

harman/kardon
 HIGH VOLTAGE/
 HIGH CURRENT
 INTEGRATED AMPLIFIER

PM645Vxi

owner's manual

harman kardon PM645 Vxi



HEADPHONES

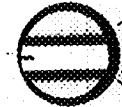


SPEAKERS

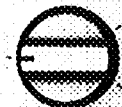
SPEAKERS 1
 SPEAKERS 2



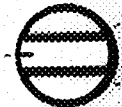
BASS



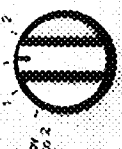
TREBLE



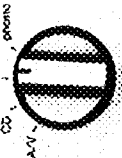
BALANCE



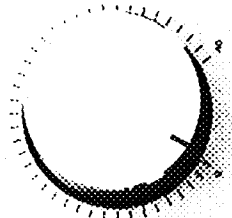
VCR/TAPE MONITOR



FUNCTION



VOLUME



OUTPUT



HIGH VOLTAGE/HIGH CURRENT INTEGRATED AMPLIFIER

SPECIFICATIONS

Congratulations on your purchase of the Harman Kardon PM645 Vxi High Voltage/High Current Integrated Amplifier.

In order to appreciate the full performance of this sophisticated unit, please be sure to read this owner's manual and use your integrated amplifier only in accordance with its instructions. Keep it in a safe place for future reference.

Continuous Average Power (FTC) (both channels driven, 20–20,000Hz)	: 60 Watts per channel @ less than 0.09% THD into 8 Ohms 60 Watts per channel @ less than 0.3% THD into 4 Ohms
HCC (High instantaneous Current Capability)	: ±30 Amps
Power Bandwidth (at half rated output, 8 Ohms)	: <10Hz to 100,000Hz
Frequency Response (at 1 Watt output, +0, -3dB)	: 0.5Hz to 150,000Hz
Damping Factor	: 65dB
Signal-to-Noise Ratio (ref. rated power output, A-wtd)	
Phono (MM)	: 80dB
Phono (MC)	: 76dB
Tuner/CD	: 98dB
Input Sensitivity/Impedance	
Phono (MM)	: 2.2mV/47k Ohms, 125pF
Phono (MC)	: 120µV/56 Ohms
Tuner/CD	: 135mV/22k Ohms
Phono Overload	
MM	: 110mV
MC	: 6mV
Tone Control Characteristics	
Bass Boost/Cut (at 50Hz)	: +10dB/-10dB
Treble Boost/Cut (at 10kHz)	: +10dB/-10dB
Subsonic Filter	: 15Hz, 6dB/Octave
Phase-correct Loudness	
Boost (at 50Hz)	: +10dB
Phase Shift (300–20,000Hz)	: <5°
Dimensions (W x H x D)	: 17-1/2"x4"x13-15/16" (443 x 103 x 353 mm)
Weight	: 15.4lbs. (7kg)
Power Supply	: AC 120V, 60Hz
Power Consumption	: 248W, 300VA



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.



The lightning flash with arrowhead symbol, within an equilateral triangle, 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.



The exclamation point within an equilateral triangle 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: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UNE RALLONGE. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

All specifications and features subject to change without notice.

This manual applies to champagne gold and black versions with this model PM645 Vxi.

■ HCC (High-instantaneous Current Capability)

Recent studies have shown that while reproducing dynamic music signals the instantaneous impedances of nearly all loud-speakers drop to less than one third of the nominal ratings. These low instantaneous impedances typically require 3 to 6 times more current than an 8 Ohm resistive load. Reduced dynamic range and increased distortion will result if the amplifier cannot provide these higher currents. For this reason, the PM645 Vxi was designed to provide 30 amperes of instantaneous current.

■ Ultrawide Bandwidth

The bandwidth of this unit is exceptionally wide and independent of negative feedback. This improves transient accuracy and phase linearity.

■ Low Negative Feedback

This unit has been designed to have low distortion and wide bandwidth without high negative feedback. This further improves its dynamic accuracy.

■ Discrete Component Circuitry

In order to achieve the above goals, all discrete electronic circuitry has been employed. All available integrated circuits could not provide this high level of performance.

■ Sophisticated Electronic Protection

Harman Kardon engineers developed a unique protection system that permits high instantaneous current to be driven into speaker systems but protects the amplifier from short-circuited or damaged speakers and wires. This protection system in no way limits amplifier output voltage or current during music reproduction, and therefore has no negative effect on sound quality.

■ Phase-correct Loudness

Phase-correct loudness is an exclusive Harman Kardon feature which provides two major benefits: it can equalize and restore the low frequency response of small loud-speakers, and it can be used in place of conventional loudness contour. But unlike conventional bass boost circuits, Harman Kardon's phase-correct loudness also includes a phase correction circuit that maintains clear, natural sound.

Always Use at 120V AC

This unit is designed for operation with 120V AC. Connect only to domestic AC outlets. Never connect the unit to an outlet supplying a higher voltage. This may create a fire hazard.

Handle the Power Cord Gently

- Do not disconnect the plug from the AC outlet by pulling the cord; always pull the plug itself. Pulling the cord may break the wire.
- If your unit will be left unused for any considerable length of time, disconnect the plug from the AC outlet.
- Do not place furniture or other heavy objects on the cord, and avoid dropping heavy objects on it. Also do not make a knot in the power cord. Not only may the cord be damaged, it can also cause a short circuit and a consequent fire hazard.

Place of Installation

Place your unit on a firm and level surface. Avoid installing your unit under the following conditions:

- ▶ Moist or humid places.
- ▶ Places exposed to direct sunlight or close to heating equipment.
- ▶ Extremely cold locations such as those in the direct draft from an air conditioner.
- ▶ Places subject to excessive vibration or dust.
- ▶ Poorly ventilated places.

Do not cover the ventilation slots on the top of the unit. This will cause the temperature inside the unit to rise, which can eventually affect the reliability of your unit.

Moving the Unit

Before moving the unit, be sure to unplug the power cord from the AC outlet and disconnect the interconnection cords to other units.

Do Not Open the Cabinet

To prevent fire or shock hazard, do not tamper with internal components for inspection or maintenance. Harman Kardon does not guarantee against performance degradation resulting from any modification.

If water, a hairpin or wire accidentally enters the unit, immediately unplug the power cord from the AC outlet to prevent shock and consult an authorized Harman Kardon service station. If you use the unit under this condition, it may cause a fire or shock hazard.

Cleaning

When the unit gets dirty, wipe it with a soft dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water and then wipe with a dry cloth.

Never use benzine, thinner, alcohol or other volatile agents, and avoid spraying an insecticide near the unit.

Connecting Other Components

Carefully connect the plugs to the left and right channel jacks. Push the plugs in all the way. Poor setting of the plugs tends to cause hum or intermittent sound and may damage the speakers.

NOTE: While you are connecting this unit to the rest of your high fidelity system, please unplug the power cord, disconnecting not only this unit but all the components, from the AC outlet.

Do not interwind the connection wires with the power cord. If interwound, the sound quality may be degraded.

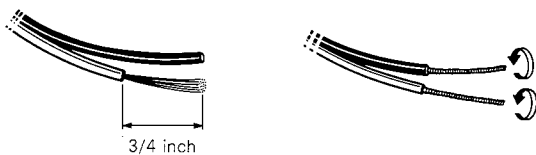
When only one turntable is used, be sure to insert the attached short-pin plug into the PHONO MM or MC jacks that are not being used.

Connecting Speakers

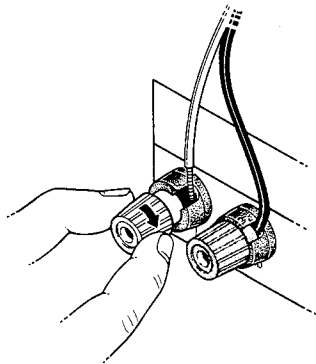
Connect the speaker wires carefully to the speaker terminals on the rear panel so as not to mistake the left and the right channels or reverse the speaker polarities (+ and -).

Use sufficiently thick wire (18 gauge for short lengths, 16–12 gauge for longer lengths). It is recommended to use color-coded wire for easy polarity identification. Speaker wires should be as short as possible, and the left and the right channel wires should be the same length.

1. Remove about 3/4 inch (20 mm) of insulation from the end of each wire and twist the strands of each end.



2. After making sure of the correct channel and polarity, loosen the SPEAKER SYSTEM terminal knob and insert the conductor directly into the recess at the upper-right of the terminal. Then tighten the terminal knob, and the end of speaker wire is automatically wound around the terminal.



3. Set the SPEAKER OPERATING MODE switch on the rear panel to match the impedance of your speakers. If your speakers are nominally 4 Ohms, set this switch to the "4Ω" position. If your speakers are nominally 8 Ohms, set this switch to the "8Ω" position. The HIGH VOLTAGE indicator on the front panel will then illuminate.

CAUTION: Two speaker systems can be connected to this unit. When two speaker systems are connected, care should be taken that net impedance does not become less than 8 or 4 Ohms depending on the position of the SPEAKER OPERATING MODE switch.

Connecting Video Components

Video components can be connected to the PM645 Vxi amplifier. To connect a source such as a VCR, for example, leads must be connected for both AUDIO and VIDEO input and output, so a total of 6 leads are necessary. Connect the audio output jacks of the VCR to the VCR/TAPE 1 or 2 AUDIO IN jacks on the PM645 Vxi and connect the audio input jacks of the VCR to the VCR/TAPE 1 or 2 AUDIO OUT jacks on the PM645 Vxi. Connect the VIDEO IN and OUT jacks in the same way.

NOTE: When you connect the leads, make sure that the channels are not crossed, and that video signal leads and audio signal leads are not mixed.

Connecting a Monitor Television

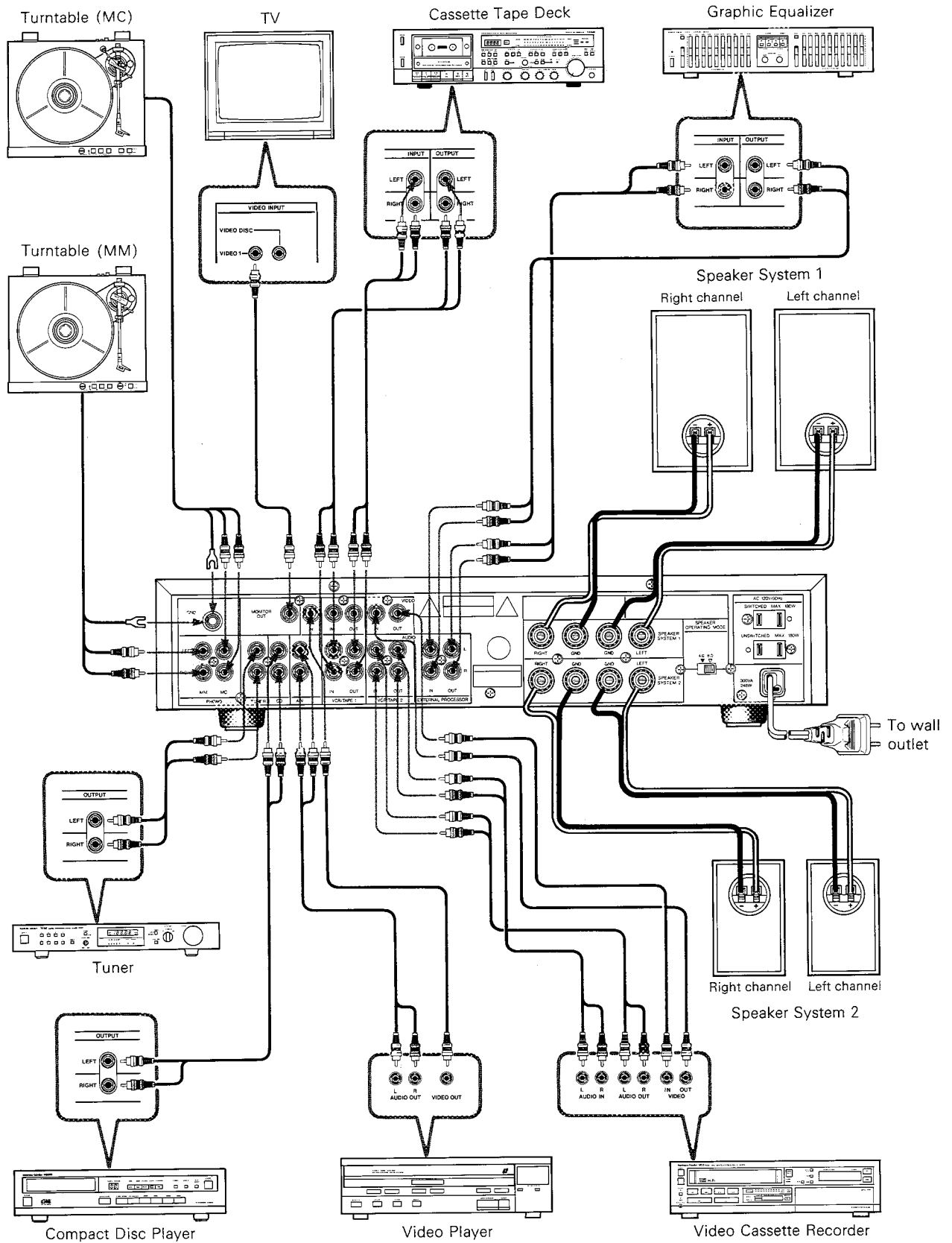
Connect the video input of the monitor television to the MONITOR OUT jack on the PM645 Vxi.

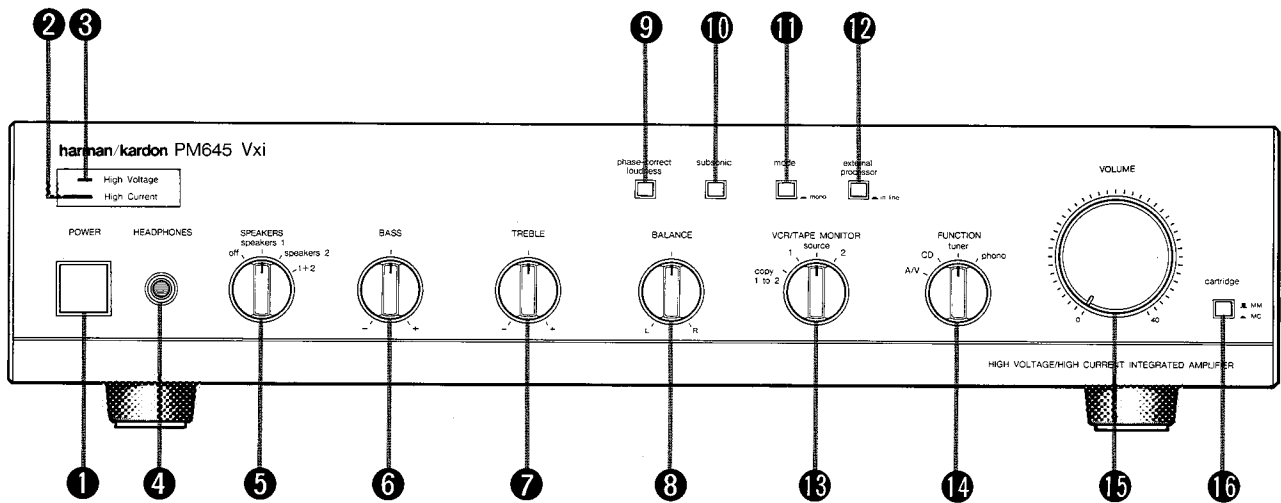
AC Convenience Receptacles

This unit is provided with two AC convenience receptacles on the rear panel for supplying power to a tuner, turntable, tape deck or other low power component. The receptacles have a power capacity of 180 watts each. Check the component's owner's manual to find its power requirement.

SWITCHED: The power to this receptacle is turned on and off by this unit's power switch.

UNSWITCHED: The power to this receptacle is independent of this unit's power switch.





1 POWER SWITCH (POWER)

Pressing this switch will turn on the power and the HIGH CURRENT indicator lights up. Press the switch again to turn the power off.

2 HIGH CURRENT INDICATOR (High Current)

When the POWER switch is pressed, this indicator lights up in red.

3 HIGH VOLTAGE INDICATOR (High Voltage)

This lights when the SPEAKER OPERATING MODE switch on the rear panel is set to the "8Ω" position. (Refer to the "Connecting Speakers" section on page 3.)

4 HEADPHONE JACK (HEADPHONES)

Stereo headphones with a standard 1/4 inch plug can be connected to this jack. When the SPEAKERS selector is in the "off" position, sound can still be obtained via the headphone jack.

5 SPEAKER SELECTOR (SPEAKERS)

This selector is used to select the desired speaker system(s).
off : Select this position to listen to sound via the headphone with no sound from the speaker system(s).
speakers 1 : Select this position to actuate the speaker system connected to the SPEAKER SYSTEM 1 terminal.
speakers 2 : Select this position to actuate the speaker system connected to the SPEAKER SYSTEM 2 terminal.
1 + 2 : Select this position to actuate simultaneously the two speaker systems connected to the SPEAKER SYSTEM 1 and 2 terminals respectively.

6 BASS CONTROL KNOB (BASS)

This knob controls the low frequency sound level. Turn it clockwise to boost or counterclockwise to reduce the low frequency sound level.

7 TREBLE CONTROL KNOB (TREBLE)

This knob controls the high frequency sound level. Turn it clockwise to boost or counterclockwise to reduce the high frequency sound level.

8 BALANCE CONTROL KNOB (BALANCE)

This knob is used to balance the left and the right channels. Usually, it is set at the center. Turn it to the left or right to balance the sound if it seems unbalanced from the speakers or the headphones.

9 PHASE-CORRECT LOUDNESS SWITCH (phase-correct loudness)

This switch activates a unique low frequency equalization circuit that provides full, natural sound from small speakers that are normally deficient in the bass region. It can also be used in place of conventional loudness compensation.

10 SUBSONIC FILTER SWITCH (subsonic)

When playing the turntable, this filter switch is used to reduce subsonic frequencies, which may excessively vibrate the speaker cones or turntable and cause feedback.

11 MODE SWITCH (mode)

This switch is used to combine the left and right channels and create a mono signal.

12 EXTERNAL PROCESSOR (external processor)

A graphic equalizer or surround processor connected to the EXTERNAL PROCESSOR jacks on the rear panel can be controlled here for fine tuning of frequency levels.

13 VCR/TAPE MONITOR SELECTOR (VCR/TAPE MONITOR)

This selector is used when playing a VCR or tape deck, or monitoring during recording.

- copy 1 to 2** : Select this position to duplicate the video or cassette tape in the deck connected to the VCR/TAPE 1 jacks onto the tape in the deck connected to the VCR/TAPE 2 jacks.
- 1** : Select this position to play a video or cassette tape, or to monitor during recording on the VCR or tape deck connected to the VCR/TAPE 1 jacks.
- source** : Select this position to listen to a program source other than a video or cassette tape.
- 2** : Select this position to play a video or cassette tape, or to monitor during recording on the VCR or tape deck connected to the VCR/TAPE 2 jacks.

14 FUNCTION SELECTOR (FUNCTION)

This selector is used to select a program source other than a tape.

- A/V** : Select this position to playback programs from an audio/video component such as a camcorder, video player, or TV tuner connected to the A/V jacks.
- CD** : Select this position to listen to the sound from a compact disc player connected to the CD jacks.
- tuner** : Select this position to listen to an FM or AM broadcast from the stereo tuner connected to the TUNER jacks.
- phono**: Select this position to listen to a disc played on the turntable connected to the PHONO MM or MC jacks.

15 VOLUME CONTROL KNOB (VOLUME)

This knob controls the sound level. Turning clockwise increases the sound volume, and turning counterclockwise decreases it. Set this knob at a minimum level before turning the power on or changing the sound source to protect the speakers from being damaged by a sudden high level sound.

16 CARTRIDGE SELECTOR (cartridge)

This switch selects the gain and input impedance of the phono input circuitry to match the type of phono cartridge used. Be sure to connect the turntable to the appropriate PHONO input jacks (MM for moving magnet type cartridges and MC for moving coil type cartridges), and to select that input with this selector switch.

Listening to a Record (Disc)

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to the "phono" position.
4. Set the CARTRIDGE selector to the "MM" position when a turntable with a MM (moving magnet) cartridge connected to the PHONO MM jacks is to be used and to the "MC" position for a turntable with a MC (moving coil) cartridge connected to the PHONO MC jacks.
5. Set the VCR/TAPE MONITOR selector to the "source" position.
6. Activate your turntable and place the stylus on the record (disc).
7. Turn the VOLUME control knob clockwise to increase the sound volume to the desired level.
8. If the disc has a large warp, press the SUBSONIC filter switch.
9. Adjust the BASS and TREBLE control knobs to obtain the desired tone.
10. Activate the BALANCE control knob, PHASE-CORRECT LOUDNESS or MODE switches if necessary.
11. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

NOTE: If you hear a hum at average listening levels, turn the POWER switch off and check to see that the phono and the ground connections are secure. Depending on the cartridge type used, less hum may be created without the ground connection.

Listening to Radio Broadcasts

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to the "tuner" position.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Activate the tuner and tune to broadcast frequency.
6. When a monaural broadcast is received, press the MODE switch to the "mono" position.
7. When the desired station is selected, advance the VOLUME control knob to a comfortable level and adjust the BASS and TREBLE control knobs as desired.
8. Activate the BALANCE control knob or PHASE-CORRECT LOUDNESS switch if necessary.
9. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

Listening to a Compact Disc

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to the "CD" position.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Activate the compact disc player and set the player in the play mode.
6. Advance the VOLUME control knob to a comfortable level and adjust the BASS and TREBLE control knobs as desired.
7. Activate the BALANCE control knob, PHASE-CORRECT LOUDNESS or MODE switches if necessary.
8. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

Playback of an A/V Source

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to the "A/V" position.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Activate the component connected to the A/V jacks.
6. Advance the VOLUME control knob to a comfortable level and adjust the BASS and TREBLE control knobs as desired.
7. Activate the BALANCE control knob, PHASE-CORRECT LOUDNESS or MODE switches if necessary.
8. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

Tape Recording

Recording from a program source (FM/AM broadcast, turntable or compact disc player) on a tape deck connected to the VCR/TAPE 1 and/or VCR/TAPE 2 jacks:

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Select the desired program source with the FUNCTION selector.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Advance the VOLUME control knob to a comfortable level.
6. If the program source mode is monaural, press the MODE switch to the "mono" position.
7. Start recording by activating the tape deck(s) connected to the VCR/TAPE 1 and/or VCR/TAPE 2 jacks. The source sound can be listened to from the speakers or headphone.
8. To monitor the sound being recorded, set the VCR/TAPE MONITOR selector to the "1" or "2" position according to the tape deck that you wish to monitor.
9. Even if a VCR is connected to the VCR/TAPE jacks, audio programs can be recorded on video tape. When recording with a VCR, simulcast recording is possible. See "Background Video" column for details.

NOTE: The record output signal is carried directly from the program source without being influenced by the volume, balance, bass and treble controls, phase-correct loudness, subsonic and external processor switches of this unit.

Tape Dubbing

Two VCRs or tape decks can be connected to this unit and dubbing can be done from the tape in the VCR or tape deck connected to the VCR/TAPE 1 jacks onto the tape in the VCR or tape deck connected to the VCR/TAPE 2 jacks.

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the VCR/TAPE MONITOR selector to the "copy 1 to 2" position.
3. If the program source mode is monaural, press the MODE switch to the "mono" position.
4. After setting the VCR or tape deck connected to the VCR/TAPE 1 jacks for playback, and the VCR or tape deck connected to the VCR/TAPE 2 jacks for recording, dubbing will begin.

NOTE: You can listen to a program source selected via the FUNCTION selector while dubbing is taken place. To monitor the sound being recorded, use the headphones connected to the phones jack of VCR or tape deck.

Tape Playback

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the VCR/TAPE MONITOR selector to the "1" or "2" position corresponding to the tape deck to be played.
4. Insert a recorded tape in the tape deck and set the tape deck in the playback mode.
5. Advance the VOLUME control knob to a comfortable level and adjust the BASS and TREBLE control knobs as desired.
6. Activate the BALANCE control knob, PHASE-CORRECT LOUDNESS or MODE switches if necessary.
7. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

Recording from an Audio/Video Source

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to the "A/V" position.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Advance the VOLUME control knob to a comfortable level.
6. Set the VCR (connected to the VCR/TAPE jacks) in recording standby mode, following the owner's manual of the VCR.
7. Start the video player connected to the A/V jacks.
8. Recording begins by starting the VCR.
9. Even if a tape deck is connected to the VCR/TAPE jacks, audio programs can be recorded.

VCR Playback

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the VCR/TAPE MONITOR selector to the "1" or "2" position corresponding to the VCR to be played.
4. Insert a recorded video cassette in the VCR and set the VCR in the playback mode.
5. Advance the VOLUME control knob to a comfortable level and adjust the BASS and TREBLE control knobs as desired.
6. Activate the BALANCE control knob, PHASE-CORRECT LOUDNESS or MODE switches if necessary.
7. When using a component (such as a graphic equalizer, surround processor) connected to the EXTERNAL PROCESSOR jacks on the rear panel, press the EXTERNAL PROCESSOR switch and set it to the "in line" position.

Background Video

It is possible to watch a video source connected to the A/V jacks on the monitor or television while listening to an audio source connected to the PHONO, TUNER or CD jacks.

1. Turn the VOLUME control knob to the minimum level and press the POWER switch. The HIGH CURRENT indicator lights up.
2. Set the SPEAKERS selector for the desired speaker system(s).
3. Set the FUNCTION selector to a position other than the "A/V" position.
4. Set the VCR/TAPE MONITOR selector to the "source" position.
5. Advance the VOLUME control knob to a comfortable level.
6. Start the video source (connected to the A/V jacks.)
7. Start the audio source (connected to the PHONO, TUNER, or CD jacks).
8. To record the selected audio/video program on the VCR, start recording by activating the VCR(s) connected to the VCR/TAPE 1 and/or VCR/TAPE 2 jacks.

Copyright Information

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

TROUBLESHOOTING CHECKLIST

Most of the problems consumers have with their high fidelity system are due to incorrect operation. If this unit does not operate as you intended, first check the items in the following

checklist. Also check other related components such as the tuner, turntable, speakers and other electrical equipment you use with this amplifier.

Problem	Cause	Remedy
The HIGH CURRENT indicator does not light up when the POWER switch is pressed.	<ul style="list-style-type: none"> • The power cord is not plugged in. 	<ul style="list-style-type: none"> • Plug in the power cord securely.
The HIGH CURRENT indicator lights up, but no sound is heard.	<ul style="list-style-type: none"> • The VCR/TAPE MONITOR selector is in the "1" or "2" position. • The FUNCTION selection was not made properly. • The SPEAKERS selector is in the "off" position. • The speaker wires are disconnected or broken. 	<ul style="list-style-type: none"> • Set the VCR/TAPE MONITOR selector to the "source" position. • Set the FUNCTION selector to the proper position for the desired program source. • Set the SPEAKERS selector to the position of your desired speaker system(s). • Check the speaker wires and connect them correctly.
Sound is not heard from the speaker system on one side.	<ul style="list-style-type: none"> • The connection of speaker wires is incorrect or incomplete. • The connection wires to other equipment are disconnected. • The BALANCE control knob is turned to either the extreme right or left position. 	<ul style="list-style-type: none"> • Check the speaker wires for disconnection or breaking and reconnect them correctly. • Check the wires for disconnection and connect them correctly. • Set the mark on the BALANCE control knob to the center position.
When listening to stereo sound, the left and right sounds are reversed.	<ul style="list-style-type: none"> • The left and right speaker wires are reversed. • The left and right wires connected to other equipment are reversed. 	<ul style="list-style-type: none"> • Check the speaker wires and connect them correctly. • Check the wires to other equipment and connect them correctly.
When playing a turntable, a low-pitched noise ("hum" or "buzz") is heard.	<ul style="list-style-type: none"> • The ground wire of the turntable is disconnected. • The connections of the turntable wires are incorrect or incomplete. 	<ul style="list-style-type: none"> • Make the ground wire connection correctly. • Insert the turntable wires into the PHONO jacks of this unit securely.
When increasing the volume level while playing a turntable, an undesirable prolonged sound (howling) is heard.	<ul style="list-style-type: none"> • "Howling" is created by the speakers and turntable. • Too much low frequency sound is present. 	<ul style="list-style-type: none"> • Place the speakers further away from the turntable. • Place the turntable on a more solid surface. • Decrease the setting of the BASS control knob and/or turn off the PHASE-CORRECT LOUDNESS switch. • Turn on the SUBSONIC filter switch.
Sound quality is poor.	<ul style="list-style-type: none"> • Input components have not been set up correctly. • Tone control is not proper. 	<ul style="list-style-type: none"> • Check the antenna of the tuner, cartridge of the turntable, or head of the tape deck, etc. and make corrections as needed. • Adjust the BASS and/or TREBLE control knobs to obtain the desired tone.