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Alpine F#1 Status™

OWNER'S MANUAL

ENGLISH

PXI-H990

Multimedia Manager™

• OWNER'S MANUAL
Please read before using this equipment.

Contents

WARNING

WARNING 3
CAUTION 4
PRECAUTIONS 4

Basic Operation

Operating the PXI-H990 5
Using This Manual 6
Turning the power on and off 7
Setting the speakers (SP SELECT) 7
Supplementary information 11

Automatic Adjustments

Preparations for automatic adjustments 12
Using the Road Equalizer function 15
Performing time correction automatically (Automated Time Correction) 21
Supplementary information 25

Settings/Adjustments

Performing time correction manually (Time Correction) 26
Equalizer adjustments 32
Crossover network 40
Crossover adjustment/Switching the phase 42
MX settings 47
Supplementary information 51

Contents

Using the multi-channel function

Adjustment procedure for multi-channel function 52
Speaker setup (Dolby SP) 53
Adjusting the speaker levels (OUTPUT LEVEL) 57
Adjusting the acoustic image (BI PHANTOM) 60
Mixing the Bass Sound of the Center Channel with the Sound of the Front Left and Right Channels (C.BASS SPLIT) 63
Mixing bass sound to the rear channel (REAR MIX) 66
Outputting the Front Channel Signals from the Rear Channels (REAR FILL) 69
Achieving powerful high volume sound (LISTEN MODE) 72
Adjusting the DVD level (DVD LEVEL) 74
6.1-Channel Settings (6.1CH MODE) 77
PCM Output Settings (PCM OUT MODE) 80
Supplementary information 88

Convenient Functions

External input settings 91
Storing settings in the memory 93
Calling out stored values 96
Equalizer adjustment (when DVI-9990/TMI-M990 is connected) 99
Supplementary information 104

Information

About the Monitor Display 105
Terminology 106
In case of difficulty 108
Specifications 109
Directory Menu 111

LIMITED WARRANTY

WARNING

⚠ WARNING

This symbol means important instructions.
Failure to heed them can result in serious injury or death.

DO NOT OPERATE ANY FUNCTION THAT TAKES YOUR ATTENTION AWAY FROM SAFELY DRIVING YOUR VEHICLE.

Any function that requires your prolonged attention should only be performed after coming to a complete stop. Always stop the vehicle in a safe location before performing these functions. Failure to do so may result in an accident.

KEEP THE VOLUME AT A LEVEL WHERE YOU CAN STILL HEAR OUTSIDE NOISE WHILE DRIVING.

Failure to do so may result in an accident.

MINIMIZE DISPLAY VIEWING WHILE DRIVING.

Viewing the display may distract the driver from looking ahead of the vehicle and cause an accident.

DO NOT DISASSEMBLE OR ALTER.

Doing so may result in an accident, fire or electric shock.

USE THIS PRODUCT FOR MOBILE 12V APPLICATIONS.

Use for other than its designed application may result in fire, electric shock or other injury.

KEEP SMALL OBJECTS SUCH AS BATTERIES OUT OF THE REACH OF CHILDREN.

Swallowing them may result in serious injury. If swallowed, consult a physician immediately.

USE THE CORRECT AMPERE RATING WHEN REPLACING FUSES.

Failure to do so may result in fire or electric shock.

USE ONLY IN CARS WITH A 12 VOLT NEGATIVE GROUND.

(Check with your dealer if you are not sure.) Failure to do so may result in fire, etc.

DO NOT BLOCK VENTS OR RADIATOR PANELS.

Doing so may cause heat to build up inside and may result in fire.

WARNING

⚠ CAUTION

This symbol means important instructions.
Failure to heed them can result in injury or material property damage.

HALT USE IMMEDIATELY IF A PROBLEM APPEARS.

Failure to do so may cause personal injury or damage to the product. Return it to your authorized Alpine dealer or the nearest Alpine Service Center for repairing.

⚠ PRECAUTIONS

Temperature

Be sure the temperature inside the vehicle is between +60°C (+140°F) and –10°C (+14°F) before turning your unit on.

Installation Location

Make sure the PXI-H990 will not be installed in a location subjected to:

- Direct sun and heat
- High humidity and water
- Excessive dust
- Excessive vibrations

Maintenance

If you have problems, do not attempt to repair the unit yourself. Return it to your Alpine dealer or the nearest Alpine Service Station for servicing.

Basic Operation

Operating the PXI-H990

The PXI-H990 is operated from the head unit with which it is used.
These operating instructions describe operation with the head unit; both from the unit itself and from the remote control unit.

- **The operation for the PXI-H990 is performed from the head unit setup operation.**
  See the reference page in the following chart for the head unit setting/adjustment operation method. The following is displayed on the head unit display.

M.M.Manager	AP SETUP	MOBILE.S.MGR	CROSSOVER	Page 42	Crossover adjustment/Switching the phase
			TCR	Page 21	Performing time correction automatically (Automated Time Correction)
				Page 26	Performing time correction manually (Time Correction)
			EQ	Page 32	Equalizer adjustments
			Road EQ	Page 15	Using the Road Equalizer function
		MEDIA.S.MGR	MX	Page 47	MX settings
			DVD LEVEL	Page 74	Adjusting the DVD level
		MULTI.CH.MGR	BI PHANTOM	Page 60	Adjusting the acoustic image
			C.BASS SPLIT	Page 63	Mixing the Bass Sound of the Center Channel with the Sound of the Front Left and Right Channels
			REAR MIX	Page 66	Mixing bass sound to the rear channel
			LISTEN MODE	Page 72	Achieving powerful high volume sound
			OUTPUT LEVEL	Page 57	Adjusting the speaker levels
			REAR FILL	Page 69	Outputting the Front Channel Signals from the Rear Channels
			6.1CH MODE	Page 77	6.1-Channel Settings
			PCM OUT MODE	Page 80	PCM Output Settings
		SP SETUP	SP SELECT	Page 7	Setting the speakers
			Dolby SP	Page 53	Speaker setup
		PRESET		Page 93	Storing settings in the memory
				Page 96	Calling out stored values
	AUX SETUP			Page 91	External input settings

- If operating with the head unit's buttons, view the head unit's display. If operating from the remote control supplied with the head unit, view the monitor's display (sold separately) used in the system. If a monitor is not used in your system, operate from the head unit only.
- For how to connect, refer to the guide for installation and connections.

Using This Manual

The PXI-H990 is operated from the head unit with which it is used.
These operating instructions describe operation from both the DVI-9990 head unit and from the RUE-4196 remote control unit included with the head unit. When operating the main unit with the remote control supplied with the head unit, change the selector switch on the rear side of remote control to the "H/U" side.

Remote control icon
Indicates operations performed with the remote control supplied with the head unit (only when connected to a monitor, sold separately).

Head unit icon
Indicates operations performed from the head unit.

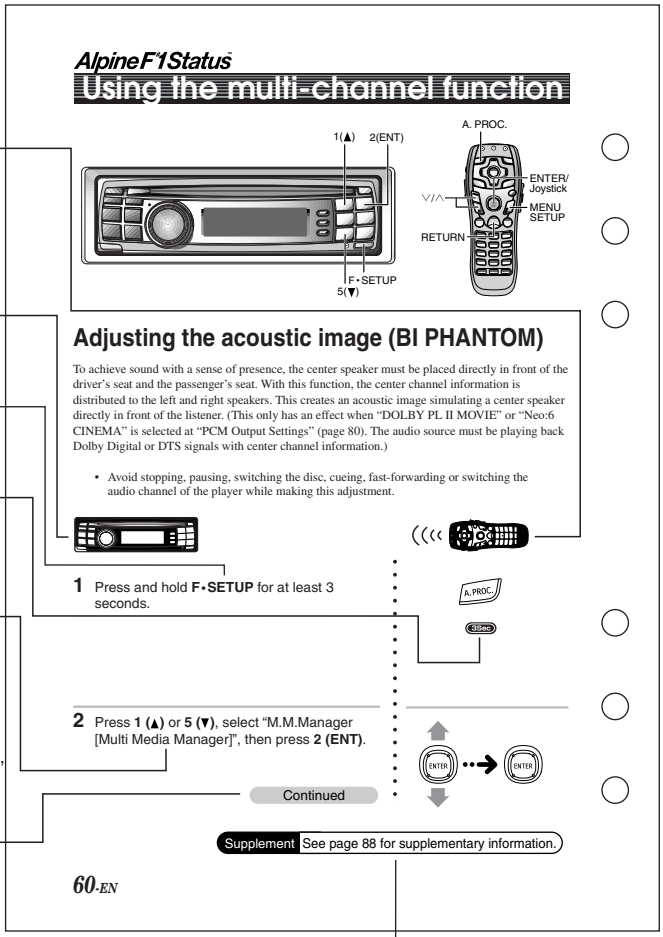
Button name
Buttons to be operated are indicated in bold.

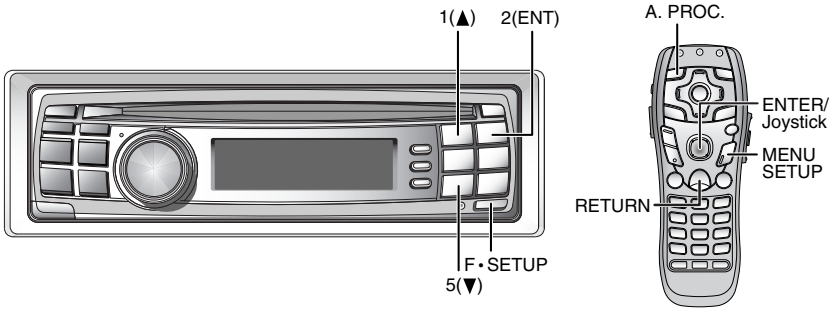
3Sec icon
Indicates that the specified button should be pressed and held for over 3 seconds.

Separately sold monitor display
If you combine with a separately sold monitor and operate with the remote control supplied with the head unit, the selected item is displayed on the screen, as opposed to being displaying on the head unit.

Continued (Next page)
Indicates that the description of the operation continues on the next page.

Supplement icon
Indicates that there is supplementary information on another page.





Turning the power on and off

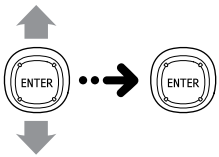
This unit does not have a power switch. The head unit to which the unit is connected, controls its power. In order to protect the speakers when the power is first switched on or when the head unit is reset, no sound is produced until system is selected in the next item “Setting the speakers”. Set the following item “Setting the speakers”.

Setting the speakers (SP SELECT)

First, make the system and speaker settings. The system settings are required before any other settings can be made. To prevent speaker damage, make sure the selected system and speaker connections are in correct (see the instruction manual). It is necessary to check the speaker connection before selecting the system.
Turn off speaker channels that are not in use.

1 Press and hold **F•SETUP** for at least 3 seconds.

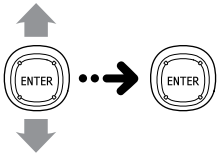
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



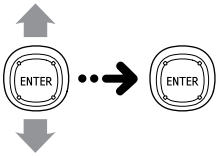
Continued

Setting the speakers (SP SELECT) (continued)

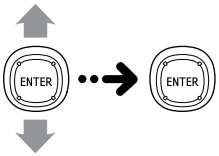
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



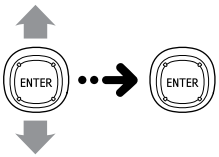
4 Press **1 (▲)** or **5 (▼)**, select “SP SETUP [Speaker Setup]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “SP SELECT [Speaker Select]”, then press **2 (ENT)**.

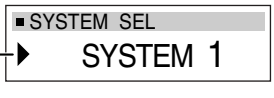


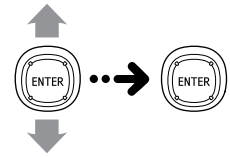
6 Press **1 (▲)** or **5 (▼)**, select “SYSTEM SEL [System Select]”, then press **2 (ENT)**.

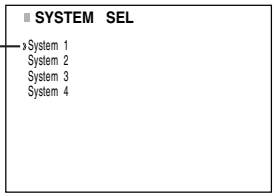


7 Press **1 (▲)** or **5 (▼)**, select the system, then press **2 (ENT)**.

Displays the currently set item.







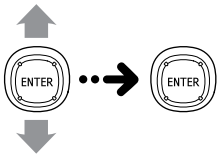
	When one PXI-H990 is connected			When two PXI-H990 are connected	
	SYSTEM 1	SYSTEM 2	SYSTEM 3	SYSTEM 4 (FRONT)	SYSTEM 4 (REAR)
CH-1	F TW L	F TW L	FRNT L*1	F TW L	R TW L
CH-2	F TW R	F TW R	FRNT R*1	F TW R	R TW R
CH-3	F WF L*1	F MID L*2	FRNT C	F MID L*2	R WF L
CH-4	F WF R*1	F MID R*2	SUBW. 1	F MID R*2	R WF R
CH-5	REAR L	F WF L*2	REAR L	F WF L*2	R TW C
CH-6	REAR R	F WF R*2	REAR R	F WF R*2	R WF C
CH-7	FRNT C	SUBW. 1	REAR C	F TW C	SUBW. 1
CH-8	SUBW.	SUBW. 2	SUBW. 2	F WF C	SUBW. 2

* 1 There is no OFF setting.
* 2 It is not possible to turn both “MID” and “WF” off. If one is set to “OFF”, the other cannot be set to “OFF”.

- Do not connect the tweeter (TW) to the channel without “TW” indicated in the table above. If connected, the speaker may be damaged.
- For SYSTEM 1, REAR TW cannot be connected.
- For SYSTEM 3, FRONT TW and REAR TW cannot be connected.
- “SYSTEM 4” cannot be selected when only one unit of the PXI-H990 is connected. Also, “SYSTEM 1” to “SYSTEM 3” cannot be selected when two units of the PXI-H990 are connected.

Next make the speaker settings.

8 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.



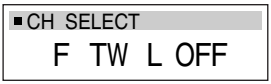
9 Press **1 (▲)** or **5 (▼)**, select the speaker that is not connected, then press **2 (ENT)**.

Select a speaker that is not connected.

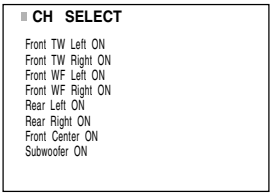
Continued

Setting the speakers (SP SELECT) (continued)

10 Press **1 (▲)** or **5 (▼)**, select “OFF”, then press **2 (ENT)**.
Repeat steps 9 and 10 and switch off all unconnected speakers.



Switch ON/OFF.



11 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 11 for supplementary information.

Supplementary information This page includes supplementary information for pages 5 to 10. Please refer to these pages.

TITLE	Description	Related page
Setting the speakers (SP SELECT)	The operations performed with the remote control unit in step 1 can also be performed by pressing **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 7

Preparations for automatic adjustments

The PXI-H990 is equipped with two automatic adjustment functions: “Road Equalizer” and “Automated Time Correction”.
The preparations described below must be made in order to perform these automatic adjustments. After making these preparations, refer to “Automatic adjustments (Using the Road Equalizer function)” (page 15) and “Performing time correction automatically (Automated Time Correction)” (page 21) to perform the respective automatic adjustments.

- When performing automatic adjustment, set the head unit to the TUNER mode before adjusting.

1 Check that the head unit defeat mode is off.

2 Adjust the head unit and amplifier levels.

Head unit:
Set the balance and fader to “center”.
Front, rear and center amplifiers:
Set the amp gains to “center” or “normal” to start. If there are no rear speakers, check that the rear speakers are turned off. (See page 7.) Gain levels may be changed if you are not satisfied with the automatic results. Make the gain changes and return the automatic adjustment.
Subwoofer amplifier:
Set the amplifier gain to “center” or “normal”. If the subwoofer is located in the trunk or a remote place (for example at the very back of a station wagon), adjust the subwoofer to increase the volume several steps.
Speaker Crossovers:
Set the crossovers for all the speakers in the system that will require them. See page 42, “Crossover adjustment/Switching the phase”, for more information on setting the crossovers.

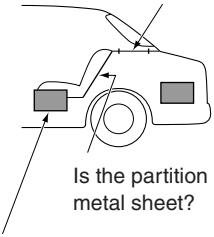
3 Connect the included microphone to the PXI-H990.
Refer to the Installation manual.

- When combined with a separately sold monitor that is Road EQ compatible and the Road Equalizer function are used, the separately sold monitor's built-in microphone can be used.
- When connecting two PXI-H990 units, connect the microphone to both units. In this case, the built-in microphone in the separately sold monitor cannot be used.

4 Secure the microphone in place.
Failure to fix the microphone securely in place may result in distortion or improper acoustic positioning. The microphone must be mounted very securely so the bass frequencies will not vibrate it. For example, fasten using the fitting included with the sun visor, etc.

- The adjustment differs according to the position of the microphone. Search for the position at which the desired sound quality can be achieved.
- The proper adjustments cannot be achieved if the subwoofer is located in the trunk and the trunk and cabin are separated by a metal sheet. Either move the subwoofer into the cabin or open a hole in the rear tray to join the two spaces. (This is not necessary if the partition is not a metal sheet.)

If the partition is a metal sheet, open a hole in the rear tray. If you encounter a problem, consult your authorized dealer.



- Do not disconnect the microphone during the automatic adjustment procedure.

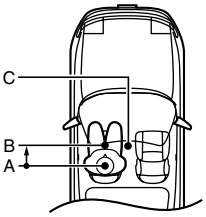
Automatic Adjustments

Preparations for automatic adjustments (continued)

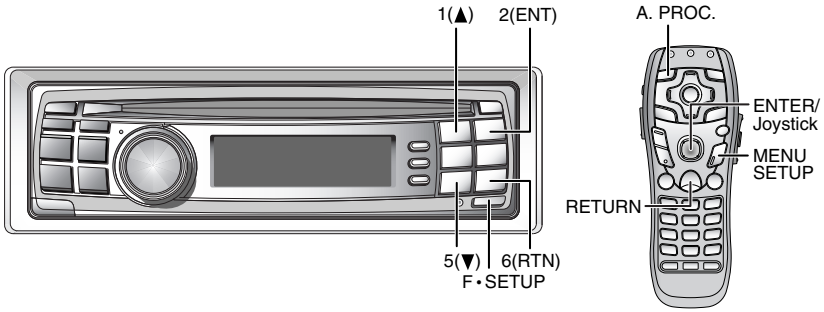
Hints on using the Road Equalizer function

The Road Equalizer compensates for constantly changing noise, so always keep the microphones connected. The following three places are recommended to place the microphones. Also, when combining with the separately sold monitor, the built-in microphone can be used.

A Ceiling directly above the listening position (driver's seat position – More accurate compensation for the driver.)
B Sun visor (driving seat position)
C Base of rearview mirror (position for both driver's and passenger's seats)



- If connecting two PXI-H990 units, place the microphones connected to each unit in the same places.



Using the Road Equalizer function

Road Equalizer (REAL-TIME OPTIMIZED ADAPTIVE DRIVING EQUALIZER) is a function that automatically adjusts the equalizer settings during driving according to the amount of road noise.

To use Road Equalizer, first connect the microphone. (See "Preparations for automatic adjustments" on page 12.)
When used in combination with a separately sold monitor that is Road EQ compatible, the monitor's built-in microphone can be used, in which case the microphone included with the PXI-H990 cannot be used. When connecting two PXI-H990 units, the built-in microphone in the separately sold monitor cannot be used.

Perform the Road Equalizer operations in the following order:

A Selection of microphone
↓
B Measurement of frequency response inside the vehicle
↓
C Selection of Road Equalizer setting (ON/OFF)
↓
D Selection of mode

- In order to avoid the effects of exterior noises during measurement of frequency response inside the vehicle, move the car to a quiet location and change the ignition switch to the ACC position.
  Due to vibration, correct measurement data may not be acquired, so do not switch on the engine. However, be aware that the battery may be drained.
- Do not remove the microphones when using Road Equalizer.

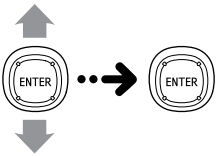
Supplement See page 25 for supplementary information.

Automatic Adjustments

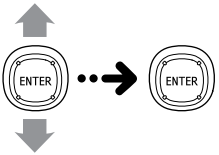
Using the Road Equalizer function (continued)

1 Press and hold **F•SETUP** for at least 3 seconds.

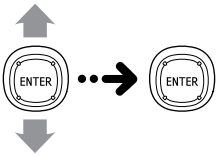
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



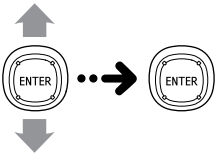
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



4 Press **1 (▲)** or **5 (▼)**, select “MOBILE.S.MGR [Mobile Sound Manager]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “Road EQ”, then press **2 (ENT)**.

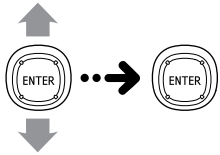


6 Perform the operations from page 17 to 20.

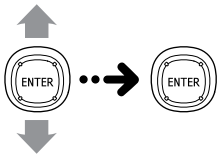
7 Press and hold **F•SETUP** for at least 3 seconds to end.

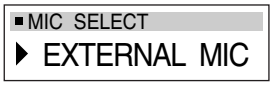
A Selecting the Microphone

1) In the Road Equalizer mode, press **1 (▲)** or **5 (▼)**, select “MIC SELECT [Microphone Select]”, then press **2 (ENT)**.

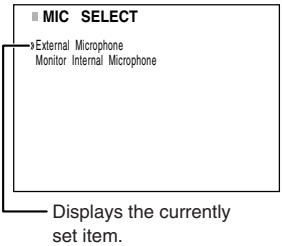


2) Press **1 (▲)** or **5 (▼)**, select the microphone, then press **2 (ENT)**.





EXTERNAL MIC [External Microphone]:
Set this when using the microphone included with the PXI-H990.
MONITOR MIC [Monitor Internal Microphone]:
Set this when using in combination with a separately sold monitor (TMI-M990) and using the monitor’s built-in microphone.



Next measure the frequency response inside the vehicle.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

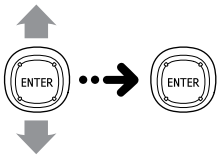
Supplement See page 25 for supplementary information.

Automatic Adjustments

Using the Road Equalizer function (continued)

B Measuring the Frequency Response Inside the Vehicle

1) In the Road Equalizer mode, press **1 (▲)** or **5 (▼)**, select “R.EQ SETUP [Auto Road EQ Setup]”, then press **2 (ENT)**.



2) Press **2 (ENT)**.

Measuring begins after a 10 second count-down, so <u>leave the car and close the door within 10 seconds.</u>
Measuring is canceled if **2 (ENT)** is pressed during measuring or during the countdown.
Measuring ends after about 8 minutes. After measuring is complete, “COMPLETE” is displayed, press **2 (ENT)** to clear measuring mode and press **6 (RTN)**.

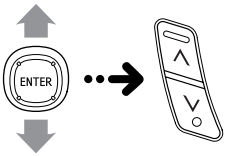
- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.
- “NO MIC ERR” is displayed when a microphone has not been connected. Press **2 (ENT)** to clear the display.

After measuring is complete, “Complete” is displayed, press **ENTER** to clear measuring mode and press **RETURN**.

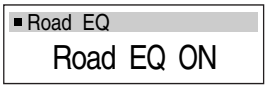
- “NO MIC ERR” is displayed when a microphone has not been connected. Press **ENTER** to clear the display.

C Turning Road Equalizer On and Off

1) In the Road Equalizer mode, press **1 (▲)** or **5 (▼)**, select “Road EQ ON/OFF”.



2) When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.



Select “OFF” if you do not want to use the Road Equalizer function.

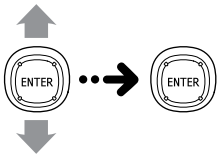
- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Automatic Adjustments

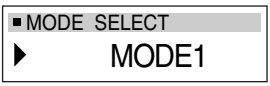
Using the Road Equalizer function (continued)

D Selecting the Mode

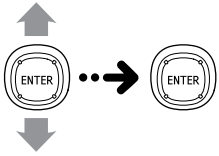
1) In the Road Equalizer mode, press **1 (▲)** or **5 (▼)**, select “MODE SELECT”, then press **2 (ENT)**.

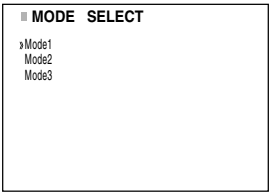


2) Press **1 (▲)** or **5 (▼)**, select the desired mode, then press **2 (ENT)**.



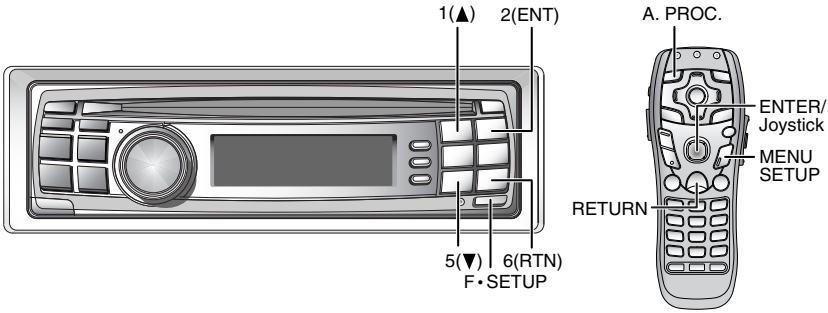
MODE1 [Mode1]: Low compensation mode. Suitable for a quiet car.
MODE2 [Mode2]: Higher compensation mode.
MODE3 [Mode3]: Highest compensation mode. Use when driving in a very noisy car.





- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 25 for supplementary information.



Performing time correction automatically (Automated Time Correction)

Due to the particular conditions inside the vehicle, there is a major difference between the distances of the various speakers and the listening position. This function uses the included measurement microphone to automatically measure and analyze the distances between the speakers and the listening position and perform the optimum time correction.

- Preparations must be made before performing the automatic adjustment procedure. Refer to page 12.
- The PXI-H990's automatic adjustments take into account the delay time between the time at which the signals are input to the speakers until the sound is output. This does not correspond to the actual distance.
- With the automatic adjustments, the average delay time within the speakers' playable frequency range is measured. Measurements may not be possible when using special speakers or in special playback environments. If this is the case, perform the adjustments manually.
- The AUTO TCR operation cannot be performed if the included microphone is not connected.
- When performing automatic adjustment, set the head unit to the TUNER mode before adjusting.

1 Before starting the automatic adjustment procedure, park the vehicle in a quiet place to avoid the effects of external sounds.

2 Set the vehicle's key to the ACC position.
Do not start the engine. The vibrations may make it impossible to achieve the proper adjustment values.

3 Adjust the volume.
Adjust the volume to "-50dB" by performing the volume adjustment operation on the head unit.

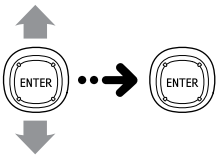
Continued

Automatic Adjustments

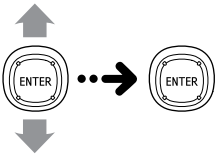
Performing time correction automatically (Automated Time Correction) (continued)

4 Press and hold **F • SETUP** for at least 3 seconds.

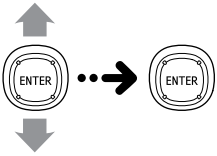
5 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



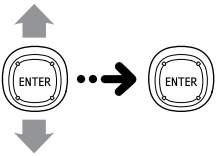
6 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



7 Press **1 (▲)** or **5 (▼)**, select “MOBILE.S.MGR [Mobile Sound Manager]”, then press **2 (ENT)**.

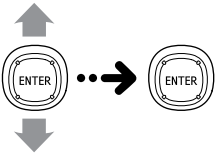


8 Press **1 (▲)** or **5 (▼)**, select “TCR [Time Correction]”, then press **2 (ENT)**.

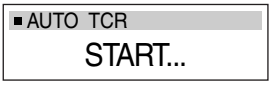


9 Press **1 (▲)** or **5 (▼)**, select “AUTO TCR [Auto Time Correction]”, then press **2 (ENT)**.

- Check that “TCR” is set to “ON”.
  If it is set to “OFF”, set it to “ON”, referring to “Performing time correction manually” on page 26.



10 Press **2 (ENT)**.
Automatic adjustment begins after a 10 second countdown, so leave the car and close the door within 10 seconds.



Automatic adjustment is canceled if **2 (ENT)** is pressed during the countdown.

Continued

Automatic Adjustments

Performing time correction automatically (Automated Time Correction) (continued)

The automatic adjustment procedure consists of the operations described below and requires about a few minutes to be completed.

Perform the time correction.

↓

When the automatic adjustment is completed, a system reset will be performed.

Strong sounds are produced during the automatic adjustment procedure (except for TW, Sub WF). These sounds can be heard outside the vehicle. Be sure to park the vehicle in a place where the sound will not be a nuisance.

- "NO MIC ERR" is displayed when a microphone has not been connected. Press **2 (ENT)** to clear the display.
- "NO MIC ERR" is displayed when a microphone has not been connected. Press **ENTER** to clear the display.

11 When the system reset is completed, return to the car and check that the setting value of the Automated Time Correction is reflected.
If the setting value is not changed, the microphone may not receive sound, the speaker may be damaged, the connection and wiring may be a malfunction.
To store the settings, refer to "Storing settings in the memory" (page 93).

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 25 for supplementary information.

Supplementary information This page includes supplementary information for pages 12 to 24. Please refer to these pages.

TITLE	Description	Related page
Using the Road Equalizer function	Connect both microphones if two PXI-H990s are connected.	☞ Page 15
	If the microphone does not pick up the sound or the speakers are not working or are connected or wired improperly, the automatic adjustments are not performed and a warning message is displayed. Check the various speakers then perform the automatic adjustments again.	☞ Page 15
	When Road Equalizer is ON and 96 kHz or 192 kHz DVD-Audio playback is set, down sampling to 48 kHz will take place automatically and the DVD will be played.	☞ Page 15
	When any speaker is switched on or off following the adjustment of Road Equalization and Road Equalization is ON, Road Equalization will automatically be switched OFF. When a change has been made to the speaker settings, redo the setup from the measurement step.	☞ Page 15
	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 16
	Ⓑ **Measuring the Frequency Response Inside the Vehicle** Note that using for extended periods of time without turning on the engine may wear down the battery.	☞ Page 18
	Ⓒ **Turning Road Equalizer On and Off** The mode is automatically set to “ON” when the frequency response inside the vehicle is measured.	☞ Page 19
	Ⓓ **Selecting the Mode** Cannot be selected when OFF is set in “Ⓒ Turning Road Equalizer On and Off”.	☞ Page 20
Performing time correction automatically (Automated Time Correction)	Connect both microphones if two PXI-H990s are connected.	☞ Page 21
	Note that using for extended periods of time without turning on the engine may wear down the battery.	☞ Page 21
	The operations performed with the remote control unit in step 4 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 22

Performing time correction manually (Time Correction)

Though sufficient correction can be achieved with the "Automated Time Correction" automatic adjustments, it is also possible for the user to calculate the correction values and make the adjustments manually. This manual adjustment requires sufficient knowledge and experience, however, so we suggest you have it performed at your authorized Alpine dealer.

1 Check that the head unit defeat mode is off.

2 Sit in the listening position (the driver's seat, for example) and measure the distance (in meters) between your head and the various speakers.

3 Calculate the difference in distance between the farthest speaker and the other speakers.
L = (distance of farthest speaker) – (distance of other speakers)

4 Divide the distances calculated for the different speakers by the speed of sound (343 m/s temperature 20°C).
This value is the time correction value for the different speakers.

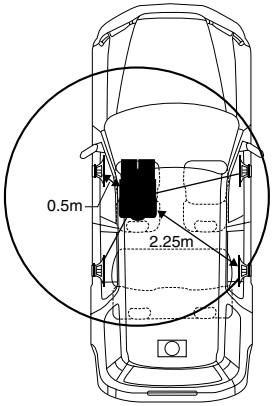
- The speed of sound fluctuates according to the temperature. The accurate speed of sound can be achieved with the formula shown below.
  Speed of sound = $331.45 + C \times T$
  C: 0.607
  T: Temperature (°C)

• Concrete examples

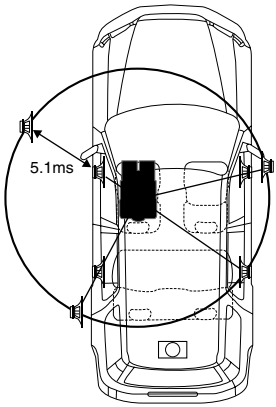
1. Calculating the time correction value for the front left speaker on the diagram below.

   Conditions:
   Distance between farthest speaker and listening position: 2.25 m (88-3/4")
   Distance between front left speaker and listening position: 0.5 m (20")
   Calculation: L = 2.25 m (88-3/4") – 0.5 m (20") = 1.75 m (68-3/4")
   Compensation time = $1.75 \div 343 \times 1000 = 5.1$ (ms)

   In other words, setting the time correction value for the front left speaker to 5.1 (ms) sets a virtual distance matching the distance to the farthest speaker.



The sound is uneven because the distance between the listening position and the different speakers is different.
The difference in the distance between the front left and rear right speakers is 1.75 meters (68-3/4").

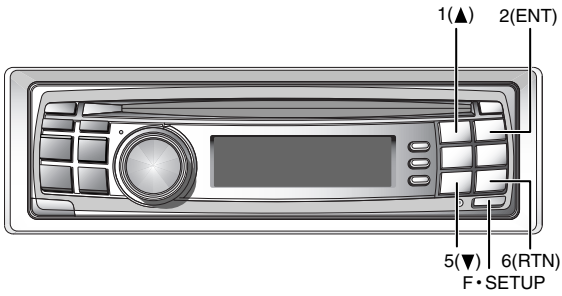


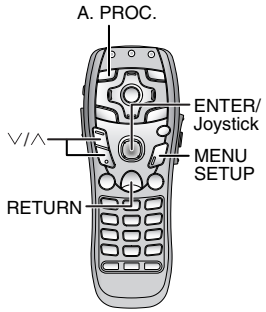
Time correction eliminates the difference between the time required for the sound from the different speakers to reach the listening position.
Setting the time correction of the front left speaker to 5.1 ms makes it possible to coordinate the distance from the listening position to the speaker.

Continued

Settings/Adjustments

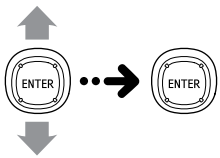
Performing time correction manually (Time Correction) (continued)



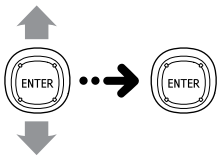


5 Press and hold **F•SETUP** for at least 3 seconds.

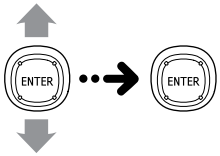
6 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



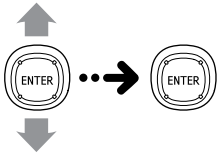
7 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



8 Press **1 (▲)** or **5 (▼)**, select “MOBILE.S.MGR [Mobile Sound Manager]”, then press **2 (ENT)**.

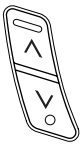


9 Press **1 (▲)** or **5 (▼)**, select “TCR [Time Correction]”, then press **2 (ENT)**.

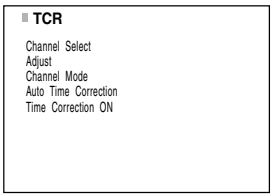


10 Press **1 (▲)** or **5 (▼)**, select “TCR ON/OFF [Time Correction ON/OFF]”.

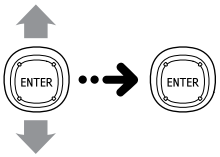
11 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch TCR ON [Time Correction ON].
When ON, after pressing **2 (ENT)**, press **5 (▼)** to switch TCR OFF [Time Correction OFF].



Switch ON/OFF.



12 After selecting ON in the above procedure, press **1 (▲)** or **5 (▼)**, select “CH MODE [Channel Mode]”, then press **2 (ENT)**.



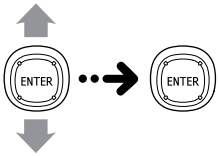
Continued

Settings/Adjustments

Performing time correction manually (Time Correction) (continued)

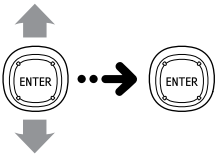
13 Press **1 (▲)** or **5 (▼)**, select “L or R” or “L+R”, then press **2 (ENT)**.

L or R: Different adjustment values can be set for the left and right channels.
L+R: Sets the same adjustment values for the left and right channels.

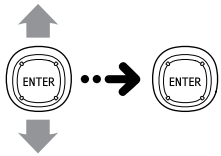


When “L+R” is selected.

1) Press **1 (▲)** or **5 (▼)**, select either the Lch or Rch settings to validate and press **2 (ENT)**.
   L->L+R: Make the present Lch settings valid and set L/R with the same adjustment values.
   R->L+R: Make the present Rch settings valid and set L/R with the same adjustment values.
2) Press **6 (RTN)**.

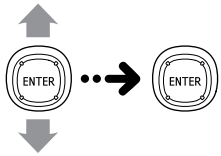


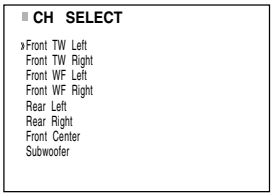
14 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.



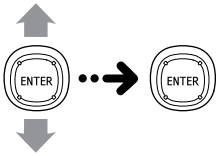
15 Press **1 (▲)** or **5 (▼)**, select the desired channel, then press **2 (ENT)**.

The channels that can be selected are different depending on the system setting (page 9).

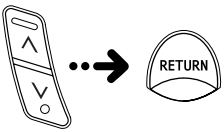




16 Press **1 (▲)** or **5 (▼)**, select “ADJUST [Adjust]”, then press **2 (ENT)**.



17 Press **2 (ENT)**, and press **1 (▲)** or **5 (▼)**, adjust time correction (0.00~20.00ms, 0.05ms step), then press **6 (RTN)**.



■ ADJ(F TW R)
0.00ms

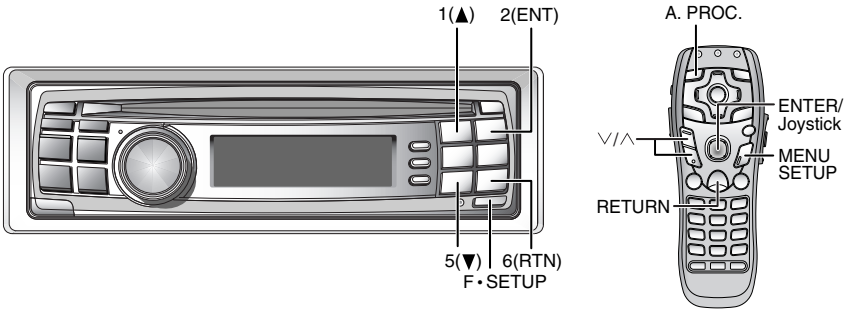
■ ADJ(F TW L)
Delay Time 0.15ms

18 To adjust another channel, repeat steps 14 to 17.

19 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 51 for supplementary information.



Equalizer adjustments

The PXI-H990 is equipped with a graphic equalizer and parametric equalizer. You can set the Equalizer to whatever values you want.

Graphic equalizer

The level of the front, rear and center channels can be adjusted separately for 31 bands and the subwoofer can be adjusted for 10 bands (a total of 206 bands) to achieve the desired sound field.

Parametric equalizer

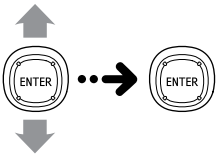
The frequency bands of the graphic equalizer are fixed. This makes it very difficult to correct for undesired peaks and dips at specific frequencies. The parametric equalizer's center frequency can be tuned these specific frequencies. Then, the bandwidth (Q) and level are fine-tuned, independently, to make the necessary corrections. The parametric equalizer function is an advanced tool for serious audiophiles.

- This adjustment is easier when test signals such as pink noise are used. For information on test signals, consult your authorized Alpine dealer.
- Check the playable frequency ranges of the connected speakers before making the equalizer adjustments. If the speaker's playable frequency range is 55 Hz to 30 kHz, for example, adjusting the 40 Hz or 20 Hz band has no effect. Additionally, you may overload and damage the speakers.
- Once the settings have been made, we recommend storing them in the memory. See page 93 for instructions.
- If you combine with a head unit (DVI-9990) or monitor (TMI-M990) (both sold separately), you can adjust the equalizer while viewing the adjusted contents on the monitor screen. (See "Equalizer adjustment (when DVI-9990/TMI-M990 is connected)", page 99).
- MP3 and WMA recorded Discs with a sampling frequency of 32 kHz cannot be compensated above 16 kHz.

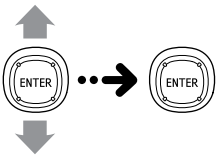
1 Check that the head unit defeat mode is off.

2 Press and hold **F•SETUP** for at least 3 seconds.

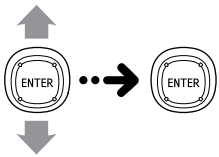
3 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



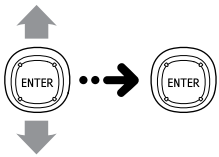
4 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



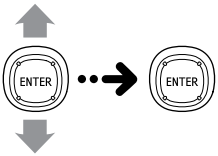
5 Press **1 (▲)** or **5 (▼)**, select “MOBILE.S.MGR [Mobile Sound Manager]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select “EQ [Equalizer]”, then press **2 (ENT)**.



7 Press **1 (▲)** or **5 (▼)**, select “EQ TYPE SEL [EQ Type Select]”, then press **2 (ENT)**.



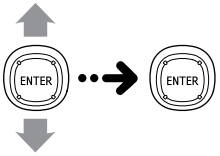
Continued

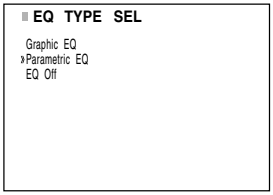
Settings/Adjustments

Equalizer adjustments (continued)

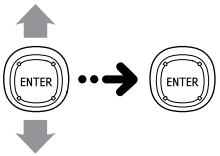
8 Press **1 (▲)** or **5 (▼)**, select the Equalizer type, then press **2 (ENT)**.

GRAPHIC. EQ [Graphic EQ] ↔ **PARAMET. EQ** [Parametric EQ] ↔ **EQ OFF** [EQ Off]

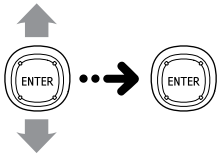




9 Press **1 (▲)** or **5 (▼)**, select "CH MODE [Channel Mode]", then press **2 (ENT)**.



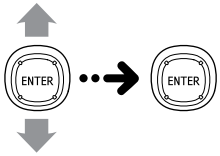
10 Press **1 (▲)** or **5 (▼)**, select "L or R" or "L+R", then press **2 (ENT)**.



L or R: Different adjustment values can be set for the left and right channels.
L+R: Sets the same adjustment values for the left and right channels.

When "L+R" is selected.

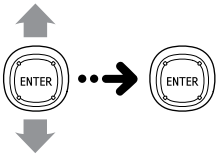
1) Press **1 (▲)** or **5 (▼)**, select either the Lch or Rch settings to validate and press **2 (ENT)**.
   L->L+R: Make the present Lch settings valid and set L/R with the same adjustment values.
   R->L+R: Make the present Rch settings valid and set L/R with the same adjustment values.
2) Press **6 (RTN)**.



See page 35 for "Graphic Equalizer Adjustments".
See page 37 for "Parametric Equalizer Adjustments".

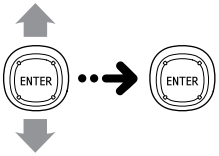
Graphic Equalizer Adjustments

11 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.

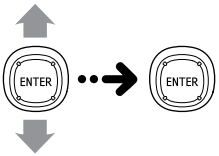


12 Press **1 (▲)** or **5 (▼)**, select the desired channel, then press **2 (ENT)**.

The channels that can be selected depend on the system settings (page 9).

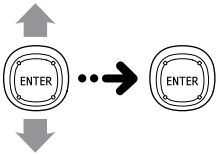


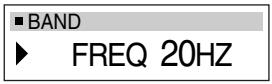
13 Press **1 (▲)** or **5 (▼)**, select “BAND [Band]”, then press **2 (ENT)**.

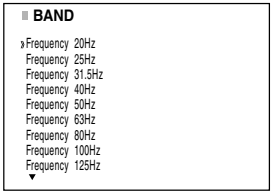


14 Press **1 (▲)** or **5 (▼)**, select the frequency, then press **2 (ENT)**.

Adjustable frequencies
Front /Rear/Center : 20Hz~20kHz
(in steps of 1/3 octave)
Subwoofer : 20Hz~160Hz
(in steps of 1/3 octave)



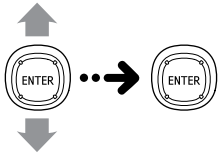




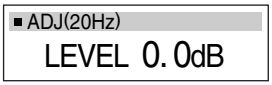
Continued

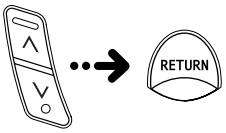
Graphic Equalizer Adjustments (continued)

15 Press **1 (▲)** or **5 (▼)**, select “ADJUST [Adjust]”, then press **2 (ENT)**.

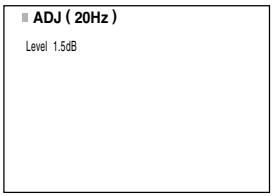


16 Press **2 (ENT)**, and press **1 (▲)** or **5 (▼)**, adjust the level (±9 dB, in steps of 0.5 dB), then press **6 (RTN)**.





(Level adjustment)



17 To adjust another frequency band, repeat steps 13 to 16.

18 To adjust other channels, repeat steps 11 to 17.

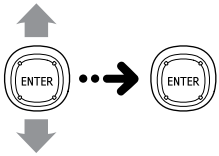
19 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

3Sec

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

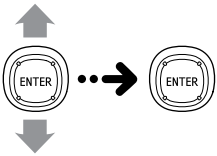
Parametric Equalizer Adjustments

11 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.

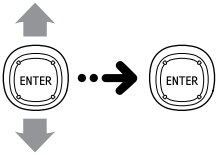


12 Press **1 (▲)** or **5 (▼)**, select the desired channel, then press **2 (ENT).**

The channels that can be selected depend on the system settings (page 9).

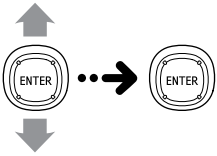


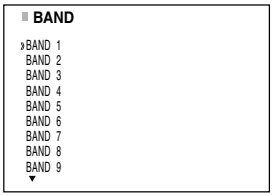
13 Press **1 (▲)** or **5 (▼)**, select “BAND [Band]”, then press **2 (ENT)**.



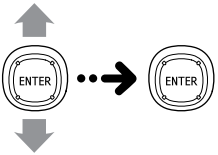
14 Press **1 (▲)** or **5 (▼)**, select the band, then press **2 (ENT)**.

Adjustable bands
Front/Rear/Center :10 Bands
Subwoofer :2 Bands





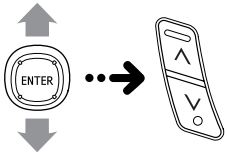
15 Press **1 (▲)** or **5 (▼)**, select “ADJUST [Adjust]”, then press **2 (ENT)**.



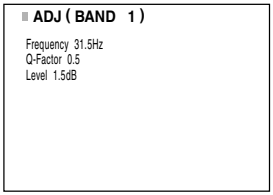
Continued

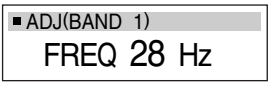
Parametric Equalizer Adjustments (continued)

16 Press **1 (▲)** or **5 (▼)**, select the mode “FREQ [Frequency]”, then press **2 (ENT)**.



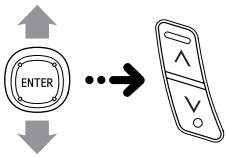
17 Press **1 (▲)** or **5 (▼)**, select the frequency, then press **2 (ENT)**.
For the adjustable frequencies, see page 109.



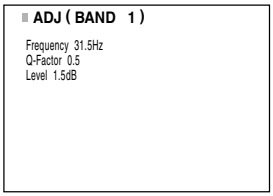


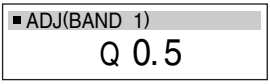
- It is not possible to adjust the frequencies of adjacent bands within 4 steps.

18 Press **1 (▲)** or **5 (▼)**, select “Q [Q-Factor]”, then press **2 (ENT)**.

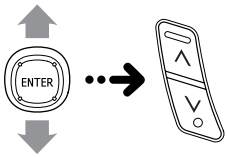


19 Press **1 (▲)** or **5 (▼)**, select the bandwidth “Q”, then press **2 (ENT)**.
The bandwidth can be adjusted in six steps: 0.5, 1, 2, 3, 4 and 5

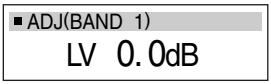


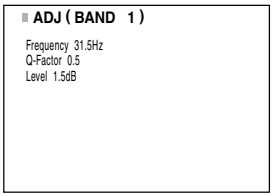


20 Press **1 (▲)** or **5 (▼)**, select “LV [Level]”, then press **2 (ENT)**.



21 Press **1 (▲)** or **5 (▼)**, adjust the level (±9dB 0.5dB step), then press **2 (ENT)**.





22 To adjust another band, after pressing **6 (RTN)**, repeat steps 13 to 21.

23 To adjust other channels, after pressing **6 (RTN)**, repeat steps 11 to 22.

24 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

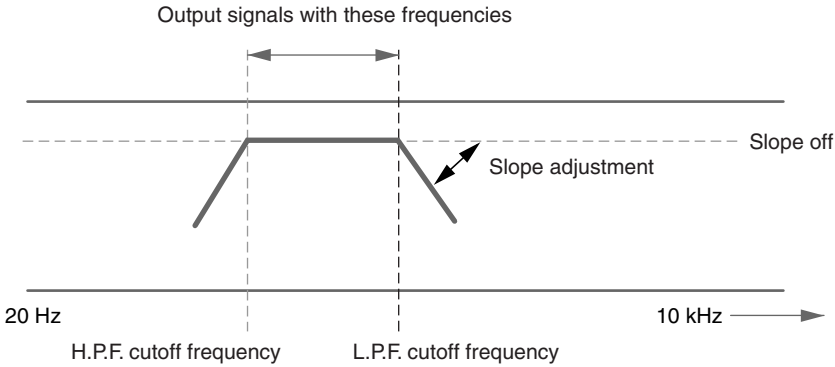
Supplement See page 51 for supplementary information.

Crossover network

The PXI-H990 is equipped with an active dividing network allowing the bands to be split before amplification by the power amplifier.
Because of this, there is no need for a passive network between the speakers and amplifiers and the amplifiers are fully independent, thus eliminating the problem of interference and making it possible to achieve the optimum acoustic space by dividing the playback frequencies in a way suited to the capacities of the speakers.
This adjustment requires special knowledge and experience. Should problems arise, please see your authorized Alpine dealer.

Adjust the high pass filter (H.P.F.) and low pass filter (L.P.F.) and set the slope (filter response attenuation slope) for the different bands.
Make the adjustments according to the playable frequency ranges and frequency responses of the connected speakers.

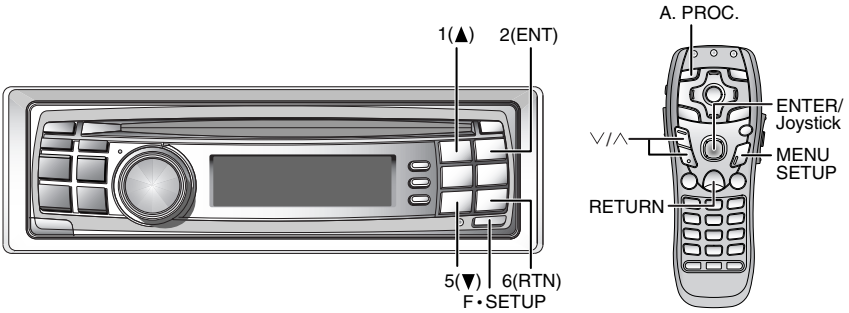
	Cutoff Frequency Adjustment Bandwidth (1/6 Octave Steps)		Slope Adjustment	
	H.P.F.	L.P.F.	H.P.F.	L.P.F.
FRONT	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT TW	1kHz～18kHz	1.1kHz～20kHz	−6/−12/−18/−24/−30dB	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT MID	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT WF	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
REAR	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
REAR TW	1kHz～18kHz	1.1kHz～20kHz	−6/−12/−18/−24/−30dB	−6/−12/−18/−24/−30dB/ Filter OFF
REAR WF	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT C	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT C TW	1kHz～18kHz	1.1kHz～20kHz	−6/−12/−18/−24/−30dB	−6/−12/−18/−24/−30dB/ Filter OFF
FRONT C WF	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
REAR C	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
REAR C TW	1kHz～18kHz	1.1kHz～20kHz	−6/−12/−18/−24/−30dB	−6/−12/−18/−24/−30dB/ Filter OFF
REAR C WF	20Hz～18kHz	22Hz～20kHz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB/ Filter OFF
SUBWOOFER	20Hz～160Hz	22Hz～180Hz	−6/−12/−18/−24/−30dB/ Filter OFF	−6/−12/−18/−24/−30dB



The H.P.F. setting cannot be the same as or exceed the L.P.F. setting for that channel.

- The crossover network is a filter that divides specific frequency bands.
- The high pass filter is a filter that cuts frequencies below a certain frequency (bass frequencies) and lets through treble frequencies.
- The low pass filter is a filter that cuts frequencies above a certain frequency (treble frequencies) and lets through bass frequencies.
- The slope is a value expressing the attenuation of the signal in decibels when the frequency is increased or decreased by one octave.
- The higher the slope value, the steeper the slope.
- If the slope is set to “OFF”, the signal does not pass through the filter, so there is no effect.
- In order to protect the speakers, the front high range high pass filter cannot be turned off (the slope cannot be set to “OFF”).
  For the same reason, the subwoofer low pass filter cannot be turned off (the slope cannot be set to “OFF”).
- Tweeters may be damaged if low frequency signals are input to them.
- MP3 and WMA recorded Discs with a sampling frequency of 32 kHz cannot be compensated above 16 kHz.

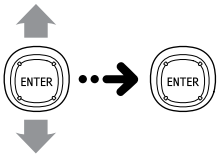
Settings/Adjustments



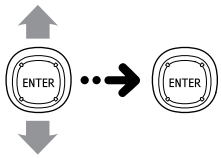
Crossover adjustment/Switching the phase

1 Press and hold **F•SETUP** for at least 3 seconds.

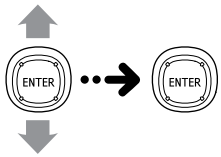
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



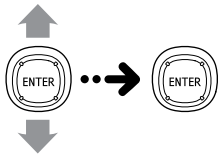
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



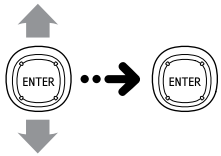
4 Press **1 (▲)** or **5 (▼)**, select “MOBILE.S.MGR [Mobile Sound Manager]”, then press **2 (ENT)**.



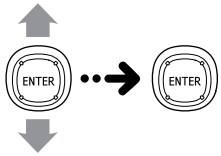
5 Press **1 (▲)** or **5 (▼)**, select “CROSSOVER [Crossover]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select “CH MODE [Channel Mode]”, then press **2 (ENT)**.



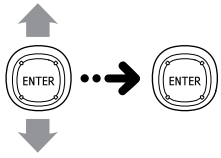
7 Press **1 (▲)** or **5 (▼)**, select “L or R” or “L+R”, then press **2 (ENT)**.



L or R: Different adjustment values can be set for the left and right channels.
L+R: Sets the same adjustment values for the left and right channels.

When “L+R” is selected.

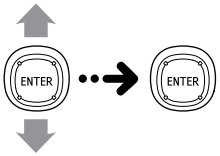
1) Press **1 (▲)** or **5 (▼)**, select either the Lch or Rch settings to validate and press **2 (ENT)**.
   L->L+R: Make the present Lch settings valid and set L/R with the same adjustment values.
   R->L+R: Make the present Rch settings valid and set L/R with the same adjustment values.
2) Press **6 (RTN)**.



Continued

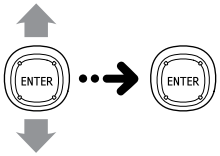
Crossover adjustment/Switching the phase (continued)

8 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.

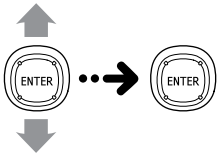


9 Press **1 (▲)** or **5 (▼)**, select the channel (speaker) to be adjusted, then press **2 (ENT)**.

The channels that can be selected depend on the system settings (page 9).

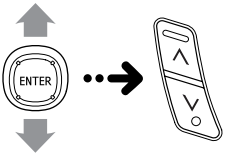


10 Press **1 (▲)** or **5 (▼)**, select “ADJUST [Adjust]”, then press **2 (ENT)**.

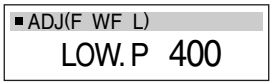


11 Press **1 (▲)** or **5 (▼)**, select “LOW.P [Low Pass Freq]” or “HI.P [High Pass Freq]”, then press **2 (ENT)**.

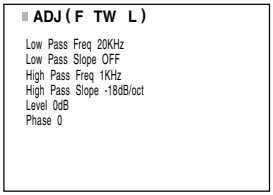
- Adjust the crossover network HI/LOW by operating the steps 11 to 14.



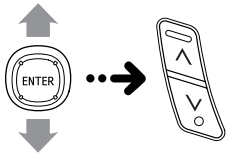
12 Press **1 (▲)** or **5 (▼)**, select the desired cutoff frequency (crossover point), then press **2 (ENT)**.



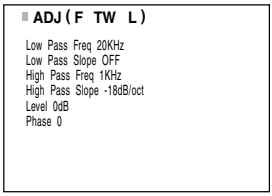
- The bands that can be adjusted differ according to the channel (speaker).

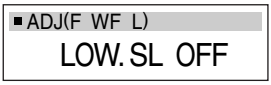


13 Press **1 (▲)** or **5 (▼)**, select “LOW.SL [Low Pass Slope]” or “HI.SL [High Pass Slope]”, then press **2 (ENT)**.

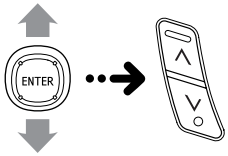


14 Press **1 (▲)** or **5 (▼)**, adjust the slope, then press **2 (ENT)**.

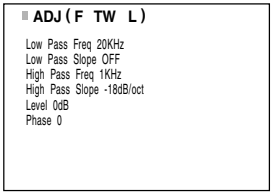


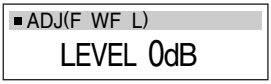


15 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.

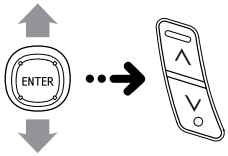


16 Press **1 (▲)** or **5 (▼)**, adjust the level (–12dB~0dB, 1dB steps), then press **2 (ENT)**.



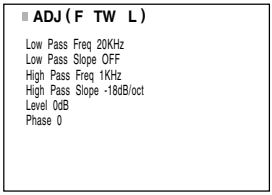


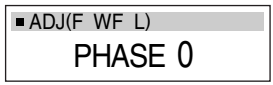
17 Press **1 (▲)** or **5 (▼)**, select “PHASE [Phase]”, then press **2 (ENT)**.



18 Press **1 (▲)** or **5 (▼)**, switch the phase, then press **2 (ENT)**.

0°↔180°





Continued

Crossover adjustment/Switching the phase (continued)

19 To adjust another channel, after pressing **6 (RTN)**, repeat steps 8 to 18.

20 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Hint for adjusting the subwoofer

- If the subwoofer is installed on the rear deck, setting a gentle L.P.F. slope (for example –6 dB/oct.) makes the sound localization more to the rear. This can also affect the acoustic localization of the front.

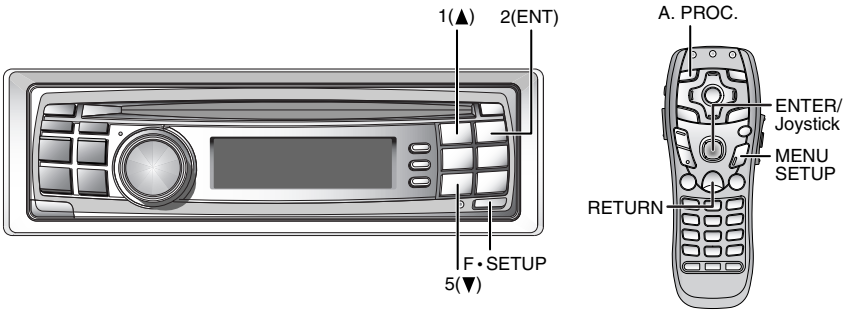
Hints for adjusting the high range

- Depending on the speaker, inputting low frequency component signals (about 2 kHz or less) with the H.P.F. adjustment could result in distortion. If so, set a steep slope (for example –30 dB/oct.). When doing so, adjust so that the mid and high range sounds do not separate.
- Normally use with the L.P.F. off. If the high range is too strong, we recommend adjusting for a gentle slope.

Hint for adjusting the low range

- When a subwoofer is connected and you are using a speaker with a low range of under 10 or 12 cm (3-15/16" or 4-3/4"), setting the low range H.P.F. to “OFF” can result in distortion when low frequency components are input. If so, set the H.P.F. slope to a value suited for the speaker’s frequency response.

Supplement See page 51 for supplementary information.



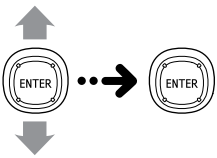
MX settings

MX (Media Xpander) makes vocals or instruments sound distinct regardless of the music source. The FM radio and CD will be able to reproduce the music clearly even in cars with a lot of road noise. When the head unit's music source is switched, the settings automatically switch to the MX settings you have set.

1 Check that the head unit defeat mode is off.

2 Press and hold **F•SETUP** for at least 3 seconds.

3 Press **1 (▲)** or **5 (▼)**, select "M.M.Manager [Multi Media Manager]", then press **2 (ENT)**.

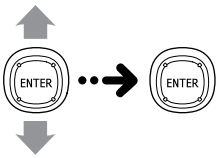


Continued

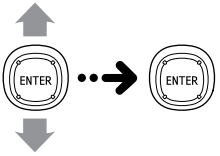
Settings/Adjustments

MX settings (continued)

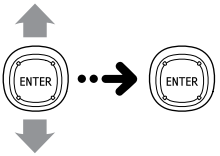
4 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



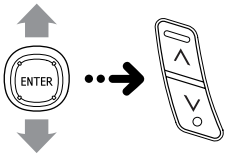
5 Press **1 (▲)** or **5 (▼)**, select “MEDIA.S.MGR [Media Sound Manager]”, then press **2 (ENT)**.



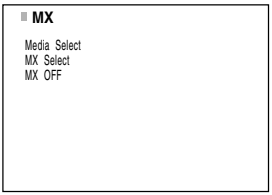
6 Press **1 (▲)** or **5 (▼)**, select “MX [Media Xpander]”, then press **2 (ENT)**.



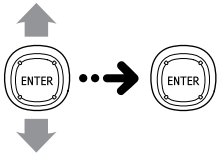
7 Press **1 (▲)** or **5 (▼)**, select “MX ON/OFF”.



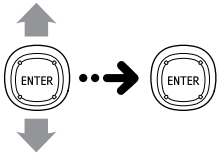
8 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch MX ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)** and MX is switched OFF.



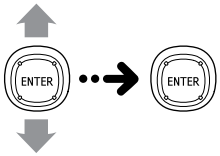
9 If set to ON, press **1 (▲)** or **5 (▼)**, select “MEDIA SEL [Media Select]”, then press **2 (ENT)**.



10 Press **1 (▲)** or **5 (▼)**, select the source (medium) to be set, then press **2 (ENT)**.



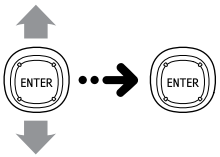
11 Press **1 (▲)** or **5 (▼)**, select “MX SELECT [MX Select]”, then press **2 (ENT)**.

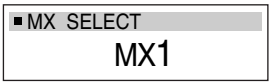


Continued

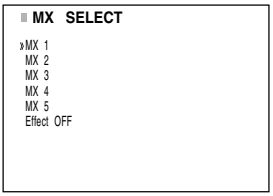
MX settings (continued)

12 Press **1 (▲)** or **5 (▼)**, select the desired mode, then press **2 (ENT)**.





When “OFF” is selected, the MX effect is turned off.



FM: MX1 to 5 and OFF
The medium to high frequencies become more clear, and produces well balanced sound in all the bands.

CD: MX1 to 5 and OFF
CD mode processes a large quantity of data. This data is used to reproduce the sound cleanly by making use of the data quantity.

CMP.MEDIA [Compressed Media] (MP3, WMA, etc.)/XM: MX1 to 5 and OFF
This corrects information that was omitted at the time of compression. This reproduces a well-balanced sound close to the original.

DVD-VIDEO [DVD-Video]/VIDEO-CD [Video-CD]: MX1 to 5, OFF
The dialogues of movies are played with greater clarity.

AUX: MX1 to 5, OFF
Choose the MX mode (MX1: Low compression rate to MX5: High compression rate) that corresponds to the media compression rate connected.

13 To make the settings for another source (medium), repeat steps 9 to 12.

14 Once the settings are completed, press and hold **F • SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 51 for supplementary information.

Supplementary information This page includes supplementary information for pages 26 to 50. Please refer to these pages.

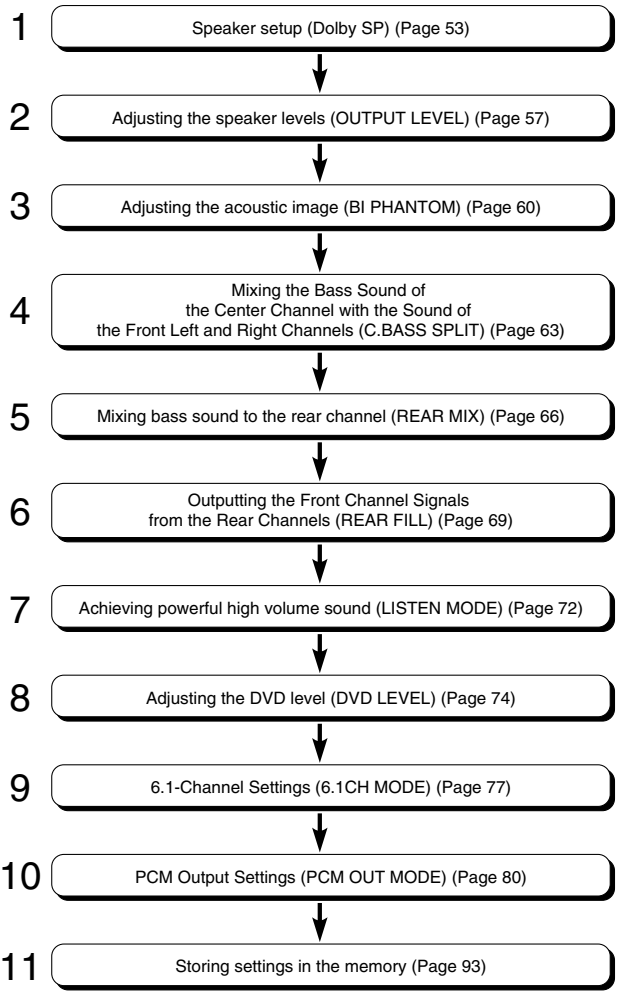
TITLE	Description	Related page
Performing time correction manually (Time Correction)	Time correction cannot be performed for speakers set to “OFF” at the speaker settings (page 7).	☞ Page 26
	In reality the time difference depends not only on the difference in physical distance but also on the delay time between the time at which the signals are input to the speakers until the sound is output. This delay time depends on the speaker, and may also be somewhat affected on how the speaker is mounted on the vehicle. After making the setting, we recommend listening to the sound and fine-adjusting if necessary.	☞ Page 26
	After making the settings, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 26
	The operations performed with the remote control unit in step 5 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 28
Equalizer adjustments	The equalizer adjustments cannot be made for speakers set to “OFF” at the speaker settings (page 7).	☞ Page 32
	After making the settings, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 32
	The operations performed with the remote control unit in step 2 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 33
	When playing back 96kHz or 192kHz DVD-Audio using the graphic EQ, the audio signal is automatically down sampled to 48kHz and played back.	☞ Page 34
Crossover adjustment/ Switching the phase	The crossover network adjustments cannot be made for speakers set to “OFF” at the speaker settings (page 7).	☞ Page 42
	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 42
	After making the settings, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 42
MX settings	The DVD Audio MX setting remains at “OFF”.	☞ Page 47
	The operations performed with the remote control unit in step 2 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 47
	After making the settings, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 47
	When playing back 96kHz or 192kHz DVD-Audio with MX is ON, the audio signal is automatically down sampled to 48kHz and played back.	☞ Page 48

Using the multi-channel function

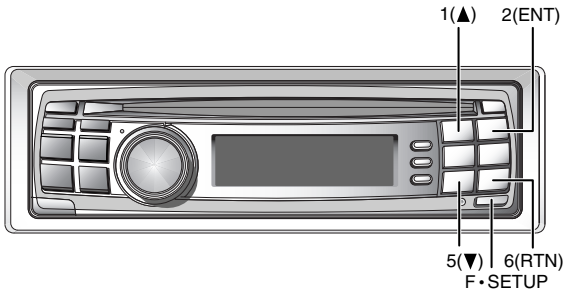
Adjustment procedure for multi-channel function

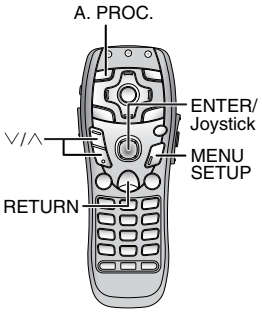
Make the adjustments described below in order to reproduce Dolby Digital and DTS sound with greater accuracy.

Adjustment procedure



- **In case of combining the Automatic adjustments etc.**
  We recommend to make the Automatic adjustments before the multi-channel function adjustments.





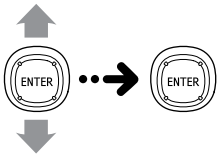
Speaker setup (Dolby SP)

The PXI-H990 can be set according to the playable frequency range of your speakers.
Check the playable frequency range of the speakers (not including the subwoofer) before performing this operation to verify whether the speakers can play low frequencies.

- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment. The setting is canceled if the decode mode is switched.

1 Press and hold **F•SETUP** for at least 3 seconds.

2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.

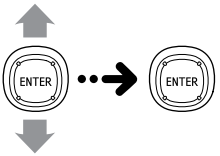


Continued

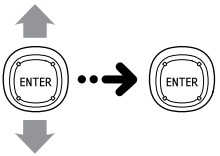
Using the multi-channel function

Speaker setup (Dolby SP) (continued)

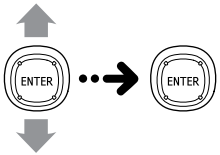
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



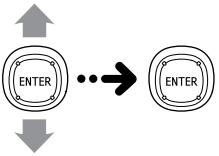
4 Press **1 (▲)** or **5 (▼)**, select “SP SETUP [Speaker Setup]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “Dolby SP [Dolby Speaker Setup]”, then press **2 (ENT)**.

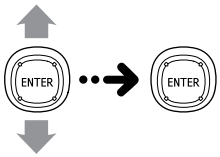


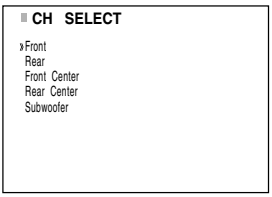
6 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.



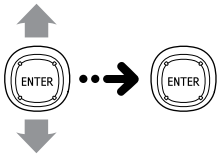
7 Press **1 (▲)** or **5 (▼)**, select the speaker to be set, then press **2 (ENT)**.

FRONT↔REAR ↔ FRONT CENTER↔
SUBWOOFER ↔ REAR CENTER↔

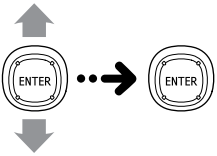




8 Press **1 (▲)** or **5 (▼)**, select “SETUP [Setup]”, then press **2 (ENT)**.



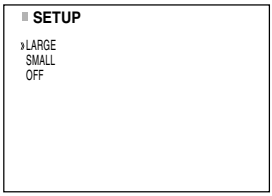
9 Press **1 (▲)** or **5 (▼)**, select the speaker type, then press **2 (ENT)**.



LARGE ↔ **SMALL** ↔ **OFF** *1

(Subwoofer is only ON/OFF.)

LARGE:
When a speaker that can play low frequencies is connected
SMALL:
When a speaker that cannot play low frequencies is connected
OFF:
When no speaker is connected



*1: It is not possible to set the front speakers to “OFF”.

- When the front speaker is SMALL, center speaker is LARGE and the subwoofer is OFF, do not set the rear speakers to OFF or SMALL.
- No sound will be produced from the rear speaker when it is set to off, even when the rear center speaker is set to LARGE or SMALL.

Continued

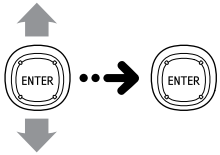
Using the multi-channel function

Speaker setup (Dolby SP) (continued)

10 To adjust another speaker, repeat steps 6 to 9.

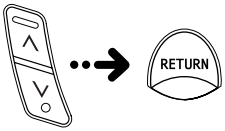
Cut-off frequency setting
Set the cut-off frequency to restrict the playback when the speaker settings are set to "SMALL". Perform this setting after selecting the speaker setting of every speaker.

1) On the mode Dolby SP, press **1 (▲)** or **5 (▼)**, select "CUTOFF [Cutoff]", then press **2 (ENT)**.



2) Press **2 (ENT)**, press **1 (▲)** or **5 (▼),** select the cutoff frequency, then press **6 (RTN)**.

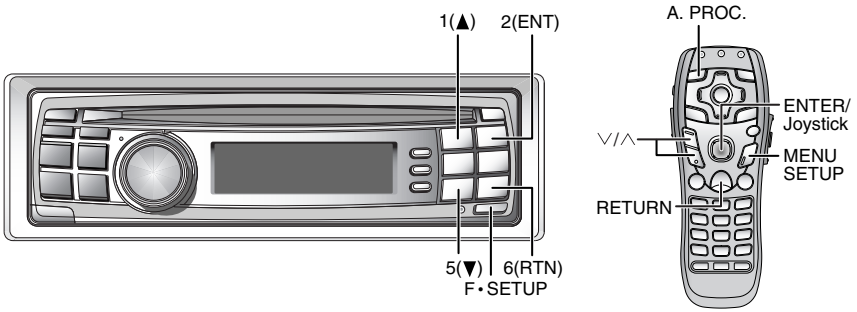
Settable frequencies
80Hz/100Hz/120Hz/160Hz/200Hz



11 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 88 for supplementary information.



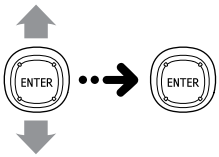
Adjusting the speaker levels (OUTPUT LEVEL)

Use the test tones output from the PXI-H990 to adjust so that the volume of the different speakers is equal.
To achieve a strong sense of presence, adjust so that the volume of the sound heard from the different speakers at the listening position is the same.

- Set the head unit to the TUNER mode before adjusting. When the operation status changes, the settings are cleared.

1 Press and hold **F•SETUP** for at least 3 seconds.

2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.

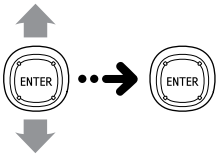


Continued

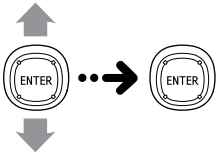
Using the multi-channel function

Adjusting the speaker levels (OUTPUT LEVEL) (continued)

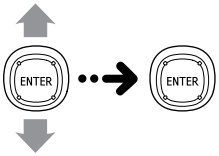
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



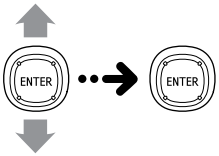
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “OUTPUT LEVEL [Output Level]”, then press **2 (ENT)**.



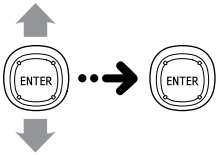
6 Press **1 (▲)** or **5 (▼)**, select “CH SELECT [Channel Select]”, then press **2 (ENT)**.

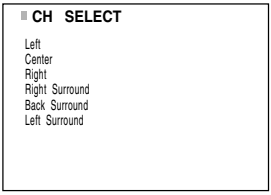


7 Press **1 (▲)** or **5 (▼)**, select the speaker to be adjusted, then press **2 (ENT)**.

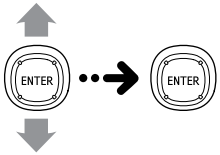
LEFT↔CENTER ↔ RIGHT ↔ R SURROUND
L SURROUND ↔ B SURROUND

When a speaker is selected, a test tone is produced from that speaker.

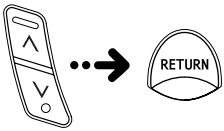




8 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.



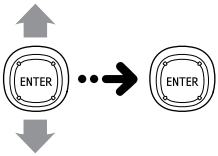
9 Press **2 (ENT)**, press **1 (▲)** or **5 (▼)**, adjust the output level, then press **6 (RTN)**.
Each speaker can be adjusted by ±10 dB (±1 dB step).



■ LEVEL
LEVEL 0 dB

10 To adjust another speaker, repeat steps 6 to 9.

11 When the settings are completed, press **1(▲)** or **5 (▼)**, select “End” and press **2 (ENT)**.
The test tone output is cleared.
If “End” is not selected, the test tone is not cleared, and the SETUP cannot be exited.

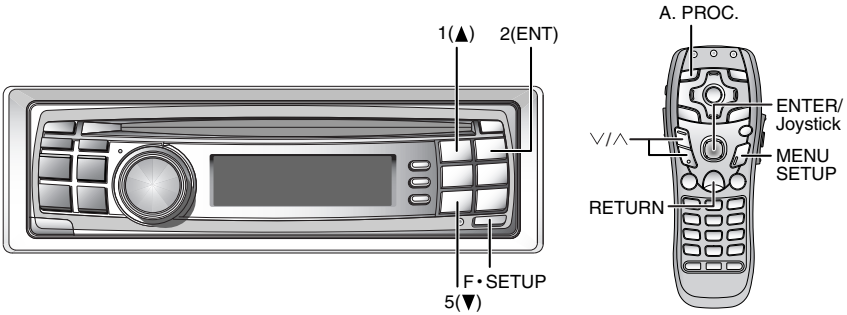


12 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 88 for supplementary information.

Using the multi-channel function



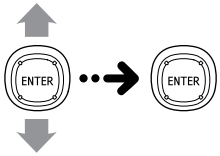
Adjusting the acoustic image (BI PHANTOM)

To achieve sound with a sense of presence, the center speaker must be placed directly in front of the driver's seat and the passenger's seat. With this function, the center channel information is distributed to the left and right speakers. This creates an acoustic image simulating a center speaker directly in front of the listener. (This only has an effect when "DOLBY PL II MOVIE" or "Neo:6 CINEMA" is selected at "PCM Output Settings" (page 80). The audio source must be playing back Dolby Digital or DTS signals with center channel information.)

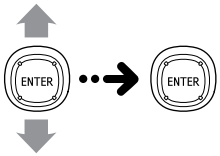
- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

1 Press and hold **F•SETUP** for at least 3 seconds.

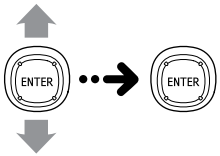
2 Press **1 (▲)** or **5 (▼)**, select "M.M.Manager [Multi Media Manager]", then press **2 (ENT)**.



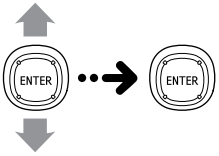
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



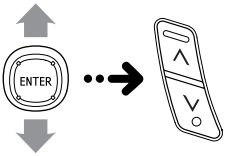
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



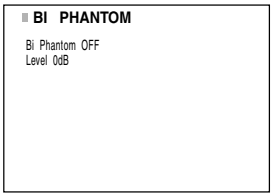
5 Press **1 (▲)** or **5 (▼)**, select “BI PHANTOM [Bi Phantom]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select “MODE ON/OFF [Bi Phantom ON/OFF]”.



7 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.
When set to “ON”, the center channel information is distributed to the left and right speakers. This creates an acoustic image simulating a center speaker directly in front of each listener.



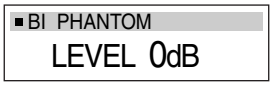
8 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.

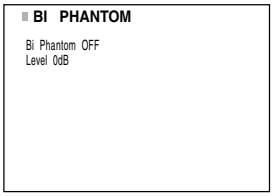
Continued

Using the multi-channel function

Adjusting the acoustic image (BI PHANTOM) (continued)

9 Press **1 (▲)** or **5 (▼)**, adjust the level, then press **2 (ENT)**.
The level can be adjusted within the range of –5 to +5. The higher the level, the more the position of the center speaker is shifted to the sides.

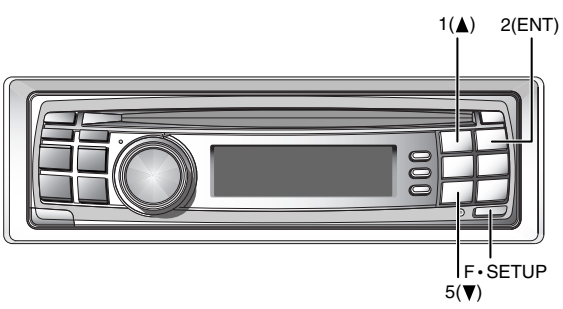




10 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 88 for supplementary information.



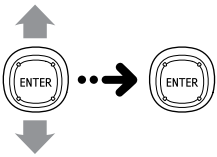
Mixing the Bass Sound of the Center Channel with the Sound of the Front Left and Right Channels (C.BASS SPLIT)

The (bass) audio signals of the center channel are mixed into the audio signals output from the front left and right speakers.

- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

1 Press and hold **F•SETUP** for at least 3 seconds.

2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.

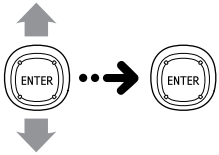


Continued

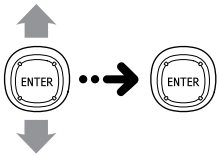
Using the multi-channel function

Mixing the Bass Sound of the Center Channel with the Sound of the Front Left and Right Channels (C.BASS SPLIT) (continued)

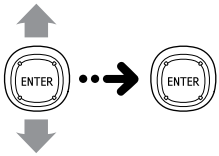
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.

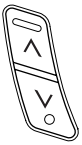


5 Press **1 (▲)** or **5 (▼)**, select “C.BASS SPLIT [Center Bass Split]”, then press **2 (ENT)**.

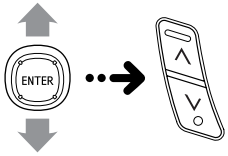


6 Press **1 (▲)** or **5 (▼)**, select “MODE ON/OFF [Center Bass Split ON/OFF]”.

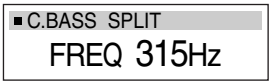
7 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.
When ON is set, the audio signal from the front L/R can be mixed with the center audio signal (low range).

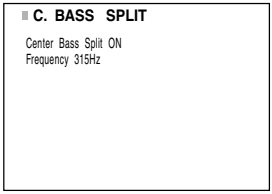


8 When ON is set, press **1 (▲)** or **5 (▼)**, select "FREQ [Frequency]", then press **2 (ENT)**.



9 Press **1 (▲)** or **5 (▼)**, select the frequency to be set, then press **2 (ENT)**.
Possible frequency setting
200Hz/225Hz/250Hz/280Hz/315Hz/
350Hz/400Hz/450Hz/500Hz



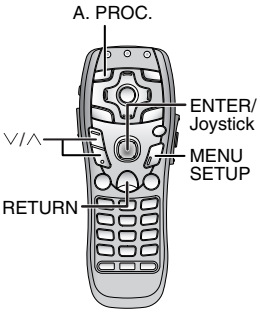


10 Once the settings are completed, press and hold **F• SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 89 for supplementary information.

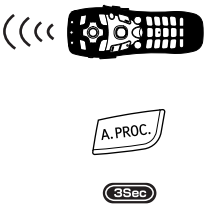
Using the multi-channel function



Mixing bass sound to the rear channel (REAR MIX)

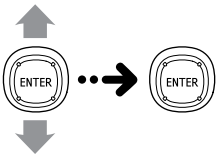
This function mixes the front channel audio signals (low range) to the audio signals output from the rear speakers, improving the sound in the vehicle's rear seat.

- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.
- This function has an effect in case of PRO LOGIC II, DTS Neo:6.
- This has no effect when "REAR FILL" (page 69) is set to "ON".

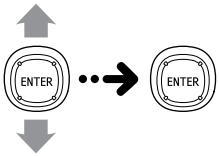


1 Press and hold **F•SETUP** for at least 3 seconds.

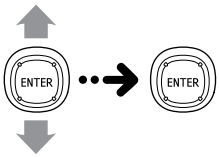
2 Press **1 (▲)** or **5 (▼)**, select "M.M.Manager [Multi Media Manager]", then press **2 (ENT)**.



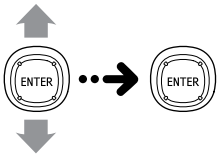
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



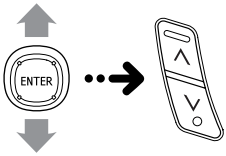
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “REAR MIX [Rear Mix]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select “MODE ON/OFF [Rear Mix ON/OFF]”.



7 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.
When set to “ON”, the front audio signals (low range) are mixed into the audio signals output from the rear speakers.

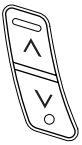
8 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.

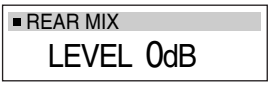
Continued

Using the multi-channel function

Mixing bass sound to the rear channel (REAR MIX) (continued)

9 Press **1 (▲)** or **5 (▼)**, adjust the output level, then press **2 (ENT)**.
The level can be adjusted in five steps: –6, –3, 0, +3 and +6. The higher the level, the more bass is output from the rear speakers. (The effect differs according to the software (DVD, etc.).)

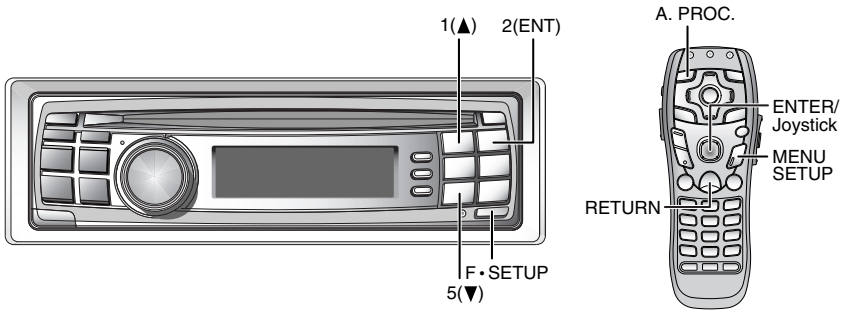




10 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 89 for supplementary information.



Outputting the Front Channel Signals from the Rear Channels (REAR FILL)

When playing back 2 channel software, the front channel signals can be output from the rear channels.

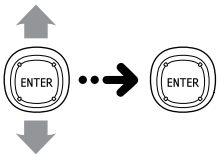
- This function only works with two-channel signals. This operation is ineffective when 5.1-channel DTS or Dolby Digital signals are input.
- Depending on the input signals, the sound may only be output from the front speakers.
- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

Using the multi-channel function

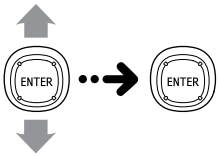
Outputting the Front Channel Signals from the Rear Channels (REAR FILL) (continued)

1 Press and hold **F•SETUP** for at least 3 seconds.

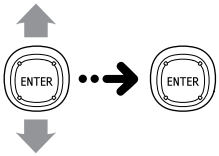
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



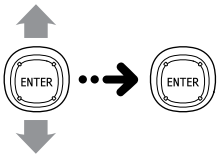
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



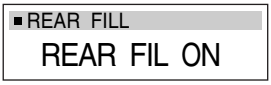
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.

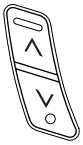


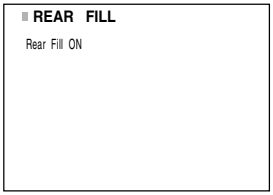
5 Press **1 (▲)** or **5 (▼)**, select “REAR FILL [Rear Fill]”, then press **2 (ENT)**.



6 After pressing **2 (ENT)**, press **1 (▲)** or **5 (▼)**, to switch ON/OFF.





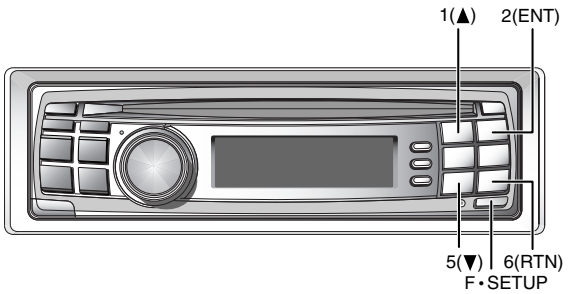


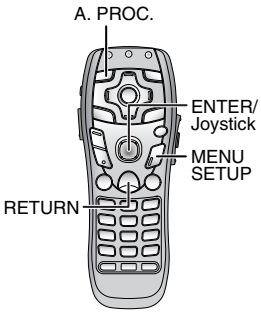
7 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 89 for supplementary information.

Using the multi-channel function





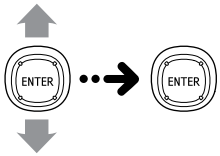
Achieving powerful high volume sound (LISTEN MODE)

With Dolby Digital, the dynamic range is compressed so that powerful sound can be achieved at regular volume levels. This compression can be canceled to achieve an energetic sound with even greater power, like the sound in a movie theater.

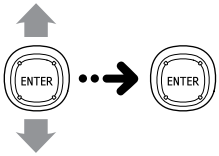
- This function works only in the Dolby Digital and DTS mode.
- Keep the volume to a level at which sounds outside the vehicle can still be heard.
- This function may have no effect, depending on the type of software (DVD, etc.).

1 Press and hold **F•SETUP** for at least 3 seconds.

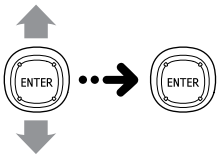
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



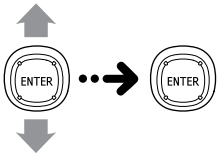
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



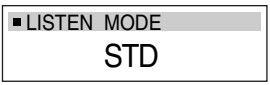
5 Press **1 (▲)** or **5 (▼)**, select “LISTEN MODE [Listening Mode]”, then press **2 (ENT)**.

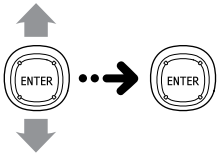


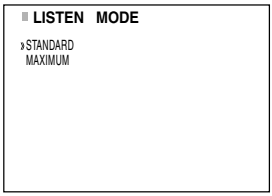
6 Press **1 (▲)** or **5 (▼)**, select “STD [STANDARD]” or “MAX [MAXIMUM]”, then press **2 (ENT)**.

STD [STANDARD] ↔ MAX [MAXIMUM]

STD [STANDARD]:
For powerful sound at regular volume levels
MAX [MAXIMUM]:
For powerful sound at high volumes





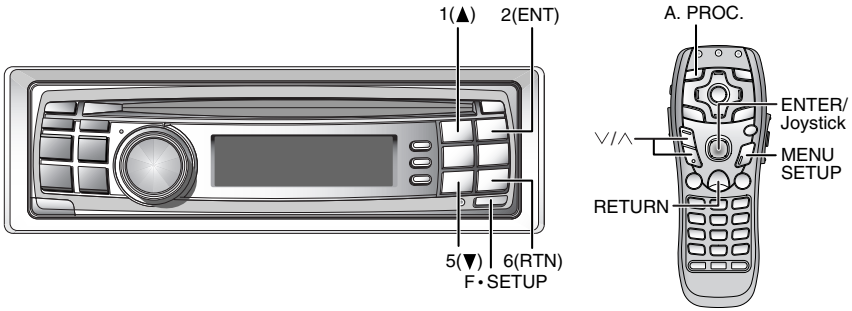


7 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 89 for supplementary information.

Using the multi-channel function



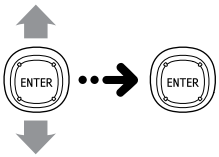
Adjusting the DVD level (DVD LEVEL)

The volume (signal level) for the Dolby Digital, Pro Logic II, DTS, DTS Neo:6 and PCM modes can be set.

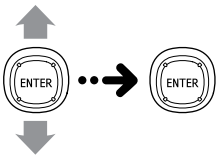
- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

1 Press and hold **F•SETUP** for at least 3 seconds.

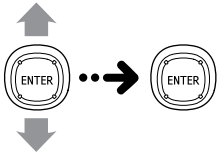
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



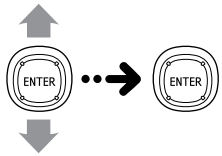
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



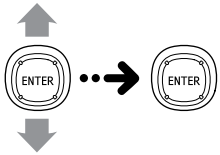
4 Press **1 (▲)** or **5 (▼)**, select “MEDIA.S.MGR [Media Sound Manager]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “DVD LEVEL [DVD Volume Level Setup]”, then press **2 (ENT)**.

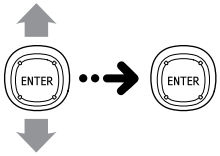


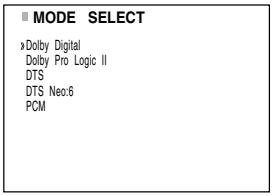
6 Press **1 (▲)** or **5 (▼)**, select “MODE SELECT [Mode Select]”, then press **2 (ENT)**.



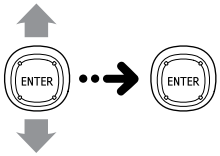
7 Press **1 (▲)** or **5 (▼)**, select the item to be adjusted, then press **2 (ENT)**.

Dolby D ⟷ **Dolby PL Ⅱ** ⟷ **DTS**
[Dolby Digital] **[Dolby Pro Logic Ⅱ]**
PCM ↔ **DTS Neo:6**





8 Press **1 (▲)** or **5 (▼)**, select “VOLUME LEVEL [Volume Level]”, then press **2 (ENT)**.

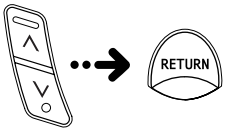


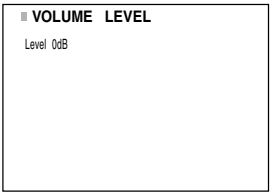
Continued

Using the multi-channel function

Adjusting the DVD level (DVD LEVEL) (continued)

9 After pressing **2 (ENT)**, press **1 (▲)** or **5 (▼)**, adjust the level, then press **6 (RTN)**.
The level can be adjusted in the range of –10dB to +10dB (2dB step).



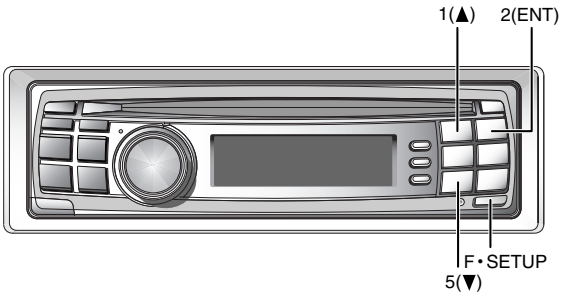


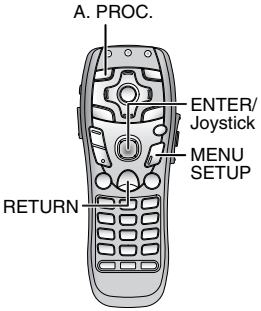
10 Repeat steps 6 to 9 to adjust the different levels.

11 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 89 for supplementary information.

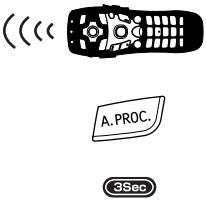




6.1-Channel Settings (6.1CH MODE)

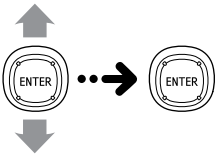
Make the Dolby Digital EX and DTS-ES decoding settings. Due to the speaker setting (page 7), you may not be able to set if SYSTEM1 or SYSTEM2 is selected.
See page 107 for information on Dolby Digital EX and DTS-ES.

- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

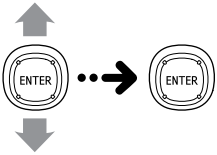


1 Press and hold **F•SETUP** for at least 3 seconds.

2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.

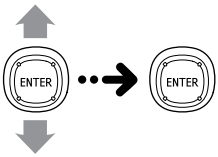


Continued

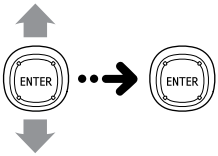
Using the multi-channel function

6.1-Channel Settings (6.1CH MODE) (continued)

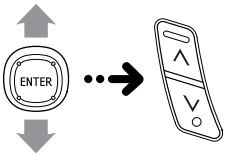
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



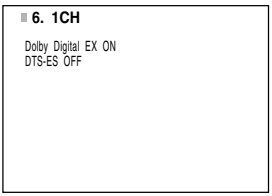
5 Press **1 (▲)** or **5 (▼)**, select “6.1CH MODE [6.1ch Mode]”, then press **2 (ENT)**.
Cannot select 6.1CH MODE when “SYSTEM 1” or “SYSTEM 2” is selected at the speaker settings (page 7).



6 Press **1 (▲)** or **5 (▼)**, select “Dolby EX [Dolby Digital EX]” or “DTS-ES”, then press **2 (ENT)**.



7 Press **1 (▲)** or **5 (▼)**, switch ON/OFF, then press **2 (ENT)**.



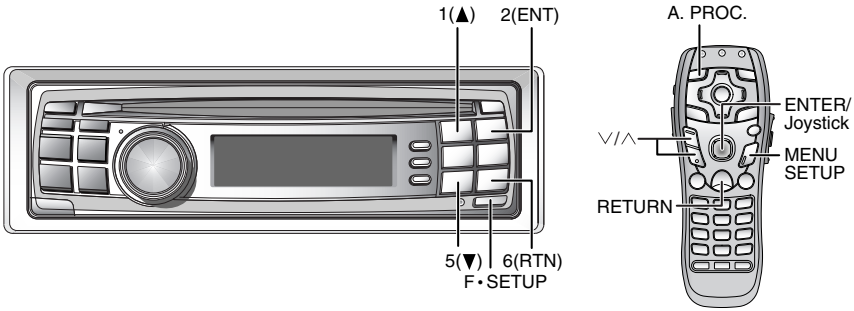
8 To set other items, repeat steps 6 and 7.

9 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 90 for supplementary information.

Using the multi-channel function



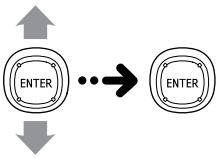
PCM Output Settings (PCM OUT MODE)

Dolby Pro Logic II processes music signals recorded in two channels and plays them in the Surround mode. Also, the output may be set to 2 or 3 channels when playing discs recorded in linear PCM.

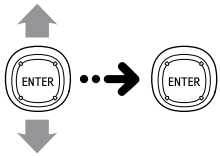
- Avoid stopping, pausing, switching the disc, cueing, fast-forwarding or switching the audio channel of the player while making this adjustment.

1 Press and hold **F•SETUP** for at least 3 seconds.

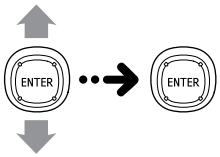
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



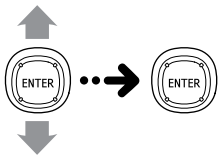
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



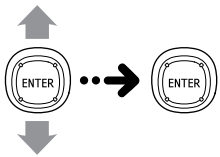
4 Press **1 (▲)** or **5 (▼)**, select “MULTI.CH.MGR [Multi Channel Manager]”, then press **2 (ENT)**.



5 Press **1 (▲)** or **5 (▼)**, select “PCM OUT MODE [PCM Out Mode]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select “PCM SELECT [PCM Mode Select]”, then press **2 (ENT)**.



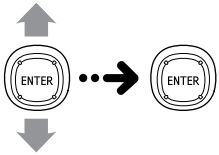
Continued

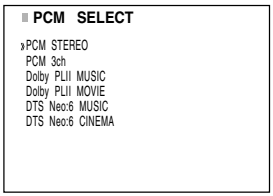
Using the multi-channel function

PCM Output Settings (PCM OUT MODE) (continued)

7 Press **1 (▲)** or **5 (▼)**, select the desired mode, then press **2 (ENT)**.

PCM STEREO ↔ PCM 3ch ↔ PL II MUSIC ↔
Neo:6 CINEMA ↔ Neo:6 MUSIC ↔ PL II MOVIE ↔





PCM STEREO : 2ch output (L/R)
PCM 3ch : 3ch output (L/R/Center/Rear Center)
PL II MOVIE : Suits the stereo TV shows and movie programs encoded in Dolby Surround. It improves the sound field directivity to near that of discrete 5-channel sound.
PL II MUSIC : Can be used for all stereo music recordings, and provides a wide, deep sound field.
Neo:6 MUSIC : PCM sources are decoded in such a way as to achieve a 6-channel-like “3D” sound field. This setting is suited for playing music.
Neo:6 CINEMA: PCM sources are decoded in such a way as to achieve a 6-channel-like “3D” sound field. This setting is suited for playing movies.

- When PL II MUSIC is selected, refer to “When “PL II MUSIC” is selected” on page 83.
- When Neo:6 MUSIC is selected, refer to “When “Neo:6 MUSIC” is selected” on page 86.
- The subwoofer output when PL II or Neo:6 is selected when SMALL is set for the front speaker (see page 55).

8 Once the settings are completed, press and hold **F • SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 90 for supplementary information.

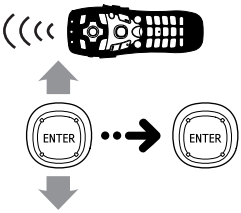
When “PL II MUSIC” is selected

When “PL II MUSIC [Dolby PL II MUSIC]” is selected, various other settings can be made, as described below.

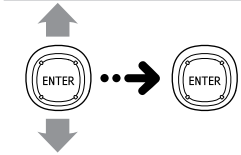
• Center width adjustment (CENTER WIDTH)

The vocal position between the center speaker and the L/R speaker can be optimized.

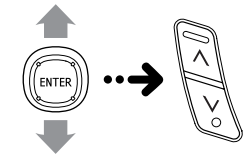
1 In PCM OUT MODE, press **1 (▲)** or **5 (▼)**, select “Dolby PL II [Dolby Pro Logic II]”, then press **2 (ENT)**.



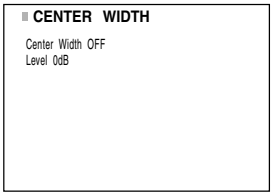
2 Press **1 (▲)** or **5 (▼)**, select “CENTER WIDTH [Center Width]”, then press **2 (ENT)**.



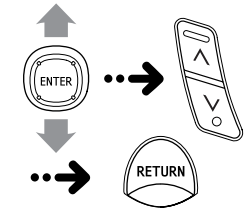
3 Press **1 (▲)** or **5 (▼)**, select “MODE ON/OFF [Center Width ON/OFF]”.



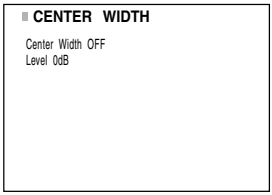
4 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.
With this setting ON, the vocal position between the center speaker and the L/R speaker can be optimized.



5 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.



6 Press **1 (▲)** or **5 (▼)**, select the level to be adjusted, then press **6 (RTN)**.
The level can be adjusted between 0 to 7.
Increasing the level causes the center stage position to move away from the center speaker towards the Left and Right speakers.



Continued

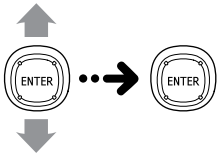
Using the multi-channel function

PCM Output Settings (PCM OUT MODE) (continued)

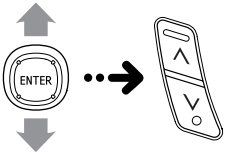
• Front and rear level difference adjustment (DIM CONTROL)

The sound field can be adjusted towards the front or towards the back.
If the hollow effect is too weak or too strong for recording, then an optimum balance is achieved from all the speakers.

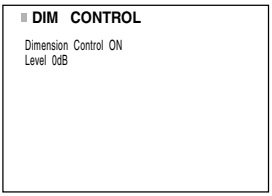
7 In Dolby PL II mode, press **1 (▲)** or **5 (▼)**, select “DIM CONTROL [Dimension Control]”, then press **2 (ENT)**.



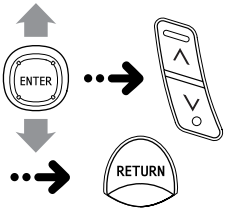
8 Press **1 (▲)** or **5 (▼)**, select “MODE ON/OFF [Dimension Control ON/OFF]”.



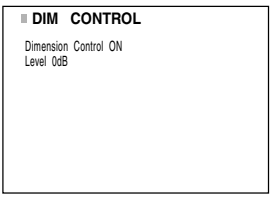
9 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.
When set to “ON”, the sound field can be adjusted towards the front or towards the back.



10 Press **1 (▲)** or **5 (▼)**, select “LEVEL [Level]”, then press **2 (ENT)**.



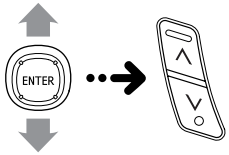
11 Press **1 (▲)** or **5 (▼)**, select the level to be adjusted, then press **6 (RTN)**.
The level can be adjusted between –3 to +3.
The higher the level, the more the sound field is moved towards the front.



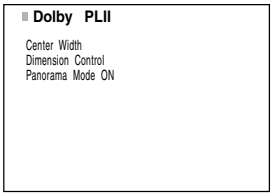
• To emphasize the surround effect (PANORAMA)

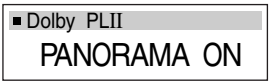
The stereo image of the front channels expands to the surround speakers. This creates a stimulating "enveloping" effect with the acoustic image on the sides.

12 In Dolby PL II mode, press **1 (▲)** or **5 (▼)**, select "PANORAMA ON/OFF [Panorama Mode ON/OFF]", then press **2 (ENT)**.



13 Press **1 (▲)** or **5 (▼)** to switch ON/OFF, then press **2 (ENT)**.
When set to "ON", the stereo image of the front channels expands to the surround speakers. This creates a stimulating "enveloping" effect with the acoustic image on the sides.



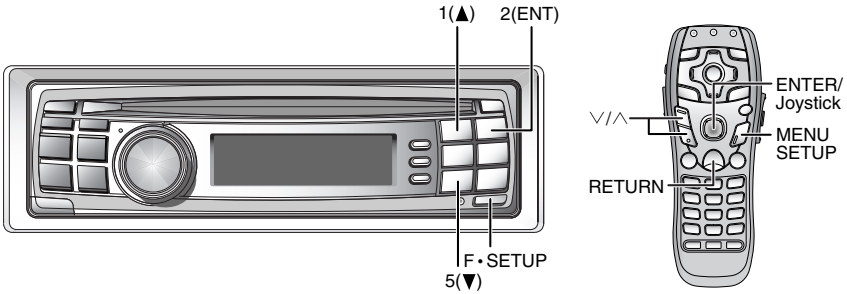


14 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Using the multi-channel function

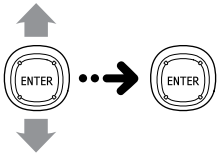
PCM Output Settings (PCM OUT MODE) (continued)



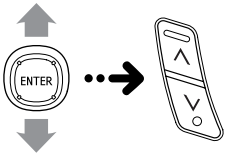
When "Neo:6 MUSIC" is selected

When "Neo:6 MUSIC [DTS Neo:6 MUSIC]" is selected, CGAIN can be set using the procedure described below.

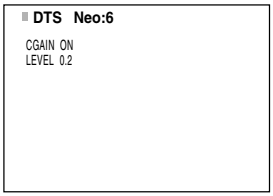
1 In PCM OUT MODE, press **1 (▲)** or **5 (▼)**, select "DTS Neo:6", then press **2 (ENT)**.



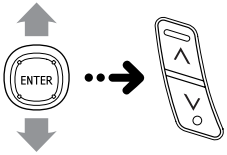
2 Press **1 (▲)** or **5 (▼)**, select "CGAIN ON/OFF".



3 When OFF, press **1 (▲)** after pressing **2 (ENT)** to switch ON.
To switch from ON to OFF, press **5 (▼)** after pressing **2 (ENT)**.

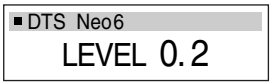


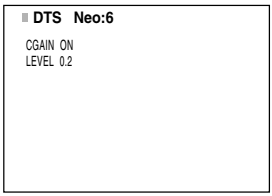
4 Press **1 (▲)** or **5 (▼)**, select “LEVEL”, then press **2 (ENT)**.



(Level adjustment)

5 Press **1 (▲)** or **5 (▼)**, adjust the level, then press **2 (ENT)**.
The level can be adjusted from 0 to 0.5 (0.1 step).





6 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Supplement See page 90 for supplementary information.

Using the multi-channel function

Supplementary information The following pages include supplementary information for pages 52 to 87. Please refer to these pages.

TITLE	Description	Related page
Speaker setup (Dolby SP)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 53
	Some of the speaker settings are related to the settings of the other speakers in the system. Therefore, changing the settings for one speaker may produce a change in the output of the other speakers.	☞ Page 53
	If the center speaker is turned “OFF”, the center channel’s audio signals are added to the audio signals output from the front speakers. However, for discs that DVD-Audio Down MIX is not permitted, the center audio signal cannot be added to.	☞ Page 53
	Set the speaker selector to OFF for channels set to OFF in the Dolby speaker setup. (See page 7.)	☞ Page 53
	When using the PRO LOGIC II, Neo:6, if the front speaker is set to “LARGE”, then there will be no output from the subwoofer.	☞ Page 53
	Perform the setup for all speakers (“Front”, “Rear”, “Center”, “Rear C” and “Sub. WF”). If not, the sound may not be balanced.	☞ Page 53
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 53
Adjusting the speaker levels (OUTPUT LEVEL)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 57
	Adjust based on the front speakers.	☞ Page 57
	If a speaker is set to the off mode, that speaker’s level cannot be adjusted. Refer to “Speaker setup” (page 53).	☞ Page 57
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 57
Adjusting the acoustic image (BI PHANTOM)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 60
	This adjustment is ineffective if the center speaker is set to “OFF” in the speaker setup settings.	☞ Page 60
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 60

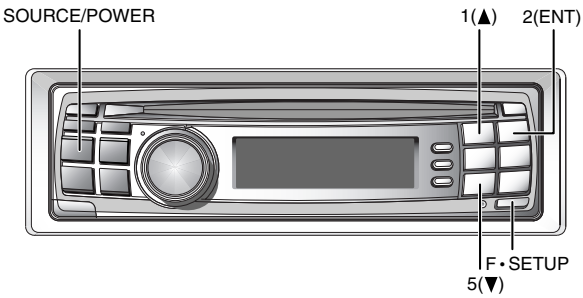
TITLE	Description	Related page
Mixing the Bass Sound of the Center Channel with the Sound of the Front Left and Right Channels (C.BASS SPLIT)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 63
	This adjustment is ineffective if the center speaker is set to “OFF” in the speaker setup settings.	☞ Page 63
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 63
Mixing bass sound to the rear channel (REAR MIX)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 66
	This adjustment is ineffective when the rear speaker setup setting is set to “OFF”.	☞ Page 66
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 66
Outputting the Front Channel Signals from the Rear Channels (REAR FILL)	This adjustment is ineffective when the rear speaker setup setting is set to “OFF”.	☞ Page 69
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 69
	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 70
Achieving powerful high volume sound (LISTEN MODE)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 72
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 72
Adjusting the DVD level (DVD LEVEL)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 74
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 74

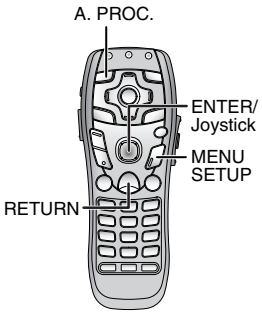
Using the multi-channel function

Supplementary information This page includes supplementary information for pages 52 to 87. Please refer to these pages.

TITLE	Description	Related page
6.1-Channel Settings (6.1CH MODE)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 77
	When the speaker is set to “OFF” mode, audio is not produced from that speaker. See “Setting the speakers”, (page 7) and “Speaker setup”, (page 53).	☞ Page 77
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 77
PCM Output Settings (PCM OUT MODE)	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 80
	When a speaker is set to the “OFF” mode, no sound is output from that speaker. See “Setting the speakers” (page 7).	☞ Page 80
	The “DOLBY PROLOGIC II” and “DTS Neo:6” settings are only valid for 2-channel audio signals (including PCM and bit stream).	☞ Page 80
	Once the settings are made, we recommend storing them in the memory. See page 93 for instructions.	☞ Page 80
	When playing back 96kHz or 192kHz DVD-Audio when DOLBY PRO LOGIC II or DTS Neo:6 mode is selected, the audio signal is automatically down sampled to 48 kHz and played back.	☞ Page 82
	When “PL II MUSIC” is selected This adjustment, there is no effect from CENTER WIDTH. If the center speaker is set to “OFF” in the speaker setup settings.	☞ Page 83
	“BI PHANTOM” is turned off when “CENTER WIDTH” is enabled.	☞ Page 83

Convenient Functions



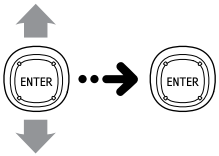


External input settings

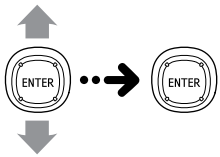
Television and video with RCA audio outputs can be connected to the PXI-H990.

1 Press and hold **F•SETUP** for at least 3 seconds.

2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



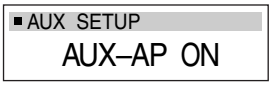
3 Press **1 (▲)** or **5 (▼)**, select “AUX SETUP”, then press **2 (ENT)**.

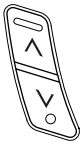


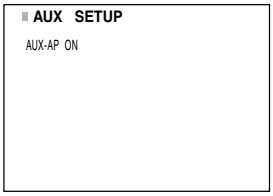
Continued

External input settings (continued)

4 After pressing **2 (ENT)**, press **1 (▲)** or **5 (▼)**, to switch ON/OFF.





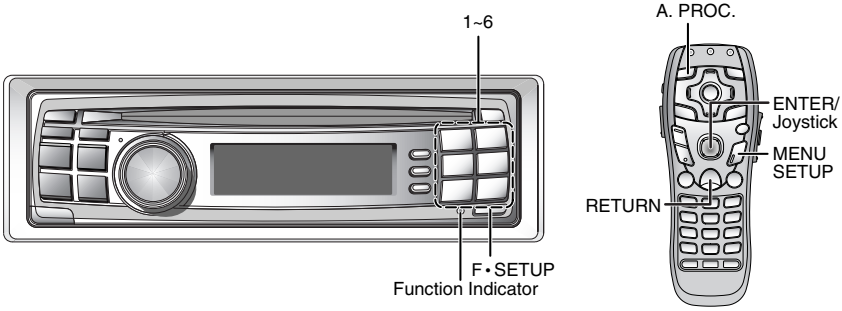


5 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- After setting AUX ON/OFF, turn the ignition key to OFF, and switch the ignition key to ACC or ON again. The setting contents are realized.
- If **6 (RTN)** or **RETURN** on the remote control is pressed in the setting mode, the previous item is returned to.

6 Press **SOURCE/POWER**, select AUX-AP (external input) mode, and adjust the volume etc..

Supplement See page 104 for supplementary information.



Storing settings in the memory

With the PXI-H990, up to six sets of adjustments and settings you have made can be stored in the memory.
The adjustment and setting items listed below are all stored at one preset memory position.

Adjustment/Setting Items	See page
Setting the speakers	7
Time correction	21, 26
Equalizer adjustments	32
Crossover adjustment/Switching the phase	42
MX settings	47
Speaker setup	53
Adjusting the speaker levels	57
Adjusting the acoustic image*	60
Mixing bass sound to the rear channel*	66
Outputting the Front Channel Signals from the Rear Channels*	69
Achieving powerful high volume sound*	72
Adjusting the DVD level	74
PCM Output Settings*	80

* Has no effect for some input signals.

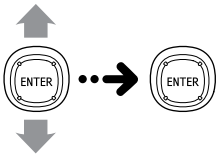
Continued

Convenient Functions

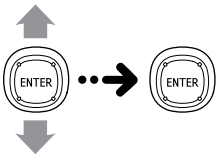
Storing settings in the memory (continued)

1 Press and hold **F•SETUP** for at least 3 seconds.

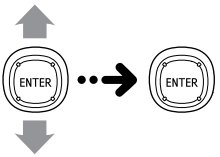
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



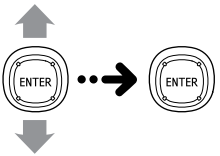
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



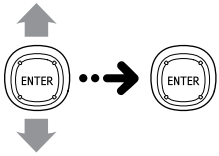
4 Press **1 (▲)** or **5 (▼)**, select “PRESET [Preset]”, then press **2 (ENT)**.



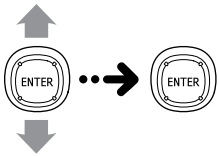
5 Press **1 (▲)** or **5 (▼)**, select “MODE [Recall or Store]”, then press **2 (ENT)**.



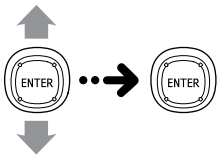
6 Press **1 (▲)** or **5 (▼)**, select “STORE [Store]”, then press **2 (ENT)**.



7 Press **1 (▲)** or **5 (▼)**, select “PRESET NO [Preset No.]”, then press **2 (ENT)**.



8 Press **1 (▲)** or **5 (▼)**, select the preset number at which the settings are to be stored, then press **2 (ENT)**.
Approximately 5 seconds are required for the processing to be completed.



9 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

Easily storing the adjusted/set contents in the memory

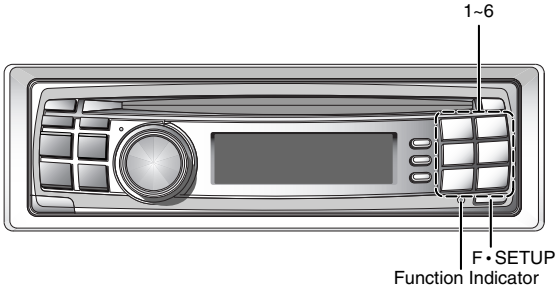
The following operation is performed from the head unit.

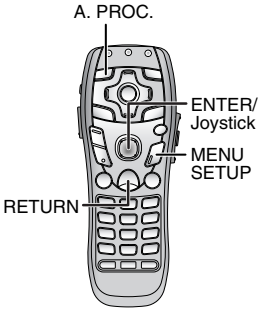
1 Press **F•SETUP** so that the function indicator becomes blue.

2 Press and hold a button from **1** to **6** for at least 2 seconds to store in the preset No.

Supplement See page 104 for supplementary information.

Convenient Functions

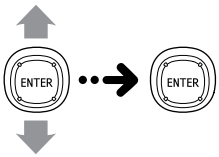




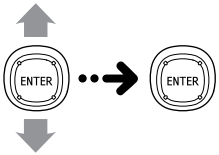
Calling out stored values

1 Press and hold **F•SETUP** for at least 3 seconds.

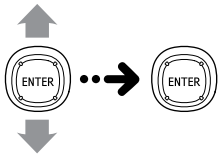
2 Press **1 (▲)** or **5 (▼)**, select “M.M.Manager [Multi Media Manager]”, then press **2 (ENT)**.



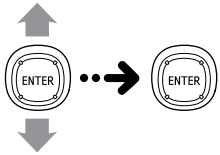
3 Press **1 (▲)** or **5 (▼)**, select “AP SETUP”, then press **2 (ENT)**.



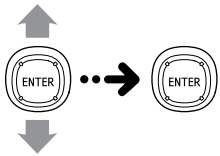
4 Press **1 (▲)** or **5 (▼)**, select “PRESET [Preset]”, then press **2 (ENT)**.



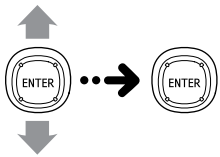
5 Press **1 (▲)** or **5 (▼)**, select “MODE [Recall or Store]”, then press **2 (ENT)**.



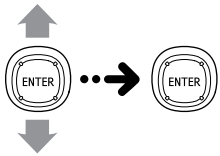
6 Press **1 (▲)** or **5 (▼)**, select “RECALL [Recall]”, then press **2 (ENT)**.

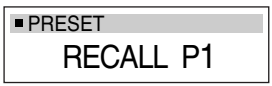


7 Press **1 (▲)** or **5 (▼)**, select “PRESET NO [Preset No.]”, then press **2 (ENT)**.



8 Press **1 (▲)** or **5 (▼)**, select the preset number whose settings you want to call out, then press **2 (ENT)**.
In the preset memory, numerous settings/ adjustments are stored. Therefore, it may take ten or more seconds to access the stored preset memory.





Continued

Convenient Functions

Calling out stored values (continued)

9 Once the settings are completed, press and hold **F•SETUP** for at least 3 seconds.

- Press **6 (RTN)** or **RETURN** on the remote control in the setting mode to return to the previous item.

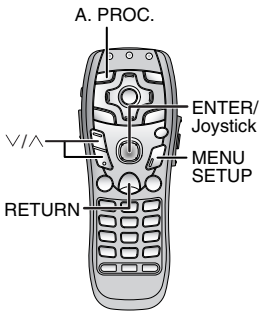
Easily calling out values in the memory

1 Press **F•SETUP** so that the function indicator becomes blue.

2 Press a button from **1** to **6** to call out the adjustment values (preset number) stored in the memory.

- The preset number called out switches each time **A. PROC.** is pressed.

Supplement See page 104 for supplementary information.



Equalizer adjustment (when DVI-9990/TMI-M990 is connected)

When using the (DVI-9990) head unit and the (TMI-M990) monitor (both sold separately) in the system (page 32), EQ adjustments are reflected in the data on the head unit's and monitor's displays.

The operation is from the remote control supplied with the head unit. Switch the selector switch on the rear side of the remote control to H/U.

1 Check that the head unit defeat mode is OFF.

2 Press and hold **A. PROC.** for more than 3 seconds.

3 Select "EQ SETUP" with the **Joystick** ↑↓, and press **ENTER**.

4 Select "Graphic E.Q" or "Parametric E.Q" with the **Joystick** ↑↓, and press **ENTER**.
Only Graphic Equalizer or Parametric Equalizer can be valid.

5 Select "SETUP" with the **Joystick** ↑↓, and press **ENTER**.

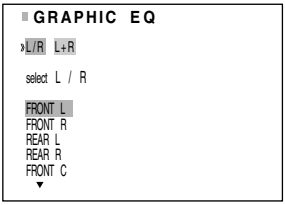
See page 100 for "GRAPHIC EQ adjustment".
See page 102 for "PARAMETRIC EQ adjustment".

Convenient Functions

Equalizer adjustment (when DVI-9990/TMI-M990 is connected) (continued)

GRAPHIC EQ adjustment

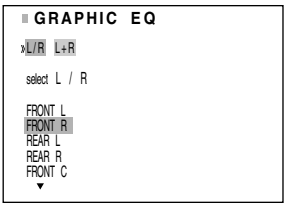
6 Use **Joystick** ← → to select “L/R” or “L+R”, and press **ENTER**.



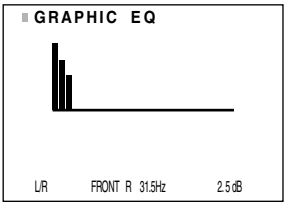
L/R: Independent adjustment values can be set to the Left and Right channels.
L+R: The same adjustment values are set to the Left and Right channels.

When “L+R” have been selected, use **Joystick** ← → to select L or R, and press **ENTER**.
L: Validates the current setting of the Left channel, setting the same adjustment value to the Left and Right channels.
R: Validates the current setting of the Right channel, setting the same adjustment value to the Left and Right channels.

7 Use **Joystick** ↑↓ to select the desired channel, and press **ENTER**.
The selectable channels will differ depending on the system settings (Page 9).



8 Use **Joystick** ← → to select the frequency, then press ∧ or ∨ and adjust the level.



Adjustable Frequencies
Front/Rear/Center: 20 Hz to 20 kHz
(1/3 octave intervals)
Sub Woofer: 20 Hz to 160 Hz
(1/3 octave intervals)

Level
±9 dB in 0.5 dB steps

9 Adjust all the frequency bandwidths with the operations of step 8, then press **ENTER**.

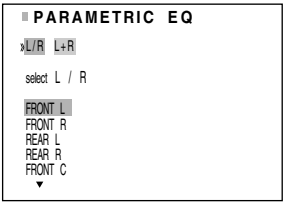
10 To adjust another channel, repeat steps 7 to 9.

11 Once the settings have been completed, press and hold **MENU/SETUP** for at least 3 seconds.

Equalizer adjustment (when DVI-9990/TMI-M990 is connected) (continued)

PARAMETRIC EQ adjustment

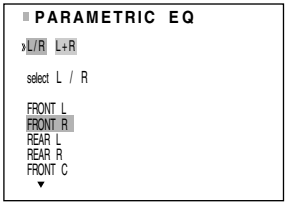
6 Use **Joystick** ← → to select “L/R” or “L+R”, and press **ENTER**.



L/R: Independent adjustment values can be set to the Left and Right channels.
L+R: The same adjustment values are set to the Left and Right channels.

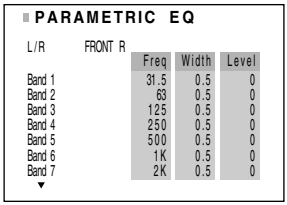
When “L+R” have been selected, use **Joystick** ← → to select L or R, and press **ENTER**.
L: Validates the current setting of the Left channel, setting the same adjustment value to the Left and Right channels.
R: Validates the current setting of the Right channel, setting the same adjustment value to the Left and Right channels.

7 Use **Joystick** ↑↓ to select the desired channel, and press **ENTER**.
The selectable channels will differ depending on the system settings (Page 9).



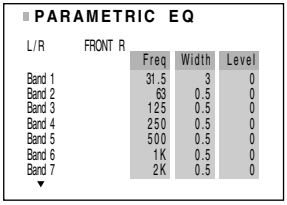
8 Use **Joystick** ↑↓ to select the band, then press **ENTER**.

Number of Adjustable Bands
Front/Rear/Center: 10 bands
Sub Woofer: 2 bands



9 Use **Joystick** ← → to select the “Freq” (frequency), “Width” (bandwidth (Q)), and “Level” items, then press ∧ or ∨ and adjust the various items.

- See Page 109 for information about the adjustable frequencies. The frequencies of adjacent bands cannot be adjusted to within 4 steps.
- The bandwidth can be adjusted to the 6 levels of 0.5, 1, 2, 3, 4, and 5.
- The levels can be adjusted in a range of ±9 dB (in 0.5 dB steps).



10 When adjustment of each item has been completed, press **ENTER**.

11 To adjust another band, repeat steps 8 to 10.

12 To adjust another channel, press **RETURN** and repeat steps 7 to 11.

13 Once the settings have been completed, press and hold **MENU/SETUP** for at least 3 seconds.

- Press **RETURN** in the setting mode to return to the previous item.

Supplement See page 104 for supplementary information.

Convenient Functions

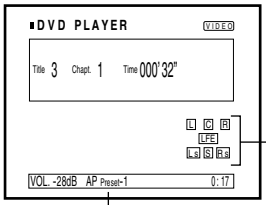
Supplementary information This page includes supplementary information for pages 91 to 103. Please refer to these pages.

TITLE	Description	Related page
External input settings	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 91
Storing settings in the memory	This operation can only be performed when the head unit defeat mode is turned off.	☞ Page 93
	The stored contents will not be deleted even when the battery power cord is detached.	☞ Page 93
	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 94
	While recording, do not perform the other operations.	☞ Page 95
Calling out stored values	The operations performed with the remote control unit in step 1 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 96
	This operation can only be performed when the head unit defeat mode is turned off.	☞ Page 96
	While accessing, do not perform the other operations.	☞ Page 97
	If the recalled speaker settings are different from the original settings (page 9), make sure the speaker is compatible before recalling the preset. Speaker damage is possible if the preset is drastically different. The appropriate audio will not be heard and “SP SYS ERR” is displayed for a few seconds. The Preset cannot be recalled.	☞ Page 97
Equalizer adjustment (when DVI-9990/TMI-M990 is connected)	The operations performed with the remote control unit in step 2 can also be performed by pressing and holding **MENU (SETUP)** for at least 3 seconds, moving the joystick up or down to select “AP SETUP”, then pressing the joystick.	☞ Page 99

Information

About the Monitor Display

EX) DVD Video mode



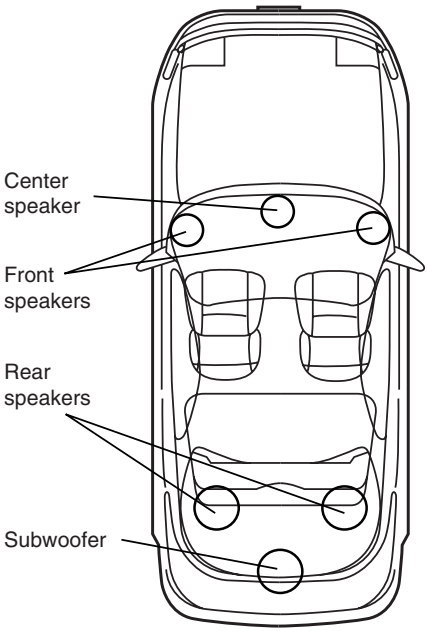
Input Signal Display
The display will change depending on the input signal. The display will appear toned down in the absence of a signal.

Preset Number Display

L	: Left front channel
R	: Right front channel
C	: Center channnel
Ls	: Left surround channel
Rs	: Right surround channel
S	: Monaural surround signal
LFE	: Low-frequency deep bass signal

Terminology

Dolby Digital
Dolby Digital is a digital audio compression technology developed by Dolby Laboratories that allows large quantities of audio data to be efficiently recorded on discs. It is compatible with audio signals from mono (1 channel) all the way up to 5.1-channel surround sound. The signals for the different channels are completely independent, and since the sound is high quality digital there is no loss of sound quality.



Speaker layout for enjoying Dolby Digital sound/DTS sound

DTS
This is a home-use digital sound format of the DTS Sound System. This is a high quality sound system, developed by Digital Theater Systems, Inc. for use in movie theaters.
DTS has six independent sound tracks. The theater presentation is fully realized in the home and other settings. DTS is the abbreviation for Digital Theater Systems.

Dolby Pro Logic II
Dolby Pro Logic II provides multichannel surround sound from any 2 channel source. It reproduces extended bandwidth playback with 5.1 channels. This is made possible by an advanced matrix surround decoder. This new decoder is able to draw out spatial characteristics of the recording without adding tonal coloration or artificial delays that did not exist in the original.

Linear PCM audio (LPCM)
LPCM is a signal recording format used for music CDs. Whereas music CDs are recorded at 44.1 kHz/16 bits, DVDs are recorded at 48 kHz/16 bits to 96 kHz/24 bits, thereby achieving higher sound quality than music CDs.

Dolby Digital EX
Dolby Digital EX is a technology that creates full-bandwidth output in programs from 5.1 channels to 6 channels. Using a matrix decoder, 3 surround channels are extracted from the signals that are recorded on the 2 channels of the program. Use this function with Dolby Digital surround EX movie soundtracks to bring out optimum effects in the Dolby Digital EX playback mode.

DTS-ES
DTS-ES is a technology that reproduces 6.1 channel surround sound. DTS-ES has 2 modes, “Discrete”, in which the sound of 6.1 channels is all recorded independently, and “Matrix”, in which 6.1 channels is created from the sound of 5.1 channels. These modes are switched automatically corresponding to the number of recording channels.

DTS Neo:6
DTS Neo:6 reproduces a 2-channel source in 6 channels. This creates a natural sound stage, preserving the details of the original.

In case of difficulty

If you encounter a problem, please review the items in the following checklist. This guide will help you isolate the problem if the unit is at fault. Otherwise, make sure the rest of your system is properly connected or consult your authorized Alpine dealer.

Set does not operate.

Nothing appears on the head unit display.

- Vehicle's ignition key is turned off.
  - Turn the vehicle's ignition key on.
- Set's power is not turned on.
  - Turn the vehicle's ignition key on then turn on the power of the head unit.
- Power cord is not securely connected.
  - Connect the power cord securely.
- Fuse is blown.
  - Replace with a fuse of the specified capacity.

Power is on but no sound is produced.

- Volume level is set to the minimum.
  - Increase the volume level from the head unit.

No sound is produced from the speakers.

- Cords are not securely connected.
  - Connect the cords securely.
- Speaker is set to the off mode.
  - Set the speaker to the on mode. (Pages 7 and 53)
- Subwoofer is turned off.
  - Turn the subwoofer on. (Pages 7 and 53)

Low DVD sound

- There is a difference between CD and DVD audio level.
  - Adjust the DVD level. (Page 74)

Sound cannot be adjusted.

- Head unit defeat is set to the on mode.
  - Set head unit defeat to the off mode.

Specifications

Graphic EQ number of bands:

Front (left and right)	31 bands
Rear (left and right)	31 bands
Center	31 bands
Subwoofer	10 bands

Graphic EQ boost cut range: ±9 dB

Parametric EQ number of bands:

Front/rear/center	10 bands
Subwoofer	2 bands

Parametric EQ frequency:

Front, Rear and Center

Band 1: 20/22/25/28/31.5/36/40/45/50/56/63/71/80/90/100/110/125/140/160/180/200/220/250/280/315 (Hz)

Band 2: 31.5/36/40/45/50/56/63/71/80/90/100/110/125/140/160/180/200/220/250/280/315/360/400/450/500 (Hz)

Band 3: 50/56/63/71/80/90/100/110/125/140/160/180/200/220/250/280/315/360/400/450/500/560/630/710/800 (Hz)

Band 4: 80/90/100/110/125/140/160/180/200/220/250/280/315/360/400/450/500/560/630/710/800/900/1k/1.1k/1.2k (Hz)

Band 5: 125/140/160/180/200/220/250/280/315/360/400/450/500/560/630/710/800/900/1k/1.1k/1.2k/1.4k/1.6k/1.8k/2k (Hz)

Band 6: 200/220/250/280/315/360/400/450/500/560/630/710/800/900/1k/1.1k/1.2k/1.4k/1.6k/1.8k/2k/2.2k/2.5k/2.8k/3.2k (Hz)

Band 7: 315/360/400/450/500/560/630/710/800/900/1k/1.1k/1.2k/1.4k/1.6k/1.8k/2k/2.2k/2.5k/2.8k/3.2k/3.6k/4k/4.5k/5k (Hz)

Band 8: 500/560/630/710/800/900/1k/1.1k/1.2k/1.4k/1.6k/1.8k/2k/2.2k/2.5k/2.8k/3.2k/3.6k/4k/4.5k/5k/5.6k/6.3k/7.1k/8k (Hz)

Band 9: 800/900/1k/1.1k/1.2k/1.4k/1.6k/1.8k/2k/2.2k/2.5k/2.8k/3.2k/3.6k/4k/4.5k/5k/5.6k/6.3k/7.1k/8k/9k/10k/11k/12.5k (Hz)

Band 10:1.2k/1.4k/1.6k/1.8k/2k/2.2k/2.5k/2.8k/3.2k/3.6k/4k/4.5k/5k/5.6k/6.3k/7.1k/8k/9k/10k/11k/12.5k/14k/16k/18k/20k (Hz)

Subwoofer

Band 1: 20/22/25/28/31.5/36/40/45/50/56/63/71/80/90/100/110/125 (Hz)

Band 2: 31.5/36/40/45/50/56/63/71/80/90/100/110/125/140/160/180/200 (Hz)

Parametric EQ boost cut range: ±9 dB

Time correction control range: 0 to 20 ms (0.05 ms steps)

Frequency response: 20 Hz to 20 kHz
20 Hz to 40kHz (DVD-Audio playback)

Continued

Specifications (continued)

S/N ratio:	110 dB (IHF-A)
Channel separation:	90 dB
Input sensitivity:	1.2V (analog)
Subwoofer crossover:	20 to 180 Hz (1/6 oct. steps)
Rated output:	4V (with 10 k ohms load, in IONBUS and DVD-Audio LINK mode) 2V (with 10 k ohms load, in AUX input mode)
Distortion rate:	0.01%
Input impedance:	10 k ohms or greater
Output impedance:	1 k ohm or less
Audio output level	
Preout (Front, Rear):	4V/10k ohms (max.)
Preout (Subwoofer/Center):	4V/10k ohms (max.)
Auxin:	1.2V/10k ohms
Weight:	2.3 kg (5 lbs. 1 oz)

Dimensions

Width	260 mm (10-3/16")
Height	68 mm (2-11/16")
Depth	161 mm (6-3/8")

<Components>

Parts name	Quantity
Parts for mounting	1set
Owner's manual	1set
Microphone	1set

Due to continuous product improvement, specifications and design are subject to change without notice.
The illustrations included in these instructions may appear different from the actual product due to printing conditions.

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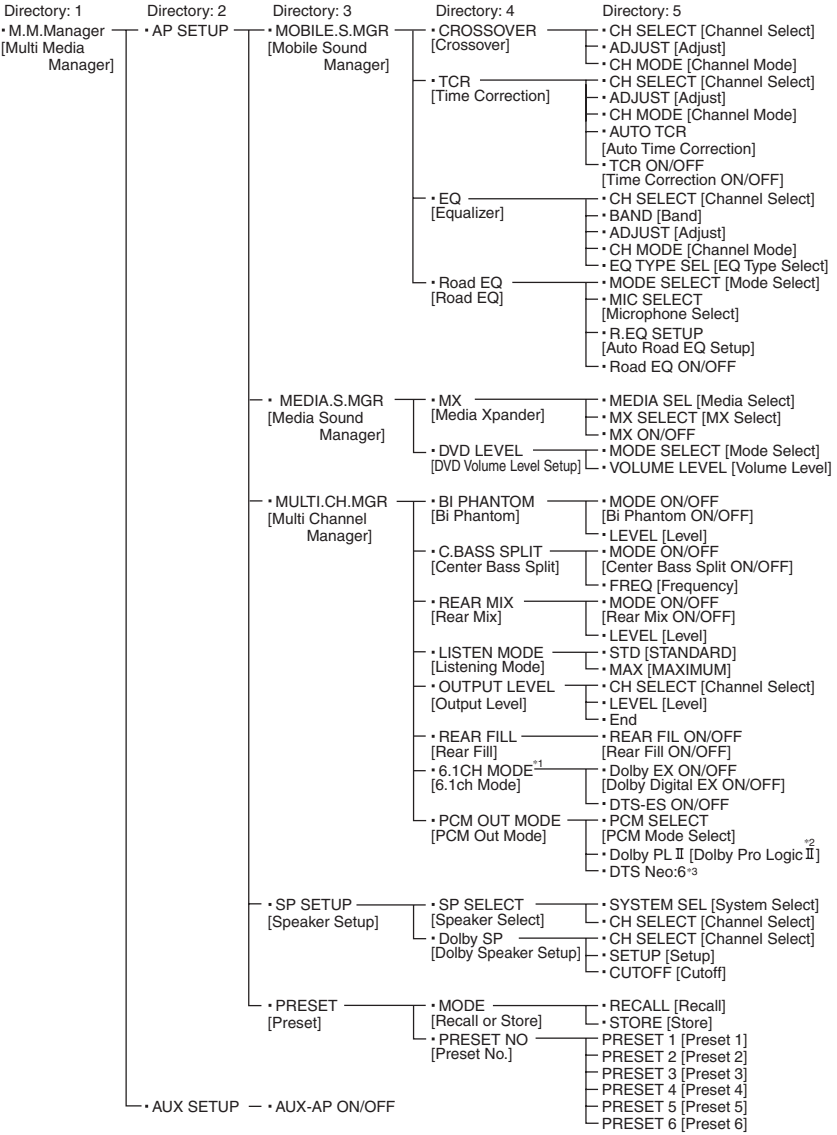
"DTS", "DTS-ES" and "Neo:6" are trademarks of Digital Theater Systems, Inc.

Directory Menu

Some menu cannot be selected depending on the displayed condition.



*1 Only when SYSTEM 3 [System 3] or SYSTEM 4 [System 4] is selected with SYSTEM SEL [System Select].
*2 Only when PL II MUSIC [Dolby PL II MUSIC] is selected.
*3 Only when Neo:6 MUSIC [DTS Neo:6 MUSIC] is selected.

LIMITED WARRANTY

ALPINE ELECTRONICS OF AMERICA, INC. AND ALPINE OF CANADA INC. ("Alpine"), are dedicated to quality craftsmanship and are pleased to offer this Warranty. We suggest that you read it thoroughly. Should you have any questions, please contact your Dealer or contact Alpine at one of the telephone numbers listed below.

●PRODUCTS COVERED:

This Warranty covers Car Audio Products and Related Accessories ("the product"). Products purchased in the Canada are covered only in the Canada. Products purchased in the U.S.A. are covered only in the U.S.A.

●LENGTH OF WARRANTY:

This Warranty is in effect for one year from the date of the first consumer purchase.

●WHO IS COVERED:

This Warranty only covers the original purchaser of the product, who must reside in the United States, Puerto Rico or Canada.

●WHAT IS COVERED:

This Warranty covers defects in materials or workmanship (parts and labor) in the product.

●WHAT IS NOT COVERED:

This Warranty does not cover the following:

① Damage occurring during shipment of the product to Alpine for repair (claims must be presented to the carrier).
② Damage caused by accident or abuse, including burned voice coils caused by over-driving the speaker (amplifier level is turned up and driven into distortion or clipping). Speaker mechanical failure (e.g. punctures, tears or rips). Cracked or damaged LCD panels. Dropped or damaged hard drives.
③ Damage caused by negligence, misuse, improper operation or failure to follow instructions contained in the Owner's manual.
④ Damage caused by act of God, including without limitation, earthquake, fire, flood, storms or other acts of nature.
Any cost or expense related to the removal or reinstallation of the product.
⑤ Service performed by an unauthorized person, company or association.
⑥ Any product which has the serial number defaced, altered or removed.
⑦ Any product which has been adjusted, altered or modified without Alpine's consent.
⑧ Any product not distributed by Alpine within the United States, Puerto Rico or Canada.
⑨ Any product not purchased from an Authorized Alpine Dealer.

●HOW TO OBTAIN WARRANTY SERVICE:

① You are responsible for delivery of the product to an Authorized Alpine Service Center or Alpine for repair and for payment of any initial shipping charges. Alpine will, at its option, repair or replace the product with a new or reconditioned product without charge. If the repairs are covered by the warranty, and if the product was shipped to an Authorized Alpine Service Center or Alpine, Alpine will pay the return shipping charges.
② You should provide a detailed description of the problem(s) for which service is required.
③ You must supply proof of your purchase of the product.
④ You must package the product securely to avoid damage during shipment. To prevent lost packages it is recommended to use a carrier that provides a tracking service.

●HOW WE LIMIT IMPLIED WARRANTIES:

ANY IMPLIED WARRANTIES INCLUDING FITNESS FOR USE AND MERCHANTABILITY ARE LIMITED IN DURATION TO THE PERIOD OF THE EXPRESS WARRANTY SET FORTH ABOVE AND NO PERSON IS AUTHORIZED TO ASSUME FOR ALPINE ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT.

●HOW WE EXCLUDE CERTAIN DAMAGES:

ALPINE EXPRESSLY DISCLAIMS LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES CAUSED BY THE PRODUCT. THE TERM "INCIDENTAL DAMAGES" REFERS TO EXPENSES OF TRANSPORTING THE PRODUCT TO THE ALPINE SERVICE CENTER, LOSS OF THE ORIGINAL PURCHASER'S TIME, LOSS OF THE USE OF THE PRODUCT, BUS FARES, CAR RENTALS OR OTHERS COSTS RELATING TO THE CARE AND CUSTODY OF THE PRODUCT. THE TERM "CONSEQUENTIAL DAMAGES" REFERS TO THE COST OF REPAIRING OR REPLACING OTHER PROPERTY WHICH IS DAMAGED WHEN THIS PRODUCT DOES NOT WORK PROPERLY. THE REMEDIES PROVIDED UNDER THIS WARRANTY ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS.

●HOW STATE/PROVINCIAL LAW RELATES TO THE WARRANTY:

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state and province to province. In addition, some states/provinces do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages. Accordingly, limitations as to these matters contained herein may not apply to you.

●IN CANADA ONLY:

This Warranty is not valid unless your Alpine car audio product has been installed in your vehicle by an Authorized Installation Center, and this warranty stamped upon installation by the installation center.

●HOW TO CONTACT CUSTOMER SERVICE:

Should the product require service, please call the following number for your nearest Authorized Alpine Service Center.

CAR AUDIO 1-800-ALPINE-1 (1-800-257-4631)
NAVIGATION1-888-NAV-HELP (1-888-628-4357)

Or visit our website at; http://www.alpine-usa.com

ALPINE ELECTRONICS OF AMERICA, INC., 19145 Gramercy Place, Torrance, California 90501, U.S.A.
ALPINE ELECTRONICS OF CANADA, INC., 7300 Warden Ave., Suite 203, Markham, Ontario L3R 9Z6, Canada
Do not send products to these addresses.
Call the toll free telephone number or visit the website to locate a service center.