Luxman

PHONO AMPLIFIER

E-07

Owner's Manual

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Precautions

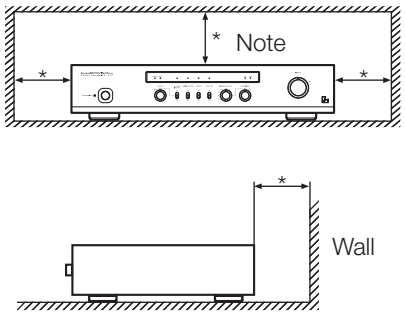
Installation place

Install this unit in a location where good ventilation and heat radiation are assured.

Especially, the installation of this unit where the direct sunlight is present, where the temperature rises excessively high such as close to a heater, or where it is humid or dusty may cause a malfunction even if heat is efficiently released. Therefore, do not install this unit in such places.

Note:

For heat dispersal, do not install this equipment in a confined space such as a book case or similar unit.



Cautions when connecting cartridge

Connect the analog player or tone arm to the ground terminal of this unit.

If the grounding terminal is inadequately connected, noise or humming sound may be generated, and resulting in an adverse S/N ratio.

The pin-plug to be inserted into the input terminals of this unit must be pushed in firmly. The floated grounding of the pin-plug may generate noise including a humming sound, and resulting in an adverse S/N ratio.

Precautions when connecting to other components

When connecting this product to other output devices, be sure to turn off the power of this product and all other connected devices.

Failure to observe this may generate a dangerous noise shock resulting in speaker damage and may cause malfunctions.

The connectors to input/output terminals of this unit must be pushed in firmly. If the grounding terminal is inadequately connected, noise or hum, may be generated, resulting in an adverse S/N ratio.

Sound is not generated shortly after the power supply is turned on.

This amplifier is equipped with a timed muting circuit to protect the output. Therefore, no sound will be generated for a short time after the power supply is turned on.

If the volume control is set to a high-volume level before the timed muting circuit disengages, a loud, dangerous volume will be suddenly generated. Set the volume control to a low level first and then adjust it after you hear the output from the speakers.

Repair and adjustment

When repairs or adjustments are needed, please consult the dealer who sold you the unit.

Cleaning

For cleaning, use a piece of soft fabric such as a cleaning cloth to wipe the unit. If dirt is hard to remove, use a small amount of neutral detergent to wipe it off and then wipe the unit with dry cloth. Do not use a solvent like benzine or thinner because they could damage the exterior.

Safety caution

Caution

This unit is heavy. Be careful when unpacking, carrying, and installing it.

Features of This Unit

Outline

NF-type phono equalizer amplifier for MM/MC type cartridges.

Built-in MC transformers with special attention to detail

Four independent step-up transformers employing Super Permalloy cores are mounted. Independent MC-HIGH, MC-LOW, Left and Right transformers provide rich expression that can only be achieved by step-up transformers.

Balanced input for MC

In order to transmit all the energy of an MC cartridge, a balanced input circuit is provided using XLR balanced input terminals that allow the differential output to be connected as-is. (Cannot be used with MM type cartridges)

Independent left and right power supply transformers

By completely separating the peripheral circuits for indicator and relay drive and the left and right channels of the amplifier circuit from the power transformer stage, as a three-transformer configuration, a luxurious power supply circuit is adopted where load fluctuations in each circuit block do not affect each other.

Ground supply structure PGS

In order to enhance the transmission stability of circuits that handle minute signals, the original STAR (Signal Transit for Accurate Response) circuit concept, in which the amplification reference point for each circuit is concentrated at a single point, is promoted. The PGS (Petal-Shaped Ground Supply), a petal-shaped ground supply structure, is newly adopted to radially connect the ground to each part over the same distance and with the same low impedance by using an extremely thick steel plate.

Large ground terminal

Each of the three inputs has an independent, newly developed large brass, gold-plated phono ground (connected to the reference point of the circuit) terminal. Also, a conventional frame ground terminal connected to the main unit chassis is also provided.

Balanced output

A dedicated balanced amplifier circuit is installed in the output section, which enables balanced connection with a control amplifier or integrated amplifier as the next stage.

Improved S/N ratio

The S/N ratio is improved by optimizing the ground pattern and grounding point, as well as by reducing noise by using 4-parallel first-stage FETs.

Selector relay

A selector relay with high sound quality is used in the key point of the LUXMAN amplifier.

Highly stable power supply

The unit's highly stable power supply circuitry features a large blocking capacitors for each channel.

Schottky barrier diodes

By using Schottky barrier diodes, this unit achieves a higher DC conversion efficiency in the power rectifier circuitry and much less switching noise.

MM-type cartridge load impedance setting

Four-step load resistance setting function supports a wide range of various MM-type cartridges.

MM-type cartridge load capacity setting

Four-step load capacity setting function supports a wide range of various MM-type cartridges. In addition, the high frequency characteristics can be changed to adjust the tone to your preference.

Articulator function

The magnetization of the cartridge and MC transformer, which causes sound quality degradation, is eliminated using the playback music signal. The characteristics of the cartridge are maximized to achieve an open sound quality.

Low-cut switch

Equipped with a low-cut filter that suppresses woofer wobble caused by analog record warping.

Stereo/Monaural

Equipped with a monaural switch is convenient for monaural record playback.

Input/output terminals

We have used 18 mm pitch RCA input/output terminals to support high quality audio cables with large plugs.
XLR terminals manufactured by Neutrik are used.

Non-angled circuitry

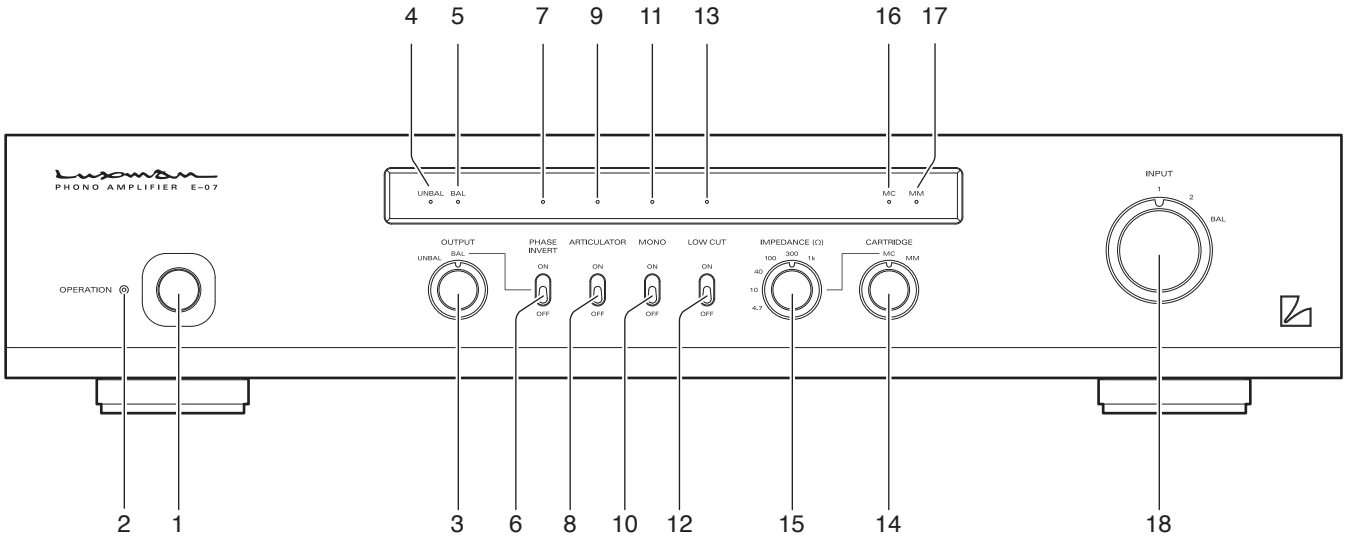
After carefully considering the delicate nature of the audio signal flow, non-angled circuit board tracking has been adopted to achieve smooth signal transmission.

LUXMAN's original OFC wiring

The internal shielded wiring is made of original OFC cable with each core treated with spiral wrap shield and the core wire non-plated to achieve smooth signal transmission.

Names and Functions

Front panel



1. Operation button (OPERATION)

This button turns on and off the power.

When connecting input/output terminals, be sure to turn off this button.

⏻ : OFF

⏻ : ON

2. Operation indicator (OPERATION)

Blinks during warm-up when the operation button is turned on and lights up when the operation state is activated afterward.

While indicator blinking, the output muting is activated and no sound is generated.

Set the sound volume such as a control amplifier to a low level first and then adjust it to an appropriate level after sound comes from the speaker.

3. Output mode selector (OUTPUT)

Switches between unbalanced output and balanced output.

- Unbalanced output (UNBAL)
  Outputs audio from LINE-1 and LINE-2.
- Balanced output (BAL)
  Outputs audio from BAL-LINE.

4. Unbalanced output indicator (UNBAL)

Lights up when the unbalanced output is selected for the output mode switch (OUTPUT).

5. Balanced output indicator (BAL)

Lights up when the balanced output is selected for the output mode switch (OUTPUT).

6. Balanced output phase inversion switch (PHASE INVERT)

Inverts the phase when the balanced output is selected for the output mode switch (OUTPUT). The phase must be corresponding to the phase of the connecting device.

- Off (OFF) ① GROUND
  ② COLD (–)
  ③ HOT (+)
- On (ON) ① GROUND
  ② HOT (+)
  ③ COLD (–)

7. Balanced output phase inversion indicator

Lights up when the inversion (ON) is selected on the balanced output phase inversion switch (PHASE INVERT).

8. Articulator switch (ARTICULATOR)

The articulator means “tuning” and is a demagnetizing function that utilizes the music signal.

When the articulator switch is in the ON position, record playback will demagnetize the cartridge and step-up transformer, restoring a fresh musical expression.

When the articulator switch is in the ON position, no sound is generated during playback, or the sound is very quiet. This indicates that the cartridge is being tuned. When the articulator is turned off at this time, the sound suddenly becomes loud, so do not increase the sound volume on the control amplifier or other equipment. It is also recommended that the articulator be done for about 30 seconds, until the end of the music.

- Off (OFF)
  The articulator is in the OFF state. Normally, playback must be performed in this position.
- On (ON)
  The articulator is in the ON state.

9. Articulator indicator

The indicator blinks when the articulator is in the ON state.

10. Monaural switch (MONO)

- Off (OFF)
  This is for stereophonic reproduction. Normally, playback must be performed in this position.
- On (ON)
  Monaural playback must be performed in this position.

11. Monaural indicator

Lights up when the ON is selected on the monaural switch (MONO).

12. Low-cut switch (LOW CUT)

This switch cuts the low frequency range. Prevents speaker (woofer) shaking when playing a warped record disc.

- Off (OFF)
  Normal state.
- On (ON)
  Cuts off the low frequency range below 30 Hz.
  (–6 dB/oct)

13. Low-cut indicator

Lights up when the ON is selected on the low-cut switch (LOW CUT).

14. Cartridge selector (CARTRIDGE)

Switch between MM and MC in accordance with the cartridge to use.

When set to MC, you can use the impedance selector (IMPEDANCE) to switch the MC input impedance.

15. Impedance selector (IMPEDANCE)

When the cartridge selector (CARTRIDGE) is set to MC, the input impedance can be selected with the impedance selector.

Select from 4.7Ω, 10Ω, 40Ω, 100Ω, 300Ω, or 1kΩ in accordance with the MC cartridge to use.

It is recommended to select an impedance equal to or slightly greater than the impedance of MC cartridge to use. Refer to the instruction manual of your cartridge to use.

16. MC cartridge indicator (MC)

Lights up when MC is selected with the cartridge selector (CARTRIDGE)

17. MM cartridge indicator (MM)

Lights up when MM is selected with the cartridge selector (CARTRIDGE)

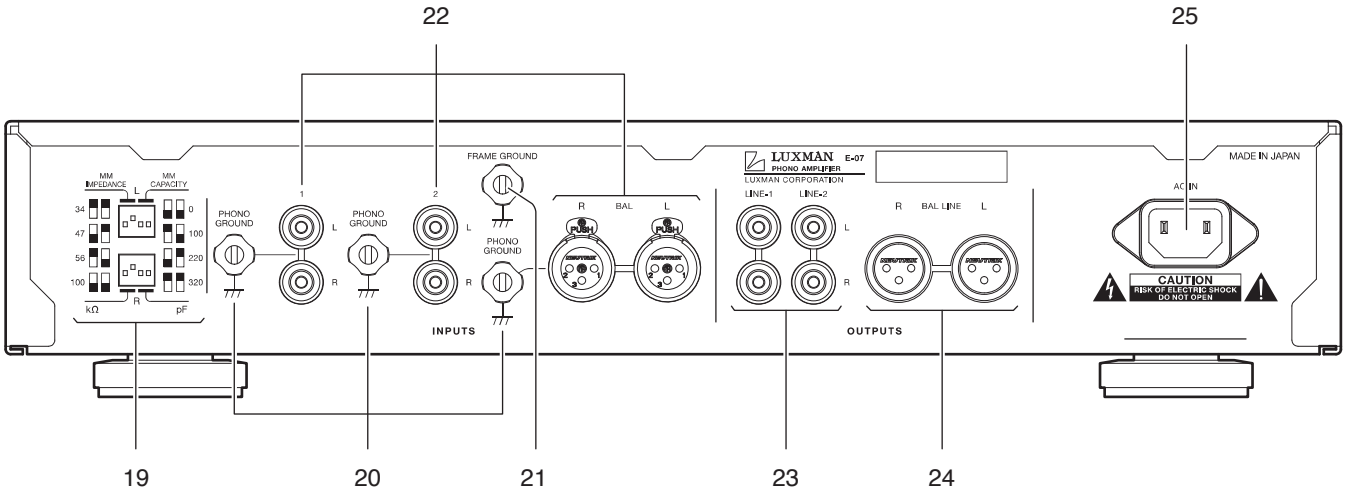
18. Input selector (INPUT)

Select the input terminal on the rear panel.

- 1: Input terminal (1) is selected.
- 2: Input terminal (2) is selected.
- BAL: Input terminal (BAL) is selected.

Names and Functions

Rear panel



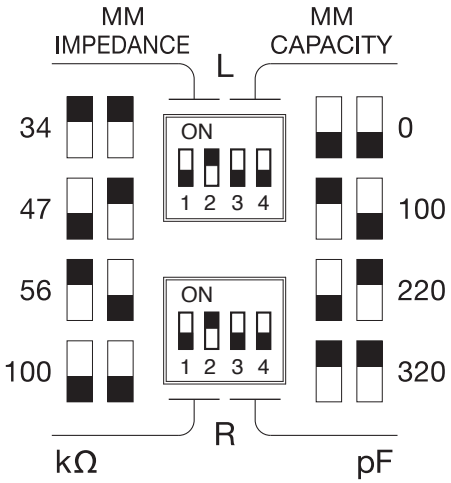
19. Input impedance selector and input capacitor selector switch

Input impedance and input capacitor can be selected in accordance with the MM cartridge used. Indicate the L channel on the upper switch and the R channel on the lower switch. 1 and 2 switch the input impedance, and 3 and 4 switch the input capacitor.

Use the switch combinations shown in the figure to set L and R simultaneously in accordance with the specifications of your cartridge and your preference.

The input impedance can be switched to 34 kΩ/47 kΩ/56 kΩ/100 kΩ and the input capacitor to 0 pF/100 pF/220 pF/320 pF.

At the factory default, the input impedance is at 47 kΩ and the input capacitor is at 0 pF.



* In the detailed diagram above, ■ is the button position.

When switching the switch, operate it with the volume of the connected device turned down.

20. Phono ground terminal (PHONO GROUND)

The ground terminal is for a device such as analog player connected to this unit. This terminal shall be connected to analog player and tone arm in order to reduce noise when other devices are connected. This terminal is not an electrical safety feature. Three independent ground terminals are provided to allow connection of three analog players or tone arms. The phono ground terminal is connected directly to the internal signal system ground without going through the enclosure.

Functionally, it is the same as the frame ground.

Depending on the sound quality and noise, connect to the better one.

21. Frame ground terminal (FRAME GROUND)

The ground terminal is for a device such as analog player connected to this unit. This terminal shall be connected to ground wire of analog player and tone arm in order to reduce noise when other devices are connected.

This terminal is not an electrical safety feature. The frame ground terminal is connected directly to the enclosure.

22. Input terminals (INPUTS)

This is the input terminals for RCA pin-plug cables or XLR balanced cables output from analog players or tone arms.

Three input terminals are provided to allow connection of three analog players or tone arms.

The input selector (INPUT) allows selection between 1, 2, and BAL.

The balanced inputs of this unit are connected to the left (L) and right (R) respectively as shown below.

The balanced input of this unit is for MC-type cartridges only. Connecting to the balanced input when using an MM-type cartridge may cause humming sound.

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23. Unbalanced output terminals/(OUTPUTS) (LINE-1, LINE-2)

Use these RCA output terminals to output unbalanced audio signals from this unit. Connect these terminals to the unbalanced inputs of a unit such as a control amplifier using RCA pin-plug cables.

Audio signal to output is selected by the output mode selector.

There is no difference in sound quality between LINE-1 and LINE-2.

No audio signal is output when the output mode selector is set to BAL.

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24. Balanced output terminals/(OUTPUTS) (BAL LINE)

Use these XLR output terminals to output balanced audio signals from this unit.

Connect these terminals to the balanced inputs of a unit such as a preamplifier using balanced XLR cables.

Audio signal to output is selected by the output mode selector.

The balanced output terminals on this unit output signals as shown below for the left (L) and right (R) output terminals, respectively.

- If the balanced output phase inversion switch (PHASE INVERT) is off (OFF).
  ① GROUND
  ② COLD (–)
  ③ HOT (+)
- If the Balanced output phase inversion switch (PHASE INVERT) is on (ON).
  ① GROUND
  ② HOT (+)
  ③ COLD (–)

No audio signal is output when the output mode selector is set to UNBAL.

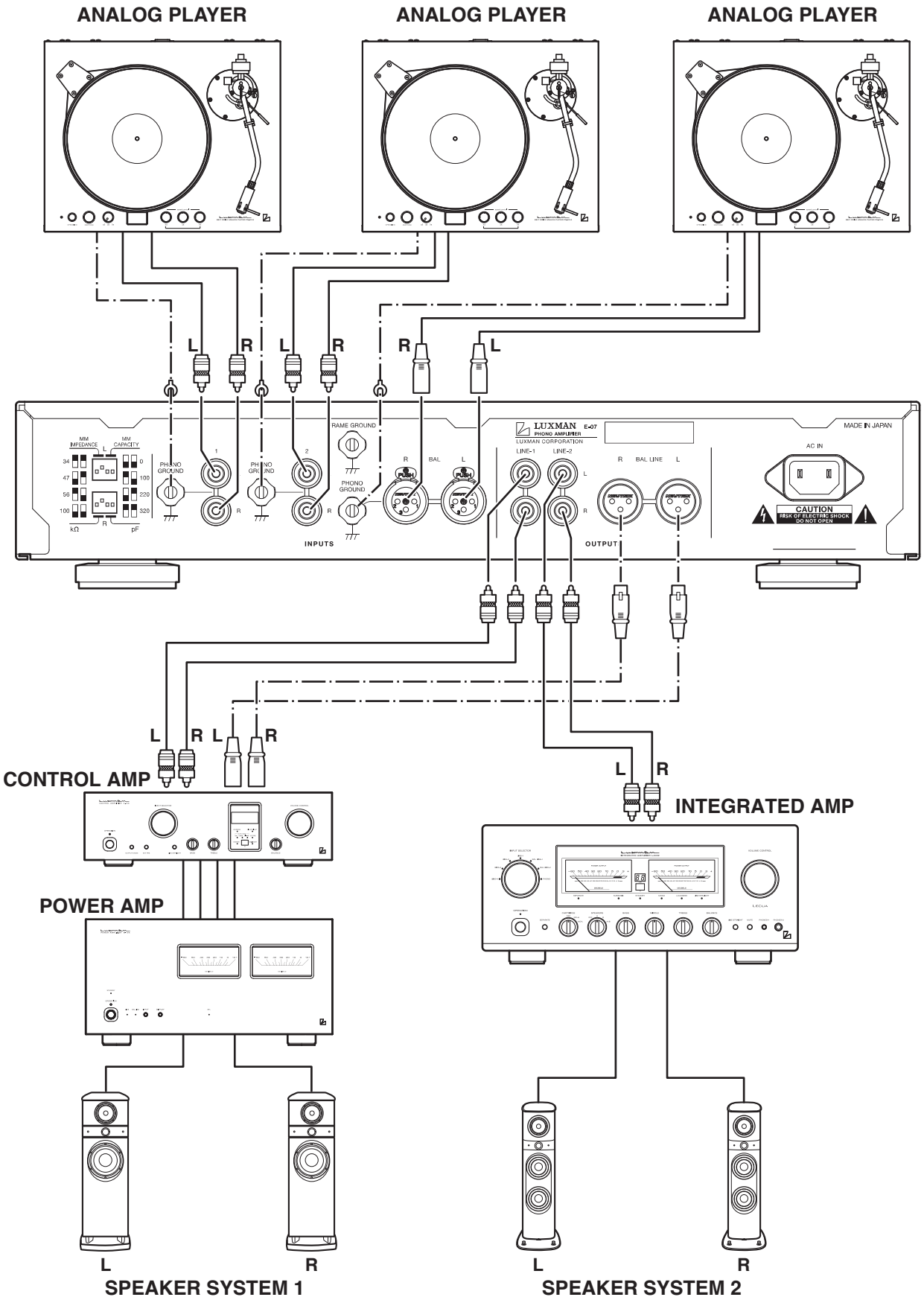
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25. AC inlet (AC IN)

Connects the accessory power cable.

The power should be supplied from a household wall socket.

Connections



Before Connecting

Before connecting other devices, connect the jack side of the accessory power cable to the AC inlet of this unit.

Before connection, turn off the main power switch of this unit and the power of all other connected devices to prevent unexpected accidents that may be caused by noise.

Connecting to the power supply

Insert the accessory power supply cable plug into an AC outlet on the wall of the listening room.

How to connect output devices

1. Connect the output terminal of this unit and the line input terminal of the control amplifier or integrated amplifier with an RCA pin-plug cable or XLR balanced cable, making sure not to mistake the L channel for the R channel. At this time, if the ground side of the pin plug is floating, humming sound and other noises will be generated and the S/N ratio will deteriorate, so make sure to insert it all the way to the back.

2. Do not connect the output terminals of this unit to the phono (PHONO) input terminals of a control amplifier or integrated amplifier. This not only will distort the phono amplifier of the integrated amplifier or control amplifier, but it may also damage the amplifier. Be sure to connect to the line input terminals.

3. Also, do not insert a short pin into the output terminals, as no sound will be generated. Since this unit does not have a volume control function, volume control must be performed by the sound volume control of the connected control amplifier or integrated amplifier. The sound volume control must be set to the lowest when connecting the unit. If the sound volume is turned up when the power is turned on, a sudden loud sound may be produced, which may cause hearing damage or damage the speakers.
   Be sure to adjust the sound volume to your preference after the sound comes out of the speakers with the sound volume turned down.

How to connect to an analog player

1. Refer to the instruction manual for the analog player and cartridge to be used, and install the cartridge correctly on the tone arm.

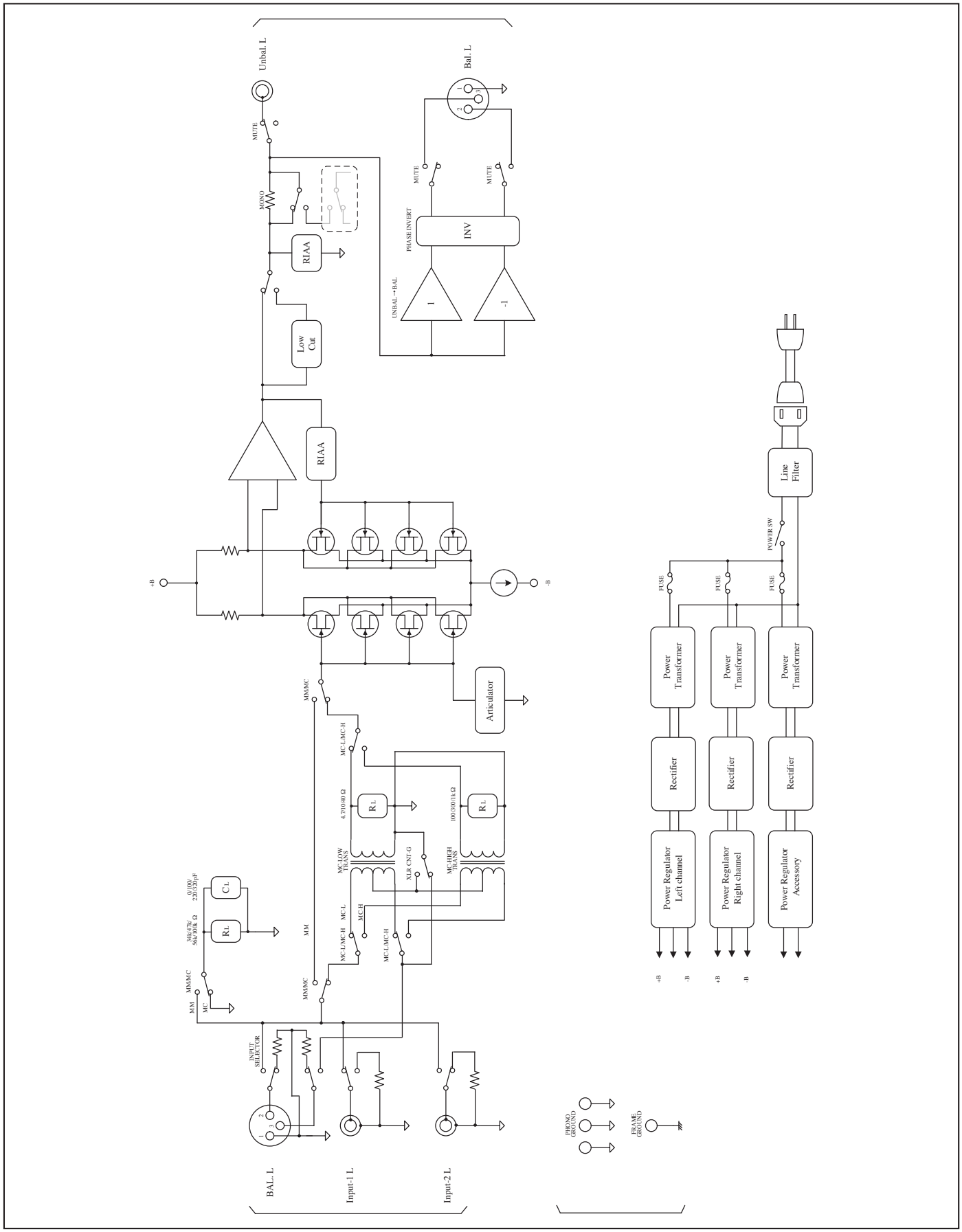
2. The RCA pin-plug cable or XLR balanced cable that is output from the tone arm with the cartridge installed is inserted into the input terminals of this unit. At this time, make sure to insert the cable into the L channel and R channel correctly. Also, a floating grounding of the pin-plug cables may generate noise including a hum, resulting in an adverse S/N ratio.

3. Grounding is required between the connecting analog player and this unit. The ground wire that runs parallel to the RCA pin-plug cable output from the tone arm must be securely attached to the phono ground terminal or frame ground terminal of this unit.
   If the grounding terminal is inadequately connected, noise or humming sound, may be generated, resulting in an adverse S/N ratio.

If humming sound or noise is generated at the phono ground terminal, connect it to the frame ground terminal.

Do not connect the output of an analog player with a built-in phono equalizer to this unit. This not only will distort the amplifier, but it may also cause a malfunction. Connect the output of an analog player with a built-in phono equalizer to the line input of a integrated amplifier or control amplifier.

Block Diagram



Specifications

Input sensitivity	MM	: 3.2 mV (250 mV output, 1 kHz, load 50 kΩ)
	MC-HIGH	: 0.37 mV (250 mV output, 1 kHz, load 50 kΩ)
	MC-LOW	: 0.12 mV (250 mV output, 1 kHz, load 50 kΩ)
Input impedance	MM	: 34 kΩ/47 kΩ/56 kΩ/100 kΩ (button selection)
	MC-HIGH	: 100 Ω/300 Ω/1 kΩ
	MC-LOW	: 4.7 Ω/10 Ω/40 Ω
Gain	MM	: 38 dB
	MC-HIGH	: 57 dB
	MC-LOW	: 66 dB
RIAA deviation	MM	: 20 - 20 kHz ±0.1 dB
	MC-HIGH	: 20 - 20 kHz ±0.3 dB
	MC-LOW	: 20 - 20 kHz ±0.3 dB
Maximum allowable input voltage	MM	: 120 mV
	MC-HIGH	: 15 mV
	MC-LOW	: 5 mV
Output impedance	LINEOUT	: 300 Ω
	BALOUT	: 600 Ω
S/N ratio (at 250 mV output)	MM	: 88 dB (IHF-A)
	MC-HIGH	: 81 dB (IHF-A)
	MC-LOW	: 78 dB (IHF-A)
Total harmonic distortion (at MM 1 V output)	0.003 %	
Channel separation (10 kHz)	80 dB or more	
Accessories	• Power cable • Owner's Manual (This document) • Safety cautions	
Circuiting system	NF type equalizer amplifier with built-in MC step-up transformer	
Power consumption	13 W	
Power supply	230 V ~ (50 Hz)	
Max. external dimensions	440 (W) x 92 (H) x 407 (D) mm (front side knob with 14 mm and rear side terminal with 13 mm included in depth)	
Weight	13.2 kg (main unit only)	

* Specifications and the appearance are subject to change without notice.

Before Asking for Repair Services

While in use, this unit may display phenomena which may be confused as malfunctions. Before contacting your country's official LUXMAN distributor for repair services, please read the operating instructions for any connected input and output devices and check the troubleshooting table below. If the cause of the malfunction cannot be identified, please contact your dealer. After LUXMAN's representatives have accepted your request for repair services, inspection fees and transportation expenses may be claimed, even though the unit may be found to be operating normally.

Problem	Cause	Solution
No power is supplied even though the operation button is pressed ON.	• The power plug is disconnected from the wall outlet, or it is not completely inserted.	• Insert the power plug in the wall outlet completely.
	• The power plug is disconnected from the AC inlet, or it is not inserted completely.	• Securely insert the power plug in the AC inlet.
No sound is generated. (small sound)	• Connection is not securely performed.	• Make cable connections securely.
	• The connected input terminal does not match the setting of the input selector switch.	• Match the input terminal with the setting of the input selector switch.
	• The selector of the input device such as a control amplifier is not correctly set.	• Set the selector of the input device such as a control amplifier correctly.
	• The volume control of the input device such as a control amplifier is not set to a lower level.	• Adjust the volume control of the input device such as a control amplifier.
	• The used cartridge type does not match the selected item of the MM/MC selector switch.	• Select the correct item of the cartridge selector switch according to the cartridge to be used.
	• The articulator position is selected.	• Turn down the sound volume and adjust the sound volume according to the appropriate input impedance after sound comes out.
Humming sound (boon or zzz noise) is generated.	• The grounding side of the connection cable has no contact with the terminal.	• Make cable connections securely.
	• The grounding of the shell or tone arm is inadequately connected.	• Be sure to connect the ground wire of the shell or tone arm to the ground terminal.
	• Induction noise is picked up from a power transformer of another device.	• Install it distant from other devices.
	• The connecting cables are too close to the power cable.	• Keep the connecting cables away from the power cable.
	• Connected to the balanced input when using an MM-type cartridge.	• Connect to Input 1 or Input 2 using RCA pin-plug cables.
Inappropriate localization of sound No bass is generated.	• The L channel and R channel are connected reversely.	• Connect the L channel and R channel appropriately.
	• The setting of the input impedance control does not match the cartridge in use.	• Adjust the input impedance according to the cartridge in use.



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