



INSTRUCTIONS FOR USE OF THE AR TURNTABLE

Installing the tone arm The tone arm is shipped unscrewed from its spindle for safety. There is a foam rubber spring and plastic washer attached at the top of the spindle. These are working parts of the damping mechanism, and they will be moist with silicone oil. Do not wipe off the oil, but check to see that no bits of cardboard from the packing material or other foreign particles have become attached to the washer. Remove any such particles you may find, but *do not* remove the spindle itself from its bearing well.

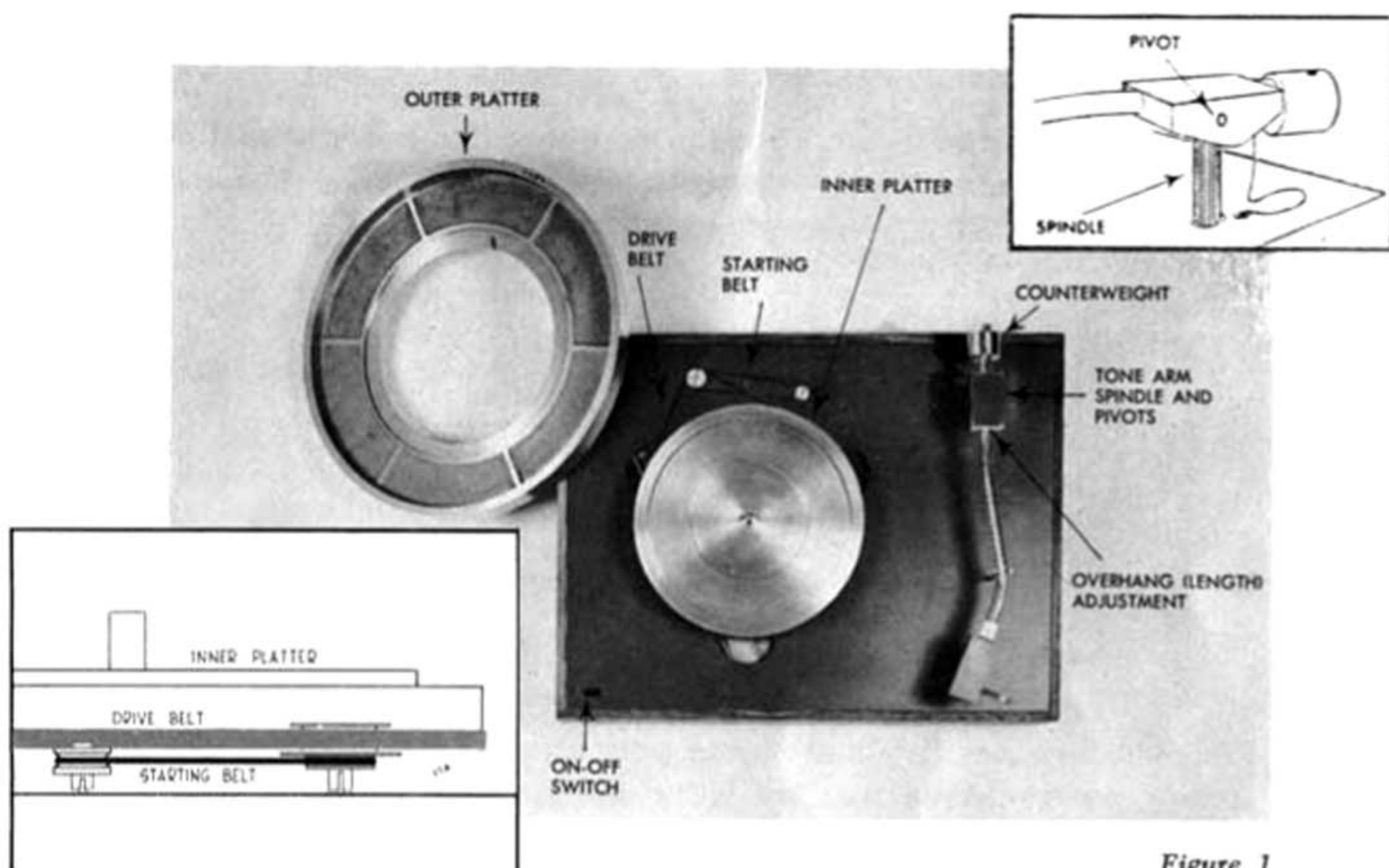


Figure 1

Caution — read carefully! The spindle screws into a threaded hole in the sleeve within the rectangular section of the tone arm. Taking care not to strain the tone arm wires, keeping the sleeve centered by eye on its inner shaft, and holding the tone arm over the spindle, screw the spindle into the sleeve hole. If you meet a *sudden* firm resistance in doing so it indicates that the sleeve is not centered sidewise on its inner shaft. *Do not force it*, but recenter the sleeve until the obstruction is cleared.

Screw the spindle into the sleeve almost all the way. Then snap the front of the arm into the tone arm rest.

Check to see that the tone arm wire is formed as shown in *Figure 1*. If not, gently re-form the wire to proper shape.

Inspection of Belts Before placing the outer platter into position check to see that both of the belts — the large drive belt and

the small starting belt — are in their proper place. *Figure 1* shows the correct position for these two belts. The starting belt must run in the grooved section of each pulley, *not* on the shank of the pulley.

Cleaning the Belts If any oil or greasy substance should get onto the belts by accident, take them off and clean them with tissue soaked in denatured alcohol (not rubbing alcohol). Also wipe the drive surfaces of the pulleys and of the inner platter with alcohol. After cleaning the belts you *must* dust them in ordinary talcum powder. Without this powder the turntable will not start properly. Please refer to *Figure 1* when replacing the belts. We suggest that you clean and powder the belts once a year.

Power Insert the power plug into a 110/120V AC socket.

Cable to Amplifier *For stereo use:* Insert the two phono tips into the right and left phono inputs of a stereo amplifier. The red tip is the right channel. (See *Figure 2*.)

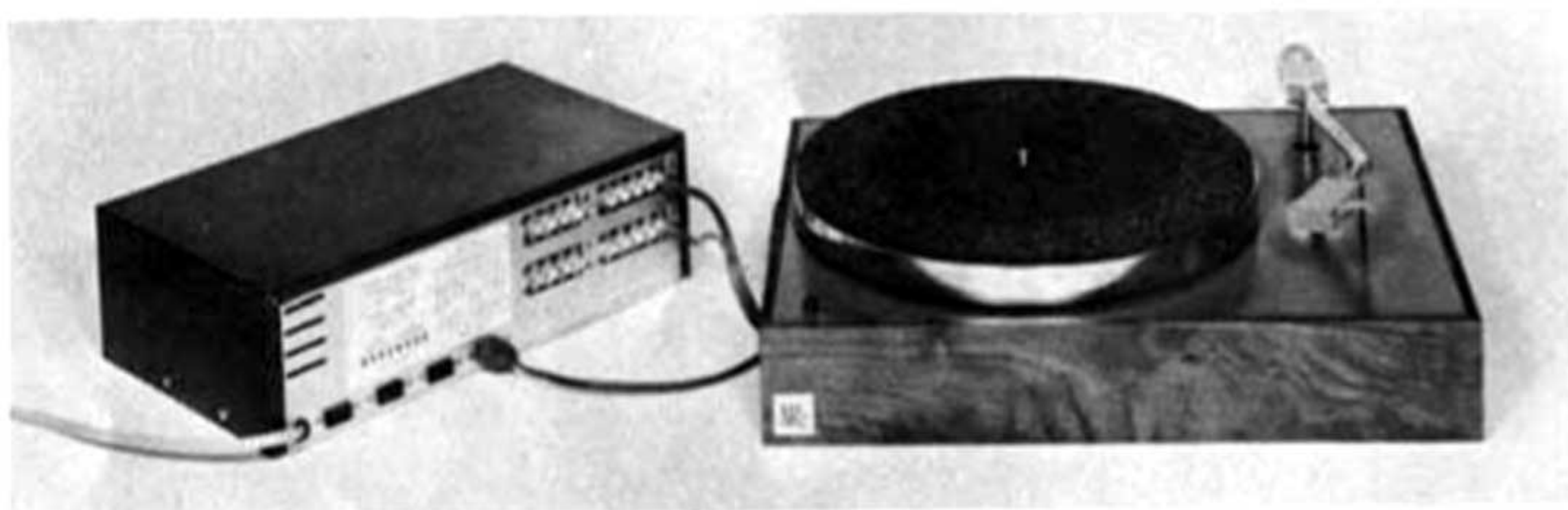


Figure 2

For monaural use: If you are using a stereo cartridge in a monaural system the preferred method is to connect the two phono tips in parallel by means of a yoke adaptor. If such a yoke is not handy, however, you may plug the gray phono tip into the amplifier phono input, leaving the red phono tip free.

If you are using a monaural cartridge connect the cartridge terminals to the white and green wires in the cartridge shell (green is ground) and use the gray phono tip only.

Pickup Cartridge Install the cartridge in the cartridge shell, following this color code: left channel, white and green (green is ground); right channel, red and black (black is ground). The cartridge shell clips should be pushed onto the cartridge pins before the cartridge is screwed down to the studs.

It is extremely important that the correct screws and standoffs be used with your particular cartridge, since this may affect the entire operation of the turntable. Follow the instructions on the accompanying sheet on mounting the pickup cartridge.

Cartridge Shell Place the arm in the arm rest, holding it there firmly, and then insert the cartridge shell into the arm. The cartridge shell should be pushed back all the way against the spring of the arm terminals, and, while the shell is held in this position, the knurled tone arm nut should be tightened with the other hand (without releasing the tone arm from its rest). This nut should be turned to a comfortable tightness, but without any strain or forcing.

Whenever the cartridge shell is removed or replaced hold the tone arm in its rest. This protects the operating pivot of the arm.



Figure 3

Overhang Adjustment The arm is factory adjusted to provide the proper overhang (distance that the needle sweeps past the spindle) for cartridges with a standard $\frac{3}{8}$ " distance between the needle tip and the mounting screws.

Some cartridges provide a different distance to the needle tip, so that the arm must be extended or retracted to maintain proper overhang. This is done by loosening the set screw under the sloped front section of the arm pivot assembly as in *Figure 3*, and gently sliding the entire tubular section of the arm forward. The correct position for the arm can be determined exactly by use of the plastic overhang adjustment template supplied with the turntable. Place a record on the turntable, and then place the template over the spindle, pointing the template towards the arm pivot as indicated. When the needle fits into the small dimple of the template the arm length is correct for that particular cartridge.

When adjusting arm length for proper needle overhang distance, do not pull hard enough to jerk the arm out of the coupling block. *This will break the arm wires.* If the arm does not move freely in the coupling block, use a slight twisting motion to move it in or out.

Make sure that the arm set screw is retightened after adjustment.

Rate of Fall of Arm After the stylus force has been set, the rate of fall of the arm may have to be readjusted. Hold the arm in the left hand and turn the aluminum tone arm spindle that comes up through the hole in the top plate. Use your thumb and forefinger, as illustrated in *Figure 4*. When the spindle is turned clockwise (looking down) the damping is reduced and the arm falls more quickly; when the spindle is turned counterclockwise the arm drop is slowed down. If you turn it too far counterclockwise the arm will stick. A good adjustment is for the arm to take 1 to 2 seconds to fall. (At stylus forces under one gram you may have to accept a slower drop.) The adjustment does not affect performance during play, as the damping mechanism is released when the arm is playing a record.

In order to maintain a given rate of fall the tone arm spindle must be readjusted, as above, each time the stylus force is changed.

The damping system protects the needle in case of accidental dropping of the arm; it gives you time to catch the arm before the needle hits. Do not drop the arm intentionally on the record; there is a reduction in damping when the needle is about one inch above the record, for the purpose of facilitating damping release in play.



Figure 4

Adjustment of Pivot Set Screw The operating pivot set screw should not be tampered with unless you have reason to think that there is need of adjustment by reason of the following symptoms:

- a. If the set screws are too tight the arm will be a little sluggish over its area of vertical free play. The needle force gauge, for example, will act as though it is sticking.
- b. If the pivot set screws are too loose it will be possible to make the aluminum arm assembly wobble excessively by a slight twisting motion of the fingers applied to the curved arm section. (A small amount of play is allowed.)

Only one of the operating pivot set screws need be adjusted — the outside one is generally more convenient to use. *Figure 5* illustrates this adjustment. The set screw should be turned to that point which neither allows excessive arm wobble, as described above, nor introduces sluggishness of arm motion over the range of its vertical free play (approximately $\frac{3}{8}$ ").



Figure 5

Stylus Force Adjust the brass counterweight to provide the correct vertical stylus force for the cartridge used. This is done by loosening the set screw and sliding the counterweight to the desired position. (See *Figure 6*.) Any stylus force suitable for a particular cartridge, down to $\frac{1}{2}$ gram, may be used in the AR arm. For determining optimum stylus force we recommend the Hi Fi/Stereo Review test record 211.*

The stylus force should be measured with the stylus force gauge supplied with the AR turntable. Instructions for the use of this gauge are packed in the gauge box. About $\frac{1}{32}$ " change of position of the counterweight produces $\frac{1}{4}$ gram change of stylus force. Make sure to tighten the set screw again after the adjustment has been made. A spare counterweight set screw will be found in the bag containing the cartridge mounting hardware.

* Available at \$4.95 from Hi Fi/Stereo Review, 1 Park Avenue, N.Y., N.Y.

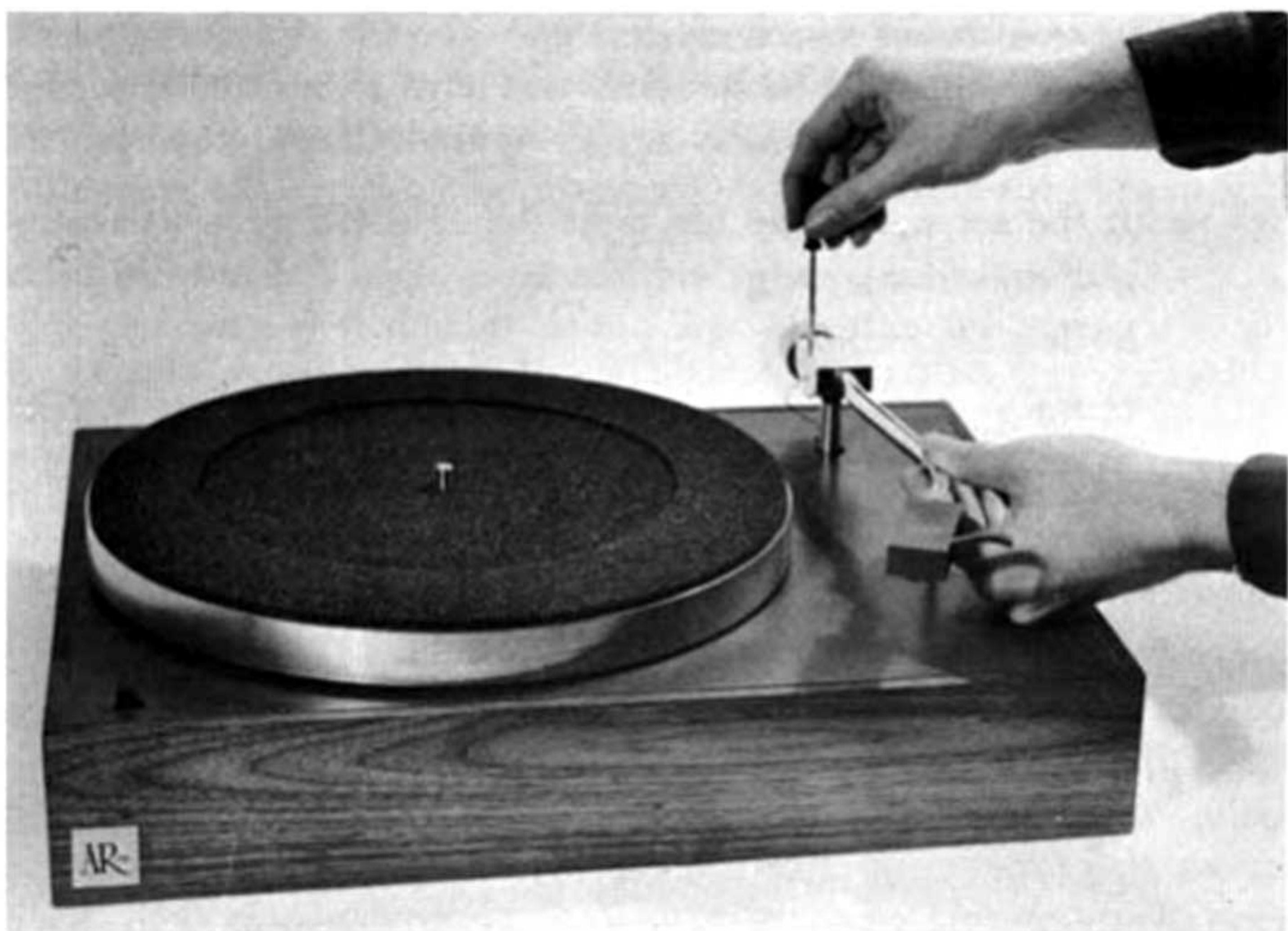


Figure 6

Electrical Capacitance Some cartridges require low capacitance between them and the amplifier input. The shielded cable used in the AR turntable has a capacitance of 21 mmf/ft., and the length has been purposely kept down to 4½ feet. Total capacitance between cartridge shell and amplifier input is approximately 135 mmf. per channel, suitable for any commercial cartridge.

Hum from External Equipment Depending on the type of cartridge used, the pickup may exhibit sensitivity to hum fields created by nearby equipment, particularly power transformers. Do not mount the turntable in such a position that the pickup is close to electronic equipment with strong hum fields.

Mounting Position Other than protection against external hum fields the mounting position of the AR turntable is not at all critical. Because of isolation achieved by the suspension design, the turntable is not sensitive to external shock and to acoustic feedback. It may be placed directly on a loudspeaker without developing acoustic feedback.

In order to take advantage of the insensitivity to jarring the turntable must be placed on a flat surface, so that the base does not rock. It is also important that it be placed on a reasonably sturdy piece of furniture which does not wobble or rock when jarred. Creaky floors sometimes create a problem of groove-jumping in any turntable; isolating the turntable from the floor by placing it on a wall-mounted shelf will usually cure the most extreme case.

Record Center Holes The NAB specifies that turntables used for broadcast work must meet certain standards in performance and dimensions. The AR turntable meets these standards (except for starting time), including the tolerance limits of the center spindle, which is $.2830'' +0 - .0005''$.

Some records have center holes smaller than that specified by industry standards, and there may be a few which will be tight on this spindle. In such a case the center hole of the record may be enlarged by inserting and turning the point of a pencil in the hole. Making the spindle undersize would allow all records to slip on easily, but would also allow side-to-side motion on correctly dimensioned records.

Changing Speeds The speed is changed from $33\frac{1}{3}$ to 45 on the two-speed model by lifting off the outer platter and moving the drive belt to the adjacent pulley section. (The larger section is for 45 rpm. *See Figure 1.*) Do not try to start the turntable before replacing the outer platter, or the belt is likely to fall off. It is not necessary to adjust the position of the drive belt on the inner platter: this will take care of itself within a few revolutions.

Lubrication The oil should be #10 machine oil without additives, such as Golden Shell 10W. Oil is provided in a squeeze bottle in the accessories bag. A few drops should be applied at least once a year in the following way:

- a. Lift the tone arm assembly a little, and apply oil from the squeeze bottle to the dark gray foam washer at the top of the bearing. (*See Figure 7.*)



Figure 7

- b. Remove the outer aluminum platter and the main drive belt. Lift the inner platter about 2 inches (it is not necessary to remove the platter from the bearing) and oil the dark gray foam washer at the top of the main bearing. (See Figure 8.)

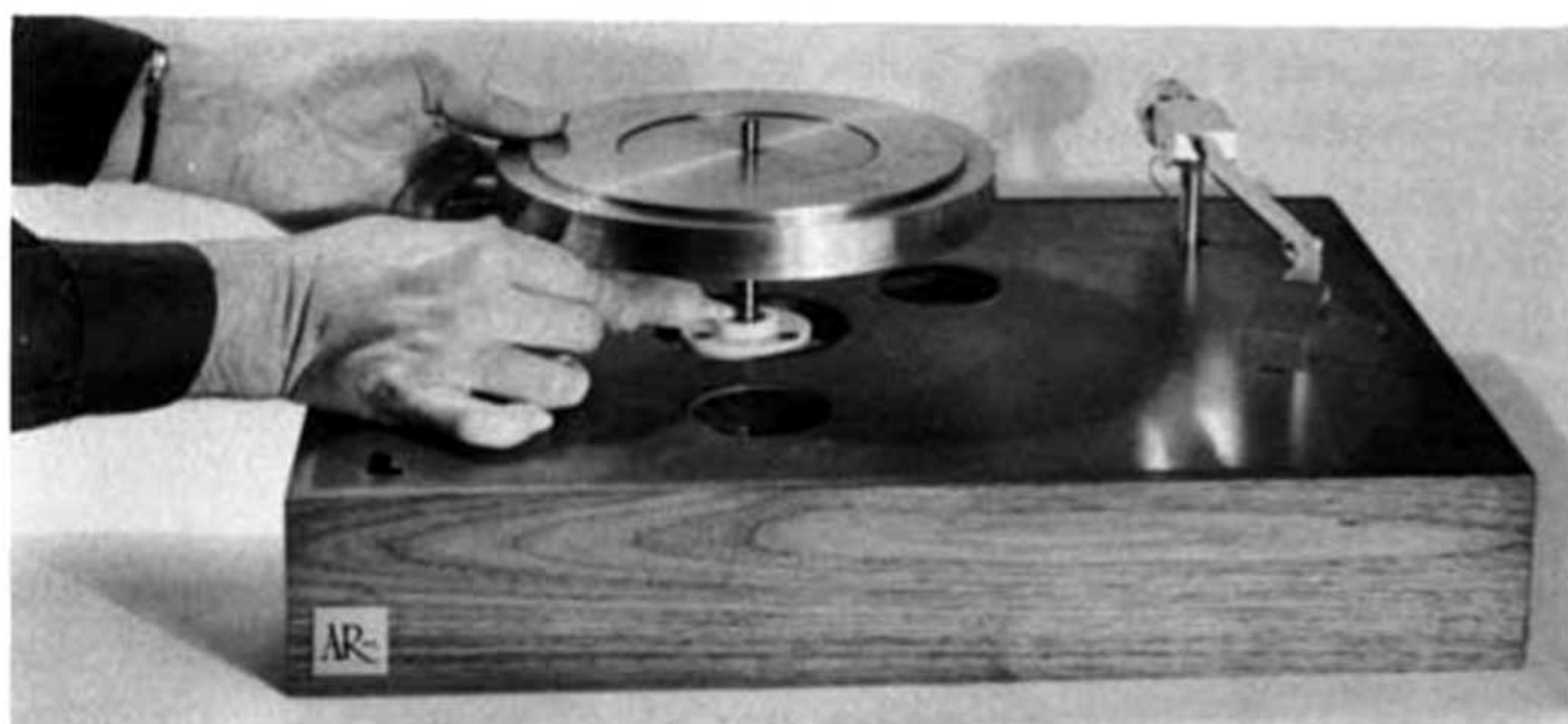


Figure 8

Make sure not to get any oil on the belts. If you should get oil on the belts they must be cleaned and powdered. (See Page 1.)

Dust It is very important that records be kept clean and dust-free. The plastic dust cover of the AR turntable serves more than a convenience function, in that it prevents dust from collecting on the record mat, from which it can transfer to the record itself. Use the dust cover when the turntable is not in operation. The dust cover is not designed to be used during play. It can be cleaned with a wax such as Johnson's *Shine-Up*.

Replacement Parts Replacement turntable parts are available directly from AR. Check, money order, or cash should be sent with the order. The following prices are postpaid:

Needle force gauge	\$1.00
Cartridge shell	\$2.00
Turntable mat	\$2.00
Dust cover	\$3.00
Set of two belts	\$3.00
Pulley for 50-cps current (33 $\frac{1}{3}$ only)	\$3.00
Two-speed conversion kit (60 cps)	\$4.00
Two-speed conversion kit (50 cps)	\$5.00