

**OBSOLETE**

# BRYSTON

## BRYSTON POWER AMPLIFIERS: OPERATING INSTRUCTIONS

### Line-Voltage and Switching:

All Bryston Amplifiers utilize the same ultra-low distortion circuitry with larger power-supplies, output sections and cooling capabilities on the larger models. In general, it is inadvisable to switch any but our smallest, Model 2B, on and off by the power switch in the preamp. The others should be plugged into a separate outlet and turned on 2 to 3 seconds after the preamp. (Do not plug in the larger models while the power-switch is on. To do so may damage the plug, the socket, or both). When turning the larger models off, it may be noticed that the green LED pilot light fades slowly. Do not repeatedly actuate the switch in an effort to extinguish the LED. Due to the massive power-supplies employed, this will blow fuses and may damage the switch. It is permissible to leave the entire system 'on' continuously. This will do no damage, and the attendant current-draw is relatively minor at idle, about the same as a 100 watt lightbulb. (It is not generally realized or admitted that any electronic amplification will sound best after temperatures have stabilized following at least a one hour warmup).

### Speaker Power Handling and Fuse Protection:

Most speakers will safely absorb an **undistorted** musical signal up to the full capability of an amplifier in the size range of even our model 4B (250 - 300 watts at clipping.) 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 is not usually understood that an amplifier is quite capable of distorted power levels of twice the undistorted rating, and that all the excess 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, or by dropping the stylus on the record with the volume control up. 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 willful) 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.

### Clipping Indicators:

Bryston amplifiers all employ positive - acting clipping indicators which give a real-time indication of overload. If these are observed and heeded such that the amplifier only occasionally clips, if at all, it is unlikely that the speakers will ever sustain damage however dynamic the music, or whatever the speaker's power rating.

It must be emphasised, however, that almost any amplifier is capable of inflicting damage to almost any speaker if used in a thoughtless or abusive manner, and that Bryston cannot be responsible for speaker damage caused in this manner.

### **Cables and Connectors:**

The speaker output binding posts at the back of the amplifier will accept bare wires, pronged spade terminals, or banana plugs. Since these binding posts are gold-plated, we recommend gold-plated banana-type plugs be used for lowest distortion (available from Bryston for \$8.00 per set of 4, postpaid).

Do not attempt to remove the red or black plastic connector nuts. They are not removable, and attempting to force them off with a wrench or pliers may break the connector, or strip the threads.

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 and speaker. This is especially true in runs over about 20 feet although the differences among brands of high-quality cable is relatively subtle for shorter runs.

On the other hand, input cables are of even greater importance, and **must** be of the highest quality. Bryston employs input connectors which have been specifically designed to be compatible with a (properly) gold-plated connector (or with the great majority of non-gold-plated connectors). Many so-called gold-plated cable-ends are merely flash-plated with a thin layer of gold over the brass connector body. This is guaranteed to cause eventual trouble, since gold in thin layers is porous, and the brass base metal corrodes right through it. A properly gold-plated connector will have a nickel-plated underbase, and is usually recognizable by a somewhat **dull** finish to the gold, although this is obviously not an absolute indicator. Investigate before you buy!

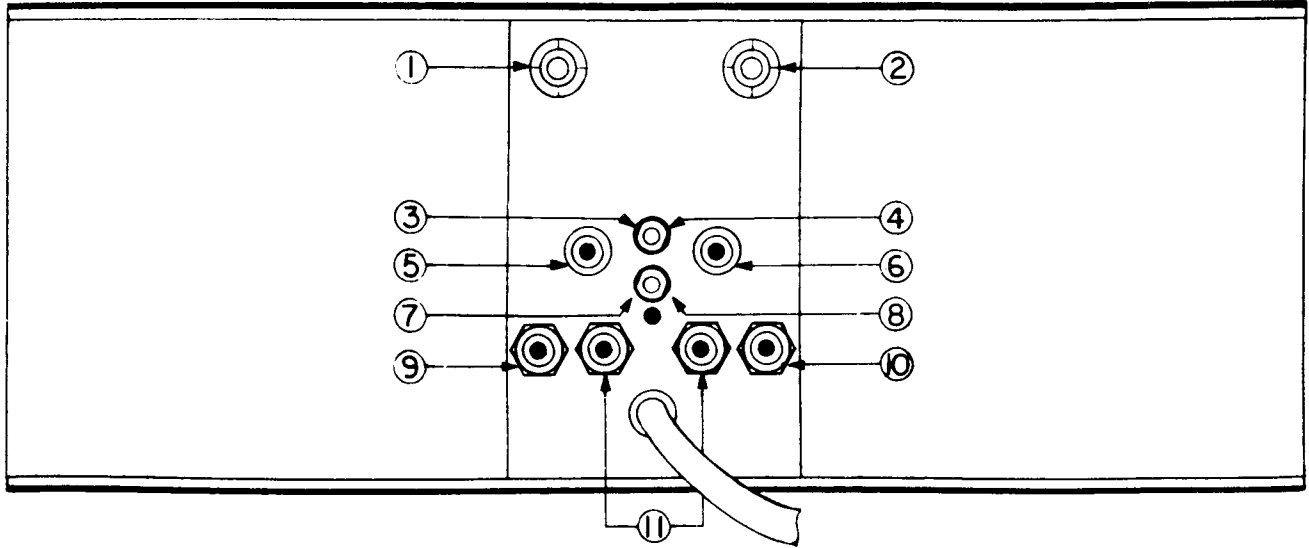
### **Stereo and Mono Operation:**

There are two switches at the approximate center of the rear panel. The topmost one is the Mono-Stereo switch. Its normal position, for stereo operation, is with the toggle pointing to the 'Stereo' position. For mono operation, move the toggle on the switch to the 'Mono' position, and plug the input from the preamp to the left (labeled) input on the amplifier only. (The toggle points to the proper input cable in mono.) The speaker connections are made to the red output jacks only in this mode. The 'hot', or positive, side of the speaker connects to the left channel red output, the 'cold', or ground, side of the speaker connects to the right labeled output.

It is recommended that a shorting plug, (available from Bryston on request, stating serial number), be inserted into the unused channel input when operating in mono, for lowest noise. (On professional amplifiers, it is sufficient to turn the right-channel level control to minimum). The output power capability in this mode is quite high, up to 4 times the rated 8-ohm per channel value, thus it becomes very important to fuse the speakers to prevent accidental damage. (On the model 2B, the mono-switching capability is provided to drive sub-woofers and similar multi-amp applications where a rather high-powered mono amp is required for moderate duty. It is recommended that the 2B not be used in the bridged configuration to drive full-range speakers).

### **Grounding and the Ground Switch:**

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



## SWITCHING AND CONNECTION DIAGRAM

- 1 & 2\* AC-Line Fuse Holders. Do not open with amplifier plugged in. Replace fuses **only** with size and type supplied (as listed on rear panel of amplifier).
- 3 & 4 Stereo-Mono Switch. For stereo operation this switch should be toward '3'. For monaural bridged operation, switch should be toward '4' and input is to left input (#6), only. In this case output to speaker ( $8\Omega$  minimum) is between red output binding posts 9 & 10 only. No connections to ground (11).
- 5 & 6 Right and left input jacks respectively.
- 7 & 8\* Ground Switch. For normal hi-fi operation this switch connects signal ground and chassis ground in position '7'. For multiple-amplifier professional rack installations, chassis ground and signal ground may be separated by switching to position '8'.
- 9 & 10 Right and Left Output Binding Posts respectively. For normal stereo operation speakers for right and left channels connect between 9 & 11 and 10 & 11 respectively.
- 11 Ground Connectors for Speakers. Electrically common to each other and to outer barrel of input connectors (5 & 6).

\* Not applicable to Model 2B

# Full Five-Year Warranty

Bryston products are warranted to be free from manufacturing defects for a minimum of five years from the date of original purchase, including parts, labor 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 telephone:

**In Canada;**

BRYSTON LTD./LTEE.,  
57 Westmore Drive  
Rexdale, Ontario  
M9V 3Y6

(416) 746-1800

**OBSOLETE**

**In the United States;**

BRYSTONVERMONT  
R.F.D #4, Berlin,  
Montpelier, Vermont  
05602

(802) 223-6159

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.

**BRYSTON**® LTD.  
LTEE.

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