

**PIONEER**<sup>®</sup>

**PL-550**



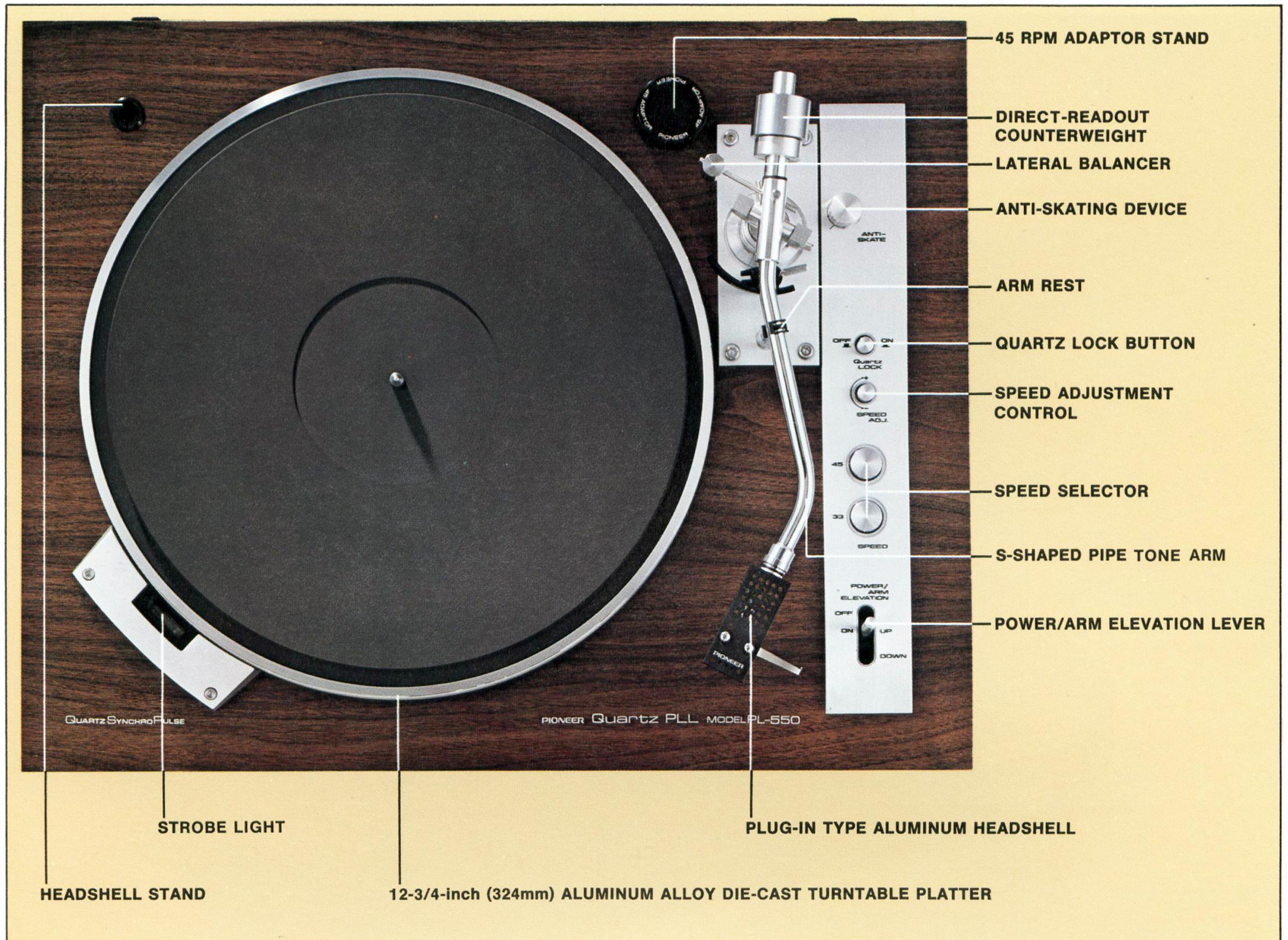
## Super-Precision Direct-Drive Turntable with Quartz PLL Servo System

Heretofore, competition in the direct-drive turntable field has been mainly in terms of wow and flutter, S/N ratio and other performance specifications. But the excellence of direct-drive turntables, we believe, cannot be limited to a comparison of these figures. Indeed, certain performance specifications have improved to the point where measuring instruments cannot determine turntable quality. And the

PL-550 is a prime example of a turntable that outperforms the specifications that measuring devices can measure. The PL-550 thus represents a new Pioneer marketing concept for turntables. First of all, it has been designed to enhance the image of Pioneer's high-level technology. Its performance is extraordinarily high for a direct-drive turntable, and will certainly appeal to our customers with its technically

competitive features. Secondly, the PL-550 represents the introduction of Pioneer's quartz PLL direct-drive technology at a reasonable price. Indeed, we have employed a more advanced quartz PLL circuit as the heart of our direct-drive turntable. This makes the PL-550 more competitive than ever, for it helps set new standards of accuracy in a servo-controlled circuit.

# PL-550



## THE UNIQUE QUARTZ PLL HIGH TORQUE DIRECT DRIVE MOTOR

A quartz element, of the same high precision of those used in the current quartz watches, is employed in the reference oscillator of this advanced Pioneer turntable. It is just one indication of the technological lengths that Pioneer has gone to make the PL-550 one of the world's finest performers. Its high torque motor is the direct drive type, employing the advanced phase-locked loop (PLL) method for direct drive control at a reasonable price. Heretofore, the PLL type was used only in professional equipment, normally priced extremely high.

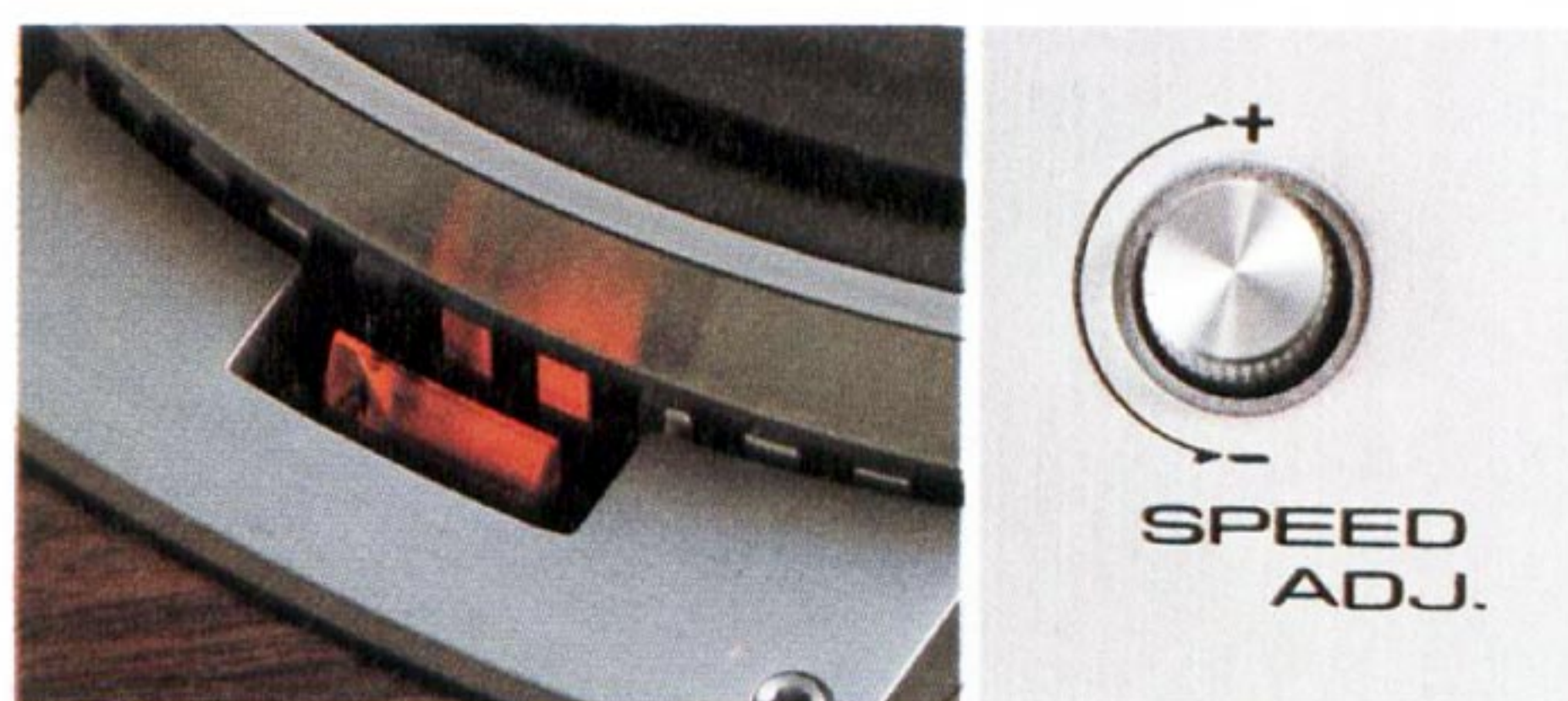
With the phase-locked loop (PLL) method, the output waveform of a generator fixed on the rotor shaft of the motor, and the output waveform of the reference oscillator are compared. Solid state phase-comparator then detect the advance and delay of phase rather than their amplitude and controlling motor rotation, assuring that the precision of the motor rotation is identical to the precision of the reference quartz oscillator. Additionally, a quick-down circuit is provided to enable rapid change of rotation speed from 45 rpm to 33 rpm. This long settle time has been a common disadvantage on many direct drive motors.



## EASY-VIEWING ONE-STRIPE STROBE WITH WAVE-SHAPING CIRCUIT

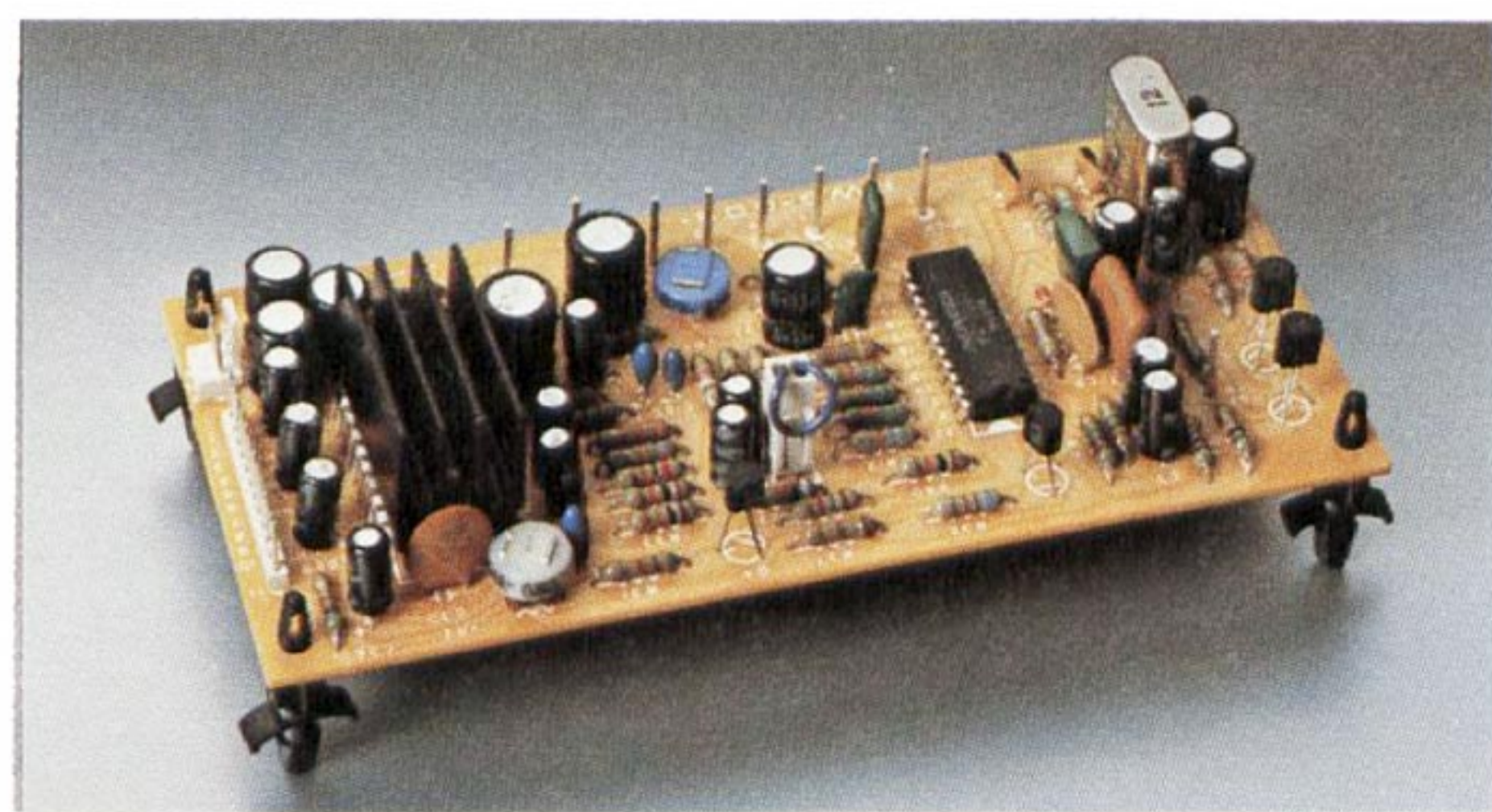
Conventional strobes used for fine speed control in other turntables are normally lighted by commercial line power supplies, and thus require four stripes

embosses on a turntable platter to correspond to power supply frequency and rotation at both speeds. Also, since commercially-supplied power has a frequency fluctuation of about 0.1%, fine speed control with high precision is virtually impossible with conventional strobe. In Pioneer's PL-550, the strobe is lighted by dividing the oscillation frequency of the quartz element by electronic circuits. This means that, even at the time of rotation switching, precise control is possible by changing the frequency-dividing ratio using only one stripe of embosses on a turntable platter and without adverse effect from the power supply frequency. The strobe lighting is sharp, quartz reference pulsive lighting, assured by the wave-shaping circuit that clearly indicates the embosses and helps ensure precise control.



#### RELIABLE IC TECHNOLOGY

The use of the quartz PLL adds high precision control and reliability to the turntable operation. Its complex circuitry is made the more reliable by the use of advanced integrated circuits in the PL-550, a bipolar type in the drive circuits and a MOS type in the control circuits.

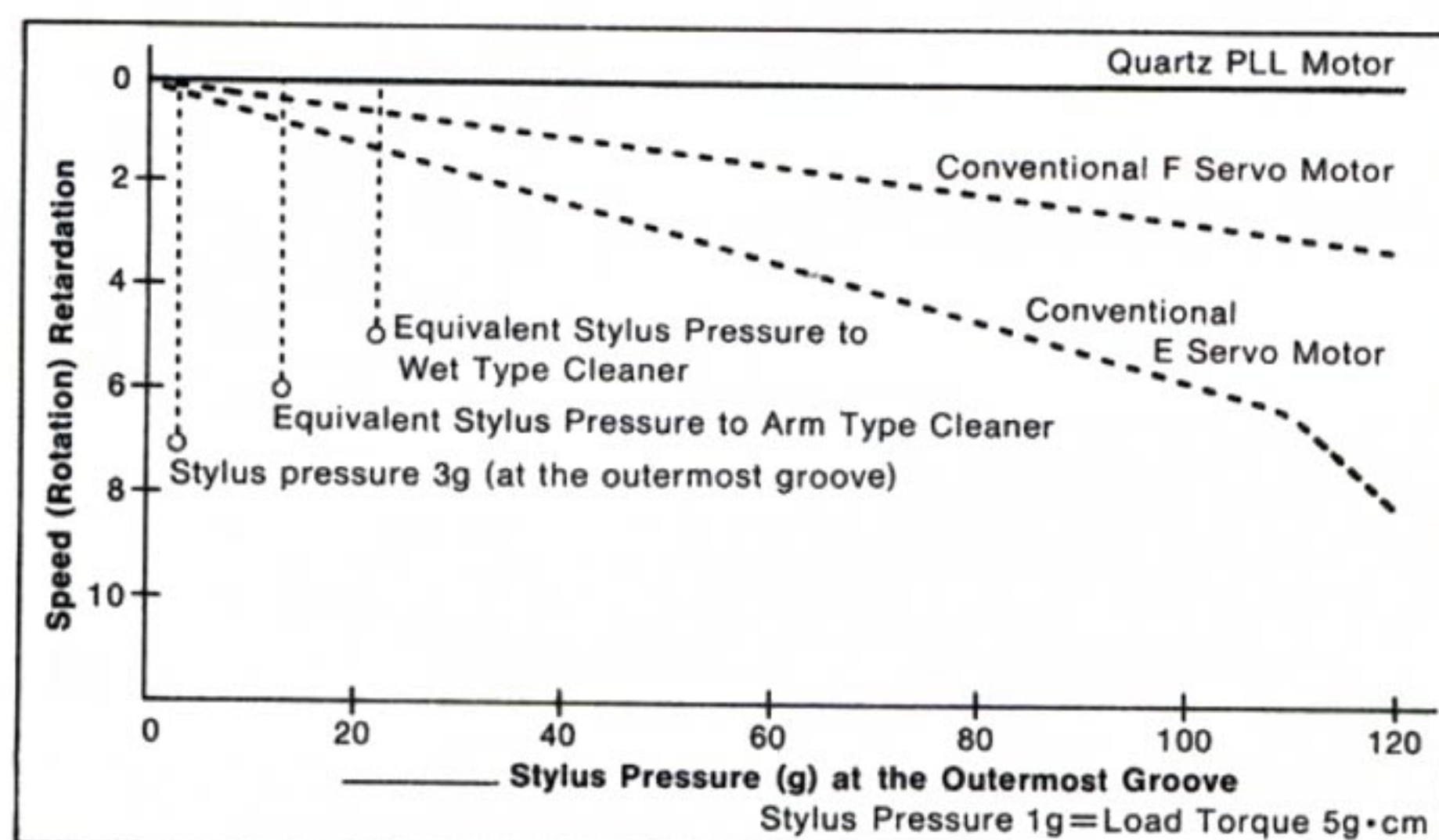


#### EXCELLENT WOW/FLUTTER, S/N RATIO

The drive/control circuit, shaft bearing and advanced fabrication techniques used in the PL-550 have resulted in excellent performance specifications: wow and flutter of no more than 0.025% (WRMS) and S/N ratio of more than 70dB (DIN B). Compared with conventional direct drive turntables, the PL-550 also boasts fine stylus pressure load resistance outstanding drift/temperature properties and rotation precision

only a quartz PLL operation can provide.

#### Load Characteristics of D.D. Turntable



#### Comparison List of D.D. Turntable Drift Characteristics

	Temperature Drift (%/°c)	Time Drift (%/h)
Quartz PLL	0.00004	0.0003
F Servo	0.02	0.07
E Servo	0.025	0.20

#### NEW, HIGHLY TRACKABLE S-SHAPED PIPE ARM

Great care has been taken in the selection of parts for the S-shaped tone arm used in this distinguished turntable. Employed vertically and horizontally in the pivots are high precision angular contact bearings which prevent deterioration in the mid and high frequency ranges and display sufficient trackability during playback even with lightest stylus pressure, high compliance cartridges. Tonal quality is further enhanced in the low sound spectrums by the use of strong 1/4-inch (6mm) thick aluminum in the arm fixing base. The full function of the tone arm and cartridge is extended by Pioneer's unique anti-skating device, used in the tone arm to eliminate harmful inward forces, and lateral bal-

ancer for precise tracking of critical, high velocity records such as CD-4 records. There is also an arm height adjuster which adjusts the vertical tracking angle of the cartridge to its correct value, and a cueing device which protects your records and styli from damage.

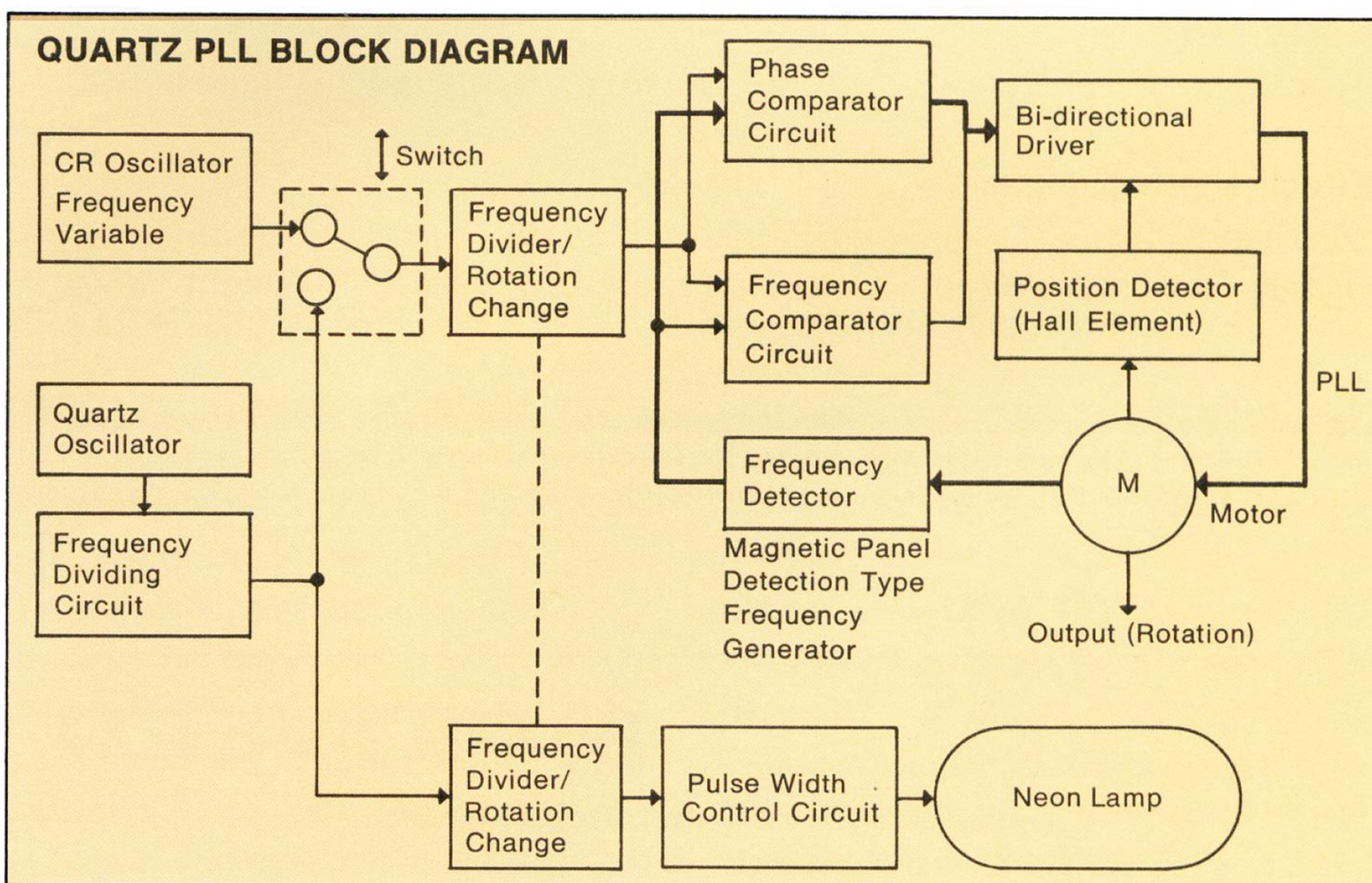


#### HARD PARTICLE BOARD, HOWLING-PREVENTION CABINET

The monocoque design cabinet, which effectively protects against howling and virtually eliminates all external vibration, was developed after an analysis by Pioneer engineers of resonance mode and repetitive test listening. The ideal weight/mass ratio of the cabinet design, coupled with diecast, solid, large insulators and horizontal level and elevation adjustment devices, contributes to the anti-vibration, howl-proof characteristics of the PL-550.

#### TWO HEADSHELL STANDS AS STANDARD EQUIPMENT

Headshell stands offer additional turntable convenience when you are replacing a cartridge, and two stands are standard equipment with the PL-550, in the rear of the cabinet. These are also used as EP adaptor receptacles.



## PL-550 SPECIFICATIONS MOTOR AND TURNTABLE

Drive System:	Quartz PLL direct-drive system
Motor:	Quartz PLL hall-motor
Speeds:	33-1/3 and 45 rpm
Speed Control Range:	Within $\pm 6\%$ (PLL servo-controlled by a built-in CR oscillator)
Wow and Flutter:	No more than 0.025% (WRMS)
Signal-to-Noise Ratio:	More than 70dB (DIN B)
Load Fluctuation:	0% (within 120g of stylus pressure)
Starting Time:	Within 2/3 rotation
Rotation Deviation:	No more than 0.003%
Time Drift:	No more than 0.0003%/h
Temperature Drift:	No more than 0.00004%/°C
Turntable Platter:	12-3/4-inch (324mm) diameter aluminum alloy die-cast (Inertial Mass 340kg•cm <sup>2</sup> )

## TONE ARM

Type:	Static-balanced S-shaped pipe arm
Effective Arm Length:	8-11/16-inch (221mm)
Overhang:	5/8-inch (15.5mm)
Usable Cartridge Weight:	4g (min.) to 14.5g (max.)

Adjustable Height Range:

(A sub-weight should be used for cartridges, weighing more than 9.5g.)  
Within  $\pm 3/16$ -inch (5mm)

## OTHER FEATURES

Anti-scating device, lateral balancer, stylus pressure direct-readout counter-weight, arm-height adjustor, viscous-damped cueing device, stands for headshell and EP adaptor, strobe-lighting, free-hinged acrylic cover, height-adjustable insulator.

## MISCELLANEOUS

Power Requirements:	220V/240V (switchable), 50Hz or 110V/120V/220V/240V (switchable) 50/60Hz
Power Consumption:	5 watts
Dimensions:	19-9/32(W) x 7-9/32(H) x 15-11/32(D) inches 490(W) x 185(H) x 390(D) mm
Weight:	26 lb. 7 oz./12kg

NOTE: (1) Specifications and design subject to possible modification without notice.

(2) PL-550 for U.S. overseas military market is equipped with a Pioneer PL-550E/II cartridge (Moving Magnet type).



PIONEER ELECTRONIC CORPORATION / 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153, Japan

U.S. PIONEER ELECTRONICS CORPORATION / 75 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.

PIONEER ELECTRONIC (EUROPE) N.V./Luthagen-Haven 9, 2030 Antwerp, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. / 178-184 Boundary Road, Braeside, Victoria 3195, Australia