

MANLEY

LABORATORIES, INC.

**OWNER'S MANUAL
MANLEY REFERENCE
DIRECT INPUT
50/50
STEREO AMPLIFIER**

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INTRODUCTION

THANK YOU!...

for choosing the Manley DIRECT INPUT 50/50 Amplifier. Designed by David Manley, the Manley DIRECT INPUT 50/50 Amplifier uses only the best available components, with the shortest and cleanest signal path possible, and with the use of our own in-house CNC machine shop we can provide you with a amplifier that looks as good as it sounds.

The circuit and the components used have been chosen carefully after years of development and refinement for reliability, constancy and most importantly, musical, accurate, and emotional delivery of the sound. The circuit topology is similar to other designs in the MANLEY range. This amplifier is configured for the more powerful tetrode operation mode with a separate regulated screen supply which allows a wider range of EL34s to be used as the screens are run at safer lower and constant voltages. We emphasize big, beefy reservoir capacitors in the high voltage supplies giving plenty of instant energy for dynamic performance of transient peaks and bass performance which often exceeds that of rival solid-state amplifiers. We run high voltages on the plates of the output tubes and are thus able to run them at lower current which will result in longer life for the output tubes. Each output tube has its own bias adjust, and the procedure for adjusting each tube's current draw is described in this manual. The multi-sectioned output transformer has been factory set for an optimum 5 ohm load which will drive most speakers comfortably. This amplifier with its built in selector switch, record output, and precision stepped attenuator becomes the efficient and compact heart of a system which should bring you years of pleasure. Thank you again, and please enjoy!

GENERAL NOTES

LOCATION & VENTILATION

The Manley DIRECT INPUT 50/50 Amplifier must be installed in a stable location with ample ventilation. Allow a minimum of 2 inches of clearance on the top and sides of the amplifiers, such that a constant flow of air can flow. Do not place amplifiers directly on high pile carpet or any other surface that will block the ventilation vents underneath the amplifiers. If you have small children or pets, you should consider placing the amplifiers out of reach to prevent damage to the amplifier or damage to your small children or pets by the amplifier as the tubes do get hot during operation.

WATER & MOISTURE

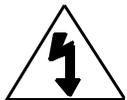
As with any electrical equipment, these amplifiers should not be used near water or moisture. If liquid enters the amplifier, it must be immediately returned to your dealer for servicing.

SERVICING

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

SPECIAL NOTES

Tubes may become loose during transit. Straighten and press down each tube before plugging the amplifier into the mains socket. Furthermore, do not touch the tubes after the amplifier has been switched on, as the tubes become very hot during operation and should only be handled after the power has been turned off and the tubes have cooled.



WARNING!



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

MAINS CONNECTIONS

Your amplifier 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 panel. Check that this complies with your local supply.

Export units for certain markets have a moulded mains plug fitted to comply with local requirements. If your unit does not have a plug fitted the coloured 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 colours of the wires in the mains lead may not correspond with the coloured marking identifying the terminals in your plug proceed as follows;

The wire which is coloured 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 coloured GREEN or GREEN and YELLOW.

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

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

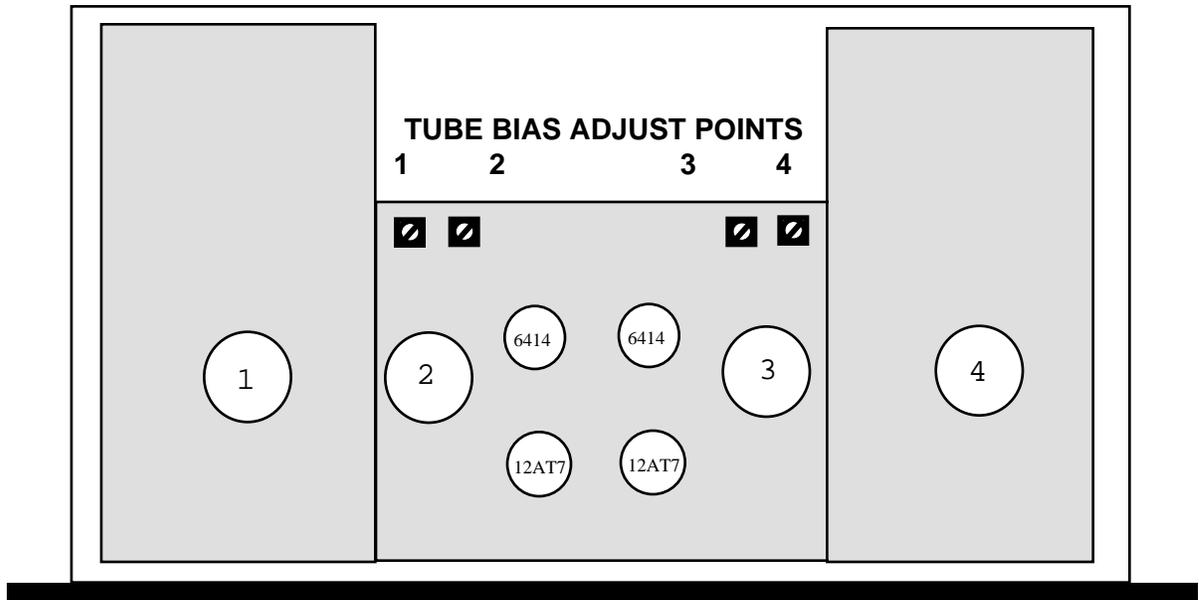
DO NOT CONNECT/SWITCH ON THE MAINS SUPPLY UNTIL ALL OTHER CONNECTIONS HAVE BEEN MADE.

CONNECTING YOUR AMPLIFIER

Setting up your amplifier is rather easy.

1. Connect all LINE LEVEL source components (CD, Tuner, Tape, DAT, etc.) to the designated RIGHT & LEFT inputs on the back of the amplifier.
2. Connect the hot or "+" speaker cable to the red binding post and the common or "-" speaker cable to the black binding post (See diagram 2) of each channel. Ensure that the other end of the cable is connected correctly to the speaker. Tighten the binding posts by hand. If you use a nut-driver (3/8") **do not over-tighten** the posts or you may break the connections inside the amplifier.
3. Check that the volume control is in the minimum counter clockwise position and/or the MUTE switch is engaged DOWN.
4. Ensure that the "mains" switch on the front panel is in the "off" or "DOWN" position.
5. Turn on any source components you plan to use first.
6. Plug amplifier into wall outlet.
7. Switch the mains power switch to the ON position and allow the amplifier a minute or so to 'warm up'.
8. If the MUTE switch is engaged, the red mute LED will illuminate. Throw this switch UP to the operate position.
9. Turn up the volume and enjoy.
10. After your listening session, be sure to mute the amplifier and turn off the power BEFORE powering down any source components. You do not want to amplify potential noises your source components may create on turn-on/turn-off.

INPUT OUTPUT B+ MAINS IEC MAINS
RCA FUSES IN



Amplifier Overhead View
with top cover removed

OUTPUT TUBES: 4 x RUSSIAN 6CA7/EL34

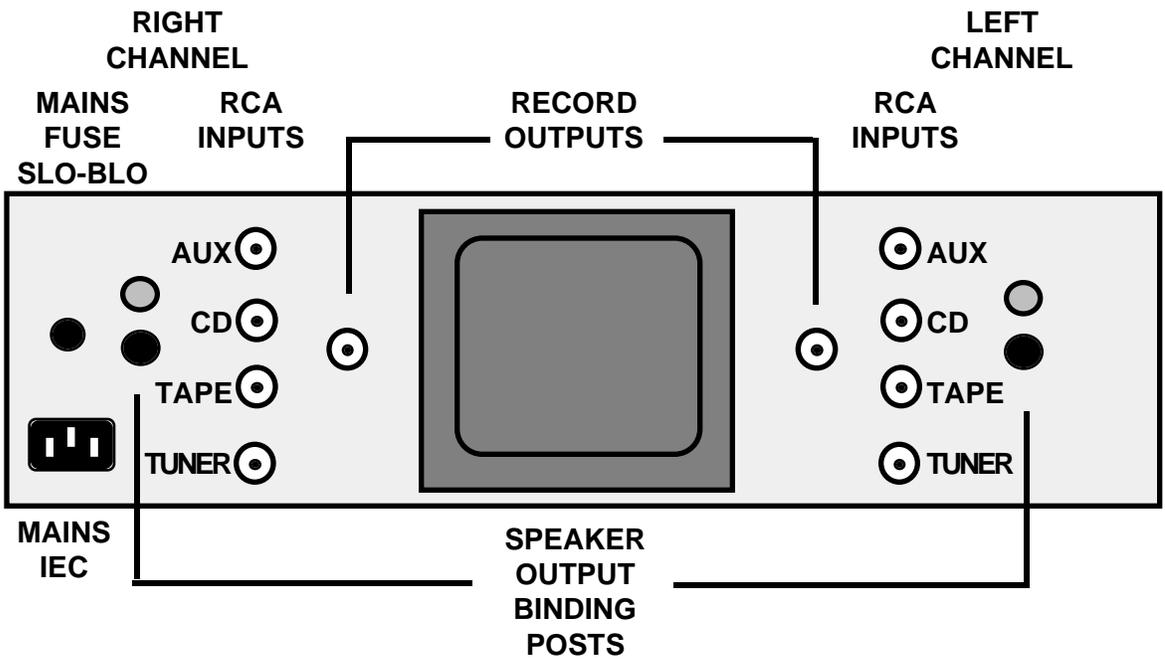
The 6CA7's used are the Russian up-rated 6CA7's. This has been proven to be the rugged and reliable of this type and we strongly emphasize that only the RUSSIAN 6CA7's should be used in this amplifier. The MANLEY DIRECT INPUT 50/50 has been thoroughly optimised around this tube. Use of unapproved tube types can and will void your warranty.

DRIVER TUBES: 2 x 6414

The 6414 is an American military uprated version of the 12BH7A with increased current drive.

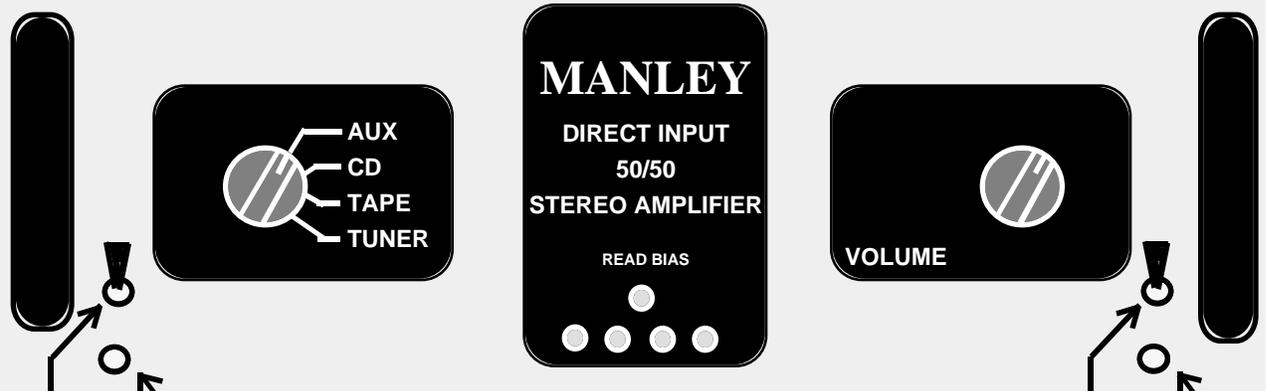
INPUT TUBES: 2 x 12AT7WA

The 12AT7WA has several equivalent numbers, (12AT7, 12AT7A, 6201, ECC81, etc.) Any of these types may be used. We have selected this 12AT7WA very carefully for noise, microphonics, and constancy. Replacement tubes of premium quality are always available from MANLEY LABORATORIES.



REAR VIEW OF AMPLIFIER

FRONT VIEW OF AMPLIFIER



GROUND
1 2 3 4

MUTE
SWITCH

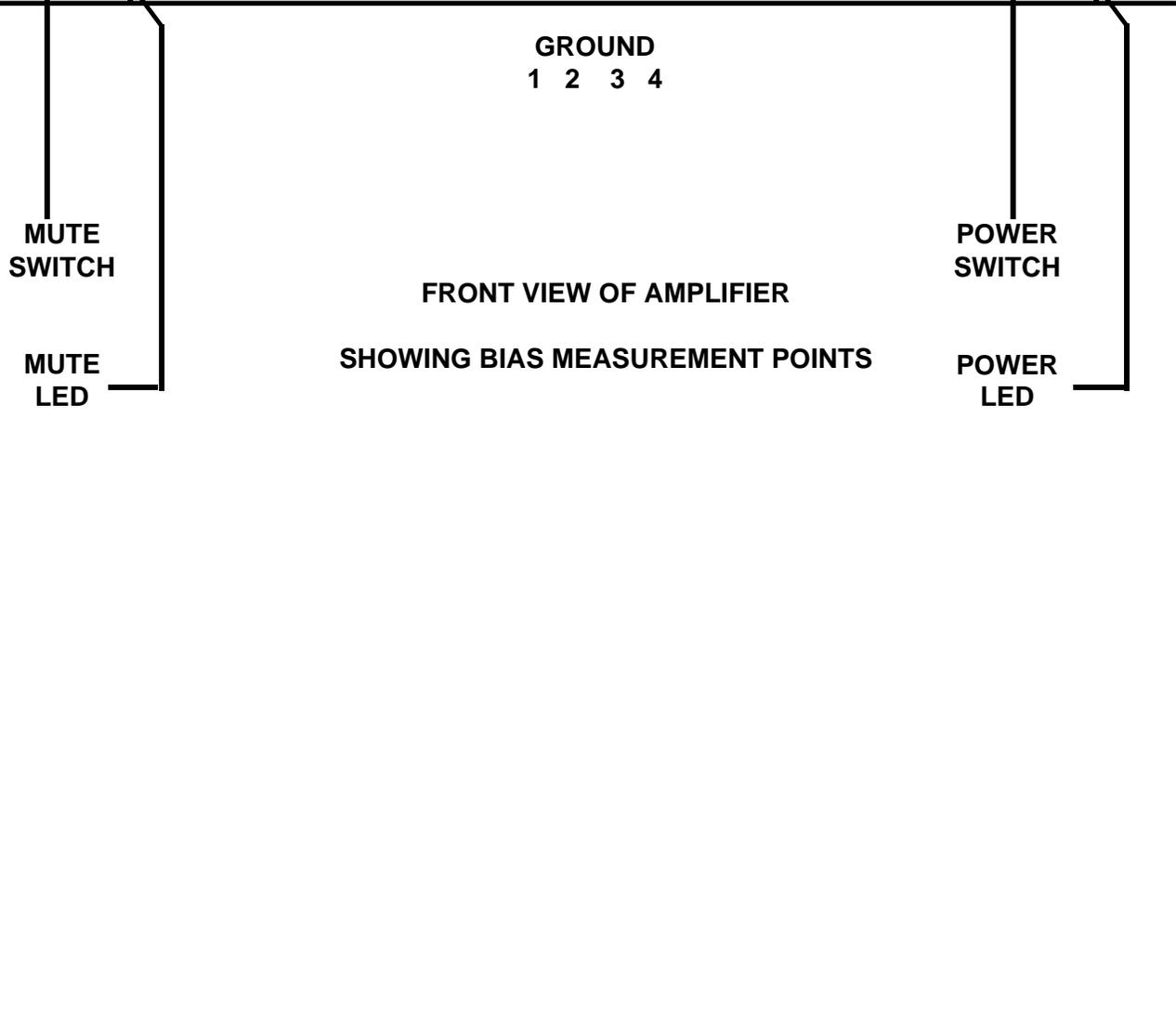
MUTE
LED

FRONT VIEW OF AMPLIFIER

SHOWING BIAS MEASUREMENT POINTS

POWER
SWITCH

POWER
LED



BIAS PROCEDURES

The Manley DIRECT INPUT 50/50 uses a fixed bias system that requires very little attention. If you wish to adjust or check the bias, follow the following steps.

For this procedure you will need a voltmeter (a hand held autoranging DMM digital multimeter is the easiest) and a small flat screwdriver.

1. On page 8, which shows the FRONT panel of the amplifier, you can see 1 black tip jack and 4 red tip jacks. To measure the current draw of each output tube place the POSITIVE meter probe into the first red tip jack and place the negative meter probe into the BLACK tip jack.

Set the meter to read 'millivolts' DC (direct current).

2. Each of the four output tubes can have its own bias adjusted by adjusting its own bias adjust pot. On the top view picture on page 6, you can see the numbering sequence for the 4 output tubes and each tube's bias adjust pot. You'll need to remove the top cover by unscrewing the screws found on the top and sides of the cover. Do not touch any components inside the amplifier. Do not adjust any other pots except for the ones pictured on page 6. High voltages are present even after the amplifier has been turned off!

3. The first step to setting the bias is to turn on the amplifier and ensure that there is zero signal input, either leave the preamplifier muted, source signal turned off, volume control down, etc. In other words, you want to measure the quiescent current of the amplifier: NO input signal. Also, leave your loudspeakers connected as these provide an ideal load on the output. (DO NOT EVER OPERATE YOUR AMPLIFIER WITHOUT SPEAKERS CONNECTED!) It is recommended that you leave the amplifier on long enough to ensure that the tubes have reached their stable current draw, at least 1/2 hour is recommended.

5. Place the red positive meter probe in the first red tip jack . Adjust the first bias trim pot slowly until you measure 275mV to 300 mVDC (0.275V to 0.300VDC). Since you are measuring across a 10 ohm cathode resistor, this would correspond to a 27 to 30 mA current draw for each tube by Ohm's law.

6. If you are unable to bring the bias voltage down to 300 mV on any tube then we recommend that the tube be carefully watched or replaced.

7. Follow step five with the remaining tubes, switching to the next tube measurement point and adjusting the next trim pot each time. After you have adjusted all the output tubes, recheck and repeat the procedure as they will drift a little bit during adjustment. Once they are all set, your amplifier should be in perfect operation.

OPERATIONAL NOTES

TUBE LIFE

You should expect extended life from the tubes in your MANLEY DIRECT INPUT 50/50 if you adhere to the procedures described above and check your bias at least once every 2-3 months. We stock all the tubes in these amplifiers should you ever need replacements (and at very reasonable prices too!)

FUSES

The fuse used in your amplifier are standard 1/4" x 1 1/4" SLO-BLO types. The correctly rated fuse has been installed at the factory for your country's voltage. If replacing a fuse, always unplug the amplifier's power cord from the wall outlet and always use the exact same type and ampere rating fuse as the one you are replacing. Failure to do so will void your warranty and can be a dangerous fire hazard. NEVER replace a fuse with thick wire, tin foil, gum wrappers, or anything else other than the correct fuse!

SPECIFICATIONS

Vacuum Tubes:	4 x EL34 (Output), 2 x 6414 (Drivers), 2 x 12AT7 (Inputs)	
Output Power	51 Watts (@1.5% THD 5 ohm load)	
Frequency Response, +/- .5 dB at 50% rated power	10 Hz - 20 KHz	
Input Sensitivity	375mV	
Input Impedance	100 KOhm	
Load Impedance	5 Ohm (fixed)	
S/N Ratio @50W	-80 dB	
Power Consumption	220 Watts	Quiescent
	360 Watts	Full Power (@1.5% THD 5 load)
Mains Fuse	100, 110, 120V	5 A (Slo-Blo)
	220, 240 V	3 A (Slo-Blo)
Dimensions	W=19, D=10, H=5 inches	
Shipping Weight	41 lbs EACH	

WARRANTY

All Manley Laboratories equipment is covered by a limited warranty against defects in materials and workmanship for a period of 90 days from date of purchase to the original purchaser only. A further optional limited 5 year warranty is available to the original purchaser upon proper registration of ownership within 30 days of date of first purchase.

Proper registration is made by filling out and returning to the factory the warranty card attached to this general warranty statement, along with a copy of the original sales receipt as proof of the original date of purchase. Only 1 card is issued with each unit, and the serial number is already recorded on it.

If the warranty registration card has already been removed then this is not a new unit, and is therefore not warranted by the factory. If you believe this to be a new unit then please contact the factory with the details of purchase.

This warranty is provided by the dealer where the unit was purchased, and by Manley Laboratories, Inc. Under the terms of the warranty defective parts will be repaired or replaced without charge, excepting the cost of tubes. No warranty is offered on tubes, unless:

1. a Manley Laboratories preamplifier is used with a Manley Laboratories amplifier, and
2. the warranty registration card is filled out.

In such a case a 6 month warranty on tubes is available with the correct recording of the serial number of the preamplifier on your warranty registration card.

If a Manley Laboratories product fails to meet the above warranty, then the purchaser's sole remedy shall be to return the product to Manley Laboratories, where the defect will be repaired without charge for parts and labour. The product will then be returned via prepaid, insured freight, method and carrier to be determined solely by Manley Laboratories. All returns to the factory must be in the original packing, (new packing will be supplied for no charge if needed), accompanied by a written description of the defect, and must be shipped to Manley Laboratories via insured freight at the customer's own expense. Charges for unauthorized service and transportation costs are not reimbursable under this warranty, and all warranties, express or implied, become null and void where the product has been damaged by misuse, accident, neglect, modification, tampering or unauthorized alteration by anyone other than Manley Laboratories.

The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of the expressed warranty. All warranties apply only to Manley Laboratories products purchased and used in the USA.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

WARRANTY REGISTRATION

We ask that you please fill out this registration form and send the bottom half to:

MANLEY LABORATORIES
REGISTRATION DEPARTMENT
13880 MAGNOLIA AVE.
CHINO CA, 91710

Registration entitles you to product support, full warranty benefits, and notice of product enhancements and upgrades. You MUST complete and return the following to validate your warranty and registration. Thank you again for choosing to use Manley Laboratories.

MODEL _____ SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

PLEASE DETACH THIS PORTION AND SEND IT TO MANLEY LABORATORIES

MODEL: MANLEY REFERENCE DIRECT INPUT 50/50 STEREO AMPLIFIER

SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

NAME OF OWNER _____

ADDRESS _____

CITY, STATE, ZIP _____

TELEPHONE NUMBER _____

Serial #'s of Associated Manley Laboratories Equipment _____
