

MANLEY

LABORATORIES, INC.

OWNER'S MANUAL

**MANLEY 250 / 100 WATT
MONOBLOCK AMPLIFIER**

MANLEY LABORATORIES, INC.

13880 MAGNOLIA AVE.

CHINO, CA. 91710

TEL: (909) 627-4256

FAX: (909) 628-2482

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INTRODUCTION

THANK YOU!...

for choosing the Manley 250/100 Monoblock Amplifiers. Designed by David Manley, the Manley 250/100 Monoblock Amplifiers use 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 an 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 to switch between triode or tetrode operation which allows the user to choose between the sonic benefits and seductive qualities of triode and the more powerful tetrode operation mode. 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, and careful use of the 'EVER-WARM' power switching should also greatly increase the life of the output tubes as well as allowing your amplifiers to always be ready for pleasurable listening. Each output tube has its own bias adjust, and the procedure for adjusting each tube's current draw is described in this manual. The output transformer is a revolutionary new design by David Manley which is wound on the Manley Labs factory premises. Its stellar performance will be obvious upon first listening. The secret is in keeping both phases of the push-pull halves always equal, and in this new output transformer design, David has achieved just that. The output transformer has been factory set for an optimum 5 ohm load which will drive most speakers.

Thank you again, and please enjoy!

GENERAL NOTES

LOCATION & VENTILATION

The Manley 250/100 Monoblock Amplifiers 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

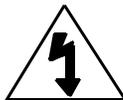
As with any electrical equipment, these amplifiers should not be used near water or moisture. If liquid enters the amplifier, it must be immediately returned to your dealer for servicing.

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.

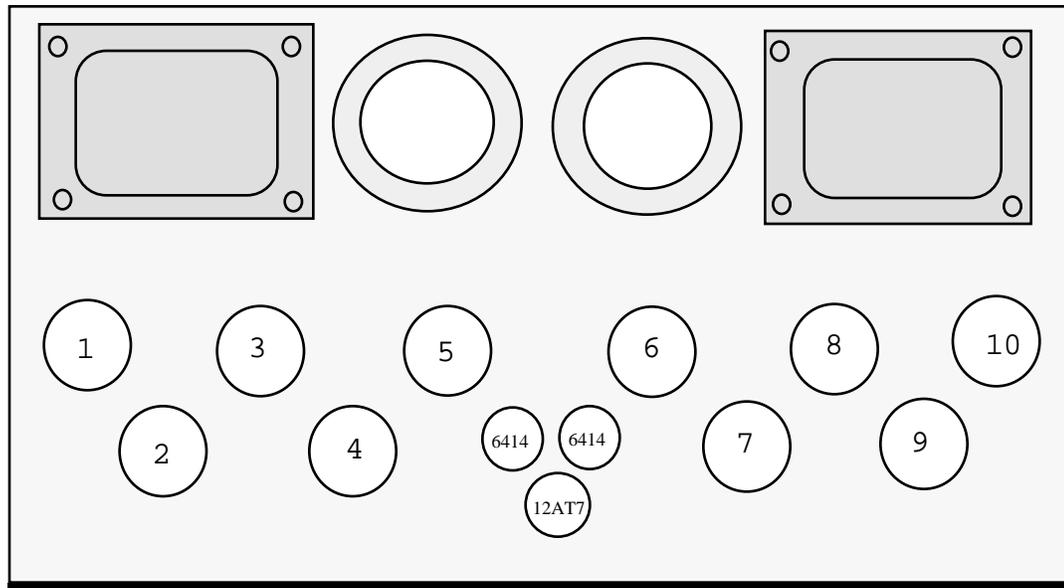
DO NOT CONNECT/SWITCH ON THE MAINS SUPPLY UNTIL ALL OTHER CONNECTIONS HAVE BEEN MADE.

CONNECTING YOUR AMPLIFIER

Setting up your amplifiers is rather easy.

1. Connect all source components (turntable, CD, Tuner, Tape DAT, etc.) to your preamplifier.
2. Connect the interconnects from the output of the preamplifier or switching center to the RCA input on the top rear of the amplifiers. IF your source has a truly BALANCED output, connect TO the XLR input and select the balanced input. This switch is a locking type to prevent inadvertent or accidental switching (say, while cleaning). To engage this switch, PULL OUT the toggle then gently switch the toggle. Do not force the switch to engage or you may break it. If using a standard UNBALANCED source, select and use the unbalanced RCA connector. This amplifier will not function properly if you are using the wrong input for your application. The XLR input is wired PIN1 GROUND, PIN 2 POSITIVE, PIN 3 NEGATIVE PHASE.
3. 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). 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.
4. Ensure that the "mains" switch on the front panel is in the "off" or "0" position and the OPERATE / STANDBY switch is in the STANDBY mode.
5. Turn on Preamplifier and any source components you plan to use.
6. Plug amplifier into wall outlet.
7. Switch the square mains power switch to the ON position and allow the amplifier a minute or so to 'warm up'. The blinking LED will indicate that the amplifier is in STANDBY mode.
8. Engage the soft-start switch to the OPERATE position. The blinking standby LED will extinguish.
9. Turn up the volume and enjoy.
10. After your listening session, if you wish to leave the amplifier in the energy-saving and 'EVER-WARM' STANDBY mode, engage the OPERATE/STANDBY switch to the STANDBY position. The standby blinking LED will remind you that the amplifier is in STANDBY mode.

INPUT OUTPUT B+ MAINS IEC MAINS
RCA FUSES IN



Amplifier Overhead View
Tube Location

OUTPUT TUBES: 10 x RUSSIAN EL34G

The EL34 type we recommend are the Russian up-rated EL34G. This has been proven to be the most rugged and reliable of this type and we strongly emphasize that only the RUSSIAN EL34G's should be used in this amplifier. The MANLEY 250/100 WATT MONOBLOCK has been thoroughly optimised around this tube. Use of unapproved tube types can and will void your warranty. We have selected the tubes for equality of current draw in our custom-built computerized tube tester for each of your monoblocks. Although each tube bias can be individually adjusted, "batched" tubes as we have selected are thoroughly beneficial to the amplifier's performance.

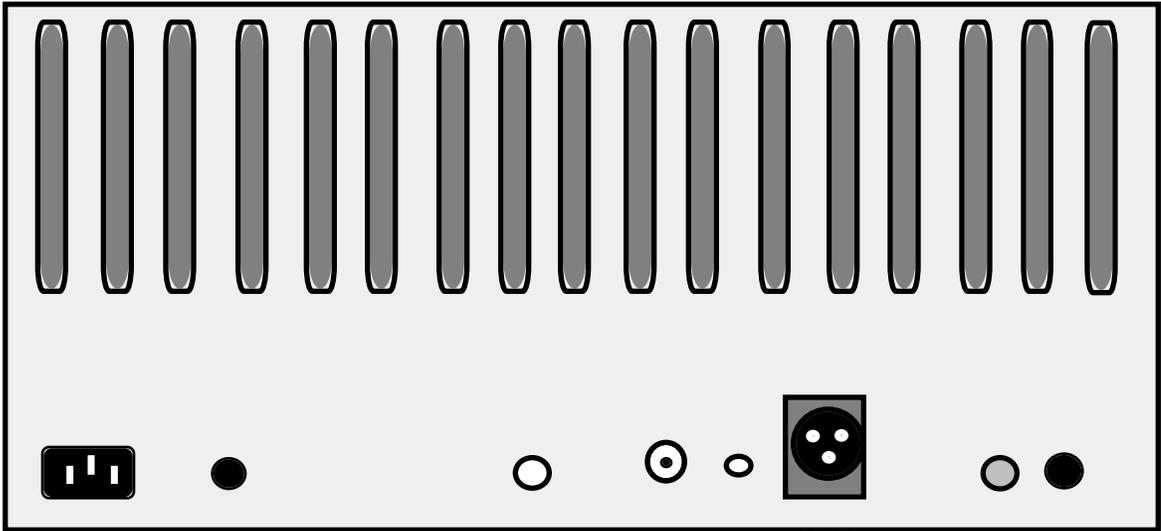
DRIVER TUBES: 1 x 6414

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

INPUT TUBE: 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.



MAINS IN
IEC

MAINS
FUSE
SLO-BLO

B+ FUSE
SLO-BLO

RCA
INPUT

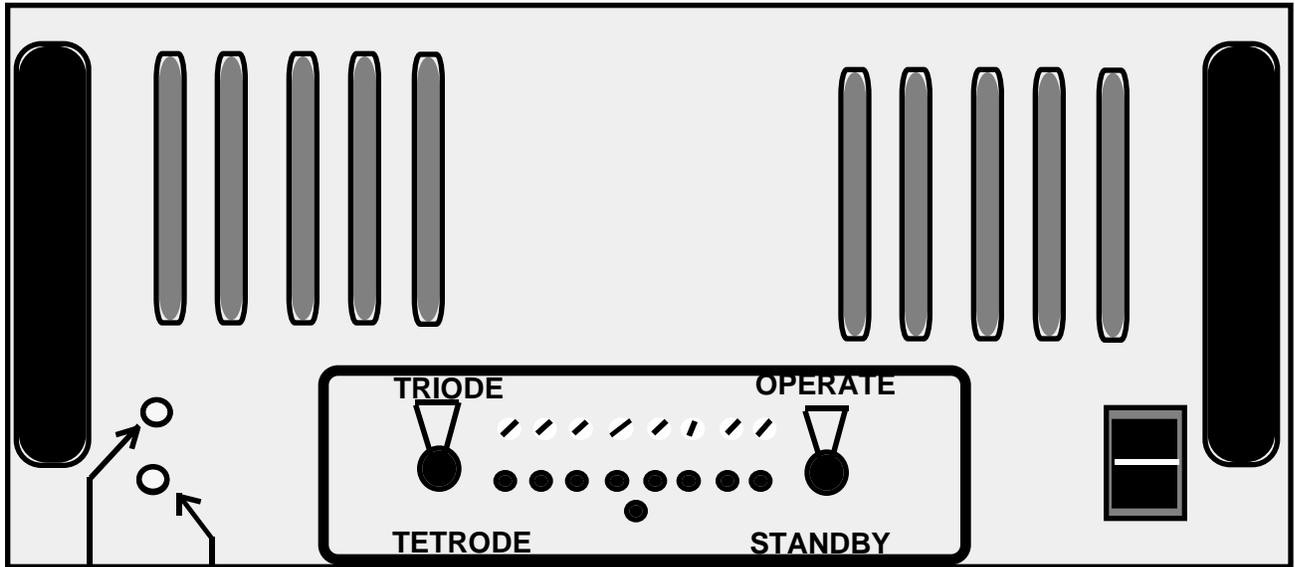
BALANCED
UNBALANCED
SWITCH

XLR
BALANCED
INPUT

SPEAKER
OUTPUT
BINDING
POSTS

REAR VIEW OF AMPLIFIER

FRONT VIEW OF AMPLIFIER



1 2 3 4 5 6 7 8
GROUND

OPERATE
STANDBY
EVER-WARM
SOFT START
SWITCH

MAINS
POWER
ON / OFF
SWITCH

FRONT VIEW OF AMPLIFIER
WITH INSERT REMOVED

SHOWING BIAS MEASUREMENT POINTS
AND BIAS ADJUST POINTS

POWER
LED

STANDBY
LED
(BLINKING)

BIAS PROCEDURES

The Manley 250/100 Monoblock Amplifiers 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), a 3/32" allen key, and a small 1/8" flat screwdriver.

1. Remove the four silver hex cap head screws which secure the insert to the faceplate. Also then remove by hand, the two knurled black decorative nuts on the Triode and Soft-Start switches. On page 8, which shows the FRONT panel of the amplifier, you can see 8 red tip jacks plus the ground point. To measure the current draw of each output tube place the POSITIVE meter probe into the first red tip jack. (If you read a negative reading reverse the meter probes, no harm will be done.)

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

2. Each of the ten output tubes can have its own bias adjusted by adjusting its own bias adjust pot. Above the measurement tip jacks you can see each tube's bias adjust pot.

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 or source signal turned off or unplug the amplifier input. 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 meter probes 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. A reading of 0mV can indicate a failed tube, or an open cathode resistor. A reading of 0mV on ALL tubes (powered on condition) can mean the B+ fuse has blown. The cause of this should be investigated before simply putting a new fuse in.

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 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

SWITCHING ON -- SOFT START

The MANLEY 250/100 is equipped with a SOFT-START circuit which lessens the initial stress the amplifier takes upon turn-on. We recommend that you use this soft start facility whenever you turn the amplifier on and especially when cold.

1. Ensure that the "mains" switch on the front panel is in the "off" or "0" position and the OPERATE / STANDBY switch is in the STANDBY mode.
2. Turn on preamplifiers and all source components you plan to use and let them warm up for a minute.
3. Switch the square mains power switch to the ON position and allow the amplifier a minute or so to 'warm up'. The blinking LED will indicate that the amplifier is in STANDBY mode.
4. Engage the soft-start switch to the OPERATE position. The blinking standby LED will extinguish.
5. Turn up the volume and enjoy.

THE EVER-WARM MODE

After your listening session, if you wish to leave the amplifier in the energy-saving and 'EVER-WARM' STANDBY mode, engage the OPERATE/STANDBY switch to the STANDBY position. The standby blinking LED will remind you that the amplifier is in STANDBY mode. The amplifier will draw only 400mA (30 watts @ 120VAC) from the mains outlet-- certainly an energy saving way to keep your amplifiers always ready to listen to!

TRIODE / TETRODE OPERATION:

With the TRIODE / TETRODE switch, the amplifier may be set for TRIODE or TETRODE operation. When the switch is in the lower position, the amplifier is in TETRODE mode which will produce well over 250 watts. When the switch is in the upper position, the amplifier is in TRIODE mode which will produce half the power of TETRODE operation but as fans of triodes know, nothing can match that sweet seductive sound of triodes! For some more demanding energetic music, large rooms, or for power hungry inefficient loadspeakers, you might find you will need the extra power of tetrode operation. Other times and other situations will find you very well satisfied with the triode mode. One major rule applies for switching between triode and tetrode:

THE AMPLIFIER MUST BE TURNED OFF BEFORE SWITCHING BETWEEN TRIODE AND TETRODE!!!!

Follow turn on SOFT START procedure above when re-powering up the unit.

TUBE LIFE

You should expect extended life from the tubes in your MANLEY 250/100 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 fuses 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:	10 x EL34G (Output), 2 x 6414 (Driver), 1 x 12AT7 (Input)
Output Power	TETRODE: 240 Watts (@1.5% THD 5 ohm load) TRIODE: 100 Watts (@1.5% THD 5 ohm load)
Frequency Response, +/- .5 dB	10 Hz - 80 KHz
Input Sensitivity	1 V
Input Impedance	100 KOhm
Load Impedance	5 Ohm (fixed)
S/N Ratio @440W	-80 dB
Power Consumption	30 Watts Quiescent (STANDBY MODE) 815 Watts Full Power (@1.5% THD 5 load)
Mains Fuse	100, 110, 120V 8 A (Slo-Blo) 220, 240 V 4 A (Slo-Blo)
B+ Fuse	1 A (250V)SLO-BLO
Dimensions	W=19, D=13, H=11 inches
Shipping Weight	63 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 Manley Laboratories.

MODEL _____ SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

PLEASE DETACH THIS PORTION AND SEND IT TO MANLEY LABORATORIES

MODEL: MANLEY REFERENCE 250/100 MONOBLOCK

SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

NAME OF OWNER _____

ADDRESS _____

CITY, STATE, ZIP _____

TELEPHONE NUMBER _____

Comments????? _____
