

**By Roy Mottram**

I made this test to determine the value of various modifications on the market. I tested the stock ST-70 as received, as well as with the Audio by Van Alstine (AVA), Sutherland hybrid, Vacuum Tube Audio (VTA), Curcio and GSI boards.

In order to eliminate any variances between amplifier tests, I used only one ST-70 amplifier for this test. I used the same matched pair of 7199 driver tubes which included the same matched quad set of output tubes for each test. For the listening evaluations I used the Curcio Daniel preamp, Vandersteen 2C speakers and Sony 650ES CD player.

Rather than buy locally, I obtained the stock ST-70 from Sound Values for \$199. I had previously bought several used ST-70s locally and I wanted to see what you get for \$199 through the mail. Sound Values offers a 90-day parts and labor warranty, as well as a ten-day satisfaction guarantee.

The amplifier I received had the usual amount of slightly pitted chrome, but was not rusted. It had not been cleaned. But it did contain a full set of new tubes (worth \$90) and a new quad capacitor, as well as a silicon diode to replace the old selenium rectifier. It was a very good value and I recommend it to anyone who might want an ST-70 in good condition. Of course, they also sell new kits for \$499.

One note about GSI. I waited for two months after ordering with absolutely no response from GSI, so I wrote them a letter asking about the delay and reminding them of the federal laws regarding delivery within 30 days for mail orders. After three more weeks with no response, I contacted the Better Business Bureau and the State Attorney General. GSI sent me a letter saying "Don't worry, be happy!" Only after waiting another three weeks, during which I'm sure they heard from the BBB, did I receive the board, along with a harsh letter complaining about my lack of patience. *[Several readers have related the same experience to us. Caveat Emptor.—Ed.]*

The stock Dyna ST-70 is an excellent amplifier, the most popular tube amplifier ever sold. The Dyna output transformers are known to be of exceptional quality and design. The EL34 output tubes are revered by many tubeophiles for their sound quality.

With the exception of the 7199 driver

tubes and the limited power supply capacitance, the Dyna ST-70 is still an excellent design and an exceptional value. By replacing the board parts with metal film resistors and WonderCaps, and boosting the power supply capacitance, it is still a contender among modern competition such as the Conrad-Johnson MV45 and the Vacuum Tube Logic Stereo 45/45, both of which cost over \$1,500 new. A new ST-70 with the basic mods costs about \$600.\*

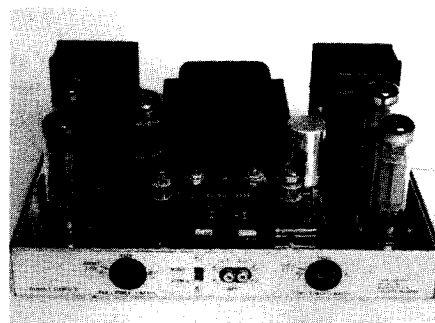
The Audio by Van Alstine (AVA) modification consists of a new driver board which also contains upgraded power supply capacitors. It costs \$200 for the kit (board and parts) or \$75 for the board only. I purchased the board and then obtained the parts from Digi-Key and Mouser for a total cost of \$35.

This modification was a disappointment to me. Van Alstine has a reputation for very good circuit modifications. However, in this case, I'm glad I didn't spend the full \$200 only to find out that electronically, it is identical to the original, using two 7199 tubes. The only differences are the addition of "spectrum filtering" consisting of two resistors and two capacitors which limit the input signal to a bandwidth of 20Hz to 20kHz, to minimize nonlinear distortions created by the feedback signal due to the limited open loop bandwidth of the driver circuit design, plus bigger capacitors for the power supply, and larger interstage coupling capacitors.

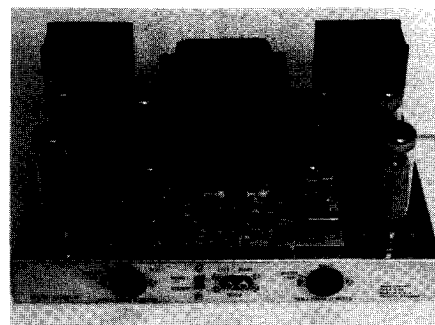
Parts quality is good but not great (film capacitors rather than polypropylene). I was really expecting a total redesign. Also, the board is larger than the original in order to accommodate the larger power supply capacitors. It is mounted 1/2" above the chassis on standoffs, which gives it a rather strange and awkward appearance.

The Sutherland hybrid modification consists of an entirely new board driver design, with JFETs and MOSFETs in combination to drive the output tubes. The board is very well designed and attractive. All connections to the board are marked with the original numbers, and with the included hookup diagram it is a cinch to install. The board comes with all parts assembled and tested for \$80 which is a bargain.

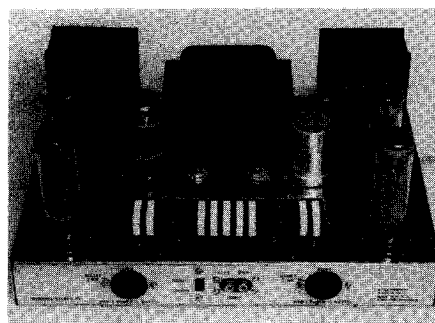
Sutherland also has a separate power supply modification which I included in the test. It consists of two boards which mount innovatively to the bottom of the output transformers with 1/2" threaded spacers. One board has six 47μF, 450V capacitors wired in parallel with the stock Dyna quad capacitor. The other



*The original, unmodified Dynaco ST-70. Right: Close-ups of the board and the chassis underside.*



*The Audio by Van Alstine uses an enlarged board with lots of capacitance, raised above the chassis.*



*The Sutherland mod is a JFET/MOSFET replacement and the board comes fully assembled. Right: note the optional power supply upgrades under the chassis.*

board contains the bias power supply filtered with two 470μF capacitors. The two-board set costs \$100, which seems about \$30 high to me. Total price of the Sutherland modification is \$180—not bad compared to the others, considering it is already assembled and tested.

The Vacuum Tube Audio (VTA) design was more like what I'd hoped to see in this comparison test, a total redesign using three 6201 tubes. This design is also unique compared to its competition in