

**MANLEY**  
LABORATORIES, INC.

# **OWNER'S MANUAL**

## **MONO AND DUAL MONO MICROPHONE PREAMPLIFIERS**

Designed & Handcrafted in the USA

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REV. 4-2019

<b>CONTENTS</b>	<b>PAGE</b>
INTRODUCTION	3
MAIN CONNECTIONS	4
BASICS	5
CONNECTING YOUR PREAMPLIFIER	6
OPERATIONAL NOTES	8
FRONT PANEL	10
REAR PANEL	11
SPECIFICATIONS	12
TROUBLESHOOTING	12
APPENDIX 1: TEMPLATE FOR STORING SETTINGS	16

# INTRODUCTION

Thank you for choosing this Manley Laboratories Microphone Preamplifier. We use this manual for both the MONO and DUAL MONO versions. They are identical except the DUAL has two of everything. These are all-tube Microphone Preamplifiers chock full of nice audiophile parts that combine flat frequency response, very high headroom, low noise, and low distortion with a big rich beefy sound. We wind the input and output transformers right here at Manley Labs. The Input Attenuator is cleverly before the tube stage so that it can easily accommodate any reasonable signal level and function like a variable pad. There is also a rotary GAIN switch which changes the amount of negative feedback changing the preamplifier's operating characteristics, slew rate and speed, (as well as the gain) to suit a wide variety of tastes and styles. The direct inputs are favorite features of these designs. There are both balanced and unbalanced outputs so that the preamplifier can interface with virtually anything without hassle. But you knew all this anyway... which is why you bought it, so, thank you again, and please enjoy!

## GENERAL NOTES

### LOCATION & VENTILATION

The Manley Microphone Preamplifier must be installed in a stable location with ample ventilation. It is recommended, if this unit is rack mounted, that you allow enough clearance on the top and bottom of the preamp such that a constant flow of air can flow through the ventilation holes.

### WATER & MOISTURE

As with any electrical equipment, this preamplifier should not be used near water or moisture. It is never a good idea to pour a cup of coffee into your mic's preamp.

### SERVICING

The user should not attempt to service the preamplifier beyond that described in the owner's manual. Refer all servicing other than tube replacement to Manley Laboratories.

### SPECIAL NOTES

Tubes may become loose during transit. Check to see that all the tubes are seated smartly in their sockets. Please note, the tubes do get very hot during operation and high voltages are present inside the chassis, so take care if poking your fingers around inside the chassis. The Safety People like us to put warnings like this in our manual:

## WARNING



TO PREVENT THE RISK OF ELECTRIC SHOCK  
DO NOT OPEN THE CABINET  
REFER SERVICING TO QUALIFIED PERSONEL



# MAIN CONNECTIONS

Your preamplifier has been factory set to the correct mains voltage for your country. The voltage setting is marked on the serial badge, located on the rear or side panel. Check that this complies with your local mains supply.

**NOTE: This unit uses different power transformers for 100 or 120V operation versus 220 to 240 VAC operation.** If you try to rewire a 100-120V power transformer for 220-240V operation, a big field will be generated and the unit will HUM. If you need to change countries and change mains operating voltages, you will need to replace the power transformer, and the mains fuse. Please contact our service department if you need to do this: [www.manley.com/service](http://www.manley.com/service)

Export units for certain markets have a molded mains plug fitted to comply with local requirements. If your unit does not have a plug fitted the colored wires should be connected to the appropriate plug terminals in accordance with the following code.

GREEN/YELLOW	EARTH	terminal
BLUE	NEUTRAL	terminal
BROWN	LIVE	terminal

As the colors of the wires in the mains lead may not correspond with the colored marking identifying the terminals in your plug proceed as follows;

The wire which is colored GREEN/YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol or colored GREEN or GREEN and YELLOW.

The wire which is colored BLUE must be connected to the terminal in the plug which is marked by the letter N or colored BLACK.

The wire which is colored BROWN must be connected to the terminal in the plug which is marked by the letter L or colored RED.

**DO NOT CONNECT/SWITCH ON THE MAINS SUPPLY UNTIL ALL OTHER CONNECTIONS HAVE BEEN MADE.**

## BASICS

This Microphone Preamp, like most mic preamps, is pretty easy to use. First we can discuss why outboard mic pre's have become "a must have item" in almost every studio even though your console probably has a bunch of them and that manufacturer claims that they are really great and you don't need outboard mic pre's. Then, why is everybody buying them, using them, and why are most people going back to tubes?

Good question. The signal from a typical mic is very low – anywhere from 20 to 70 dB below your normal line level signals. 95% of the time 30 to 40 dB of gain is all that is needed to boost the signal to line levels. Where you really need a lot of gain is with most ribbon mics and when you are recording quiet music from a distance. What is required of a good Mic Pre? No EQ, no compression, nothing elaborate – just basic gain. Each preamp, tube or solid state seems to impart a flavor or color (or personality) of its own. Some of these flavors are subtle and some are not. Maybe it is the mic reacting different into different circuits.

A few engineers have an array of mic pre's and use them almost like effects – using each for a certain flavor as needed. The rest of us only have the budget for one or two great mic pre's so we tend to choose one that sounds "best", or is priced for us, or is used by "xxxxxx" or has cute ads. The Manley Mic Pre wins most shoot-outs or at least ties with units twice as expensive. It is regularly used by major engineers, in "A" rooms for famous artists and by hundreds of serious musicians in project studios. Most people choose the Manley because it sounds "alive" and musical, warm and rich without audible distortion and the instrument sounds like the real thing. What more is there? You probably agree that if more color and personality is needed, then the engineer has EQs and compressors and dozens of digital toys to squeeze that once clean signal through. This is not the main function of a well engineered Mic Pre, however we have included the Gain Control for some subtle differences of taste, style and so-called "tube warmth".

Some consider that the "headroom" factor is the most important issue in mic pre's. We believe that it is just one of a number of issues. The input stage is unlikely to clip because the Attenuator (not the GAIN switch) is before the tubes. This Preamplifier has more headroom than almost all mic pre's. The line driver clips at between +30 and +32 dBV. This is about twice the voltage that most solid state can deliver. If overdriven, which is not easy, it starts to clip in a gentle, smooth way, creating less nasty upper harmonics. A more likely effect will be that the next device after the pre will be the place actually distorting. More importantly are subtle issues of transient response. We believe this is one area where good tube circuits are audibly superior to virtually all solid state. The transient details are important for reproducing the true character of the instrument, the room and stereo image. Solid state often seems to smear transients, probably due to the extreme amounts of negative feedback normally used to achieve the distortion specs. Transient accuracy is not a "spec" and test benches don't produce hit records. You should be able to readily hear this "effect" if your monitors are good. More than Left – Right it should also have nearness or depth.

Which brings us to the next topic – METERING – We do get questions like “How do I set up the Mic Pre levels when there are no meters?”. Answer – Look at where you are sending the signal, if it has meters use them. Why? Most people are recording to digital mediums where there is no real standard. If you use the tape machine’s digital meters, you will most likely get the best recording levels using the machine’s meters. If we included a meter, it would most likely not be “calibrated” to your meters and mislead or confuse the user. Also, if we included metering, it would be VU which is a standard of its own, appropriate for analog tape only. Start off with the GAIN switch set to “45” which is what most people use. Turn up the LEVEL control until the loudest peaks to tape are a few dB below maximum and not producing “Over” LEDs (for safety) and not too low (10 dB below clipping or lower). If we had a “Clipping LED” for the preamp, it would be probably be dark when the machine’s meters were pinned. Cosmetically a meter might be nice but functionally it would be misleading or mostly useless.

## CONNECTING YOUR PREAMPLIFIER

There are two inputs and two outputs for each channel on the Mic Preamplifier. You generally only have to use one input and one output per channel. On the back panel are female XLR’s labelled MIC INPUT A and MIC INPUT B. The signal from the MICROPHONES get plugged in here. There are a few warnings and suggestions. These connectors also “send” PHANTOM POWER to the mics. Some mics can be damaged by the 48 volts of phantom power. A few dynamics and a few ribbon mics have been known to “fry” when fed phantom power. The suggestion is to ALWAYS have PHANTOM switched off when switching mics, cables, patches that involve mics etc. You ONLY use phantom power for SOLID STATE CONDENSOR MICS. Tube mics, dynamic mics, ribbon mics and battery powered mics should have phantom switched “off”. This is true for all mic pre’s. The second great reason for not using phantom if you don’t have to is that – if you change a connection with phantom on, then the preamp will be fed a quick burst of 48 volts (when it normally is amplifying about a hundredth of a volt), which can then be monitored – usually once. After you have replaced your speakers, you have learned a valuable lesson about turning down the volume of the monitors before changing mics or mic patches. This is a good idea with phantom on or off. Consider a variation of this – any mic connection just a little bit bad, it will be extra noisy with phantom turned on. This goes for cables, patchbays, patch cords, etc. Suggestion #2 – Avoid running mic signals through patchbays. Some patchbays “ground” all the “sleeves” which can add a ground loop into your delicate mic signal. Suggestion #3 – Set up the Mic Pre in the studio near the mic and use a short mic cable. Why? Microphones often have “light duty” line drivers and you can lose an audible amount of signal in long cables. You can get the best fidelity by having the Mic Pre close to the mic at the “cost” of having to walk into the studio to adjust a level control. You also avoid almost all of that phantom power/patching problem because now you are patching a line level signal only. Suggestion #4 – If you have a weird cable plugged into the mic input that has either pin 2 or pin 3 shorted to ground, and you turn on the phantom power, you will probably fry the input transformer. You probably do not want to do this. Check your cables...

The MIC INPUT XLR PIN OUT (provided that the PHASE SWITCH is set to "0°") is :

PIN 1 = GROUND

PIN 2 = HOT or positive going phase

PIN 3 = LOW or negative going phase

There is a 1/4" (mono) jack on the front panel for plugging instruments in directly. It is not quite the same thing as a "Direct Box" designed for guitar or bass but it works fine and is remarkable with keyboards. The PHASE SWITCH should be set to the "DIRECT IN" (middle) position when using this 1/4" jack or else the signal may be loaded down. The Direct Input is always on and switching to the middle position disconnects the MIC input and Mic transformer. Almost always the DIRECT IN sounds better in the middle position. Of course, you can also use any "direct boxes" you may have with the mic input with either the 0° or 180° settings. Check whether it may need phantom power, otherwise leave it off! Note, the GAIN of the Direct Inputs is always 20dB less than the front panel indication - e.g. if you have the GAIN switch set to 50dB, you would get 30dB of GAIN on the Direct Inputs.

This Mic Pre also has two outputs for each channel. One is balanced and one unbalanced. The XLR is a true transformer balanced output. The 1/4" mono (tip - sleeve) jack is unbalanced and gets its signal before the transformer.

The XLR PIN OUT (Phase Switch is set to 0°, no plug in the 1/4" output) is:

PIN 1 = CIRCUIT GROUND

PIN 2 = HOT or positive going phase

PIN 3 = LOW or negative going phase

The 1/4" PIN OUT is:

SLEEVE = CIRCUIT GROUND

TIP = SIGNAL

We used to only provide an unbalanced output and it fed both the XLR and 1/4". Now we give you options. The purists amongst you will probably prefer the unbalanced output because it goes through one less component and the purists demand that the signal gets forced through the best and as few as possible (it's one of the big reasons they chose the Manley Mic Pre). The Studio Pros will probably prefer the balanced output for two reasons. The first is that they require the easiest patching and least hassle setup with any situation they might encounter in any studio they might be using. Transformer balanced outputs are easily the best solution. The second reason is that they may like the "sound" of transformers. One well known engineer told us he "loves the sound of great transformers and hates the sound of bad ones". These are great transformers - because they have virtually no "sound" of their own. You can verify this by comparing the outputs. We wind the transformers ourselves and we are probably the last or only audio manufacturer doing so. We had to, to get the quality that we wanted.

If you read the PIN OUT carefully, you may have noticed we specified CIRCUIT GROUND rather than just GROUND. We have a few terminals on the back panel for various “ground schemes”. The CIRCUIT GROUND is the same ground as the electronics in the Mic Pre while the CHASSIS GROUND is the same as the steel enclosure that is bolted to the rack and is connected to the “third pin AC Mains Ground. Both terminals are normally connected together with a small “ground strap” but this strap can be moved to the side and wire can be attached to the terminals. These are “MINI BANANA” style and will not accept regular size bananas found on electronic test gear. Be careful with the ground strap because it can get lost if the terminals are loose. If it does get lost – you can use a short bare wire.

There are two good reasons for using these ground terminals. The first is finding and fixing hum and the second is preventing hum. If you have plugged everything in right and you are getting hum then you have a number of options with these terminals. You can try simply moving the strap so that chassis ground is separate from circuit ground. This is similar to breaking off the third pin AC ground but includes the ground from rack mounting. One can experiment with attaching a wire between the console ground and the circuit ground or between a rack and the chassis ground. These are all techniques some technicians use when wiring studios. They also often cut the ground (shield) on one side of the cable to prevent loops. DO NOT cut the shield on MIC cables because you lose phantom, shielding at the mic, and hum only gets worse!

One other cause of hum – Some gear may radiate a field into whatever is closest. Move the Mic Pre or the offender away from each other.

## **OPERATIONAL NOTES**

### **SWITCHING ON**

Allow this unit a few minutes for the tubes to warm up before use. It is not recommended that you leave your preamplifier permanently switched on. This only wastes electricity and tube life. Your preamplifier has solid state rectification and reaches peak operating condition in approximately 30 minutes.

### **TUBE LIFE**

As with all tubes, their quality degrades with age. This is due to cathode emission, a natural process found in all tubes. We recommend that you have your preamplifier checked every 4-5 years, depending on usage, usually the preamplifier will require re-tubing after this time has elapsed. Increased noise is usually a sign that the tubes need replacing.



## OPERATION

The Microphone Preamplifier is equipped with a switchable 48 Volt phantom supply. Pull the toggle to turn phantom power on or off. You should only turn phantom power on once you have a solid state (FET) condenser mic plugged in and patched through to the Mic Pre and the monitor volume is way down or off. DO NOT use phantom with an unbalanced cable, unbalanced output mic, or valuable ribbon mics. Damage to the Mic or preamp may result. Do not change mics or mic patches with phantom power on especially if the monitors are up. (See page 6)

The 40 dB Microphone Preamplifier is equipped with five preset GAINS, 40, 45, 50, 55 and 60 dB. These “numbers” are only if the ATTENUATE control is turned to full. The GAIN control is not a pad. The input attenuator is kinda like a pad. GAIN sets the amount of negative feedback used in the Mic Pre. These preset gains affect tonal quality, noise and linearity characteristics. At lower gains (40 dB setting) the preamp has a very clean quality, in some ways like solid state and is the best at minimizing tube hiss. 50 is a “normal” setting because it tends to sound most like the source, and is very musical and real. The lower settings can sound slightly slower, further back and more mellow by comparison. The 60 dB setting uses almost no feedback and can give a slightly more punchy and forward or aggressive sound. It may be a little “hot” (more than simply warm) for some tastes. Experiment to discover your own descriptions. You will likely find a few settings that you prefer for your style of music.

The **INPUT ATTENUATOR** determines how much signal is getting into the unit. Don't throw it all away before it even gets in! So, start with the INPUT ATTENUATOR all the way up, and the GAIN control on a lower setting. If you need more level, increase the GAIN setting. If you have too much level hitting the Microphone Preamplifier, turn down the INPUT ATTENUATOR to PAD DOWN the input signal.

The **PHASE SWITCH** can reverse the polarity of the mic signal. The middle position is used for the 1/4” **DIRECT INPUT** and deselects the mic input transformer. Reversing the polarity or phase is often needed when two or more mics are picking up the same source. For example it would be needed when one mics the top and bottom of a snare – one skin is going towards one mic and the other skin is going away from the other mic. If one signal is not “reversed” then you lose lows. Polarity reverse can also help with some vocal/mic/headphone situations because “somewhere” the polarity flipped one too many times. It happens. General advice: Try it each way. Listen. With vocals, always ask the singer which way they prefer. The headphones may “cancel” with the sound they hear in their skull while singing.

# FRONT PANEL



- A LED PHANTOM INDICATOR** – Illuminates when 48V phantom power switch is activated on channel A.
- B PHANTOM SWITCH** – ON provides 48V phantom power to the input XLR for use with phantom powered microphones (FET condenser).
- C INPUT ATTENUATE** – Adjusts the amplitude of the incoming signal entering the preamplifier circuit. Use this control like a VARIABLE INPUT PAD.
- D DIRECT INPUT** – Plug an instrument in here and use like a direct box with variable gain. Use the center position of the PHASE SWITCH with this input.
- E PHASE SWITCH** – For channel A only. 0° is the normal setting where a positive going signal from the mic pin 2 should produce a positive going signal at the output.
- F GAIN dB** – For both channels. Not a pad – Adjusts the amount of negative feedback which will affect gain, linearity, transient response, noise and clipping characteristics. Selects between 40, 45, 50, 55 and 60 dB of maximum gain. *Note, the GAIN of the Direct Inputs is always 20dB less than the front panel indication. For example, if you had the GAIN switch set to 50dB, you would be getting 30dB of GAIN in the Direct Inputs.*
- G PHASE SWITCH** – For channel B only. 0° is the normal setting where a positive going signal from the mic pin 2 should produce a positive going signal at the output.
- H DIRECT INPUT** – Plug an instrument in here and use like a direct box with variable gain. Use the center position of the PHASE SWITCH with this input.
- I INPUT ATTENUATE** – Adjusts the amplitude of the incoming signal entering the preamplifier circuit. Use this control like a VARIABLE INPUT PAD.
- J PHANTOM SWITCH** – ON provides 48V phantom power to the input XLR for use with phantom powered microphones (FET condenser).
- K LED PHANTOM INDICATOR** – Illuminates when 48V phantom power switch is activated on channel B.
- L LED POWER INDICATOR** – Illuminates when the preamplifier is powered ON.
- M POWER SWITCH** – Switch up to turn on the power, down to turn the power off.

# REAR PANEL



- A IEC MAINS SOCKET** – Standard IEC mains socket for the power cord. NOTE: unit uses different power transformers for 100 or 120V operation versus 220 to 240 VAC operation. Unit is factory-set for the mains voltage in your country and the original voltage will be indicated on the serial tag. If you try to rewire a 100-120V power transformer for 220-240V operation, a big field will be generated and the unit will HUM. If you need to change countries and change mains operating voltages, you will need to replace the power transformer, and the mains fuse. Please contact our service department if you need to do this.
- B FUSE HOLDER** – Replace with 1A SLO-BLO fuse only.
- C GROUND TERMINALS** – Separate CIRCUIT GROUND AND CHASSIS GROUND normally joined together. Used for finding and fixing hum.
- D BALANCED OUTPUT B (XLR) (Transformer)**
  - PIN 1 = GROUND
  - PIN 2 = HOT
  - PIN 3 = LOW
- E UNBALANCED OUTPUT B (1/4" MONO)**
  - SLEEVE = GROUND
  - TIP = SIGNAL
- F BALANCED OUTPUT A (XLR) (Transformer)**
  - PIN 1 = GROUND
  - PIN 2 = HOT
  - PIN 3 = LOW
- G UNBALANCED OUTPUT A (1/4" MONO)**
  - SLEEVE = GROUND
  - TIP = SIGNAL
- H MICROPHONE INPUT B (XLR) Balanced**
  - PIN 1 = GROUND
  - PIN 2 = HOT
  - PIN 3 = LOW
- I MICROPHONE INPUT A (XLR) Balanced**
  - PIN 1 = GROUND
  - PIN 2 = HOT
  - PIN 3 = LOW

## SPECIFICATIONS

Vacuum Tubes	1 x 12AX7, 1 x 6414 per channel
Frequency Response	20 Hz – 60 KHz ( +/- – 1 dB)
THD	.05% @ 1kHz, +4 dBv out
Signal to Noise Ratio	80 dB or better typical depends on settings and tubes.
Maximum Output	+32 dBv (70 Volts RMS!) +15 dBm into 600 Ohms
Maximum Input	450 mV with maximum gain settings. The Input Attenuator is before the tubes, so normal maximum input is much higher.
MIC GAIN	(XLR input) 40 to 60 dB maximum gain depending on the setting of the GAIN SWITCH
LINE GAIN	(Direct Input) 20 to 40 dB maximum gain depending on the setting of the GAIN SWITCH
Input Impedance	2400 Ohms, transformer coupled optimized for mics with 100 to 600 Ohm output impedances 300K Ohm 1/4 direct input
Output Impedance	50 Ohms (from 20 Hz to 20 kHz) best driving 10K Ohm or higher will drive 600 Ohm input with less headroom Transformer coupled balanced output MULTI CAP™ coupled unbalanced output
Power Consumption	Mono units: 18 watts; Dual Mono Units: 36 watts
Size	19" X 1.75" X 10" (1U)
Shipping Weight	12 lbs

## TROUBLESHOOTING

**NO POWER, NO INDICATORS, NADA** – Probably something to do with AC power. Is it plugged in? Murphy's Law. Check the fuse on the back panel. A blown fuse often looks blackened inside or the little wire inside looks broken. A very blackened fuse is a big hint that a short occurred. Try replacing the fuse with a good one of the same value and size. If it blows too then prepare to send the unit back to the dealer or factory for repair. The fuse is a protection device and it should blow if there is a problem. If the unit works with a new fuse, fine. Check the MAINS VOLTAGE SELECTOR if one is fitted. Some of our models are able to have them and some don't. It should be set correctly for your mains voltage.

**LIGHTS BUT NO SOUND** – First try plugging the in and out cables into some other piece of gear to verify that your wires are OK. Next check the front panel, try the PHASE (0-180) switch or PHANTOM. If you have sound now it might be a good

idea to turn up the levels to about 1 o'clock (rather than fully counterclockwise which is "minus infinity". The XLR inputs and outputs are transformer balanced and floating. "Floating" refers to a very useful feature of transformers where they can be used without a ground reference – this prevents ground loops before they happen rather than electronically cancel them. Transformer "floating" inputs and outputs do not tie ground to the center tap. It allows the output to be equally happy driving balanced or unbalanced inputs. This Preamp has both transformer floating outputs and transformerless unbalanced outputs with +4 dBm nominal levels. The XLR outputs require that both PIN 2 and PIN 3 be connected (but not to each other). To interface to unbalanced units you should connect PIN 3 to Ground or PIN 1. Brainless solution – use the 1/4" unbalanced inputs and outputs to interface to unbalanced gear. Some low cost consoles use a stereo 1/4" jack for INSERTs. This has caused lots of grief. These are unbalanced for both send and receive. With transformer floating inputs and outputs PIN 3 must be grounded (or connected to PIN 1) when used with unbalanced lines but not for balanced. No – 10 dBv output is provided, but you can turn down the input if you can live with 14 dB more hiss than should really be there.

**LEVELS SEEM TO BE WRONG, NO BOTTOM** – Several possible scenarios – most likely a broken cable. Manley uses the professional standard of +4 dBm = Zero VU = 1.23 volts AC RMS. A lot of semi-pro gear uses the hi-fi reference of – 10 dBv = Zero VU. Generally RCA phono jacks are unbalanced – 10dBv levels and most XLRs are balanced or pseudo – balanced. This does not imply that all unbalanced lines are – 10 or all XLRs are +4 or should be balanced. Manley provides unbalanced +4 outputs on most of the pro gear. If one chooses to use this unbalanced output to drive a unit expecting – 10 levels (ADAT RCA jacks) expect plenty of level. This is a 14 dB difference that will certainly look goofy and may tend to distort. Often there are switches on the semi-pro gear to choose the pro reference level. We do not provide that kind of switch because of inevitable compromises in the signal path. If the loss looks close to 6 dB and it sounds thin then one half of the signal is lost. The cause is probably wiring again. One of the two signal carrying wires (the third is ground / shield on pin 1) is not happening. Check the cables carefully because occasionally a cable gets modified to work with a certain unit and it seems to work but it's wrong in other situations. If we are discussing the same levels, in most cases, you can use an unbalanced output to drive a balanced input and a balanced output to drive an unbalanced input. Some pseudo-balanced op-amp circuits may have problems driving an unbalanced input and also have problems driving transformers or 600 Ohm inputs. The thing to really consider is the levels appropriate for each input and output and not jump to conclusions because it says balanced or unbalanced. Unbalanced simply means there is a signal and ground – balanced means 3 wires, 2 signals (opposite phase) and ground.

**ONE SIDE WORKS FINE BUT THE OTHER SIDE IS DEAD** – Let's assume this is not wiring. We are pretty sure it is the MIC PRE. If it were solid state you would generally send it back for repair. Being a tube unit, you can probably find the problem and fix it in a few minutes. Not too many years ago, people could "fix" their own stuff by taking a bag of tubes down to the corner and checking said tubes on a tube tester. These are practically extinct but no prob'. Most Manley gear is two channel meaning you can swap tubes to determine the bad boy. Do two at a time just watching that they are the same number. Be careful – there are some high voltages inside the chassis and tubes can get pretty warm but if you can replace a light bulb you should be able to cruise through this. Just remember tubes use high voltages – Don't grab the circuit board! Before you remove a tube, just take a look at them powered up. They

should glow a bit and they should be warm. If one is not, you have already found the problem. The tube's filament (heater) is burnt out or broken like a dead light bulb. The other big visual symptom is a tube that has turned milky white – that indicates air has gotten into the tube or we joke “the vacuum leaked out”. Either way replace the tube. They are not hard to find and Manley can ship you a tested one. Back to swapping – before you pull a tube, pull the power out, let the unit sit and cool and discharge for a minute or two, then swap, then power, then check. Gentle with those tubes, don't bend the pins by trying to insert them not quite right. A little rocking of them as you pull them out or put them in helps. When the problem follows the tube you found the problem a bad tube. No soldering, no meters, one screwdriver – easy. 9 times out of 10 you can “fix” tube gear by replacing a tube and you can verify that the tube is bad by swapping with the other channel.

**HUM** – Let's assume it knows the words. Once again – several possibilities – several cures. Most likely it is a ground loop. The two most common procedures are: try a 3 pin to 2 pin AC adapter (about a dollar at the hardware store) which is better than messing up the power cable by bending the ground pin until it breaks off. Method two – cutting the shield on one side of the cable (PIN 1). This is done by some studios at every female XLR to “break” all loops. You may get a loop simply from the rack. All the other gear in the rack is “dumping” ground noise onto the rack rails. Try removing the unit from the rack so that it is not touching any metal. You may have cured a non-loop hum. Some gear radiates a magnetic field and some gear (especially if it has transformers) might receive that hum. A little distance was all it took. A cool method of reducing all sorts of hum and noise is to use the new 60-0-60 balanced AC power transformers available from Equi=Tech and Furman. It costs more but works best. Hum is more likely with the unbalanced inputs and outputs because these signals are ground referenced.

**IT MAKES NOISES WHEN THE FRONT PANEL IS TAPPED** – An easy one. Some tubes become microphonic over time. That means they start acting like a bad microphone. Vibration has caused the supports for the little parts in the tube to loosen and now the tube is sensitive to vibration. Easy – Replace the tube. Which one? The one that makes the most noise when you tap it. It will have to be on, connected and speakers up but not too loud for the sake of your speakers.

**IT GOT HISSY** – Also easy. This is again a common tube symptom. You could swap tubes to find the culprit but an educated guess is OK too. Generally the first tube in the path is the one with the most gain and dealing with the softest signals. The usual suspect is the tube that is usually located closest to the front panel volume pot or the 12AX7 (or 12AT7, 12AU7, 5814 on other models). You may find that you need to choose the quietest tube out of several of that type.

**DISTORTION** – This might be a tube. Swapping is a good way to find out. It may be a wiring thing or mismatch as well. Wiring problems usually accompany the distortion with a major loss of signal. Mismatches are a bit tougher. The input and output impedances of this preamp are very reasonable. Without even explaining the term “impedance” it is enough to say that a lot of gear is simply not capable of driving pro levels and low impedances. It will sound like lost headroom, early clipping, distortion on peaks. We do not expect these problems with this unit, but you may find this further down the chain. Often changing the order of processors will do the trick. Another not so rare place to look is the patchbay, your settings, the meter levels – it happens.

**SNAPS, CRACKLES, POPS** – Along with hiss, microphonics, a dead channel, distortion and a few other weird symptoms is probably due to a tube. Try a channel swap or a tube swap. Not the tube? The next most likely possibility is a bad tube socket (caused by bent tube pins or roughly inserting a tube. A technician may have to replace the socket. Another possibility is the famous “broken wire”. This is usually obvious if one just looks. Vibration may eventually weaken a wire or solder joint. Again this is an easy repair for any tech or someone handy with a soldering iron.

**IT GAVE ME A SHOCK** – If you got a little shock while handling a mic cable while phantom was turned on you probably deserve it. Go back and read the section on Phantom Power. That was a 48 volt, almost no current, little surprise. Any and every MIC PRE can give you this minor jolt. The solution? Turn Phantom off when patching. If you got the shock while the top is open and you are changing tubes – well, again we warned you on page 3, page 12 and once again. Tubes use high voltage (300-400 VDC) but very little current. One should be very aware of this before opening the top. Again – let the power supply capacitors discharge, don't grab the circuit board, use one hand, use gloves, etc. For what it is worth, the voltage in the unit can cause pain, a pin-hole burn and a big surprise but the current is so small that there is almost no chance it might be lethal. A bigger concern is the current from the 120V or 220V AC mains is when you plug something in the wall. Be careful, be aware.

**CAN'T GET ENOUGH LEVEL** – This may happen. This design has a maximum gain of 60 dB. This may be short of what is needed for some situations. Do not be afraid to turn up the INPUT ATTENUATOR pot. In other words it reduces the signal as one turns counter-clockwise. If you turn up the INPUT, you are using less attenuation with the same gain. It is a good thing to use both less attenuation and less gain. Not a conventional modern concept, but one rooted in old school recording and one of the biggest reasons why this MIC PRE sounds so damn good. Sometimes we like to design where “all controls at 12:00” is a good starting point but this is not so cool when it affects the sonic quality. Some designs just sound best at full tilt and this MIC PRE leans that way. If this is the problem when using the INSTRUMENT (or DIRECT) IN – sorry. It is optimized for synths, drum machines and electronic sources. You may find that a typical good direct box used normally into the MIC INPUT does the trick. The Instrument Input has about 25 dB of gain and most guitars and basses seem to need in the neighborhood of 20 dB but some guitars are not as hot as others and 25 dB has not been enough for some instruments. Another good reason for using a direct box is the input impedance of the MIC PRE DIRECT INPUT is 100K Ohms. This is OK, but with a direct box it is more likely 1meg (1000K) to 10 meg which is bound to give more highs. On the other hand, most owners report rather remarkable results using the DIRECT IN for all sorts of instruments. Maybe that stomp box might help.

### **LOOKING FOR TECH SUPPORT? Please visit [www.manley.com/service](http://www.manley.com/service)**

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**TEMPLATE FOR MANLEY DUAL MONO MICROPHONE PREAMPLIFIER  
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STUDIO \_\_\_\_\_ NOTES \_\_\_\_\_

40V ON  PHANTOM

CHANNEL A INPUT ATTENUATE 

DIRECT  IN 180°

40° 50° 60° DIRECT  IN 180°

CHANNEL B INPUT ATTENUATE 

40V ON  PHANTOM


DUAL MONO MICROPHONE PREAMPLIFIER  
HANDCRAFTED IN CHINO, CALIFORNIA

POWER

A ARTIST \_\_\_\_\_ MIC NOTES \_\_\_\_\_ DATE \_\_\_\_\_


SONG \_\_\_\_\_ INSTRUMENT / TRACK \_\_\_\_\_ ENGINEER \_\_\_\_\_

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