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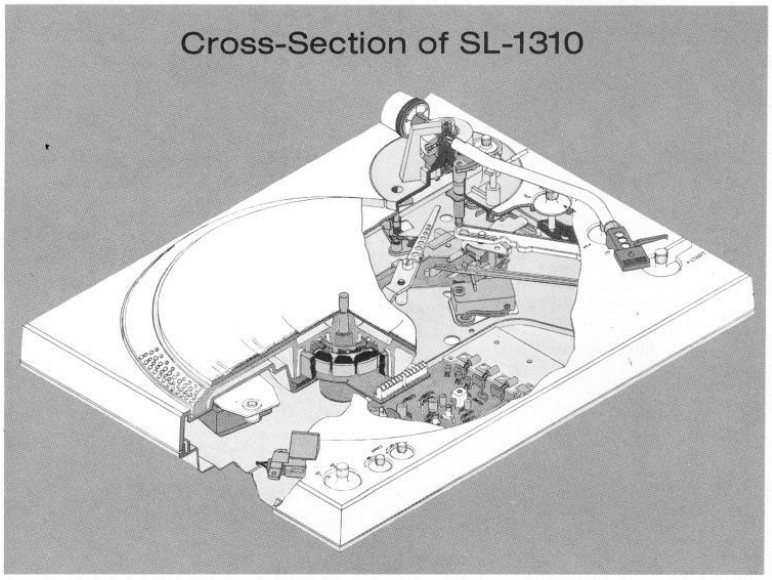
Technics SL-1310

Direct-Drive Automatic Turntable

SL-1310 Direct-Drive Automatic Turntable

The direct-drive principle innovated by Technics, which has altered the course of turntable development, has now been carried a step further. Not only does the SL-1310 feature fully automatic play, but it incorporates an ingenious redesign of the direct-drive motor itself. The results are unprecedented accuracy and stability, plus a new low-silhouette styling.
A complement to the turntable/motor section is the new tonearm. Its extra-long, low-mass, low-friction design is worthy of any deluxe record-playing system.
With its attractively styled die-cast aluminum base and removable hinged acrylic dust cover, the SL-1310 represents the ideal combination of performance, functional convenience and appearance.



Design Innovation: The Turntable Becomes the Motor
In the revolutionary direct-drive motor first introduced by Technics, the separate turntable platter rested directly on the rotor. On the SL-1310, the platter *is part of the motor*. In fact, it is the rotor. And the attractive base is no longer an inactive element used only to house the motor. The housing is the motor stator. All together, this simplification of parts and hardware gives the benefits of extreme precision with utmost reliability and stylishly compact appearance. The automatic mechanism because it is linked to this precise motor, is also exceptionally reliable. And finally all these characteristics can be achieved with economy.

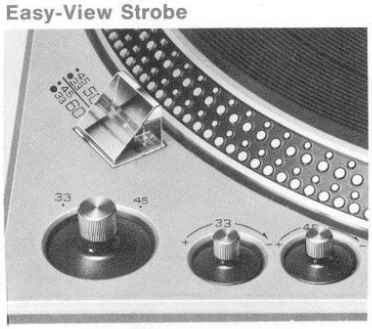
Efficient, Low-Power Operation
Following the success of the first Technics direct-drive turntables, many other manufacturers have begun to announce direct-drive designs of their own. However, none has matched our high-efficiency energy conversion, which results in a drastically lower figure for power consumption—a factor that is most important in terms of longer life and reliability.
Less than 0.1 watt is consumed to drive the turntable platter, compared to AC motors that consume 100 times as much.
Total power consumption—including circuitry, transformers and the strobe lamp—is less than 8 watts.
The important thing is not the saving of a few pennies of electrical power, but the following: less heat, less vibration, less stress on the control circuitry and less evaporation of lubricants. The result is not merely longer motor life, which has been achieved in other direct-drive designs, but longer life *of the entire component assembly*.

Superb Specifications
Technics means uncompromised performance. Wow and flutter remain at the low figure of 0.03% W.R.M.S. (JIS C5521) that has been associated with direct-drive turntable performance. Rumble figures continue to rank among the world's finest: depending on the system of measurement, −50 dB (DIN 45539A), −70 dB (DIN 45539B) or −60 dB (IEC 179B).
As to long-term drift, the SL-1310 maintains below 0.1% error, measured over a 30-minute period, which is well below the drift figure for conventional AC motors. Normal drift for a well-controlled AC power source is about 0.15% *per minute*. Rotation accuracy of the servo-controlled direct-drive motor, is completely uneffected by power-line frequency variations.
An interesting point here is that even professional tape recorders and disc-cutting lathes exhibit more drift than this. The accumulated error may easily exceed 0.6% in commercial recordings, and may even exceed 0.1% in the specially cut test records used for measurement of drift. In other words, if you can detect audible pitch drift in any record played on the SL-1310, blame the record, not the turntable. Drift is better than the measurement capability of many fine test set-ups.

Large, Dynamically Balanced Platter
The turntable platter is dynamically balanced and carefully coordinated with the torque of the motor for optimum performance. Thus giving an excellent build-up of a half rotation from a cold start, characteristic of Technics direct-drive turn-

tables. The turntable diameter is a generous 33 cm (13"), with full disc diameter plus a tapered rim.

Easy-View Strobe



Two sets of strobe markings appear on the tapered rim for 33-1/3 and 45 RPM, at both 50 and 60 Hz synchronization, with either type of AC source. The prism strobe lamp lights when power is turned on, thus serving as a pilot lamp. The combination of prism lamp and tapered strobe rim results in easy viewing from any position.

Two-Speed Selector plus Variable Pitch Control

A rotary switch selects either of the two record speeds. In addition, separate variable pitch controls for each speed permit adjustment over a range of 10% for each speed without affecting the other.

Automatic Start, Stop and Return

When the function lever is moved to "Start," the tone arm automatically lifts and sets down at the start of any standard 12", 10" or 7" record, once the proper record size has been selected. At end of play, the tone arm automatically returns to "Rest" position and power is turned off. The system works smoothly and with minimal mechanical noise. Automatic shut-off may be initiated at any time during the play cycle. The minimal load of the return lever on the arm imposes no restrictions on arm operation during play or on cartridge selection: the lightest-tracking cartridges may be selected and used at the maximum tracking force.

Unlike some automatic-play turntables, completely versatile manual operation is possible. The turntable begins to rotate whenever the arm is manually operated, and a cueing lever makes it easy to start at any point on the record.

Memo-Repeat Mechanism

A record may be played once, up to five times—or repeated indefinitely. This unique Technics feature is not matched by any other type of repeat-play disc system in a home player.

Sensitive, Gimbal Suspension Tone Arm

Four pairs of pivot bearings enhance the rotational sensitivity of the gimbal-suspended tone arm. Its free, gyroscopic movement ensures flawless balance during tracking. The effective (pivot-to-stylus) length of the tone arm is 230 mm and a principal factor in the arm's outstandingly low tracking error. The low tracking error facilitates the design of the anti-skating control for precise and reliable tracking, unlike the erratic action of some systems. With this design a single precise anti-skating scale counteracts side thrust for all types of styli, eliminating the need for more than one such calibrated scale. Effective arm mass has been kept very low to accommodate premium high-compliance cartridges with optimum reproduction quality and without problems of low-frequency resonance. The precision-crafted, low-mass head shell is of die-cast aluminum and employs the universal-type 4-pin connector. Gold-plated contacts prevent hum and other problems. The easy insertion adjustment for exact stylus overhang permitted by this design avoids the problems of slide-in type head shells.

The SL-1310 accommodates cartridges weighing between 4.5 and 13 grams. Tracking force is adjustable between 0 and 3 grams in increments of 0.1 gram.

Other Features

NOISELESS AUTOMATIC OPERATION

The SL-1310 automatic cycling operates so quietly, there's no need for any muting switch to cancel out noise.

HINGED, DETACHABLE DUST COVER.

Operation is possible with dust cover closed or the cover may be removed altogether.

FEEDBACK-INSULATED LEGS.

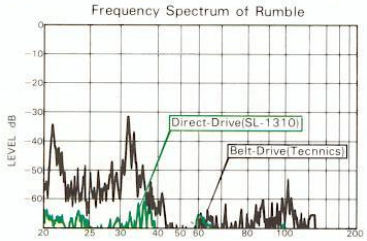
The four legs are audio-insulated to block outside vibration and prevent audible feedback.

LOW-CAPACITANCE PHONO CABLES. High-frequency audio losses are eliminated and discrete 4-channel (CD-4) discs can be played through a suitable cartridge with no deterioration in carrier frequencies.

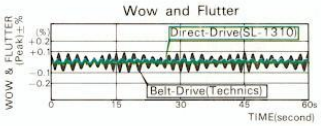
SL-1310 High-Fidelity Direct-Drive Automatic Turntable

1. Aluminum Die-cast Base
2. Dynamically Balanced Turntable Platter
3. Prism Strobe Lamp
4. Speed Selector
5. Variable Pitch Controls
6. Strobe Markings
7. Die-cast Head Shell
8. Universal-Type 4-Pin Connector
9. Start/Stop Lever
10. Record Size Selector
11. S-shaped Tubular Tonearm
12. Memo-Repeat Selector
13. Cueing Lever
14. Gimbal Suspension
15. Anti-Skating Control
16. Stylus Pressure Scale
17. Balance Weight

Frequency Spectrum of Rumble



Wow and Flutter



Specifications

Turntable Section

Type: Automatic direct-drive
Turntable platter: Aluminum diecast, 33 cm (13") diameter
Motor: Ultra-low speed brushless DC motor,
Wow and flutter: 0.03% W.R.M.S. (JIS C5521)
±0.042% w. zero to peak (DIN 45507)
Rumble: −60 dB (IEC 179B)
−50 dB (DIN 45539A)
−70 dB (DIN 45539B)
Pitch control range: 10%

Tonearm Section

Type: Gimbal suspension, S-shaped tubular, universal 4-pin connector, direct read-out stylus pressure
Effective length: 230 mm ($9\frac{1}{16}$")
Overhang: 15 mm ($\frac{19}{32}$")
Offset angle: 21.5°
Stylus pressure range: 0–3 g in increments of 0.1 g
Stylus pressure tolerance: Within 0.1 g (0.25–3 g)
Minimum stylus pressure: 0.25 g
Available cartridge weight: 4.5–9 g
8.5–13 g(with auxiliary weight)
Tracking error angle:
Within +3° at 145 mm ($5\frac{45}{64}$") from center,
+1° at 55 mm ($2\frac{7}{16}$") from center
Tonearm friction: 6–8 mg (Starting force)
Effective mass: 23 g with 6 g cartridge

General Specifications

Power consumption: 8.0 watts
Power supply: AC 110/120/220/240 V 50/60 Hz
Dimensions: (W × H × D)
45.3 × 13.9 × 36.6 cm
($17\frac{13}{16}$" × $5\frac{1}{2}$" × $14\frac{13}{32}$")
Weight: 9.4 kg (20.7 lb.)

National **Technics**
Matsushita Electric

Specifications subject to change without notice.

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