

**MANLEY**

**LABORATORIES, INC.**

**OWNER'S MANUAL**

**MANLEY NEO-CLASSIC SE / PP  
300B 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 Neo-Classic SE / PP 300B Monoblock Amplifiers. The Manley Neo-Classic SE / PP 300B Amplifiers use only the best available components, with the shortest and cleanest signal path possible. These amps have the unique ability to switch from Single ended to Push-Pull topologies and the ability to adjust the amount of negative feedback in 1 dB steps. This amp is designed to provide our customers with a versatile little amplifier that can do it all.

Let us start out by stating our opinions about amplifier topologies. Historically, we have been manufacturing very highly regarded tube amplifiers since before tubes were considered the best option for hi-fi music lovers. We have manufactured a very wide range of amplifiers with power ranging from 15 watts to 800 watts and with a corresponding variety of tubes. This is not our first amp to feature 300Bs nor our first single ended triode amp. We build a \$15,000 70+ watt single ended amp on a custom basis. In our experience, the more power an amplifier is capable of - the better it will be at providing acceptable low frequency quality. It is not easy to produce a very powerful amp with highs of the same quality as the lows. To do that we had to start manufacturing our own transformers. This is the major development that allowed us to produce an amplifier that could switch from single-ended to push-pull. We had to design and build a very unusual transformer first.

When several other manufacturers started selling single-ended amps with 5 to 9 watts of power, we understood subjectively and objectively the good part of the story - the superb mid range - the delicate transient detail - the inherent simplicity. The bad news was that there were almost no speakers efficient enough to be a dynamic viable system. The worse news was that either these single-ended amps cost more than the condo or they had specs that could only be a joke. As the triode fans increased, more efficient speakers became available and several fanatics began to dismiss push-pull as a bad thing to be avoided at all costs. We objected to such blanket generalities and stressed that the push-pull done right with truly balanced transformers, quality parts throughout and a well designed circuit has proven to be a superb technique. We also like single ended amps, but few and far between, mostly because we prefer a flat frequency response and low distortion. We knew could do it better.

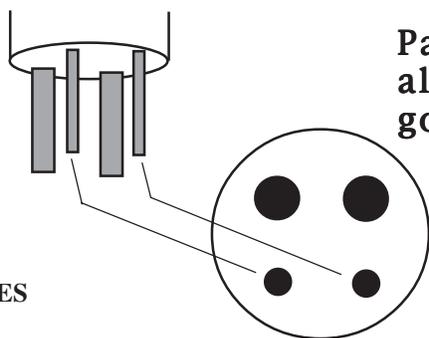
We set out to design an amplifier that would appeal to us and to you and to the critics. It would be single-ended with more power than most for fans of that topology. It would be switchable to push-pull for fans of that school and for those who want it both ways - to compare for themselves, and to use each mode depending on the music. We decided to further extend our own feature of variable negative feedback to a greater range - from none to 10 dB. Some prefer zero negative feedback and some prefer more. The advantage of a little negative feedback is better specifications in general. Williamson, in 1947, not only described the advantages but described the loss of some transient information with greater than 20 dB of feedback. We typically use 3 to 6 dB in other amps. Even with zero negative feedback, this amp is cleaner and flatter than any single-ended amp we know of. One interesting aspect of negative feedback is it gives a higher damping factor. Conventional wisdom would have us think that the higher the damping factor - the better. Our experience is that the optimum damping factor is not infinity and that it depends on the speaker, the room, and the taste of the listener. In other words, the optimum is variability, and this we provide. This amp satisfies us as long time amplifier builders, amazes the critics in several well known magazines and is bound to satisfy the you with the ability to fit into your system and your expectations.

## **READ THIS PAGE BEFORE YOU SET UP THE AMPS, PLEASE**

**IMPORTANT** Never operate this amp without a speaker or load connected. Never drive this amp into a short circuit. Most solid state amps can be operated without a load or speaker and some can drive a short circuit because of protection circuitry. These are different - Like most tube amps the output power is less affected by changing the load impedance within the range of 4 to 16 ohms, however extremes like a short or open circuit are to be avoided. The result could be damage to transformers or tubes. The warranty does not cover this damage if it occurs.

### **INSERTING TUBES**

We ship these amplifiers with the 300B tubes boxed separately because they are fragile and expensive. You will have to insert these before turning the amplifier on. Carefully unpack the 300B tubes from their box and ensure they have not been physically damaged. We have labelled each tube and its corresponding socket. Notice that there are two thick pins and two thinner pins on the base of the 300B. The two thick pins **MUST** be aligned and oriented to go into the two larger holes in the socket. It is possible to plug this tube in the wrong way - so pay careful attention to the pin alignment on these tubes. Now plug the right tube into the right socket the right way. This is easy but important.



**Pay special attention to pin alignment ! The 2 small pins must go into the 2 small socket holes. The tubes must be inserted carefully and speakers connected before turning the amp on.**

### **GENERAL NOTES**

#### **LOCATION & VENTILATION**

The Manley SE/PP 300B 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 run with high envelope temperatures.

#### **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**

Before turning the amps on - Connect your preamp to the amp inputs then turn the preamp on. 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.

#### **HUM**

As with most monoblock amps with the 3 pin IEC power connectors, you may need one or two "3 pin to 2 pin" power adapters or "cheaters". This will stop ground loop related hum. Usually only one amp will need this.

## **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.

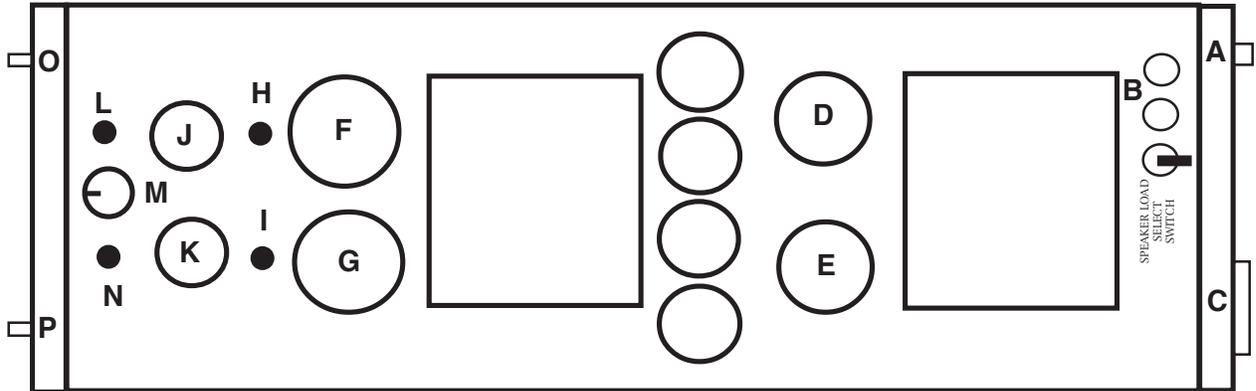
**DO NOT CONNECT/SWITCH ON THE MAINS SUPPLY UNTIL ALL OTHER CONNECTIONS HAVE BEEN MADE.**

## 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.
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.
4. Ensure that the "mains" switch on the rear mains input module is in the "off" or "0" position. If the 300Bs are not inserted - do it now - the instructions are on page 4.
5. Turn on Preamplifier and any source components you plan to use.
6. Plug Amplifiers into wall outlets.
7. Set both amps up at the same settings. A good place to start is both amps set to S / E 11 WATTS and 3 dB of FEEDBACK.
8. Switch the mains power switch to the ON or "1" position and allow the amplifier a minute or so to 'warm up'. The glowing panel badge and glowing tube filaments will indicate that the amplifier is on.
9. Turn up the volume on the preamp and enjoy. If something is "humming" don't panic. All you need to do is use a "3 pin to 2 pin AC adapter" or "cheater". If you don't have one they are available at most hardware stores for about a dollar. Usually one amp will need it but sometimes both. This is because a ground loop exists in the system. Too many grounds - You should only have one.
10. Now, while music is playing, try switching to PUSH / PULL. The difference may or may not be subtle. Choose the mode you like best with this music. Turn the FEEDBACK switch to 10. The volume has become quieter so compensate for the difference at the preamp. Listen a bit until you are used to this, then turn down the volume and turn back the FEEDBACK to 0. Adjust the preamp for the same volume as the previous test. Now, you should have a reasonable opinion of the effects of the FEEDBACK. You can turn this control step by step to the position that best matches your speakers and tastes. We suggest also experimenting with speaker placement now that the "system" has changed. Another very important area for experimentation is acoustic treatment. All too often a good system will sound mediocre due to surface treatment compromises. Usually a mix of a little broadband absorption and diffusion is a major improvement. Carpet and other thin treatments only absorb highs and can "unbalance" a system.

# MANLEY SE / PP 300B TRIODE MONOBLOCK AMPLIFIER



Amplifier Overhead View

- A** RCA Input Jack
- B** Speaker Terminals
- C** Mains input IEC/Switch module  
Mains fuse - Replace only with same type and value  
Power Switch
- D** Tube 5U4 Rectifier
- E** Tube 5U4 Rectifier
- F** Power Tube 300B
- G** Power Tube 300B
- H** Bias trimmer ( for F & L )
- I** Bias trimmer ( for G & N )
- J** Input Tube 6SL7
- K** Driver Tube 6SN7
- L** Bias test point for 300B (F)
- M** Variable Feedback Switch
- N** Bias test point for 300B (G)
- O** Single-Ended / Push- Pull Switch
- P** Signal Mute

## OPERATIONAL NOTES

**SWITCHING SINGLE-ENDED 11 / PUSH-PULL 24:** This amplifier has the unique feature of being able to choose between two circuit topologies. You are able to switch between each mode while the amplifier is turned on and playing music. In SINGLE-ENDED mode the amplifier uses both 300Bs in parallel. The advantage is a minimalist circuit requiring no "phase splitter", The disadvantage is a less efficient circuit that produces a fraction of the power of PUSH-PULL. In PUSH-PULL mode each tube works in opposite phase to the other and relies on the output transformer to make the polarities work together. This has advantages in efficiency and in the distortion and noise cancellation properties of a balanced circuit. Both ways are operated in "Class A" bias throughout and both are PURE TRIODE and both modes have a similar short signal path.

**SWITCHING VARIABLE FEEDBACK:** The variable feedback can be changed in 1 dB steps from zero to 10 dB above minimum. The most obvious effect of changing the amount of negative feedback is the gain change. The more feedback - the less gain but also less distortion and a flatter frequency response. You should be able to hear that with less feedback, the tonality is more aggressive but the imaging may have greater detail. As you increase feedback, the amp gets smoother and softer and slightly brighter. Towards the maximum amount of feedback, the amp may begin to sound like a good solid state amp. Virtually all solid state amps need large amounts of feedback in order to sound acceptable. Maximum feedback also corresponds to maximum damping factor. This control not only affects the tonality of the amp but also of the speaker. The optimum setting depends on the speaker, the room, and your tastes. Experimentation will be necessary but also fun and educational.

**ADJUSTING BIAS :** Please read the entire procedure before performing adjustments.

Bias on the 300B tubes should be checked immediately upon receipt of the amplifier, and once a month thereafter. The bias was factory set on this amplifier, and the tube locations noted. Variation between the line voltage at the factory and the final installation location can cause variation in the tube's bias. Therefore, it is important to check this upon receipt of the amplifiers, or any time the units change location (other than within the same building). Proper biasing ensures longest tube life; improper biasing can cause damage to the tubes, amplifier or both. You will need a D.C. voltmeter (digital readout preferred) and a small straight-blade screwdriver.

- 1.) Attach the voltmeter black or (-) probe to the amp chassis or the black speaker terminal. Attach the red or (+) probe to the "**Read Bias**" test jack ( corresponding to the left 300B tube).
- 2.) Switch the amp to "**Push-Pull**" mode, place amplifier's mute switch to the mute position, and turn the power switch to "on".
- 3.) Allow the amp to warm up for two minutes, and use the screwdriver to turn the left "bias adjust" trimmer for a reading of 500 mVDC ( 0.5 VDC ). Turning the bias controls counter-clockwise will increase the standing current. A reading of 490-510 mVDC will be within specs. **IF** the trimmer will not adjust the bias to this reading then switch the red probe of the meter to the right side "read bias" test jack and adjust the right bias trimmer to the read 500 mVDC . The bias adjustment are somewhat interactive. It may be necessary to go back and forth between the two adjustments in order to attain correct and matching output tube standing currents.
- 4.) Now let the amp continue to warm up for another 20-30 minutes and reset each tube for 500mVDC.

- 5.) The correct bias reading in "**Single-Ended**" mode is 550 mVDC. A reading of 540-560mVDC will be within specs. The bias in single-ended mode was set at the factory. **If**, however, the S-E bias reading is out of spec after warm up, the bias may be adjusted as follows:
- 6.) Carefully turn the amp on it's left side, Be sure to brace the amp so as to prevent roll over.
- 7.) Locate the 1/4" round hole in the bottom cover, near the front group of ventilation slots.
- 8.) Make sure the amp is in S-E mode, warmed up, muted and with voltmeter attached. Then insert a 1/8" - 3/16" slot screwdriver through the hole. Rotate the screwdriver until properly seated. The control is about 2 inches below the cover plane. A screwdriver guard is provided to prevent accidental contact with other components.
- 9.) Slowly rotate the screwdriver while watching the meter reading. The meter may be in either "read bias" tip jack. Clockwise increases S-E standing current. Adjust standing current until meter reads 550 mVDC.

#### **TUBE REPLACEMENT:**

Should the 300B tubes require replacement (or the originals are not returned to their proper sockets), make sure both bias adjust trimmers are turned fully clockwise before applying power to the amp. Then follow the bias procedure outlined above. The bias should be checked daily on a new set of tubes for the first week of operation. Remember to let the amp warm up for 20-30 minutes before making final adjustments. The 5U4G, 6SN7 and 6SL7 require no adjustments.

#### **FUSES**

There are two fuses in the amplifier. One is the mains fuse located in the AC input module on the rear panel. The other is a P-C board mounted B+ fuse inside the amplifier. 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. For 117 volts mains correct fuse size is 3A slow/blow 3AG. For 240 volts the correct fuse is a 1.5A slow/blow MDL 1.5A for the mains.

The internal B+ fuse is a 400mA 3AG ceramic body type unit. If this fuse blows, the tube filaments and badge lamp will light up, but no sound will be heard since the high voltage will be absent. If this fuse fails, it indicates trouble which will generally require technical attention. Contact your dealer or Manley Laboratories if this problem should develop.

Caution ! High voltages and high energy storage makes opening the amplifier enclosure hazardous for any uninformed person ! Call us or your dealer for specific instructions or for answers to any questions.

## SPECIFICATIONS

Vacuum Tubes:	2 x 300B (Output), 1 x 6SN7 (Driver), 1 x 6SL7 (Input) 2 x 5U4 (Rectifier)
Output Power @ 1Khz	SINGLE-ENDED: 5 dB FB - 11 Watts @ 3% THD. PUSH-PULL: 5 dB FB - 24 Watts @ 1.5% THD.
Frequency Response +/- .5 dB (measured at 5 watts)	SINGLE-ENDED: 5 dB FB - 15 Hz - 15 KHz PUSH-PULL: 5 dB FB - 10 Hz - 20 KHz
Input Sensitivity @ 5db FB	SINGLE ENDED: 700mV. PUSH-PULL: 450mV.
S/N Ratio	SINGLE ENDED: 83.5dB Ref. 1W; 2.83v//8 ohms,20Khz BW; 5dB FB. PUSH-PULL: 85.4dB Ref. 1W; 2.83v//8 ohms; 20Khz BW; 5dB FB.
Dynamic Range	SINGLE ENDED: 94dB Ref. 3% THD; 20KHz BW; 5dB FB. PUSH-PULL: 99.5dB Ref. 1.5% THD; 20KHz BW; 5dB FB.
Input Impedance	1 M Ohm, direct coupled.
Load Impedance	4 to 12 Ohm appropriate for 4 & 8 ohm speakers 12 to 20 Ohm appropriate for 16 ohm speakers
Power Consumption	240 Watts
Mains Fuse	100, 110, 120V 3 A (Slo-Blo) 220, 240 V 1.5 A (Slo-Blo)
B+ Fuse	400 mA, (Slo-Blo) Ceramic Body.
Lamp	1/4" X 1 1/4" Linear lamp - 8 volt, 0.3 amp
Dimensions	W= 8.5, D= 11, H= 9 inches, Including projecting controls & parts.
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 transferrable warranty is available 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, or registration can be made online in the Tech Support section of [www.manleylabs.com](http://www.manleylabs.com).

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. Vacuum tubes and meter or badge lamps are warranted for six months provided the warranty registration is completed as outlined above.

If a Manley Laboratories product fails to meet the above warranty, then the purchaser's sole remedy shall be to first obtain a Repair Authorisation from Manley Laboratories and return the product to Manley Laboratories, where the defect will be repaired without charge for parts and labour. All returns to the factory must be in the original packing, accompanied by the Repair Authorisation, and must be shipped to Manley Laboratories via insured freight at the customer's own expense. Factory original packaging can be ordered from Manley Labs. Customer will be charged for new factory original packaging if customer fails to ship product to Manley Labs in the original factory packaging. After repair, the product will then be returned to customer via prepaid, insured freight, method and carrier to be determined solely by Manley Laboratories. Manley Laboratories will not pay for express or overnight freight service nor will Manley Laboratories pay for shipments to locations outside the USA. 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. All warranties apply only to Manley Laboratories products originally purchased from an authorised Manley dealer. Warranties for Manley Laboratories products purchased outside the USA will be covered by the Manley Importer for that specific country or region. "Grey Market" purchases are not covered by any warranty. In the case that a Manley Laboratories product must be returned to the factory from outside the USA, customer shall adhere to specific shipping, customs, and commercial invoicing instructions given with the Return Authorisation as Manley Laboratories will not be responsible for transportation costs or customs fees related to any importation or re-exportation charges whatsoever.

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.

**For Tech Support and Repair Authorisation, please contact:**

**MANLEY LABORATORIES, INC.  
13880 MAGNOLIA AVE.  
CHINO, CA. 91710 USA  
TEL: (909) 627-4256  
FAX: (909) 628-2482  
email: [service@manleylabs.com](mailto:service@manleylabs.com)**

# WARRANTY REGISTRATION

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

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

**Or** you may FAX this form in to: +1 (909) 628-2482 **or** you may fill in the online warranty registration form found in the Tech Support section of our website [www.manleylabs.com](http://www.manleylabs.com) **or** you can be really diligent and register your warranty three times to see if we get confused!

Registration entitles you to product support, full warranty benefits, and notice of product enhancements and upgrades, even though it doesn't necessarily mean that you will get them (Just kidding!) You **MUST** complete and return the following to validate your warranty and registration. Thank you again for choosing Manley gear and reading all the way through The Owner's Manual. (We really mean that sincerely, the bit about thanking you for choosing our gear. THANK YOU!!!)

MODEL \_\_\_\_\_ SERIAL # \_\_\_\_\_

PURCHASE DATE \_\_\_\_\_ SUPPLIER \_\_\_\_\_

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*PLEASE DETACH THIS PORTION AND SEND IT TO MANLEY LABORATORIES*

MODEL \_\_\_\_\_ SERIAL # \_\_\_\_\_

PURCHASE DATE \_\_\_\_\_ SUPPLIER \_\_\_\_\_

NAME OF OWNER \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

EMAIL: \_\_\_\_\_

TELEPHONE NUMBER \_\_\_\_\_

COMMENTS OR SUGGESTIONS? \_\_\_\_\_

\_\_\_\_\_