Technics SL-1015

R&B series

Quartz Synthesizer
Direct Drive Turntable System

AUDIO / HI-FI

QUARTZ

Excellent Turntable System Components Carefully Designed for Each Other

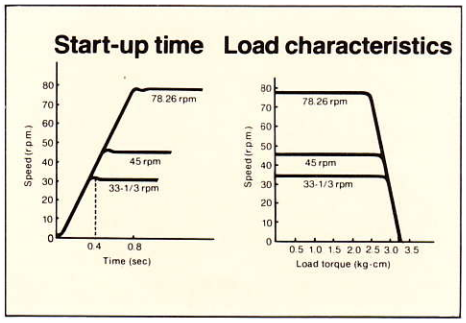
The Technics SL-1015 is a high-performance turntable system consisting of the SP-15 Quartz Synthesizer Direct Drive Turntable, the SH-15B1 anti-resonant Turntable Base, and the EPA-500 System Tonearm with arm base and electronic stylus pressure gauge. The System Tonearm has special significance to the audiophile because of its interchangeable arm assembly. Optional arm units of various masses can be purchased and used to accommodate virtually any cartridge compliance.
Discriminating audiophiles will be pleased with this turntable system that brings together a turntable with selectable, quartz pitch control adjustable in three speeds in 0.1% steps to ±9.9% (for a total of 597 possible steps), a single molded, heavy-rubber material base, and a tapered, tubular System Tonearm. The sum of these components adds up to a very remarkable turntable system—even more remarkable than an examination of its individual parts might suggest.

Quartz Synthesizer with Digital Display and Precise Pitch Control in 0.1% Steps to ±9.9%

The SL-1015 adopts the quartz synthesizer pitch control system developed for the SL-1300MK2 series. With this quartz-locked pitch control, precise variation of all three standard speeds is possible for a total of 597 different speeds. You can expand or compress the playing time of a record, change pitch in very small increments, and match the pitch to instruments and make musical notations of a record. The amount of pitch control you select is clearly shown by a bright LED digital display.

Instant Starts (0.4 sec.) and Stops (0.4 sec.) Thanks to High-Torque (3 kg·cm) Direct-Drive Motor

The SL-1015 uses a high-torque, integral rotor-platter direct-drive motor for a start-up torque of 3 kg·cm. At 33-1/3 rpm the large heavy platter starts in 0.4 seconds and stops in the same insignificant amoumt of time. Thanks to the double braking system—mechanical and electronic—stops are sure and instantaneous. In fact, load torque is so outstanding that speed deviation would be 0% even with an unbelievably high tracking force of 500 g.



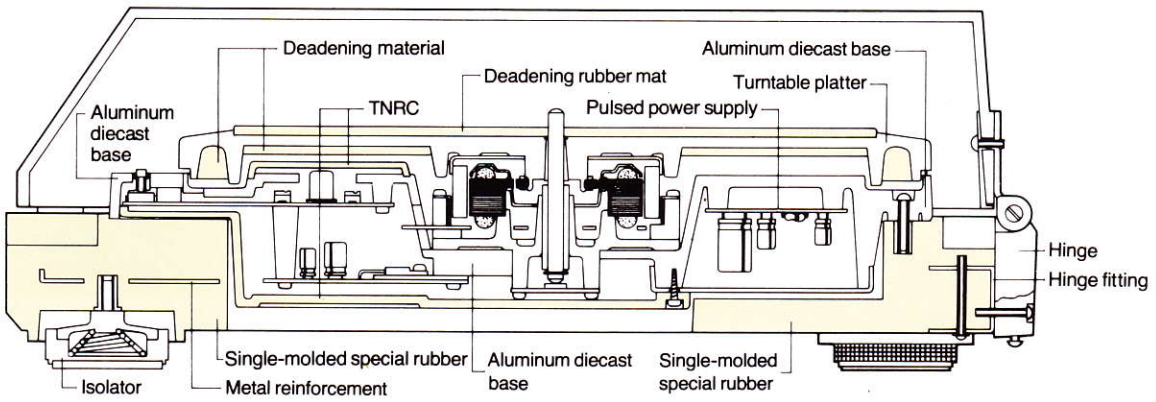
Large Turntable Platter with Threefold Damping

To cancel resonance and damp out external vibrations, the large aluminum diecast turntable platter of the SL-1015 is damped at three points. Rubber matting is placed in the underside, rim, and top surface of the turntable platter for threefold damping. This damps out platter resonance and external vibrations so that acoustic feedback is suppressed even at high pressure levels. The large 33.9 cm diameter platter weighs 2.7 kg and has a very high moment of inertia of 380 kg·cm².

Single Molded, Heavy Rubber Turntable Base for Isolation from External Vibrations

The single molded turntable base employs a combination of special rubber material and insulators to cut vibration and to provide outstanding anti-resonance characteristics. The base material itself is actually an insulator; and the main parts of the turntable, tonearm, and mounting base are specially isolated with visco-elastic material (heavy rubber). The hinges for the dust cover are coupled with heavy rubber material, and spring-loaded feet are used to further suppress the transmission of vibrations. The surface of the base is finished in an attractive simulated rosewood veneer.

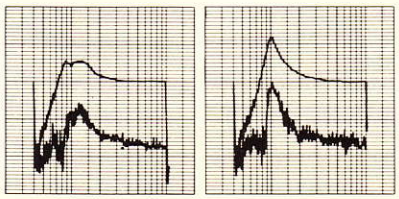
Cross section of the SL-1015



For Precise Matching to Different Cartridges: A System Tonearm with a Titanium Nitride, Tapered Tubular Arm Including a Dynamically Damped Counterweight

The Technics EPA-500 System Tonearm employs a specially designed counterweight at the rear of the interchangeable arm. This counterweight is equipped with a dynamic damping device that provides a very effective means of damping the bass resonance peak produced by a cartridge-tonearm combination. This system causes

Low frequency range response



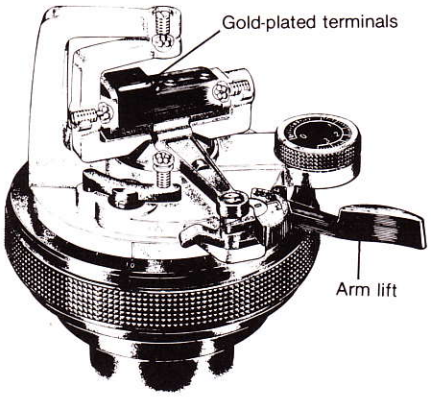
with dynamic damping | without dynamic damping

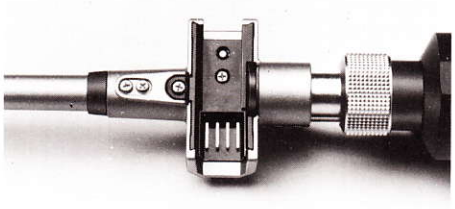
no increase in low-frequency range mechanical impedance. The tapered tubular arm is made of nitrogen-hardened titanium (Titanium Nitride). In order to reduce the effective mass of the arm, it is tapered toward the headshell for an actual effective mass of 8 g (without cartridge) to provide precise matching when using a high-compliance cartridge. Easy arm-unit interchangeability is a feature audiophiles will love for two reasons. First, it permits cartridges to be pre-mounted in arm units and exchanged easily (as with the universal type S-shaped tonearms). Second, Technics has designed arm units and counterweights that match the compliance characteristics of different cartridges for faithful disc reproduction.
The standard tonearm unit in the SL-1015 system is the model EPA-A501H. This is ideal for cartridges ranging from 5~7 grams in weight, having a compliance of $10\sim14\times10^{-6}$ cm/dyne (100 Hz, dynamic).
The following optional tapered tubular arm units are also available and can be quickly and easily interchanged:
EPA-A501M for use with medium compliance cartridges; EPA-A501L for use with low compliance cartridges; EPA-A501E for use with extra-high compliance cartridges; EPA-A501G for use with heavy-weight, low compliance cartridges.

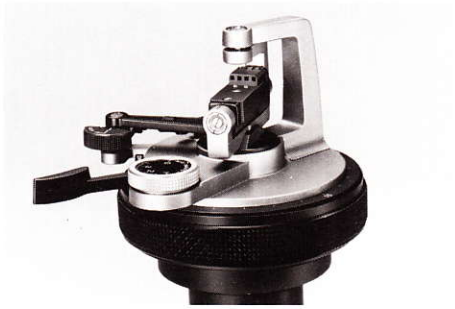
Arm Base with Precision Gimbal Suspension

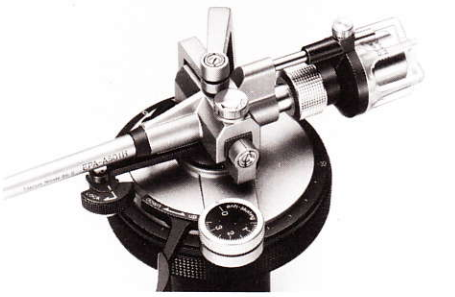
The arm base of the SL-1015 is equipped with a true gimbal suspension system of extremely low friction in both planes.
Four high-precision ball bearings,two each for the horizontal and vertical axes of rotation, pivot the arm in such a way that it is effectively supported at one single point.
Arm sensitivity is extremely high thanks to a bearing friction of only 7 milligrams or less in both axes.
The interchangeable arm unit is fastened to the base by a slide-in connector.
By using a 12-spiral helicoid, precise tonearm height adjustment of up to 20 mm is possible.

Internal construction of gimbal suspension









Supplied with Electronic "Stylus Pressure Gauge"

A very valuable accessory, the Technics Stylus Pressure Gauge, is supplied with this turntable system. Operating on the semiconductor strain gauge principle, this purely electronic device employs two semiconductor strain gauge elements and two transistors to give highly accurate readings on a large meter.
The gauge is very sensitive to slight variations in tracking force so that you can obtain the adjustment that is just right for each of your cartridges.

Other Features

- Full cycle detection frequency-generator and integral rotor-platter direct-drive motor.
- Very efficient pulsed power supply circuit.
- Good connection between arm unit and arm base thanks to a slide-in, self-cleaning connector with gold-plated terminals.
- Low capacitance (41.5 picofarads per meter) and low resistance (39.5 milli-ohms per meter) phono cable.
- Pitch lock device for locking speed selector and pitch controls.

Matching Table of Arm Units, Cartridge Compliances, Cartridge Weights.

Cartridge / Arm units	Type		(H) High compliance	(M) Medium compliance	(L) Low compliance	(E) Extra high compliance	(G) Heavy weight, low compliance
	Weight (g)		5 ~ 7	5 ~ 7	5 ~ 7	5 ~ 6.5	7 ~ 11
	Compliance ($\times10^{-6}$cm/dyne)	Dynamic (100Hz)	10 ~ 14	7 ~ 10	5 ~ 7	14 ~ 25	6 ~ 10
		Static	20 ~ 28	14 ~ 20	10 ~ 14	28 ~ 50	12 ~ 20
EPA-A501 H			◎	○	○		
EPA-A501 M			○	◎	○		
EPA-A501 L					◎		
EPA-A501 E						◎	
EPA-A501 G							◎

◎: Optimum Match ○: Suitable Match

Technical Specifications

TURNTABLE SECTION

Type	Quartz Synthesizer Direct Drive
Motor	Ultra-low-noise, brushless, heteropole DC motor
Control method	Quartz-phase-locked control
Turntable platter	Aluminum diecast, diameter 33.9 cm (13-11/32''), weight 2.7 kg (5.9 lb) (including rubber matting) moment of inertia 380 kg·cm² (130 lb·in²) (including rubber matting)
Speeds	33-1/3, 45, 78.26 rpm
Speed adjustment range	±9.9% in 0.1% steps (digital read-out)
Starting torque	3 kg·cm (2.61 lb·in)
Start-up time	0.4 sec. (to 33-1/3 rpm from standstill)
Braking time	0.4 sec. (at 33-1/3 rpm)
Braking system	Combination of electronic and mechanical brakes
Speed fluctuation due to load torque	0% within 2.5 kg • cm (2.2 lb • in) load torque (up to 500 g tracking force)
Wow and flutter	0.008% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A weighted)
Rumble	−78 dB DIN B (IEC 98A weighted) −56 dB DIN A (IEC 98A unweighted)

*This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

TONEARM SECTION

Type	System Tonearm interchangeable arm unit with dynamic damping device
Suspension	Gimbal suspension
Arm tube	Titanium-Nitride tapered pipe
Effective length	250 mm
Rear stub length	68~85.5 mm (from point of suspension)
Range of height adjustment	42~62 mm (from mounting surface to arm tube center) (20 mm at helicoid part)
Overhang	15 mm
Lateral tracking error angle	+1°6′ at the inner groove +2°6′ at the outer groove
Friction	7 mg or less (lateral, vertical)
Effective arm mass	8 g (without cartridge)
Suitable cartridge compliance	10~14×10⁻⁶ cm/dyne (100 Hz, dynamic) 20~28×10⁻⁶ cm/dyne (static)
Suitable cartridge weight	5~7 g
DC resistance of phono cable	39.5 mΩ/m
Capacitance of phono cable	41.5pF/m
Pitch of mounting screws	Standard 12.7 mm (1/2'')
Headshell pins	1.2 mm diameter, 4 pins
Diameter of arm mounting hole	62 mm∅

STYLUS PRESSURE GAUGE SECTION

Type	Stylus pressure gauge
Principle	Electronically controlled semiconductor strain gauge with zero and gain calibration
Power supply	DC 3 V (2 silver oxide dry cells)
Measuring range	0.5~3 grams tracking force
Semiconductor elements	2 semiconductor strain gauge elements, 2 transistos, 1 LED
Dimensions (H×W×D)	2.4 cm×14.7 cm×5.2 cm
Weight	125 g

GENERAL

Power supply	AC 120 V, 50/60 Hz
Power consumption	11 W
Dimensions (H×W×D)	17 cm× 56.6 cm×46.5 cm (6-1/32''×22-1/64''×18-1/64'')
Weight	23.5 kg (51.7 lb)

Technics
R&B series

Panasonic Company
Division of Matsushita Electric Corporation of America
R & B Division
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Technics SP-15

Quartz Synthesizer Direct Drive Turntable

AUDIO / HI-FI

QUARTZ

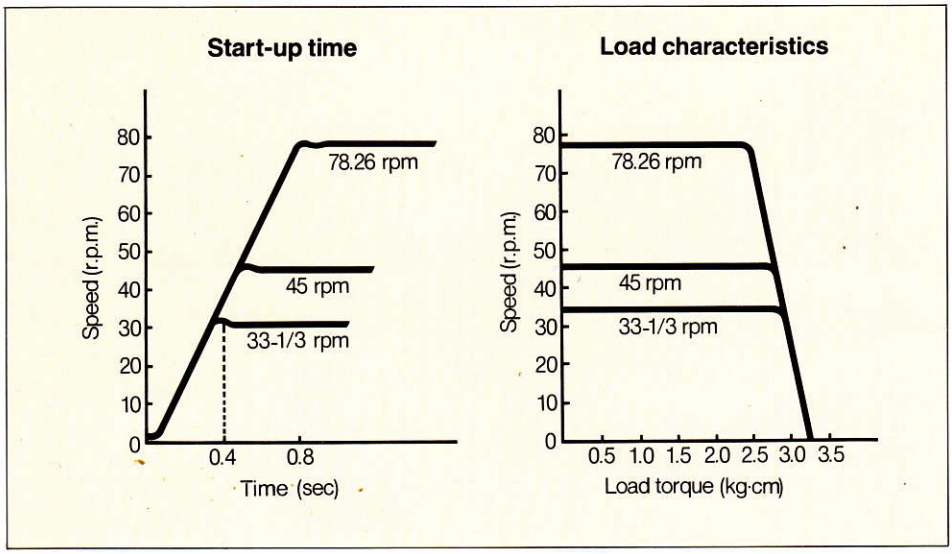
Professional Series

Setting High Standards for Professional Performance and Flexibility

When you are looking for the best turntable your money can buy, it makes sense to see what professionals choose. In a vast number of cases that means a turntable from Technics, the originator of direct drive and quartz synthesizer pitch control systems. For example, the SP-10MKII and other Technics models are used by broadcasters in over 25 countries around the world, including Britain's BBC.
The new SP-15 likewise offers you high professional standards of performance plus the flexibility and convenience that are important for home use. Features include quartz synthesizer pitch control (as in the original SL-1300MK2 series), full cycle detection FG, extremely high torque for fast starts and load stability, heavy duty construction, highly effective damping, a pulsed power supply, and a special lock mechanism to prevent accidental misoperation.

Quartz Synthesizer Pitch Control in 0.1% Steps up to ±9.9% at All Three Standard Speeds—with Digital Display

The vast majority of quartz-controlled turntables do not maintain their usual level of rotational speed accuracy when the pitch control is used. This is because the reference frequency in the servo loop is fixed. But in Technics' quartz synthesizer system, the reference frequency itself can be changed, or synthesized, so that rotational speed is always as precise as at standard speeds. This quartz phase-locked pitch control system is a major feature of the SP-15 because it gives precise variation in 0.1% increments above or below any of the three standard speeds (33, 45, 78 rpm) up to a maximum of ±9.9%.
With this precision system you can match the pitch of a record to that of a musical instrument, or expand and compress playing times to fit a given broadcasting time slot. The amount of pitch variation you select is clearly shown by a bright digital display above the pitch control buttons.



Instant Starts (0.4 sec.) and Stops (0.4 sec.) Thanks to High Torque and Advanced Circuitry

Fast starting times and stopping times are a real advantage in broadcasting and other professional applications. The SP-15 comes up to full rotational speed within a mere 0.4 seconds after pressing the start button. This virtually instantaneous starting time is achieved by the very high torque (3 kg·cm) of Technics' heteropole, direct drive motor, backed up by the advanced circuitry of the servo system.
The 33.9 cm diameter 2.7 kg platter has a very high moment of inertia of 380 kg·cm² to help maintain speed accuracy regardless of load fluctuations. In fact, load torque is so high and the servo control circuit so responsive that speed deviation is 0% for tracking forces up to 500 g. This means that turntable speed would not be affected even with 250 tonearms each tracking at 2 grams.
An ingenious combination of mechanical and electronic braking systems provides an extra measure of convenience and precision control. The turntable is brought to a smooth and complete stop within only 0.4 seconds of pressing the stop button.

Large Turntable Platter with Threefold Damping

To eliminate resonances and damp out external vibrations, the large 33.9 cm aluminum diecast turntable platter of the SP-15 is damped at three

points. Specially fabricated rubber matting is placed in the underside, rim, and top surfaces of the turntable. As a result, acoustic feedback is suppressed even at high sound pressure levels.

Precision Diecast Aluminum Base and TNRC Base

Like the platter itself, the base is made of diecast aluminum. The underside of the base is made of TNRC (Technics Non-Resonant Compound) a unique acoustic material specially developed by Technics and used with great success in a number of other Technics turntables. Thanks to this TNRC base and the other anti-resonance measures incorporated in the SP-15, this turntable exhibits excellent resistance to acoustic feedback.

Advanced IC's Provide the Performance of over 3000 Conventional Circuit Components

Thanks to a number of large scale integrated circuits, the SP-15 can deliver the kind of superb performance already described without requiring excessive space for the electronics. Compact size and precision operation are achieved by using four specially developed IC's which perform the functions of about 3000 discrete components.

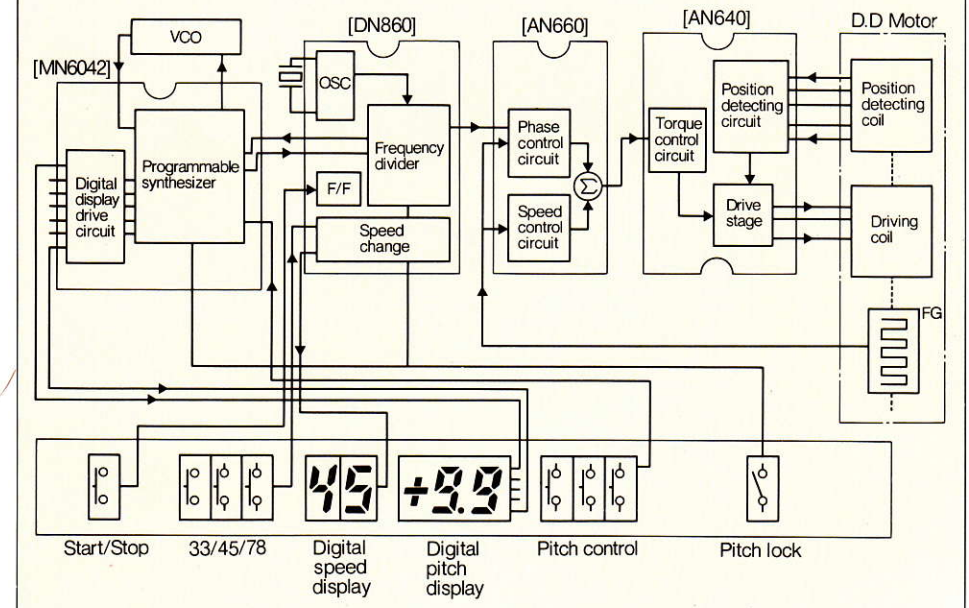
Pulsed Power Supply Prevents Hum Induction

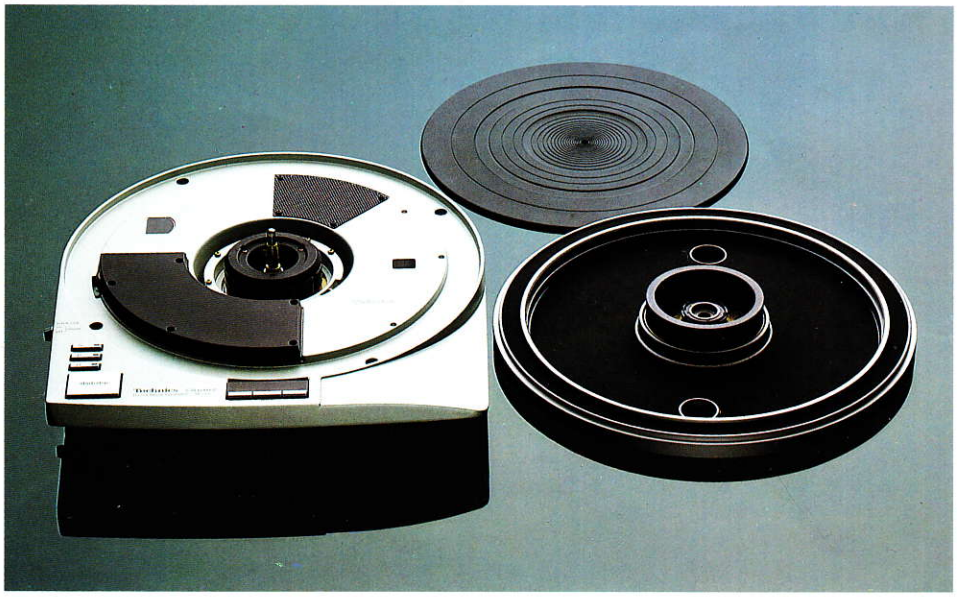
Technics pulsed power supply for the SP-15 direct drive motor is not only more efficient than conventional operating systems, it also serves to prevent AC frequency hum induction. It achieves this by raising the frequency and changing the waveform of the transformer input. Thus the transformer can operate at a higher level of efficiency and the usual 50 or 60 cycle AC frequency cannot affect other circuitry. This is a contributing factor to the turntable's high S/N ratio.

Other Features

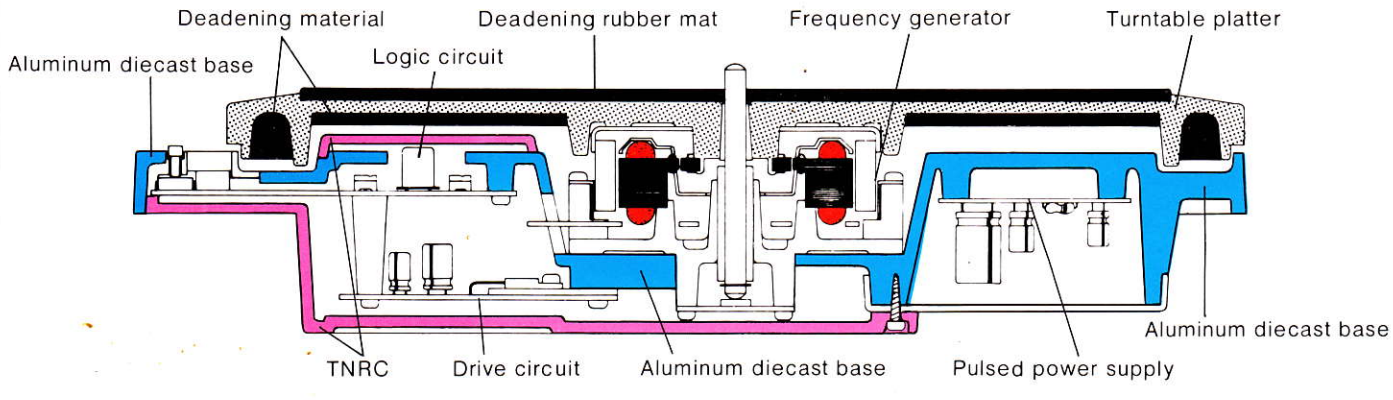
- Technics' integral rotor-platter motor construction.
- Full cycle detection frequency generator maintains accurate rotational speed characteristics: Wow & flutter 0.025% WRMS
- Pitch lock mechanism prevents accidental misoperation by locking speed selector and pitch controls during play.
- Heavy duty construction stands up to long term professional and home use.
- Three precision speeds, 33-1/3, 45, and 78.26 rpm make this unit perfect for all phono reproduction applications.

Block diagram of SP-15





Cross section of SP-15



Turntable Bases for the SP-15

SH-15B2

SH-15B3

SH-15B2/SH-15B3

These two bases have been specially developed for use with either the SP-15 or SP-25 turntables. Each base is constructed of very heavy rubber material that is acoustically dead, and when combined with the excellent anti-resonance characteristics of the SP-15 or SP-25, the result is outstanding insulation against vibration. The four individual spring-loaded feet, as well as the acrylic dust cover are also coupled to the heavy rubber material to further suppress the transmission of vibrations.

The real difference between these two bases is in their appearance. The SH-15B2 is finished in a beautiful simulated rosewood veneer, while the SH-15B3 contains no trim and is completely black.

Technical Specifications

TURNTABLE SECTION

Type	Quartz Synthesizer Direct Drive
Motor	Ultra-low-noise, brushless, heteropole DC motor
Control method	Quartz-phase-locked control
Turntable platter	Aluminum diecast, diameter 13-11/32" (33.9 cm), weight 5.9 lb. (2.7 kg) (including rubber matting) moment of inertia 130 lb·in² (380 kg·cm²) (including rubber matting)
Speeds	33-1/3, 45, 78.26 rpm
Speed adjustment range	±9.9% in 0.1% steps (digital read-out)
Starting torque	2.61 lb·in (3 kg·cm)
Start-up time	0.4 sec. (to 33-1/3 rpm from standstill)
Braking time	0.4 sec. (at 33-1/3 rpm)
Braking system	Combination of electronic and mechanical brakes
Speed fluctuation due to load torque	0% within 2.2 lb·in (2.5 kg·cm) load torque (up to 500 g tracking force)
Wow and flutter	0.008% WRMS* 0.025% WRMS (JIS C5521), ±0.035% peak (IEC 98A weighted)
Rumble	−56 dB DIN A (IEC 98A unweighted) −78 dB DIN B (IEC 98A weighted)

GENERAL

Power supply	AC 120 V, 50/60 Hz
Power consumption	11W
Dimensions (H×W×D)	3-21/32"×13-3/4"×14-41/64" (9.3×34.9×37.2 cm)
Weight	13.7 lb (6.2 kg)

* This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter.
Measured by obtaining signal from built-in frequency generator of motor assembly.

Technics

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Technics
by Panasonic

QUARTZ
SL-1400MK2

Quartz-Phase-Locked Control Direct Drive Semi-Automatic Turntable with Quartz Synthesizer Pitch Control

AUDIO / HI-FI

Professional Series

SL-1400MK2

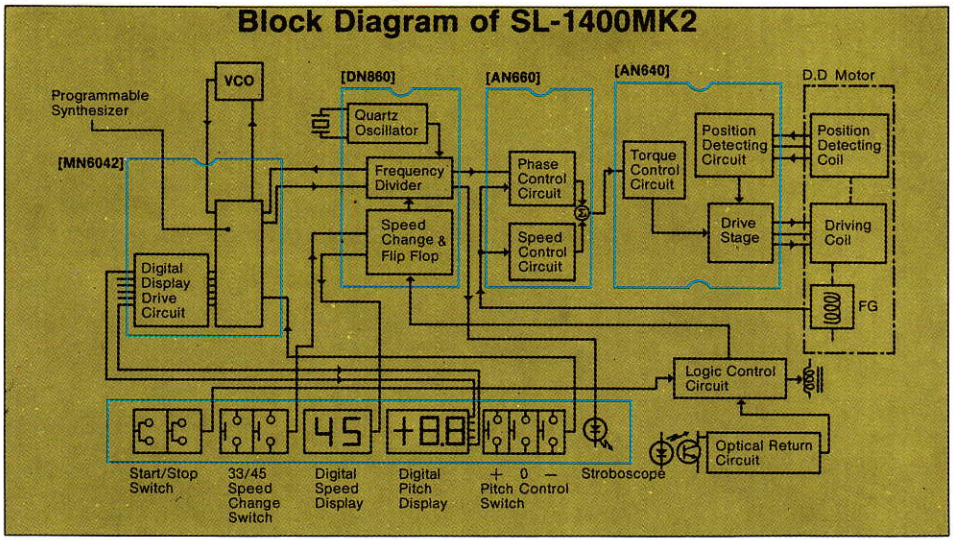
The Accuracy of Quartz Controlled Direct Drive Now Extends to User-Selected Pitch Adjustments, with ±9.9% Adjustment Range

The SL-1400MK2 has wow & flutter of only 0.025% WRMS. That's low. But turntables have not always had this kind of rotational accuracy. In fact, most record albums are cut to a lower degree of precision. Back some eight years ago, Technics introduced the turntable that opened up the possibility of performance on this level. That turntable was the first direct drive to be introduced. And since that breakthrough, we at Technics have been working to improve on the basic direct drive concept. In 1976, Technics' SP-10MKII added quartz control to a turntable that was already legendary among audiophiles, and achieved even better speed accuracy (±0.002%), along with enormous torque and super-fast start/stop action. Now, we are proud to introduce the SL-1400MK2, which extends quartz control to user-selected pitch changes within a range of ±9.9% of the standard speed (33⅓ or 45 rpm). Unlike quartz turntables of the past, in which quartz control had to be disengaged if pitch were altered, the SL-1400MK2 uses a quartz synthesizer to retain ±0.002% speed accuracy in the pitch-altered mode. And so you know exactly how fast the turntable is turning, the programmable synthesizer gives you a constant digital readout of the percentage difference from the standard speed.

Total Quartz Phase-Locked Control at 199 Speed Increments and Digital LED Pitch Readout Controlled by Quartz Synthesizer

By now most people have heard of quartz watches. The same quartz controlled split-second accuracy is used in Technics' Quartz synthesizer direct drive turntables to attain a maximum of only 0.002% deviation from perfect rotational speed.
With the SL-1400MK2, speed is adjustable. So you can raise or lower the pitch on your records to achieve a sound that may be more pleasing to you, or to match the pitch of an instrument to be played along with the record. And precise "stretching" or "shrinking" of running time to meet fixed time intervals, as in broadcast work, can be established without guesswork. No matter what speed you choose, the same incredible rotational accuracy is maintained. Because the quartz synthesizer is used to control *all* speeds, not just the standard 33⅓ or 45 rpm.
Operation is simple. Just press the plus or minus feather-touch button and speed will increase or decrease by 0.1%. Keep the button depressed and the pitch change will continue up to 9.9%. That means a total of 199 different speed settings are possible. The LED display to the left of the pitch control buttons gives a readout of the pitch variation that you have chosen. Starting from 33⅓, for instance, the display will show "+0.1%" after you've pressed the plus button once. An indication of plus 5.9% or minus 5.6% means that the musical pitch has been raised or lowered by one half note. All electronic controls and the LED digital display are out front for easy use even when the dust cover is down.

Block Diagram of SL-1400MK2



All Control Functions Effected by High-Density ICs

The SL-1400MK2 has such a sleek functional design and such ease of operation that one may forget the technological and engineering complexity upon which it is based. High-density integrated circuits are used to squeeze the operations of more than 3000 discrete elements into a few inches of space. The IC's used cover these basic functions: quartz-synthesizer pitch control and digital driver, quartz oscillator frequency divider and speed change control, phase and speed control, and full-cycle, integration-type frequency generator. Furthermore, automatic operation is based on our most advanced detection and logic circuits.

All Front Controls

Technics designs equipment for excellent musical reproduction. But we never forget that equipment is operated by people. So we put the control buttons and LED display in-line on the front panel for optimum handling convenience. The control buttons have a 0.4 mm stroke and take 90 grams of pressure to operate the circuits. This allows precision control capability without the annoyance of accidental operation.

Double Isolated Suspension System and Special Base Material Reduces Acoustic Feedback Problems

Acoustic feedback is a serious threat to turntable performance. Technics developed the double isolated system to cut feedback down to virtually zero. The aluminum diecast turntable base is supported by one set of isolators. The inner main base is made of a newly developed anti-resonant heavy material molded from fiberglass and other inorganic materials, and is suspended from the turntable base by a second set of isolators. The all-important turntable, motor and tonearm assemblies are mounted on this main base. This construction minimizes the sound-degrading effects of feedback.

Sensitive Gimbal Suspension Tonearm

20 miniature balls in bearings finished to a tolerance of ±0.5% microns reduce friction and improve response. The arm is so sensitive that it will respond to forces as tiny as 7 mg. So you can expect to get all the performance your high compliance cartridge is designed to give.

Silent Auto-Return Operation of the Tonearm and Output Muting

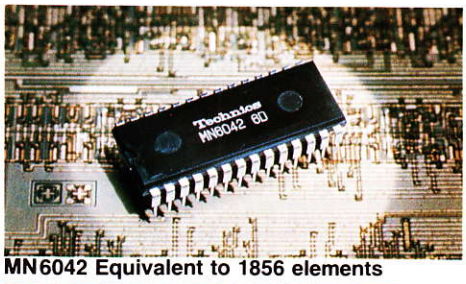
Technics uses mechanically silent, precision molded hard synthetic parts in the tonearm control mechanism. An optical sensor detects the record's end and activates the auto-return system. The result is clean, noise-free operation. And it's all controlled by advanced integrated circuit logic. An automatic muting circuit cuts off the irritating noise when the needle is lifted up from the record. This output muting is also effective when the cueing lever is used for manual set-down or lift-up of the tonearm.

S/N ratio 73 dB (DIN 45539B) Wow & Flutter 0.025% (WRMS)

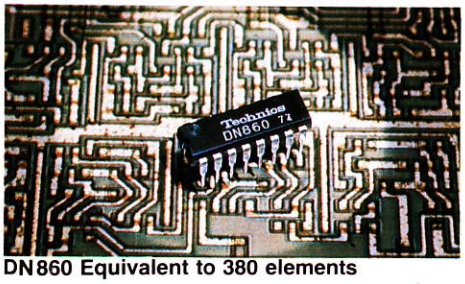
There is no point going into detail about these figures except to point out that they are better than the standards to which your record albums are made.

Integral Rotor Platter Motor

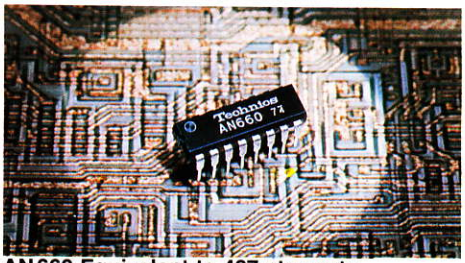
A refinement of the basic direct drive idea, the integral rotor platter merely combines the turntable platter with the rotor of the motor. The number of parts is reduced and performance is improved as evidenced by the low wow and flutter achieved.



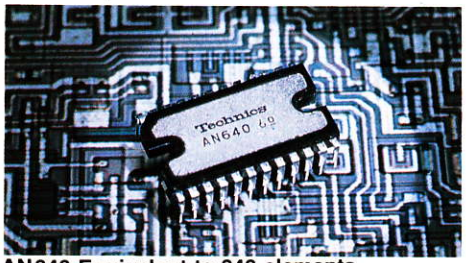
MN6042 Equivalent to 1856 elements



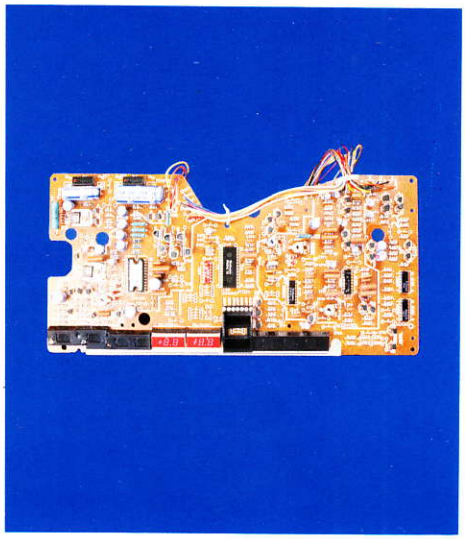
DN860 Equivalent to 380 elements



AN660 Equivalent to 427 elements

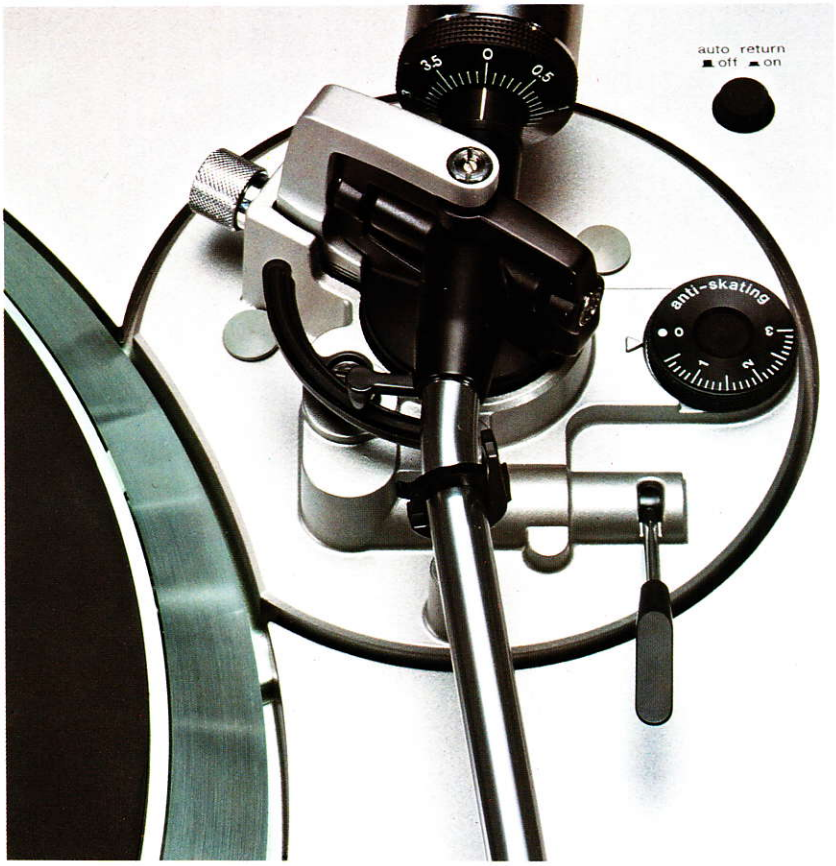


AN640 Equivalent to 340 elements



High Torque for Fast Starts, Steady Speed

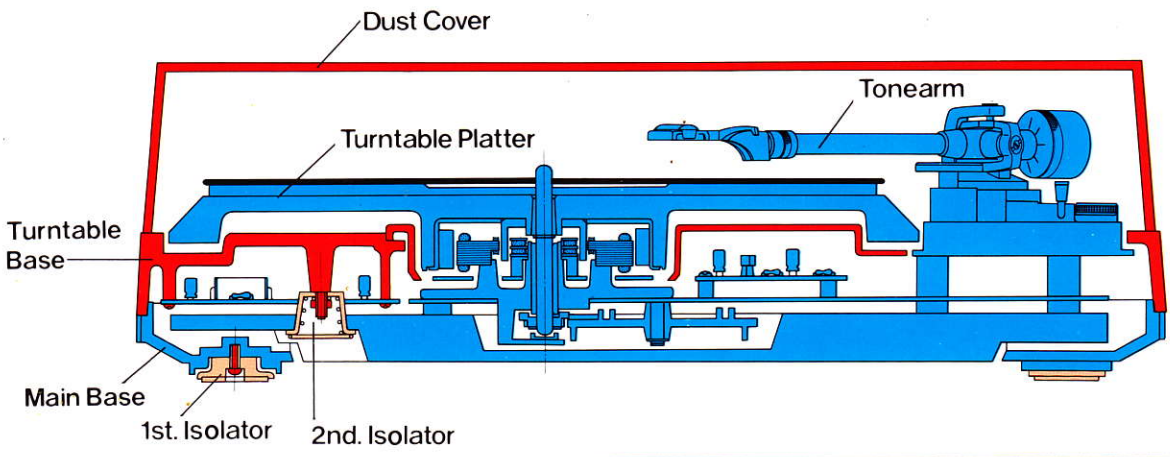
The integral rotor platter motor delivers 1.3 lb·in (1.5 kg·cm) torque to virtually eliminate the speed fluctuations caused by tonearm or record cleaner drag. In fact, if you could fit 150 tonearms tracking 2 grams each onto this turntable, it would still rotate at precisely the chosen speed. But in more realistic terms, this enormous torque gives very quick starts. From standstill, the platter reaches 33-1/3 rpm within 0.7 sec. (a quarter of a turn). This is a big advantage in many professional applications where nearly instant cueing is a necessity. Quick braking is achieved with a fully electronic system.



Other Features

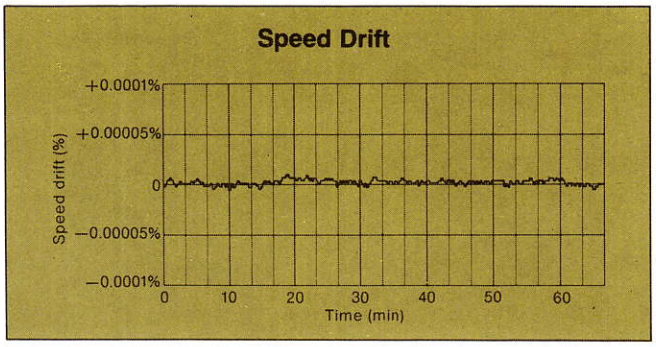
- Arm height is adjustable within a range of 6 mm to accommodate varying cartridge dimensions.
- Zinc diecast heavy tonearm base for improved acoustic characteristics.
- Resonance dampened head shell with unique overhang adjuster.
- Low capacitance phonocables.

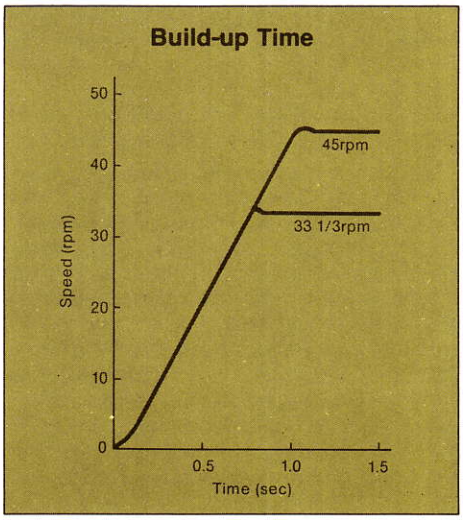
Cross Section of Technics Quartz Series

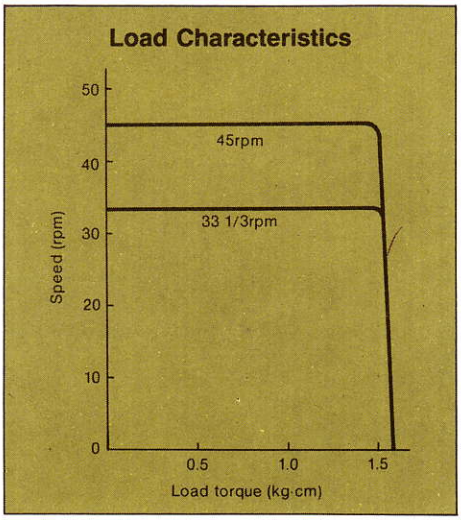


Functional Beauty and Human Engineering

At Technics, we begin with vast resources in material and technical know-how. By striving for the ultimate in performance, while at the same time simplifying design, we have established a strong reputation for leadership in the competitive turntable industry. At the same time, we design our products with the user in mind, incorporating features that contribute both to performance and ease of operation. Spin a disc on the SL-1400MK2, and find out how good a turntable can be.







Quartz Synthesizer Pitch Control Series Also Feature:

SL-1300MK2 The Fully-Automatic

SL-1500MK2 The Manual

Technical Specifications

TURNTABLE SECTION

Type	Quartz-phase-locked control direct drive semi-automatic turntable
Motor	Ultra-low-speed brushless DC motor
Turntable platter	Aluminum diecast, diameter 13" (33 cm), weight 5.5 lb. (2.5 kg) moment of inertia 116 lb·in² (340 kg·cm²)
Turntable speeds	33⅓ and 45 rpm
Pitch controls	Quartz synthesizer pitch control ±9.9% range digital pitch readout
Starting torque	1.3 lb·in (1.5 kg·cm)
Speed fluctuation due to load torque	0% within 1.3 lb·in (1.5 kg·cm)
Speed drift	Within ±0.002%
Wow and flutter	0.025% WRMS (JIS C5521) ±0.035% weighted zero to peak (DIN 45507)
Rumble	−50 dB (DIN 45539A) −73 dB (DIN 45539B)

TONEARM SECTION

Type	Universal "S" shaped tubular arm, static-balanced type, with anti-skating force control device, oil-damped cueing device in both directions
Effective length	9-1/16" (230 mm)
Overhang	19/32" (15 mm)
Tracking error angle	+1° at the inner groove of record +3° at the outer groove of record
Friction	7 mg (lateral, vertical)
Effective mass	22 g (with a cartridge weighing 6.5 g at 1.25 g tracking force)
Offset angle	21.5°
Tonearm height adjustment	6 mm
Adjustable tracking force	0〜3 g
Headshell weight	9.5 g
Cartridge weight range	5〜11 g

GENERAL

Power consumption	12 W
Power supply	AC 120 V, 50/60 Hz
Dimensions (H×W×D)	5-45/64"×17-45/64"×15-7/64" (14.5×45.3×38.4 cm)
Weight	26.0 lb. (11.8 kg)

Technics by Panasonic

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Specifications subject to change without notice. Printed in Japan 87772M2

Technics SP-10MKII

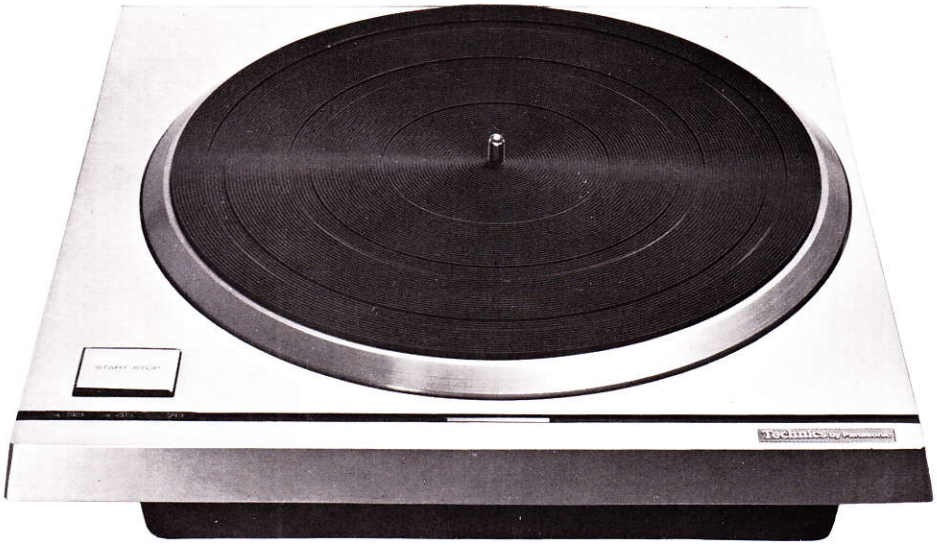
Quartz-Controlled Direct-Drive
Turntable

AUDIO / HI-FI

SP-10MKII

Quartz-Controlled Direct-Drive Turntable

A New Standard of Accuracy in Disc Reproduction. The Professional, Quartz-Controlled Direct-Drive Turntable, Technics SP-10MKII.



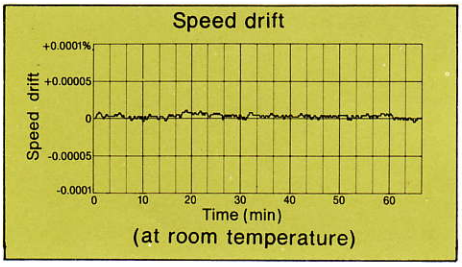
Threadbare though the word "breakthrough" has become through years of abuse, we cannot help employing it here in describing the Technics SP-10MKII turntable. With its quartz-controlled direct-drive system and a multitude of totally new engineering achievements, it represents a standard of accuracy in disc reproduction that has never been attained before.

In engineering terms, turntables are referred to as constant speed devices; unfortunately, though, this has been somewhat of a euphemism in the past, as even high priced units were often far from constant in their revolution speed. When Technics introduced the world's first direct-drive turntable, the original SP-10, to an astonished audio world in 1969, a giant step was made in the direction of the ideal constant speed device; now, the SP-10MKII repeats, no, outdoes this feat. In its practically total absence of speed drift even over extended playing times, in its almost immeasurably small wow and flutter, in its extreme quietness, its enormously high torque and its practically instantaneous starting and stopping power, it constitutes the new reference standard that professional systems will have to be measured against for years to come.

We predict that soon there will be other manufacturers offering quartz-controlled turntables or watered-down versions. We also predict that Technics, having established its leadership in direct-drive systems as early as 1969, will remain the yardstick of excellence in this field. The Technics SP-10MKII does indeed warrant a very close and careful examination, and this will reveal the outer limits of technological possibilities.

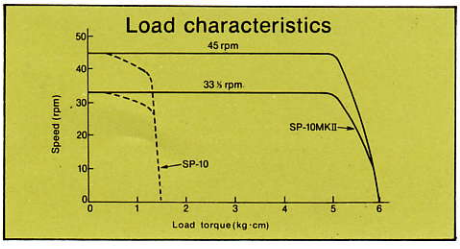
Speed Accuracy within ±0.036 sec per LP Side

The direct-drive motor of the SP-10MKII is controlled by elaborate servo circuitry which uses a quartz oscillator as its reference. This quartz oscillation principle is the most accurate method of electronic timekeeping known. The rotational speed of the SP-10MKII is totally independent of the AC power line and its notorious frequency variations, from temperature and other external factors, and from the passage of time. Expressed mathematically, speed drift remains within ±0.002% which translates into a maximum aberration of ±0.036 sec over the 30 minute playing time of a typical LP side.



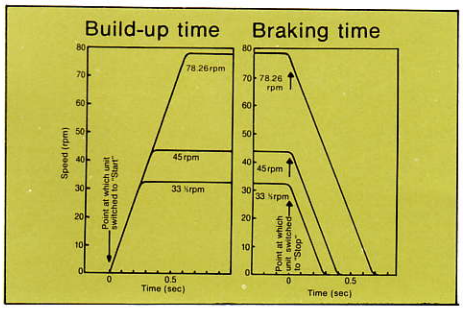
Higher Torque Than in Any Other Turntable

Some (not Technics!) direct-drive turntables may have suffered from speed fluctuations caused by momentary changes in external drag load such as arm-type record cleaners or hand-held preeners. The SP-10MKII snobbishly ignores such irritations—in fact, its 5 kg·cm (4.3 lbs·in) torque is so strong that five-hundred tonearms, each tracking at 2 grams (that is 1 kg or over two pounds of tracking force) could not slow it down appreciably from its rated speed. In more practical terms: you can accidentally brush against the rotating platter or push a disc preener onto the record without hearing any change in speed. We know of no other turntable, regardless of drive system, with a torque rating anywhere near that.

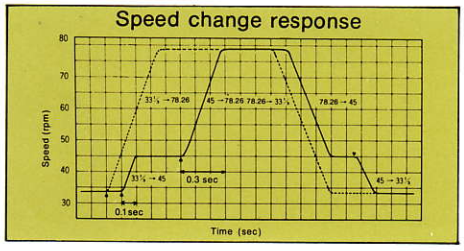


Rated Speed Reached within 0.25 sec (33⅓ rpm)

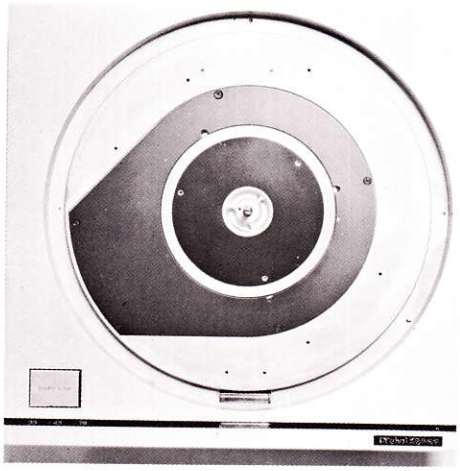
The enormous starting torque of the SP-10 MKII—6 kg·cm (5.2 lbs·in)—accelerates the heavy platter to rated 33-1/3 rpm within 0.25 sec. This compares with the 1-second build-up time considered satisfactory in professional broadcast equipment. Expressed differently, the platter reaches rated speed after only a 25-degree turn. A technique employed by professionals illustrates the importance of build-up time: set the stylus in a silent groove between two bands of an LP, then start the turntable. The SP-10MKII will have reached standard speed long before you hear the first note. What's more, it achieves this superbly short build-up without sacrificing platter weight —at 2.9 kg (6.4 lbs.)



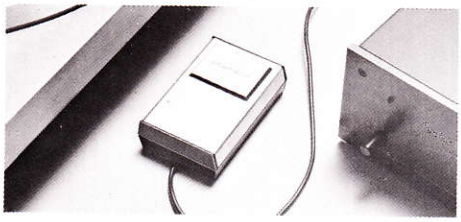
Rapid Speed Changes and Stops
The SP-10MKII is one of the rare 3-speed turntables (33-1/3, 45 and 78. 26 rpm). Its high torque and its dual electromagnetic-plus-mechanical braking system accelerate and decelerate it almost instantly from one to another speed. To stop it from 33-1/3 rpm takes only 0.3 sec or one twelfth of a turn.



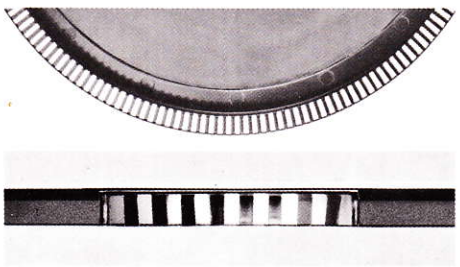
This Turntable Has a "Parking Brake."
The mechanical braking system remains applied when the platter is at a standstill. This feature will be appreciated by professionals for safe, sure split-second cueing.

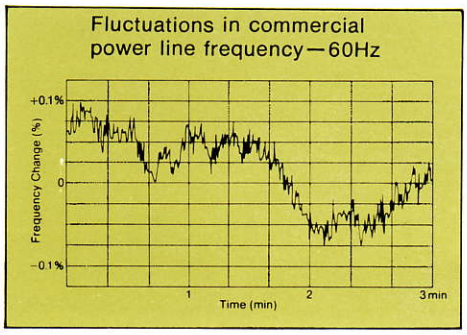


Remote Controlled from Your Listening Position
Stop and start are controlled from a little "black box" connected to the turntable via a shielded cable. Professionals handling a whole bank of turntables can control them from one convenient spot.



Quartz-Locked Stroboscope Lamp with Only a Single Row of Strobe Markings
Strobe lamps in conventional turntables are locked to the (sometimes unstable) AC line frequency and therefore indicate, at times, speed changes that aren't really there. In the SP-10MKII, quartz oscillation control also governs the strobe lamp, for maximum "truth" in indication. Also, only a single row of strobe markings needs to be watched for all speeds, which helps avoid confusion. To accommodate two possible AC frequencies (50 and 60 Hz) and three speeds, a conventional design would need six rows of markings.





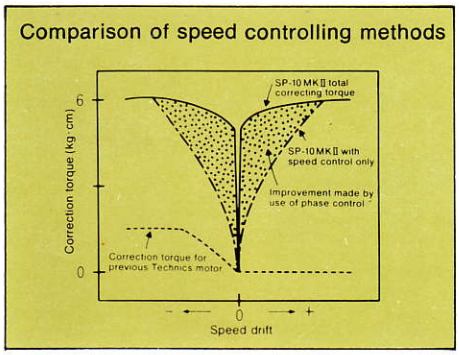
Elaborate Quartz Control Servo Circuitry
A simplified block diagram has been included to give you an indication of the electronic wizardry that went into the electronic side of what is the world's most advanced turntable. Of pivotal importance: the quartz oscillator which produces the unvarying reference frequency to which all mechanical motion and the strobe light action are locked.

The quartz oscillator provides a reference signal of constant frequency which is split by the frequency divider into an appropriate control frequency for 33-1/3, 45, or 78.26 rpm speeds. Setting for the frequency divider is determined by the speed selector buttons on the top panel of the turntable. The speed selector memory supplies the frequency divider with digitally stored rpm/frequency information depending on which speed selector button is actuated.

The stroboscope logic circuit sends impulses received from the frequency divider to the neon strobe lamp, which flashes on the 190 stripes inscribed on the platter rim. The circuit digitally shapes the signals from the frequency divider to remove any trace of blur and provide the sharpest possible flashing action. The strobe lamp is, of course, independent of external AC frequency.

Integral with the platter drive motor is an F·G· (Frequency Generator) which translates platter rpm into a signal picked up and read by the speed and phase control circuits. This is the basis of the feedback system by which platter speed is controlled at a constant value.
The speed control circuit converts the output of the F·G· into the appropriate electrical voltage required to maintain correct speed in response to changing load conditions. The phase control circuit matches the phase of the signal which has been derived from the F·G·, to the phase

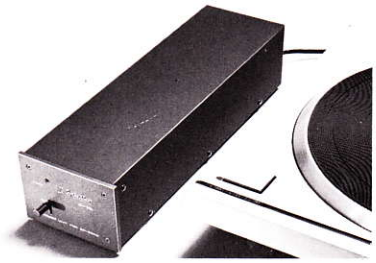
of the divided reference signal. As the following illustration shows, this phase-locking of the correction current to the reference frequency permits much faster correction torque response than would be possible otherwise.



The drive circuits supply full-wave drive current to the servo motor in either a forward or reverse direction, whichever is required to maintain proper speed.

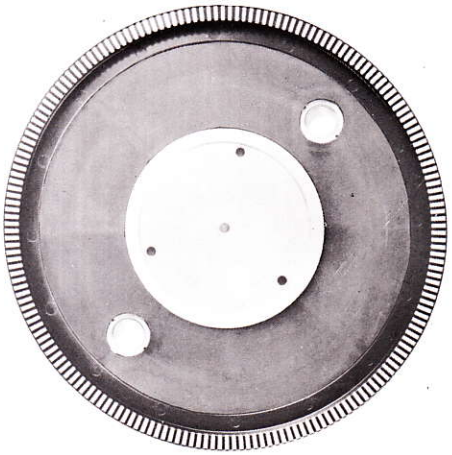
When the turntable is started by the start/stop switch or the remote control, the start/stop circuit activates the forward drive circuit which accelerates the platter until rated speed is reached. When the unit is switched off, the start/stop circuit activates the reverse drive and mechanical brake actuating circuits. The mechanical brake actuating circuit operates a solenoid plunger which pushes a brake shoe against the platter. Used in conjunction with the reverse drive current, the mechanical brake can bring the platter to a complete stop almost instantly, without imposing a shock on any of the drive elements. After the platter has stopped, the mechanical brake remains partially engaged.

Separately Housed Power Supply
Contained in a separate unit, the power transformer cannot interfere (through magnetic leak) with the electronic "brain" in the turntable proper. Separate installation also helped Technics designers to give the SP-10MKII its slim, elegantly uncluttered appearance.



All Circuits on Three Pin-Connected Modules
Modular circuit construction improves reliability and makes for easier servicing.

Positive Vibration Damping
A second rubber sheet on the underside of the platter provides an extra measure of vibration damping.

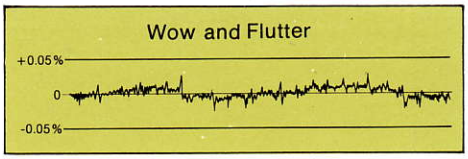


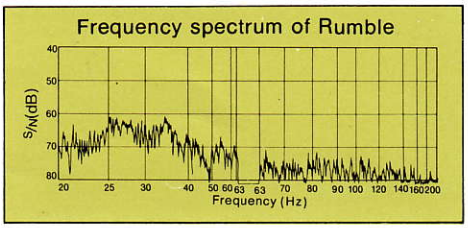
Specifications at the Limits of Measurability

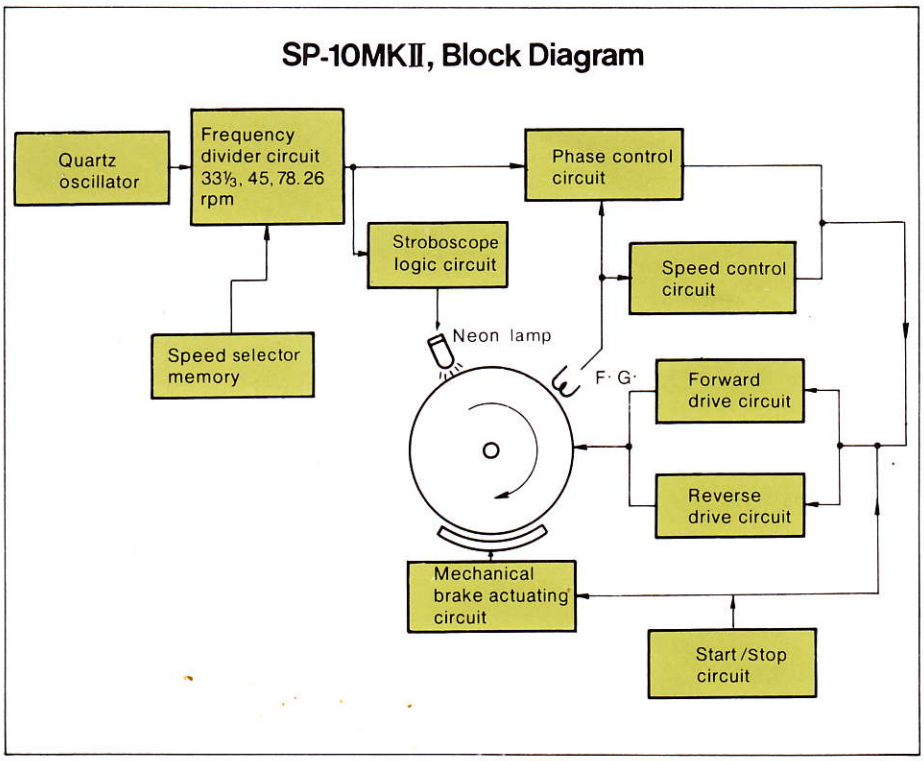
Wow and Flutter:
0.025% WRMS (JIS C5521)
±0.035% Weighted, Zero to Peak (DIN 45507)

Rumble:
−50 dB (DIN 45539A)
−70 dB (DIN 45539B)

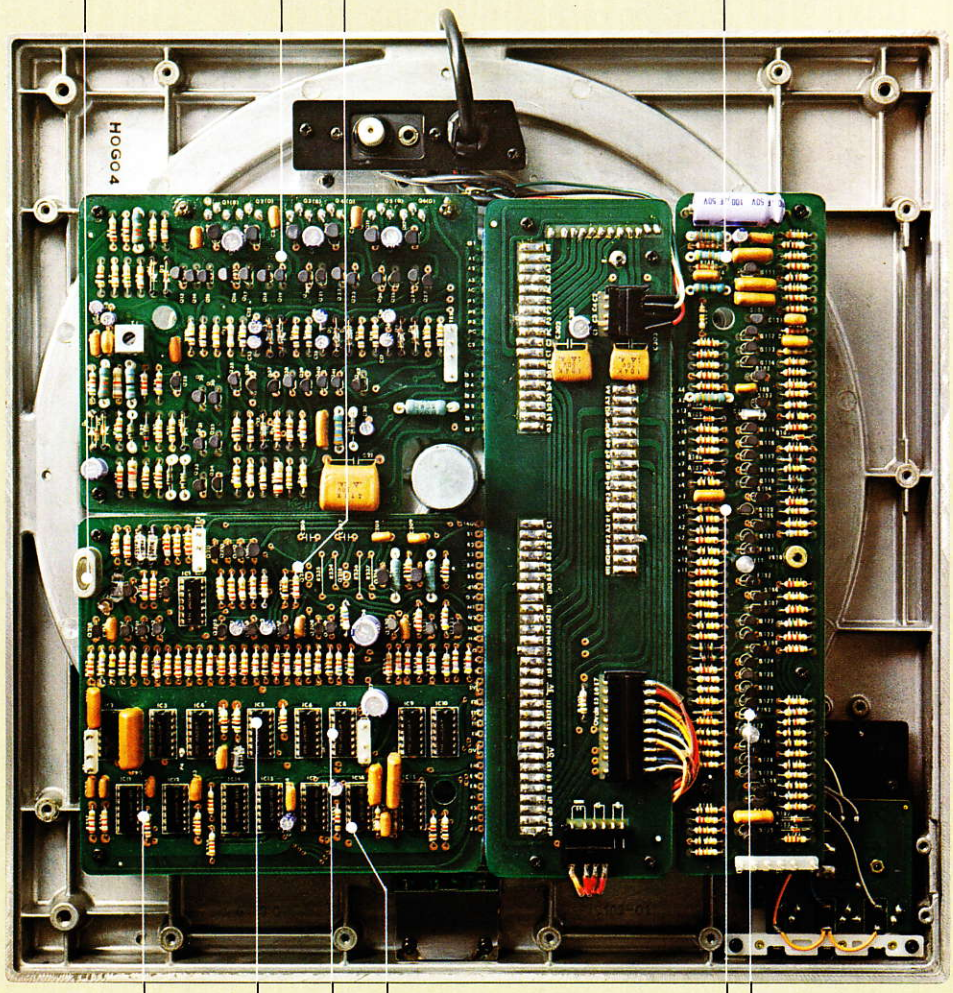
By now you certainly expect the very finest specifications from this unit, and your expectations are well-founded. The rumble figure heavily taxes the limitations of even the most advanced measuring instruments.







Much of the Performance Excellence Is Rooted Here...



Technical Specifications

Type	Direct-drive turntable
Motor	Brushless DC motor, electronic rectification, quartz-controlled phase-locked servo circuit
Turntable platter	Aluminum diecast, diameter $12\frac{19}{32}$" (32 cm), weight 6.4 lbs. (2.9 kg), moment of inertia 130 lbs·in^2 (380 kg·cm^2)
Turntable speeds	$33\frac{1}{3}$, 45 and 78.26 rpm
Starting torque	5.2 lbs·in (6 kg·cm)
Build-up time	0.25 sec (=25° rotation) to $33\frac{1}{3}$ rpm
Braking time	0.3 sec (=30° rotation) from $33\frac{1}{3}$ rpm to standstill
Speed fluctuation by load changes	0% within 4.3 lbs·in (5 kg·cm)
Speed drift	Within ±0.002%
Wow and flutter	0.025% WRMS (JIS C5521) ±0.035% weighted, zero-to-peak (DIN 45507)
Rumble	−50 dB (DIN 45539A) −70 dB (DIN 45539B)
Power consumption	20 W
Dimensions (turntable only)	$4\frac{1}{64}$"(H) × $14\frac{31}{64}$"(W) × $14\frac{31}{64}$"(D) [10.25 cm(H) × 36.85 cm(W) × 36.85 cm(D)]
Weight (turntable only)	20.9 lbs. (9.5 kg)

Base and dust cover available (SH-10B3)
An obsidian base with wide platform for arm mounting and shock-damped against external vibration and feedback is optionally available. It includes a gray, transparent, removable dust cover.

Lloyd - Sound Works $ 700
450

Technics

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