

SONY®

TURNTABLES

Easy Access to Exceptional Performance



Accurate Performance, Unparalleled Convenience, Outstanding Value

Superior turntables that please the eye and ear

Sony's vast research and development facilities are considered among the finest in the world. Staffed by physicists, engineers and technicians of the highest calibre, it is not surprising that Sony has emerged as a leader in the fields of audio and video.

The turntables described in this brochure are outstanding expressions of this leadership. While you will find descriptions of three series of turntables (LX, FL and X), there are a number of important similarities. Every model has Sony's BSL motor for smooth platter rotation as well as the Magnedisc servo system for precise control of speed. Every model is equipped with a Duralumin straight, low-mass tonearm, while the X Series boasts the unparalleled Biotracer tonearm. And every model features the superior isolation of Sony Bulk Molding Compound (SBMC) bases.

The LX Series

The modestly priced turntables in the LX Series are designed to appeal to listeners who want to play records with complete safety and with a minimum of attention. As a result, they have a wide array of features that provide exceptional convenience, control flexibility and reliability. Sony's straight, low-mass tonearm graces every model, so that each LX turntable can accommodate a large variety of the latest cartridges.

The FL Series

It is frequently the case that listeners have severe space limitations or want to place their components in cabinets that make conventional turntables with lift-top dust covers inconvenient if not unusable. In these cases, one of Sony's new FL Series turntables is the ideal answer. These new turntables load from the front. There is no dust cover to lift. As a result they can be installed in places where a conventional turntable, simply will not fit. In fact, the Sony FL turntables can be stacked as part of a vertical arrangement of components.

The X Series

The models in the X Series are designed for the audio perfectionist. They offer the unparalleled performance of the world's most advanced tonearm — Sony's Biotracer. Instead of responding passively

to external forces, the Biotracer tonearm is guided by its own sophisticated, multi-function, large-scale integrated circuit (LSI) for superior tracking. The Biotracer conquers such problems as resonance and modulation noise. Moreover, the Biotracer tonearms on the X Series turntables elicit the best performance for the widest variety of cartridges—including the latest high-compliance models. The audiophile will recognize an X Series turntable as reflecting the ultimate in sonic performance.

The LX, FL and X series share a common heritage. They are the products of Sony attention to convenience as well as performance. Thus, you will find an automatic arm lift and shutoff at the record's end. Most models feature advanced, fully-automatic operation, including automatic start, automatic record-size sensing, and muting during lead-in and return. Most can be synchronized with selected Sony cassette decks (using the optional RM-65), to start and stop the tape as the stylus reaches and leaves the groove. And some can even be operated via wireless remote control.

After reading the descriptions of the new Sony turntables, you may conclude that these components offer exquisite precision, superb performance and exceptional value. Such a conclusion would be eminently correct.





If you want to play records flawlessly, if you want superior sound quality, but you are on a limited budget, then the Sony PS-LX2 is an excellent choice. This turntable features the convenience of automatic return; the sensitivity of Sony's acclaimed straight, low-mass tonearm; and the accuracy of direct drive. The direct-drive system is enhanced by the inclusion of Sony's BSL motor, for rotation without "cogging", and Magnedisc servo control to maintain the correct speed. At one time you had to pay hundreds of dollars more to purchase a turntable of this calibre. But now Sony makes the PS-LX2 available at surprisingly affordable cost.

Outstanding Features

- Straight Duralumin tonearm for low mass and excellent tracking

- Long-span pivot and two-point tonearm support for high rigidity and low modulation noise

Tonearm and Functions

- Semi-automatic system returns tonearm at end of play and shuts off motor
- Front controls provide convenient operation—even with the dust cover closed
- Disc centering guides make it easy to set the record precisely on the spindle

Turntable and Construction

- The linear-torque Sony BSL (brushless, slotless) direct-drive motor designed for uniform and smooth delivery of torque
- Magnedisc servo control monitors speed at the outer rim of platter for exceptional accuracy

- Servo-lock indicator
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback

Exceptional Accuracy and Extraordinary Value



PS-LX2

(Cartridge shown is optional)

The PS-LX3 and the quartz-locked PS-LX5 express Sony's commitment to absolute precision and superior reproduction of music. Both turntables incorporate the convenience of fully automatic operation, including automatic start and repeat (when desired) as well as automatic return. Even record-size selection is automated. Optical sensors determine the record size and "tell" the tonearm where to index—even keeping it from setting down when there is no record on the platter. In every way—appearance, performance and price—these components are outstanding examples of Sony leadership in turntable technology.

Outstanding Features

- Advanced fully-automatic operation for total convenience
- Automatic record-size selector permits

precise and safe indexing

- Straight Duralumin tonearm for low mass and excellent tracking

Tonearm and Functions

- Long-span pivot with two-point tonearm support for high rigidity and low modulation noise
- Front controls provide convenient operation—even with the dust cover closed
- Audio muting circuit provides silence during start and return operations
- Disc centering guides make it easy to set the record precisely on the spindle
- Wireless remote control capability with the optional Sony RM-44
- Capable of operation in synchronization with selected Sony cassette decks using the optional Sony RM-65
- "Repeat" mode for continuous music

Turntable and Construction

- Quartz lock prevents even minute variations caused by external factors (PS-LX5 only)
- Magnedisc servo control monitors speed at the outer rim of platter for exceptional accuracy
- Servo-lock indicator (PS-LX3 only)
- The linear-torque Sony BSL (brushless, slotless) direct-drive motor designed for uniform and smooth delivery of torque
- Electromagnetic braking provides rapid and smooth halt of platter rotation (PS-LX5 only)
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback



PS-LX3

Impeccable Performance, and Advanced Fully-Automatic Operation



PS-LX5

PS-LX5 PS-LX3

(Cartridge shown is optional)



Now, the performance you want — wherever you want it

Superb accuracy in three front-loading turntables

With the Sony PS-FL1, FL3, and FL5, the turntable can take a new place among stereo components: wherever it will be most convenient and attractive.

Most turntables receive records from



the top. Space above them is required to provide access to the platter so that a record may be "loaded" and played.

Obviously, these turntables cannot be stacked like the other components in the system but must be placed to one side of the other components or on top of them. Shelves on which they rest must leave at least 12 inches overhead. In cabinet-mounted systems, they require special wells or drawers, or else they must sit outside, atop the cabinet.

Since the Sony PS-FL1, FL3, and FL5 turntables load from the front, they can be placed almost anywhere in a component stack—even under other components! In this way the "component look" is accentuated (especially when added to the family look of an all-Sony system). The turntable becomes

another element in a sleek, uniform array of equipment.

Front loading also adds to the system's utility. Now the turntable can be at whatever height the user finds most convenient—not just at the height required for overhead clearance.

The new front-loading turntables offer new convenience, without any compromise of Sony's performance standards.

A new operational design

The PS-FL1, FL3 and FL5 are high performance turntables, each in a rigid shell. The entire record-playing system—arm, motorboard, platter, spindle and controls—slides out as a single unit, powered by its own motor.

Uncompromised performance

The construction of these turntables is such that the arm and platter will always



tables in a variety of modes. For example, you can play records manually, with the turntable open. This is especially useful when playing single "cuts" or portions of long-playing records. To make record-handling easy, the front section of the dust cover automatically moves out of sight when the turntable slides out. It returns automatically when the turntable slides in again to protect records from dust.

In addition, these models feature a high degree of automation including automatic start and automatic return at the end of play. Touch "repeat" and a record will play for as long as you like. Each turntable features photo-sensors that cause the arm to index for a 12" or 7" record automatically. And when no record is on the platter, the sensors prevent indexing to protect the stylus and cartridge. There is also a circuit which mutes all audio during the start and return phases of the turntable, eliminating the "pop" that takes place when a stylus descends into a groove. Finally, with the optional Sony RM-65, these turntables can work in synchronization with selected Sony cassette deck models for extraordinary convenience.

Special features for record protection

The FL-Series turntables have a series of special safety features to protect your valuable records. Some, such as automatic record-size selection, are shared with other Sony turntables. Many were developed especially to meet the needs of this new configuration.

For example, the tonearm never touches the record while the drawer is in motion. In automatic operation, the system closes before play begins. For manual operation with the drawer closed, the tonearm is positioned over the desired starting point on the record while the drawer is open, but descends only after the drawer has closed. Records may also be played manually, without closing the drawer. And if the OPEN/CLOSE button is pressed while a record is playing, play will stop and the arm will automatically lift.

Three additional features protect records as they are being loaded: the record spindle is capped with a special, soft, blue vinyl instead of the usual metal, to prevent scratches; the underside of the cabinet opening is coated with soft felt, for the same reason; and Sony's exclusive disc centering guides provide

further assurance of quick and safe loading.

Protects itself, too

If the drawer encounters any opposition to its motion, it will stop and reverse to its original position within 15 seconds. This not only prevents wear on the motor mechanism, but it also gives the user time to remove the obstruction without having to re-initiate the command.

If the arm's automatic cycling is obstructed, its auto-mechanism disengages safely, re-engaging only when the next automatic command is entered. If there is no record on the platter, the automatic record-size selector prevents the arm from setting down.

Construction and technology

Each FL turntable uses three motors. The platter is driven by Sony's BSL (brushless, slotless) motor, which does away with "cogging" by eliminating conventional motor brushes and "slots"; a second, DC motor drives the tonearm in its automatic functions; and a third, totally separate motor moves the turntable in and out.

The chassis of these turntables are rigid, and up to 44 pounds of equipment can be stacked safely on top. The front half of the top cover can be removed, without tools, for easy access to the counterweight and anti-skating adjustments.



A total front-loading system

Quite clearly, the Sony PS-FL1, FL3, and FL-5 are much more than conventional turntables reworked into a front-loading format. They represent a total engineering campaign that realizes the full space-saving and convenience benefits of front-loading, without any sacrifice in performance. As such, they are remarkable components, indeed.

remain in correct alignment, since they move together as one, solidly-integrated unit.

It also means that the arm need not be shortened to meet space restrictions of a slide-out mechanism. The FL Series turntables incorporate the same high-performance straight, low-mass Duralumin tonearm as used in Sony's LX Series turntables.

Sony's front-loading models are also well-protected from external sources of vibration. The turntable slides in and out of its shell on six specially-designed rubber wheels that help to absorb such irregularities.

Uncompromised convenience, too

The PS-FL1, FL3, and FL5 feature the responsiveness of IC-logic feather-touch controls. And you can use these turn-

The features and advantages of the PS-FL1 and FL3 only begin with front-loading. Performance reigns paramount at Sony. Just as in all Sony turntables, performance capability is expressed in every detail—tonearm, platter, and drive system. At the same time, the FL1 and FL3 are excellent examples of Sony's attention to comfort and convenience.

Outstanding Features

- Unique, front-loading design requires no overhead clearance
 - Can be stacked with other components—supports up to 44 pounds of other equipment
 - Straight Duralumin tonearm for low mass and excellent tracking
 - Advanced, fully-automatic IC-logic operation for total convenience
 - Automatic record-size selector permits precise and safe indexing
- #### Tonearm and Functions
- Long-span pivot with two-point tonearm

support for high rigidity and low modulation noise

- Feather-touch front controls provide convenient operation—even with the drawer closed
- Audio muting circuit provides silence during start and return operations
- Luminous end-of-record sensor frees the tonearm from mechanical linkages for improved sensitivity
- Disc centering guides make it easy to set the record precisely on the spindle
- Vinyl spindle and soft-lined door opening protect records
- Wireless remote control capability with the optional Sony RM-44
- Capable of operation in synchronization with selected Sony cassette decks using the optional Sony RM-65
- Arm cueing controlled by separate servo motor
- "Repeat" mode for continuous music

Turntable and Construction

- The linear-torque Sony BSL (brushless, slotless) direct-drive motor designed for uniform and smooth delivery of torque
- Magnedisc servo control monitors speed at the outer rim of platter for exceptional accuracy (PS-FL3 only)
- Servo-lock indicator
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback



Sony Performance in a New Format

PS-FL3 PS-FL1

(Cartridge shown is optional)

Front loading permits the listener to place this turntable virtually anywhere among high fidelity components. But it is its array of features and its ability to perform that makes the PS-FL5 a logical choice for owners of the very finest music systems. With the steady speed of quartz lock and the quick stops of electromagnetic braking, this turntable is as precise as it is convenient.

Outstanding Features

- Unique, front-loading design requires no overhead clearance
- Can be stacked with other components—supports up to 44 pounds of other equipment
- Quartz lock prevents even minute variations caused by external factors
- Straight Duralumin tonearm for low mass and excellent tracking
- Advanced, fully-automatic IC logic operation for total convenience

Tonearm and Functions

- Long-span pivot with two-point tonearm support for high rigidity and low modulation noise
- Feather-touch front controls provide convenient operation—even with the cabinet closed
- Automatic record-size selector permits precise and safe indexing
- Audio muting circuit provides silence during start and return phases
- Luminous end-of-record sensor frees the tonearm from mechanical linkages for improved sensitivity
- Disc centering guides make it easy to set the record precisely on the spindle
- Vinyl spindle and soft-lined door opening protect records
- Capable of operation in synchronization with selected Sony cassette decks using the optional Sony RM-65
- Arm cueing controlled by separate

servo motor

- "Repeat" mode for continuous music
- #### **Turntable and Construction**

- The linear-torque Sony BSL (brushless, slotless) direct-drive motor designed for uniform and smooth delivery of torque
- Magnedisc servo control monitors speed at the outer rim of platter for exceptional accuracy
- Electromagnetic braking provides rapid and smooth halt of platter rotation
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback



A Study in Precision and Versatility



PS-FL5

(Cartridge shown is optional)

The precise operation, response to command and the sonic performance of the Biotracer tonearm make the PS-X500 or PS-X600 ideal choices for the listener who is serious about music. The advanced Biotracer tonearm is complemented by a full array of performance and convenience features. The fully-automatic PS-X600 and the automatic-lift PS-X500 are welcome additions to any high-quality component music system.

Outstanding Features

- Biotracer tonearm elicits the best performance from the widest variety of cartridges
- Biotracer actively damps tonearm/cartridge resonance and achieves wide stereo separation
- Biotracer controls tracking force, anti-skating and tonearm automatic functions

Tonearm and Functions

- Advanced, fully-automatic IC-logic operation is silent and responsive for total convenience (PS-X600 only)
- Manual operation with automatic tonearm lift and motor-shutoff at end of play (PS-X500 only)
- Feather-touch controls respond to the slightest finger contact for fast, effortless function selection
- Audio muting circuit provides silence during start, return, and cueing operations (PS-X600 only)
- Luminous end-of-record sensor frees the tonearm from mechanical linkages for improved sensitivity

Turntable and Construction

- Quartz lock with Magnedisc servo control prevents even minute speed variations caused by external factors
- The linear-torque Sony BSL (brushless,

slotless) direct-drive motor designed for uniform and smooth delivery of torque

- Electromagnetic braking provides rapid and smooth halt of platter rotation
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback
- Adjustable, gel-filled feet isolate turntable from external vibration

Features for PS-X600 only

- Tonearm may be "indexed" left and right at high or low speed without lifting dust cover
- Automatic record-size selector permits precise and safe indexing
- "Repeat" mode for continuous music
- Capable of operation in synchronization with selected Sony cassette decks using the optional Sony RM-65

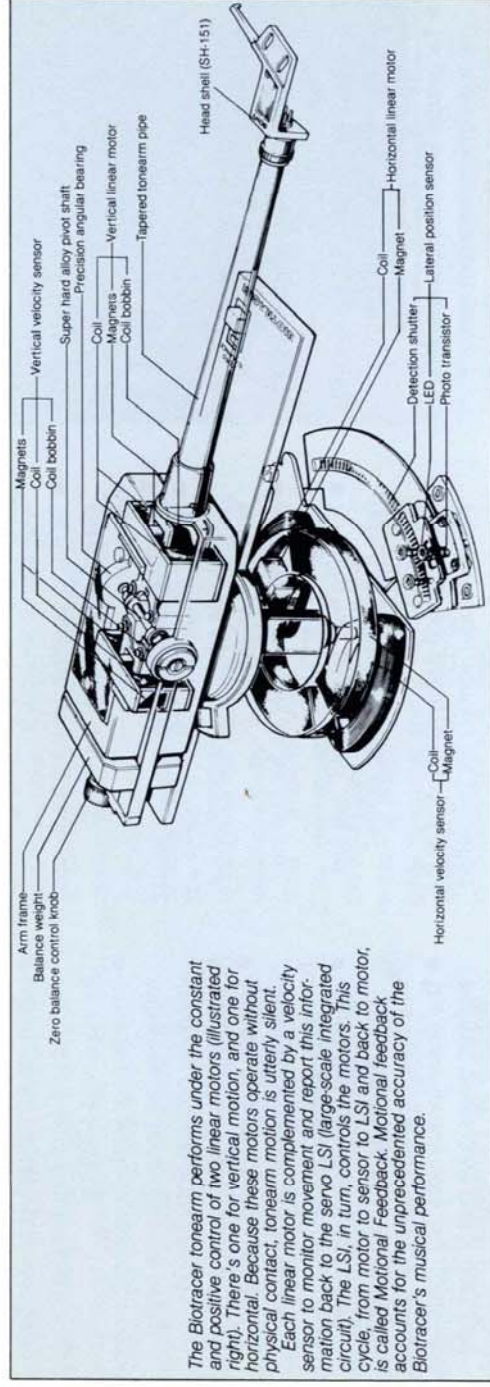
The World's Most Advanced Tonearm in Turntables of Extraordinary Value



PS-X600 PS-X500

(Cartridge shown is optional)

Biotracer: The World's Most Advanced Tonearm



The Biotracer tonearm performs under the constant and positive control of two linear motors (illustrated right). There's one for vertical motion, and one for horizontal. Because these motors operate without physical contact, tonearm motion is utterly silent. Each linear motor is complemented by a velocity sensor to monitor movement and report this information back to the servo LSI (large-scale integrated circuit). The LSI, in turn, controls the motors. This cycle, from motor to sensor to LSI and back to motor, is called Motional Feedback. Motional feedback accounts for the unprecedented accuracy of the Biotracer's musical performance.

The Tonearm Problem

Every tonearm functions to hold the cartridge in proper relationship to the record groove. While this task is simple to describe, doing the job well is anything but simple. To prevent sonic coloration, the tonearm must be rigid, a requirement that suggests heavy-duty construction. Yet some cartridges require low tonearm mass. At some frequencies the tonearm must be inert and immune to vibration—while at others it must move without resistance. And the tonearm must handle the imperfections of real-world records: warp and inaccurate centering.

All of the traditional methods of coping with these problems have dealt in pure mechanics. Sony has now taken a bold step beyond mechanics to find a solution to the troubles that have puzzled designers since the first turntables were presented to the world.

The Biotracer Solution

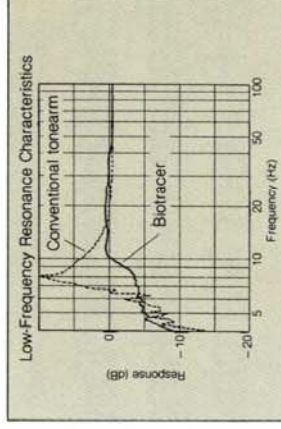
Conventional tonearms are passive objects moved only as a result of external

force. In contrast, Sony's new Biotracer tonearm is radically different. The Biotracer moves under the constant control of two separate motors that are guided by a "brain"—a sophisticated, multi-function large-scale integrated circuit (LSI).

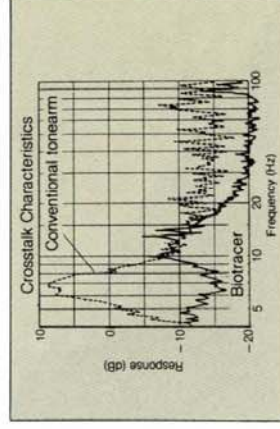
The Biotracer damps resonance
Many cartridge/toner combinations produce unwanted resonances which distort the music. These resonances effectively limit the variety of cartridges suitable for any given tonearm. The Biotracer tonearm damps these unwanted resonances consistently. Music reproduction is crystal clear and undistorted. Moreover, the Biotracer's ability to damp resonance means that you are free to choose from the widest variety of cartridges—moving-magnet or moving-coil—including the latest high-compliance models.

The Biotracer reduces modulation noise

In conventional tonearms, unwanted stylus motion results in modulation noise



Low-frequency response characteristics showing the resonant peak without Biotracer and the damping of that resonance with Biotracer.



Crosstalk between channels showing the high crosstalk without Biotracer and the improved crosstalk with Biotracer.

—a blurring of musical pitches. The Biotracer tonearm dramatically reduces such noise, for clear, crisp sound. **The Biotracer provides added precision**
The Biotracer tonearm senses and immediately compensates for record warps and eccentricities automatically. As a result, you get more consistent application of anti-skating and tracking force for more precise tracking. As an added benefit, you can even vary the tracking force while the record is playing for the clearest possible sound.

For all of these reasons, the Biotracer tonearm ends the long-standing compromise embodied in conventional tonearms. Its extraordinary contribution to musical sound represents a significant advance in the state of the art.



The Sony PS-X800 is designed for professionals and for music lovers who will settle for nothing less than the very best reproduction of music from records. This is the world's first turntable to combine

the geometric accuracy of tangential tracking with the many advantages of the Biotracer tonearm. The remarkable tonearm system of the X800 is complemented by thoughtful design of the automatic functions, the chassis, the drive system, and even the gel-filled feet. As a result, the PS-X800 establishes a new standard against which every other turntable will have to be judged.

Outstanding Features

- Tangential Biotracer tonearm for minimum distortion, excellent sonic performance
- Biotracer tonearm elicits the best performance from the widest variety

of cartridges

- Biotracer actively damps tonearm/cartridge resonance and achieves wide stereo separation
- Biotracer controls tracking force, anti-skating and tonearm automatic functions

Tonearm and Functions

- Advanced fully-automatic IC-logic operation is silent and responsive for total convenience
- Automatic zero-balance for fast interchange of cartridges
- Tonearm may be "indexed" left and right at high or low speed without lifting dust cover
- Feather-touch controls respond to the slightest finger contact for fast, effort-less function selection
- Automatic record-size selector permits precise and safe indexing

- Audio muting circuit provides silence during start, return, and cueing operations
- Luminous end-of-record sensor frees the tonearm from mechanical linkages for improved reliability
- Capable of operation in synchronization with selected Sony cassette decks using the optional Sony RM-65
- "Repeat" mode for continuous music
- Accepts universal headshells and cartridge/headshell combinations

Turntable and Construction

- Quartz lock with Magnedisc servo control prevents even minute speed variations caused by external factors
- The linear-torque Sony BSL (brushless, slotless) direct-drive motor designed for uniform and smooth delivery of torque
- Electromagnetic braking provides rapid and smooth halt of platter rotation
- Sony Bulk Molding Compound (SBMC) base is both rigid and acoustically inert to reduce feedback
- Adjustable, gel-filled feet isolate turntable from external vibrations

The Biotracer Tonearm and Tangential Tracking: A Perfect Match



PS-X800

(Cartridge shown is optional)

Toward ideal tonearm performance

In the recording studio, when the original master disc is cut, the recording cutter-head is driven in a straight line from the outer edge toward the center of the disc. The cutting stylus remains at a 90° tangent to the groove throughout the process. Engineers have long understood that ideal performance in the home could only be achieved if the turntable's playback stylus duplicated this groove tangency. For it is only with perfect tangency that the turntable can achieve optimum stereo separation and minimum distortion, especially on the record's inner grooves.

A second requirement for ideal performance is an absolutely solid, vibration-free tonearm foundation. Without a solid foundation, the tonearm tends to vibrate in response to the record groove, degrading low-frequency sound. It is only with a rigid tonearm foundation that the low-frequency notes can be reproduced distinctly, and with full impact.

Unfortunately, these two requirements, groove tangency and a solid foundation, tend to contradict each other. Until now, the only tonearms with a solid foundation have been pivoted models. But pivoted tonearms, in their arc across the record, can achieve tangency at only one or two points. By their very design, they cannot maintain tangency from beginning to end.

In contrast, there are straight-line tracking turntables that achieve groove

tangency, but they sacrifice a solid tonearm foundation. By *their* very design, tangential tonearms are mounted on *moving* platforms which permit side-play and vibration.

The tangential Biotracer tonearm

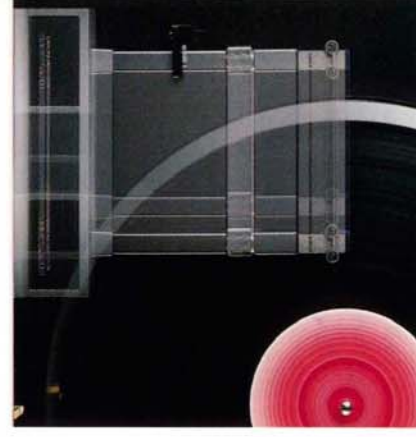
The Sony PS-X800 is the first turntable to combine the advantages of tangential tracking with the low-frequency performance of a stable tonearm foundation. Like other straight-line tracking turntables, the X800 uses a tonearm mounted on a moving platform. However, unlike any other tangential arm in the world, the tonearm of the X800 incorporates Sony's innovative Biotracer design.

The Biotracer's automated Motional Feedback (MFB) system constantly senses and corrects for tonearm vibration. For this reason, the arm provides all the advantages of a solid foundation: full-bodied, detailed low frequencies. *And* you get the reduced distortion, and improved stereo separation associated with tangential tonearms.

The Biotracer tonearm of the PS-X800 is the first design to fulfill the promise of straight-line tracking. Quite clearly, the combination of the Biotracer tonearm and the tangential configuration results in a joyful musical experience.

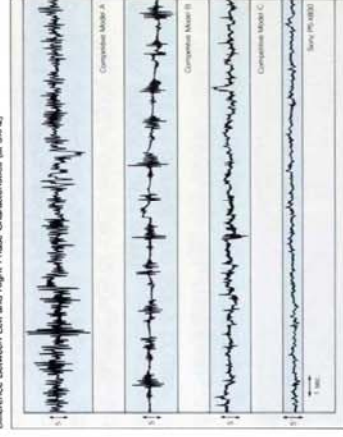
Uni-Motion design for superior precision

The tangential Biotracer arm provides still more benefits. Other straight-line



With Uni-Motion, the Biotracer tonearm of the PS-X800 maintains superior groove tangency.

Difference Between Left and Right Phase Characteristics (at 3kHz)

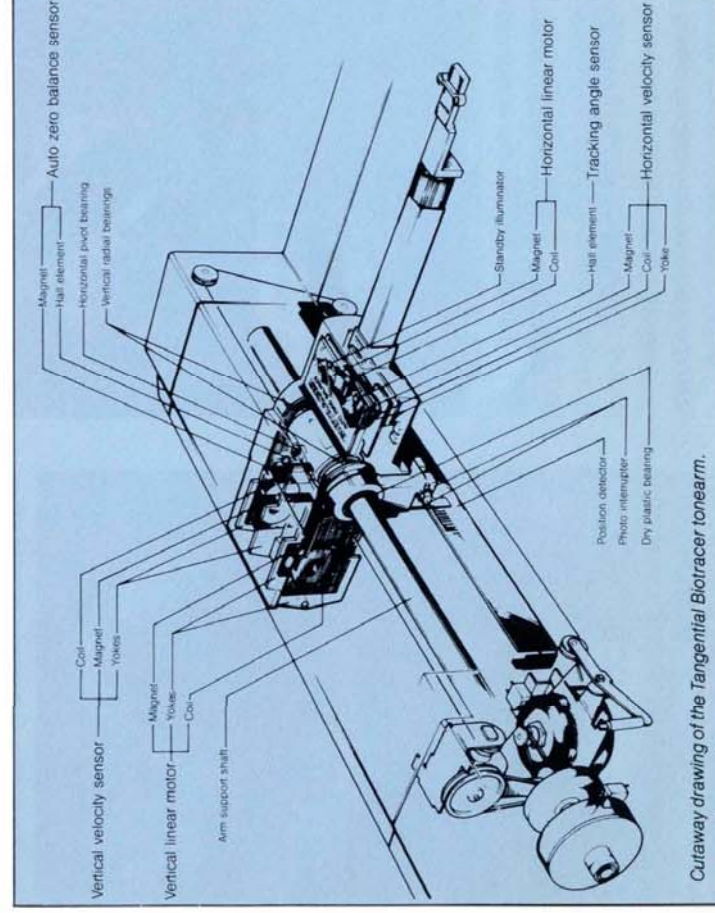


The Sony tangential Biotracer maintain groove tangency better than these other tangential tonearms. tracking arms require some slight tracking error to keep the arm moving forward. These tonearms are in a constant state of correcting tracking error. In contrast, the PS-X800 incorporates Uni-Motion design. Uni-Motion brings the tonearm slowly towards the center of the record, even when no tracking error is detected.

As a result, the tangential Biotracer maintains superior groove tangency. Phase differences between the stereo channels are dramatically reduced. This results in a stable stereo image, with outstanding spatial characteristics

As a final measure of precision, the vertical tonearm bearings, so important to tonearm function, are made to extremely close dimensional tolerances. Situated in Sony's long-span pivot, they provide the final assurance of exquisite performance.

The PS-X800, with its Biotracer tonearm and straight-line-tracking displays exceptionally lower distortion, extraordinary stereo separation and greatly improved reproduction of the inner grooves of all records. Most important, the Biotracer tonearm is unique in providing the solid, vibration-free tonearm base necessary for superior music reproduction.



Cutaway drawing of the Tangential Biotracer tonearm.

Sony Technology in the Service of Performance

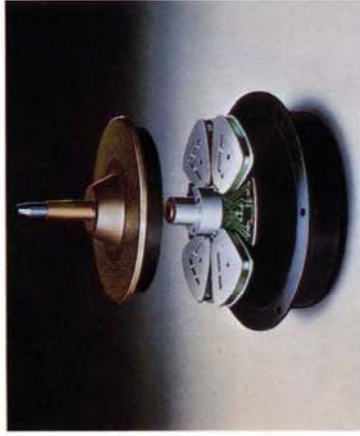
Drive System Technology

The linear-torque Sony BSL motor for smooth, precise rotation

Most direct-drive motors generate their power with an array of electromagnets mounted in a circle within a rotor ring. As the rotor turns, the torque increases and decreases as a result of the spaces — “slots” — between the electromagnets. This wavering-force effect is called “cogging”.

Sony has eliminated cogging with the remarkable BSL motor. There are no brushes, no slots, and the magnetic force is constant. Cogging is impossible and the torque delivered to the platter is uniform, smooth, and even.

As a further benefit, the Sony brushless design makes the BSL motor unusually quiet, durable and trouble-free.



Magnedisc servo control for superior accuracy

Because household voltage itself is not without fluctuations, no direct-drive motor can be depended on—by itself—to maintain absolutely constant speed. Most good direct-drive turntables, therefore, have introduced servo electronics,



which monitor the speed at which the motor turns and adjust the electrical input to correct for deviations.

Most servo systems depend on a generator, mounted within or below the motor, to monitor motor speed and feed

that information back to the control circuits. High-quality turntables use pulse frequency generators for improved accuracy. Many of these Sony turntables are better still. They offer markedly increased accuracy with the Magnedisc system, which monitors the turning speed, not at the motor, but at the outer rim of the platter where there is room for many more pulses. Based on Sony-developed technology for computer-controlled precision machinery, this system uses a magnetic pickup head to read the 512 pulses imprinted on the platter's outer rim. The information is relayed to the servo control so rapidly and precisely that any speed variation is corrected before it can affect the musical signal.

With Magnedisc, many of these Sony turntables achieve such high speed accuracy that the platter stroboscope and variable speed controls are no longer necessary.

Quartz lock for absolute precision

To further ensure the consistency of the platter's speed, many Sony turntables compare the readings from the magnetic pickup head with a totally stable reference: quartz crystal oscillating at a precise frequency. The servo system is



locked into this stable reference signal. This prevents even minute speed variations that might be caused by temperature, drift in the servo loop, changes in voltage, or even the load placed on the platter by the record, the stylus, or a record-cleaning device. Dynamic wow and flutter is dramatically reduced. Musical pitches are clear and distinct.

Tonearm Technology

It's obvious that a turntable's tonearm is critical to performance—hence Sony's straight, low-mass tonearm found on



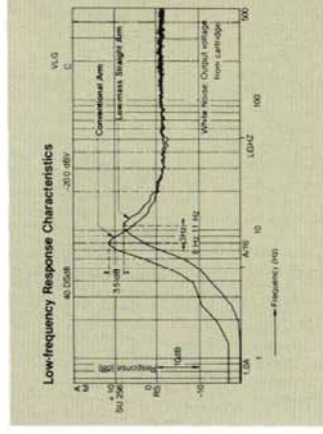
every LX and FL Series turntable.

A tonearm must be rigid. Yet some cartridges only function properly with a low-mass tonearm. These seemingly contradictory requirements—high rigidity and low mass—have been met by the design and materials of the straight, low-mass tonearm. The shaft of this tonearm is supported in two places: behind and in front of the vertical bearings. This two-point suspension reduces resonance and makes the shaft 35% more rigid. Sony engineers have chosen an alloy called Duralumin which, when fabricated into a thin-walled, hollow tube, nevertheless retains exceptional strength. Finally, because of its high rigidity and low mass, the tonearm accepts a wide variety of cartridges, including the high-compliance, high-performance types.

Even the arm's shell is unique—ultra-light and miniaturized. Unlike other low-mass designs, which use inefficient, single-pressure-point connectors, this headshell locks into ideal rigidity with just two simple twists of its convenient collar. And both arm and headshell contacts are gold, for years of reliable corrosion-free contact.

tube, nevertheless retains exceptional strength. Finally, because of its high rigidity and low mass, the tonearm accepts a wide variety of cartridges, including the high-compliance, high-performance types.

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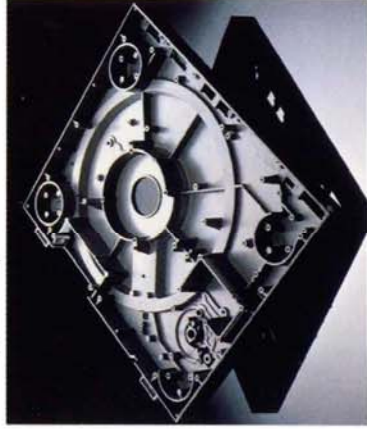


Anti-Resonant Construction

Sony Bulk Molding Compound (SBMC) cabinet

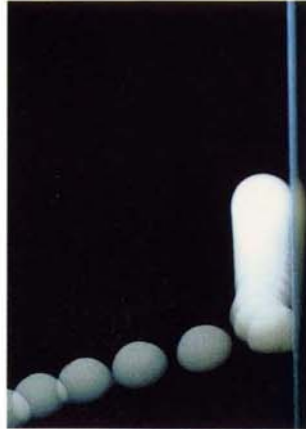
The cabinet of each and every Sony turn-

table is molded of a specially developed inorganic material known as Sony Bulk Molding Compound (SBMC). Acoustically inert, rigid, and exceptionally resistant to chipping or scratching, SBMC absorbs the high-level, low-frequency sounds that normally generate acoustic feedback. As a result, the integrity of the sound quality is preserved.



Gel-filled, height-adjustable feet

To eliminate the additional problem of resonance or feedback directly between turntable and speakers, selected Sony turntables are mounted on specially-designed, gel-filled feet. Adjustable for easy leveling, these insulators effectively absorb acoustic energy. You can play music even at high volume levels without acoustic feedback.



Rubber ball without gel filling (above) and with gel filling (below) clearly demonstrates "dead" response and shock-absorbing properties.

Unhesitating Response to Command

While these Sony turntables offer state-of-the-art technology and performance, they also provide comfortable, convenient access to this high performance. For example, most of these models feature logic control. When you touch a function button, your command is relayed to the logic system, checked for sequencing, and obeyed. Moreover, every operation is done without hesitation, and with utter silence.

The controls on every turntable are mounted in the front, making them completely accessible—even when the dust cover is closed. On the PS-X600 and X800, you can even "index" the arm left and right—at high or low speed—without lifting the dust cover.

Convenience

Automatic record-size selector

A feature important for both convenience and safety is Sony's automatic record-size selector. A series of "windows" in the platter mat permit light to travel from a point toward the back of the turntable to two photo-sensors beneath the platter. The sensors cause the arm to index for a 12" or 7" record automatically. When no record is on the platter, the sensors prevent any indexing at all. In this way, the tonearm, cartridge and stylus are protected from damage even if the start button is accidentally pressed with no record on the platter.



Disc centering guides

Sony's attention to detail extends to the simple action of placing the record on the spindle. On the LX and FL series turntables, disc centering guides facilitate easy, accurate placement of records, even in dark and dimly-lit rooms.



Disc centering guides allow you to center records on the spindle quickly and easily.

Audio muting circuit

Many of these turntables also incorporate a circuit which silences all audio during the start and return phases. In particular, this muting circuit eliminates the unpleasant "pop" which invariably takes place when the stylus descends into the groove.

Wireless remote control operation

The PS-LX3, LX5, FL1, and FL3 offer an additional feature for advanced convenience. Each of these turntables can be operated from across the room when used together with the Sony TA-AX44 Integrated Amplifier, the ST-JX44 AM/FM Stereo Tuner, and the optional RM-44 Wireless Remote Control. For even greater convenience, a selection of Sony cassette decks can be added to form a complete high fidelity system capable of remote control.

Synchronized operation

Using the optional RM-65, Sony's advanced fully automatic turntables can be operated in synchronization with selected Sony cassette decks. With this facility you can start and stop operation of both machines with the touch of a single button.

The following Sony models function in synchronization when used with the RM-65. Turntables:

PS-LX3, LX5, FL1, FL3, FL5, X600, X800.

Tape decks:

TC-FX44, FX500R,

FX66, FX77,

FX1010, K555,

K777, FX4, FX5C,

FX6, FX6C, FX7,

K55II, K61, K65,

K71, K75,

K81, K88B.



Features & Specifications

Operation type	LX2	LX3	LX5	FL1	FL3	FL5	X500	X600	X800
	Semi-automatic	Fully-automatic	Fully-automatic	Fully-automatic	Fully-automatic	Fully-automatic	Manual/auto lift	Fully-automatic	Fully-automatic
Tonearm section									
Type	Static-balance straight		Static-balance straight		Static-balance straight		Biotracer, taper straight		Tangential Biotracer
Effective length	216.5 (8½)		216.5 (8½)		216.5 (8½)		216.5 (8½)		180 (7¼)
Overhang	16.5 (⅝)		16.5 (⅝)		16.5 (⅝)		16.5 (⅝)		0
Tracking error	7.5-12		7.5-12		7.5-12		7.5-12.5		10.0-17.0
Usable cartridge weight (including headshell)	7.4-11.7		7.4-11.7		7.4-11.7		7.5-12.5		12.0-17.0
Supplied headshell	SH-94 (4-2)		SH-151 (5.2)		SH-151 (5.2)		SH-151 (5.2)		SH-156 (7.2)
Effective mass (without cartridge)	5.5		5.8		5.5		6.4		6.4
Turntable section									
Drive system & motor	Yes		Yes		Yes		Yes		Yes
Magnetic servo control	Yes		Yes		Yes		Yes		Yes
Quartz lock, with indicator	—		—		—		—		—
Wow and flutter									
WRMS	0.025		0.025		0.025		0.025		0.025
DIN-45507	±0.04		±0.04		±0.04		±0.03		±0.03
FG direct measurement	0.02		0.03		0.02		0.015		0.015
Signal-to-noise ratio (DIN-B)	75		75		78		78		78
Speed accuracy	>0.05		>0.05		>0.05		>0.0003		>0.0003
Start-up time at 33⅓/RPM	1/2		1/2		1/2		1/2		1/2
Platter diameter	31 (12⅝)		31 (12⅝)		30 (12)		32 (12⅝)		32 (12⅝)
Platter weight (with rubber mat)	0.85 (11/14)		0.85 (11/14)		1.2 (2/10)		1.2 (2/10)		1.75 (3/14)
Speeds	33⅓ & 45		33⅓ & 45		33⅓ & 45		33⅓ & 45		33⅓ & 45
Electromagnetic braking	—		—		—		Yes		Yes
Others									
Auto disc selector	—		Yes		Yes		—		Yes
Audio muting circuit	—		Yes		Yes		—		Yes
General									
Power supply	AC-120		AC-120		AC-120		AC-120		AC-120
Power consumption	8		9		10		10		13
Width	430 (17)		430 (17)		430 (17)		430 (17)		440 (17⅞)
Height	105 (4¼)		105 (4¼)		110 (4⅜)		110 (4⅜)		120 (4⅞)
Depth	355 (14)		355 (14)		385 (15¼)		385 (15¼)		440 (17⅞)
Weight	5.8 (12/13)		6.1 (13/7)		6.3 (13/14)		6.3 (13/14)		8.5 (18/12)

*Design and specifications subject to change without notice.

*Unmeasurable



VL-5

Sony moving-magnet (MM) cartridge exhibits superb tracking and frequency response.



VL-7

Sony MM cartridge with superior tracking, extended frequency response, and wide stereo separation.



XL-MC1

Sony's most affordable MC cartridge with a new low-mass design—weighs only 2.5 grams. Features figure-8 coil and user-replaceable stylus.



XL-MC2

Sony light-weight MC cartridge offers extended frequency response, low distortion, wide stereo separation, and even a user-replaceable stylus.



XL-MC3

Low-mass MC cartridge with Super Elliptical stylus for superior response, low distortion, and long record life. Features figure-8 coil and user-replaceable stylus.



XL-33L

Moving-coil (MC) cartridge with Sony's unique figure-8 coil design for low distortion, superlative sonic clarity.



XL-44L

MC cartridge combines the sonic performance of the Sony figure-8 coil with an efficient, Parmendur magnetic circuit.



SH-156

Super-low-mass headshell specially designed for the Sony PS-X800 Tangential Biotracer turntable.



SH-151

Headshell specially-designed for Sony Straight, Low-Mass tonearms.



HA-T10

Mini step-up transformers boost the output of moving-coil cartridges for conventional, moving-magnet phono inputs.

SONY[®]

High Fidelity Components

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