Damping factor is an extremely complex subject that is beyond the scope of this paper, but it is important to realize that damping factor plays a large part in the sound and the "feel" of a guitar speaker system. We have discovered that it is possible to vary the damping factor in a "frequency selective way" essentially enabling us to vary the damping factor at the bottom end (resonance) and simultaneously at the top end (presence). As you know, we have included these controls on a number of our amplifiers over the last 15 years. Understanding the control of damping factor is vital to maximizing the sound of a guitar amp/speaker system.

"THE PACKAGE"

I have attempted to briefly explain the FIVE factors involved in synthesizing a tube type guitar amp with solid-state devices. Each one of these characteristics must be included for the complete synthesis of the so-called "tube sound"… Any one of these phenomena will help a solid-state amp sound better for a guitar, but unless all five ingredients listed above are combined to react dynamically with each other and in the proper proportion, "the RECIPE" will NOT work. The Novelty about our TransTube process is that we had to emulate the dynamics of these phenomena in the proper proportion. Like a gourmet meal, the ingredients must be mixed and prepared in precisely the right way or the result will be unremarkable. Because of our many decades of experience, we have been able to find the "Holy Grail" of emulating almost all of the so-called tube sound with solid-state devices…

While we have been extremely successful with TransTube, it should be noted that we could probably convince 95% of players that they were listening to a tube amp rather than a Solid State amp. There will always be a small percentage of people that can perceive every tiny nuance of amplifier response and CAN discern the difference between a tube amp and a TransTube… For now though, I believe that 95 percentile is "a passing grade." Nevertheless, our research continues re: TransTube.

To illustrate the above point, several years' back, we set up a "double blind listening test" at a studio rental outfit in Nashville. We invited a half dozen of Nashville's finest studio "pickers" to come and listen to various amplifiers. They were told that the purpose of the test was "to pick out the transistor amp." There were five amps involved in the test and while these "golden ears" never decided which amp they liked best, their conclusion was 100% on which one of the amplifiers they thought was the solid-state (TransTube) amp… As it turns out, EVERY ONE OF THEM picked the SAME amp being the solid-state amp when in fact, their choice was a tube type "boutique amplifier." Simply put, every one of these "golden ear studio pickers" did NOT identify the TransTube amp as being solid-state, but in fact, picked an amp that sold for more than five times what our TransTube Bandit sold for as the "solid-state" amp… Interesting huh???

As you might imagine, we have tried to patent our TransTube circuitry and the huge amount of research that we've put into it. We have continued to refine the TransTube circuitry adding such features as our "TDynamics® control" which effectively acts like a "power regulator"… Most people ASSUME that our TDynamics control is nothing more than "master volume"… WRONG! The T-Dynamics variably engages a clipping circuit in the output stage that effectively lowers the power amp's headroom, thus emulating a lower powered amp. When the T-Dynamics control is turned down, it is not just acting as a volume control for the amp, it actually decreases the available voltage swing just as a smaller/less powerful amplifier would do while retaining all the vital TransTube overload characteristics that so effectively emulates a tube amp's sound and feel.

Our research continues and we have been steadily improving TransTube technology with new discoveries, and by including the latest semiconductors into our designs, as they become available. TransTube research continues today and is significantly refined over what we introduced in the early 90s.

INNOVATION. AMPLIFIED.™

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