

TAS Legacy – Full Version – Highlighted section removed for print publication
Phase Linear 700 Power Amplifier
Greg Weaver



Originally prototyped in a coffee can due to lack of funds, and wired line-connected, using the transformer on the utility pole outside as the power source, the amplifier that would become the Phase Linear 700 was first bench-tested in 1970. In those days, anybody could bring a home built (or purchased) amplifier into one of the then popular touring McIntosh Amplifier Clinics, throw it on the bench, and see how it tested.

This Frankenstein amplifier had astonished everyone during such a test, producing a graph as flat as a McIntosh, but with an established output of over 300 watts. Robert W. (Bob) Carver left that clinic with a signed, certified output graph that he used in his early ads, riding the tremendous wave of interest it generated to fund and launch Phase Linear.

Weighing 45 pounds and selling for \$749, with a certified output of over 350 watts per channel, the Phase Linear 700 amplifier set the audio world on its ear. When it was commercially released in 1971, few took then 27-year-old Bob Carver's claims for it seriously. Remember, this was Carver's first commercial product and he was completely unknown to the audio world. Before the Phase Linear 700's appearance, an average high-powered amplifier offering was somewhere on the order of 80–85 watts per channel, with the Crown DC-300 sitting atop the output throne, providing (an often unstable) 150 watts per channel.

The Crown, originally designed as an industrial device, and only made available as an audio amplifier as an afterthought, had a nasty habit of blowing up under real-world conditions, especially if someone accidentally shorted or overloaded the circuit. It had no effective way of

protecting the output devices from damage, and quite frequently, they would let go in a puff of smoke at the slightest sign of overload or incorrect load impedance.

Aside from using the remarkably robust DTS 410 transistors, which were only manufactured by Delco, and made specifically for automobile ignition systems, part of the real genius of Bob's creation was something he called an Energy Limiter. With this early form of protection as safeguard, you could literally short the amplifier—even overdrive it—and the devices typically would not fail.

To support cooling (eliminating the need for a loud and noisy fan), lower the overall operating temperature, and facilitate component servicing if it became necessary, Bob cleverly mounted both the output transistors and the power transformer to the exterior of the chassis. The output transistors were visible from the back, mounted directly to the rear heat sinks.

The front panel of the first-generation 700 was asymmetrically laid out, with the large VU meters and control knobs mounted towards the right side. At a width of just 19 inches, the unit was very easily rack mounted. Given its then gargantuan output, remarkable reliability, and convenient mounting capability, the 700 soon became a favorite of recording studio engineers, rock bands, and jazz musicians.

And, it wasn't long after Harry Pearson's very favorable review in the very first issue of *The Absolute Sound*, noting its tighter bass, enhanced midrange clarity, and high frequency definition, before it would be adopted by, and become the darling of, the early burgeoning audiophile community as well. In fact, not only did it herald the arrival of one of the most successful, prolific, and lengthy careers' in our industry, but this innovation from the very young Bob Carver set the stage for the ascent of solid-state audio electronics, and for more and more powerful contenders yet to come.