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**Panasonic to Unveil Technics Direct Drive Analog Turntable  
Prototype at IFA with an Eye on 2016 Commercial Launch**

**Osaka, Japan** – Panasonic Corporation today announced that it will exhibit a direct drive<sup>1</sup> analog turntable prototype equipped with a newly developed direct drive motor at the IFA 2015<sup>2</sup> trade fair to be held in Berlin from September 4 to 9, 2015. Panasonic is accelerating further development of this technology with a view to market launch in 2016 under the Technics hi-fi audio brand.

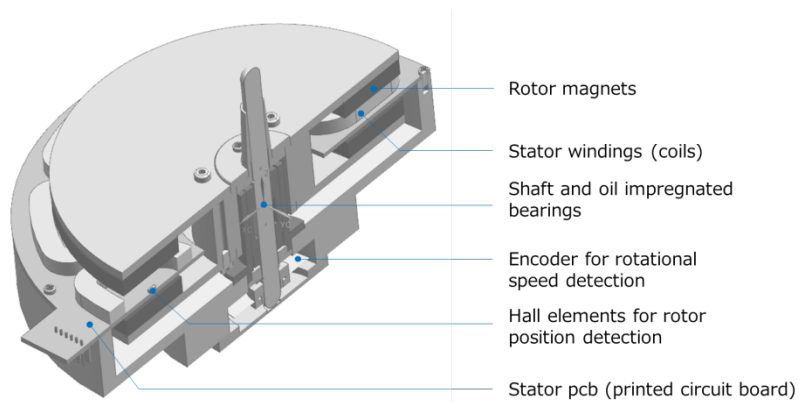
In conventional analog turntables, sound quality degradation caused by tiny vibrations of the motor and rotational speed fluctuations has been a major challenge. To overcome this challenge and assure smooth, highly-stable rotation, Panasonic has developed a new direct drive motor and redesigned high-precision motor control technology. This makes it possible to reproduce the warm sound and subtle nuances of musical expression engraved in the analog record grooves.

The newly-developed direct drive motor has the following features:

- Coreless stator design that eliminates cogging<sup>3</sup>
- Twin rotors that reduce bearing load and minimize tiny rotational fluctuations (wow & flutter), while maintaining high torque
- Oil impregnated high-precision bearings that minimize unwanted vibrations during rotation

The redesigned direct drive motor control technology involves the following:

- Spindle motor control technology<sup>4</sup> that switches the stator winding drive mode according to operating conditions to provide both high starting torque and high rotational stability
- Adaptive rotational control technology<sup>5</sup> that achieves optimized compensation according to precision rotational position detection and load fluctuation factors



Cutaway view of direct drive motor structure

## Development background and goals

Demand for analog turntables has been on the rise in recent years as music aficionados once again find the value in the sound of analog records, mainly in the North American, European and Japanese markets.

Panasonic put on sale the world's first direct drive analog turntable<sup>6</sup> in 1970 under the Technics brand. This was followed by the SL-1200 series<sup>7</sup>, which earned the brand critical acclaim for its outstanding sound quality and reliability, not only from audiophiles, but also dance and music clubs, studios, broadcasters and other commercial users around the globe. Technics has become synonymous with "turntable" as the first choice of club DJs, whose support has remained strong and who are awaiting a new model to come out.

This September marks the beginning of the second year since the Technics brand's rebirth in 2014 and the 50th year since its birth<sup>8</sup>.

To celebrate this opportunity, Panasonic has developed an analog turntable that combines its heritage of "emotive acoustic technology" and advanced digital technology to provide new technological synergies. To deliver greater satisfaction to customers worldwide, the company will continue to refine its technology, including the prototype on display at IFA, which draws visitors who demand the highest sound quality and are well-versed in audio equipment.

1. In a direct-drive turntable, the turntable platter spindle is, in fact, the shaft of an ultra-slow servo-controlled motor.
2. IFA 2015 consumer electronics exhibition held in Berlin, Germany, Friday the 4th through Wednesday the 9th of September.
3. Cogging is motor speed ripple arising from the rotational angle dependence of magnetic attraction between rotor magnets and stator windings.  
Minimized cogging assures smooth rotation and enables precision servo control.
4. Technology that switches stator winding drive mode between high-torque startup and normal platter speed, which requires accurate rotational speed control.
5. This uses an encoder to detect rotational position at high speed, together with a compensation table based on load fluctuation factors on bearings and other variables, thereby enabling adaptive individually-optimized control.
6. The world's first direct drive turntable to be marketed. Model number SP-10. Technics direct drive technology successfully overcame the problems of conventional drive systems (belt-drive and rim-drive), such as rubber deterioration causing rotational speed fluctuation and speed deviation, as well as noise caused by belt vibration. As a result, direct drive became the new standard for analog phono reproduction.
7. The SL-1200 series evolved through ten models (listed below) during the hi-fi audio boom, beginning in 1972 with the SL-1200 and continuing through 2007 with the SL-1200MK6. Over a period of 35 years, it has continued to be a long-run hit, evolving to transcend the role of "record player" and gain unshakable renown and prestige for performance that satisfies the senses and meets the needs of demanding professionals, particularly DJs who use it as a musical instrument.

### SL-1200 Series:

- |   |                                 |                    |
|---|---------------------------------|--------------------|
| • 1972: SL-1200                             | • 1979: SL-1200MK2              | • 1989: SL-1200MK3 |
| • 1995: SL-1200LTD                          | • 1997: SL-1200MK3D, SL-1200MK4 |                    |
| • 2002: SL-1200MK5, SL-1200MK5G, SL-1200GLD | • 2007: SL-1200MK6              |                    |
8. Born in 1965, the Technics brand name was coined from the word "technology," expressing the brand's commitment to delivering high quality audio reproduction faithful to the original sound. Technics proceeded to expand into hi-fi audio markets around the globe. Following the parent company's 2008 name change to Panasonic, Technics began a hiatus in 2010. In September 2014 Panasonic revived Technics as a dedicated hi-fi audio brand with the slogan "Rediscover Music", to deliver richer, emotionally-engaging sound and an emotive musical experience while staying true to its original policy of sound source fidelity.

**About Panasonic**

Panasonic Corporation is a worldwide leader in the development of diverse electronics technologies and solutions for customers in the consumer electronics, housing, automotive, enterprise solutions and device industries. Since its founding in 1918, the company has expanded globally and now operates 468 subsidiaries and 94 associated companies worldwide, recording consolidated net sales of 7.715 trillion yen for the year ended March 31, 2015. Committed to pursuing new value through innovation across divisional lines, the company uses its technologies to create a better life and a better world for its customers. To learn more about Panasonic: <http://www.panasonic.com/global>

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