NWZ-E435F/E436F/E438F

SERVICE MANUAL

Ver. 1.0 2008.09

SONY

US Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model
NWZ-E435F/E436F/E438F
Canadian Model
NWZ-E436F/E438F
Chinese Model
NWZ-E436F

Photo: NWZ-E435F

SPECIFICATIONS

Supported file format

Music			
Audio Formats (Codec)	MP3	Media File format: MP3 (MPEG-1 Layer3) file format File extension: .mp3 Bit rate: 32 to 320 kbps (Supports variable bit rate (VBR)) Sampling frequency*¹: 32, 44.1, 48 kHz	
	WMA	Media File format: ASF file format File extension: .wma Bit rate: 32 to 192 kbps (Supports variable bit rate (VBR)) Sampling frequency*¹: 16, 22.05, 32, 44.1, 48 kHz (Stereo) 8, 11.025, 16, 22.05, 32, 44.1 kHz (Mono) * Compatible with WM-DRM 10	
	AAC-LC*²	Media File format: MP4 file format File extension: .mp4, .m4a Bit rate: 16 to 320 kbps (Supports variable bit rate (VBR))*³ Sampling frequency*¹: 8, 11.025, 12, 16, 22.05, 24, 32, 44.1, 48 kHz (Stereo/Mono)	
	Linear PCM	Media File format: Wave-Riff file format File extension: .wav Bit rate: 1,411 kbps Sampling frequency*¹: 44.1 kHz (Stereo/Mono)	

Video			
Video Formats (Codec)		Frame rate: Max. 30 fps Resolution: Max. QVGA (320 × 240)	
	AVC (H.264/AVC)	Media File format: MP4 file format File extension: .mp4, .m4v Profile: Baseline Profile Level: 1.3 Bit rate: Max. 768 kbps	
	MPEG-4	Media File format: MP4 file format File extension: .mp4, .m4v Profile: Simple Profile Bit rate: Max. 1,024 kbps	
	Windows Media Video 9*⁴	Media File format: ASF file format File extension: .wmv Bit rate: Max. 768 kbps	
Audio Formats (Codec)	AAC-LC (for AVC, MPEG-4)	Channel number: Max. 2 channels Sampling frequency*¹: 24, 32, 44.1, 48 kHz Bit rate: Max. 288 kbps / channel	
	WMA (for Windows Media Video 9)	Bit rate: 32 to 192 kbps (Supports variable bit rate (VBR)) Sampling frequency*¹: 44.1 kHz * Compatible with WM-DRM 10	
File size	Max. 2 GB		
The number of files	Max. 1,000		

Photo*⁵			
Photo Format (Codec)	JPEG	Media File format: Compatible with Exif 2.21 file format File extension: .jpg Profile: Baseline Profile Number of pixels: Max. 4,000 × 4,000 pixels (16,000,000 pixels)	
The number of files	Max. 1,000		

*¹ Sampling frequency may not correspond to all encoders.
*² Copyright-protected AAC-LC files cannot be played back.
*³ Non-standard bit rates or non-guaranteed bit rates are included depending on the sampling frequency.
*⁴ Some WMV files can be played back only by transferring using Windows Media Player 11.
*⁵ Some photo files cannot be played back, depending on their file formats.

DIGITAL MEDIA PLAYER

SONY®

NWZ-E435F/E436F/E438F

Maximum recordable number of songs and time (Approx.)

The approximate times are based on the case in which you transfer or record only 4 minutes songs (not including videos and photos) in the MP3 format. Other playable audio file format song numbers and times may differ from MP3 format.

	NWZ-E435F		NWZ-E436F	
Bit rate	Songs	Time	Songs	Time
48 kbps	1,150	76 hr. 40 min.	2,450	163 hr. 20 min.
64 kbps	885	59 hr. 00 min.	1,850	123 hr. 20 min.
128 kbps	440	29 hr. 20 min.	925	61 hr. 40 min.
256 kbps	220	14 hr. 40 min.	460	30 hr. 40 min.
320 kbps	175	11 hr. 40 min.	370	24 hr. 40 min.

	NWZ-E438F	
Bit rate	Songs	Time
48 kbps	5,050	336 hr. 40 min.
64 kbps	3,750	250 hr. 00 min.
128 kbps	1,850	123 hr. 20 min.
256 kbps	945	63 hr. 00 min.
320 kbps	755	50 hr. 20 min.

Maximum recordable time of videos (Approx.)

The approximate recordable times are estimated in the case where only videos are transferred. The time may differ, depending on the conditions under which the player is used.

	NWZ-E435F	NWZ-E436F	NWZ-E438F
Bit rate	Time	Time	Time
Video Format: 384 kbps Audio Format: 128 kbps	7 hr. 10 min.	15 hr. 00 min.	30 hr. 40 min.
Video Format: 768 kbps Audio Format: 128 kbps	4 hr. 00 min.	8 hr. 30 min.	17 hr. 30 min.

Maximum recordable number of photos that can be transferred (Approx.)

Max. 8,000

Recordable number of photos may be less depending on file sizes.

Capacity (User available capacity)*1

NWZ-E435F: 2 GB (Approx. 1.69 GB = 1,811,415,040 bytes)
NWZ-E436F: 4 GB (Approx. 3.49 GB = 3,744,464,896 bytes)
NWZ-E438F: 8 GB (Approx. 7.05 GB = 7,572,815,872 bytes)
*1 Available storage capacity of the player may vary.
   A portion of the memory is used for data management functions.

Output (headphones)

Frequency response
20 to 20,000 Hz (when playing data file, single signal measurement)

FM tuner

FM Frequency range
87.5 to 108.0 MHz
The frequency is changed by 0.1 MHz.

IF (FM)

Not applicable

Antenna

Headphone cord antenna

Interface

Headphone: Stereo mini-jack
WM-PORT (multiple connecting terminal): 22 pins
Hi-Speed USB (USB 2.0 compliant)

Operating temperature

5 °C to 35 °C (41 °F to 95 °F)

Power source

- Built-in rechargeable lithium-ion battery
- USB power (from a computer via the supplied USB cable)

Charging time

USB-based charging
Approx. 4 hours (full charge), Approx. 2 hours (approx. 80 %)

Battery life (continuous playback)

By setting as follows, a longer battery life can be expected.
The times below are approximated when "Equalizer" is deactivated, and "Screensaver" is set to "Blank."
Furthermore, for videos, the time approximated when the brightness of the screen is set to "3."
The time below may differ depending on ambient temperature or the status of use.

	NWZ-E435F/E436F/E438F
Music	
Playback at MP3 128 kbps	Approximately 45 hours
Playback at WMA 128 kbps	Approximately 45 hours
Playback at AAC-LC 128 kbps	Approximately 40 hours
Playback at Linear PCM 1411 kbps	Approximately 40 hours
Video	
Playback at MPEG-4 384 kbps	Approximately 8 hours
Playback at AVC 384 kbps	Approximately 6.5 hours
Playback at WMV 384 kbps	Approximately 7.5 hours
FM radio	
At receiving FM broadcasting	Approximately 21 hours

Display

2.0-inch, TFT color display with white LED-backlight, QVGA (240 × 320 pixels), 262,144 colors

Dimensions (w/h/d, projecting parts not included)

44.0 × 83.9 × 8.5 mm ($1^3/_4 × 3^3/_8 × {}^{11}/_{32}$ inches)

Dimension (w/h/d)

44.2 × 83.9 × 8.5 mm ($1^3/_4 × 3^3/_8 × {}^{11}/_{32}$ inches)

Mass

Approx. 50 g (Approx. 1.8 oz)

Supplied Accessories

Headphones (1)
USB cable (1)
Attachment (1)
Use when connecting the player to the optional cradle, etc.
CD-ROM*1*2 (1)
— Windows Media Player 11
— Media Manager for WALKMAN*3
— Content Transfer
— Operation Guide (PDF file)
Quick Start Guide (1)
*1 Do not attempt to play this CD-ROM in an audio CD player.
*2 Depending on the country/region in which you have purchases the player, the bundled software may be afferent.
*3 Media Manager for WALKMAN is not bundle with the packages sold in the U.S.A. Please download it from the following web site:
   http://www.sonycreativesoftware.com/download/wmm_lite

Design and specifications are subject to change without notice.

TABLE OF CONTENTS

Accessories are given in the last of the electrical parts list.

NOTES ON CHIP COMPONENT REPLACEMENT
• Never reuse a disconnected chip component.
• Notice that the minus side of a tantalum capacitor may be damaged by heat.

FLEXIBLE CIRCUIT BOARD REPAIRING
• Keep the temperature of soldering iron around 270 °C during repairing.
• Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
• Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

UNLEADED SOLDER
Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(**Caution:** Some printed circuit boards may not come printed with the lead free mark due to their particular size)

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

System Requirements
• Computer
  IBM PC/AT or compatible computer preinstalled with the following Windows operating systems*¹:
  Windows Vista Home Basic (Service Pack 1 or later)
  Windows Vista Home Premium (Service Pack 1 or later)
  Windows Vista Ultimate (Service Pack 1 or later)
  Windows Vista Business (Service Pack 1 or later)
  Windows XP Home Edition (Service Pack 2 or later)
  Windows XP Professional (Service Pack 2 or later)
  Not supported by 64 bit version OS.
  Not supported by OSs other than above.
  *¹ Excluding OS Versions not supported by Microsoft.
• CPU: Pentium 4 1.0 GHz or higher
• RAM: 512 MB or more
• Hard Disk drive: 380 MB or more of available space
  More free space may be required depending on the version of the operating system installed. Also, more space is required to store data (such as music, videos, photos) on the hard drive.
• Display:
  − Screen Resolution: 800 × 600 pixels (or higher) (recommended 1,024 × 768 or higher)
  − Colors: 8-bit color or higher (16-bit color recommended)
• CD-ROM drive (supporting Digital Music CD playback capabilities using WDM)
  To create original CDs, a CD-R/RW drive is required.
• Sound board
• USB port (Hi-Speed USB is recommended)
• Microsoft .NET Framework 2.0 or 3.0, QuickTime 7.3, Internet Explorer 6.0 or 7.0, Windows Media Player 10 or 11 (Windows Media Player 11 recommended. Some computers that already have Windows Media Player 10 installed may encounter file limitation (AAC, video files, etc.) that can be transferred by dragging and dropping.).
• Installation of Adobe Flash Player 8 or higher is required.
• Broadband Internet connection is required to use Electronic Music Distribution (EMD) or to visit the web site.

We do not guarantee operation for all computers even if they meet the above System Requirements.

Not supported by the following environments:
− Personally constructed personal computers or operating systems
− An environment that is an upgrade of the original manufacturer-installed operating system
− Multi-boot environment
− Multi-monitor environment
− Macintosh

NWZ-E435F/E436F/E438F

NOTE THE COMPLETE PC BOARD REPLACING

When the complete PC board is replaced, format it according to the following.

Formatting Memory (Format)

You can format the built-in flash memory of the player.
If the memory is formatted, all data will be erased. Be sure to verify the data stored in memory prior to formatting and export any important data to the hard disk of your computer.

Settings

BACK/HOME button

5-way button
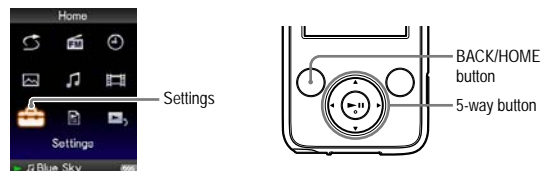
Note
· This function is only available in the pause mode.

❶ **Press and hold the BACK/HOME button in the pause mode until the Home menu appears.**

❷ **Press the ▲/▼/◄/► button to select ☷ (Settings), and then press the ►II button to confirm.**

❸ **Press the ▲/▼/◄/► button to select "Common Settings," and then press the ►II button to confirm.**
The list of "Common Settings" options appears.

❹ **Press the ▲/▼/◄/► button to select "Format," and then press the ►II button to confirm.**
"All data including songs will be deleted. Proceed?" appears.

❺ **Press the ▲/▼ button to select "Yes," and then press the ►II button to confirm.**
"All data will be deleted. Proceed?" appears.

❻ **Press the ▲/▼ button to select "Yes," and then press the ►II button to confirm.**
While the memory is being formatted, an animated display appears.
When initialization finishes, "Memory formatted." appears.

To cancel the operation
Select "No" in step ❺ or ❻ and press the ►II button to confirm. You can also cancel the operation by pressing the BACK/HOME button in step ❺ or ❻ .

Notes
· Do not format the built-in flash memory using software or Windows Explorer.
· ⌛ appears instead of ⊕ (Clock Display) if the player accesses certain online services (available only in U.S.A.). To restore ⊕ (Clock Display), format the memory of the player.

COLOR VARIATION

Model	Destination	Color				
		Black	Red	Pink	Blue	Silver
NWZ-E435F	US (Wal-Mart)					●
	AEP, UK	●	●			
	French	●	●			
	East European	●	●			
	E, Australian, Tourist	●		●	●	
	Mexican	●	●	●	●	
NWZ-E436F	US	●	●	●	●	
	US (Best Buy)	●		●		
	US (Wal-Mart)	●	●			
	Canadian	●	●	●	●	
	Canadian (BMG contents preinstall model)	●				
	AEP, UK	●	●	●		
	French	●	●	●		
	East European	●	●	●		
	E, Australian, Tourist	●	●	●	●	
	Chinese	●		●		
	Mexican	●	●	●		
NWZ-E438F	US	●	●	●		
	US (Best Buy)	●	●			
	Canadian	●	●			
	AEP, UK	●	●	●		
	French	●	●			
	East European	●				
	E, Australian, Tourist	●	●			
	Mexican	●	●	●		

Note: Refer to page 20 for the schematic diagram.
Refer to page 19 for the printed wiring boards.

METHOD OF JUDGING RIGHT AND WRONG OF PARTS RELATED TO SWITCH

In this set, only a part of parts that relate to the switch are supplied.

The right and wrong of the switch can be judged by the following two methods.

1. Judgment From The Test Mode

Judge the right and wrong of the switch referring to "4-4-3. Key check" (page 16).

2. Judgment from the voltage measurement

Judge the right and wrong of the switch by the voltage measurement with a test point.

2-1. RESET key (SW1)

Connection:

digital voltmeter

R1 ← +
T8 (FM_GND) ← −
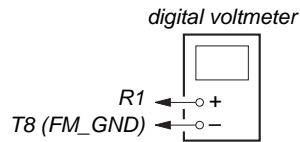
When the voltage value is below, RESET key (SW1) is nomal.
- RESET key (SW1) is pressed : 0 V
- RESET key (SW1) is not pressed : 3.1 V

2-2. HOLD switch (SW610)

Connection:

digital voltmeter

J601 pin ⑨ ← +
J601 pin ② ← −
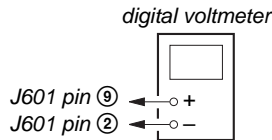
When the voltage value is below, HOLD switch (SW610) is nomal.
- HOLD switch (SW610) is turned on : 0 V
- HOLD switch (SW610) is turned off : 3.1 V

2-3. [►II]/[►]/[◄]/[▲]/[▼]/[BACK]/[OPTION]/[VOL +]/[VOL −] keys

Connection:

digital voltmeter

D2 (anode) ← +
J4 pin ② ← −
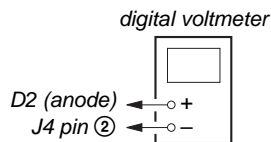
When the voltage value is below, [►II]/[►]/[◄]/[▲]/[▼]/[BACK] [OPTION]/[VOL +]/[VOL −] keys are nomal.
- Keys are not pressed : 3.1 V
- [►II] key (SW605) is pressed : 1.35 to 1.53 V
- [►] key (SW606) is pressed : 1.71 to 1.85 V
- [◄] key (SW607) is pressed : 2.03 to 2.15 V
- [▲] key (SW608) is pressed : 2.36 to 2.46 V
- [▼] key (SW609) is pressed : 2.69 to 2.85 V
- [BACK] key (SW604) is pressed : 1.09 to 1.20 V
- [VOL −] key is pressed : 0.12 to 0.40 V
- [VOL +] key was pushed : 0.68 to 0.95 V

2-4. OPTION key (SW601)

Connection:

digital voltmeter

J601 pin ④ ← +
J601 pin ② ← −
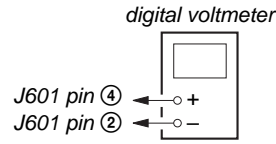
When the voltage value is below, OPTION key (SW601) is nomal.
- OPTION key (SW601) is pressed : 0 V
- OPTION key (SW601) is not pressed : 3.1 V

Connection location:

– MAIN Board (Side A) –

D2 — 30 — J4 — 29
2 — 1

– MAIN Board (Side B) –

T8 (FM_GND)

R1

– KEY Board (Side B) –

J601
29 — 30
9 — 4
1 — 2

This section is extracted from instruction manual.
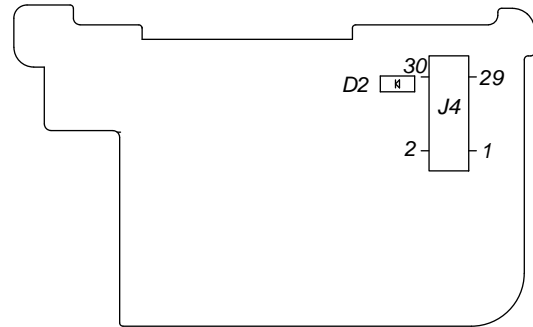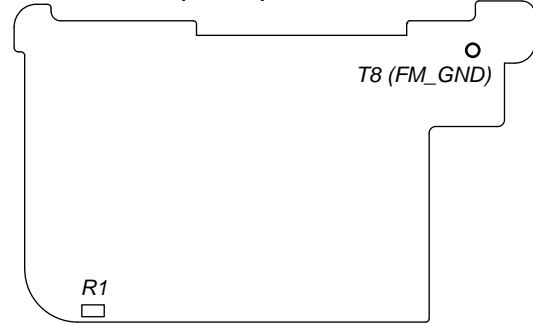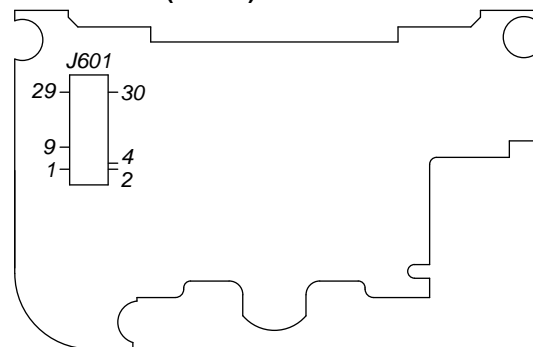
Parts and Controls

Front
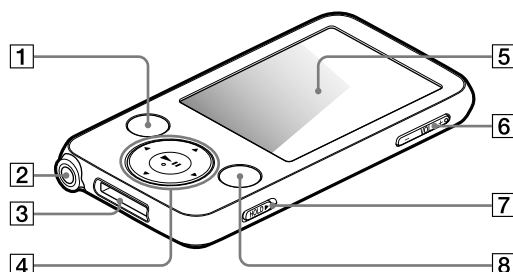
1 BACK/HOME button*1

Press to go up one list screen level, or to return to the previous menu. Press and hold the BACK/HOME button to display the Home menu.

2 Headphone jack

For connecting the headphones. Insert the plug until it clicks into place. If the headphones are connected improperly, the sound from the headphones may not sound right.

3 WM-PORT jack

Use this jack to connect the supplied USB cable, or optional peripheral devices, such as supported accessories for the WM-PORT.

4 5-way button*2

Starts playback and enables navigation of the player's on-screen menus.

5 Display

The display may vary, depending on functions.

6 VOL +*2/– button

Adjusts the volume.

7 HOLD switch

You can protect the player against accidental operation by using the HOLD switch when carrying it. By sliding the HOLD switch in the direction of the arrow ▶, all operation buttons are disabled. If you slide the HOLD switch to the opposite position, the HOLD function is released.

8 OPTION/PWROFF button*1

Displays the option menu. If you press and hold the OPTION/ PWR OFF button, the screen turns off and the player enters standby mode. If you press any button while

the player is in standby mode, the "Now Playing" screen, etc., appears and the player is ready for operation. Furthermore, if you leave the player in standby mode for about 4 hours, the player turns completely off automatically. If you press any button when the player is turned off, the start up screen appears first, then the "Now Playing" screen appears.

Note

● The player consumes battery power very slightly even when it is in standby mode. Therefore, the player might turn completely off in a short time, depending on the power remaining in the battery.

*1 Functions marked with ● on the player are activated if you press and hold the corresponding buttons.

*2 There are tactile dots. Use them to help with button operations.

Rear
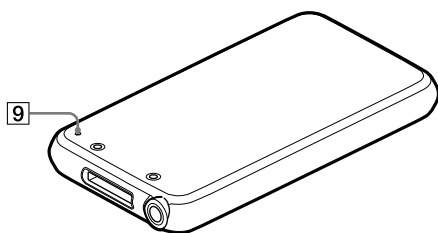
9 RESET button

Resets the player when you press the RESET button with a small pin, etc.

SECTION 3
DISASSEMBLY

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

3-1. DISASSEMBLY FLOW

```
                    ┌──────────────────┐
                    │       SET        │
                    └────────┬─────────┘
                             │
                    ┌────────▼─────────┐
                    │ 3-2.   REAR CASE │
                    │      (Page 7)    │
                    └────────┬─────────┘
        ┌────────────────────┼────────────────────┐
┌───────▼──────────┐ ┌───────▼──────────┐ ┌───────▼──────────┐
│ 3-3.  SVX FRONT  │ │ 3-4. BATTERY (N) │ │ 3-5  MINI JACK   │
│ CASE ASSY,       │ │ ASSY             │ │ (Page 9)         │
│ KEY BOARD        │ │ (Page 8)         │ │                  │
│ (Page 8)         │ │                  │ │                  │
└───────┬──────────┘ └──────────────────┘ └──────────────────┘
        │
┌───────▼──────────┐
│ 3-6.  MAIN BOARD,│
│ ESCUTCHEON       │
│ (Page 9)         │
└───────┬──────────┘
        ├────────────────────┐
┌───────▼──────────┐ ┌───────▼──────────┐
│ 3-7.  LIQUID     │ │ 3-8.  SVX VOL SW │
│ CRYSTAL          │ │ ASSY             │
│ DISPLAY PANEL    │ │ (Page 10)        │
│ (Page 10)        │ │                  │
└──────────────────┘ └──────────────────┘
```
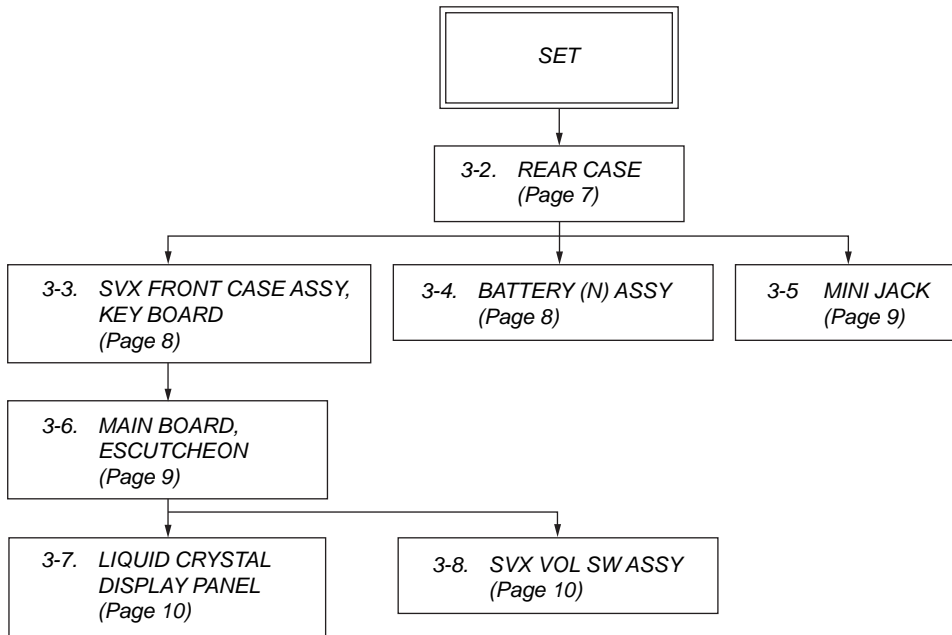
Note: Follow the disassembly procedure in the numerical order given.

3-2. REAR CASE

Note: This illustration sees the set from rear side.

7
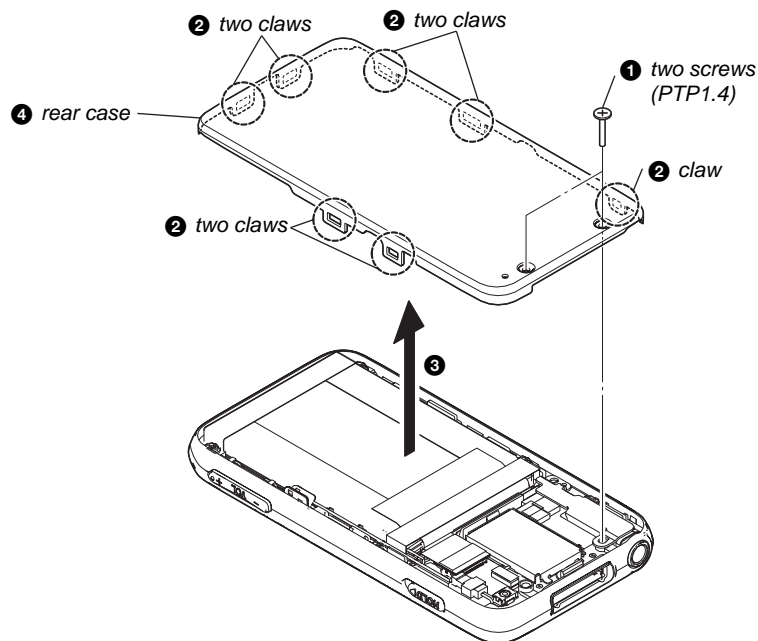
3-3. SVX FRONT CASE ASSY, KEY BOARD

❶ two screws (B1.4)

❷ claw

❷ claw

❷ two claws

❷ claw

❷ claw

❽ KEY board

❻ connector (J601)

❼ gasket (CPU)

❺ button (front)

❹ SVX front case assy

Note: On installation of knob (hold), adjust the position of switch (SW610) and knob (hold).

knob (hold)

switch (SW610)

3-4. BATTERY (N) ASSY

❼ batt sheet

❶ static shield sheet

❽ protection sheet (battery)

❾ battery (N) assy

❻

Note 1: Take care not to damage the battery (N) assy by applying an excessive force.
Note 2: Sheet (BATT) adhesive cannot be reused.

❸ battery connector (J3)

sheet (BATT) adhesive

❺ gasket (volume)

❹ Turn over the protection sheet (VOL wire).

❷ Turn over the protection sheet (wire).

3-5. MINI JACK

Note: *This illustration sees the set from battery side.*

❷ screw
(PTP1.4)

❹ protection sheet
(HP)

❶ HP printed wirinig board
(J6)

❼ Remove three solders.

❺ holder (HP)

❽ mini jack

❻ sheet (JACK) adhesive
Note: *Sheet (JACK) adhesive cannot be reused.*

❸
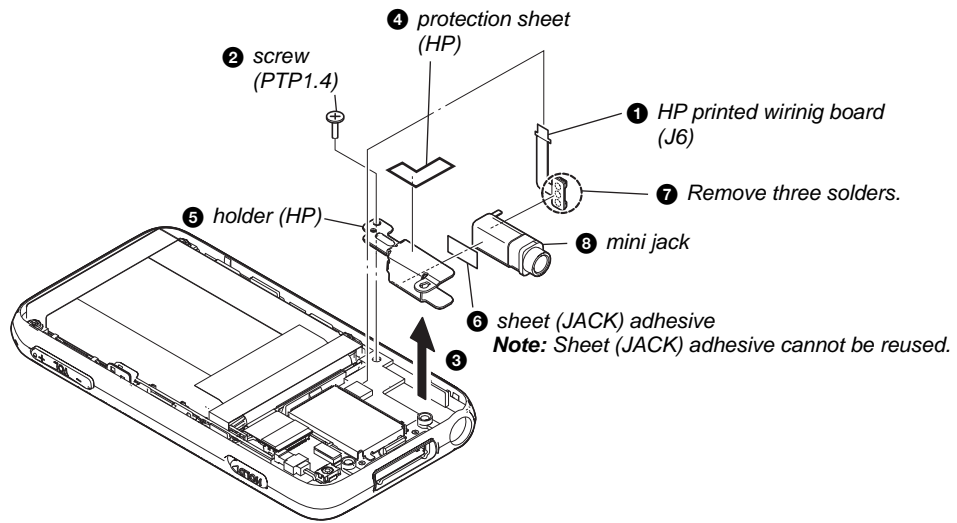
3-6. MAIN BOARD, ESCUTCHEON

Note 1: *This illustration sees the set from battery side.*

❸ static shield sheet

❶ HP printed wirinig board
(J6)

❿ gasket (CPU)

⓫ condustive sheet

❷ HP jack block

⓮ MAIN board

❼ Remove two solders.

⓭ W (WMPORT) sheet

⓬ Turn over the protection sheet (wire).

❹ protection sheet (wire)

❺ battery connector
(J3)

❻ LCD flexible board
(J5)

❾

⓯ escutcheon

❽ claw

9
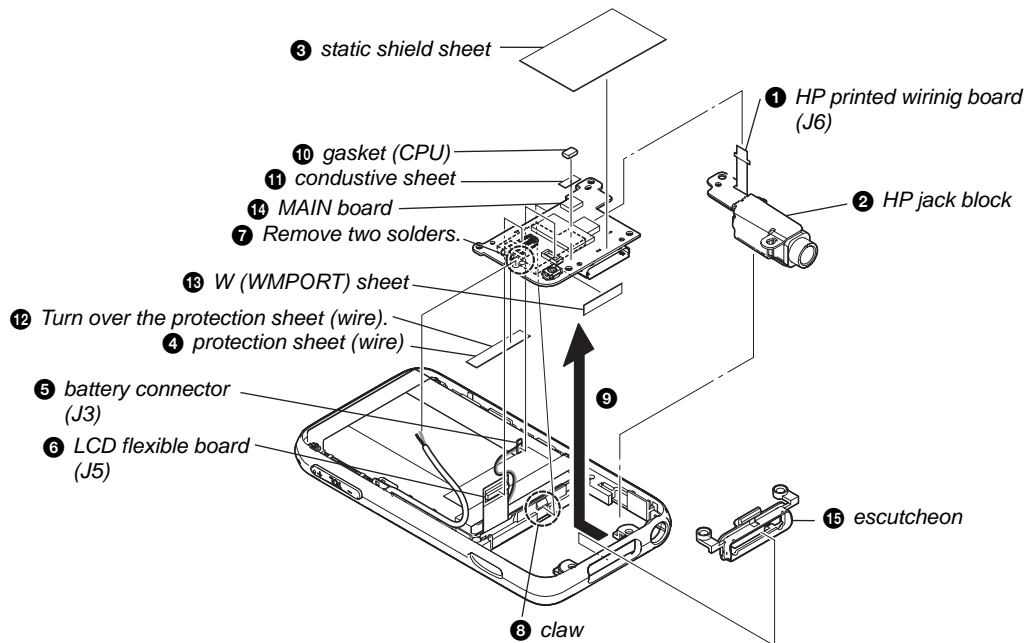
3-7. LIQUID CRYSTAL DISPLAY PANEL

Note 1: Take care not to damage the liquid crystal display panel by applying an excessive force.
Note 2: Sheet (LCD) adhesive cannot be reused.

❶ two screws (M1.4)

❹ claw

❻ button (VOL)

two sheet (LCD) adhesives

❿ two LCD sheets (light)

❷ cu (ornament) sheet

❹ claw

⓬ liquid crystal display panel

❶ two screws (M1.4)

❸ cu (ornament L) sheet

❺

❼

❾ two LCD spacers

⓫ protection sheet (LCD)

❽ Lift the LCD and remove it.

3-8. SVX VOL SW ASSY

❶ two screws (M1.4)

❹ claw

❻ button (VOL)

❷ cu (ornament) sheet

❹ claw

❺

❶ two screws (M1.4)

❸ cu (ornament L) sheet

❽

❼ protection sheet (VOL wire)

❾ protection sheet (VOLFPC)

⓬ SVX VOL SW assy

❿ Remove two solders.

⓫ wire

SECTION 4
TEST MODE

Note: Information on the test mode must correspond in enough security. When the leakage has been revealed by any chance, the source of information is specified.

1. SETTING THE TEST MODE
Note: Perform the test mode in the state of 3.6 V or more in the battery voltage.
Setting method:
1. Turn the power on.
2. Press the [BACK] key for 1.5 seconds or more, the home menu is displayed.
3. Slide the [HOLD] key to set the hold on.
4. While pressing the [OPTION] key, press the key as following order.
   [▲] → [►II] → [►] → [►II] → [▼] → [►II] → [◄] → [►II] → [▲] → [►II] → [BACK] → [►II]
5. Enter the test mode.
Note: The destination setting and sound pressure regulation setting cannot be executed by this test mode.

2. RELEASING THE TEST MODE
1. Display the major item selection screen.
2. Press the [▲]/[▼] key to select the "EXIT", and press the [►] key to select the "SURE?".
3. Press the [►II] key, TURN the POWER off and release the test mode.

3. CONFIGURATION OF THE TEST MODE

Major item — Major item switching: ▲/▼ key

► key / ◄ key

Minor item — Minor item switching: ▲/▼ key

►II key

Start — BACK key

Automatic

Finish or Result
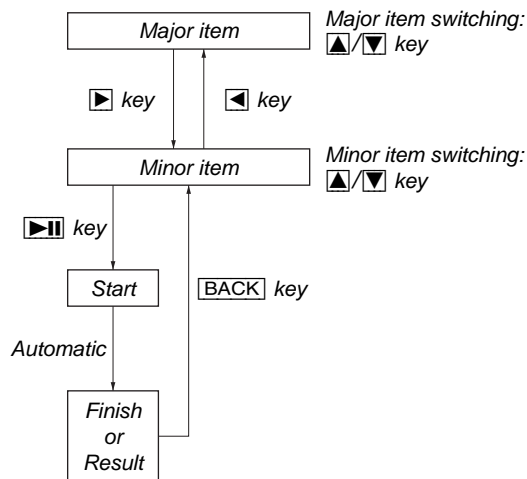
4. OPERATION OF THE TEST MODE
4-1. Power

liquid crystal display

```
MPTAPP MENU

POWER     VCHK
AUDIO     ACHK
VIDEO     DSVCHK
OTHER     CHGCHK
CLESTE    BATTCHK
  DAC
   FM
SHUTDN
 EXIT
```
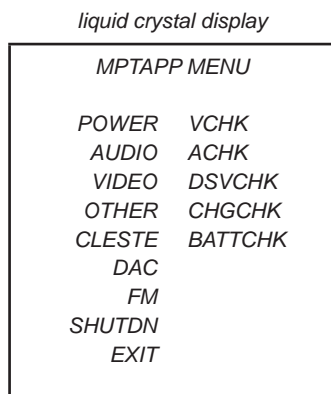
4-1-1. Power supply voltage check
This mode is used in case power supply voltage in the state where all power supply lines are starting is checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "POWER", and press the [►] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "VCHK".
4. Press the [►II] key, all power supply lines are started.

liquid crystal display

```
VCHK

VDDIO : X.XXXV

VDDA  : X.XXXV

VDDD  : X.XXXV
```
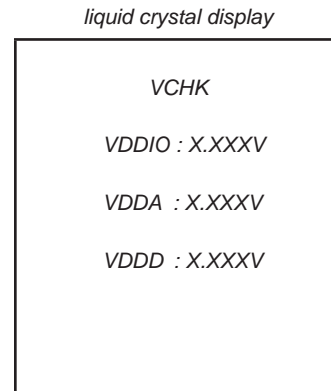
In this state, the power supply voltage of each power supply line can be confirmed by measuring the voltage.
5. Press the [BACK] key, return to minor item selection screen.

4-1-2. Consumption current (audio playback) check
This mode is used in case consumption current (audio playback) is checked in the state where "1 kHz 0 dBs L-ch/R-ch VOLUME: 15" audio signal is output.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "POWER", and press the [►] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "ACHK".
4. Press the [►II] key, "1 kHz 0 dBs L-ch/R-ch VOLUME: 15" audio signal is output.

liquid crystal display

```
ACHK
1kHz 0dBs L/Rch
HPOUT [ VOL 15 ]
BL ON
```
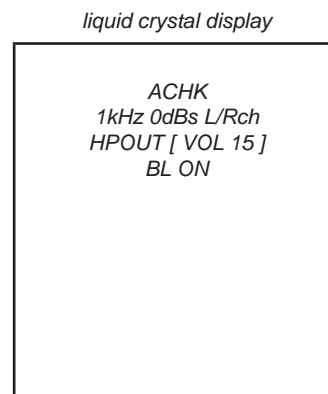
5. In this state, each time the [OPTION] key is pressed, LCD back light on /off switch is performed.
6. Press the [BACK] key, return to minor item selection screen.

4-1-3. Standby current check

This mode is used in case standby current is checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "POWER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "DSVCHK".
4. Press the [▶II] key, enter the state of the deep sleep.
5. Press the [BACK] key, release the state of the deep sleep, and return to minor item selection screen.

4-1-4. Charge current check

This mode is used in case charge current is checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "POWER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "CHGCHK".
4. Press the [▶II] key, the change setting is displayed.

liquid crystal display

```
CHGCHK

  AC




  AC
```
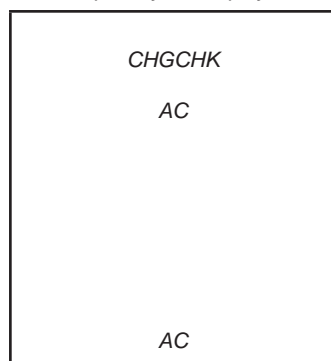
5. In this state, each time the [OPTION] key is pressed, the port setting for the charge is changed as shown in the table below.

	Port control		
Display	CHG_XCHGEN	CHG_PEN1	CHG_PEN2
AC	L	H	H
USB500	L	H	H
USB100	L	H	L

6. Press the [BACK] key, return to minor item selection screen.

4-1-5. Battery voltage detection check

This mode is used in case battery voltage is checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "POWER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "BATTCHK".
4. Press the [▶II] key, the battery voltage is displayed.
    When the battery voltage cannot be confirmed, "ERROR" is displayed.

liquid crystal display

```
BATTCHK

Battely Voltage
  X.XXXV
```
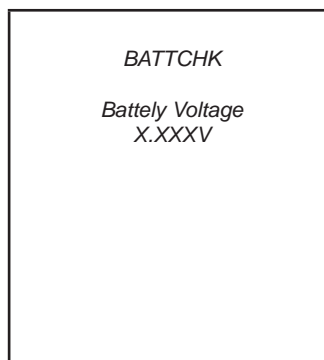
X.XXXV: Battery voltage

5. Press the [BACK] key, return to minor item selection screen.

4-2. Audio

While playing the audio track, it's in a repeat state. If [BACK] key is pressed, it's stopped.
Press the [VOL +] key to switch the HP/LINE.

liquid crystal display

```
MPTAPP MENU

POWER    OUTPUT
AUDIO    SN
VIDEO    F1
OTHER    F2
CLESTE   SEPLR
  DAC    SEPRL
   FM    MAXOUT
SHUTDN   NMLZR
 EXIT    SPCHK
```
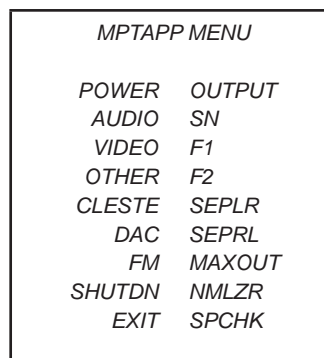
4-2-1. Output check

"1 kHz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "OUTPUT".
4. Press the [▶Ⅱ] key, "1 kHz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputted.

liquid crystal display

```
        OUTPUT
     1kHz 0dBs L/Rch
     HPOUT [ VOL 25 ]




          START
```

5. Press the [BACK] key, return to minor item selection screen.

4-2-2. S/N check

"Infinity Zero VOLUME: 30" audio signal is outputted.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "SN".
4. Press the [▶Ⅱ] key, "Infinity Zero VOLUME: 30" audio signal is output.

liquid crystal display

```
           SN
       Infinity Zero
     HPOUT [ VOL 30 ]




          START
```
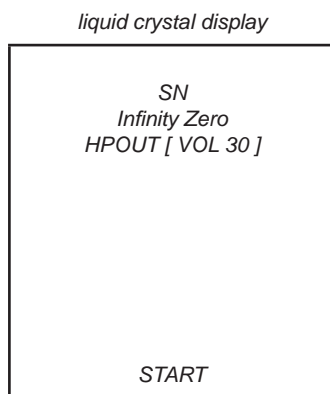
5. Press the [BACK] key, return to minor item selection screen.

4-2-3. Frequency characteristic 1 check

"20 Hz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "F1".
4. Press the [▶Ⅱ] key, "20 Hz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputted.

liquid crystal display

```
           F1
     20Hz 0dBs Lch/Rch
     HPOUT [ VOL 25 ]




          START
```
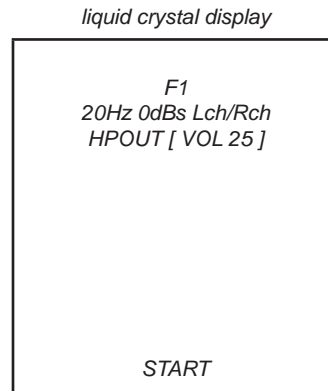
5. Press the [BACK] key, return to minor item selection screen.

4-2-4. Frequency characteristic 2 check

"20 Hz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "F2".
4. Press the [▶Ⅱ] key, "20 Hz 0 dBs L-ch/R-ch VOLUME: 25" audio signal is outputed.

liquid crystal display

```
           F2
     20kHz 0dBs Lch/Rch
     HPOUT [ VOL 25 ]




          START
```

5. Press the [BACK] key, return to minor item selection screen.

4-2-5. CH separation (L-ch) check
"1 kHz 0 dBs L-ch VOLUME: 25" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "SEPLR".
4. Press the [▶❙❙] key, "1 kHz 0 dBs L-ch VOLUME: 25" audio signal is outputted.

liquid crystal display

```
        SEPLR
     1kHz 0dBs Lch
    HPOUT [ VOL 25 ]




        START
```
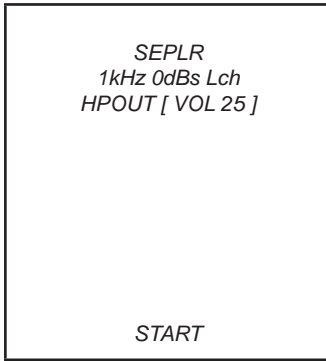
5. Press the [BACK] key, return to minor item selection screen.

4-2-6. S/N check
"1 kHz 0 dBs R-ch VOLUME: 25" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "SEPRL".
4. Press the [▶❙❙] key, "1 kHz 0 dBs R-ch VOLUME: 25" audio signal is output.

liquid crystal display

```
        SEPRL
     1kHz 0dBs Rch
    HPOUT [ VOL 25 ]




        START
```

5. Press the [BACK] key, return to minor item selection screen.

4-2-7. Maxmum output check
"1 kHz 0 dBs L-ch/R-ch VOLUME: 30" (Headphone output when AVLS operates: "1 kHz 0 dBs L-ch/R-ch VOLUME: 13") audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "MAXOUT".
4. Press the [▶❙❙] key, "1 kHz 0 dBs L-ch/R-ch VOLUME: 30" (Headphone output when AVLS operates: "1 kHz 0 dBs L-ch/R-ch VOLUME: 13") audio signal is outputed.

liquid crystal display

```
        MAXOUT
     1kHz 0dBs L/Rch
        AVLS OFF
    HPOUT [ VOL 30]




        START
```
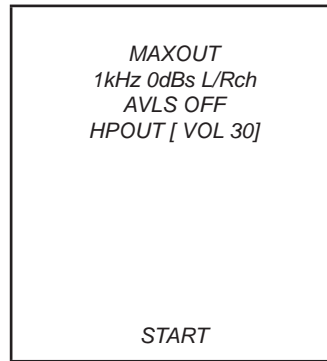
5. In this state, each time the [OPTION] key is pressed, AVLS on.off switch is performed.
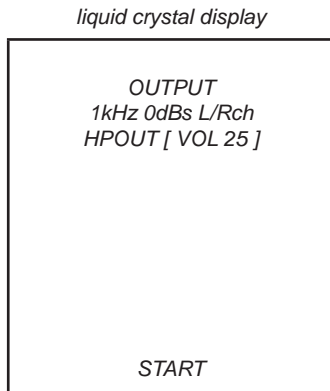6. Press the [BACK] key, return to minor item selection screen.

4-2-8. Normalizer check
"1 kHz − 24 dBs L-ch/R-ch VOLUME: 30" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "NMLZR".
4. Press the [▶❙❙] key, "1 kHz − 24 dBs L-ch/R-ch VOLUME: 30" audio signal is outputed.

liquid crystal display

```
        NMLZR
    1kHz–24dBs Lch/Rch
    HPOUT [ VOL 30]




        START
```
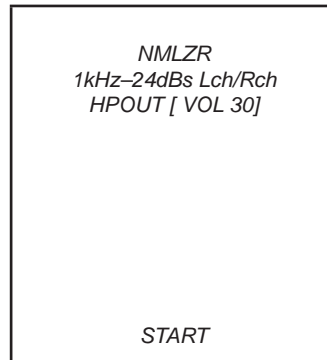
5. Press the [BACK] key, return to minor item selection screen.

4-2-9. Sound pressure regulation level check

"1 kHz 0 dBs L-ch/R-ch VOLUME: 30" audio signal is outputed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "AUDIO", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "SPCHK".
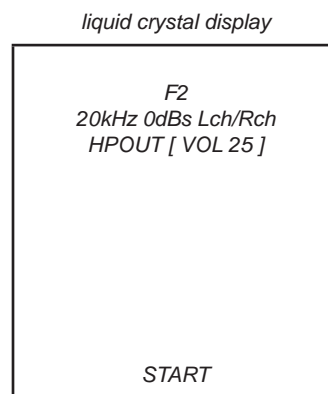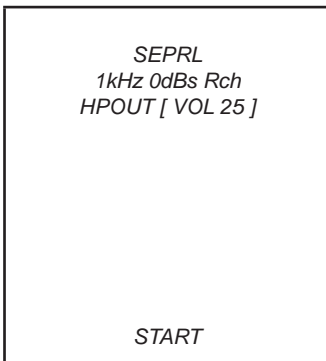4. Press the [▶ll] key, "1 kHz 0 dBs L-ch/R-ch VOLUME: 30" audio signal is outputted.

liquid crystal display

```
        SPCHK
   1kHz 0dBs Lch/Rch
   HPOUT [ VOL 30]




        START
```
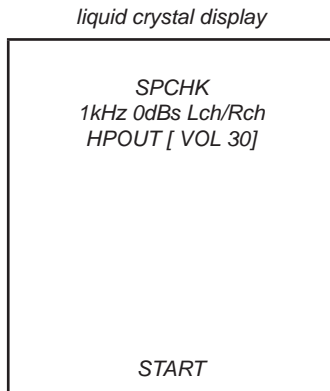
5. Press the [BACK] key, return to minor item selection screen.

4-3. Video

liquid crystal display

```
    MPTAPP MENU

   POWER     LCD
   AUDIO
   VIDEO
   OTHER
   CLESTE
     DAC
      FM
 SHUTDOWN
   EXITTEST
```

4-3-1. LCD display check

Liquid crystal display is checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "VIDEO", and press the [▶] key to select the "LCD".
3. Press the [▶ll] key, all black is displayed on the liquid crystal display.
4. In this state, each time the [OPTION] key is pressed, the screen display changes in the following order.

   All black (default) → All red → All green → All blue → All white → Color bar → Maximum drawing size confirmation → diagonal gradation (red) → diagonal gradation (green) → diagonal gradation (blue) → diagonal gradation (white)

   Maximum drawing size confirmation:
   All blue (All sides are red) is displayed. Whether red in all sides is seen is confirmed.

5. In this state, each time the [VOL –] key is pressed, LCD back

light brightness min/max/middle switch is performed.
6. Press the [BACK] key, return to minor item selection screen.

4-4. Other

liquid crystal display

```
    MPTAPP MENU

   POWER     CLOCK
   AUDIO     KEYNUM
   VIDEO     KEY
   OTHER     FORMAT
   CLESTE    DEST
     DAC     SPSET
      FM     FWVER
 SHUTDOWN    NCAPCHK
   EXITTEST
```
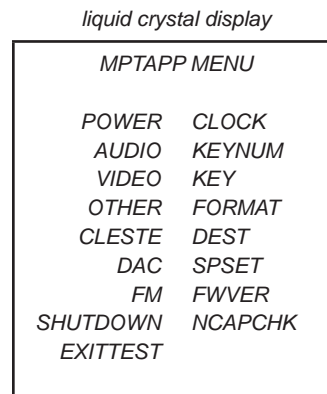
4-4-1. Clock check

The movement of an internal clock is confirmed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "OTHER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "CLOCK".
4. Press the [▶ll] key, date and time are displayed.

liquid crystal display

```
        CLOCK

      XXXX/XX/XX
       ##:##:##




        START
```
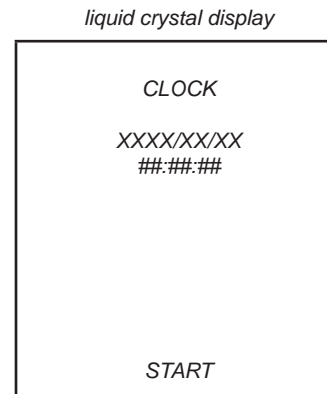
XXXX/XX/XX : Date
##:##:##   : Time

"START" changes into "OK" if the movement of an internal clock is confirmed.
5. Press the [BACK] key, return to minor item selection screen.

4-4-2. Frequency check that presses key

The frequency to which the key is pressed, insert/pull out frequency of cradle and insert/pull out frequency of the headphone are displayed.
Note: Not used for the servicing.

4-4-3. Key check

The operation of the key is confiemed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "OTHER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "KEY".
4. Press the [▶II] key, all keys are displayed.

liquid crystal display

```
        PLAY
       OPTION
        BACK
         FF
         RW
         UP
        DOWN
        VOL+
        VOL−
        HOLD
```
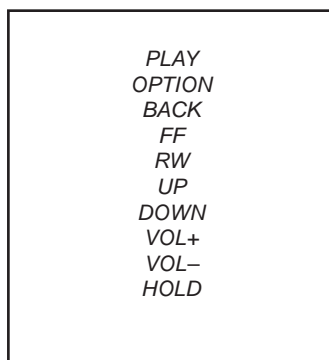
5. The character corresponding to the key is selected every time the ley is pressed. "START" changes into "OK" if all keys are pressed.
6. Slide the [HOLD] key from ON to OFF, return to minor item selection screen.

4-4-4. Format

The user's area is formatted, and ICV for the video and ICV for audio are initialized.

Note: Not used for the servicing.
Format the set from "Settings" 0 "Common settings" 0 "Format" when it home menu in usually operates when the set should foemat it.

4-4-5. Destination setting

The destination setting, language information, and sound pressure regulation information are written in the NAND flash memory.

Note: Not used for the servicing.

4-4-6. Sound pressure regulation setting

ON/OFF of sound pressure regulation is confirmed.

Note: Not used for the servicing.

4-4-7. Firmware version check

The firmware version is displayed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "OTHER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "FWVER".
4. Press the [▶II] key, the firmware version is displayed.

liquid crystal display

```
        FWVER

        FWVER
        X.XX.XX

      MODEL NAME
       NWZ–####

       SERIAL NO

       @@@@@@@
```
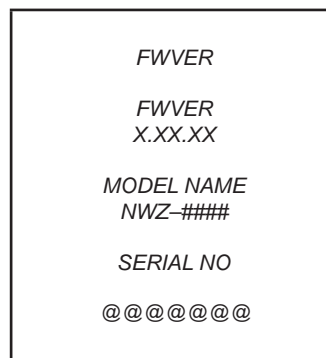
X.XX.XX	: Firmware version
####	: Model name
@@@@@@@	: Serial No.

5. Press the [BACK] key, return to minor item selection screen.

4-4-8. NAND capacity check

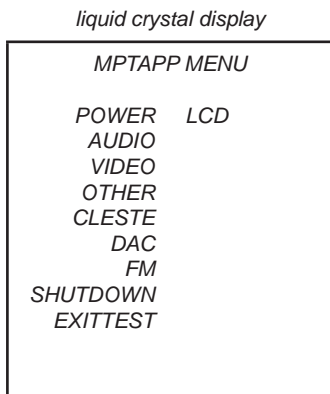Capacity of NAND flash memory, present bud block maximum bud block, and vender ID are displayed.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "OTHER", and press the [▶] key to enter the minor item.
3. Press the [▲]/[▼] key to select the "NCAPCHK".
4. Press the [▶II] key, capacity of NAND flash memory, present bud block maximum bud block, and vender ID are displayed.

liquid crystal display

```
       NCAPCHK
    NAND TOTAL SIZE
        X GB
      BAD BLOCK
        @@@@
    MAX BAD BLOCK
        ####
       VENDER
        $$$$
```
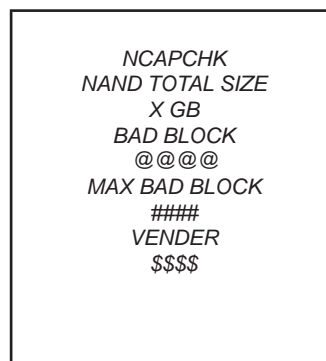
X	: Capacity of NAND flash memory 2/4/8 (2 GB/4 GB/8 GB)
@@@@	: Nunber of present bud block (It makes an error the suquisition of the number of bud blocks at "–1")
####	: Number of maximum bud block (It makes an error the acquisition of the vender IDat at "–1")
$$$$	: Vender ID od NAND flash memory 0x98/0xec (TOSHIBA/SAMSUNG) (It makes an error the acquisition of the vender ID at "–1")

5. Press the [BACK] key, return to minor item selection screen.

4-5. CLESTE
Note: Not used for the servicing.
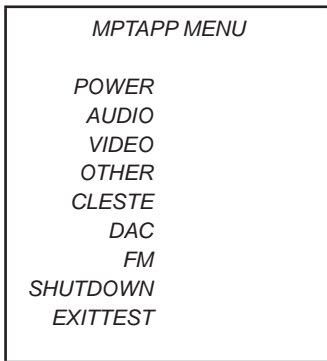
liquid crystal display

```
      MPTAPP MENU

        POWER
        AUDIO
        VIDEO
        OTHER
       CLESTE
          DAC
           FM
    SHUTDOWN
      EXITTEST
```

4-6. DAC
Note: Not used for the servicing.

liquid crystal display

```
      MPTAPP MENU

        POWER
        AUDIO
        VIDEO
        OTHER
       CLESTE
          DAC
           FM
    SHUTDOWN
      EXITTEST
```

4-7. FM

liquid crystal display

```
      MPTAPP MENU

        POWER    RCVCHK
        AUDIO
        VIDEO
        OTHER
       CLESTE
          DAC
           FM
    SHUTDOWN
      EXITTEST
```
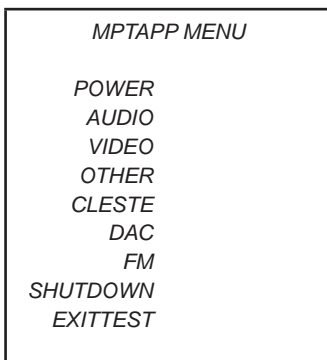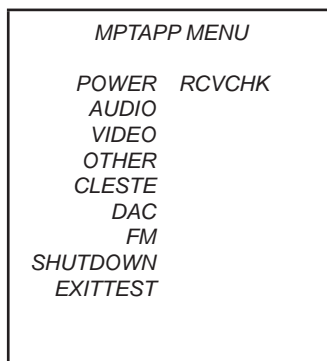
4-7-1. Reception output check
FM tuning checked.

Checking method:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "FM", and press the [▶] key to select the "RCVCHK"
3. Press the [▲]/[▼] key, "90.00 MHz".
4. In this state, each time the [OPTION] key is pressed, frequency is changes in the following order.

liquid crystal display

```
        RCVCHK

       90.00 MHz




```
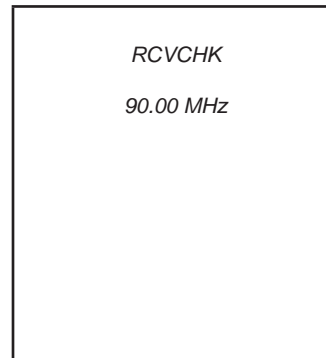
90.00 MHz (default) → 76.00MHz → 95.75 MHz → 107.75 MHz→ 87.50 MHz → 98.00 MHz → 108.00 MHz

5. Press the [BACK] key, return to minor item selection screen.

4-8. Shutdown
Function that power supply of set can be turned off without ending static test mode.

Procedure:
1. Enter the test mode.
2. Press the [▲]/[▼] key to select the "SHUTDN", and press the [▶] key to select the "SURE ?".
3. Press the [▶II] key, turn the power off while having entered the test mode.

NWZ-E435F/E436F/E438F

**THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)**

For Printed Wiring Boards.

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

Caution:

Pattern face side: (SIDE B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (SIDE A)	Parts on the parts face side seen from the parts face are indicated.

- MAIN and KEY boards are multi-layer printed board. However, the patterns of intermediate-layers have not been included in diagrams.
- Lead layouts

surface

Lead layout of conventional IC   *CSP (Chip Size Package)*

For Schematic Diagrams.

Note:
- All capacitors are in μF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- ━━━ : B+ Line.

5-1. PRINTED WIRING BOARDS
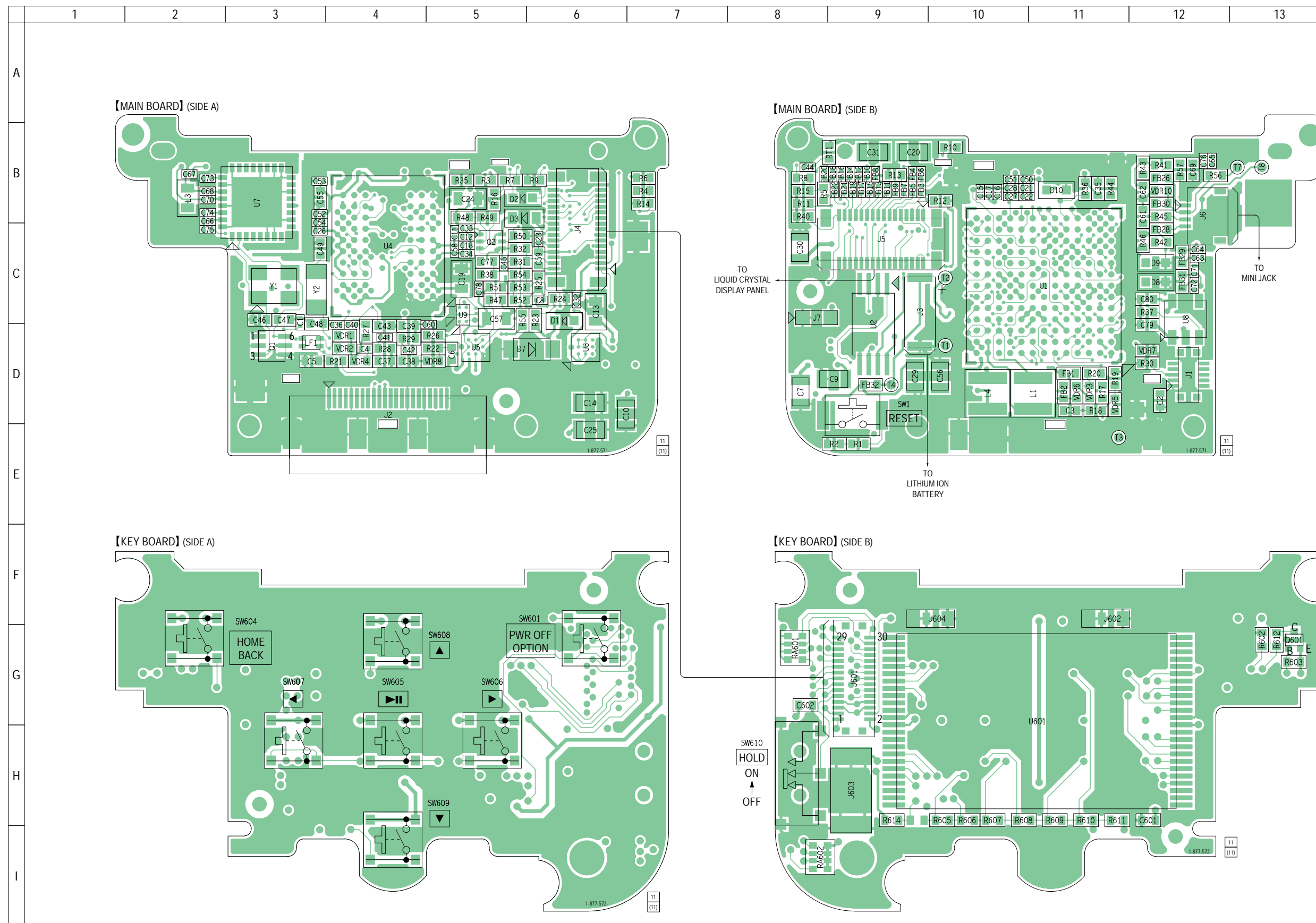
【MAIN BOARD】(SIDE A)

【MAIN BOARD】(SIDE B)

TO
LIQUID CRYSTAL
DISPLAY PANEL

TO
MINI JACK

TO
LITHIUM ION
BATTERY

RESET

【KEY BOARD】(SIDE A)

【KEY BOARD】(SIDE B)

SW604
HOME
BACK

SW608 ▲

SW601
PWR OFF
OPTION

SW607 ◄

SW605 ►II

SW606 ►

SW609 ▼

SW610
HOLD
ON
↑
OFF

Note: In this set, only a part of parts that relate to the switch are supplied. Replace a part according to "METHOD OF JUDGING RIGHT AND WRONG OF PARTS RELATED TO SWITCH" in servicing notes. Exchange the entire mounted board when parts that do not correspond to it are defective.

5-2. SCHEMATIC DIAGRAM

【KEY BOARD】

【MAIN BOARD】

1	2	3	4	5	6	7	8

SW610
HOLD
ON ← OFF
GND

VDDIO

VCC_VBAT

J601

KEY_AD	1	2	AGND
VCC_VBAT	3	4	KEY_WAKE
GND	5	6	GND
VDDIO	7	8	VDDIO
HOLD	9	10	FLASH_CLE
GPMI_D00	11	12	FLASH_ALE
GPMI_D01	13	14	FLASH_RE
GPMI_D02	15	16	FLASH_WE
GPMI_D03	17	18	FLASH_WP
GPMI_D04	19	20	FLASH_CS0
GPMI_D05	21	22	FLASH_CS1
GPMI_D06	23	24	FLASH_CS2
GPMI_D07	25	26	FLASH_CS3
FLASH_R/B2	27	28	FLASH_R/B0
FLASH_R/B3	29	30	FLASH_R/B1

AGND
GND

☒ FLASH BUS

VCC_VBAT

SW1
RESET

R1
1K

Q1 (1/2)
UMX1N-TN

Q1 (2/2)
UMX1N-TN

XTAL_IN
XTAL_OUT

R2
1K

C1
0.1

GND

VCC_VBAT

VCC_VBAT

R614
10K

R605
3.9K

R606
2.7K

R607
3.9K

R608
5.6K

R609
10K

R610
22K

R611
100K

R603
100K

Q601
2SA2029FS6T2L

R612
220K

SW601
PWR OFF
OPTION

SW604
HOME
BACK

SW605
▶❚❚

SW606
▶

SW607
◀

SW608
▲

SW609
▼

AGND

Note: In this set, only a part of parts that relate to the switch are supplied. Therefore, the schematic diagram excerpts and has described only a part. Replace a part according to "METHOD OF JUDGING RIGHT AND WRONG OF PARTS RELATED TO SWITCH" in servicing notes. Exchange the entire mounted board when parts that do not correspond to it are defective.

SECTION 6
EXPLODED VIEWS

Note:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Refer to "COLOR VARIATION" in the "SERVICING NOTES" (page 4) about color variation of model and destination.

- Abbreviation
  AUS : Australian model
  CH   : Chinese model
  CND : Canadian model
  CND1 : Canadian model
          (BMG contents preinstall model)
  EE   : East European model
  FR   : French model
  JE   : Tourist model
  MX   : Mexican model

6-1.   REAR CASE SECTION

front case assy section
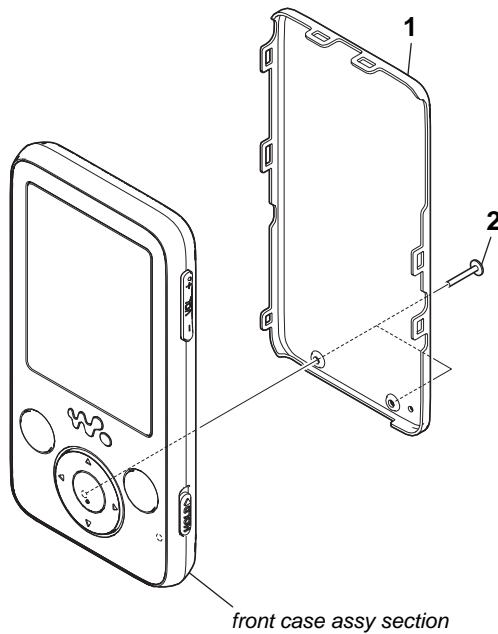
Ref. No.	Part No.	Description	Remark
1	9-885-126-08	REAR ASSY (SILVER) (NWZ-E435F: US (Wal-Mart))	
1	9-885-126-09	REAR ASSY (BLACK) (NWZ-E436F: US)	
1	9-885-126-10	REAR ASSY (RED) (NWZ-E436F: US)	
1	9-885-126-11	REAR ASSY (PINK) (NWZ-E436F: US)	
1	9-885-126-12	REAR ASSY (BLUE) (NWZ-E436F: US)	
1	9-885-126-13	REAR ASSY (BLACK) (NWZ-E436F: US (Best Buy))	
1	9-885-126-15	REAR ASSY (PINK) (NWZ-E436F: US (Best Buy))	
1	9-885-126-19	REAR ASSY (BLACK) (NWZ-E436F: US (Wal-Mart))	
1	9-885-126-20	REAR ASSY (RED) (NWZ-E436F: US (Wal-Mart))	
1	9-885-126-22	REAR ASSY (BLACK) (NWZ-E438F: US)	
1	9-885-126-23	REAR ASSY (RED) (NWZ-E438F: US)	
1	9-885-126-24	REAR ASSY (PINK) (NWZ-E438F: US)	
1	9-885-126-25	REAR ASSY (BLACK) (NWZ-E438F: US (Best Buy))	
1	9-885-126-26	REAR ASSY (RED) (NWZ-E438F: US (Best Buy))	
1	9-885-127-07	REAR ASSY (BLACK) (NWZ-E436F: CND)	
1	9-885-127-08	REAR ASSY (RED) (NWZ-E436F: CND)	
1	9-885-127-09	REAR ASSY (PINK) (NWZ-E436F: CND)	
1	9-885-127-10	REAR ASSY (BLUE) (NWZ-E436F: CND)	
1	9-885-127-11	REAR ASSY (BLACK) (NWZ-E436F: CND1)	
1	9-885-127-12	REAR ASSY (BLACK) (NWZ-E438F: CND)	
1	9-885-127-13	REAR ASSY (RED) (NWZ-E438F: CND)	
1	4-113-817-01	CASE (REAR) (BLACK) (EXPET US, CND)	
1	4-105-843-11	CASE, REAR (RED) (EXPET US, CND)	
1	4-105-843-21	CASE, REAR (PINK) (EXPET US, CND)	
1	4-113-817-31	CASE (REAR) (BLUE) (EXCEPT US, CND)	
2	3-252-824-01	SCREW +PTP 1.4 (for PINK, SILVER)	
2	3-252-824-21	SCREW +PTP 1.4 (for BLACK, RED, BLUE)	

6-2. FRONT CASE ASSY SECTION

53

PC board section

51

54
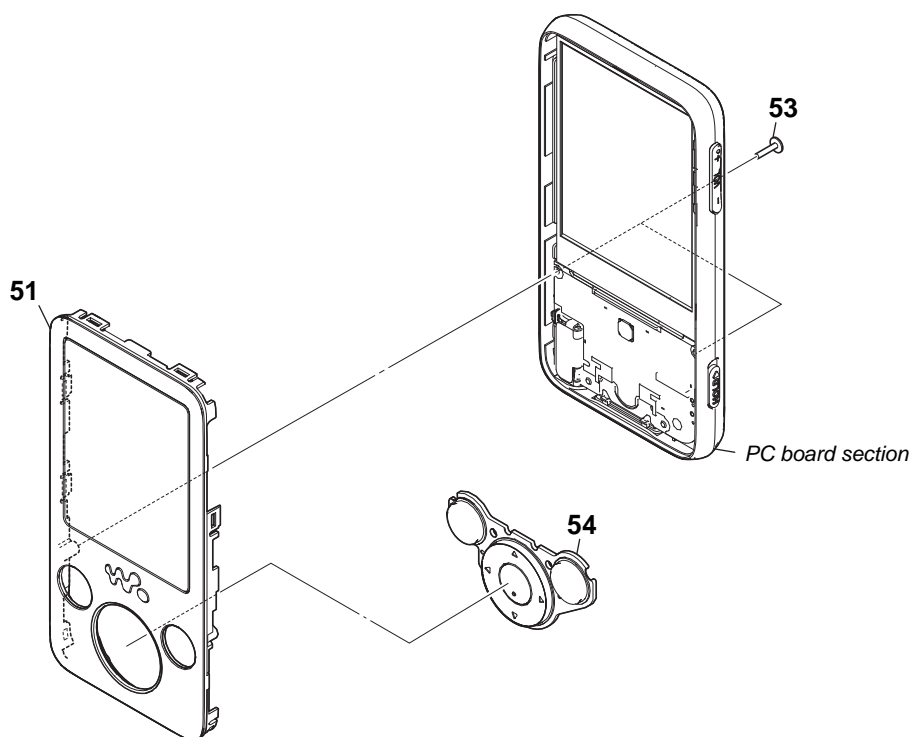
Ref. No.	Part No.	Description	Remark
51	X-2319-798-1	SVX FRONT CASE ASSY(B) (BLACK)	
51	X-2319-799-1	SVX FRONT CASE ASSY(R) (RED)	
51	X-2319-800-1	SVX FRONT CASE ASSY(P) (PINK)	
51	X-2319-801-1	SVX FRONT CASE ASSY(L) (BLUE)	
51	X-2320-072-1	SVX FRONT CASE ASSY(S) (SILVER)	
53	3-254-136-01	SCREW (B1.4)	

Ref. No.	Part No.	Description	Remark
54	4-105-847-01	BUTTON (FRONT) (BLACK)	
54	4-105-847-11	BUTTON (FRONT) (RED)	
54	4-105-847-21	BUTTON (FRONT) (PINK)	
54	4-105-847-31	BUTTON (FRONT) (BLUE)	
54	4-105-847-41	BUTTON (FRONT) (SILVER)	

6-3. PC BOARD SECTION
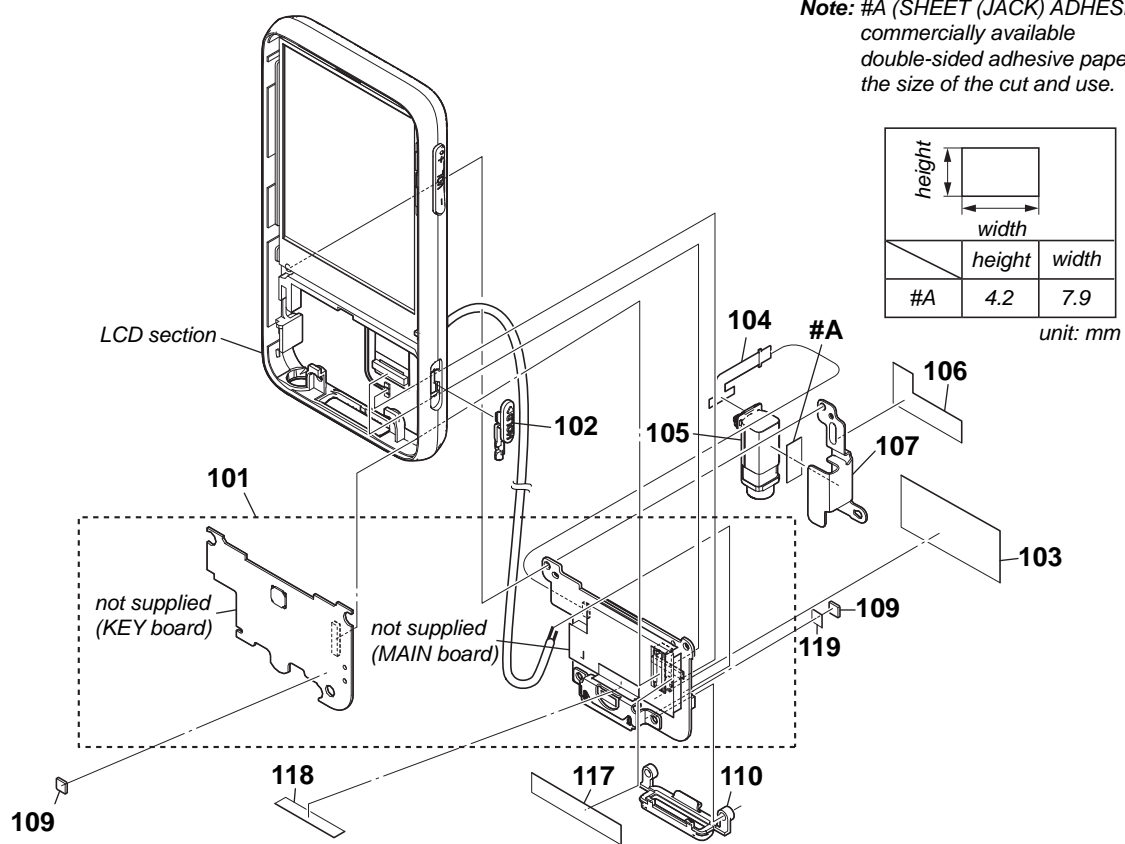
Note: #A (SHEET (JACK) ADHESIVE) is commercially available double-sided adhesive paper to the size of the cut and use.

	height	width
#A	4.2	7.9

unit: mm

LCD section

not supplied (KEY board)

not supplied (MAIN board)

Ref. No.	Part No.	Description	Remark
101	X-2319-819-1	PC BOARD, COMPLETE (2GB) (for SERVICE) (SILVER) (NWZ-E435F: US (Wal-Mart))	
101	X-2319-820-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: US, US (Wal-Mart), US (Best Buy))	
101	X-2319-821-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: US, US (Best Buy))	
101	X-2320-943-1	PC BOARD, COMPLETE (2GB) (for SERVICE) (NWZ-E435F: FR)	
101	X-2320-944-1	PC BOARD, COMPLETE (2GB) (for SERVICE) (NWZ-E435F: AEP, EE, UK)	
101	X-2320-945-1	PC BOARD, COMPLETE (2GB) (for SERVICE) (NWZ-E435F: E, AUS, JE)	
101	X-2320-946-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: FR)	
101	X-2320-947-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: AEP, EE, UK)	
101	X-2320-948-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: E, AUS, JE)	
101	X-2320-949-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: CH)	
101	X-2320-950-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: FR)	
101	X-2320-951-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: AEP, EE, UK)	
101	X-2320-952-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: E, AUS, JE)	
101	X-2320-962-1	PC BOARD, COMPLETE (2GB) (for SERVICE) (NWZ-E435F: MX)	
101	X-2320-963-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: CND, CND1)	
101	X-2320-964-1	PC BOARD, COMPLETE (4GB) (for SERVICE) (NWZ-E436F: MX)	
101	X-2320-965-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: CND)	
101	X-2320-966-1	PC BOARD, COMPLETE (8GB) (for SERVICE) (NWZ-E438F: MX)	
102	4-105-851-01	KNOB (HOLD) (HOLD ▶) (for BLACK, RED, BLUE, SILVER)	
102	4-105-851-11	KNOB (HOLD) (HOLD ▶) (for PINK)	
103	4-124-720-01	SHEET, STATIC SHIELD	
104	1-877-570-11	HP PRINTED WIRING BOARD	
105	1-820-330-11	MINI JACK	
106	4-108-425-01	SHEET (HP), PROTECTION	
107	4-105-853-01	HOLDER (HP)	
109	4-108-427-01	GASKET (CPU)	
110	4-105-854-01	ESCUTCHEON (for BLACK, RED, BLUE, SILVER)	
110	4-105-854-11	ESCUTCHEON (for PINK)	
117	4-119-094-01	SHEET (WIRE), PROTECTION	
118	4-122-907-01	SHEET, W (WMPORT)	
119	4-123-814-01	SHEET, CONDUCTIVE	

6-4. LCD SECTION

Note: #B (SHEET (BATT) ADHESIVE) and
#C (SHEET (LCD) ADHESIVE) is
commercially available double-sided adhesive paper to
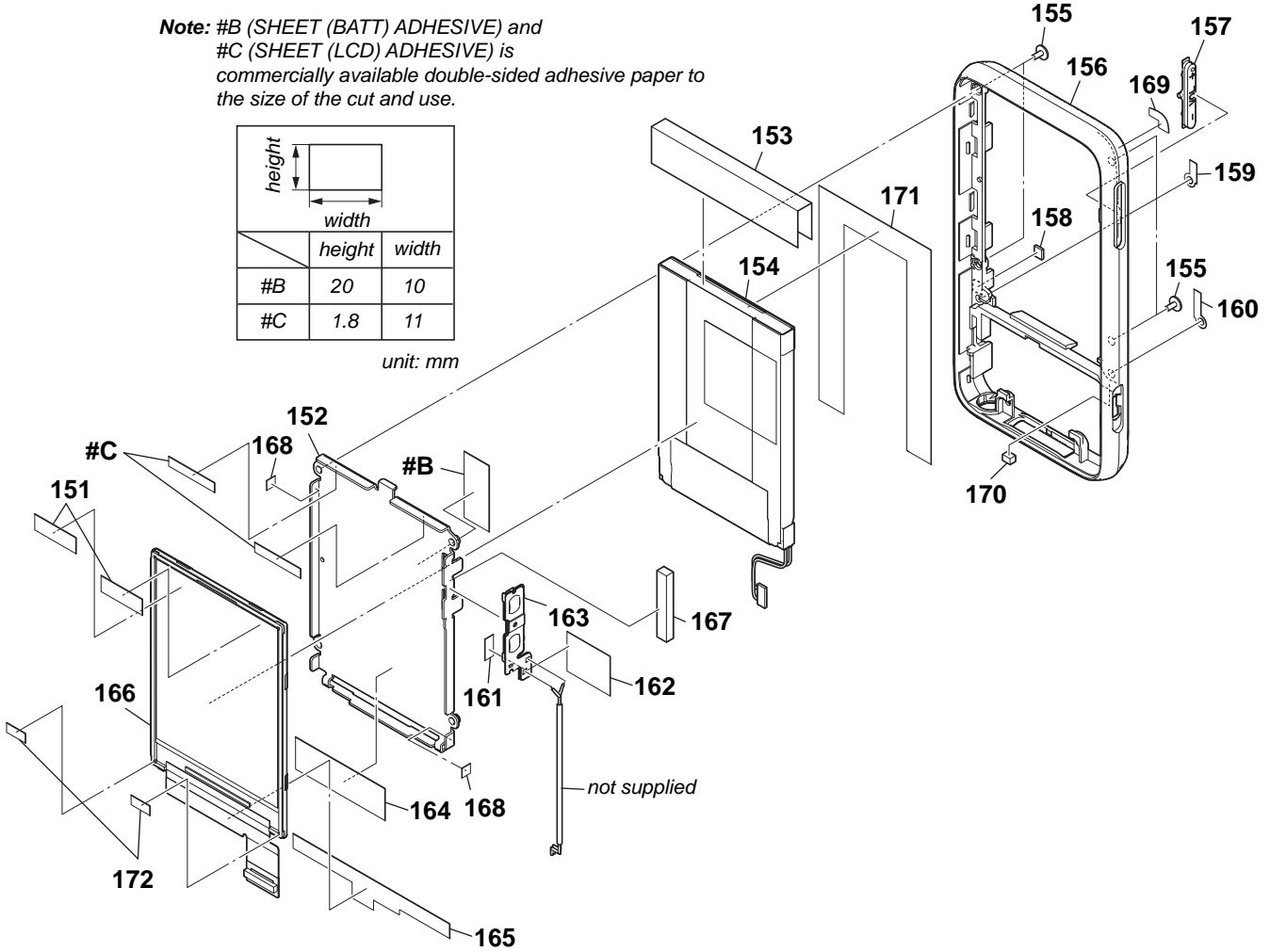the size of the cut and use.

	height	width
#B	20	10
#C	1.8	11

unit: mm

Ref. No.	Part No.	Description	Remark
151	4-117-799-01	SHEET, LCD (LIGHT)	
152	4-105-852-01	HOLDER (LCD)	
153	4-108-422-01	SHEET (BATTERY), PROTECTION	
154	X-2319-818-1	BATTERY (N) ASSY	
155	3-234-449-19	SCREW (M1.4)	
156	4-113-819-01	ORNAMENT (for BLACK, RED, BLUE, SILVER)	
156	4-105-846-11	ORNAMENT (for PINK)	
157	4-105-872-01	BUTTON (VOL) (- VOL +) (for BLACK, RED, BLUE, SILVER)	
157	4-105-872-11	BUTTON (VOL) (- VOL +) (for PINK)	
158	4-108-428-01	GASKET (LCD HOLDER)	
159	4-117-049-01	SHEET, CU (ORNAMENT)	
160	4-118-494-01	SHEET, CU (ORNAMENT L)	

Ref. No.	Part No.	Description	Remark
161	4-121-182-01	SHEET (VOLFPC), PROTECTION	
162	4-109-071-01	SHEET (VOLWIRE), PROTECTION	
163	X-2319-797-1	SVX VOL SW ASSY	
164	4-118-577-01	SHEET, CU (HOLDER LCD)	
165	4-108-423-01	SHEET (LCD), PROTECTION	
166	1-802-761-11	DISPLAY PANEL, LIQUID CRYSTAL	
167	4-116-940-01	GASKET (VOLUME)	
168	4-120-933-01	SHEET, LCD (SLANTING)	
169	4-121-360-01	SHEET (ORNAMENT)	
170	4-122-906-01	SHEET, W (HOLDKEY)	
171	4-122-924-01	SHEET, BATT	
172	4-123-131-01	SPACER, LCD	

SECTION 7
ELECTRICAL PARTS LIST

Note:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS
  uF: μF
- COILS
  uH: μH

- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . , μPA. . , μPA. . ,
  uPB. . : μPB. . , uPC. . , μPC. . ,
  uPD. . : μPD. .

- Abbreviation
  AUS : Australian model
  CH   : Chinese model
  CND : Canadian model
  CND1 : Canadian model
         (BMG contents preinstall model)
  EE   : East European model
  FR   : French model
  JE   : Tourist model
  MX   : Mexican model

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remark
	X-2319-819-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: US (Wal-mart))	
	X-2319-820-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: US, US (Wal-Mart), US (Best Buy))	
	X-2319-821-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: US, US (Best Buy))	
	X-2320-943-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: FR)	
	X-2320-944-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: AEP, EE, UK)	
	X-2320-945-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: E, AUS, JE)	
	X-2320-946-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: FR)	
	X-2320-947-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: AEP, EE, UK)	
	X-2320-948-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: E, AUS, JE)	
	X-2320-949-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: CH)	
	X-2320-950-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: FR)	
	X-2320-951-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: AEP, EE, UK)	
	X-2320-952-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: E, AUS, JE)	
	X-2320-962-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: MX)	
	X-2320-963-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: CND, CND1)	
	X-2320-964-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: MX)	
	X-2320-965-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: CND)	
	X-2320-966-1	MAIN BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: MX)	
		∗∗∗∗∗∗∗∗∗∗∗	
		< CAPACITOR >	
C1	1-112-716-11	CERAMIC CHIP 0.1uF 10% 6.3V	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q1	6-550-376-01	TRANSISTOR	UMX1N-TN
		< RESISTOR >	
R1	1-218-953-11	METAL CHIP 1K 5% 1/16W	
R2	1-218-953-11	METAL CHIP 1K 5% 1/16W	
		< SWITCH >	
SW1	1-786-657-21	SWITCH, TACTILE (RESET)	

∗∗

Note: In this set, only a part of parts that relate to the switch are supplied. Replace a part according to "METHOD OF JUDGING RIGHT AND WRONG OF PARTS RELATED TO SWITCH" in servicing notes. Exchange the entire mounted board when parts that do not correspond to it are defective.

KEY

Ref. No.	Part No.	Description	Remark
	X-2319-819-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: US (Wal-mart))	
	X-2319-820-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: US, US (Wal-Mart), US (Best Buy))	
	X-2319-821-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: US, US (Best Buy))	
	X-2320-943-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: FR)	
	X-2320-944-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: AEP, EE, UK)	
	X-2320-945-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: E, AUS, JE)	
	X-2320-946-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: FR)	
	X-2320-947-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: AEP, EE, UK)	
	X-2320-948-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: E, AUS, JE)	
	X-2320-949-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: CH)	
	X-2320-950-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: FR)	
	X-2320-951-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: AEP, EE, UK)	
	X-2320-952-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: E, AUS, JE)	
	X-2320-962-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E435F: MX)	
	X-2320-963-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: CND, CND1)	
	X-2320-964-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E436F: MX)	
	X-2320-965-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: CND)	
	X-2320-966-1	KEY BOARD (included in PC BOARD, COMPLETE (for SERVICE)) (NWZ-E438F: MX)	

****

< JACK >

J601	(Not supplied)	CONNECTOR, B TO B 30PIN (PLUG)	

< TRANSISTOR >

Q601	6-550-132-01	TRANSISTOR	2SA2029FS6T2L

< RESISTOR >

Ref. No.	Part No.	Description			
R603	1-218-977-11	METAL CHIP	100K	5%	1/16W
R605	1-208-697-11	METAL CHIP	3.9K	0.5%	1/16W
R606	1-218-958-11	METAL CHIP	2.7K	5%	1/16W
R607	1-208-697-11	METAL CHIP	3.9K	0.5%	1/16W
R608	1-208-905-11	METAL CHIP	5.6K	0.5%	1/16W
R609	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R610	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R611	1-218-977-11	METAL CHIP	100K	5%	1/16W
R612	1-218-981-91	METAL CHIP	220K	5%	1/16W
R614	1-218-965-11	METAL CHIP	10K	5%	1/16W

< SWITCH >

SW601	1-786-914-31	SWITCH, TACTILE (PWR OFF, OPTION)	
SW604	1-786-914-31	SWITCH, TACTILE (HOME, BACK)	
SW605	1-786-914-31	SWITCH, TACTILE (▶❙❙)	
SW606	1-786-914-31	SWITCH, TACTILE (▶)	
SW607	1-786-914-31	SWITCH, TACTILE (◀)	

Ref. No.	Part No.	Description	Remark
SW608	1-786-914-31	SWITCH, TACTILE (▲)	
SW609	1-786-914-31	SWITCH, TACTILE (▼)	
SW610	1-798-184-11	SWITCH, SLIDE (HOLD)	

****

MISCELLANEOUS
****

104	1-877-570-11	HP PRINTED WIRING BOARD. BOARD	
105	1-820-330-11	MINI JACK	
154	X-2319-818-1	BATTERY (N) ASSY	
163	X-2319-797-1	SVX VOL SW ASSY	
166	1-802-761-11	DISPLAY PANEL, LIQUID CRYSTAL	

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> **Note:** In this set, only a part of parts that relate to the switch are supplied. Replace a part according to "METHOD OF JUDGING RIGHT AND WRONG OF PARTS RELATED TO SWITCH" in servicing notes. Exchange the entire mounted board when parts that do not correspond to it are defective.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	
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	1-833-490-12	CORD, PC CONNECTION (USB cable)	
	4-109-572-11	MANUAL (QSG) (Quick Start Guide) (ENGLISH)	(EXEPT US)
	4-109-572-21	MANUAL (QSG) (Quick Start Guide) (FRENCH)	(CND, AEP, FR, UK)
	4-109-572-31	MANUAL (QSG) (Quick Start Guide) (GERMAN)	(AEP, UK)
	4-109-572-41	MANUAL (QSG) (Quick Start Guide) (SPANISH)	(AEP, UK, MX)
	4-109-572-52	MANUAL (QSG) (Quick Start Guide) (ITALIAN)	(AEP, UK)
	4-109-572-61	MANUAL (QSG) (Quick Start Guide) (RUSSIAN)	(EE)
	4-109-572-71	MANUAL (QSG) (Quick Start Guide) (SIMPLIFIED CHINESE)	(E, AUS, CH, JE)
	4-109-572-81	MANUAL (QSG) (Quick Start Guide) (TRADITIONAL CHINESE)	(E, AUS, JE)
	4-109-572-91	MANUAL (QSG) (Quick Start Guide) (KOREAN)	(E, AUS, JE)
	4-109-573-11	MANUAL (QSG)(Quick Start Guide) (UKRAINIAN)	(EE)
	4-109-573-21	MANUAL (QSG) (Quick Start Guide) (ARABIC)	(E, AUS, JE)
	4-109-715-12	QSG (Quick Start Guide) (ENGLISH) (US)	
	8-912-761-93	RECEIVER (MDRE804LPB19 SET)	(Head phones: BLACK) (for BLACK, RED, BLUE, SILVER models)
	8-912-761-94	RECEIVER (MDRE804LPW19 SET)	(Head phones: WHITE) (for PINK model)
	X-2319-246-3	SOFT APPLICATION ASSY	(CD-ROM: Windows Media Player 11, Content Transfer, Operation Guide (PDF file)) (US, US (Wal-Mart))
	X-2319-366-2	SOFT APPLICATION ASSY	(CD-ROM: Windows Media Player 11, Media Manager for WALKMAN, Content Transfer, Operation Guide (PDF file)) (EXEPT US)
	X-2319-393-3	SOFT APPLICATION ASSY	(CD-ROM: Windows Media Player 11, Content Transfer, Operation Guide (PDF file)) (US (Best Buy))
501	4-106-074-01	ATTACHMENT (NT) (Use when connecting the player to optional cradle, etc.)	

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ATTACHMENT (NT)
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NWZ-E435F/E436F/E438F

REVISION HISTORY

Checking the version allows you to jump to the revised page.
Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2008.09	New