

7B NRB/NPB USER MANUAL

OBSOLETE

BRYSTON

7B

MONO POWER AMPLIFIER

GENERAL DESCRIPTION

Bryston's 7B power amplifier consists of two amplifier modules, each with its own $\pm 55\text{v}$ power supply. The modules can be combined in two modes to form a single mono power amplifier of 500 to 800 watts. The first of these modes, SERIES, connects the two modules in a bridged configuration. The output voltage swing is thus additive and is appropriate for driving loads from 3Ω to 8Ω . The second mode, PARALLEL, yields the voltage swing of a single amplifier module but the current available is additive and is appropriate for driving loads from 1Ω to 2Ω . The MODE switch appears on the rear panel of the 7B (see diagram on back page). **ALWAYS turn off the main power before operating the MODE switch.**

PARALLEL OPERATION

When operated in PARALLEL mode the inputs and outputs of the two internal amplifier sections are in phase. The load is connected from the HOT (RED binding post) terminals to GROUND (BLACK binding post) terminals. This allows for output voltages of up to 33v_{rms} into loads as low as 1Ω thus producing output power levels exceeding 800 watts. Due to the extremely high output current that can be generated in this mode (up to 33 amps) it is strongly recommended that both of the HOT (RED binding post) terminals be combined to form the positive (+) output line and that both of the GROUND (BLACK binding post) terminals be combined to form the negative (-) output line from the amplifier to the load (speaker).

SERIES OPERATION

When operated in SERIES mode the input is split between the two amplifier modules with output "A" following the same relative phase as the input (as set by the PHASE switch located on the rear panel) and output "B" operating in the opposite phase. The speaker is connected between the two HOT (RED) binding post terminals only with **NO CONNECTION TO GROUND**. Thus configured the 7B can deliver over 60v_{rms} into loads as low as 3Ω generating output power over 800 watts continuous. Note that unlike other bridged Bryston amplifiers the gain remains the same in both modes (30.7dB) and is identical to other Bryston amplifiers operated in stereo.

POWER CONSIDERATIONS

The 7B employs truly massive power supplies which can draw prodigious amounts of current from the line when the music demands it. In addition, every Bryston amplifier contains exceedingly high quality dedicated circuitry in its power supplies to reject RF, line spikes and other power line problems. For these reasons the 7B should NOT be connected to the accessory power outlets in a preamp NOR into such devices as power bars or line conditioners. It should be plugged into its own socket in the wall outlet (with the power switch in the OFF, or OUT, position).

In general, if your preamp has a three prong grounded line cord you can avoid local ground loops which could cause hum or noise in the system by plugging the preamp's line cord into the same wall outlet next to the power amp.

CLIPPING INDICATORS

The 7B amplifier uses a 3 colour LED with green indicating *power on* and red indicating actual *overload or distortion*. Yellow appears dynamically at the threshold of clipping to indicate caution in proceeding to higher power levels. As long as the LED is green, or green and yellow with only very brief red flashes, the waveform is reaching full power only at the highest musical peaks. Once the indication contains a substantial red content it should be considered as a sign that the level is too high and may cause speaker damage if allowed to continue.

The clip-sensing circuit in the 7B uses an AC comparator to detect any source of signal distortion including clipping, short circuits in cabling, excessive DC or supersonic signals, whether at input or output, etc. Most conditions which could cause the red LED to light for more than a moment or two can be dangerous to your speakers and should be corrected immediately.

SPEAKER POWER HANDLING & FUSE PROTECTION

Most speakers will safely absorb an **undistorted** musical signal up to the full power capability of even large amplifiers like the 7B. However, once the signal starts to be clipped the distortion by-products generated by the overdriven signal can result in very high power levels fed to the smallest and most fragile of the speaker's components (it should be noted that an amplifier is quite capable of distorted power levels of twice the undistorted rating and that all the excess power goes to the high frequency driver). It is also quite possible to damage the woofer by causing it to exceed its excursion limits and impact against the back of the magnet by doing such things as turning up the bass control on a preamp and playing music quite loud. This is especially true with amplifiers which can develop full undistorted power down to extremely low frequencies as all Bryston amplifiers can. Many speaker manufacturers recommend series fuses to protect the drivers in case of accidental (or even wilful) overload. If you wish to use fuses follow the manufacturers recommendations since even what seems like a small increase in current rating on a fuse will result in large increases in power allowed. Example: A 3 amp fuse will allow about 70 watts but a 4 amp fuse will nearly double this to about 130 watts and a 5 amp fuse will allow 200 continuous watts.

It should be emphasized that almost any amplifier is capable of inflicting damage on almost any speaker if used in a thoughtless or abusive manner and that Bryston cannot be responsible for speaker damage caused in this way.

INPUT CONNECTORS

The 7B is supplied with two input connectors: unbalanced RCA/phono and a combination - 3 pin balanced XLR (pin 1 is ground, *pin 2 is **POSITIVE** & pin 3 is **NEGATIVE***) & 3 conductor balanced ¼" phono (TIP is positive, RING is negative & the sleeve is ground) - jack with fully discrete active input circuitry. A toggle switch, located on the rear panel, allows selecting between balanced or unbalanced inputs.

The XLR and RCA/phono input connectors are gold plated and should be used only with quality gold plated input cable connectors as a poorly plated connector will eventually corrode through the gold flash. Bryston makes cables with appropriately heavily plated, high quality connectors, available through your dealer.



OUTPUT CONNECTORS

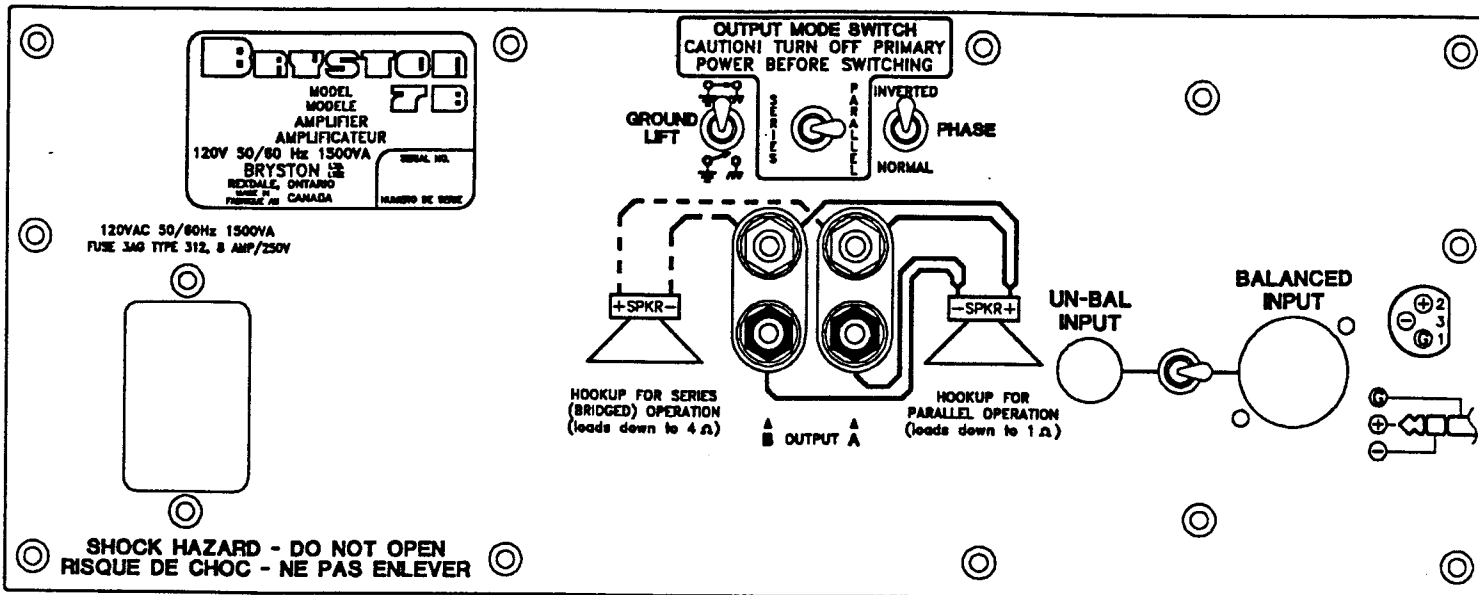
N.B. Do not attempt to remove the red or black connector nuts from the binding post connectors. They are not removable and attempting to force them off may break the connector or strip the threads.

OUTPUT CABLES

For some time there have been available on the market special speaker cables constructed for extra high current and low loss and distortion. These cables will cause no difficulty or instability with any Bryston amplifier. In fact, we recommend that low inductance cables be used for the smallest loss of signal between amplifier & speaker.

GROUNDING and the GROUND SWITCH

The left most switch on the rear panel is a GROUND LIFT switch. It is connected between the chassis ground (including the third prong on the power line cord) and the signal ground. This switch is normally left in the *connected* position . Occasionally a multi-amplifier rack installation, or an unusual grounding situation with a preamp using a three wire power line cord, will cause a ground loop between the signal ground and the chassis ground. This switch will allow the elimination of the resulting hum in such cases without resorting to a "cheater" plug by switching to the *separated* position . Note that this switch does not disconnect the chassis from the third prong on the power line cord which must be left intact for safety reasons.



WARRANTY

Bryston products are warranted to be free from manufacturing defects for a minimum of **twenty years** from date of original purchase, including parts, labour and return shipping to the first and all subsequent owners. Warranty coverage is automatic and commences with the date of the original dealer's bill of sale (which is the sole proof of purchase date).

In the event of a defect or malfunction Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Warranty service may be obtained by returning the unit to any Bryston retail dealer. If it cannot be returned to a Bryston dealer, write or call:

BRYSTON SERVICE USA.:
 70 COVENTRY ST. SUITE #5
 NEWPORT VERMONT
 U.S.A. 05855

PHONE: 802-334-1201
 FAX: 802-334-6658
 E-MAIL: usaser@bryston.ca

BRYSTON SERVICE OUTSIDE CANADA & the USA:
 CONTACT YOUR LOCAL DISTRIBUTOR
 OR

CHECK OUR WEB SITE AT: www@bryston.ca
 E-MAIL BRYSTON DIRECTLY: info@bryston.ca
 FAX BRYSTON DIRECTLY: 705-742-0882
 PHONE BRYSTON DIRECTLY: 705-742-5325

BRYSTON LTD., 677 NEAL DRIVE, P.O. BOX 2170, PETERBOROUGH, ONTARIO CANADA K9J 7Y4

This warranty is void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer, tampering by persons other than factory-authorized service personnel, or failure to follow Bryston operating instructions.

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

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