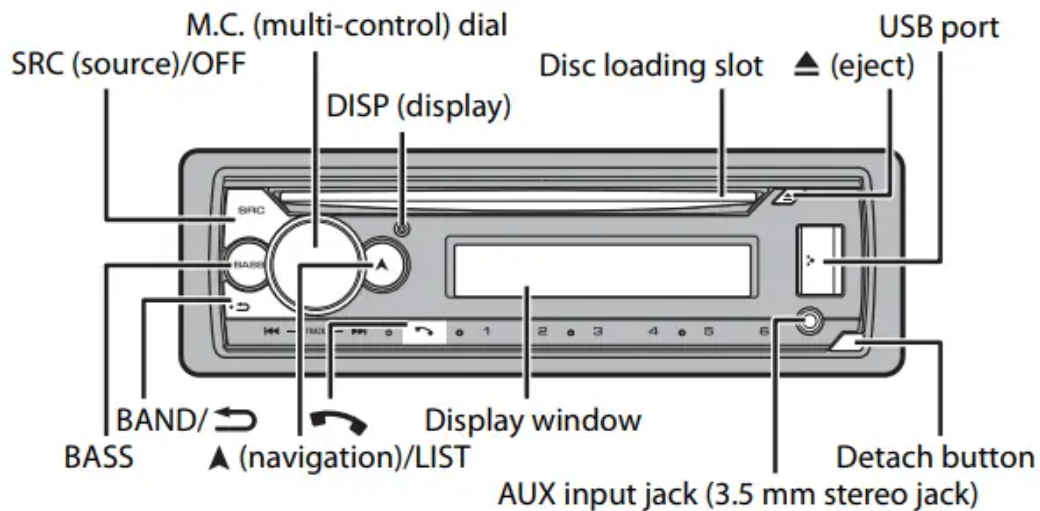


## Basic operation



### Optional remote control

The remote control CD-R510 is sold separately.

### Frequently used operations

**Turn on the power\*** : Press SRC/OFF to turn on the power. Press and hold SRC/OFF to turn off the power.

**Adjust the volume** : Turn the M.C. dial.

**Select a source** : Press SRC/OFF repeatedly

**Change the display information** : Press DISP repeatedly.

**Return to the previous display/list** : Press BAND/ ↻ .

**Return to the normal display from the menu** : Press and hold BAND/ ↻ .

**Change the display brightness (not available when [SIRIUSXM] is selected as a source)** : Press and hold BAND/ ↻ .

**Answering a call** : Press any button.





**Ending a call** : Press ☎ .

**Boost the bass level** : Press BASS.

- You can select the bass level ([HI] or [LOW]) in [D.BASS] (page 34).

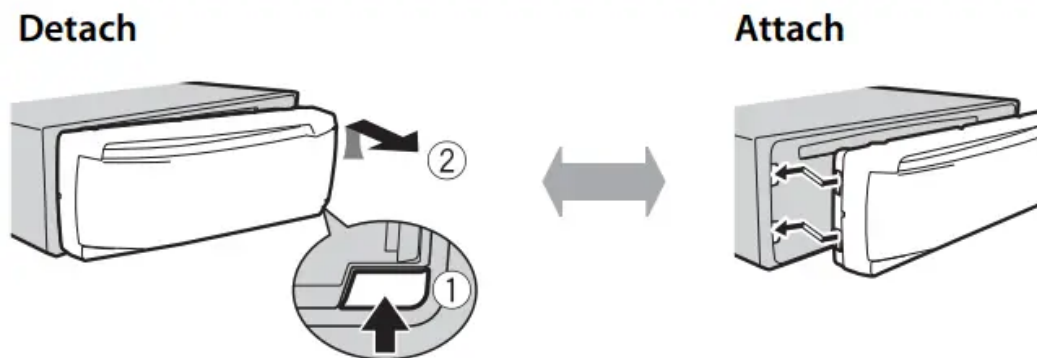
\* When this unit's blue/white lead is connected to the vehicle's auto-antenna relay control terminal, the vehicle's antenna extends when this unit's source is turned on. To retract the antenna, turn the source off

## Display indication

Indication	Description
	Appears when a lower tier of the menu or folder exists.
<b>BASS</b>	Appears when the <b>BASS</b> function is activated.
	Appears when random/shuffle play is set (except when BT AUDIO is selected as the source).
	Appears when repeat play is set (except when BT AUDIO is selected as the source).
	Appears when a Bluetooth connection is made (page 10).
<b>APP</b>	Appears when a Pioneer Smart Sync connection is made (page 21).

## Detaching the front panel

Detach the front panel to prevent theft. Remove any cables and devices attached to the front panel and turn off the unit before detaching it.



### Important

- Avoid subjecting the front panel to excessive shock.
- Keep the front panel out of direct sunlight and high temperatures.
- Always store the detached front panel in a protective case or bag

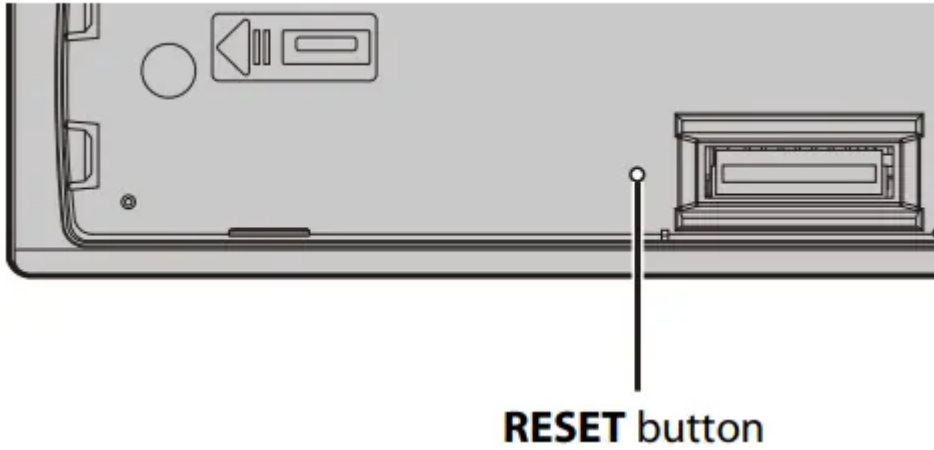
## Resetting the microprocessor

The microprocessor must be reset in the following situations:

- Before using this unit for the first time after installation
- If the unit fails to operate properly

- When strange or incorrect messages appear on the display

1. Remove the front panel
2. Press the RESET button with a pointed instrument longer than 8 mm



## Setup menu

When you turn the ignition switch to ON after installation, the setup menu appears in the display.

**WARNING:** Do not use the unit in standard mode when a speaker system for network mode is connected to the unit. Do not use the unit in network mode when a speaker system for standard mode is connected to the unit. This may cause damage to the speakers.

- 1. Turn the M.C. dial to select the options, then press to confirm.**

To proceed to the next menu option, you need to confirm your selection.

Menu Item	Description
<p><b>LANGUAGE</b></p> <p>[ENG](English),</p> <p>[ESP] (Spanish),</p> <p>[FRA] (Canadian French)</p>	<p>Select the language to display the text information from a compressed audio file.</p>
<p><b>CLOCK SET</b></p>	<p>Set the clock.</p> <ol style="list-style-type: none"> <li>1. Turn the M.C. dial to adjust the hour, then press to confirm. The indicator moves to the minute setting automatically.</li> <li>2. Turn the M.C. dial to adjust the minute, then press to confirm.</li> </ol>
<p><b>SPEAKER MODE</b></p> <p>[STANDARD],</p> <p>[NETWORK]</p>	<p>Switch between two operation modes: the 2-way network mode (NETWORK) and the standard mode (STANDARD) according to the connections you have established.</p> <p>After selecting the appropriate mode, turn the M.C. dial to select [YES], then press to confirm.</p> <ul style="list-style-type: none"> <li>• You cannot complete the setup menu without setting the [SPEAKER MODE]. Once the speaker mode is set, this setting cannot be changed unless the default settings of this product are restored. Restore the default settings to change the speaker mode setting (refer to SYSTEM RESET on page 10).</li> <li>• When [NETWORK] is selected, the beep tone function is not available.</li> </ul>

## 2. [QUIT :YES] appears

To return to the first item of the setup menu, turn the M.C. dial to select [QUIT :NO], then press to confirm.

## 3. Press the M.C. dial to confirm the settings.

## INITIAL settings

1. Press and hold SRC/OFF until the unit turns off.
2. Press the M.C. dial to display the main menu.
3. Turn the M.C. dial to select [INITIAL], then press to confirm.
4. Turn the M.C. dial to select an option, then press to confirm.

Menu Item	Description
<b>REAR-SP [FUL]</b>	Select when there is a full-range speaker connected to the rear speaker output leads
<b>REAR-SP [SW]</b>	
<b>SYSTEM UPDATE</b> [SYSTEM INFO], [S/ W UPDATE]	Select [SYSTEM INFO] to confirm the latest system information on the unit. Select [S/W UPDATE] to update the unit to the latest software and initialize the unit settings. For details on the latest software and updating, visit our website.
<b>SXM RESET</b> [YES], [NO]	Select to initialize the SiriusXM settings.
<b>SYSTEM RESET</b> [YES], [NO]	Select [YES] to initialize the unit settings. The unit will be restarted automatically.

## Operations

You can make adjustments in the FUNCTION settings (page 30) (except for AUX IN/CD/USB source). Note that the following operations do not work for an AUX device. To operate an AUX device, use the device itself.

Purpose	Operation
Select a folder*1	Press <b>1/▲</b> or <b>2/▼</b> .
Select a track/song (chapter)	Press <b>⏮</b> or <b>⏭</b> .
Fast forward or reverse*2	Press and hold <b>⏮</b> or <b>⏭</b> .
Search for a file from a list (CD/USB only)	<ol style="list-style-type: none"> <li>1 Press and hold <b>▲</b> to display the list.</li> <li>2 Turn the <b>M.C.</b> dial to select the desired file (folder) name or category, then press to confirm.</li> <li>3 Turn the <b>M.C.</b> dial to select the desired file, then press to confirm. Playback starts.</li> </ol>
View a list of the files in the selected folder/category*1	Press the <b>M.C.</b> dial when a folder/category is selected.
Play a song in the selected folder/category*1	Press and hold the <b>M.C.</b> dial when a folder/category is selected.
Repeat play	Press <b>6/↺</b> .
Random/shuffle play	Press <b>5/↻</b> .
Pause/resume playback	Press <b>4/PAUSE</b> .
Return to root folder (CD/USB only)*1	Press and hold <b>1/▲</b> .
Switch between compressed audio and CD-DA (CD only)	Press <b>BAND/↶</b> .

\*1 Compressed audio files only

\*2 When you use the fast forward or reverse function while playing a VBR file, the playback time may be not correct.


## Bluetooth

### Bluetooth connection

**Important** : If ten or more Bluetooth devices (e.g. a phone and separate audio player) are connected, they may not work properly.

**TIP** : The next connection to the unit is performed automatically if the Bluetooth device has been connected previously in the following steps.

1. Turn on the Bluetooth function of the device. If you make a Bluetooth connection from the device, proceed to step 4.

2. Press  to display the [ADD DEVICE] setting. The unit starts to search for available devices, then displays them in the device list.

- To cancel searching, press the M.C. dial.
- If the desired device is not in the list, select [RE-SEARCH].
- If there is no device available, [NOT FOUND] appears in the display.

- If there is already a connected device, the phone menu appears by pressing





3. Turn the M.C. dial to select a device from the device list, then press to confirm. Press and hold the M.C. dial to switch the displayed device information between the Bluetooth device address and device name. If you make a Bluetooth connection from the unit, proceed to step 5.
4. Select the unit name shown in the device display.
5. Make sure the same 6-digit number appears on this unit and the device, then select [YES] if the 6-digit numbers displayed on this unit and the device are the same.

### **Bluetooth telephone**

First, make a Bluetooth connection with the Bluetooth telephone (page 14). Up to two Bluetooth telephones can be connected simultaneously

#### **To make a phone call**





1. Press  to display the phone menu. When two phones are connected, a phone name appears first then a phone menu will display. To switch to another phone, press  again.
2. Turn the M.C. dial to select [RECENTS] or [PHONE BOOK], then press to confirm. If you select [PHONE BOOK], proceed to step 4.
3. Turn the M.C. dial to select [MISSED], [DIALED] or [RECEIVED], then press to confirm.
4. Turn the M.C. dial to select a name or phone number, then press to confirm. The phone call starts.

#### **To answer an incoming call**


1. Press any button when a call is received.

**TIP** : When two phones are connected to the unit via Bluetooth and there is an incoming call while one phone is being used for a call, a message will appear in the display. To answer that incoming call, you need to end the existing call.

### **Basic operations**

Purpose	Operation
End a call	Press  .
Reject an incoming call	Press and hold  when a call is received.
Switch between the current caller and a caller on hold	Press the <b>M.C.</b> dial.
Cancel a caller on hold	Press and hold  .
Adjust the volume of the caller's voice (When private mode is on, this function is not available.)	Turn the <b>M.C.</b> dial during the call.
Turn the private mode on or off	Press <b>BAND/</b>  during the call.



### To preset phone numbers

1. Select a phone number from a phone book or call history.
2. Press and hold one of the number buttons (1/  $\wedge$  to 6/ ). The contact is stored in the selected preset number.


To make a call using a preset number, press one of the number buttons (1/ to 6/), then press the M.C. dial, while the phone menu is displayed.

### Voice recognition

This function is only available when an iPhone/Android device equipped with voice recognition is connected to the unit via Bluetooth.

1. Press and hold  and then talk into the microphone to input voice commands. To exit the voice recognition mode, press **BAND/** .


### Phone menu

1. Press  to display the phone menu.

Menu Item	Description
<b>RECENTS</b> [MISSED]	Display the missed call history.
[DIALED]	Display the dialed call history.
[RECEIVED]	Display the received call history.
<b>PHONE BOOK</b>	Display the contacts in your phone.
<b>PRESET 1-6</b>	Recall the preset phone numbers. You can also recall the preset phone numbers by pressing one of the number buttons (1/▲ to 6/↔).
<b>A.ANSR*</b> [ON], [OFF]	Select [ON] to answer an incoming call automatically.
<b>PB INVT</b>	Invert the order of names in the phone book (name view).
<b>DEVICELIST</b>	Display the list of paired Bluetooth devices. "*" appears on the device name when the Bluetooth connection is established. When no device is selected in the device list, this function is not available.
<b>DEL DEVICE</b> [DELETE YES], [DELETE NO]	Delete the device information.
<b>ADD DEVICE</b>	Register a new device.
<b>DEV. INFO</b>	Switch the device information on the display between the device name and Bluetooth device address.

\* If two phones are connected, this function does not work on incoming calls that are received while one of the phones is being used for a call.

### Bluetooth audio

1. Make a Bluetooth connection with the Bluetooth audio player.
2. Press SRC/OFF to select [BT AUDIO] as the source.
3. Press BAND/  to start playback.

### Basic operations

You can make various adjustments in the FUNCTION settings

Purpose	Operation
Fast forward or reverse	Press and hold <b>⏮</b> or <b>⏭</b> .
Select a track	Press <b>⏮</b> or <b>⏭</b> .
Repeat play*	Press <b>6</b> / <b>↺</b> .
Random play*	Press <b>5</b> / <b>⚡</b> .
Pause/resume playback	Press <b>4</b> / <b>PAUSE</b> .
Search for a file from a list	<ol style="list-style-type: none"><li>1 Press and hold <b>▲</b> to display a list.</li><li>2 Turn the <b>M.C.</b> dial to select the desired folder name, then press to confirm.</li><li>3 Turn the <b>M.C.</b> dial to select the desired file, then press to confirm.</li></ol> Playback starts.

\* Depending on the connected device, these operations may not be available.

## Using Pioneer Smart Sync/APP

Pioneer Smart Sync is the application that intelligently brings your maps, messages, and music together in the vehicle. You can operate the unit from Pioneer Smart Sync installed on an iPhone/Android device. In some cases, you can control aspects of the application, such as source selection, pause, etc., by using the unit. For details on what operations are available on the application, see the application's help section.

### For iPhone users

This function is compatible with iOS 10.3 or later. You can download Pioneer Smart Sync on iTunes App Store.

### For Android device users

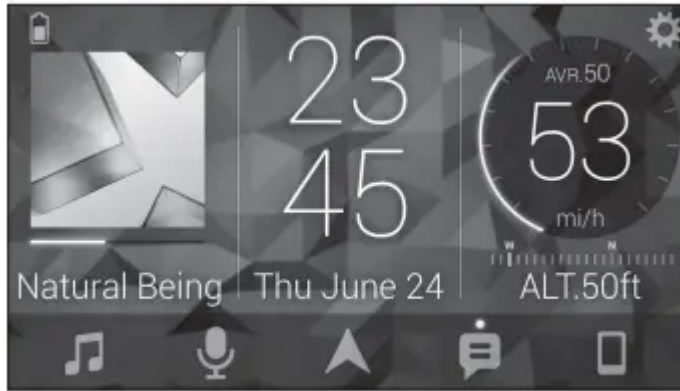
For Bluetooth connections, this function is compatible with devices that have Android OS 5.0 or later installed. For USB connections, this function is compatible with a phone that runs Android 5.0 or later up to 7.1.2 and also supports AOA (Android Open Accessory) 2.0. However, the compatibility depends on the smartphone. You can download Pioneer Smart Sync on Google Play

### What kind of function does the application have?

#### Promoting the use of the unit

The interface of the unit can be evolved by using your iPhone/Android device.

Image (example):



Examples:

- Selecting a source of the unit
- Listening to the music on your iPhone/Android device
- Controlling the sound field intuitively
- Setting the illumination color (Only for FH-S720BS/S722BS/MVH S620BS/S622BS)
- Controlling your connected Bluetooth device

### Extending the functions of the unit by using the application

The following functions, which are unavailable on the unit alone, are available by making a Pioneer Smart Sync connection.

**Using a navigation application** : You can specify and start the navigation application installed on your device.

**Message reading** : You can read messages received from the apps installed on your device.

**31 Band EQ setting** : You can select an equalizer band from the 31-band graphic equalizer (13-band for not using the Pioneer Smart Sync connection).

**Super "Todoroki" Sound** : You can boost the bass level more dynamically than when not using the Pioneer Smart Sync connection.

**Easy Sound Fit** : You can perform the time alignment setting easily by selecting your vehicle type.

**Theme setting (Only for FH-S720BS/ S722BS/MVH-S620BS/S622BS)** : You can set the wall paper and the theme color (display/keys/characters) at once.

### Making a connection with Pioneer Smart Sync

1. Press the M.C. dial to display the main menu.
2. Turn the M.C. dial to select [SYSTEM], then press to confirm.
3. Turn the M.C. dial to select [APP CONTROL], then press to confirm.

4. Turn the M.C. dial to select one of the below.
  - Select [WIRED] for the USB connection.
  - Select [BLUETOOTH] for the Bluetooth connection.
5. Turn the M.C. dial to select [AUTO APP CONN], then press to confirm.
6. Turn the M.C. dial to select [ON], then press to confirm.
7. Connect this unit with the mobile device.
  - iPhone/Android device via USB (page 12)
  - iPhone/Android device via Bluetooth (page 14) Pioneer Smart Sync on the device starts automatically

### **Listening to music on your device**

1. Press SRC/OFF to select [APP].

## **Troubleshooting**

### **The display automatically returns to the normal display.**

- No operations have been made for about 30 seconds.
  - Perform an operation.

### **The repeat play range changes unexpectedly.**

- Depending on the repeat play range, the selected range may change when another folder or track is being selected or during fast forwarding/reversing.
  - Select the repeat play range again.

### **A subfolder is not played back.**

- Subfolders cannot be played when [FLD] (folder repeat) is selected.
  - Select another repeat play range.

### **The sound is intermittent.**

- You are using a device, such as a cellular phone, that may cause audible interference.
  - Move electrical devices that may be causing the interference away from the unit.

### **The sound from the Bluetooth audio source is not played back.**

- There is a call in progress on a Bluetooth-connected cellular phone.
  - The sound will be played back when the call is terminated.
- A Bluetooth-connected cellular phone is currently being operated.

- Stop using the cellular phone.
- The connection between the unit and the cellular phone is not established correctly after a call made by a Bluetooth-connected cellular phone.
- Make a Bluetooth connection between the unit and the cellular phone again

## Error messages

### Common

#### **AMP ERROR**

- This unit fails to operate or the speaker connection is incorrect.
- The protective circuit is activated.
  - Check the speaker connection.
  - Turn the ignition switch OFF and back to ON again. If the message remains, contact your dealer or an authorized Pioneer Service Station for assistance.

#### **NO XXXX (NO TITLE, for example)**

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

### CD player

#### **ERROR-07, 11, 12, 17, 30**

- The disc is dirty.
  - Clean the disc.
- The disc is scratched.
  - Replace the disc

#### **ERROR-07, 10, 11, 12, 15, 17, 30, A0**

- There is an electrical or mechanical error.
  - Turn the ignition switch OFF and back to ON, then back to the CD player.

#### **ERROR-15**

- The inserted disc is blank.
  - Replace the disc

#### **ERROR-23**

- Unsupported CD format.

- Replace the disc.

### **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**

→ The inserted disc does not contain any playable files.

- Replace the disc.

### **SKIPPED**

→ The inserted disc contains DRM protected files.

- The protected files are skipped.

### **PROTECT**

→ All the files on the inserted disc are embedded with DRM.

- Replace the disc.

## **USB device/iPhone**

### **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.

## ERROR-19

- Communication failed.
  - Perform one of the following operations, then return to the USB source.
    - Disconnect the USB device.
    - Change to a different source.
- iPhone failure.
  - Disconnect the cable from the iPhone. Once the iPhone's main menu is displayed, reconnect the iPhone and reset it.

## ERROR-23

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

## ERROR-16

- The iPhone firmware version is old.
  - Update the iPhone version.
- iPhone failure.
  - Disconnect the cable from the iPhone. Once the iPhone's main menu is displayed, reconnect the iPhone and reset it.

## STOP

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

## NO BT DEVICE GO TO BT MENU TO REGISTER

- No Bluetooth device found.
  - Connect the unit and iPhone via Bluetooth (page 14).

#### CONN. FAILED PRESS BAND KEY TO RETRY

- Bluetooth connection with iPhone failed.
  - Press BAND/ to make a connection again.

#### DISCONNECTED PRESS BAND KEY TO RETRY

- Bluetooth connection lost.
  - Press BAND/ to make a connection again.

### **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.

#### NOT FOUND

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

#### RATING ERROR

- The thumb rating operation was disabled.
  - Run the same command for another track.

#### CAN'T SKIP

- The skip operation was disabled.
  - Run the same command for another track.

#### THUMB ERROR

- Unable to save thumb rating.
  - Try again later.

#### BOOKMARK ERR

- Unable to save BookMark.

- Try again later.

#### INOPERABLE

- The operation to save BookMark or add station was disabled.
  - Run the same command for another track.

#### UNABLE TO ADD

- Unable to add station.
  - 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.

#### LOG IN 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.

#### ERROR

- Device error message displayed in the Pandora application.
  - Check the connected device.
- Pandora system is undergoing maintenance.
  - Try again later.

#### NO STATIONS

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

#### NO BT DEVICE GO TO BT MENU TO REGISTER

- No Bluetooth device found.
  - Connect the unit and the device via Bluetooth (page 14).

#### CONN. FAILED PRESS BAND KEY TO RETRY



- Bluetooth connection failed.
  - Press BAND/ to make a connection again.

#### CHECK APP PRESS BAND KEY TO RETRY

- Connection to the Pandora application failed.
  - Press BAND/ to make a connection again.

#### DISCONNECTED PRESS BAND KEY TO RETRY

- Bluetooth connection lost.
  - Press BAND/ to make a connection again.

#### STATION LIMIT

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

#### CANNOT DELETE

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

#### BAD NETWORK

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

#### UNAVAILAVLE

- The connected device is out of area.
  - Connect the device to a network.
- The operation was disabled.
  - Run the same command for another station.

#### CHECK APP

- An unknown error (including communication error) has occurred.
  - Follow the instructions that appear on the screen.

### **APP**

#### CONNECT APP

- Pioneer Smart Sync connection is not made.
  - Make a connection with Pioneer Smart Sync (page 25).

### **Spotify**

#### NOT FOUND

- The Spotify application has not started running yet.
  - Start up the Spotify application.

#### NO BT DEVICE GO TO BT MENU TO REGISTER

- No Bluetooth device found.
  - Connect the unit and the device via Bluetooth (page 14).

#### CONN. FAILED PRESS BAND KEY TO RETRY

- Bluetooth connection failed.
  - Press BAND/ to make a connection again.

#### CHECK APP PRESS BAND KEY TO RETRY

- Connection to the Spotify application failed.
  - Press BAND/ to make a connection again.

#### DISCONNECTED PRESS BAND KEY TO RETRY

- Bluetooth connection lost.
  - Press BAND/ to make a connection again.

#### CHECK APP

- An unknown error (including communication error) has occurred.
  - Follow the instructions that appear on the screen.

### **SiriusXM Satellite Radio**

#### CHECK ANTENNA

- The antenna cable may be either disconnected or damaged. – Check the antenna connection or replace if damaged.

#### CHECK TUNER

- The radio is having difficulty communicating with the SiriusXM Connect Vehicle Tuner. The tuner may be disconnected or damaged.
  - Verify that the SiriusXM Connect Vehicle Tuner cable is securely connected to the radio.

#### NO SIGNAL

- The SiriusXM Connect Vehicle Tuner is having difficulty receiving the SiriusXM satellite signal.
  - Move your vehicle outdoors with a clear view of the southern sky.

- Make sure that the SiriusXM magnetic mount antenna is mounted on a metal surface on the outside the vehicle.
- Move the SiriusXM antenna away from any obstructions.

#### SUBSCRIPTION UPDATED

- This unit has detected a change in your SiriusXM subscription status.
  - Press any key to clear the message.

#### CH UNAVAIL

- The channel that you have requested is not available.
  - Check the SiriusXM channel lineup.

#### CHAN UNSUB

- The channel that you have requested is not included in your SiriusXM subscription package.
  - Check the content of your SiriusXM subscription package.

#### CH LOCKED

- The channel has been locked by the Parental Control function.
  - Set [LOCKED CH] to [OFF] or [CLEAR ALL] to [YES] in the FUNCTION settings (page 32).

#### NO TUNEMIX CH

- There is only one music channel in the band.
  - Select a band with two or more music channels.
  - Add more music channels to the current band.

### Handling guidelines

#### Discs and player

- Use only discs that feature either of the following two logos.
- Use 12-cm discs.
- Use only conventional, fully circular discs
- Use 12-cm discs.
- Use only conventional, fully circular discs.
- The following types of discs cannot be used with this unit:
  - DualDiscs

- 8-cm discs: Attempts to use such discs with an adaptor may cause the unit to malfunction.
- Oddly shaped discs
- Discs other than CDs
- Damaged discs, including discs that are cracked, chipped or warped
- CD-R/RW discs that have not been finalized
- Do not write on or apply chemicals to the surface of the discs.
- To clean a CD, wipe the disc with a soft cloth outward from the center.
- Condensation may temporarily impair the player's performance. Let it rest for about one hour to adjust to a warmer temperature. Also, wipe any damp discs off with a soft cloth.
- When using discs that can be printed on label surfaces, check the instructions and the warnings of the discs. Depending on the discs, inserting and ejecting may not be possible. Using such discs may result in damage to this equipment.
- Do not attach commercially available labels or other materials to the discs.
  - The discs may warp making the disc unplayable.
  - The labels may come off during playback and prevent ejection of the discs, which may result in damage to the equipment.

### **USB storage device**

- Connections via USB hubs are not supported.
- Firmly secure the USB storage device before driving. Do not let the USB storage device fall onto the floor, where it may become jammed under the brake or accelerator pedal.
- Depending on the USB storage device, the following problems may occur.
  - Operations may vary.
  - The storage device may not be recognized.
  - Files may not be played back properly.
  - The device may cause audible interference when you are listening to the radio.

### **iPhone**

- Do not leave the iPhone in places with high temperatures.
- Firmly secure the iPhone when driving. Do not let the iPhone fall onto the floor, where it may become jammed under the brake or accelerator pedal.

- Incompatible text saved on the iPhone will not be displayed by the unit.

### Compressed audio compatibility

- Only the first 32 characters can be displayed as a file name (including the file extension) or a folder name.
- The unit may not work properly depending on the application used to encode WMA files.
- There may be a slight delay at the start of the playback of audio files embedded with image data, or audio files stored on a USB device with numerous folder hierarchies.

#### WMA files

File extension	.wma
Bit rate	48 kbps to 320 kbps (CBR), 48 kbps to 384 kbps (VBR)
Sampling frequency	32 kHz, 44.1 kHz, 48 kHz
Windows Media™ Audio Professional, Lossless, Voice/DRM Stream/Stream with video	Not compatible

#### MP3 files

File extension	.mp3
Bit rate	8 kbps to 320 kbps (CBR), VBR
Sampling frequency	8 kHz to 48 kHz (32 kHz, 44.1 kHz, 48 kHz for emphasis)
Compatible ID3 tag version	1.0, 1.1, 2.2, 2.3, 2.4 (ID3 tag Version 2.x is given priority over Version 1.x.)
M3u playlist	Not compatible
MP3i (MP3 interactive), mp3 PRO	Not compatible

#### WAV files

- WAV file formats cannot be connected via MTP

File extension	.wav
Quantization bits	8 and 16 (LPCM)
Sampling frequency	16 kHz to 48 kHz (LPCM)

### AAC files

Compatible format	AAC encoded by iTunes
File extension	.m4a
Sampling frequency	11.025 kHz to 48 kHz
Stereo Bit Rate	16 kbps to 320 kbps, VBR
Apple Lossless	Not compatible
AAC file bought from the iTunes Store (.m4p file extension)	Not compatible

### FLAC files

- FLAC file formats cannot be connected via MTP.
- FLAC files may not be playable, depending on the encoder.

File extension	.flac, .fla
Sampling frequency	8/11.025/12/16/22.05/ 24/32/44.1/48/96 kHz
Quantization bit rate	8/16/24 bit
Channel mode	1/2 ch

### Disc (FH-S720BS/S722BS/ S520BT/S52BT only)

- Regardless of the length of the blank section between the songs from the original recording, compressed audio discs play with a short pause between songs.

Playable folder hierarchy	Up to eight tiers (A practical hierarchy is less than two tiers.)
Playable folders	Up to 99
Playable files	Up to 999
File system	ISO 9660 Level 1 and 2, Romeo, Joliet
Multi-session playback	Compatible
Packet write data transfer	Not compatible

### USB device

- There may be a slight delay when starting playback of audio files on a USB storage device with numerous folder hierarchies.

Playable folder hierarchy	Up to eight tiers (A practical hierarchy is less than two tiers.)
Playable folders	Up to 1 500
Playable files	Up to 15 000
Playback of copyrightprotected files	Not compatible
Partitioned USB device	Only the first partition can be played.

### iPhone compatibility

This unit supports only the following iPhone models. Older versions may not be supported. Made for

- iPhone XR
- iPhone XS Max
- iPhone XS – iPhone X
- iPhone 8
- iPhone 8 Plus
- iPhone 7
- iPhone 7 Plus

- iPhone SE
- iPhone 6s
- iPhone 6s Plus
- iPhone 6
- iPhone 6 Plus
- iPhone 5s

- Operations may vary depending on the generation and/or software version of the iPhone.
- Users of iPhone with the Lightning® Connector should use the Lightning to USB Cable (supplied with iPhone).
- Refer to the iPhone manuals for information about the file/format compatibility.
- Audiobook, Podcast: Compatible

### **Sequence of audio files**

The user cannot assign folder numbers and specify playback sequences with this unit. Sequence of audio file depends on the connected device. Note that the hidden files in a USB device cannot be played back.

### **Example of a hierarchy**

01 to 05: Folder number  
to : Playback sequence

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### **T-Kernel 2.0**

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### **MP3**

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## **Specifications**

### **General**

Power source: 14.4 V DC (10.8 V to 15.1 V allowable) Grounding system: Negative type Maximum current consumption: 10.0 A Dimensions (W × H × D): D (FH-S722BS/ S720BS/S520BT/S52BT) Chassis: 178 mm × 100 mm × 165 mm (7 in. × 3-7/8 in. × 6-1/2 in.)

Nose: 170 mm × 96 mm × 16 mm (6- 3/4 in. × 3-3/4 in. × 5/8 in.) (MVH-S620BS/ S622BS/S420BT) Chassis: 178 mm × 100 mm × 97 mm (7 in. × 3-7/8 in. × 3-7/8 in.)

Nose: 170 mm × 96 mm × 16 mm (6- 3/4 in. × 3-3/4 in. × 5/8 in.) Weight: 1.3 kg (2.9 lbs) (FH-S722BS/ S720BS/S520BT/S52BT) Weight: 0.7 kg (1.5 lbs) (MVH-S620BS/ S622BS/S420BT)

### **Audio**

(Network mode is only available for FHS720BS/S722BS/MVH-S620BS/ S622BS.)

Maximum power output:

- 50 W × 4 ch/4 Ω (for no subwoofer)
- 50 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for subwoofer)

Continuous power output:

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

Load impedance: 4 Ω (4 Ω to 8 Ω (2 Ω for 1 ch) allowable)

Preout maximum output level: 2.0 V (FHS720BS/S520BT/S52BT/MVH-S620BS/S420BT), 4.0 V (FH-S722BS/MVHS622BS)

Equalizer (13-Band Graphic Equalizer): Frequency: 50 Hz/80 Hz/125 Hz/200 Hz/315 Hz/500 Hz/800 Hz/1.25 kHz/2 kHz/3.15 kHz/5 kHz/8 kHz/12.5 kHz Gain: ±12 dB (2 dB step)

High pass filter (Standard mode): Frequency: 25 Hz/31.5 Hz/40 Hz/50 Hz/63 Hz/80 Hz/100 Hz/125 Hz/160 Hz/200 Hz/250 Hz Slope: -6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct, OFF

Subwoofer/Low pass filter (Standard mode): Frequency: 25 Hz/31.5 Hz/40 Hz/50 Hz/63 Hz/80 Hz/100 Hz/125 Hz/160 Hz/200 Hz/250 Hz

Slope: -6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct, -30 dB/oct, -36 dB/oct, OFF Gain: +10 dB to -24 dB (1 dB step) Phase: Normal/Reverse Speaker level (Standard mode): +10 dB to -24 dB (1 dB step) Time alignment (Standard mode): 0 Inch to 140 Inch (1 inch/Step) High pass filter (HIGH) (Network mode): Frequency: 1.25 kHz/1.6 kHz/2 kHz/ 2.5 kHz/3.15 kHz/4 kHz/5 kHz/6.3 kHz/ 8 kHz/10 kHz/12.5 kHz Slope: -6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct High pass filter (MID) (Network mode): Frequency: 25 Hz/31.5 Hz/40 Hz/50 Hz/63 Hz/80 Hz/100 Hz/125 Hz/160 Hz/200 Hz/250 Hz Slope: -6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct, OFF Low pass filter (MID) (Network mode): Frequency: 1.25 kHz/1.6 kHz/2 kHz/ 2.5 kHz/3.15 kHz/4 kHz/5 kHz/6.3 kHz/ 8 kHz/10 kHz/12.5 kHz Slope: -6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct, OFF Subwoofer (Network mode): Frequency: 25 Hz/31.5 Hz/40 Hz/50 Hz/63 Hz/80 Hz/100 Hz/125 Hz/160 Hz/200 Hz/250 Hz Slope: -12 dB/oct, -18 dB/oct, -24 dB/oct, -30 dB/oct, -36 dB/oct, OFF Gain: +10 dB to -24 dB (1 dB step) Phase: Normal/Reverse Speaker level (Network mode): +10 dB to -24 dB (1 dB step) Time alignment (Network mode): 0 Inch to 140 Inch (1 inch/Step)

## CD player

(Only for FH-S722BS/S720BS/S520BT/ S52BT) System: Compact disc audio system

Usable discs: Compact disc

Signal-to-noise ratio: 94 dB (1 kHz) (IHF-A network) Number of channels: 2 (stereo) MP3 decoding format: MPEG-1 & 2 Audio Layer 3 WMA decoding format: Ver. 7, 8, 9,

9.1, 9.2 (2 ch audio) AAC decoding format: MPEG-4 AAC (iTunes encoded only) (Ver. 10.6 and earlier) WAV signal format: Linear PCM (Noncompressed)

## **USB**

USB standard specification: USB 2.0 full speed Maximum current supply: 1.5 A USB Protocol: MSC (Mass Storage Class) MTP (Media Transfer Protocol) AOA (Android Open Accessory) 2.0 File system: FAT12, FAT16, FAT32 MP3 decoding format: MPEG-1 & 2 Audio Layer 3 WMA decoding format: Ver. 7, 8, 9, 9.1, 9.2 (2 ch audio) AAC decoding format: MPEG-4 AAC (iTunes encoded only) (Ver. 10.6 and earlier) FLAC decoding format: v1.2.1 (Free Lossless Audio Codec) WAV signal format: Linear PCM (Noncompressed)

## **FM tuner**

Frequency range: 87.9 MHz to 107.9 MHz Usable sensitivity: 11 dBf (1.0  $\mu$ V/75  $\Omega$ , mono, S/N: 30 dB) Signal-to-noise ratio: 65 dB (analog broadcasting) (IHF-A network)

## **AM tuner**

Frequency range: 530 kHz to 1 710 kHz Usable sensitivity: 25  $\mu$ V (S/N: 20 dB) Signal-to-noise ratio: 60 dB (analog broadcasting) (IHF-A network)

## **Bluetooth**

Version: Bluetooth 4.0 certified Output power: +4 dBm Maximum (Power class 2) BLE (Bluetooth Low Energy) Version: 4.0 certified BLE (Bluetooth Low Energy) Output power: +3 dBm Maximum Frequency band(s): 2 400 MHz to 2 483.5 MHz Bluetooth profiles: GAP (Generic Access Profile) SDAP (Service Discovery Application Profile) HFP (Hands Free Profile) 1.6 PBAP (Phone Book Access Profile) A2DP (Advanced Audio Distribution Profile) AVRCP (Audio/Video Remote Control Profile) 1.5 SPP (Serial Port Profile) 1.1

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