Introduction

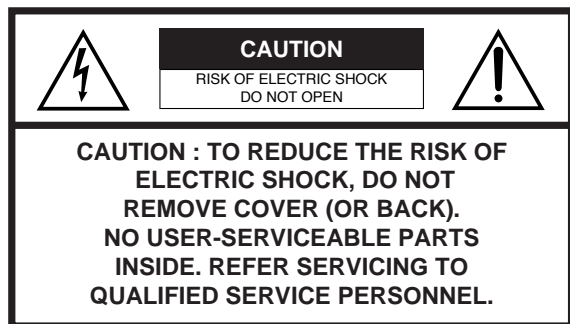## UNPACKING AND

Congratulations on Your Purchase!

Your new high fidelity receiver is designed to deliver maximum enjoyment and years of trouble free service. Please take a few moments to read this manual thoroughly. It will explain the features and operation of your unit and help ensure a trouble free installation. Please unpack your unit carefully. We recommend that you save the carton and packing material. They will be helpful if you ever need to move your unit and may be required if you ever need to return it for service. Your unit is designed to be placed in a horizontal position and it is important to allow at least two inches of space behind your unit for adequate ventilation and cabling convenience.

To avoid damage, never place the unit near radiators, in front of heating vents, in direct sunlight, or in excessively humid or dusty locations. Connect your complementary components as illustrated in the following section.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

Caution : Do not block ventilation openings or stack other equipment on the top.

FOR U.S.A

Note to CATV System Installer: This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

· Reorient or relocate the receiving antenna.
· Increase the separation between the equipment and receiver.
· Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
· Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
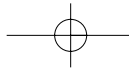

**Caution regarding placement
(Except for U.S.A and Canada)**
To maintain proper ventilation, be sure to leave a space around the unit (from the largest outer dimensions including projections) equal to, or greater than, shown below.

Left and right panels: 5 cm
Rear panel: 5 cm
Top panel: 20 cm
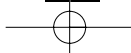
READ THIS BEFORE OPERATING

FOR U.S.A AND CANADA .... 120 V

FOR YOUR SAFETY

Units shipped to the U.S.A and Canada are designed for operation on 120 V AC only.

Safety precaution with use of a polarized AC plug. However, some products may be supplied with a nonpolarized plug.

CAUTION : *To prevent electric shock, match wide blade of plug to wide slot, fully insert.*

FOR EUROPE AND AUSTRALIA .... 230 V/240 V

FOR YOUR SAFETY

Units shipped to Australia are designed for operation on 240 V AC only.
To ensure safe operation, the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth.
Improper extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.
PAN-EUROPEAN UNIFIED VOLTAGE
All units are suitable for use on supplies 230~240 V AC.

## FOR OTHER COUNTRIES .... 115 V/230 V

FOR YOUR SAFETY

Units shipped to countries other than the above countries are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of this switch.
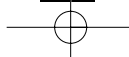
AC VOLTAGE SELECTION
This unit operates on 115/230 V AC. The AC voltage selector switch on the rear panel is set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.
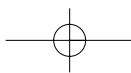
AC voltage selector switch

AC 230 V ← → AC 115 V
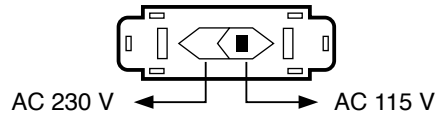
Move switch lever to match your line voltage with a small screwdriver or other pointed tool.

CONTENTS

System Connections

• Do not plug the AC input cord into the wall AC outlet until all connections are completed.
• Be sure to observe the color coding when connecting audio and video cords.
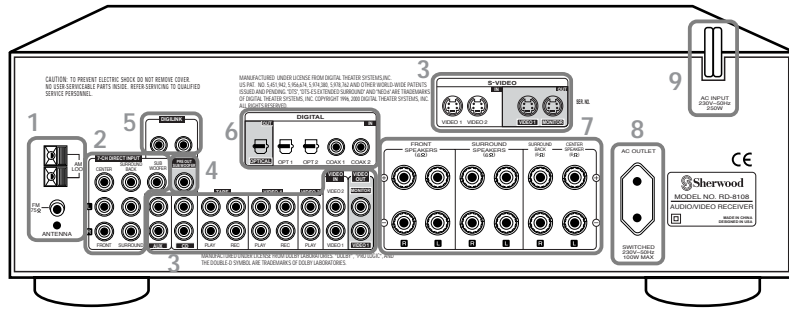• Make connections firmly and correctly. If not, it can cause loss of sound, noise or damage to the receiver.
• If the electricity fails or the AC input cord is left unplugged for more than 2 weeks, the memorized contents will be cleared.
 Should this happen, memorize them again.

ENGLISH

1. CONNECTING ANTENNAS

• Change the position of the FM indoor antenna until you get the best reception of your favorite FM stations.
• A 75Ω outdoor FM antenna may be used to further improve the reception.
  Disconnect the indoor antenna before replacing it with the outdoor one.
• Place the AM loop antenna as far as possible from the receiver, TV set, speaker cords and the AC input cord and set it to a direction for the best reception.
• If the reception is poor with the AM loop antenna, an AM outdoor antenna can be used in place of the AM loop antenna.
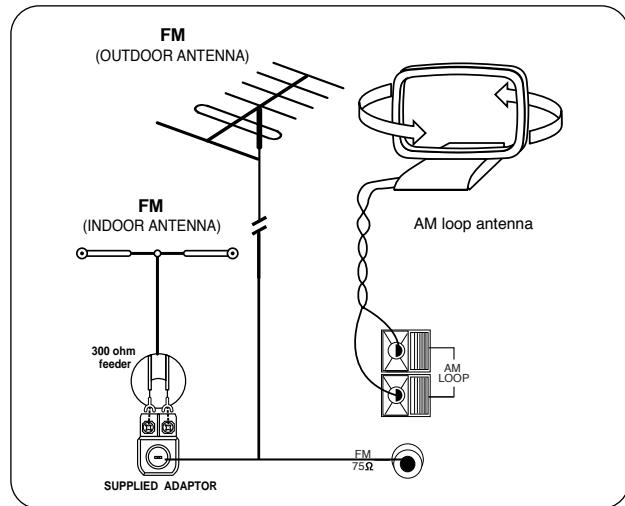
2. CONNECTING 7 CH DIRECT INPUTS

• Use these jacks to connect the corresponding analog outputs of a DVD player or external decoder, etc. that has 6 or 7 channel outputs.
• In case of 6 channel outputs, do not connect this SURROUND BACK input to your component.(For details, refer to the operating instructions of the component to be connected.)
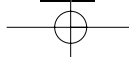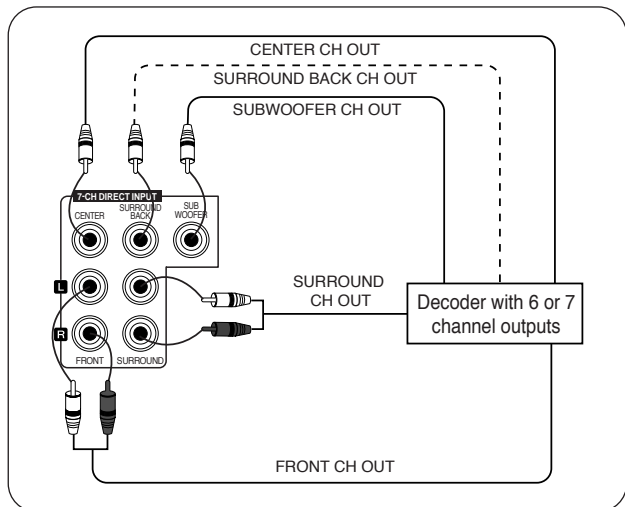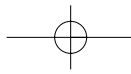
3. CONNECTING AUDIO/VIDEO COMPONENTS

• The AUX jacks may be connected to an additional audio component such as a CD player, a tape deck, etc.
• The TAPE PLAY/REC jacks may be connected to PLAY(OUT) / REC(IN) jacks of MD recorder.
• The VIDEO 2 jacks may also be connected to an additional video component such as a cable TV tuner, an LD player or satellite system.
• This unit incorporates S-VIDEO and composite (normal) VIDEO jacks.
• For your reference, the excellence in picture quality is as follows:
  "S-VIDEO" > composite(normal) "VIDEO"
• A signal input into the composite(normal) VIDEO IN jack will be output in the composite(normal) VIDEO OUT jacks and a signal input into the S-VIDEO IN jack will be output in the S-VIDEO OUT jacks.

Note :
• When Sherwood DVD player such as V-756, etc. is connected to the DIGI LINK jack for system control, you should connect the DVD player to the "VIDEO 2" jacks of this unit. Because if the PLAY button, etc. is pressed on the DVD player, the "VIDEO 2" is automatically selected as an input source on this unit and the playback. etc. starts.
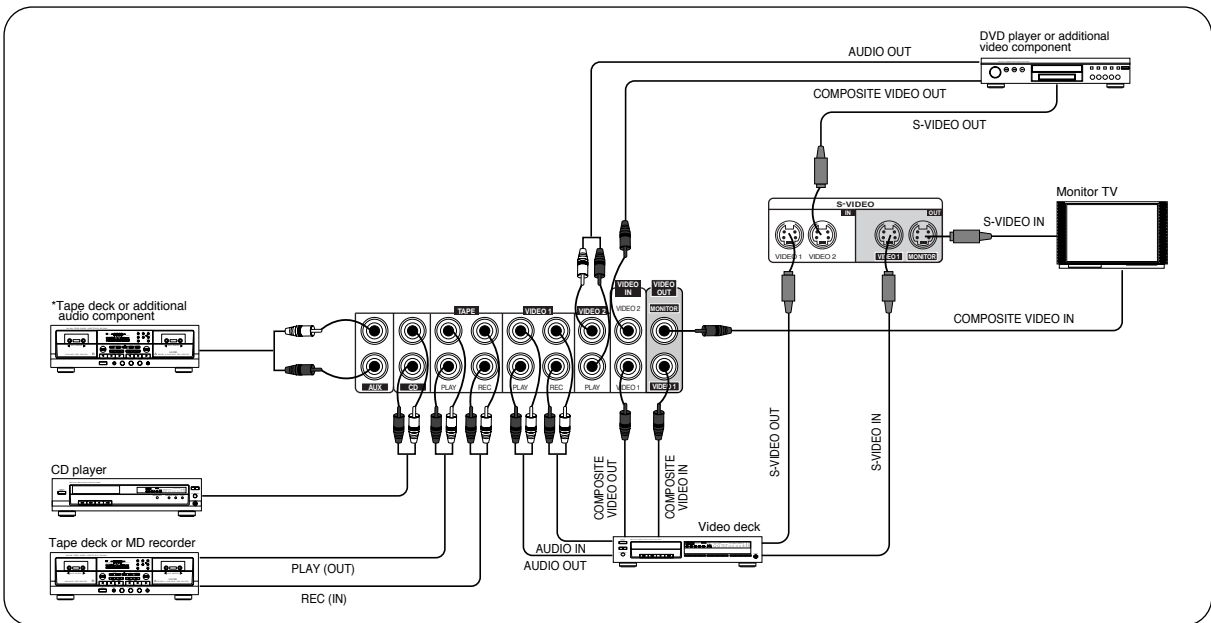
4. SUBWOOFER PRE OUT connection

• To emphasize the deep bass sounds, connect a powered subwoofer.

Powered subwoofer
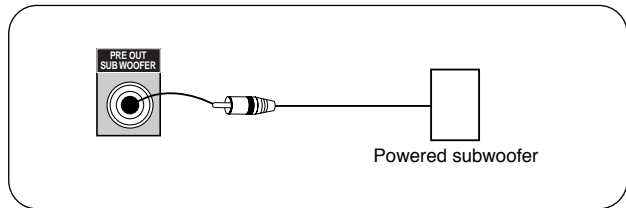
5. CONNECTING SYSTEM CONTROL

• Connect this jack to the DIGI LINK jack of the external Sherwood component that uses the DIGI LINK II or III remote control system.

Sherwood component with DIGI LINK II or III
CD player
Tape deck
DVD player
System control cord
DIGILINK
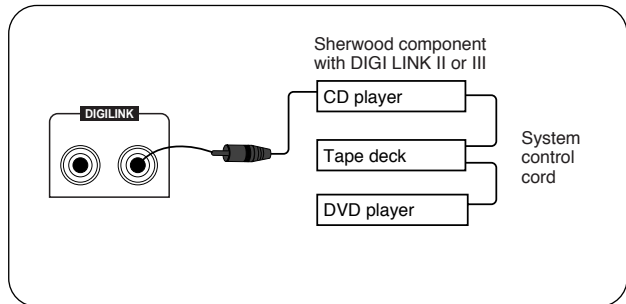
6. CONNECTING DIGITAL INs and OUT

· The COAXIAL or the OPTICAL DIGITAL OUTs of the components that are connected to CD and VIDEO 1~3 of this unit can be connected to these DIGITAL INs.
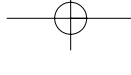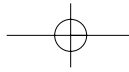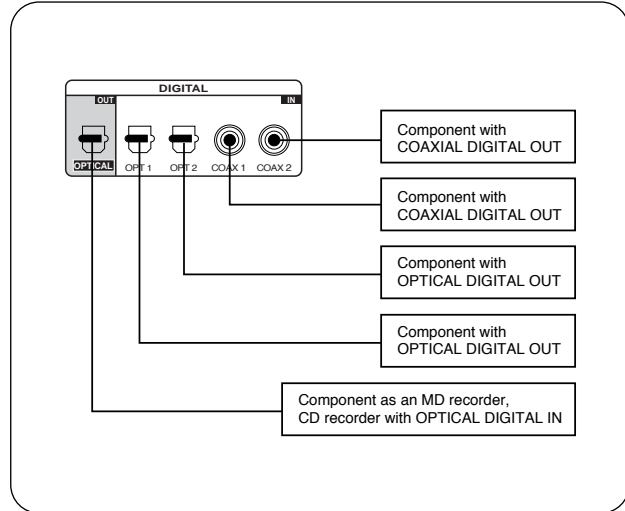· If a digital recorder or other component with OPTICAL DIGITAL IN/OUT jacks is connected to the corresponding jacks of this unit, you can playback and/or record the high quality sound of CD's, etc. without analog conversion or degradation.
· A digital input should be connected to the components such as a CD player, LD player, DVD player, etc. capable of outputting DTS Digital Surround, Dolby Digital or PCM format digital signals, etc.
· For details, refer to the operating instructions of the component connected.
· When making the COAXIAL DIGITAL connection, be sure to use a 75Ω COAXIAL cord, not a conventional AUDIO cord.
· All of the commercially available optical fiber cords cannot be used for the equipment. If there is an optical fiber cord which cannot be connected to your equipment, consult your dealer or nearest service organization.
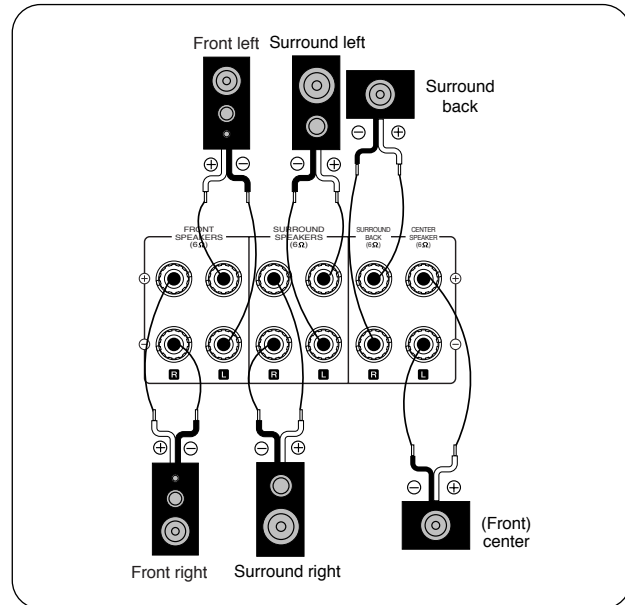
DIGITAL

Component with COAXIAL DIGITAL OUT

Component with COAXIAL DIGITAL OUT

Component with OPTICAL DIGITAL OUT

Component with OPTICAL DIGITAL OUT

Component as an MD recorder, CD recorder with OPTICAL DIGITAL IN

7. CONNECTING SPEAKERS

· Be sure to connect speakers firmly and correctly according to the channel(left and right) and the polarity(+ and -). If the connections are faulty, no sound will be heard from the speakers, and if the polarity of the speaker connection is incorrect, the sound will be unnatural and lack bass.
· For installing the speakers, refer to "Speaker placement" on page 20.
· After installing the speakers, first adjust the speaker settings according to your environment and speaker layout.(For details, refer to "Adjusting the speaker settings" on page 21.)

Caution :
· Be sure to use the speakers with the impedance of 6 ohms or above.
· Do not let the bare speaker wires touch each other or any metal part of this unit. This could damage this unit and/or the speakers.

Front left Surround left

Surround back

FRONT SPEAKERS (6Ω) SURROUND SPEAKERS (6Ω) SURROUND BACK (6Ω) CENTER SPEAKER (6Ω)

R L R L R L

(Front) center

Front right Surround right

8. SWITCHED AC OUTLET

· This outlet is switched on(power-on mode) and off(standby mode) according to power control as follows(Maximum total capacity is 100 W):

   Standby mode - switched AC outlet off
   Power-on mode - switched AC outlet on

AC OUTLET

SWITCHED 230V~50Hz 100W MAX

9. AC INPUT CORD

AC INPUT 230V~50Hz 250W
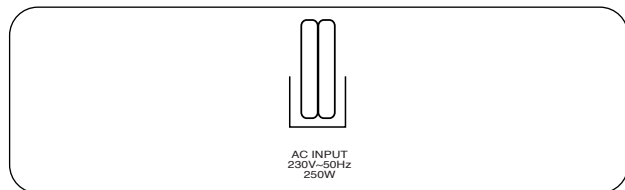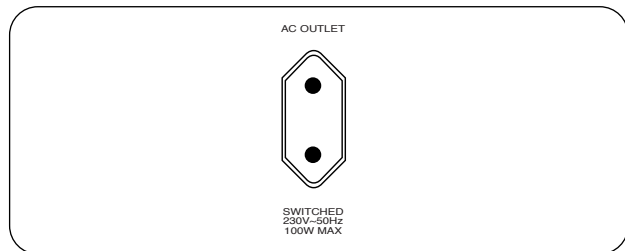
Front Panel Controls

ENGLISH

1. POWER switch
2. STANDBY button/indicator
3. HEADPHONE jack
4. SPEAKER button/indicator
5. CHANNEL SELECTOR button
6. ADJUST UP/DOWN(/) buttons
7. TONE MODE button
8. SPEAKER SETUP button
9. DYNAMIC RANGE button
10. CINEMA EQ button
11. MEMORY/ENTER button
12. TUNING/PRESET UP/DOWN(/) buttons
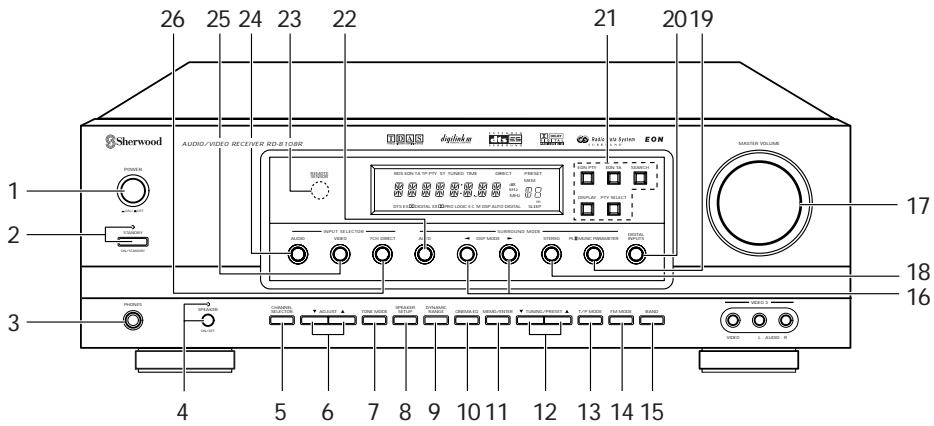
13. TUNING/PRESET MODE button
14. FM MODE button
15. BAND button
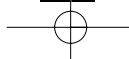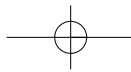16. DSP MODE UP/DOWN(/) buttons
17. MASTER VOLUME control knob
18. STEREO button
19. PL II MUSIC PARAMETER button
20. DIGITAL INPUTS button
21. RDS buttons
22. AUTO button
23. Remote sensor
24. AUDIO input selector button
25. VIDEO input selector button

FLUORESCENT DISPLAY
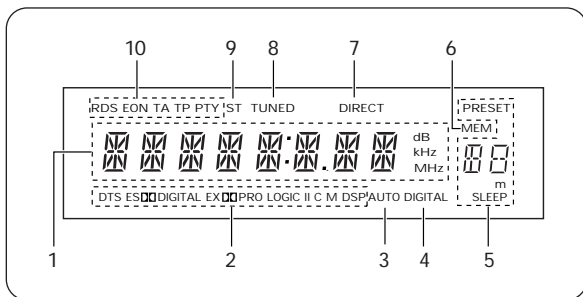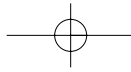
1. Input, frequency, volume level, operating information, etc.
2. Surround mode indicators
3. AUTO indicator
4. DIGITAL input signal indicator
5. PRESET number, SLEEP time, Speaker distance display
6. MEMORY indicator
7. DIRECT indicator
8. TUNED indicator
9. STEREO indicator
10. RDS indicators

VIDEO 3 VIDEO/AUDIO INPUT JACKS

Additional video component
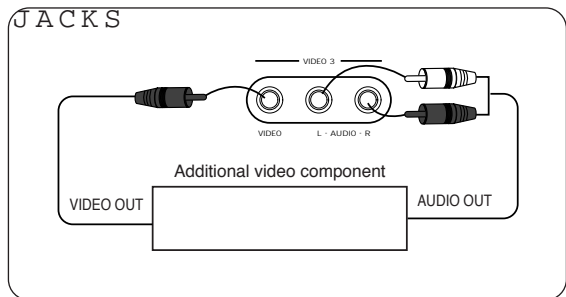
• The VIDEO 3 jacks may be also connected to an additional video component such as a camcorder, a LD
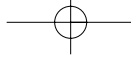
Universal Remote Controls

This universal remote control can operate not only this receiver but also most popular brands of audio and video components such as CD players, cassette decks, TVs, cable boxes, VCRs, DVD players, satellite receivers, etc.
• To operate 7 components other than this receiver, you should enter the setup code for each component.
  (For details, refer to "USING FUNCTIONS OF REMOTE CONTROL" on page 12.)

Digi link system remote controls
This remote control can also operate Sherwood compatible components bearing the DIGI LINK (II or III) logo.
• For digi link system remote control operation, first make the DIGI LINK connections between Sherwood components.
• The numbered buttons on the remote control have different functions in different device modes. For details, refer to "FUNCTION TABLE of the NUMBERED BUTTONS" on the following page 10.

ENGLISH

LED

POWER button ①

STANDBY ②

DEVICE buttons
To operate the desired component with this remote control, first select the corresponding DEVICE button.

MACRO buttons
To operate a macro function, press the corresponding MACRO button.

③ CHANNEL LEVEL UP/DOWN (∧/∨) buttons

SPEAKER SETUP button
PL II MUSIC PARAMETER button

④ CHANNEL SELECTOR button

⑤ MUTE button

ADJUST UP/DOWN(>/<) buttons

⑥ VOLUME UP/DOWN(∧/∨) buttons

⑦
⑧
⑨

AUTO button
DSP MODE UP/DOWN (▶/◀) buttons

STEREO button

⑪ TEST TONE button

OSD button ⑩

⑫ CURSOR CONTROL(▲,▼,◀,▶), ENTER buttons

SLEEP button ⑬

⑭ DIMMER button

⑱

⑰ PRESET SCAN button

⑯

⑮

TUNING UP/DOWN(+/-) buttons ⑲

⑳ PRESET UP/DOWN(+/-) buttons

7CH DIRECT button

NUMERIC(0~9, +10)/ ㉑
INPUT SELECTOR buttons
To select the desired input source of TUNER~VIDEO 3.

Sherwood
UNIVERSAL REMOTE CONTROL
RNC-45

9

ENGLISH

FUNCTION TABLE of the NUMBERED BUTTONS

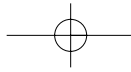| Device to be controlled / Button symbol	CD (for CD player)	AUX (for tape deck)	TV (for TV)	VCR (for VCR)	DVD (for DVD player)	CABLE (for cable box)	SAT (for satellite receiver)
① POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER
② STANDBY	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)
③ CH/LEVEL	—	—	CHANNEL LEVEL UP/DOWN(∧/∨)	CHANNEL LEVEL UP/DOWN(∧/∨)	—	CHANNEL LEVEL UP/DOWN(∧/∨)	CHANNEL LEVEL UP/DOWN(∧/∨)
④ CH. SEL	—	—	INPUT SELECTOR	INPUT SELECTOR	—	INPUT SELECTOR	INPUT SELECTOR
⑤ MUTE	—	—	MUTE	MUTE	—	MUTE	MUTE
⑥ VOLUME	—	—	VOLUME UP/DOWN(∧/∨)	VOLUME UP/DOWN(∧/∨)	—	VOLUME UP/DOWN(∧/∨)	VOLUME UP/DOWN(∧/∨)
⑦ AUDIO SEL	—	—	—	—	AUDIO SELECTOR	—	—
⑧ SUBTITLE	—	—	—	—	SUBTITLE	—	—
⑨ ZOOM	—	—	—	—	ZOOM	—	—
⑩ OSD SETUP	—	—	—	—	SETUP	—	—
⑪ T.TONE MENU	—	—	—	—	MENU	—	—
⑫ (cursor)	—	—	—	—	CURSOR CONTROL	—	—
⑫ ENTER	—	—	—	—	ENTER	—	—
⑬ SLEEP DISPLAY	—	—	—	—	DISPLAY	—	—
⑭ DIMMER RETURN	—	—	—	—	RETURN	—	—
⑮ (play)	PLAY	FORWARD PLAY	—	PLAY	PLAY	—	—
⑯ (pause)	PAUSE	REVERSE PLAY	—	PAUSE	PAUSE	—	—
⑰ PSCAN	STOP	STOP	—	STOP	STOP	—	—
⑱ (record)	—	RECORD	—	RECORD	—	—	—
⑲ TUNE −/+	—	REWIND(◄◄)/ FAST FORWARD(►►)	—	REWIND(◄◄)/ FAST FORWARD(►►)	REVERSE SEARCH(◄◄)/ FORWARD SEARCH(►►)	—	—
⑳ PRESET −/+	REVERSE SKIP(I◄◄)/ FORWARD SKIP(►►I)	—	—	—	REVERSE SKIP(I◄◄)/ FORWARD SKIP(►►I)	—	—
㉑ 0~9, +10	NUMERIC	—	NUMERIC	NUMERIC	NUMERIC	NUMERIC	NUMERIC

Notes:
- Some functions for each component may not be available or may work differently.
- Depending on other kinds of components that are available for each DEVICE button, some functions may not be available or may work differently, too.
- For details about functions, refer to the operating instructions of each component.
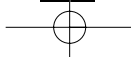
1 Enter the setup code for each component other than this receiver you wish to control. For details, refer to "Entering a setup code" on page 12.

2 Turn on the component you want to operate.

3 Press the DEVICE button on the remote control corresponding to the component you wish to operate.

4 Aim the remote control at the REMOTE SENSOR of the component you wish to control and press the button corresponding to the operation you want.

• When operating a Sherwood CD player or tape deck using digi link system remote control, aim the remote control at the REMOTE SENSOR of this receiver. However, to operate a Sherwood DVD player, aim at the REMOTE SENSOR of the corresponding component.

• Use the remote control unit within a range of about 7 meters (23 feet) and angles of up to 30 degrees aiming at the remote sensor.


7m

30°   30°

LOADING BATTERIES

• When the remote control does not operate, the old batteries should be replaced. In this case, load new batteries within several minutes after removing old batteries.
• If the batteries are removed or have been exhausted for a longer period of time, memorized contents will be cleared. Should this happen, you should memorize them again.

1 Remove the cover.

2 Load two batteries matching the polarity.

2× 1.5V
("AAA" size)

• Remove the batteries when they are not used for a long time.
• Do not use the rechargeable batteries(Ni-Cd type).
• Be sure to use alkaline batteries.
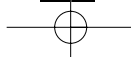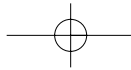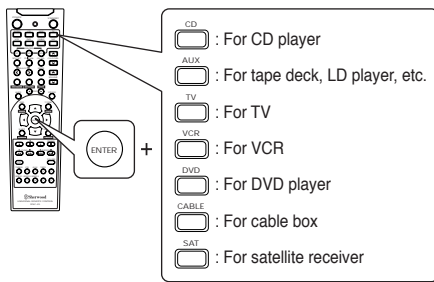
USING FUNCTIONS OF REMOTE

ENGLISH

· This remote control can control up to 8 different components.
· Before operating audio and video components other than this receiver with using this remote control, the setup code for each component should be entered.
· For system remote control operation, "000" was stored previously in the memory of the device button "CD" for Sherwood CD player, "DVD" for Sherwood DVD player and "AUX" for Sherwood tape deck respectively as its factory setup code. So, you don't need to enter its code for each Sherwood component except in such a case that its code does not work.

Entering a setup code

1 Turn on the component you want to control

2 Find the setup codes according to the type and the brand name of your component, referring to "Setup Code Table" on page 39.

**3** Press and hold down both the ENTER button and the DEVICE button you want for more than 1 second.

CD : For CD player
AUX : For tape deck, LD player, etc.
TV : For TV
VCR : For VCR
DVD : For DVD player
CABLE : For cable box
SAT : For satellite receiver

ENTER +

· The LED will flicker once.

Note:
· The AUDIO button is unavailable for the audio components other than this receiver.

4 Enter a 3 digit code, aiming the remote control at the remote sensor on the component.
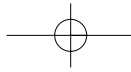Example) When entering "001".

0 → 0 → TUNER 1
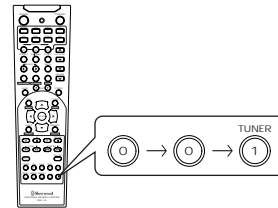
· If entering is performed successfully, the LED will flicker twice.
· To be sure that the setup code is correct, press the POWER(or STANDBY) button.
If your component is tuned off, the setup code is correct.
· When your component is not turned off, repeat the above steps 2 to 4, trying each code for your component until you find one that works.

Notes:
· If the LED did not flicker twice, then repeat the above steps 3 to 4 and try entering the same code again.
· Manufacturers may use different setup codes for the same product category. For that reason, it is important that you check to see if the code you have entered operates as many controls as possible. If only a few functions operate, check to see if another code will work with more buttons.
· When operating a Sherwood CD player or tape deck using the system remote control, aim the remote control at the REMOTE SENSOR on this receiver. However, in case of Sherwood DVD player and MD recorder, aim it at the REMOTE SENSOR on the corresponding component.

**5** Repeat the above steps 1 to 4 for each of your components.
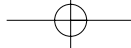
Using a punch-through function

This remote control may be programmed to operate either the AUDIO volume punch-through or the TV volume and/or TV channel punch-through in conjunction with any of the eight components controlled by this remote control.
For example, since this receiver will likely be used as the sound system while watching TV, you may want to adjust this receiver's volume although this remote control is set to control the TV.
• When programming this remote control for the AUDIO volume punch-through, press and hold down both "AUDIO" button and "VOLUME   " button for more than 1 second.
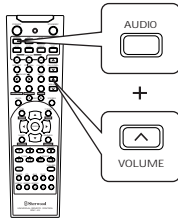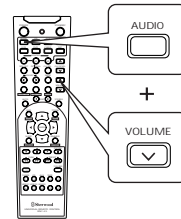

• If programming is performed successfully, the LED will flicker twice.
• When you want either TV volume or TV channel punch-through, press and hold down both "TV" button and either "VOLUME   " or "CH   " button for more than 1 second.

Note :
• If you use one of AUDIO and TV volume punch-through functions, you cannot use the other.

Removing a punch-through function
• When removing the AUDIO volume punch-through, press and hold down both "AUDIO" button and "VOLUME   " button for more than 1 second.

• If removing is performed successfully, the LED will flicker twice.
• When you want to remove either TV volume or TV channel punch-through, press and hold down both "TV" button and either "VOLUME   " or "CH   " button for more than 1 second.

Removing all punch-through functions
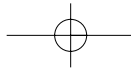Press and hold down both "AUDIO" button and "AUTO" button for more than 1 second.
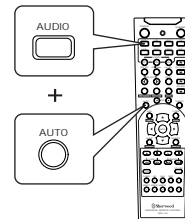
• If removing all punch-through functions is performed successfully, the LED will flicker twice.
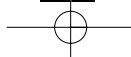
Programming a macro function

• The macro function enables you to program a series of button operations(up to 10) on this remote control into a single button.

• You can store up to three separate macro command sequences into "M1", "M2" and "M3" buttons.

1 Press and hold down both "ENTER" button and one of three NUMERIC buttons ("1"~"3") corresponding to "M1"~"M3" buttons for more than 1 second.

Example) When programming a series of button operations into "M1" button.
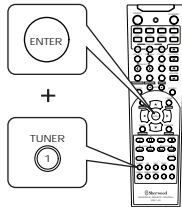
• If the macro mode is entered, the LED will flicker once.

**2** Press the operation buttons you want to program in order.

Note:
You should press the corresponding DEVICE buttons before pressing each operation button.
Example) When playing a DVD on the DVD player connected to VIDEO 2 jacks of this receiver.
1. Press "AUDIO" button to control this receiver.
2. Press "POWER" button to turn this receiver on.
3. Press "AUDIO" button to control this receiver.
4. Press "VIDEO 2(7)" button to select the desired input source.
5. Press "DVD" button to control the DVD player.
6. Press "POWER" button to turn the DVD player on.
7. Press "DVD" button to control the DVD player.
8. Press "   " button to start playback.

3 Press "ENTER" button.
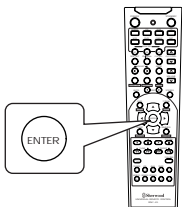
• If the programming is performed successfully, the LED will flicker twice.

To remove a macro program
• When removing a macro program, perform the above steps 1 and 3, but ignore the step 2.

To change a macro program
• When a new macro program is stored into a MACRO button with performing the above steps 1 to 3, the previous macro program is cleared from the memory of the MACRO button.

Operating a macro function

• Aim the remote control at the REMOTE SENSORs of the components to be controlled and press the MACRO button you want.
Example) When pressing "M1" button.
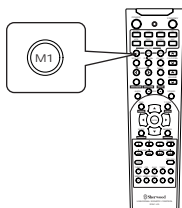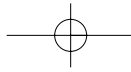
Notes:
• The codes programmed into a MACRO button will be transmitted at an interval of 0.5 seconds. However, some components may not be able to complete one operation in 0.5 seconds and may miss the next code.
In this case, the macro function cannot control the corresponding components correctly.
• Be sure to use the remote control within the remote control operation range of the components.
• Depending on the operation status of the components, etc., the macro function cannot control the corresponding components correctly.
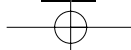
Operations

• Note : Before operating this receiver with the supplied remote control, refer to "Universal Remote Control" on page 9 for details about operation.

LISTENING TO A PROGRAM

Before operation

• Enter the standby mode.

POWER

• The STANDBY indicator lights up. This means that the receiver is not disconnected from the AC mains and a small amount of current is retained to support the memorized contents and operation readiness.
• To switch the power off, push the POWER switch again.
• Then the power is cut off and the STANDBY indicator goes off.

1 In the standby mode, turn the power on.
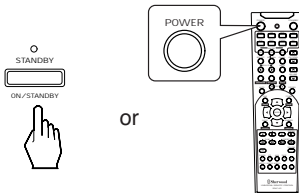
POWER

STANDBY
ON/STANDBY

or

• Each time the STANDBY button on the front panel or the POWER button on the remote control is pressed, the receiver is turned on to enter the operating mode or off to enter the standby mode.
• In the standby mode, if the INPUT SELECTOR button is pressed, the receiver is turned on automatically and the desired input is selected.

2 Switch the speakers on.

SPEAKER
ON/OFF

• Then the SPEAKER indicator lights up and the sound can be heard from the speakers connected to the speaker terminals.
• When using the headphone for private listening, press the SPEAKER button again to switch the speakers off.

3 Select the desired input source.

INPUT SELECTOR

AUDIO   VIDEO

or

TUNER CD AUX TAPE
VIDEO1 VIDEO2 VIDEO3
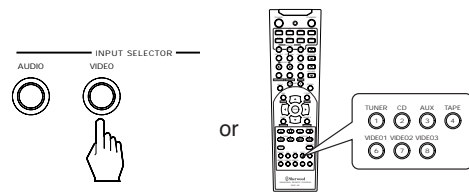
• Each time the "AUDIO" button on the front panel is pressed, the input source changes as follows;

   TUNER   CD   TAPE   AUX
   (frequency display)
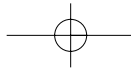
• Each time the "VIDEO" button on the front panel is pressed, the input source changes as follows;

   VIDEO 1   VIDEO 2   VIDEO 3

When selecting the 7 CH DIRECT as desired,

7CH DIRECT

or
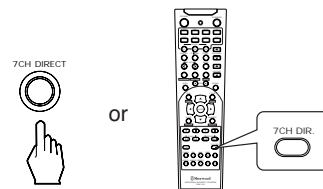
7CH DIR.

• "7-DIRECT" is displayed and the 7or 6 separate analog signals from the component connected to this input can be controlled only by tone(bass, treble) and volume depending on the surround back speaker setting.
• Press the 7 CH DIRECT button or select the desired input source to cancel the 7 CH direct function.
• These analog signals can be heard only, not recorded.
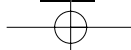
When CD, VIDEO 1~3 is selected as an input source

4 Select the digital or analog input connected as desired.

DIGITAL INPUTS

• Each time this button is pressed, the corresponding input is selected as follows ;

A(nalog)   c(oaxial) 1   c(oaxial) 2
o(ptical) 2   o(ptical) 1
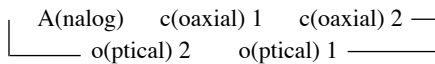
• To listen to a DTS or Dolby Digital program source in the 2-CH downmix mode, in the stereo mode, the corresponding digital input should be selected. (For details, refer to "Downmixing into 2 front channels" on page 26.)

Notes :
• When the selected optical or coaxial digital input is not connected, the "DIGITAL" indicator flickers, meaning no sound. (Refer to "ENJOYING SURROUND SOUND" on page 23.)
• The sound from the component connected to the selected digital input can be heard regardless of the selected input source.

5 Operate the selected component for playback.

• When playing back the program sources with surround sound, refer to "ENJOYING SURROUND SOUND" on page 23.

6 Adjust the (overall) volume.

MASTER VOLUME

DOWN   UP   or   VOLUME

7 To compensate for edgy or shrill movie sound tracks.

CINEMA EQ

• Then "C-EQ OFF" is scrolled.
• Press it again to work, the "C-EQ ON" is scrolled.
• When 96 kHz PCM(2 CH stereo) signals are input, the cinema EQ function does not work.

8 To mute the sound.
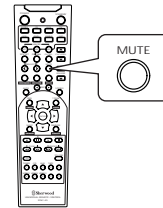
MUTE

• "MUTE" will flicker.
• To resume the previous sound level, press it again.
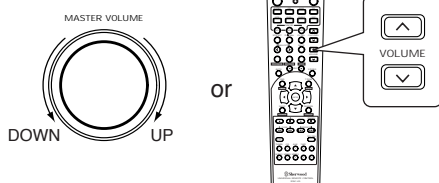
9 To listen with the headphones.

PHONES

• Ensure that the SPEAKER button is set to off.
• When listening to a DTS or Dolby Digital program source, if the headphones are plugged and the SPEAKER button is set to off, it enters the 2-CH downmix mode automatically. (For details, refer to "Downmixing into 2 front channels"on page 26.)
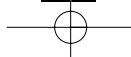
Adjusting the tone(bass and treble)

Enter the tone mode.

TONE MODE

• Each time this button is pressed, the corresponding tone mode is selected and shown for several seconds as follows:

BASS   TRBL(treble)   TONE ON

• When the tone mode is off, "TONE OFF" is shown.

At the desired tone mode, adjust the tone as desired.
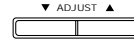
▼ ADJUST ▲

• At "TONE ON" mode, you can select "TONE OFF" mode and vice versa.

TONE ON: When adjusting the tone for your taste.
          ("DIRECT" indicator goes off.)
TONE OFF: When listening to a program source without the tone effect.
          ("DIRECT" indicator light up.)
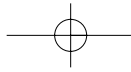
• In general, we recommend the bass and the treble to be set to 0(flat) level.

Notes:
• If the tone display disappears, start from the step 10 again.
• Extreme settings at high volume may damage your speakers.
• When the digital signals from DTS or Dolby Digital program sources are input in available surround mode or the 7 CH DIRECT is selected as an input source, you cannot adjust the tone and can hear a program source without the tone effect.
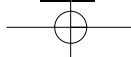
SURROUND SOUND

• This receiver incorporates a sophisticated Digital Signal Processor that allows you to create optimum sound quality and sound atmosphere in your personal Home Theater.

Surround modes

DTS Digital Surround

DTS Digital Surround(also called simply DTS) is a multi-channel digital signal format which can handle higher data rates than Dolby Digital. Although both Dolby Digital and DTS are 5.1 channel formats, discs bearing the " [dts] "

are generally thought to provide better sound quality due to the lower audio compression required.
It also provides wide dynamic range and separation, resulting in magnificent sound.

DTS - ES Extended Surround™ ([dts ES])

This is a new multi channel digital signal format which greatly improves the 360- degree surround impression and space expression thanks to further expanded surround signals, offering high compatibility with the conventional DTS format.
In addition to the 5.1 channels, DTS-ES Extended Surround also offers the surround back (sometimes also referred to as "surround center") channel for surround playback with a total of 6.1 channels. DTS-ES Extended Surround includes two signal formats with different surround signal recording methods as follows:

• **DTS-ES™ Discrete 6.1**
Because the signals for 6.1 channels (including the surround back channel) are fully independent, it is possible to achieve a sense that the acoustic image are moving about freely among the background sounds surrounding the listener from 360 degrees.
Though maximum performance is achieved when sound tracks recorded with this system are played using a DTS -ES decoder, when played with a conventional DTS decoder, the surround back channel signals are automatically downmixed to the surround left and surround right channels so that none of the signal components are lost.

• **DTS - ES™ Matrix 6.1**
With this format, the additional surround back channel signals undergo matrix encoding and are input to the surround left and surround right channels beforehand. During playback, they are decoded to the surround left, surround right and surround back channels.
Because the bit stream format is 100% compatible with conventional DTS signals, the effect of the DTS-ES Matrix 6.1 format can be achieved even with DTS 5.1- channel signal sources. Of course, it is possible to play DTS-ES Matrix 6.1 - channel signal sources with a DTS 5.1 - channel decoder.
When DTS-ES Discrete 6.1 or Matrix 6.1 sources are decoded with a DTS - ES decoder, the format is automatically detected upon decoding and the optimum surround mode is selected. However, some DTS - ES Matrix 6.1 sources may be detected as DTS sources. In this case, the DTS - ES Matrix mode should be selected manually to play these sources.

DTS Neo : 6™ surround

This mode applies conventional 2-channel signals such as digital PCM or analog stereo signals to the high precision digital matrix decoder used for DTS-ES Matrix 6.1 to achieve 6.1-channel surround playback. DTS Neo : 6 surround includes two modes for selecting the optimum decoding for the signal source.

• **DTS Neo : 6 Cinema**
This mode is optimum for playing movies. Decoding is performed with emphasis on separation performance to achieve the same atmosphere with 2-channel sources as with 6.1-channel sources.

• **DTS Neo : 6 Music**
This mode is suited mainly for playing music. The front left and front right signals bypass the decoder and are played directly so there is no loss of sound quality, and the effect of the surround signals from the center, surround left, surround right and surround back channels adds a natural sense of expansion to the sound field.

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

Dolby Digital

Dolby Digital is the multi- channel digital signal format developed by Dolby Laboratories. Discs bearing the " [DD DOLBY DIGITAL] " includes the recording of up to 5.1 channels of digital signals, which can reproduce much better sound quality, spatial expansion and dynamic range characteristics than the previous Dolby Surround effect.

Dolby Digital EX

This mode creates the back (sometimes also referred to as "surround center") signals from the surround left and right signals in Dolby Digital 5.1 channel source using a matrix decoder and provides 6.1 channel surround playback. For the best results, this mode should be selected during playback of sources(bearing the " [DD DOLBY DIGITAL·EX] ") recorded in
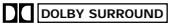
Dolby Digital Surround EX. With this additional channel, you can experience more dynamic and realistic moving sound especially.
When Dolby Digital EX sources are decoded with a Dolby Digital EX decoder, the format is automatically detected upon decoding and the Dolby Digital EX mode is selected. However, some Dolby Digital EX sources may be detected as Dolby Digital sources. In this case, the Dolby Digital EX mode should be selected manually to play these sources.
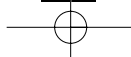
Dolby Pro Logic

Dolby Pro Logic is a specially encoded two channel surround format which consists of four channels (front left, center, front right and surround). Sources bearing the " ⫿⫿ DOLBY SURROUND " provide the theater-like surround sound.

The surround channel is monaural, but is played through both surround speakers.

Dolby Pro Logic II surround

This mode applies conventional 2- channel signals such as digital PCM or analog stereo signals as well as Dolby Surround signals, etc. to surround processing to offer improvements over conventional Dolby Pro Logic circuits. Dolby Pro Logic II surround includes two modes as follows:

• *Dolby Pro Logic II Cinema*
  When enjoying movies, this mode allows you to further enhance the cinematic quality by adding processing that emphasizes the sounds of the action special effects.

• *Dolby Pro Logic II Music*
  When listening to music, this mode allows you to further enhance the sound quality by adding processing that emphasizes the musical effects.

Dolby Virtual

This mode employs sophisticated digital processing to create the illusion of "phantom" speakers, this mode allows you to experience surround sound effects from Dolby Digital, Dolby Surround or 2-channel (recorded in digital PCM or analog stereo) sources, through just a single pair of front speakers.

Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories.

• When using the 7 CH DIRECT INPUTs to playback the sound from an additional multichannel decoder for surround sound, you can enjoy the corresponding surround sound, too. For details, refer to the operating instructions of the component to be connected.

The following modes apply conventional 2-channel signals such as digital PCM or analog stereo signals to high performance Digital Signal Processor to recreate sound fields artificially. Select one of the three provided surround modes according to the program source you want to play.

Theater

This mode provides the effect of being in a movie theater when watching a movie.

Hall

This mode provides the ambience of a concert hall for classical music sources such as orchestral, chamber music or an instrumental solo.

Matrix

This mode reproduces a delayed signals from the surround channels to emphasize the sense of expansion for music sources.

For your reference, the sound from each channel can be reproduced according to the surround modes as follows:

Modes \ Channels	FRONT L/R	(FRONT) CENTER	SURROUND L/R	SURROUND BACK (CENTER)	SUBWOOFER
DTS				—	
DTS ES DISCRETE/MATRIX					
DTS NEO:6 MOVIE/MUSIC					—(*)
DOLBY DIGITAL				—	
DOLBY DIGITAL EX					
DOLBY PRO LOGIC				—	—(*)
DOLBY PRO LOGIC II CINEMA/MUSIC				—	—(*)
DOLBY VIRTUAL		—	—	—	/—
MATRIX					—(*)
Other Surround				—	—(*)
STEREO		—	—	—	—(*)

• Depending on the speaker settings and the number of the encoded channels, the sound from the corresponding channels cannot be reproduced.(For details, refer to "Adjusting the speaker settings" on page 21.)
(*): Depending on the speaker settings, the sound from the subwoofer channel may be reproduced.

ENGLISH
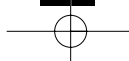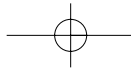
Speaker placement

Ideal speaker placement varies depending on the size of your room and the wall coverings, etc. The typical example of speaker placement and recommendations are as follows :

ENGLISH

Front left and right speakers and center speaker
- Place the front speakers with their front surfaces as flush with TV or monitor screen as possible.
- Place the center speaker between the front left and right speakers and no further from the listening position than the front speakers.
- Place each speaker so that sound is aimed at the location of the listener's ears when at the main listening position.

Surround left and right speakers
- Place the surround speakers approximately 1 meter (40 inches) above the ear level of a seated listener on the direct left and right of them or slightly behind.

Surround back speaker
- Place the surround back speaker at the rear center facing the front at a slightly higher position (0 to 10 inches) than the surround speakers.
- We recommend installing the surround back speaker at a slightly downward facing angle. This effectively prevents the surround back channel signals from reflecting off the TV or screen at the front center, resulting in interference and making the sense of movement from the front to the back less sharp.

Subwoofer
- The subwoofer reproduces powerful deep bass sounds. Place a powered subwoofer anywhere in the front as desired.

  Notes :
- When using a conventional TV, to avoid interference with the TV picture, use only magnetically shielded front left and right and center speakers.
- To obtain the best surround effects, the speakers except the subwoofer should be full range speakers.

1. TV or screen
2. Front left speaker
3. Subwoofer
4. Center speaker
5. Front right speaker
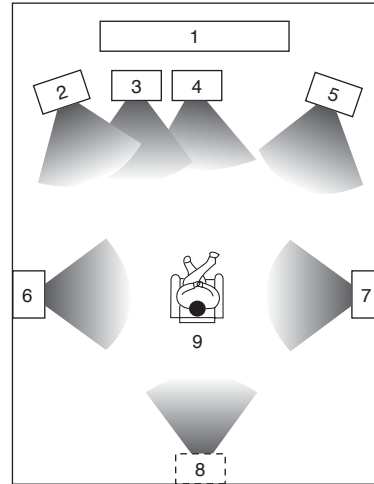
6. Surround left speaker
7. Surround right speaker
8. Surround back speaker
9. Listening position
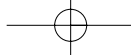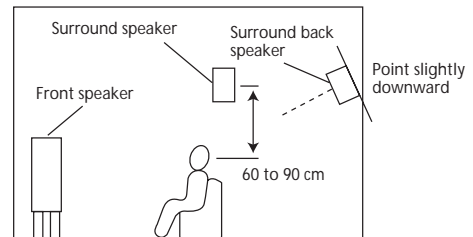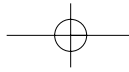
Adjusting the speaker settings

• After you have installed this unit and connected all the components, you should adjust the speaker settings for the optimum sound acoustics according to your environment and speaker layout.
• There are two kinds of speaker settings for speaker size and speaker distance.

Speaker size settings
Select the corresponding settings depending on the sizes of the connected speakers and whether the speakers are connected or not.

• Depending on your speaker type, you can select one of these following settings.

Large : Select this when connecting speakers that can fully reproduce sounds below 80 Hz.
Small : Select this when connecting speakers that cannot fully reproduce sounds below 80 Hz.
When this is selected, sounds below 80 Hz are sent to the subwoofer or the front speakers depending on wether the subwoofer setting is Yes or No.
None : Select this when no speakers are connected. When this is selected, sounds are sent to the front speakers.
Yes / No : Select the desired depending on whether a subwoofer is connected or not.

• Depending or relationship between speakers, settings possible for each speaker are as follows:

Front L/R	Center	Surr. L/R	Surr. Back	Subwoofer
Large	Large	Large	Large	Yes or No
			Small	
			None	
		Small	Small	
			None	
		None	None	
	Small	Large	Large	
			Small	
			None	
		Small	Small	
			None	
		None	None	
	None	Large	Large	
			Small	
			None	
		Small	Small	
			None	
Small	Small	Small	Small	Yes
			None	
		None	None	
	None	Small	Small	
			None	

Speaker distance settings
When enjoying 5.1 channel surround playback with Dolby Digital and DTS sources, it is ideal that the center and surround speakers should be the same distance from the main listening position as the front speakers. By entering the distance differences between front and center speakers(Cd) and front and surround speakers(Sd), the delay times of center and surround speakers are automatically adjusted to create an ideal listening environment virtually as if the center and surround speakers were at their ideal locations respectively as below:

All speakers should be located within a circle with a radius of Df
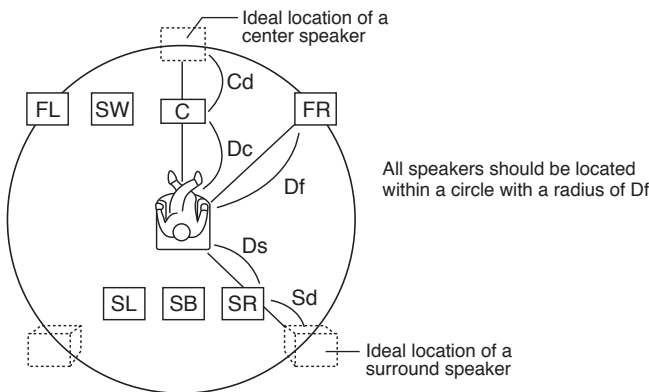
$Cd = Df - Dc$

$Sd = Df - Ds$

Cd : Center distance difference
Sd : Surround distance difference
Df : Front speaker distance
Dc : Center speaker distance
Ds : Surround speaker distance

ENGLISH
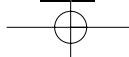
Refer to the previous page and adjust the speaker settings

Note : When the SPEAKER button is set to off or the 7 CH DIRECT is selected as an input source, the speaker setting function cannot be available.

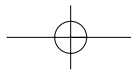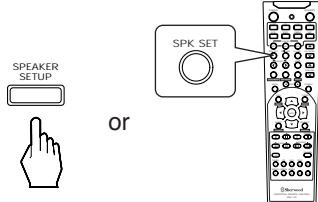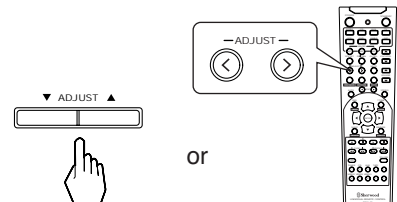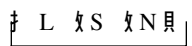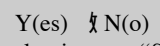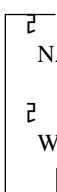| When selecting each setting mode	When adjusting the selected setting mode to the desired setting
• Each time the SPEAKER SETUP button is pressed, the speaker setting mode changes in succession and is displayed for several seconds as follows. • When the speaker setting mode disappears, press the SPEAKER SETUP button repeatedly to select the desired mode.	• Each time the ADJUST UP(/) or DOWN(/) button is pressed, one of the settings is selected and displayed for several seconds as follows.
• When selecting the front-center-surround speaker setting mode. "FL - CL - SL"	• You can select one of 11 different speaker settings. FL - CL - SL / FL - CL - SN / FL - CS - SL / FL - CN- SL / FL - CS - SN / FL - CN - SS / FS - CS - SS / FS - CS - SN / FS - CN - SS / FL - CS - SS / FL - CL - SS (F: Front, C: Center, S: Surround, L: Large, S: Small, N: None)
• When selecting the surround back speaker setting mode. "SUR B - L"	L S N • Depending on the surround speaker setting, you cannot select "L" or/and "S".
• When selecting the subwoofer setting mode. "SUB W - Y"	Y(es) N(o) • When the front speaker is set to "S", the subwoofer is automatically set to "Y".
• When selecting the center distance difference mode. "CENTER 0.0 (m)"	• You can adjust the distance difference within the range of 0 ~ 1.5 meters in 0.3 meter intervals. 0.0 (m) ~ 1.5 (m)
• When selecting the surround distance difference mode. "SURROUND 1.5 (m)"	• You can adjust the distance difference within the range of 0 ~ 4.5 meters in 0.3 meter intervals. 0.0 (m) ~ 4.5 (m)
• When selecting the Dolby Virtual delay time mode. "NARROW" • This mode can work only in the Dolby Virtual mode. In the other surround modes, this setting is just displayed.	NARROW : Relatively long distance for the main listening position to front speakers. WIDE : Relatively short distance.
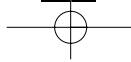
ENGOYING SURROUND SOUND

1 Depending on the input digital signal format, select the desired decoding mode.
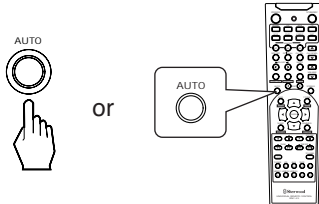
AUTO

or

AUTO

• Each time the AUTO button is pressed, the decoding mode changes as follows :

IN-AUTO : The input digital signal format(DTS, Dolby Digital or PCM(2 channel stereo), etc.) used by the selected digital input source is detected automatically to perform the necessary decoding process for optimum surround mode.
IN-DTS : The DTS signal processing is performed only when DTS signals are input.
IN-PCM : The PCM signal processing is performed only when PCM signals are input.

Notes :
• Only when the digital input is selected as signal input for the input sources except TUNER, TAPE and AUX, the decoding mode can be selected.
• Noise may be generated at the beginning of playback and while searching during DTS playback in the IN-AUTO mode. In this case, try playing in the IN-DTS mode.

2 Select the desired surround mode.

◄ DSP MODE ►

or

◄ DSP ►
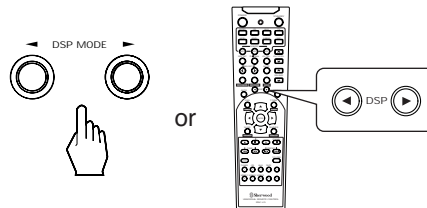
• Each time the DSP MODE   or   button is pressed, the surround mode changes depending on the input signal format and the selected decoding mode as follows :

When Dolby Digital signals are input in the IN-AUTO mode, one of the following modes can be selected depending on the number of the recorded channels.
  • *Dolby Digital 5.1 or Dolby Digital EX 6.1 channel sources :*
    (DOLBY DIGITAL EX,) DOLBY DIGITAL and DOLBY VIRTUAL
  • *Dolby Digital 2-channel sources :*
    (DOLBY DIGITAL EX,) DOLBY PRO LOGIC II CINEMA, DOLBY PRO LOGIC II MUSIC, DOLBY PRO LOGIC and DOLBY VIRTUAL
    ( ): possible only when surround back speaker setting is not "N".

When PCM(2 channel stereo) signals are input in the IN-AUTO or IN-PCM mode, one of the following modes can be selected.
  • DOLBY PRO LOGIC II CINEMA, DOLBY PRO LOGIC II MUSIC, DOLBY PRO LOGIC, DOLBY VIRTUAL, DTS NEO 6 CINEMA, DTS NEO 6 MUSIC, THEATER, HALL and MATRIX

• When the analog input is selected as signal input and analog stereo signals are input, you can select the desired of these above surround modes, too.
• However, when DTS signals are input in the IN-AUTO or IN-DTS mode, the corresponding DTS mode will be selected regardless of using the DSP MODE   or   button.
  Notes:
• When the selected decoding mode is not matched to the input signal format, the "DIGITAL" indicator flickers and no sound is heard. Therefore, be sure to select the required decoding mode and the available surround mode according to the input signal format.
• When the 7 CH DIRECT is selected as an input source, the decoding and surround modes cannot be selected.
• When the digital signals are not inputted, the desired surround mode cannot be selected.
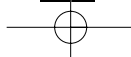
To cancel the surround mode for stereo operation

STEREO

or
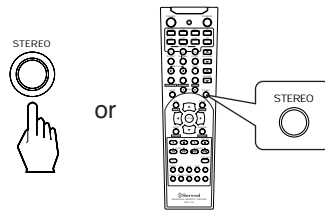
STEREO

• Then the stereo mode is selected.
• To cancel the stereo mode, select the desired surround mode with using the DSP MODE   or   button.

Adjusting the Dolby Pro Logic II Music parameters

• When selecting the Dolby Pro Logic II Music mode, you can adjust the various surround parameters for optimum surround effect.

3 Press the PL II MUSIC PARAMETER button to select the desired parameter.

PL II MUSIC PARAMETER   or   PL II PARA.
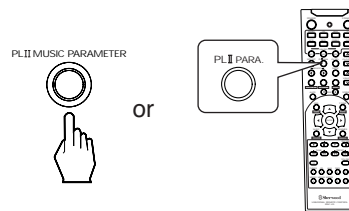
• Each time this button is pressed, the parameter changes and is displayed for several seconds as follows;

Panorama mode("PANO", default value : OFF)
This mode extends the front stereo image to include the surround speakers for an exciting "wraparound" effect with side wall imaging. Select "OFF" or "ON".

Center width control("C-WID", default value : 0)
This adjusts the center image so it may be heard only from the center speaker, only from the left/right speakers as a phantom image, or from all three front speakers to varying degrees.
The control can be set in 8 steps from 0 to 7.

Dimension control("DIMEN", default value : 0)
This gradually adjusts the soundfield either towards the front or towards the rear. The control can be set in 7 steps from -4 to +2.

4 At the desired parameter, adjust it as desired.

ADJUST

or
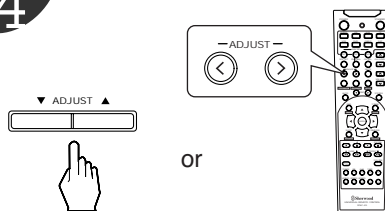
• If the parameter display disappears, start from the step 3 again.

5 Repeat the above steps 3 and 4 to adjust other parameters.
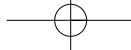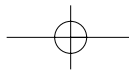
Adjusting each channel level

6 Select the desired channel.

CHANNEL
SELECTOR

or

CH SEL.
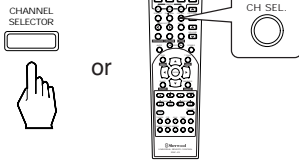
• Each time this button is pressed, the corresponding channel is selected and displayed for several seconds as follows:

FL	C	FR	SR	SB
Front Left	Center	Front Right	Surround Right	Surround Back

DTS L	DD L		SW	SL
Dolby Digital LFE or DTS LFE			Subwoofer	Surround Left
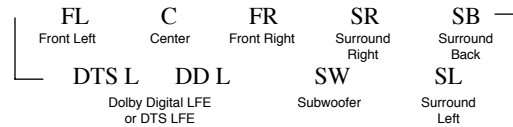
• You can adjust the LFE level for Dolby Digital or DTS program source that includes LFE signal.
• When it is in the stereo or Dolby Virtual mode or the speaker setting is "N", center, surround L/R, surround back or subwoofer channel will not be selected.
• When the SPEAKER button is set to off, only the front L/R channel can be selected.

7 Adjust the level of the selected channel as desired.

▼ ADJUST ▲

or

CH / LEVEL
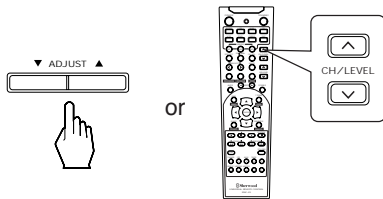
• The LFE level can be adjusted within the range of -10~0 dB and other channel levels within the range of -15~+15 dB.
• In general, we recommend the LFE level to be adjusted to 0 dB.(However, the recommended LFE level for some early DTS software is -10 dB.) If the recommended levels seem too high, lower the setting as necessary.
• If the channel display disappears, start from the step 6 again.

8 Repeat the above steps 6 and 7 to adjust each channel level.

Adjusting each channel level with test tone

• The volume level of each channel can be adjusted easily with the test tone function.
 Note : When the 7 CH DIRECT is selected as an input source or the SPEAKER button is set to off, the test tone function does not work.

9 Enter the test tone mode.

T. TONE

MENU
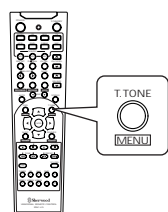
• The test tone will be heard from the speaker of each channel for 2 seconds as follows:

FL	C	FR	SR	SB	SL
			SW		
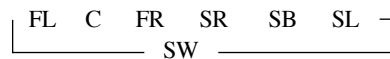
• When the speaker setting is "N", the test tone of the corresponding channel is not available.
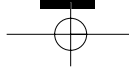
At each channel, adjust the level as desired until the sound level of each speaker is heard to be equally loud.

▼ ADJUST ▲

or

CH／LEVEL
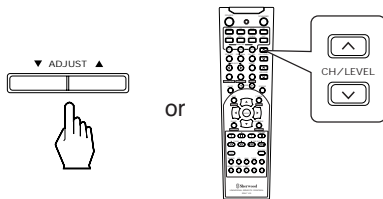
• You can select the desired channel and adjust its level with repeating the steps 6 and 7 in "Adjusting each channel level" procedure.

Cancel the test tone function.

T.TONE

MENU
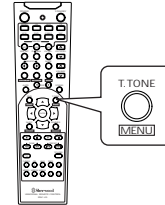
Downmixing into 2 front channels

• Allows the multi - channel DTS or Dolby Digital signal to be reproduced through only two speakers or through headphones.
• When the digital signals from the DTS or Dolby Digital program sources are input in available surround mode, press the STEREO button.

STEREO

or

STEREO
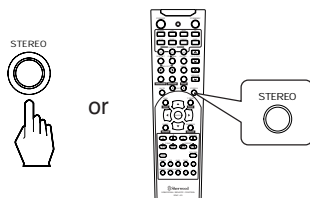
• "ST" indicator lights up and "2 CH DOWNMIX" is scrolled, meaning it enters the 2-CH downmix mode, and then the discrete multi-channels(except LFE) are mixed down into 2 front channels.

• To cancel the 2 - CH downmix mode, select the desired surround mode with the DSP MODE   or button.
• When the playback of the source on the player is stopped, interrupted, etc., the 2 - CH downmix mode is not canceled even though " ST" and the DTS or Dolby Digital indicators go off.
• If the headphones are plugged in and the SPEAKER button is set to off while the digital signals from the DTS or Dolby Digital program sources are being input, it will enter the 2-CH downmix mode automatically(but only the DTS or Dolby Digital indicator lights up still) and if the headphones are unplugged and the SPEAKER button is set to on in the 2-CH downmix mode, it will return to the previous mode.
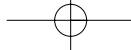
LISTENING TO RADIO

Auto tuning

1 Select the tuner.

AUDIO

or

TUNER
1

2 Select the desired band.

BAND

FM 87.50 MHz

BAND   FREQUENCY
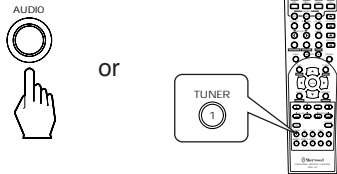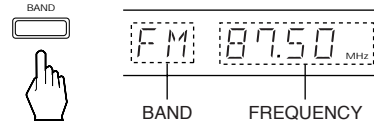
• Each time this button is pressed, the band is changed to FM or AM.
• When pressing the BAND button without selecting the TUNER, the tuner will be selected automatically.

3 Select the tuning mode.

T/P MODE

• Each time this button is pressed, the mode changes as follows;

Tuning mode : "PRESET" goes off.
Preset mode : "PRESET" lights up.

4 Press the TUNING(/PRESET) UP(/+) or DOWN(/-) button for more than 0.5 second.

▼ TUNING/PRESET ▲

or
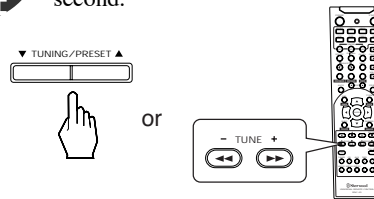
– TUNE +

• The tuner will now search until a station of sufficient strength has been found. The display shows the tuned frequency and "TUNED".
• If the station found is not the desired one, simply repeat this operation.
• Weak stations are skipped during auto tuning.
• When pressing the TUNE +/- buttons on the remote control, you need not select the tuning mode on step 3.

Manual tuning

• Manual tuning is useful when you already know the frequency of the desired station.
• Perform the steps 1 to 3 in "Auto tuning" procedure and press the TUNING(/PRESET) UP(/+) or DOWN(/-) button repeatedly until the right frequency has been reached.

▼ TUNING/PRESET ▲

or
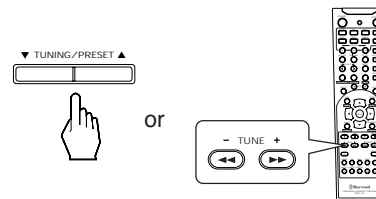
– TUNE +

Presetting radio stations

• You can store up to 30 preferred stations in the memory.
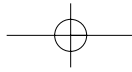
1 Tune in the desired station with auto or manual tuning.

2 Press the MEMORY/ENTER button.

MEMO/ENTER
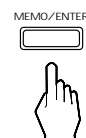
• "MEM" is flickering for 5 seconds.
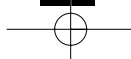
3 Select the desired preset number (1~30) and press the MEMORY/ENTER button.

▼ TUNING/PRESET ▲

or

MEMO/ENTER

− PRESET +

• The station has now been stored in the memory.
• A stored frequency is erased from the memory by storing another frequency in its place.
• If "MEM" goes off, start again from the above step 2.

4 Repeat the above steps 1 to 3 to memorize other stations.

MEMORY BACKUP FUNCTION

The following items, set before the receiver is turned off, are memorized.
• INPUT SELECTOR settings
• Surround mode settings
• Preset stations,etc.

Note : If the electricity fails or the AC input cord is disconnected for more than 2 weeks, they are all cleared. So you should memorize them again.

Tuning to preset stations

1 After selecting the tuner as an input source, select the preset mode.

T/P MODE

• Then "PRESET" lights up.

2 Select the desired preset number.

▼ TUNING/PRESET ▲

or

− PRESET +

• When pressing the PRESET +/- buttons on the remote control, you need not select the preset mode on step 1.

Listening to FM stereo broadcasts

• While listening to FM broadcasts.

FM MODE

• Each time this button is pressed, the FM mode changes as follows;

  Stereo mode : "ST" lights up.
  Mono mode : "ST" goes off.

• When FM stereo broadcasts are poor because of weak broadcast signals, select the FM mono mode to reduce the noise, then FM broadcasts are reproduced in monaural sound.

Scanning preset stations in sequence

P.SCAN

• The receiver will start scanning the stations in the preset sequence and each station is received for 5 seconds.
• At the desired station, press this button again to stop scanning.
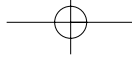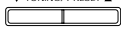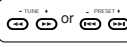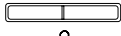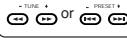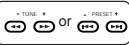
Additional Function for RD-8108R RDS Tuner Only

```
LISTENING        TO        RDS
```

ENGLISH

RDS(Radio Data System) is a method for sending information signals together with the transmitter signals. Your tuner is capable of translating these signals and putting the information on the display. These codes contain the following informations. Program Service name(PS), A list of Program Types(PTY), Traffic Announcement(TA), Clock Time(CT), Radio Text(RT).

RDS search

• Use this function to automatically search and receive the stations offering RDS services.

1 In the FM mode, select the RDS search mode. SEARCH

• Each time this button is pressed, the search mode changes as follows;
RDS SRCH   TP SRCH   PTY SRCH   OFF

2 While displaying "RDS SRCH"
▼ TUNING/PRESET ▲   or

• The tuner automatically searches stations offering RDS services and the station name is displayed.
• If the station found is not the desired one, press the TUNING/PRESET UP(/+) or DOWN(/-) button again while the RDS indicator is flickering.
• If no other RDS station is found, "NO RDS" is displayed.
• When "RDS SRCH" is not displayed, repeat again from the above step 1.

TP search

• Use this function to automatically search and receive the stations broadcasting the traffic program.

1 In the FM mode, select the TP search mode. SEARCH

• "TP SRCH" is displayed.

2 While displaying "TP SRCH".
▼ TUNING/PRESET ▲   or

• The tuner automatically searches for stations broadcasting the traffic program.
• "NO TRAFF"is displayed if the signal is too weak or there are no stations broadcasting the traffic program.
• When "TP SRCH" is not displayed, repeat again from the above step 1.

PTY search

• Use this function to automatically search and receive the stations broadcasting the desired program type.

1 In the FM mode, select the PTY search mode. SEARCH

• "PTY SRCH" is displayed.

2 While displaying "PTY SRCH", select the desired program type. PTY SELECT

• Each time this button is pressed, one of 32 different types of programs is selected.
(NEWS, AFFAIRS, INFO, SPORT, EDUCATE, DRAMA, CULTURE, SCIENCE, VARIED, POP M, ROCK M, EASY M, LIGHT M, CLASSICS, OTHER M, WEATHER, FINANCE, CHILDREN, SOCIAL, RELIGION, PHONE IN, TRAVEL, LEISURE, JAZZ, COUNTRY, NATION M, OLDIES, FOLK M, DOCUMENT, TEST, ALARM, NONE)
• When "PTY SRCH" is not displayed, repeat again from the above step 1.

3 ▼ TUNING/PRESET ▲   or

• The tuner automatically searches a station offering PTY services.
• If no station is found, "NO PROG" is displayed.

EON PTY (EON: Enhanced Other Networks information)

• Use this function to automatically search and receive the desired program type while listening to a RDS station.

1 In the RDS mode.

EON PTY

• Program type is displayed and the EON PTY indicator is flickering.

2 While the PTY indicator is flickering, select the desired program type.

PTY SELECT
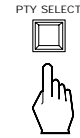
• If one of the preset stations is broadcasting the selected program type, it will be tuned in while listening to a RDS station.
• If the station stops broadcasting the selected program type, the tuner will find other stations repeatedly.
• If no station is found, the previous RDS station will be tuned in.
• When the PTY indicator goes off, repeat again from the above step 1.
• press the EON PTY button to cancel the EON PTY mode.

EON TA

• Use this function to automatically search and receive the traffic announcement while listening to traffic program.

In the TP mode.

EON TA

• Traffic program is displayed and the EON TA indicator lights up.
• If the preset station broadcasting traffic announcement is found, it will be tuned in while listening to the traffic program.
• If the station stops broadcasting traffic announcement, the tuner will find other stations repeatedly.
• If no station is found, the previous traffic program station will be tuned in.
• Press the EON TA button to cancel the EON TA mode.

DISPLAY

In the FM mode.

DISPLAY

• Each time this button is pressed, the display mode changes as follows;

Frequency	Program Service name (PS)	Program Type (PTY)	Clock Time (CT)	Radio Text (RT)
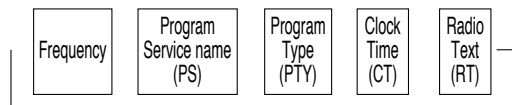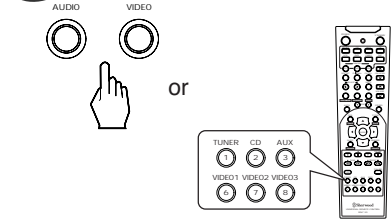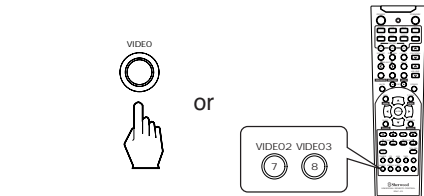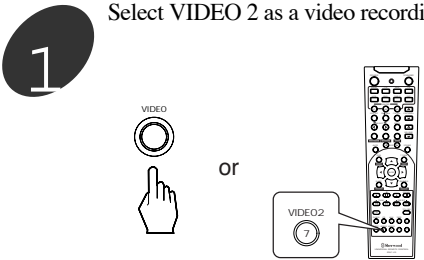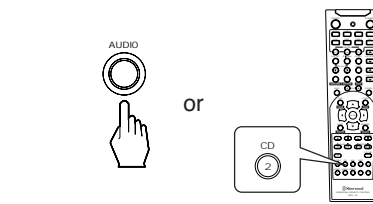
• If the signals are too weak or no RDS service is available, "NO NAME", "NO PTY", "NO TIME" or "NO TEXT" will be displayed.
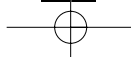
RECORDING

· The analog signals from the 7 CH DIRECT inputs as well as the digital signals from the coaxial or optical digital input can be heard but cannot be recorded.
· The volume and tone (bass, treble) settings have no effect on the recording signals.

Recording with TAPE

1 Select the desired input as a recording source except for TAPE.

AUDIO VIDEO

or

TUNER CD AUX
VIDEO1 VIDEO2 VIDEO3

2 Start recording on the TAPE.

3 Start play on the desired input.

Dubbing from video components onto VIDEO 1

1 Select VIDEO 2 or VIDEO 3 as a recording source.

VIDEO

or

VIDEO2 VIDEO3
7   8

2 Start recording on the VIDEO 1.

3 Start play on the VIDEO 2 or the VIDEO 3.

• The audio and video signals from the VIDEO 2 or the VIDEO 3 will be dubbed onto the VIDEO 1 and you can enjoy them on the TV set and from the speakers.

Dubbing the audio and video signals separately onto VIDEO 1

Example) When dubbing the VIDEO 2 video signal and the CD audio signal separately onto VIDEO 1.

1 Select VIDEO 2 as a video recording source.

VIDEO

or

VIDEO2
7

2 Select CD as an audio recording source.

AUDIO

or

CD
2

ENGLISH
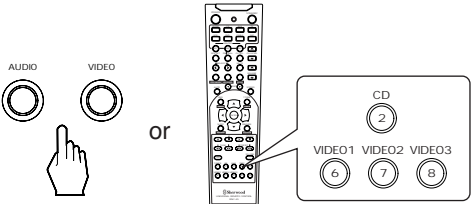
3 Start recording on the VIDEO 1.

4 Start play on the VIDEO 2 and the CD respectively.

• The audio signal from the CD and the video signal from the VIDEO 2 will be dubbed and you can enjoy them on the TV set and from the speakers.

Note : Be sure to observe the order of the above steps 1 and 2.

DIGITAL AUDIO RECORDING WITH

• Only when the OPTICAL DIGITAL OUT of this receiver is connected to the OPTICAL DIGITAL IN of the MD recorder or CD recorder, you can enjoy high-quality sound of digital recording without converting the original signals. Refer to " CONNECTING AUDIO/VIDEO COMPONENTS" and "CONNECTING DIGITAL INs and OUT" on page 6 and 7 and the operating instructions of the MD recorder or CD recorder.
  Notes:
• Digital recording is available for the digital audio program sources such as CDs, MDs, some DVDs, etc.
• In most DVDs as well as some CDs, etc., digital recording may not be available depending on the signal format.
• There are some restrictions on recording digital signals. When making digital recordings, refer to the operating instructions of your digital recording equipment to know what restrictions are imposed.

1 Select a desired input of CD, VIDEO 1~3 as a recording source.

AUDIO   VIDEO

or

CD
②

VIDEO1 VIDEO2 VIDEO3
⑥   ⑦   ⑧

2 For digital recording, select the desired digital input as recording signal input.

DIGITAL
INPUTS
◯

• Each time this button is pressed, the corresponding input is selected as follows:

A(nalog)   c(oaxial) 1   c(oaxial) 2
          o(ptical) 2   o(ptical) 1

Note : When the selected digital input is not connected, "DIGITAL" indicator flickers. There will be no recording as well as no sound.

3 Start recording on the component connected to OPTICAL DIGITAL OUT.

4 Start play on the desired input.

OTHER FUNCTIONS

Compressing the dynamic range (Dolby Digital sources only)

• This function compresses the dynamic range of previously specified parts of the Dolby Digital sound track(with extremely high volume) to minimize the difference in volume between the specified and non-specified parts.
  This makes it easy to hear all of the sound track when watching movies at night at low levels.
• When the digital signals from Dolby Digital program source are input in available surround mode.

DYNAMIC
RANGE

• Each time this button is pressed, the mode changes and the display scrolls.

  DYNR 0.0 : Off

  DYNR 0.5 : Low compression

  DYNR 1.0 : High compression

• In some Dolby Digital softwares, this function may not be available.

Operating the sleep timer

• The sleep timer allows the system to continue to operate for a specified period of time before automatically shutting off.
• To set the receiver to automatically turn off after the specified period of time.
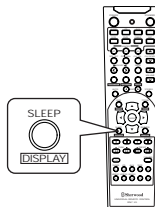
SLEEP
DISPLAY

• Each time this button is pressed, the sleep time changes and "GOOD NIGHT" message scrolls.

  10   20   30   60   90   OFF
           Unit : minutes

• While operating the sleep timer, "SLEEP" lights up.
• When the sleep time is selected, all display panels of Sherwood components connected by the DIGI LINK III are dimly lit.

Adjusting the brightness of the fluorescent displays
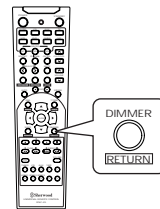
DIMMER
RETURN

• Each time this button is pressed, the brightness of all fluorescent displays of Sherwood components connected by the DIGI LINK III changes together as follows;

  ON   dimmer   OFF

• In the display OFF mode, pressing any button will restore the display ON mode.
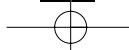
Using the OSD

This unit incorporates an OSD(On-screen display) function to provide information about basic operation of this unit and to simplify the setup procedures.

The OSD function uses a monitor TV connected to this unit as a display and has two kinds of display modes such as current status display and menu screen.

Notes: • Any on-screen display shown on the monitor TV will not be recorded onto VIDEO 1.
   • In some countries, this unit allows you to select either NTSC or PAL color system as video format.
   If it is different from your video components and video softwares, etc., in the standby mode, press the VIDEO INPUT SELECTOR button keeping the MEMORY/ENTER button pressed on the front panel, then the video format is changed to the NTSC or the PAL color system.
   However, it is fixed to NTSC color system in other countries.

CURRENT STATUS DISPLAY

When the AUTO OSD mode is set to ON on the menu screen, this mode shows the status corresponding to each operation.

· The on-screen display will automatically disappear in several seconds.
· For examples, there are 2 status displays as follows.

When selecting the desired input source

VIDEO 1(OPTICAL 1)

Input source   Signal input
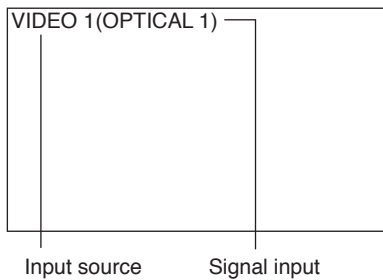
When selecting the TEST TONE mode

```
    ■       ■        ■
   FL       C       FR
        ( ( ■ ) )
          SW
    ■       ■        ■
   SL       SB      SR
  -          0dB            +
SW ------------- ▮▮ ------------- 0
```
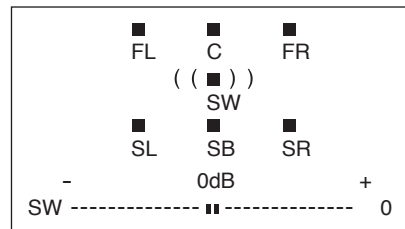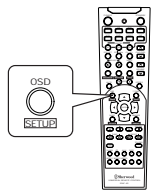
• When the speaker setting is "N", the test tone of the corresponding channel is not shown.
• When adjusting each channel level or overall volume, the volume level display will be shown.
• The test tone display will be shown until the test tone mode is canceled.

MENU SCREEN

· This function simplifies the setup procedures.
· The menu screen operation is performed easily with the CURSOR control(,   ,   ,   ), OSD and ENTER buttons.

1 Turn the menu screen on.

```
         MAIN MENU

   ▶ SPEAKER SETUP
     FUNCTION SELECT
     SURROUND MODE
     CH  LEVEL TRIM
     AUTO  OSD :  ON

  u p / d o w n : MOVE
  OSD : END            ENTER : SEL.
```
Main menu display

• The main menu will be shown.
• To turn the menu screen off, press this button.

• In the bottom of the display, "up" stands for the CURSOR UP( ) button, "down" for the CURSOR DOWN( ), " " for CURSOR LEFT( ), " " for CURSOR RIGHT( ), "OSD" for OSD button, "ENTER" for ENTER button.
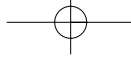
2 Select the desired menu using the
CURSOR UP( ) or DOWN( ) button.
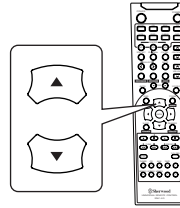
3 Confirm your selection.
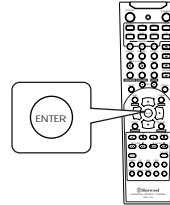
When selecting the SPEAKER SETUP

```
         SPEAKER SETUP

 ▶SUBWOOFER - YES
  FRONT    -    LARGE
  CENTER   -    LARGE
  SURR     -    LARGE
  SURR B   -    LARGE

 up/down:MOVE    ENTER:SEL.
 OSD:BACK         ☞1/2 PAGE
```

```
          0...1..2..3..4..m
 ▶CENT ▌▌----------
  SURR----------▌▌--------------------
  V. S. ANGLE : NARROW


 up/down:MOVE      ←→: CHANGE
 OSD:BACK          ☞2/2 PAGE
```

When selecting the FUNCTION SELECT   When selecting the SURROUND MODE

```
       FUNCTION SELECT

 ▶DIGITAL INPUT
  VIDEO SELECT
  TONE CONTROL



 up/down:MOVE
 OSD:BACK        ENTER:SEL.
```

```
       SURROUND MODE

 ▶PL II  (CINEMA)
  DOLBY VIRTUAL
  NEO6
  SFE
  DOLBY  DIGITAL EX
  STEREO
                 ←→: CHANGE
 OSD:BACK    up/down:MOVE
```

• Only when one of TUNER, CD, TAPE and AUX is selected, you can select a video input source on the VIDEO
  SELECT menu and enjoy the audio and video signals separately.
• When dubbing them onto VIDEO 1, select either VIDEO 2 or VIDEO 3 on the VIDEO SELECT menu.

When selecting the CH LEVEL TRIM

```
         CH LEVEL TRIM
  -          0dB         +
 ▶FL ---------------▌▌--------------- 0
  C  ---------------▌▌--------------- 0
  FR ---------------▌▌--------------- 0
  SR ---------------▌▌--------------- 0
  SB ---------------▌▌--------------- 0
  SL ---------------▌▌--------------- 0
 up/down:MOVE       ←→: CHANGE
 OSD:BACK           ☞1/2 PAGE
```

```
         CH LEVEL TRIM
  -          0dB         +
 ▶SW ---------------▌▌--------------- 0
  DD L ----------▌▌--------------- 0
  DTS L----------▌▌--------------- 0


 up/down:MOVE       ←→: CHANGE
 OSD:BACK           ☞2/2 PAGE
```

• According to your selections for the input source, input signal, decoding mode, surround mode, speaker settings,
  etc., the conditions of each menu may differ.
• When adjusting the distance difference or channel level, etc., use the CURSOR LEFT( ) and RIGHT( ) buttons.

When selecting the AUTO OSD
• Each time the ENTER button is pressed, the AUTO OSD mode is set to ON to turn on the current display or OFF
  to turn it off.
• When the AUTO OSD mode is set to ON, the current status display overlays the program image on the monitor
  TV and may interference with your movie enjoyment. In such a case, set it to OFF.
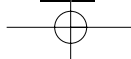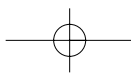
ENGLISH

4 Select the desired menu or(and) change the condition with the corresponding buttons.

5 Repeat the above steps 2~4 to change the conditions on other menus.
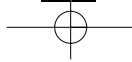
Troubleshooting Guide

If a fault occurs, run through the table below before taking your receiver for repair.
If the fault persists, attempt to solve it by switching the receiver off and on again. If this fails to resolve the situation, consult your dealer. Under no circumstances should you attempt to repair the receiver yourself. This could void the warranty.

PROBLEM	POSSIBLE CAUSE	REMEDY
No power	• The AC input cord is disconnected. • Poor connection at AC wall outlet or the outlet is inactive.	• Connect the cord securely. • Check the outlet using a lamp or another appliance.
No sound	• The speaker cords are disconnected. • The master volume is adjusted too low. • The MUTE button on the remote control is pressed to ON. • Speakers are not switched on. • Incorrect selection of the input source. • Incorrect connections between the components.	• Check the speaker connections. • Adjust the master volume. • Press the MUTE button to cancel the muting effect. • Press the SPEAKER button to ON. • Select the desired input source correctly. • Make connections correctly.
No sound from the surround speakers	• Surround mode is switched off(stereo mode). • Master volume and surround level are too low. • A monaural source is used. • Surround speaker setting is "N".	• Select a surround mode. • Adjust master volume and surround level. • Select a stereo or surround source. • Select the desired surround speaker setting.
No sound from the center speaker	• Dolby Virtual, stereo mode, etc. is selected. • Center speaker setting is "N". • Master volume and center level are too low.	• Select the desired surround. • Select the desired center speaker setting. • Adjust master volume and center level.
No sound from the surround back speaker	• The input signal format or the current surround mode cannot support the 6.1 surround playback. • Master volume and surround back level are too low. • Surround back speaker setting is "N".	• Under the proper situations, perform the 6.1 surround playback. • Adjust master volume and surround back level. • Select the desired surround back speaker setting.
Stations cannot be received	• No antenna is connected. • The desired station frequency is not tuned in. • The antenna is in wrong position.	• Connect an antenna. • Tune in the desired station frequency. • Move the antenna and retry tuning.
Preset stations cannot be received	• An incorrect station frequency has been memorized. • The memorized stations are cleared.	• Memorize the correct station frequency. • Memorize the stations again.
Poor FM reception	• No antenna is connected. • The antenna is not positioned for the best reception.	• Connect an antenna. • Change the position of the antenna.
Continuous hissing noise during FM reception, especially when a stereo broadcast is received.	• Weak signals.	• Change the position of the antenna. • Install an outdoor antenna.
Continuous or intermittent hissing noise during AM reception, especially at night.	• Noise is caused by motors, fluorescent lamps or lightning, etc.	• Keep the receiver away from noise sources. • Install an outdoor AM antenna.
Remote control unit does not operate.	• Batteries are not loaded or exhausted. • The remote sensor is obstructed.	• Replace the batteries. • Remove the obstacle.
Other Sherwood components do not react to remote control commands.	• DIGI LINK connections are not made properly.	• Make proper DIGI LINK connections.
OSD function is not available	• Video connections between this unit and the TV monitor are not made correctly.	• Make proper video connections.
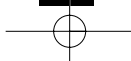
Specifications

AMPLIFIER SECTION
- Power output, stereo mode, 6 Ω, THD 0.2 %, 40 Hz~20 kHz .... 2× 100 W
- Total harmonic distortion, 6 Ω, 95 W, 1 kHz 0.09%
- Intermodulation distortion
  60 Hz : 7 kHz= 4 : 1 SMPTE, 6 Ω, 95 W 0.1%
- Input sensitivity, 47 kΩ
  Line (CD, TAPE, VIDEO) .... 200 mV
- Signal to noise ratio, IHF "A" weighted
  Line (CD, TAPE, VIDEO) .... 90 dB
- Frequency response
  Line (CD, TAPE, VIDEO), 20 Hz~50 kHz .... +0 dB, -3 dB
- Output level
  TAPE REC, 2.2 kΩ .... 200 mV
- Bass/Treble control, 100 Hz/10 kHz .... ± 10 dB
- Surround mode, only channel driven
  Front power output, 6 Ω, 1 kHz, THD 0.7 % .... 110 W+110 W
  Center power output, 6 Ω, 1 kHz, THD 0.7 % .... 110 W
  Surround power output, 6 Ω, 1 kHz, THD 0.7 % .... 110 W+110 W
  Surround back power output, 6 Ω, 1 kHz, THD 0.7 % .... 110 W

DIGITAL AUDIO SECTION
- Sampling frequency .... 32, 44.1, 48, 96 kHz
- Digital input level
  Coaxial, 75 Ω .... 0.5 Vp-p
  Optical, 660 nm .... -15~-21 dBm

VIDEO SECTION
- Video format .... PAL
- Input sensitivity(=Output level), 75 Ω
  Video (Composite(normal)) .... 1 Vp-p
  S-Video (luminance signal) .... 1 Vp-p
        (chrominance signal) .... 0.286 Vp-p

FM TUNER SECTION
- Tuning frequency range .... 87.5~108 MHz
- Usable sensitivity, THD 3%, S/N 26 dB .... 12.8 dBf
- 46 dB quieting sensitivity, mono/stereo .... 20.2/45.3 dBf
- Signal to noise ratio, 65 dBf, mono/stereo .... 70/65 dB
- Total harmonic distortion, 65 dBf,1 kHz, mono/stereo .... 0.5/0.8 %
- Frequency response, 30 Hz~15 kHz .... ± 3 dB
- Stereo separation, 1 kHz .... 32 dB
- Capture ratio .... 4 dB
- IF rejection ratio .... 60 dB

AM TUNER SECTION
- Tuning frequency range .... 522~1611 kHz
- Usable sensitivity .... 500 µV/m
- Signal to noise ratio .... 40 dB
- Selectivity .... 25 dB

GENERAL
- Power supply .... AC 230 V, 50 Hz
- Power consumption .... 250 W
- Switched AC outlet .... TOTAL 100 W max.
- Dimensions (W× H× D) .... 440× 141× 330 mm(17-3/8× 5-1/2× 13 inches)
- Weight (Net) .... 9.9 kg(21.8 Ibs)

Note: Design and specifications are subject to change without notice for improvements.
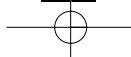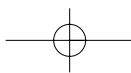
Setup Code Table

TV	

ADMIRAL	050 134
AKAI	093 049 123
ALBA	068
ALBIRAL	116
ALCATEL	022
AMSTRAD	000 021
ANAM	155 156 157
ARC EN CIEL	028 039 043 145 081
ARISTONA	099 049 050 019 142 149 078
ARTHUR MARTIN	053 139 117 120 122 123 125 128
ASA	050 055 057 113 134
ATLANTIC	099 111
AUDIOSONIC	054
AUSIND	053
AUTOVOX	099 144 055 019 057 069
BAIRD	083
BASICLINE	006
BAUR	011
BEKO	023 049
BLAUPUNKT	094 100 102 111 114
BRANDT	028 039 040 043 145 081
BRION VEGA	050
BRUNS	048 050
BSR	059 110 132
BUSH	033 068 124 074
CENTURY	098 101 050 079 136
CGE	016 101 124 079 132 136
CIHAN	065
CLARIVOX	048 116
CONDOR	099 111
CONTEC	087
CONTINENTAL EDITION	028 039 040 043 145 081
CROSLEY	101 050 109
CROWN	147
CTC CLATRONIC	046
DAEWOO	089
DECCA	099 060 063 115 118
DEGRAAF	036
DIXI	049 090
DRYNATRON	049
DUAL	099 141
DUAL-TEC	096 099 132
DUMONT	046 050 057 073
ELBE	016 116
ELBIT	065

ELCIT	046 097 103 050 109 127 132
ELMAN	046 132
ELTA	090
EMERSON	158 098 050
ERRES	049 142
EUROPHON	098 046 097 099 051 115 132
FERGUSON	146 040 041 150 057 061 116 149
FIDELITY	099 149
FINLUX	034 046 053 055 057 109 113 073 074 079
FISHER	015 048 050 052 109 136
FORGESTONE	149
FORMENTI	099 053 109 111 125
FORTRESS	137
FRABA	075
FRONTECH	054
FUJITSU	025
FUNAI	054 059
GBC	109 132
GEC	099 060 109 115 134 088
GELOSO	103 109 132 134 090
GOLDSTAR	092 003 017 099 049 075 076 077 090 152
GOODMANS	033 049 060 077
GORENJE	066 136
GREATZ	001 058 109 122 123 128 129 130 134
GRANADA	033 099 049 058 060 142 115 125 134
GRUNDIG	094 100 057 058 108 112 114 082
HANSEATIC	033 047 099 049 109 139 111
HANTAREX	097
HEMMERMANN	127
HIFIVOX	028 039 043 145 081
HINARI	158 033 045 143 090
HITACHI	014 033 034 036 099 145 056 109 139 110 067 117 132 134 084 091 081 088
HYPER	093 099
IMPERIAL	016 101 124 079 132 133
INGELEN	001 058 109 122 128 129 130 134
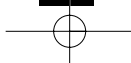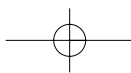
INNO HIT	093	098	097	099	143	077
	090					
INTERFUNK	047	049	050	145	058	109
	142	123	128	129	091	
IRRADIO	093	143	053	077	090	
ITT	001	140	058	105	109	122
	123	128	148	129	130	134
	135	083	089			
JVC	033	154				
KTV	099					
KAISUI	006					
KARCHER	006					
KENDO	098					
KENNEDY	144	019	109			
KORTING	050	059	111			
KRIESLER	099	049	050	019	142	149
	078					
LENOIR	099					
LOEWE OPTA	008	097	047	049	050	115
	072					
LOGIK	118	149				
LUMA	049	120	134			
LUXOR	058	139	117	120	123	129
	135	083				
MAGNADYNE	046	097	103	050	109	115
	127	132				
MAGNAFON	046	097	099	051	053	115
MARANTZ	049					
MATSUI	158	099	106	060	118	068
	134	090				
McMICHAEL	088					
MEMOREX	090					
METZ	094	050	114	133		
MINERVA	094	100	057	058	114	
MISTRAL	149					
MITSUBISHI	033	035	047	049	050	062
	118	119	148	080	138	
MIVAR	097	099	115	077		
MULTITECH	046	099	115	136		
MURPHY	134					
MAONIS	096	144	019	110	134	
NATIONAL	042	104	109			
NEC	033	085				
NECKERMANN	099	050	139	120	136	
NEI	049					
NIKKAI	060					
NOBLEX	015					
NOBLIKO	098	046	099	053	057	
NOGAMATIC	028	039	043	145	081	
NOKIA	001	140	058	105	109	122
	123	128	148	129	130	134
	135	083	089			

NORDMENDE	028	032	039	043	145	131
	091	081				
OCEANIC	109	064	123			
ONCEAS	099					
OPTONICA	137					
ORION	000	059	118	068	127	090
OSAKI	060					
OSIO	077					
OSUME	087					
OTTO VERSAND	033	047	049	109	139	
P.T ACTTRON	065					
PAEL	099	053				
PANASONIC	030	042	095	104	107	109
	121	126				
PATHE CINEMA	099	111	116	132		
PERDIO	060					
PHILCO	016	030	101	050	109	124
	079	132	136			
PHILIPS	009	010	013	018	024	099
	049	050	019	142	148	149
	078	088				
PHOENIX	099	053	109	111	125	
PHONOLA	099	049	050	019	142	149
	078					
PIONEER	020	049	145	091		
PRANDONI-						
PRINCE	098	097	053	115	134	
PREMIER	124					
PRINCE	098	097	053	134		
PROTECH	049	054				
PYE	099	049	050	019	142	148
	149	078				
QUASAR	046	097	051	053	077	
QUELLE	047	099	100	049	053	055
	057	058	111	112	113	114
	118	123	073	074	128	
RADIOLA	099	049	050	019	142	149
	078					
RADIOMARELLI	046	097	103	050	109	062
	127	132				
RANK	074					
RBM	074					
REDIFFUSION	062	123	134			
REX	096	144	019	141	110	069
	134					
ROBOTRON	048	050				
RTF	048	050				
SABA	028	031	032	037	039	040
	043	097	050	145	115	120
	086	091	081			
SAISHO	158	099	118	119	068	090
SALORA	053	139	117	120	122	123
	125	128	135	083		
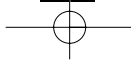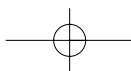
SAMBERS	046 097 051 053 115 077
SAMPO	121
SAMSUNG	015 026 099 054 077 136
	090 151 153
SANYO	001 002 005 033 044 048
	060 113 118 071 054 136
SBR	049 142 148 149 088
SCHAUB LORENZ	001 058 109 122 123 128
	129 130 134
SCHNEIDER	096 099 049 050 052 019
	141 109 142 125 149 078
	132
SEG	046
SEI	158 059
SELECO	016 096 144 019 141 110
	069 134
SHARP	033 087 137
Sherwood	000
SIAREM	046 097 050 109 115
SICATEL	116
SIEMENS	005 094 036 100 111 114
	087
SIERA	099 049 050 019 142 149
	078
SILVER	054
SINGER	016 046 050 109
SINUDYNE	158 046 050 059 109 127
SONOKO	049 090
SONY	146 007 027 033 038 118
STERN	096 144 019 110 069 134
TANDBERG	133
TANDY	099 060 137
TASHIKO	002 033
TATUNG	099 060 063 065 115 118
TEC	096 099 132
TELEAVIA	028 039 040 043 145 091
	081
TELEFUNKEN	028 041 145 150 086 091
TELETECH	090
TELEVIDEON	099 053 109 111 125
TENSAI	049
THOMSON	012 028 032 039 040 043
	145 091 081
THORN-	
FERGUSON	014 040 041 054 150 057
	061 116 149 086
TOCOM	029
TOSHIBA	004 016 033 070 074
TRANS	
CONTINENTS	098 097 053 134
TRIUMPH	158
UHER	052 111 125
ULTRA VOX	098 046 099 050 109 120

UNIVERSUM	092 034 054 077
UNIVOX	116
VEGAVOX	079
VOXSON	050 134
WATSON	111
WATT RADIO	046 099 051 109 116 127
WEGA	033
WHITE	
WESTINGHOUSE	099 111
YOKO	099
ZANUSSI	096 144 019 110 069 134
ZOPPAS	096 144 019 110 134

VCR

AKAI	042 022 052 032 033
ALBA	008 020
AMSTRAD	011
ANITSCH	009
ARC EN CIEL	042 056 052
ARISTONA	045 031
ASA	018
AWIA	011 042
BAIRD	042 033
BAUER. BOSCH	014 043
BLAUPUNKT	014 043 055 031 054 040
BRANDT	
ELECTRONIQUE	042 056 052
BRIONVEGA	041
BUSH	008 020
C.EDISON	041
CANON	014
CAPEHART	020
CGE	011 042 052
CONTINENTAL	
EDISON	042 056 052
CRAIG	000 013
CURTIS MATHES	019
DAEWOO	001 020 021
DAYTRON	020
DECCA	011 042
DEGRAAF	003 006 011 045 018
DUAL	042 052
DUMONT	003 011 018
DYNATECH	011
EMERSON	002 010 011 019 025
FERGUSON	042 059 030 052 034 036
FIDELITY	011
FINLANDIA	003 018
FINLUX	003 006 011 018
FISHER	000 003 005

ENGLISH
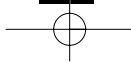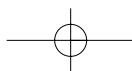
FUNAI	011
GE	019
GENERAL	014
GOLDSTAR	004 062
GOODMANS	008 011 046
GRAETZ	041 042 056 050 052 038
GRANADA	003 005 018
GRUNDIG	014 043 018 055 031 053
	054
HANSEATIC	043
HARMAN-	
KARDON	004
HIFIVOX	042 056 052
HINARI	002 008 024 027
HITACHI	006 007 011 042 057
IMPERIAL	011
INGELEN	042 056 052 038
INGERSOL	027
ITT	005 041 042 056 050 052
	033 038
JENSEN	042
JVC	042 056 060 030 052 063
KENWOOD	005 042 060
KRIESLER	045 031
KUBA	043
LLOYD	011
LOEWE OPTA	014 018 029 031
LOGIK	008 027
LUXOR	033 038
MAGNADYNE	041
MAGNASONIC	038
MAGNAVOX	019
MARANTZ	004 014 046 018 031
MATUI	010 025 027
MEMOREX	000 003 005 011 045
METZ	014 043 031 054 037
MGA	017
MINERVA	055 054
MINOLTA	006 007
MITSUBISHI	060 017 049
MTC	011 013
MULTITECH	008 011
MURPHY	011
NAONIS	042 056 052
NATIONAL	040
NEC	004 042 060 052
NECKERMANN	002 041 014 042 052
NOGAMATIC	042 056 052
NOKIA	003 005 041 042 056 050
	052 033 038
NORDMENDE	039 042 056 052 053 035
OPTONICA	045 046
ORION	002 010 025 027

OSAKI	011
OTTO VERAND	043
P. CINEMA	014
PALLADIUM	041 014
PANASONIC	023 051 040
PATHE MARCONI	042 056 052
PENTAX	006 007
PERDIO	011
PHILIPS	012 014 045 046 018 029
	031
PHONOLA	014 045 018 029 031
PIONEER	060
PORTLAND	020
PROLINE	011
PYE	014 045 018 029 031
QUARTZ	005
QUELLE	002 044 054
RADIOLA	045 031
RADIOMARELLI	041
RCA	019
REALISTIC	000 003 005 011 013 045
	046
REX	042 056 052
SABA	039 042 056 052 035
SAISHO	002 010 025 027
SALORA	005 017
SAMSUNG	013 019 032 061
SANSUI	042 060
SANYO	000 003 005 025 038
SBR	018 029
SCHAUB LORENZ	041 042 056 050 052 038
SCHNEIDER	008 011 045 031
SEI-SINUDYNE	027
SELECO	042 056 052
SENTRA	020
SHARP	045 046 105 048
SHINTOM	008
SIEMENS	014 043 055 031 054 038
SIERA	045 031
SINUDYNE	027
SONY	044 015 016 026 028
STERN	042 056 052
STS	006
SUNKAI	025
SYLVANIA	011 017
SYMPHONIC	011 017
TASHIKO	011
TATUNG	011 042
TEAC	011 042
TEKNIKA	011
TELEAVIA	042 056 052
TELEFUNKEN	042 056 052
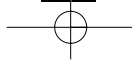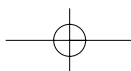
THOMSON	042 056 052
THORN- FERGUSON	039 042 059 030 052 034 036
TOSHIBA	001 042 056 017 058 052
TOTELEVISION	013
UHER	042
ULTRA VOX	041
UNITECH	013
UNIVERSUM	041 014 043
URANYA	041
VECTOR	004
VICTOR	042 060
VIDITAL	041
WESTING HOUSE	041
WARDS	019
YAMAHA	004 042
ZANUSSI	042 056 052
ZENDER	052
ZOPPAS	042 056

DVD

DENON	017
GE	003 004
JVC	007
LG	011 010
MAGNAVOX	019
MITSUBISHI	001
ONKYO	009
PANASONIC	015
PHILIPS	019
PIONEER	002 023
PROSCAN	003 004
RCA	003 004
SAMSUNG	016 008
SHERWOOD	000 010 011 012 013 014 022 020 021
SONY	005
THOMSON	003 004
TOSHIBA	006
VIETA	014
YAMAHA	019
ZENITH	011 010

CBL

ABC	002 003 009 030 007 006 008
Allegro	018 021
Archer	018 026
Bell&Howell	009
Century	018
Citizen	018 021
Comtronics	014
Contec	011
Easten	001
Emerson	026
Everquest	010 014
Focus	022
Garrard	018
Gemini	010
General Instrument	033 276 006 034
GoldStar	017 040
Goodmind	026
Hamlin	012 020 004 013
Hitachi	006
Hytex	007
Jasco	010 018 021
Jerrold	002 007 033 032 009 010 006 034
Memolex	000
Movie Time	015
NSC	015
Oak	011
Optimus	031
Panasonic	000 016 031
Paragon	000
Philips	018
Pioneer	017 025
Popular Mechanics	022
Pulsar	000
Quasar	000
RCA	031
Radio Shack	010 021 026 028
Recoton	022
Regal	012 020
Regency	001
Rembrandt	006
Runco	000
SL Marx	014
Smasung	017 014
Scientific Atlanta	003 023 030 027
Signal	010 014
Signature	006
Sprucer	031
Starcom	002 010
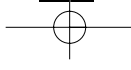
Stargate	010 014 026
Starquest	010
TV86	015
Teleview	014
Tocom	007 008
Toshiba	000
Tusa	010
Unika	018
United Artists	007
Universal	153 019
Viewstar	015
Zenith	000 024
Zentek	022

SAT

ALBA	030
AMSTRAD	008 019 027
ARCON	021
ARISTONA	016
ASTRA	028
BLAUPUNKT	033
BUSH	016
CH.MASTER	030
CITY COM	005
DDC	030
DYNASAT	005
ECHOSTAR	002 009 032 020
EMME ESSE	005
FAIT	005
FERGUSON	014 041 016 017 018
FINLUX	006 007 013
FRACARRO	005
FTE	022
GOLDSTAR	004 021
GRAETZ	026 037
GROTHUSEN	004
GRUNDIG	033 016 018 036
HINARI	030
HIRSCHMANN	003 006
HITACHI	013
INGELEN	026 037
ITT	034
ITT-NOKIA	032 018 026 037
JERROLD	038 014
KATHREIN	005 022 023
KOSMOS	004
KRIESLER	016
LENCO	004 021
LUXOR	026 037

MAGAI	022
MARANTZ	012
MASPRO	016
MATSUSHITA	000
METZ	036
MINERVA	036
MULTISTAR	022
MURATO	004
NEC	040
NEIRU	021
NOKIA	026 037
NORSAT	015
PACE	001 042 016 017 018 044
PANASONIC	032
PHILIPS	003 011 012 029
PHONOLA	016
PROSAT	030
PYE	016
QUADRAL	030
QUELLE	036
RADIOLA	016
REDIFFUSION	015
SABA	035
SALORA	026
SAMSUNG	003 022
SAT PARTNER	004
SATPORTNER	021
SCHAUB LORENZ	026 037
SCHNEIDER	005 016
SIEMENS	033 036
SIERA	016
SILVA	004 021
SKY	039
STARCOM	038
STARSAT	022
TECHNISAT	003
TELEFUNKEN	025
TELESYSTEM	005
THORN-FERGUSON	010 014 041 016 017 018 043
TRIAD	004
UNIDEN	022
UNITED CABLE	038
V TECHNOLOGY	004
VORTEC	003 024 025
ZENDER	022
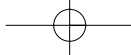
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ADCOM	021
AIWA	045 039 022
AKAI	046
AUDIO	016
ARC EN CIEL	036 014 027 030 031 018
	230
DENON	054
FISHER	006
H/K	017 012 047 016
JVC	028 034 001
KENWOOD	003 020 010 029 006
MARANTZ	015 014
MONDIAL	033
NAD	048 002 042
NAKAMICHI	049
NIKKO	016
ONKYI	013 037 011 021 038
PANASONIC	051 052
PHILPS	014
PIONEER	005 008 041
RCA	007 009
REALISTIC	045
SANSUI	040
SHARP	019 053
SHERWOOD	000 035 023 019 056 057
	058
SONY	050 024 025 026
TEAC	055 032
TECHNICS	051 004 052
VICTOR	001
YAMAHA	044 043 016

AUX-TAPE/MD

SHERWOOD	000(for tape deck)
	015 016(for MD recorder)

AUX-LD

DAEWOO	002
DENON	012
GOLDSTAR	004
KENWOOD	003
MAGNAVOX	010
OPTIMUS	007
PANASONIC	013
PHILIPS	010
POINNEER	000 009
RCA	006
REALISTIC	007
SAMSUNG	001 005
SHARP	003 011
TECHINCS	013
TOSHIBA	003
YAMAHA	008

ENGLISH