

**TIMESTEP T-01MC PHONOSTAGE**

# Black Magic Box

**This unassuming black box from UK manufacturer Timestep is said to punch way above its £1000 asking price. Janine Elliot finds out if this is indeed the case.**



I have several phonostages of different sizes and abilities. I still prefer listening to vinyl over anything else as it gets me closer to the music and musicians, and perhaps a few scratches. My Californian Manley Steelhead at \$7300 way back, was a big price for some big satisfaction, but I still love my little aluminium box Reflex phonostage by Graham Slee. That is a single PCB and a separate switched-mode transformer. You see, us Brits tend to put more of the thought into the electronics design, rather than making it massive boxes, knobs, lights and switches. And Dave Cawley, who designed and builds the T-01MC, continues that British tradition of engineering rather than looks. Having said that, this 1U rectangular box, looking more like a box of

Black Magic chocolates, is drop dead...magic, especially when considering the price at £5 short of a thousand. The only visible life is the on-off switch (*rather than a button*) and a gorgeous red indicator (*rather than the usual blues...*). I think the original was amber. Apart from that it just has gold plated RCA ins and outs and ground connection with a ground-lift switch. Go inside, and then its modesty continues; a PCB on the right and on the left the expensive toroidal transformer incorporates a primary/secondary interwound screen, a silicone steel screening band and is potted into a circular mild steel can, and just to make sure of no hum or buzz nothing in the middle. You might think I'm poking fun at this, but I really am not. You see, Dave

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Cawley, like Slee, puts all his energies into the design. Flashy it isn't, functional it most definitely is.

Best known for aftermarket power supplies, and even a 78's speed controller for the Technics SL1200, Dave Cawley is also a designer of weather satellite technology and regularly visits the USA to lecture NASA scientists. He first made a phonostage in 1981 for a friend, but only recently now offering them to market. This black box is based on an old idea, only now making noises in the audio world in the last few years. Dave is quite open about its design, it having its roots in a 1960's Californian University design. There is nothing wrong with that. Any of you knowing me well will know that I still feel highly of some of my 1950's - 80's hi-fi;

"The circuit ... is a modified cascode, in much the same ways as low noise valves were used in communication systems. This is effectively a very high gain single stage with local only (*no global*) feedback. The RIAA equalisation is also not part of any feedback loop, in fact there are no feedback loops of any sort"

**Not only was this so quiet, but it was un-phased by anything I played at it.**

Indeed, this design is carefully sourced with the best components, from Shottkey diodes, matching high-grade Dale CMF55 resistors, Wima polypropylene capacitors in the RIAA stage, to the hand-selected FETs (*Field Effect Transistors*), sourced like fresh fish in Billingsgate market. The box it all fits in has enough room for a few fish to swim in the middle, though you would never guess by the musicality and life in this understated beast. This is pure minimalism; a one-fits-all design meaning less circuitry and switches for the shortest, cleanest signal path ensuring the highest performance. The design is based on 0.35mV sensitivity and 100Ω, 1nF

loading, designed for use on anything from a Denon DL-103 to a Clearaudio Goldfinger Statement. Luckily my Ortofon Kontrapunkt *b* works well from 100-200Ω, though Dave can match your cartridge on request. If the exterior (*and interior*) looks minimalist, the use of FET regulators in the dual mono design and power supply, and (*thank goodness*) no ICs or transistors ensured a sound that immediately made me sit up and listen. The specification clearly states "transistors : none; Op



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amps : none; ICs : none; integrated regulators : ...”, yes, you guessed it, none. Dave tells me;

“Some think FET's are new, but in fact I was using them in the 60's as low noise VHF amplifiers. They have significant advantages especially in the area of low noise. Even some valve phonostages sneak a FET in to get the lowest noise, but you might never see it!”

Indeed this was a very quiet performer, and I had no need to connect earth from my Townshend Rock, and as long as I didn't sit it directly on top of my Krell power amp (*come on, would I do that?*) it was as quiet as my cat when he's asleep and not having a nightmare. Patricia Barber 'Live in Paris was as quiet as the audience would allow.

“JFET's have the lowest noise in the audio spectrum and that was our choice as well as Pass Labs”, Dave told me. “We buy them from Toshiba in unopened boxes of 3,000 and select matched pairs of 8 per unit. This is a laborious process and we have many that we can't ever use”.

Not only was this so quiet, but it was un-phased by anything I played at it. The double bass in Barber's "Blue Prelude" was just so real I couldn't believe my Torus sub would get that low and with such clarity, putting to shame nearly any other phonostage I have ever heard, no matter what the price. As I got to use this machine more and more the bass got better and better. It wasn't bass heavy either, as the crash and ride cymbals were as clear as my glasses the first day I put them on; next track "Witchcraft" just showing how high it all could go. Only the 'width' and 'depth

of sound' showed why this was under a thousand pounds, rather than ten times that price, as with the Pass Labs XP-25. That beauty sounds more valvey than my Manley and this black box similarly sounds nothing like I would expect, perhaps the clue is "transistors : none”.

Whatever potion is in this magic box it really comes to life, and I really enjoyed this phonostage. The more I ran it in the better it got, particularly in the bass end. The T-01MC is more forgiving and less clinical than some, but that doesn't mean it is lazy or inaccurate. Far from it. It's just more human. The extra headroom meant nothing came under pressure whatever I fed it with. I enjoyed this amp more than I have any other I have reviewed. My Alfred Brendel Mozart Piano Concerto K595 (Academy of St

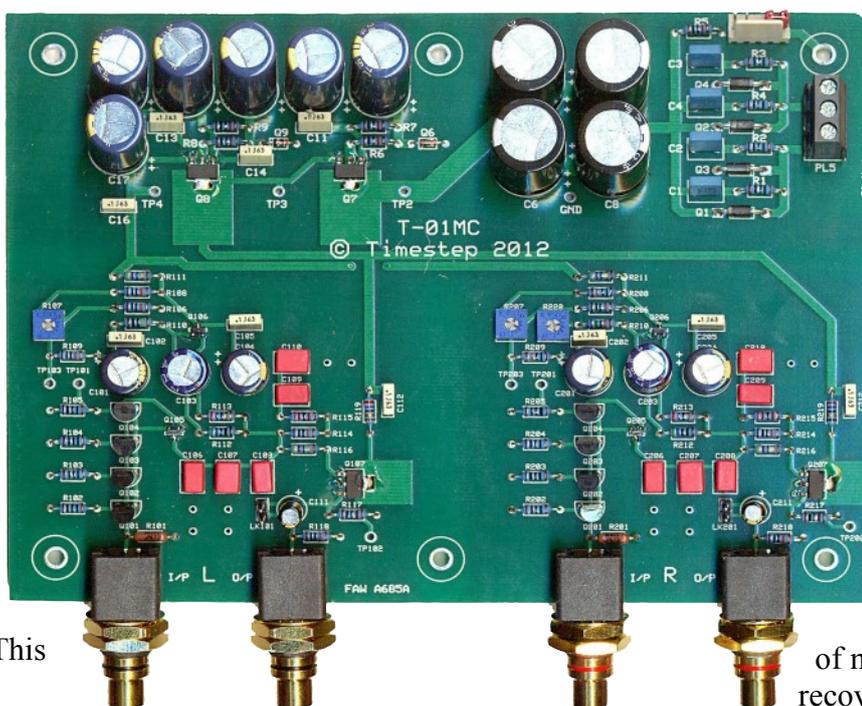
Martin-in-the Fields, Philips) was so spacious and controlled that I could hear the full decay of the piano notes, and the scratches in this aged and famous 1970's recording didn't detract from the music, indeed I didn't really notice them. The powerful percussion stabs and thrust from instruments in Andrew Lloyd

Webber's 21<sup>st</sup> Variation taken from Paganini's own, gave a force without any suggestion

of needing to take a breath to recover, as did the gutsy drum pattern in Mark Knopfler

"Cleaning My Gun" ('Get Lucky'). My ears didn't feel like they were listening to an automatic level control on my old Akai Cassette. My cartridge sat comfortably within the grooves without any sense of struggling.

Dave puts this ability down to the fact there is no global feedback, and especially to the use of a 72V supply rail. "Some units are slew-rate limited and elongate the pop, other are supply rail limited so clip and then take time to recover, but ours, because of the no global feedback, but especially due to the use



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of a 72V supply rail, does not suffer in this respect”, Dave tells me. Most phono-stages run on 24V. Goldfapp “Tales of Us” (180g) album, with their distinctive openness, country-style mixed with electronica and ambience just loved being put through the Timestep. This was so human and I got to understand the mind behind the music than I had before, more than with my Manley. This phonostage was gutsy without sounding like it was on steroids. It was full-bodied, without being stodgy; the mid-range was warm enough to make it welcoming without sounding like you had too much. A recent phonostage I reviewed at 9 times the price sounded thin in comparison. The Timestep was forward and more exciting and emotional where my Manley was recessed and calmer, and I loved it.

## CONCLUSION

So, I guess you get that I am quite excited by this little box. Its understated looks hide quite a big monster, and whilst it could easily have been put in a Slee-size box or conversely a two-tier monolith with handles, I’m glad they haven’t. This phonostage needs to look like a box of Black Magic, because that’s what it is.

**Sound Quality – 9.0/10**

**Value for Money – 8.9/10**

**Build Quality – 8.5/10**

**Overall – 8.8/10**

## Designer’s Comments

In 1981 I built my first moving coil phonostage with parallel high current low noise transistors. This phonostage stayed in use for 25 years until 2006, when I had the opportunity to evaluate 17 phonostages, at which point I realised that I could do better. I started on a design using quad dual matched low noise transistors, but this project only got as far as the prototype PCB.

Early 2012 and another half dozen phonostages were evaluated. I returned to designing again and found a paper by a Californian university dated 1969. Based on this paper I realised I could manufacture a £2,000 phonostage that would sound as good as a £10,000 one. Bold but true!

With a background in the design and manufacture of weather satellites I was determined to only use the best components possible. According to NOAA who are an offshoot of N.A.S.A., Timestep were once the largest manufacturer of HRPT weather satellite reception systems. We progressed low noise to such a point that NEC made special FET's for us, so I bought 3,000 Toshiba FET's and spent several days hand selecting and matching them. It is not only the choice of components, PCB layout is also critical, it must perform extremely well but also be affordable.

I believe that with the tonearm on its rest and with the volume control at absolute maximum, there should be no hum, none at all. There should be a just a nice soothing hiss, nothing else. Any hum or buzz, even if it isn't audible behind the music, will without doubt modulate the music and destroy the flow of the music. You may not hear it, but something will be not quite right.

Working with one of the best transformer manufacturers in the UK, we ordered one of every type and with half a dozen transformers under load, did indeed measure significant hum fields. In reality the results were not entirely unexpected. So we had yet more custom made and found the ideal specification. I believe the T-01MC has less noise than units costing ten times as much, even with their separate power supplies.

We also have a ground lift switch that allows the circuitry to float in the case of an earth loop. The chassis is still connected to mains ground for safety reasons. You will find our ground post insulated from our chassis, something I believe never seen before in a phonostage.

The T-01MC was designed and manufactured to sell at £2,000, and we think it's remarkably good for a £2,000 phonostage. However we know that we can sell a lot more at just under £1,000 and the economics of high quantity translate into lower unit costs, so we made it so!

**Dave Cawley**