Installation and Operating Instructions for the AR Turntable Model XB I

To protect it from damage in shipment the turntable is packed with certain parts separated from each other. Setting up the turntable requires that these parts be mounted in their regular operating positions, and that the turntable adjustments be set correctly for the cartridge you will be using. Most of the steps in the set-up procedure are brief; all are easily done in a few minutes if the instructions are followed methodically. To assemble simply follow the steps below in sequence.

All the tools and parts needed for these steps are packed with the turntable, except the cartridge. Some models may be pre-fitted with a cartridge.

A number in brackets refers to the photograph to be consulted at that point in the set-up procedure.

SPECIFICATIONS

Size: 12¾ in x 16¾ in x 5½ in
Weight: 13 lbs 9 oz (6.32 kg)
*Speed 33⅓ & 45 rpm ± 0.3%
*Rumble: Greater than −40 dB
*Wow and flutter: 0.03%
Motor type: Permanent-magnet, synchronous
Platter diameter: 11¾ in; Platter weight: 4 lbs
Drive: Ground neoprene belt
Cartridge mounting: ½ in EIA standard mounting centers
Cable capacitance: 100pF

The AR turntable is guaranteed, as a condition of sale, to meet NAB (National Association of Broadcasters) specifications for broadcast equipment on wow, flutter, rumble, and speed accuracy.*

* *Disc Recording and Reproducing Standard* (National Association of Broadcasters, 1771 N Street, N.W., Washington, D.C.), March 1964.

Guarantee

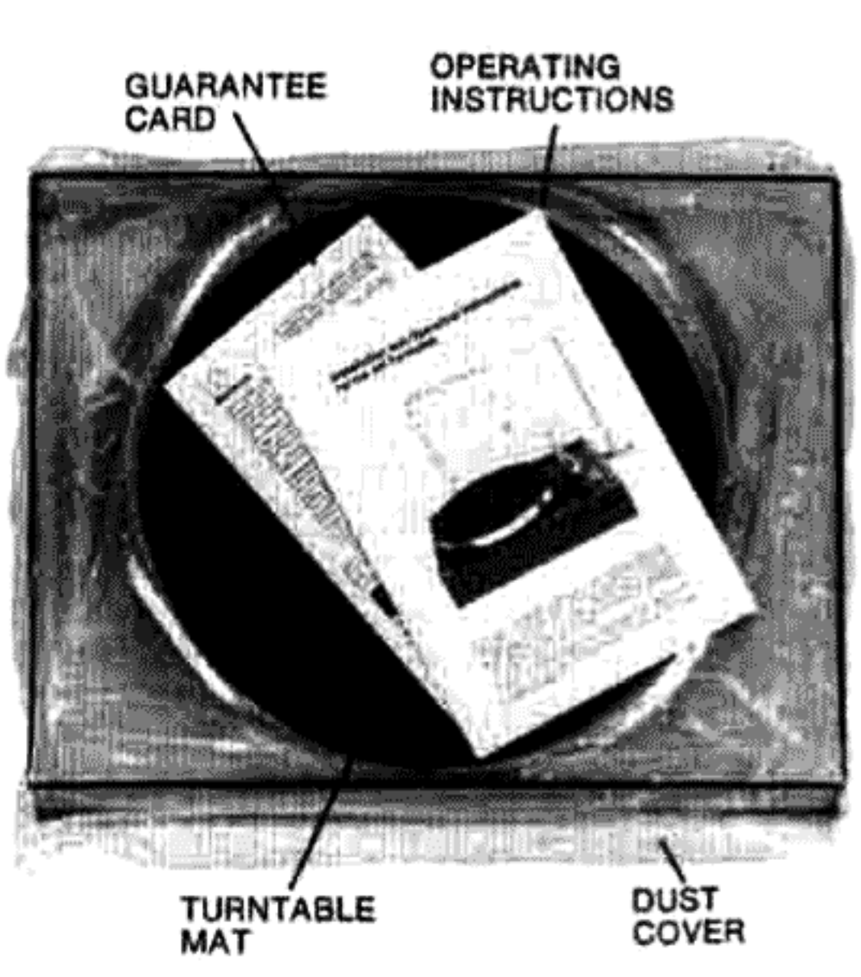
The workmanship and performance in normal use of this turntable are guaranteed for five years from the date of purchase. The guarantee covers parts, repair labor, and freight costs to and from our factory or nearest authorized service station. New packaging, if needed, is also free.

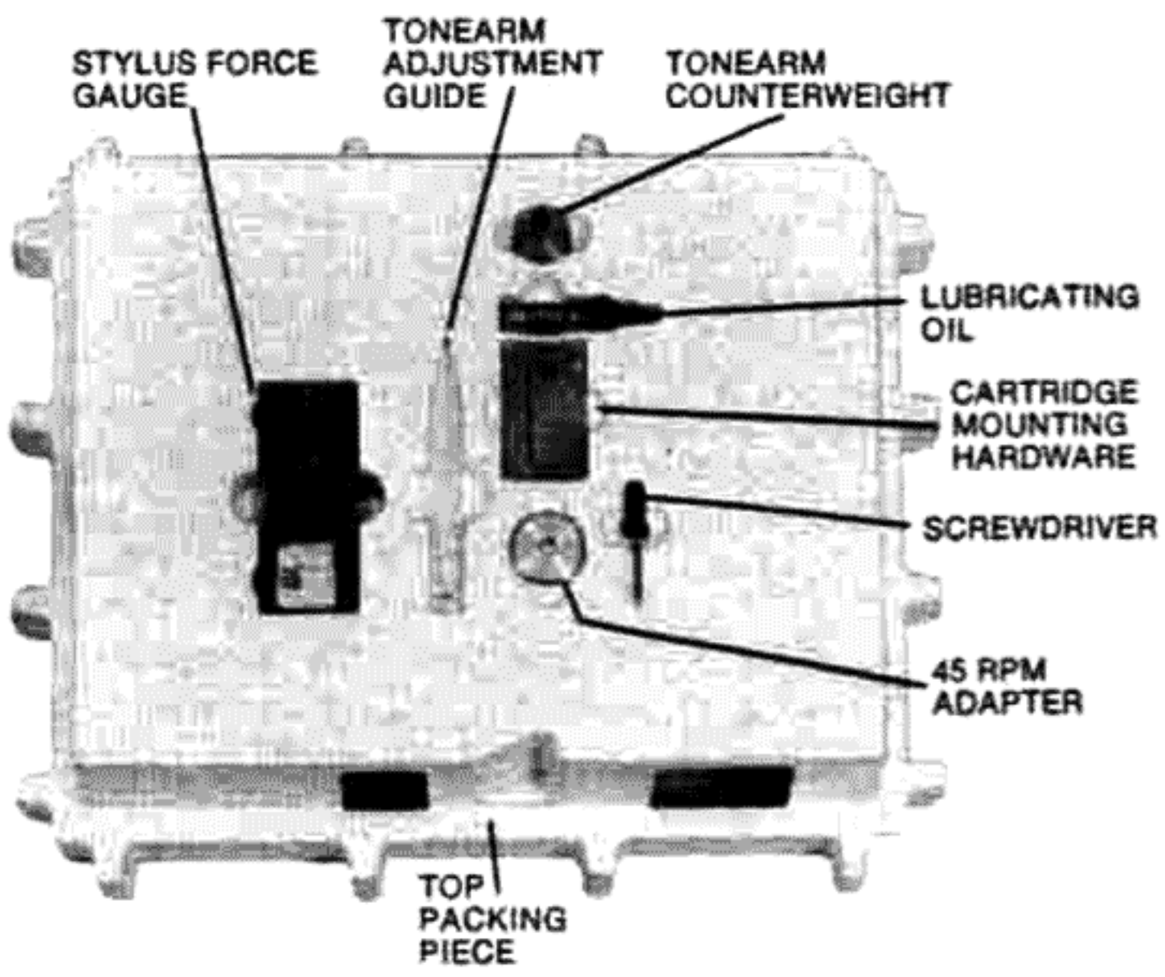
UNPACKING THE TURNTABLE

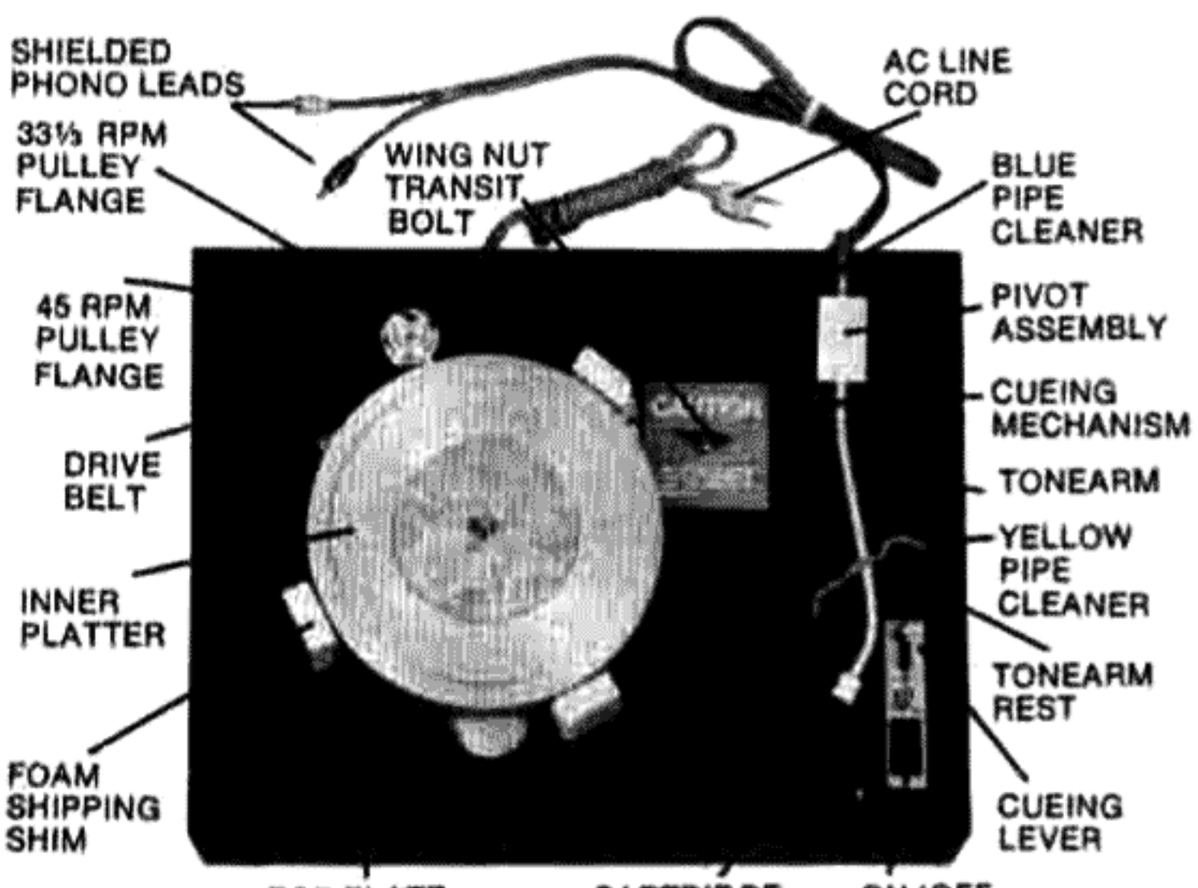
1. Remove the contents of the shipping carton in the following order: the guarantee card and Operating Instructions manual, the foam rubber record pad, the transparent dust cover (in its protective plastic bag), and the upper foam packing piece, being careful not to lose the parts packed in the top accessory tray.
2. Lift the turntable up and out of the bottom foam packing piece and place it in a convenient location to perform the following procedures.
3. Remove the outer platter from its tray in the bottom foam packing piece and place it next to the turntable.
4. Carefully lift the inner platter straight up being careful not to displace the belt from the platter or motor pulley and remove the three foam shipping shims beneath the inner platter.
5. Carefully lower the inner platter to its normal operating position.
6. Untwist the yellow pipe cleaner which fastens the front end of the tonearm it its rest. DO NOT AT THIS TIME REMOVE THE BLUE PIPE CLEANER WHICH TIES DOWN THE REAR END OF THE TONEARM AT THE PIVOT ASSEMBLY.
7. Unscrew completely and remove the wing-nut transit bolt, with the red CAUTION tag attached, that holds the turntable and tonearm suspension to the top plate and prevents suspension damage in transit. Store the bolt in the accessory tray of the upper foam packing piece for use in future shipping or transportation of the turntable. Please

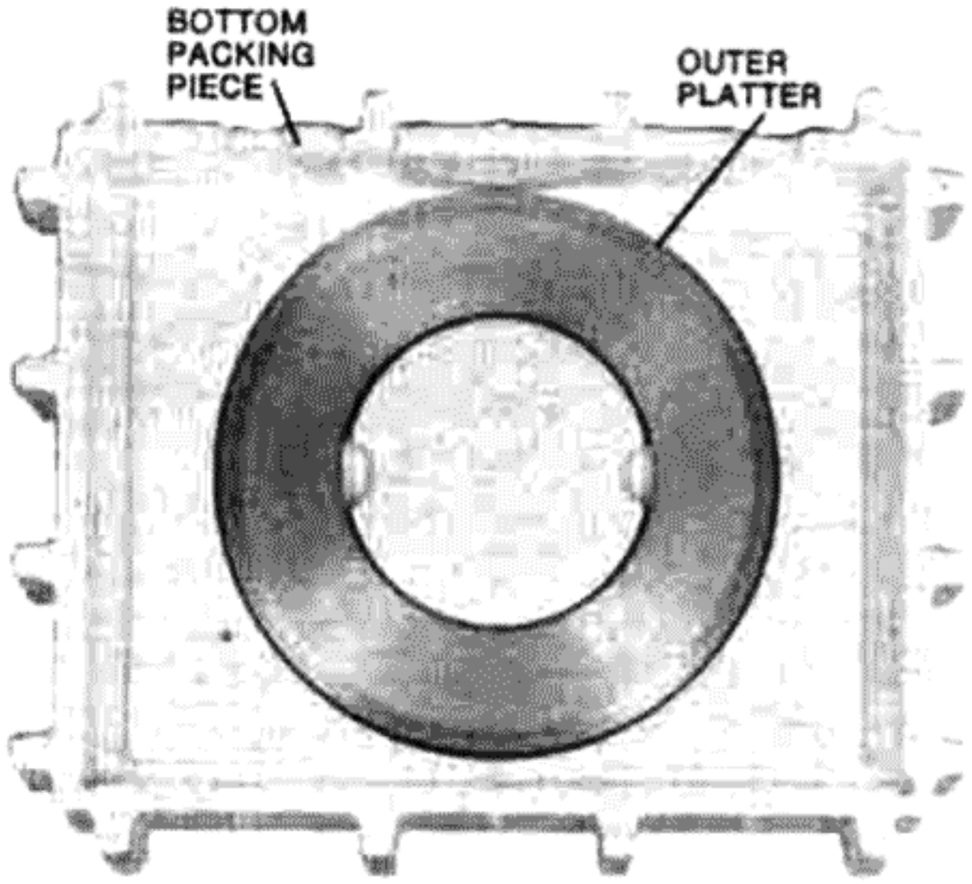
note that the wing-nut transit bolt MUST be used to secure the turntable suspension to the top plate whenever the turntable is shipped in order to prevent damage.

8. Remove all the accessories from the tray in the upper foam packing piece and replace all the packing materials in the carton for future use in shipping or transporting the turntable.
9. Refer to and continue with **A. FINAL ASSEMBLY** on page 4 of the Operating Instructions.







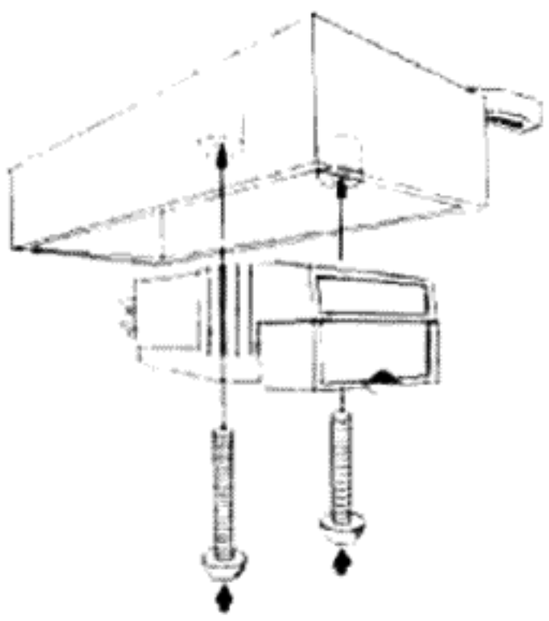


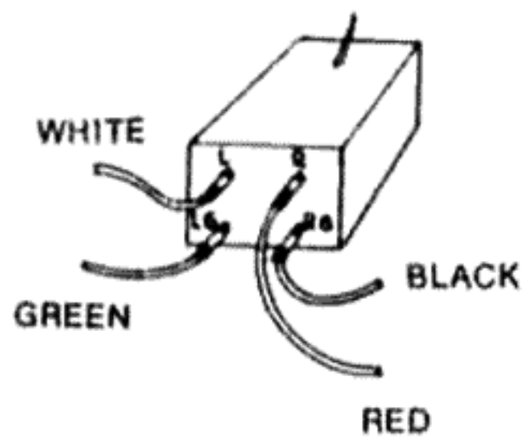
A. FINAL ASSEMBLY

1. Set Up Tone Arm

Remove the blue tie-down at the rear of the arm so that the arm moves freely. Slide the counterweight on the rear of the arm and secure it in place with the set screw, using the screwdriver provided in the accessory tray. Should the screw be missing there is a spare screw in the cartridge hardware envelope. It is not necessary to tighten the set screw fully at this time. Check to see that the wire at the back of the tone arm is formed as shown in photograph (4). If not, gently bend it into the proper shape.

2. Install Cartridge



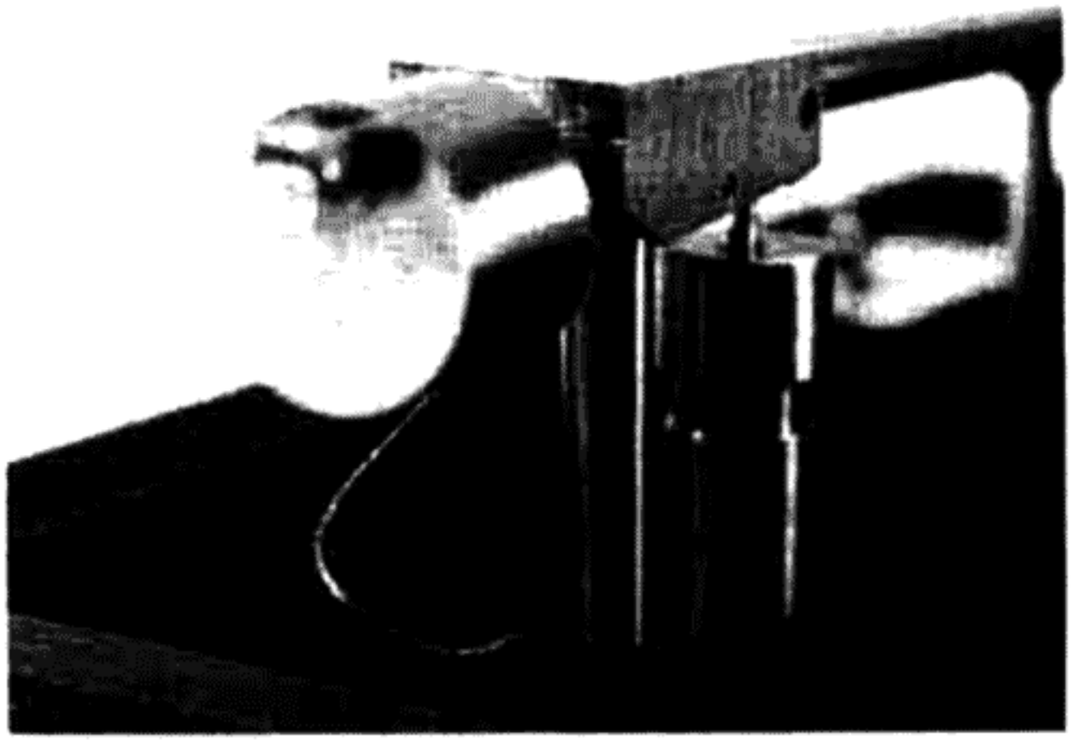


a) Your turntable may have already been prefitted with a cartridge. If so, refer to separate cartridge data sheet and disregard paragraphs b) and c).

NOTE: THE CARTRIDGE IS GUARANTEED BY THE CARTRIDGE MANUFACTURER. PLEASE CONTACT THE CARTRIDGE MANUFACTURER ON QUESTIONS CONCERNING PERFORMANCE AND MAINTENANCE.

b) If your turntable has not been prefitted with a cartridge you must mount the cartridge at this time. The accessory tray has a small envelope containing a selection of screws intended to mount the cartridge in the cartridge shell. In addition to the screws, there is a molded piece which has a series of three standoff bushings should they be needed. Most magnetic cartridges can be mounted without the use of standoff bushings in the AR turntable, since the arm has been designed to accommodate cartridges which have a height of 0.600 inch to 0.750 inch from the mounting surface to the stylus tip. Standoff bushings are provided for cartridges that are exceptions to the above dimensions. Select the screws which when fitted into the screw holes in the cartridge and seated in their normal mounted position extend not more than ⅛ inch above the top of the cartridge. Before the cartridge is screwed into the shell, the small clips at the ends of the wire in the shell should be pushed onto the corresponding cartridge connecting pins. Identify the appropriate pins from the cartridge manufacturer's instruction sheet and follow the color code:

Left channel: white and green (white is the signal lead, green is ground)



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Right channel: red and black (red is the signal lead, black is ground)

Now screw the cartridge into place with the screws previously selected. Do not overtighten the screws. Fold the leads neatly upward into the space behind the cartridge.

DO NOT SOLDER LEADS TO THE CARTRIDGE TERMINALS.

c) Attach Shell to Tone Arm

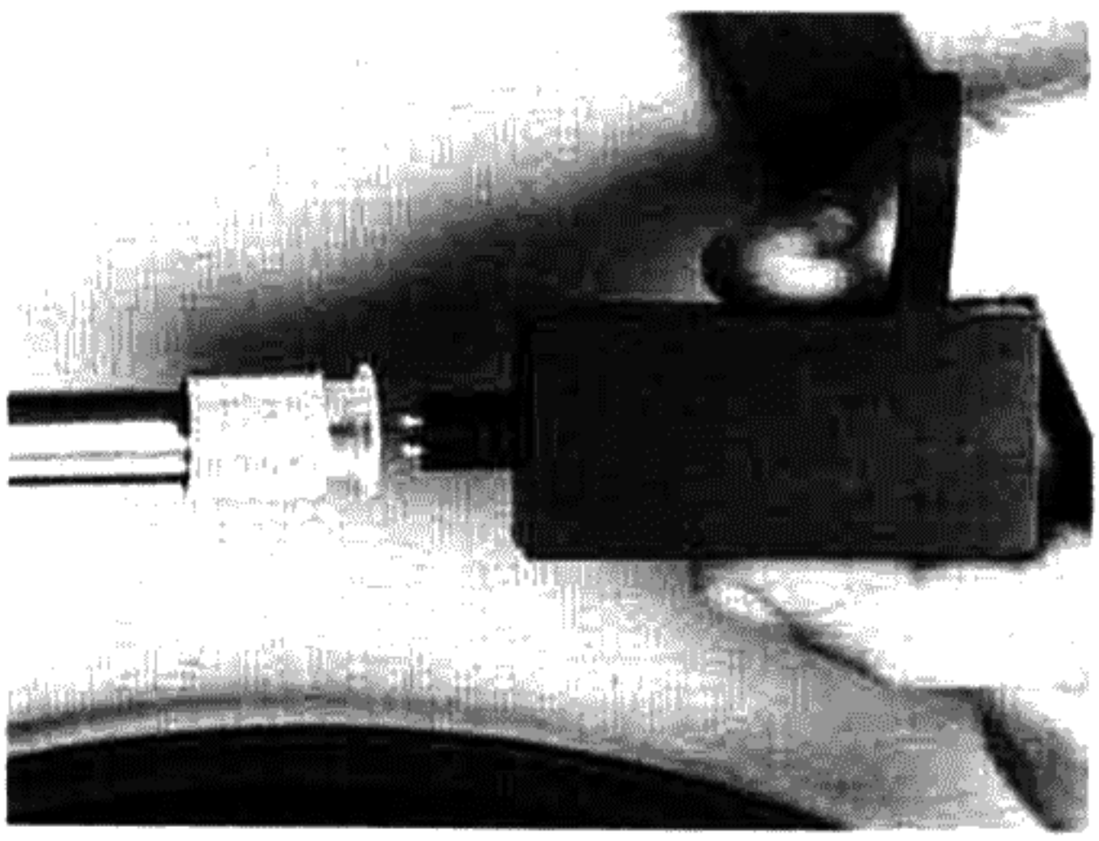
To install the shell place the arm in the arm rest and push the knurled nut back so that you can see the white plastic sleeve (5). Line up the small projections on the tubular part at the rear of the shell with the notches in the white plastic sleeve. Push the shell all the way against the plastic sleeve and tighten the knurled collar. The cartridge shell should be held parallel to the top plate without moving while the knurled collar is being tightened. While doing this, make sure the tone arm is secure in its rest. The collar should be turned to a comfortable tightness, but without any strain or forcing.

3. Install Outer Platter and Mat

Check that the drive belt is wound around the inner platter and the upper pulley (for 33⅓ rpm) without twists (6). Install the outer platter. Place the turntable mat on the platter with the ridge facing upward.

B. SETTING STYLUS FORCE

A stylus force gauge with instructions has been included with your turntable. Remove the protective stylus guard. Any stylus force required, down to ½ gram, may be used with the AR tone arm. Follow the cartridge manufacturer's recommendations for optimum stylus tracking force. If there is any question in determining the optimum stylus tracking force, we recommend Stereo Review's SR12 Test Record available from Stereo Review, 1 Park Avenue, New York, N.Y. 10016, at $5.98.



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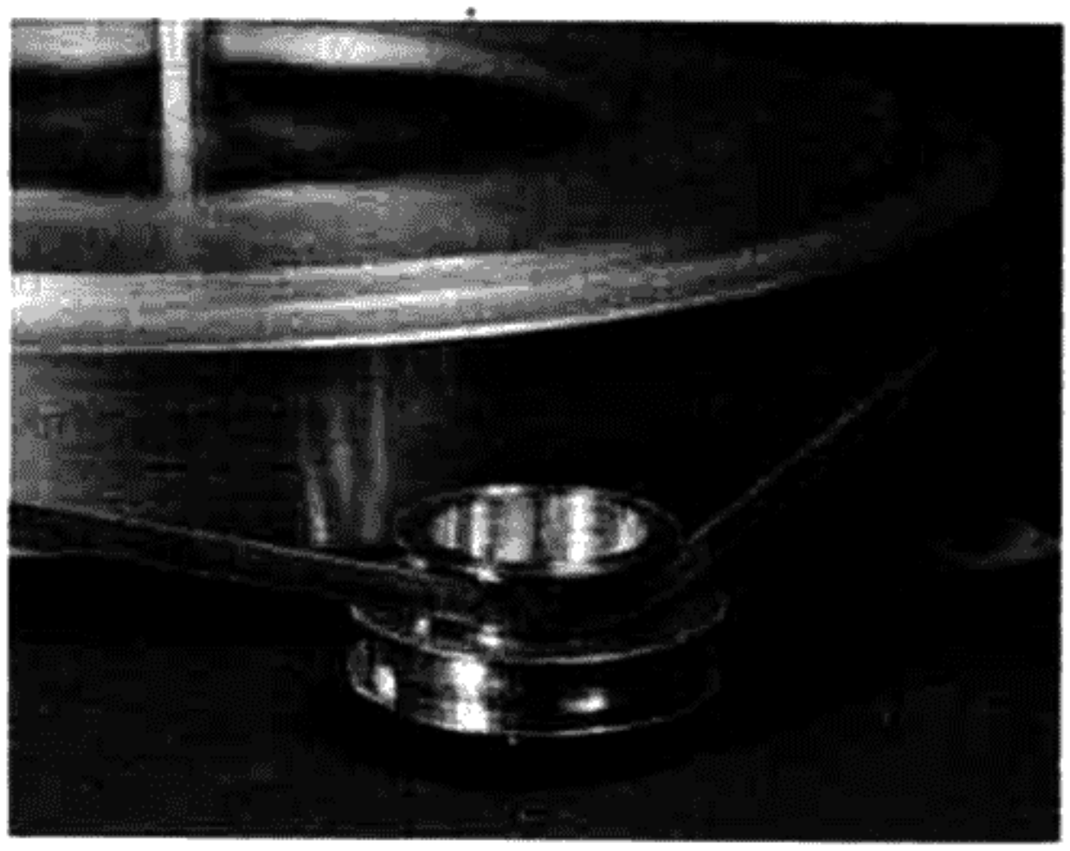

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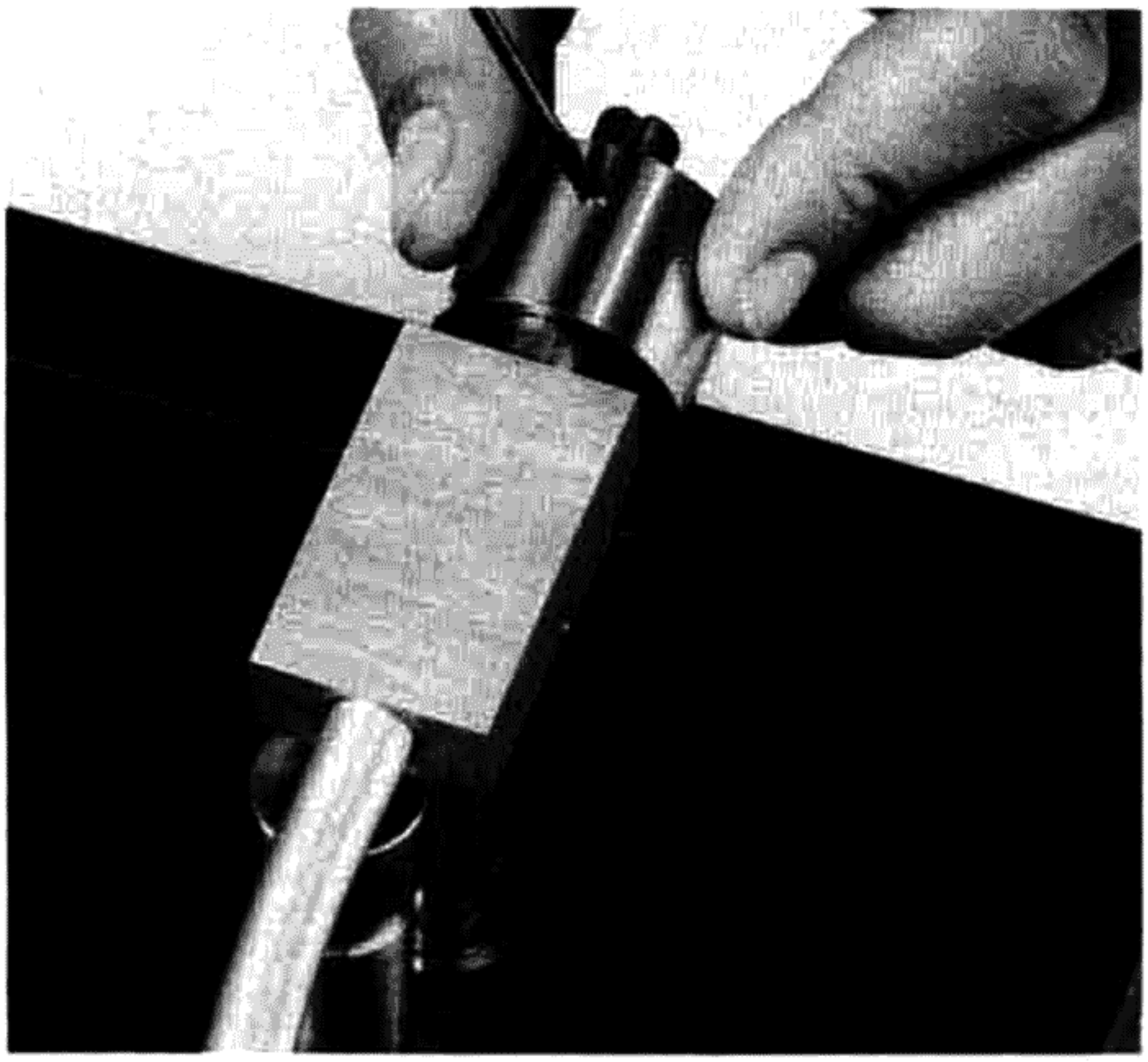
About 1/32-inch movement of the counterweight produces ¼-gram change of stylus force (7).

The stylus force required by a cartridge is not an index of its quality. Using less than the correct stylus force degrades performance and *increases* record wear, since the needle will not stay in proper contact with the groove walls. It is far better to use more stylus force than too little. After you have set the stylus force replace the protective stylus guard and complete step C.

C. CONNECT TURNTABLE TO AMPLIFIER OR RECEIVER

Insert the power plug into a 220-240 volt a.c. socket, either in a wall outlet or on the rear panel of the amplifier, using an appropriate adaptor or replacement plug if necessary. If your



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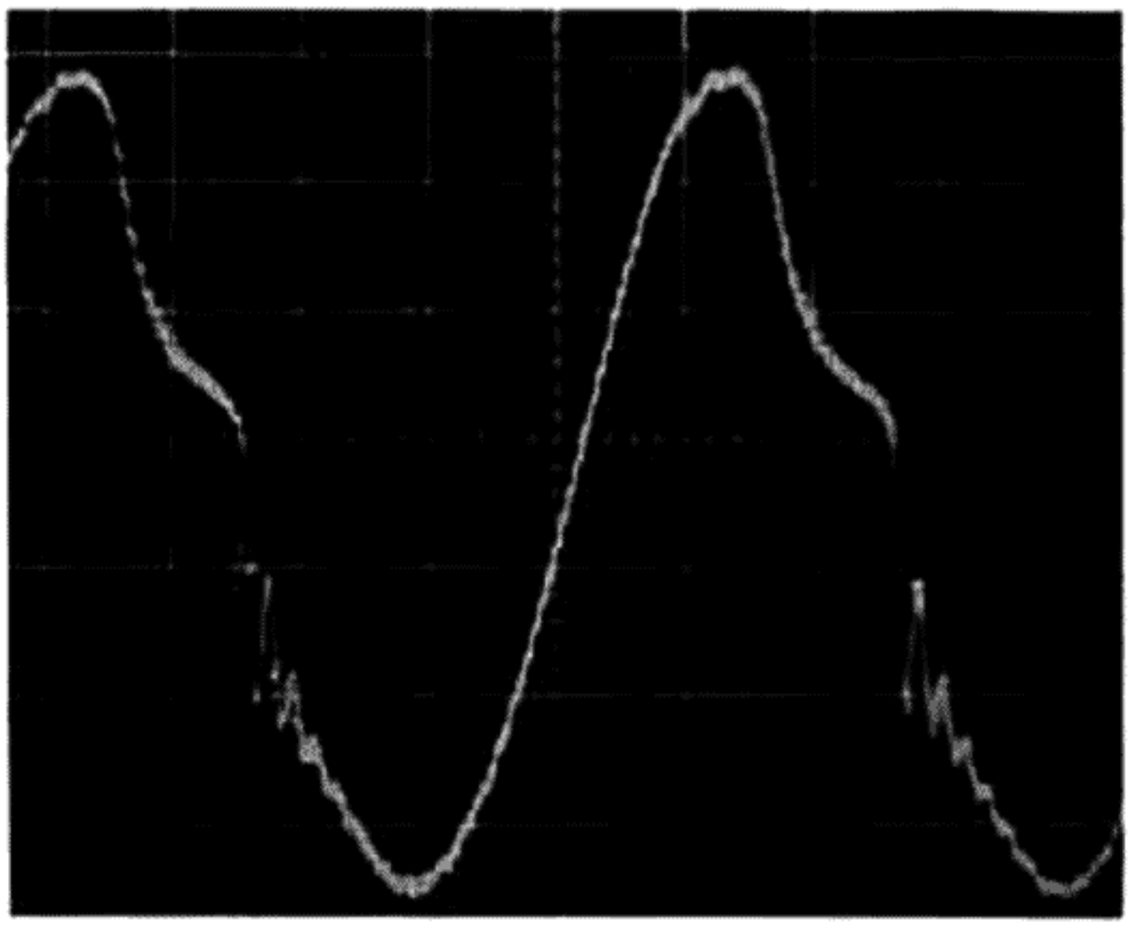
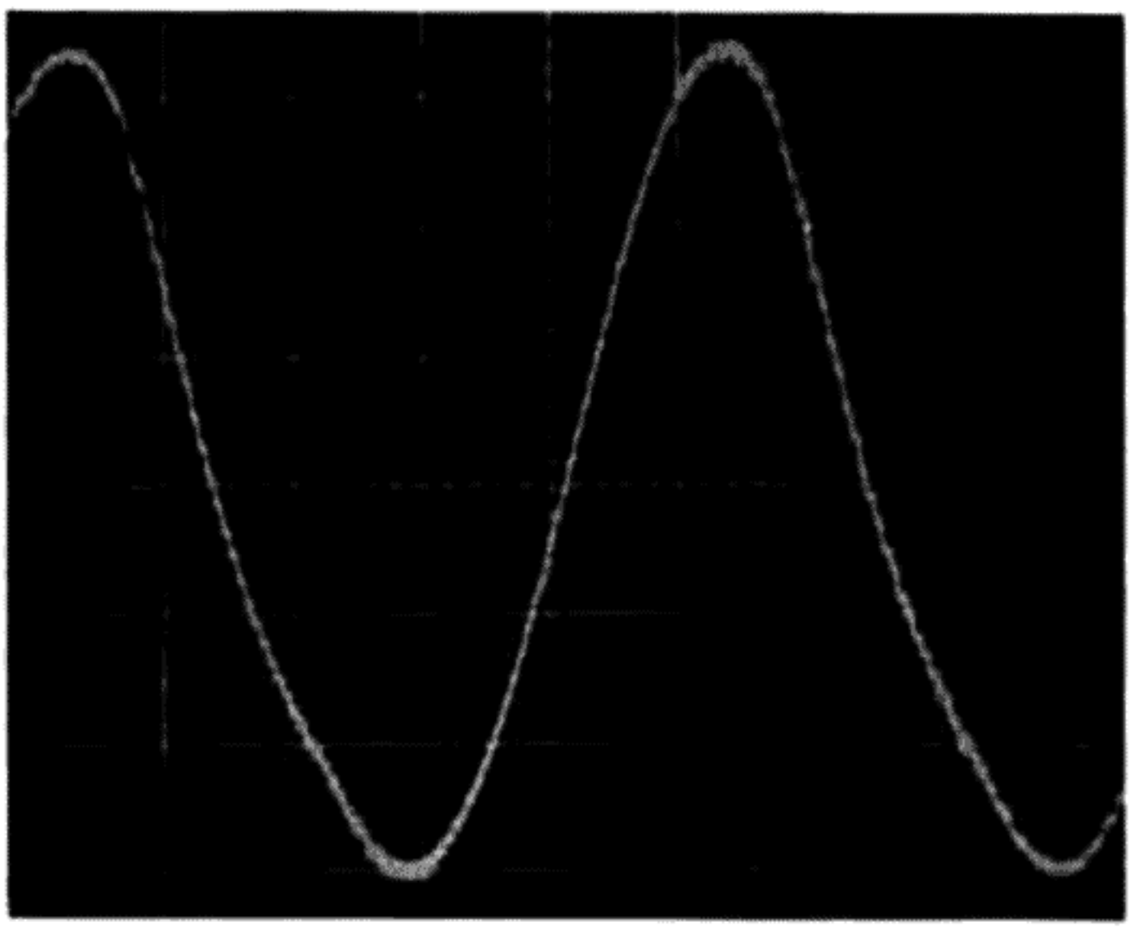


Cartridge output on SR low frequency tracing test using too little stylus force.



Cartridge output on same test with correct stylus force.

amplifier/receiver has a "switched" outlet you may plug your turntable into it. Leave the switch on the turntable in the "on" position, and the unit will turn on and off automatically when the amplifier is turned on and off.

For stereo playback insert the two phono plugs into the right and left phono inputs of your amplifier. The red banded plug goes into the right channel socket. A standard phono/DIN adaptor will be necessary for amplifiers equipped with DIN input sockets.

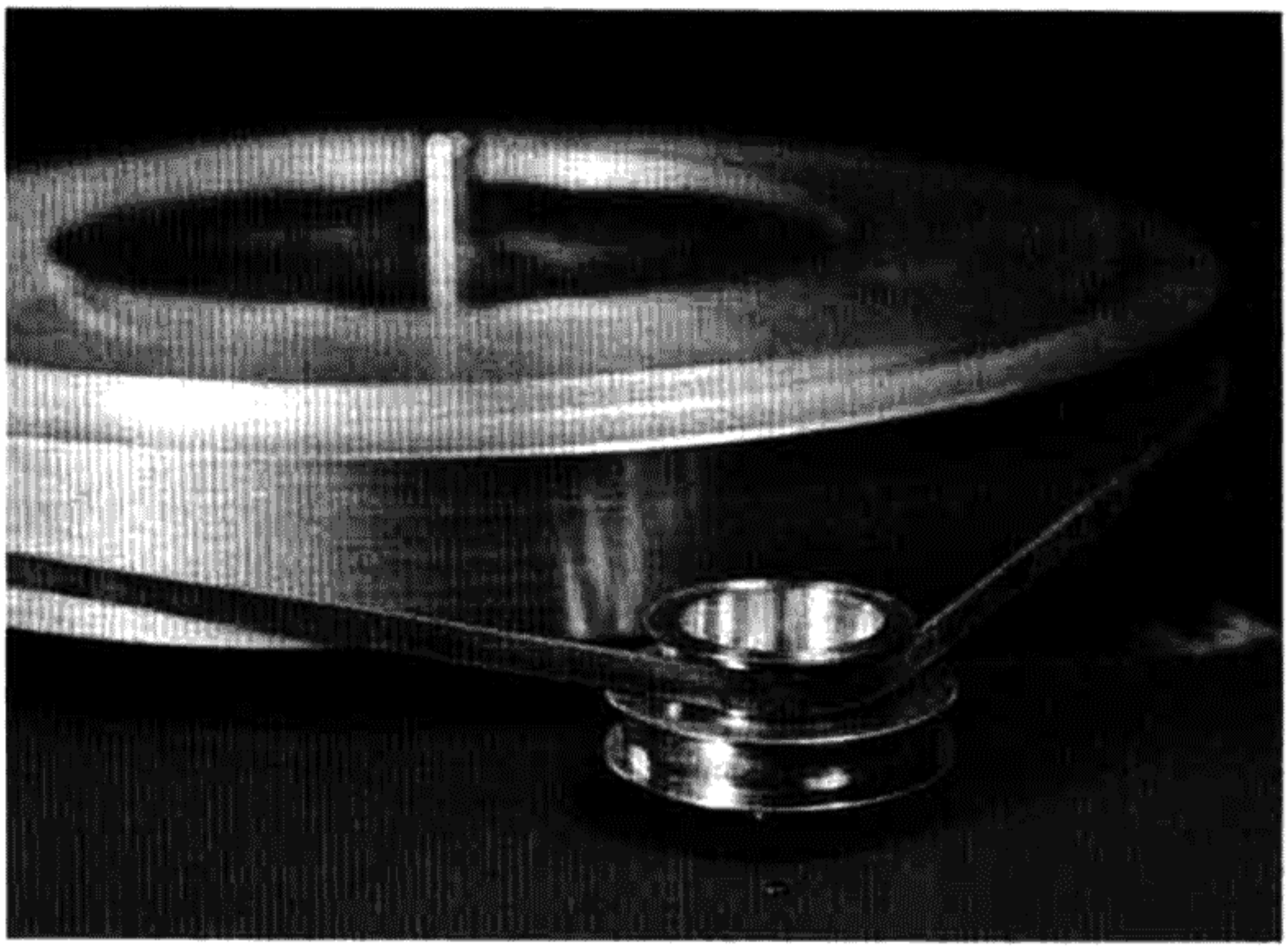
If you are using a stereo cartridge in a monaural system (only one speaker system), a simple method of connecting the turntable is to connect the two phono plugs in parallel with a "Y" adapter, which can then be plugged into the input of the amplifier. If such an adapter is not available, plug the gray connector into the phono input and the red one into any unused input socket.

D. OPERATION

1. Speed

All units are preset for 33⅓ rpm operation. If you wish to change speed to 45 rpm proceed as follows: Lift the outer platter and turntable mat and move the drive belt to the other pulley section. The larger pulley flange is for 45 rpm. (6) Do not try to start the turntable without the outer platter in place or the belt is likely to come off. It is unnecessary to adjust the exact position of the drive belt on the pulley or inner platter; this takes care of itself. Avoid hitting the pulley when removing or replacing the outer platter.

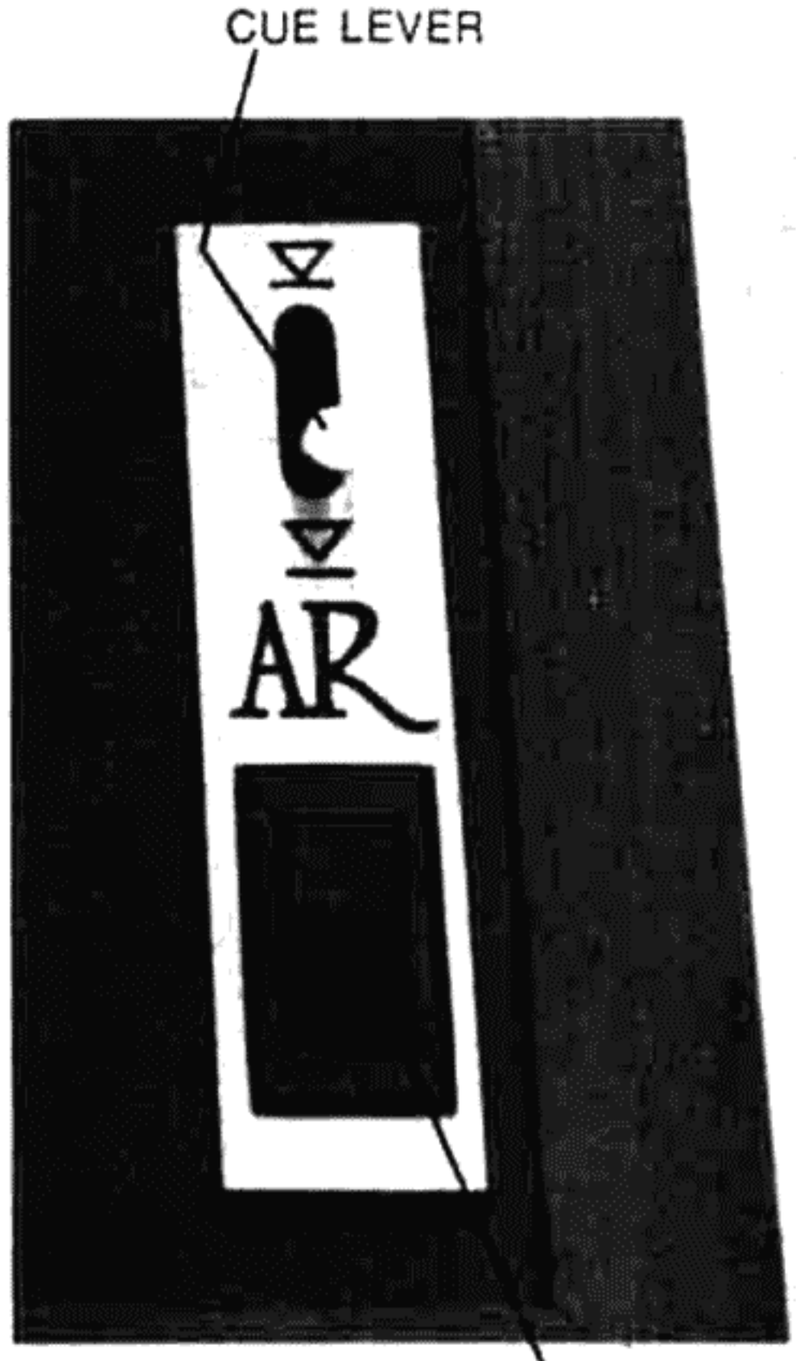
A slight amount of vibration can normally be felt in the drive pulley when the motor is off. This is normal and harmless.



2. Remove protective stylus guard from cartridge.
This may be packed in accessory tray for future use in case the turntable is to be reshipped.

3. Put Record on Turntable
If a 45-rpm record with a large center hole is being played remove the 45 rpm adapter disc from the accessory tray and place it on the turntable center spindle.

4. Turn On
To start unit depress the rocker switch on the right front control panel towards the back of the turntable. (8)



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5. Gently release arm from rest by lifting up.
You may either place the stylus on the record directly or use the cueing mechanism.

6. Use of the Cue Device
The AR model XBI turntable has been designed with an integral viscous damped cue mechanism. (8) This device permits you to raise and lower the arm without touching it.

After you have released the arm from the rest (step 5) move the cue lever toward the front of the turntable ▽. The arm will rise. Gently move the tone arm to the band you want to play. Move the cue lever back to lower the arm ▽.

There is a delayed action in this mechanism which is caused by the damping within the cueing mechanism.

The cueing mechanism may also be used as a "pause" control to interrupt play at any time.

7. At the completion of the record the tone arm will stay in the run-out groove and the turntable will continue to rotate. You should return the arm to its rest post and secure it in place unless you are going to continue to play additional records.

8. To stop unit depress the rocker switch on the control panel towards the front of the turntable. (8)

E. GENERAL INFORMATION

The information which follows, while not required to set up the turntable, should be familiar to the owner.

1. Placement of the turntable
The mounting location of the AR turntable is not at all critical beyond the need to protect the cartridge from hum-inducing fields. Because of the isolation achieved by its suspension

the AR turntable is not sensitive to external shock or acoustic feedback. In order to take advantage of its 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 can sometimes create a problem of groove-jumping; isolating the turntable from the floor by placing it on a wall-mounted shelf will usually cure the most extreme case.

2. Hum from external equipment

It is hardly likely that the AR turntable will ever have "hum" since it is a mechanical device which turns the record while supporting the cartridge.

The electrical signal from the cartridge passes directly into the amplifier through the wires provided, whether the turntable motor is on or off. Some cartridges are sensitive to the fluctuating magnetic fields which surround power transformers in amplifiers, tuners and other equipment. If you encounter such interference, which usually is audible as hum which can be made louder and softer with the amplifier volume control, try changing the relative positions of the turntable and the equipment causing the hum.

Extremely loud hum usually means that a ground connection has been broken (or omitted) somewhere along the way.

3. Record center holes

The National Association of Broadcasters 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 are +0, −0.0005″, with a nominal diameter of 0.2830″.

Some records have center holes smaller than specified by industry standards, and there may be a few which are tight on the spindle of the AR turntable. Usually this is because small scraps of plastic material are left sticking to the record at the edge of the center hole when the record is molded. These scraps can easily be removed by inserting and twisting the point of a pencil in the center hole.

If the spindle of the AR turntable were made undersize, all records would slip on easily, but records made correctly would then be allowed to slip from side to side, causing wow and flutter.

F. ADJUSTMENTS

These adjustments have been preset at the factory and the following information is provided only if readjustments are necessary.

1. Arm Length

The arm is adjusted at the factory to the correct length for cartridges which meet industry dimensional standards. Some cartridges do not conform to these standards, requiring that the arm be lengthened or shortened slightly to play records with least distortion.

After the cartridge has been installed and the outer platter and turntable mat are in place, the arm length can be checked using the plastic guide marked "AIM TOWARD PIVOT" in the accessory tray. Place a record on the turntable and put the hole in the plastic guide over the center spindle of the turntable, aiming the pointed end of the guide at the arm pivot as shown in the photograph (9). If the dimensions of the cartridge are standard and the arm length is correct, the tip of the stylus will fit into the small dimple of the plastic guide. (10) The fit need not be perfect, as long as the stylus comes down anywhere inside the dimple. If the stylus does not rest in the dimple, first check to be sure that the guide is still pointing at the pivot. If it is, then the arm length should be adjusted. To do this, loosen the set screw on the platter side of the pivot assembly (11), and *gently* slide the entire tubular section of the arm forward or backward. *Do not pull hard, or you will jerk the arm out of the mounting and break the arm wires.* If the arm does not move freely, use a slight twisting motion to move it in or out of its mounting.

Be sure to tighten the set screw after adjusting the length.

2. Cueing Mechanism

The rate of descent of the arm is preset at the factory for a

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1 — 3 second drop. If the setting goes out of adjustment, turn the cue cylinder cap under the pivot assembly of the tone arm. The cylinder cap should be turned no more than ½ turn at a time. To increase the rate of descent turn it clockwise; to decrease the rate of descent turn it counterclockwise.

The height of the cueing mechanism may be adjusted by rotating the knurled cap at the top of the cue plunger. To increase height, turn the knurled cap counter-clockwise; to decrease the height, turn clockwise. The knurled cap should rotate about ⅛ turn at a time.

3. Pivot Set Screws

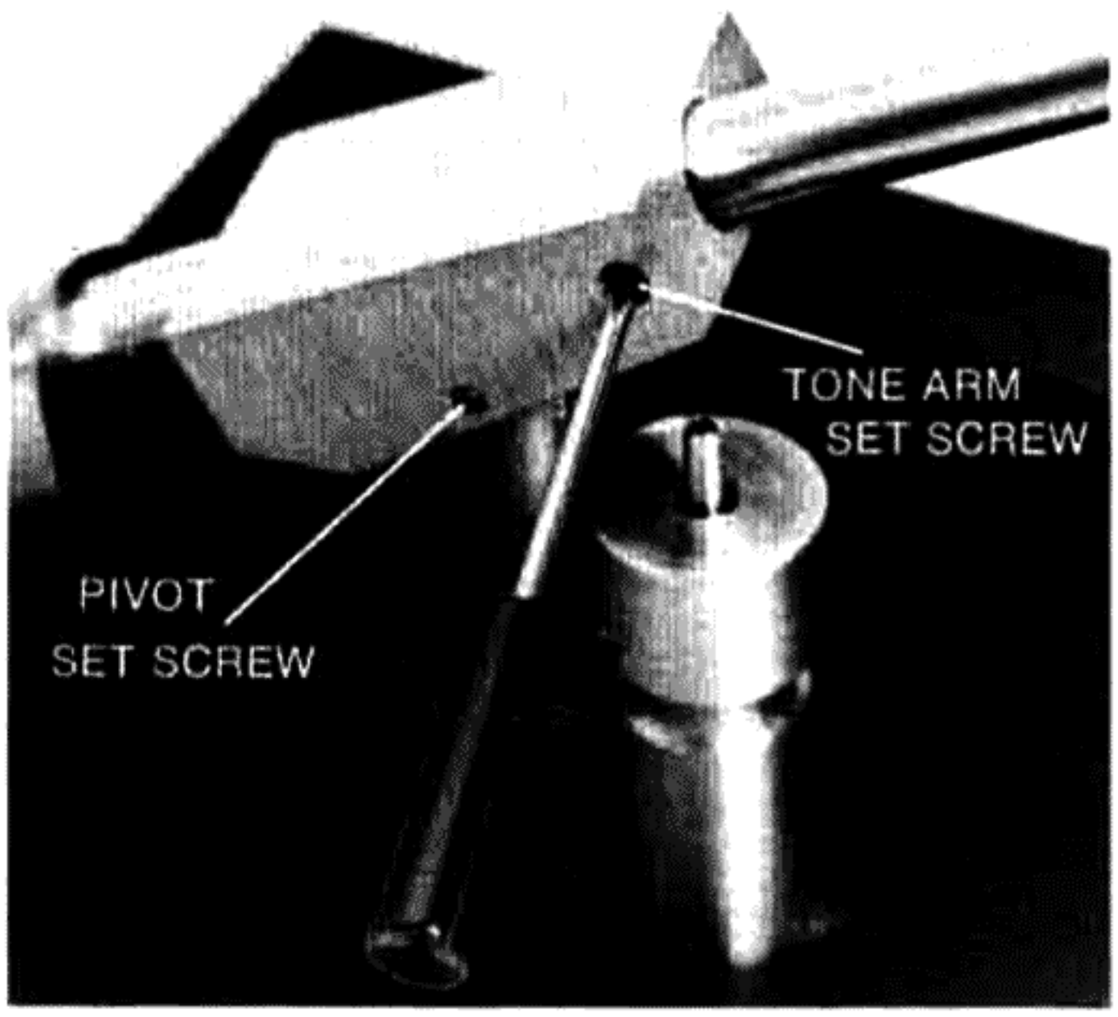
The pivot set screws (12) have been adjusted and secured at the factory for proper operation of the tonearm. There should be no need to touch these screws for the lifetime of the turntable.

The following symptoms may indicate a need for adjustment:

1) If the set screws are too tight the arm will be a little sluggish. The stylus force gauge, for example, will act as though it is sticking.

2) If the pivot set screws are too loose, it will be possible to make the aluminum arm assembly wobble excessively by rocking the pivot assembly from side to side.

If you feel it is necessary to make any adjustments, please contact the factory for instructions or referral to your local repair service station.



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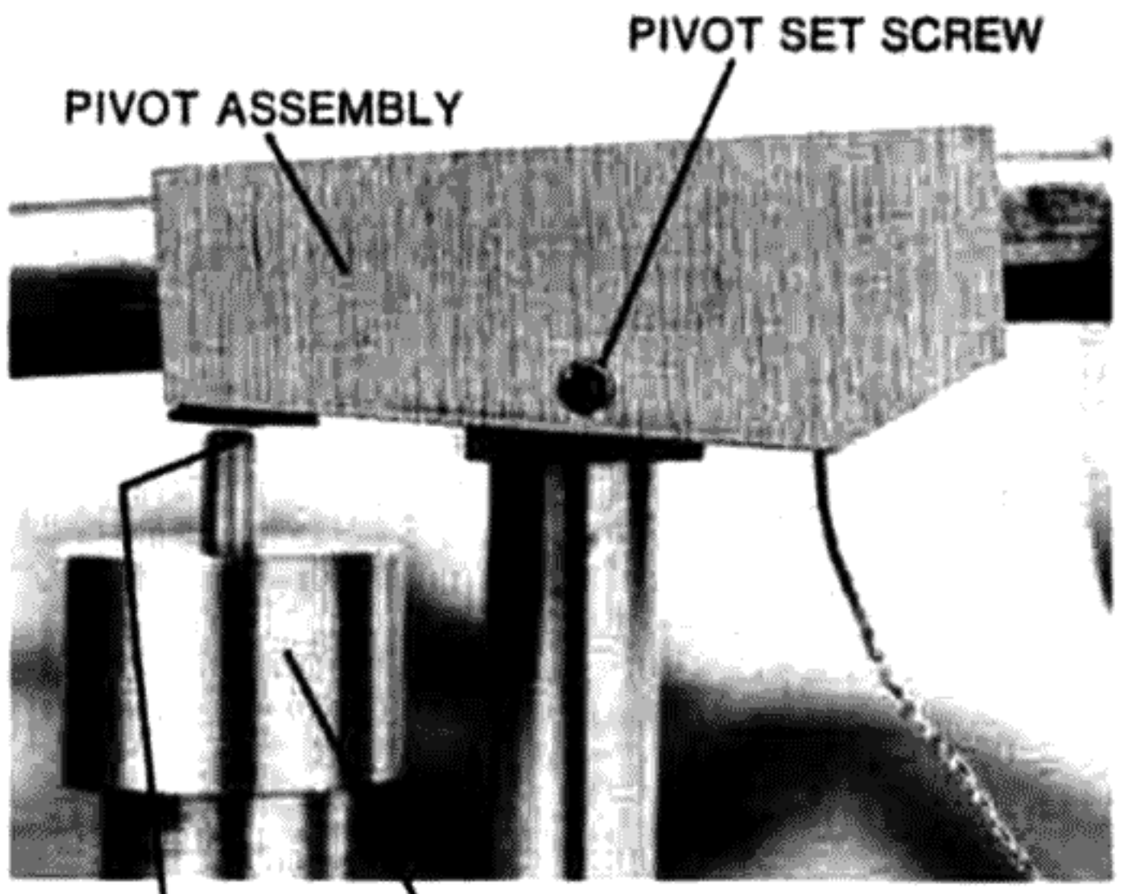

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G. MAINTENANCE

1. Lubrication

Oil is provided in a squeeze bottle packed in the accessory tray. It should be used once a year as follows:

a) Lift the tone arm assembly about ½" and apply a few drops to the top of the spindle where it enters the well. (13)

b) Lift the inner platter straight up about 2" (it is not necessary to take the platter out of the bearing) and put a few drops of oil on the spindle. (14)

Make sure that you do not get oil on the belt. If you do, the belt must be cleaned and powdered as explained under "Cleaning the belt."

If you lose the bottle of oil which comes with the turntable, you can use any #10 machine oil without additives, such as Golden Shell 10W.

2. Cleaning the belt

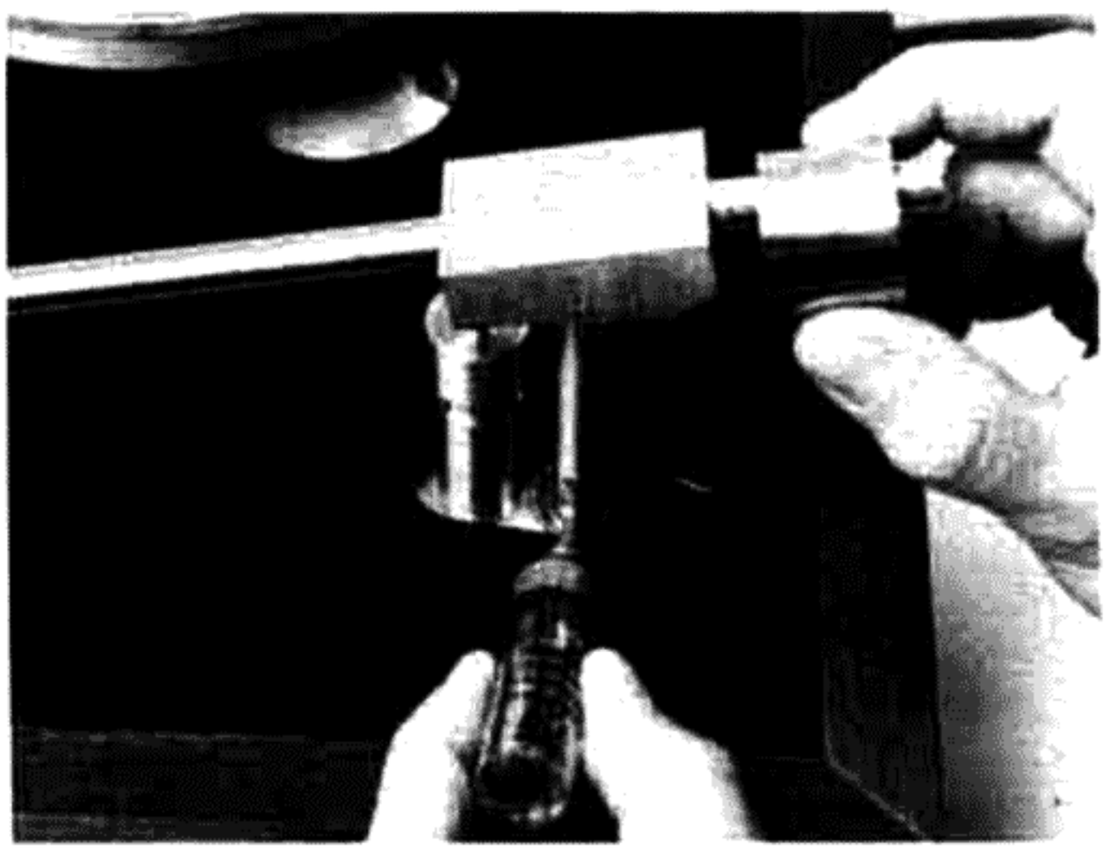
If any oily substance should get on the drive belt, remove the belt and clean it with tissue soaked in methyl alcohol (wood alcohol); rubbing alcohol should *not* be used. The pulley and inner platter surfaces on which the belt rides should also be wiped clean with the alcohol. After the belt is cleaned, dust it in ordinary talcum powder — this is important! Without the talcum powder the turntable will not start properly. We suggest that you clean and powder the belt once each year.

3. Cleaning the dust cover

The cover should be wiped with a dry dust cloth whenever the rest of the furniture is dusted. When it becomes difficult to wipe off fingerprints, or when the surface has accumulated a coating of grime, apply a combination cleaner and wax of good quality and wipe dry according to directions.

To remove severe dirt or grime deposits, the cover should be washed in a solution of lukewarm (not hot) water and mild dishwashing detergent, rinsed in clear cold water, wiped dry, and then waxed as described above.

A clean dust cover will prevent dust from collecting on the record mat, from which it can be transferred by static electricity to the record itself. If used at all times the dust cover will keep the turntable, arm, record mat and record relatively clean and provide protection against accidental damage as well.



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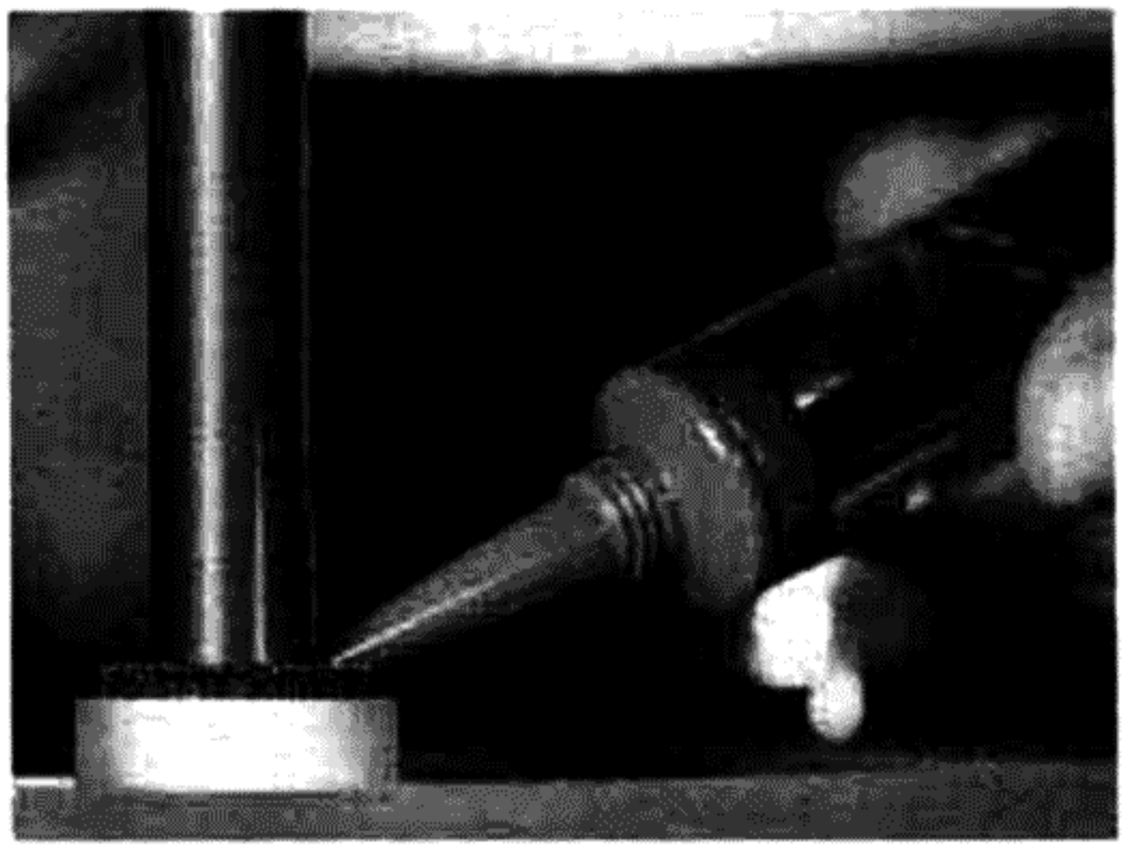

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4. Replacement parts

Replacement turntable parts may be bought directly from AR. Check, money order or cash should accompany the order. The following prices are postpaid within the United States.

Stylus force gauge	$1.25
Cartridge shell & hardware	4.00
Turntable mat	3.00
Dust cover	6.50
Drive belt	3.00
*Pulley for 50Hz line (mains) frequency	4.00

*When ordering this please specify the serial number of your turntable. The serial number will be found on the guarantee card attached to the bottom cover.

WHAT TO DO IN CASE OF CONCEALED DAMAGE

Concealed damage is damage which does not become apparent until the carton has been opened. The contents of the carton may be damaged in transit due to rough or careless handling, even though the exterior appears undamaged.

This AR product was carefully inspected and packed, and left our factory in perfect condition. Any damage which occurred before it reached you must, in all probability, have been caused in transit. Responsibility for safe delivery was assumed by the carrier upon accepting the shipment. Any claims for damage must therefore be made by the receiver against the carrier.

IF THIS WAS DELIVERED BY A TRANSPORTATION COMPANY

Notify that company immediately, make a written request for an inspection, and hold the merchandise and its carton for the inspector. After a joint inspection report is made, file a claim with that company.

If damage has occurred, you may request an "Authorized Return" label from us, advising us of the circumstances. Upon receipt of the label, you should return the turntable to us *prepaid*, after packing it carefully. If you need a new carton, we will be glad to send one on request; the carton price is $3.00. When we have made the repair, we will return the turntable to you collect, with an invoice for the repair charges. You may then use this invoice and the freight receipts as a basis for filing your claim.

IF THIS WAS PICKED UP FROM YOUR LOCAL DEALER

Notify the dealer immediately. He, in turn, should notify the transportation company who delivered it to him, request an inspection, and file a claim. Hold the merchandise and its carton for inspection.

HINTS ON RECORD CARE

Depending entirely on how you treat them, your records may be ruined after two or three playings, or they may be almost like new after you've enjoyed them dozens of times.

Modern pickup cartridges press down on a record with a force that is only a small fraction of an ounce, it is true. Yet because the areas of contact between the needle and record groove walls are so exceedingly small, the pressure developed at these contact points may be thousands of pounds per square inch—enough to deform the record groove surface appreciably. In order to minimize the permanent effects of this deformation (and, accordingly, reduce record wear), your pickup cartridge and arm should be adjusted for the lowest stylus force at *which they will trace heavily-recorded passages well* without buzzes or fuzziness. Further, you should not play any part of a record repeatedly. Give the groove walls a chance to recover from this deformation before playing the record again.

Make it a habit to look at the needle occasionally, to see that it hasn't been bent by rough handling, and that it hasn't accumulated a ball of dust which might interfere with its motion. Bent needles must be replaced immediately; dirty ones should be cleaned by gently coaxing away the dirt with a very soft brush. The needle should be replaced after two years of use, even if it doesn't appear to need it.

Records become warped easily. Severe warping, even if it does not make the record unplayable, accelerates record wear by increasing stylus force on the upward slope of the warp and decreasing it on the downward slope. You can keep warping under control by storing records on edge, in rows of only one record size; keeping moderate sidewise pressure on each row, between flat sufaces; keeping the records aligned in each row; and replacing records in the proper row immediately after playing them.

Perhaps the worst record problem, however, is dust and dirt. Records acquire static charges very easily as they are played. Even the act of removing a record from its jacket can generate a charge on it. When so charged, a record

attracts dust particles from the air and from the turntable mat. These particles settle down in the grooves, whence they are impossible to remove with a cloth—even a damp cloth. When the needle encounters this dirt it makes those familiar crackling sounds in the loudspeaker and, at the same time, grinds up the dirt and roughens the groove walls permanently.

There are many liquids on the market which are supposed to prevent the build-up of static charges on records. Some are claimed to have "lubricating" properties also. Some, if used as directed, build up sludge deposits which do far more harm than good. There are two with which we have had good results; these are the liquid supplied with the Dust Bug, and with that applied by the Disc-Preener (provided it is applied lightly). For further information on these devices, contact Cecil E. Watts Ltd., Darby House, Sunbury on Thames, Middlesex, England.

In addition, it is necessary to remove dirt which settles in the groove even when the record has no significant static charge. This can be done with a brush having bristles shaped specifically for the job, such as the Dust Bug.

Very dirty records can best be cleaned by washing them carefully in a dilute solution of mild dishwashing detergent, rinsing thoroughly, and blotting them dry with a clean turkish towel.

Never touch the groove area with your fingers when handling records. Use only the outer edge and center area. With a little practice you'll find it easy to remove a record from its jacket, play it, and put it back without touching the groove area.

Records should be insulated from the outer packet of heavy cardboard by an inner sleeve of hard, glossy paper, cellophane, or flexible plastic. If you lose or tear the inner sleeve it should be replaced; plastic sleeves for this purpose, and the products listed above, can be bought at many record stores and high-fidelity component dealers.

[1]Allison, Roy F. *High Fidelity Systems: A User's Guide.* (Dover Publications, Inc., New York) 1965

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue	**Neutral**
Brown	**Live**

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

THIS EQUIPMENT MUST BE PROTECTED BY A 3 Amp FUSE

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