

# Dual

# 1214

## INSTRUCTIONS

FOR INSTALLATION AND OPERATION



Auto/Standard Turntable

If you are typical of most new owners of components, you probably want to put your Dual into operation with the least possible delay. That's understandable.

But any new turntable or changer needs to be unpacked and installed on its base. Then the cartridge must be mounted, the tonearm balanced, and the entire unit connected to the rest of the system. The last step, of course, is to become familiar with

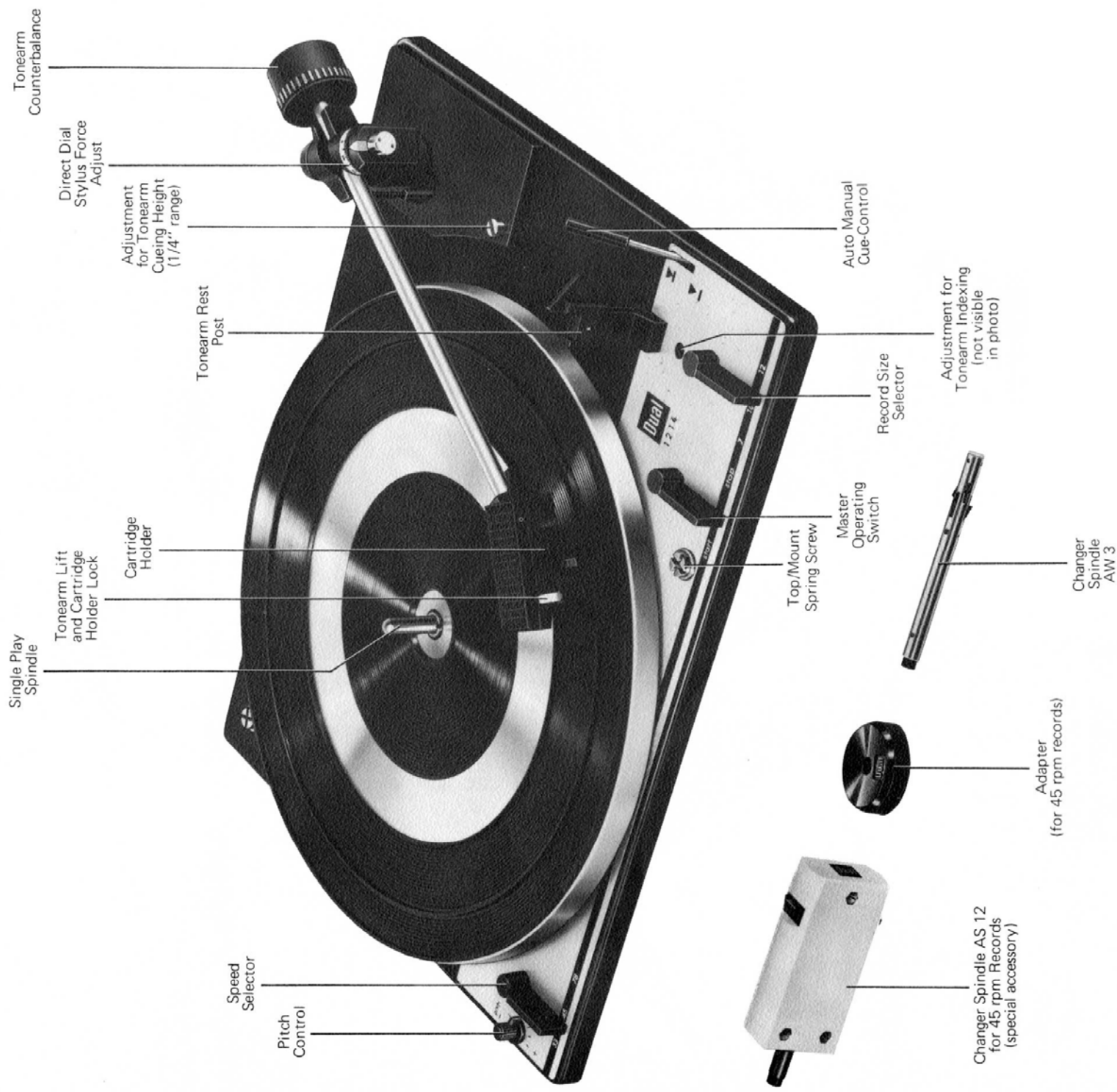
the operation of the unit.

All this will take but a short time, as the Dual is quite easy to set up for play, and then use. Inside, you will find a photograph of your Dual with all features identified.

In addition to the instructions for installation and operation, you will also find a description of your Dual's many design and operating features.

Good listening.

# Dual 1214



## Operating Instructions



Fig. 1. Master operating switch for all start and stop functions in either single-play or multiple-play mode.

### Foolproof design

Despite its versatility and precision, the Dual 1214 is quite easy to operate in either its single-play or multiple-play mode. It is also quite difficult to damage. If you happen to move the operating switch to "start" when the tonearm is locked on the resting post, just wait till the switch returns to "neutral," unlock the tonearm and start again. If the speed is set at 45 rpm when you have a 33-rpm record on the platter, just change the speed accordingly, even if the tonearm is already cycling. You can also do the same with the record size indicator. As for the variety of ways the Dual 1214 can be operated, they take longer to describe than to perform, so don't let the number of words that follow disturb you.

### Single-play mode

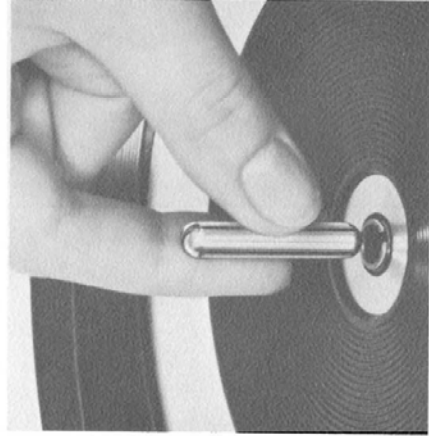


Fig. 2.

Insert the short spindle and set the motor speed and record index switch for the record to be played.

**Automatic start:** Move the operating switch to "start." (The motor will start, the tonearm will rise, move over to the record and descend to play.)

**Manual start:** Lift the tonearm off its resting post and place it anywhere on the record. (The movement of the tonearm toward the record will start the platter rotating.)

### Cue-control

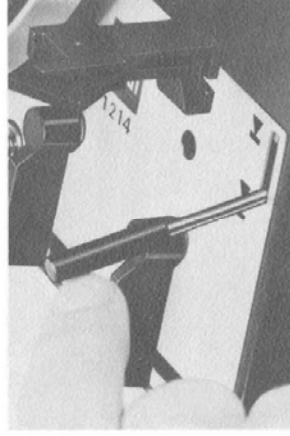


Fig. 3. Cue-control in "up" position allows tonearm to be placed anywhere over the record, or to be lifted from record without shutting motor off. A light touch of the lever shifts it to the "down" position, letting tonearm float down to the record.

**Cue-control start:** Move the cue-control lever to the forward position, then place the tonearm wherever you like over the record. Move the cue-control lever to the rear position (a light touch will do) and the tonearm will float down to the record.

To interrupt play when you intend to resume at the same place: move the cue-control forward. This will lift the tonearm from the record without shutting the motor off.

### Multiple-play mode

Insert the multiple-play spindle by placing the key at its base into the slot of the shaft. Then turn the spindle clockwise until it stops. The spindle can handle up to six records of the same size and speed.

All the functions as described above for single play are exactly the same in multiple play, plus these additions:

To reject a record during play and change to the next record on the spindle: turn switch to "start."

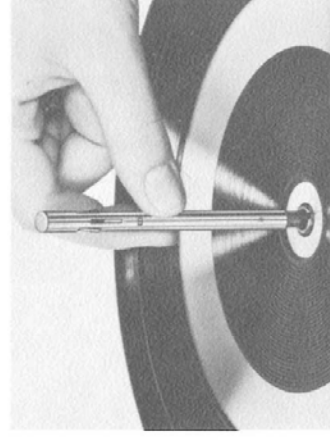


Fig. 4. Multiple-play spindle holds up to six records.

To replay a record on the platter: With no other record on the spindle platform above, just start normally, as in single play.

With another record on the platform, you can start automatically by lifting the record you wish to replay up to the platform. Or you can leave it on the platter and start it manually.

To repeat a record indefinitely: place the 45 rpm disc (supplied with your Dual) on the spindle platform after the record is on the platter. (You may find it advisable to place the weight of a record or two on top of the disc.)

There is never any need to remove the spindle for any such functions, since the supporting platform is designed to retract into the spindle when the records slip past.

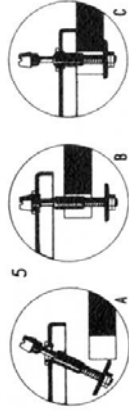
### Stopping play, either mode

To stop play: either turn the switch to "stop" or lift the tonearm from the record, either by hand or with the cue-control, and place it on the resting post. The motor will then shut off. At the end of play, the tonearm will return to its resting post automatically and the motor will shut off.

No matter what the mode of play, or how you started, you can stop at any time by any of the above means. (Don't be concerned about the continuing rotation of the platter. Its near-frictionless bearings let it go on and on.)

## Installation Instructions

REQUIRED DIMENSIONS: 13" width; 10 5/8" depth; 5" height above base, 2 3/4" below.



### Mounting On Base

These ingeniously designed mounting screws make it possible to install (and remove) your Dual on either base or mounting board entirely from the top. There's no need to fumble underneath.

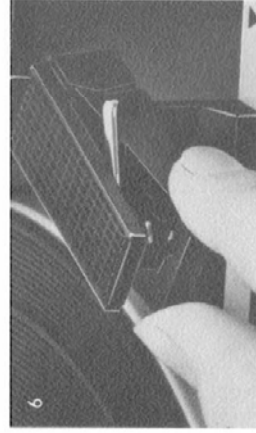
1. Position the chassis over the base so that the three cupped spring-mounted footings will fit into their cutouts. Tilt both mounting screws to let them slip past the notches as you lower the chassis. (Fig. 5a).
2. Turn each screw clockwise until it is seated on the top of the chassis. (Fig. 5b). That's all there is to it. To remove the Dual, simply reverse the above procedure.

### To Transport the Dual Without Dismounting

1. Loosen both top/mount spring screws, depress the chassis against the base, then continue to turn each screw counterclockwise until it stops. The chassis will then be locked firmly against the base. (Fig. 5c).
2. To avoid possible damage to the platter bearings in transit, insert the plastic wedges between the platter and chassis. Position the wedges at equal distances for maximum support. Or you can remove the platter. (See Fig. 5c).

### Mounting the Cartridge\*

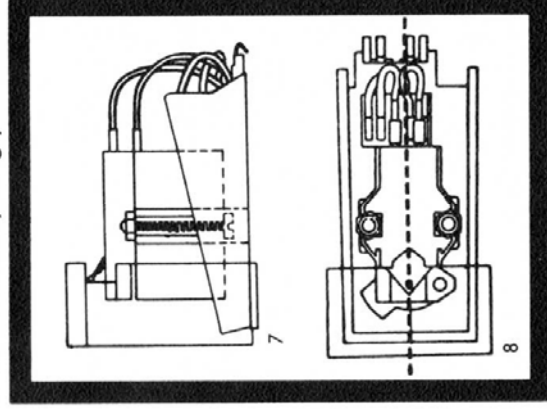
NOTE: Any cartridge weighing between 1 and 10 grams and meeting standard U.S. mounting specifications can be used.



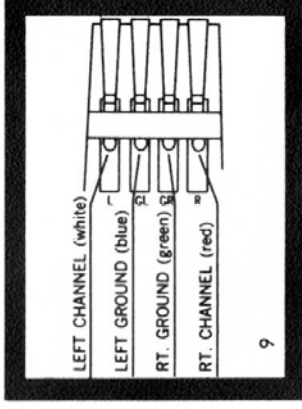
1. Release the cartridge holder from the tonearm head by pressing the tonearm lift to the rear. Be ready to catch the holder, as it will drop right into your hand (Fig. 6).

2. The special gauge supplied with your Dual, when placed against the holder as shown in fig. 7, will indicate the correct stylus depth for the cartridge when mounted. (Be sure the ridges on the inside of the gauge walls fit into the corresponding tracks on the side of the cartridge holder.)

When the cartridge is mounted at the correct depth, the tip of the stylus will protrude slightly into the notch of the gauge. (Use the necessary spacers and screws provided in the accessory bag.)

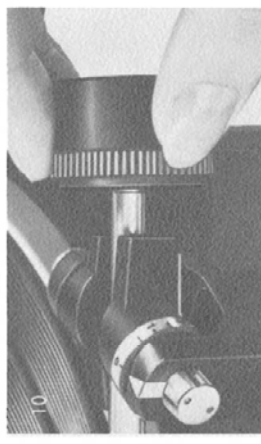


3. Remove the gauge when actually mounting the cartridge, then use it again to check stylus overhang. When viewed from the top (Fig. 8), the stylus should be centered in the notch of the gauge.
4. Finally, tighten screws, making sure cartridge is positioned straight. Note dotted line in fig. 8.
5. Connect each lead on the cartridge holder to its corresponding pin on the cartridge. Each lead is color-coded as shown in fig. 9.



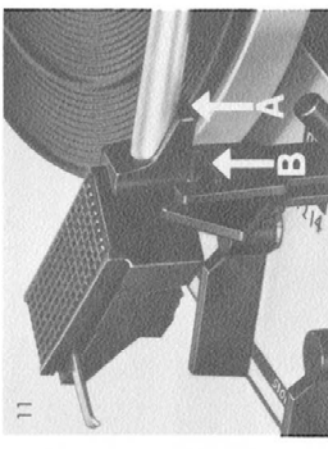
6. Attach the cartridge holder by placing it against the tonearm head as shown in fig. 6, lift it up and lock it by pressing the tonearm lift forward.

### Balancing the Tonearm\*



To balance the tonearm for the weight of the cartridge installed in it:

1. Lock the tonearm on its rest post, push the operating switch to START, and rotate the platter by hand two or three times. (This is to be sure the tonearm is disengaged from the automatic mechanism and will be freefloating.)
2. Set the tracking force at "0".
3. Unlock the tonearm and move it just to the inside of the rest post. Then note if the tonearm floats either up or down.



4. To lower the tonearm, turn the counterbalance clockwise (as viewed from the rear). To raise the tonearm, turn the counterbalance counterclockwise. (When points A and B as shown in fig. 11 are aligned, the tonearm is perfectly balanced.)

As a further confirmation of perfect balance, tap the chassis lightly while the tonearm is floating free. The tonearm should remain virtually motionless even while the chassis is in motion.

\*Instructions for installing on base, mounting cartridge and balancing tonearm apply for Duals purchased as separate components. If your Dual is already mounted, these installation procedures have already been made for you. However, reading these sections will familiarize you with the unit.

## Applying Tracking Force



With the tonearm balanced at zero, you now set tracking force by turning the calibrated dial to the number you want. This is accurate to within 0.15 grams. (Follow the instructions with your cartridge for the recommended tracking force.)

As the tonearm of the Dual can track flawlessly as low as 1.5 grams, the only limitations on tracking force are those imposed by the cartridge.

That is why you can use virtually any cartridge you prefer with the Dual, including those with ultrahigh compliance styli not ordinarily recommended for automatic arms.

## Anti-Skating

Skating refers to the side-thrust imparted to the stylus from the offset angle of the tonearm head and the friction between the stylus and the rotating record.

This causes the stylus to "skate" toward the center of the record, thus causing increased force against the inner groove and correspondingly less force against the outer groove. Which results in distortion, increased wear on the inner groove and uneven wear on the stylus itself.

Anti-skating is provided within the tonearm system of the Dual 1214. The required compensation has been set at the factory, and no further adjustments are required.

## Connection to

### Audio Equipment\*

Use the red cable for right channel and the yellow cable for left channel. If you have a mono amplifier, a "Y" connector, available at most audio dealers, will enable you to combine both channel leads into a single output.

## Connection to Power Supply\*

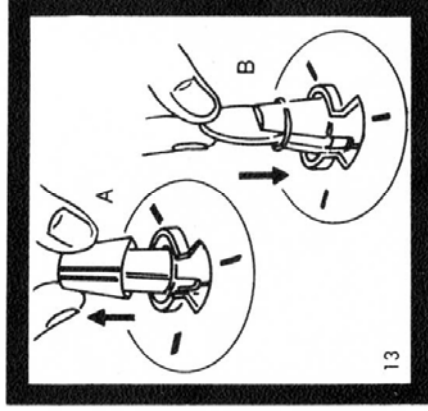
AC voltage and line frequency (cycles) requirements are indicated on both the outside of the carton and on the top of the chassis beneath the turntable. The Dual can be set to either 110 VAC or 220 VAC, and for line frequency of either 50 or 60 cycles. The 60 cycle pulley is Part Number 220,971, the 50 cycle pulley, Part Number 220,970. Only a qualified serviceman should attempt to make these changes.

## Adjustment for Lead-in Groove

The tonearm has been set to descend accurately into the lead-in groove. But if the dimensions of your cartridge and/or the location of its stylus cause the latter to touch the record either too far in or too far out, it can be adjusted easily.

Move the record-size selector to the 12" position, thus exposing the indexing adjustment screw. If the stylus touches the record outside the lead-in grooves, turn the screw clockwise; and vice versa. A very slight turn will suffice.

## Removing the Platter

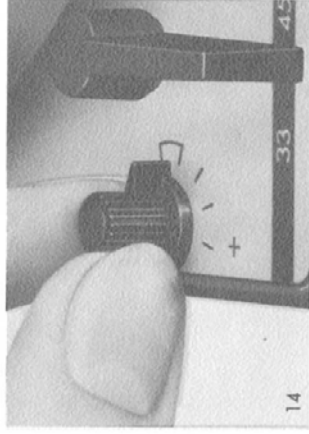


The platter is secured to the chassis by a spring-clip around the groove of the shaft. To remove the platter, use the special accessory cone supplied in the bag with the cartridge mounting hardware. Remove the spring clip as shown in Fig. 14 a. Then lift the platter slowly and gently off the shaft. Avoid touching the inner surfaces with your fingers, skin oils induce slippage.

Reverse these procedures when replacing the platter. The same

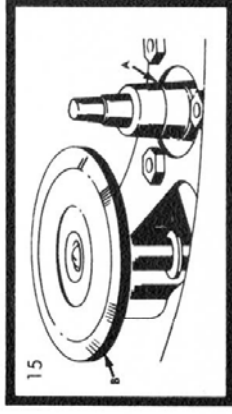
accessory is used to secure it with the spring clip. As shown in Fig. 14 b, press the spring-clip all the way down with the use of a coin until it is again seated in the groove.

## Special Operating Features of Your Dual 1214



## Pitch-Control™

Each of the three standard speeds (33 $\frac{1}{3}$ , 45, 78 rpm) can be varied over a 6% range with the vernier Pitch-Control. This opportunity to change pitch by more than a half note is especially valuable to serious music listeners, students, those recording onto tape, and every perfectionist.



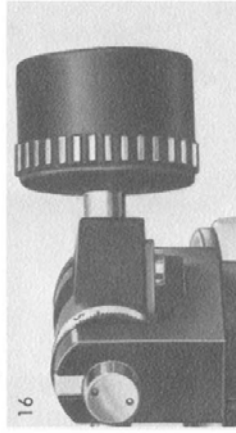
## How the Pitch-Control Works

This has been achieved by a simple and foolproof method that does not change or affect motor speed or power in any way. The motor drive pulley (A) has three precisely tapered sections, one for each speed, as shown in Fig. 16. The idler wheel (B) is positioned at one of these sections by the speed selector switch. Then the idler wheel is raised and lowered along the section by the Pitch-Control. The motor drive pulley and the idler wheel disengage automatically after play, thus preventing any possibility of flat spots developing on the idler.

## Featherlight Tripping

The tripping action is accomplished by a lightweight glider which rides freely on a ball bearing toward the center as the tonearm approaches the run-out grooves. When the stylus reaches these grooves, the glider is brought into featherlight contact with the free-suspension trip switch, and the automatic trip immediately takes over. Less than 0.4 gram force is sufficient to activate the switch.

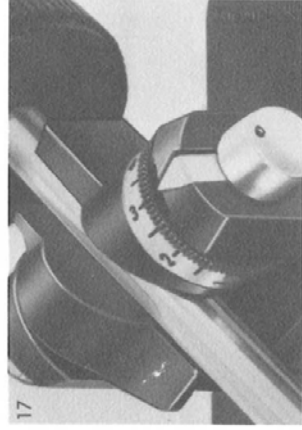
## Elastically damped counterbalance



The counterbalance is rotated on the shaft for fine balance.

The counterbalance is elastically damped from the shaft so as to effectively uncouple it from the tonearm.

## Stylus force dialed directly to desired pressure



With the tonearm balanced for the particular cartridge in use, stylus force is applied by dialing to the amount desired.

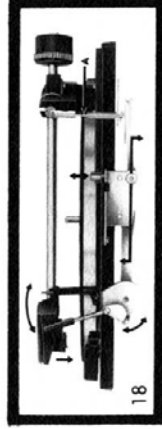
When you turn the stylus pressure dial, the force itself is applied to the tonearm by a long spiral spring which acts directly around the pivot of the tonearm. The tonearm remains balanced, and even major deviations from perfect leveling of the chassis won't affect tracking.

## Powerful Constant-Speed Hi-Torque™ Motor

The Dual's powerful and utterly quiet Hi-Torque motor effortlessly brings the heavy turntable to full speed virtually instantaneously. The rotor is dynamically balanced in both planes. Together with the evenly and precisely distributed poles, this eliminates at the source, one of the major sources of rumble and assures speed constancy.

All three speeds are accurate within 0.1%, with one to ten records. Further voltage variations can exceed  $\pm 10\%$  with no effect on speed whatever! Thus the Hi-Torque motor combines the advantages of the induction and synchronous motors.

## Auto/Manual Cue-Control™



Cue-Control is shown at position **▲**, with tonearm supported by piston (A). When Cue-Control is shifted to position **▼**, the piston is released and permits tonearm to slowly lower to record. At this point, the tonearm is completely disengaged from the Cue-Control.

With the Auto/Manual Cue-Control, still another measure of flexibility and precision has been added to the unrestricted automatic and manual play that has long been available in all Dual automatic turntables.

The Cue-Control makes it possible to pre-position the stylus over any groove and then lower to the tonearm with a light tap on the cue-control lever. You can also play to any point, interrupt with the Cue-Control, and resume play where you left off. (A few bars will be repeated.)

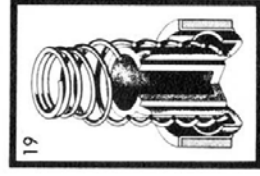
## Acoustic Feedback Eliminated

The only vibrations induced upon the stylus should be those originating from the recorded grooves.

Any others, such as those present in the speakers, must be isolated from the stylus, or it will repeatedly transmit those spurious signals throughout the system—as "acoustic feedback."

Dual has taken extraordinary care in eliminating anything that would tend to induce acoustic feedback. For example, the spring-mounted footings (Fig. 19) are internally cushioned with rubber between springs and caps. Further, the springs themselves are "soft," because the feathertouch side-to-side action of the operating slide switches does not require stiff vertical resistance.

And the motor, of course, is thoroughly insulated against both shock and vibration. These are some of the "inside" reasons why you will find Dual automatic turntables in the highest quality single-cabinet consoles that can reproduce the full frequency response range without concern for acoustic feedback.



## SERVICING

If your Dual ever requires servicing, ask your Dual audio dealer for the address of the nearest Authorized Dual Service Station. Be sure that authentic Dual parts are used wherever replacement is necessary. Always ship the Dual in its original packaging, or if it has been discarded, write for special shipping instructions.

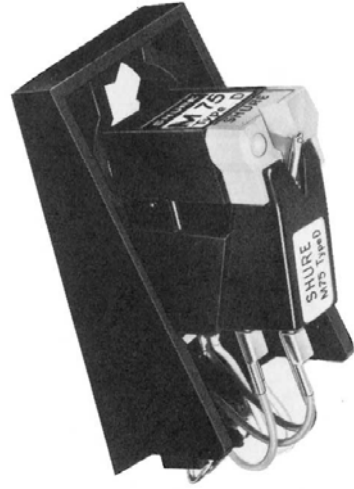
**United Audio Products, Inc.**  
120 So. Columbus Ave.  
Mount Vernon, N.Y. 10553



# Dual

## Information about the pick-up cartridge incorporated in your Dual automatic turntable

The inconspicuous, but for the sound quality very important part of your automatic turntable



### SHURE M 75 Type D

Raise the tone arm of this phonograph and look underneath. The tiny device holding the diamond stylus is the famous Shure Stereo Dynetic® phono cartridge. It is literally the "heart" of your sound system and as such is as important to the phonograph as a lens is to a camera. What you hear through the loudspeaker depends first on the quality and precision of your phono cartridge.

This unit is equipped with the hi-fi stereo magnetic pick-up cartridge SHURE M 75 Type D. The standard 0.6 mil diamond stylus permits tracking of stereo- and LP records. For 78 RPM records a replacement stylus assembly DN 321 (SHURE N 75-3) is available as an optional accessory.

### Technical data

Needle:

DN 325  
(SHURE N 71 M-B)  
0.6 ± 0.1 mil spherical  
diamond needle for micro-  
groove and stereo records  
Color coding: beige

**Recommended stylus pressure:**

2.5 g (2–3 g)

Frequency range:

20 c.p.s. to 20 k.c.p.s.

Output:

≥ 0.8 mV / 1 cm/sec per  
channel at 1 k.c.p.s.

Output difference  
between channels:

Maximum 2 dB at 1 k.c.p.s.

Isolation  
between channels:

Minimum 20 dB at 1 k.c.p.s.  
Horizontal 20 x 10<sup>-6</sup> cm/dyn  
Vertical 20 x 10<sup>-6</sup> cm/dyn

Compliance:

Intermodulation  
distortion (FIM):

At 2.5 g stylus pressure, 8 cm/sec  
velocity, < 1%

Net weight:

5.5 p

End resistance:

47 kOhm

Special accessory:

DN 321 (SHURE N 75-3)  
2.5 mil diamond needle  
for 78 rpm-records  
**Tracking pressure: 3 g**

Frequency response, Stereo and crosstalk damping, measured with equalizer pre-amplifier TVV 46  
Test record: DIN 45 541 (recording curve 3180–318–75 μs)  
Tracking pressure 2.5 g, record player: Dual 1219

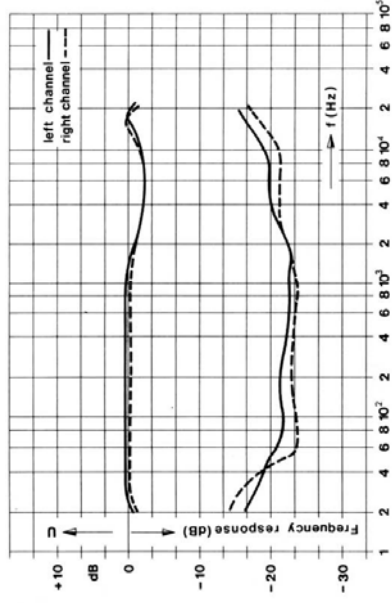


Fig. 1

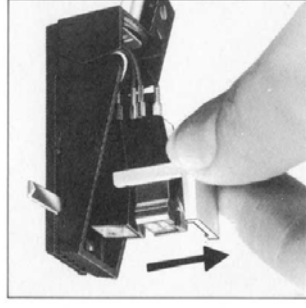


Fig. 2

For proper balancing of the tonearm (see operating instructions for your Dual automatic turntable) the needle protector (weight approximately 0.52 g) should be removed from the pick-up cartridge (Fig. 2).

The novel snap-on mounting of this pick-up cartridge on the cartridge holder eliminates all mounting hardware. The snap-on mounting secures perfect geometrical alignment of the stylus tip.

### Removal of pick-up cartridge from mounting plate

Remove complete pick-up head from the tonearm and remove slip-on connectors from contact prongs of cartridge. Hold the mounting plate with one hand and pull down cartridge. The snap-on mounting of the cartridge on the cartridge plate is shown in Fig. 3.

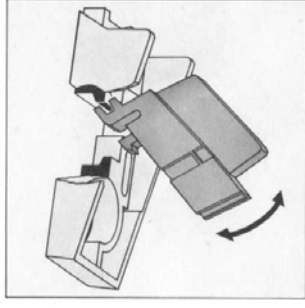


Fig. 3

### Shure replacement styli

The Dynetic stylus assembly used in Shure cartridges is the most critical component. To maintain the original performance standards of your cartridge, be certain that any replacement stylus you buy bears the name of SHURE. Do not accept imitations! The original technical data cannot be guaranteed, further you risk danger in your records.

### Attention!

The stylus assembly should be removed from the cartridge (see Fig. 4) before mounting or removing same from the cartridge holder.

Pick-up cartridges with 1/2" standard mounting dimensions can be mounted on the cartridge holder with conventional mounting hardware.

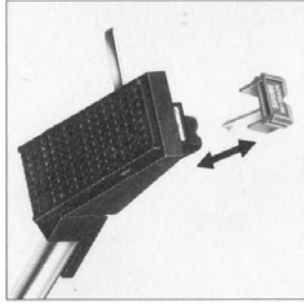


Fig. 4