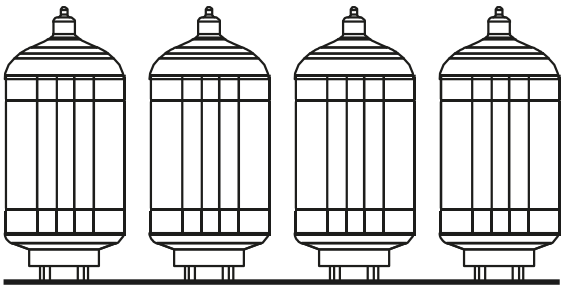
Kerwax Replica

TUBE LINE PREAMPLIFIER

Operating manual available at :
www.kerwax.com/kerwax-factory-shop/preamplifiers/kerwax-replica-revc/



Operating Manual

Model MKII

TABLE OF CONTENTS

SAFETY INFORMATION

NOTES, NOTICES AND CAUTIONS

ⓘ A **note** indicates important information that helps you make better use of your equipment.

➲ A **notice** indicates potential damage to hardware and tells you how to avoid the problem.

△ A **CAUTION** indicates a potential for property damage, personal injury or death.

SAFETY PRECAUTIONS

△ **SELECT THE RIGHT MAIN OPERATING VOLTAGE RANGE USING THE 115V/230V VOLTAGE SELECTOR ON THE REAR PANEL BEFORE USING THE DEVICE.**

△ **THE DEVICE MUST BE CORRECTLY SET UP AND CONNECTED TO A GROUNDED ELECTRICAL OUTLET.**

△ **ALWAYS USE THE CORRECT FUSE TYPE ACCORDING TO THE MAIN OPERATING VOLTAGE.**

△ **ALWAYS USE THE SAME FUSE CAPACITY FOR REPLACEMENT.**

△ **DO NOT OBSTRUCT VENTILATION SLOTS. THIS WOULD CAUSE OVERHEATING AND IRREMEDIABLY DAMAGE THE DEVICE.**

△ **NEVER TRY TO OPEN THE PANELS WHEN DEVICE IS POWERED. LETHAL HIGH VOLTAGES INSIDE COULD CAUSE ELECTRIC SHOCK.**

△ **DO NOT TRY TO REPAIR THE DEVICE BY YOURSELF. SHALL YOU ENCOUNTER HARDWARE FAILURE, PLEASE CONTACT KERWAX IMMEDIATELY IN ORDER TO TAKE APPROPRIATE ACTION.**

△ **DO NOT LEAVE THE DEVICE UNATTENDED WHILE IN OPERATION.**

△ **NEVER OPERATE THE DEVICE NEITHER IN EXPLOSIVE NOR IN DUSTY ENVIRONMENT.**

△ **THE DEVICE MUST NOT BE USED EITHER OUTSIDE OR IN CONDENSING ENVIRONMENT.**

△ **ALWAYS KEEP THE DEVICE AWAY OF LIQUIDS AND LIQUID PROJECTIONS.**

GENERAL INFORMATION

MANUFACTURING INFORMATION

This product is manufactured in France by KERWAX.

Address: 36 route de Keroue
22780 LOGUIVY-PLOUGRAS, FRANCE

E-mail: contact@kerwax.com
Website: www.kerwax.com

CERTIFICATION INFORMATION

This product is CE certified (European Union).

RECYCLING INFORMATION

KERWAX recommends that customers dispose of their used equipment hardware and peripherals in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products, components, and/or materials.

Waste Electrical and Electronic Equipment (WEEE) Directive

In the European Union, this label indicates that this product should not be disposed of with household waste.
It should be disposed at an appropriate facility to enable recovery and recycling. For information on how to recycle this product responsibly in your country, please contact your town hall or retailer.

This logo indicates that the transportation box is recyclable.
We recommend to save it for future uses such as moves or product service.

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Designed and Manufactured
by KERWAX

FRANCE

1. INTRODUCTION

Thank you for choosing KERWAX Replica! We hope it will give you years of satisfaction and musical creativity. It was manufactured in France with the finest materials and components, by and for professional audio users. Please read this operating manual thoroughly before operating your new Replica.

1.1 ABOUT THE REPLICA

KERWAX Studio is a residential and all-analog recording studio located in a former boarding school in Brittany. Fully loaded with an exceptional collection of analog vintage gear from the 1940’s to the 1970’s, it hosts an internally developed 24-channel vacuum tube mixing console to meet the requirements of in-house sound engineers and producers.

The Replica includes 2 channels of this unique mixing console, integrated into a compact 5U rack enclosure. Its design, inspired by 50's and 60's tube amplifiers, allows to fully exploit intrinsic properties of vacuum tubes such as natural compression, saturation and distortion, which bring colors and textures that can't be found in today's digital audio products.

With balanced conception, the Replica features dual-mode audio processing: standard L/R (dual mono or stereo) and M/S (Mid/Side). With 2 vacuum tubes per channel, it allows you to strongly process the audio signal, by varying its non-linear and linear features.

Not only the Replica has high quality construction, but also excellent audio properties. Its sound has been carefully adjusted for months and validated at KERWAX Studio. Versatile, it is compatible with any music style or instrument.

This operating manual will guide you through the endless possibilities of your Replica. It was conceived to be as accessible and clear as possible, to help you understand basic operation before discovering its capabilities as a daily creative tool.

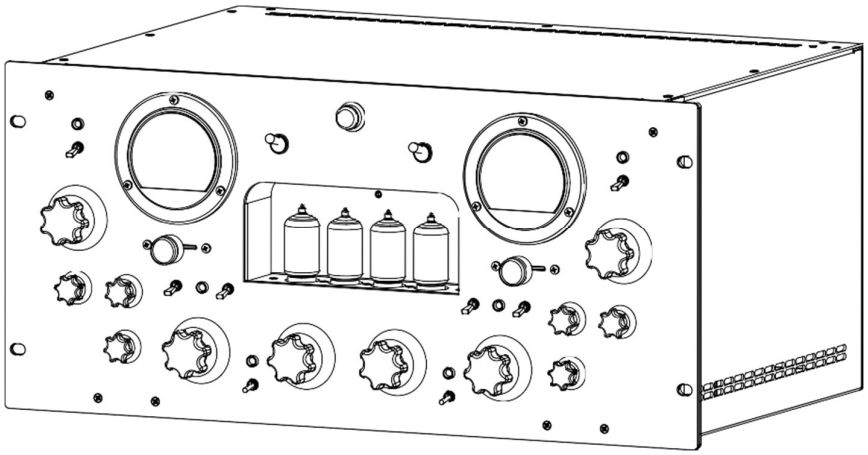
1.2 A WORD FROM CHRISTOPHE CHAVANON

"Our machine was conceived to facilitate the physical experience of tweaking the sound and forget about rules and limits in the art of music production.

Pick the tubes, shape your sound.
Turn the knobs... and enjoy...!"

Christophe Chavanon
Owner, KERWAX Studio

2. PREPARATION



2.1 CONTENTS OF THE BOX

The shipping box comes with the Replica model and a 3-pole power cord adapted to the country of destination,

2.2 UNBOXING THE UNIT

When receiving your Replica, inspect the shipping box for any damage before accepting and signing for the delivery.

- Open the shipping box.
- Take out the protective crate with the help of the strapping.
- Cut the strapping and open the protective crate.
- Lift the Replica carefully and place the device on an horizontal, stable and non-slip surface.
- Remove the protective bag and check thoroughly the condition of the unit.
- Open the accessory box and check if all the accessories listed above are present.

ⓘ If any accessories are missing, if the unit is damaged or fails to operate, please contact KERWAX immediately.

ⓘ The protective crate contains custom foams that should not be removed.

ⓘ The shipping box and protective crate should be retained. They are specifically designed to ensure maximum protection of the device: they will be useful for service or future use.

2.3 INSTALLATION AND USE

The Replica can be installed and used in 2 different ways:

- Rack integration,
- Free-standing.

• Rack integration

The Replica is designed to be installed in a standard 19-inch width (482 mm) equipment rack. Its height conforms with a standard 5U (5 units) rack space.

To install the Replica in a standard equipment rack:

- Align the device against the screw holes of the equipment rack.
- Secure the device using 4 standard rack screws with washers.

➲ Considering its weight (23.37lbs), at least 2 persons are required to ensure its proper installation.

• Free-standing

Place the unit on an horizontal, stable and non-slip surface.

➲ Do not obstruct the ventilation slots. It could cause overheat and you could irremediably damage the device. Extra room must be kept free around the Replica to ensure good air circulation.

2.4 FIRST OPERATION

△ **WARNING: PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE CONNECTING THE DEVICE TO MAINS POWER. IF THE WRONG MAINS VOLTAGE OR WRONG FUSES ARE SELECTED, YOU COULD IRREMEDIABLY DAMAGE THE DEVICE!**

The Replica supports both 110V-120V and 220V-240V mains voltages.
The voltage selector is preset at the factory to the mains voltage of the country of destination.

To change the operating voltage of the device:

- Remove the security sticker placed over the AC power connector or unplug the power cord from mains if connected.
- Set the voltage selector to the desired operating voltage (110V-120V or 220V-240V) using a small screwdriver.

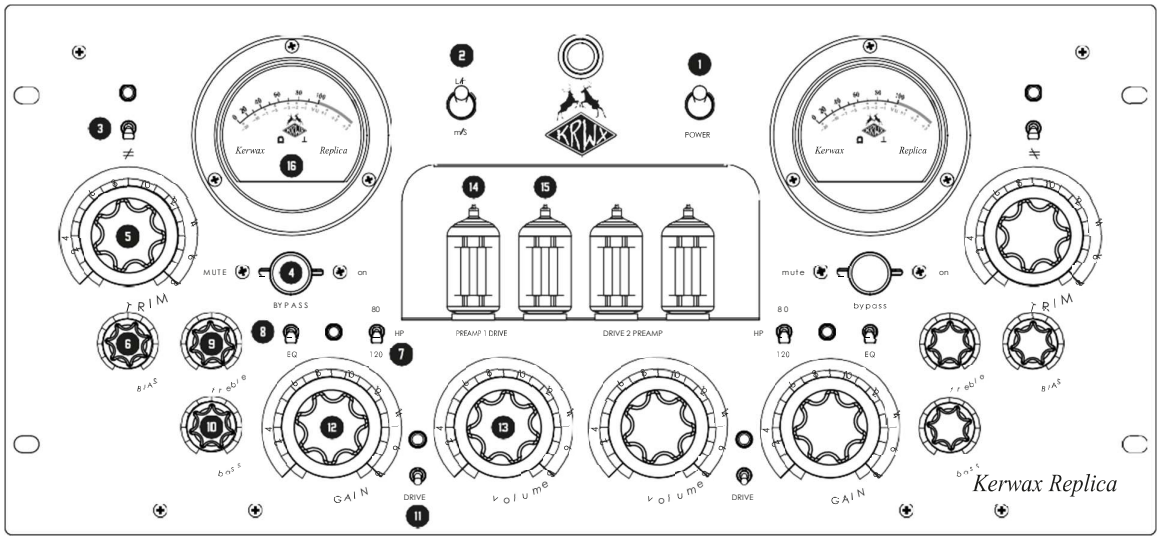
➲ Only when these steps have been completed, plug the AC power cord into a properly grounded AC outlet.

3. NAMES AND FUNCTIONS OF PARTS

ⓘ The names and functions of parts indicated below and described in the following pages are used as references throughout the next chapters.

FRONT PANEL

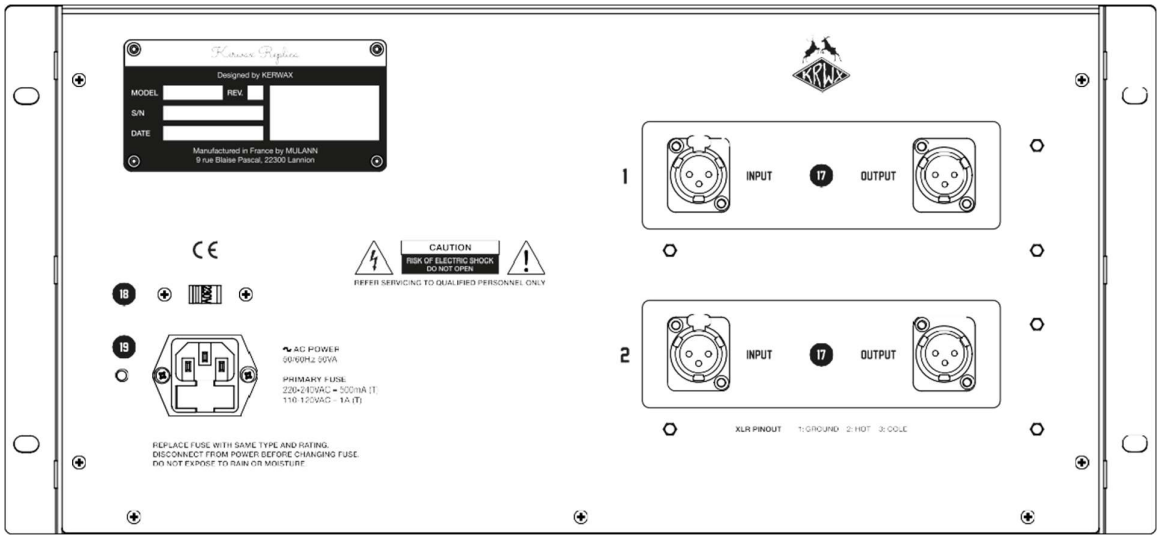
#1 to #16



ⓘ #3 to #17 functions are described for one channel only.

REAR PANEL

#17 to #19

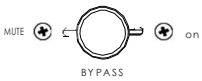


1 **Power switch and main indicator light**
Switches the unit on or off. The main indicator light illuminates to indicate the Replica is powered on and the vacuum tubes' power supply is functioning correctly.

2 **Audio mode switch**
Toggles between L/R (dual mono or stereo) and M/S (Mid/Side) modes:

- **L/R (dual mono or stereo) mode**
  Standard use with 2 independent mono channels.
- **M/S (Mid/Side) mode**
  Special use with Mid/Side sum and difference matrix. When M/S mode is activated, channel 1 is used for Mid section and channel 2 is used for Side section.

3 **Phase switch (Ø)**
Reverses the signal phase of the selected channel. When activated, the LED indicator illuminates.



4 **Listening mode selector**
Toggles between 3 different listening modes:

- **MUTE**: signal is muted on the selected channel.
- **BYPASS**: signal is passing through the selected channel without processing. In M/S (Mid/Side) mode, only the processing of the vacuum tubes is bypassed.
- **ON**: signal is passing through the selected channel with processing.

5 **TRIM control**
Adjusts the input level in/of PREAMP vacuum tube [**14**].

6 **BIAS control**
Varies Bias current of PREAMP vacuum tube [**14**]. As a result, audio signal is more compressed or low frequencies are strengthened.

7 **High-pass filter switch**
Attenuates low frequencies with a roll-off of 6dB per octave. The cutoff frequencies are set to 80Hz, filter is disabled when switch is set in the middle position.

8 **EQ switch**
Activates or deactivates TREBLE [**9**] and BASS [**10**] equalization circuits. When activated, the LED indicator illuminates.

ⓘ When working in L/R mode with stereo material or in M/S mode, both EQ switches must be activated simultaneouly to preserve signal coherence (phase, frequencies and dynamics)!

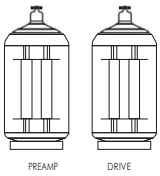
9 **TREBLE tone control**
Adjusts treble tone level with Baxandall-type curve. Vertical cursor position is neutral.

10 **BASS tone control**
Adjusts bass tone level with Baxandall-type curve. Vertical cursor position is neutral.

11 **DRIVE switch**
Activates or deactivates DRIVE vacuum tube [**15**], GAIN [**12**] and VOLUME [**13**] controls. When activated, the LED indicator illuminates.

12 **GAIN control**
Adjust the amount of gain applied to the signal, bringing harmonic distortion and saturation from the DRIVE section [**15**].

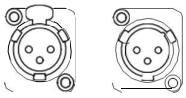
13 **VOLUME control**
Adjusts output level of the DRIVE section.



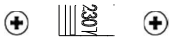
14 **PREAMP vacuum tube**
Adds color and warmth tone to the signal.
Involved in preamplifier and EQ circuits.

15 **DRIVE vacuum tube**
Adds harmonic distortion and saturation to the signal.

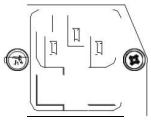
16 **VU-meter**
Allows to monitor OUTPUT 1 and OUTPUT 2 [**17**] audio levels. The VU-meters are factory calibrated to the standard operating level 0dBVU = +4dBu.



17 **Line I/O**
Balanced main XLR inputs and outputs with +4dBu standard operating level.



18 **Voltage selector**
Allows to select correct operating voltage between 110V-120V and 220V-240V, 50/60 Hz. The voltage selector is preset at the factory to the mains voltage of the country of destination.



19 **AC power connector and fuses holder**
Mains input with 3-pole standard IEC connector, connects to mains with supplied power cord.
2 fuses are used for each operating voltage (see 2.4 First Operation).

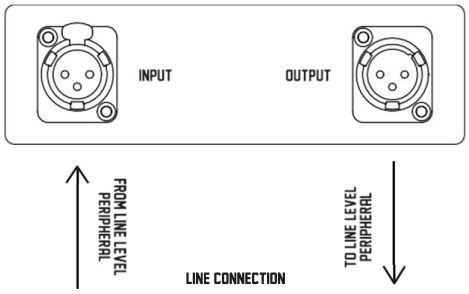
4. USING THE REPLICA

4.1 MAKING CONNECTIONS

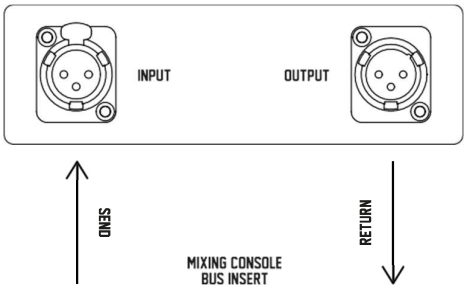
The Replica can be easily integrated within your studio configuration. It uses +4dBu standard line operating level and features balanced XLR connections, which pins conform to the AES standard *(see 6. Technical Specifications)*.

• Suggested configurations

Any +4dBu standard line operating level peripheral



Mono or stereo bus insert from mixing console



ⓘ The Replica may remain connected even if it is powered off. Hardware links inside the I/O panel enables the sound to pass through the unit even when not in use!

4.2 PROCESSING FEATURES

The Replica combines non-linear and linear features:

- The non-linear functionalities enable you to explore amazing artifacts due to the vacuum tube characteristics that bring warmth to the audio signal.

- On the other side, the linear features are common functionalities, available on all pre-amplifiers for adjusting the tone and filtering the audio signal.

The two channels are independent and identical.

• Non-linear features

Non-linear features allow to explore a range of unconventional audio corrections such as audio signal saturation or distortion.

The non-linearity modifies the audio signal in such a way that the output signal is not proportional to the input signal.

- The TRIM control [**5**] defines the input signal level and can overload the first pre-amplifier stage to the saturation level, creating artifacts.

- The BIAS control [**6**] allows to change the standard functioning point of the PREAMP vacuum tube [**14**]. By changing its bias, the vacuum tube is able to operate outside its linear range and bring some distortion, creating a warm sound.

- The GAIN control [**12**] defines the amplification of the DRIVE stage [**15**]. The amplification factor can be increased to some extent where the DRIVE stage exceeds its linear range of functioning and starts to distort the signal.

- The VOLUME control [**13**] sets the overall level of the DRIVE section.

• <u>Linear features</u>

The linear features are mainly used to correct the tone of the audio signal after processing. Saturation and distortion bring too much level or undesired effects to some frequencies. Baxandall-type curve and filtering allow you to correct the overall rendition of the processed signal.

- The EQ switch [**8**] enables audio tone control: TREBLE [**9**] and BASS [**10**] controls reinforce or reduce high and low frequencies level, respectively. The EQ circuit follows the DRIVE section, allowing to correct its effects. This can cause a change in level when the EQ switch [**8**] is activated.

- The High-pass filter switch [**7**] removes frequencies below 80Hz or 120Hz with a roll-off of 6dB per octave.

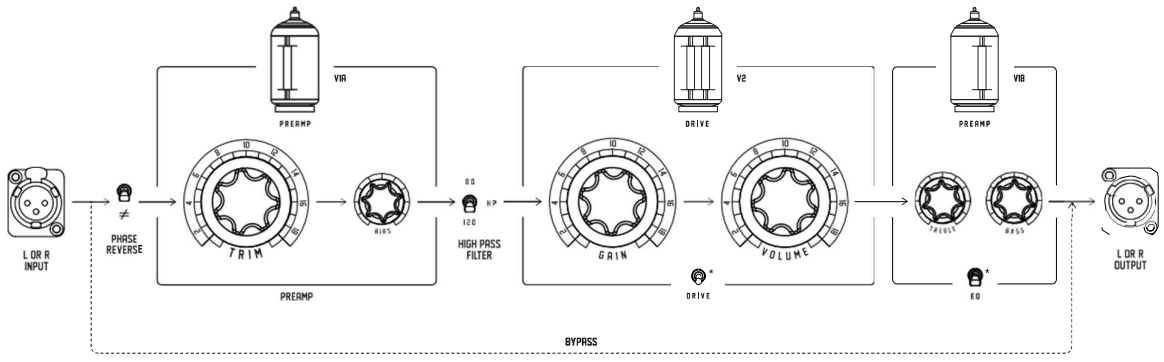
- The Phase switch [**3**] enables to invert the phase of the signal by 180° (opposite phase).

4.3 <u>SIGNAL PATHS</u>

The Replica features 2 independent audio modes: L/R (dual mono or stereo) and M/S (Mid/Side) which signal paths are described below.

• <u>L/R (dual mono or stereo) mode signal path</u>

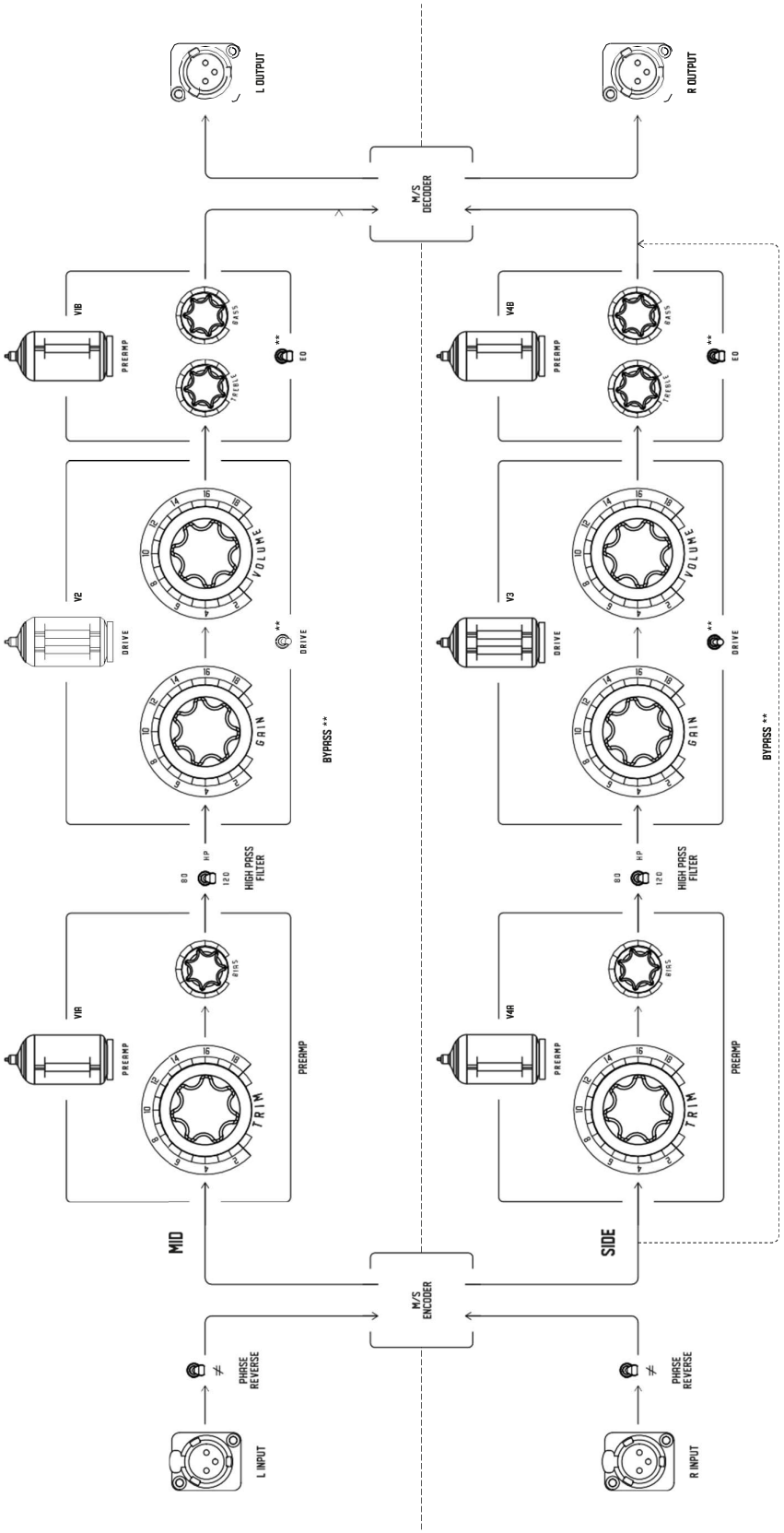
When the Replica is set to L/R mode, its 2 channels are fully identical and independent.



L/R mode signal path (1 channel)
***** *See note page 16*

- **M/S mode signal path**

When the Replica is set to M/S mode, the 2 channels are treated through matrixing and dematrixing process. This process causes a 0.6dB level increase compared to L/R mode.



M/S mode signal path (2 channels)
*** See note page 16***

4.4 CONTROLS

Depending on the application, you can easily select the most appropriate audio mode to process the signal using the Audio mode switch [**2**].

• L/R (dual mono or stereo) mode controls

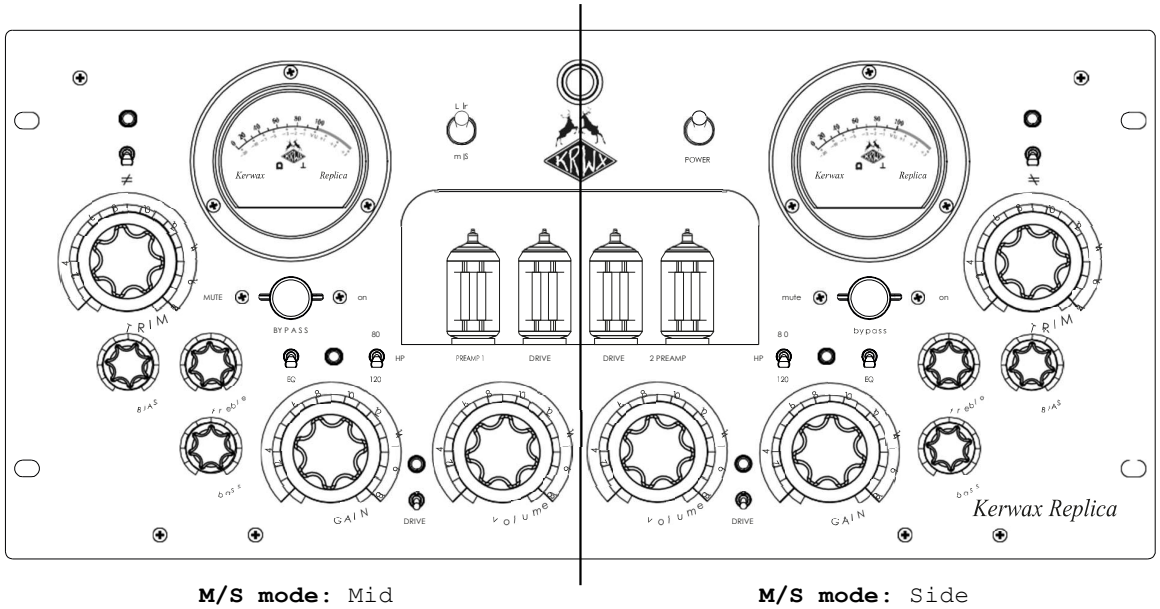
When the Replica is used to process dual mono or stereo audio signals in L/R mode, the controls located on the left part of the front panel are devoted to the left channel processing (INPUT 1 [**17**] on the rear panel), and the right part to the right channel processing (INPUT 2 [**17**] on the rear panel).

• M/S (Mid/Side) mode controls

When the Replica is used to process audio signals in M/S (Mid/Side) mode, the controls located on the left part of the front panel are devoted to the Mid channel, and the right part to the Side channel. TRIM control [**5**] adjusts the balance between Mid and Side channels.

M/S mode matrixes and dematrixes the input signals so that each Mid or Side channel can be processed independently with the full range of adjustments. Ideal for mastering, the built-in Mid/Side mode gives you the possibility to adjust the sound stage width, using only stereo input signal.

L/R mode: channel 1 **L/R mode:** channel 2



M/S mode: Mid **M/S mode:** Side

***** When working in L/R mode with stereo material, both DRIVE and EQ switches must be activated simultaneouly to preserve signal coherence (phase, frequencies and dynamics)!

****** When working in M/S mode, BYPASS, DRIVE and EQ switches must be activated simultaneouly to preserve signal coherence (phase, frequencies and dynamics)!

4.5 STARTING POINT

Setting the starting point is a good way to begin working with the Replica. This is achieved when audio processing is the most neutral and the less effect is applied to the audio signal.

To set the Replica to its starting point:

- Select L/R mode with the Audio mode switch [**2**],
- Set all knobs indicators to their neutral zones :
    - TRIM = 12
    - BIAS = mid position
    - Gain = 10
    - Volume = 12
- In M/S mode, set TRIM = 8

Also, note the following informations:

ⓘ Phase switches [**3**] must be set to the same position to be neutral.
ⓘ DRIVE section [**11**] may be equally set on or off.

From this starting point, you can experience the impact of each adjustment individually, then explore a wide range of possibilities through custom settings (*see 4.6 Audio Processing)*.

ⓘ The Replica has a rather flat response when all the controls are set as mentioned above, and audio processing does not affect the input signal.

ⓘ Switching Listening mode selector [**4**] between ON and BYPASS positions does not change the signal but the level slightly.
For better level balance between ON and BYPASS positions [**4**], you can adjust the TRIM control [**5**].

4.6 AUDIO PROCESSING

The Replica is composed of 2 independant channels, ideal for individual instrument or stem processing. Its unique design allows you to quickly replace and combine vacuum tubes to sculpt and color the sound, using vintage or modern references.

It is composed of two factory-installed 12AX7-type (ECC83, 7025) vacuum tubes per channel: PREAMP [**14**] and DRIVE [**15**]. The steps below follow the logical processing path inside the Replica and allows you to process audio signal quickly and efficiently:

• **To start: PREAMP vacuum tube** [**14**]

Modifies the color and roundness of the audio signal.
It is activated when Listening mode selector [**4**] is set to ON position.

- Adjust input audio level using TRIM control [**5**].
- To remove excessive low frequencies, the High-pass filter switch [**7**] attenuates frequencies from 80Hz or 120Hz with a roll-off of 6dB per octave.
- Use BIAS control [**6**] to vary current of PREAMP vacuum tube [**14**]. As a result, audio signal is more compressed or low frequencies are strengthened. This setting is sensitive: gently turn the BIAS control as current inside PREAMP vacuum tube varies and need to stabilize.
- To add equalization, activate the EQ switch [**8**]. It enables TREBLE [**9**] and BASS [**10**] tone adjustments. The Replica uses Baxandall-type equalization, a gentle curve allowing to open treble frequencies without getting harsh and make the bass frequencies fatter.

• **To go further: DRIVE vacuum tube** [**15**]

Adds distortion and harmonic saturation to the audio signal.
DRIVE vacuum tube is optional and only activated when DRIVE switch is on [**11**].

- Modify GAIN control [**12**] to adjust the level of distortion and harmonic saturation applied to the audio signal.
- To compensate output level, adjust VOLUME control [**13**].

ⓘ All these controls interact with each other and allow you to shape your very own sound character. It may require several adjustments to find the right setting.

ⓘ If DRIVE section levels are set very high, the vacuum tubes may become microphonic and capture the surrounding sounds!

ⓘ You may experience phase cancellation, a phenomenon that can make certain frequencies vanish from the audio signal, if both 2 channels are used in stereo configuration. In this case, you can correct this problem using the adequate Phase switch [**3**].

ⓘ To go even further, you can replace vacuum tubes by alternative references with different gain and tonal characteristics *(see 4.6 Replacing Vacuum Tubes)*.

4.7 REPLACING VACUUM TUBES

The Replica features easy and quick vacuum tubes replacement. Vacuum tubes can be replaced if defective, damaged or to explore new sound possibilities.

Before taking any action, always follow these safety instructions:

△ **SWITCH OFF THE UNIT AND DISCONNECT POWER CORD FROM MAINS!**
△ **WAIT AT LEAST 30 MINUTES TO ALLOW HIGH-VOLTAGE COMPONENTS TO DISCHARGE: UNIT CONTAINS LETHAL VOLTAGE INSIDE!**

➲ Allow the vacuum tubes to cool down for at least 30 minutes before removal.
➲ Always use protective gloves to avoid touching the glass envelope of the vacuum tubes.

• **How to remove a vacuum tube?**

– Gently pull out the vacuum tube from its socket with your hand. You may experience some resistance as it is firmly inserted.

➲ Do not pull the vacuum tube too quickly to avoid damaging the tip of the vacuum tube by hitting the top of the case.
➲ Do not twist the vacuum tube, this could break the connectors or cap.

△ **DO NOT TOUCH THE SOCKET NOR CONNECTORS OF THE VACUUM TUBE, LETHAL HIGH VOLTAGE COULD STILL REMAIN INSIDE!**
△ **DO NOT USE A SCREWDRIVER OR OTHER TOOL TO REMOVE THE VACUUM TUBES! YOU COULD BREAK THE GLASS ENVELOPE, THE PINS OR GET AN ELECTRICAL SHOCK!**

• **How to replace a vacuum tube?**

ⓘ Sockets are designed to allow vacuum tubes to be plugged in only one orientation. Check the pin orientation carefully.

– Gently insert the new vacuum tube inside the socket. Check that it is fully locked and no pins are visible.
– Replace correctly the protective cover and screw it back on.
– Connect power cord and switch on the unit. If a problem occurs, please observe the discharging delay of the circuits before replacing the vacuum tube again.
– If necessary, use a small screwdriver and insert gently in the hole under TRIM knob. Then adjust for balanced level between L and R.

△ **ONLY USE COMPATIBLE REFERENCES WHEN REPLACING A VACUUM TUBE!**

5. TROUBLESHOOTING

The Replica is made of high-quality components and was designed for years of trouble-free usage. If you still encounter some problems, the list below should help you find a solution.

The Replica doesn't power up.

- Check mains power and connect grounded power cord for your country of operation to the Replica [**19**].
- Check main voltage selection on the Voltage selector [**18**].
- If selected main voltage is correct, check the 2 fuses and replace them with the same type [**19**].
- Check if Power switch is set to POWER and Main indicator light is illuminated [**1**].

ⓘ To change mains operating voltage of the device, see 2.4 First Operation.

There is no sound.

- Check if the Replica correctly powers up.
- Check input XLR connections [**17**] and input level. The Replica uses +4dBu standard operating line level.
- Check illumination of vacuum tubes [**14, 15**]. If one vacuum tube doesn't work, switch off the unit and replace defective part *(see 4.7 Replacing Vacuum Tubes)*.
- Is input level high enough? Modify the input level with TRIM control [**5**].
- Adjust GAIN [**12**] and VOLUME [**13**] settings if DRIVE [**11**] function is activated, or deactivate it.

VU-meters doesn't work.

- Does the VU-meters [**16**] lighten when unit is powered on? If no, check if the Replica is correctly connected to mains power.
- Only output level is shown on VU-meters: check if VOLUME control [**13**] is correctly adjusted.
- Check if the Replica receives signal from INPUT [**17**] XLR connections.

There is too much saturation or distortion.

- To remove saturation, lower input level with TRIM control [**5**] and/or GAIN control [**12**] if DRIVE switch [**11**] is activated.
- To lower distortion, lower BIAS control [**6**] until distortion becomes negligible.

Low frequencies aren't present enough.

- Is the High-pass filter switch [**7**] enabled? If yes, disable the option to recover low frequencies (switch is set to middle position).

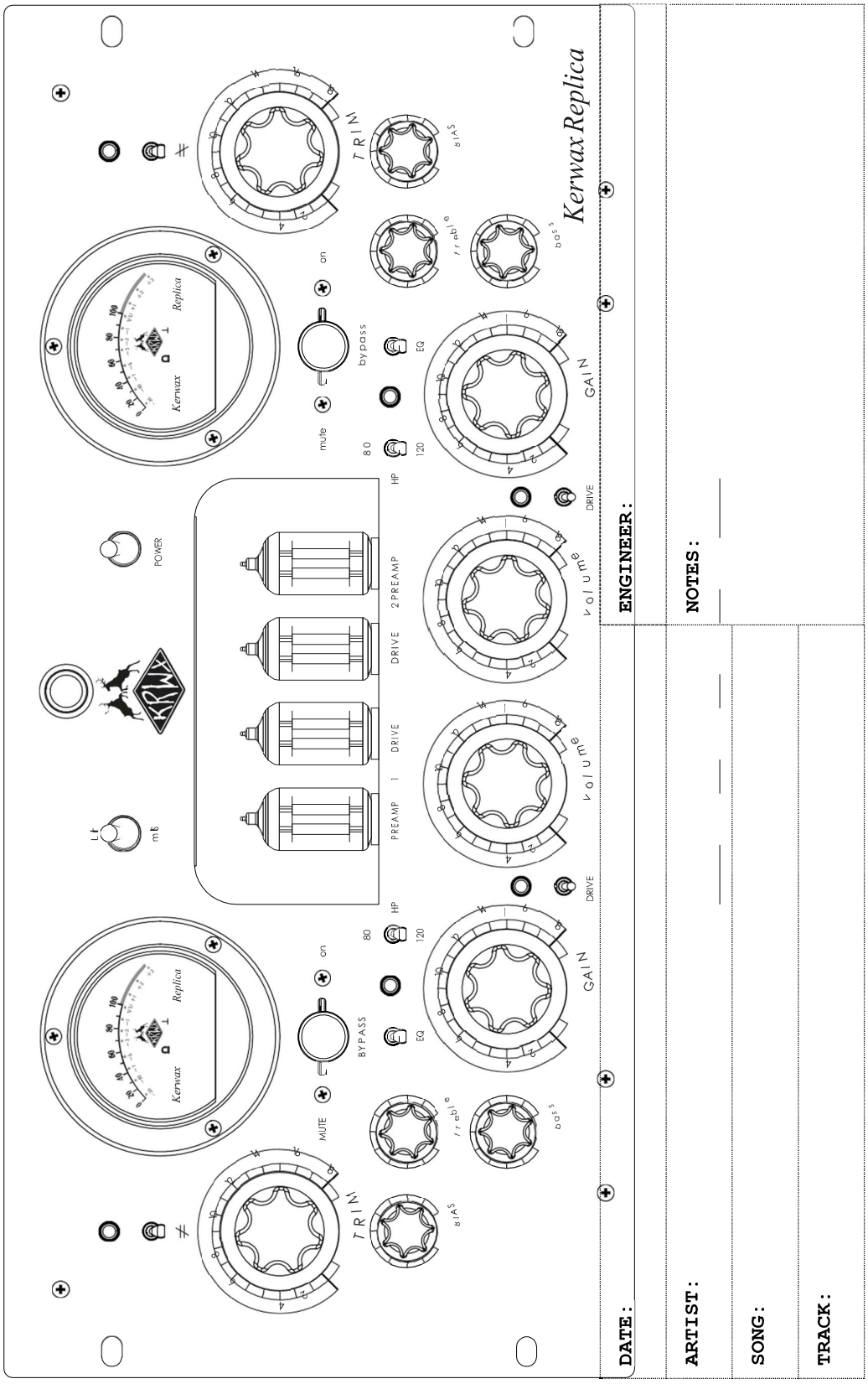
ⓘ If you still have problems or specific questions about the operation of your Replica, please contact KERWAX.

6. TECHNICAL SPECIFICATIONS

Analog I/O	2 input, 2 output Balanced XLR connectors, standard AES pinout 1: Ground, 2: Hot, 3: Cold
Line level	+4dBu standard operating level – Input impedance: 25kΩ – Output impedance: <600Ω
Maximum output level	+20dBu
Frequency response	30Hz to 27kHz (-1.5dB)
Total Harmonic Distortion	>80%
Equalization	Treble and bass frequencies equalization ±10 dB
High-pass filter	80Hz or 120Hz First-order filter 6dB per octave
Vacuum tubes	12AX7 (ECC83, 7025), factory installed 12AT7, 12AU7, 12AY7 compatible
Rack height	Standard 5U (5 units)
AC power	115V/230V tension selection switch – 115V input range: 100V-125V – 230V input range: 210V-240V – Input frequencies: 50/60Hz
Power consumption	27W
Fuses	– 110V-120V: 2x 1A (T) fuses – 220V-240V: 2x 1A (T) fuses
Dimensions (L x W x H)	19 x 13.48 x 8.74 in 483 x 342,5 x 222 mm
Weight	23.37 lbs 10,6 kg
Operating temperature range*	50°F to 95°F 10°C to 35°C
Storage temperature range*	32°F to 122°F 0°C to 50°C

* Ensure that no condensation occurs.

7. RECALL SHEET



8. WARRANTY

KERWAX products are delivered under the highest quality standards. However, if any problem or defect in this product is found, KERWAX warrant free of charge labor and replacement(exclusion may apply). This warranty is valid for a period of 1 (one) year from the date of retail purchase by the original end-user from KERWAX.

WARRANTY

This warranty is fully consumer-to-consumer transferable provided that the current owner produces the original evidence of purchase from KERWAX.

KERWAX will either:

- Exchange the product with a product that is new or refurbished with equivalent performance and reliability to the original product,
- Repair the hardware defect at no charge, using new parts or refurbished parts with equivalent performance and reliability to the new.

LIMITATION

This remedy is limited to the repair of parts or replacement. KERWAX is not liable for transportation and installation charges. The maximum liability of KERWAX shall not exceed the actual purchase price paid by the user for the product. If your country or state does not allow any limitation or exclusion by its law, the above may not apply to you.

EXCLUSIONS

This warranty will not be applicable:

- To consumable parts, paintings or coatings designed to diminish over time,
- If any product serial number has been removed, defaced, or altered,
- To any non-KERWAX product,
- To any product purchased from unauthorized dealer,
- In cases other than defects in materials and/or workmanship at the time of purchase,
- To damages caused by inappropriate installation, connection or packing,
- To damages caused by using components other than included in the product package,
- To damages caused by any use other than that described in the user manual,
- If any part has been modified, altered or repaired by an unauthorized person,
- To damages caused by accidents, negligence, abuse, misuse, lightening, water, fire, heat, war, public disturbances or any other cause beyond the control of KERWAX.

WARRANTY CLAIMS PROCESS

If your product requires service within the warranty period, please contact KERWAX at contact@kerwax.com

Designed and Manufactured by KERWAX
36 route de Keroué
22780 Loguivy-Plougras
FRANCE

FM v1.6 EN 05/2021