

**The turntable for people
who are very serious about their
record collection.**



Do you ever wonder what happens to your records when you play them? You should.

Chances are, your record collection is now worth several hundreds or even thousands of dollars. And will continue to grow in value.

That's reason enough, apart from your love of music, to give special thought to what may be going on between your records and your turntable so that you will continue to enjoy the music.

Diamond vs. vinyl.

A record is made of soft vinyl, and the impressionable grooves have to contend with the unyielding hardness of a diamond-tipped stylus.

As the record rotates in play, the rapidly changing contours of both groove walls force the stylus to move up, down and sideways at great speeds. To produce the bass drum, the stylus must vibrate about thirty times a second; the piccolo, about fifteen thousand times a second.

If the stylus can't respond easily and accurately to the groove contours, there's trouble, especially with the sharp and fragile curves which produce the high frequencies. Instead of going around these peaks, the stylus will simply lop them off. And with those little bits of vinyl go the high notes, the record and your investment.

When this happens, it's fatal. Those lovely high notes become only memories.

It's all up to the tonearm.

The freedom of the stylus to respond to all the demands on it depends in part

on the settings your cartridge requires: balance, stylus pressure, anti-skating.

The accuracy and effectiveness of these tonearm settings, however, depend upon how the tonearm is engineered and produced. For example: the amount of friction in the tonearm pivot determines how easily the tonearm can follow the stylus as it traces the record groove from beginning to end.

Still more to consider.

Critical as tonearm performance is, there is still more to consider. For example, the record must rotate at precisely the right speed, or pitch will be off. The motor must be quiet and free of vibration, or rumble will be added to the music.

And in addition to what goes on between the stylus and groove during play, there is also the matter of how conveniently, smoothly and gently the stylus gets to and from the groove.

With today's ultra-sensitive cartridges tracking at or near one gram, tonearm bearing friction should be as close to the vanishing point as technology can achieve.

And all this will be doubly important when you go to four-channel.

Now that you have given some thought to what happens to records in play, you may be interested in knowing how the design and engineering of Dual turntables protect your records play after play.

The following pages of this brochure will show you why we believe so strongly that "every record you buy is one more reason to own a Dual."

**You may not appreciate all
of Dual's precision.
But your records will.**



Dual 1218



Dual 1229

The true measure of a turntable is not the number of its features, but how well they are designed and produced. And how they contribute to the quality of record reproduction.

Because of the acclaim that Dual has earned and enjoyed over the years, many Dual features inevitably appear on competitive turntables.

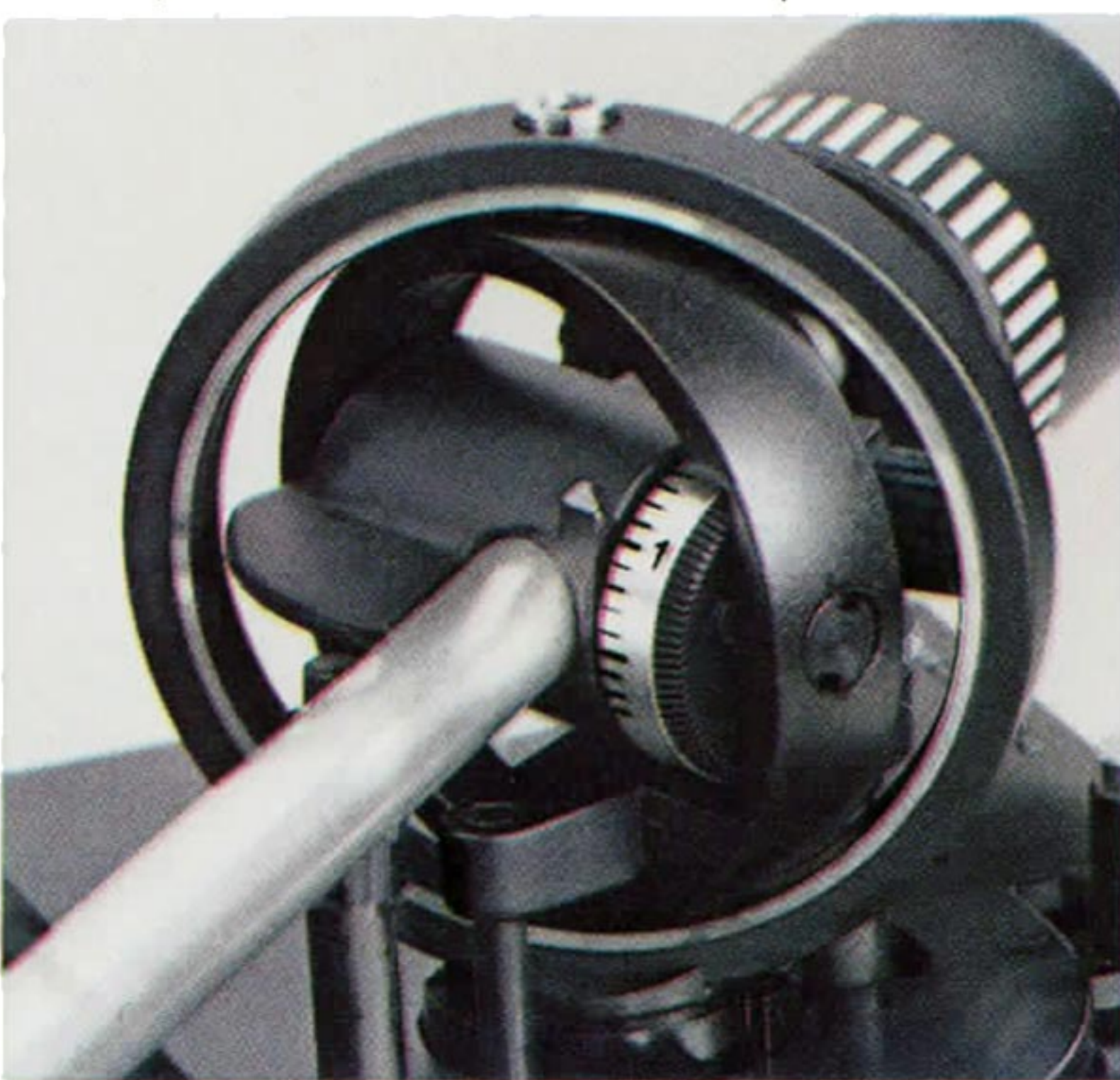
To copy a Dual feature is one thing; to achieve Dual performance and reliability is quite another matter.

You might keep this in mind as you read about the most copied turntable available today.

Gyroscopic tonearm suspension.

The gyroscope is the best known scientific means for supporting a precision instrument that must remain perfectly balanced in all planes of motion. This is why we selected a true gyroscopic gimbal for the suspension of the 1229 and 1218 tonearms.

This tonearm is centered and balanced within two concentric rings, and pivots around their respective axes.



All four suspension points are identical low-friction needle-point bearings. If you can imagine fifteen-thousandths of a gram, that's how little resistance the 1229 tonearm presents to the stylus.

Stylus pressure to one-tenth gram.

New cartridge models tend to be introduced much more frequently than turntables. Which is why we make certain



Stylus pressure is applied around pivot, maintaining perfect dynamic balance of Dual tonearms.

that the tracking capability of Dual tonearms remains well ahead of the requirements of any cartridge likely to become available.

Since today's most sensitive cartridges are designed for tracking at around one gram, Dual tonearms are designed to track well below that figure. At such low tracking forces moreover, there is little margin for error when applying the required tracking pressure for a specific cartridge.

In the 1229, therefore, the tracking pressure scale is calibrated within a quarter of a gram in the tracking range of 1.5 to 3.0 grams, and within a tenth of a gram from 0 to 1.5 grams.

Anti-skating for both stylus types.

The edge of the elliptical stylus that traces the groove wall is narrower than that of the conical stylus, and thus presses slightly deeper into the inner wall of the stereo groove.

As a result, more friction is created, increasing the inward pull of the groove on the stylus, and hence on the tonearm.



Separate anti-skating calibrations for conical and elliptical styli are provided on all Duals.

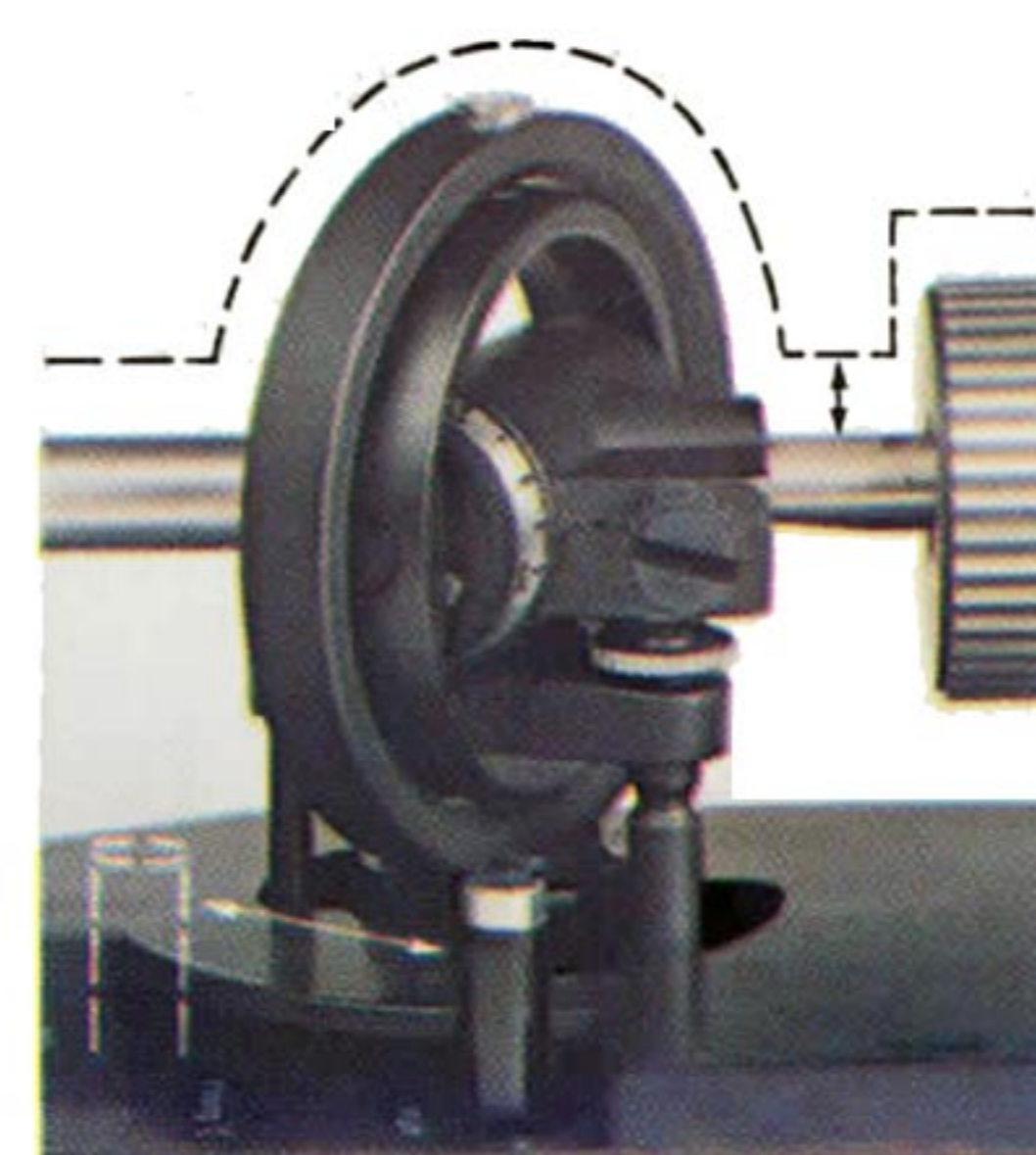
The difference in friction between the conical and elliptical stylus is very slight, but it is significant with low bearing friction tonearms. Thus, another Dual refinement: separate calibrations for each type of stylus.

Perfect vertical tracking in single play.

Here's another fine point.

Ideally, the stylus should track a record at the same angle at which it was cut. But the conventional automatic tonearm must necessarily be compromised in this respect. Typically, it is designed to track at the correct angle when playing the center of a stack. In single play, this tonearm is tilted down.

The tonearms of the 1229 and 1218 do away with this compromise.

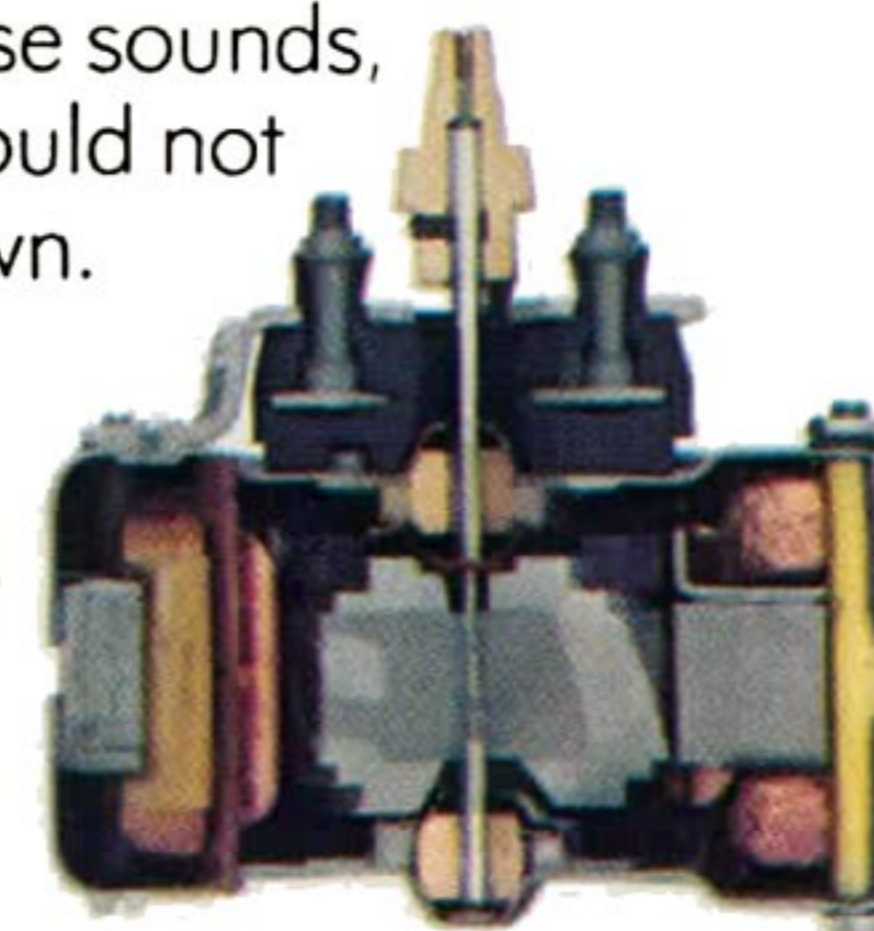


Mode Selector of 1229 provides perfect vertical tracking in single play by lowering entire tonearm base to parallel tonearm to record.

Avoiding sounds that weren't recorded.

Today's records contain all the great sounds you would ever want to hear, from the mind-boggling cacophony of the rock band to the rich complexity of the symphony orchestra. And while the tonearm is bringing out those sounds, the turntable should not add any of its own. Such as rumble, wow, or flutter.

Dual motors run so smoothly and quietly that one expert reported he couldn't hear it running in his lab even when he put his ear right on the chassis. One way Dual keeps its motors so quiet is by dynamically balancing each rotor in all planes of motion while it is actually turning.



Cutaway view

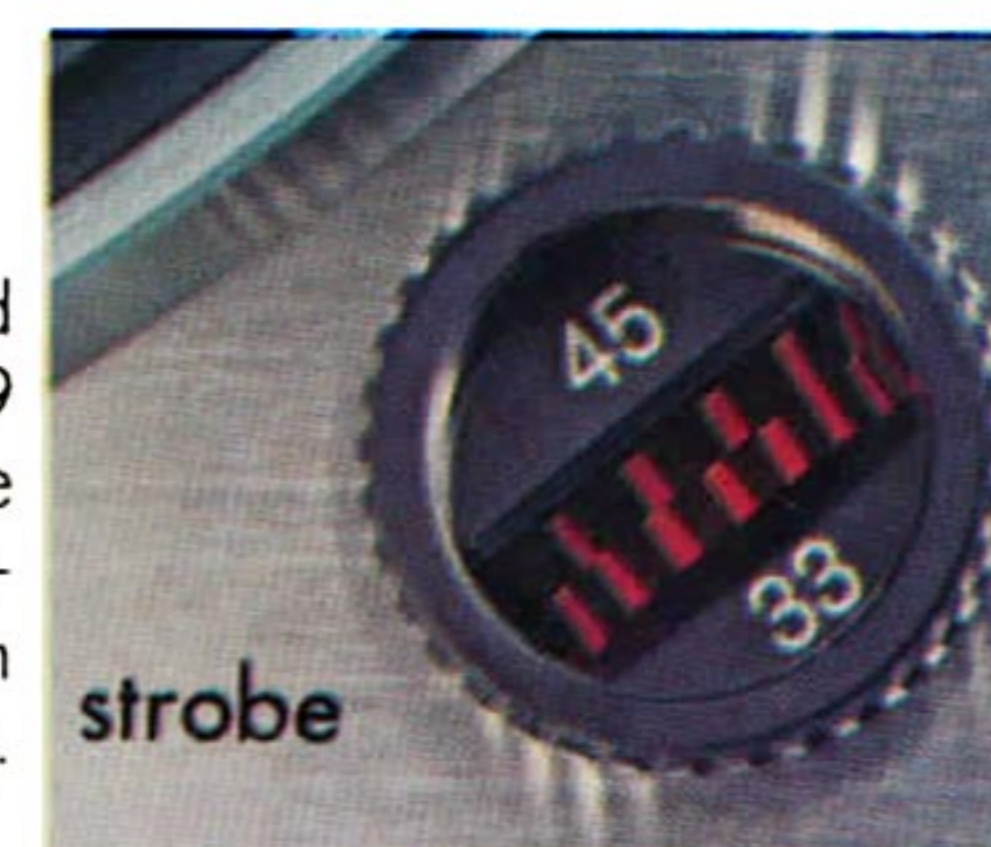


The motor pulley that transfers power to the idler wheel is also individually tested in all planes of motion while rotating. And the entire motor is isolated from the chassis to prevent any potential vibration from muddying up the bass.

As for the wow and flutter that can make a piano sound wobbly or a violin bow uncertain, an unusually powerful constant-speed motor combines with a heavy platter whose flywheel action smooths out any residual variations.

The Dual motor's high torque brings the platter to full speed in less than half a turn; even the massive 12-inch, seven pound platter of the

Illuminated strobe of 1229 has adjustable angle for convenience in viewing.



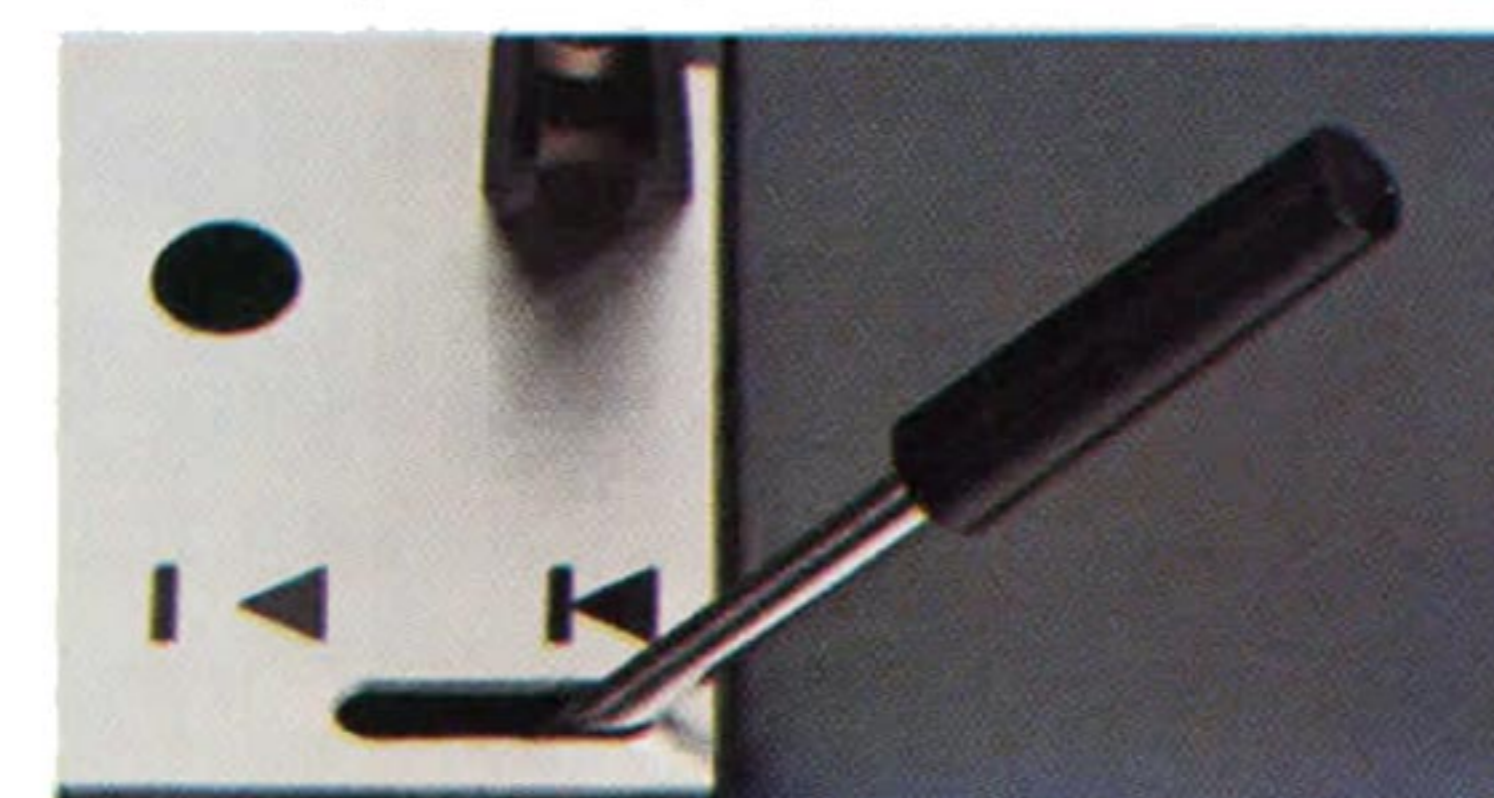
1229. And because the motor is also synchronous, speeds won't vary thereafter no matter how much the line voltage may vary.

On occasions when you do want to change the speed of the record, such as when it is off-pitch, or when you want to match record pitch to a live instrument, the pitch control gives you a range of one semitone.

Still more refinements.

Each of Dual's spindles has its own touch of precision. The single-play spindle of the 1218 and 1229 rotates with the platter, thus eliminating any potential eccentric wear, slipping, or binding that can occur with a stationary spindle.

The changer spindle lowers the bottom record from the stack above it before it is released to descend. There is no weight on the record, and no pusher action against the hole. Each record gets "single play" treatment.



Dual's silicone-damped cueing system lowers the tonearm to the record far more gently than you could by hand.

The best guarantee.

All these precision features and refinements don't mean that a Dual turntable must be handled with undue care. On the contrary. Duals are quite rugged and virtually foolproof. For example: suppose you set the wrong record speed and indexing size for the record you intend to play, and press the start switch. No problem. You can make the corrections while the tonearm is in the automatic cycle. You can even interrupt the tonearm while it's cycling and return it to the resting post. No damage.

So we're not being rash when we include a full year guarantee covering both parts and labor for every Dual. That's up to four times the guarantee you'll find on other automatic units.

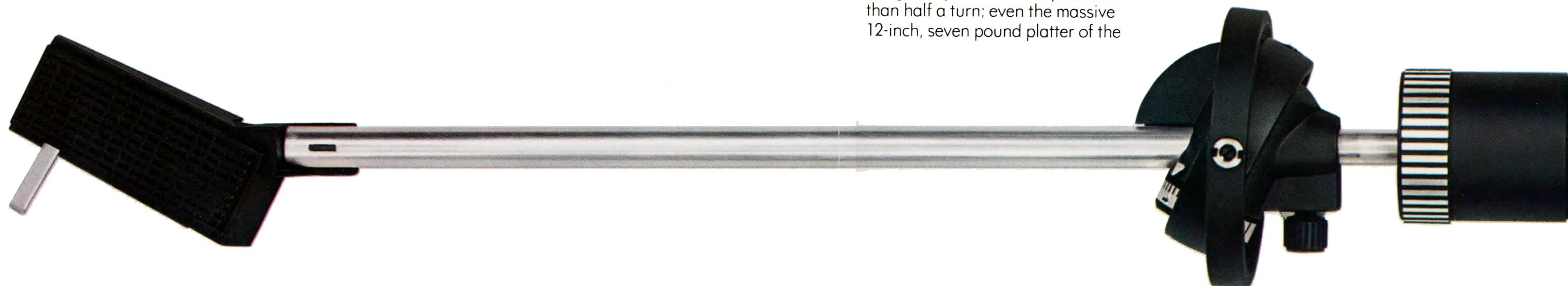
Now you know what others know.

Serious music lovers know all this. It's why so many of them, professional and amateur, have long entrusted their precious records to a Dual.

From years of listening, they know that on a Dual, records are preserved indefinitely, and will continue to sound as good as new, no matter how often played.

To learn the specific features of each Dual model, simply turn to the back page. Then just visit your franchised United Audio dealer and ask for a demonstration.

We believe that you will then join the other serious music lovers who prefer Dual.



Now that you know you want a Dual, the next question is which one.



Dual 1215S Auto/Standard Turntable

The 1215S is Dual's least expensive turntable, yet provides the precision engineering, reliable operation and special features that the most critical users insist upon. Among its features:

Low-mass counterbalanced tubular tonearm tracks flawlessly at as low as 0.75 gram. 6% variable pitch-control for all speeds (33 $\frac{1}{3}$, 45, 78 rpm). Anti-skating separately calibrated for conical and elliptical styli. Silicone-damped cue control. Hi-torque motor maintains constant speed within 0.1% throughout wide range of line voltage variations. 3 $\frac{3}{4}$ lb. laminated platter. Dimensions: less than 11 x 13".

Dual 1218 Auto/Professional Turntable

Within a few months after its introduction, the 1218 became the most popular turntable Dual has ever made. No wonder, since it incorporates many of the features introduced by Dual's premier model.

The gimbal-suspended tonearm tracks at as low as 0.5 gram. The motor combines high starting torque with dead-accurate, synchronous-speed constancy.

Perfect vertical tracking in the single-play mode is provided by the Tracking Angle Selector, designed into the cartridge housing. And the cartridge is pivoted around the stylus tip to maintain the correct stylus overhang in both modes.

Other features: one-piece 4 lb. cast platter, cue-control damped in both directions, rotating single-play spindle. Dimensions: less than 11 x 13".

Dual 1229 Professional Automatic Turntable

Dual's premier model, and the only choice for those who insist upon a full-size professional turntable. Although less than 15" x 12" in over-all dimensions, the 1229 offers a full-size 12," dynamically balanced platter that weighs 7 lbs.

The gimbal-mounted tonearm is 8 $\frac{3}{4}$ " long, from pivot to stylus tip. This unusual length, combined with correct engineering geometry, reduces horizontal tracking error to the vanishing point, while maintaining one-piece stability.

Correct vertical tracking angle is provided by the highly sophisticated Mode Selector, which for single play shifts the entire tonearm base down to make the tonearm parallel to the record. A special feature of its pitch control is a built-in illuminated strobe with adjustable viewing angle.



United Audio Products, Inc., 120 So. Columbus Ave., Mt. Vernon, N.Y. 10553

Exclusive U.S. Distribution Agency for Dual