



Cartec EQP-1A

Surely the audio industry's most imitated product, in hardware and in software, is the Pultec EQP-1A Program Equalizer. **GEORGE SHILLING** encounters an impressive new imitation.

The original EQP-1A was developed at the beginning of the 1950s in New Jersey, the Pultec company's formal name was Pulse Technologies, the operation was run entirely by Ollie Summerland and Eugene Shank until the company folded in the late 1970s. The original EQ design remained largely unchanged during that entire period and the units were all hand-built by the pair. Pultec's passive EQ was combined with a valve gain make up circuit to bring the level back up by the 16dB or so caused by insertion loss. The amplifier circuitry was originally licensed from Western Electric (the manufacturing arm of AT&T from 1881 until 1995).

Following the demise of Pultec, original units became highly prized. Tube-Tech has marketed its fairly authentic looking full size (3u) version of the EQP-1A since the mid 1980s and other designs inspired by the original include Summit's EQP200B (stereo) and EAR's excellent 822Q in 2u rack cases, and Manley/Langevin EQP-1As squashed into 1u but there are also others. In software there are numerous emulations from the likes of Bomb Factory, Universal Audio and Waves. The original hardware Pultecs are still incredibly desirable. Cartec has come out with a careful clone of the original that improves on the noise floor. Everything inside is of the highest quality and wired point-to-point and as a bonus Cartec can easily provide matched pairs. Liam Carter is the man behind the company and has resisted any temptation to add extra features to the original design but claims better accuracy of emulation than rivals mainly by virtue of a valve rectifier in the power supply. This lends the unit the pronounced compression effect brought about by power supply sag. Many clone-tecs use a solid state power supply.

Carter is an inveterate tinkerer, having spent childhood years fiddling with electric guitars and building pickups, repairing guitar amplifiers, and playing with passive filter designs, which is what led him to build himself a Pultec clone. The prototype was lent to Cenzo Townshend for an extended period, and he later stated that it was 'the best replica of the Pultec I have heard.'

Resolution was lucky enough to obtain a reproduction unit from KMR Audio. The front panel is remarkably similar to an original, with all the knobs, switches and etching closely resembling a Pultec, even down to the lovely bright red jewel lens and

lamp. The pots used are PEC KK Series, the company formerly known as Allen and Bradley and original suppliers to Pultec, and switches are sealed Grayhill units. Internally there are transformers mounted on the case bottom and the rear panel supplied by Sowter — audio input, output and interstage, an enormous mains transformer and the inductor, and three boards with an array of 1% tolerance resistors and high quality capacitors. The three valves (JJ branded ECC83, ECC82 and 6X4 rectifier) are mounted on a separate board but just about everything is mounted so it connects directly. At the end of the review period Carter himself kindly delivered a production unit and this featured one single neat main circuit board inside — no longer are there components mounted on the rear panel, nor extra small boards for frequency selection, with the mains transformer being the only component mounted directly to the case. I heard no difference, but shorter cable connections should improve audio performance if anything. The dark green front panel looks smarter with yellow-filled engraving and amber lamp, and the case was far shallower at 155mm front to back in aluminium rather than steel; lighter yet more robust. Although this one had a solid top panel, final versions will be vented. Cartecs should certainly travel better than Pultecs and with all components soldered to turrets any required servicing should prove straightforward. Carter presently hand-builds units himself, and makes an excellent job of finishing them.

The low band is shelving and provides continuous Boost and Attenuate knobs scaled from zero to 10, along with a four-position frequency selector with 20, 30, 60 and 100Hz. The original Pultec manual clearly states 'Do not attempt to boost and attenuate simultaneously on the low frequencies'. Of course, this is nonsense, and generally that is what engineers do when presented with a Pultec, as it provides a highly desirable effect. The frequencies and characteristics of boost and attenuation do not mirror each other exactly, and essentially there is something of a dip in the frequency just above the boost, slightly reducing low-mid muddiness while adding deep warmth. The Cartec does this beautifully, smoothly and very satisfyingly. You might imagine that the 20 and 30Hz bands have little use but they are extremely effective on kick drums and bass parts, adding a warmth and depth like no other EQ. At 60 or 100Hz the combination of Boost and Attenuate lends vocal

performances a very appealing warmth. There is some magical compression evident when tweaking the push and pull of the low end simultaneously, and the Cartec is supremely satisfying in this area, no doubt due to the aforementioned power supply sag effect.

The mid/high band is boost-only, with switched frequencies at 3, 4, 5, 8, 10, 12 and 16kHz. The Boost and Bandwidth knobs are both scaled zero to 10 and at higher frequencies with a broad setting you experience a beautifully sweet sheen. Apparently Townshend set his to a 16kHz boost and left it there for six months! The only harshness possible is by narrowing the bandwidth to minimum and selecting one of the lower frequencies — there is a surprising amount of 'needle' available at full tilt but that's not why you generally employ a Pultec. However, this technique (perhaps not quite at full tilt or narrowest setting) can certainly lend a biting character to such things as guitar sounds.

The high band is an attenuate-only shelf with three frequency settings of 5, 10 and 20kHz and this can provide relief from harsh signals, sometimes enhancing warmth when applied with the low band to bass sounds.

The Cartec seems to have all the warmth of low end and subtle sweetness of high frequency boost as the original Pultec while indeed remaining true to its promise of low noise, which always remains well out of the way of any audio signal. Even with the filters switched out, the EQP-1A subtly enhances a signal. And there is plenty of headroom, even working with fairly potent digital audio signals. The prospect of a matched pair across the mix is mouth-watering, and at a price of UK£1,700 (+ VAT) per unit, this compares well with (perhaps less authentic) rivals. Furthermore, Carter has his hands on a Pultec MB-1 microphone preamp and intends to build a dual-channel unit and possibly an eight channel mic amp or 8 x 2 mixer (with 21 valves!). Can't wait. ■

PROS Very authentic Pultec clone; low noise; great build.

CONS No 'hard-wire' bypass of all circuitry.

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