301
PA2032A

B.REM&A.ANT

JA901
CKM1624-

POWER SUPPLY

FM:+20.0 dBs
AM:+20.0 dBs
AUX:+36.2 dBs
CD:+36.2 dBs
USB:+36.2 dBs
iPod:+36.2 dBs
BT:+36.2 dBs

RESET

ILMPW

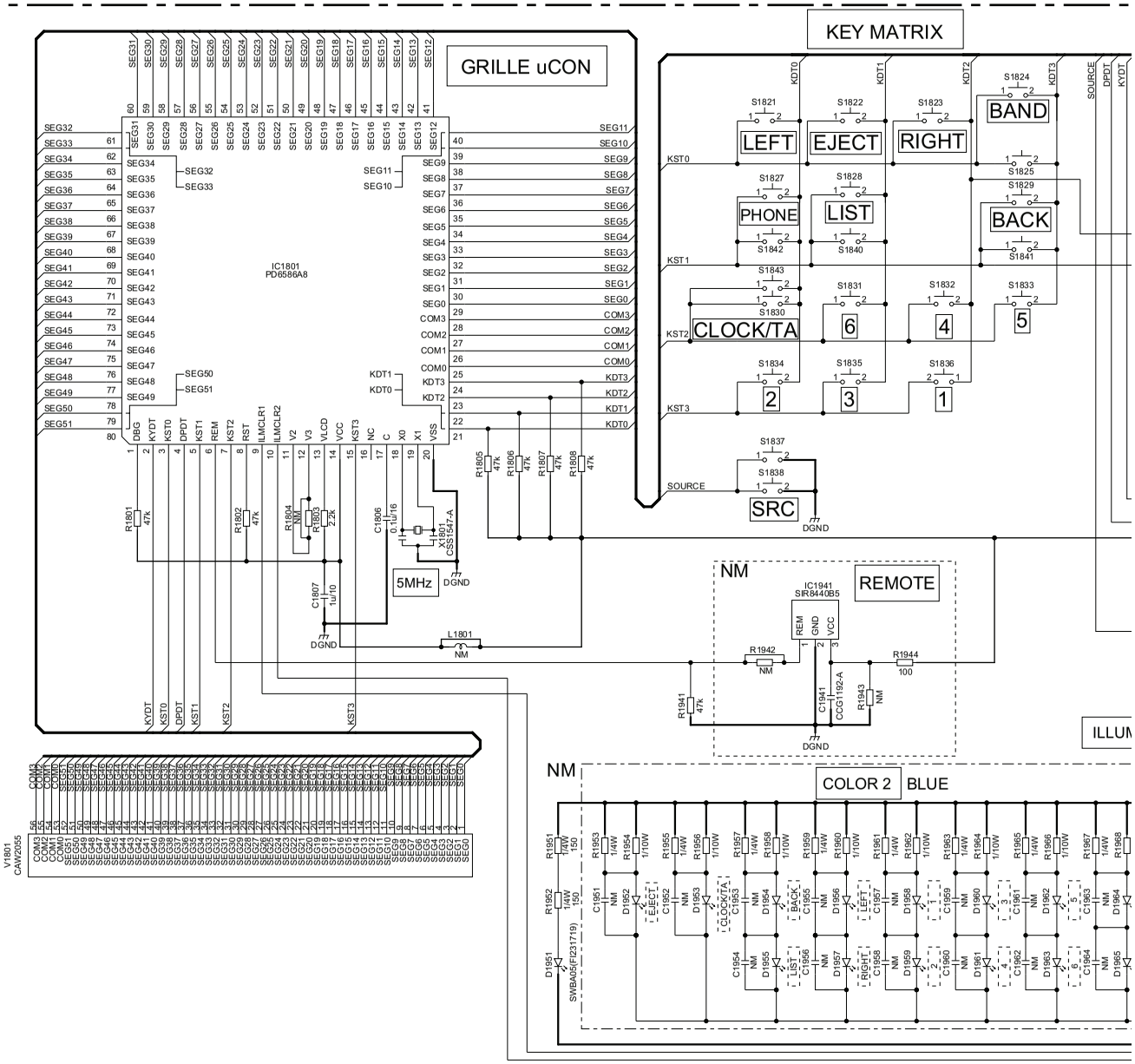
BSENS&ASENS

NM : No Mount

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.

NOTE :
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

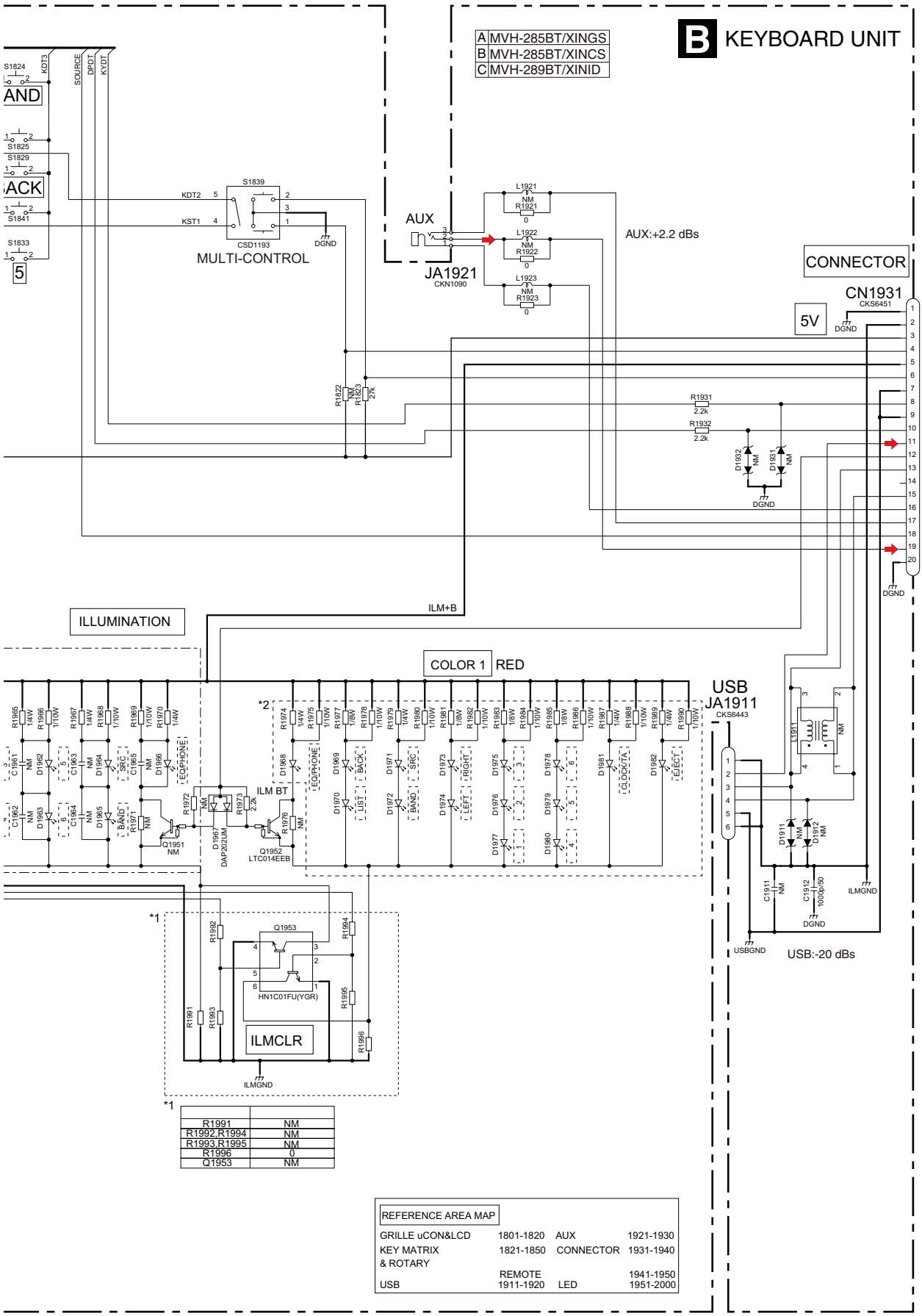
10.2 KEYBOARD UNIT



*2

D1952-D1966	-
D1968-D1982	RED SML-D12V8W(PQ)

R1953	NM
R1954	NM
R1955	NM
R1956	NM
R1957	NM
R1958	NM
R1959	NM
R1960	NM
R1961	NM
R1962	NM
R1963	NM
R1964	NM
R1965	NM
R1966	NM
R1967	NM
R1968	NM
R1969	NM
R1970	NM
R1971	NM
R1974	NM
R1975	2.2k
R1976	NM
R1977	560
R1978	NM
R1979	NM
R1980	1.8k
R1981	820
R1982	NM
R1983	330
R1984	NM
R1985	330
R1986	NM
R1987	680
R1988	NM
R1989	NM
R1990	NM



R1991	NM
R1992,R1994	NM
R1993,R1995	NM
R1996	0
Q1953	NM

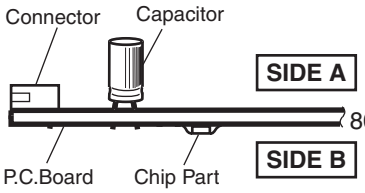
REFERENCE AREA MAP

GRILLE uCON&LCD	1801-1820	AUX	1921-1930
KEY MATRIX & ROTARY	1821-1850	CONNECTOR	1931-1940
	REMOTE		1941-1950
USB	1911-1920	LED	1951-2000

11. PCB CONNECTION DIAGRAM
11.1 TUNER AMP UNIT

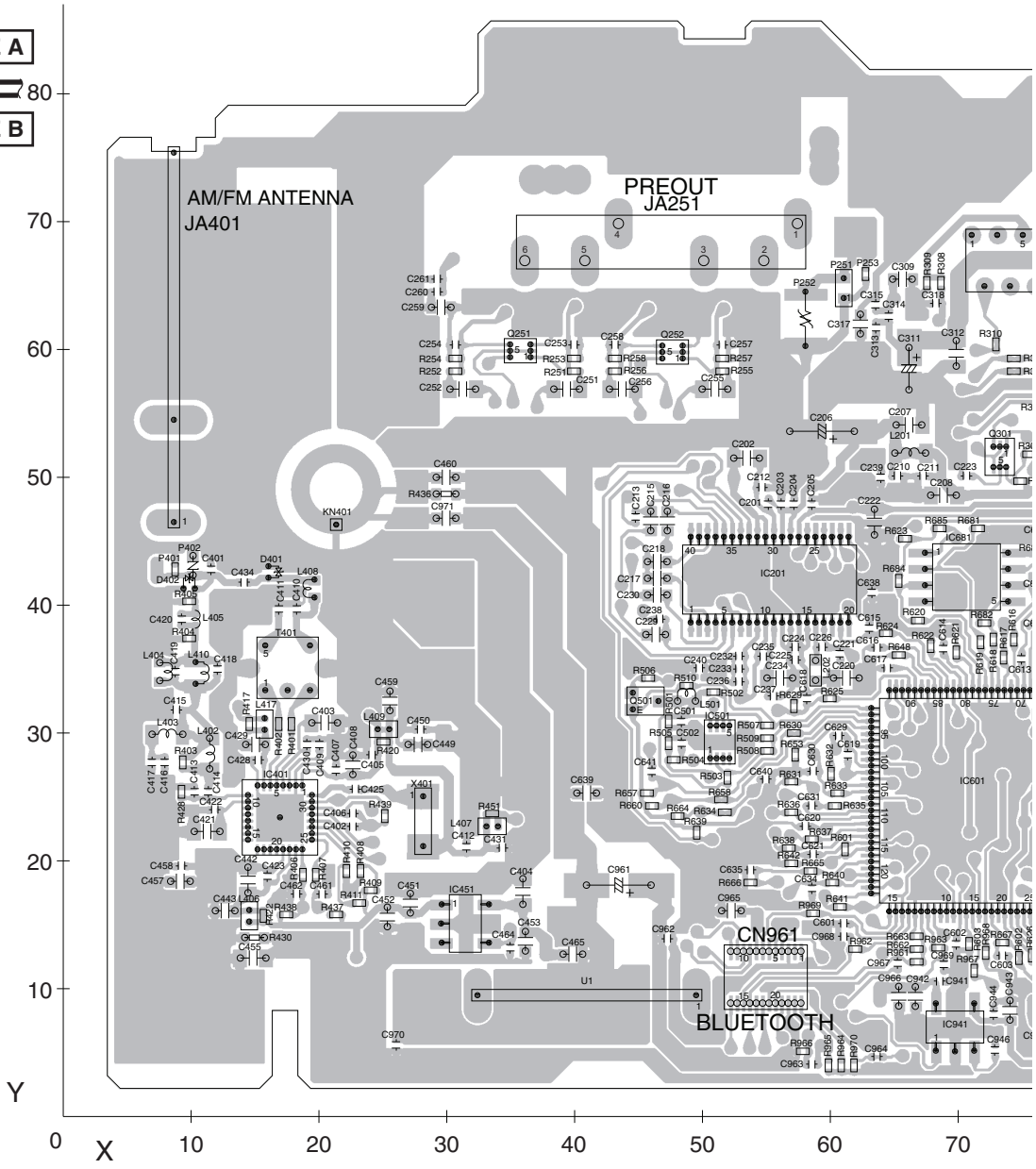
NOTE FOR PCB DIAGRAMS

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



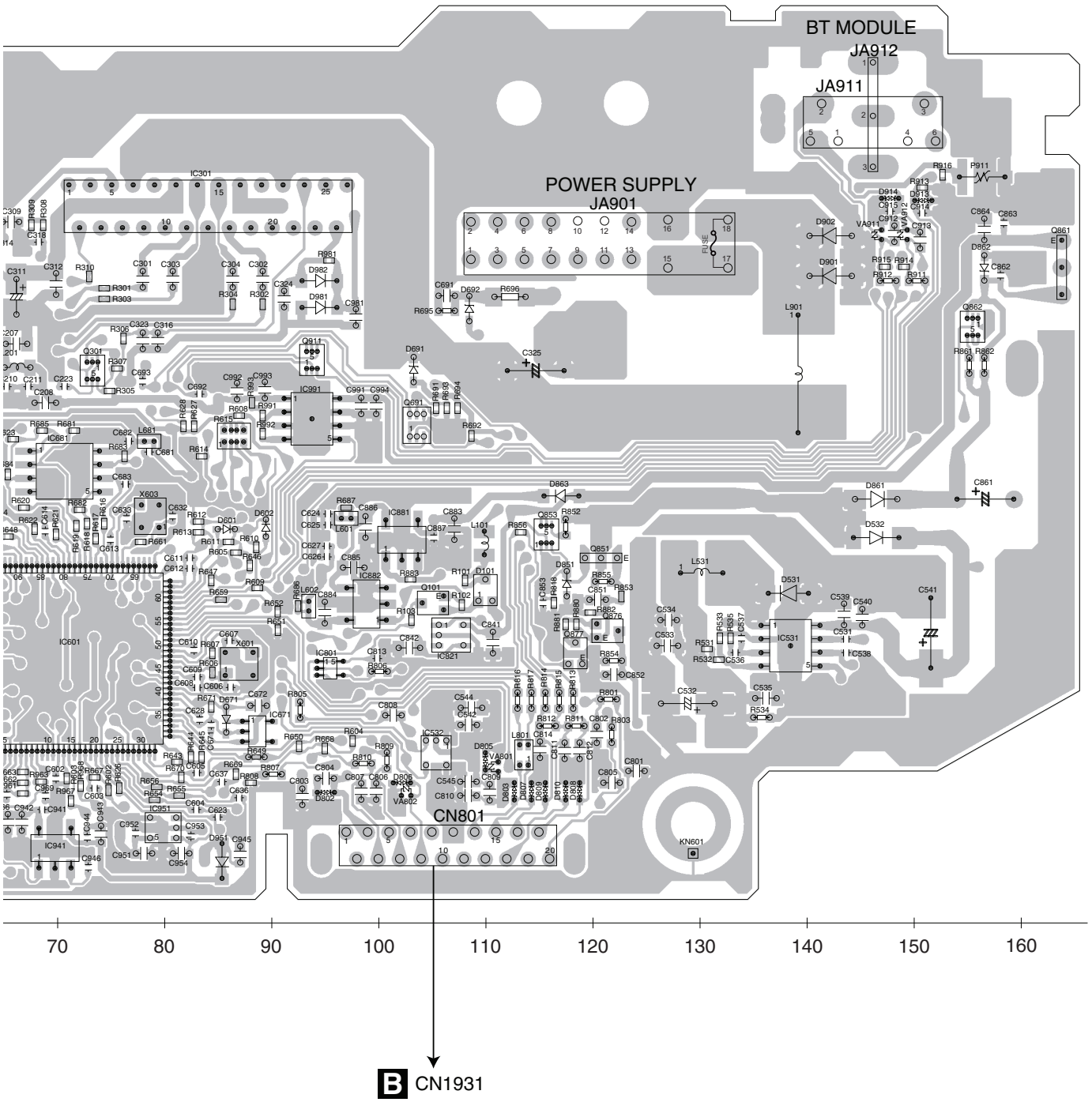
A TUNER AMP UNIT

⚠ P253 (A,63,66) Fuse 3.0 A CEK1404



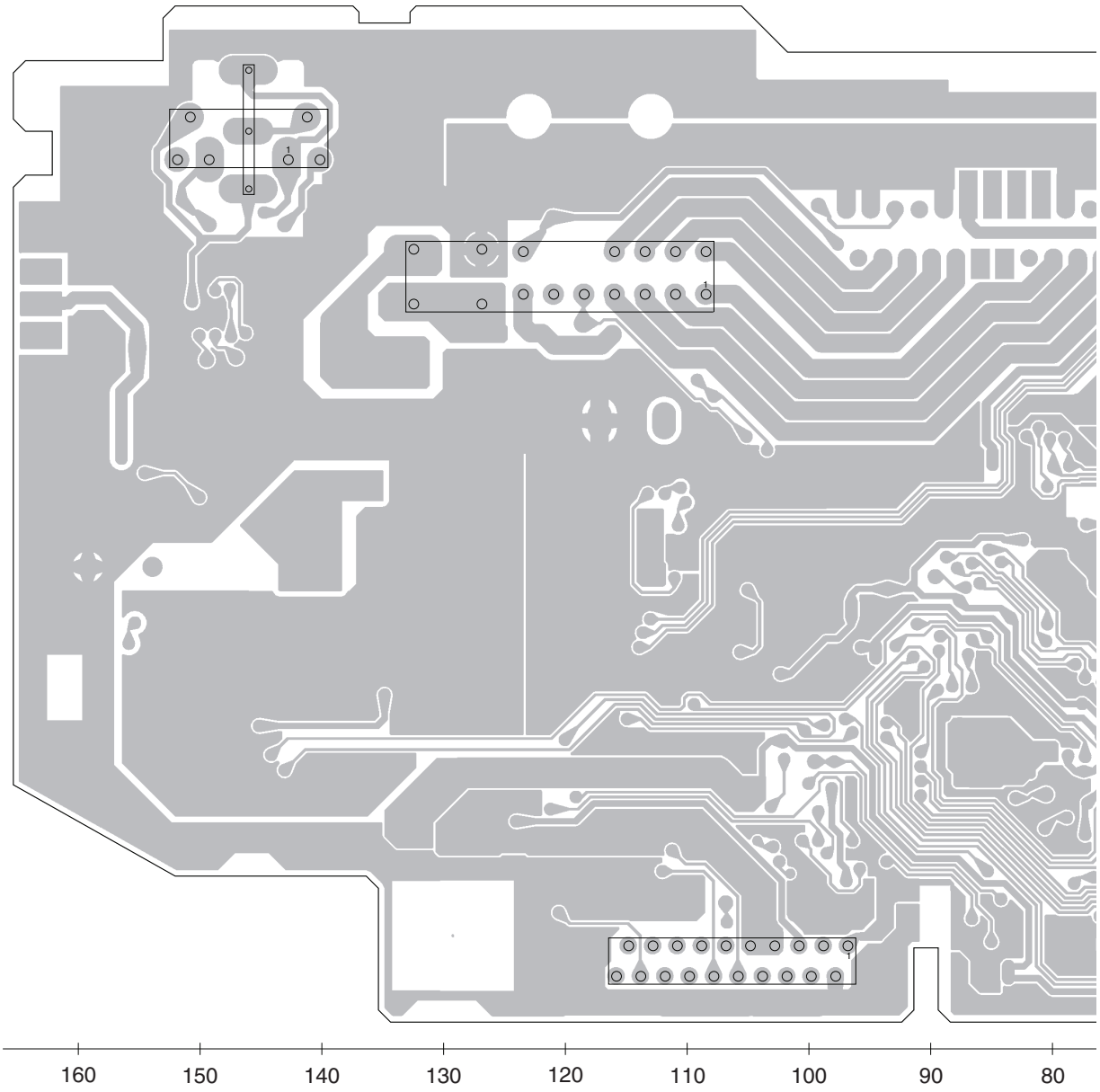
SIDE A

X1404

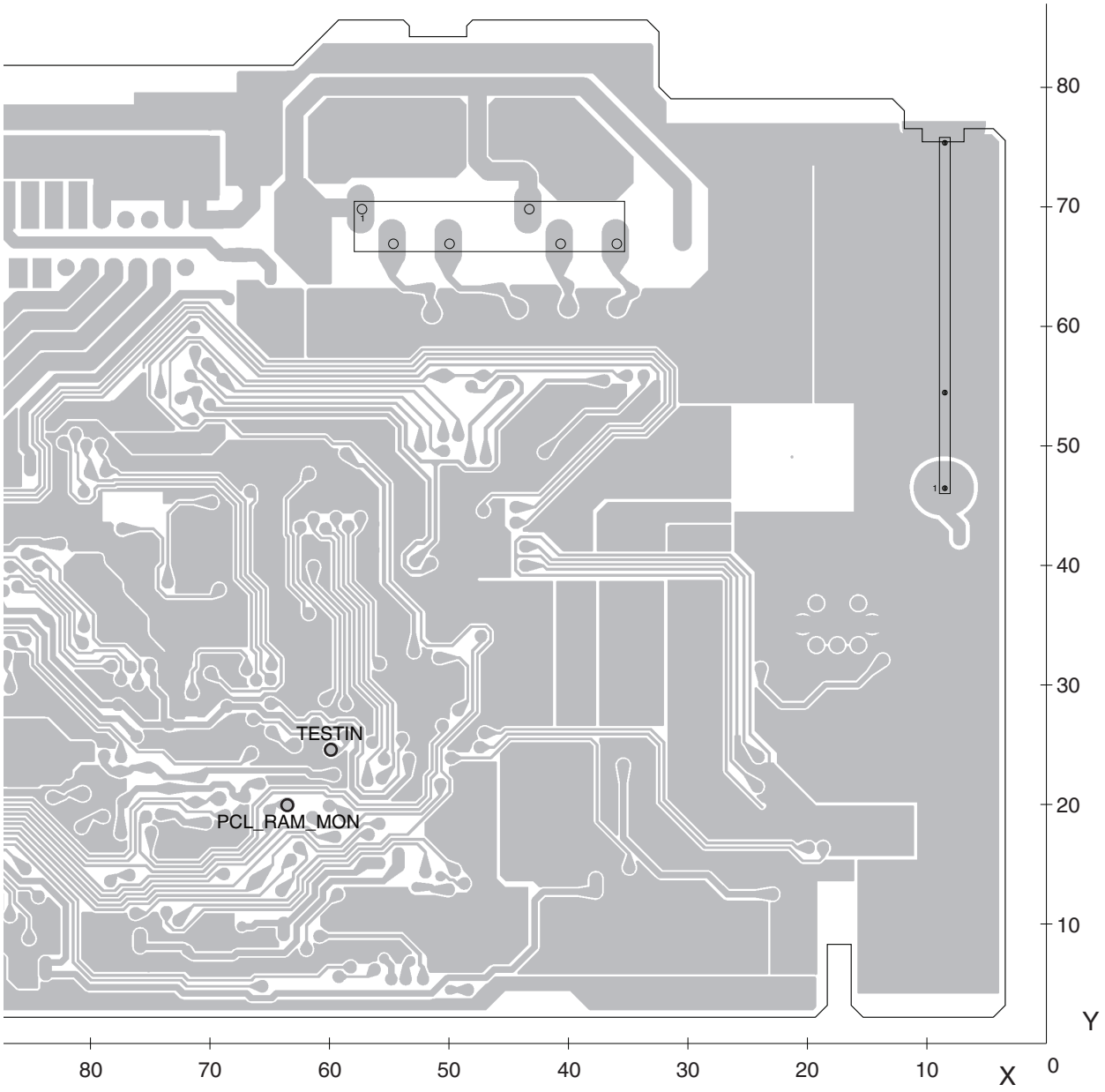


A

A TUNER AMP UNIT

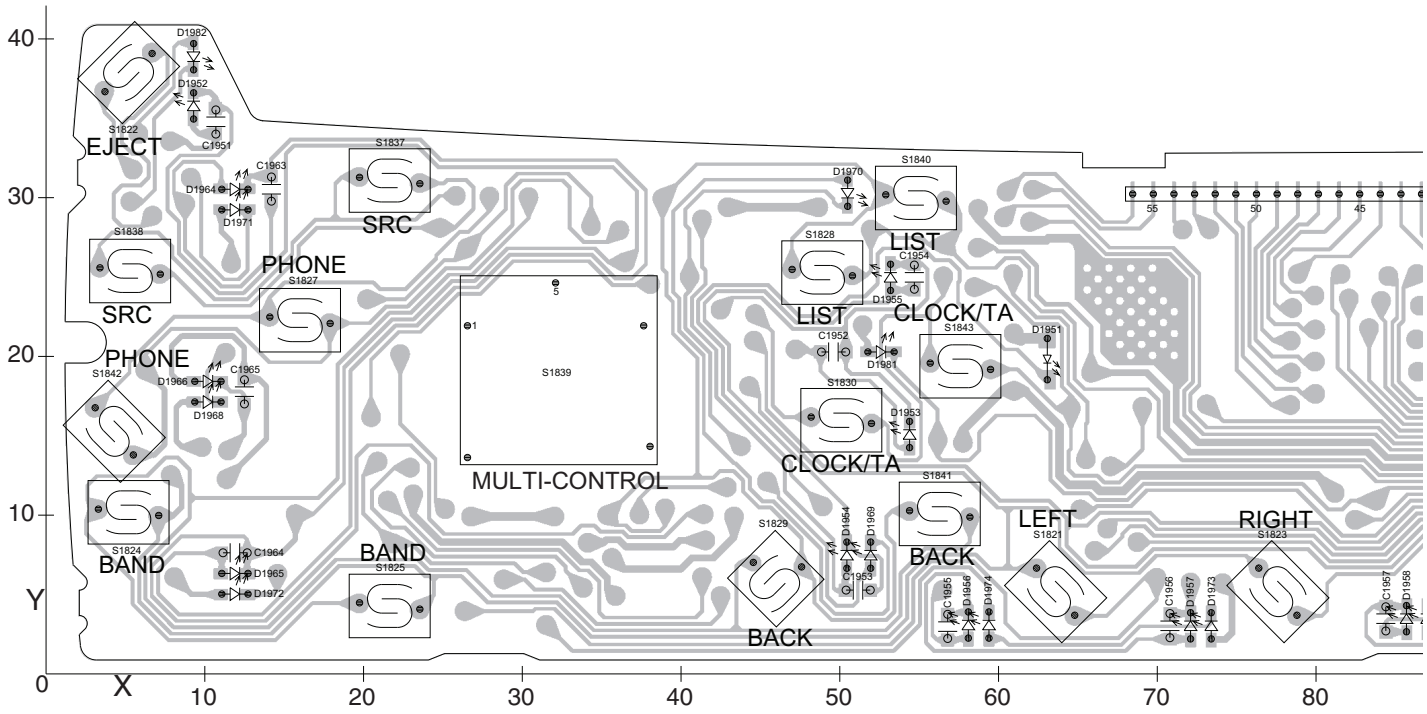


SIDE B

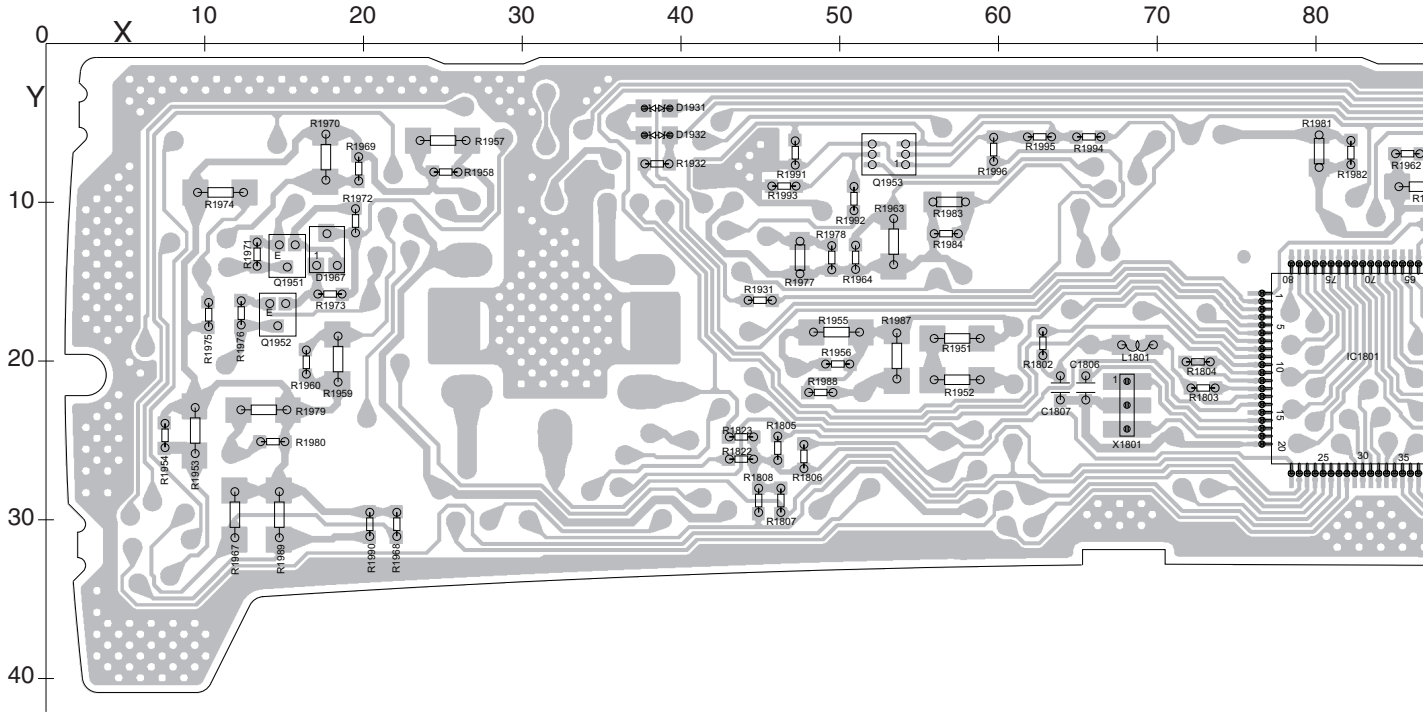


11.2 KEYBOARD UNIT

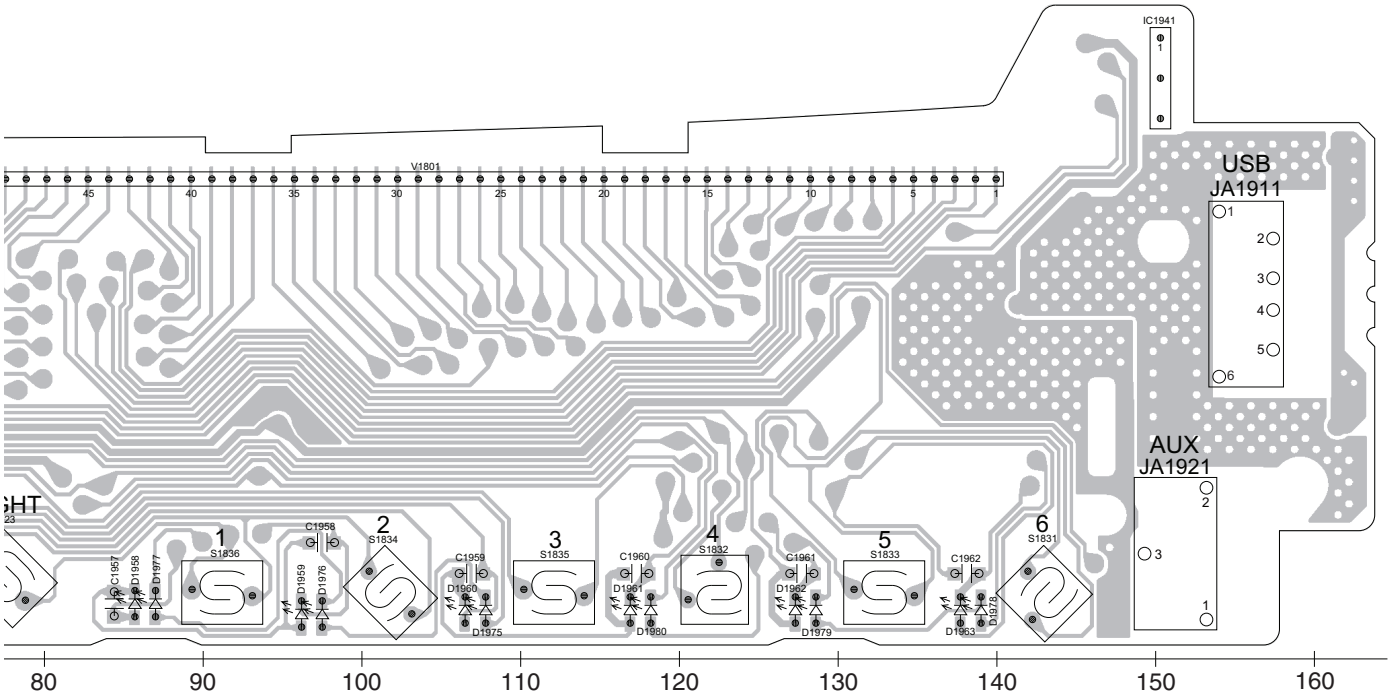
B KEYBOARD UNIT



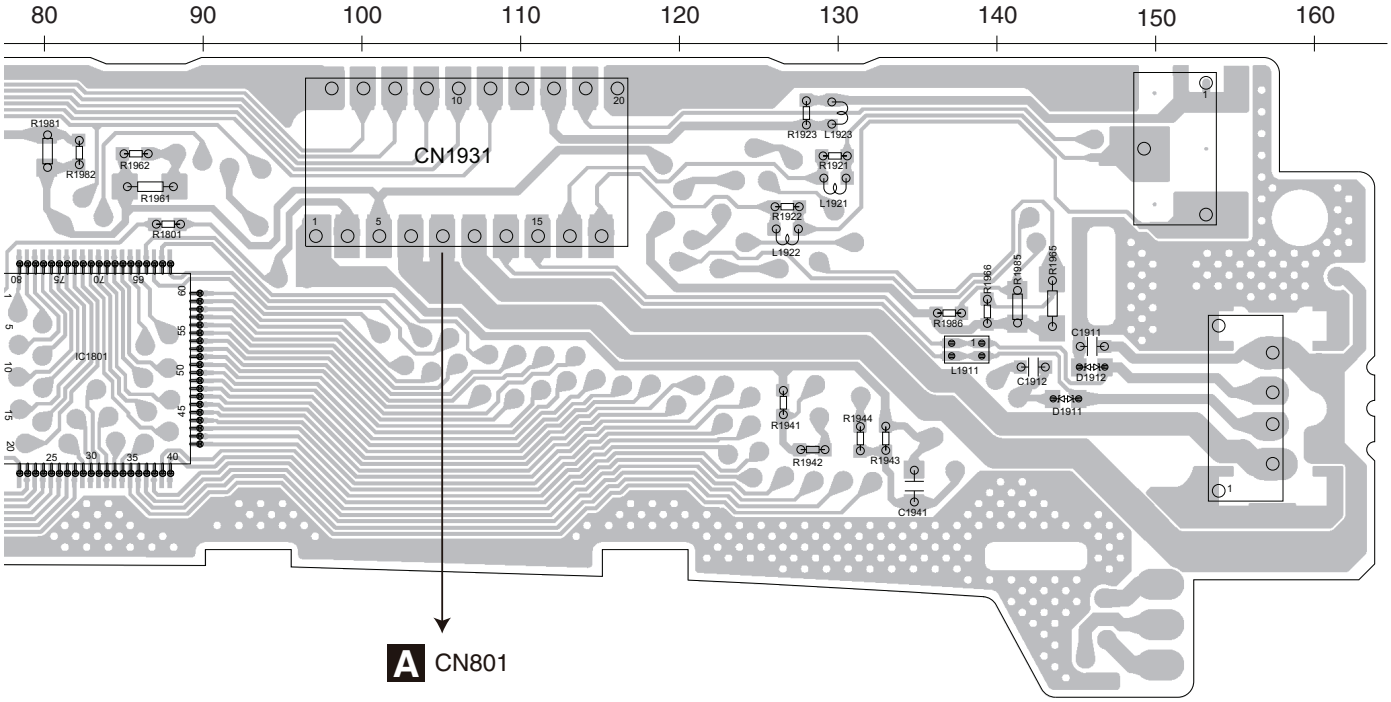
B KEYBOARD UNIT



SIDE A


IC1941
V1801
USB
JA1911
AUX
JA1921
S1836
S1834
S1835
S1832
S1833
S1831
80 90 100 110 120 130 140 150 160

SIDE B


CN1931
IC1801
A CN801

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/◯S◯◯◯J,RS1/◯◯S◯◯◯J

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

  CKS....., CCS....., CSZS.....
- *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.*
- *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

- *The expression of the unit in this manual is shown by u instead of μ. Please do not make a mistake.*

A:MVH-285BT/XINGS

B:MVH-285BT/XINCS

C:MVH-289BT/XINID

Unit Number : QWM4093(A)

Unit Number : QWM4092(B)

Unit Number : QWM4094(C)

Unit Name : Tuner Amp Unit

Unit Number : QWM3962

Unit Name : Keyboard Unit

A

Unit Number : QWM4093(A)

Unit Number : QWM4092(B)

Unit Number : QWM4094(C)

Unit Name : Tuner Amp Unit

MISCELLANEOUS

Circuit Symbol and No.		Part No.
IC 201	(A,55,42) E-VOL SYS LSI	PM9013A
IC 301	(A,84,71) Power AMP IC	PA2032A
IC 401	(A,17,23) Tuner IC	TEF6686HN
IC 451	(A,31,15) Regulator IC	MM3571A33P
IC 531	(A,138,26) DC/DC CONV IC	KBD9876EFJ
IC 532	(A,105,16) PO Supply IC	BD2232G-G
IC 601	(A,72,25) Flash Blank UC IC	R5S726A0D216FP
IC 671	(A,89,18) IC	S-80827CNMC-B8M
IC 801	(A,95,24) L-MOS And Gate	TC7SET08FUS1
IC 821	(A,107,27) Regulator IC	NJM2831F53
IC 881	(A,102,36) Regulator IC	S-1170B33UC-OTS
IC 882	(A,99,30) Regulator IC	S-1155B12-U5
IC 941	(A,70,7) Regulator IC	MM3479A18P
IC 951	(A,80,9) Regulator IC	MM3411A33N
IC 991	(A,94,47) Regulator IC	BD00GA3EEFJ

Circuit Symbol and No.		Part No.
Q 252	(A,48,60) Transistor	EMH53
Q 301	(A,73,52) Transistor	EMD52
Q 691	(A,104,47) Chip Transistor	HN1C01FU
Q 851	(A,121,36) Transistor	2SCR514PGZE
Q 853	(A,116,36) Transistor	EMD52
Q 861	(A,163,61) Transistor	X1049AG-TF2
Q 862	(A,155,56) Transistor	EMD52
Q 876	(A,121,27) Transistor	2SAR502UB
Q 877	(A,118,25) Transistor	LTC143EUB
Q 911	(A,94,53) Bipolar TR(A,C)	EMD53
D 531	(A,138,31) Diode	RB056L-40
D 532	(A,146,36) Diode	CMS30I30A
D 691	(A,103,52) Diode	DZ2J075M0
D 692	(A,108,57) Diode	DZ2J068M0
D 802	(A,95,12) Diode	DZ2S068C
D 803	(A,113,12) Diode	DZ2S068C
D 807	(A,114,12) Diode	DZ2S068C
D 808	(A,119,12) Diode	DZ2S068C
D 809	(A,116,12) Diode	DZ2S068C
D 810	(A,117,12) Diode	DZ2S068C
D 851	(A,118,32) Diode	DZ2J100M0
D 861	(A,146,40) Diode	D1F60-5053
D 862	(A,157,61) Diode	DZ2J068M0
D 863	(A,117,40) Diode	CRG03
D 901	(A,142,60) Diode	D1F60-5053
D 902	(A,142,64) Diode	D1F60-5053
D 982	(A,94,60) Diode	CRG03
L 202	(A,59,35) Inductor	CTF1793
L 402	(A,11,28) Chip Coil(A,C)	LCTAW3R3J2520
	(A,11,28) Inductor(B)	LCTAW150J2520
L 403	(A,8,30) Chip Coil(A,C)	LCTAWR27J2520
L 404	(A,8,35) Inductor(B)	CTF1389
L 408	(A,20,41) Inductor	LCMAR27J1608
L 410	(A,10,35) Inductor(A,C)	ATL7033
L 531	(A,130,33) SMD SPL Inductor	CTH1584
L 801	(A,114,16) Inductor	CTF1713
L 901	(A,139,51) Choke Coil	CTH1621
T 401	(A,18,35) Variable Coil	CTC1215
X 401	(A,28,23) Crystal Resonator	CSS1867
X 601	(A,87,24) Crystal Resonator 12.0 MHz	CSS1847
X 603	(A,79,38) Resonator 16.93 MHz	CSS1794

Circuit Symbol and No.		Part No.
⚠P253	(A,63,66) Fuse 3.0 A	CEK1404
P 401	(A,9,43) Surge Absorber	IMSA-6803-01Y900
VA801	(A,111,15) SMD Varistor	MLV0402ES012V0010N
VA802	(A,103,12) SMD Varistor	MLV0402ES012V0010N
CN801	(A,106,3) Connector	CKS6452
CN961	(A,55,11) B TO B Connector	CKS6346
JA251	(A,45,69) RCA Jack	CKB1115
JA401	(A,9,61) Antenna Jack	YKS5041
JA901	(A,121,71) Plug	CKM1624
JA912	(A,146,78) Jack	CKN1103
⚠	Fuse 10 A	YEK5001

RESISTORS

R 255	(A,52,58)	RS1/16SS821J
R 256	(A,43,58)	RS1/16SS821J
R 257	(A,52,59)	RS1/16SS223J
R 258	(A,43,59)	RS1/16SS223J
R 305	(A,75,50)	RS1/16SS103J
R 306	(A,76,55)	RS1/16SS221J
R 307	(A,76,52)	RS1/16SS223J
R 308	(A,69,65)	RS1/16SS103J
R 403	(A,9,28) (A,C)	RS1/16SS101J
	(A,9,28) (B)	RS1/16SS391J
R 404	(A,10,37)	RS1/16SS105J
R 405	(A,10,40)	RS1/16SS105J
R 406	(A,19,19)	RS1/16SS101J
R 407	(A,20,19)	RS1/16SS101J
R 408	(A,23,19)	RS1/16SS103J
R 410	(A,22,19)	RS1/16SS103J
R 417	(A,15,31)	RS1/16SS0R0J
R 430	(A,15,14)	RS1/10SR0R0J
R 437	(A,21,16)	RS1/16SS472J
R 438	(A,17,16)	RS1/16SS472J
R 439	(A,25,24)	RS1/16SS0R0J
R 509	(A,55,30)	RS1/16SS473J
R 510	(A,49,34)	RS1/16SS473J
R 531	(A,131,26)	RS1/16SS0R0J
R 532	(A,132,25)	RS1/16SS1803D
R 533	(A,132,27)	RS1/16SS4302D
R 534	(A,136,19)	RS1/10SR471J
R 535	(A,133,27)	RS1/16SS682J
R 603	(A,71,14)	RS1/16SS473J
R 604	(A,98,17)	RS1/16SS473J
R 605	(A,87,35)	RS1/16SS473J
R 607	(A,84,25)	RS1/16SS152J
R 608	(A,87,47)	RS1/16SS473J
R 609	(A,89,31)	RS1/16SS473J
R 610	(A,89,35)	RS1/16SS103J
R 611	(A,86,36)	RS1/16SS103J
R 612	(A,83,38) (B)	RS1/16SS473J
	(A,83,38) (C)	RS1/16SS103J
R 613	(A,83,37) (A,C)	RS1/16SS473J
R 614	(A,83,44)	RS1/16SS473J
R 615	(A,86,45)	RAB4CQ473J
R 616	(A,74,37)	RS1/16SS221J
R 617	(A,74,36)	RS1/16SS221J
R 618	(A,73,37)	RS1/16SS221J
R 619	(A,72,37)	RS1/16SS221J
R 620	(A,67,39)	RS1/16SS221J
R 621	(A,70,36)	RS1/16SS221J

Circuit Symbol and No.		Part No.
R 622	(A,68,37)	RS1/16SS473J
R 623	(A,66,45)	RS1/16SS473J
R 624	(A,64,38)	RS1/16SS101J
R 625	(A,60,33)	RS1/16SS102J
R 627	(A,83,46)	RS1/16SS473J
R 628	(A,82,46)	RS1/16SS473J
R 629	(A,57,32)	RS1/16SS473J
R 631	(A,57,26)	RS1/16SS104J
R 632	(A,60,27)	RS1/16SS101J
R 633	(A,61,25)	RS1/16SS101J
R 635	(A,60,24)	RS1/16SS101J
R 636	(A,57,24)	RS1/16SS102J
R 637	(A,59,22)	RS1/16SS102J
R 638	(A,57,21)	RS1/16SS102J
R 639	(A,50,22)	RS1/16SS473J
R 640	(A,60,18)	RS1/16SS222J
R 641	(A,61,16)	RS1/16SS103J
R 642	(A,57,20)	RS1/16SS473J
R 643	(A,81,15)	RS1/16SS473J
R 644	(A,82,16)	RS1/16SS473J
R 645	(A,83,16)	RS1/16SS473J
R 646	(A,88,33)	RS1/16SS473J
R 647	(A,84,32)	RS1/16SS473J
R 648	(A,65,36)	RS1/16SS473J
R 650	(A,93,17)	RS1/16SS473J
R 651	(A,91,27)	RS1/16SS153J
R 652	(A,91,29)	RS1/16SS153J
R 653	(A,57,28)	RS1/16SS473J
R 661	(A,78,36)	RS1/16SS222J
R 664	(A,48,24)	RS1/16SS473J
R 665	(A,58,19)	RS1/16SS222J
R 667	(A,73,14)	RS1/16SS103J
R 668	(A,95,16)	RS1/16SS473J
R 671	(A,84,20)	RS1/16SS104J
R 681	(A,72,46)	RS1/16SS473J
R 682	(A,72,39)	RS1/16SS473J
R 683	(A,76,44)	RS1/16SS473J
R 684	(A,65,42)	RS1/16SS473J
R 685	(A,69,46)	RS1/16SS473J
R 691	(A,105,48)	RS1/16SS103J
R 692	(A,109,46)	RS1/16SS104J
R 693	(A,106,48)	RS1/16SS473J
R 694	(A,107,48)	RS1/16SS473J
R 695	(A,106,57)	RS1/10SR682J
R 696	(A,112,59)	RS1/4SA102J
R 801	(A,121,21)	RS1/10SR222J
R 803	(A,122,18)	RS1/10SR222J
R 805	(A,93,20)	RS1/10SR222J
R 806	(A,100,24)	RS1/10SR222J
R 807	(A,90,14)	RS1/10SR222J
R 808	(A,88,13)	RS1/16SS822J
R 809	(A,101,15)	RS1/10SR222J
R 810	(A,99,15)	RS1/10SR222J
R 811	(A,118,18)	RS1/10SR223J
R 812	(A,116,18)	RS1/10SR223J
R 813	(A,118,21)	RS1/10SR101J
R 814	(A,116,21)	RS1/10SR101J
R 815	(A,117,21)	RS1/10SR101J
R 816	(A,113,21)	RS1/10SR220J
R 817	(A,114,21)	RS1/10SR220J

Circuit Symbol and No.		Part No.
R 852	(A,117,37)	RS1/10SR102J
R 854	(A,122,25)	RS1/10SR473J
R 861	(A,155,52)	RS1/10SR122J
R 862	(A,157,52)	RS1/10SR223J
R 880	(A,118,28)	RS1/16SS103J
R 881	(A,117,28)	RS1/16SS272J
R 882	(A,120,29)	RS1/16SS473J
R 883	(A,103,32)	RS1/16SS473J
R 911	(A,150,60)	RS1/10SR102J
R 912	(A,148,60)	RS1/10SR102J
R 914	(A,149,61) (A,C)	RS1/16SS471J
R 915	(A,147,61) (A,C)	RS1/16SS471J
R 916	(A,153,70)	RS1/16SS0R0J
R 961	(A,67,12)	RS1/16SS221J
R 962	(A,62,13)	RS1/16SS221J
R 963	(A,68,13)	RS1/16SS221J
R 964	(A,61,4)	RS1/16SS102J
R 965	(A,60,4)	RS1/16SS102J
R 966	(A,58,5)	RS1/16SS222J
R 967	(A,71,11)	RS1/16SS101J
R 968	(A,72,13)	RS1/16SS101J
R 969	(A,59,16)	RS1/16SS102J
R 970	(A,62,4)	RS1/16SS222J
R 991	(A,89,47)	RS1/16SS2702D
R 992	(A,89,46)	RS1/16SS4301D

CAPACITORS

C 201	(A,55,48)	CCSSCH151J50
C 202	(A,53,52) 10 uF	CCG1192
C 203	(A,56,48)	CKSSYB104K10
C 204	(A,57,48)	CKSSYB104K10
C 205	(A,59,48)	CKSSYB104K10
C 206	(A,59,54)	XCEVW470M16
C 207	(A,66,54) 10 uF	CCG1192
C 210	(A,65,50)	CKSSYB104K16
C 215	(A,46,47)	CKSRYB105K10
C 216	(A,47,47)	CKSRYB105K10
C 217	(A,46,42)	CKSRYB105K10
C 218	(A,46,43)	CKSRYB105K10
C 220	(A,61,34) 10 uF	CCG1192
C 221	(A,61,36)	CKSSYB104K10
C 222	(A,63,47) 10 uF	CCG1192
C 229	(A,46,38)	CKSRYB105K10
C 230	(A,46,41)	CKSRYB105K10
C 232	(A,53,36)	CKSSYB104K10
C 233	(A,53,35)	CKSSYB104K10
C 234	(A,56,34) 10 uF	CCG1192
C 235	(A,55,36)	CCSSCH151J50
C 239	(A,64,50) 1 uF	DCH1246
C 255	(A,51,57) 10 uF	CCG1192
C 256	(A,44,57) 10 uF	CCG1192
C 257	(A,52,60)	CCSSCH101J50
C 258	(A,43,60)	CCSSCH101J50
C 259	(A,30,63)	CCSRCH102J50
C 260	(A,29,65)	CKSSYB104K10
C 261	(A,29,66)	CKSSYB103K16
C 301	(A,78,60)	CKSRYB474K10
C 302	(A,89,60)	CKSRYB474K10
C 303	(A,81,60)	CKSRYB474K10
C 304	(A,86,60)	CKSRYB474K10
C 309	(A,66,66) 2.2 uF	CCG1205
C 312	(A,70,60) 10 uF/16 V	DCH1263
C 316	(A,79,54)	CKSRYB105K10
C 324	(A,91,58)	CKSRYB104K16
C 325	(A,115,52) 2 200 uF/16 V	CCH1405
C 405	(A,24,28)	CKSSYB102K50
C 409	(A,20,29)	CKSSYB224K6R3
C 410	(A,18,40)	CCSSCH220J50
C 411	(A,17,40)	CCSSCH331J50
C 414	(A,11,25)	CKSSYB102K50
C 416	(A,8,28) (A,C)	CCSSCH120J50
C 417	(A,7,28) (A,C)	CCSSCK1R0C50
C 418	(A,12,35) (A,C)	CCSSCK2R0C50
C 419	(A,9,35) (A,C)	CCSSCK1R0C50
C 420	(A,9,39)	CCSSCH471J50
C 422	(A,12,24)	CKSSYB152K50
C 425	(A,23,26)	CCSSCH390J50
C 428	(A,15,28)	CKSSYB104K10
C 430	(A,19,29)	CKSSYB102K50
C 434	(A,14,42)	CCSSCH100D50
C 442	(A,14,19) 10 uF	CCG1192
C 452	(A,25,16)	CKSRYB104K16
C 453	(A,36,14)	CKSRYB105K10
C 458	(A,9,20)	CCSSCH102J50
C 459	(A,26,33)	CKSRYB105K10
C 531	(A,144,27)	CKSSYB103K16
C 532	(A,129,21)	CEVQW221M6R3
C 534	(A,127,28)	CKSRYB105K10
C 535	(A,136,21) 10 uF	CCG1192
C 536	(A,133,25)	CKSSYB682K25
C 539	(A,143,29) 4.7 uF	CCG1222
C 540	(A,145,29)	CCG1393
C 541	(A,152,27)	XCEVW221M16
C 542	(A,108,19)	CKSRYB105K10
C 545	(A,108,13)	CKSRYB105K10
C 601	(A,61,15)	CKSSYB104K10
C 602	(A,70,14)	CKSSYB102K50
C 603	(A,73,13)	CKSSYB104K10
C 604	(A,83,11)	CKSSYB102K50
C 605	(A,83,14)	CKSSYB104K10
C 606	(A,86,22)	CCSSCH120J50
C 607	(A,86,26)	CCSSCH120J50
C 608	(A,83,22)	CKSSYB104K10
C 609	(A,83,23)	CKSSYB104K10
C 610	(A,83,26)	CKSSYB104K10
C 611	(A,82,34)	CKSSYB104K10
C 612	(A,82,33)	CKSSYB104K10
C 613	(A,75,36)	CKSSYB104K10
C 614	(A,69,37)	CKSSYB104K10
C 615	(A,63,38)	CCSSCH220J50
C 616	(A,64,37)	CKSSYB104K10
C 617	(A,64,35)	CKSSYB104K10
C 618	(A,58,33)	CKSSYB104K10
C 619	(A,61,28)	CKSSYB104K10
C 620	(A,58,23)	CKSSYB104K10
C 621	(A,59,21)	CKSSYB104K10
C 628	(A,83,19)	CKSSYB104K10
C 629	(A,61,30)	CCSSCH220J50
C 630	(A,59,27)	CCSSCH220J50

Circuit Symbol and No.		Part No.
C 631	(A,59,24)	CCSSCH220J50
C 632	(A,81,38)	CCSSCH120J50
C 633	(A,76,38)	CCSSCH120J50
C 638	(A,63,41)	CKSSYB104K10
C 639	(A,41,25)	CCSRCH101J50
C 641	(A,46,27)	CCSSCH330J50
C 672	(A,89,20)	CKSRYB105K10
C 681	(A,79,44)	CKSSYB104K10
C 683	(A,76,41)	CCSSCJ3R0C50
C 691	(A,106,59)	CKSRYB104K50
C 693	(A,78,51)	CCSSCH101J50
C 801	(A,124,14)	CCSRCH102J50
C 805	(A,122,13)	CKSRYB104K16
C 806	(A,100,12)	CCSRCH221J50
C 807	(A,98,12)	CCSRCH221J50
C 808	(A,101,19)	CKSRYB104K16
C 810	(A,108,12)	CKSRYB104K16
C 811	(A,117,16)	CKSRYB105K10
C 813	(A,100,25)	CKSSYB104K10
C 841	(A,111,26) 10 uF	CCG1192
C 842	(A,103,26) 10 uF	CCG1192
C 852	(A,122,23)	CCSRCH101J50
C 853	(A,115,30)	CKSSYB104K16
C 861	(A,157,40)	XCEAT102M16
C 862	(A,158,61)	CKSSYB104K16
C 864	(A,157,65) 10 uF	CCG1192
C 883	(A,107,37) 10 uF	CCG1192
C 884	(A,95,29) 10 uF	CCG1192
C 885	(A,98,33) 10 uF	CCG1192
C 886	(A,99,37) 10 uF	CCG1192
C 914	(A,151,66)	CKSSYB102K50
C 942	(A,67,9) 4.7 uF	CCG1212
C 943	(A,74,8) 4.7 uF	CCG1212
C 946	(A,73,5)	CKSSYB104K10
C 951	(A,78,7) 4.7 uF	CCG1212
C 954	(A,82,7) 4.7 uF	CCG1212
C 961	(A,43,18)	XCEVW221M4
C 962	(A,47,14) 1 uF	DCH1246
C 963	(A,59,4) 1 uF	DCH1246
C 966	(A,65,9) 4.7 uF	CCG1212
C 968	(A,61,14)	CCSSCH270J50
C 970	(A,26,6)	CKSSYB104K10
C 971	(A,30,47)	CKSRYB103K50
C 991	(A,98,48)	CKSRYB105K16
C 992	(A,87,50)	CKSRYB105K16

B

Unit Number : QWM3962
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1801	(B,83,20)	Flash Written UC IC	PD6586A8
Q 1952	(B,15,17)	Resistor Built-IN TR	LTC014EEB
D 1951	(A,63,20)	White LED	SWBA05(FI231719)
D 1968	(A,10,17)	LED (RED)	SML-D12V8W(PQ)
D 1969	(A,52,7)	LED (RED)	SML-D12V8W(PQ)
D 1970	(A,51,30)	LED (RED)	SML-D12V8W(PQ)
D 1971	(A,12,29)	LED (RED)	SML-D12V8W(PQ)
D 1972	(A,12,5)	LED (RED)	SML-D12V8W(PQ)
D 1973	(A,73,3)	LED (RED)	SML-D12V8W(PQ)
D 1974	(A,59,3)	LED (RED)	SML-D12V8W(PQ)
D 1975	(A,108,3)	LED (RED)	SML-D12V8W(PQ)
D 1976	(A,98,3)	LED (RED)	SML-D12V8W(PQ)
D 1977	(A,87,3)	LED (RED)	SML-D12V8W(PQ)
D 1978	(A,139,3)	LED (RED)	SML-D12V8W(PQ)
D 1979	(A,129,3)	LED (RED)	SML-D12V8W(PQ)
D 1980	(A,118,3)	LED (RED)	SML-D12V8W(PQ)
D 1981	(A,53,20)	LED (RED)	SML-D12V8W(PQ)
X 1801	(B,68,23)	Ceramic Resonator 5.00 MHz	CSS1547
S 1839	(A,32,18)	Encoder (MULTI-CONTROL)	CSD1193
CN1931	(B,107,7)	Connector	CKS6451
JA1911	(A,157,23)	Connector	CKS6488
JA1921	(A,153,7)	Jack	CKN1090
V 1801	(A,140,30)	LCD	CAW2055

RESISTORS

R 1801	(B,88,11)	RS1/10SR473J
R 1802	(B,63,19)	RS1/10SR473J
R 1803	(B,73,22)	RS1/10SR222J
R 1805	(B,46,25)	RS1/10SR473J
R 1806	(B,48,26)	RS1/10SR473J
R 1807	(B,46,29)	RS1/10SR473J
R 1808	(B,45,29)	RS1/10SR473J
R 1823	(B,44,25)	RS1/10SR273J
R 1921	(B,130,7)	RS1/10SR0R0J
R 1922	(B,127,10)	RS1/10SR0R0J
R 1923	(B,128,4)	RS1/10SR0R0J
R 1931	(B,45,16)	RS1/10SR222J
R 1932	(B,39,8)	RS1/10SR222J
R 1941	(B,127,23)	RS1/10SR473J
R 1951	(B,57,19)	RS1/4SA151J
R 1952	(B,57,21)	RS1/4SA151J
R 1973	(B,18,16)	RS1/10SR0R0J
R 1975	(B,10,17)	RS1/10SR222J
R 1977	(B,48,13)	RS1/8SQ561J
R 1980	(B,14,25)	RS1/10SR182J
R 1981	(B,80,7)	RS1/8SQ821J
R 1983	(B,57,10)	RS1/8SQ331J
R 1985	(B,141,17)	RS1/8SQ331J
R 1987	(B,54,20)	RS1/4SA681J
R 1996	(B,60,7)	RS1/10SR0R0J

CAPACITORS

C 1806	(B,66,22)	CKSRYB104K16
C 1807	(B,64,22)	CKSRYB105K10
C 1912	(B,142,20)	CKSRYB102K50