

Heavy Metal



With an 8kg brass and tungsten platter, Technics new SP-10R Professional Direct Drive turntable was barely liftable, Noel Keywood finds. There's little like it.

When LP ruled – sales peaking in 1979 – radio stations, clubs and what have you needed turntables that started and stopped fast and were bullet proof. Hence the Garrard 401 I use with its rock-like construction. Over in Japan, at that time Pro turntables instead used the newly developed low speed d.c. motor, dubbed Direct Drive. Technics made one of the finest in the SP-10 Mk2. Their new SP-10R I'm reviewing here revives old glories then, for today's market in vinyl that is able to afford bigger price tags it appears, in this case £7,999.00 for the chassis alone.

The SP-10R is a low volume, highly specialised turntable made for those around the world aware both of their own needs and likely future values. As such Technics have not held

back in their attempts to establish it as a new market reference in both performance and durability. Perhaps spurred by a global petition asking them to re-start manufacture of the SL-1200 Mk2 Direct Drive turntable. This was a remarkable cry, likely convincing them there was global mileage in products so good they defied the ageing process, becoming legendary in doing so.

The SL-1200 Mk2 was replaced by the SL-1200G/GAE and then SL-1200GR turntable re-launches in 2017, the former an expensive £2800+ all-in-one package (i.e. with arm and plinth) with new technology Direct Drive motor, the latter a cut-down version with simpler single-rotor motor (£1300). All this gets into perspective the SP-10R. It uses a twin-rotor motor like that of the SL-1200G but is a basic turntable unit without plinth or arm.

With no arm or plinth and a higher price tag, you might wonder what the point is then. Bringing me to what pro turntables are used for. An apt example is that of George Blood's SP-15 turntable we published in our July 2018 issue with no fewer than four pickup arms around it – each arm carrying a different size 78rpm stylus for matching old 78s. This set up demands a motor unit mountable in a custom plinth. Anyone wanting a stone or slate plinth, or worked hardwood plinth also needs the SP-10R – as well as deep pockets! It might sound a bit esoteric but this unit appeals to a prestige market where top quality counts.

Technics use their own arm in the all-in-one packages, but people want alternatives: hence our use of a Timestep modified SL-1210 Mk2 in-house, fitted with an SME309 arm. This is in-effect a Pro working deck,

acting as our hard-used reference for LP.

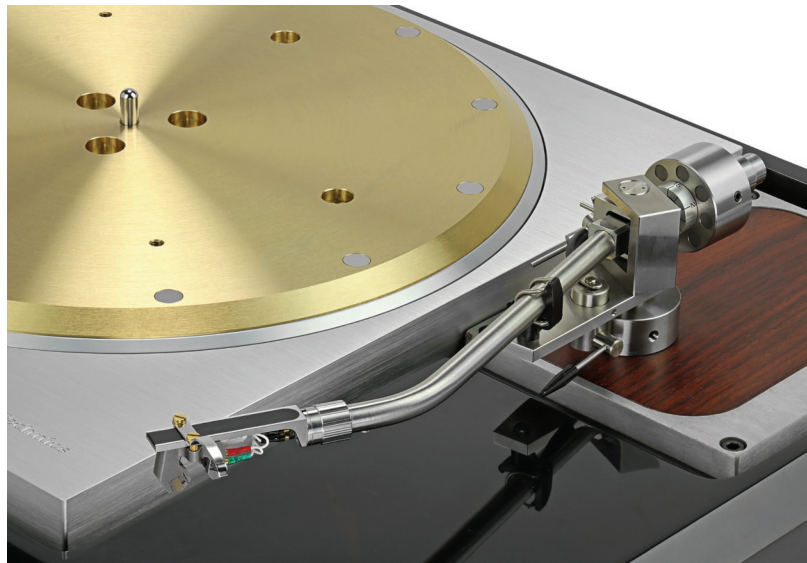
A bare-chassis reference deck then has a lot of potential uses, more than I know I suspect. All of which is to place the new SP-10R into its real-world context.

Technics asked us if we were happy to accept a basic unit, meaning we would have to mount the deck onto a plinth and fit an arm. Of course we were! But I didn't start up my circular saw. Plinth materials and construction then become an issue in themselves and we co-opted Timestep to sort this out for us, since they work with Technics, so our set-up comes tacitly approved. The decision here was to use a Technics plinth rather than an after-market plinth. On it was



Our review sample SP-10R, flown in from Japan, was fitted to an original Technics plinth of enormous weight.

fitted a high quality Japanese Glanz MH-94S stainless steel tonearm. We retained cultural authenticity, whilst also ensuring Technics would not question our choice of plinth! More seriously, Timestep were happy that Technics' original plinth was up to the job – we couldn't risk adding colouration from this source. The SP-10R is a three-speed turntable, 33, 45 and 78rpm, with +/-16% variable pitch (speed). Basic speed is chosen by three turntable mounted push-buttons, but an external power supply carries speed adjustment, in terms of % or rpm on a digital display, as well as five torque settings. The speed range is fine for general purpose use, even for most rare records where 90rpm is the upper limit. The only records not catered for are some historic cuts made at 16rpm for the spoken word, since 28rpm is the lowest speed possible.



The Glanz MH-94S stainless steel arm with its original headshell. We replaced this with an Ebony headshell. Cartridge - Ortofon A95 moving coil.

Missing is the convenient speed change slide control, illuminated stroboscope and pop-up cue light of consumer models; this unit is not purposed for DJ work, nor does it look particularly eye catching.

An unadorned Pro deck, it may well disappoint

potential buyers who'd like the traditional twiddly bits and a nice bit of lighting – but their choice of arm.

A point Timestep made is that the external (switch-mode) power supply sends command signals to motor servo-chips within the turntable chassis. There's no control circuitry within the power supply, so it can't be modded or replaced to affect performance. The start torque comes set at maximum (Torque 5), presumably for shortest start time, but Torque 1 gave best speed stability (see Measured Performance) and start time wasn't inconveniently slower. I used it at Torque 1.

Technics have given the new SP-10R identical 'bottom shape and screw locations' it says in the handbook, as earlier SP-10 MK2 and SP-10 MK3 models, so 'you can continue to use your cabinet and tonearm' – as we did. Its weight is considerable at 18.2kgs (40.2lbs), and our assembly weighed 31kgs (68lbs) in total – barely liftable. Dimensions are 365mm x 109mm x

365mm. The platter is of brass/cast-aluminium sandwich construction with a 'deadening' rubber layer, heavy tungsten weights at its periphery adding inertial mass. It weighs nearly 8kgs alone and comes with screw-in handles that facilitate lowering onto the platter spindle. Technics advise not to use an electrical screwdriver or impact hammer to tighten the fixing screws!

The main chassis is also cast aluminium. There are three speed selector buttons and a large square Start/Stop button. The unit runs at the default speeds unless adjusted, whereupon a small blue indicator LED turns orange. Turning power off then on returns to default speed, not last adjusted speed. However, dimmer and torque settings are retained at power off/on. A record clamp weight of up to 1kg is suitable, but not supplied. A rubber mat is supplied, but our pictures show the bare platter to reveal its construction.

SOUND QUALITY

Initially I fitted an Ortofon A95 moving coil cartridge to the Glanz arm but had reservations and



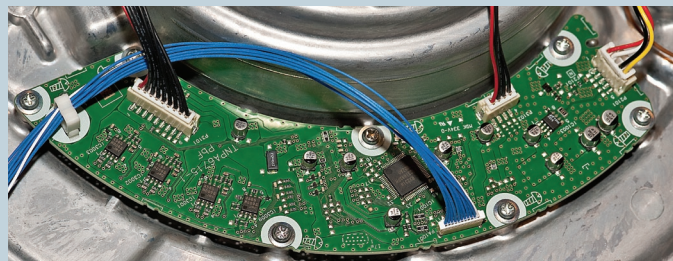
The strengthened main bearing carries three support pillars to retain the 8kg platter.

SP-10R MOTOR

The massively heavy 8kg platter of the SP-10R is driven by a twin rotor motor, like that of the SL-1200G, carrying powerful rotor magnets both above and beneath the plinth-mounted stator drive coils. In outline the motors are similar, but the SP-10R needs more torque to get its platter up to speed quickly so has additional drive coils. It also has a larger thrust pad at the base of the spindle to support the weight of the platter. Interestingly, Pro-ject MD Heinz Lichtenegger told me that the use of mass to sink energy from the platter and bearing was an important feature of their better decks, so sound quality wise this is not to be under-estimated, helping reduce low level vibration in the platter and the noise it produces.

A traditional criticism aimed at Direct Drive and still alive today on the 'net is that of 'cogging'. It's real and can be measured – our analyses clearly show it. But the levels are minuscule and with the SP-10R a small cogging component at 9Hz appeared at start up only, when the motor was required to apply maximum torque to get the platter up to speed quickly. Otherwise there was no measurable cogging, as you'd expect from such a massive platter with such high rotational inertia it irons out fast (flutter) speed variations. All the same, Torque can be reduced in the control unit and this improves speed stability even further.

As on the SL-1200G, Technics use pancake shaped stator drive coils, fed by power transistors driven from a motor driver chip controlled by a Renesas RX231 microprocessor, part of the RX23 family billed as suitable for Brushless DC (BLDC) motor control. Hall effect sensors, that sense the magnets in the rotor, provide positional feedback, as is common in BLDC motors. Rotational speed is sensed by a 'hybrid encoder' at the base of the platter bearing shaft. In all, the control electronics is hugely complex and Technic's own motor parts and platter (rotor) very sophisticated, being upgraded versions of SL-1200G parts it appears.



swapped to our Ortofon Cadenza Bronze. This decision was swung by sound quality of the whole assembly, in which the arm played a strong role. Measurement showed best results came from a Timestep T-01HS Ebony Wood Headshell Silver Wire 15gm headshell, so it was used in all listening tests, as well as a contoured rubber platter mat. An Icon Audio PS3 valve phono stage fed an Icon Audio Stereo 30SE

with 12in 45rpm Dance singles where synthesisers impose machine timing to rhythmic progression. Spinning Alison Goldfrap's 12in 45 'Ride A White Horse' – drum sequences came at me like speeding bullets, all in locked time order.

Beyond the issue of perfect pace I also heard a purity of tone that marks out this turntable's character; even with live acoustic performances such as Eleanor McEvoy's 'Isn't it a

"Offers a degree of unarguable perfection for professional studios and anyone working with vinyl."

Single-Ended amplifier driving our Martin Logan ESL-X hybrid electrostatic loudspeakers with, as always, an Isotek Evo3 Mosaic Genesis regenerated mains supply.

The SP-10R's amazing grip on timing was obvious from the outset, as always with Technics Direct Drives. Where belt drives wander in speed and sound temporally vague or even drunken when it gets bad, the SP-10R had a supreme grip on timing and pace. The property is most obvious

Little Late' the SP-10R brought clarity to the stripped down musical arrangement, her voice and guitar having a fresh and pure sound – likely attributable to lack of the frequency-modulation hash caused by speed variation.

With our Ortofon A95 moving coil (MC) cartridge this turntable assembly was vividly brighter in basic presentation than

most else, with forceful insight on tracks that juddered a little. I'm used to a more laid-back, organic sound. Changing from our deeply analytical Ortofon A95 to fuller-bodied Cadenza Bronze MC cartridge brought better subjective balance, if not the easy smoothness and stage depth of our SME309 arm, or my magnesium SME312S at home – known for its laid back performance.

The Glanz stainless steel tubular arm has an altogether brighter patina than the rolled alloy, tapered SMEs, turning a bright spotlight onto music. It made for impressive sense of insight, enhanced by the SP-10R's qualities of tonal purity. Even



The Glanz MH-94S arm is sturdily built from stainless steel.

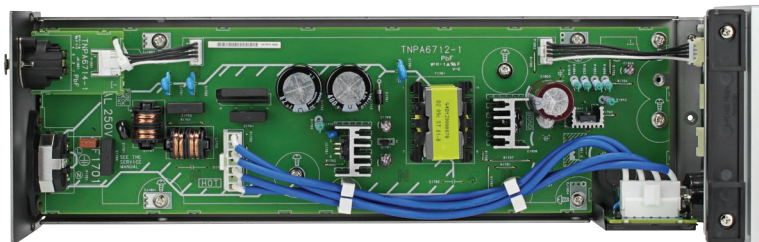
our Cadenza Bronze came over as brightly lit, as well as fast and hard edged in temporal character, where from my general experience it is "romantic" with honey-sweet treble quality and an easy going nature.

So as a system this one changed the sound in front of me – in quite extreme fashion. What I heard



The external power supply adjusts speed and torque. Also here is the Glanz tone-arm lead.





The external power supply is a switch-mode type, able to work on any mains voltage.

generally was enormous insight and fabulous temporal grip from the Technics, tonal qualities better described as vivid than laid back.

Enormously impressive was our wonderfully recorded (384kHz DXD) and cut 2L LP of Marianne Thorsen playing Mozart violin concertos. She was brought forward on the sound stage and spot-lit to an extent that her every small dance of bow on strings was made so brutally clear I couldn't help but be made aware just how wonderful her playing is. And again there was fabulous purity of tone within the strings of her violin.

Perhaps more surprisingly, the

sudden interjections of the Sondheim Solistene (Sondheim Soloists) were sudden and in strict time, seemingly locked into the performance, in rigid order. I say "surprisingly" because unlike synth timing, human timing is more mellifluous, yet all the same a tighter order was still apparent.

I'd muse that in this set-up best balance would be achieved with an Ortofon Cadenza Black that has a very mild balance. The system here was so finely honed and revealing that cartridge choice is a major issue. However, the role of the SP-10R in providing a rock-stable sound with great tonal purity and

low background noise was always apparent.

CONCLUSION

It's simple in appearance and easy to use: seemingly you don't get so much for £7,990.00 here! However, measurement showed the new SP-10R has unrivalled speed stability – everything that Technics claim in fact. Because under the simple exterior lies a massively powerful and capable professional Direct Drive motor of modern design. Arguably it's a tad too bare for domestic use, where an SL-1200G or GR has more visual appeal.

This is a spinner of vinyl for the serious, where you just want to punch a button and get on with it – there's a job to do. That's me with our Timestep modified Technics deck, so I understand and appreciate the intended role of the new SP-10R. It offers a degree of unarguable perfection for professional studios and anyone working with vinyl. If you want such unerring focus on the basics of playing LP – time to check the piggy bank.

MEASURED PERFORMANCE

The Technics SP-10R seemingly ran +0.12% fast according to our DIN 45 545 test disc but this is likely a minuscule difference between Technics speed standard and DIN, than turntable inaccuracy. The 3150Hz test tone remained rock steady at 3154Hz with no variation on the frequency counter – extraordinary.

This quartz-locked lack of variation of basic speed meant Wow and Flutter values (speed variation at low and high rates) would be low – and they were. Technics quote 0.015% wow & flutter (Japanese JIS Standard) and we measured 0.02% (JIS Standard, Torque 1) – which is close enough at such low levels. Timestep use a Denon test disc and this gives 0.014% figure they say. These are minuscule speed variation values, way below belt drives and far below what we can aurally detect (think 0.2% – ten times more).

Hi-Fi World turntable reviews quote Wow & Flutter to DIN Standard, using the DIN 45 545 test disc and DIN meter ballistics and weighting. DIN figures for the SP-10R are quoted below for comparison to our other turntable reviews. Japanese JIS figures are lower than DIN, due to a long time-averaged meter ballistic, but whilst the figures look better, the performance is still the same

of course.

More illuminating than a meter readout is our spectrum analysis that shows a low peak at basic rotational rate (0.55Hz / 33rpm) and very low harmonics above that frequency. The infamous "cogging" of Direct Drive motors was just visible at 9Hz but at minuscule level just after start up. It subsided to zero after 30 seconds or so, with Torque set as standard to maximum (Torque 5). This suggests Technics are using a 16 pole motor (16 x 0.55Hz = 9Hz), not a 12pole as in the SL-1200G/GAE where cogging was at 6.6Hz.

Reducing torque to minimum (Torque 1) brought obvious improvement, surprisingly cutting basic rate variation at 0.55Hz by half, as our analysis shows. This variation I thought was down to residual factors such as disc eccentricity (even though it is carefully centred using the locked groove) and cutting lathe variation – but perhaps not. The SP-10R produced its best result in speed stability tests at Torque 1 – and they are exceptionally low values, beyond all else.

Vibration testing the Glanz MH-94S arm with its standard slim headshell, using a Bruel&Kjaer accelerometer, showed a strong first order bending mode of the arm's tube at 275Hz and lively headshell behaviour. An Ebony

replacement headshell gave a far better result, good by any standard, ensuring our view of the turntable wasn't compromised.

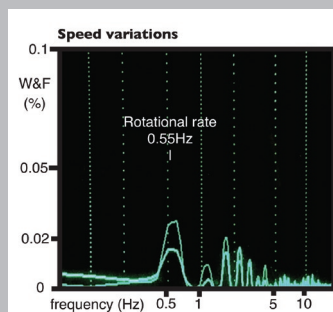
In all then, the SP-10R offers exceptional measured performance, having unmatched speed stability at Torque 1. **NK**

SPEED VARIATION

DIN Standard (Europe)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.05%
Total W&F wtd	0.04%

JIS Standard (Japan)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.03%
Total W&F wtd	0.02%

WOW & FLUTTER



TECHNICS SP-10R DIRECT DRIVE TURNTABLE

£7,999.00



OUTSTANDING - amongst the best

VERDICT

A near-perfect Direct Drive turntable for Pro use. Sets standards.

FOR

- speed stability
- adjustable torque
- ease of use

AGAINST

- no disc light
- no strobe lamp
- heavy

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